Golder Associates Inc.
5100 West Lemon Street
Suite 114
Tampa, FL USA 33609
Telephone: (813) 287-1717
Fax: (813) 287-1716

REPORT ON

SOURCE WATER AND COOLING WATER DATA AND IMPINGEMENT MORTALITY AND ENTRAINMENT CHARACTERIZATION FOR MONROE POWER PLANT

Submitted to:

Detroit Edison
A DTE Energy Company

Detroit Edison Company
2000 2nd Avenue
Detroit, Michigan 48226

Submitted by:

Golder Associates Inc.
5100 West Lemon Street
Suite 114
Tampa, Florida 33609

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SOURCE WATER AND COOLING WATER INTAKE DATA 3
2.1 Source Water Physical Data 3
2.1.1 Source Waterbody Configuration 3
2.1.2 Source Waterbody Hydrology and Flow 3
2.1.2.1 Source Waterbody Water Quality 4
2.1.3 Hydraulic Zone of Influence 5
2.2 Cooling Water Intake Structure Data 6
2.2.1 Configuration 6
2.2.2 Skimmer Wall 6
2.2.3 Trash Racks 7
2.2.4 Traveling Screens 7
2.2.5 Rescue Fish Pump 7
2.2.6 Circulating Water Pumps 7
2.2.7 Flow Distribution 8
2.3 Cooling Water System Data 8
2.3.1 Operation 8
2.3.2 Recirculation System 8

3.0 PROPOSAL FOR INFORMATION COLLECTION 9

4.0 IMPINGEMENT MORTALITY AND ENTRAINMENT CHARACTERIZATION STUDY 10
4.1 Impingement and Entrainment Sampling 10
4.1.1 Impingement Sampling 10
4.1.1.1 Sampling Protocol 10
4.1.1.2 Sample Processing 11
4.1.1.3 Data Analysis 12
4.1.2 Entrainment Sampling 13
4.1.2.1 Sampling Protocol 13
4.1.2.2 Sample Processing 14
4.1.2.3 Data Analysis 14
4.1.3 Water Quality Data 15
4.1.4 Meteorological Data 15
4.2 Results 15
4.2.1 Impingement 15
4.2.1.1 Daily Impingement 15
4.2.1.2 Monthly Flow-Expanded Impingement 16
4.2.2 Entrainment 17
4.2.2.1 Daily Entrainment 17
4.2.2.2 Monthly Flow-Expanded Entrainment 19
4.3 Calculation Baseline 20
4.3.1 Impingement and Entrainment Based on Design Intake Flow 20
4.3.2 Representative Species Selection 21
4.3.2.1 Lake Erie and Detroit River Fishery 21
4.3.2.2 Selecting Representative Species 22
4.3.3 Calculation Baseline — All Species 24

4.3.3.1 Entrainment Calculation Baseline 24
4.3.3.2 Impingement Calculation Baseline 25
4.3.4 Calculation Baseline — Excluding Gizzard Shad 26
4.3.4.1 Impingement Calculation Baseline 26
4.3.5 Calculation Baseline — Representative Species 27
4.3.5.1 Entrainment Calculation Baseline 27
4.3.5.2 Impingement Calculation Baseline 28
4.4 Taxonomic Quality Assurance/Quality Control 29
4.4.1 QA/QC for Fish Impingement Subsampling 29
4.4.2 QA/QC for Larval Fish Identification 29

5.0 SUMMARY 30
5.1 Calculation Baseline 30

6.0 REFERENCES 32

LIST OF TABLES

Table 2-1 Monthly Summary of Water Quality and Air Temperature Data from April 2005 to April 2006 — Monroe Power Plant
Table 2-2 Hydraulic Zone of Influence Calculation — Lake Erie — Monroe Power Plant
Table 4-1 Impingement Sampling Event Dates at Each Screenhouse — Monroe Power Plant
Table 4-2 Fish Taxa Impinged — Monroe Power Plant
Table 4-3 Daily Distribution of Fish Abundance Impingement — Monroe Power Plant
Table 4-4 Daily Distribution of Fish Biomass (kg) Impingement — Monroe Power Plant
Table 4-5 Length Distribution of Fish Impinged — Monroe Power Plant
Table 4-6 Total Daily Distribution of Fish Taxa Impinged at Each Screenhouse — Monroe Power Plant
Table 4-7 Monthly Total of Flow-Expanded Impingement — Abundance — Monroe Power Plant
Table 4-8 Monthly Total of Flow-Expanded Impingement — Biomass (kg) — Monroe Power Plant
Table 4-9 Distribution of Annual Flow-Expanded Impingement at Each Screenhouse — Monroe Power Plant
Table 4-10 Summary of Entrainment Sampling Events — Monroe Power Plant
Table 4-11 Fish Taxa Entrained — Monroe Power Plant
Table 4-12 Entrainment — Total Number by Life Stage per Event Date — Monroe Power Plant
Table 4-13 Entrainment — Daily Distribution of Fish Eggs — Monroe Power Plant
Table 4-14 Entrainment — Daily Distribution of Larval Fish — Monroe Power Plant
Table 4-15 Entrainment — Daily Distribution of Juvenile Fish — Monroe Power Plant
Table 4-16 Length Distribution of Larval and Juvenile Fish Entrained — Monroe Power Plant
Table 4-17 Entrainment — Diel Density of Fish Eggs — Monroe Power Plant
Table 4-18 Entrainment — Diel Density of Larval and Juvenile Fish — Monroe Power Plant
Table 4-19 Distribution of Total Flow-Expanded Entrainment by Life Stage at Each Screenhouse — Abundance — Monroe Power Plant
Table 4-20 Monthly Total of Flow-Expanded Larval and Juvenile Fish Entrainment — Abundance — Monroe Power Plant
Table 4-21 Monthly Total of Flow-Expanded Fish Egg Entrainment — Abundance — Monroe Power Plant

Table 4-22 Distribution of Total Flow-Expanded Entrainment by Screenhouse — Abundance — Monroe Power Plant
Table 4-23 Representative Entrained and Impinged Fish — Monroe Power Plant
Table 4-24 Comparison of Annual Flow-Expanded Entrainment to Maximum Flow-Expanded Entrainment by Life Stage and Screenhouse — Monroe Power Plant
Table 4-25 Monthly Total of Maximum Flow-Expanded Larval and Juvenile Fish Entrainment — Abundance — Monroe Power Plant
Table 4-26 Monthly Total of Maximum Flow-Expanded Fish Egg Entrainment — Abundance — Monroe Power Plant
Table 4-27 Comparison of Annual Flow-Expanded Impingement Numbers and Biomass to Maximum Flow-Expanded Impingement Numbers and Biomass by Screenhouse — Monroe Power Plant
Table 4-28 Monthly Total of Maximum Flow-Expanded Impingement — Abundance — Monroe Power Plant
Table 4-29 Monthly Total of Maximum Flow-Expanded Impingement — Biomass (kg) — Monroe Power Plant
Table 4-30 Monthly Total of Maximum Flow-Expanded Impingement Excluding Gizzard Shad Susceptible to Temperature-Induced Stress — Abundance — Monroe Power Plant
Table 4-31 Monthly Total of Maximum Flow-Expanded Impingement Excluding Gizzard Shad Susceptible to Temperature-Induced Stress — Biomass (kg) — Monroe Power Plant
Table 4-32 Monthly Total of Maximum Flow-Expanded Entrainment of Larval and Juvenile Fish of Representative Species — Abundance — Monroe Power Plant
Table 4-33 Monthly Total of Maximum Flow-Expanded Entrainment of Fish Eggs of Representative Species — Abundance — Monroe Power Plant
Table 4-34 Monthly Total of Maximum Flow-Expanded Impingement of Fish Considered Representative Species — Abundance — Monroe Power Plant
Table 4-35 Monthly Total of Maximum Flow-Expanded Impingement of Fish Considered Representative Species — Biomass (kg) — Monroe Power Plant

LIST OF FIGURES

Figure 2-1 Monroe Power Plant — Site Aerial
Figure 2-2 Monroe Power Plant — Site Topographic Map
Figure 2-3 Monroe Power Plant — Site Location Map
Figure 2-4 Monroe Power Plant — Monthly Mean Intake Water Temperature (°C)
Figure 2-5 Monroe Power Plant — Hydraulic Zone of Influence
Figure 2-6 Monroe Power Plant — Cooling Water Intake Canal
Figure 2-7 Monroe Power Plant — CWIS Screenhouse Plan View
Figure 2-8 Monroe Power Plant — Traveling Screen Profile
Figure 2-9 Monroe Power Plant — Monthly Average and Maximum Withdrawals
Figure 2-10 Monroe Power Plant — Daily Withdrawals (April 1, 2005 to May 31, 2006)
Figure 2-11 Flow Distribution and Water Balance Diagram — Monroe Power Plant
Figure 4-1 Impingement — Daily Total Abundance of All Taxa — Monroe Power Plant
Figure 4-2 Impingement — Daily Total Biomass (kg) of All Taxa — Monroe Power Plant
Figure 4-3 Impingement — Daily Abundance of Dominant Fish — Monroe Power Plant
Figure 4-4 Impingement — Daily Biomass (kg) of Dominant Fish — Monroe Power Plant
Figure 4-5 Impingement — Daily Biomass (kg) of Dominant Fish by Biomass — Monroe Power Plant

Figure 4-6 Impingement — Daily Abundance of Dominant Fish by Biomass — Monroe Power Plant
Figure 4-7 Total Monthly Flow-Expanded Impingement — Abundance — Monroe Power Plant
Figure 4-8 Total Monthly Flow-Expanded Impingement — Biomass (kg) —Monroe Power Plant
Figure 4-9 Entrainment — Daily Total Abundance — Monroe Power Plant
Figure 4-10 Entrainment — Daily Total Abundance of Fish Eggs — Monroe Power Plant
Figure 4-11 Entrainment — Daily Total Abundance of Fish Larvae — Monroe Power Plant
Figure 4-12 Entrainment — Daily Total Abundance of Juvenile Fish — Monroe Power Plant
Figure 4-13 Entrainment — Daily Fish Egg Abundance by Taxa — Monroe Power Plant
Figure 4-14 Entrainment — Daily Larval Fish Abundance by Taxa — Monroe Power Plant
Figure 4-15 Entrainment — Daily Juvenile Fish Abundance by Taxa — Monroe Power Plant
Figure 4-16 Entrainment — Diel Distribution of Fish Egg Densities — Monroe Power Plant
Figure 4-17 Entrainment — Diel Distribution of Larval and Juvenile Fish Densities — Monroe Power Plant
Figure 4-18 Total Flow-Expanded Entrainment of Larval and Juvenile Fish — Abundance — Monroe Power Plant
Figure 4-19 Total Flow-Expanded Entrainment of Fish Eggs — Abundance — Monroe Power Plant
Figure 4-20 Total Flow-Expanded Entrainment of Species by Life Stage — Abundance — Monroe Power Plant
Figure 4-21 Entrainment — Number of Larval and Juvenile Fish Entrained Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-22 Entrainment — Percent of Total Number of Larval and Juvenile Fish Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-23 Entrainment — Number of Fish Eggs Entrained Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-24 Entrainment — Percent of Total Number of Fish Eggs Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-25 Impingement — Number of Live and Recently Dead Fish Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-26 Impingement — Biomass (kg) of Live and Recently Dead Fish Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-27 Impingement — Percent of Total Number of Live and Recently Dead Fish Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-28 Impingement — Percent of Total Biomass of Live and Recently Dead Fish Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-29 Impingement — Number of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-30 Impingement — Biomass (kg) of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-31 Impingement — Percent of Total Number of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-32 Impingement — Percent of Total Biomass of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Expanded to Maximum Design Flow — Monroe Power Plant

Figure 4-33 Entrainment — Number of Larval and Juvenile Fish Considered Representative Species Entrained Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-34 Entrainment — Percent of Total Number of Larval and Juvenile Fish Considered Representative Species Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-35 Entrainment — Number of Fish Eggs Considered Representative Species Entrained Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-36 Entrainment — Percent of Total Number of Fish Eggs Considered Representative Species Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-37 Impingement — Number of Live and Recently Dead Fish Considered Representative Species Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-38 Impingement — Biomass (kg) of Live and Recently Dead Fish Considered Representative Species Impinged Daily Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-39 Impingement — Percent of Total Number of Live and Recently Dead Fish Considered Representative Species Expanded to Maximum Design Flow — Monroe Power Plant
Figure 4-40 Impingement — Percent of Total Biomass of Live and Recently Dead Fish Considered Representative Species Expanded to Maximum Design Flow — Monroe Power Plant

LIST OF APPENDICES

Appendix A Hydraulic Zone of Influence in an Open Body of Water
Appendix B Monroe Power Plant Fish Entrainment and Impingement Study Report

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) promulgated regulations under Section 316(b) of the Clean Water Act (CWA) requiring that the location, design, construction, and capacity of cooling water intake structures (CWIS) reflect the best technology available (BTA) for minimizing adverse environmental impacts to aquatic organisms (Federal Register [FR], 2004). The 316(b) Phase II rule established performance standards for applicable existing electric generating facilities based on the type of waterbody in which the intake structure is located, the volume of water withdrawn, and the facility's capacity utilization rate.

A facility must meet the following criteria in order for the provisions of the 316(b) Phase II rule to be applicable:

1) The facility must be an existing facility;
2) The facility must be a point source;
3) The facility must generate and transmit electric power as its primary activity;
4) The facility must have a National Pollutant Discharge Elimination System (NPDES) permit;
5) The facility must use at least 25 percent of its water volume withdrawn for cooling purposes, measured on an average annual basis; and
6) The facility must have a total design intake flow of 50 million gallons per day (MGD) or more, withdrawing cooling water from waters of the United States.

The 316(b) Phase II rule applies to the Monroe Power Plant. However, on January 25, 2007, the United States Court of Appeals, Second Circuit, remanded most key provisions of the Phase II rule back to the EPA. Subsequently, on July 9, 2007, suspension of the rule was published in the Federal Register (FR, 2007).

The Michigan Department of Environmental Quality (MDEQ) has established a program to proceed toward compliance with the regulations under Section 316(b) of the CWA. The purpose of the program is to establish the BTA for minimizing adverse environmental impacts associated with the operation of existing CWIS.

The MDEQ has requested that the Detroit Edison Company submit information regarding source water physical data, CWIS data, and cooling water system data summarized in an Impingement

Mortality and/or Entrainment Characterization Study Report on or before July 31, 2008. This document contains the requested information.

2.0 SOURCE WATER AND COOLING WATER INTAKE DATA

The Monroe Power Plant is located on the western shore of Lake Erie between Brest and La Plaisance Bays, and straddles the boundary line between the City of Monroe and Frenchtown Township in Monroe County, Michigan (Figures 2-1, 2-2, and 2-3). The Monroe Power Plant is a four-unit coal-fired facility rated at an expected net capacity of 3,080 megawatts (MW). Unit 1 first generated power in May 1971, and Units 2, 3, and 4 followed at approximately 1-year intervals: June 1972, March 1973, and May 1974, respectively. Each unit contains a Babcock & Wilcox Company universal-pressure, balanced-draft steam generator that produces 3,800 pounds per square inch gauge (psig)/1,000 degrees Fahrenheit (°F) of steam at the superheater outlet under rated conditions. Annual average capacities for the past five years (2003 – 2007) are 70.5 percent, 64.3 percent, 62.2 percent, and 74.5 percent, for Units 1, 2, 3, and 4, respectively.

2.1 Source Water Physical Data

2.1.1 Source Waterbody Configuration

The source waterbodies for the Monroe Power Plant are the River Raisin and Lake Erie. The plant is located near the confluence of the River Raisin and Lake Erie approximately 38 miles (mi) southeast of Detroit, Michigan (Figures 2-2 and 2-3).

Lake Erie is the fourth largest of the five Great Lakes, with a surface area of approximately 9,910 square miles (mi^2), a mean depth of 62 feet (ft), and a maximum depth of 210 ft (EPA and Government of Canada, 1995). Lake Erie is naturally divided into three basins: the western basin, the central basin, and the eastern basin. The western basin is very shallow and has an average depth of 24 ft, while the central basin is more uniform in depth, with an average depth of 60 ft (Lake LaMP Work Group, 2006). The eastern basin is the deepest basin, with an average depth of 82 ft and a maximum depth of 210 ft (Lake LaMP Work Group, 2006). The Detroit River is the primary source of water into Lake Erie. Water in Lake Erie is discharged primarily through the Niagara River, and to a lesser extent, the Welland Canal, the navigation channel connecting Lakes Erie and Ontario (Wilcox *et al.*, 2007).

2.1.2 Source Waterbody Hydrology and Flow

Prior to construction of the Monroe Power Plant, the River Raisin meandered across the site, dividing it in half. In 1930, the River Raisin was widened and deepened to accommodate large vessels. The

River Raisin drains over 1,000 mi^2 and has a mean annual flow of approximately 753 cubic feet per second (cfs) (Period of Record 1937 – 2007; U.S. Geological Survey [USGS], 2008). Several phenomena affect Lake Erie outflow, including wind set-up and seiche, ice floes, ice jams, anchor ice, and seasonal aquatic plant growth in the Niagara River (Neff and Nicholas, 2005). Monthly Lake Erie outflow has averaged approximately 210,000 cfs since outflow records have been recorded (Neff and Nicholas, 2005).

In the vicinity of the Monroe Power Plant, the lake bottom slopes gently to the east and reaches a depth of approximately 16 ft about 1-1/2 miles offshore. The intake pumping of the plant, combined with the varying flows of the River Raisin, creates a circulation pattern which results in Lake Erie water being drawn into the River Raisin and then into the plant. A large portion of the cooling water is withdrawn from Lake Erie because of the proximity of the intake canal to Lake Erie, and the large volume of water required for cooling operations at the Monroe Power Plant facility (EPA, 2002).

2.1.2.1 Source Waterbody Water Quality

Lake Erie is the shallowest of the Great Lakes and has 90 percent ice cover in an average year (Neff and Nicholas, 2005). Lake Erie experienced accelerated eutrophication from the 1950s to the 1970s, which resulted in much of the central basin becoming anoxic (Lake LaMP Work Group, 2006). An increase in industry and the formulation of new pesticides caused concern about contaminants and the accumulation of persistent toxic chemicals in Lake Erie's water, sediment, and wildlife (Lake LaMP Work Group, 2006). As a result, pollution control regulations were developed, treatment techniques were improved, more-stringent water quality standards were enacted, and production and use of certain chemicals were banned, all of which have reduced the contaminants discharged into the lake (Lake LaMP Work Group, 2006).

Based on recent temperature monitoring data (April 2005 – April 2006) collected during a biological sampling study, monthly average water temperatures at the intake of the Monroe Power Plant ranged from 3.44 degrees Celsius (°C) in December 2005 to 27.07°C in July 2005 (Table 2-1 and Figure 2-4). Conductivity monitoring data were collected during the same time frame (April 2005 – April 2006). Conductivity monthly averages ranged from 301.31 micro-siemens per centimeter (µS/cm) in October 2005 to 599.17 µS/cm in January 2006 (Table 2-1).

2.1.3 Hydraulic Zone of Influence

The Hydraulic zone of influence (HZI), sometimes called the "area of influence" (40 Code of Federal Regulations [CFR] 122.21(r)(2)(ii)), the "zone of potential involvement" (EPA, 1977), or simply the "zone of influence," is that portion of the source waterbody hydraulically affected by the CWIS's withdrawal of water.

The input values and the calculated dimensions of the HZI for the CWIS located on River Raisin near the shoreline and in proximity to Lake Erie are shown in Table 2-2. This table provides results for two River Raisin flow conditions, two mean ambient velocity ($\boldsymbol{V_{ma}}$) conditions, and one design intake flow condition. The two River Raisin flow conditions are:

1) Average mean annual flow (753.07 cfs); and
2) Zero flow.

The two ambient mean velocity conditions in Lake Erie are:

1) Low ambient mean velocity ($\boldsymbol{V_{ma}}$) of 0.10 foot per second (ft/s); and
2) High ambient mean velocity ($\boldsymbol{V_{ma}}$) of 0.30 ft/s.

The maximum design intake flow condition is:

1) Maximum Daily Average (2,056.32 MGD or 3,181.60 cfs)

The radial distance of the HZI-line within Lake Erie ($\boldsymbol{R_{HZI}}$) is determined by continuity. The maximum radial distance to the stagnation point limit or dividing line of the HZI is determined using potential flow theory by equating the mean ambient wind-induced velocity to the velocity that would be induced by the intake in still water (Appendix A).

Conceptually, the HZI-line is the dividing line between water that is influenced primarily by ambient wind-induced currents and water that is primarily influenced by flow to the intake. Since the average mean annual flow of the River Raisin is less than the maximum daily average design intake flow, the entire width of River Raisin upstream of the intake canal is within the HZI (Figure 2-5). Water beyond the supply provided by River Raisin flow is provided by Lake Erie. As such, the portion of River Raisin downstream of the intake canal to Lake Erie is also within the HZI.

The location of the HZI-line within Lake Erie will change with varying River Raisin flows, wind conditions, varying lake water levels, and changes in lake bottom elevations (associated with sediment deposition and dredging activities), and therefore, with time. Under extreme low River Raisin flows, the HZI will increase and the HZI-line will move away from the shoreline. The maximum $\boldsymbol{R_{HZI}}$ value based on no River Raisin flow and low mean ambient velocity is 1,444 ft (Table 2-2). Consequently, outside the HZI-line defined by these conditions, the probability of entraining non-motile organisms remains low most of the time (Figure 2-5). Under moderate River Raisin flow conditions (average mean annual flow), the HZI will decrease and the HZI-line will move closer to the shoreline (Figure 2-5). The minimum $\boldsymbol{R_{HZI}}$ value based on a moderate River Raisin flow and a high mean ambient velocity is 367 ft (Table 2-2). Consequently, inside the HZI-line defined by these conditions, the probability of entraining non-motile organisms remains high most of the time (Figure 2-5). Between these HZI lines defined by combined low River Raisin flows and low wind-induced velocities or combined moderate River Raisin flows and high wind-induced velocities, the probability of entraining non-motile organisms is moderate and variable.

2.2 Cooling Water Intake Structure Data

2.2.1 Configuration

Water used for once-through cooling at the Monroe Power Plant is withdrawn from the River Raisin and Lake Erie through an intake canal approximately 700 ft long with a width between 36 ft and 107 ft (Figure 2-6). The canal branches to provide a water source to the two screenhouses, SH1 and SH2 (Figure 2-6). Each screenhouse is divided into two cells, each with four screenwells, which serve individual units. SH1 serves Units 1 and 2, and SH2 serves Units 3 and 4 (Figure 2-6).

Each screenhouse contains a skimmer wall, trash racks, traveling screens, circulating water pumps, warm water recirculation canals, and chlorine diffuser as described below (Figures 2-7 and 2-8). The following sections detail the various components of the CWIS structure.

2.2.2 Skimmer Wall

A concrete skimmer wall is located perpendicular to the intake water flow, approximately 20 ft downstream from the trash racks and 10 ft upstream of the traveling screen (Figures 2-7 and 2-8). It extends from the floor line of the screenhouse to approximately 14 ft from the bottom of the intake canal. This skimmer wall prevents the passage of ice and large floating objects into the plant intake.

2.2.3 Trash Racks

Each screenhouse contains eight trash racks located upstream of the traveling screens (Figures 2-7 and 2-8). Each trash rack is 11.7 ft wide and consists of vertical parallel steel bars that are spaced 3 inches (in.) apart to prevent large debris and foreign objects from entering the screenhouse.

2.2.4 Traveling Screens

Each intake screenhouse contains eight vertical traveling screens manufactured by the Link-Belt Company (Figures 2-7 and 2-8). Each screen is 10 ft wide and mounted on approximately 34-ft centers. The screen surface consists of 10-ft-by-2-ft panels fitted with stainless steel wire screen cloth with 3/8-in. square openings. The screens are operated automatically on an intermittent basis depending on the pressure differential.

2.2.5 Rescue Fish Pump

A fish rescue (pump) system that had been installed several years ago is no longer operating because of its deteriorated condition.

2.2.6 Circulating Water Pumps

Twelve main circulating pumps (three for each unit) manufactured by the Ingersoll-Rand Company are located in the intake screenhouses downstream of the traveling screens and general service water (GSW) pumps. Each pump is a fixed speed, vertical, non-pullout, single-stage, submerged wet pit type with a rated capacity of 116,500 gallons per minute (gpm). In addition, six general service pumps (three for each screenhouse) manufactured by Layne and Bowler supply a capacity of 5,000 gpm each. If all pumps were operational at maximum design capacity, the Monroe Power Plant could withdraw 1,428,000 gpm from the River Raisin and Lake Erie. The number of pumps operating varies with season and unit availability (Figures 2-9 and 2-10).

Screenhouse/Unit	Pump Capacity (gpm)
SH1	
Unit 1	3@116,500
Unit 2	3@116,500
Service Water	3@5,000
SH2	
Unit 3	3@116,500
Unit 4	3@116,500
Service Water	3@5,000

Condenser Circ.	1,398,000
Service Water	30,000
Total	**1,428,000**

2.2.7 Flow Distribution

The maximum design intake flow for the Monroe Power Plant is 2,056.32 MGD, which represents four times the mean annual flow of the River Raisin (Figure 2-9). The facility's flow distribution and water balance are depicted in Figure 2-11.

2.3 Cooling Water System Data

2.3.1 Operation

The condenser cooling water from all four units is discharged to a common overflow canal, approximately 1,000 ft long with varying widths and constant bottom elevation. Just north of the East Front Street Bridge, the overflow canal terminates at the recirculation gates. At this location, the thermal discharge can be directed either south through the discharge canal (approximately 5,800 ft long and 560 ft wide) to Lake Erie or north through the MacMillan Road canal (approximately 1,400 ft long and 160 ft wide) to the River Raisin.

2.3.2 Recirculation System

In order to prevent icing at the screenhouses during the winter, a portion of the heated effluent is used to increase the intake water temperatures. Approximately 20 percent of the discharge condenser cooling water can be directed through the MacMillan Road canal to the intake canal via the Raisin River. Additional cooling is not provided at the Monroe Power Plant.

3.0 PROPOSAL FOR INFORMATION COLLECTION

Detroit Edison submitted a Proposal for Information Collection (PIC) to MDEQ on October 31, 2006. The PIC provided a description of the information that would be used to support the Comprehensive Demonstration Study (CDS) for the Monroe Power Plant. The PIC included a description of the current and proposed technologies, operational measures, and/or restoration measures that would be considered during the CDS process; a list and a description of historical studies that were conducted to characterize impingement and entrainment in the vicinity of the facility; a summary of any past or ongoing consultations with appropriate fish and wildlife agencies that are relevant to the CDS; and a sampling plan for any new field studies proposed to be conducted in order to ensure that the permittee has sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment (IM&E) at the Monroe Power Plant.

4.0 IMPINGEMENT MORTALITY AND ENTRAINMENT CHARACTERIZATION STUDY

The specific components of an IM&E characterization study are:

- Taxonomic identification of all life stages of fish, shellfish (if required), and any species protected under federal, state, or tribal law (including threatened or endangered [T&E] species) that are in the vicinity of the CWIS and are susceptible to IM&E;
- A characterization of all life stages of fish, shellfish (if required), and any species protected under federal, state, or tribal law (including T&E species), including a description of their abundance and temporal and spatial characteristics in the vicinity of the CWIS, based on sufficient data to characterize annual, seasonal, and diel variations in IM&E. Historical data that are representative of the current operation of the facility and of biological conditions at the site may be used if appropriate; and
- Documentation of the current IM&E of all life stages of fish, shellfish (if required), and any species protected under federal, state, or tribal law (including T&E species) identified above and an estimate of IM&E to be used as the "calculation baseline."

The Monroe Power Plant Fish Entrainment and Impingement Study Report in Appendix B provides the results of the impingement sampling and entrainment sampling from April 2005 to April 2006 conducted at the Monroe Power Plant.

4.1 Impingement and Entrainment Sampling

The objectives of the sampling plan were to identify and quantify the current levels of fish impinged on the traveling screens and entrained through the CWIS during normal plant operations. Sampling for shellfish was not required at the Monroe Power Plant.

4.1.1 Impingement Sampling

The objective of the screen impingement sampling was to estimate the number, taxonomic composition, and biomass of fish impinged on the intake traveling screens.

4.1.1.1 Sampling Protocol

Impingement sampling was conducted twice per week for a 12-month period (104 sampling events) from April 2005 to April 2006. Impingement sampling was conducted over a 24-hour period at each

of the two screenhouses using the protocol specified by Golder Associates (Golder) (2004).). This sampling plan was subsequently revised in accordance with a memorandum of understanding that was developed based on February 7, 2005 discussions between Detroit Edison Company and the MDEQ. The sampling plan also incorporated modifications identified in a May 17, 2005 Detroit Edison Company e-mail to the MDEQ. In each screenhouse, impinged fish were washed from the traveling screens into a sluiceway and sluiced to a conveyor belt, which deposited the fish into a dump truck for a 24-hour period. At the end of the 24-hour period, all fish were removed from the truck.

For large collections, fish and debris were mixed evenly and spread over the entire area of the truck bed. Eight depth measurements were recorded and the total volume of the impinged sample was determined by multiplying the area of the truck bed by the average depth of the impinged sample. Subsamples of the fish/debris mixture were randomly collected at various locations within the truck bed and placed in 5-gallon (gal) containers. Estimates of the numbers and weights of impinged fish were determined using the volumes of fish/debris processed in the subsamples and the total volume of the impinged sample in the truck.

4.1.1.2 Sample Processing

At the end of each sampling period, fish were identified to the lowest practicable taxonomic level, sorted (typically by species), and enumerated. If there were two distinct size groups of a particular species (such as young-of-the-year and older), then each size group was treated as a separate species. The batch weight (grams [g] or kilograms [kg], depending on the number of fish) was obtained for each species (or size group).

Up to 100 fish per species or size group were individually measured for length (total length [TL], millimeters [mm]). If there was a broad distribution in length for a particular species, then individual weights (g or kg) were also obtained for each fish. For sample sizes greater than one hundred, 100 fish were randomly selected for measurements to ensure representation of the size distribution in the sample.

When sample size and debris load permitted, the initial condition of the fish was recorded after the fish had been held for 15 – 30 minutes in a holding tank. Condition was assessed using the criteria developed by White (1986):

Alive and Healthy: Fish visibly in excellent condition, swimming upright with good coordination and speed. Fish avoid attempts at capture and struggle when handled.

Alive but Stressed: Fish visibly stressed, swimming poorly, or barely moving. Internal examination would exhibit a heartbeat even though the fish is immobile.

Recently Dead: Fish with eyes clear, gills red, and body mucus layer fresh and intact. The flesh is firm. All fish that look like they may have been alive just prior to sampling are included in this category.

Long Dead: This category includes all dead fishes that have been dead for more than several hours. The eyes are cloudy, body mucus spotty or nonexistent, gills very light pink or white. The body is in rigor mortis and coloration has paled. For some fish the body texture is softer than in living or recently dead specimens. In some cases, individuals have obviously been dead for more than 24 hours, often days. The body is extremely soft and partially decomposed. The body color is completely gone, and often the specimen will be covered with decomposer fungi and bacteria.

4.1.1.3 Data Analysis

Impingement data were converted to a 24-hour collection period by adjusting for sampling time, the number of screens turned, and/or subsampling (if required). To calculate the base density of impinged fish ($\rho_{i\text{-}base}$), the number impinged during each sampling period was divided by the corresponding volume through each screenhouse[1]. This is expressed as:

$$\rho_{i\text{-}base} = N_i / V_i$$

where:

$\rho_{i\text{-}base}$ = Base impingement density (#/MGD)

N_i = Number of fish impinged

V_i = Volume of impingement sample (MGD)

[1] Circulating water pumps in operation during entrainment and impingement sampling are summarized in Appendix B. Daily cooling water flow volumes in MGD were estimated at 161 MGD per circulating water pump and are summarized in Appendix B. The total cooling water volumes for the plant were obtained from the Monroe Power Plant Discharge Monitoring Report (DMR). GSW volumes were obtained from the DMR for the Monroe Power Plant and are summarized in Appendix B.

Mean daily impingement densities were multiplied by weekly plant flow volumes to obtain impingement abundance estimates for each week. Weekly impingement estimates were summed over the month to obtain monthly impingement estimates. In addition to monthly impingement estimates for cooling water flow, abundance estimates of individuals and biomass for GSW flow discharged were obtained by multiplying the average monthly density based on cooling water volume (total number of individuals and/or biomass of organisms estimated for the month/total cooling water volumes for the month discharged) by the total GSW volume discharged for the month.

4.1.2 Entrainment Sampling

The objective of the entrainment sampling program was to identify and quantify the ichthyoplankton in the intake water that pass through the screens and are entrained through the CWIS during normal plant operations. Fauna vulnerability to entrainment is related to their size but generally includes fish eggs, larvae, and small juveniles. Data collected within this sampling program were used to identify temporal trends in entrainment abundance and to calculate the baseline.

4.1.2.1 Sampling Protocol

Entrainment sampling was conducted at the discharge canal of the Monroe Power Plant, using the sampling plan developed for the Monroe Power Plant PIC (Golder, 2004). This sampling plan was subsequently revised in accordance with a memorandum of understanding that was developed based on February 7, 2005 discussions between Detroit Edison Company and the MDEQ. The sampling plan also incorporated modifications identified in a May 17, 2005 Detroit Edison Company e-mail to the MDEQ.

Entrainment sampling occurred over a 24-hour period with samples being collected every 4 – 6 hours (day, dusk, night, dawn). Four replicate samples were collected during each day, dusk, night, and dawn period. Sample volumes were expected to represent 20 to 55 cubic meters (m^3) of filtered water. Total sample volumes for a 24-hour event were expected to represent 320 to 880 m^3 of filtered water.

A 363 micron (μm) mesh conical plankton net (0.5 meter [m] diameter) with a flowmeter fixed in the net mouth was used to collect the entrainment samples. The net was deployed into the discharge canal 0.5 to 1.0 m below the surface with a depressor attached to the bridle of the net to maintain the position of the net at the desired depth. A boom was used to lower and raise the plankton net.

Entrainment sampling was performed twice per week from April to August (forty-four 24-hour sampling events), twice per week the last two weeks in March and first two weeks in September (8 events), and once per month from October to February (5 events), for a total of fifty-seven 24-hour events.

4.1.2.2 Sample Processing

Samples especially thick with planktonic materials were split using a Folsom plankton splitter, and one-half, one-quarter, or one-eighth of each sample was processed, depending on the number of fish larvae in previous samples. Fish eggs, larvae, and entrainable-size juveniles were removed from samples, counted, identified as live or dead, and preserved in Davidson's B solution (Appendix B).

Fish eggs, larvae, and juveniles were identified to the lowest taxon possible. Total lengths (TLs) were measured to the nearest 0.1 mm for fish larvae and juveniles.

4.1.2.3 Data Analysis

Entrainment data were converted to a 24-hour collection period by adjusting for sample volumes and the corresponding volume through the plant. To calculate the base density of entrained eggs/larval fish ($\rho_{e\text{-}base}$), the number entrained during each sampling event was divided by the corresponding sampling volume. This is expressed as:

$$\rho_{e\text{-}base} = N_e / V_e$$

where:

$\rho_{e\text{-}base}$ = Base entrainment density (#/m^3)

N_e = Total number of eggs, larval fish, or juvenile fish entrained (16 daily samples per sampling event)

V_e = Total volume of water filtered for 16 daily samples (m^3)

Base entrainment densities were multiplied by daily plant flow volumes to obtain entrainment estimates for each day. Mean daily entrainment estimates were multiplied by weekly plant flow volumes to obtain entrainment estimates for each week. Weekly entrainment estimates were summed over the month to obtain monthly entrainment estimates. In addition to monthly entrainment estimates

for cooling water flow, abundance estimates of individuals for GSW flow discharged were obtained using the same protocol as the impingement estimates (Section 4.1.1.3).

4.1.3 Water Quality Data

Water quality was assessed at the intake of the Monroe Power Plant. Intake water temperature, conductivity, dissolved oxygen (DO), and pH were determined at mid-depth using a Van Dorn bottle. Water transparency was determined using a Secchi disk. Water quality measurements were obtained using a Hach sension156 Multi-parameter meter. Measurements and weekly calibrations were carried out as described in the manufacturer's instruction manual. A summary of the water quality and air temperature data collected during the sampling period can be found in Table 2-1.

4.1.4 Meteorological Data

Selected meteorological parameters (air temperature, wind speed and direction, cloud cover, and precipitation) were recorded and are presented in Appendix B.

4.2 Results

This section provides a summary of the impingement and entrainment data collected from April 2005 through April 2006 at the Monroe Power Plant. Data discussed in the Daily Impingement and Daily Entrainment sections are estimates derived from the impingement and entrainment collections obtained during the 24-hour sampling events. The data in the Monthly Flow-Expanded Impingement and Monthly Flow-Expanded Entrainment sections are adjusted to account for unsampled days.

4.2.1 Impingement

4.2.1.1 Daily Impingement

A total of 104 impingement sampling events were conducted from April 20, 2005, through April 20, 2006, at the Monroe Power Plant (Table 4-1). During this sampling period, a total of 64 taxa comprised of 7,099,963 fish weighing 216,353.383 kg were impinged (Tables 4-2, 4-3, and 4-4). Most of the fish impinged during the study were small, with approximately 6 percent of the measured fish being longer than 200 mm (Table 4-5).

Total abundance of impinged fish peaked on January 30, 2006 at 1,594,067 fish (Table 4-3 and Figure 4-1). Most of the impingement (n = 5,354,153; 75.4 percent) occurred between January 20, 2006 and April 4, 2006 (Table 4-3 and Figure 4-1).

Total biomass of impinged fish peaked on January 20, 2006 at 42,974.874 kg (Table 4-4 and Figure 4-2). Most of the biomass (179,302.920 kg; 82.9 percent) was impinged between January 20, 2006 and April 4, 2006 (Table 4-4 and Figure 4-2).

Total abundance impinged during the study period was greater at SH2 (n = 4,411,839; 62.1 percent) than at SH1 (n = 2,688,124; 37.86 percent) (Table 4-6). Total biomass impinged was greater at SH2 (145,618.653 kg; 67.31 percent) than at SH1 (70,734.730 kg; 32.69 percent) (Table 4-6). Gizzard shad were impinged in greater abundance and biomass at SH2 (n = 4,249,928 with a biomass of 139,891.677 kg) than SH1 (n = 2,450,324 with a biomass of 67,299.480 kg) during the study period (Table 4-6).

Based on total individuals, the most abundant fish species impinged were gizzard shad (n = 6,700,252; 97.4 percent), white perch (n = 139,115; 2.0 percent), emerald shiner (n = 74,249; 1.1 percent), and freshwater drum (n = 64,872; 0.9 percent) (Table 4-3 and Figure 4-3). These four fish species represent 97.2 percent (210,328.600 kg) of the total fish biomass impinged (Table 4-4 and Figure 4-4).

Based on total fish biomass, the species with the largest biomass, representing 97.9 percent of the total biomass impinged, were gizzard shad (207,191.158 kg; 95.8 percent), freshwater drum (1,973.668 kg; 0.9 percent), white perch (848.957 kg; 0.4 percent), yellow perch (637.597 kg; 0.3 percent), northern pike (593.233 kg; 0.3 percent), and longnose gar (501.274 kg; 0.2 percent) (Table 4-4 and Figure 4-5). These six fish species represent 97.4 percent (n = 6,911,883) of the total number of fish impinged (Table 4-3 and Figure 4-6).

4.2.1.2 Monthly Flow-Expanded Impingement

Monthly estimates of flow-expanded impingement were calculated for the entire sampling time period (April 2005 to April 2006). Individuals categorized as long dead were not included in the flow-expanded impingement estimates. The total numbers of fish (and fish biomass) collected during each sampling event were multiplied by an extrapolation factor (the ratio of the actual weekly plant flow divided by the plant flow associated with the sampling events within that week) to develop a weekly

impingement estimate. In turn, weekly flow-expanded impingement estimates were summed to develop monthly estimates. A GSW flow component was subsequently added to the extrapolated impingement. This GSW component was determined by multiplying the total numbers of fish collected by the ratio of the GSW flow divided by the actual monthly plant flow.

Total flow-expanded impingement over the sampling periods was 25,446,729 fish with a biomass of 795,605.354 kg (Tables 4-7 and 4-8). The largest monthly flow-expanded impingement abundance (n = 10,158,670; 39.9 percent of total flow-expanded impingement abundance) and fish biomass (401,750.606 kg; 50.5 percent) occurred in January 2006 (Tables 4-7 and 4-8). The minimum monthly flow-expanded impingement abundance (n = 2,738; 0.01 percent) and fish biomass impinged (291.032 kg; 0.04 percent) occurred in April 2005 (Tables 4-7 and 4-8).

Based on total number, the most abundant species impinged, listed in descending order, were gizzard shad (n = 24,072,826; 94.6 percent), white perch (n = 481,817; 1.9 percent), emerald shiner (n = 256,886; 1.0 percent), freshwater drum (n = 221,516; 0.9 percent), and spottail shiner (n = 92,119; 0.4 percent) (Table 4-7 and Figure 4-7). Based on fish biomass, the species with the largest biomass impinged, listed in descending order, were gizzard shad (765,119.031 kg; 96.2 percent), freshwater drum (6,543.297 kg; 0.8 percent), white perch (2,930.246 kg; 0.4 percent), yellow perch (2,304.204 kg; 0.3 percent), and northern pike (2,117.219 kg; 0.3 percent) (Table 4-8 and Figure 4-8). Gizzard shad comprised the majority of the total number of individuals (n = 24,072,826; 94.6 percent) and fish biomass (765,119.031 kg; 96.2 percent) impinged during the study period (Tables 4-7 and 4-8). A larger number of individuals were impinged at SH2 (n = 15,360,151; 60.4 percent) than at SH1 (n = 9,642,714; 37.9 percent) (Table 4-9). Total fish biomass impinged at SH2 (527,371.424 kg; 66.3 percent) was twice as large as the biomass impinged at SH1 (253,996.078 kg; 31.9 percent) (Table 4-9).

4.2.2 Entrainment

4.2.2.1 Daily Entrainment

A total of fifty-seven 24-hour sampling events were completed between April 19, 2005, and April 19, 2006 (Table 4-10). A total of 36 identifiable fish taxa were entrained during the 2005 – 2006 sampling period (Table 4-11). Totals of 2,182,653 fish eggs, 118,598,592 larval fish, and 20,312,408 juvenile fish (fish capable of passing through the traveling screen 3/8-in. mesh) were estimated to have been entrained during the sampling events (Table 4-12 and Figure 4-9). Peak abundance for fish

eggs entrained (n = 576,736) occurred on May 10, 2005 (Table 4-13 and Figure 4-10). Peak abundance for larval fish (n = 30,467,709) and juvenile fish entrained (n = 5,756,440) occurred on June 16, 2005 (Tables 4-14 and 4-15 and Figures 4-11 and 4-12).

Thirteen identifiable taxa of fish eggs were present in the Monroe Power Plant entrainment samples. The most abundant identifiable egg taxa collected were smallmouth bass (39.8 percent; n = 867,926) and gizzard shad (17.1 percent; n = 372,153) (Table 4-13). Unidentified fish eggs accounted for 1.3 percent (n = 27,763) of egg abundance (Table 4-13). All fish eggs were entrained from April to June 2005, with the highest egg abundance occurring in May 2005 (Table 4-13 and Figure 4-10). There were no fish eggs collected in the entrainment samples from July 2005 through April 2006 (Table 4-13 and Figure 4-13).

Twenty-eight identifiable taxonomic groups of larval fish were present in the Monroe Power Plant entrainment samples. The most abundant identifiable larval taxonomic groups collected were gizzard shad (26.7 percent; n = 31,661,335), *Morone spp.* (23.7 percent; n = 28,110,530), emerald shiner (15.0 percent; n = 17,738,243), and *Notropis spp.* (9.9 percent; n = 11,729,326) (Table 4-14). Unidentified larval fish accounted for 0.7 percent (n =820,398) (Table 4-14). Larval abundance was highest during June and July 2005 (Table 4-14 and Figure 4-11). No larval fish were collected from October 2005 through March 2006 (Table 4-14 and Figure 4-14).

Eighteen taxa of juvenile fish were present in the Monroe Power Plant entrainment samples. The most abundant juvenile taxa collected were gizzard shad (32.1 percent; n = 6,521,769), emerald shiner (21.7 percent; n = 4,399,260), and round goby (20.9 percent; n = 4,247,011) (Table 4-15). Juvenile abundance was highest in June and July 2005 (Table 4-15 and Figure 4-12). No juvenile fish were collected from October through November 2005 and from January through February 2006, and only one species of juvenile fish (round goby) was collected in March and April 2006 (Table 4-15 and Figure 4-15).

Length distributions of larval fish and juvenile fish are given in Table 4-16.

The diel distribution of fish eggs, larval fish, and juvenile fish was recorded during the entrainment sampling events throughout the study period. The diel distribution was converted into a density collected during the sampling period by dividing the number of organisms collected during the sample by the sample volume entrained. Density was calculated for each time period of the day sampled (day, night, dawn, dusk) as the number of fish eggs or larval fish and juvenile fish entrained

per 1,000 m^3. A peak density of fish eggs was collected during night sampling events from May 10 to May 11, 2005 (137.3/1,000 m^3) (Table 4-17). The highest annual average density of fish eggs entrained were collected during night sampling events (8.6/1,000 m^3), followed by dusk sampling events (6.2/1,000 m^3), day sampling events (3.5/1,000 m^3), and dawn sampling events (3.0/1,000 m^3) (Table 4-17 and Figure 4-16).

A peak density of larval fish and juvenile fish was collected during dawn sampling events from June 15 to June 16, 2005 (6,593.8/1,000 m^3). The highest annual average density of larval fish and juvenile fish entrained were collected during night sampling events (426.1/1,000 m^3), followed by dawn sampling events (417.8/1,000 m^3), day sampling events (213.8/1,000 m^3), and dusk sampling events (126.4/1,000 m^3) (Table 4-18 and Figure 4-17).

4.2.2.2 Monthly Flow-Expanded Entrainment

Similar to impingement data, numbers of fish entrained were adjusted by an extrapolation factor (including the GSW component) to account for days not sampled during the study period to obtain monthly entrainment estimates (flow-expanded entrainment). The total flow-expanded entrainment was 499,115,876 organisms (7,666,947 eggs, 72,030,071 juvenile fish, and 419,418,858 larval fish) (Table 4-19).

Peak monthly flow-expanded entrainment of larval and juvenile fish occurred in June 2005 (n = 383,494,897; 78.0 percent), while there were no larval or juvenile fish entrained in October and November 2005, and January and February 2006 (Table 4-20). Total monthly flow-expanded entrainment of fish eggs peaked in May 2005 (n = 7,447,376; 97.5 percent), while no fish eggs were entrained from July 2005 to April 2006 (Table 4-21).

Based on total number, the most abundant larval and juvenile fish taxa entrained, listed in descending order, were gizzard shad (n = 134,836,157; 27.4 percent), *Morone spp.* (n = 104,591,074; 21.3 percent), emerald shiner (n = 78,415,465; 16.0 percent), *Notropis spp.* (n = 42,139,142; 8.6 percent), Cyprinidae (n = 34,121,155; 6.9 percent), and alewife (n = 31,866,670; 6.5 percent) (Table 4-20 and Figure 4-18). Based on total number, the most abundant fish egg taxa entrained were smallmouth bass (n = 3,018,058; 39.4 percent), gizzard shad (n = 1,304,841; 17.0 percent), white perch (n = 676,002; 8.8 percent), *Morone spp.* (n = 585,023; 7.6 percent), *Micropterus spp.* (n = 546,281; 7.1 percent), and largemouth bass (n = 500,107; 6.5 percent) (Table 4-21 and Figure 4-19). Larval fish comprised the largest proportion (n = 419,418,858; 84.0 percent) of the total number of fish entrained, followed

by juvenile fish (n = 72,030,071; 14.4 percent) and fish eggs (n = 7,666,947; 1.5 percent) (Table 4-19 and Figure 4-20). GSW represented a minor component of the flow-expanded entrainment (n = 5,405,045; 1.1 percent), while the two screenhouses comprised the majority of the entrained organisms (n = 493,710,832; 98.9 percent) (Table 4-22).

4.3 Calculation Baseline

Various metrics can be used to characterize IM&E (representative species [RS] or all species, and total count for fish or total biomass). The metric(s) that will ultimately be used to characterize IM&E will be the one(s) that provides the least data variability and uncertainty and can also be used to demonstrate compliance with the performance standards.

4.3.1 Impingement and Entrainment Based on Design Intake Flow

Baseline impingement and entrainment values were determined from the "baseline" sampling data using the following procedure. For entrainment, the total organism counts for each entrainment sampling event (four time periods combined) were adjusted to account for the ratio of the actual plant intake volume to the combined sample volumes for each event. Similarly for impingement, total impingement fish counts and biomass for each sampling event were adjusted to account for the ratio of the active screens to the total number of screens at the plant for each event. Fish that were categorized as long dead were not included in calculating the impingement baseline estimates. Total impingement counts and biomass and entrainment counts were then adjusted or scaled up to reflect maximum design flow conditions (2,056.32 MGD) by dividing the total daily flow by the maximum plant design flow to produce a "percent of design flow" for each day during the year. In turn, the total number of organisms collected (either entrained or impinged) for each sampling event was divided by the "percent of design flow" for the corresponding sampling event day to yield an estimate of total number of organisms entrained or impinged at maximum plant design flow for the corresponding sampling event day. After the sampling event counts were scaled to maximum design flow, the estimated impingement for each non-sampled day was calculated using linear interpolation between sample days. This was accomplished by dividing the difference in total impingement or entrainment between each consecutive sampling event by the number of days between each consecutive event to produce a "daily change" in impingement or entrainment. This "daily change" could then be added to the previous day's estimated total, starting with the first sampling event. The "daily change" number should change between each sampling event unless the impingement or entrainment number remains constant between events.

4.3.2 Representative Species Selection

The EPA provides discretion in allowing a facility to identify a suite of RS for assessment of its impacts and evaluation of BTA. The RS chosen would typically be a subset of the species impinged and/or entrained at that facility. Factors to consider in determining RS include:

- Composition of fish species in the source waterbody and in the sampling;
- Relative abundance of fish species in the source waterbody and in the sampling;
- Relative occurrence of fish species between impingement and entrainment samples (if applicable); and
- Occurrence of fish species having special management or economic interest (such as sportfishes, particularly those that are stocked, or T&E species).

4.3.2.1 Lake Erie and Detroit River Fishery

Despite productive recreational fisheries in Lake Erie, Cole (1976) reported that fishing effort was five to six times greater in the Monroe Power Plant discharge than in Lake Erie. The most abundant species in the catch were white crappie and white bass followed by channel catfish, bullheads, largemouth bass, smallmouth bass, and northern pike (Cole, 1976). In 1986, a 1-year angling study in the Monroe Power Plant discharge canal estimated 41,000 fish were caught in 10,000 angler days (Resource Econometrics, 1986). The most common species caught were channel catfish, white bass, crappie, bluegill, freshwater drum, and walleye (Resource Econometrics, 1986).

The Detroit River provides habitat and serves as a migratory route for many fish species and is considered to be within the same ecological system as Lake St. Clair and Lake Erie (U.S. Fish & Wildlife Service [USFWS], 1970). In the past, relatively little was known about the recreational fishery on the Detroit River. Cooper (1952) conducted a creel survey from 1945 to 1952 and found that the catch was dominated by yellow perch, white bass, walleye, and northern pike. The sport catch in 1972 was dominated by yellow perch, bass, and walleye (Jameson, 1973). Creel surveys of the Lake Erie sport fishery conducted by the Michigan Department of Natural Resources (MDNR) in 2007 estimated nearly 370,000 fish were harvested from the Michigan waters of Lake Erie (Thomas and Haas, 2008). Walleye and yellow perch were the most common species in the harvest (Thomas and Haas, 2008). Lake Erie charter boats harvested approximately 30,000 fish, while a total of nearly 17,000 fish were caught by charter boats on the St. Clair-Detroit River system (Thomas and Haas, 2008). Both charter boat fisheries were dominated by walleye and yellow perch (Thomas and Haas, 2008).

Lake Erie has historically had a productive commercial fishery that included several fish species; lake herring, blue pike, common carp, lake whitefish, yellow perch, freshwater drum, and white suckers (Beeton, 1970). However, in 2007 only three commercial fisheries were licensed by the state of Michigan to operate in Lake Erie waters. A total of 1,058,253 pounds were collected in the Lake Erie commercial fishery in 2007 (Thomas and Haas, 2008). Common carp, gizzard shad, and buffalo comprised the majority of the catch, while channel catfish, white bass, freshwater drum, goldfish, and white perch were also collected (Thomas and Haas, 2008). On the Detroit River, commercial fisheries for lake whitefish, lake herring, and lake sturgeon existed in the late 1800s and early 1900s; however, these fisheries ceased operation by 1920 (Christie, 1974). Small commercial fisheries for walleye, yellow perch, and common carp continued until World War II. No commercial fishery has operated on the Detroit River since 1970.

4.3.2.2 Selecting Representative Species

Results of the flow-expanded impingement and entrainment abundance analysis indicated that 71 species of fishes were impinged and/or entrained. An estimated (flow-expanded) 25,446,729 organisms were impinged, and 499,115,876 organisms were entrained (Tables 4-7 and 4-19). Species diversity was greater in impingement samples compared to entrainment samples: 64 versus 36 taxa, respectively (Tables 4-3 and 4-11). All but two fish species found in entrainment samples, lake whitefish and alewife, were also found in impingement samples. Only 3 of the 62 taxa with live and recently dead specimens comprised more than 1 percent of the total numbers impinged (Table 4-7).

Round goby, a non-native species that recently colonized the Great Lakes and is considered to be harmful to native fish communities, though found in impingement and entrainment samples, was not considered for inclusion as an RS. Of the estimated 25,446,729 fish impinged, a total of 31,325 were round gobies, which represents 0.1 percent of the total flow-expanded impingement abundance (Table 4-7). Of the estimated 499,115,876 organisms entrained, 15,103,835 (3.0 percent) were round gobies (Table 4-19).

The following incremental approach was used to identify the fish species to be used as RS for the calculation baseline and subsequent analyses for the Monroe Power Plant. The progression (Tiers 1 – 3) is based on the identification of the recreational sportfish species upon which impact can reasonably be assessed (Tier 1); expansion of the group to incorporate forage fish (Tier 2); and finally, T&E species (Tier 3).

Tier 1: Recreational Sportfish

The recreational sportfish species impinged and/or entrained at the Monroe Power Plant include black crappie, bluegill, brown bullhead, channel catfish, green sunfish, largemouth bass, lake whitefish, longnose gar, muskellunge, northern pike, orangespotted sunfish, pumpkinseed, quillback, rock bass, smallmouth bass, walleye, white bass, white crappie, white perch, yellow bullhead, and yellow perch (Table 4-23). Five taxa of recreational sportfish (*Micropterus spp.*, *Morone spp.*, *Lepomis spp.*, Percidae, and *Pomoxis spp.*) were not identified to species but were still considered RS (Table 4-23). These recreational sportfish represent 2.6 percent (n = 658,844) of the total estimated flow-expanded impingement abundance at the Monroe Power Plant (Table 4-7). Recreational sportfish represent 24.1 percent (n = 120,132,998) of the total flow-expanded entrainment abundance of all organisms (Table 4-19).

Tier 2: Forage Fish

Forage species are included due to their direct and indirect impacts on the food web and recreational fishery. Forage fish that were impinged and/or entrained at the Monroe Power Plant include alewife, bluntnose minnow, bowfin, brook silverside, common carp, emerald shiner, fathead minnow, freshwater drum, golden redhorse, goldfish, logperch, rainbow smelt, redhorse sucker, spotfin shiner, spottail shiner, trout-perch, and white sucker (Table 4-23). Five taxa of forage fish (Catostomidae, Cyprinidae, *Notropis spp.*, rainbow smelt/Clupeidae, and smelt/shad/alewife) were not identified to species in the entrainment samples but were considered RS because each taxa is composed of at least one RS (Table 4-23). These forage fish species represent 47.9 percent (n = 12,188,782) of the total flow-expanded impingement abundance, and 72.2 percent (n = 360,341,026) of the total flow-expanded entrainment abundance collected at the Monroe Power Plant (Tables 4-7 and 4-19).

Although the gizzard shad is an important forage fish, its impingement represents a unique situation in terms of when it should be considered an RS. Michigan is on the northern edge of the gizzard shad's distribution. Gizzard shad are very sensitive to water temperature changes, particularly rapid decreases, and each year as the water temperature drops below approximately 5°C, their swimming ability becomes impaired and die-offs routinely occur. These stressed (impaired and moribund) and dead gizzard shad are susceptible to impingement in a power plant's CWIS, similar to items such as aquatic plants, leaves, and discarded trash and other debris. Under these circumstances, the impinged gizzard shad collected in water temperatures less than 5°C were removed from the RS forage fish category.

Tier 3: T&E Species

Federal and state listed T&E species are included in Tier 3 and are based upon low abundance and/or a lack of needed habitat. A total of three T&E species were impinged at the Monroe Power Plant during the sampling period. The MDNR considers silver chub (*Macrhybopsis storeriana*), spotted gar (*Lepisosteus oculatus*), and black buffalo (*Ictiobus niger*) to be species of special concern (Table 4-23). The flow-expanded impingement abundance and biomass of the silver chub and spotted gar amounted to a total abundance and biomass of 733 fish (2.9×10^{-3} percent of the total abundance) and 20.353 kg (2.6×10^{-3} percent of the total biomass), respectively (Table 4-9). All black buffalo impinged during the study period were considered long dead at the time of collection, so they were not included in the total flow-expanded impingement abundance and biomass. The only T&E species entrained, silver chub, represented a small proportion of the total entrainment (n = 24,451; 4.9×10^{-3} percent) (Table 4-19).

Unidentified entrained fish eggs and larval fish were not placed into any tier. However, the number of unidentified fish eggs considered to be RS (n = 93,134; 1.2 percent of total flow-expanded fish eggs) was determined by multiplying the flow-expanded number of fish eggs by the percentage of flow-expanded larval and juvenile fish considered RS. The number of unidentified larval fish considered to be RS (n = 2,874,569; 0.6 percent of the total flow-expanded number of larval and juvenile fish) was determined by multiplying the flow-expanded number of larval fish entrained by the percentage of larval fish considered RS.

4.3.3 Calculation Baseline — All Species

4.3.3.1 Entrainment Calculation Baseline

At the maximum design intake flow of 2,056.32 MGD, the total estimated number of organisms entrained would be 510,522,383 (Table 4-24). The majority of organisms entrained would be larval fish (n = 428,689,935; 84.0 percent of total maximum flow-expanded entrainment), followed by juvenile fish (n = 72,808,348; 14.3 percent) and fish eggs (n = 9,024,099; 1.8 percent) (Table 4-24). Peak monthly number of organisms entrained would occur in June 2005 (n = 375,866,303; 73.6 percent of total maximum flow-expanded entrainment), while there would be no organisms entrained in February 2006 (Tables 4-25 and 4-26).

Gizzard shad (n = 131,271,521; 26.2 percent), *Morone spp.* (n = 105,183,487; 21.0 percent), emerald shiner (n = 83,482,874; 16.7 percent), *Notropis spp.* (n = 48,720,847; 9.7 percent), Cyprinidae (n = 36,657,972; 7.3 percent), and alewife (n = 28,936,661; 5.8 percent) would comprise the majority of larval and juvenile fish entrainment (Table 4-25). Peak larval and juvenile fish entrainment would occur during June 2005 (n = 374,513,589; 74.7 percent) (Table 4-25 and Figure 4-21). The majority (n = 484,600,099; 96.6 percent) of larval and juvenile fish entrainment would occur during the months of June and July 2005 (Table 4-25 and Figure 4-22).

At maximum design intake flow, smallmouth bass (n = 3,614,039; 40.1 percent), gizzard shad (n = 1,288,714; 14.3 percent), *Morone spp.* (n = 743,543; 8.2 percent), *Micropterus spp.* (n = 730,428; 8.1 percent), largemouth bass (n = 707,270; 7.8 percent), and white perch (n = 701,691; 7.8 percent) would comprise the majority of fish egg entrainment (Table 4-26). Peak fish egg entrainment would occur during May 2005 (n = 7,494,441; 83.1 percent), while no fish egg entrainment would occur from July 2005 to April 2006 (Table 4-26 and Figures 4-23 and 4-24).

4.3.3.2 Impingement Calculation Baseline

At maximum design intake flow, the total estimated number of organisms impinged would be 40,341,435 fish, with a biomass of 1,510,984.556 kg (Table 4-27). Total daily numbers of fish and biomass impinged would remain relatively low throughout the sampling period except for the months of January and February 2006, when there would be wide fluctuations in daily numbers and biomass (Figures 4-25 and 4-26). Peak monthly impingement of individuals (n = 15,921,763; 39.5 percent) and fish biomass (899,299.037 kg; 59.5 percent) would occur in January 2006 (Tables 4-28 and 4-29).

Gizzard shad (n = 38,230,059; 94.8 percent), white perch (n = 645,268; 1.6 percent), emerald shiner (n = 430,704; 1.1 percent), freshwater drum (n = 378,121; 0.9 percent), spottail shiner (n = 145,626; 0.4 percent), bluegill (n = 104,115; 0.6 percent), and trout-perch (n = 89,235; 0.2 percent) would comprise the majority of total individuals impinged (Table 4-28). Gizzard shad (1,460,676.016 kg; 96.7 percent), freshwater drum (11,959.463 kg; 0.8 percent), white perch (4,215.122 kg; 0.3 percent), and yellow perch (3,999.551 kg; 0.3 percent) would comprise the majority of fish biomass impinged (Table 4-29). The majority of total individuals (n = 30,529,040; 75.7 percent) and fish biomass (1,320,529 kg; 87.4 percent) would be impinged during the months from January 2006 to March 2006 (Tables 4-28 and 4-29 and Figures 4-27 and 4-28). A larger number of individuals would be impinged at SH2 (n = 23,712,213; 58.8 percent of total number of individuals) than at SH1 (n = 16,629,222; 41.2 percent) (Table 4-27). Total fish biomass impinged at SH2 (975,015.737 kg; 64.5 percent of total

biomass) would be greater than biomass impinged at SH1 (535,968.819 kg; 35.5 percent) (Table 4-27).

4.3.4 Calculation Baseline — Excluding Gizzard Shad

For this calculation baseline scenario, gizzard shad individuals and associated biomass impinged when water temperatures were lower than 5°C were removed from the impingement baseline calculation.

4.3.4.1 Impingement Calculation Baseline

At maximum design intake flow, the total estimated number of individuals and fish biomass impinged, excluding gizzard shad susceptible to temperature-induced stress, would be 18,809,583 fish and 427,397.251 kg, respectively (Table 4-27). Daily numbers of individuals and fish biomass would remain relatively low throughout the sampling period except during mid-November 2005 to early April 2006, when there would be fluctuations in daily numbers and biomass (Figures 4-29 and 4-30). A large peak in abundance and biomass occurred in late January and early February 2006 (Figure 4-29 and 4-30). Peak monthly impingement of individuals (n = 8,468,830; 45.0 percent) and fish biomass (208,248.491 kg; 48.7 percent) would occur in January 2006 (Tables 4-30 and 4-31).

Gizzard shad (n = 16,698,206; 88.8 percent), white perch (n = 645,268; 3.4 percent), emerald shiner (n = 430,704; 2.3 percent), freshwater drum (n = 378,121; 2.0 percent), spottail shiner (n = 145,626; 0.8 percent), bluegill (n = 104,115; 0.6 percent), and trout-perch (n = 89,235; 0.5 percent) would comprise the majority of total individuals impinged (Table 4-30). Gizzard shad (377,088.712 kg; 88.2 percent), freshwater drum (11,959.463 kg; 2.8 percent), white perch (4,215.122 kg; 1.0 percent), yellow perch (3,999.551 kg; 0.9 percent), and smallmouth bass (3,436.158 kg; 0.8 percent) would comprise the majority of fish biomass impinged (Table 4-31).

The majority of total individuals (73.7 percent; n = 13,866,701) and fish biomass (81.6 percent; 348,847.971 kg) would be impinged during the months from January to April 2006 (Tables 4-30 and 4-31 and Figures 4-31 and 4-32). A larger number of individuals would be impinged at SH2 (n = 10,935,991; 58.1 percent of total number of individuals) than at SH1 (n = 7,873,592; 41.9 percent) (Table 4-27). Total fish biomass that would be impinged at SH2 (274,689.537 kg; 64.3 percent of total biomass) would be greater than the biomass impinged at SH1 (152,707.714 kg; 35.7 percent) (Table 4-27). By removing the gizzard shad susceptible to temperature-induced stress, total estimated

number of individuals impinged would be reduced by 53.4 percent, and fish biomass would be reduced by 71.7 percent (Table 4-27).

4.3.5 Calculation Baseline — Representative Species

A separate calculation baseline that included only the RS identified for the Monroe Power Plant (Table 4-23) was developed. A portion of the entrained unidentified fish eggs, proportional to the ratio of identified RS larval and juvenile fish entrained to the total larval and juvenile fish entrained, were considered to be RS. Similarly, a portion of the unidentifiable entrained larval fish, proportional to the ratio of identified RS larval fish entrained to the total larval fish entrained, were considered to be RS.

4.3.5.1 Entrainment Calculation Baseline

At maximum design intake flow, the total estimated number of RS entrained would be 493,113,957 organisms (fish eggs, larval fish, and juvenile fish) (Table 4-24). The majority of entrained organisms would be larval fish (n = 428,234,508; 86.8 percent of the total number of RS), followed by juvenile fish (n = 55,860,513; 11.3 percent) and fish eggs (n = 9,018,936; 1.8 percent) (Table 4-24). The peak number of entrained RS organisms would occur in June 2005 (n = 372,378,154; 75.6 percent), while no organisms would be entrained in February or March 2006 (Tables 4-32 and 4-33). The total number of entrained fish considered RS (eggs, larval fish, and juvenile fish) would be approximately 3.4 percent less than the total number of entrained organisms (Table 4-24).

Gizzard shad (n = 131,271,521; 27.1 percent), *Morone spp.* (n = 105,183,487; 21.7 percent), emerald shiner (n = 83,482,874; 17.3 percent), *Notropis spp.* (n = 48,720,847; 10.1 percent), Cyprinidae (n = 36,657,972; 7.6 percent), and alewife (n = 28,936,661; 6.0 percent) would comprise the majority of entrained larval and juvenile fish considered RS (Table 4-32). The peak RS larval and juvenile fish entrainment would occur during June 2005 (n = 371,027,991; 76.6 percent) (Table 4-32 and Figure 4-33). The majority (n = 473,352,194; 97.8 percent) of RS larval and juvenile fish entrainment would occur during the months of June and July 2005 (Table 4-32 and Figure 4-34).

At maximum design intake flow, smallmouth bass (n = 3,614,039; 40.1 percent), gizzard shad (n = 1,288,714; 14.3 percent), *Morone spp.* (n = 743,543; 8.2 percent), *Micropterus spp.* (n = 730,428; 8.1 percent), largemouth bass (n = 707,270; 7.8 percent), and white perch (n = 701,691; 7.8 percent) would comprise the majority of estimated fish eggs considered RS (Table 4-33). Peak RS fish egg

entrainment would occur during May 2005 (n = 7,492,259; 83.1 percent), while no RS fish egg entrainment would occur from July 2005 to April 2006 (Table 4-33 and Figures 4-35 and 4-36).

4.3.5.2 Impingement Calculation Baseline

At maximum design intake flow, the total estimated numbers and fish biomass of RS impinged would be 18,756,357 and 425,339.522 kg, respectively (Table 4-27). Daily numbers of individuals and fish biomass would remain relatively low throughout the sampling period except during mid-November 2005 to early April 2006, when there would be fluctuations in daily numbers and biomass (Figures 4-37 and 4-38). A large peak in abundance and biomass occurred in late January and early February 2006 (Figure 4-37 and 4-38). Peak monthly impingement of RS individuals (n = 8,456,883; 45.1 percent) and fish biomass (208,062.281 kg; 48.9 percent) would occur in January 2006 (Tables 4-34 and 4-35).

Gizzard shad (n = 16,698,206; 89.0 percent), white perch (n = 645,268; 3.4 percent), emerald shiner (n = 430,704; 2.3 percent), freshwater drum (n = 378,121; 2.0 percent), spottail shiner (n = 145,626; 0.8 percent), bluegill (n = 104,115; 0.6 percent), and trout-perch (n = 89,235; 0.5 percent) would comprise the majority of total RS individuals impinged (Table 4-34). Gizzard shad (377,088.712 kg; 88.7 percent), freshwater drum (11,959.463 kg; 2.8 percent), white perch (4,215.122 kg; 1.0 percent), yellow perch (3,999.551 kg; 0.9 percent), and smallmouth bass (3,436.158 kg; 0.8 percent) would comprise the majority of the RS biomass impinged (Table 4-35).

The majority of total RS individuals (n = 13,827,181; 73.7 percent) and fish biomass impinged (347,321.719 kg; 81.7 percent) would occur from January 2006 to April 2006 (Tables 4-34 and 4-35 and Figures 4-39 and 4-40). A larger number of individuals would be impinged at SH2 (n = 10,915,366; 58.2 percent of total number of individuals) than at SH1 (n = 7,840,992; 41.8 percent) (Table 4-27). Total fish biomass that would be impinged at SH2 (273,673.297 kg; 64.3 percent of total biomass) would be greater than the biomass impinged at SH1 (151,666.226 kg; 35.7 percent) (Table 4-27). The estimated total number of RS individuals impinged would represent a 53.5 percent reduction in numbers and 71.9 percent reduction in fish biomass from the total estimated number of individuals and fish biomass impinged (Table 4-27).

4.4 Taxonomic Quality Assurance/Quality Control

4.4.1 QA/QC for Fish Impingement Subsampling

It was necessary to subsample when a large amount of fish and debris was impinged during a sampling event at Monroe Power Plant. During these sampling events, fish and debris were processed according to the protocol specified in the daily impingement sampling protocol (Section 4.1.1.1). Eight separate studies were conducted to evaluate the overall effectiveness of the subsampling procedure. The results of these studies are presented in Appendix B. The subsampling protocol revealed modest variability between 5-gal containers.

4.4.2 QA/QC for Larval Fish Identification

A summary of the QA/QC process for larval fish identification is presented in Appendix B. Five percent of 432 samples containing fish larvae were re-examined to evaluate the overall accuracy of the larval fish identification procedure. The error rate for larval identification was determined to be 1.3 percent. All fish egg identifications were verified by an independent evaluator.

5.0 SUMMARY

5.1 Calculation Baseline

The objective of the fish IM&E characterization study was to quantify the current levels of fish that are impinged on the traveling screens and entrained through the CWIS during normal plant operations. Various metrics can be used to characterize impingement mortality; these include RS, all species, and total individuals and/or total biomass. The calculation baseline IM&E rates are the total estimated IM&E that would occur if the Monroe Power Plant operated at the maximum design intake flow of 2,056.32 MGD year-round. An annual baseline impingement calculation was developed for three different scenarios (all species, removing gizzard shad susceptible to temperature-induced stress, and RS). The annual estimate of the total number of individuals and fish biomass impingement for all species for 1 year would be 40,341,435 fish and 1,510,984.556 kg, respectively. A larger number of total individuals and fish biomass would be impinged at SH2 (n = 23,712,213 and 975,015.737 kg, respectively) than at SH1 (n = 16,629,222 and 535,968.819 kg, respectively). The annual estimate of entrainment for all species for 1 year would be 510,522,383 organisms (9,024,099 fish eggs, 428,689,935 larval fish, and 72,808,348 juvenile fish). The annual estimate of total number of individuals and fish biomass impingement for all species, excluding gizzard shad susceptible to temperature-induced stress, would be 18,809,583 fish and 427,397.251 kg, respectively. A larger number of total individuals and fish biomass would be impinged at SH2 (n = 10,935,991 and 274,689.537 kg, respectively) than at SH1 (n = 7,873,592 and 152,707.714 kg, respectively).

An incremental approach was used to identify the “representative” fish species to be used as RS for the calculation baseline and analyses for the Monroe Power Plant. This approach is based on the identification of recreational sportfish species, forage fish species, T&E species, and frequency of occurrence in the samples. Considering only RS, annual fish entrainment would be a total of 493,113,957 organisms (9,018,636 fish eggs, 428,234,508 larval fish, and 55,860,513 juvenile fish). Based on annual impingement baseline calculations, the total number of RS individuals and biomass impinged would be 18,756,357 fish and 425,339.522 kg, respectively. A larger number of total RS individuals and fish biomass would be impinged at SH2 (n = 10,915,366 and 273,673.297 kg, respectively) than at SH1 (n = 7,840,992 and 151,666.226 kg, respectively). When considering only RS, total entrainment of organisms (eggs, and larval and juvenile fish) would be approximately 3.4 percent less than the entrainment estimate for all species. The estimated annual number of RS individuals and fish biomass impinged would represent a 53.5 percent reduction in numbers of

individuals and a 71.9 percent reduction in fish biomass from the annual impingement estimate for all species.

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TABLES

TABLE 2-1

Monthly Summary of Water Quality and Air Temperature Data from April 2005 to April 2006
Monroe Power Plant

Date	Min/Max/ Avg	Water Level	Intake Temp (°C)	Discharge Temp (°C)	Air Temp (°C)	Conductivity (uS/cm)	DO (mg/L)	Water Transparency (m)	pH
APRIL 2005	Minimum	572.5	9.0	N/A	8.0	271	4.0	0.7	6.7
	Maximum	573.9	16.0	N/A	24.0	490	12.4	7.1	8.6
	Average	573.2	12.3	N/A	14.2	390	9.5	2.2	7.7
MAY 2005	Minimum	572.5	9.3	16.2	6.0	149	7.1	0.3	7.6
	Maximum	575.0	19.4	26.6	29.0	516	13.0	2.0	8.5
	Average	573.4	14.9	22.0	16.0	326	10.1	0.8	8.2
JUNE 2005	Minimum	572.0	19.2	24.7	17.0	268	3.1	0.5	6.5
	Maximum	574.0	27.3	36.4	32.4	419	10.8	2.0	8.6
	Average	573.0	23.7	32.2	23.3	345	8.4	1.0	7.9
JULY 2005	Minimum	572.0	24.5	28.3	20.0	268	3.8	0.5	6.5
	Maximum	573.5	29.7	41.6	28.0	430	9.3	1.5	8.5
	Average	572.8	27.1	37.1	24.9	323	6.5	0.9	7.7
AUGUST 2005	Minimum	572.0	23.3	31.0	18.0	269	3.5	0.3	6.9
	Maximum	573.5	28.3	39.0	28.0	705	10.5	1.1	8.7
	Average	572.7	25.7	35.0	23.6	393	6.6	0.6	8.1
SEPTEMBER 2005	Minimum	570.5	18.7	28.3	8.0	272	5.1	0.3	6.6
	Maximum	573.3	24.8	36.4	23.0	441	10.2	1.0	8.9
	Average	572.5	22.4	32.8	18.2	334	6.7	0.5	8.1
OCTOBER 2005	Minimum	572.0	11.4	21.0	4.0	186	4.9	0.4	6.1
	Maximum	573.0	20.6	27.7	21.0	454	9.9	0.6	8.1
	Average	572.6	15.9	25.4	12.2	301	7.2	0.5	7.1
NOVEMBER 2005	Minimum	527.0	6.5	18.6	-1.0	160	6.9	0.1	6.5
	Maximum	574.0	14.7	23.5	15.0	498	12.3	1.1	8.2
	Average	568.1	10.3	20.3	6.1	309	8.5	0.5	7.7
DECEMBER 2005	Minimum	573.0	-1.0	14.3	-15.0	345	8.6	0.3	6.5
	Maximum	576.0	5.5	17.0	12.0	773	12.5	1.0	8.3
	Average	574.8	3.4	15.2	-5.1	515	10.4	0.6	7.6
JANUARY 2006	Minimum	574.0	2.2	19.5	-5.0	546	7.5	0.2	6.9
	Maximum	576.0	7.0	20.8	10.0	664	15.6	0.4	8.3
	Average	575.4	4.8	20.2	2.2	599	10.4	0.3	7.5
FEBRUARY 2006	Minimum	575.0	0.8	N/A	-15.0	241	8.7	0.1	6.4
	Maximum	576.0	6.0	N/A	10.0	680	14.1	0.7	8.3
	Average	575.6	3.9	N/A	-3.9	548	11.4	0.3	7.8
MARCH 2006	Minimum	575.0	3.7	20.6	-6.0	281	8.6	0.1	7.1
	Maximum	575.3	9.0	21.5	10.0	680	12.7	1.4	8.4
	Average	575.2	6.4	21.1	1.1	562	10.6	0.6	7.8
APRIL 2006	Minimum	572.0	8.6	15.9	-1.0	487	6.7	0.3	7.3
	Maximum	573.5	14.9	22.8	15.0	645	10.7	1.2	8.5
	Average	572.8	11.5	19.4	8.0	596	8.5	0.5	8.0

TABLE 2-2
Hydraulic Zone of Influence Calculation
Lake Erie
Monroe Power Plant

	Variable	Units	Scenarios			
			1	2	3	4
Maximum Design Intake Flow	Qi	cfs	3,181.60	3,181.60	3,181.60	3,181.60
Raisin River Flow		cfs	753.07	0.00	753.07	0.00
Mean Depth at Radius R_{HZI}	d_r	ft	7.00	7.00	7.00	7.00
Ambient Mean Velocity in Lake Erie	V_{ma}	ft/s	0.10	0.10	0.30	0.30
HZI Radius from Intake	R_{HZI}	ft	**1,102**	**1,444**	**367**	**481**

Maximum Daily Average Design Intake Flow = 2,056.32 MGD (3,181.60 cfs)
Raisin River Average Mean Annual Flow (USGS Water Resources in Michigan, 1937-2007) = 753.07 cfs
Ambient Mean Velocity in Lake Erie (V_{ma}) = 0.10 - 0.30 ft/s.

Scenario 1 - Raisin River flow = 750 cfs and V_{ma} = 0.10 ft/s.
Scenario 2 - Raisin River flow = 0 cfs and V_{ma} = 0.10 ft/s.
Scenario 3 - Raisin River flow = 750 cfs and V_{ma} = 0.30 ft/s.
Scenario 4 - Raisin River flow = 0 cfs and V_{ma} = 0.30 ft/s.

TABLE 4-1
Impingement Sampling Event Dates at Each Screenhouse
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Event	Sampling Dates	Screenhouse 1	Screenhouse 2
1	20-Apr-05		x
2	21-Apr-05	x	x
3	27-Apr-05	x	x
4	28-Apr-05	x	x
5	4-May-05	x	x
6	5-May-05	x	x
7	11-May-05	x	x
8	12-May-05	x	x
9	19-May-05	x	x
10	20-May-05	x	x
11	25-May-05	x	x
12	26-May-05	x	x
13	31-May-05	x	x
14	1-Jun-05	x	x
15	9-Jun-05	x	x
16	10-Jun-05	x	x
17	15-Jun-05		x
18	16-Jun-05	x	x
19	21-Jun-05	x	x
20	22-Jun-05	x	
21	30-Jun-05	x	x
22	1-Jul-05	x	x
23	6-Jul-05		x
24	14-Jul-05	x	
25	15-Jul-05	x	x
26	19-Jul-05	x	x
27	20-Jul-05	x	
28	26-Jul-05	x	x
29	27-Jul-05	x	x
30	4-Aug-05	x	x
31	5-Aug-05	x	x
32	11-Aug-05	x	x
33	12-Aug-05	x	x
34	16-Aug-05	x	x
35	17-Aug-05	x	x
36	26-Aug-05	x	x
37	27-Aug-05	x	x
38	30-Aug-05	x	x
39	31-Aug-05	x	x
40	8-Sep-05	x	x
41	9-Sep-05	x	x
42	13-Sep-05	x	x
43	14-Sep-05	x	x

TABLE 4-1 (cont'd)
Impingement Sampling Event Dates at Each Screenhouse
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Event	Sampling Dates	Screenhouse 1	Screenhouse 2
44	19-Sep-05	x	x
45	20-Sep-05	x	x
46	28-Sep-05	x	x
47	29-Sep-05	x	x
48	3-Oct-05	x	x
49	4-Oct-05	x	x
50	12-Oct-05	x	x
51	13-Oct-05	x	x
52	18-Oct-05	x	x
53	19-Oct-05	x	x
54	24-Oct-05	x	x
55	25-Oct-05	x	x
56	2-Nov-05	x	x
57	3-Nov-05	x	x
58	10-Nov-05	x	x
59	11-Nov-05	x	x
60	15-Nov-05	x	x
61	16-Nov-05	x	x
62	21-Nov-05	x	x
63	22-Nov-05	x	x
64	30-Nov-05	x	x
65	1-Dec-05	x	x
66	8-Dec-05	x	x
67	12-Dec-05	x	x
68	13-Dec-05	x	x
69	19-Dec-05	x	x
70	20-Dec-05	x	x
71	28-Dec-05	x	x
72	29-Dec-05	x	x
73	4-Jan-06	x	x
74	5-Jan-06	x	x
75	9-Jan-06	x	x
76	10-Jan-06	x	x
77	20-Jan-06	x	x
78	21-Jan-06	x	x
79	25-Jan-06	x	x
80	26-Jan-06	x	x
81	30-Jan-06	x	x
82	31-Jan-06	x	x
83	8-Feb-06	x	x
84	9-Feb-06	x	x
85	17-Feb-06	x	x
86	18-Feb-06	x	x

TABLE 4-1 (cont'd)
Impingement Sampling Event Dates at Each Screenhouse
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Event	Sampling Dates	Screenhouse 1	Screenhouse 2
87	22-Feb-06	x	x
88	23-Feb-06	x	x
89	27-Feb-06	x	x
90	28-Feb-06	x	x
91	9-Mar-06	x	x
92	10-Mar-06	x	x
93	15-Mar-06	x	x
94	16-Mar-06	x	x
95	21-Mar-06	x	x
96	22-Mar-06	x	x
97	27-Mar-06	x	x
98	28-Mar-06	x	x
99	4-Apr-06	x	x
100	5-Apr-06	x	x
101	10-Apr-06	x	x
102	11-Apr-06	x	x
103	19-Apr-06	x	x
104	20-Apr-06	x	x

TABLE 4-2
Fish Taxa Impinged
Monroe Power Plant
(04/20/2005-04/20/2006)

Fish		Screenhouse	
Scientific Name	**Common Name**	**1**	**2**
Ictiobus cyprinellus	Bigmouth buffalo		x
Ictiobus niger	Black buffalo	x	
Ameiurus melas	Black bullhead	x	x
Pomoxis nigromaculatus	Black crappie	x	x
Lepomis macrochirus	Bluegill	x	x
Pimephales notatus	Bluntnose minnow	x	x
Amia calva	Bowfin	x	x
Labidesthes sicculus	Brook silverside	x	x
Ameiurus nebulosus	Brown bullhead	x	x
Ameiurus spp.	Bullhead	x	
Cyprinidae	Carps and minnows		x
Ictalurus punctatus	Channel catfish	x	x
Cyprinus carpio	Common carp	x	x
Luxilus cornutus	Common shiner	x	x
Pomoxis spp.	Crappie		x
Semotilus atromaculatus	Creek chub		x
Notropis atherinoides	Emerald shiner	x	x
Pimephales promelas	Fathead minnow	x	
Aplodinotus grunniens	Freshwater drum	x	x
Dorosoma cepedianum	Gizzard shad	x	x
Moxostoma erythrurum	Golden redhorse	x	
Carassius auratus	Goldfish	x	x
Lepomis cyanellus	Green sunfish	x	x
Lepomis spp.	Hybrid sunfish	x	
Petromyzontidae	Lamprey	x	
Micropterus salmoides	Largemouth bass	x	x
Percina caprodes	Logperch	x	x
Lepisosteus osseus	Longnose gar	x	x
Noturus spp.	Madtom	x	x
Notropis volucellus	Mimic shiner		x
Esox masquinongy	Muskellunge	x	x
Hypentelium nigricans	Northern hog sucker		x
Lepomis megalotis	Northern longear sunfish	x	
Esox lucius	Northern pike	*x*	*x*
Lepomis humilis	Orangespotted sunfish	x	x
Lepomis gibbosus	Pumpkinseed	x	x
Carpiodes cyprinus	Quillback	x	x
Osmerus mordax	Rainbow smelt	x	x
Lepomis microlophus	Redear sunfish		x
Moxostoma spp.	Redhorse sucker	x	
Ambloplites rupestris	Rock bass	x	x

TABLE 4-2 (cont'd)
Fish Taxa Impinged
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Fish		Screenhouse	
Scientific Name	**Common Name**	**1**	**2**
Neogobius melanostomus	Round goby	x	x
Petromyzon marinus	Sea lamprey	x	x
Macrhybopsis storeriana	Silver chub	x	x
Ichthyomyzon unicuspis	Silver lamprey	x	x
Micropterus dolomieu	Smallmouth bass	x	x
Ictiobus bubalus	Smallmouth buffalo	x	
Cyprinella spiloptera	Spotfin shiner	x	x
Notropis hudsonius	Spottail shiner	x	
Lepisosteus oculatus	Spotted gar		x
Cyprinella whipplei	Steelcolor shiner		x
Oncorhynchus mykiss	Steelhead trout		x
Noturus flavus	Stonecat	x	
Centrarchidae	Sunfish		x
Noturus gyrinus	Tadpole madtom	x	
Gasterosteus aculeatus	Threespine stickleback	x	
Percopsis omiscomaycus	Trout-perch	x	x
Sander vitreus	Walleye	x	x
Morone chrysops	White bass	x	x
Pomoxis annularis	White crappie	x	x
Morone americana	White perch	x	x
Catostomus commersonii	White sucker	x	x
Ameiurus natalis	Yellow bullhead	x	x
Perca flavescens	Yellow perch	x	x

TABLE 4-3
Daily Distribution of Fish Abundance Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	4/20/2005	4/21/2005	4/27/2005	4/28/2005	5/4/2005	5/5/2005	5/11/2005	5/12/2005	5/19/2005	5/20/2005	5/25/2005	5/26/2005	5/31/2005	6/1/2005	6/9/2005	6/10/2005	6/15/2005	6/16/2005	6/21/2005	6/22/2005	6/30/2005	7/1/2005	7/6/2005	7/14/2005	7/15/2005	7/19/2005
Ameiurus spp.										1																
Bigmouth buffalo																										
Black buffalo																										
Black bullhead																										
Black crappie							1												1							
Bluegill	3			1	1			1	1	1	1								1		1		2		3	1
Bluntnose minnow																							1			
Bowfin																										
Brook silverside																										
Brown bullhead							1								1	1	1	1	1	1						
Centrarchidae	1																									
Channel catfish	1		3	1	1	4	1	4		2	3	1	1	1		1	2	4	2		2	1	2			2
Common carp	3		6			1	1																			
Common shiner																		1			1	1				
Creek chub																										
Cyprinidae																							1			
Emerald shiner	30	28	11	17	39	24	82	44	2	1,331	108	66	10	18	592	675	185	45	9	15	3	19	1	1	1	8
Fathead minnow																										
Freshwater drum	3	3	5	1	4	8	8	3	4	7	13	9	10	14	35	21	24	31	19	4	43	9	20	7	24	13
Gizzard shad	15	11	7	12	6	10	11	10	9	12	12	13	2	8	6	8	2	5	1		1		12	4	13	23
Golden redhorse																										
Goldfish		8		1	3	1	5	3		4	5	3	1													
Green sunfish																1										
Lamprey										2		1														
Largemouth bass														1						1					1	
Lepomis spp.																										
Logperch		1															1									
Longnose gar		3	1	2		2				3	2														3	
Mimic shiner																					1					
Muskellunge	1																									
Northern hog sucker	1																									
Northern longear sunfish																										
Northern pike	2			1		1				1	6				1	1	1				1					
Noturus spp.						1				1																
Orangespotted sunfish																										
Pomoxis spp.								1																		
Pumpkinseed	1	1		1		1	2			1				1	1											
Quillback					2			1		1			1	1	2	3		1		1			1		1	
Rainbow smelt					2		1	1		4						2	3	1	5	1			1			
Redear sunfish																										
Redhorse sucker									1	3	4	4	1	8	1							1				
Rock bass		2	2	1	1	2	1		1	8	3	2	2	1	3			1			3	1			3	
Round goby	16	35	9	17	4	6	5	5	3	14	3	4	1	3	4	2	9	6	2	3	12	7	6	5	9	5
Sea lamprey																		1	1	1						
Silver chub				5																6						
Silver lamprey	1	2		2	4			3	1	2		2		2	5			2		1						
Smallmouth bass				1			2		1	1							1		1		1					2
Smallmouth buffalo																										
Spotfin shiner																										
Spottail shiner		13		33	9	14	4	2		61		11	1			2	2		3	10	3					
Spotted gar														1												
Steelcolor shiner																					1					
Steelhead trout																										
Stonecat																										
Tadpole madtom																										
Threespine stickleback										1																
Trout-perch	30	104	80	78	62	68	304	129	4	142	28	18	4	11	5	1	14	4	9	7	2		1	2		
Walleye	1		1		3	1		2		2	1	1		1	3	6	17	10	2			2	1		5	3
White bass	1	5	2			3	3	5	1	20	20	5	3	6	1	5	2	2	4		4	2		6	9	16
White crappie																										
White perch	9	14	7	26	4	6	15	21	52	179	102	67	14	16	19	20	1	6	14	12	4	1	19	2	4	1
White sucker								1					1													1
Yellow bullhead																										
Yellow perch	14	10	5	8	7	7	14	3	5	86	69	30	12	8	6	3	5	4	4	10	10	2	3			2
TOTAL	**133**	**240**	**139**	**208**	**152**	**160**	**461**	**239**	**83**	**1,890**	**380**	**237**	**65**	**101**	**685**	**752**	**270**	**124**	**78**	**75**	**93**	**46**	**71**	**25**	**77**	**76**

[1.] All fish impinged during the study period are included in the daily distribution regardless of condition at the time of collection.

TABLE 4-3 (cont'd)
Daily Distribution of Fish Abundance Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	7/20/2005	7/26/2005	7/27/2005	8/4/2005	8/5/2005	8/11/2005	8/12/2005	8/16/2005	8/17/2005	8/26/2005	8/27/2005	8/30/2005	8/31/2005	9/8/2005	9/9/2005	9/13/2005	9/14/2005	9/19/2005	9/20/2005	9/28/2005	9/29/2005	10/3/2005	10/4/2005	10/12/2005
Ameiurus spp.																								
Bigmouth buffalo																								
Black buffalo																			3					
Black bullhead							1				20									5				
Black crappie																								
Bluegill	1		52			1	10	5			17	8		48	32	5	8	114	58	210	185	1,234	293	595
Bluntnose minnow						1											1							
Bowfin																								
Brook silverside																	2		6					
Brown bullhead								1																39
Centrarchidae																								
Channel catfish		3	8	1	4	1	10	7	4		15	4		129		9	10	13	20	20	50	113	54	396
Common carp		4															1	1				28		
Common shiner																								
Creek chub																								
Cyprinidae																							21	
Emerald shiner	2	10	24	1	1	1	8	4		32	17	12			16	5	10	45	21	3		85	102	317
Fathead minnow																								237
Freshwater drum	5	161	104	16	19	17	17	14	29	95	47	57	291	126	96	71	52	111	68	110	110	854	225	5,520
Gizzard shad	36	55	728	23	25	16	82	41	86	93	373	139	32	209	48	156	173	107	191	353	700	1,063	454	11,477
Golden redhorse																								
Goldfish											5	4										9	17	
Green sunfish								1									2							
Lamprey																								
Largemouth bass				1	4	1	2	3			5					3						19		78
Lepomis spp.																	1							
Logperch																2	8	4	3	10	45	132	52	
Longnose gar	1															1		16						
Mimic shiner																								
Muskellunge																								
Northern hog sucker																								
Northern longear sunfish																								
Northern pike		1	12		1															3	10			
Noturus spp.																								
Orangespotted sunfish																			5	3	5	9	7	
Pomoxis spp.																								
Pumpkinseed	1	1	16				1	1	8		20	4		4		2	2	23	13	8	5	436	73	
Quillback						1																		
Rainbow smelt							1																	
Redear sunfish					1																			
Redhorse sucker																1				5			2	
Rock bass		1	20	1	1		1	1	4		10	8				1	5	11	5	3		18	2	39
Round goby	7	12	16	8	13	8	37	7	37		18	16	16	21	16	34	19	81	14	30	60	132	31	197
Sea lamprey																								
Silver chub											5	4					1							
Silver lamprey					1											1	1	1	3					
Smallmouth bass	1	4	16		4	2	13	4	12		23	20		17		19	11	104	16	13	75	218	94	119
Smallmouth buffalo																								
Spotfin shiner																								
Spottail shiner		10					13	3	41	32	17	12		62	48	51	65	198	127	180	560	598	42	1,190
Spotted gar																								
Steelcolor shiner																								
Steelhead trout					1																			
Stonecat																								
Tadpole madtom																								
Threespine stickleback																								
Trout-perch		2						1			5	8		29		5	17	90	24	268	660	427		2,659
Walleye	3		16	3	3	1	5		8	31	8	8		13		7	5	27	5	5	10		41	39
White bass	27	224	888	41	53	62	419	88	171	61	77	122	420	178	114	97	102	1,654	169	85	140	360	280	237
White crappie																								
White perch	9	324	860	9		15	346	120	396	21,167	3,833	665	5,915	4,948	4,576	253	362	1,893	1,082	2,208	9,895	6,451	2,196	24,346
White sucker																1								
Yellow bullhead										31														
Yellow perch		3	12	1	3	1	3	3	8		12	4		6		5	7	18	2	13	35	56	20	79
TOTAL	**94**	**816**	**2,772**	**106**	**132**	**127**	**968**	**304**	**804**	**21,542**	**4,528**	**1,098**	**6,674**	**5,790**	**4,946**	**729**	**865**	**4,511**	**1,829**	**3,530**	**12,545**	**12,242**	**4,006**	**47,564**

TABLE 4-3 (cont'd)
Daily Distribution of Fish Abundance Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	10/13/2005	10/18/2005	10/19/2005	10/24/2005	10/25/2005	11/2/2005	11/3/2005	11/10/2005	11/11/2005	11/15/2005	11/16/2005	11/21/2005	11/22/2005	11/30/2005	12/1/2005	12/8/2005	12/12/2005	12/13/2005	12/19/2005	12/20/2005	12/28/2005	12/29/2005	1/4/2006	1/5/2006	1/9/2006
Ameiurus spp.																									
Bigmouth buffalo																					18				
Black buffalo																									
Black bullhead	12																								
Black crappie			5						61																
Bluegill	143	168	122	61	67	467	87	612	956	511	407	439		551	55	25	73	27	142	48		221	78	12	61
Bluntnose minnow																									
Bowfin																									11
Brook silverside	20	7	11	22						58		109	113						17				55		
Brown bullhead									30		87														
Centrarchidae																									
Channel catfish	388	45	89	5	42	10	60	35		122	116			115											
Common carp						10								61						9					76
Common shiner																									
Creek chub																									
Cyprinidae																									
Emerald shiner	206	7	28	5	121			35	30	124	378	3,433	890	4,745	894	225	197	106	1,440	77	148	95	496		329
Fathead minnow																									
Freshwater drum	486	207	224	139	178	22	103	193	61	13,566	378	106	221								38,436	110			
Gizzard shad	11,184	7,209	3,035	6,919	12,109	34,002	7,425	68,016	112,616	20,310	55,020	56,435	186,157	130,627	142,332	42,659	10,102	2,996	22,557	5,720	18,665	144,192	51,116	98,854	19,930
Golden redhorse																									
Goldfish			5		22		34	41	30			160		54	69	76	205	47	153	68	111	47		259	
Green sunfish																							55		
Lamprey																									
Largemouth bass							25			20		52		61	69										
Lepomis spp.																									
Logperch	24		11				8				58	52													
Longnose gar						10		284	61	39		104	113				16								
Mimic shiner																									
Muskellunge																									
Northern hog sucker																									
Northern longear sunfish																									
Northern pike	12											52		61							18				
Noturus spp.																									
Orangespotted sunfish			11			10				41															
Pomoxis spp.																									
Pumpkinseed	41		11	5	11			111			58	54		54				2							
Quillback								35							69										
Rainbow smelt									61	20		106		61		25	15					47			
Redear sunfish																									
Redhorse sucker													108	54											
Rock bass				50							58														
Round goby	69	15	44	490	42	22	76	76	153	118	233	52		164	124	72	40	22	68	9	55	110		25	
Sea lamprey	32						8																		
Silver chub																	16				35				
Silver lamprey														54		21									
Smallmouth bass	94	7	39	86	137		17	106	61		116	52					7	7							
Smallmouth buffalo																				9					
Spotfin shiner																			51						
Spottail shiner	716	15	22	117	353		8	336	492	384	2,012	216	335			25	56	19	35		111	143	220	363	
Spotted gar																									
Steelcolor shiner																									
Steelhead trout																									
Stonecat																									
Tadpole madtom																									
Threespine stickleback																									
Trout-perch	2,005		44	106	954						145	373	108			25	16	4	102		18		331	117	
Walleye									61			213													
White bass	172	44	66	52			418		91	20	290	104		54			16		17						
White crappie							17					1,043													
White perch	4,106	759	2,172	356	3,926	249	261	774	153	825	2,946	679		470	69		31	17	647	38	342	1,301		376	72
White sucker				5																					
Yellow bullhead												109							51						
Yellow perch	44		22		53	10		41	60	57	116	262	108	61		25	16				18				11
TOTAL	**19,754**	**8,483**	**5,961**	**8,418**	**18,015**	**34,812**	**8,547**	**70,695**	**114,977**	**36,215**	**62,418**	**64,205**	**188,153**	**137,247**	**143,681**	**43,178**	**10,806**	**3,247**	**25,280**	**5,978**	**57,975**	**146,266**	**52,352**	**100,005**	**20,489**

TABLE 4-3 (cont'd)
Daily Distribution of Fish Abundance Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	1/10/2006	1/20/2006	1/21/2006	1/25/2006	1/26/2006	1/30/2006	1/31/2006	2/8/2006	2/9/2006	2/17/2006	2/18/2006	2/22/2006	2/23/2006	2/27/2006	2/28/2006	3/9/2006	3/10/2006	3/15/2006	3/16/2006	3/21/2006	3/22/2006	3/27/2006	3/28/2006
Ameiurus spp.																							
Bigmouth buffalo																							
Black buffalo																							
Black bullhead																							
Black crappie																				20			
Bluegill	252	138	362	52	298		77	418			674		458	3,214	1,554	20	5	768	237	1,476	47	21	38
Bluntnose minnow															46								
Bowfin																			61				
Brook silverside																					47		
Brown bullhead																	5		59				
Centrarchidae																							
Channel catfish		386			283		74																
Common carp	133	138	124	52			113						536		229								
Common shiner	52																						
Creek chub				52																			
Cyprinidae																							
Emerald shiner	355	415	910	408	7,309	1,675	225	13,018	3,449	8,531	970	1,761	753	2,515	413	91	64	2,155	1,643	20	226	94	114
Fathead minnow																							
Freshwater drum															182	23				20			
Gizzard shad	48,422	315,598	148,399	31,401	375,392	1,589,057	65,647	500,572	33,340	453,772	75,611	234,434	75,756	459,537	67,440	12,781	5,515	65,370	33,213	293,584	62,489	6,307	12,656
Golden redhorse			62																				
Goldfish	185	138		232	2,878	553	113	1,691				743	179	746	228		20	71	152	20	47	5	41
Green sunfish									71			347	101									16	
Lamprey																							
Largemouth bass	52											347	39										
Lepomis spp.																							
Logperch																							
Longnose gar															91	33	20		61	718		16	
Mimic shiner																							
Muskellunge					298														61				
Northern hog sucker																							
Northern longear sunfish	15																						
Northern pike				22															29	718			
Noturus spp.																							
Orangespotted sunfish																							
Pomoxis spp.																							
Pumpkinseed	52		62	22										373					59	718	24	34	8
Quillback																						16	
Rainbow smelt																							
Redear sunfish																							
Redhorse sucker																				718			
Rock bass	15												39		46			71				16	
Round goby	112	138		74	895	553	39	418							92	42	5	71	88	981	71	44	104
Sea lamprey																							
Silver chub	155																						
Silver lamprey			62																	20	47	3	
Smallmouth bass					566		39															34	3
Smallmouth buffalo																							
Spotfin shiner																							
Spottail shiner	118	801		171	1,730		296	427					738	326	276	55	73	1,387	394	2,194	47	62	
Spotted gar																							
Steelcolor shiner																							
Steelhead trout																							
Stonecat																							
Tadpole madtom																							3
Threespine stickleback																							
Trout-perch				52	1,148		74						101	1,350	138	159	24	283	29	40	274	23	41
Walleye																							
White bass					850												5						3
White crappie			899															637					
White perch	103		62	262	5,265	2,228	750		27	284	134		101	5,125	1,418	186	64		91	1,598	260	223	122
White sucker																					132		
Yellow bullhead																							
Yellow perch			300	52	283		74					48			46		20		59	738	156	3	3
TOTAL	**50,021**	**317,754**	**151,241**	**32,854**	**397,196**	**1,594,067**	**67,520**	**516,545**	**36,887**	**462,588**	**77,389**	**237,681**	**78,801**	**473,185**	**72,198**	**13,389**	**5,818**	**70,812**	**36,236**	**303,584**	**63,866**	**6,913**	**13,136**

TABLE 4-3 (cont'd)
Daily Distribution of Fish Abundance Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	4/4/2006	4/5/2006	4/10/2006	4/11/2006	4/19/2006	4/20/2006	Total	% of Total Abundance
Ameiurus spp.							1	0.00%
Bigmouth buffalo							18	0.00%
Black buffalo							3	0.00%
Black bullhead			4				42	0.00%
Black crappie							88	0.00%
Bluegill	889	726	11		4	6	19,972	0.28%
Bluntnose minnow					13		62	0.00%
Bowfin			56				128	0.00%
Brook silverside							467	0.01%
Brown bullhead				12			239	0.00%
Centrarchidae							1	0.00%
Channel catfish	296	41	2	177		3	3,198	0.05%
Common carp			56				1,582	0.02%
Common shiner							55	0.00%
Creek chub							52	0.00%
Cyprinidae					13		35	0.00%
Emerald shiner	6,006	881	575	1,485	87	12	74,249	1.05%
Fathead minnow							237	0.00%
Freshwater drum	889	222	172	200	136	44	64,872	0.91%
Gizzard shad	296,109	39,637	26,843	82,827	1,297	189	6,700,252	94.37%
Golden redhorse							62	0.00%
Goldfish	690	213	2		30		10,424	0.15%
Green sunfish		91	2				687	0.01%
Lamprey							3	0.00%
Largemouth bass							784	0.01%
Lepomis spp.							1	0.00%
Logperch			4				415	0.01%
Longnose gar							1,599	0.02%
Mimic shiner							1	0.00%
Muskellunge							361	0.01%
Northern hog sucker							1	0.00%
Northern longear sunfish							15	0.00%
Northern pike							954	0.01%
Noturus spp.							2	0.00%
Orangespotted sunfish		41	58				189	0.00%
Pomoxis spp.							1	0.00%
Pumpkinseed	986	41	4	35	51	10	3,451	0.05%
Quillback					13		149	0.00%
Rainbow smelt					13		370	0.01%
Redear sunfish							1	0.00%
Redhorse sucker			56				967	0.01%
Rock bass	593	41	7		24		1,126	0.02%
Round goby	1,083	418	146	445	105	6	9,035	0.13%
Sea lamprey							43	0.00%
Silver chub		41					268	0.00%
Silver lamprey	296		112				648	0.01%
Smallmouth bass	593			12	21	6	2,796	0.04%
Smallmouth buffalo							9	0.00%
Spotfin shiner							51	0.00%
Spottail shiner	5,613	890	427	1,589	271	12	27,295	0.38%
Spotted gar							1	0.00%
Steelcolor shiner							1	0.00%
Steelhead trout							1	0.00%
Stonecat			2				2	0.00%
Tadpole madtom		41					44	0.00%
Threespine stickleback							1	0.00%
Trout-perch	2,564	173	127	246	30	12	16,536	0.23%
Walleye							574	0.01%
White bass			2	12			8,409	0.12%
White crappie							2,597	0.04%
White perch	6,405	418	496	411	4	6	139,115	1.96%
White sucker							141	0.00%
Yellow bullhead							191	0.00%
Yellow perch	1,482	41	11	211	33	12	5,092	0.07%
TOTAL	**324,494**	**43,954**	**29,175**	**87,660**	**2,144**	**319**	**7,099,963**	**100.00%**

TABLE 4-4
Daily Distribution of Fish Biomass (kg) Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	4/20/2005	4/21/2005	4/27/2005	4/28/2005	5/4/2005	5/5/2005	5/11/2005	5/12/2005	5/19/2005	5/20/2005	5/25/2005	5/26/2005	5/31/2005	6/1/2005	6/9/2005	6/10/2005	6/15/2005	6/16/2005	6/21/2005	6/22/2005	6/30/2005
Ameiurus spp.										0.010											
Bigmouth buffalo																					
Black buffalo																					
Black bullhead																					
Black crappie							0.068												0.016		
Bluegill	0.415			0.047	0.391			0.001	0.018	0.003	0.018								0.071		0.003
Bluntnose minnow																					
Bowfin																					
Brook silverside																					
Brown bullhead							0.189								0.438	0.722	0.499	0.362	0.356	0.193	
Centrarchidae	0.240																				
Channel catfish	0.335		0.064	0.024	0.167	4.140	0.004	0.039		0.079	0.290	0.008	0.174	0.532		0.250	0.223	2.091	0.529		0.017
Common carp	8.500		1.677			1.900	1.880														
Common shiner																		0.012			0.015
Creek chub																					
Cyprinidae																					
Emerald shiner	0.650	0.257	0.105	0.049	0.177	0.185	0.343	0.180	0.004	5.449	1.402	0.272	0.038	0.074	6.929	2.127	0.544	0.121	0.031	0.075	0.008
Fathead minnow																					
Freshwater drum	1.800	1.800	5.304	0.391	1.400	7.352	7.380	4.037	2.069	5.200	7.077	5.756	8.032	11.604	18.800	9.166	12.106	17.654	13.627	0.668	25.801
Gizzard shad	5.571	2.257	3.435	6.028	1.800	5.210	4.050	5.138	3.951	5.200	4.248	5.870	1.206	3.648	2.420	2.917	1.140	2.275	0.311		0.557
Golden redhorse																					
Goldfish		2.092		0.382	0.803	0.322	0.995	0.567		1.286	2.716	2.464	0.230								
Green sunfish																0.039					
Lamprey										0.127		0.032									
Largemouth bass														1.468						1.205	
Lepomis spp.																					
Logperch		0.007															0.003				
Longnose gar		0.800	0.128	0.570		0.183				0.410	0.308										
Mimic shiner																					0.004
Muskellunge	8.860																				
Northern hog sucker	0.740																				
Northern longear sunfish																					
Northern pike	4.550			2.268		1.755				0.194	11.471				0.140	1.246	1.200				0.811
Noturus spp.						0.089				0.008											
Orangespotted sunfish																					
Pomoxis spp.								0.202													
Pumpkinseed	0.160	0.037		0.042		0.042	0.054			0.027				0.066	0.098						
Quillback					3.000			0.748		1.380			2.828	1.008	2.532	3.632		1.103		1.656	
Rainbow smelt					0.009		0.003	0.113		0.018						0.008	0.005	0.004	0.025	0.011	
Redear sunfish																					
Redhorse sucker									0.680	2.800	2.098	2.850	0.865	6.960	1.500						
Rock bass		0.155	0.155	0.256	0.092	0.135	0.177		0.096	0.441	0.172	0.174	0.226	0.060	0.500			0.158			0.211
Round goby	3.085	2.131	0.408	0.800	0.103	0.232	0.199	0.065	0.097	0.408	0.152	0.342	0.071	0.178	0.338	0.015	0.590	0.149	0.048	0.025	0.352
Sea lamprey																		0.022	0.062	0.045	
Silver chub				0.106																0.044	
Silver lamprey	0.250	0.220		0.342	0.282			0.162	0.087	0.174		0.132		0.174	0.260			0.105		0.071	
Smallmouth bass				1.490			0.017		0.687	0.031							1.156		0.003		0.030
Smallmouth buffalo																					
Spotfin shiner																					
Spottail shiner		0.083		0.272	0.091	0.120	0.022	0.022		0.360		0.064	0.004			0.032	0.011		0.023	0.081	0.013
Spotted gar														0.546							
Steelcolor shiner																					0.005
Steelhead trout																					
Stonecat																					
Tadpole madtom																					
Threespine stickleback										0.002											
Trout-perch	0.682	0.802	0.528	0.487	0.470	0.378	1.627	0.690	0.020	0.631	0.112	0.068	0.026	0.044	0.038	0.007	0.071	0.020	0.049	0.040	0.016
Walleye	0.960		2.600		3.000	2.785		2.011		1.586	0.042	0.034		0.174	0.746	2.220	4.682	2.307	0.542		
White bass	0.375	0.027	0.174			0.532	1.633	2.489	0.342	1.922	4.616	1.376	0.465	1.428	0.236	1.045	0.406	0.593	2.095		1.180
White crappie																					
White perch	2.725	0.442	0.048	0.240	0.058	0.244	0.184	1.843	5.905	14.639	11.878	7.508	1.339	1.206	1.988	1.538	0.132	0.598	1.191	0.780	0.538
White sucker								0.570					0.073								
Yellow bullhead																					
Yellow perch	2.625	0.460	0.166	0.743	0.384	0.455	0.634	0.048	0.202	4.240	2.682	1.490	0.773	0.398	0.570	0.225	0.180	0.416	0.139	0.626	0.885
TOTAL	**42.523**	**11.570**	**14.792**	**14.537**	**12.227**	**26.059**	**19.459**	**18.925**	**14.158**	**46.625**	**49.282**	**28.440**	**16.350**	**29.568**	**37.533**	**25.189**	**22.948**	**27.988**	**19.120**	**5.522**	**30.446**

[1] All fish impinged during the study period are included in the daily distribution regardless of condition at the time of collection.

TABLE 4-4 (cont'd)
Daily Distribution of Fish Biomass (kg) Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	7/1/2005	7/6/2005	7/14/2005	7/15/2005	7/19/2005	7/20/2005	7/26/2005	7/27/2005	8/4/2005	8/5/2005	8/11/2005	8/12/2005	8/16/2005	8/17/2005	8/26/2005	8/27/2005	8/30/2005	8/31/2005	9/8/2005	9/9/2005	9/13/2005	9/14/2005	9/19/2005	9/20/2005	9/28/2005
Ameiurus spp.																									
Bigmouth buffalo																									
Black buffalo																								2.055	
Black bullhead												0.531				0.075									0.020
Black crappie																									
Bluegill		0.021		0.014	0.010	0.002		0.172			0.001	0.020	0.022			0.042	0.037		0.256	0.024	0.035	0.024	0.982	0.264	0.830
Bluntnose minnow		0.011									0.020											0.006			
Bowfin																									
Brook silverside																						0.001		0.006	
Brown bullhead													0.449												
Centrarchidae																									
Channel catfish	0.591	0.110			0.374		0.118	0.900	0.451	1.003	0.003	0.795	0.103	0.065		0.075	0.016		1.304		0.144	0.127	0.251	0.274	0.138
Common carp							0.019															0.040	0.845		
Common shiner	0.009																								
Creek chub																									
Cyprinidae		0.003																							
Emerald shiner	0.081	0.003	0.002	0.005	0.029	0.002	0.045	0.088	0.005	0.001	0.004	0.026	0.012		0.064	0.029	0.033			0.096	0.014	0.025	0.087	0.056	0.005
Fathead minnow																									
Freshwater drum	3.005	9.420	1.970	15.505	4.503	1.220	0.950	4.416	9.872	8.798	5.927	3.326	4.143	5.096	0.666	3.486	14.876	3.394	14.755	7.536	7.131	7.214	5.939	4.341	2.898
Gizzard shad		4.038	0.009	4.142	0.963	0.136	0.250	2.312	0.151	0.187	0.598	0.581	1.281	0.592	0.476	7.401	1.640	0.097	4.535	0.288	2.487	3.818	1.603	2.920	4.588
Golden redhorse																									
Goldfish																0.025	0.033								
Green sunfish													0.005									0.037			
Lamprey																									
Largemouth bass				0.693					0.020	0.036	0.010	0.983	0.076			0.105					0.044				
Lepomis spp.																						0.002			
Logperch																					0.014	0.045	0.023	0.018	0.075
Longnose gar				0.042		0.014															0.065		2.232		
Mimic shiner																									
Muskellunge																									
Northern hog sucker																									
Northern longear sunfish																									
Northern pike							0.547	11.484		0.711															0.378
Noturus spp.																									
Orangespotted sunfish																								0.020	0.008
Pomoxis spp.																									
Pumpkinseed						0.002	0.001	1.164				0.040	0.035	0.302		1.020	0.355		0.008		0.015	0.009	0.594	0.400	0.068
Quillback		1.260		2.618							0.417														
Rainbow smelt		0.006										0.001													
Redear sunfish										0.077															
Redhorse sucker	0.643																				1.001				0.265
Rock bass	0.030			0.462			0.131	0.664	0.200	0.136		0.140	0.145	0.547		1.545	0.861				0.200	0.549	0.077	1.011	0.735
Round goby	0.242	0.165	0.070	0.515	0.183	0.400	0.385	0.360	0.307	0.482	0.268	0.913	0.229	1.040		1.073	0.575	0.048	0.171	0.352	0.416	0.448	2.217	0.247	0.315
Sea lamprey																									
Silver chub																0.050	0.261					0.048			
Silver lamprey										0.018											0.029	0.035	0.031	0.068	
Smallmouth bass					0.815	0.004	0.016	0.056		0.999	0.098	0.145	0.053	0.184		0.512	0.269		0.395		1.042	0.211	2.634	1.637	0.308
Smallmouth buffalo																									
Spotfin shiner																									
Spottail shiner							0.099					0.050	0.015	0.135	0.096	0.092	0.065		0.226	0.256	0.257	0.331	0.953	0.624	1.283
Spotted gar																									
Steelcolor shiner																									
Steelhead trout										0.246															
Stonecat																									
Tadpole madtom																									
Threespine stickleback																									
Trout-perch		0.005	0.010				0.019						0.003			0.025	0.078		0.091		0.016	0.067	0.222	0.054	0.768
Walleye	0.436	0.215		0.071	0.028	0.446		0.192	1.335	2.087	1.409	0.395		2.811	0.768	0.196	3.741		3.287		4.214	1.954	6.431	2.944	2.005
White bass	0.451		0.011	0.016	0.042	0.145	1.997	21.760	1.276	0.805	0.832	6.339	0.433	0.530	0.507	0.592	0.885	1.244	0.950	0.648	1.022	1.122	13.038	1.803	1.018
White crappie																									
White perch	0.041	1.240	0.244	0.250	0.115	0.282	2.342	9.596	0.023		0.256	1.810	0.591	2.162	70.793	15.297	3.186	23.448	22.551	20.338	1.182	1.785	17.570	5.768	13.163
White sucker					0.071																0.496				
Yellow bullhead															0.154										
Yellow perch	0.136	0.234			0.089		0.228	0.592	0.020	0.289	0.034	0.371	0.231	1.032		0.832	0.016		0.451		0.299	0.392	2.593	0.016	0.113
TOTAL	**5.665**	**16.731**	**2.317**	**24.334**	**7.221**	**2.654**	**7.147**	**53.756**	**13.661**	**15.876**	**9.877**	**16.467**	**7.826**	**14.496**	**73.523**	**32.472**	**26.928**	**28.232**	**48.980**	**29.538**	**20.123**	**18.288**	**58.322**	**24.524**	**28.975**

TABLE 4-4 (cont'd)
Daily Distribution of Fish Biomass (kg) Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	9/29/2005	10/3/2005	10/4/2005	10/12/2005	10/13/2005	10/18/2005	10/19/2005	10/24/2005	10/25/2005	11/2/2005	11/3/2005	11/10/2005	11/11/2005	11/15/2005	11/16/2005	11/21/2005	11/22/2005	11/30/2005	12/1/2005	12/8/2005	12/12/2005	12/13/2005	12/19/2005	12/20/2005
Ameiurus spp.																								
Bigmouth buffalo																								
Black buffalo																								
Black bullhead					3.654																			
Black crappie							0.091						0.558											
Bluegill	0.635	3.735	1.137	2.026	0.714	0.415	0.448	0.188	0.248	1.654	0.236	1.351	0.792	1.344	0.817	1.099		1.225	0.055	0.077	1.188	0.111	0.285	0.078
Bluntnose minnow																								
Bowfin																								
Brook silverside					0.041	0.015	0.022	0.045						0.100		0.110	0.228						0.036	
Brown bullhead				9.652									0.245		42.612									
Centrarchidae																								
Channel catfish	0.690	1.207	1.957	4.409	5.339	0.545	1.744	0.036	0.282	0.122	0.480	0.321		2.289	0.875			209.459						
Common carp		0.057								0.466								63.167						4.358
Common shiner																								
Creek chub																								
Cyprinidae			0.053																					
Emerald shiner		0.219	0.810	0.596	0.392	0.008	0.096	0.005	0.324			0.036	0.092	0.481	0.875	12.510	3.119	11.091	1.914	0.731	0.791	0.355	4.378	0.195
Fathead minnow				5.878																				
Freshwater drum	6.250	17.003	16.706	55.170	21.632	4.393	8.017	2.861	11.927	0.249	7.986	10.761	2.231	170.244	8.665	8.616	1.337							
Gizzard shad	6.570	8.630	4.475	131.553	82.274	70.227	27.864	113.587	109.778	319.151	79.297	736.650	1,363.356	276.314	962.562	1,594.895	3,525.957	1,688.241	2,135.803	747.686	152.716	36.027	1,180.341	80.645
Golden redhorse																								
Goldfish		0.751	0.232				0.137		0.248		0.419	0.328	0.368			3.777		1.534	0.909	1.280	2.846	0.374	1.888	0.418
Green sunfish																								
Lamprey																								
Largemouth bass		1.464		26.572							3.081			1.611		9.516		12.070	18.948					
Lepomis spp.																								
Logperch	0.335	1.815	0.266		0.173		0.051				0.052				0.350	0.209								
Longnose gar										1.095		114.112	9.529	12.622		27.088	41.369				1.762			
Mimic shiner																								
Muskellunge																								
Northern hog sucker																								
Northern longear sunfish																								
Northern pike	2.650				3.060											66.610		48.095						
Noturus spp.																								
Orangespotted sunfish	0.020	0.038	0.029				0.022			0.020				0.105										
Pomoxis spp.																								
Pumpkinseed	0.015	1.777	0.941		0.145		0.045	0.025	0.068			0.307			3.209	0.220		3.505				0.010		
Quillback												54.738							44.677					
Rainbow smelt													0.062	0.105		0.107		4.963		0.026	0.015			
Redear sunfish																								
Redhorse sucker			0.042														89.242	35.163						
Rock bass		0.086	0.182	0.119				0.570							0.408									
Round goby	1.095	0.998	0.216	5.044	3.006	0.200	0.397	4.264	0.296	0.091	3.779	0.501	41.841	3.107	1.692	3.032		1.807	7.731	0.295	0.495	0.224	1.416	0.029
Sea lamprey					1.883						0.218													
Silver chub																					0.638			
Silver lamprey																		3.834		8.753				
Smallmouth bass	1.160	3.279	2.598	2.939	1.998	0.054	0.539	2.454	1.905		0.506	0.785	4.461		8.169	2.719					0.138	2.350		
Smallmouth buffalo																								8.240
Spotfin shiner																							0.357	
Spottail shiner	2.770	3.583	0.222	5.878	4.240	0.123	0.100	0.764	1.983		0.122	1.686	5.724	2.677	12.400	9.865	2.218			0.128	0.382	0.138	0.214	
Spotted gar																								
Steelcolor shiner																								
Steelhead trout																								
Stonecat																								
Tadpole madtom																								
Threespine stickleback																								
Trout-perch	2.070	1.331		8.579	6.449		0.168	0.316	3.197						0.467	1.169	0.326			0.077	0.067	0.051	0.408	
Walleye	4.880		35.518	56.442									65.182			36.402								
White bass	4.180	2.576	4.330	5.283	2.671	0.730	2.927	0.713			3.116		6.577	1.046	8.138	3.764		3.012			6.712		0.339	
White crappie											0.087					5.770								
White perch	60.825	36.573	12.105	166.941	31.228	4.631	13.670	2.383	25.042	1.674	1.972	5.601	0.862	4.481	16.454	4.235		2.611	0.420		0.161	0.093	3.515	0.214
White sucker								3.309																
Yellow bullhead																9.947							0.306	
Yellow perch	1.770	0.304	0.414	0.755	1.453		0.078		0.487	0.578		0.287	5.061	2.116	11.029	39.749	21.766	15.194		0.102	2.719			
TOTAL	**95.915**	**85.426**	**82.233**	**487.836**	**170.354**	**81.340**	**56.417**	**131.520**	**155.785**	**325.099**	**101.351**	**927.463**	**1,506.941**	**478.640**	**1,078.721**	**1,841.410**	**3,685.563**	**2,104.973**	**2,210.457**	**759.153**	**170.630**	**39.733**	**1,193.483**	**94.177**

TABLE 4-4 (cont'd)
Daily Distribution of Fish Biomass (kg) Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	12/28/2005	12/29/2005	1/4/2006	1/5/2006	1/9/2006	1/10/2006	1/20/2006	1/21/2006	1/25/2006	1/26/2006	1/30/2006	1/31/2006	2/8/2006	2/9/2006	2/17/2006	2/18/2006	2/22/2006	2/23/2006	2/27/2006	2/28/2006	3/9/2006	3/10/2006	3/15/2006	3/16/2006	3/21/2006	3/22/2006
Ameiurus spp.																										
Bigmouth buffalo	24.137																									
Black buffalo																										
Black bullhead																										
Black crappie																								5.558		
Bluegill		0.554	0.157	0.025	0.121	0.932	0.831	0.724	0.524	0.895		1.428	1.254			5.658		1.724	29.121	4.615	0.039	0.010	2.292	1.601	7.229	0.354
Bluntnose minnow																				0.138						
Bowfin					54.397																			175.611		
Brook silverside			0.055																							0.047
Brown bullhead																						0.029		3.958		
Centrarchidae																										
Channel catfish							14.819			6.797		109.002														
Common carp					0.637	1.149	2.215	2.294	0.734			0.936						7.417		1.970						
Common shiner						1.085																				
Creek chub									0.315																	
Cyprinidae																										
Emerald shiner	0.707	0.383	2.094		1.459	1.672	1.246	4.310	1.892	33.575	3.350	0.936	57.479	14.609	33.272	17.451	4.661	2.524	15.512	1.331	0.409	0.274	9.104	7.369	0.121	1.824
Fathead minnow																										
Freshwater drum	518.089	124.786																		3.454	47.439				12.975	
Gizzard shad	234.207	2,137.902	937.671	7,763.963	318.860	922.000	42,949.346	5,194.103	1,046.205	7,584.437	35,719.946	1,434.695	12,729.512	666.014	12,050.430	13,313.118	5,672.258	1,774.676	8,760.626	1,534.205	292.933	133.558	1,968.870	735.127	10,517.246	2,427.281
Golden redhorse								52.833																		
Goldfish	1.284	0.383		2.611		3.886	2.630		5.907	67.445	6.085	2.255	27.514				12.555	2.478	4.846	18.047		3.644	1.062	2.156	0.606	0.566
Green sunfish			0.110											2.164			2.432	0.505								
Lamprey																										
Largemouth bass						2.376											221.692	0.311								
Lepomis spp.																										
Logperch																										
Longnose gar																				86.355	16.448	16.142		46.520	107.691	
Mimic shiner																										
Muskellunge										37.903														7.712		
Northern hog sucker																										
Northern longear sunfish						0.030																				
Northern pike	13.176								34.128															29.789	358.970	
Noturus spp.																										
Orangespotted sunfish																										
Pomoxis spp.																										
Pumpkinseed						0.207		2.232	0.990										19.385					2.551	67.486	2.360
Quillback																										
Rainbow smelt		0.048																								
Redear sunfish																										
Redhorse sucker																									213.228	
Rock bass						0.060												4.621		0.092			0.354			
Round goby	2.866	11.858		0.074		3.640	0.831		0.950	13.729	4.425	0.733	3.763							0.414	0.710	0.034	0.991	0.645	78.957	2.289
Sea lamprey																										
Silver chub	1.052					3.512																				
Silver lamprey								6.387																	1.516	3.186
Smallmouth bass										50.128		9.496														
Smallmouth buffalo																										
Spotfin shiner																										
Spottail shiner	0.558	0.622	1.322	2.088		0.732	2.956		0.915	8.901		1.776	2.992					4.093	0.651	1.243	0.277	0.504	6.793	2.423	12.448	0.189
Spotted gar																										
Steelcolor shiner																										
Steelhead trout																										
Stonecat																										
Tadpole madtom																										
Threespine stickleback																										
Trout-perch	0.074		2.149	0.585					0.577	12.866		0.222						0.505	6.749	0.414	0.727	0.240	1.771	0.264	0.606	2.230
Walleye																										
White bass										173.891												0.024				
White crappie								6.296															3.470			
White perch	2.031	7.713		2.254	0.332	0.930		0.248	2.936	40.899	7.791	5.144		0.213	1.138	6.462		0.707	34.802	6.852	1.017	0.392		0.573	12.659	1.817
White sucker																										75.722
Yellow bullhead																										
Yellow perch	2.159				2.989			79.744	8.387	26.622		10.878					9.795			0.874		1.979		7.565	190.675	53.023
TOTAL	**800.340**	**2,284.248**	**943.558**	**7,771.600**	**378.796**	**942.210**	**42,974.874**	**5,349.171**	**1,104.460**	**8,058.089**	**35,741.598**	**1,577.502**	**12,822.515**	**682.999**	**12,084.840**	**13,342.689**	**5,923.393**	**1,799.560**	**8,871.692**	**1,660.004**	**360.000**	**156.831**	**1,994.707**	**1,023.864**	**11,587.971**	**2,570.889**

TABLE 4-4 (cont'd)
Daily Distribution of Fish Biomass (kg) Impingement[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

Taxa	3/27/2006	3/28/2006	4/4/2006	4/5/2006	4/10/2006	4/11/2006	4/19/2006	4/20/2006	Total Biomass (kg)	% of Total Abundance
Ameiurus spp.									0.010	0.00%
Bigmouth buffalo									24.137	0.01%
Black buffalo									2.055	0.00%
Black bullhead					0.028				4.309	0.00%
Black crappie									6.290	0.00%
Bluegill	1.434	0.114	2.370	2.361	0.022		0.012	0.030	90.012	0.04%
Bluntnose minnow							0.116		0.290	0.00%
Bowfin					156.518				386.527	0.18%
Brook silverside									0.706	0.00%
Brown bullhead						3.260			62.965	0.03%
Centrarchidae									0.240	0.00%
Channel catfish			0.593	0.123	0.022	0.457		0.097	377.470	0.17%
Common carp					16.115				116.376	0.05%
Common shiner									1.121	0.00%
Creek chub									0.315	0.00%
Cyprinidae							0.026		0.081	0.00%
Emerald shiner	0.468	0.495	25.206	2.924	2.364	6.602	0.388	0.058	314.817	0.15%
Fathead minnow									5.878	0.00%
Freshwater drum			256.901	104.579	102.381	21.686	86.744	23.179	1,973.668	0.91%
Gizzard shad	151.806	301.058	8,145.016	1,377.999	625.338	2,180.866	36.378	6.583	207,191.158	95.77%
Golden redhorse									52.833	0.02%
Goldfish	0.063	1.091	137.061	6.664	0.028		0.691		338.983	0.16%
Green sunfish	0.078			2.361	0.063				7.793	0.00%
Lamprey									0.159	0.00%
Largemouth bass									302.279	0.14%
Lepomis spp.									0.002	0.00%
Logperch					0.030				3.467	0.00%
Longnose gar	15.787								501.274	0.23%
Mimic shiner									0.004	0.00%
Muskellunge									54.476	0.03%
Northern hog sucker									0.740	0.00%
Northern longear sunfish									0.030	0.00%
Northern pike									593.233	0.27%
Noturus spp.									0.097	0.00%
Orangespotted sunfish				0.123	0.125				0.509	0.00%
Pomoxis spp.									0.202	0.00%
Pumpkinseed	2.713	0.520	84.991	1.430	0.275	1.382	3.056	0.609	204.993	0.09%
Quillback	0.140						0.462		122.201	0.06%
Rainbow smelt							0.103		5.631	0.00%
Redear sunfish									0.077	0.00%
Redhorse sucker					11.152				368.489	0.17%
Rock bass	1.030		3.556	0.041	0.024		0.942		22.527	0.01%
Round goby	2.260	3.676	57.442	18.357	6.263	37.795	1.589	0.303	357.363	0.17%
Sea lamprey									2.230	0.00%
Silver chub				2.492					8.203	0.00%
Silver lamprey	0.273		18.964		10.483				55.834	0.03%
Smallmouth bass	21.018	0.576	212.454			1.394	26.445	2.469	372.825	0.17%
Smallmouth buffalo									8.240	0.00%
Spotfin shiner									0.357	0.00%
Spottail shiner	0.421		35.947	4.540	2.385	8.605	1.769	0.094	166.141	0.08%
Spotted gar									0.546	0.00%
Steelcolor shiner									0.005	0.00%
Steelhead trout									0.246	0.00%
Stonecat					0.199				0.199	0.00%
Tadpole madtom		0.014		0.368					0.382	0.00%
Threespine stickleback									0.002	0.00%
Trout-perch	0.174	0.201	16.474	1.966	0.904	1.121	0.122	0.088	83.869	0.04%
Walleye									257.080	0.12%
White bass		0.036			0.033	0.115			308.612	0.14%
White crappie									15.623	0.01%
White perch	2.058	1.784	35.092	2.179	2.545	2.840	0.015	0.788	848.957	0.39%
White sucker									80.241	0.04%
Yellow bullhead									10.407	0.00%
Yellow perch	0.095	0.337	73.485	0.409	1.051	31.576	4.542	1.239	637.597	0.29%
TOTAL	**199.817**	**309.902**	**9,105.552**	**1,528.912**	**938.348**	**2,297.700**	**163.400**	**35.538**	**216,353.383**	**100.00%**

TABLE 4-5

Length Distribution of Fish Impinged[1]

Monroe Power Plant

(04/20/2005 - 04/20/2006)

		Length Range (mm)																								
		0.1-10.0	10.1-20.0	20.1-30.0	30.1-40.0	40.1-50.0	50.1-60.0	60.1-70.0	70.1-80.0	80.1-90.0	90.1-100.0	100.01-110.0	110.1-120.0	120.1-130.0	130.1-140.0	140.1-150.0	150.1-160.0	160.1-170.0	170.1-180.0	180.1-190.0	190.1-200.0	>200.1	Sample Size	Maximum	Minimum	Average
Ameiurus spp.	1st Quarter										1												1	91.00	91.00	91.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Bigmouth buffalo	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																					1	1	407.00	407.00	407.00
	3rd Quarter																					2	2	451.00	381.00	416.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Black bullhead	1st Quarter																					1	1	358.00	358.00	358.00
	2nd Quarter							1	1	1												1	4	368.00	64.00	146.00
	3rd Quarter																					1	1	295.00	295.00	295.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter									1	1												2	94.00	83.00	88.50
Black crappie	1st Quarter											1					1						2	153.00	105.00	129.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter										1		1										2	116.00	95.00	105.50
	4th Quarter																					1	1	260.00	260.00	260.00
	5th Quarter																						0	N/A	N/A	N/A
Bluegill	1st Quarter					2		1	3	1	1	2	1		2		1	1				1	16	229.00	41.00	105.56
	2nd Quarter				7	23	68	56	27	17	4		3										205	120.00	31.00	63.21
	3rd Quarter			1	38	121	189	76	14	9	4												426	95.00	25.00	55.55
	4th Quarter				1	14	45	21	8	6			1	2		1			2				101	178.00	40.00	65.29
	5th Quarter					6	5	4	4														19	80.00	45.00	59.79
Bluntnose minnow	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter									1		1			1								3	131.00	87.00	107.67
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter								1														1	78.00	78.00	78.00
	5th Quarter										1												1	94.00	94.00	94.00
Bowfin	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																					1	1	500.00	500.00	500.00
	4th Quarter																					2	2	720.00	660.00	690.00
	5th Quarter																					1	1	650.00	650.00	650.00
Brook silverside	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter							5															5	70.00	62.00	66.00
	3rd Quarter							3	8														11	80.00	67.00	72.82
	4th Quarter							1	2														3	74.00	67.00	71.00
	5th Quarter																						0	N/A	N/A	N/A
Brown bullhead	1st Quarter																					5	5	360.00	230.00	294.60
	2nd Quarter																					1	1	348.00	348.00	348.00
	3rd Quarter																					2	2	336.00	263.00	299.50
	4th Quarter								1	1												1	3	216.00	75.00	127.00
	5th Quarter																					1	1	280.00	280.00	280.00
Centrarchidae	1st Quarter																1					1	1	160.00	160.00	160.00
	2nd Quarter						1										1						2	155.00	59.00	107.00
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Channel catfish	1st Quarter							4	4	1	1		1		1	2	2	2			1	16	35	730.00	63.00	213.23
	2nd Quarter					1	1	12	4	10	12	5	3	5	7	5	4	3	1	1	2	12	88	391.00	48.00	136.48
	3rd Quarter						2	1	6	10	11	16	18	13	7	4	2	3			1	2	96	600.00	59.00	117.57
	4th Quarter															1						1	2	492.00	150.00	321.00
	5th Quarter						1	1	2				1					1					6	167.00	60.00	92.83
Common carp	1st Quarter																					13	13	740.00	210.00	412.08
	2nd Quarter								1							1						1	3	412.00	73.00	208.67
	3rd Quarter															1						2	3	435.00	146.00	300.33
	4th Quarter								3	11	6	2	5	1		1	1						30	157.00	78.00	100.27
	5th Quarter																					1	1	304.00	304.00	304.00
Common shiner	1st Quarter									1			2										3	116.00	86.00	105.33
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter														1								1	134.00	134.00	134.00
	5th Quarter																						0	N/A	N/A	N/A

TABLE 4-5 (cont'd)
Length Distribution of Fish Impinged[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

		Length Range (mm)																								
		0.1-10.0	10.1-20.0	20.1-30.0	30.1-40.0	40.1-50.0	50.1-60.0	60.1-70.0	70.1-80.0	80.1-90.0	90.1-100.0	100.01-110.0	110.1-120.0	120.1-130.0	130.1-140.0	140.1-150.0	150.1-160.0	160.1-170.0	170.1-180.0	180.1-190.0	190.1-200.0	>200.1	Sample Size	Maximum	Minimum	Average
Creek chub	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter										1												1	100.00	100.00	100.00
	5th Quarter																						0	N/A	N/A	N/A
Cyprinidae	1st Quarter							3	1	3													7	90.00	65.00	76.43
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter						1																1	59.00	59.00	59.00
Emerald shiner	1st Quarter					3	39	144	145	545	128	21	21	8	6								1060	139.00	42.00	83.15
	2nd Quarter			2	1	5	11	14	31	18	5												87	99.00	25.00	71.45
	3rd Quarter					2	36	82	77	101	59	3		1	1								362	135.00	48.00	77.82
	4th Quarter			1	1			17	54	148	150	14											385	106.00	25.00	87.97
	5th Quarter						1	6	17	18	26	4											72	105.00	59.00	86.10
Fathead minnow	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																					1	1	70.00	70.00	70.00
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Freshwater drum	1st Quarter							1					1				2	2	1	1	1	272	281	705.00	66.00	371.40
	2nd Quarter			1	1	14	42	33	13	14	34	52	61	57	27	19	4	3	2	5	3	224	609	744.00	26.00	182.07
	3rd Quarter							2	3	12	6	15	30	55	74	59	20	7	1		1		303	501.00	66.00	141.49
	4th Quarter													1		1						2	4	540.00	128.00	298.25
	5th Quarter											2			3		2					40	47	505.00	103.00	337.40
Gizzard shad	1st Quarter													1		1	3	1	1	1	2	152	162	477.00	128.00	343.68
	2nd Quarter			3	1	9	115	164	188	139	164	193	135	108	71	23	9	3	4	4	1	22	1356	499.00	25.00	98.75
	3rd Quarter		3				5	62	234	259	546	1038	897	594	329	219	111	62	31	12	6	6	4414	413.00	11.00	113.18
	4th Quarter						1		1	8	40	168	504	1004	900	674	510	436	303	186	91	74	4900	473.00	55.00	143.30
	5th Quarter										1	8	74	180	203	146	132	104	44	15	8	9	924	407.00	94.00	144.71
Golden redhorse	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																					1	1	425.00	425.00	425.00
	5th Quarter																						0	N/A	N/A	N/A
Goldfish	1st Quarter							1													1	32	34	503.00	62.00	248.94
	2nd Quarter								1		1												2	98.00	74.00	86.00
	3rd Quarter				1			3	15	21	13	8	6	3	2								72	139.00	33.00	91.71
	4th Quarter								3	7	14	13	11	3	1	1	2			1		2	58	247.00	72.00	111.83
	5th Quarter										2	2	1	1	1	1					1	1	10	265.00	95.00	138.50
Green sunfish	1st Quarter												1										1	114.00	114.00	114.00
	2nd Quarter							1			1	1											3	109.00	61.00	88.33
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter						1	1	2														4	78.00	56.00	67.25
	5th Quarter												1			1							2	145.00	116.00	130.50
Largemouth bass	1st Quarter																					2	2	449.00	445.00	447.00
	2nd Quarter								1	3	3	4	3	2		1						2	19	360.00	77.00	131.26
	3rd Quarter																		3		1	5	9	342.00	174.00	231.33
	4th Quarter										1							1				1	3	378.00	100.00	212.67
	5th Quarter																						0	N/A	N/A	N/A
Logperch	1st Quarter								1		1												2	96.00	75.00	85.50
	2nd Quarter		1					2	3	2	9	2	1	1									21	123.00	17.00	86.90
	3rd Quarter							1	8	14	7	2	1										33	113.00	69.00	86.33
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter										2												2	97.00	94.00	95.50
Longnose gar	1st Quarter																					15	15	700.00	335.00	455.40
	2nd Quarter																					6	6	444.00	204.00	306.17
	3rd Quarter																					15	15	660.00	382.00	544.40
	4th Quarter																					7	7	750.00	418.00	634.71
	5th Quarter																						0	N/A	N/A	N/A
Muskellunge	1st Quarter																					1	1	960.00	960.00	960.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																					2	2	313.00	295.00	304.00
	5th Quarter																						0	N/A	N/A	N/A

Length Distribution of Fish Impinged[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

		Length Range (mm)																								
		0.1-10.0	10.1-20.0	20.1-30.0	30.1-40.0	40.1-50.0	50.1-60.0	60.1-70.0	70.1-80.0	80.1-90.0	90.1-100.0	100.01-110.0	110.1-120.0	120.1-130.0	130.1-140.0	140.1-150.0	150.1-160.0	160.1-170.0	170.1-180.0	180.1-190.0	190.1-200.0	>200.1	Sample Size	Maximum	Minimum	Average
Northern hog sucker	1st Quarter																					1	1	350.00	350.00	350.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Northern longear sunfish	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter						1																1	57.00	57.00	57.00
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter					1																	1	46.00	46.00	46.00
	5th Quarter																						0	N/A	N/A	N/A
Northern pike	1st Quarter																					16	16	970.00	305.00	627.00
	2nd Quarter																					6	6	614.00	308.00	473.33
	3rd Quarter																					4	4	592.00	365.00	496.75
	4th Quarter																					3	3	655.00	447.00	556.67
	5th Quarter																						0	N/A	N/A	N/A
Noturus spp.	1st Quarter										1											1	2	223.00	94.00	158.50
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Orangespotted sunfish	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter						3	1															4	64.00	53.00	59.00
	3rd Quarter					3	3	3															9	70.00	47.00	56.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter						1	1	1														3	75.00	52.00	62.67
Pomoxis spp.	1st Quarter																					1	1	242.00	242.00	242.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Pumpkinseed sunfish	1st Quarter											2	2	1	3				1				9	171.00	108.00	127.56
	2nd Quarter					3	2	4	4	3	1		1	4	5	3	2	3					35	169.00	48.00	106.94
	3rd Quarter					2	32	32	5				1	3	1	1							77	150.00	44.00	66.43
	4th Quarter						2	2						2	4		3	1		1			14	182.00	55.00	127.57
	5th Quarter					1							1	2	5	2	5	1					17	175.00	50.00	137.29
Quillback	1st Quarter																					13	13	558.00	380.00	451.46
	2nd Quarter																					3	3	511.00	323.00	447.00
	3rd Quarter																					2	2	470.00	383.00	426.50
	4th Quarter										1												1	95.00	95.00	95.00
	5th Quarter															1							1	150.00	150.00	150.00
Rainbow smelt	1st Quarter			1				1	3	4	5	1	2	1	3								21	134.00	30.00	94.71
	2nd Quarter					1						1											2	102.00	47.00	74.50
	3rd Quarter				1		4	1	1			1				1							9	147.00	36.00	73.22
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter												1										1	120.00	120.00	120.00
Redhorse sucker	1st Quarter																					23	23	558.00	331.00	422.70
	2nd Quarter													1					1			1	3	465.00	122.00	252.67
	3rd Quarter													1								1	2	491.00	124.00	307.50
	4th Quarter																					1	1	313.00	313.00	313.00
	5th Quarter																					1	1	276.00	276.00	276.00
Rock bass	1st Quarter						1			2		1	2	4	4	3	2	3	3	2	3	3	33	245.00	60.00	151.55
	2nd Quarter				1		1	1	1		2	2		1	2	1	1		1	2	1	11	28	246.00	40.00	162.57
	3rd Quarter						2	2	1							1	1						7	151.00	54.00	88.57
	4th Quarter						1	2									1				1		5	192.00	56.00	106.20
	5th Quarter					2	3	3	1						1								10	133.00	50.00	66.90
Round goby	1st Quarter					1	15	10	10	16	5	6	8	5	22	10	18	17	13	6	5	4	171	215.00	42.00	127.36
	2nd Quarter					1	10	21	26	27	21	18	20	15	15	9	11	10	8	3	5	4	224	314.00	48.00	111.99
	3rd Quarter					1	4	14	26	15	12	8	9	6	3	3	4		1	4	2		112	194.00	50.00	97.86
	4th Quarter							3	7	11	7	5	2	6	4	4	3	2	5	2			61	190.00	65.00	115.62
	5th Quarter						1	5	7	5	3	3	4	9	6	3	3	1	2	2		1	55	196.00	60.00	115.13
Sand shiner	1st Quarter										1												1	93.00	93.00	93.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A

TABLE 4-5 (cont'd)
Length Distribution of Fish Impinged[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

		Length Range (mm)																								
		0.1-10.0	10.1-20.0	20.1-30.0	30.1-40.0	40.1-50.0	50.1-60.0	60.1-70.0	70.1-80.0	80.1-90.0	90.1-100.0	100.01-110.0	110.1-120.0	120.1-130.0	130.1-140.0	140.1-150.0	150.1-160.0	160.1-170.0	170.1-180.0	180.1-190.0	190.1-200.0	>200.1	Sample Size	Maximum	Minimum	Average
Sea lamprey	1st Quarter																					4	4	326.00	249.00	284.50
	2nd Quarter																					1	1	218.00	218.00	218.00
	3rd Quarter																					1	1	557.00	557.00	557.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Silver chub	1st Quarter									2	1	3	2		2	1							11	142.00	86.00	110.91
	2nd Quarter												1							1		1	3	205.00	115.00	167.00
	3rd Quarter															1		1					2	162.00	150.00	156.00
	4th Quarter										1				1			1					3	170.00	91.00	130.67
	5th Quarter																					1	1	205.00	205.00	205.00
Silver lamprey	1st Quarter																					30	30	380.00	210.00	290.63
	2nd Quarter																					4	4	252.00	205.00	236.25
	3rd Quarter																					5	5	305.00	210.00	273.80
	4th Quarter																					5	5	362.00	290.00	325.20
	5th Quarter																					3	3	345.00	313.00	332.33
Silver redhorse	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																					1	1	445.00	445.00	445.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Smallmouth bass	1st Quarter						1			1	1			1								3	7	470.00	60.00	241.57
	2nd Quarter					1		6	8	12	23	19	21	20	10	4	1	2	1			4	132	435.00	50.00	132.61
	3rd Quarter						1	5	10	14	17	8	12	4	3	4	10	1				1	90	372.00	57.00	109.08
	4th Quarter																			1	1	4	6	415.00	190.00	253.33
	5th Quarter										1	1							1		1	4	8	445.00	96.00	269.75
Spottin shiner	1st Quarter									1													1	83.00	83.00	83.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter									1													1	90.00	90.00	90.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Spottail shiner	1st Quarter						1	11	47	51	21	21	8	5	2					1			168	190.00	58.00	89.29
	2nd Quarter					3	2	27	156	164	25	20	6	2									405	125.00	42.00	82.30
	3rd Quarter						1	5	56	186	63	19	9										339	119.00	60.00	87.57
	4th Quarter								14	47	27	3											91	110.00	71.00	88.07
	5th Quarter							1	10	55	28	6											100	109.00	70.00	88.80
Spotted gar	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																					1	1	404.00	404.00	404.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Stonecat	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																					1	1	221.00	221.00	221.00
Threespined stickleback	1st Quarter							1															1	61.00	61.00	61.00
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Trout-perch	1st Quarter						1	42	337	355	73	76	62	21	2							1	970	224.00	59.00	86.70
	2nd Quarter						6	118	83	34	8	2			1								252	135.00	52.00	72.96
	3rd Quarter						6	116	206	21	11	4											364	110.00	55.00	73.49
	4th Quarter								17	16	6	3	7	1									50	123.00	71.00	89.78
	5th Quarter							3	9	10	3	8	2										35	115.00	65.00	89.57
Unidentified	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																					1	1	295.00	295.00	295.00
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Walleye	1st Quarter								1	1							1		2	1		47	53	685.00	71.00	335.25
	2nd Quarter						1	1	2			6	2	5	3	3	4		3		1	26	57	666.00	56.00	262.37
	3rd Quarter																		1			7	8	582.00	180.00	442.75
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A

TABLE 4-5 (cont'd)
Length Distribution of Fish Impinged[1]
Monroe Power Plant
(04/20/2005 - 04/20/2006)

		Length Range (mm)																								
		0.1-10.0	10.1-20.0	20.1-30.0	30.1-40.0	40.1-50.0	50.1-60.0	60.1-70.0	70.1-80.0	80.1-90.0	90.1-100.0	100.01-110.0	110.1-120.0	120.1-130.0	130.1-140.0	140.1-150.0	150.1-160.0	160.1-170.0	170.1-180.0	180.1-190.0	190.1-200.0	>200.1	Sample Size	Maximum	Minimum	Average
White bass	1st Quarter								2	2	2						6	6	2	3	1	61	85	397.00	74.00	255.44
	2nd Quarter				3	24	196	245	190	205	180	78	38	22	17	15	1	6	1	3		17	1241	361.00	36.00	83.96
	3rd Quarter					1			4	18	34	30	21	8	5	8	3	3	2	2		3	142	315.00	49.00	114.16
	4th Quarter									1		1	1		1							1	5	340.00	88.00	157.60
	5th Quarter												2										2	117.00	115.00	116.00
White crappie	1st Quarter																						0	N/A	N/A	N/A
	2nd Quarter																						0	N/A	N/A	N/A
	3rd Quarter								1														1	80.00	80.00	80.00
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
White perch	1st Quarter						10	26	37	16	7	11	17	23	25	53	83	51	57	62	91	251	820	316.00	54.00	170.76
	2nd Quarter				1	18	348	989	1049	347	72	17	5	3	3	6	9	23	29	22	9	20	2970	277.00	37.00	75.97
	3rd Quarter						4	117	710	594	152	26	8	3						4	2	9	1629	275.00	55.00	82.34
	4th Quarter						1	8	46	61	33	13	4	3		2						8	179	320.00	60.00	94.82
	5th Quarter							13	22	24	11	4							2	5	1	6	88	330.00	65.00	104.57
White sucker	1st Quarter																				1	1	2	367.00	200.00	283.50
	2nd Quarter																					1	1	410.00	410.00	410.00
	3rd Quarter																					1	1	421.00	421.00	421.00
	4th Quarter																					1	1	390.00	390.00	390.00
	5th Quarter																						0	N/A	N/A	N/A
Yellow bullhead	1st Quarter																					1	1	312.00	312.00	312.00
	2nd Quarter																					1	1	74.00	74.00	74.00
	3rd Quarter																						0	N/A	N/A	N/A
	4th Quarter																						0	N/A	N/A	N/A
	5th Quarter																						0	N/A	N/A	N/A
Yellow perch	1st Quarter									1	3	4	4	4	9	14	26	20	8	9	5	15	122	302.00	83.00	162.67
	2nd Quarter							1	5		2		1		2		1	1		3		7	23	285.00	68.00	153.83
	3rd Quarter								1	4	2		2					1	1			8	19	281.00	79.00	163.87
	4th Quarter										1			1							1	4	7	275.00	98.00	209.57
	5th Quarter								2											1	1	3	7	274.00	78.00	181.71

[1.] All fish measured during the study period are included in the length distribution regardless of condition at the time of collection.
1st Quarter = April 2005, May, June; 2nd Quarter = July, August, September; 3rd Quarter = October, November, December;
4th Quarter = January 2006, February, March; 5th Quarter = April 2006

TABLE 4-6

Total Daily Distribution of Fish Taxa[1] Impinged at Each Screenhouse
Monroe Power Plant
(04/20/2005 - 04/20/2006)

	Estimated Screenhouse Abundance (#)				Estimated Screenhouse Biomass (kg)			
Taxa	**SH1**	**SH2**	**Total Abundance**	**% of Abundance**	**SH1**	**SH2**	**Total Biomass (kg)**	**% of Biomass**
Gizzard shad	2,450,324	4,249,928	6,700,252	94.37%	67,299.480	139,891.677	207,191.158	95.77%
White perch	78,752	60,362	139,115	1.96%	448.036	400.921	848.957	0.39%
Emerald shiner	42,868	31,381	74,249	1.05%	174.260	140.557	314.817	0.15%
Freshwater drum	61,791	3,081	64,872	0.91%	1,166.200	807.469	1,973.668	0.91%
Spottail shiner	9,696	17,600	27,295	0.38%	64.872	101.269	166.141	0.08%
Bluegill	10,223	9,750	19,972	0.28%	55.103	34.909	90.012	0.04%
Trout-perch	8,157	8,380	16,536	0.23%	39.610	44.259	83.869	0.04%
Goldfish	4,714	5,710	10,424	0.15%	200.925	138.058	338.983	0.16%
Round goby	5,028	4,007	9,035	0.13%	119.398	237.966	357.363	0.17%
White bass	2,565	5,843	8,409	0.12%	32.873	275.740	308.612	0.14%
Yellow perch	2,558	2,534	5,092	0.07%	183.607	453.990	637.597	0.29%
Pumpkinseed	1,987	1,464	3,451	0.05%	76.331	128.662	204.993	0.09%
Channel catfish	1,568	1,630	3,198	0.05%	37.552	339.918	377.470	0.17%
Smallmouth bass	1,360	1,435	2,796	0.04%	248.743	124.082	372.825	0.17%
White crappie	1,697	899	2,597	0.04%	9.328	6.296	15.623	0.01%
Longnose gar	30	1,569	1,599	0.02%	7.258	494.016	501.274	0.23%
Common carp	608	975	1,582	0.02%	13.012	103.364	116.376	0.05%
Rock bass	979	147	1,126	0.02%	14.697	7.830	22.527	0.01%
Redhorse sucker	169	798	967	0.01%	128.073	240.416	368.489	0.17%
Northern pike	71	882	954	0.01%	72.368	520.866	593.233	0.27%
Largemouth bass	234	550	784	0.01%	51.568	250.712	302.279	0.14%
Green sunfish	77	610	687	0.01%	0.407	7.386	7.793	0.00%
Silver lamprey	504	145	648	0.01%	35.461	20.372	55.834	0.03%
Walleye	147	427	574	0.01%	6.433	250.647	257.080	0.12%
Brook silverside	260	207	467	0.01%	0.293	0.414	0.706	0.00%
Logperch	230	185	415	0.01%	1.530	1.938	3.467	0.00%
Rainbow smelt	144	226	370	0.01%	0.178	5.453	5.631	0.00%
Muskellunge	298	62	361	0.01%	37.903	16.572	54.476	0.03%
Silver chub	93	175	268	0.00%	3.976	4.227	8.203	0.00%
Brown bullhead	108	131	239	0.00%	8.324	54.641	62.965	0.03%
Fathead minnow	237	0	237	0.00%	5.878	0.000	5.878	0.00%
Yellow bullhead	160	31	191	0.00%	10.253	0.154	10.407	0.00%
Orangespotted sunfish	80	109	189	0.00%	0.265	0.244	0.509	0.00%
Quillback	71	78	149	0.00%	47.936	74.265	122.201	0.06%
White sucker	6	135	141	0.00%	3.380	76.861	80.241	0.04%
Bowfin	11	117	128	0.00%	54.397	332.130	386.527	0.18%
Black crappie	21	67	88	0.00%	5.573	0.717	6.290	0.00%
Golden redhorse	62	0	62	0.00%	52.833	0.000	52.833	0.02%
Bluntnose minnow	47	15	62	0.00%	0.144	0.146	0.290	0.00%
Common shiner	3	52	55	0.00%	0.036	1.085	1.121	0.00%
Creek chub	0	52	52	0.00%	0.000	0.315	0.315	0.00%
Spotfin shiner	51	0	51	0.00%	0.357	0.000	0.357	0.00%
Tadpole madtom	44	0	44	0.00%	0.382	0.000	0.382	0.00%
Sea lamprey	13	30	43	0.00%	0.937	1.293	2.230	0.00%

Total Daily Distribution of Fish Taxa[1] Impinged at Each Screenhouse
Monroe Power Plant
(04/20/2005 - 04/20/2006)

	Estimated Screenhouse Abundance (#)				Estimated Screenhouse Biomass (kg)			
Taxa	**SH1**	**SH2**	**Total Abundance**	**% of Abundance**	**SH1**	**SH2**	**Total Biomass (kg)**	**% of Biomass**
Black bullhead	41	1	42	0.00%	3.777	0.531	4.309	0.00%
Cyprinidae	0	35	35	0.00%	0.000	0.081	0.081	0.00%
Bigmouth buffalo	0	18	18	0.00%	0.000	24.137	24.137	0.01%
Northern longear sunfish	15	0	15	0.00%	0.030	0.000	0.030	0.00%
Smallmouth buffalo	9	0	9	0.00%	8.240	0.000	8.240	0.00%
Lamprey	3	0	3	0.00%	0.159	0.000	0.159	0.00%
Black buffalo	3	0	3	0.00%	2.055	0.000	2.055	0.00%
Stonecat	2	0	2	0.00%	0.199	0.000	0.199	0.00%
Noturus spp.	1	1	2	0.00%	0.089	0.008	0.097	0.00%
Ameiurus spp.	1	0	1	0.00%	0.010	0.000	0.010	0.00%
Pomoxis spp.	0	1	1	0.00%	0.000	0.202	0.202	0.00%
Mimic shiner	0	1	1	0.00%	0.000	0.004	0.004	0.00%
Northern hog sucker	0	1	1	0.00%	0.000	0.740	0.740	0.00%
Spotted gar	0	1	1	0.00%	0.000	0.546	0.546	0.00%
Steelcolor shiner	0	1	1	0.00%	0.000	0.005	0.005	0.00%
Centrarchidae	0	1	1	0.00%	0.000	0.240	0.240	0.00%
Threespine stickleback	1	0	1	0.00%	0.002	0.000	0.002	0.00%
Lepomis spp.	1	0	1	0.00%	0.002	0.000	0.002	0.00%
Redear sunfish	0	1	1	0.00%	0.000	0.077	0.077	0.00%
Steelhead trout	0	1	1	0.00%	0.000	0.246	0.246	0.00%
TOTAL	**2,688,124**	**4,411,839**	**7,099,963**	**100.00%**	**70,734.730**	**145,618.653**	**216,353.383**	**100.00%**
% of Total per SH	**37.86%**	**62.14%**			**32.69%**	**67.31%**		

1. All fish impinged during the study period are included in the screenhouse distribution regardless of condition at the time of collection.

Individual estimates may not add to totals due to rounding.

TABLE 4-7

Monthly Total of Flow-Expanded Impingement[1] - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	163	252	112	2,990	2,915	6,237	186,416	2,269,870	1,550,979	10,019,568	6,726,222	1,745,684	1,561,418	24,072,826	94.60%
White perch	211	1,390	360	4,382	113,894	84,757	154,148	21,165	8,755	31,117	25,233	9,160	27,244	481,817	1.89%
Emerald shiner	316	5,925	5,344	249	265	264	2,910	32,942	12,524	42,124	109,909	12,695	31,418	256,886	1.01%
Freshwater drum	39	218	662	1,317	2,032	2,339	26,333	45,259	137,249	0	647	153	5,267	221,516	0.87%
Spottail shiner	171	336	75	33	292	4,080	9,784	11,865	1,599	13,044	6,370	14,513	29,959	92,119	0.36%
Bluegill	14	16	4	228	145	2,198	9,025	13,228	2,699	5,095	22,420	7,867	5,723	68,663	0.27%
Trout-perch	1,117	2,560	172	21	47	3,581	21,315	2,102	677	5,669	5,646	3,139	11,008	57,052	0.22%
Goldfish	39	79	0	0	31	0	180	1,088	3,019	14,897	12,861	1,042	3,177	36,412	0.14%
Round goby	328	137	151	296	553	913	3,249	2,957	2,085	7,018	1,774	5,052	6,813	31,325	0.12%
White bass	36	197	90	4,160	5,346	8,490	4,129	3,348	243	2,978	0	30	53	29,099	0.11%
Yellow perch	128	753	187	99	120	275	956	2,453	299	2,689	334	3,481	6,218	17,993	0.07%
Pumpkinseed	11	14	7	64	120	189	1,864	805	8	464	1,327	2,957	3,767	11,597	0.05%
Channel catfish	18	57	45	60	149	731	3,843	1,539	1	2,657	0	0	1,838	10,938	0.04%
Smallmouth bass	4	13	14	78	272	848	2,688	1,157	50	1,897	0	138	2,151	9,311	0.04%
White crappie	0	0	0	0	0	0	0	3,446	0	4,047	0	799	0	8,292	0.03%
Common carp	32	7	0	15	0	7	60	251	0	2,320	2,692	0	198	5,581	0.02%
Longnose gar	21	23	0	24	0	60	0	1,908	57	0	324	3,043	0	5,460	0.02%
Rock bass	22	66	25	105	91	72	382	194	0	54	164	60	2,277	3,511	0.01%
Northern pike	11	29	14	50	3	41	43	401	64	78	0	2,670	0	3,404	0.01%
Redhorse sucker	0	41	31	0	0	12	6	530	1	0	0	2,565	198	3,385	0.01%
Silver lamprey	21	41	32	0	3	19	0	180	151	228	0	250	1,450	2,375	0.01%
Walleye	4	27	130	101	206	247	284	915	0	0	0	0	0	1,913	0.01%
Brook silverside	0	0	0	0	0	28	211	947	121	197	0	169	0	1,673	0.01%
Largemouth bass	0	0	3	4	57	11	336	556	229	158	138	0	0	1,493	0.01%
Logperch	4	0	4	0	0	246	731	406	0	0	0	0	8	1,399	0.01%
Rainbow smelt	0	27	55	7	3	0	0	833	399	0	0	0	0	1,325	0.01%
Muskellenge	4	0	0	0	0	0	0	0	0	1,065	0	227	0	1,295	0.01%
Green sunfish	0	0	4	0	4	7	0	0	0	197	617	60	323	1,210	0.00%
Brown bullhead	0	4	25	0	4	0	150	389	0	0	0	230	0	800	0.00%
Silver chub	18	0	22	0	31	4	0	0	182	474	0	0	0	729	0.00%
Fathead minnow	0	0	0	0	0	0	702	0	0	0	0	0	0	702	0.00%
Orangespotted sunfish	0	0	0	0	0	44	89	168	0	0	0	0	352	652	0.00%
Yellow bullhead	0	0	0	0	109	0	0	354	182	0	0	0	0	644	0.00%
White sucker	0	3	0	4	0	4	18	0	0	0	0	471	0	500	0.00%
Bowfin	0	0	0	0	0	0	0	0	0	39	0	227	198	464	0.00%
Quillback	0	10	28	17	3	0	0	112	229	0	0	60	0	460	0.00%
Black crappie	0	3	3	0	0	0	17	192	0	0	0	72	0	288	0.00%
Golden redhorse	0	0	0	0	0	0	0	0	0	228	0	0	0	228	0.00%
Spotfin shiner	0	0	0	0	0	0	0	0	182	0	0	0	0	182	0.00%
Common shiner	0	0	11	11	0	0	0	0	0	158	0	0	0	179	0.00%
Bluntnose minnow	0	0	0	7	3	4	0	0	0	0	164	0	0	178	0.00%
Creek chub	0	0	0	0	0	0	0	0	0	160	0	0	0	160	0.00%
Tadpole madtom	0	0	0	0	0	0	0	0	0	0	0	10	145	155	0.00%
Sea lamprey	0	0	14	0	0	0	113	28	0	0	0	0	0	155	0.00%
Black bullhead	0	0	0	0	74	18	43	0	0	0	0	0	17	151	0.00%
Cyprinidae	0	0	0	7	0	0	74	0	0	0	0	0	0	81	0.00%
Northern longear sunfish	0	0	0	0	0	0	0	0	0	54	0	0	0	54	0.00%
Smallmouth buffalo	0	0	0	0	0	0	0	0	32	0	0	0	0	32	0.00%
Lamprey	0	12	0	0	0	0	0	0	0	0	0	0	0	12	0.00%
Stonecat	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0.00%
Noturus spp.	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0.00%
Ameiurus spp.	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0.00%
Threespine stickleback	0	4	0	0	0	0	0	0	0	0	0	0	0	4	0.00%
Centrarchidae	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0.00%
Northern hog sucker	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0.00%
Mimic shiner	0	0	4	0	0	0	0	0	0	0	0	0	0	4	0.00%
Steelcolor shiner	0	0	4	0	0	0	0	0	0	0	0	0	0	4	0.00%
Lepomis spp.	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0.00%
Redear sunfish	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0.00%
Steelhead trout	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0.00%
Spotted gar	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0.00%
Pomoxis spp.	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0.00%
TOTAL	**2,738**	**12,259**	**7,635**	**14,325**	**126,779**	**115,727**	**430,101**	**2,421,588**	**1,722,016**	**10,158,670**	**6,916,840**	**1,816,821**	**1,701,230**	**25,446,729**	**100.00%**

[1.] Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individuals from the species black buffalo and bigmouth buffalo were all long dead at collection so they were not considered for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-8

Monthly Total of Flow-Expanded Impingement[1] - Biomass (kg)
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total Biomass (kg)	% of Total
Gizzard shad	61.980	106.028	48.561	65.568	44.928	87.436	1,906.669	35,650.121	26,681.524	398,382.575	200,306.761	58,667.764	43,109.115	765,119.031	96.17%
Freshwater drum	30.488	159.135	383.857	225.376	203.858	178.406	467.934	655.755	2,289.058	0.000	12.297	215.854	1,721.280	6,543.297	0.82%
White perch	12.336	134.008	31.507	55.610	412.049	479.457	1,020.058	126.690	50.762	205.188	178.605	73.389	150.586	2,930.246	0.37%
Yellow perch	14.116	35.045	12.347	6.263	9.587	19.411	12.166	330.631	18.095	520.061	37.982	905.111	383.389	2,304.204	0.29%
Northern pike	24.222	47.199	12.017	45.478	2.517	10.017	10.850	407.256	46.915	121.750	0.000	1,388.999	0.000	2,117.219	0.27%
Longnose gar	5.322	3.017	0.000	0.350	0.000	8.128	0.000	632.682	6.274	0.000	307.416	736.541	0.000	1,699.728	0.21%
Bowfin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	194.057	0.000	649.851	556.417	1,400.326	0.18%
Channel catfish	1.505	16.194	14.410	5.613	7.321	8.303	49.653	754.612	0.282	443.826	0.000	0.000	4.288	1,306.006	0.16%
Redhorse sucker	0.000	28.683	29.223	0.000	0.000	3.965	0.133	406.686	0.862	0.000	0.000	761.844	39.645	1,271.041	0.16%
Smallmouth bass	5.293	2.382	4.216	1.714	7.905	25.267	54.130	55.242	8.860	193.930	0.000	82.511	760.648	1,202.098	0.15%
Round goby	25.492	5.047	6.141	11.667	16.668	17.262	40.477	178.151	89.589	89.864	14.488	321.215	377.103	1,193.164	0.15%
Goldfish	10.768	30.204	0.000	0.000	0.193	0.000	4.456	20.589	37.783	304.906	235.035	29.464	510.098	1,183.496	0.15%
Emerald shiner	3.816	27.867	34.717	1.004	0.607	0.806	8.333	96.916	38.962	174.779	515.951	58.403	130.234	1,092.396	0.14%
White bass	2.093	45.702	29.739	88.808	47.119	79.454	65.537	85.965	26.800	534.126	0.000	0.229	0.570	1,006.143	0.13%
Walleye	3.454	25.179	35.939	6.607	40.912	88.481	326.107	333.818	0.000	0.000	0.000	0.000	0.000	860.497	0.11%
Pumpkinseed	0.849	0.437	0.573	4.133	6.084	3.472	9.805	23.895	0.122	12.353	69.009	266.319	309.160	706.211	0.09%
Spottail shiner	1.302	2.248	0.605	0.301	1.220	21.185	54.065	108.513	8.490	64.666	32.580	80.216	180.996	556.389	0.07%
Quillback	0.000	19.534	35.029	27.473	1.477	0.000	0.000	173.349	148.529	0.000	0.000	0.537	0.000	405.928	0.05%
Common carp	36.180	12.511	0.000	0.066	0.000	3.130	0.122	225.882	0.000	29.819	33.005	0.000	57.287	398.000	0.05%
Bluegill	1.641	1.419	0.011	0.911	0.422	10.194	29.882	28.286	9.652	21.846	150.619	42.202	16.703	313.789	0.04%
Trout-perch	9.420	13.563	0.931	0.136	0.348	10.781	68.925	6.620	2.684	52.822	27.245	22.288	72.457	288.220	0.04%
White sucker	0.000	0.259	0.000	0.252	0.000	1.755	11.735	0.000	0.000	0.000	0.000	270.548	0.000	284.549	0.04%
Largemouth bass	0.000	0.000	5.039	2.453	4.358	0.156	98.826	93.230	62.991	7.265	2.420	0.000	0.000	276.738	0.03%
Silver lamprey	3.074	2.906	1.954	0.000	0.062	0.574	0.000	12.756	62.424	23.436	0.000	17.773	104.682	229.641	0.03%
Brown bullhead	0.000	0.669	10.351	0.000	1.588	0.000	34.394	139.194	0.000	0.000	0.000	14.262	0.000	200.458	0.03%
Muskellenge	31.477	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	135.216	0.000	28.540	0.000	195.232	0.02%
Golden redhorse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	193.860	0.000	0.000	0.000	193.860	0.02%
Rock bass	2.319	5.228	2.957	6.402	12.595	6.931	3.300	1.367	0.000	0.215	0.475	3.881	12.878	58.548	0.01%
White crappie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.041	0.000	28.330	0.000	4.393	0.000	51.764	0.01%
Yellow bullhead	0.000	0.000	0.000	0.000	0.543	0.000	0.000	32.289	1.090	0.000	0.000	0.000	0.000	33.923	0.00%
Smallmouth buffalo	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.338	0.000	0.000	0.000	0.000	29.338	0.00%
Black crappie	0.000	0.227	0.055	0.000	0.000	0.000	0.305	1.754	0.000	0.000	0.000	19.857	0.000	22.198	0.00%
Rainbow smelt	0.000	0.485	0.233	0.041	0.003	0.000	0.000	18.518	0.407	0.000	0.000	0.000	0.000	19.688	0.00%
Green sunfish	0.000	0.000	0.138	0.000	0.018	0.130	0.000	0.000	0.000	0.393	9.964	0.299	8.435	19.377	0.00%
Silver chub	0.380	0.000	0.157	0.000	1.017	0.168	0.000	0.000	6.017	10.740	0.000	0.000	0.000	18.477	0.00%
Fathead minnow	0.000	0.000	0.000	0.000	0.000	0.000	17.415	0.000	0.000	0.000	0.000	0.000	0.000	17.415	0.00%
Black bullhead	0.000	0.000	0.000	0.000	2.144	0.071	12.958	0.000	0.000	0.000	0.000	0.000	0.109	15.282	0.00%
Logperch	0.025	0.000	0.011	0.000	0.000	1.760	7.897	2.095	0.000	0.000	0.000	0.000	0.059	11.846	0.00%
Sea lamprey	0.000	0.000	0.679	0.000	0.000	0.000	6.677	0.752	0.000	0.000	0.000	0.000	0.000	8.108	0.00%
Common shiner	0.000	0.000	0.137	0.117	0.000	0.000	0.000	0.000	0.000	3.317	0.000	0.000	0.000	3.571	0.00%
Northern hog sucker	2.629	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.629	0.00%
Brook silverside	0.000	0.000	0.000	0.000	0.000	0.025	0.433	1.497	0.254	0.197	0.000	0.169	0.000	2.573	0.00%
Spotted gar	0.000	0.000	1.876	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.876	0.00%
Orangespotted sunfish	0.000	0.000	0.000	0.000	0.000	0.166	0.290	0.409	0.000	0.000	0.000	0.000	0.882	1.748	0.00%
Tadpole madtom	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	1.307	1.357	0.00%
Spotfin shiner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.272	0.000	0.000	0.000	0.000	1.272	0.00%
Creek chub	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.962	0.000	0.000	0.000	0.962	0.00%
Steelhead trout	0.000	0.000	0.000	0.000	0.870	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.870	0.00%
Centrarchidae	0.853	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.853	0.00%
Stonecat	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.770	0.770	0.00%
Pomoxis spp.	0.000	0.674	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.674	0.00%
Lamprey	0.000	0.673	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.673	0.00%
Bluntnose minnow	0.000	0.000	0.000	0.075	0.069	0.021	0.000	0.000	0.000	0.000	0.491	0.000	0.000	0.657	0.00%
Noturus spp.	0.000	0.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.318	0.00%
Redear sunfish	0.000	0.000	0.000	0.000	0.274	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.274	0.00%
Cyprinidae	0.000	0.000	0.000	0.020	0.000	0.000	0.187	0.000	0.000	0.000	0.000	0.000	0.000	0.207	0.00%
Northern longear sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.107	0.000	0.000	0.000	0.107	0.00%
Ameiurus spp.	0.000	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.00%
Steelcolor shiner	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.00%
Mimic shiner	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.00%
Threespine stickleback	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.00%
Lepomis spp.	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.00%
TOTAL	**291.032**	**726.893**	**703.441**	**556.438**	**826.759**	**1,066.917**	**4,323.717**	**40,624.565**	**29,629.036**	**401,750.606**	**201,934.344**	**64,662.508**	**48,509.098**	**795,605.354**	**100.00%**

1. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individuals from the species black buffalo and bigmouth buffalo were all long dead at collection so they were not considered for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-9

Distribution of Annual[1] Flow-Expanded Impingement at Each Screenhouse
Monroe Power Plant
(April 2005 - April 2006)

	Estimated Flow-Expanded Screenhouse Abundance (#)					Estimated Flow-Expanded Screenhouse Biomass (kg)				
Taxa	**GSW**	**SH1**	**SH2**	**Total Abundance**	**% of Abundance**	**GSW**	**SH1**	**SH2**	**Total Biomass (kg)**	**% of Biomass**
Gizzard shad	423,292	8,837,624	14,811,911	24,072,826	94.60%	13,746.021	242,327.033	509,045.976	765,119.031	96.17%
White perch	5,882	269,975	205,960	481,817	1.89%	36.262	1,536.700	1,357.285	2,930.246	0.37%
Emerald shiner	4,243	144,828	107,815	256,886	1.01%	18.018	588.472	485.906	1,092.396	0.14%
Freshwater drum	3,492	208,094	9,931	221,516	0.87%	98.500	3,952.462	2,492.336	6,543.297	0.82%
Spottail shiner	1,491	31,320	59,308	92,119	0.36%	8.861	210.061	337.468	556.389	0.07%
Bluegill	1,103	33,617	33,943	68,663	0.27%	5.136	186.500	122.153	313.789	0.04%
Trout-perch	840	28,185	28,027	57,052	0.22%	4.483	137.828	145.909	288.220	0.04%
Goldfish	639	16,778	18,995	36,412	0.14%	19.635	704.527	459.335	1,183.496	0.15%
Round goby	518	17,913	12,894	31,325	0.12%	20.170	423.424	749.570	1,193.164	0.15%
White bass	800	8,749	19,551	29,099	0.11%	18.625	114.443	873.075	1,006.143	0.13%
Yellow perch	293	8,898	8,801	17,993	0.07%	41.083	635.530	1,627.591	2,304.204	0.29%
Pumpkinseed	190	6,741	4,665	11,597	0.05%	12.220	264.841	429.150	706.211	0.09%
Channel catfish	151	5,302	5,485	10,938	0.04%	20.347	128.560	1,157.099	1,306.006	0.16%
Smallmouth bass	138	4,611	4,562	9,311	0.04%	19.269	852.755	330.074	1,202.098	0.15%
White crappie	104	4,141	4,047	8,292	0.03%	0.615	22.819	28.330	51.764	0.01%
Common carp	97	2,096	3,387	5,581	0.02%	5.920	30.649	361.431	398.000	0.05%
Longnose gar	97	105	5,258	5,460	0.02%	29.611	27.714	1,642.403	1,699.728	0.21%
Rock bass	52	2,989	469	3,511	0.01%	0.836	29.619	28.094	58.548	0.01%
Northern pike	65	254	3,086	3,404	0.01%	39.021	256.295	1,821.902	2,117.219	0.27%
Redhorse sucker	64	544	2,777	3,385	0.01%	22.742	412.013	836.286	1,271.041	0.16%
Silver lamprey	38	1,762	575	2,375	0.01%	3.788	124.184	101.670	229.641	0.03%
Walleye	24	451	1,437	1,913	0.01%	11.083	21.835	827.579	860.497	0.11%
Brook silverside	26	871	777	1,673	0.01%	0.036	0.980	1.557	2.573	0.00%
Largemouth bass	22	795	676	1,493	0.01%	5.178	171.899	99.661	276.738	0.03%
Logperch	18	743	638	1,399	0.01%	0.153	4.968	6.725	11.846	0.00%
Rainbow smelt	20	576	729	1,325	0.01%	0.278	0.704	18.706	19.688	0.00%
Muskellenge	25	1,045	225	1,295	0.01%	3.604	132.661	58.968	195.232	0.02%
Green sunfish	20	269	921	1,210	0.00%	0.252	1.424	17.701	19.377	0.00%
Brown bullhead	24	340	436	800	0.00%	3.014	17.737	179.707	200.458	0.03%
Silver chub	13	182	535	729	0.00%	0.325	5.114	13.038	18.477	0.00%
Fathead minnow	9	693	0	702	0.00%	0.227	17.189	0.000	17.415	0.00%
Orangespotted sunfish	9	274	369	652	0.00%	0.025	0.904	0.818	1.748	0.00%
Yellow bullhead	9	527	108	644	0.00%	0.483	32.902	0.538	33.923	0.00%
White sucker	10	21	469	500	0.00%	5.707	11.832	267.011	284.549	0.04%
Bowfin	8	38	417	464	0.00%	25.530	190.390	1,184.406	1,400.326	0.18%
Quillback	7	235	218	460	0.00%	5.643	158.841	241.444	405.928	0.05%

TABLE 4-9 (cont'd)
Distribution of Annual[1] Flow-Expanded Impingement at Each Screenhouse
Monroe Power Plant
(April 2005 - April 2006)

	Estimated Flow-Expanded Screenhouse Abundance (#)					Estimated Flow-Expanded Screenhouse Biomass (kg)				
Taxa	**GSW**	**SH1**	**SH2**	**Total Abundance**	**% of Abundance**	**GSW**	**SH1**	**SH2**	**Total Biomass (kg)**	**% of Biomass**
Black crappie	4	74	209	288	0.00%	0.437	19.506	2.254	22.198	0.00%
Golden redhorse	4	223	0	228	0.00%	3.663	190.197	0.000	193.860	0.02%
Spotfin shiner	3	179	0	182	0.00%	0.022	1.250	0.000	1.272	0.00%
Common shiner	3	21	155	179	0.00%	0.065	0.251	3.254	3.571	0.00%
Bluntnose minnow	3	165	10	178	0.00%	0.010	0.504	0.143	0.657	0.00%
Creek chub	3	0	157	160	0.00%	0.018	0.000	0.944	0.962	0.00%
Tadpole madtom	2	153	0	155	0.00%	0.021	1.335	0.000	1.357	0.00%
Sea lamprey	2	46	107	155	0.00%	0.105	3.280	4.723	8.108	0.00%
Black bullhead	2	146	3	151	0.00%	0.194	13.229	1.859	15.282	0.00%
Cyprinidae	1	0	80	81	0.00%	0.003	0.000	0.205	0.207	0.00%
Northern longear sunfish	1	53	0	54	0.00%	0.002	0.105	0.000	0.107	0.00%
Smallmouth buffalo	1	32	0	32	0.00%	0.500	28.839	0.000	29.338	0.00%
Lamprey	0	12	0	12	0.00%	0.007	0.666	0.000	0.673	0.00%
Stonecat	0	8	0	8	0.00%	0.012	0.758	0.000	0.770	0.00%
Noturus spp.	0	3	3	7	0.00%	0.003	0.289	0.026	0.318	0.00%
Ameiurus spp.	0	4	0	4	0.00%	0.000	0.044	0.000	0.044	0.00%
Threespine stickleback	0	4	0	4	0.00%	0.000	0.009	0.000	0.009	0.00%
Centrarchidae	0	0	4	4	0.00%	0.013	0.000	0.840	0.853	0.00%
Northern hog sucker	0	0	4	4	0.00%	0.039	0.000	2.590	2.629	0.00%
Mimic shiner	0	0	4	4	0.00%	0.000	0.000	0.014	0.014	0.00%
Steelcolor shiner	0	0	4	4	0.00%	0.000	0.000	0.018	0.018	0.00%
Lepomis spp.	0	3	0	4	0.00%	0.000	0.007	0.000	0.007	0.00%
Redear sunfish	0	0	3	3	0.00%	0.003	0.000	0.271	0.274	0.00%
Steelhead trout	0	0	3	3	0.00%	0.009	0.000	0.861	0.870	0.00%
Spotted gar	0	0	3	3	0.00%	0.020	0.000	1.856	1.876	0.00%
Pomoxis spp.	0	0	3	3	0.00%	0.007	0.000	0.667	0.674	0.00%
TOTAL	**443,864**	**9,642,714**	**15,360,151**	**25,446,729**	**100.00%**	**14,237.852**	**253,996.078**	**527,371.424**	**795,605.354**	**100.00%**
% of Total per SH	**1.74%**	**37.89%**	**60.36%**			**1.79%**	**31.92%**	**66.29%**		

[1] Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.
Individuals from the species black buffalo and bigmouth buffalo were all long dead at collection so they were not considered for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-10
Summary of Entrainment Sampling Events
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Event	Sampling Dates	Entrainment
1	19-Apr-05	x
2	26-Apr-05	x
3	27-Apr-05	x
4	3-May-05	x
5	4-May-05	x
6	10-May-05	x
7	11-May-05	x
8	18-May-05	x
9	19-May-05	x
10	25-May-05	x
11	26-May-05	x
12	31-May-05	x
13	1-Jun-05	x
14	9-Jun-05	x
15	10-Jun-05	x
16	15-Jun-05	x
17	16-Jun-05	x
18	21-Jun-05	x
19	22-Jun-05	x
20	30-Jun-05	x
21	1-Jul-05	x
22	5-Jul-05	x
23	6-Jul-05	x
24	14-Jul-05	x
25	15-Jul-05	x
26	19-Jul-05	x
27	20-Jul-05	x
28	26-Jul-05	x
29	27-Jul-05	x
30	4-Aug-05	x
31	5-Aug-05	x
32	10-Aug-05	x
33	11-Aug-05	x
34	16-Aug-05	x
35	17-Aug-05	x
36	25-Aug-05	x
37	26-Aug-05	x
38	29-Aug-05	x
39	30-Aug-05	x
40	8-Sep-05	x
41	9-Sep-05	x

TABLE 4-10 (cont'd)
Summary of Entrainment Sampling Events
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Event	Sampling Dates	Entrainment
42	12-Sep-05	x
43	13-Sep-05	x
44	18-Oct-05	x
45	10-Nov-05	x
46	9-Dec-05	x
47	5-Jan-06	x
48	8-Feb-06	x
49	21-Mar-06	x
50	22-Mar-06	x
51	27-Mar-06	x
52	28-Mar-06	x
53	4-Apr-06	x
54	5-Apr-06	x
55	10-Apr-06	x
56	11-Apr-06	x
57	19-Apr-06	x

TABLE 4-11

Fish Taxa Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Scientific Name	Common Species Name	Life Stage		
		Eggs	Larvae	Juvenile
Alosa pseudoharengus	Alewife		x	
Lepomis macrochirus	Bluegill		x	
Pimephales notatus	Bluntnose minnow			x
Labidesthes sicculus	Brook silverside		x	
Ictalurus punctatus	Channel catfish		x	
Cyprinus carpio	Common carp		x	
Notropis atherinoides	Emerald shiner		x	x
Aplodinotus grunniens	Freshwater drum	x	x	
Dorosoma cepedianum	Gizzard shad	x	x	x
Carassius auratus	Goldfish		x	
Coregonus clupeaformis	Lake whitefish		x	
Micropterus salmoides	Largemouth bass	x		
Percina caprodes	Logperch		x	x
Esox lucius	Northern pike	x		
Carpiodes cyprinus	Quillback	x	x	
Osmerus mordax	Rainbow smelt	x	x	x
Ambloplites rupestris	Rock bass	x		x
Neogobius melanostomus	Round goby			x
Macrhybopsis storeriana	Silver chub			x
Micropterus dolomieu	Smallmouth bass	x		
Cyprinella spiloptera	Spotfin shiner		x	
Percopsis omiscomaycus	Trout-perch		x	x
Sander vitreus	Walleye	x	x	
Morone chrysops	White bass		x	x
Pomoxis annularis	White crappie			
Morone americana	White perch	x	x	x
Catostomus commersonii	White sucker		x	
Perca flavescens	Yellow perch		x	
Scientific Name	**Common Genus Name**			
Micropterus spp.	Black basses	x		
Pomoxis spp.	Crappies		x	
Notropis spp.	Shiners		x	x
Lepomis spp.	Sunfishes		x	x
Morone spp.	Temperate basses	x	x	x
Scientific Name	**Common Family Name**			
Cyprinidae	Carps and minnows		x	x
Percidae	Perches		x	x
Catostomidae	Suckers		x	

TABLE 4-12
Entrainment - Total Number by Life Stage per Event Date
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Date	Eggs	Larvae	Juveniles
19-Apr-05	19,478	3,896	0
26-Apr-05	5,474	12,773	0
27-Apr-05	5,254	18,389	7,881
3-May-05	7,688	249,860	3,844
4-May-05	4,193	127,230	0
10-May-05	576,736	0	0
11-May-05	326,571	6,162	0
18-May-05	20,872	52,179	5,218
19-May-05	95,226	50,787	12,697
25-May-05	147,016	66,826	0
26-May-05	477,918	26,187	6,547
31-May-05	234,354	113,626	0
1-Jun-05	261,873	242,232	13,094
9-Jun-05	0	5,891,344	169,292
10-Jun-05	0	5,789,769	23,440
15-Jun-05	0	20,354,658	999,878
16-Jun-05	0	30,467,709	5,756,440
21-Jun-05	0	5,363,155	601,831
22-Jun-05	0	18,102,223	725,035
30-Jun-05	0	6,867,454	746,947
1-Jul-05	0	4,810,297	1,425,676
5-Jul-05	0	6,968,072	2,750,230
6-Jul-05	0	2,759,557	1,987,335
14-Jul-05	0	3,276,074	679,683
15-Jul-05	0	1,108,736	223,879
19-Jul-05	0	2,915,797	310,700
20-Jul-05	0	774,219	535,998
26-Jul-05	0	641,309	456,316
27-Jul-05	0	650,316	597,012
4-Aug-05	0	311,718	587,469
5-Aug-05	0	215,473	443,620
10-Aug-05	0	22,748	56,869
11-Aug-05	0	40,712	101,781
16-Aug-05	0	50,587	86,720
17-Aug-05	0	15,478	170,259
25-Aug-05	0	21,489	85,956
26-Aug-05	0	13,786	75,822
29-Aug-05	0	20,679	248,145

TABLE 4-12 (cont'd)
Entrainment - Total Number by Life Stage per Event Date
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Date	Eggs	Larvae	Juveniles
30-Aug-05	0	15,864	261,759
8-Sep-05	0	26,937	53,874
9-Sep-05	0	6,636	13,273
12-Sep-05	0	0	6,577
13-Sep-05	0	5,736	57,360
18-Oct-05	0	0	0
10-Nov-05	0	0	0
9-Dec-05	0	0	3,705
5-Jan-06	0	0	0
8-Feb-06	0	0	0
21-Mar-06	0	0	0
22-Mar-06	0	0	11,812
27-Mar-06	0	0	0
28-Mar-06	0	0	0
4-Apr-06	0	0	0
5-Apr-06	0	0	0
10-Apr-06	0	0	0
11-Apr-06	0	63,678	0
19-Apr-06	0	56,234	8,435
TOTAL	**2,182,653**	**118,598,592**	**20,312,408**

TABLE 4-13
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005 - 4/19/2006)

Taxa	04/19/05	04/26/05	04/27/05	05/03/05	05/04/05	05/10/05	05/11/05	05/18/05	05/19/05	05/25/05
Freshwater drum	3,896									
Gizzard shad						9,859				
Largemouth bass						29,576	6,162	10,436		
Micropterus spp.						9,859	135,558			
Morone spp.										13,365
Northen pike		1,825		3,844						
Quillback						39,435			6,348	60,143
Rainbow smelt			2,627							
Rock bass						4,929	43,132			
Smallmouth bass						473,220	129,396		88,878	60,143
Smelt/Alewife/Shad								10,436		6,683
Unidentified		1,825					6,162			6,683
Walleye	15,583	1,825	2,627	3,844	4,193	9,859	6,162			
White perch										
TOTAL	**19,478**	**5,474**	**5,254**	**7,688**	**4,193**	**576,736**	**326,571**	**20,872**	**95,226**	**147,016**

TABLE 4-13 (cont'd)
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005-4/19/2006)

Taxa	05/26/05	05/31/05	06/01/05	06/09/05	06/10/05	06/15/05	06/16/05	06/21/05	06/22/05	06/30/05
Freshwater drum		14,203								
Gizzard shad	333,888	28,407								
Largemouth bass			98,202							
Micropterus spp.			13,094							
Morone spp.		71,016	85,109							
Northen pike										
Quillback										
Rainbow smelt										
Rock bass										
Smallmouth bass	19,640	63,915	32,734							
Smelt/Alewife/Shad		7,102								
Unidentified			13,094							
Walleye										
White perch	124,390	49,711	19,640							
TOTAL	**477,918**	**234,354**	**261,873**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE 4-13 (cont'd)
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005-4/19/2006)

Taxa	07/01/05	07/05/05	07/06/05	07/14/05	07/15/05	07/19/05	07/20/05	07/26/05	07/27/05	08/04/05
Freshwater drum										
Gizzard shad										
Largemouth bass										
Micropterus spp.										
Morone spp.										
Northen pike										
Quillback										
Rainbow smelt										
Rock bass										
Smallmouth bass										
Smelt/Alewife/Shad										
Unidentified										
Walleye										
White perch										
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE 4-13 (cont'd)
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005-4/19/2006)

Taxa	08/05/05	08/10/05	08/11/05	08/16/05	08/17/05	08/25/05	08/26/05	08/29/05	08/30/05	09/08/05
Freshwater drum										
Gizzard shad										
Largemouth bass										
Micropterus spp.										
Morone spp.										
Northen pike										
Quillback										
Rainbow smelt										
Rock bass										
Smallmouth bass										
Smelt/Alewife/Shad										
Unidentified										
Walleye										
White perch										
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE 4-13 (cont'd)
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005-4/19/2006)

Taxa	09/09/05	09/12/05	09/13/05	10/18/05	11/10/05	12/09/05	01/05/06	02/08/06	03/21/06	03/22/06
Freshwater drum										
Gizzard shad										
Largemouth bass										
Micropterus spp.										
Morone spp.										
Northen pike										
Quillback										
Rainbow smelt										
Rock bass										
Smallmouth bass										
Smelt/Alewife/Shad										
Unidentified										
Walleye										
White perch										
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

TABLE 4-13 (cont'd)
Entrainment-Daily Distribution of Fish Eggs
Monroe Power Plant
(4/19/2005-4/19/2006)

Taxa	03/27/06	03/28/06	04/04/06	04/05/06	04/10/06	04/11/06	04/19/06	Total	% of Total
Freshwater drum								18,099	0.83%
Gizzard shad								372,153	17.05%
Largemouth bass								144,376	6.61%
Micropterus spp.								158,510	7.26%
Morone spp.								169,490	7.77%
Northen pike								5,669	0.26%
Quillback								105,926	4.85%
Rainbow smelt								2,627	0.12%
Rock bass								48,061	2.20%
Smallmouth bass								867,926	39.76%
Smelt/Alewife/Shad								24,220	1.11%
Unidentified								27,763	1.27%
Walleye								44,092	2.02%
White perch								193,741	8.88%
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,182,653**	**100.00%**

TABLE 4-14
Entrainment - Daily Distribution of Larval Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	04/19/05	04/26/05	04/27/05	05/03/05	05/04/05	05/10/05	05/11/05	05/18/05	05/19/05	05/25/05	05/26/05	05/31/05
Alewife												
Bluegill				3,844								
Brook silverside												
Carp/Goldfish									6,348	6,683		
Catostomidae												7,102
Channel catfish												
Cyprinidae	3,896			42,284				20,872		13,365		21,305
Emerald shiner				7,688						6,683		
Freshwater drum												
Gizzard shad		9,123		57,660	4,712					6,683		14,203
Lake whitefish			2,627		4,712							
Lepomis spp.												
Logperch		1,825		19,220	4,712			5,218		6,683		14,203
Micropterus spp.												
Morone spp.										6,683	6,547	
Notropis spp.				76,880				10,436	12,697	13,365		35,508
Percidae				7,688								
Pomoxis spp.												
Quillback					4,712			5,218	19,045			7,102
Rainbow smelt												
Smelt/Alewife/Shad		1,825		19,220	4,712			5,218				
Spotfin shiner												
Trout-perch								5,218				
Unidentified			13,135	3,844	42,410						19,640	14,203
Walleye							6,162		6,348			
White bass												
White perch												
White sucker			2,627		4,712							
Yellow perch				11,532	56,547				6,348	6,683		
TOTAL	**3,896**	**12,773**	**18,389**	**249,860**	**127,230**	**0**	**6,162**	**52,179**	**50,787**	**66,826**	**26,187**	**113,626**

TABLE 4-14 (cont'd)
Entrainment - Daily Distribution of Larval Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	06/01/05	06/09/05	06/10/05	06/15/05	06/16/05	06/21/05	06/22/05	06/30/05	07/01/05	07/05/05	07/06/05	07/14/05
Alewife			398,486		7,284,825		78,808			12,333		163,124
Bluegill												
Brook silverside												
Carp/Goldfish			23,440			22,854			87,064			
Catostomidae												
Channel catfish												
Cyprinidae	13,094	169,292	46,881	2,028,324	71,420	929,410	1,544,639	1,259,777	97,947	295,989	68,137	720,464
Emerald shiner				499,939	1,171,286	678,012	3,822,193	2,396,920	446,204	2,614,569	613,235	1,101,087
Freshwater drum	6,547		93,761		1,057,014	53,327	39,404	189,524	152,362	24,666	34,069	
Gizzard shad		1,320,474	843,853	7,970,455	11,884,263	1,439,824	2,742,522	1,036,807	631,215	1,862,264	1,135,620	353,435
Lake whitefish								11,148				
Lepomis spp.					14,284		7,881					
Logperch		203,150		2,985,350	14,284	647,540		267,563		234,325	11,356	
Micropterus spp.								11,148				
Morone spp.	45,828	3,622,838	3,422,293	5,570,748	5,299,353	929,410	3,270,537	1,114,846	2,873,119	1,035,961	624,591	81,562
Notropis spp.	6,547		234,404	942,742	557,075	502,796	5,902,728	512,829	500,619	801,637	68,137	856,401
Percidae										24,666		
Pomoxis spp.					57,136							
Quillback	6,547					30,472				12,333		
Rainbow smelt												
Smelt/Alewife/Shad		135,433	492,248		2,371,139		378,279				45,425	
Spotfin shiner		67,717	46,881				15,762		21,766			
Trout-perch	6,547	33,858	46,881				94,570					
Unidentified	13,094		93,761	28,568	428,519	7,618	23,642			12,333	45,425	
Walleye												
White bass										24,666	90,850	
White perch							63,046				11,356	
White sucker												
Yellow perch	144,030	338,583	46,881	328,531	257,111	121,890	118,212	66,891		12,333	11,356	
TOTAL	**242,232**	**5,891,344**	**5,789,769**	**20,354,658**	**30,467,709**	**5,363,155**	**18,102,223**	**6,867,454**	**4,810,297**	**6,968,072**	**2,759,557**	**3,276,074**

TABLE 4-14 (cont'd)
Entrainment - Daily Distribution of Larval Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	07/15/05	07/19/05	07/20/05	07/26/05	07/27/05	08/04/05	08/05/05	08/10/05	08/11/05	08/16/05	08/17/05	08/25/05
Alewife												
Bluegill												
Brook silverside	74,626											
Carp/Goldfish												
Catostomidae												
Channel catfish				12,333	10,661							
Cyprinidae	149,253	310,700	11,911	110,996	10,661	35,968	25,350					
Emerald shiner	586,351	1,983,698	524,087	394,652	522,385	143,870	177,448		6,785			7,163
Freshwater drum							12,675			7,227		
Gizzard shad	85,287	143,400	107,200	12,333								
Lake whitefish												
Lepomis spp.	31,983								27,141	7,227		
Logperch		11,950				11,989				7,227		
Micropterus spp.												
Morone spp.	85,287	23,900	47,644	24,666	10,661							7,163
Notropis spp.	10,661	430,200		86,330		119,892		11,374		28,907		7,163
Percidae												
Pomoxis spp.												
Quillback												
Rainbow smelt												
Smelt/Alewife/Shad	31,983		35,733									
Spotfin shiner								11,374				
Trout-perch												
Unidentified	42,644		23,822								7,739	
Walleye												
White bass	10,661											
White perch					10,661							
White sucker												
Yellow perch		11,950	23,822		85,287				6,785		7,739	
TOTAL	**1,108,736**	**2,915,797**	**774,219**	**641,309**	**650,316**	**311,718**	**215,473**	**22,748**	**40,712**	**50,587**	**15,478**	**21,489**

TABLE 4-14 (cont'd)
Entrainment - Daily Distribution of Larval Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	08/26/05	08/29/05	08/30/05	09/08/05	09/09/05	09/12/05	09/13/05	10/18/05	11/10/05	12/09/05	01/05/06	02/08/06
Alewife												
Bluegill												
Brook silverside	6,893											
Carp/Goldfish												
Catostomidae												
Channel catfish												
Cyprinidae												
Emerald shiner	6,893	6,893		20,203								
Freshwater drum												
Gizzard shad												
Lake whitefish												
Lepomis spp.												
Logperch		6,893		6,734								
Micropterus spp.												
Morone spp.		6,893										
Notropis spp.												
Percidae												
Pomoxis spp.												
Quillback												
Rainbow smelt							5,736					
Smelt/Alewife/Shad												
Spotfin shiner												
Trout-perch												
Unidentified												
Walleye												
White bass												
White perch												
White sucker												
Yellow perch			15,864		6,636							
TOTAL	**13,786**	**20,679**	**15,864**	**26,937**	**6,636**	**0**	**5,736**	**0**	**0**	**0**	**0**	**0**

TABLE 4-14 (cont'd)
Entrainment - Daily Distribution of Larval Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	03/21/06	03/22/06	03/27/06	03/28/06	04/04/06	04/05/06	04/10/06	04/11/06	04/19/06	Total	% of Total
Alewife										**7,937,576**	**6.69%**
Bluegill										**3,844**	**0.00%**
Brook silverside										**81,519**	**0.07%**
Carp/Goldfish										**146,390**	**0.12%**
Catostomidae										**7,102**	**0.01%**
Channel catfish										**22,994**	**0.02%**
Cyprinidae									2,812	**8,004,744**	**6.75%**
Emerald shiner										**17,738,243**	**14.96%**
Freshwater drum										**1,670,575**	**1.41%**
Gizzard shad										**31,661,335**	**26.70%**
Lake whitefish								63,678	53,423	**135,588**	**0.11%**
Lepomis spp.										**88,516**	**0.07%**
Logperch										**4,460,221**	**3.76%**
Micropterus spp.										**11,148**	**0.01%**
Morone spp.										**28,110,530**	**23.70%**
Notropis spp.										**11,729,326**	**9.89%**
Percidae										**32,354**	**0.03%**
Pomoxis spp.										**57,136**	**0.05%**
Quillback										**85,429**	**0.07%**
Rainbow smelt										**5,736**	**0.00%**
Smelt/Alewife/Shad										**3,521,214**	**2.97%**
Spotfin shiner										**163,499**	**0.14%**
Trout-perch										**187,073**	**0.16%**
Unidentified										**820,398**	**0.69%**
Walleye										**12,510**	**0.01%**
White bass										**126,176**	**0.11%**
White perch										**85,064**	**0.07%**
White sucker										**7,339**	**0.01%**
Yellow perch										**1,685,013**	**1.42%**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**63,678**	**56,234**	**118,598,592**	**100.00%**

TABLE 4-15
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	04/19/05	04/26/05	04/27/05	05/03/05	05/04/05	05/10/05	05/11/05	05/18/05
Alewife								
Bluntnose minnow								
Cyprinidae								
Emerald shiner								
Gizzard shad								
Lepomis spp.								
Logperch								
Morone spp.								
Notropis spp.								
Percidae								
Rainbow smelt								
Rock Bass								
Round goby			7,881	3,844				5,218
Silver chub								
Smelt/Alewife/Shad								
Trout-perch								
White bass								
White perch								
TOTAL	**0**	**0**	**7,881**	**3,844**	**0**	**0**	**0**	**5,218**

TABLE 4-15 (cont'd)
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	05/19/05	05/25/05	05/26/05	05/31/05	06/01/05	06/09/05	06/10/05	06/15/05	06/16/05	06/21/05
Alewife									1,042,730	
Bluntnose minnow										
Cyprinidae										
Emerald shiner						101,575			57,136	304,725
Gizzard shad								799,902	4,042,364	121,890
Lepomis spp.										
Logperch										
Morone spp.										7,618
Notropis spp.										
Percidae										7,618
Rainbow smelt										
Rock Bass										
Round goby	12,697		6,547		13,094	67,717	23,440	199,976	314,247	159,980
Silver chub										
Smelt/Alewife/Shad									299,963	
Trout-perch										
White bass										
White perch										
TOTAL	**12,697**	**0**	**6,547**	**0**	**13,094**	**169,292**	**23,440**	**999,878**	**5,756,440**	**601,831**

TABLE 4-15 (cont'd)
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	06/22/05	06/30/05	07/01/05	07/05/05	07/06/05	07/14/05	07/15/05	07/19/05	07/20/05	07/26/05	07/27/05
Alewife	39,404										
Bluntnose minnow											
Cyprinidae		222,969		924,965		203,905	10,661	11,950		98,663	
Emerald shiner	70,927	11,148	65,298	1,196,289	1,169,689	40,781	106,609	167,300	71,466	110,996	287,845
Gizzard shad	472,849	256,415	261,193	160,327	363,398	13,594	10,661	11,950			
Lepomis spp.					11,356		10,661			12,333	
Logperch					11,356						
Morone spp.	110,331	89,188	892,408	197,326	22,712	122,343				12,333	
Notropis spp.		11,148		123,329							
Percidae		22,297									
Rainbow smelt											
Rock Bass				12,333						12,333	
Round goby	31,523	122,633	195,894	123,329	238,480	299,061	53,305	119,500	428,798	209,659	287,845
Silver chub											
Smelt/Alewife/Shad					11,356						
Trout-perch		11,148									
White bass			10,883	12,333	136,274		31,983		35,733		10,661
White perch					22,712						10,661
TOTAL	**725,035**	**746,947**	**1,425,676**	**2,750,230**	**1,987,335**	**679,683**	**223,879**	**310,700**	**535,998**	**456,316**	**597,012**

TABLE 4-15 (cont'd)
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	08/04/05	08/05/05	08/10/05	08/11/05	08/16/05	08/17/05	08/25/05	08/26/05	08/29/05	08/30/05	09/08/05	09/09/05
Alewife												
Bluntnose minnow	59,946											
Cyprinidae	131,881	25,350					7,163					
Emerald shiner	191,827	329,546		20,356	7,227	54,173		13,786	6,893	7,932		
Gizzard shad					7,227							
Lepomis spp.						7,739				15,864		
Logperch												
Morone spp.												
Notropis spp.	47,957											
Percidae												
Rainbow smelt												
Rock Bass												
Round goby	155,859	88,724	56,869	74,639	72,267	108,347	78,793	62,036	241,252	237,963	53,874	13,273
Silver chub				6,785								
Smelt/Alewife/Shad												
Trout-perch												
White bass												
White perch												
TOTAL	**587,469**	**443,620**	**56,869**	**101,781**	**86,720**	**170,259**	**85,956**	**75,822**	**248,145**	**261,759**	**53,874**	**13,273**

TABLE 4-15 (cont'd)
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	09/12/05	09/13/05	10/18/05	11/10/05	12/09/05	01/05/06	02/08/06	03/21/06	03/22/06	03/27/06	03/28/06	04/04/06
Alewife												
Bluntnose minnow												
Cyprinidae												
Emerald shiner		5,736										
Gizzard shad												
Lepomis spp.												
Logperch												
Morone spp.												
Notropis spp.												
Percidae												
Rainbow smelt					3,705							
Rock Bass												
Round goby	6,577	51,624							11,812			
Silver chub												
Smelt/Alewife/Shad												
Trout-perch												
White bass												
White perch												
TOTAL	**6,577**	**57,360**	**0**	**0**	**3,705**	**0**	**0**	**0**	**11,812**	**0**	**0**	**0**

TABLE 4-15 (cont'd)
Entrainment - Daily Distribution of Juvenile Fish
Monroe Power Plant
(04/19/2005 - 04/19/2006)

Taxa	04/05/06	04/10/06	04/11/06	04/19/06	Totals	% of Totals
Alewife					1,082,134	5.33%
Bluntnose minnow					59,946	0.30%
Cyprinidae					1,637,507	8.06%
Emerald shiner					4,399,260	21.66%
Gizzard shad					6,521,769	32.11%
Lepomis spp.					57,953	0.29%
Logperch					11,356	0.06%
Morone spp.					1,454,259	7.16%
Notropis spp.					182,434	0.90%
Percidae					29,915	0.15%
Rainbow smelt					3,705	0.02%
Rock Bass					24,666	0.12%
Round goby				8,435	4,247,011	20.91%
Silver chub					6,785	0.03%
Smelt/Alewife/Shad					311,320	1.53%
Trout-perch					11,148	0.05%
White bass					237,867	1.17%
White perch					33,373	0.16%
TOTAL	**0**	**0**	**0**	**8,435**	**20,312,408**	**100.00%**

TABLE 4-16
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																										
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	**Sample Size**	**Average**	**Minumum**	**Maximum**
Alewife	1st Quarter						1	3	9	13	16	13	17	27	31	19	14	10	13	6	7	3		1																	14	217	15.1	7.2	24.2
	2nd Quarter									1	1	2																													4	11.8	10.7	12.7
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Bluegill	1st Quarter			1																																					1	4.9	4.9	4.9
	2nd Quarter																																									0	N/A	N/A	N/A
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Bluntnose minnow	1st Quarter																																									0	N/A	N/A	N/A
	2nd Quarter																		1	1	1						1	1														5	23.2	19.0	28.3
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Brook silverside	1st Quarter																																									0	N/A	N/A	N/A
	2nd Quarter							3	1	2		1	1																												8	10.1	8.3	13.9
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Carp/Goldfish	1st Quarter			1	2	1	2																																		6	6.4	4.9	7.5
	2nd Quarter				1	5	1	1																																	8	6.7	5.7	8.5
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Catostomidae	1st Quarter								1																																1	9.3	9.3	9.3
	2nd Quarter																																									0	N/A	N/A	N/A
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A

TABLE 4-16 (cont'd)
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																										
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	**Sample Size**	**Average**	**Minumum**	**Maximum**
Channel catfish	1st Quarter																																								0	N/A	N/A	N/A
	2nd Quarter													1				1																							2	16.6	14.6	18.5
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter																																							0	N/A	N/A	N/A
Cyprinidae	1st Quarter	2	10	13	21	10	14	43	35	36	16	7	1	2	1	1				1			1	2	3	4	2		1	1										3	228	9.7	2.4	30.2
	2nd Quarter			2	6	8	6	11	13	18	14	6	18	10	18	12	11	15	15	6	7	5	4	2	1		1	1	2												212	14.4	4.9	29.5
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter						1																																	1	7.3	7.3	7.3
Emerald shiner	1st Quarter			1	1	1	7	17	57	87	69	26	6	4	4															1	2		3		1	1	1				280	10.7	4.4	15.5
	2nd Quarter					1	1	6	66	105	141	160	116	108	77	40	36	34	29	27	10	24	8	2	1	2	2			1	2		3		1	1	1			36	1041	14.1	6.5	37.7
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter																																							0	N/A	N/A	N/A
Freshwater drum	1st Quarter			20	7	2	4	3	7	3	1	2		1																										50	6.9	4.0	14.1
	2nd Quarter							2	3	3	6	1	4		2																										21	11.6	8.0	15.5
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter																																							0	N/A	N/A	N/A
Gizzard shad	1st Quarter		4	11	11	20	37	77	91	108	77	79	84	95	84	65	56	21	27	33	34	22	18	13	5					1										22	1095	13.6	3.4	30.0
	2nd Quarter					2	2	3	16	29	31	42	47	63	46	15	21	11	13	14	7	4	8	9	4	7	2	4			1		1		1		1				4	408	15.4	6.1	37.9
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter																																							0	N/A	N/A	N/A
Lake whitefish	1st Quarter													1		1	1																							3	16.2	14.8	17.1
	2nd Quarter																																							0	N/A	N/A	N/A
	3rd Quarter																																							0	N/A	N/A	N/A
	4th Quarter																																							0	N/A	N/A	N/A
	5th Quarter											1	14	16	6																									37	14.2	12.4	15.5

TABLE 4-16 (cont'd)
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																											
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	Sample Size	Average	Minumum	Maximum
Lepomis spp.	1st Quarter					1							1																													2	9.9	6.1	13.7
	2nd Quarter				1	1	2	1	1		1			1		1	2	1	1						1																	14	13.2	5.6	25.0
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Logperch	1st Quarter		2	4	10	6	10	16	29	40	23	12	10	3	2									1																	1	169	10.0	3.9	24.4
	2nd Quarter			2	1	2	2	4	5	4	2					1	2	1																								26	10.0	4.9	18.8
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Micropterus spp.	1st Quarter													1																												1	14.6	14.6	14.6
	2nd Quarter																																									0	N/A	N/A	N/A
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Morone spp.	1st Quarter			10	9	33	35	57	57	107	109	90	75	72	38	18	10	5	6	7	2	3	4																		2	749	11.7	4.0	23.9
	2nd Quarter			2	8	6	8	14	11	20	21	24	41	39	45	47	49	21	27	15	14	9	10		2	4	3	1		2		2							1			446	15.6	4.4	39.0
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Notropis spp.	1st Quarter		3	18	11	7	14	21	34	73	54	9	9	4	1							1																			5	264	9.7	3.9	22.0
	2nd Quarter			1	4	2	4	7	11	31	31	21	19	24	14	5	4	10	2	2	3	1	1	2	1			1													3	204	13.1	4.9	28.3
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Percidae	1st Quarter			2																1		1																				4	12.8	4.4	22.0
	2nd Quarter													2																												2	14.4	14.1	14.6
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A

TABLE 4-16 (cont'd)
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																										
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	Sample Size	Average	Minumum	Maximum
Pomoxis spp.	1st Quarter			1																																					1	4.0	4.0	4.0
	2nd Quarter																																								0	N/A	N/A	N/A
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
Quillback	1st Quarter				2			4						1	1																										8	9.4	5.6	15.6
	2nd Quarter												1																												1	13.2	13.2	13.2
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
Rainbow smelt	1st Quarter																																								0	N/A	N/A	N/A
	2nd Quarter																											1													1	28.1	28.1	28.1
	3rd Quarter																																			1					1	36.6	36.6	36.6
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
Rock bass	1st Quarter																																								0	N/A	N/A	N/A
	2nd Quarter																											1					1								2	31.0	28.3	33.7
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
Round goby	1st Quarter					3	33	22	2		1																													61	7.9	6.8	11.2
	2nd Quarter				8	54	143	94	14	6	1	1	1	2		1			1																				5	331	7.8	5.2	19.9
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter							4																																	4	8.6	8.5	8.7
	5th Quarter						1	2																																	3	8.1	7.9	8.3
Silver chub	1st Quarter																																								0	N/A	N/A	N/A
	2nd Quarter																				1																					1	21.9	21.9	21.9
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A

TABLE 4-16 (cont'd)
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																											
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	Sample Size	Average	Minumum	Maximum
Smelt/Alewife/ Shad	1st Quarter		2	4	1		1	4	6	5	6	7	14	12	10	9	7	1	1	1	2	2		1																	1	97	13.5	3.4	24.3
	2nd Quarter							1		1	1	1	1	3	4	1	1				1																					15	14.4	8.6	21.3
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Spotfin shiner	1st Quarter						2	2																																		4	7.8	7.3	8.4
	2nd Quarter				1				2																																	3	7.8	5.3	9.2
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Trout-perch	1st Quarter			1	5	2		1											1																							10	7.3	4.3	19.0
	2nd Quarter																																									0	N/A	N/A	N/A
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Unidentified	1st Quarter			1	7	6		2	2		1					1											1														17	38	8.2	4.9	27.3
	2nd Quarter			1			1		2		1																														8	13	8.7	4.8	11.9
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
Walleye	1st Quarter							1	1																																	2	9.0	8.7	9.2
	2nd Quarter																																									0	N/A	N/A	N/A
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A
White bass	1st Quarter																																									0	N/A	N/A	N/A
	2nd Quarter													1	2	5	3			2	4	1	1	2	2		1		1			2		1			2		1	1		32	23.9	14.3	40.8
	3rd Quarter																																									0	N/A	N/A	N/A
	4th Quarter																																									0	N/A	N/A	N/A
	5th Quarter																																									0	N/A	N/A	N/A

TABLE 4-16 (cont'd)
Length Distribution of Larval and Juvenile Fish Entrained
Monroe Power Plant
(04/19/2005 - 04/19/2006)

		Lenth Range (mm)																																													
		2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9	7.0-7.9	8.0-8.9	9.0-9.9	10.0-10.9	11.0-11.9	12.0-12.9	13.0-13.9	14.0-14.9	15.0-15.9	16.0-16.9	17.0-17.9	18.0-18.9	19.0-19.9	20.0-20.9	21.0-21.9	22.0-22.9	23.0-23.9	24.0-24.9	25.0-25.9	26.0-26.9	27.0-27.9	28.0-28.9	29.0-29.9	30.0-30.9	31.0-31.9	32.0-32.9	33.0-33.9	34.0-34.9	35.0-35.9	36.0-36.9	37.0-37.9	38.0-38.9	39.0-39.9	40.0-40.9	N/A	**Sample Size**	**Average**	**Minumum**	**Maximum**
White perch	1st Quarter																		1	1																						2	19.9	19.2	20.5
	2nd Quarter															1	1			1	1		1																			5	20.0	16.5	23.7
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
White sucker	1st Quarter												1	1																											2	13.7	13.1	14.2
	2nd Quarter																																								0	N/A	N/A	N/A
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A
Yellow perch	1st Quarter			1	25	18	2	3	1	7	5	3	5	4	4	1																									79	8.6	4.4	16.6
	2nd Quarter				1	2	6	3	1	2	1	1		1																											18	8.7	5.0	14.6
	3rd Quarter																																								0	N/A	N/A	N/A
	4th Quarter																																								0	N/A	N/A	N/A
	5th Quarter																																								0	N/A	N/A	N/A

1st Quarter = April 2005, May, June; 2nd Quarter = July, August, September; 3rd Quarter = October, November, December; 4th Quarter = January, February, March; 5th Quarter = April 2006

TABLE 4-17
Entrainment - Diel Density of Fish Eggs
Monroe Power Plant
(April 19, 2005 to April 19, 2006)

Sampling Dates	Mean Density (No. per 1,000 m^3)				
	Dawn	Day	Dusk	Night	Sampling Date Average Density
April 19, 2005	0.00	14.20	0.00	0.00	3.6
April 26-27, 2005	2.65	0.88	0.00	0.88	1.1
May 3-4, 2005	0.00	1.22	2.45	0.00	0.9
May 10-11, 2005	70.26	55.56	14.71	137.25	69.4
May 18-19, 2005	0.00	1.88	13.16	20.68	8.9
May 25-26, 2005	8.26	0.00	111.57	76.45	49.1
May 31 - June 1, 2005	16.26	38.62	54.88	38.62	37.1
June 9-10, 2005	0.00	0.00	0.00	0.00	0.0
June 15-16, 2005	0.00	0.00	0.00	0.00	0.0
June 21-22, 2005	0.00	0.00	0.00	0.00	0.0
June 30 - July 1, 2005	0.00	0.00	0.00	0.00	0.0
July 5-6, 2005	0.00	0.00	0.00	0.00	0.0
July 14-15, 2005	0.00	0.00	0.00	0.00	0.0
July 19-20, 2005	0.00	0.00	0.00	0.00	0.0
July 26-27, 2005	0.00	0.00	0.00	0.00	0.0
August 4-5, 2005	0.00	0.00	0.00	0.00	0.0
August 10-11, 2005	0.00	0.00	0.00	0.00	0.0
August 16-17, 2005	0.00	0.00	0.00	0.00	0.0
August 25-26, 2005	0.00	0.00	0.00	0.00	0.0
August 29-30, 2005	0.00	0.00	0.00	0.00	0.0
September 8-9, 2005	0.00	0.00	0.00	0.00	0.0
September 12-13, 2005	0.00	0.00	0.00	0.00	0.0
October 18, 2005	0.00	0.00	0.00	0.00	0.0
November 10, 2005	0.00	0.00	0.00	0.00	0.0
December 9, 2005	0.00	0.00	0.00	0.00	0.0
January 5, 2006	0.00	0.00	0.00	0.00	0.0
February 8, 2006	0.00	0.00	0.00	0.00	0.0
March 21-22, 2006	0.00	0.00	0.00	0.00	0.0
March 27-28, 2006	0.00	0.00	0.00	0.00	0.0
April 4-5, 2006	0.00	0.00	0.00	0.00	0.0
April 10-11, 2006	0.00	0.00	0.00	0.00	0.0
April 19, 2006	0.00	0.00	0.00	0.00	0.0
Annual Average	**3.04**	**3.51**	**6.15**	**8.56**	**5.32**

TABLE 4-18
Entrainment - Diel Density of Larval and Juvenile Fish
Monroe Power Plant
(April 19, 2005 to April 19, 2006)

Sampling Dates	Mean Density (No. per 1,000 m^3)				
	Dawn	Day	Dusk	Night	Sampling Date Average Density
April 19, 2005	0.00	2.84	0.00	0.00	0.71
April 26-27, 2005	0.88	0.88	5.30	7.95	3.75
May 3-4, 2005	33.98	32.77	31.55	14.56	28.22
May 10-11, 2005	0.00	0.00	0.00	1.63	0.41
May 18-19, 2005	5.64	5.64	13.16	15.04	9.87
May 25-26, 2005	8.26	2.07	0.00	20.66	7.75
May 31 - June 1, 2005	22.36	6.10	12.20	71.14	27.95
June 9-10, 2005	1,430.11	559.14	413.98	854.84	814.52
June 15-16, 2005	6,593.75	3,742.19	1,488.28	3,921.88	3,936.53
June 21-22, 2005	1,173.73	775.42	533.90	4,237.29	1,680.09
June 30 - July 1, 2005	1,789.16	572.29	686.75	734.94	945.79
July 5-6, 2005	947.45	611.16	452.71	1,888.44	974.94
July 14-15, 2005	653.59	251.63	104.58	349.67	339.87
July 19-20, 2005	349.10	81.57	107.67	701.47	309.95
July 26-27, 2005	228.30	150.12	28.15	281.47	172.01
August 4-5, 2005	74.14	33.70	43.81	276.33	107.00
August 10-11, 2005	7.36	7.36	7.36	49.05	17.78
August 16-17, 2005	14.31	4.09	10.22	69.49	24.53
August 25-26, 2005	9.61	0.00	1.92	42.27	13.45
August 29-30, 2005	18.15	0.00	62.53	68.58	37.32
September 8-9, 2005	3.66	0.00	12.80	10.97	6.86
September 12-13, 2005	1.68	1.68	13.41	3.35	5.03
October 18, 2005	0.00	0.00	0.00	0.00	0.00
November 10, 2005	0.00	0.00	0.00	0.00	0.00
December 9, 2005	3.04	0.00	0.00	0.00	0.76
January 5, 2006	0.00	0.00	0.00	0.00	0.00
February 8, 2006	0.00	0.00	0.00	0.00	0.00
March 21-22, 2006	0.00	0.00	1.59	4.77	1.59
March 27-28, 2006	0.00	0.00	0.00	0.00	0.00
April 4-5, 2006	0.00	0.00	0.00	0.00	0.00
April 10-11, 2006	1.25	0.00	12.50	8.75	5.63
April 19, 2006	0.00	0.00	0.00	0.00	0.00
Annual Average	**417.80**	**213.77**	**126.39**	**426.08**	**296.01**

TABLE 4-19

Distribution of Total Flow-Expanded Entrainment by Life Stage at Each Screenhouse - Abundance
Monroe Power Plant
(April 2005 - April 2006)

	Eggs		Juveniles		Larvae			
Taxa	**GSW[1]**	**SH1&2**	**GSW**	**SH1&2**	**GSW**	**SH1&2**	**Taxa Total**	**% of Total**
Alewife	0	0	0	3,787,469	297,685	27,781,516	31,866,670	6.38%
Bluegill	0	0	0	0	139	13,036	13,175	0.00%
Bluntnose minnow	0	0	2,283	209,810	0	0	212,093	0.04%
Brook silverside	0	0	0	0	3,346	285,318	288,664	0.06%
Carp/Goldfish	0	0	0	0	5,583	513,158	518,741	0.10%
Catostomidae	0	0	0	0	258	24,210	24,469	0.00%
Channel catfish	0	0	0	0	951	80,478	81,430	0.02%
Cyprinidae	0	0	66,575	5,731,275	307,820	28,015,486	34,121,155	6.84%
Emerald shiner	0	0	177,924	15,458,675	700,104	62,078,763	78,415,465	15.71%
Freshwater drum	927	75,703	0	0	63,128	5,846,418	5,986,175	1.20%
Gizzard shad	13,763	1,291,079	0	22,826,191	1,201,243	110,808,723	136,140,998	27.28%
Lake whitefish	0	0	0	0	4,337	293,343	297,680	0.06%
Largemouth bass	5,280	494,827	0	0	0	0	500,107	0.10%
Lepomis spp.	0	0	2,263	198,209	3,461	311,575	515,509	0.10%
Logperch	0	0	470	39,747	168,188	15,605,109	15,813,514	3.17%
Micropterus spp.	5,762	540,519	0	0	430	39,020	585,731	0.12%
Morone spp.	6,179	578,843	56,927	5,089,908	1,063,877	98,380,363	105,176,097	21.07%
Northern pike	242	19,874	0	0	0	0	20,116	0.00%
Notropis spp.	0	0	7,358	638,518	448,910	41,044,354	42,139,142	8.44%
Percidae	0	0	1,145	104,703	1,298	112,402	219,548	0.04%
Pomoxis spp.	0	0	0	0	2,138	199,976	202,113	0.04%
Quillback	3,908	366,702	0	0	3,261	300,889	674,761	0.14%
Rainbow smelt	148	9,851	0	25,934	646	58,803	95,382	0.02%
Rainbow smelt/Clupeidae	0	0	299,452	0	0	0	299,452	0.06%
Rock bass	1,747	163,889	1,021	86,330	0	0	252,987	0.05%
Round goby	0	0	169,874	14,933,960	0	0	15,103,835	3.03%
Silver chub	0	0	259	24,191	0	0	24,451	0.00%
Smallmouth bass	31,835	2,986,223	0	0	0	0	3,018,058	0.60%
Smelt/Shad/Alewife	912	85,536	0	1,089,619	132,209	12,322,888	13,631,163	2.73%
Spotfin shiner	0	0	0	0	6,151	572,988	579,139	0.12%
Trout-perch	0	0	430	39,020	7,001	654,945	701,395	0.14%
Unidentified	1,051	95,732	0	0	31,345	2,866,699	2,994,827	0.60%
Walleye	2,765	207,648	0	0	471	44,178	255,062	0.05%
White bass	0	0	9,811	832,535	5,220	441,617	1,289,183	0.26%
White perch	7,133	668,868	1,381	116,807	2,800	257,976	1,054,965	0.21%
White sucker	0	0	0	0	319	25,832	26,150	0.01%
Yellow perch	0	0	0	0	63,900	5,912,577	5,976,478	1.20%
TOTAL	**81,653**	**7,585,294**	**797,171**	**71,232,900**	**4,526,221**	**414,892,637**	**499,115,876**	100.00%
Life Stage Totals	**7,666,947**		**72,030,071**		**419,418,858**			
% of Total	**1.54%**		**14.43%**		**84.03%**			

1. The abbreviations used refer to screenhouses: GSW = general service water, SH1&2 = screenhouses 1 and 2 combined.

Individual estimates may not add to totals due to rounding.

TABLE 4-20

Monthly Total of Flow-Expanded Larval and Juvenile Fish Entrainment - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	34,728	237,477	119,457,733	15,080,926	25,293	0	0	0	0	0	0	0	0	134,836,157	27.44%
Morone spp.	0	47,192	96,331,283	8,164,906	47,590	104	0	0	0	0	0	0	0	104,591,074	21.28%
Emerald shiner	0	49,828	34,017,703	40,733,561	3,460,128	154,245	0	0	0	0	0	0	0	78,415,465	15.96%
Notropis spp.	0	396,447	32,551,376	8,429,868	761,451	0	0	0	0	0	0	0	0	42,139,142	8.57%
Cyprinidae	27,680	269,410	22,636,753	10,390,026	797,286	0	0	0	0	0	0	0	0	34,121,155	6.94%
Alewife	0	0	31,245,311	621,358	0	0	0	0	0	0	0	0	0	31,866,670	6.48%
Logperch	6,946	124,974	14,612,533	955,817	90,163	23,082	0	0	0	0	0	0	0	15,813,514	3.22%
Round goby	29,998	102,465	3,987,178	6,237,945	4,021,805	682,241	0	0	0	0	0	42,202	0	15,103,835	3.07%
Smelt/Shad/Alewife	6,946	101,275	12,996,074	440,420	0	0	0	0	0	0	0	0	0	13,544,715	2.76%
Yellow perch	0	282,476	5,014,465	553,616	103,037	22,884	0	0	0	0	0	0	0	5,976,478	1.22%
Freshwater drum	0	102	5,626,992	212,117	70,334	0	0	0	0	0	0	0	0	5,909,545	1.20%
Unidentified	49,996	227,961	2,152,788	439,922	27,377	0	0	0	0	0	0	0	0	2,898,044	0.59%
White bass	0	0	38,381	1,250,802	0	0	0	0	0	0	0	0	0	1,289,183	0.26%
Trout-perch	0	19,350	681,913	132	0	0	0	0	0	0	0	0	0	701,395	0.14%
Spotfin shiner	0	0	537,897	257	40,985	0	0	0	0	0	0	0	0	579,139	0.12%
Carp/Goldfish	0	46,896	470,815	1,029	0	0	0	0	0	0	0	0	0	518,741	0.11%
Lepomis spp.	0	0	78,406	234,909	201,954	240	0	0	0	0	0	0	0	515,509	0.10%
White perch	0	0	223,022	155,942	0	0	0	0	0	0	0	0	0	378,963	0.08%
Quillback	0	105,868	154,607	43,675	0	0	0	0	0	0	0	0	0	304,150	0.06%
Rainbow smelt/Clupeidae	0	0	268,975	29,755	271	0	0	0	449	0	0	0	0	299,452	0.06%
Lake whitefish	9,999	16,151	39,318	132	0	0	0	0	0	0	0	0	232,080	297,680	0.06%
Brook silverside	0	0	0	264,280	24,384	0	0	0	0	0	0	0	0	288,664	0.06%
Percidae	0	26,350	105,584	87,614	0	0	0	0	0	0	0	0	0	219,548	0.04%
Bluntnose minnow	0	0	0	354	211,739	0	0	0	0	0	0	0	0	212,093	0.04%
Pomoxis spp.	0	0	202,113	0	0	0	0	0	0	0	0	0	0	202,113	0.04%
Rock bass	0	0	0	87,351	0	0	0	0	0	0	0	0	0	87,351	0.02%
Rainbow smelt	0	0	0	0	0	59,448	0	0	25,934	0	0	0	0	85,382	0.02%
Channel catfish	0	0	0	81,430	0	0	0	0	0	0	0	0	0	81,430	0.02%
Walleye	0	44,648	0	0	0	0	0	0	0	0	0	0	0	44,648	0.01%
Micropterus spp.	0	0	39,318	132	0	0	0	0	0	0	0	0	0	39,449	0.01%
White sucker	9,999	16,151	0	0	0	0	0	0	0	0	0	0	0	26,150	0.01%
Catostomidae	0	111	24,358	0	0	0	0	0	0	0	0	0	0	24,469	0.00%
Silver chub	0	0	0	0	24,451	0	0	0	0	0	0	0	0	24,451	0.00%
Bluegill	0	13,175	0	0	0	0	0	0	0	0	0	0	0	13,175	0.00%
TOTAL	**176,291**	**2,128,306**	**383,494,897**	**94,498,277**	**9,908,249**	**942,243**	**0**	**0**	**26,383**	**0**	**0**	**42,202**	**232,080**	**491,448,929**	**100.00%**

Individual estimates may not add to totals due to rounding.

TABLE 4-21

Monthly Total of Flow-Expanded Fish Egg Entrainment - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Smallmouth bass	0	3,016,045	2,013	0	0	0	0	0	0	0	0	0	0	3,018,058	39.36%
Gizzard shad	0	1,304,249	592	0	0	0	0	0	0	0	0	0	0	1,304,841	17.02%
White perch	0	674,557	1,445	0	0	0	0	0	0	0	0	0	0	676,002	8.82%
Morone spp.	0	581,770	3,252	0	0	0	0	0	0	0	0	0	0	585,023	7.63%
Micropterus spp.	0	546,008	273	0	0	0	0	0	0	0	0	0	0	546,281	7.13%
Largemouth bass	0	498,061	2,046	0	0	0	0	0	0	0	0	0	0	500,107	6.52%
Quillback	0	370,611	0	0	0	0	0	0	0	0	0	0	0	370,611	4.83%
Walleye	127,664	82,749	0	0	0	0	0	0	0	0	0	0	0	210,413	2.74%
Rock bass	0	165,636	0	0	0	0	0	0	0	0	0	0	0	165,636	2.16%
Unidentified	6,946	89,565	273	0	0	0	0	0	0	0	0	0	0	96,783	1.26%
Smelt/Shad/Alewife	0	86,300	148	0	0	0	0	0	0	0	0	0	0	86,448	1.13%
Freshwater drum	27,680	48,654	296	0	0	0	0	0	0	0	0	0	0	76,630	1.00%
Northen pike	6,946	13,170	0	0	0	0	0	0	0	0	0	0	0	20,116	0.26%
Rainbow smelt	9,999	0	0	0	0	0	0	0	0	0	0	0	0	9,999	0.13%
TOTAL	**179,234**	**7,477,376**	**10,337**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,666,947**	**100.00%**

Individual estimates may not add to totals due to rounding.

TABLE 4-22

Distribution of Total Flow-Expanded Entrainment by Screenhouse - Abundance Monroe Power Plant (April 2005 - April 2006)

Taxa	GSW total	SH1&2 total	Total
Alewife	297,685	31,568,985	31,866,670
Bluegill	139	13,036	13,175
Bluntnose minnow	2,283	209,810	212,093
Brook silverside	3,346	285,318	288,664
Carp/Goldfish	5,583	513,158	518,741
Catostomidae	258	24,210	24,469
Channel catfish	951	80,478	81,430
Cyprinidae	374,395	33,746,761	34,121,155
Emerald shiner	878,028	77,537,438	78,415,465
Freshwater drum	64,055	5,922,120	5,986,175
Gizzard shad	1,215,006	134,925,992	136,140,998
Lake whitefish	4,337	293,343	297,680
Largemouth bass	5,280	494,827	500,107
Lepomis spp.	5,724	509,784	515,509
Logperch	168,658	15,644,856	15,813,514
Micropterus spp.	6,192	579,539	585,731
Morone spp.	1,126,983	104,049,114	105,176,097
Northern pike	242	19,874	20,116
Notropis spp.	456,269	41,682,873	42,139,142
Percidae	2,443	217,105	219,548
Pomoxis spp.	2,138	199,976	202,113
Quillback	7,170	667,591	674,761
Rainbow smelt	794	94,588	95,382
Rainbow smelt/Clupeidae	299,452	0	299,452
Rock bass	2,767	250,219	252,987
Round goby	169,874	14,933,960	15,103,835
Silver chub	259	24,191	24,451
Smallmouth bass	31,835	2,986,223	3,018,058
Smelt/Shad/Alewife	133,121	13,498,042	13,631,163
Spotfin shiner	6,151	572,988	579,139
Trout-perch	7,430	693,964	701,395
Unidentified	32,396	2,962,431	2,994,827
Walleye	3,236	251,826	255,062
White bass	15,031	1,274,152	1,289,183
White perch	11,314	1,043,651	1,054,965
White sucker	319	25,832	26,150
Yellow perch	63,900	5,912,577	5,976,478
TOTAL	**5,405,045**	**493,710,832**	**499,115,876**
% of Total	**1.08%**	**98.92%**	

Individual estimates may not add to totals due to rounding.

TABLE 4-23

Representative Entrained[1] and Impinged Fish
Monroe Power Plant
April 2005 to April 2006

Common Species Name	Scientific Name	Entrained	Impinged	Estimated Annual Egg Entrainment	% of Annual Egg Entrainment	Estimated Annual Larval and Juvenile Fish Entrainment	% of Annual Larval and Juvenile Fish Entrainment	Estimated Annual Impingement	% of Annual Impingement	Recreational	Forage	T or E Species	Invasive
Alewife[b]	*Alosa pseudoharengus*	✖				31,866,670	6.48%				✖		✖
Black basses[a]	*Micropterus spp.*	✖		546,281	7.13%	39,449	0.01%			✖			
Black crappie[a]	*Pomoxis nigromaculatus*		✖					288	0.00%	✖			
Bluegill[d]	*Lepomis macrochirus*	✖	✖			13,175	0.00%	68,663	0.27%	✖			
Bluntnose minnow[b]	*Pimephales notatus*	✖	✖			212,093	0.04%	178	0.00%		✖		
Bowfin[b]	*Amia calva*		✖					464	0.00%		✖		
Brook silverside[b]	*Labidesthes sicculus*	✖	✖			288,664	0.06%	1,673	0.01%		✖		
Brown bullhead[a]	*Ameiurus nebulosus*		✖					800	0.00%	✖			
Channel catfish[a]	*Ictalurus punctatus*	✖	✖			81,430	0.02%	10,938	0.04%	✖			
Carps and minnows[b]	Cyprinidae	✖	✖			34,121,155	6.94%	81	0.00%		✖		
Crappies[a]	*Pomoxis spp.*	✖	✖			202,113	0.04%	3	0.00%	✖			
Emerald shiner[b]	*Notropis atherinoides*	✖	✖			78,415,465	15.96%	256,886	1.01%		✖		
Fathead minnow[b]	*Pimephales promelas*		✖					702	0.00%		✖		
Freshwater drum[b]	*Aplodinotus grunniens*	✖	✖	76,630	1.00%	5,909,545	1.20%	221,516	0.87%		✖		
Gizzard shad[b,d]	*Dorosoma cepedianum*	✖	✖	1,304,841	17.02%	134,836,157	27.44%	11,509,100	45.23%		✖		
Golden redhorse[b]	*Moxostoma erythrurum*		✖					228	0.00%		✖		
Goldfish[b]	*Carassius auratus*		✖					36,412	0.14%		✖		
Green sunfish[a]	*Lepomis cyanellus*		✖					1,210	0.00%	✖			
Lake whitefish[a]	*Coregonus clupeaformis*	✖				297,680	0.06%			✖			
Largemouth bass[a]	*Micropterus salmoides*	✖	✖	500,107	6.52%			1,493	0.01%	✖			
Logperch[b]	*Percina caproides*	✖	✖			15,813,514	3.22%	1,399	0.01%		✖		
Longnose gar[a]	*Lepisosteus osseus*		✖					5,460	0.02%	✖			
Muskellunge[a]	*Esox masquinongy*		✖					1,295	0.01%		✖		
Northern pike[a]	*Esox lucius*	✖	✖	20,116	0.26%			3,404	0.01%	✖			
Orangespotted sunfish[a]	*Lepomis humilis*		✖					652	0.00%	✖			
Pumpkinseed[a]	*Lepomis gibbosus*		✖					11,597	0.05%	✖			
Quillback[a]	*Carpiodes cyprinus*	✖	✖	370,611	4.83%	304,150	0.06%	460	0.00%	✖			
Rainbow smelt[b]	*Osmerus mordax*	✖	✖	9,999	0.13%	85,382	0.02%	1,325	0.01%		✖		✖
Rainbow smelt/Clupeidae[b]		✖				299,452	0.06%						
Redhorse sucker[b]	*Moxostoma spp.*		✖					3,385	0.01%		✖		
Rock bass[a]	*Ambloplites rupestris*	✖	✖	165,636	2.16%	87,351	0.02%	3,511	0.01%	✖			
Shiners[b]	*Notropis spp.*	✖				42,139,142	8.57%				✖		
Silver chub[c]	*Macrhybopsis storeriana*	✖	✖			24,451	0.00%	729	0.00%			✖	
Silver lamprey	*Ichthyomyzon unicuspis*		✖					2,375	0.01%				
Smallmouth bass[a]	*Micropterus dolomieu*	✖	✖	3,018,058	39.36%			9,311	0.04%	✖			
Smelt/Shad/Alewife[b]		✖		86,448	1.13%	13,544,715	2.76%				✖		
Spotfin shiner[b]	*Cyprinella spiloptera*	✖	✖			579,139	0.12%	182	0.00%		✖		
Spottail shiner[b]	*Notropis hudsonius*		✖					92,119	0.36%		✖		
Spotted gar[c]	*Lepisosteus oculatus*		✖					3	0.00%			✖	
Suckers[b]	Catostomidae	✖				24,469	0.00%				✖		
Sunfishes[a]	*Lepomis spp.*	✖	✖			515,509	0.10%	4	0.00%	✖			
Temperate basses[a]	*Morone spp.*	✖		585,023	7.63%	104,591,074	21.28%			✖			
Trout-perch[b]	*Percopsis omiscomaycus*	✖	✖			701,395	0.14%	57,052	0.22%		✖		
True perches[a]	Percidae	✖				219,548	0.04%			✖			
Unidentified [1]		✖		93,134	1.21%	2,874,569	0.58%						
Walleye[a]	*Sander vitreus*	✖	✖	210,413	2.74%	44,648	0.01%	1,913	0.01%	✖			
White bass[a]	*Morone chrysops*	✖	✖			1,289,183	0.26%	29,099	0.11%	✖			
White crappie[a]	*Pomoxis annularis*		✖					8,292	0.03%	✖			
White perch[a]	*Morone americana*	✖	✖	676,002	8.82%	378,963	0.08%	481,817	1.89%	✖			✖
White sucker[b]	*Catostomus commersonii*	✖	✖			26,150	0.01%	500	0.00%		✖		
Yellow bullhead[a]	*Ameiurus natalis*		✖					644	0.00%	✖			
Yellow perch[a]	*Perca flavescens*	✖	✖			5,976,478	1.22%	17,993	0.07%	✖			

[a] Representative Species Included in Tier 1

[b] Representative Species Included in Tier 2

[c] Representative Species Included in Tier 3

[d] Gizzard shad susceptible to temperature-induced stress were removed from consideration for flow-expanded impingement estimates and baseline calculations.

[1.] The number of unidentified eggs considered to be representative species was determined by multiplying the number of flow-expanded eggs by the percentage of larval and juvenile fish that were considered representative species.
The number of unidentified larval fish considered representative species was determined by multiplying the flow-expanded number of larval fish by the percentage of larval fish considered representative species.

TABLE 4-24

Comparison of Annual Flow-Expanded Entrainment to Maximum[1] Flow-Expanded Entrainment by Life Stage and Screenhouse
Monroe Power Plant
April 2005 to April 2006

Entrainment	Eggs	Juveniles	Larvae	Totals	GSW	SH1 & SH2	Totals
Total Annual Flow-Expanded Entrainment for All Species	7,666,947	72,030,071	419,418,858	499,115,876	5,405,045	493,710,832	499,115,876
Maximum Annual Flow-Expanded Entrainment for All Species	9,024,099	72,808,348	428,689,935	510,522,383	--	510,522,383	510,522,383
Annual Flow-Expanded Entrainment of Representative Species	7,663,299	56,926,236	418,876,643	483,466,178	5,229,294	478,236,884	483,466,178
Maximum Annual Flow-Expanded Entrainment for Representative Species	9,018,936	55,860,513	428,234,508	493,113,957	--	493,113,957	493,113,957

1. Maximum Flow-expanded Entrainment was calculated using the Maximum Design Flow of 2,056.32 MGD.

Individual estimates may not add to totals due to rounding.

TABLE 4-25

Monthly Total of Maximum[1] Flow-Expanded Larval and Juvenile Fish Entrainment - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	123,579	261,552	113,263,543	17,600,014	22,832	0	0	0	0	0	0	0	0	131,271,521	26.18%
Morone spp.	0	52,108	87,258,479	17,816,025	56,876	0	0	0	0	0	0	0	0	105,183,487	20.97%
Emerald shiner	8,835	51,624	38,912,632	40,383,253	3,887,762	212,357	26,410	0	0	0	0	0	0	83,482,874	16.65%
Notropis spp.	88,352	511,205	37,561,961	9,823,616	735,713	0	0	0	0	0	0	0	0	48,720,847	9.72%
Cyprinidae	70,387	359,438	24,937,890	10,490,547	777,042	0	0	0	0	0	0	0	22,670	36,657,972	7.31%
Alewife	0	0	28,132,057	804,603	0	0	0	0	0	0	0	0	0	28,936,661	5.77%
Round goby	41,549	122,280	3,323,572	7,529,722	3,711,273	1,839,944	237,691	0	0	0	0	73,795	68,009	16,947,836	3.38%
Logperch	33,551	177,470	13,754,998	770,948	79,175	34,677	0	0	0	0	0	0	0	14,850,819	2.96%
Smelt/Shad/Alewife	33,551	98,966	12,430,052	484,449	0	0	0	0	0	0	0	0	0	13,047,018	2.60%
Yellow perch	13,253	299,398	5,609,768	541,755	158,886	65,959	0	0	0	0	0	0	0	6,689,018	1.33%
Freshwater drum	0	0	4,923,454	626,817	62,878	0	0	0	0	0	0	0	0	5,613,149	1.12%
Unidentified	66,304	294,541	1,944,285	447,309	36,677	0	0	0	0	0	0	0	0	2,789,115	0.56%
White bass	0	0	0	1,486,801	8,411	0	0	0	0	0	0	0	0	1,495,212	0.30%
Lake whitefish	12,377	19,452	52,839	0	0	0	0	0	0	0	0	0	831,652	916,320	0.18%
Trout-perch	0	26,357	843,480	0	0	0	0	0	0	0	0	0	0	869,837	0.17%
Spotfin shiner	0	0	543,780	57,240	35,935	0	0	0	0	0	0	0	0	636,956	0.13%
White perch	0	0	298,813	245,377	16,822	0	0	0	0	0	0	0	0	561,012	0.11%
Lepomis spp.	0	0	82,485	211,307	184,526	51,979	0	0	0	0	0	0	0	530,296	0.11%
Carp/Goldfish	0	57,596	146,278	228,961	0	0	0	0	0	0	0	0	0	432,836	0.09%
Quillback	0	152,409	130,102	32,433	0	0	0	0	0	0	0	0	0	314,945	0.06%
Bluntnose minnow	0	0	0	78,915	205,179	0	0	0	0	0	0	0	0	284,094	0.06%
Rainbow smelt	0	0	0	0	0	82,337	26,410	42,103	118,541	2,153	0	0	0	271,545	0.05%
Percidae	8,835	22,088	129,749	64,866	0	0	0	0	0	0	0	0	0	225,538	0.04%
Brook silverside	0	0	0	196,253	14,519	0	0	0	0	0	0	0	0	210,771	0.04%
Pomoxis spp.	0	0	180,533	0	0	0	0	0	0	0	0	0	0	180,533	0.04%
Channel catfish	0	0	0	87,460	8,411	0	0	0	0	0	0	0	0	95,871	0.02%
Rock bass	0	0	0	77,839	0	0	0	0	0	0	0	0	0	77,839	0.02%
Walleye	0	56,384	0	0	0	0	0	0	0	0	0	0	0	56,384	0.01%
Micropterus spp.	0	0	52,839	0	0	0	0	0	0	0	0	0	0	52,839	0.01%
White sucker	12,377	19,452	0	0	0	0	0	0	0	0	0	0	0	31,829	0.01%
Catostomidae	0	24,484	0	0	0	0	0	0	0	0	0	0	0	24,484	0.00%
Silver chub	0	0	0	0	23,365	0	0	0	0	0	0	0	0	23,365	0.00%
Bluegill	4,418	11,044	0	0	0	0	0	0	0	0	0	0	0	15,462	0.00%
TOTAL	**517,367**	**2,617,850**	**374,513,589**	**110,086,510**	**10,026,281**	**2,287,252**	**290,512**	**42,103**	**118,541**	**2,153**	**0**	**73,795**	**922,331**	**501,498,284**	**100.00%**

[1.] Maximum Flow-expanded Entrainment was calculated using the Maximum Design Flow of 2,056.32 MGD.

Individual estimates may not add to totals due to rounding.

TABLE 4-26

Monthly Total of Maximum[1] Flow-Expanded Fish Egg Entrainment - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Smallmouth bass	0	3,444,950	169,089	0	0	0	0	0	0	0	0	0	0	3,614,039	40.05%
Gizzard shad	0	1,288,714	0	0	0	0	0	0	0	0	0	0	0	1,288,714	14.28%
Morone spp.	0	303,912	439,632	0	0	0	0	0	0	0	0	0	0	743,543	8.24%
Micropterus spp.	0	662,792	67,636	0	0	0	0	0	0	0	0	0	0	730,428	8.09%
Largemouth bass	0	200,002	507,268	0	0	0	0	0	0	0	0	0	0	707,270	7.84%
White perch	0	600,237	101,454	0	0	0	0	0	0	0	0	0	0	701,691	7.78%
Quillback	0	452,505	0	0	0	0	0	0	0	0	0	0	0	452,505	5.01%
Rock bass	0	218,098	0	0	0	0	0	0	0	0	0	0	0	218,098	2.42%
Walleye	115,431	96,560	0	0	0	0	0	0	0	0	0	0	0	211,991	2.35%
Unidentified	11,463	57,861	67,636	0	0	0	0	0	0	0	0	0	0	136,960	1.52%
Smelt/Shad/Alewife	0	106,735	0	0	0	0	0	0	0	0	0	0	0	106,735	1.18%
Freshwater drum	21,793	48,968	0	0	0	0	0	0	0	0	0	0	0	70,761	0.78%
Northen pike	15,881	11,044	0	0	0	0	0	0	0	0	0	0	0	26,925	0.30%
Rainbow smelt	12,377	2,063	0	0	0	0	0	0	0	0	0	0	0	14,440	0.16%
TOTAL	**176,945**	**7,494,441**	**1,352,714**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,024,099**	**100.00%**

1. Maximum Flow-expanded Entrainment was calculated using the Maximum Design Flow of 2,056.32 MGD.

Individual estimates may not add to totals due to rounding.

TABLE 4-27

Comparison of Annual Flow-Expanded Impingement Numbers and Biomass to Maximum[1] Flow-Expanded Impingement Numbers and Biomass by Screenhouse
Monroe Power Plant
April 2005 to April 2006

Impingement	GSW	SH1	SH2	Total
Total Annual Flow-Expanded Impingement for All Species	443,864 14,237.852 kg	9,642,714 253,996.078 kg	15,360,151 527,371.424 kg	25,446,729 795,605.354 kg
Maximum Annual Flow-Expanded Impingement for All Species	..	16,629,222 535,968.819 kg	23,712,213 975,015.737 kg	40,341,435 1,510,984.556 kg
Total Annual Flow-Expanded Impingement with Gizzard Shad[2] removed	305,543 10,428.339 kg	4,670,838 87,260.137 kg	7,906,622 204,998.724 kg	12,883,003 302,687.200 kg
Maximum Annual Flow-Expanded Impingement with Gizzard Shad[2] removed	..	7,873,592 152,707.714 kg	10,935,991 274,689.537 kg	18,809,583 427,397.251 kg
Annual Flow-Expanded Impingement of Representative Species[2]	305,010 10,407.176 kg	4,652,443 86,787.908 kg	7,893,281 204,233.755 kg	12,850,734 301,428.840 kg
Maximum Annual Flow-Expanded Impingement for Representative Species[2]	..	7,840,992 151,666.226 kg	10,915,366 273,673.297 kg	18,756,357 425,339.522 kg

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.
2. Gizzard shad that were susceptible to temperature-induced stress were removed from consideration.

Individual estimates may not add to totals due to rounding.

TABLE 4-28

Monthly Total of Maximum[1] Flow-Expanded Impingement - Abundance[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	132	286	119	3,220	2,913	6,212	352,562	3,375,020	2,182,434	15,711,735	10,732,287	3,379,159	2,483,980	38,230,059	94.77%
White perch	207	1,519	371	4,709	131,711	101,892	212,534	26,094	11,990	38,236	29,995	36,176	49,836	645,268	1.60%
Emerald shiner	271	6,022	5,698	204	289	284	3,624	55,386	18,650	59,581	200,822	32,626	47,248	430,704	1.07%
Freshwater drum	40	230	675	1,230	1,566	3,830	37,876	44,160	271,868	173	285	3,865	12,324	378,121	0.94%
Spottail shiner	165	379	85	34	314	3,777	12,609	14,381	2,250	24,731	9,254	30,394	47,253	145,626	0.36%
Bluegill	7	20	5	228	140	2,654	11,551	16,152	3,043	11,348	23,015	24,818	11,135	104,115	0.26%
Trout-perch	1,219	3,072	188	21	30	3,105	27,665	3,024	1,247	6,844	6,318	13,242	23,260	89,235	0.22%
Goldfish	41	87	0	0	19	3	250	1,558	4,440	21,610	19,537	4,398	5,903	57,846	0.14%
Round goby	320	179	164	233	505	937	4,326	3,700	2,935	10,734	3,380	11,434	12,285	51,133	0.13%
Yellow perch	103	788	215	75	114	244	1,249	3,331	406	3,791	666	9,287	16,371	36,641	0.09%
White bass	36	202	87	4,554	4,756	9,799	4,754	4,263	156	3,334	0	72	136	32,150	0.08%
Pumpkinseed	8	19	9	71	112	339	1,863	1,136	11	1,207	1,463	6,249	8,208	20,694	0.05%
Channel catfish	19	67	39	55	124	878	4,615	2,057	0	6,408	407	786	4,175	19,630	0.05%
Smallmouth bass	3	16	11	85	233	814	3,510	1,454	66	2,303	281	1,769	6,050	16,594	0.04%
White crappie	0	0	0	0	0	0	0	5,000	0	6,943	0	1,970	0	13,913	0.03%
Common carp	33	8	0	15	0	12	95	461	0	5,552	3,151	1,438	176	10,941	0.03%
Rock bass	26	68	32	94	88	79	432	219	0	130	72	1,934	6,400	9,575	0.02%
Longnose gar	22	26	0	11	0	53	41	2,682	63	0	143	4,738	0	7,779	0.02%
Silver lamprey	21	48	43	0	4	21	0	306	181	243	0	1,434	3,233	5,535	0.01%
Northern pike	5	29	16	51	13	33	53	676	127	86	0	3,654	0	4,744	0.01%
Redhorse sucker	0	40	45	0	0	17	11	919	0	0	0	3,382	176	4,590	0.01%
Silver chub	17	7	29	0	19	3	0	0	310	2,632	0	0	0	3,016	0.01%
Largemouth bass	0	0	5	4	46	14	496	875	433	877	152	0	0	2,903	0.01%
Brook silverside	0	0	0	0	0	35	230	1,495	137	259	0	438	0	2,594	0.01%
Walleye	3	28	121	96	267	244	387	1,196	0	0	0	0	0	2,340	0.01%
Rainbow smelt	1	30	39	5	3	0	0	1,186	459	74	0	0	91	1,887	0.00%
Green sunfish	0	0	3	0	3	6	0	0	43	259	898	73	307	1,594	0.00%
Logperch	4	0	3	0	0	224	779	515	0	0	0	0	20	1,545	0.00%
Muskellunge	1	0	0	0	0	0	0	0	0	1,171	0	288	0	1,461	0.00%
Brown bullhead	0	4	22	0	3	0	185	369	0	0	0	589	0	1,172	0.00%
Fathead minnow	0	0	0	0	0	0	1,123	0	0	0	0	0	0	1,123	0.00%
Yellow bullhead	0	0	0	0	162	0	0	514	280	0	0	0	0	955	0.00%
Orangespotted sunfish	0	0	0	0	0	50	152	159	0	0	0	0	575	936	0.00%
Common shiner	0	0	8	3	0	0	0	0	0	877	0	0	0	888	0.00%
Quillback	1	10	32	8	4	0	0	147	433	0	0	73	91	799	0.00%
Bowfin	0	0	0	0	0	0	0	0	0	43	0	288	176	507	0.00%
Bluntnose minnow	0	0	0	5	4	3	0	0	0	0	72	289	91	463	0.00%
Tadpole madtom	0	0	0	0	0	0	0	0	0	0	0	27	386	414	0.00%
Black crappie	0	4	3	0	0	0	16	192	0	0	0	187	0	403	0.00%
Spotfin shiner	0	0	0	0	0	0	0	0	280	0	0	0	0	280	0.00%
Golden redhorse	0	0	0	0	0	0	0	0	0	243	0	0	0	243	0.00%
Creek chub	0	0	0	0	0	0	0	0	0	206	0	0	0	206	0.00%
Cyprinidae	0	0	0	5	0	0	99	0	0	0	0	0	91	195	0.00%
Sea lamprey	0	0	11	0	0	0	109	50	0	0	0	0	0	170	0.00%
Black bullhead	0	0	0	0	45	24	45	0	0	0	0	0	40	154	0.00%
Northern longear sunfish	0	0	0	0	0	0	0	0	0	130	0	0	0	130	0.00%
Smallmouth buffalo	0	0	0	0	0	0	0	0	64	0	0	0	0	64	0.00%
White sucker	0	0	0	3	0	0	19	0	0	0	0	0	0	22	0.00%
Stonecat	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0.00%
Lamprey	0	13	0	0	0	0	0	0	0	0	0	0	0	13	0.00%
Noturus spp.	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0.00%
Pomoxis spp.	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Mimic shiner	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Steelcolor shiner	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Spotted gar	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Ameiurus spp.	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Threespine stickleback	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Redear sunfish	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0.00%
Steelhead trout	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0.00%
Lepomis spp.	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0.00%
Centrarchidae	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.00%
Northern hog sucker	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.00%
TOTAL	**2,705**	**13,220**	**8,092**	**15,017**	**143,493**	**135,586**	**683,261**	**3,568,677**	**2,502,306**	**15,921,763**	**11,032,198**	**3,575,079**	**2,740,039**	**40,341,435**	**100.00%**

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.

2. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-29

Monthly Total of Maximum[1] Flow-Expanded Impingement - Biomass (kg)[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total Biomass (kg)	% of Total
Gizzard shad	49.840	122.369	51.967	39.454	34.157	92.401	3,545.831	54,164.623	37,700.890	894,723.841	304,235.027	102,488.487	63,427.128	1,460,676.016	96.67%
Freshwater drum	36.806	172.534	388.896	142.897	179.383	197.186	632.086	675.121	4,148.334	195.831	5.423	1,195.688	3,989.278	11,959.463	0.79%
White perch	5.779	141.487	32.145	54.082	464.706	526.432	1,415.580	158.445	69.193	254.168	216.548	584.550	292.006	4,215.122	0.28%
Yellow perch	7.813	37.313	14.934	4.162	10.108	15.941	19.169	485.733	26.794	781.835	99.586	1,516.401	979.761	3,999.551	0.26%
Smallmouth bass	4.696	4.937	3.804	1.368	7.209	25.779	71.313	64.609	13.450	216.497	69.178	668.062	2,285.259	3,436.158	0.23%
Northern pike	11.937	46.535	12.236	47.315	11.683	7.027	13.661	653.805	93.048	133.940	0.000	1,967.353	0.000	2,998.539	0.20%
Goldfish	11.343	31.031	0.000	0.000	0.121	0.237	5.178	31.767	53.862	442.782	314.660	511.286	1,332.008	2,734.276	0.18%
Longnose gar	5.309	3.665	0.000	0.163	0.000	7.224	4.515	914.400	6.913	0.000	135.578	1,589.321	0.000	2,667.088	0.18%
Channel catfish	0.817	17.904	10.641	5.941	7.326	9.502	57.816	1,479.170	0.000	379.706	598.901	1.571	10.005	2,579.300	0.17%
Round goby	19.197	6.789	6.765	7.881	15.473	15.703	51.716	193.428	128.987	166.294	32.580	599.381	702.384	1,946.578	0.13%
Redhorse sucker	0.000	28.093	41.390	0.000	0.000	3.388	0.239	705.724	0.000	0.000	0.000	1,004.564	35.231	1,818.629	0.12%
Emerald shiner	2.392	27.890	42.022	0.794	0.667	0.827	10.748	159.837	55.068	244.969	906.122	141.083	192.627	1,785.046	0.12%
Bowfin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	213.486	0.000	827.344	494.472	1,535.302	0.10%
Pumpkinseed	0.437	0.574	0.777	4.603	5.602	4.436	10.935	34.197	0.055	16.154	76.087	510.695	541.189	1,205.741	0.08%
White bass	1.309	50.391	24.434	96.508	55.053	77.788	84.222	101.842	28.196	682.448	0.000	0.578	1.478	1,204.248	0.08%
Walleye	2.592	27.594	32.878	5.091	42.347	84.390	439.425	376.948	0.000	0.000	0.000	0.000	0.000	1,011.265	0.07%
Spottail shiner	1.264	2.628	0.656	0.313	1.198	20.210	68.654	136.069	11.959	114.743	51.471	175.101	292.582	876.849	0.06%
Common carp	17.029	15.321	0.000	0.068	0.000	2.807	2.033	447.841	0.000	70.866	37.832	12.370	50.909	657.076	0.04%
Quillback	1.582	18.434	39.589	12.852	1.539	0.000	0.000	230.512	280.453	0.000	0.000	0.661	3.268	588.891	0.04%
Largemouth bass	0.000	0.000	6.958	1.848	3.257	0.577	154.846	151.851	118.940	40.353	1.219	0.000	0.000	479.849	0.03%
Trout-perch	9.102	16.364	1.007	0.140	0.224	9.209	90.011	9.441	5.658	65.523	30.341	86.372	155.289	478.682	0.03%
Bluegill	0.791	1.443	0.014	0.849	0.420	11.793	39.554	34.361	10.697	44.893	169.785	102.983	31.016	448.600	0.03%
Silver lamprey	2.660	3.665	2.722	0.000	0.065	0.604	0.000	21.749	75.547	25.066	0.000	96.401	217.498	445.977	0.03%
Brown bullhead	0.000	0.697	9.117	0.000	1.182	0.000	45.716	135.357	0.000	0.000	0.000	36.968	0.000	229.038	0.02%
Golden redhorse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.345	0.000	0.000	0.000	207.345	0.01%
Muskellunge	9.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	148.754	0.000	36.335	0.000	194.416	0.01%
Rock bass	2.749	5.880	3.721	4.659	10.407	8.991	3.977	1.545	0.000	0.520	0.145	14.857	43.978	101.428	0.01%
White crappie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.630	0.000	48.602	0.000	10.724	0.000	86.956	0.01%
Silver chub	0.357	0.143	0.210	0.000	0.655	0.150	0.000	0.000	9.932	59.652	0.000	0.000	0.000	71.098	0.00%
Smallmouth buffalo	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	58.188	0.000	0.000	0.000	0.000	58.188	0.00%
Black crappie	0.000	0.301	0.049	0.000	0.000	0.000	0.288	1.757	0.000	0.000	0.000	51.525	0.000	53.920	0.00%
Yellow bullhead	0.000	0.000	0.000	0.000	0.809	0.000	0.000	46.871	1.681	0.000	0.000	0.000	0.000	49.361	0.00%
Rainbow smelt	0.005	0.683	0.187	0.027	0.003	0.000	0.000	36.107	0.469	0.075	0.000	0.000	0.726	38.281	0.00%
Fathead minnow	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.00%
Green sunfish	0.000	0.000	0.123	0.000	0.013	0.116	0.000	0.000	0.086	0.519	17.267	0.367	8.042	26.534	0.00%
Common shiner	0.000	0.000	0.109	0.024	0.000	0.000	0.000	0.000	0.000	18.422	0.000	0.000	0.000	18.554	0.00%
Black bullhead	0.000	0.000	0.000	0.000	1.556	0.095	13.816	0.000	0.000	0.000	0.000	0.000	0.262	15.729	0.00%
White sucker	0.000	0.000	0.000	0.187	0.000	0.000	12.511	0.000	0.000	0.000	0.000	0.000	0.000	12.699	0.00%
Logperch	0.026	0.000	0.009	0.000	0.000	1.813	7.012	2.639	0.000	0.000	0.000	0.000	0.141	11.639	0.00%
Sea lamprey	0.000	0.000	0.481	0.000	0.000	0.000	6.501	1.371	0.000	0.000	0.000	0.000	0.000	8.353	0.00%
Brook silverside	0.000	0.000	0.000	0.000	0.000	0.032	0.474	2.444	0.239	0.259	0.000	0.438	0.000	3.886	0.00%
Tadpole madtom	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	3.449	3.584	0.00%
Orangespotted sunfish	0.000	0.000	0.000	0.000	0.000	0.186	0.456	0.389	0.000	0.000	0.000	0.000	1.610	2.642	0.00%
Spotted gar	0.000	0.000	2.588	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.588	0.00%
Bluntnose minnow	0.000	0.000	0.000	0.050	0.072	0.019	0.000	0.000	0.000	0.000	0.217	0.867	0.817	2.042	0.00%
Spotfin shiner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.962	0.000	0.000	0.000	0.000	1.962	0.00%
Stonecat	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.851	1.851	0.00%
Creek chub	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.234	0.000	0.000	0.000	1.234	0.00%
Pomoxis spp.	0.000	1.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.020	0.00%
Steelhead trout	0.000	0.000	0.000	0.000	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.907	0.00%
Northern hog sucker	0.779	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.779	0.00%
Lamprey	0.000	0.721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.721	0.00%
Cyprinidae	0.000	0.000	0.000	0.014	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.182	0.445	0.00%
Noturus spp.	0.000	0.354	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.354	0.00%
Redear sunfish	0.000	0.000	0.000	0.000	0.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.285	0.00%
Northern longear sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.260	0.000	0.000	0.000	0.260	0.00%
Centrarchidae	0.253	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.253	0.00%
Ameiurus spp.	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.00%
Steelcolor shiner	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.00%
Mimic shiner	0.000	0.000	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.00%
Threespine stickleback	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.00%
Lepomis spp.	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.00%
TOTAL	**206.189**	**786.815**	**730.472**	**431.291**	**856.428**	**1,124.869**	**6,836.384**	**61,487.582**	**42,900.603**	**899,299.037**	**306,997.968**	**114,232.470**	**75,094.448**	**1,510,984.556**	**100.00%**

[1] Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.

[2] Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-30

Monthly Total of Maximum[1] Flow-Expanded Impingement Excluding Gizzard Shad Susceptible to Temperature Induced Stress - Abundance[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	132	286	119	3,220	2,913	6,212	352,562	3,375,020	52,958	8,258,803	519,733	1,642,268	2,483,980	16,698,206	88.77%
White perch	207	1,519	371	4,709	131,711	101,892	212,534	26,094	11,990	38,236	29,995	36,176	49,836	645,268	3.43%
Emerald shiner	271	6,022	5,698	204	289	284	3,624	55,386	18,650	59,581	200,822	32,626	47,248	430,704	2.29%
Freshwater drum	40	230	675	1,230	1,566	3,830	37,876	44,160	271,868	173	285	3,865	12,324	378,121	2.01%
Spottail shiner	165	379	85	34	314	3,777	12,609	14,381	2,250	24,731	9,254	30,394	47,253	145,626	0.77%
Bluegill	7	20	5	228	140	2,654	11,551	16,152	3,043	11,348	23,015	24,818	11,135	104,115	0.55%
Trout-perch	1,219	3,072	188	21	30	3,105	27,665	3,024	1,247	6,844	6,318	13,242	23,260	89,235	0.47%
Goldfish	41	87	0	0	19	3	250	1,558	4,440	21,610	19,537	4,398	5,903	57,846	0.31%
Round goby	320	179	164	233	505	937	4,326	3,700	2,935	10,734	3,380	11,434	12,285	51,133	0.27%
Yellow perch	103	788	215	75	114	244	1,249	3,331	406	3,791	666	9,287	16,371	36,641	0.19%
White bass	36	202	87	4,554	4,756	9,799	4,754	4,263	156	3,334	0	72	136	32,150	0.17%
Pumpkinseed	8	19	9	71	112	339	1,863	1,136	11	1,207	1,463	6,249	8,208	20,694	0.11%
Channel catfish	19	67	39	55	124	878	4,615	2,057	0	6,408	407	786	4,175	19,630	0.10%
Smallmouth bass	3	16	11	85	233	814	3,510	1,454	66	2,303	281	1,769	6,050	16,594	0.09%
White crappie	0	0	0	0	0	0	0	5,000	0	6,943	0	1,970	0	13,913	0.07%
Common carp	33	8	0	15	0	12	95	461	0	5,552	3,151	1,438	176	10,941	0.06%
Rock bass	26	68	32	94	88	79	432	219	0	130	72	1,934	6,400	9,575	0.05%
Longnose gar	22	26	0	11	0	53	41	2,682	63	0	143	4,738	0	7,779	0.04%
Silver lamprey	21	48	43	0	4	21	0	306	181	243	0	1,434	3,233	5,535	0.03%
Northern pike	5	29	16	51	13	33	53	676	127	86	0	3,654	0	4,744	0.03%
Redhorse sucker	0	40	45	0	0	17	11	919	0	0	0	3,382	176	4,590	0.02%
Silver chub	17	7	29	0	19	3	0	0	310	2,632	0	0	0	3,016	0.02%
Largemouth bass	0	0	5	4	46	14	496	875	433	877	152	0	0	2,903	0.02%
Brook silverside	0	0	0	0	0	35	230	1,495	137	259	0	438	0	2,594	0.01%
Walleye	3	28	121	96	267	244	387	1,196	0	0	0	0	0	2,340	0.01%
Rainbow smelt	1	30	39	5	3	0	0	1,186	459	74	0	0	91	1,887	0.01%
Green sunfish	0	0	3	0	3	6	0	0	43	259	898	73	307	1,594	0.01%
Logperch	4	0	3	0	0	224	779	515	0	0	0	0	20	1,545	0.01%
Muskellunge	1	0	0	0	0	0	0	0	0	1,171	0	288	0	1,461	0.01%
Brown bullhead	0	4	22	0	3	0	185	369	0	0	0	589	0	1,172	0.01%
Fathead minnow	0	0	0	0	0	0	1,123	0	0	0	0	0	0	1,123	0.01%
Yellow bullhead	0	0	0	0	162	0	0	514	280	0	0	0	0	955	0.01%
Orangespotted sunfish	0	0	0	0	0	50	152	159	0	0	0	0	575	936	0.00%
Common shiner	0	0	8	3	0	0	0	0	0	877	0	0	0	888	0.00%
Quillback	1	10	32	8	4	0	0	147	433	0	0	73	91	799	0.00%
Bowfin	0	0	0	0	0	0	0	0	0	43	0	288	176	507	0.00%
Bluntnose minnow	0	0	0	5	4	3	0	0	0	0	72	289	91	463	0.00%
Tadpole madtom	0	0	0	0	0	0	0	0	0	0	0	27	386	414	0.00%
Black crappie	0	4	3	0	0	0	16	192	0	0	0	187	0	403	0.00%
Spotfin shiner	0	0	0	0	0	0	0	0	280	0	0	0	0	280	0.00%
Golden redhorse	0	0	0	0	0	0	0	0	0	243	0	0	0	243	0.00%
Creek chub	0	0	0	0	0	0	0	0	0	206	0	0	0	206	0.00%
Cyprinidae	0	0	0	5	0	0	99	0	0	0	0	0	91	195	0.00%
Sea lamprey	0	0	11	0	0	0	109	50	0	0	0	0	0	170	0.00%
Black bullhead	0	0	0	0	45	24	45	0	0	0	0	0	40	154	0.00%
Northern longear sunfish	0	0	0	0	0	0	0	0	0	130	0	0	0	130	0.00%
Smallmouth buffalo	0	0	0	0	0	0	0	0	64	0	0	0	0	64	0.00%
White sucker	0	0	0	3	0	0	19	0	0	0	0	0	0	22	0.00%
Stonecat	0	0	0	0	0	0	0	0	0	0	0	0	20	20	0.00%
Lamprey spp.	0	13	0	0	0	0	0	0	0	0	0	0	0	13	0.00%
Noturus spp.	0	7	0	0	0	0	0	0	0	0	0	0	0	7	0.00%
Pomoxis spp.	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Mimic shiner	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Steelcolor shiner	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Spotted gar	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Ameiurus spp.	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Threespine stickleback	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Redear sunfish	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0.00%
Steelhead trout	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0.00%
Lepomis spp.	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0.00%
Centrarchidae	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.00%
Northern hog sucker	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.00%
TOTAL	**2,705**	**13,220**	**8,092**	**15,017**	**143,493**	**135,586**	**683,261**	**3,568,677**	**372,830**	**8,468,830**	**819,645**	**1,838,188**	**2,740,039**	**18,809,583**	**100.00%**

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.

2. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-31

Monthly Total of Maximum[1] Flow-Expanded Impingement Excluding Gizzard Shad Susceptible to Temperature Induced Stress - Biomass (kg)[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total Biomass (kg)	% of Total
Gizzard shad	49.840	122.369	51.967	39.454	34.157	92.401	3,545.831	54,164.623	889.537	203,673.295	11,270.701	39,727.407	63,427.128	377,088.712	88.23%
Freshwater drum	36.806	172.534	388.896	142.897	179.383	197.186	632.086	675.121	4,148.334	195.831	5.423	1,195.688	3,989.278	11,959.463	2.80%
White perch	5.779	141.487	32.145	54.082	464.706	526.432	1,415.580	158.445	69.193	254.168	216.548	584.550	292.006	4,215.122	0.99%
Yellow perch	7.813	37.313	14.934	4.162	10.108	15.941	19.169	485.733	26.794	781.835	99.586	1,516.401	979.761	3,999.551	0.94%
Smallmouth bass	4.696	4.937	3.804	1.368	7.209	25.779	71.313	64.609	13.450	216.497	69.178	668.062	2,285.259	3,436.158	0.80%
Northern pike	11.937	46.535	12.236	47.315	11.683	7.027	13.661	653.805	93.048	133.940	0.000	1,967.353	0.000	2,998.539	0.70%
Goldfish	11.343	31.031	0.000	0.000	0.121	0.237	5.178	31.767	53.862	442.782	314.660	511.286	1,332.008	2,734.276	0.64%
Longnose gar	5.309	3.665	0.000	0.163	0.000	7.224	4.515	914.400	6.913	0.000	135.578	1,589.321	0.000	2,667.088	0.62%
Channel catfish	0.817	17.904	10.641	5.941	7.326	9.502	57.816	1,479.170	0.000	379.706	598.901	1.571	10.005	2,579.300	0.60%
Round goby	19.197	6.789	6.765	7.881	15.473	15.703	51.716	193.428	128.987	166.294	32.580	599.381	702.384	1,946.578	0.46%
Redhorse sucker	0.000	28.093	41.390	0.000	0.000	3.388	0.239	705.724	0.000	0.000	0.000	1,004.564	35.231	1,818.629	0.43%
Emerald shiner	2.392	27.890	42.022	0.794	0.667	0.827	10.748	159.837	55.068	244.969	906.122	141.083	192.627	1,785.046	0.42%
Bowfin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	213.486	0.000	827.344	494.472	1,535.302	0.36%
Pumpkinseed	0.437	0.574	0.777	4.603	5.602	4.436	10.935	34.197	0.055	16.154	76.087	510.695	541.189	1,205.741	0.28%
White bass	1.309	50.391	24.434	96.508	55.053	77.788	84.222	101.842	28.196	682.448	0.000	0.578	1.478	1,204.248	0.28%
Walleye	2.592	27.594	32.878	5.091	42.347	84.390	439.425	376.948	0.000	0.000	0.000	0.000	0.000	1,011.265	0.24%
Spottail shiner	1.264	2.628	0.656	0.313	1.198	20.210	68.654	136.069	11.959	114.743	51.471	175.101	292.582	876.849	0.21%
Common carp	17.029	15.321	0.000	0.068	0.000	2.807	2.033	447.841	0.000	70.866	37.832	12.370	50.909	657.076	0.15%
Quillback	1.582	18.434	39.589	12.852	1.539	0.000	0.000	230.512	280.453	0.000	0.000	0.661	3.268	588.891	0.14%
Largemouth bass	0.000	0.000	6.958	1.848	3.257	0.577	154.846	151.851	118.940	40.353	1.219	0.000	0.000	479.849	0.11%
Trout-perch	9.102	16.364	1.007	0.140	0.224	9.209	90.011	9.441	5.658	65.523	30.341	86.372	155.289	478.682	0.11%
Bluegill	0.791	1.443	0.014	0.849	0.420	11.793	39.554	34.361	10.697	44.893	169.785	102.983	31.016	448.600	0.10%
Silver lamprey	2.660	3.665	2.722	0.000	0.065	0.604	0.000	21.749	75.547	25.066	0.000	96.401	217.498	445.977	0.10%
Brown bullhead	0.000	0.697	9.117	0.000	1.182	0.000	45.716	135.357	0.000	0.000	0.000	36.968	0.000	229.038	0.05%
Golden redhorse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.345	0.000	0.000	0.000	207.345	0.05%
Muskellunge	9.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	148.754	0.000	36.335	0.000	194.416	0.05%
Rock bass	2.749	5.880	3.721	4.659	10.407	8.991	3.977	1.545	0.000	0.520	0.145	14.857	43.978	101.428	0.02%
White crappie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.630	0.000	48.602	0.000	10.724	0.000	86.956	0.02%
Silver chub	0.357	0.143	0.210	0.000	0.655	0.150	0.000	0.000	9.932	59.652	0.000	0.000	0.000	71.098	0.02%
Smallmouth buffalo	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	58.188	0.000	0.000	0.000	0.000	58.188	0.01%
Black crappie	0.000	0.301	0.049	0.000	0.000	0.000	0.288	1.757	0.000	0.000	0.000	51.525	0.000	53.920	0.01%
Yellow bullhead	0.000	0.000	0.000	0.000	0.809	0.000	0.000	46.871	1.681	0.000	0.000	0.000	0.000	49.361	0.01%
Rainbow smelt	0.005	0.683	0.187	0.027	0.003	0.000	0.000	36.107	0.469	0.075	0.000	0.000	0.726	38.281	0.01%
Fathead minnow	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.01%
Green sunfish	0.000	0.000	0.123	0.000	0.013	0.116	0.000	0.000	0.086	0.519	17.267	0.367	8.042	26.534	0.01%
Common shiner	0.000	0.000	0.109	0.024	0.000	0.000	0.000	0.000	0.000	18.422	0.000	0.000	0.000	18.554	0.00%
Black bullhead	0.000	0.000	0.000	0.000	1.556	0.095	13.816	0.000	0.000	0.000	0.000	0.000	0.262	15.729	0.00%
White sucker	0.000	0.000	0.000	0.187	0.000	0.000	12.511	0.000	0.000	0.000	0.000	0.000	0.000	12.699	0.00%
Logperch	0.026	0.000	0.009	0.000	0.000	1.813	7.012	2.639	0.000	0.000	0.000	0.000	0.141	11.639	0.00%
Sea lamprey	0.000	0.000	0.481	0.000	0.000	0.000	6.501	1.371	0.000	0.000	0.000	0.000	0.000	8.353	0.00%
Brook silverside	0.000	0.000	0.000	0.000	0.000	0.032	0.474	2.444	0.239	0.259	0.000	0.438	0.000	3.886	0.00%
Tadpole madtom	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	3.449	3.584	0.00%
Orangespotted sunfish	0.000	0.000	0.000	0.000	0.000	0.186	0.456	0.389	0.000	0.000	0.000	0.000	1.610	2.642	0.00%
Spotted gar	0.000	0.000	2.588	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.588	0.00%
Bluntnose minnow	0.000	0.000	0.000	0.050	0.072	0.019	0.000	0.000	0.000	0.000	0.217	0.867	0.817	2.042	0.00%
Spotfin shiner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.962	0.000	0.000	0.000	0.000	1.962	0.00%
Stonecat	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.851	1.851	0.00%
Creek chub	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.234	0.000	0.000	0.000	1.234	0.00%
Pomoxis spp.	0.000	1.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.020	0.00%
Steelhead trout	0.000	0.000	0.000	0.000	0.907	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.907	0.00%
Northern hog sucker	0.779	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.779	0.00%
Lamprey	0.000	0.721	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.721	0.00%
Cyprinidae	0.000	0.000	0.000	0.014	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.182	0.445	0.00%
Noturus spp.	0.000	0.354	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.354	0.00%
Redear sunfish	0.000	0.000	0.000	0.000	0.285	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.285	0.00%
Northern longear sunfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.260	0.000	0.000	0.000	0.260	0.00%
Centrarchidae	0.253	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.253	0.00%
Ameiurus spp.	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.00%
Steelcolor shiner	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.00%
Mimic shiner	0.000	0.000	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.00%
Threespine stickleback	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.00%
Lepomis spp.	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.00%
TOTAL	**206.189**	**786.815**	**730.472**	**431.291**	**856.428**	**1,124.869**	**6,836.384**	**61,487.582**	**6,089.250**	**208,248.491**	**14,033.642**	**51,471.390**	**75,094.448**	**427,397.251**	**100.00%**

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.
2. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-32

Monthly Total of Maximum[1] Flow-Expanded Entrainment of Larval and Juvenile Fish of Representative Species - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad	123,579	261,552	113,263,543	17,600,014	22,832	0	0	0	0	0	0	0	0	131,271,521	27.12%
Morone spp.	0	52,108	87,258,479	17,816,025	56,876	0	0	0	0	0	0	0	0	105,183,487	21.73%
Emerald shiner	8,835	51,624	38,912,632	40,383,253	3,887,762	212,357	26,410	0	0	0	0	0	0	83,482,874	17.25%
Notropis spp.	88,352	511,205	37,561,961	9,823,616	735,713	0	0	0	0	0	0	0	0	48,720,847	10.06%
Cyprinidae	70,387	359,438	24,937,890	10,490,547	777,042	0	0	0	0	0	0	0	22,670	36,657,972	7.57%
Alewife	0	0	28,132,057	804,603	0	0	0	0	0	0	0	0	0	28,936,661	5.98%
Logperch	33,551	177,470	13,754,998	770,948	79,175	34,677	0	0	0	0	0	0	0	14,850,819	3.07%
Smelt/Shad/Alewife	33,551	98,966	12,430,052	484,449	0	0	0	0	0	0	0	0	0	13,047,018	2.70%
Yellow perch	13,253	299,398	5,609,768	541,755	158,886	65,959	0	0	0	0	0	0	0	6,689,018	1.38%
Freshwater drum	0	0	4,923,454	626,817	62,878	0	0	0	0	0	0	0	0	5,613,149	1.16%
Unidentified	65,767	292,156	1,928,536	443,685	36,380	0	0	0	0	0	0	0	0	2,766,523	0.57%
White bass	0	0	0	1,486,801	8,411	0	0	0	0	0	0	0	0	1,495,212	0.31%
Lake whitefish	12,377	19,452	52,839	0	0	0	0	0	0	0	0	0	831,652	916,320	0.19%
Trout-perch	0	26,357	843,480	0	0	0	0	0	0	0	0	0	0	869,837	0.18%
Spotfin shiner	0	0	543,780	57,240	35,935	0	0	0	0	0	0	0	0	636,956	0.13%
White perch	0	0	298,813	245,377	16,822	0	0	0	0	0	0	0	0	561,012	0.12%
Lepomis spp.	0	0	82,485	211,307	184,526	51,979	0	0	0	0	0	0	0	530,296	0.11%
Quillback	0	152,409	130,102	32,433	0	0	0	0	0	0	0	0	0	314,945	0.07%
Bluntnose minnow	0	0	0	78,915	205,179	0	0	0	0	0	0	0	0	284,094	0.06%
Rainbow smelt	0	0	0	0	0	82,337	26,410	42,103	118,541	2,153	0	0	0	271,545	0.06%
Percidae	8,835	22,088	129,749	64,866	0	0	0	0	0	0	0	0	0	225,538	0.05%
Brook silverside	0	0	0	196,253	14,519	0	0	0	0	0	0	0	0	210,771	0.04%
Pomoxis spp.	0	0	180,533	0	0	0	0	0	0	0	0	0	0	180,533	0.04%
Channel catfish	0	0	0	87,460	8,411	0	0	0	0	0	0	0	0	95,871	0.02%
Rock bass	0	0	0	77,839	0	0	0	0	0	0	0	0	0	77,839	0.02%
Walleye	0	56,384	0	0	0	0	0	0	0	0	0	0	0	56,384	0.01%
Micropterus spp.	0	0	52,839	0	0	0	0	0	0	0	0	0	0	52,839	0.01%
White sucker	12,377	19,452	0	0	0	0	0	0	0	0	0	0	0	31,829	0.01%
Catostomidae	0	24,484	0	0	0	0	0	0	0	0	0	0	0	24,484	0.01%
Silver chub	0	0	0	0	23,365	0	0	0	0	0	0	0	0	23,365	0.00%
Bluegill	4,418	11,044	0	0	0	0	0	0	0	0	0	0	0	15,462	0.00%
TOTAL	**475,281**	**2,435,588**	**371,027,991**	**102,324,204**	**6,314,710**	**447,308**	**52,820**	**42,103**	**118,541**	**2,153**	**0**	**0**	**854,321**	**484,095,020**	**100.00%**

[1] Maximum Flow-expanded Entrainment was calculated using the Maximum Design Flow of 2,056.32 MGD.

Individual estimates may not add to totals due to rounding.

TABLE 4-33

Monthly Total of Maximum[1] Flow-Expanded Entrainment of Fish Eggs of Representative Species - Abundance
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Smallmouth bass	0	3,444,950	169,089	0	0	0	0	0	0	0	0	0	0	3,614,039	40.07%
Gizzard shad	0	1,288,714	0	0	0	0	0	0	0	0	0	0	0	1,288,714	14.29%
Morone spp.	0	303,912	439,632	0	0	0	0	0	0	0	0	0	0	743,543	8.24%
Micropterus spp.	0	662,792	67,636	0	0	0	0	0	0	0	0	0	0	730,428	8.10%
Largemouth bass	0	200,002	507,268	0	0	0	0	0	0	0	0	0	0	707,270	7.84%
White perch	0	600,237	101,454	0	0	0	0	0	0	0	0	0	0	701,691	7.78%
Quillback	0	452,505	0	0	0	0	0	0	0	0	0	0	0	452,505	5.02%
Rock bass	0	218,098	0	0	0	0	0	0	0	0	0	0	0	218,098	2.42%
Walleye	115,431	96,560	0	0	0	0	0	0	0	0	0	0	0	211,991	2.35%
Unidentified	11,031	55,680	65,086	0	0	0	0	0	0	0	0	0	0	131,796	1.46%
Smelt/Shad/Alewife	0	106,735	0	0	0	0	0	0	0	0	0	0	0	106,735	1.18%
Freshwater drum	21,793	48,968	0	0	0	0	0	0	0	0	0	0	0	70,761	0.78%
Northen pike	15,881	11,044	0	0	0	0	0	0	0	0	0	0	0	26,925	0.30%
Rainbow smelt	12,377	2,063	0	0	0	0	0	0	0	0	0	0	0	14,440	0.16%
TOTAL	**176,513**	**7,492,259**	**1,350,164**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,018,936**	**100.00%**

1. Maximum Flow-expanded Entrainment was calculated using the Maximum Design Flow of 2,056.32 MGD.

Individual estimates may not add to totals due to rounding.

TABLE 4-34

Monthly Total of Maximum[1] Flow-Expanded Impingement of Fish Considered Representative Species - Abundance[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total	% of Total
Gizzard shad[3]	132	286	119	3,220	2,913	6,212	352,562	3,375,020	52,958	8,258,803	519,733	1,642,268	2,483,980	16,698,206	89.03%
White perch	207	1,519	371	4,709	131,711	101,892	212,534	26,094	11,990	38,236	29,995	36,176	49,836	645,268	3.44%
Emerald shiner	271	6,022	5,698	204	289	284	3,624	55,386	18,650	59,581	200,822	32,626	47,248	430,704	2.30%
Freshwater drum	40	230	675	1,230	1,566	3,830	37,876	44,160	271,868	173	285	3,865	12,324	378,121	2.02%
Spottail shiner	165	379	85	34	314	3,777	12,609	14,381	2,250	24,731	9,254	30,394	47,253	145,626	0.78%
Bluegill	7	20	5	228	140	2,654	11,551	16,152	3,043	11,348	23,015	24,818	11,135	104,115	0.56%
Trout-perch	1,219	3,072	188	21	30	3,105	27,665	3,024	1,247	6,844	6,318	13,242	23,260	89,235	0.48%
Goldfish	41	87	0	0	19	3	250	1,558	4,440	21,610	19,537	4,398	5,903	57,846	0.31%
Yellow perch	103	788	215	75	114	244	1,249	3,331	406	3,791	666	9,287	16,371	36,641	0.20%
White bass	36	202	87	4,554	4,756	9,799	4,754	4,263	156	3,334	0	72	136	32,150	0.17%
Pumpkinseed	8	19	9	71	112	339	1,863	1,136	11	1,207	1,463	6,249	8,208	20,694	0.11%
Channel catfish	19	67	39	55	124	878	4,615	2,057	0	6,408	407	786	4,175	19,630	0.10%
Smallmouth bass	3	16	11	85	233	814	3,510	1,454	66	2,303	281	1,769	6,050	16,594	0.09%
White crappie	0	0	0	0	0	0	0	5,000	0	6,943	0	1,970	0	13,913	0.07%
Common carp	33	8	0	15	0	12	95	461	0	5,552	3,151	1,438	176	10,941	0.06%
Rock bass	26	68	32	94	88	79	432	219	0	130	72	1,934	6,400	9,575	0.05%
Longnose gar	22	26	0	11	0	53	41	2,682	63	0	143	4,738	0	7,779	0.04%
Silver lamprey	21	48	43	0	4	21	0	306	181	243	0	1,434	3,233	5,535	0.03%
Northern pike	5	29	16	51	13	33	53	676	127	86	0	3,654	0	4,744	0.03%
Redhorse sucker	0	40	45	0	0	17	11	919	0	0	0	3,382	176	4,590	0.02%
Silver chub	17	7	29	0	19	3	0	0	310	2,632	0	0	0	3,016	0.02%
Largemouth bass	0	0	5	4	46	14	496	875	433	877	152	0	0	2,903	0.02%
Brook silverside	0	0	0	0	0	35	230	1,495	137	259	0	438	0	2,594	0.01%
Walleye	3	28	121	96	267	244	387	1,196	0	0	0	0	0	2,340	0.01%
Rainbow smelt	1	30	39	5	3	0	0	1,186	459	74	0	0	91	1,887	0.01%
Green sunfish	0	0	3	0	3	6	0	0	43	259	898	73	307	1,594	0.01%
Logperch	4	0	3	0	0	224	779	515	0	0	0	0	20	1,545	0.01%
Muskellunge	1	0	0	0	0	0	0	0	0	1,171	0	288	0	1,461	0.01%
Brown bullhead	0	4	22	0	3	0	185	369	0	0	0	589	0	1,172	0.01%
Fathead minnow	0	0	0	0	0	0	1,123	0	0	0	0	0	0	1,123	0.01%
Yellow bullhead	0	0	0	0	162	0	0	514	280	0	0	0	0	955	0.01%
Orangespotted sunfish	0	0	0	0	0	50	152	159	0	0	0	0	575	936	0.00%
Quillback	1	10	32	8	4	0	0	147	433	0	0	73	91	799	0.00%
Bowfin	0	0	0	0	0	0	0	0	0	43	0	288	176	507	0.00%
Bluntnose minnow	0	0	0	5	4	3	0	0	0	0	72	289	91	463	0.00%
Black crappie	0	4	3	0	0	0	16	192	0	0	0	187	0	403	0.00%
Spotfin shiner	0	0	0	0	0	0	0	0	280	0	0	0	0	280	0.00%
Golden redhorse	0	0	0	0	0	0	0	0	0	243	0	0	0	243	0.00%
Cyprinidae	0	0	0	5	0	0	99	0	0	0	0	0	91	195	0.00%
White sucker	0	0	0	3	0	0	19	0	0	0	0	0	0	22	0.00%
Pomoxis spp.	0	5	0	0	0	0	0	0	0	0	0	0	0	5	0.00%
Spotted gar	0	0	5	0	0	0	0	0	0	0	0	0	0	5	0.00%
Lepomis spp.	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0.00%
TOTAL	**2,383**	**13,011**	**7,900**	**14,781**	**142,936**	**134,625**	**678,781**	**3,564,927**	**369,832**	**8,456,883**	**816,265**	**1,826,727**	**2,727,307**	**18,756,357**	**100.00%**

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.

2. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

3. Gizzard shad susceptible to temperature-induced stress were removed from consideration for baseline calculations.

Individual estimates may not add to totals due to rounding.

TABLE 4-35

Monthly Total of Maximum[1] Flow-Expanded Impingement of Fish Considered Representative Species - Biomass (kg)[2]
Monroe Power Plant
(April 2005 - April 2006)

Taxa	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	Total Biomass (kg)	% of Total
Gizzard shad[3]	49.840	122.369	51.967	39.454	34.157	92.401	3,545.831	54,164.623	889.537	203,673.295	11,270.701	39,727.407	63,427.128	377,088.712	88.66%
Freshwater drum	36.806	172.534	388.896	142.897	179.383	197.186	632.086	675.121	4,148.334	195.831	5.423	1,195.688	3,989.278	11,959.463	2.81%
White perch	5.779	141.487	32.145	54.082	464.706	526.432	1,415.580	158.445	69.193	254.168	216.548	584.550	292.006	4,215.122	0.99%
Yellow perch	7.813	37.313	14.934	4.162	10.108	15.941	19.169	485.733	26.794	781.835	99.586	1,516.401	979.761	3,999.551	0.94%
Smallmouth bass	4.696	4.937	3.804	1.368	7.209	25.779	71.313	64.609	13.450	216.497	69.178	668.062	2,285.259	3,436.158	0.81%
Northern pike	11.937	46.535	12.236	47.315	11.683	7.027	13.661	653.805	93.048	133.940	0.000	1,967.353	0.000	2,998.539	0.70%
Goldfish	11.343	31.031	0.000	0.000	0.121	0.237	5.178	31.767	53.862	442.782	314.660	511.286	1,332.008	2,734.276	0.64%
Longnose gar	5.309	3.665	0.000	0.163	0.000	7.224	4.515	914.400	6.913	0.000	135.578	1,589.321	0.000	2,667.088	0.63%
Channel catfish	0.817	17.904	10.641	5.941	7.326	9.502	57.816	1,479.170	0.000	379.706	598.901	1.571	10.005	2,579.300	0.61%
Redhorse sucker	0.000	28.093	41.390	0.000	0.000	3.388	0.239	705.724	0.000	0.000	0.000	1,004.564	35.231	1,818.629	0.43%
Emerald shiner	2.392	27.890	42.022	0.794	0.667	0.827	10.748	159.837	55.068	244.969	906.122	141.083	192.627	1,785.046	0.42%
Bowfin	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	213.486	0.000	827.344	494.472	1,535.302	0.36%
Pumpkinseed	0.437	0.574	0.777	4.603	5.602	4.436	10.935	34.197	0.055	16.154	76.087	510.695	541.189	1,205.741	0.28%
White bass	1.309	50.391	24.434	96.508	55.053	77.788	84.222	101.842	28.196	682.448	0.000	0.578	1.478	1,204.248	0.28%
Walleye	2.592	27.594	32.878	5.091	42.347	84.390	439.425	376.948	0.000	0.000	0.000	0.000	0.000	1,011.265	0.24%
Spottail shiner	1.264	2.628	0.656	0.313	1.198	20.210	68.654	136.069	11.959	114.743	51.471	175.101	292.582	876.849	0.21%
Common carp	17.029	15.321	0.000	0.068	0.000	2.807	2.033	447.841	0.000	70.866	37.832	12.370	50.909	657.076	0.15%
Quillback	1.582	18.434	39.589	12.852	1.539	0.000	0.000	230.512	280.453	0.000	0.000	0.661	3.268	588.891	0.14%
Largemouth bass	0.000	0.000	6.958	1.848	3.257	0.577	154.846	151.851	118.940	40.353	1.219	0.000	0.000	479.849	0.11%
Trout-perch	9.102	16.364	1.007	0.140	0.224	9.209	90.011	9.441	5.658	65.523	30.341	86.372	155.289	478.682	0.11%
Bluegill	0.791	1.443	0.014	0.849	0.420	11.793	39.554	34.361	10.697	44.893	169.785	102.983	31.016	448.600	0.11%
Silver lamprey	2.660	3.665	2.722	0.000	0.065	0.604	0.000	21.749	75.547	25.066	0.000	96.401	217.498	445.977	0.10%
Brown bullhead	0.000	0.697	9.117	0.000	1.182	0.000	45.716	135.357	0.000	0.000	0.000	36.968	0.000	229.038	0.05%
Golden redhorse	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	207.345	0.000	0.000	0.000	207.345	0.05%
Muskellunge	9.327	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	148.754	0.000	36.335	0.000	194.416	0.05%
Rock bass	2.749	5.880	3.721	4.659	10.407	8.991	3.977	1.545	0.000	0.520	0.145	14.857	43.978	101.428	0.02%
White crappie	0.000	0.000	0.000	0.000	0.000	0.000	0.000	27.630	0.000	48.602	0.000	10.724	0.000	86.956	0.02%
Silver chub	0.357	0.143	0.210	0.000	0.655	0.150	0.000	0.000	9.932	59.652	0.000	0.000	0.000	71.098	0.02%
Black crappie	0.000	0.301	0.049	0.000	0.000	0.000	0.288	1.757	0.000	0.000	0.000	51.525	0.000	53.920	0.01%
Yellow bullhead	0.000	0.000	0.000	0.000	0.809	0.000	0.000	46.871	1.681	0.000	0.000	0.000	0.000	49.361	0.01%
Rainbow smelt	0.005	0.683	0.187	0.027	0.003	0.000	0.000	36.107	0.469	0.075	0.000	0.000	0.726	38.281	0.01%
Fathead minnow	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.000	0.000	0.000	0.000	0.000	0.000	27.852	0.01%
Green sunfish	0.000	0.000	0.123	0.000	0.013	0.116	0.000	0.000	0.086	0.519	17.267	0.367	8.042	26.534	0.01%
White sucker	0.000	0.000	0.000	0.187	0.000	0.000	12.511	0.000	0.000	0.000	0.000	0.000	0.000	12.699	0.00%
Logperch	0.026	0.000	0.009	0.000	0.000	1.813	7.012	2.639	0.000	0.000	0.000	0.000	0.141	11.639	0.00%
Brook silverside	0.000	0.000	0.000	0.000	0.000	0.032	0.474	2.444	0.239	0.259	0.000	0.438	0.000	3.886	0.00%
Orangespotted sunfish	0.000	0.000	0.000	0.000	0.000	0.186	0.456	0.389	0.000	0.000	0.000	0.000	1.610	2.642	0.00%
Spotted gar	0.000	0.000	2.588	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.588	0.00%
Bluntnose minnow	0.000	0.000	0.000	0.050	0.072	0.019	0.000	0.000	0.000	0.000	0.217	0.867	0.817	2.042	0.00%
Spotfin shiner	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.962	0.000	0.000	0.000	0.000	1.962	0.00%
Pomoxis spp.	0.000	1.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.020	0.00%
Cyprinidae	0.000	0.000	0.000	0.014	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.182	0.445	0.00%
Lepomis spp.	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.00%
TOTAL	**185.960**	**778.894**	**723.075**	**423.386**	**838.207**	**1,109.071**	**6,764.351**	**61,292.784**	**5,902.074**	**208,062.281**	**14,001.062**	**50,871.874**	**74,386.502**	**425,339.522**	**100.00%**

1. Maximum Flow-expanded Impingement was calculated using the Maximum Design Flow of 2,056.32 MGD.

2. Individuals classified as Long Dead were removed from consideration for flow-expanded impingement estimates and baseline calculations.

3. Gizzard shad susceptible to temperature-induced stress were removed from consideration for baseline calculations.

Individual estimates may not add to totals due to rounding.

FIGURES

Golder Associates
Tampa, FL

FILE No.	9536.1000–006
PROJECT No.	063–9564
REV.	0
SCALE	NTS
DATE	03/19/08
DESIGN	AC
CADD	BJK
CHECK	MM
REVIEW	MM

TITLE

MONROE POWER PLANT
SITE AERIAL
3500 EAST FRONT DRIVE
MONROE, MICHIGAN

DETROIT EDISON COMPANY

FIGURE **2-1**

Drawing file: 063–9564 Monroe – Figure 2–1.dwg Mar 19, 2008 – 4:59pm

REFERENCE: U.S. GEOLOGIC SURVEY 7.5 MINUTE STONY POINT, MI TOPOGRAPHIC QUADRANGLE MAP, 1978.

2000 0 2000

SCALE 1"=2000' FEET

Golder Associates
Tampa, Florida

FILE No.	063-9564
PROJECT No.	063-9564
REV.	0

SCALE	AS SHOWN
DATE	03/19/08
DESIGN	AC
CADD	BJK
CHECK	MM
REVIEW	SF

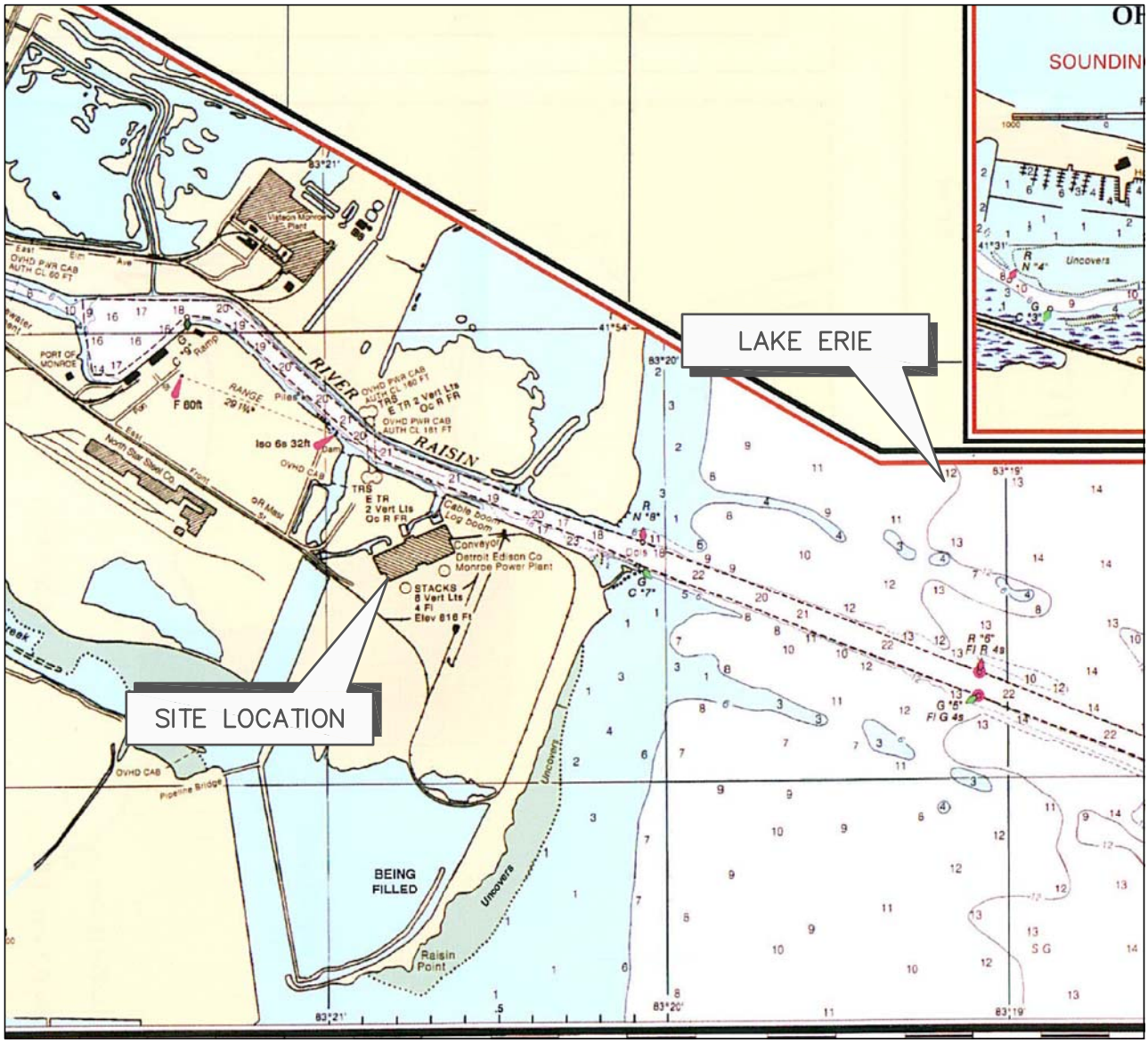
TITLE

MONROE POWER PLANT
SITE TOPOGRAPHIC MAP
3500 EAST FRONT DRIVE
MONROE, MICHIGAN

DETROIT EDISON COMPANY

FIGURE 2-2

Drawing file: 063-9564 Monroe - Figure 2-2.dwg Mar 19, 2008 - 4:58pm



REFERENCE: NAUTICAL CHART FROM INTERNATIONAL SAILING SUPPLY, INC. #28 NORTHWEST LAKE ERIE AND DETROIT RIVER, DATED FEBRUARY 2004.

2000 0 2000

SCALE 1"=2000' FEET

Golder Associates
Tampa, Florida

FILE No.	063-9564
PROJECT No.	063-9564
REV.	0
SCALE	AS SHOWN
DATE	03/19/08
DESIGN	AC
CADD	BJK
CHECK	MM
REVIEW	SF

TITLE

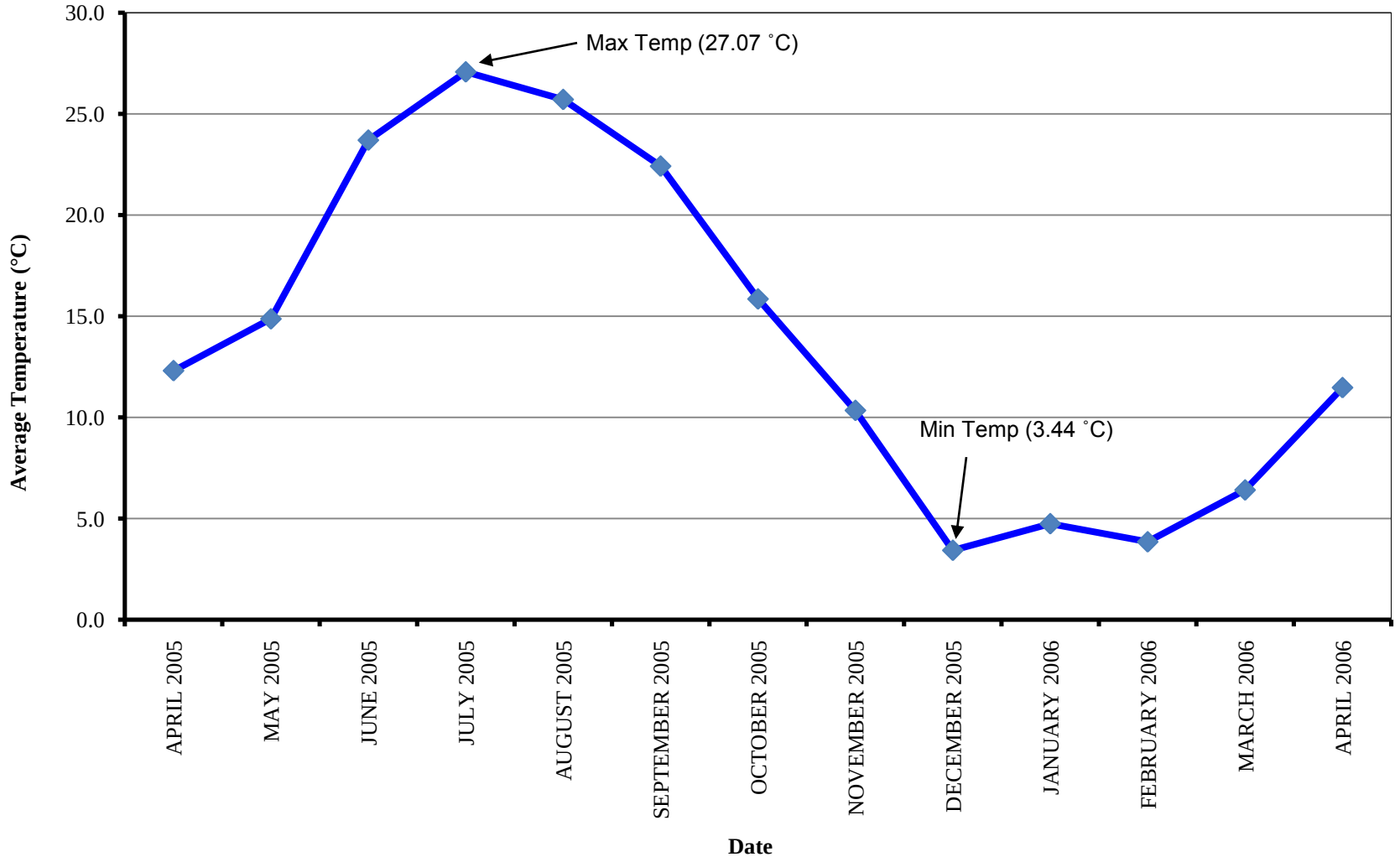
MONROE POWER PLANT
SITE LOCATION MAP
3500 EAST FRONT DRIVE
MONROE, MICHIGAN

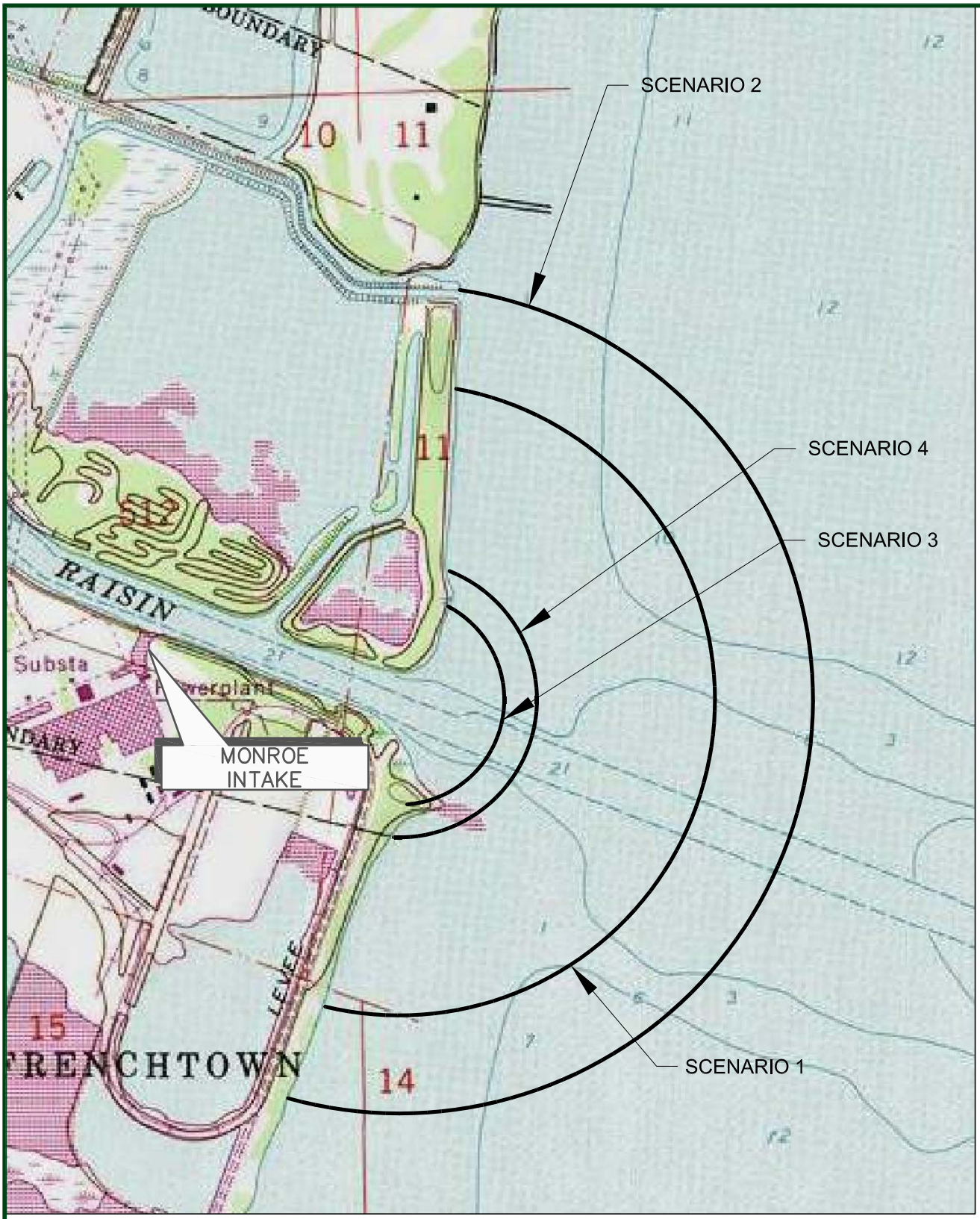
DETROIT EDISON COMPANY

FIGURE **2-3**

Drawing file: 063-9564 Monroe - Figure 2-3.dwg Mar 19, 2008 - 4:58pm

FIGURE 2-4
Monroe Power Plant
Monthly Mean Intake Water Temperature (°C)
(April 2005 - April 2006)





REFERENCE: U.S. GEOLOGIC SURVEY 7.5 MINUTE STONY POINT, MI TOPOGRAPHIC QUADRANGLE MAP, 1978.

1000 0 1000
SCALE 1"=1000' FEET

Golder Associates
Lansing, Michigan

FILE No.	9536.1000-006
PROJECT No.	063-9564
REV.	0

SCALE	AS SHOWN
DATE	03/19/08
DESIGN	AC
CADD	BJK
CHECK	MM
REVIEW	SF

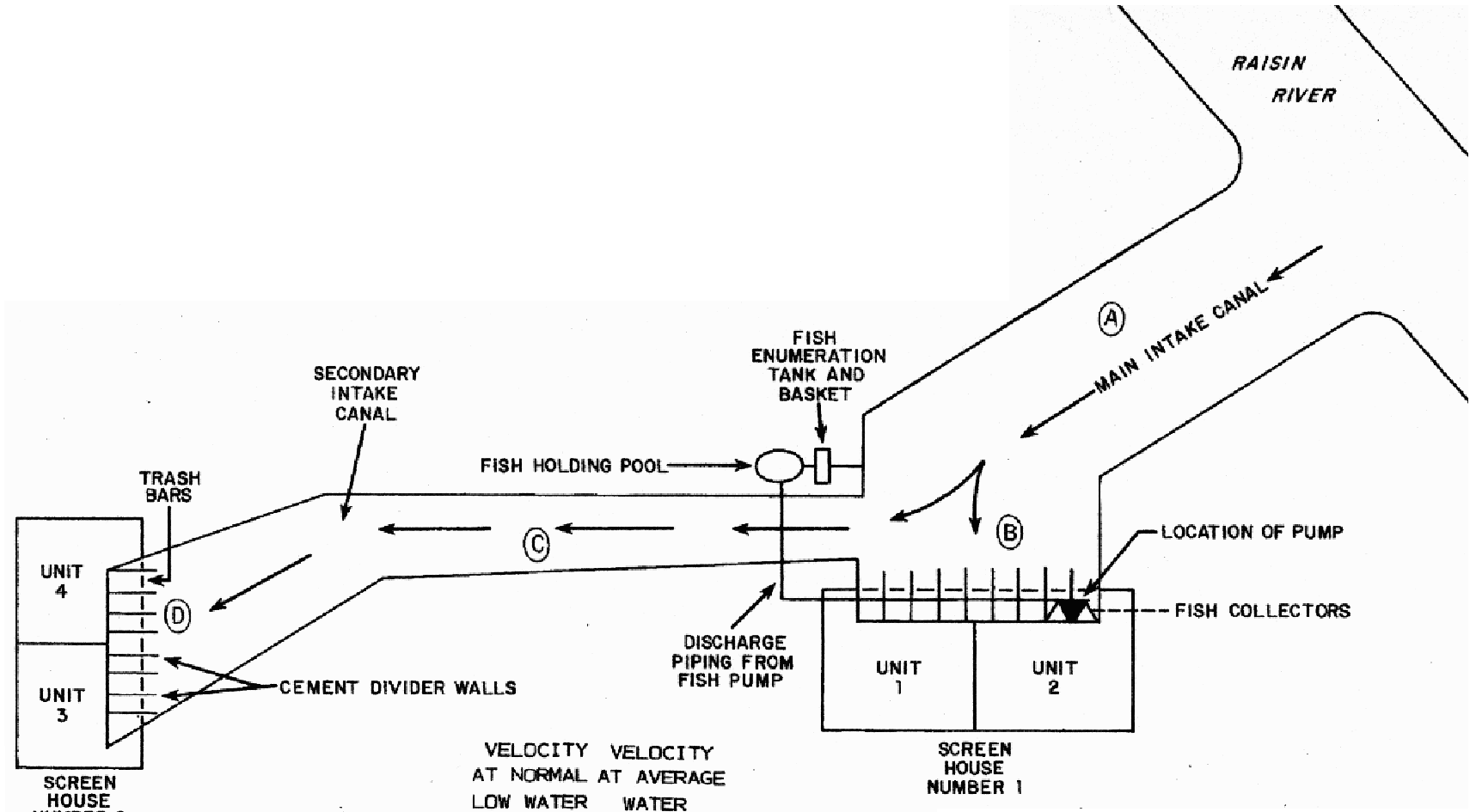
TITLE

MONROE POWER PLANT
HYDRAULIC ZONE OF INFLUENCE
3500 EAST FRONT DRIVE
MONROE, MICHIGAN

DETROIT EDISON COMPANY

FIGURE **2-5**

Drawing file: 063-9564 Monroe - Figure 2-5.dwg Jun 13, 2008 - 9:11am



LOCATION	VELOCITY AT NORMAL LOW WATER EL 567.5'	VELOCITY AT AVERAGE WATER EL 570.15'
A	1.54 FPS	1.32 FPS
B	0.84 FPS	0.73 FPS
C	2.57 FPS	2.24 FPS
D	0.84 FPS	0.73 FPS

Golder Associates
Tampa, Florida

FILE No.	063-9564
PROJECT No.	063-9564
REV.	0
SCALE	AS SHOWN
DATE	03/19/08
DESIGN	
CADD	KT
CHECK	MM
REVIEW	MM

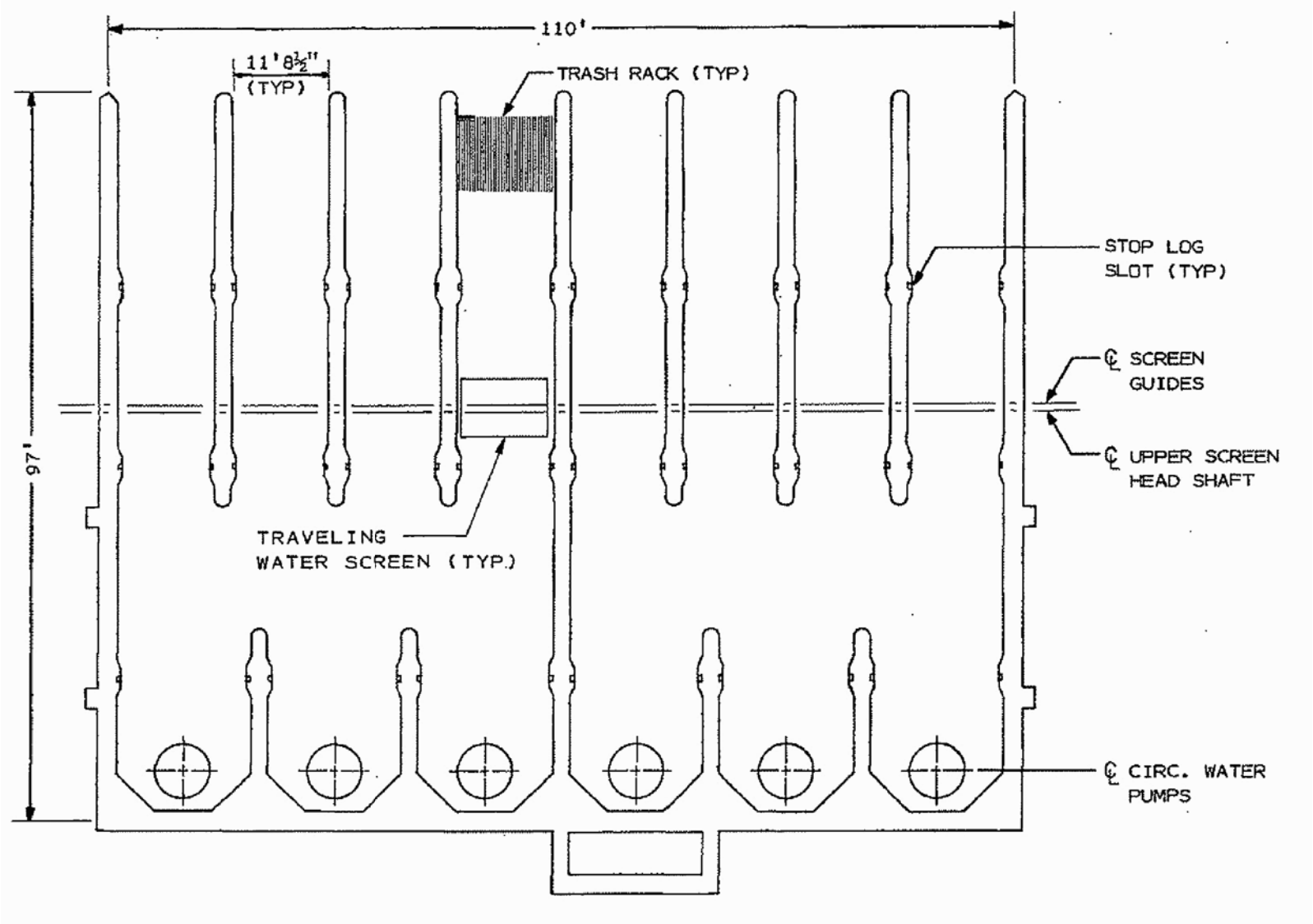
TITLE

MONROE POWER PLANT
COOLING WATER INTAKE CANAL

DETROIT EDISON COMPANY

FIGURE 2-6

Drawing file: 063-9564 Monroe - Figure 2-6.dwg Mar 19, 2008 - 4:54pm



Golder Associates
Tampa, Florida

FILE No.	063-9564
PROJECT No.	063-9564
REV.	0
SCALE	AS SHOWN
DATE	03/19/08
DESIGN	
CADD	KT
CHECK	MM
REVIEW	MM

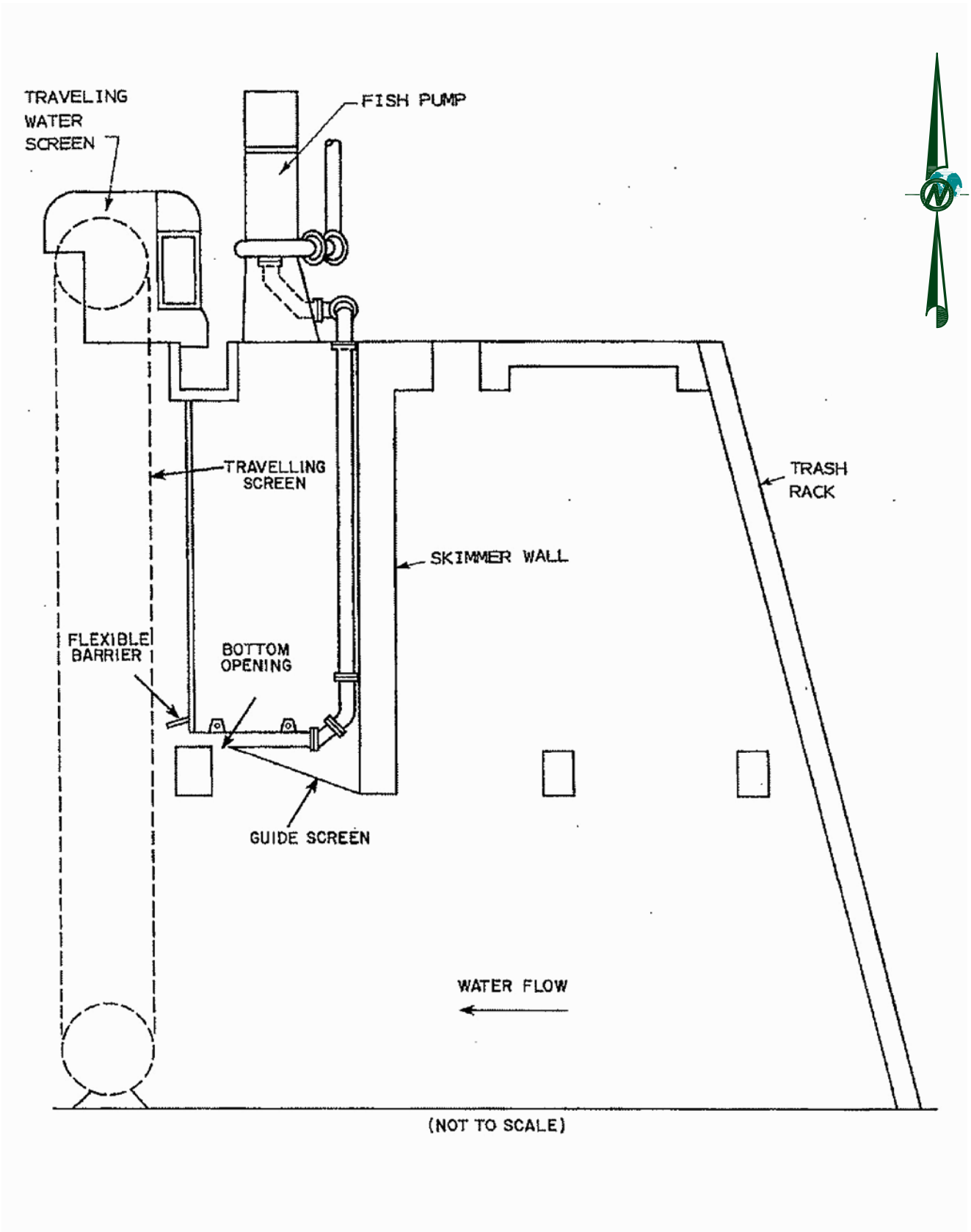
TITLE

MONROE POWER PLANT CWIS
SCREENHOUSE PLAN VIEW

DETROIT EDISON COMPANY

FIGURE **2-7**

Drawing file: 063-9564 Monroe - Figure 2-7.dwg Mar 19, 2008 - 4:48pm



SOURCE: Golder, 2004.

Golder Associates
Tampa, Florida

FILE No.	063-9564
PROJECT No.	063-9564
REV.	0
SCALE	AS SHOWN
DATE	03/19/08
DESIGN	
CADD	KT
CHECK	MM
REVIEW	MM

TITLE

MONROE POWER PLANT
TRAVELING SCREEN PROFILE

DETROIT EDISON COMPANY

FIGURE **2-8**

Drawing file: 063-9564 Monroe - Figure 2-8.dwg Mar 19, 2008 - 4:47pm

FIGURE 2-9
Monroe Power Plant
Monthly Average and Maximum Withdrawals
(January 2001 - May 2006)

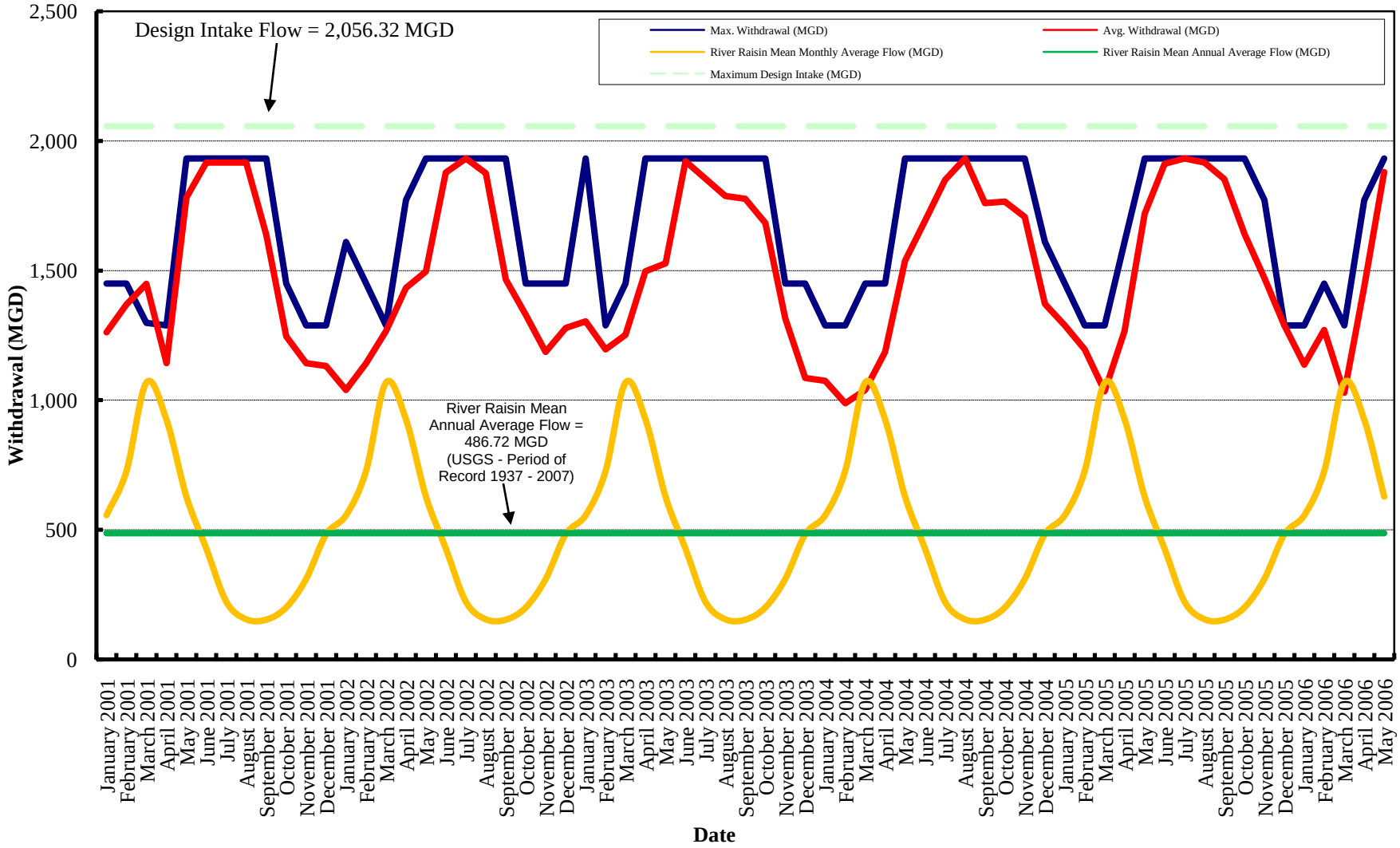
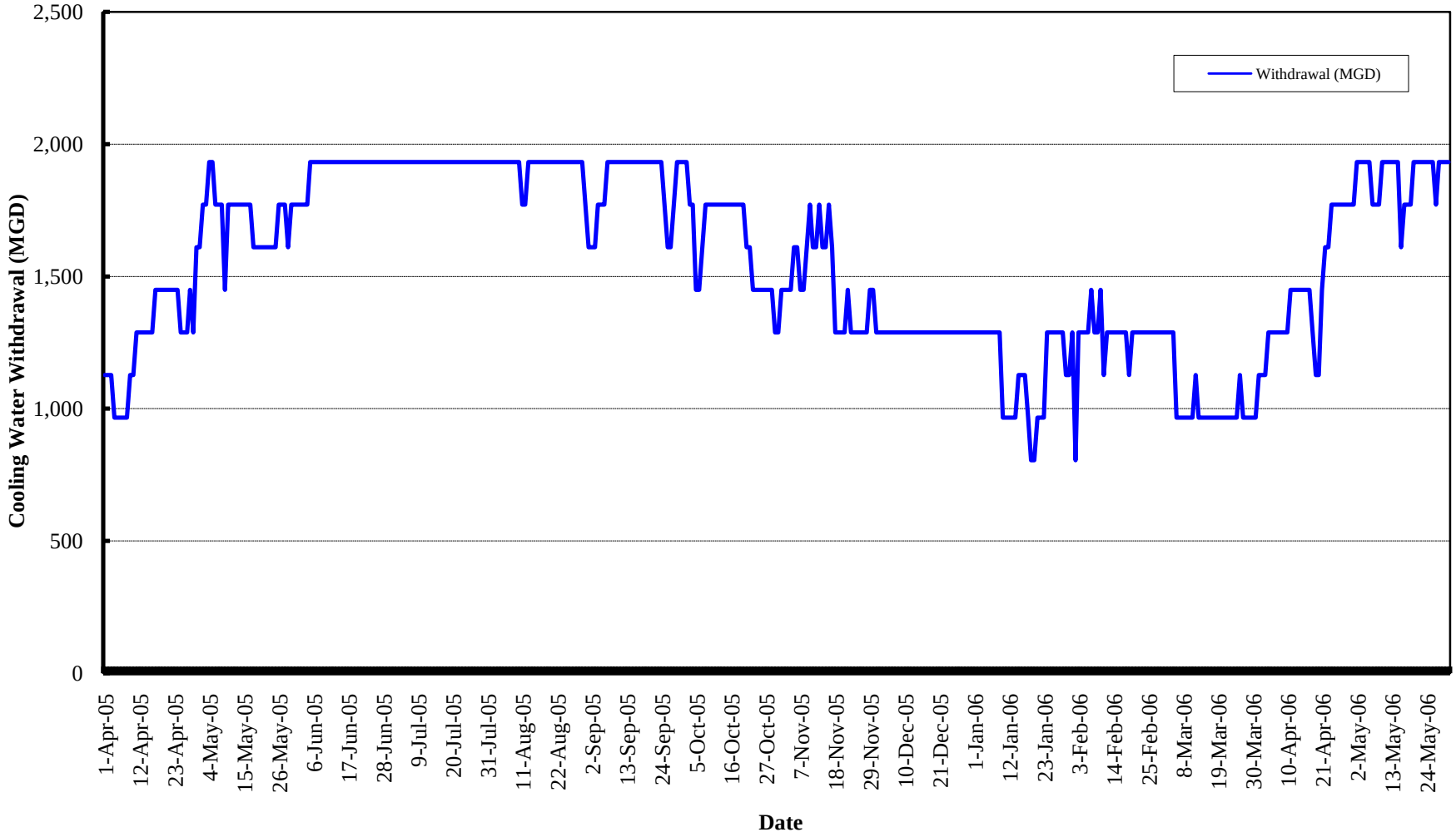


FIGURE 2-10
Monroe Power Plant
Daily Withdrawals
(April 1, 2005 - May 31, 2006)



River Raisin -Lake Erie

City Water

General Service Pumps

Make-up Demineralizer

Fish Pump

Misc. Cooling

Fly Ash Sluice

Bottom Ash Sluice

Air Preheater Water

Oily Waste Sources

Coal Pile Runoff

No.1 Storm Station

Oily Waste System

Emergency Overflow only

Fly Ash Basin

001F

Condenser Cooling 1362 MGD (Avg.)

11.4 MGD (Avg.)

16.7 MGD (Max. Design)

Condensate Polisher

Boilerwater

Aux. Boiler

Aux. Boiler Blowdown

Chem. Cleaning Waste

0.6 MGD (Avg.)

0.05 MGD (Avg.)

Storage/Chemical Waste Treatment

Alternate Route

Sanitary Sewage

N/A

City Sewer

Electrical Mat. Storm Water

003

Bottom Ash Basin

001B 14.0 MGD (Avg.)

001D

River Raisin

Main Discharge Cooling Canal

002

Lake Erie

Outfall 001 1.98 x 10^9 GPD (Design)

1.39 x 10^9 GPD (Avg.)

Attachment II
Section I, Item 10

Monroe Power Plant
Water Usage

HAZ_TOX/NPDES Permit Application/Monroe 2004/MPPflow_2004
Revised: 03-04

Golder Associates
Tampa, Florida

PROJECT
DETROIT EDISON COMPANY
MONROE POWER PLANT
3500 EAST FRONT DRIVE
MONROE, MICHIGAN

TITLE
FLOW DISTRIBUTION AND WATER BALANCE DIAGRAM

PROJECT No.		063-9564
FILE No.		063-9564
REV. 0	SCALE	AS SHOWN
DESIGN	MT	03/20/08
CADD	PB	03/20/08
CHECK	MM	04/11/08
REVIEW	TS	06/06/08

FIGURE 2-11

Drawing file: A$C159F422C.DWG Jun 11, 2008 - 8:57am

FIGURE 4-1
Impingement - Daily Total Abundance of All Taxa
Monroe Power Plant

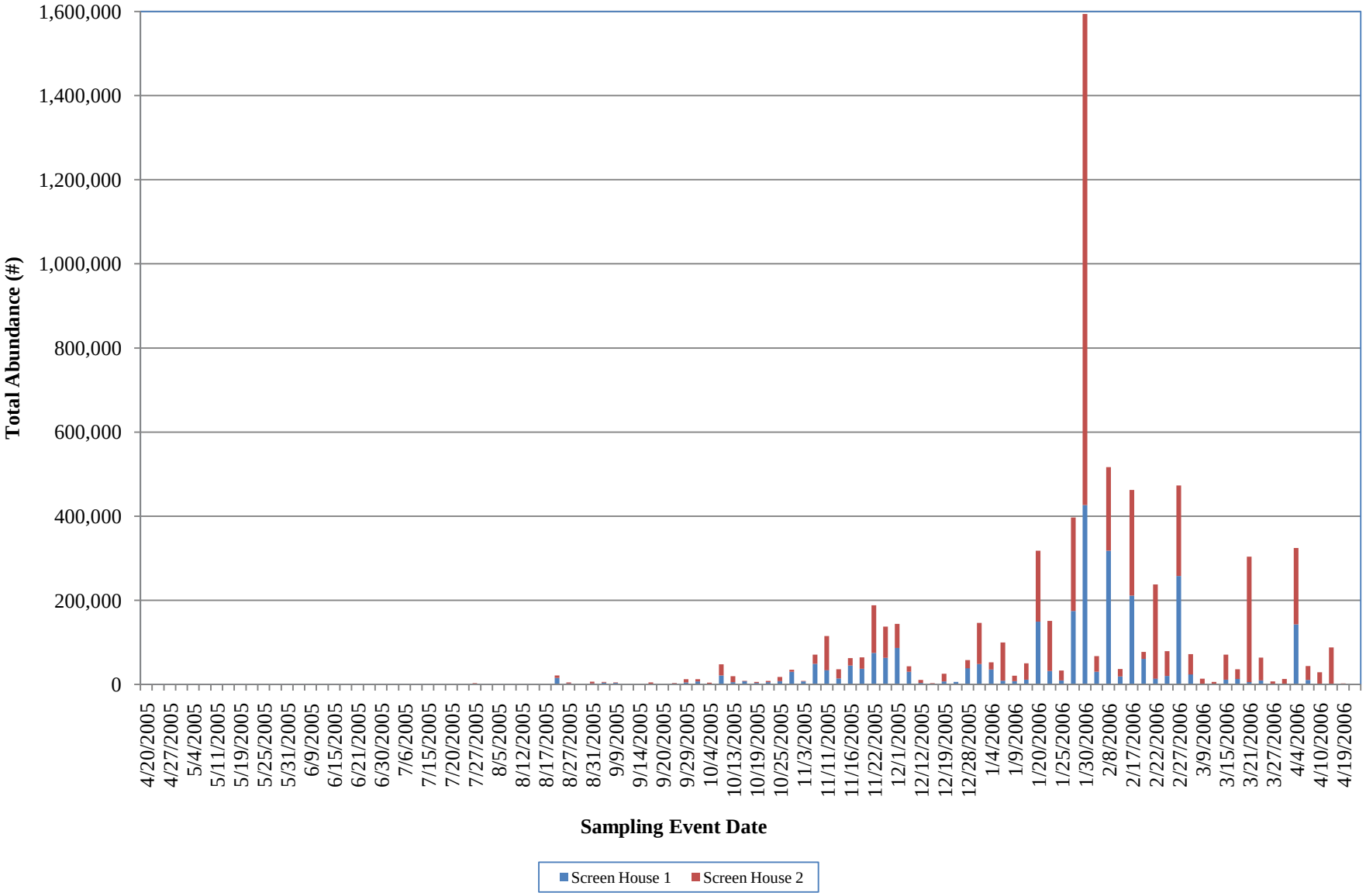


FIGURE 4-2
Impingement - Daily Total Biomass (kg) of All Taxa
Monroe Power Plant

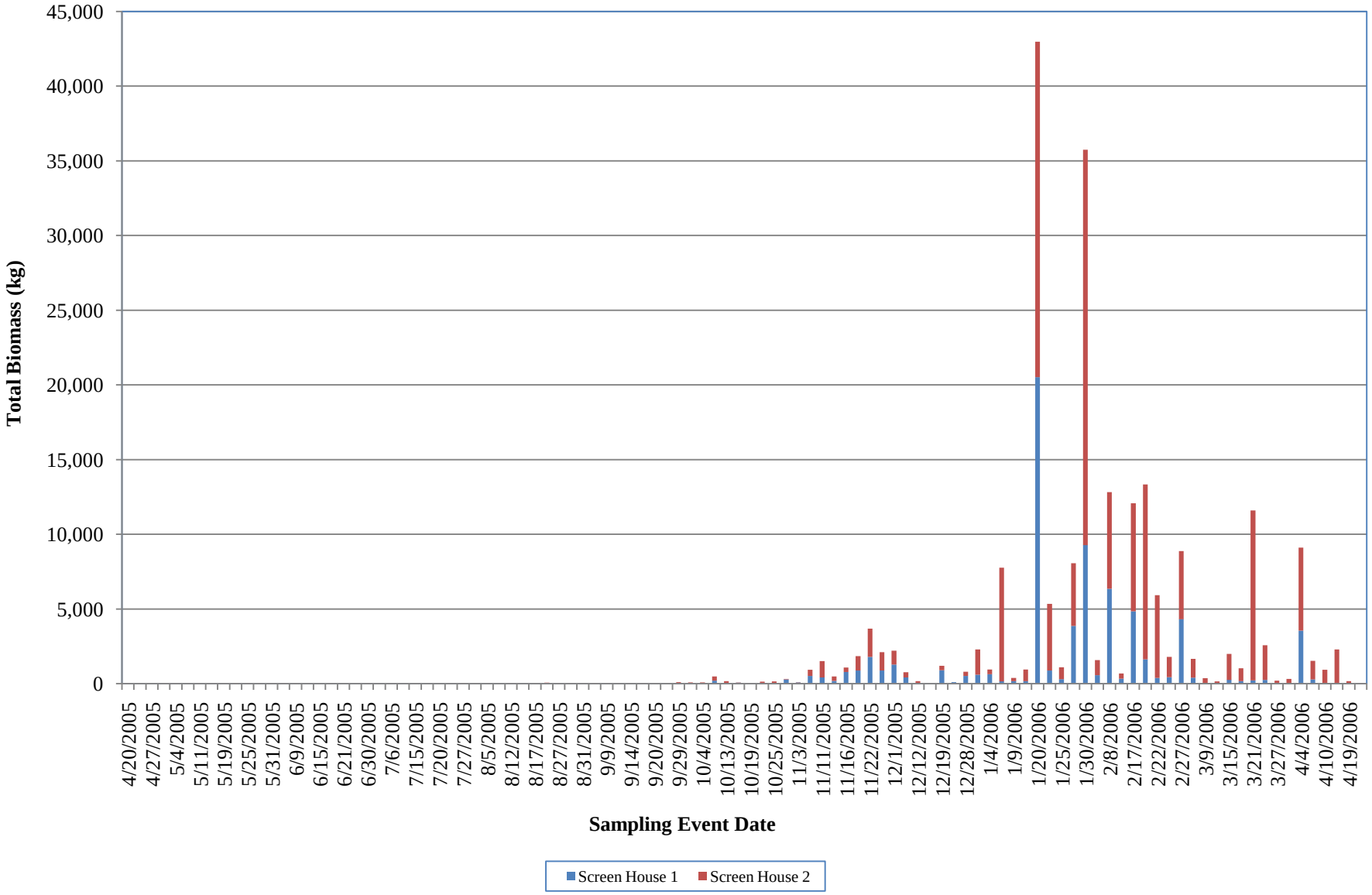


FIGURE 4-3
Impingement - Daily Abundance of Dominant Fish
Monroe Power Plant

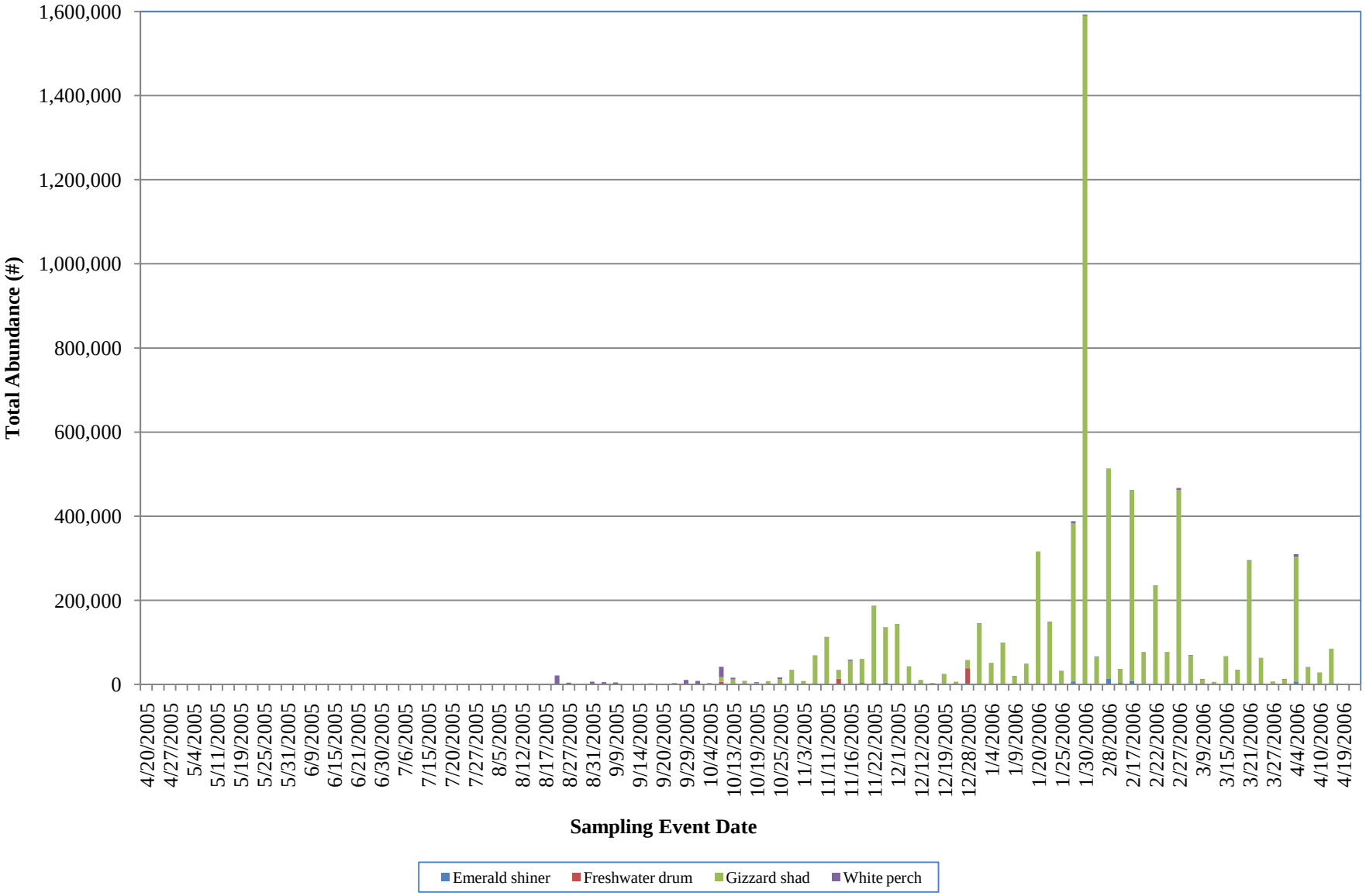


FIGURE 4-4
Impingement - Daily Biomass (kg) of Dominant Fish
Monroe Power Plant

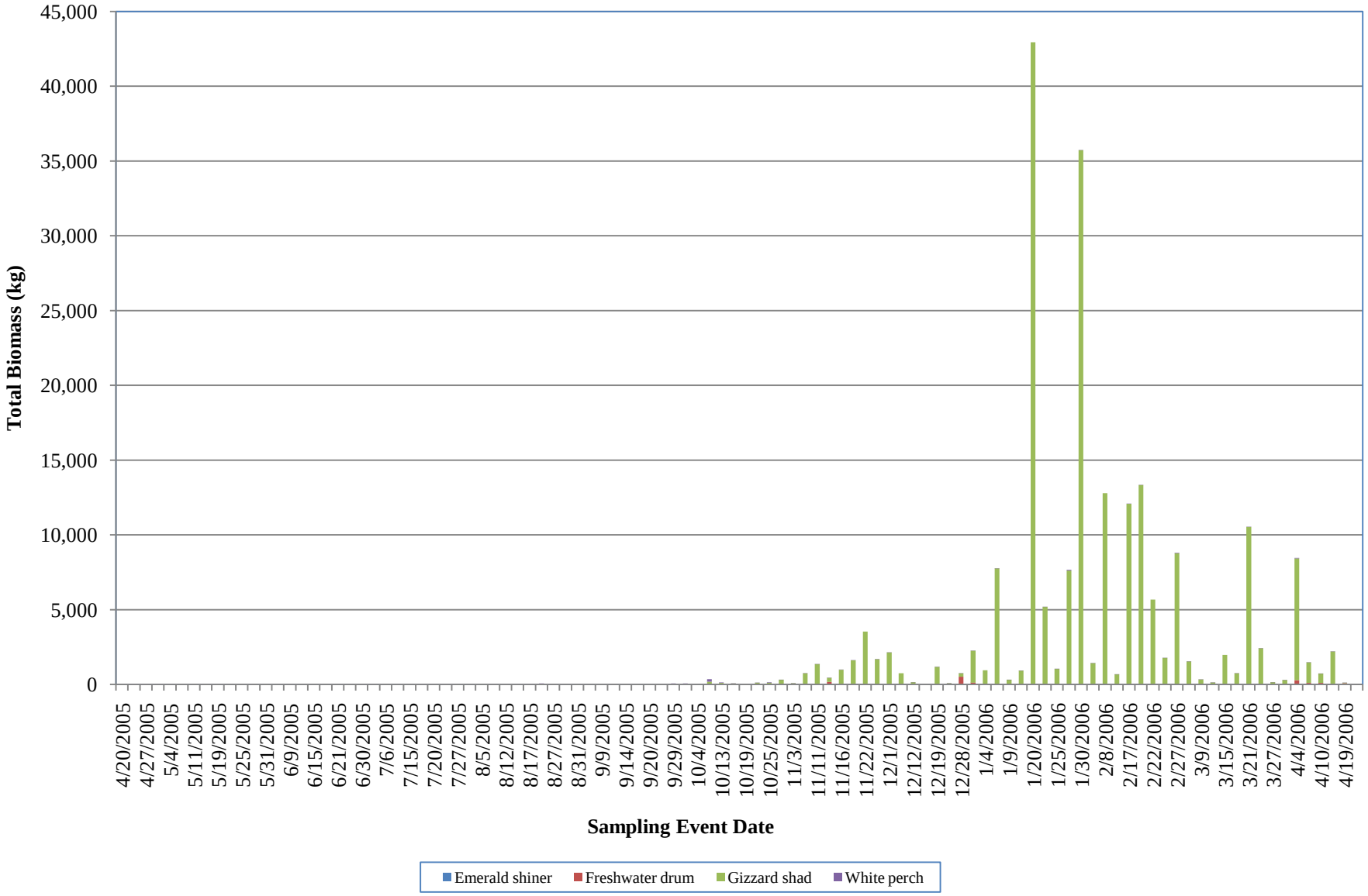


FIGURE 4-5
Impingement - Daily Biomass (kg) of Dominant Fish by Biomass
Monroe Power Plant

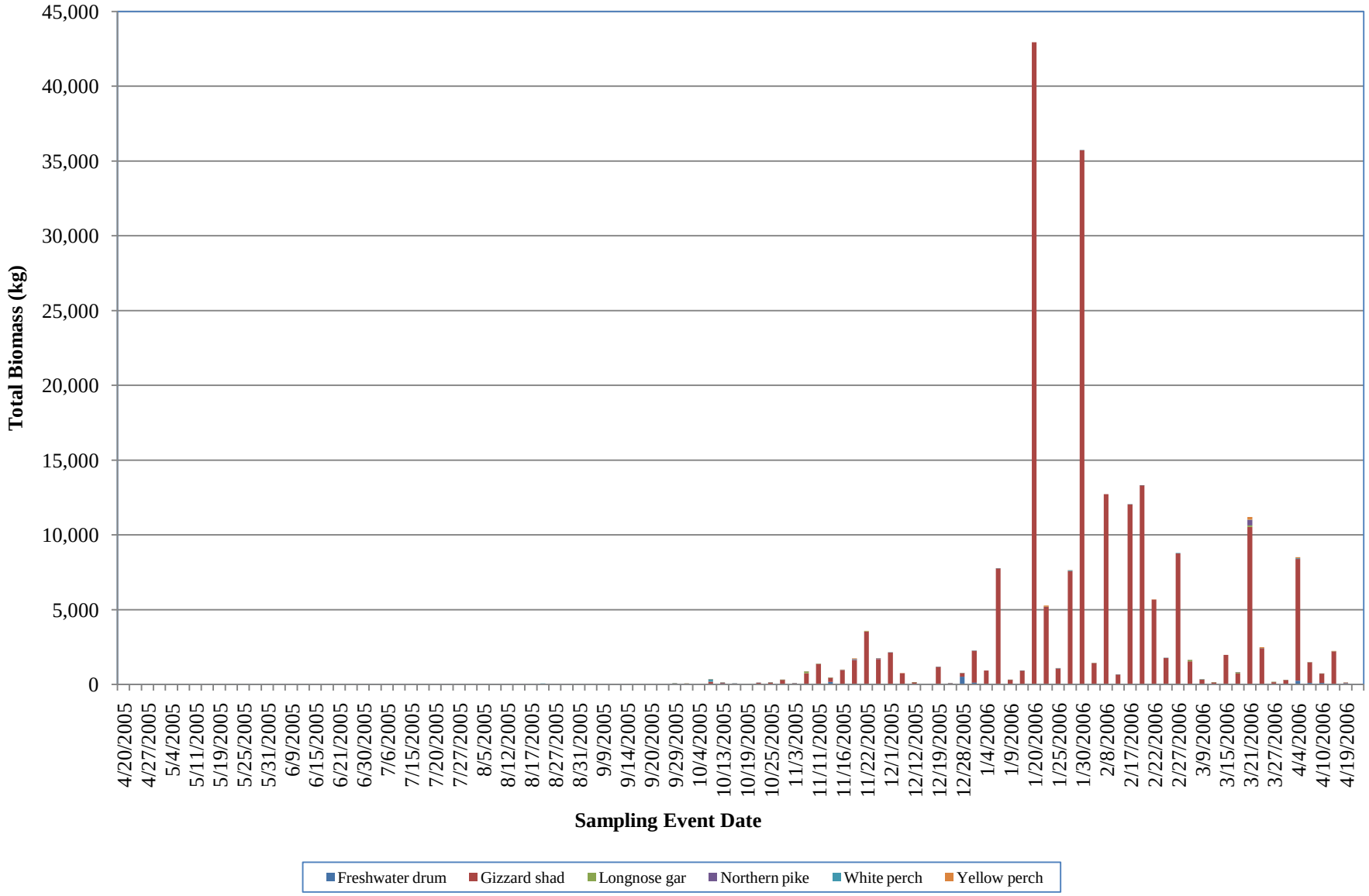


FIGURE 4-6
Impingement - Daily Abundance of Dominant Fish by Biomass
Monroe Power Plant

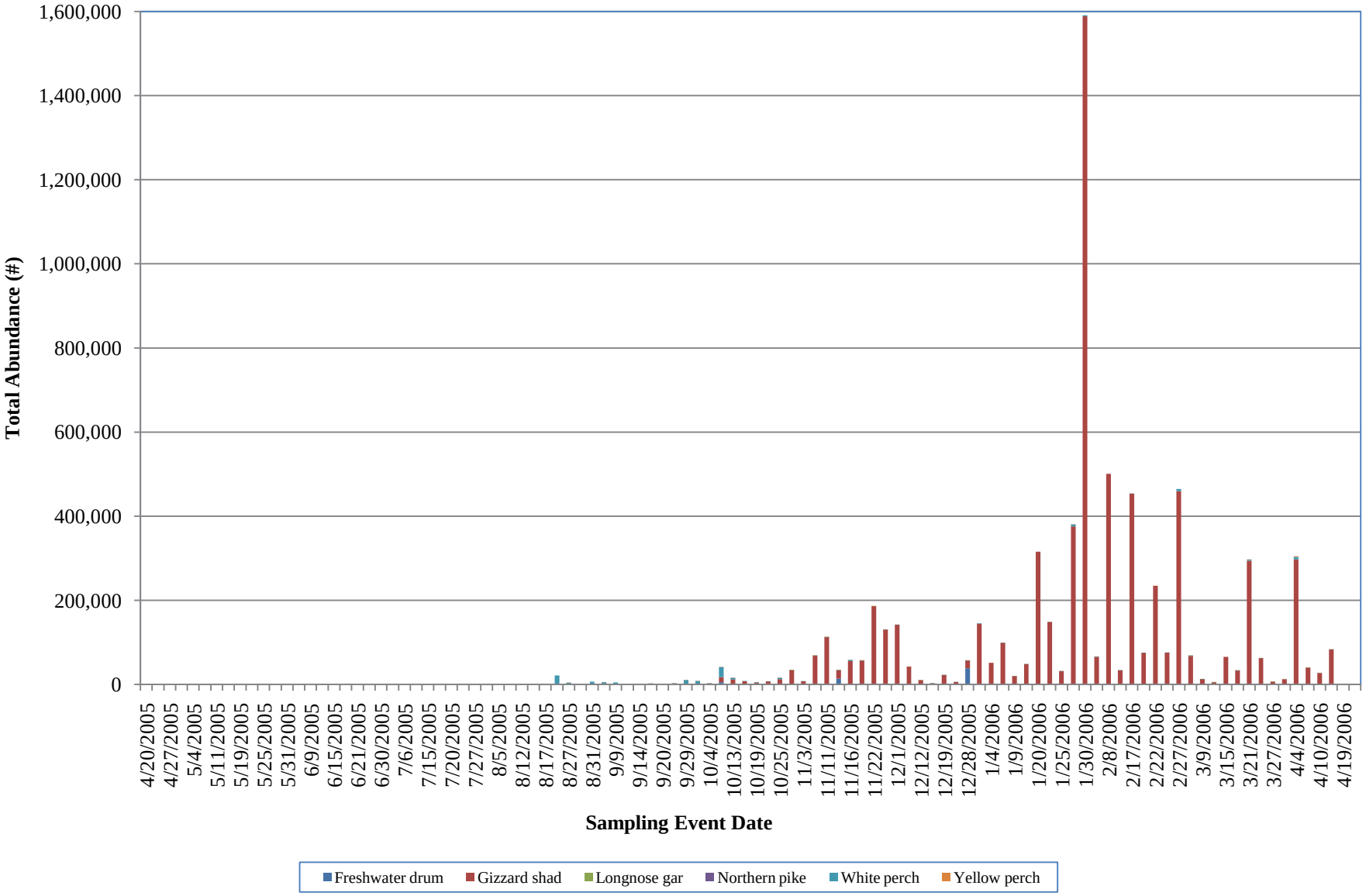


FIGURE 4-7
Total Monthly Flow-Expanded Impingement - Abundance
Monroe Power Plant
(April 2005 - April 2006)

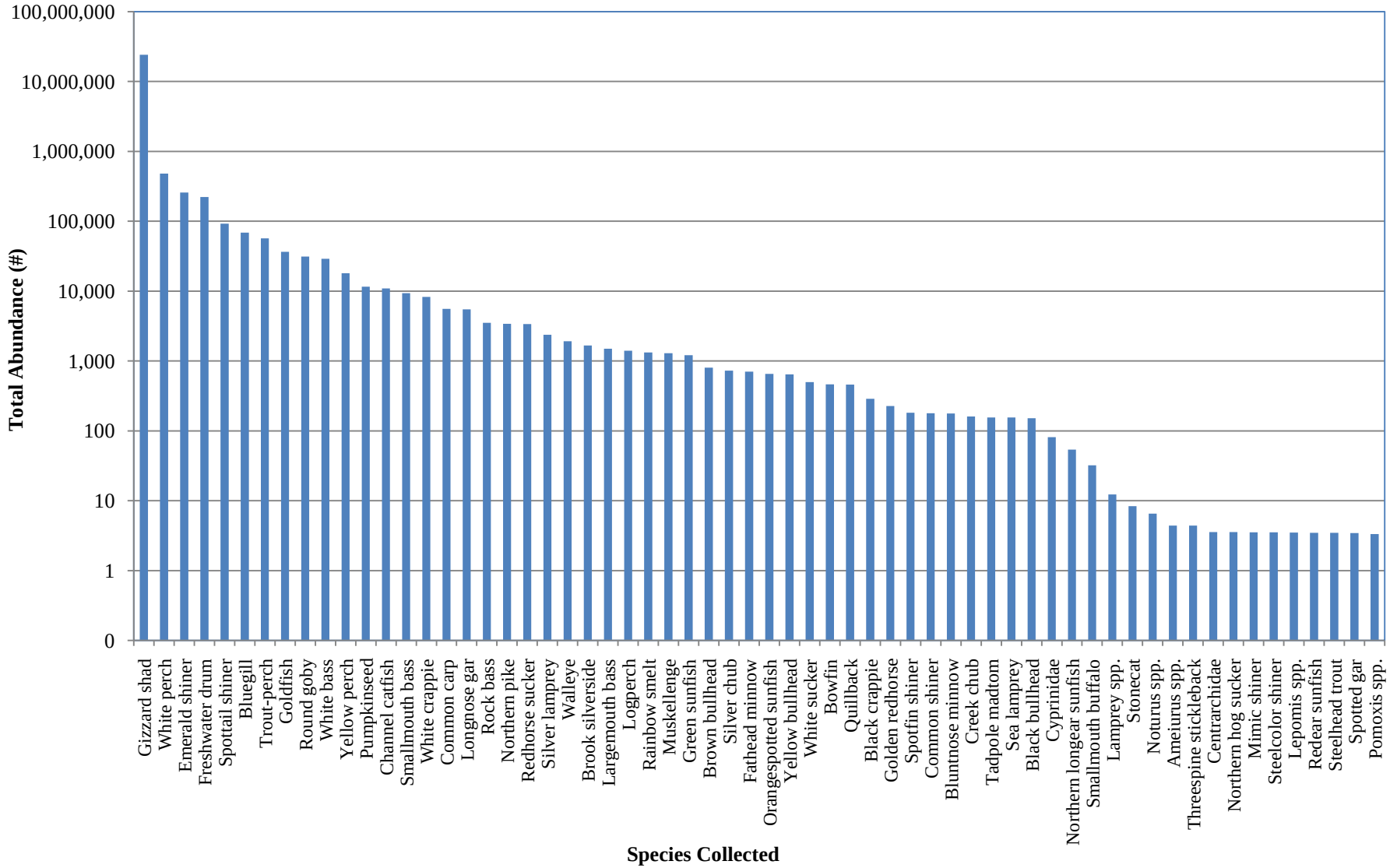


FIGURE 4-8
Total Monthly Flow-Expanded Impingement - Biomass (kg)
Monroe Power Plant
(April 2005 - April 2006)

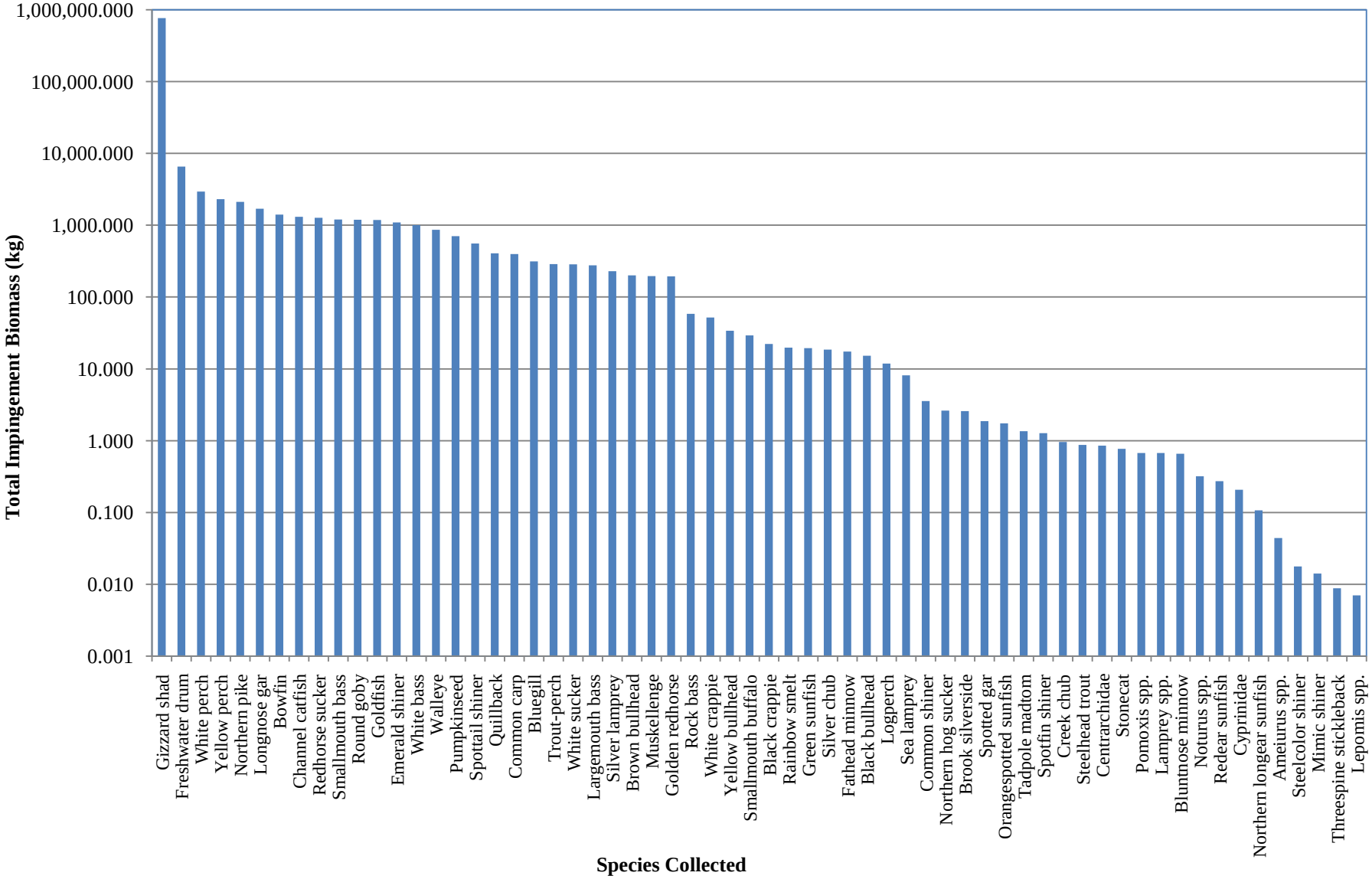


FIGURE 4-9
Entrainment - Daily Total Abundance
Monroe Power Plant

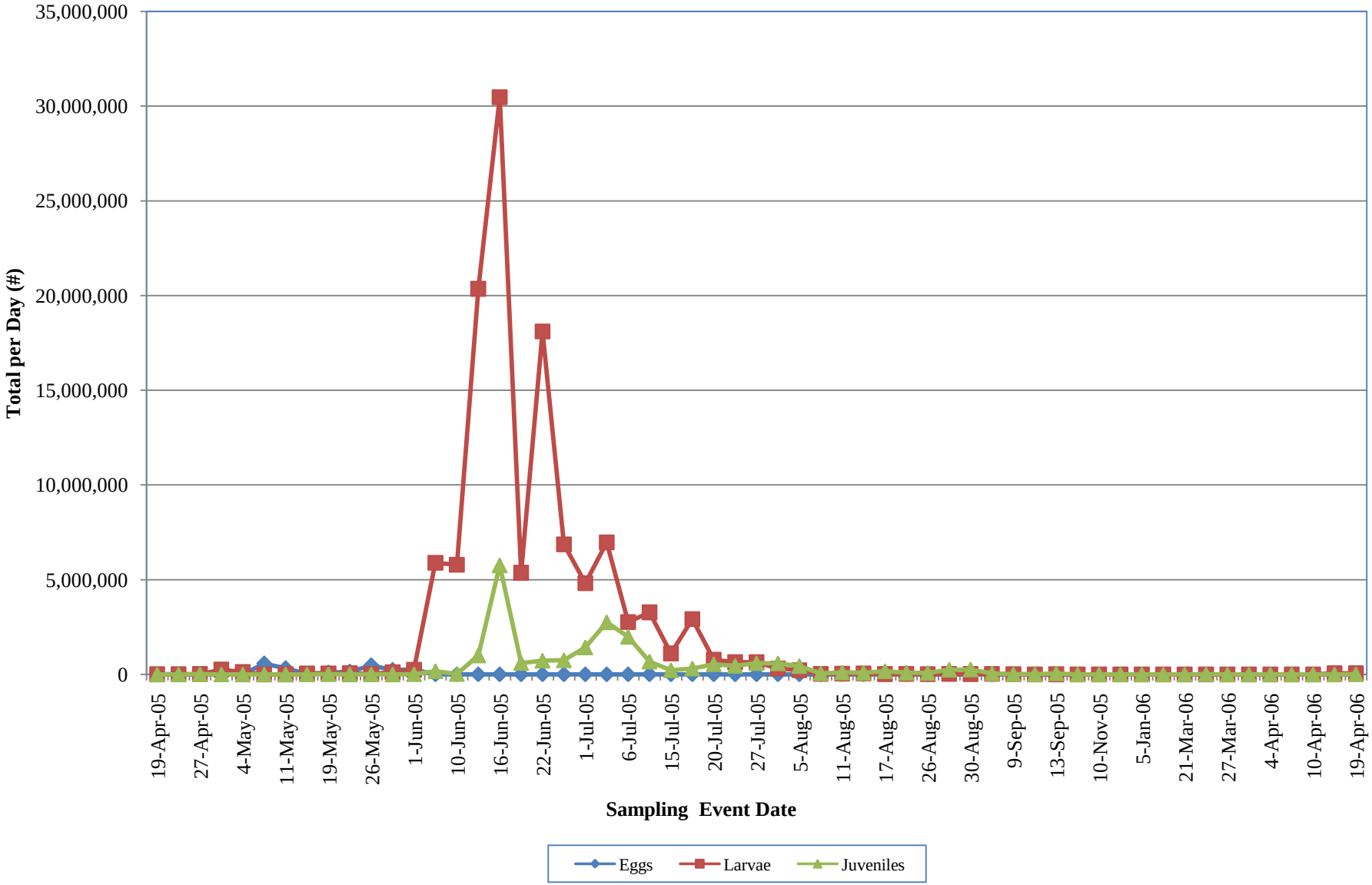


FIGURE 4-10
Entrainment - Daily Total Abundance of Fish Eggs
Monroe Power Plant

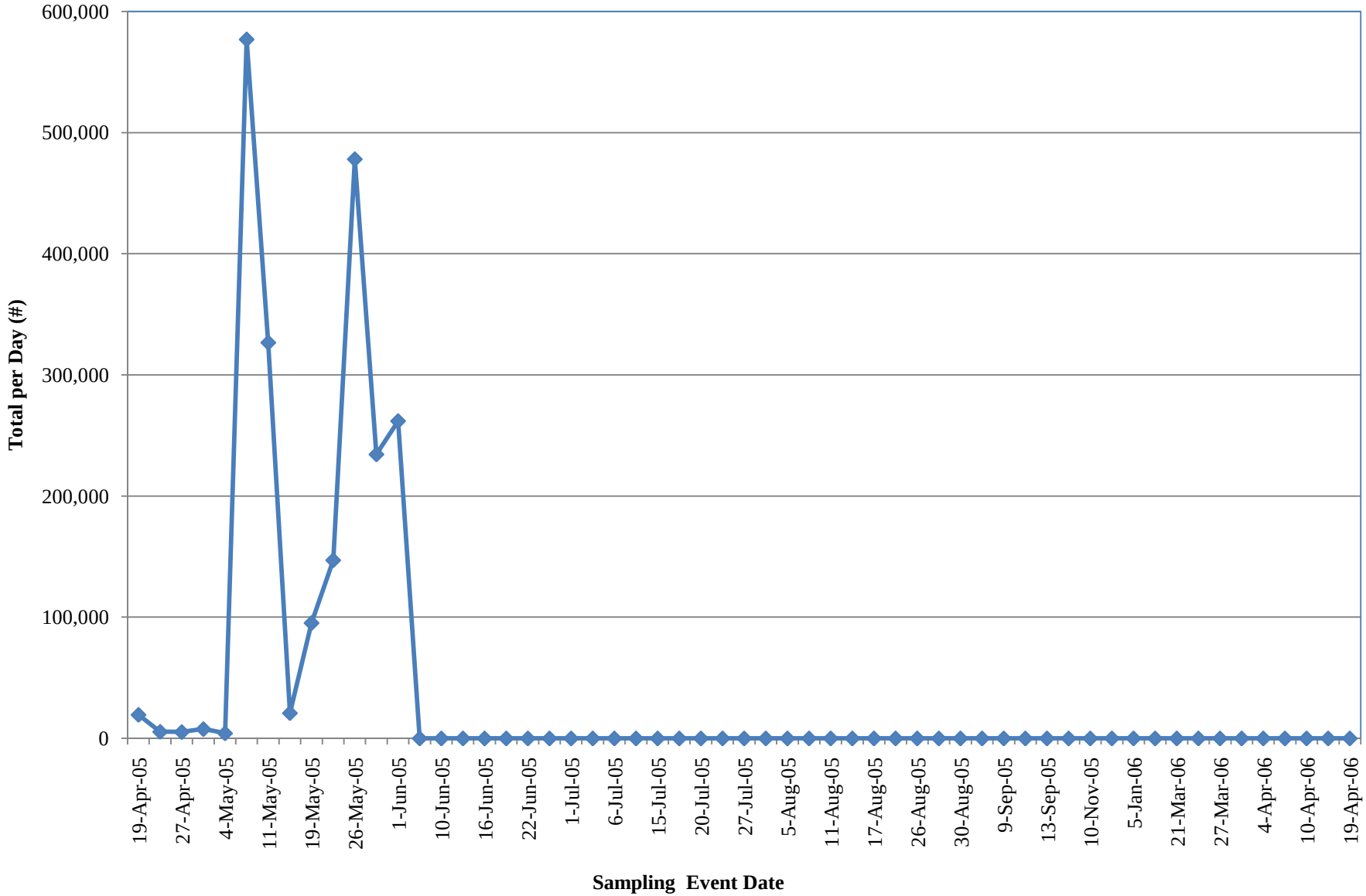


FIGURE 4-11
Entrainment - Daily Total Abundance of Fish Larvae
Monroe Power Plant

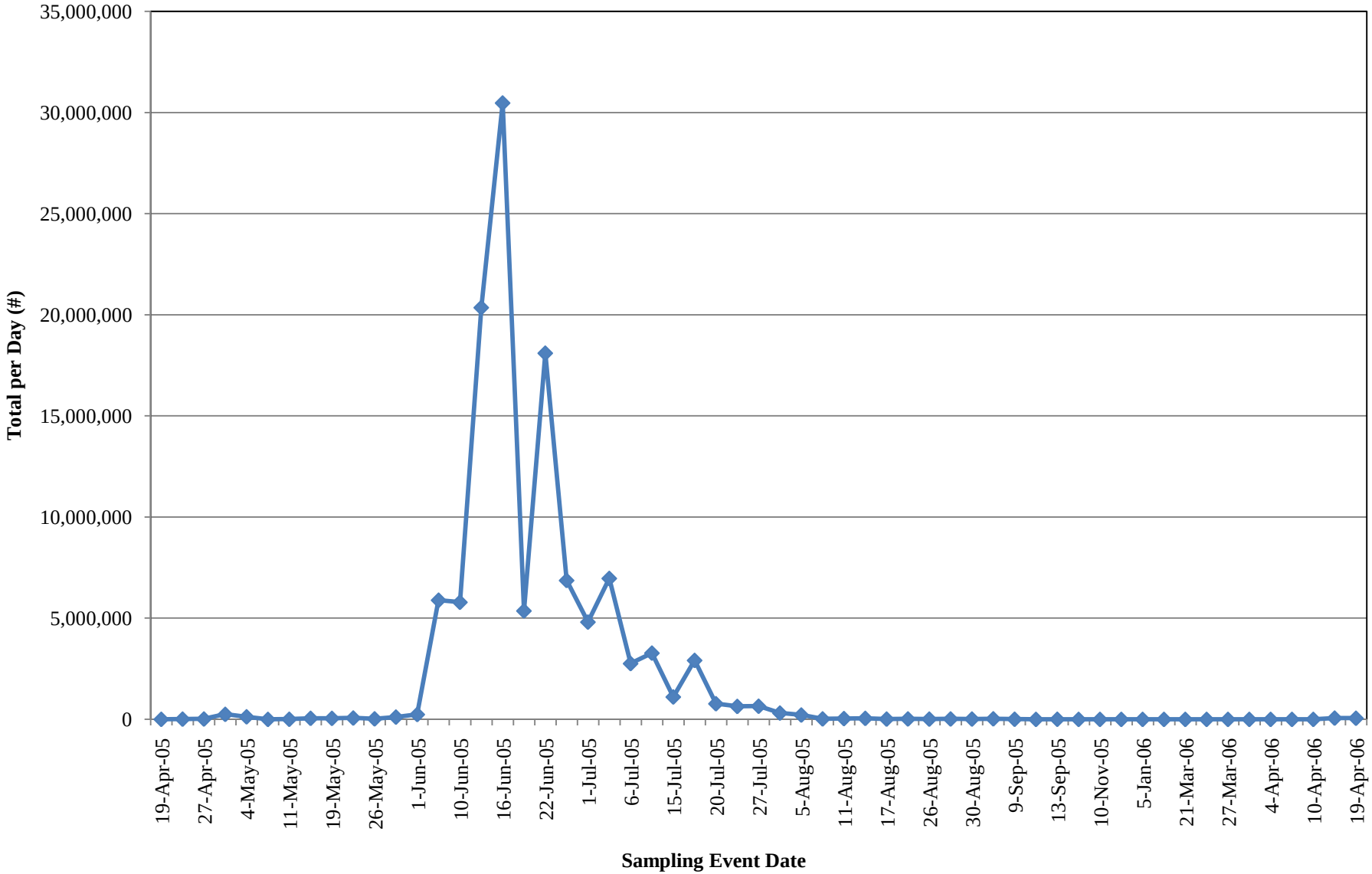


FIGURE 4-12
Entrainment - Daily Total Abundance of Juvenile Fish
Monroe Power Plant

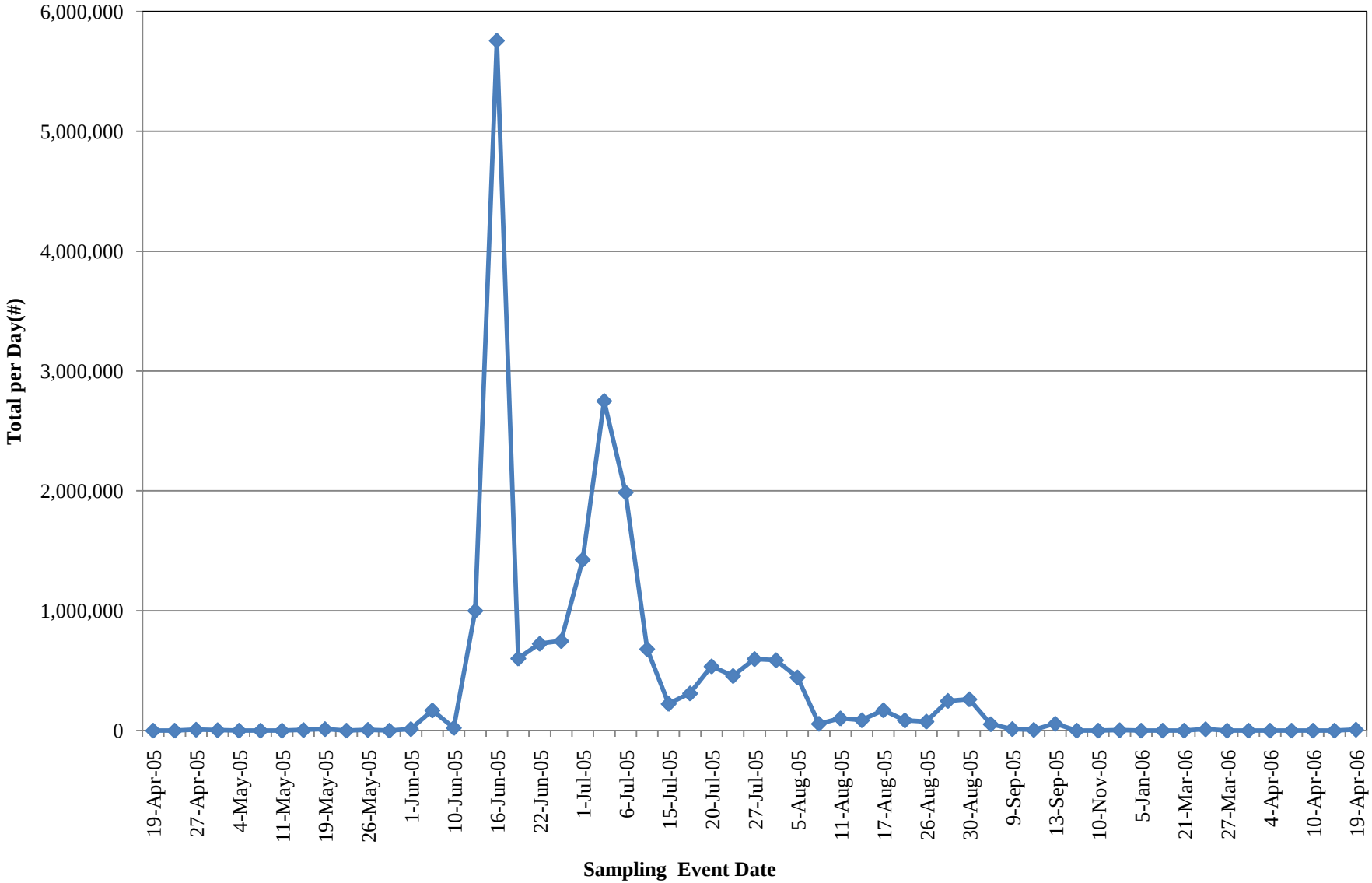


FIGURE 4-13
Entrainment - Daily Fish Egg Abundance by Taxa
Monroe Power Plant

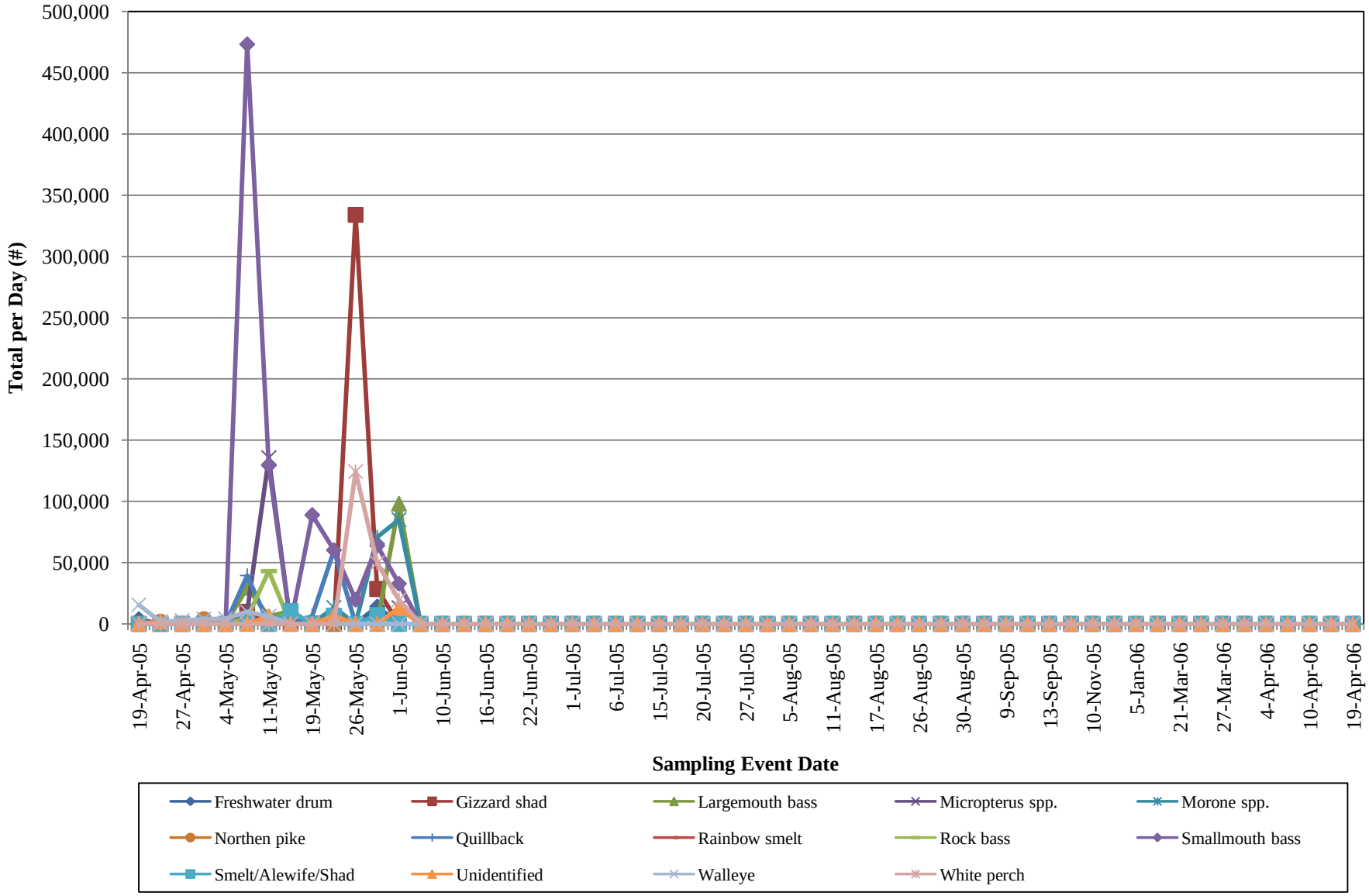


FIGURE 4-14
Entrainment - Daily Larval Fish Abundance by Taxa
Monroe Power Plant

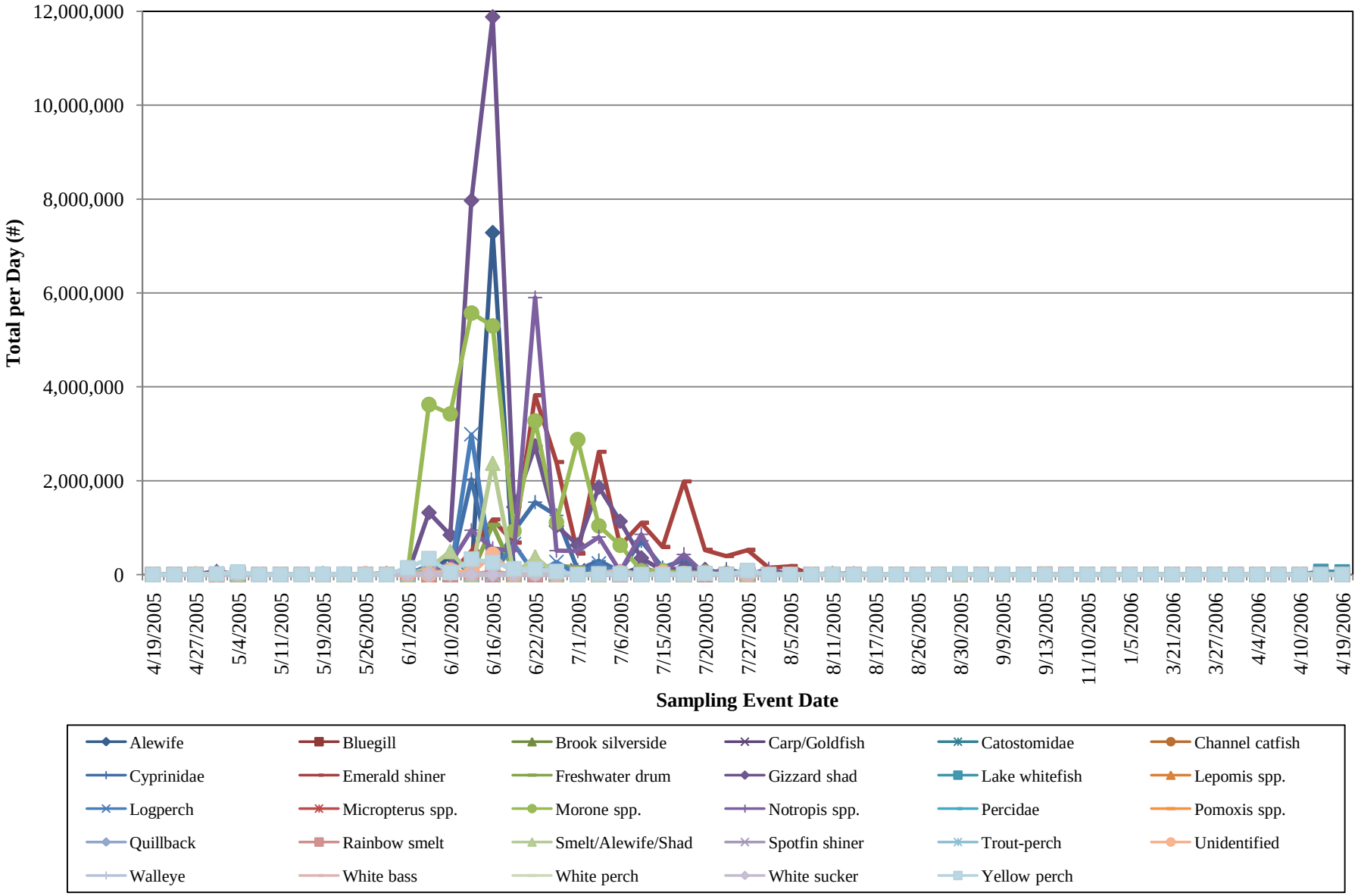


FIGURE 4-15
Entrainment - Daily Juvenile Fish Abundance by Taxa
Monroe Power Plant

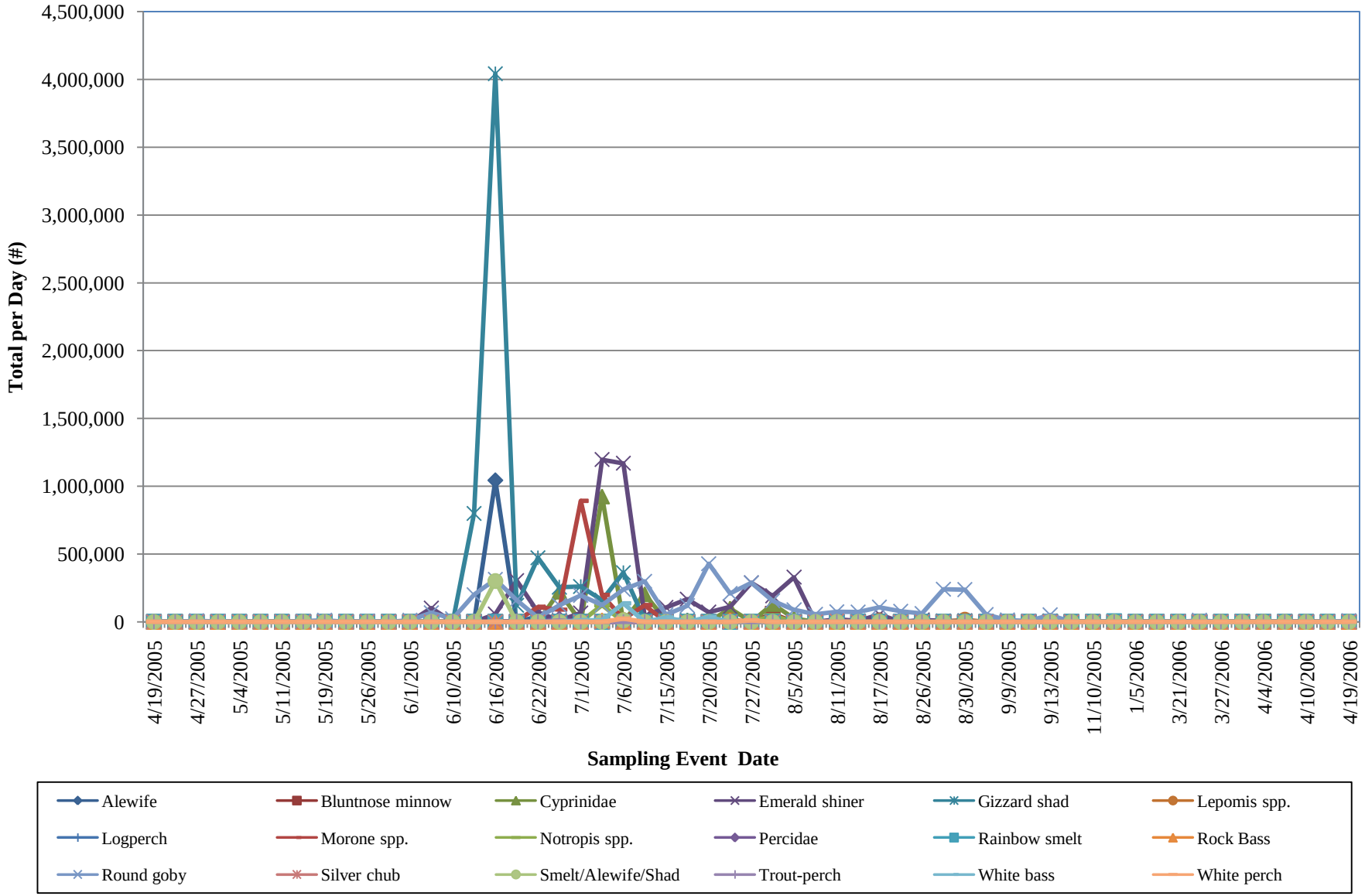


FIGURE 4-16
Entrainment - Diel Distribution of Fish Egg Densities
Monroe Power Plant

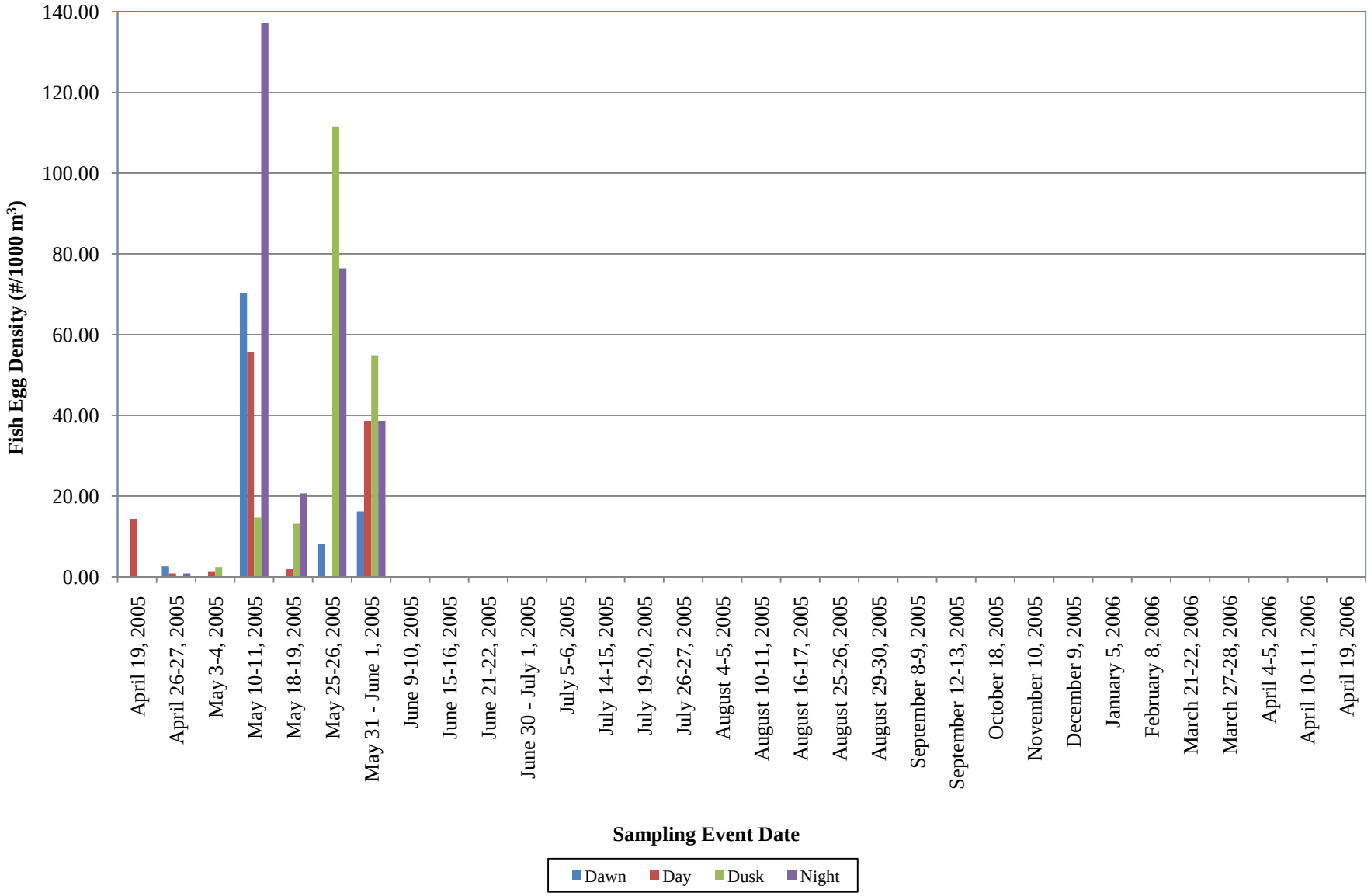


FIGURE 4-17
Entrainment - Diel Distribution of Larval and Juvenile Fish Densities
Monroe Power Plant

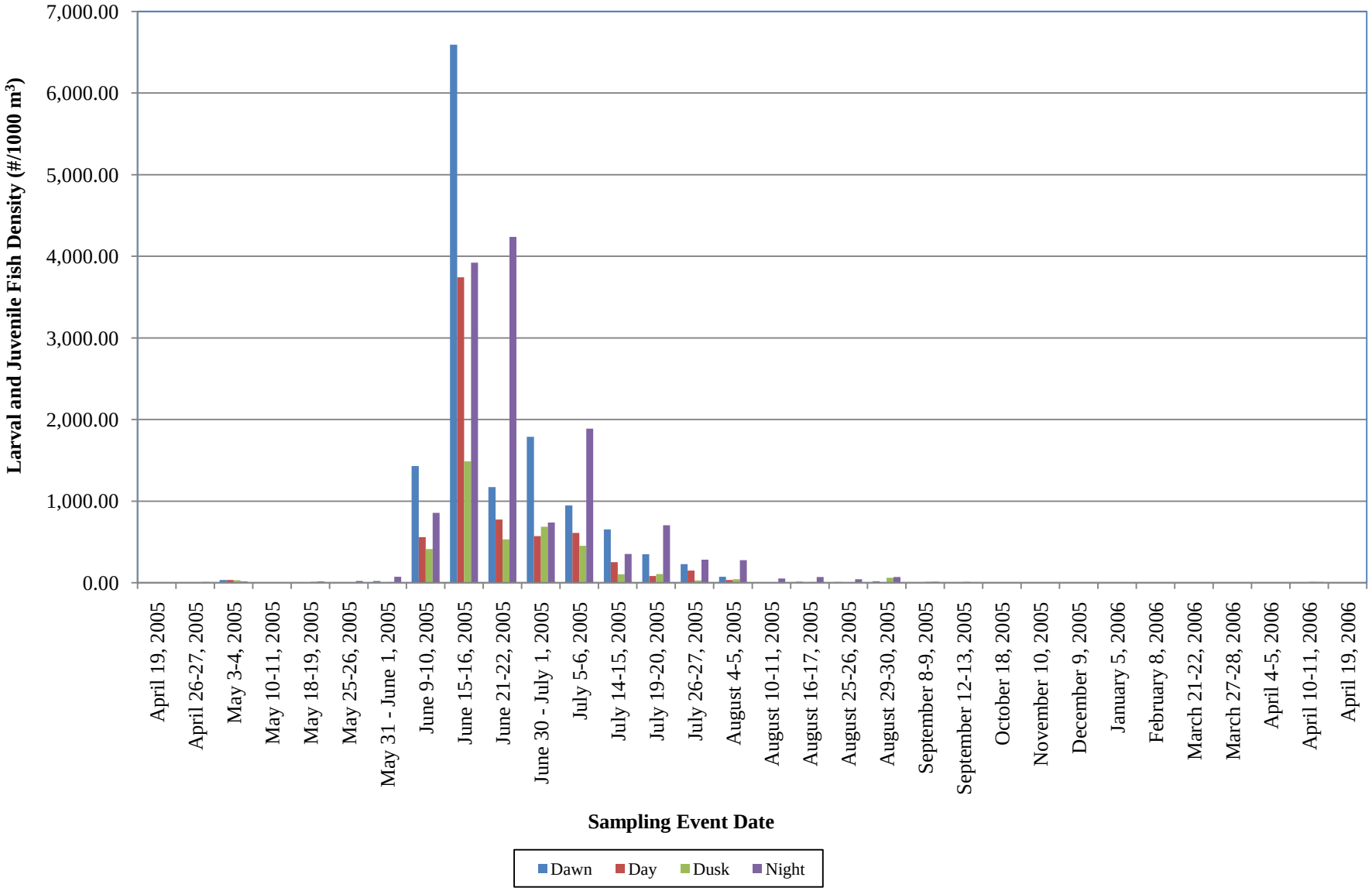


FIGURE 4-18
Total Flow-Expanded Entrainment of Larval and Juvenile Fish - Abundance
Monroe Power Plant
(April 2005 - April 2006)

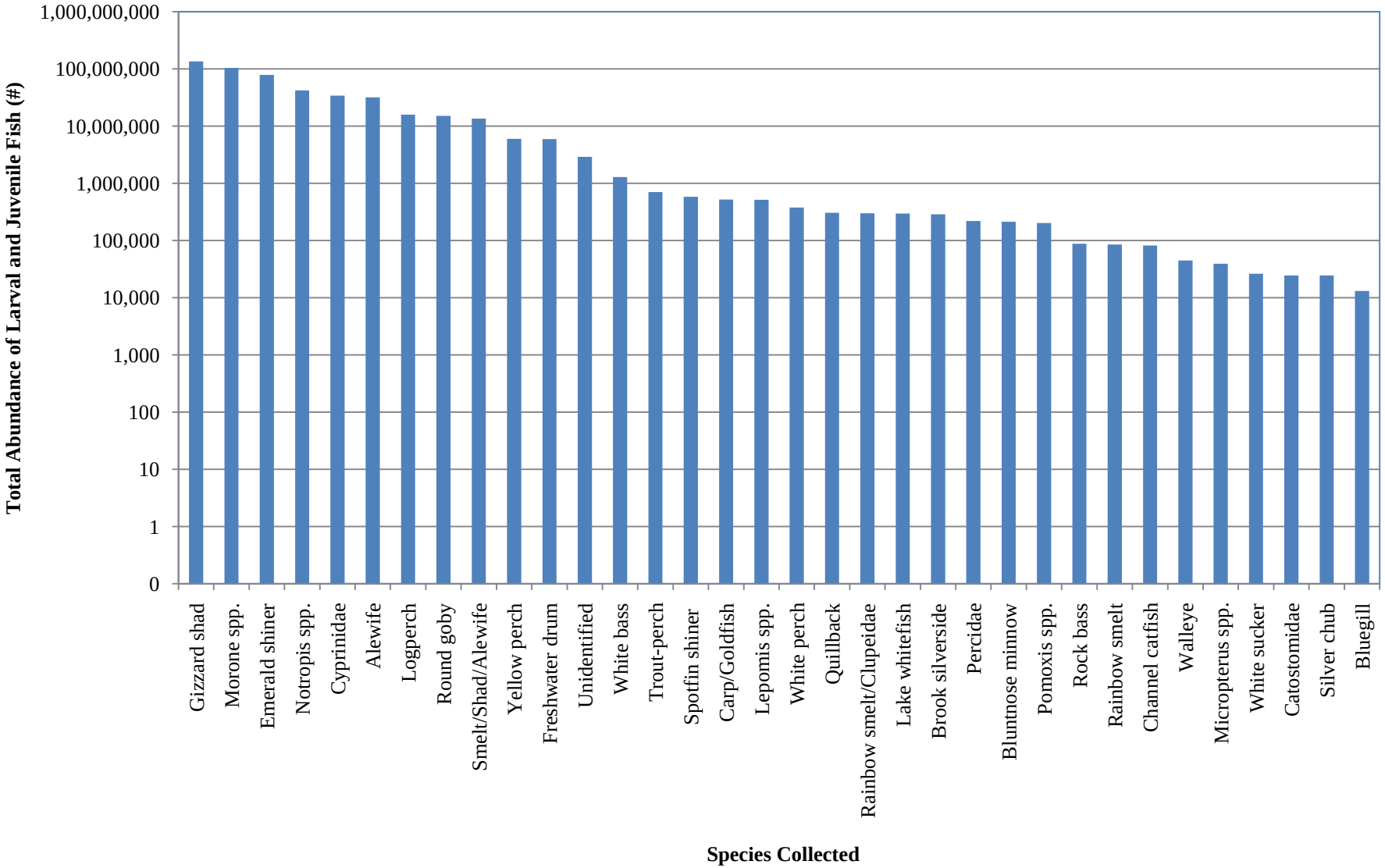


FIGURE 4-19
Total Flow-Expanded Entrainment of Fish Eggs - Abundance
Monroe Power Plant
(April 2005 - April 2006)

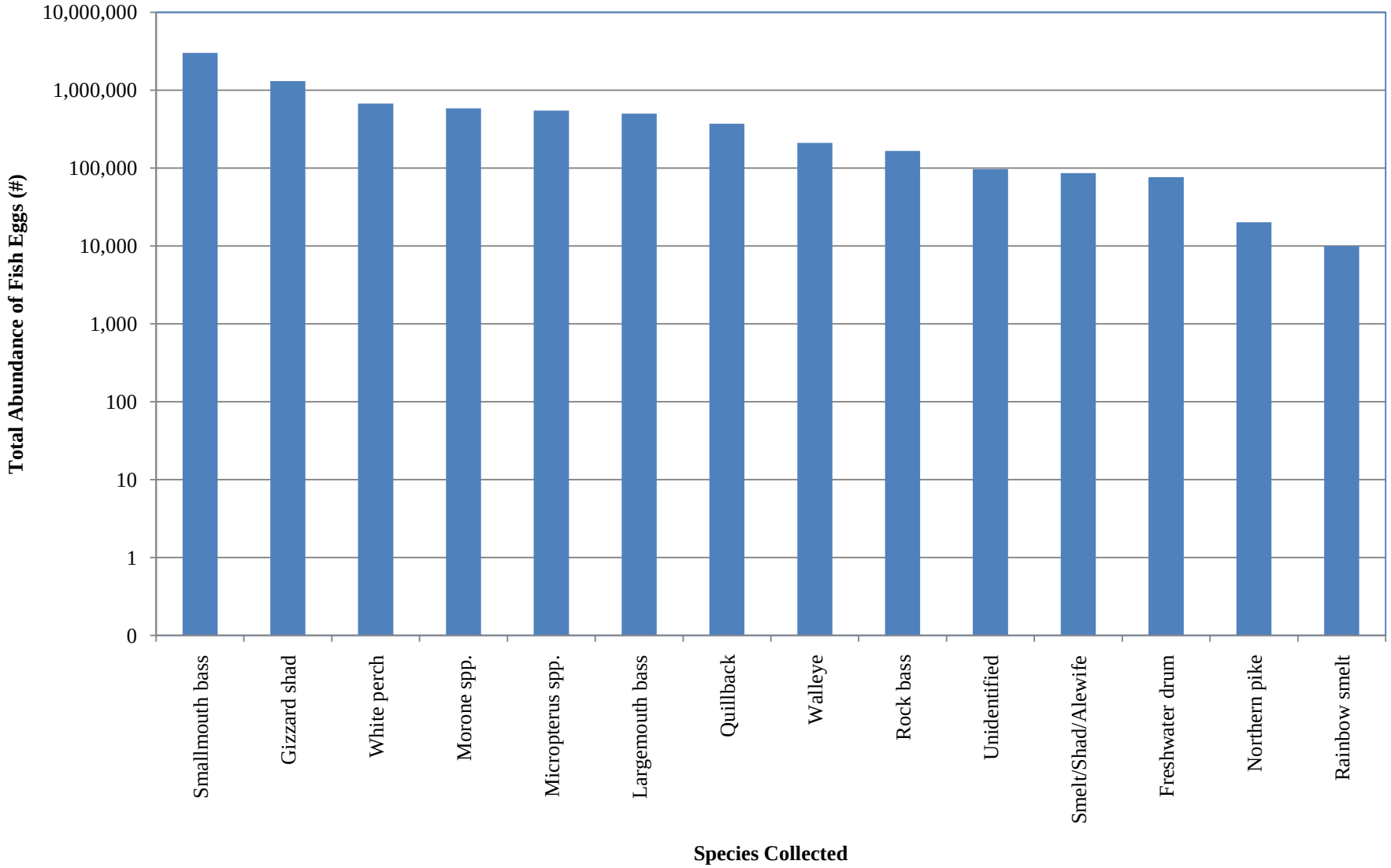


FIGURE 4-20
Total Flow-Expanded Entrainment of Species by Life Stage - Abundance
Monroe Power Plant
(April 2005 - April 2006)

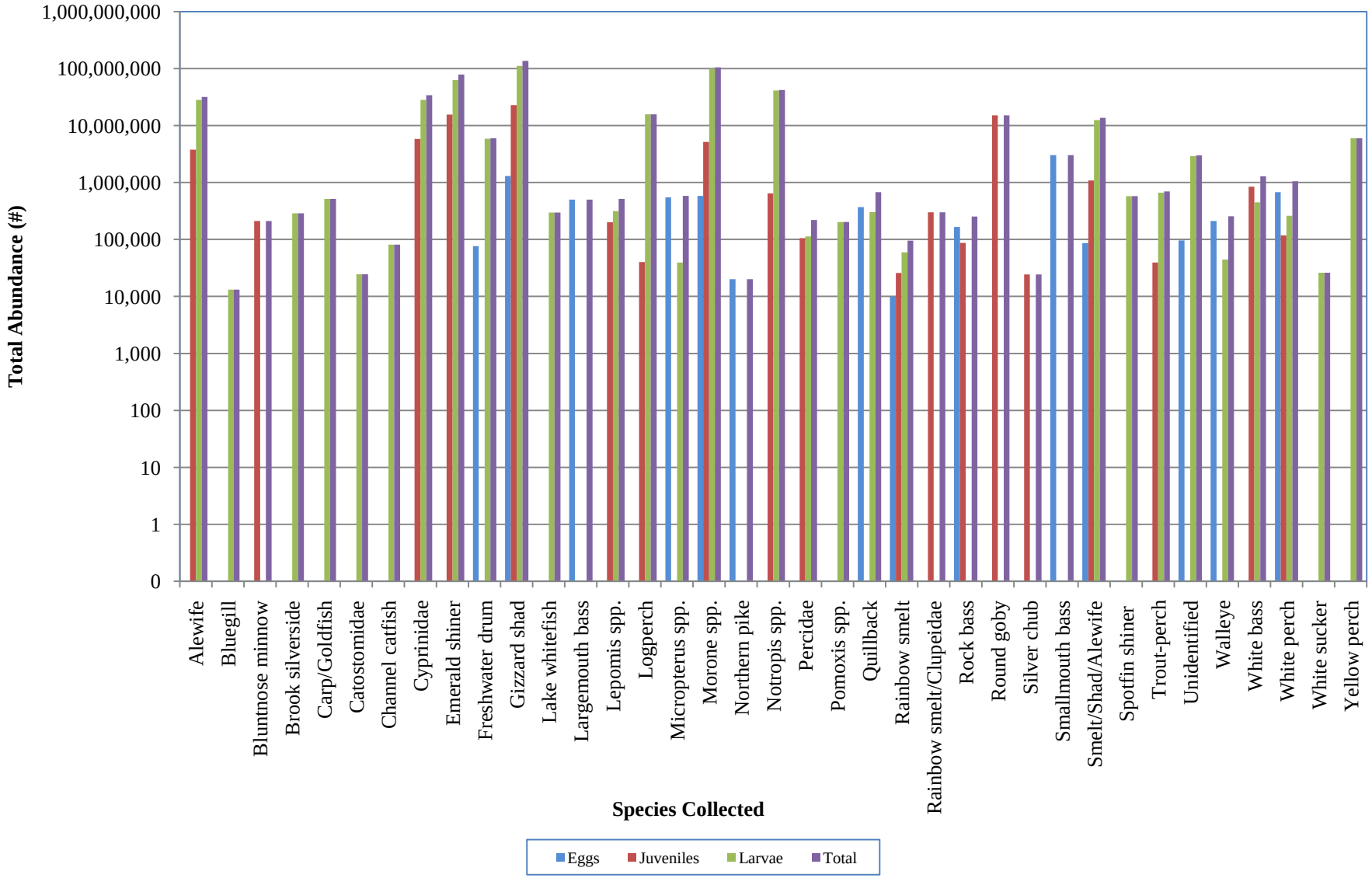


FIGURE 4-21
Entrainment - Number of Larval and Juvenile Fish Entrained Daily Expanded to Maximum Design Flow
Monroe Power Plant

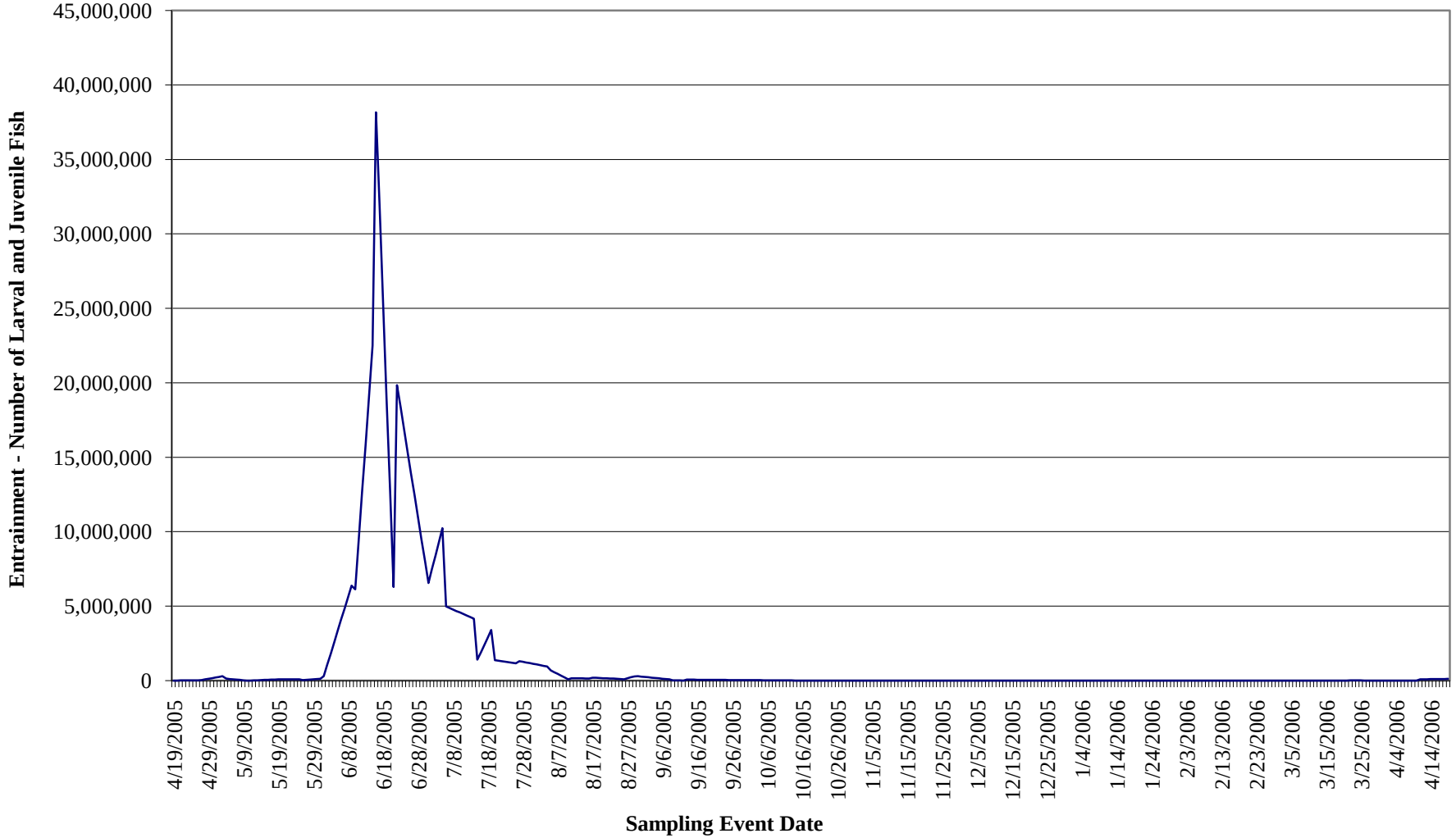


FIGURE 4-22
Entrainment - Percent of Total Number of Larval and Juvenile Fish Expanded to Maximum Design Flow
Monroe Power Plant

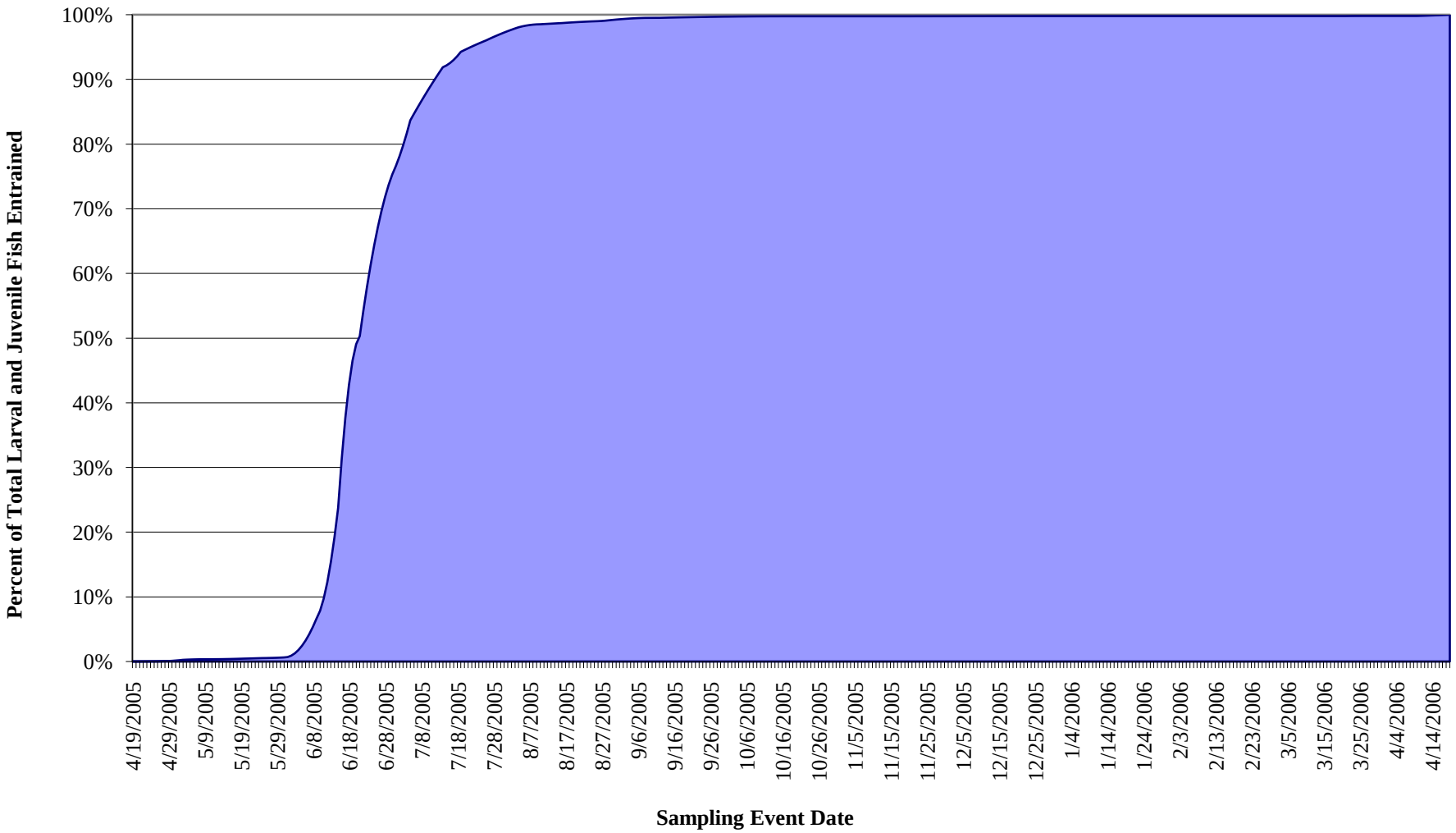


FIGURE 4-23
Entrainment - Number of Fish Eggs Entrained Daily Expanded to Maximum Design Flow
Monroe Power Plant

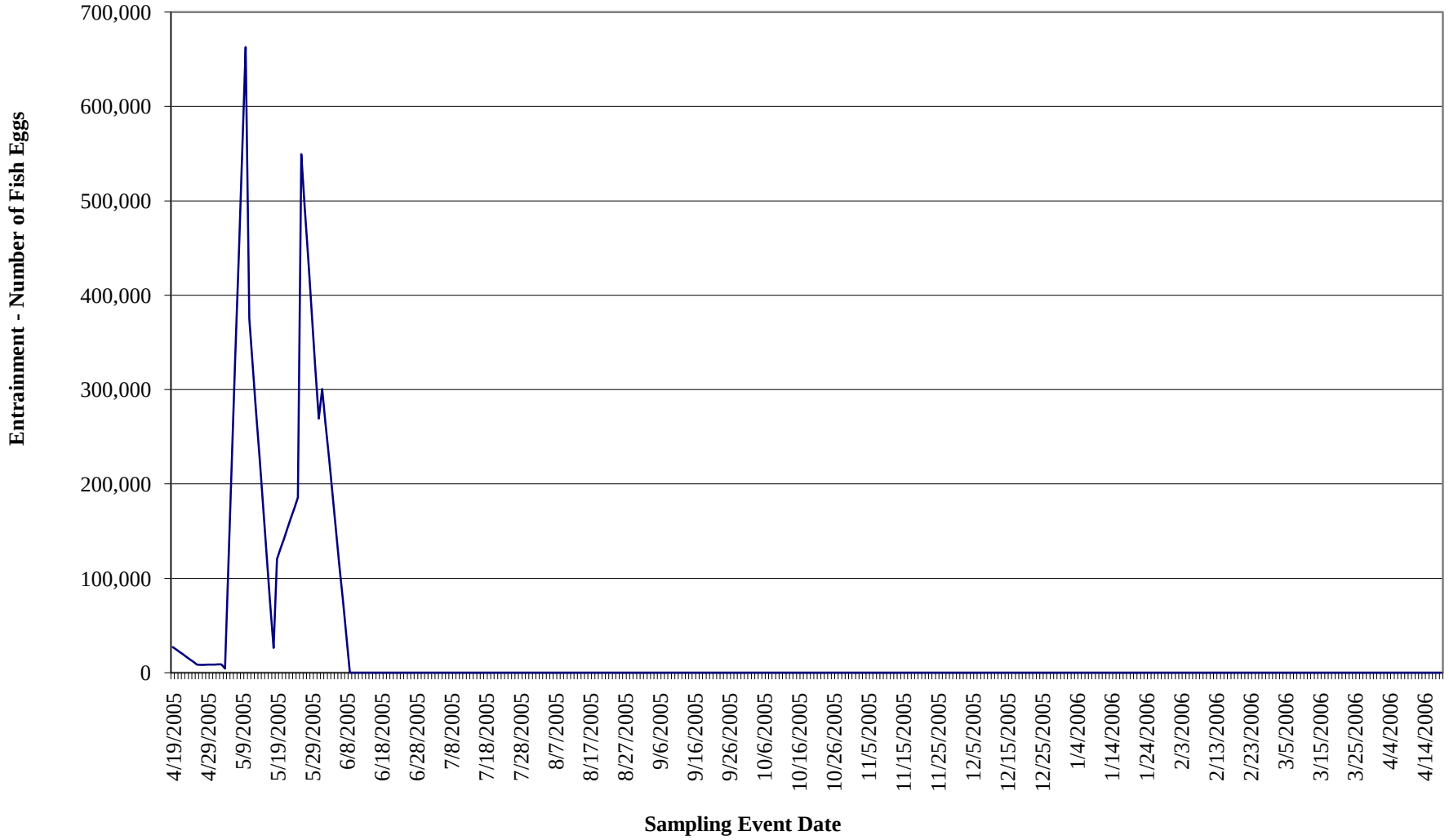


FIGURE 4-24
Entrainment - Percent of Total Number of Fish Eggs Expanded to Maximum Design Flow
Monroe Power Plant

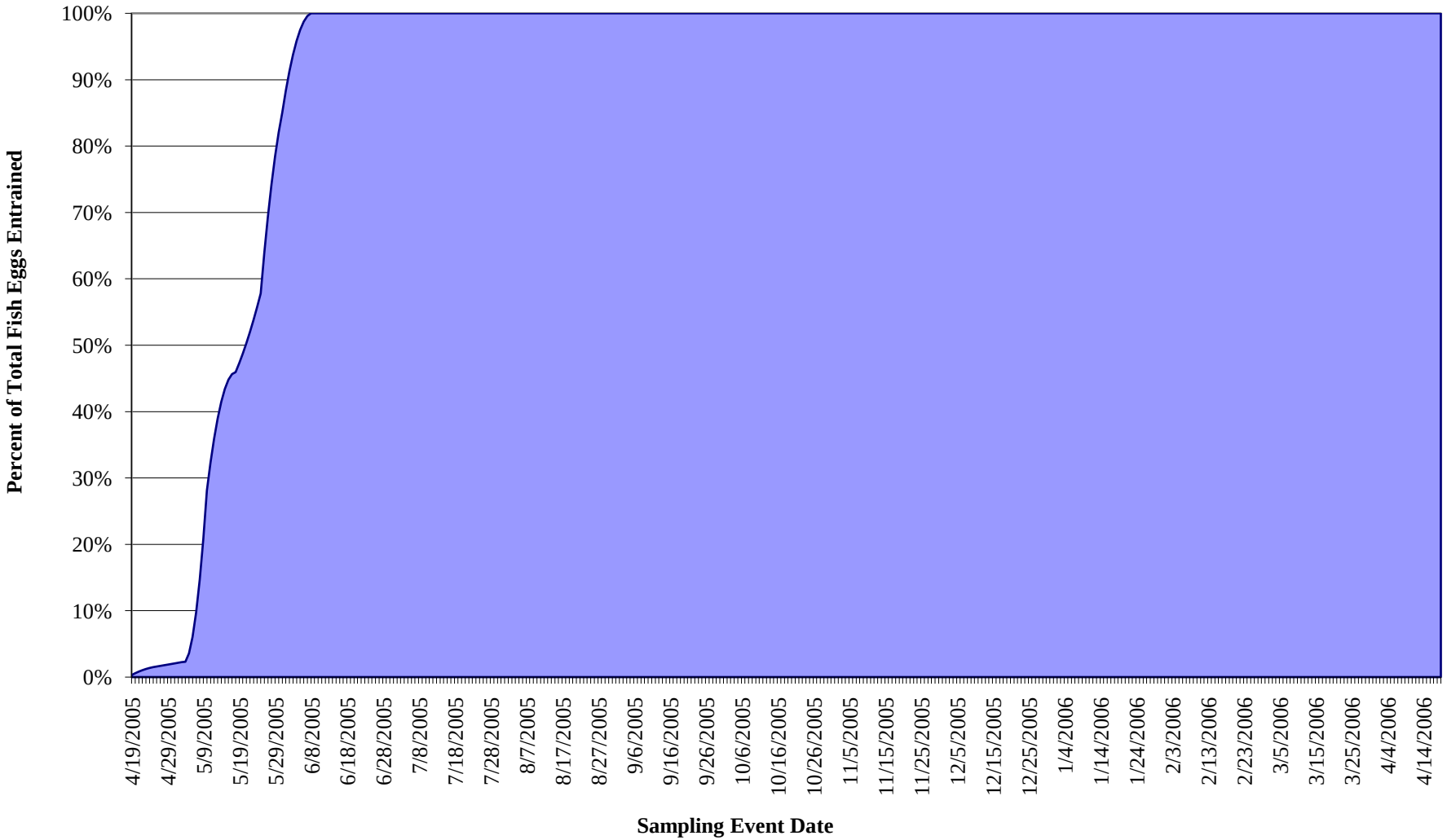


FIGURE 4-25
Impingement - Number of Live and Recently Dead Fish Impinged Daily Expanded to Maximum Design Flow
Monroe Power Plant

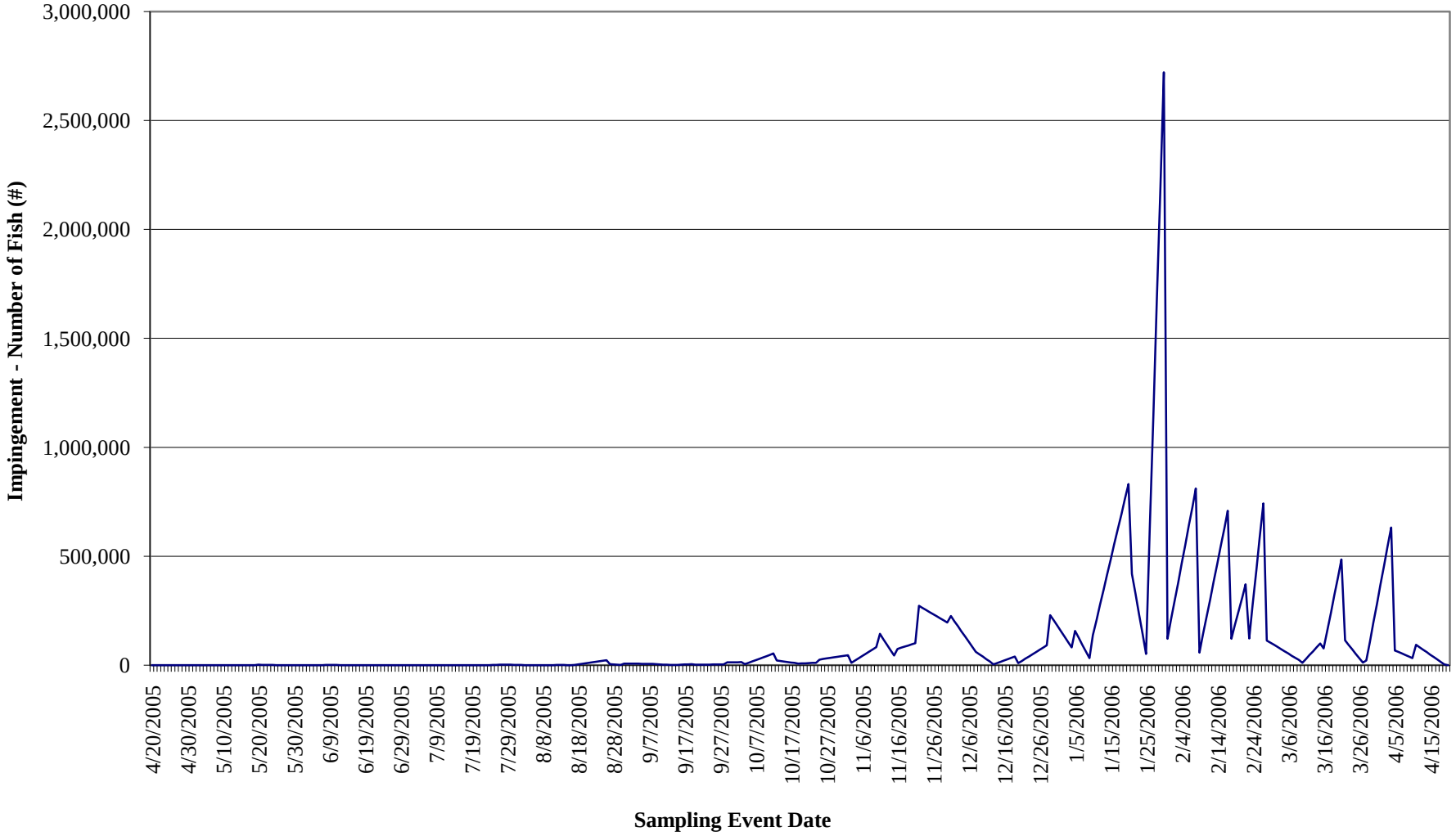


FIGURE 4-26
Impingement - Biomass (kg) of Live and Recently Dead Fish Impinged Daily Expanded to Maximum Design Flow
Monroe Power Plant

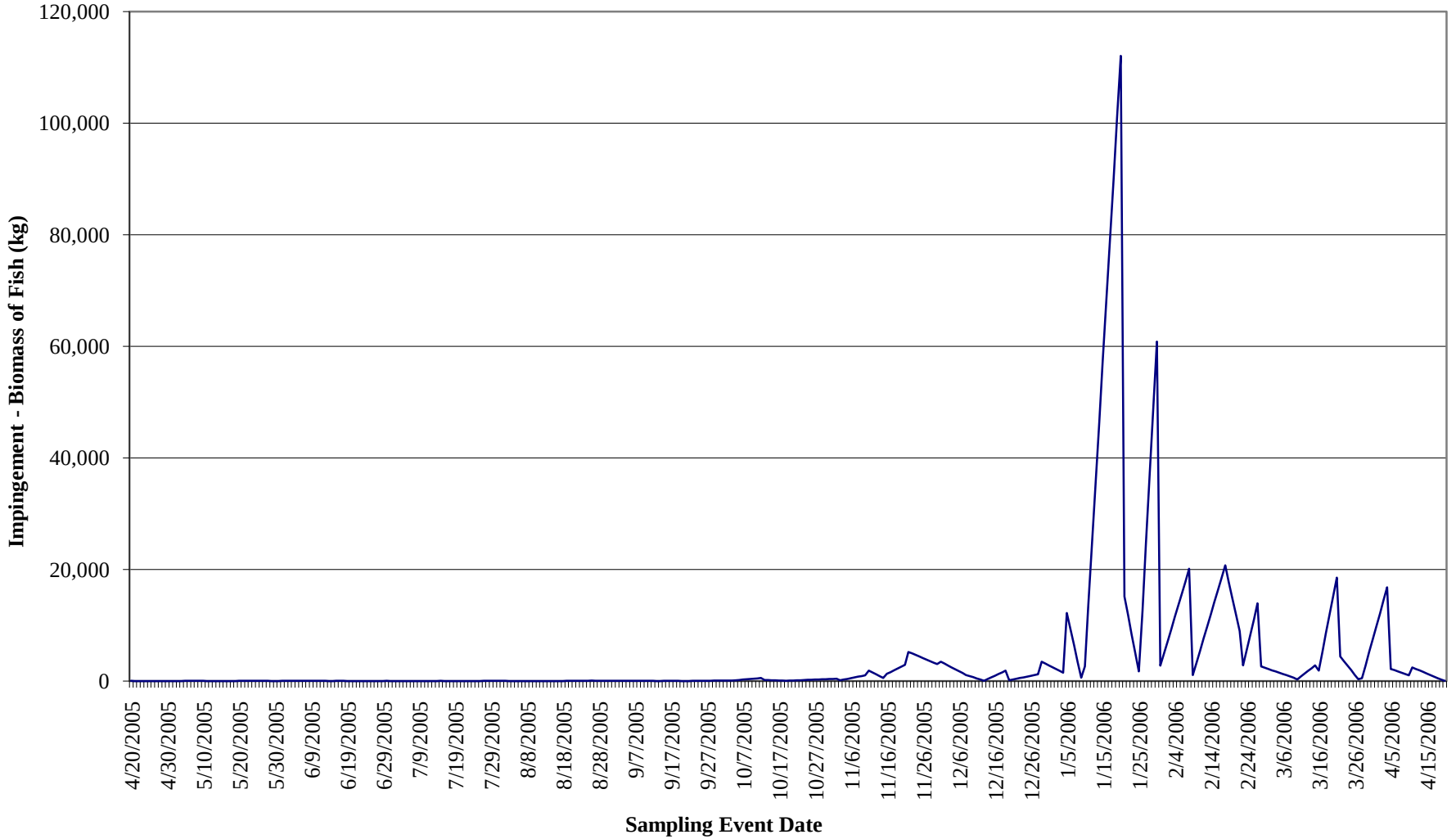


FIGURE 4-27
Impingement - Percent of Total Number of Live and Recently Dead Fish Expanded to Maximum Design Flow
Monroe Power Plant

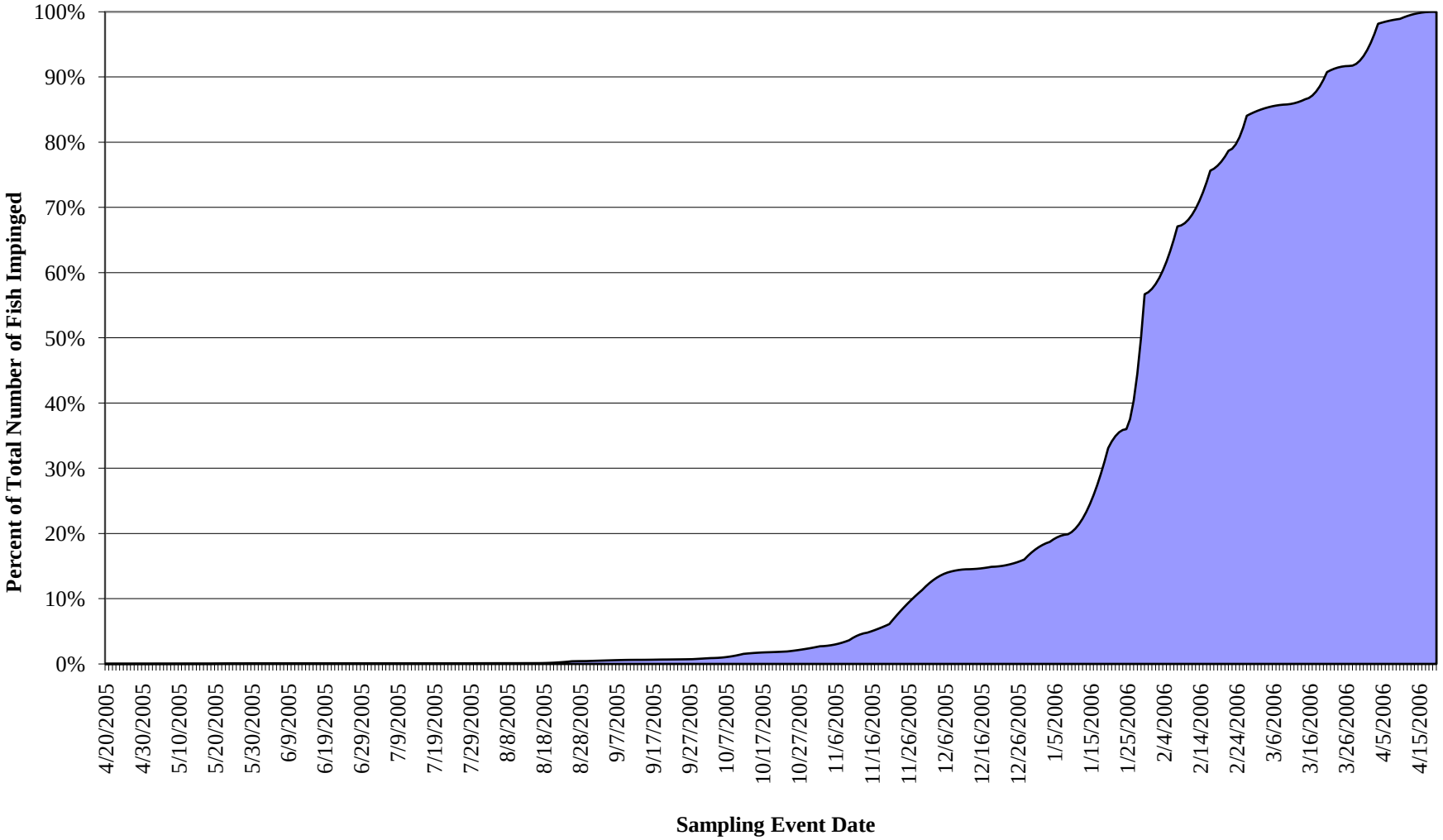


FIGURE 4-28
Impingement - Percent of Total Biomass of Live and Recently Dead Fish Expanded to Maximum Design Flow
Monroe Power Plant

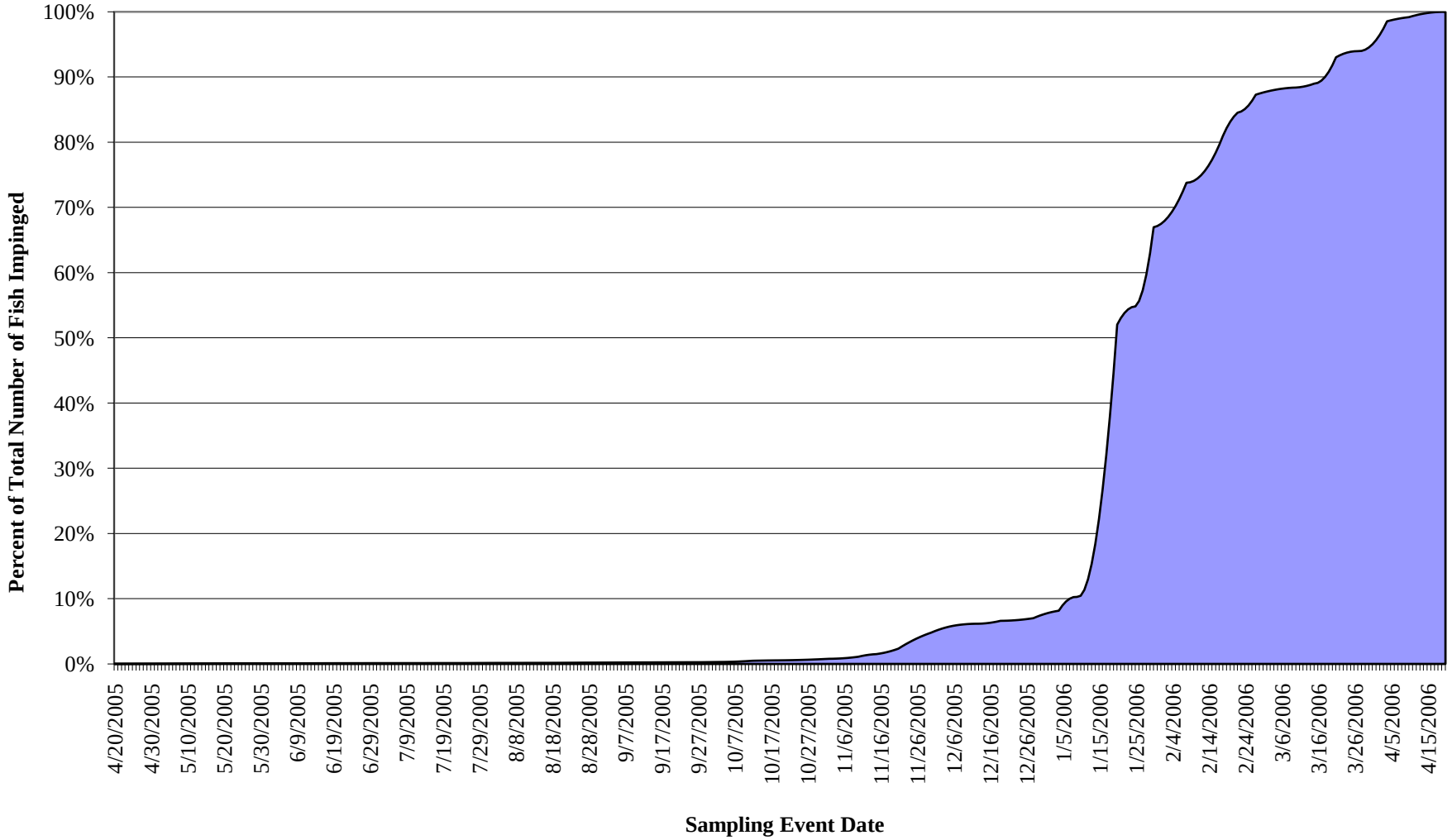


FIGURE 4-29
Impingement - Number of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Impinged Daily Expanded to Maximum Design Flow
Monroe Power Plant

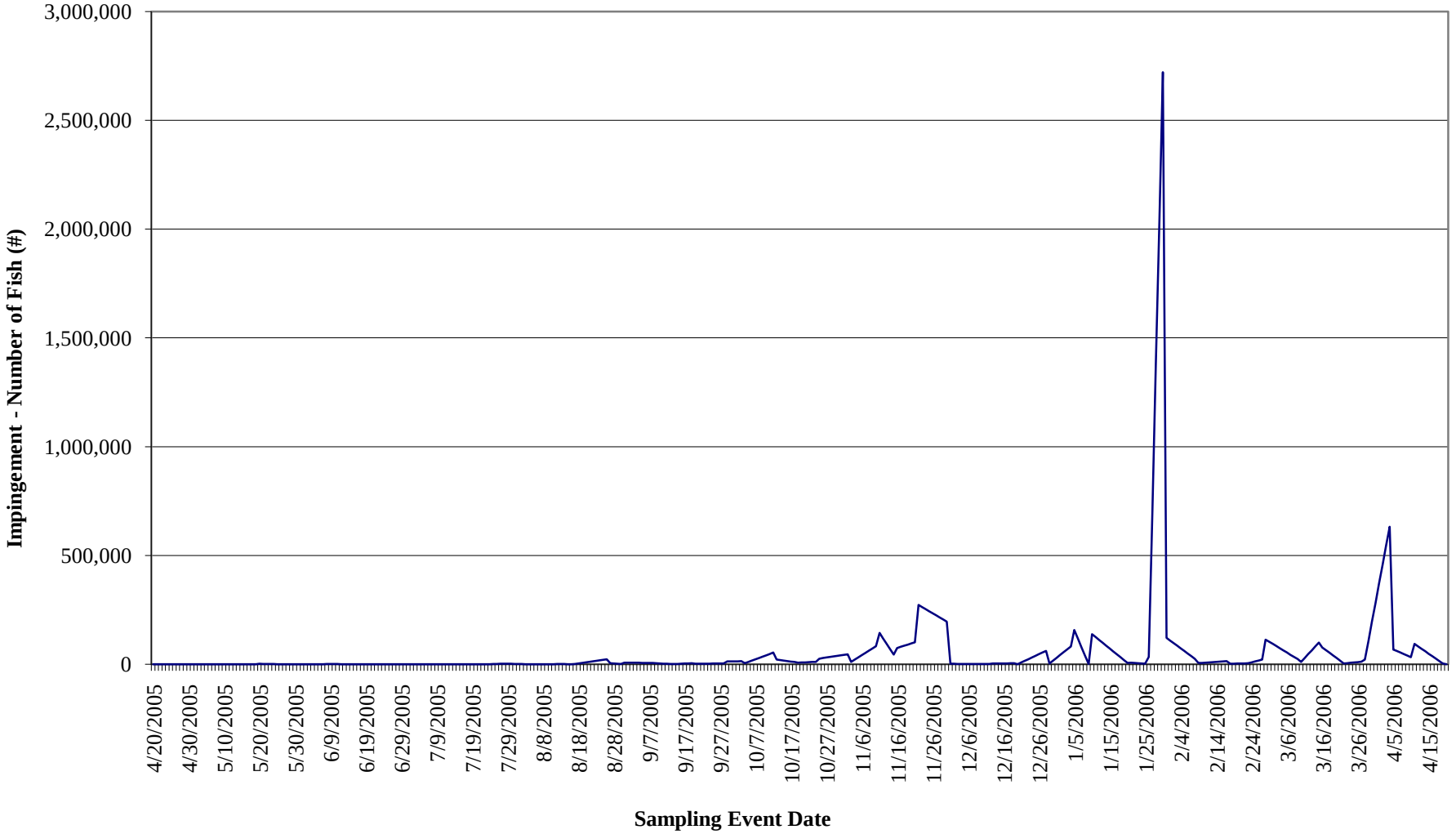


FIGURE 4-30
Impingement - Biomass (kg) of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Impinged Daily Expanded to Maximum Design Flow
Monroe Power Plant

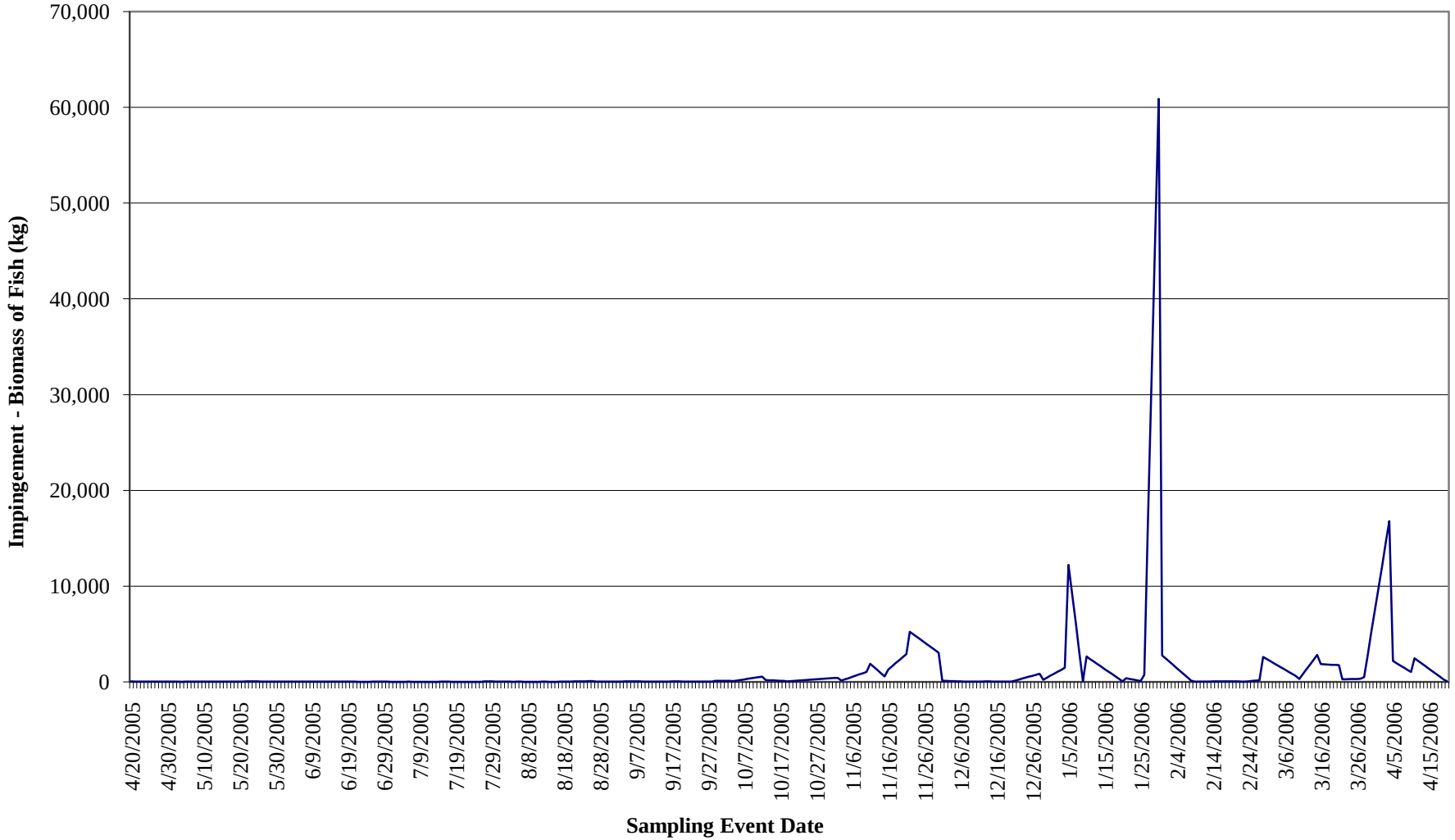


FIGURE 4-31
Impingement - Percent of Total Number of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Expanded to Maximum Design Flow
Monroe Power Plant

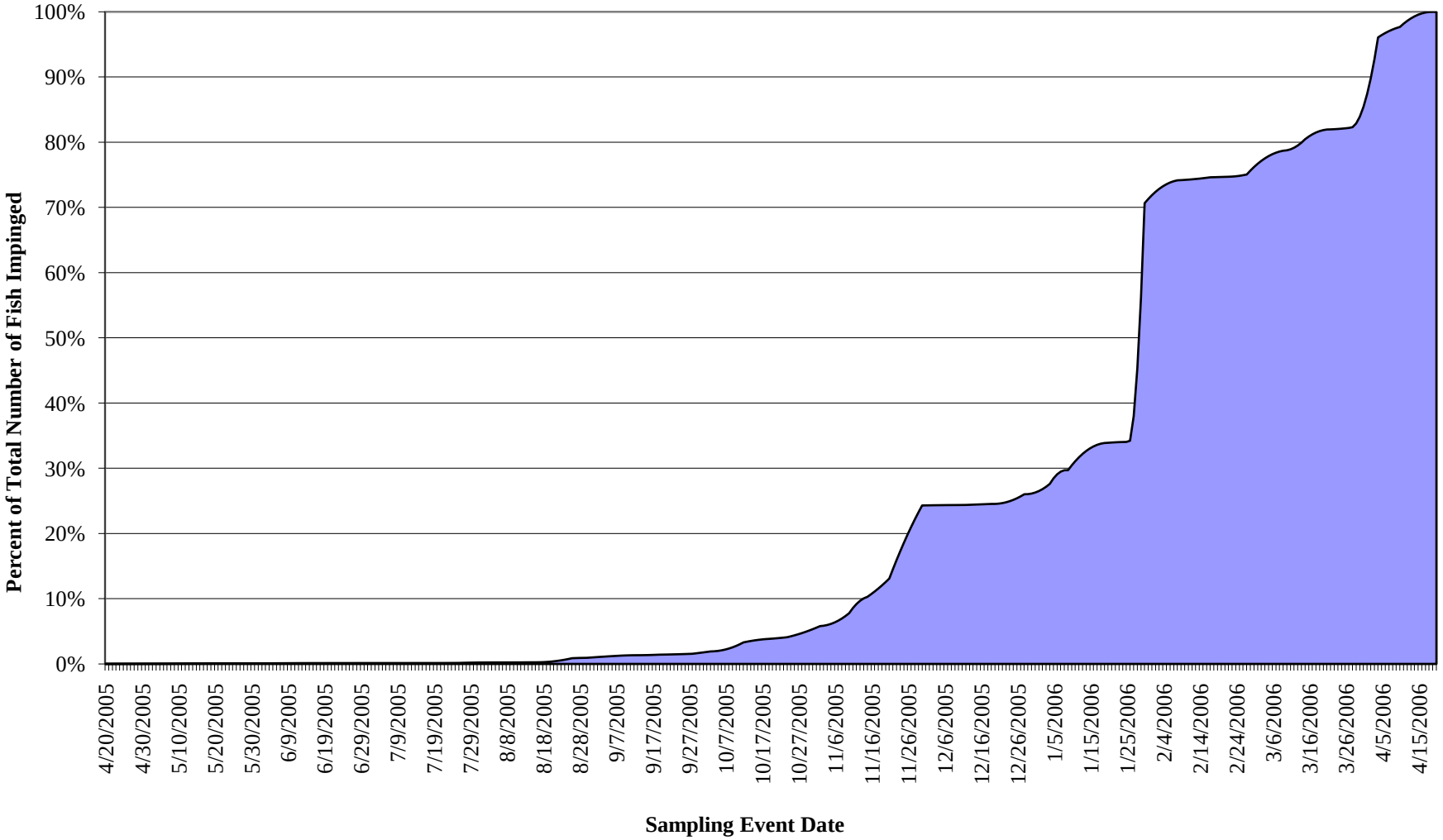


FIGURE 4-32
Impingement - Percent of Total Biomass of Live and Recently Dead Fish, Excluding Gizzard Shad Susceptible to Temperature-Induced Stress, Expanded to Maximum Design Flow
Monroe Power Plant

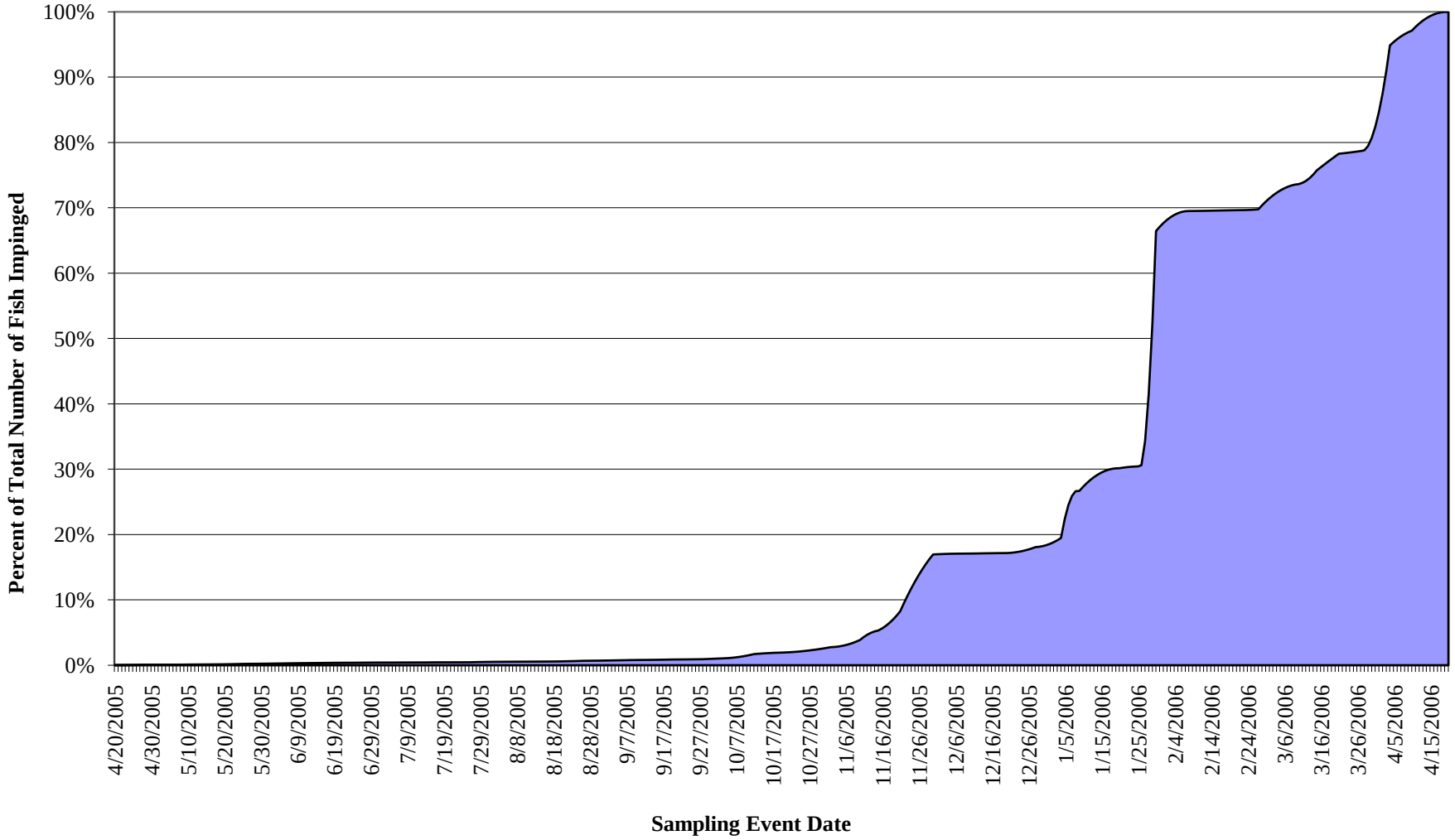


FIGURE 4-33
Entrainment - Number of Larval and Juvenile Fish Considered Representative Species Entrained Daily Expanded to Maximum Design Flow
Monroe Power Plant

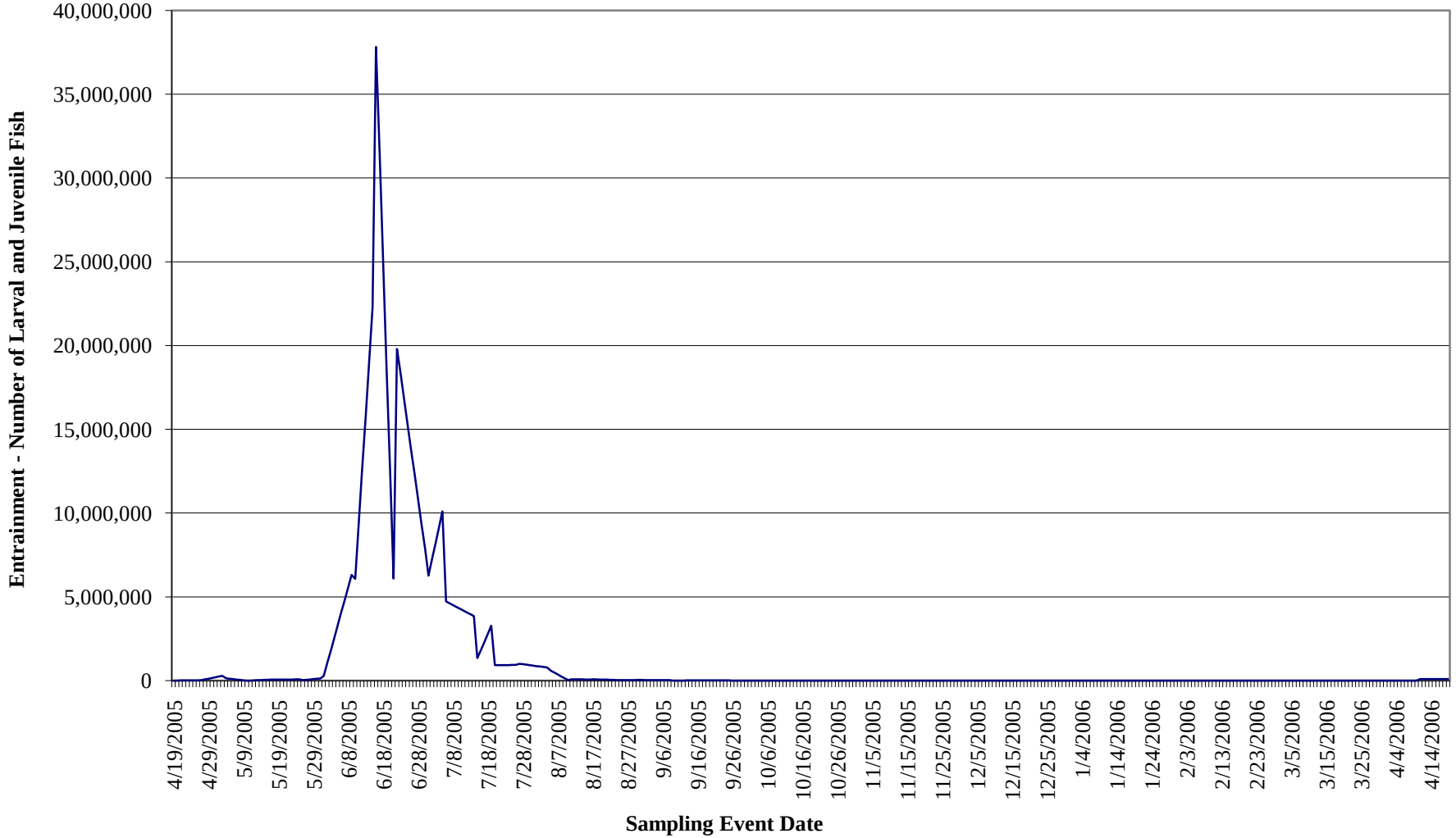


FIGURE 4-34
Entrainment - Percent of Total Number of Larval and Juvenile Fish Considered Representative Species
Expanded to Maximum Design Flow
Monroe Power Plant

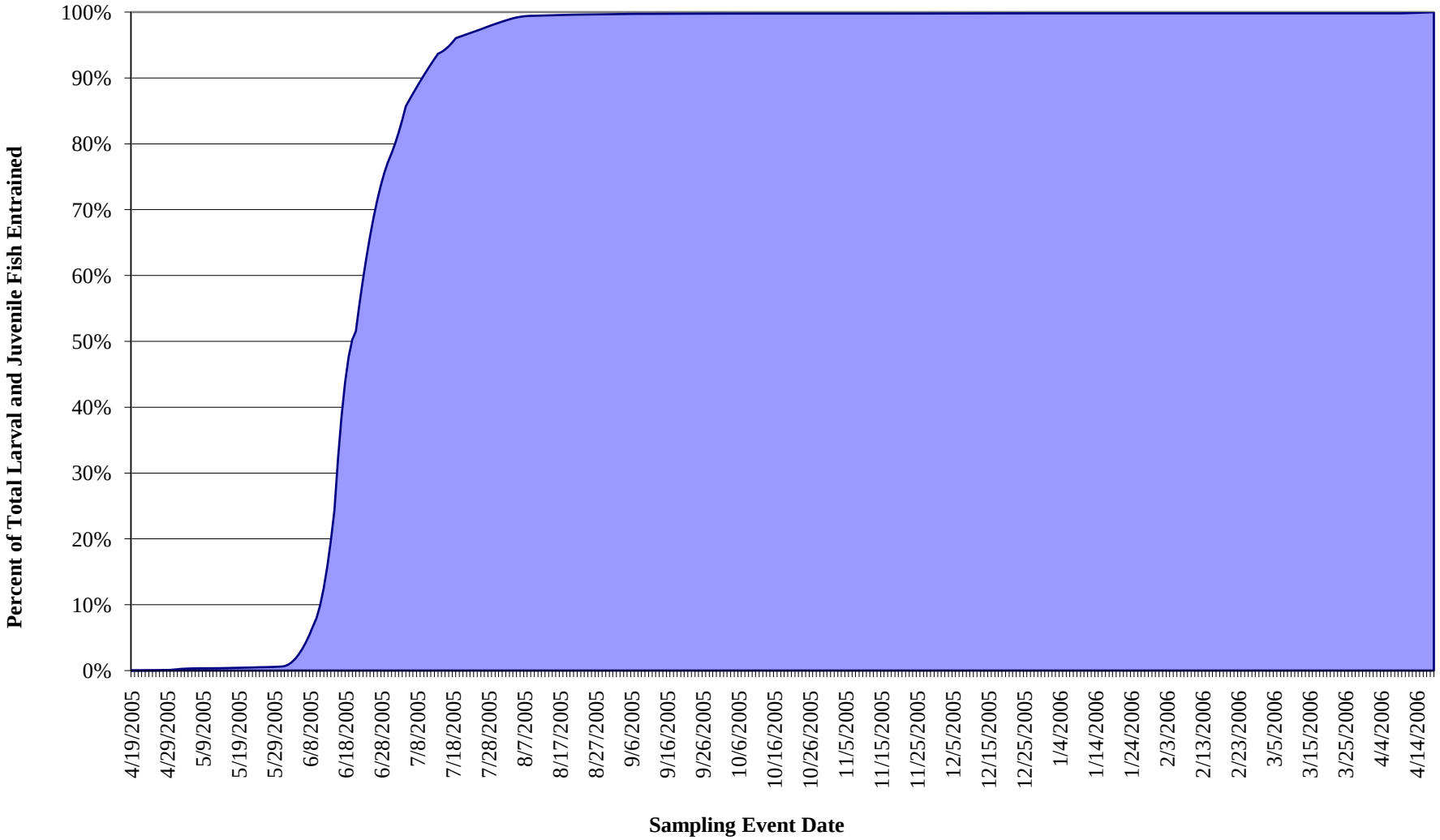


FIGURE 4-35
Entrainment - Number of Fish Eggs Considered Representative Species Entrained Daily Expanded to Maximum Design Flow
Monroe Power Plant

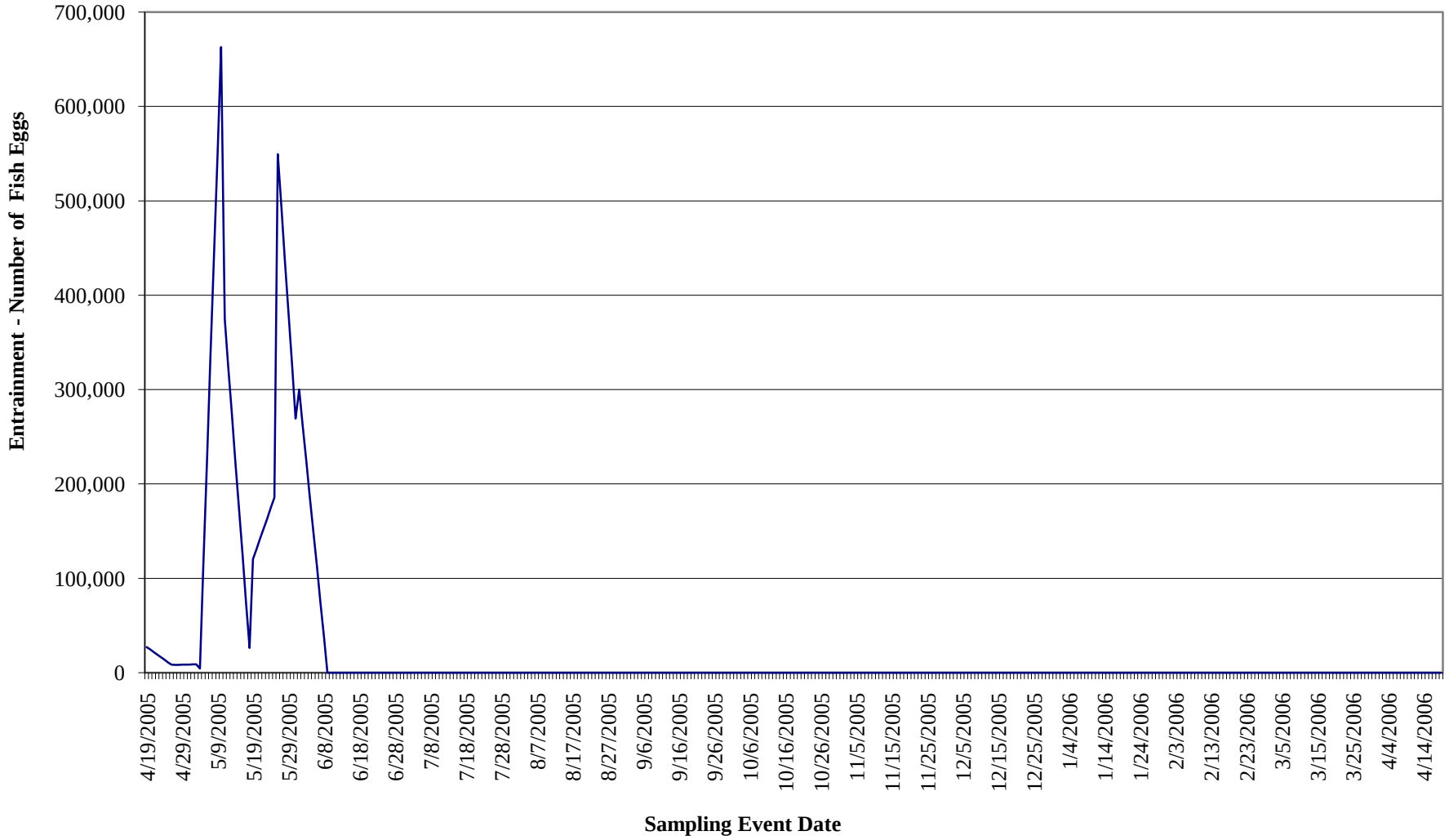


FIGURE 4-36
Entrainment - Percent of Total Number of Fish Eggs Considered Representative Species Expanded to Maximum Design Flow
Monroe Power Plant

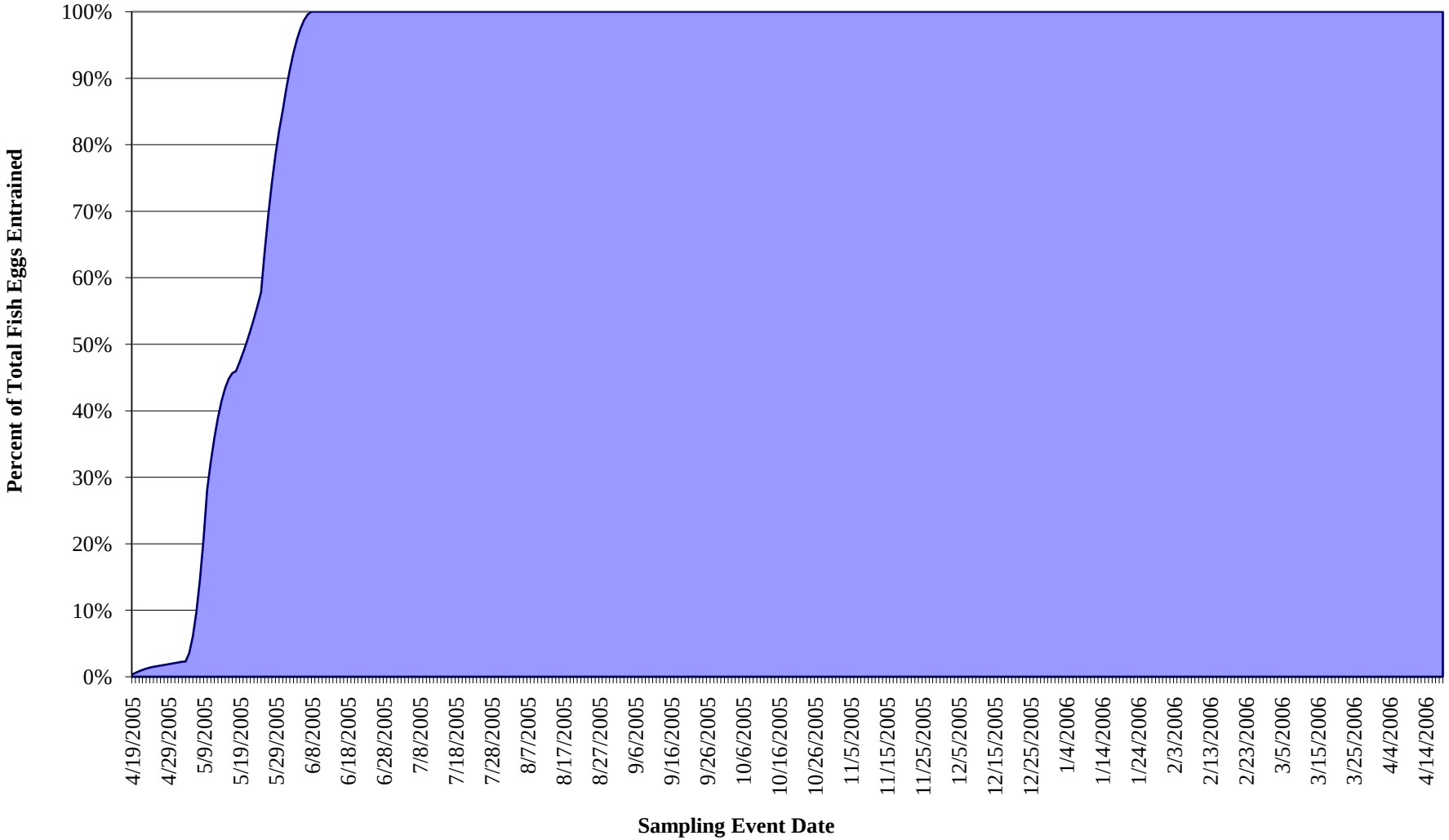


FIGURE 4-37
Impingement - Number of Live and Recently Dead Fish Considered Representative Species Impinged
Daily Expanded to Maximum Design Flow
Monroe Power Plant

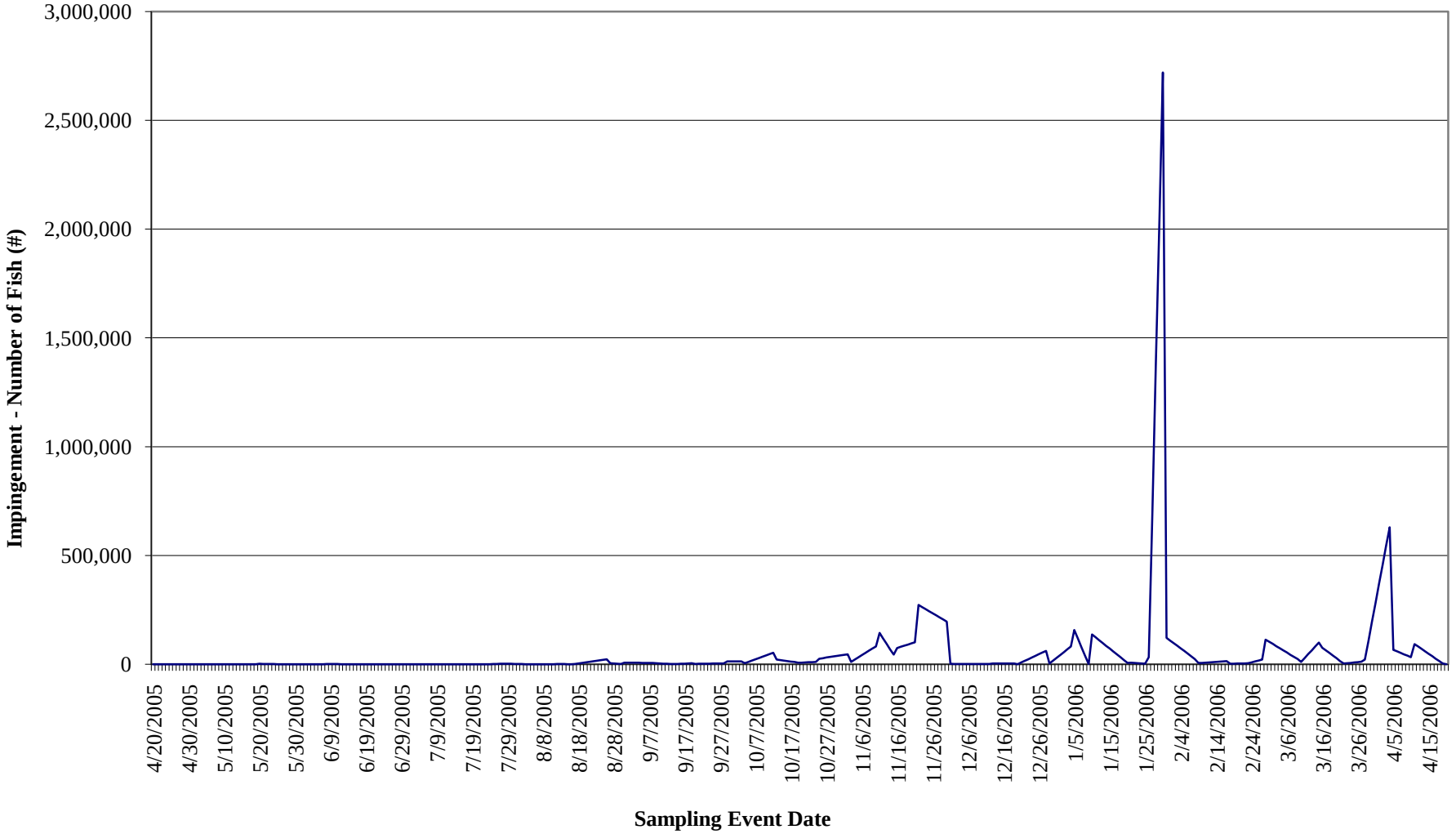


FIGURE 4-38
Impingement - Biomass (kg) of Live and Recently Dead Fish Considered Representative Species
Impinged Daily Expanded to Maximum Design Flow
Monroe Power Plant

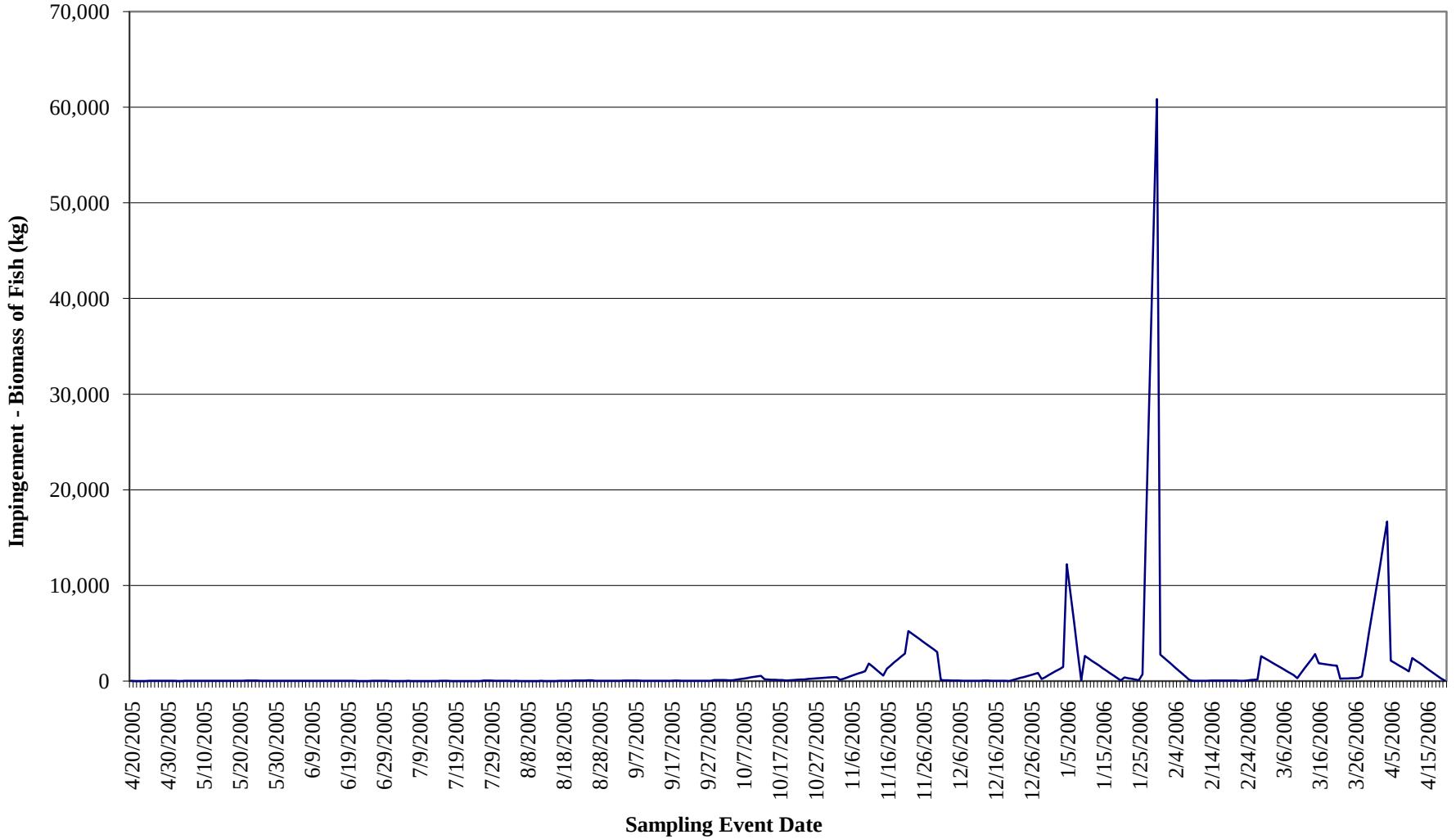


FIGURE 4-39
Impingement - Percent of Total Number of Live and Recently Dead Fish Considered Representative Species Expanded to Maximum Design Flow
Monroe Power Plant

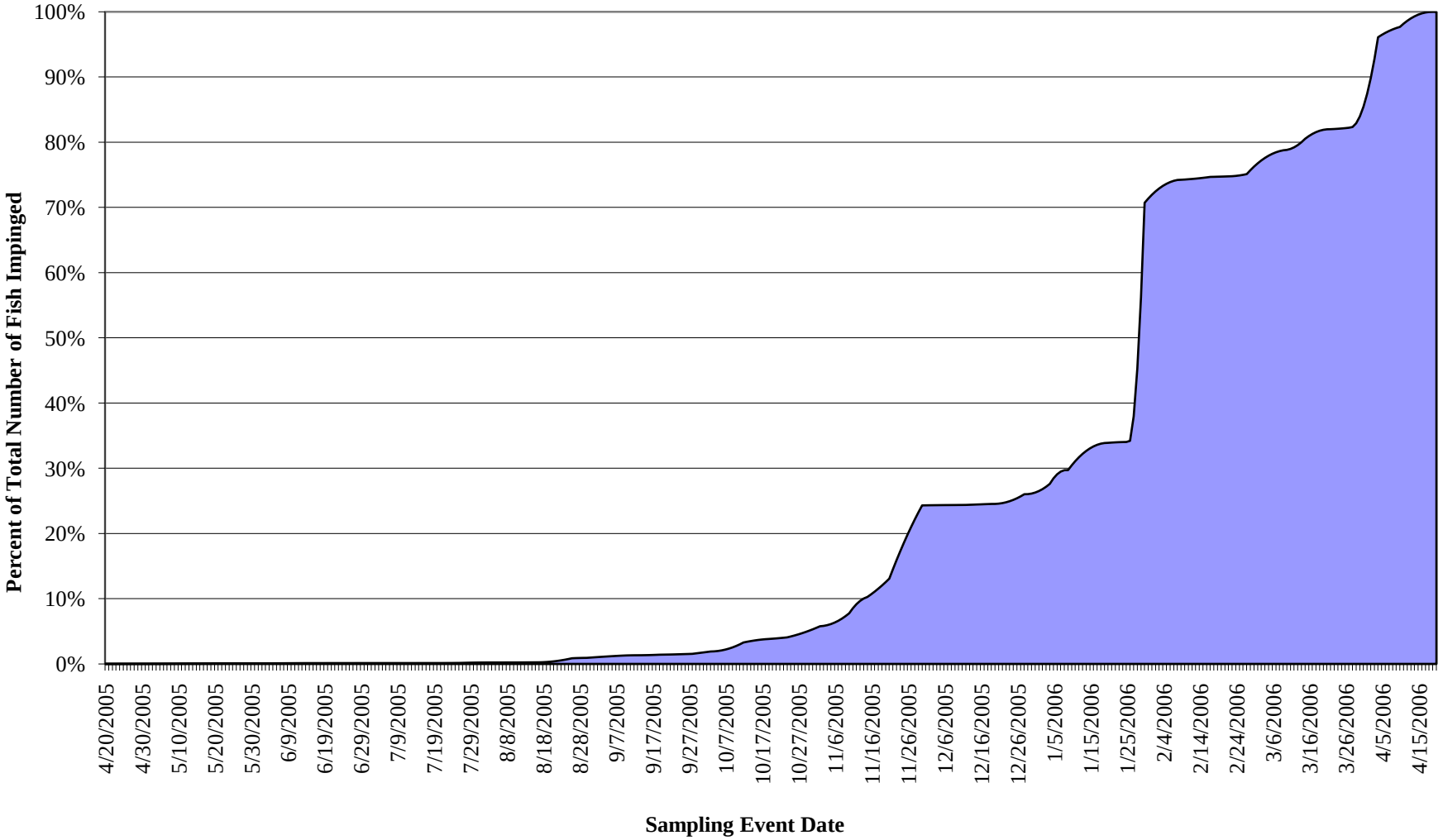
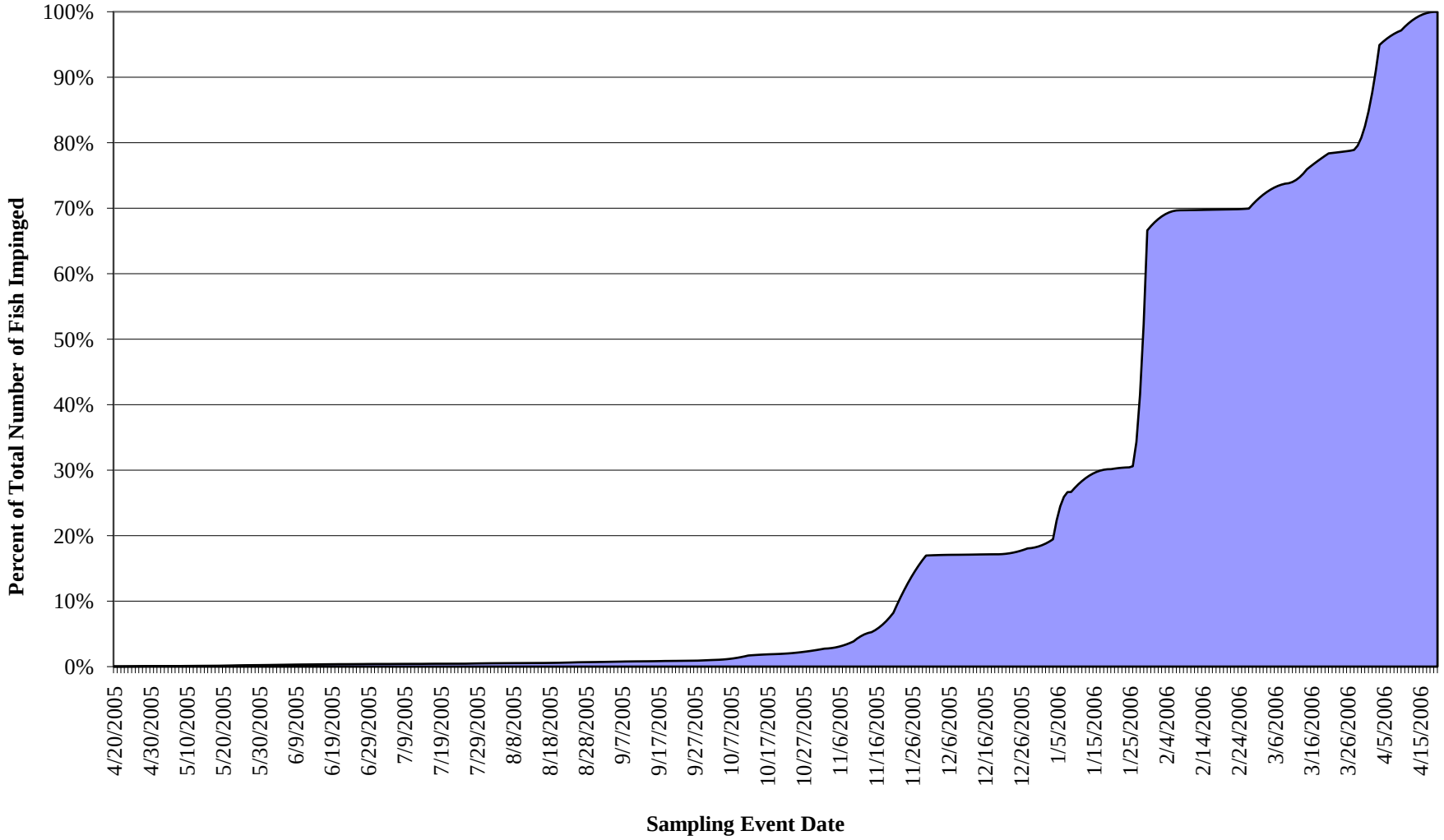


FIGURE 4-40
Impingement - Percent of Total Biomass of Live and Recently Dead Fish Considered Representative Species Expanded to Maximum Design Flow
Monroe Power Plant



APPENDIX A

HYDRAULIC ZONE OF INFLUENCE IN AN OPEN BODY OF WATER

Appendix A - Hydraulic Zone of Influence in an Open Body of Water

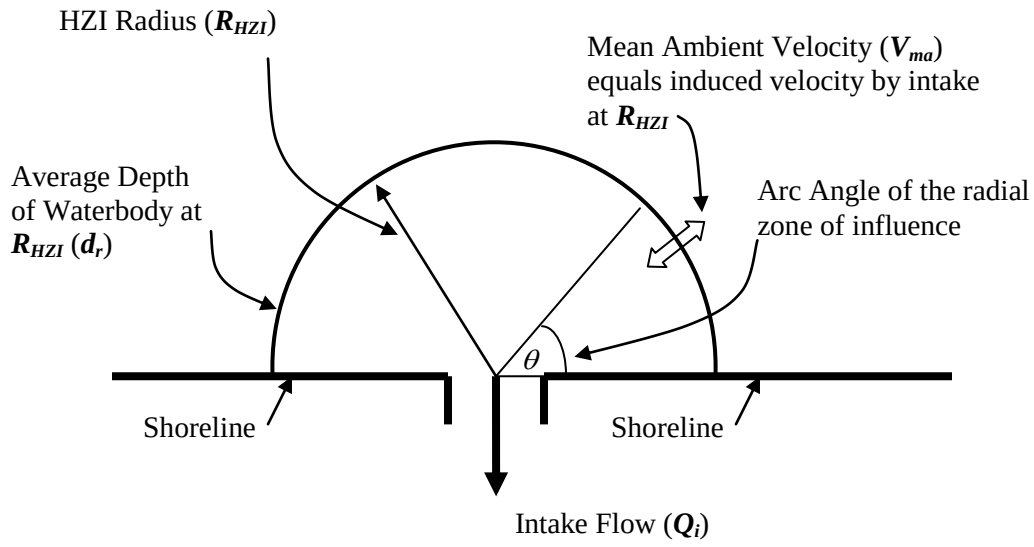


Figure 1: Hydraulic Zone of Influence Definition Sketch

In this scenario, the HZI is defined as the location where the mean ambient wind-induced velocity (V_{ma}) in the source waterbody is equal to the velocity induced by the intake. Beyond this point, the wind-induced currents will dominate the flow patterns. The radial distance from the intake structure at the shoreline to the dividing line that defines the boundary of the Hydraulic Zone of Influence in an open body of water, R_{HZI} (see definition sketch above), can be estimated from continuity using the following formulas:

$$Q_i = (\theta / 180) \times \pi \times R_{HZI} \times d_r \times V_{ma} \quad (1)$$

Rearranging terms in equation (1) gives:

$$R_{HZI} = (Q_i) \times (180/\theta)/(\pi \times d_r \times V_{ma}) \quad (2)$$

Wind induced surface drift velocities are typically 2 to 3 percent of the average wind speed (Wiegel, 1964). Therefore, under conditions of a gentle breeze (average wind speed of 8 - 12 miles per hour) the surface drift velocity would be **0.2 ft/s to 0.5 ft/s**. The mean ambient velocity (i.e., the velocity averaged over the depth of the water column) will be less than the surface drift velocity. The relationship will depend on many factors including the speed and duration of the wind, and the depth of the water. In coastal waters, the mean velocity is typically **40 to 60 percent** of the surface drift current. Therefore, 0.1 ft/s to 0.3 ft/s represent reasonable estimates of V_{ma} for wind induce currents. These values are also typical of **net** tidal induced currents (peak flood and ebb tide currents are often much greater). In other words, at a location where the intake induced velocity is less than 0.1 ft/s to 0.3 ft/s, the ambient wind-induced currents and/or tidal

drift currents likely will dominate the flow patterns and the “hydraulic influence” of the intake will no longer be significant.

Wiegel, Robert L., *Oceanographic Engineering*, Prentice-Hall, Inc, Englewood Cliffs, N.J., 1964

APPENDIX B

MONROE POWER PLANT
FISH ENTRAINMENT AND IMPINGEMENT STUDY REPORT

MONROE POWER PLANT
FISH ENTRAINMENT AND IMPINGEMENT STUDY REPORT

Kinectrics Report: 011523-001-RA-0018-R00

November 27, 2006

D.D. Ager, P.H. Patrick
Environmental Technologies Solutions

PRIVATE INFORMATION
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Kinectrics North America, Inc., 800 Kipling Avenue
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MONROE POWER PLANT
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D.D. Ager, P.H. Patrick
Environmental Technologies Solutions

Prepared by: _____ Date: 11/28/06
Darlene Ager
Senior Scientist
Environmental Technologies Solutions

Reviewed by: _____ Date: 11/28/06
G.P. Arron
Senior Scientist
Environmental Technologies Solutions

Approved by: _____ Date: 11/28/06
Y. Ngo
General Manager
Environmental Technologies Solutions

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EXECUTIVE SUMMARY

Section 316(b) of the Clean Water Act (CWA) requires that cooling water intake structures reflect the best technology available to protect aquatic organisms from being killed or injured by impingement (being pinned against screens or outer part of a cooling water intake structure) and, if applicable, entrainment (being drawn into cooling water systems and subjected to thermal, physical and/or chemical stresses). Phase II of the 316(b) rule for existing electric generating plants is designed to reduce impingement mortality by 80-95% and, if applicable, entrainment by 60-90%. To comply with this regulation, the Detroit Edison Company (DECO) recognized a need to perform a baseline assessment of fish eggs, fish larvae and older fish currently entrained and impinged at Monroe Power Plant (MONPP) located on Lake Erie.

This report provides a summary of entrainment and impingement data collected from April, 2005 to April, 2006. Results for the entrainment and impingement sampling program can be summarized as follows:

MONPP Entrainment:

- A total of 57 entrainment events were carried out between April 19, 2005 and April 19, 2006. A total of 370 fish eggs were collected at MONPP. It is estimated that a total of 7,666,947 fish eggs were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (7,585,294) and general service water volumes discharged at Outfalls 001B and 001F (81,653). The most abundant species were smallmouth bass (39.4%), gizzard shad (17.0%) and white perch (8.8%).

- A total of 10,689 larval fish were collected at MONPP. It is estimated that a total of 419,418,858 larval fish were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (414,892,637) and general service water volumes discharged at Outfalls 001B and 001F (4,526,221). The most abundant species were rainbow smelt/Clupeidae (36.4%), cyprinid group (31.9%) and *Morone spp.* (23.7%).

- A total of 1,766 entrainable juvenile fish were collected at MONPP. (Juvenile fish capable of passing through a 3/8-in mesh screen were considered to be entrainable). It is estimated that a total of 72,161,838 juvenile fish were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (71,364,667) and general service water volumes discharged at Outfalls 001B and 001F (797,171). The most abundant species were rainbow smelt/Clupeidae (38.8%), cyprinid group (30.9%) and round goby (21.1%).

MONPP Impingement:

- A total of 104 impingement events were carried out between April 20, 2005 and April 20, 2006. It is estimated that a total of 9,738,785 fish (255,974 kg) were impinged at MONPP SH1. The most abundant species were gizzard shad (91.6%), white perch (2.8%) and freshwater drum (2.2%).

- It is estimated that a total of 15,418,008 fish (530,320 kg) were impinged at MONPP SH2. The most abundant species were gizzard shad (96.4%), white perch (1.3%) and emerald shiner (0.7%).

- It is estimated that a total of 25,603,352 fish (800,619 kg) were impinged at MONPP. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (25,156,793 fish, 786,294 kg) and general service water volumes discharged at Outfalls 001B and 001F (446,559 fish, 14,325 kg). The most abundant species were gizzard shad (94.5%), white perch (1.8%) and emerald shiner (1.0%).

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY ..... **iv**

GLOSSARY OF TERMS ..... **xii**

1.0 INTRODUCTION **1**

2.0 METHODS **2**

2.1 Entrainment 2

2.1.1 Entrainment Sampling Protocol 2

2.1.3 Live/Dead Determinations 3

2.2 Impingement 5

2.2.1 Impingement Sampling Protocol 5

2.2.2 Fish Identification and Morphometrics 5

2.2.3 Fish Live/Dead Determination 5

2.2.4 Data Analysis 6

2.3 Water Quality and Meteorological Parameters 7

3.0 RESULTS AND DISCUSSION **8**

3.1 Egg Entrainment 8

3.1.1 Condition of Entrained Fish Eggs 8

3.1.2 Diel Distribution of Entrained Fish Eggs 8

3.2 Larval Fish Entrainment 13

3.2.1 Condition of Larval Fish 13

3.3 Juvenile Fish Entrainment 13

3.3.1 Condition of Juvenile Fish 13

3.3.2 Diel Distribution of Entrained Specimens 20

3.3.3 Length Distribution of Entrained Specimens 20

3.4 Fish Impingement 20

3.4.1 Condition of Impinged Fish 20

3.4.2 Length Distribution of Impinged Fish 40

3.5 QA/QC for Larval Fish Identification 40

3.6 QA/QC for Fish Impingement Subsampling 40

3.7 Species List 40

3.8 Water Quality and Meteorological Parameters 40

4.0 REFERENCES **45**

TABLES

		Page
Table 1	Entrainment Sampling Plan for Monroe Power Plant	2
Table 2	Estimated Number of Fish Eggs Entrained each Month at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	9
Table 3	Estimated Number of Larval Fish Entrained each Month at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	14
Table 4	Estimated Number of Entrainable Juvenile Fish Entrained each Month at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	15
Table 5	Estimated Number of Fish Impinged each Month at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)	25
Table 6	Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)	26
Table 7	Estimated Number of Fish Impinged each Month at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)	27
Table 8	Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)	28
Table 9	Estimated Number of Fish Impinged each Month at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)	29
Table 10	Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)	30
Table 11	List of Taxa Entrained and Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	41
Table 12	Summary of Water Quality and Air Temperature Data Collected During Entrainment and Impingement Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	43

FIGURES

Page

Figure 1 Entrainment Sampling-Live/Dead Determinations 4

Figure 2 Total Extrapolated Number of Fish Eggs Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – June, 2005) 10

Figure 3 Total Extrapolated Number of Fish Eggs Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (April – June, 2005) 11

Figure 4 Diel Distribution of Fish Eggs Entrained at Monroe Power Plant, Monroe County, Michigan (April – June, 2005) 12

Figure 5 Total Extrapolated Number of Larval Fish Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – September, 2005) 16

Figure 6 Total Extrapolated Number of Larval Fish Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (April 2005 – April, 2006) 17

Figure 7 Total Extrapolated Number of Entrainable Juvenile Fish Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – September, 2005) 18

Figure 8 Total Extrapolated Number of Entrainable Juvenile Fish Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (May 2005 – September 2006) 19

Figure 9 Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – September, 2005) 21

Figure 10 Diel Distribution of Gizzard Shad Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – August, 2005) 22

Figure 11 Diel Distribution of *Morone spp.* Larval and Entrainable Juvenile Fish Entrained At Monroe Power Plant, Monroe County, Michigan (April – August, 2005) 23

Figure 12 Diel Distribution of Emerald Shiner Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – September, 2005) 24

Figure 13 Total Extrapolated Number of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006) 31

Figure 14 Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006) 32

Figure 15 Total Extrapolated Number of Fish Impinged on a Weekly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006) 33

Figure 16 Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006) 34

FIGURES

Page

Figure 17 Total Extrapolated Number of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006) 35

Figure 18 Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006) 36

Figure 19 Total Extrapolated Number of Fish Impinged on a Monthly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April, 2006) ... 37

Figure 20 Total Extrapolated Number of Fish Impinged on a Monthly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April, 2006) ... 38

Figure 21 Total Extrapolated Number of Fish Impinged on a Monthly Basis at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April, 2006) 39

Figure 22 Comparison of Influent Temperature versus Daily Numbers of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 44

APPENDICES

Page

APPENDIX 1 Preservative for Egg and Larval Fish Samples 46

APPENDIX 2 Cooling Water Volumes for Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 47

APPENDIX 3 Monthly Cooling Water and General Service Water Volumes for Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 60

APPENDIX 4 Estimated Daily Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 61

APPENDIX 5 Estimated Weekly Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 64

APPENDIX 6 Estimated Monthly Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 67

APPENDIX 7 Diel Distribution of Fish Eggs Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 68

APPENDIX 8 Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 69

APPENDIX 9 Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 79

APPENDIX 10 Estimated Monthly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 85

APPENDIX 11 Estimated Weekly Entrainment of Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 89

APPENDIX 12 Estimated Monthly Entrainment of Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 93

APPENDIX 13 Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 95

APPENDIX 14 Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006) 99

APPENDIX 15 Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County SH1, Michigan (April 2005 – April 2006) 110

APPENDIX 16 Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County SH1, Michigan (April 2005 – April 2006) 131

APPENDIX 17 Estimated Weekly Impingement of Fish at Monroe Power Plant SH1 Monroe County, Michigan (April 2005 – April 2006) 154

APPENDICES

		Page
APPENDIX 18	Estimated Weekly Impingement of Fish at Monroe Power Plant SH2 Monroe County, Michigan (April 2005 – April 2006)	169
APPENDIX 19	Estimated Monthly Impingement of Fish at Monroe Power Plant SH1 Monroe County, Michigan (April 2005 – April 2006)	185
APPENDIX 20	Estimated Monthly Impingement of Fish at Monroe Power Plant SH2 Monroe County, Michigan (April 2005 – April 2006)	193
APPENDIX 21	Estimated Monthly Impingement of Fish at Monroe Power Plant Monroe County, Michigan (April 2005 – April 2006)	201
APPENDIX 22	Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	213
APPENDIX 23	Quality Assessment of Larval Fish Identification Monroe Power Plant	237
APPENDIX 24	QA/QC for Fish Impingement Subsampling Monroe Power Plant (April 2005 – April 2006)	244
APPENDIX 25	Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)	248

GLOSSARY OF TERMS

MGD	million gallons per day
SH1	screenhouse 1
SH2	screenhouse 2
YOY	young-of-the-year
YSL	yolk-sac larvae
PYSL	post-yolk-sac larvae
JUV	juvenile
TL	total length

To: Detroit Edison Company
2000 2nd Avenue
Detroit, Michigan
48226

MONROE POWER PLANT
FISH ENTRAINMENT AND IMPINGEMENT STUDY REPORT

1.0 INTRODUCTION

Section 316(b) of the Clean Water Act (CWA) requires that cooling water intake structures reflect the best technology available to protect aquatic organisms from being killed or injured by impingement (being pinned against screens or outer part of a cooling water intake structure) and, if applicable, entrainment (being drawn into cooling water systems and subjected to thermal, physical and/or chemical stresses). Phase II of the 316(b) rule for existing electric generating plants is designed to reduce impingement mortality by 80-95% and, if applicable, entrainment by 60-90%. To comply with this regulation, the Detroit Edison Company (DECO) recognized a need to perform a baseline assessment of fish eggs, fish larvae and older fish currently entrained and impinged at Monroe Power Plant (MONPP) located on Lake Erie.

The most recent impingement and entrainment studies conducted at Monroe Power Plant (MONPP) were approximately 20 years ago (University of Michigan, 1983; Michigan Department of Natural Resources, 1987). DECO funded a study that was conducted nearly 30 years ago (Detroit Edison Company, 1976). The focus of the current study was to provide a baseline assessment of fish eggs, fish larvae and older fish currently entrained and impinged at MONPP. This report provides a summary of entrainment and impingement data collected from April, 2005 to April, 2006.

2.0 METHODS

2.1 Entrainment

2.1.1 Entrainment Sampling Protocol

Entrainment sampling was conducted at the discharge canal of the Monroe Power Plant using the protocol specified by Golder Associates (2004), and subsequently revised per a memorandum of understanding that was developed based on February 7, 2005 discussions between DECO and the permitting agency and per modifications identified in a May 17, 2005 DECO email to the permitting agency. Entrainment sampling occurred over a 24-hour period with samples being collected every 4-6 hours (day, dusk, night, dawn). Four (4) replicate samples were collected during day, dusk, night and dawn. The entrainment sampling plan for Monroe is summarized in Table 1.

Table 1. Entrainment Sampling Plan for Monroe Power Plant

Month	Number of Entrainment Events/Month	Samples per Event	Samples per month
April, 2005	4	16	64
May, 2005	8	16	128
June, 2005	10	16	160
July, 2005	8	16	128
August, 2005	10	16	160
September, 2005	4	16	64
October, 2005	1	16	16
November, 2005	1	16	16
December, 2005	1	16	16
January, 2006	1	16	16
February, 2006	1	16	16
March, 2006	4	16	64
April, 2006	4	16	64
	Total Events = 57		Total Samples = 912

A 0.5 m diameter, 363 micron mesh conical plankton net with a flowmeter fixed in the net mouth was used to sample entrained fish larvae. The net was deployed 0.5 to 1.0 meters below the surface with a depressor attached to the bridle of the net to maintain the position of the net at the desired depth. A boom was used to lower and raise the plankton net. Sample volumes were expected to represent 20 to 55 m^3 of filtered water. Total sample volumes for a 24-hour event were expected to represent 320 to 880 m^3 of filtered water.

Samples especially thick with zooplankton and fish larvae were split using a Folsom plankton splitter, and one-half, one-quarter, or one-eighth of each sample was processed, depending on the number of fish larvae in previous samples. Fish eggs and larvae were removed from samples, counted, identified as live or dead and preserved in Davidson's B solution (Appendix 1).

Fish eggs and larvae were identified to the lowest taxon possible. Total lengths (TL) were measured to the nearest 0.1 mm for fish larvae.

2.1.3 Live/Dead Determinations

Dead larvae were defined as recently dead or long dead based on the degree of decomposition. Criteria for long dead include:

- non-motile, opaque,
- fins or fin buds not definable,
- myomeres not definable,
- gut absent, and
- body tissue or outline not well defined.

Criteria for recently dead include:

- non-motile,
- body transparent or translucent,
- gut defined,
- myomeres well defined,
- fins or fin buds well defined, and
- body tissue or outline well defined.

Examples of live/dead determinations are shown in Figure 1.

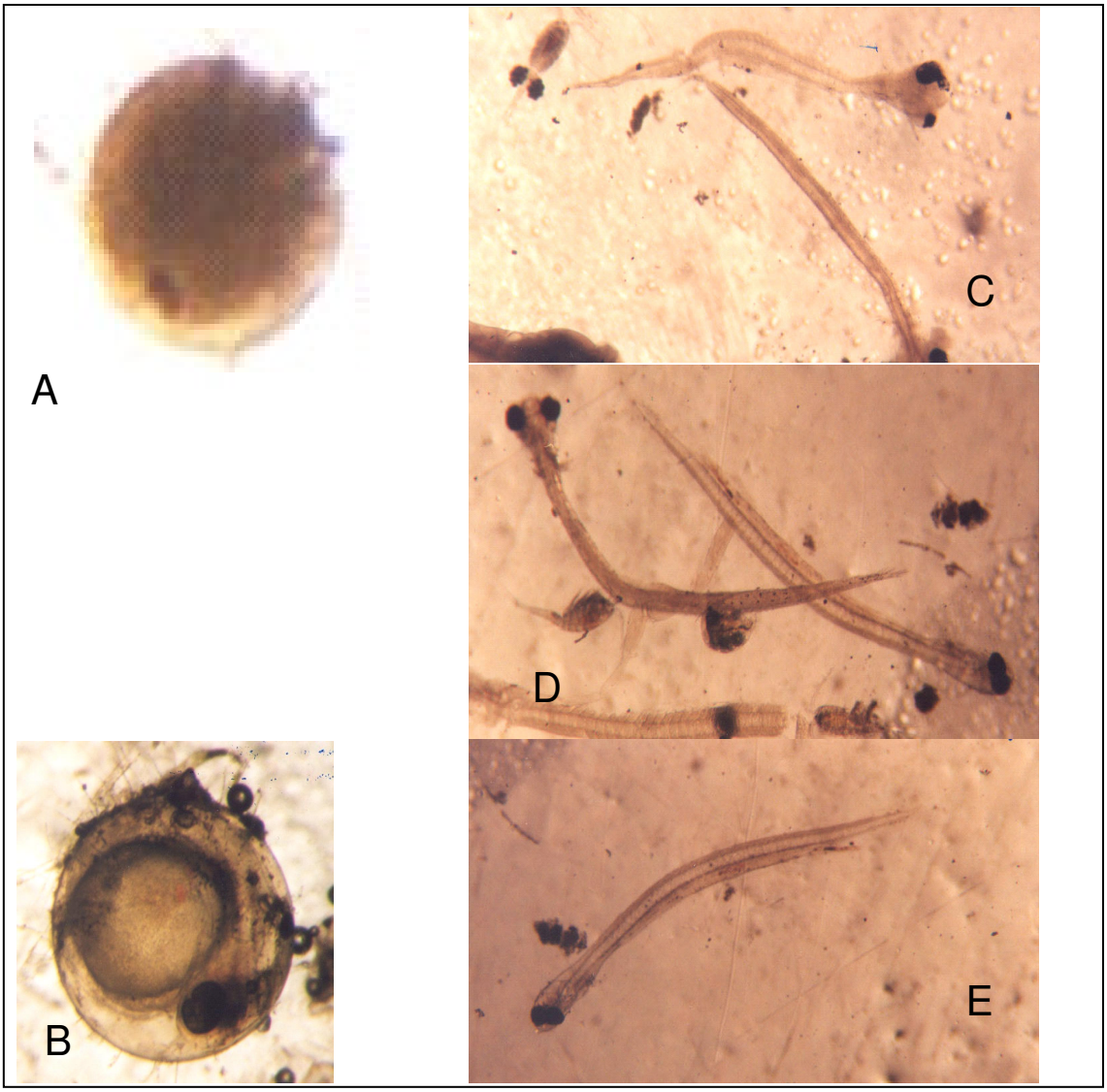


Figure 1 Entrainment Sampling-Live/Dead Determinations

Live/Dead determinations of species are demonstrated using alewife eggs and larvae as an example.

Note: color can play an important role, e.g. larvae can be transparent (live), translucent (recent dead) and opaque (long dead). (A – Long dead with fungal growth, B – Live with developing yolk-sac larvae inside, C – Long Dead larvae all ready degrading, D – Recent dead and long dead, E-very recent dead (fully intact).

2.2 Impingement

2.2.1 Impingement Sampling Protocol

Impingement sampling was conducted over a 24-hour period at each of the two screenhouses using the protocol specified by Golder Associates (2004), and subsequently revised per a memorandum of understanding that was developed based on February 7, 2005 discussions between DECO and the permitting agency and per modifications identified in a May 17, 2005 DECO email to the permitting agency. In each screenhouse, impinged fish were washed from the traveling screens into a sluiceway, sluiced to a conveyor belt which deposited the fish into a dump truck for a 24-hour period. At the end of the 24-hour period all fish were removed from each truck. For large collections, fish and debris were mixed evenly and spread over the entire area of the truck bed. Eight (8) depth measurements were recorded and the total volume of the impinged sample was determined by multiplying the area of the truck bed by the average depth of the impinged sample. Subsamples of the fish/debris mixture were randomly collected at various locations within the truck bed and placed in 5-gallon containers. Estimates of the numbers and weights of impinged fish were determined using the volumes of fish/debris processed in the subsamples and the total volume of the impinged sample in the truck. There are eight 10-ft wide traveling screens in each screenhouse.

2.2.2 Fish Identification and Morphometrics

At the end of each sample period, fish were identified to the lowest practicable taxonomic level, sorted (typically by species), and enumerated. If there were two distinct size groups of a particular species (e.g. young-of-the-year and older) then each size group was treated as a separate species. The batch weight (g or kg, depending on the number of fish) was obtained for each species (or size group).

Up to 100 fish per species or size group were individually measured for length (total length, mm). If there was a broad distribution in length for a particular species then individual weights (gm) were also obtained for each fish. For sample sizes greater than 100, 100 fish were randomly selected for measurements to ensure representation of the size distribution in the sample.

2.2.3 Fish Live/Dead Determination

When sample size and debris load permitted, the initial condition of the fish was recorded after being held for 15-30 minutes in a holding tank. Condition was assessed using the criteria developed by White (1986).

Alive And Healthy: Fish visibly in excellent condition, swimming upright with good coordination and speed. Avoid attempts to capture and struggle when handled.

Alive but Stressed: Fish visibly stressed, swimming poorly or barely moving. Upon internal examination would exhibit a heartbeat even though immobile.

Recently Dead: Fish with the eyes clear, gills red, and body mucus layer fresh and intact. The flesh is firm. All fish that look like they may have been alive just prior to sampling are included in this category.

Long Dead: This category includes all dead fishes that have been dead for more than several hours. The eyes are cloudy, body mucus spotty or nonexistent, gills very light pink or white. The body is in rigor mortis and coloration had paled. For some fish the body texture is softer than in living or recently dead specimens. In some cases, individuals had been obviously dead for more than twenty-four hours, often days. The body is extremely soft and partially decomposed. The body color is completely gone and often the specimen will be covered with decomposer fungi and bacteria.

2.2.4 Data Analysis

Entrainment data were converted to a 24-hour collection period by adjusting for sample volumes and the corresponding volume through the plant[1]. To calculate the base density of entrained eggs/larval fish ($\rho_{e\text{-}base}$), the number entrained during each sampling period was divided by the corresponding sampling volume. This is expressed as:

$$\rho_{e\text{-}base} = N_i / V_i$$

where:

$\rho_{e\text{-}base}$ = Base entrainment density (#/m^3)

N_i = Total number of eggs/larval fish entrained (16 daily samples per sampling location)

V_i = Total volume of water filtered for 16 daily samples (m^3).

Base entrainment densities were multiplied by daily flow volumes to obtain entrainment estimates for each day. Mean daily entrainment estimates were multiplied by weekly flow volumes to obtain entrainment estimates for each week. Weekly entrainment estimates were summed over the month to obtain monthly entrainment estimates.

Monthly entrainment estimates for general service water pump flows discharged at Outfalls 001B and 001F were obtained by multiplying the average monthly density based on cooling water volume (total number of organisms estimated for the month / total cooling water volume for the month discharged at Outfall 001A) times the total general service water volume discharged at Outfalls 001B and 001F for the month.

Impingement data were converted to a 24-hour collection period by adjusting for sampling time, the number of screens turned and/or subsampling (if required). To calculate the base density of impinged fish ($\rho_{i\text{-}base}$), the number impinged during each sampling period was divided by the corresponding volume through each screenhouse. This is expressed as:

[1] Circulating water pumps in operation during entrainment and impingement sampling are summarized in Appendix 2. Daily cooling water flow volumes in million gallons per day (MGD) were estimated at 161 MGD per circulating water pump and are summarized in Appendix 2. The total cooling water volumes for the plant represent what are discharged at MONPP Discharge Monitoring Report (DMR) Outfall 001A. General service water volumes were obtained from the DMR for MONPP Outfalls 001B (bottom ash basin) and 001F (fly ash basin) and are summarized in Appendix 3. It should be noted that Outfall 001B, in addition to discharging general service water, also discharges storm water, a non-cooling water intake structure flow.

$$\rho_{i\text{-}base} = N_i / V_i$$

where:

$\rho_{i\text{-}base}$ = Base impingement density (#/m^3)

N_i = Number of fish impinged

V_i = Volume of impingement sample (m^3).

Mean daily impingement densities were multiplied by weekly flow volumes to obtain impingement abundance estimates for each week. Weekly impingement estimates were summed over the month to obtain monthly impingement estimates.

Monthly impingement estimates for general service water pump flows discharged at Outfall 001B and 001F were obtained by multiplying the average monthly density based on cooling water volume (total number [weight] of organisms estimated for the month / total cooling water volume for the month discharged at Outfall 001A) times the total general service water volume discharged at Outfalls 001B and 001F for the month.

2.3 Water Quality and Meteorological Parameters

Water quality was assessed at the intake of MONPP. Intake water temperature, conductivity, dissolved oxygen (DO) and pH were determined at mid-depth using a Van Dorn bottle. Water transparency was determined using a secchi disk. Water quality measurements were obtained using a HACH sension156 Multiparameter meter. Measurements and weekly calibrations were carried out as described in the manufacturer's instruction manual.

Information was also recorded on selected meteorological parameters; air temperature, wind speed and direction, cloud cover and precipitation.

3.0 RESULTS AND DISCUSSION

3.1 Egg Entrainment

A total of 57 entrainment events were carried out between April 19, 2005 and April 19, 2006. A total of 370 fish eggs were collected at MONPP. A detailed summary of fish eggs entrained for each sampling event at MONPP is presented in Appendix 4. The total extrapolated number of fish eggs estimated to be entrained at MONPP is summarized in Table 2 and Figure 2. It is estimated that a total of 7,666,947 fish eggs were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (7,585,294) and general service water volumes discharged at Outfalls 001B and 001F (81,653). The most abundant species were smallmouth bass (39.4%), gizzard shad (17.0%) and white perch (8.8%).

3.1.1 Condition of Entrained Fish Eggs

The initial condition of the fish eggs was recorded as part of the entrainment abundance study. Detailed summaries of daily, weekly, and monthly entrainment abundance estimates (by species and condition) are presented in Appendices 4 to 6. The total extrapolated numbers of live and dead fish eggs entrained on a monthly basis at MONPP are presented in Figure 3. The majority of fish eggs (84.2%) were categorized as live.

3.1.2 Diel Distribution of Entrained Fish Eggs

The diel distribution of fish eggs was recorded as part of the entrainment abundance study. A detailed summary of entrainment densities is presented in Appendix 7. Mean densities of fish eggs during dawn, day, dusk and night periods are presented in Figure 4. A peak density of 137 eggs per 1,000 m^3 was observed during the night sampling events of week 4 (May 8-14, 2005).

Table 2
Estimated Number of Fish Eggs Entrained each Month at
Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Cooling Water- Estimated Fish Eggs Entrained													% of Total
	April 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	
Smallmouth bass		2,797,896	188,327										2,986,223	39.4%
Gizzard shad		1,235,726	55,352										1,291,079	17.0%
White perch		533,731	135,137										668,868	8.8%
Morone spp.		274,623	304,221										578,843	7.6%
Micropterus spp.		515,005	25,514										540,519	7.1%
Largemouth bass		303,473	191,354										494,827	6.5%
Quillback		366,702											366,702	4.8%
Walleye	125,771	81,877											207,648	2.7%
Rock bass		163,889											163,889	2.2%
Unknown	6,843	63,375	25,514										95,732	1.3%
Rainbow smelt/Clupeidae		71,698	13,838										85,536	1.1%
Freshwater drum	27,269	20,757	27,676										75,703	1.0%
Northen pike	6,843	13,031											19,874	0.3%
Rainbow smelt	9,851												9,851	0.1%
TOTAL	**176,577**	**6,441,784**	**966,933**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,585,294**	**100.0%**

Species	MONPP Cooling Water + GSW - Estimated Fish Eggs Entrained													% of Total
	April 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	
Smallmouth bass		2,827,718	190,340										3,018,058	39.4%
Gizzard shad		1,248,897	55,944										1,304,841	17.0%
White perch		539,420	136,582										676,002	8.8%
Morone spp.		277,550	307,473										585,023	7.6%
Micropterus spp.		520,495	25,787										546,282	7.1%
Largemouth bass		306,707	193,400										500,107	6.5%
Quillback		370,611											370,611	4.8%
Walleye	127,664	82,749											210,413	2.7%
Rock bass		165,636											165,636	2.2%
Unknown	6,946	64,051	25,787										96,784	1.3%
Rainbow smelt/Clupeidae		72,462	13,986										86,448	1.1%
Freshwater drum	27,680	20,978	27,972										76,630	1.0%
Northen pike	6,946	13,170											20,116	0.3%
Rainbow smelt	9,999												9,999	0.1%
TOTAL	**179,234**	**6,510,443**	**977,270**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,666,947**	**100.0%**

Individual estimates may not add to totals due to rounding.

Figure 2
Total Extrapolated Number of Fish Eggs Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – June, 2005)

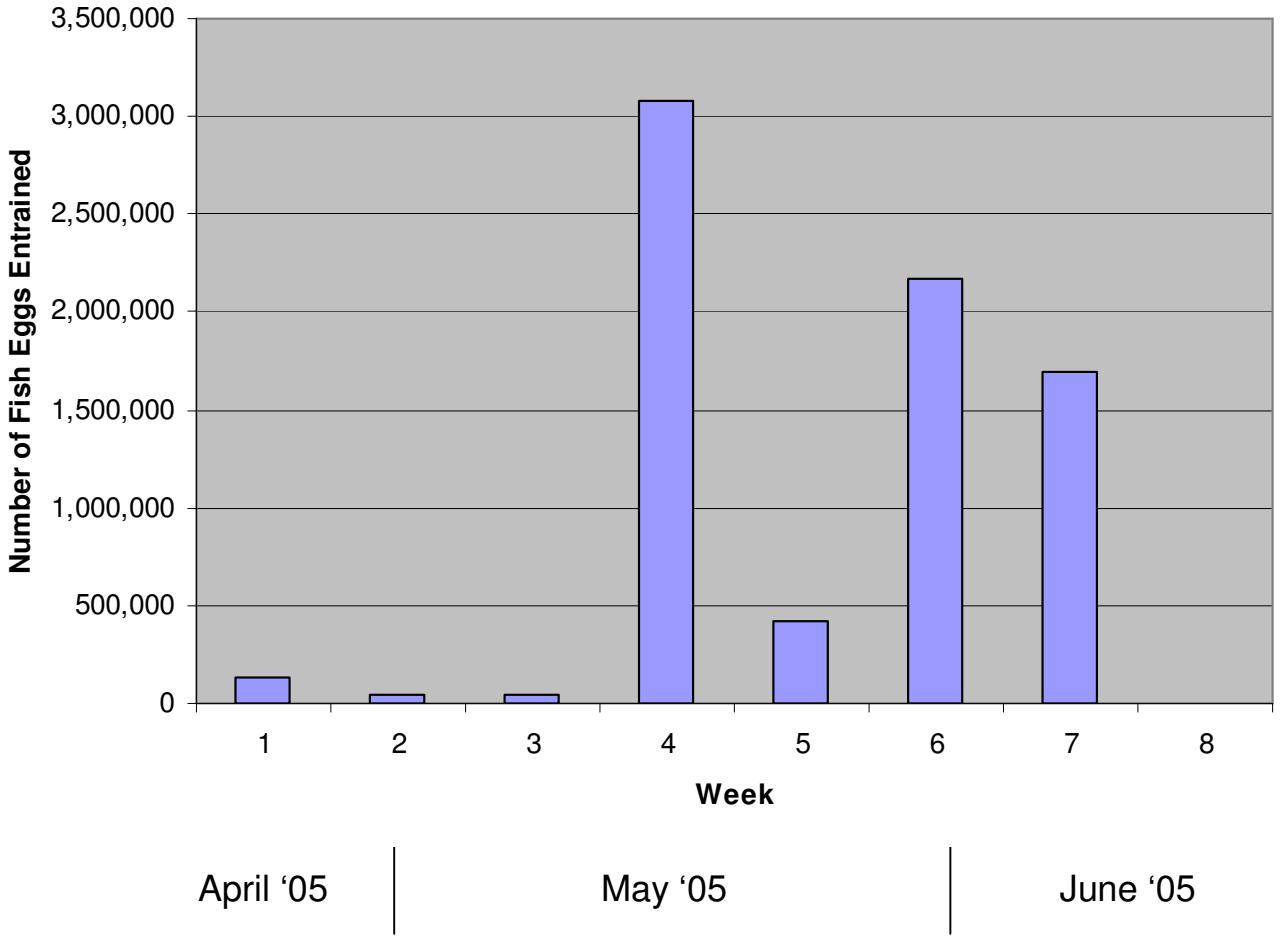


Figure 3
Total Extrapolated Number of Fish Eggs Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (April – June, 2005)

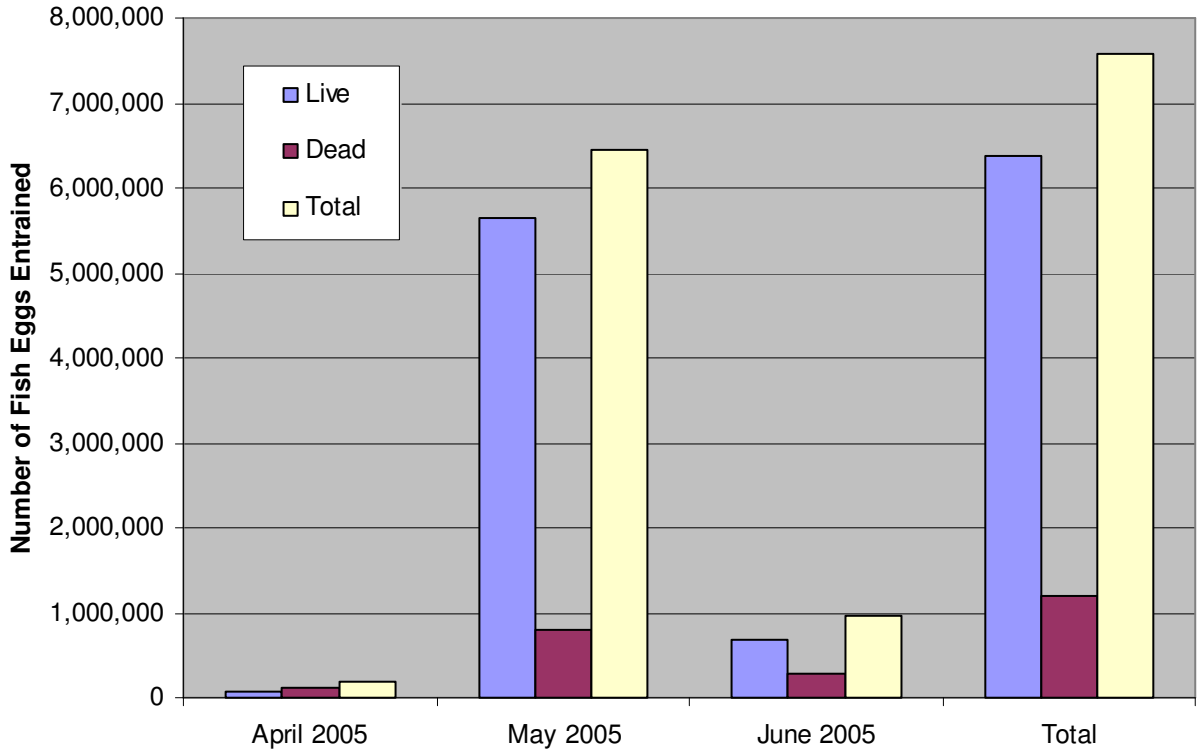
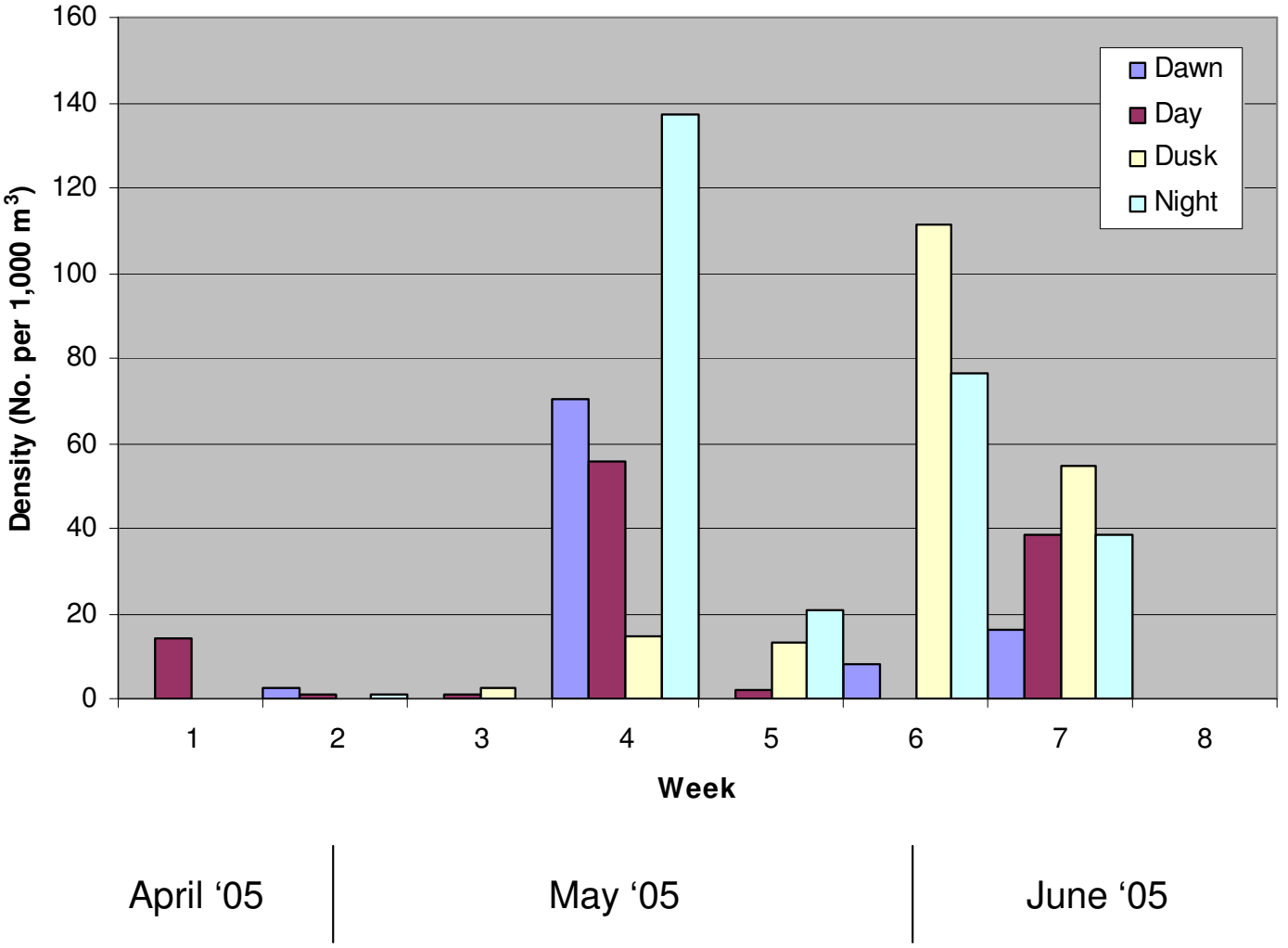


Figure 4
Diel Distribution of Fish Eggs Entrained at
Monroe Power Plant, Monroe County, Michigan (April – June, 2005)



3.2 Larval Fish Entrainment

A total of 57 entrainment events were carried out between April 19, 2005 and April 19, 2006. A total of 10,689 larval fish were collected at MONPP.[2] A detailed summary of larval fish entrained for each sampling event at MONPP is presented in Appendix 8. The total extrapolated number of larval fish estimated to be entrained at MONPP is summarized in Table 3 and Figure 5. It is estimated that a total of 419,418,858 larval fish were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (414,892,637) and general service water volumes discharged at Outfalls 001B and 001F (4,526,221). The most abundant species were rainbow smelt/Clupeidae (36.4%), cyprinid group (31.9%) and *Morone spp.* (23.7%).

3.2.1 Condition of Larval Fish

The initial condition of the larval fish was recorded as part of the entrainment abundance study. Detailed summaries of daily, weekly and monthly entrainment abundance estimates (by species and condition) are presented in Appendices 8 to 10. The total extrapolated numbers of live, recently dead and long dead larval fish entrained on a monthly basis at MONPP are presented in Figure 6. It was generally difficult to differentiate among sources of mortality (natural or sampling), particularly for those larval fish categorized as recently dead. The majority of larval fish (97.3%) were categorized as recently dead. Approximately 2.6% were categorized as long dead.

3.3 Juvenile Fish Entrainment

A total of 57 entrainment events were carried out between April 19, 2005 and April 19, 2006. A total of 1,766 entrainable juvenile fish were collected at MONPP. (Juvenile fish capable of passing through a 3/8-in mesh screen were considered to be entrainable). A detailed summary of juvenile fish entrained for each sampling event is presented in Appendix 8. The total extrapolated number of juvenile fish estimated to be entrained at MONPP is summarized in Table 4 and Figure 7. It is estimated that a total of 72,161,838 juvenile fish were entrained at MONPP between April 2005 and April 2006. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (71,364,667) and general service water volumes discharged at Outfalls 001B and 001F (797,171). The most abundant species were rainbow smelt/Clupeidae (38.8%), cyprinid group (30.9%) and round goby (21.1%).

3.3.1 Condition of Juvenile Fish

The initial condition of the juvenile fish was recorded as part of the entrainment abundance study. Detailed summaries of daily, weekly and monthly entrainment abundance estimates (by species and condition) are presented in Appendices 8, 11 and 12. The total extrapolated numbers of live, recently dead and long dead juvenile fish entrained on a monthly basis at MONPP are presented in Figure 8. It was generally difficult to differentiate among sources of mortality (natural or sampling), particularly for those juvenile fish categorized as recently dead. The majority of juvenile fish (98.8%) were categorized as recently dead.

[2] Certain fish species do not exhibit a free-swimming larval life stage. Round goby transition within the egg and hatch as juveniles with a full complement of fin rays. Regardless of overall length, round goby have been classified as juvenile fish.

Table 3
Estimated Number of Larval Fish Entrained each Month at
Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Cooling Water + GSW: Estimated Number of Larval Fish Entrained													% of
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	Total
Rainbow smelt/Clupeidae	41,674	359,503	136,331,863	15,811,225		59,449							152,603,713	36.4%
Morone spp.		114,148	88,397,307	10,885,091	38,112	9,582							99,444,240	23.7%
Emerald shiner *		49,828	29,014,709	32,574,579	1,061,236	78,515							62,778,867	15.0%
Notropis spp. *		457,891	31,437,166	9,066,094	532,114								41,493,265	9.9%
Cyprinidae *	27,680	319,668	20,442,420	7,347,614	185,924								28,323,306	6.8%
Logperch	6,946	145,725	14,324,219	1,189,158	74,690	32,560							15,773,297	3.8%
Yellow perch		492,910	4,737,140	620,507	81,224	44,697							5,976,478	1.4%
Freshwater drum		9,667	5,275,541	560,340	63,997								5,909,545	1.4%
Unidentifiable	49,996	267,842	2,112,906	439,922	27,377								2,898,044	0.7%
Trout-perch		28,915	633,030										661,945	0.2%
Spotfin shiner *			516,131	22,023	40,985								579,139	0.1%
Carp/Goldfish *		46,896	383,751	88,093									518,741	0.1%
White bass				446,837									446,837	0.1%
Lepomis spp.			78,406	113,263	123,367								315,036	0.1%
Quillback		125,809	134,666	43,675									304,150	0.1%
Lake whitefish	242,079	16,151	28,169	11,280									297,680	0.1%
Brook silverside				264,280	24,384								288,664	0.1%
White perch			223,022	37,754									260,776	0.1%
Pomoxis spp.			202,113										202,113	0.05%
Percidae		26,350		87,351									113,701	0.03%
Channel catfish				81,430									81,430	0.02%
Walleye		44,648											44,648	0.01%
Micropterus spp.			28,169	11,280									39,449	0.01%
White sucker	9,999	16,151											26,150	0.01%
Catostomidae		10,486	13,982										24,469	0.01%
Bluegill		13,175											13,175	0.003%
Total	**378,374**	**2,545,764**	**334,314,711**	**79,701,798**	**2,253,411**	**224,802**	**0**	**0**	**0**	**0**	**0**	**0**	**419,418,858**	**100.0%**

* Cyprinid group (31.9% of total).
Individual estimates may not add to totals due to rounding.

Table 4
Estimated Number of Entrainable Juvenile Fish Entrained each Month at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Cooling Water + GSW: Estimated Number of Entrained Juvenile Fish													
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	% of Total
Rainbow smelt/Clupeidae			25,429,850	2,546,866	25,565				26,383				28,028,664	38.8%
Emerald shiner *			2,083,423	11,499,898	1,947,684	80,057							15,611,062	21.6%
Round goby	29,998	121,596	3,649,520	6,678,765	3,240,593	1,498,465						42,202	15,261,139	21.1%
Cyprinidae *			563,382	4,732,379	502,089								5,797,850	8.0%
Morone spp.			2,897,459	2,249,375									5,146,834	7.1%
White bass			27,498	814,848									842,346	1.2%
Notropis spp. *			28,169	472,295	145,413								645,877	0.9%
Bluntnose minnow *				30,327	181,766								212,093	0.3%
Lepomis spp.				121,646	56,773	22,053							200,472	0.3%
White perch				118,187									118,187	0.2%
Percidae			83,287	22,561									105,848	0.1%
Rock bass				87,351									87,351	0.1%
Logperch				40,217									40,217	0.1%
Trout-perch			28,169	11,280									39,449	0.1%
Silver chub					24,451								24,451	0.03%
Total	**29,998**	**121,596**	**34,790,758**	**29,425,994**	**6,124,333**	**1,600,574**	**0**	**0**	**26,383**	**0**	**0**	**42,202**	**72,161,838**	**100.00%**

* Cyprinid group (30.9% of total).

Individual estimates may not add to totals due to rounding.

Figure 5
Total Extrapolated Number of Larval Fish Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – September, 2005)

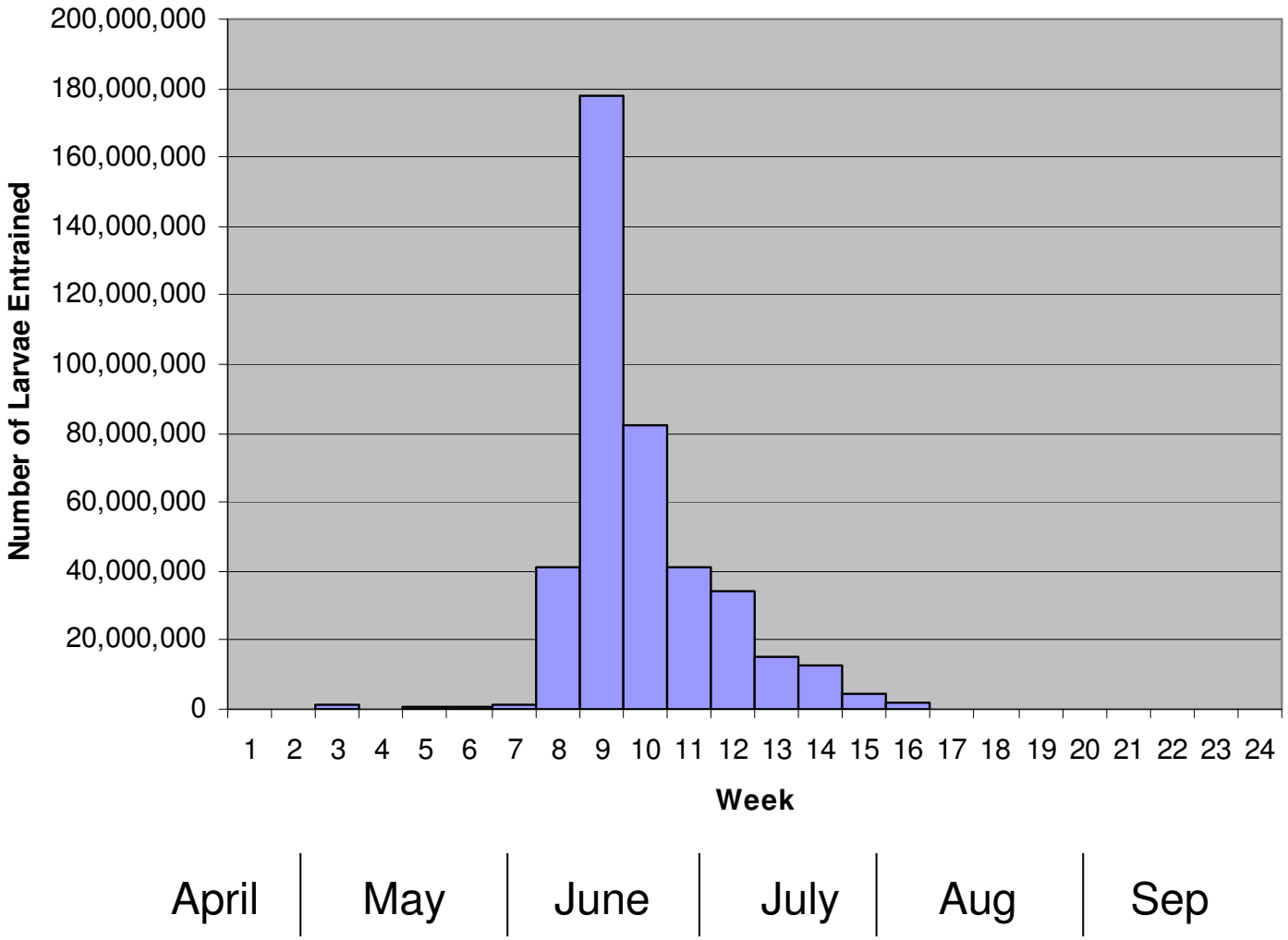


Figure 6
Total Extrapolated Number of Larval Fish Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (April 2005 – April, 2006)

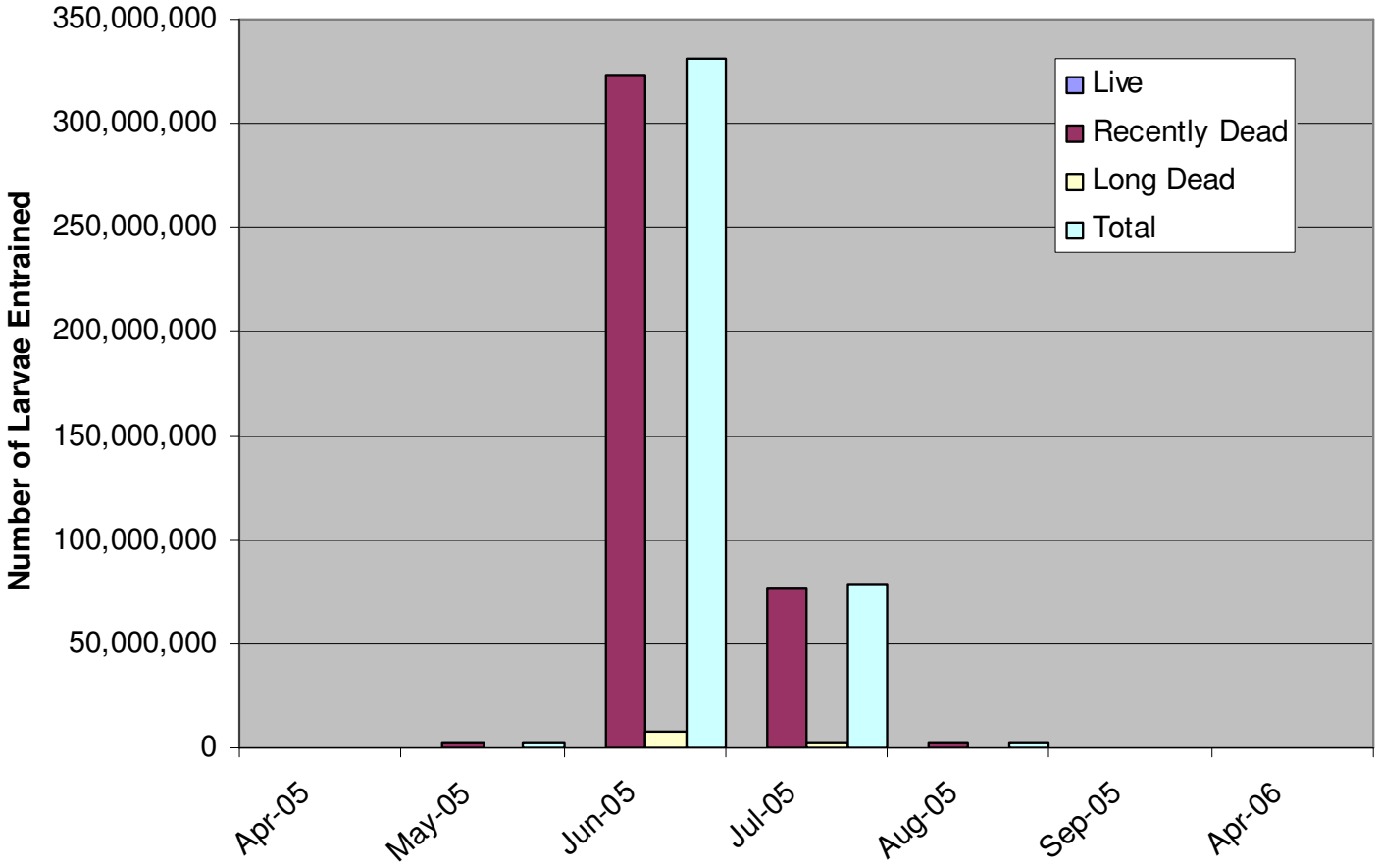


Figure 7
Total Extrapolated Number of Entrainable Juvenile Fish Entrained on a Weekly Basis at Monroe Power Plant, Monroe County, Michigan (April – September, 2005)

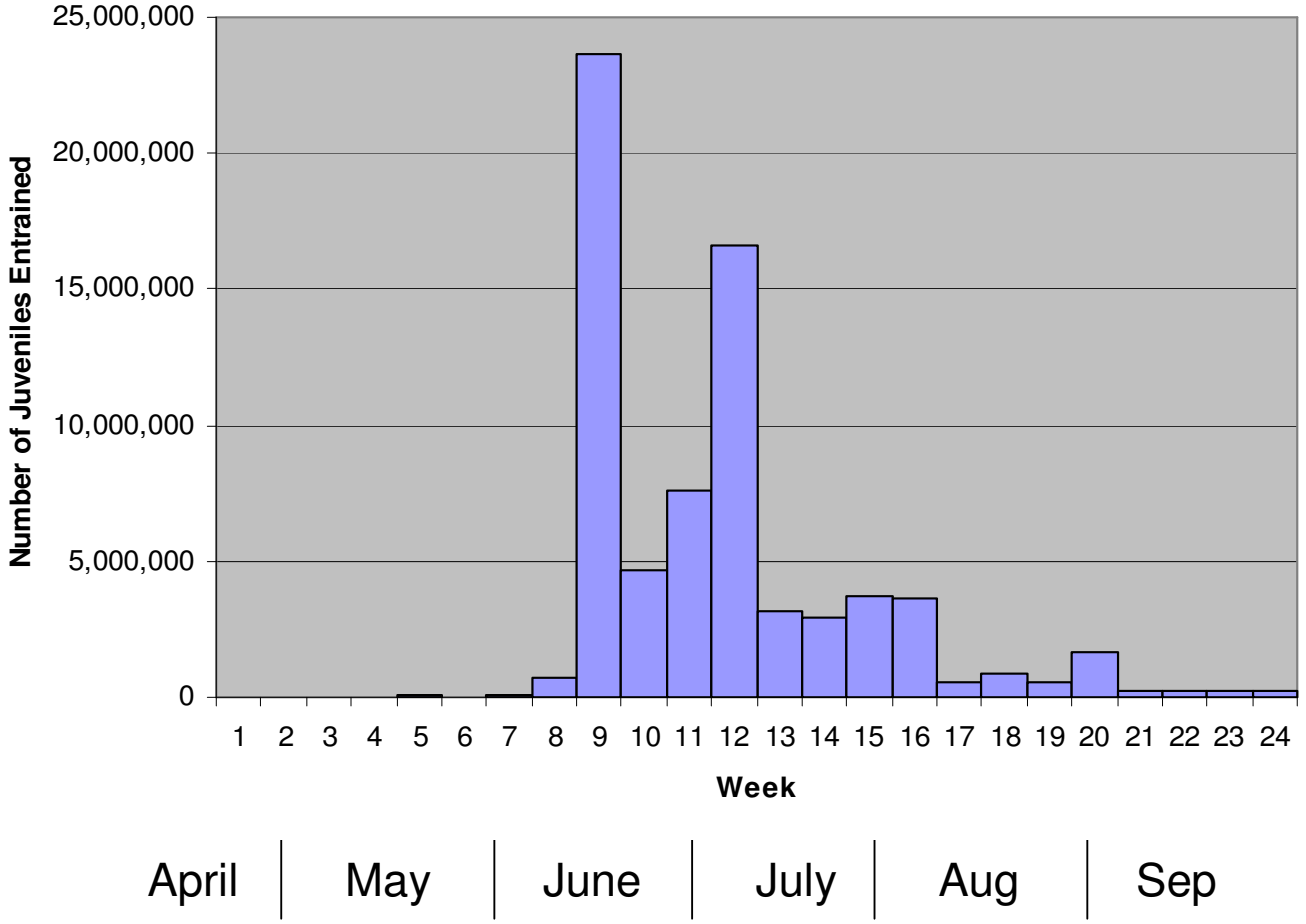
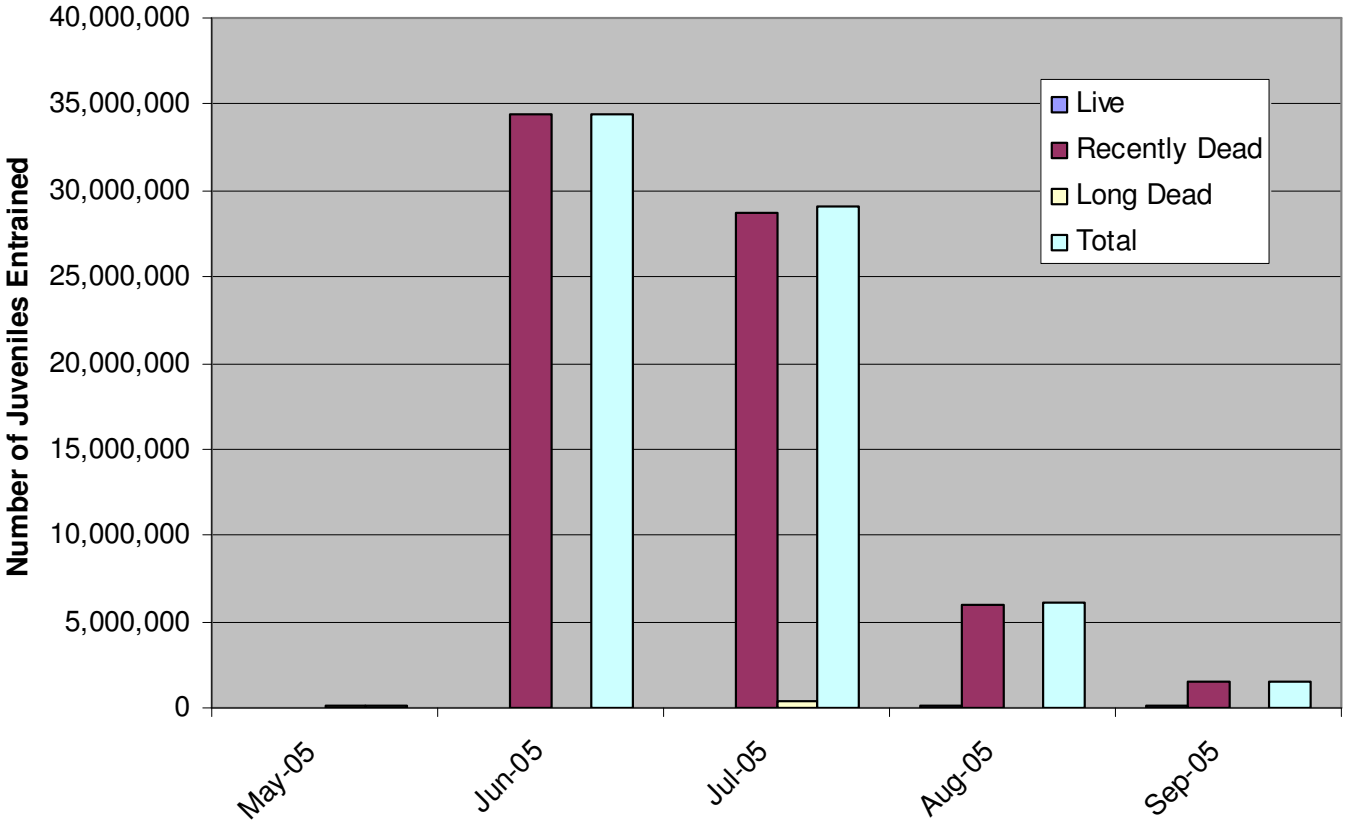


Figure 8
Total Extrapolated Number of Entrainable Juvenile Fish Entrained on a Monthly Basis at Monroe Power Plant, Monroe County, Michigan (May 2005 – September 2006)



3.3.2 Diel Distribution of Entrained Specimens

The diel distribution of larval and juvenile fish was recorded as part of the entrainment abundance study. A detailed summary of entrainment densities is presented in Appendix 13. A peak density of approximately 6,593 specimens per 1,000 m^3 was observed during dawn sampling events of week 9 (June 12-18, 2005). Mean densities of larval and juvenile fish, total and selected taxa, during dawn, day, dusk and night periods are presented in Figures 9-12.

3.3.3 Length Distribution of Entrained Specimens

The lengths of larval and juvenile fish specimens were recorded as part of the entrainment abundance study. A summary of length distributions for commonly entrained specimens is presented in Appendix 14.

3.4 Fish Impingement

A total of 104 impingement events were carried out between April 20, 2005 and April 20, 2006. Impingement data were converted to a 24-hour collection period by adjusting for sampling time, the number of screens turned and/or subsampling (if required). Estimated 24-hour impingement for each sampling event is summarized in Appendix 15 (SH1) and Appendix 16 (SH2).

The total extrapolated number of fish estimated to be impinged at MONPP SH1 is presented in Table 5 and Figure 13. The total extrapolated weight of fish estimated to be impinged at MONPP SH1 is presented in Table 6 and Figure 14. It is estimated that a total of 9,738,785 fish (255,974 kg) were impinged at MONPP SH1. The most abundant species were gizzard shad (91.6%), white perch (2.8%) and freshwater drum (2.2%).

The total extrapolated number of fish estimated to be impinged at MONPP SH2 is presented in Table 7 and Figure 15. The total extrapolated weight of fish estimated to be impinged at MONPP SH2 is presented in Table 8 and Figure 16. It is estimated that a total of 15,418,008 fish (530,320 kg) were impinged at MONPP SH2. The most abundant species were gizzard shad (96.4%), white perch (1.3%) and emerald shiner (0.7%).

The total extrapolated number of fish estimated to be impinged at MONPP (SH1 + SH2) is presented in Table 9 and Figure 17. The total extrapolated weight of fish estimated to be impinged at MONPP is presented in Table 10 and Figure 18. It is estimated that a total of 25,603,352 fish (800,619 kg) were impinged at MONPP. This estimate is the sum of the estimate based on cooling water volumes discharged at Outfall 001A (25,156,793 fish, 786,294 kg) and general service water volumes discharged at Outfalls 001B and 001F (446,559 fish, 14,325 kg). The most abundant species were gizzard shad (94.5%), white perch (1.8%) and emerald shiner (1.0%).

3.4.1 Condition of Impinged Fish

The initial condition of the fish was recorded as part of the impingement abundance study. Detailed summaries of daily, weekly and monthly impingement abundance estimates (by species, screenhouse and condition) are presented in Appendices 15 to 21. The total extrapolated numbers of live, recently dead and long dead fish impinged on a monthly basis at Monroe Power Plant are presented in Figures 19-21. The majority of fish were categorized as dead (96.9% recently dead, 0.6% long dead). However, because of the debris load and sampling methodology, it was generally difficult to differentiate among sources of mortality (natural, sampling and/or impingement on the screens), particularly for those fish categorized as recently dead.

Figure 9
Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – September, 2005)

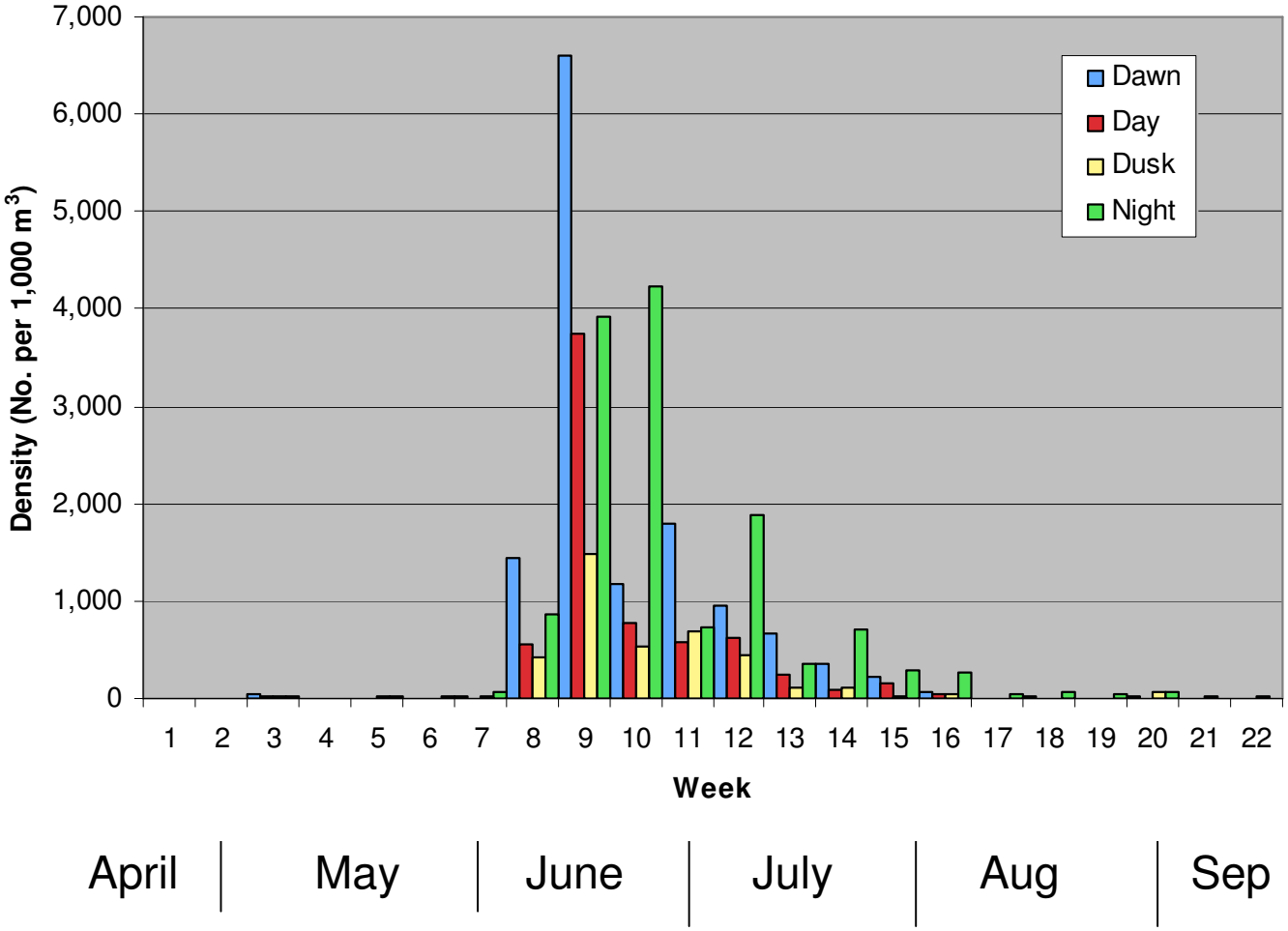


Figure 10
Diel Distribution of Gizzard Shad Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – August, 2005)

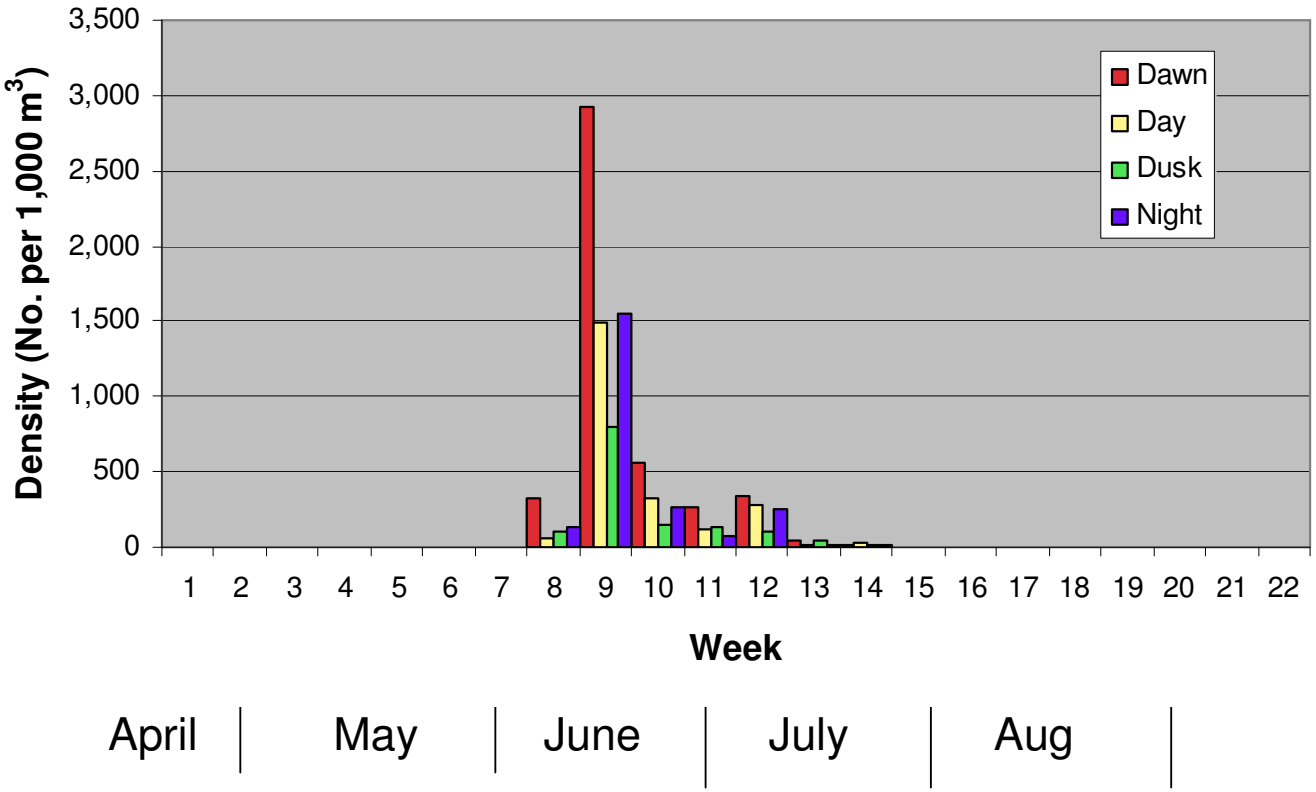


Figure 11
Diel Distribution of *Morone spp.* Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – August, 2005)

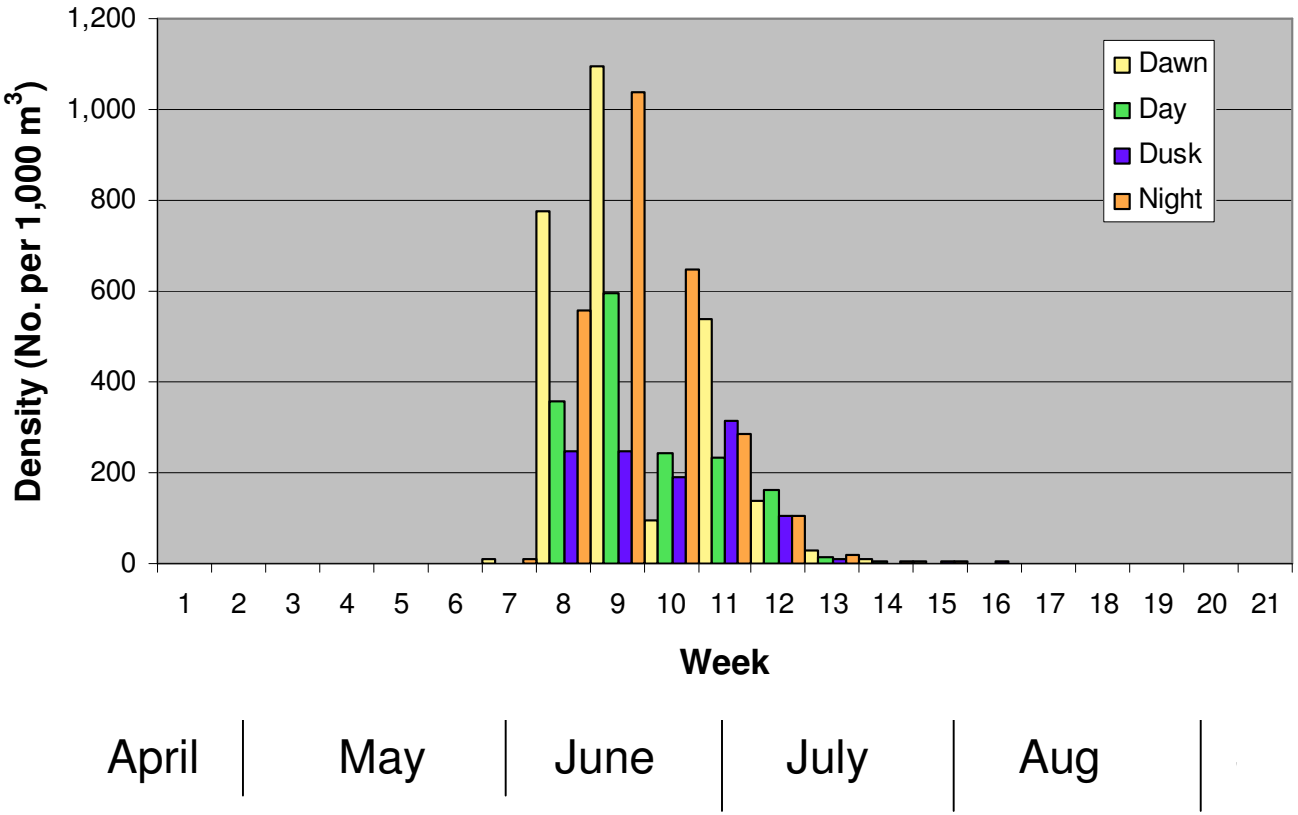


Figure 12
Diel Distribution of Emerald Shiner Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April – September, 2005)

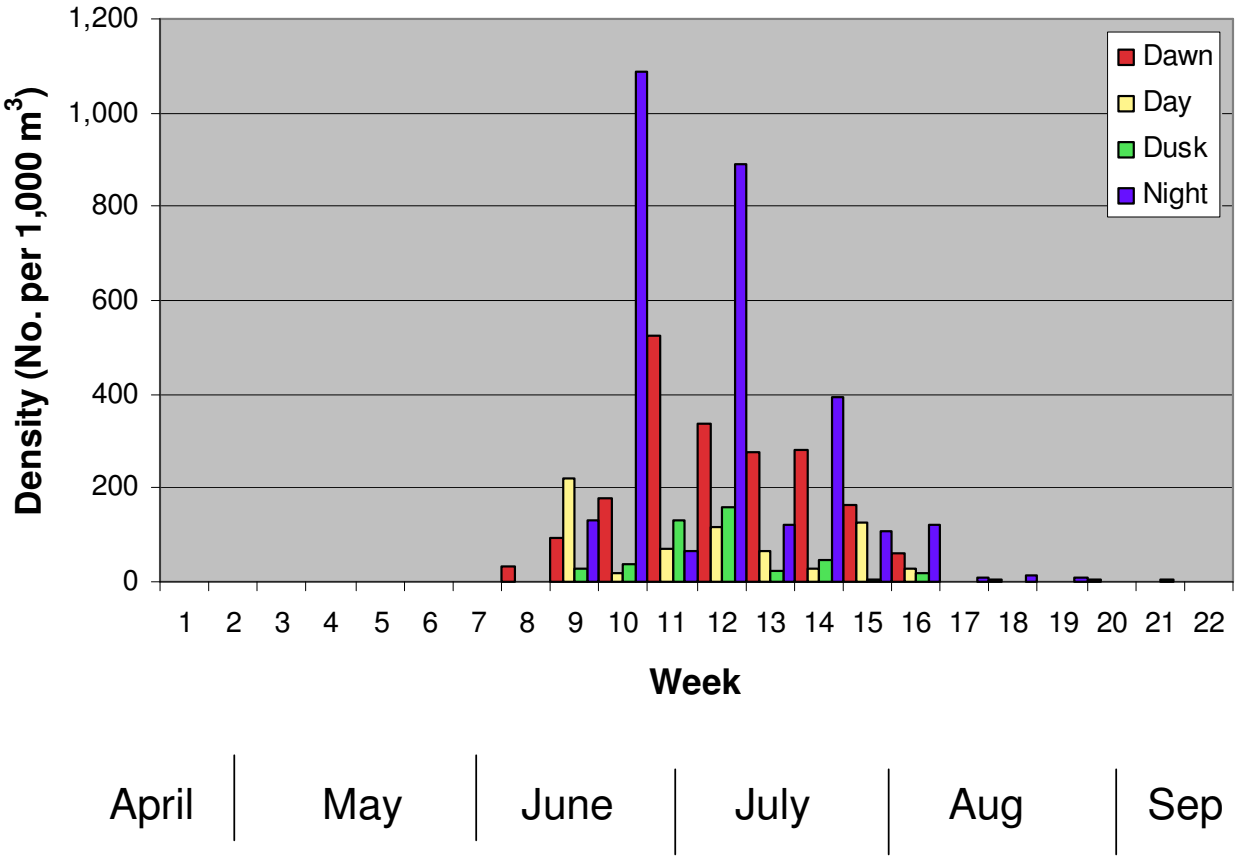


Table 5. Estimated Number of Fish Impinged each Month at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH1 - Estimated Number of Impinged Fish													% of Total
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	
Gizzard shad	482,537	45	28	974	1,084	2,550	64,352	1,155,324	636,527	3,374,332	3,064,501	134,442	8,916,697	91.6%
White perch	13,123	414	127	2,538	72,665	47,849	83,286	9,922	5,118	15,134	19,446	1,893	271,514	2.8%
Freshwater drum	3,406	35	122	806	1,313	1,867	23,957	46,930	134,526			71	213,031	2.2%
Emerald shiner	8,208	1,405	3,098	110	123	89	146	12,319	8,397	19,734	87,932	6,576	148,136	1.5%
Bluegill	3,152		4	81	65	1,165	4,981	5,577	459	1,986	14,637	3,269	35,375	0.4%
Spottail shiner	8,383	24	50	22	265	1,970	5,868	8,589	781	4,077	1,782	1,456	33,265	0.3%
Trout-perch	7,210	675	73	14	47	2,248	10,893	1,062	539	2,202	1,788	1,787	28,537	0.3%
Round goby	2,913	73	53	128	238	631	1,298	2,124	946	5,993	1,744	1,963	18,102	0.2%
Goldfish	1,488	24			30		127	886	1,917	5,888	6,053	614	17,026	0.2%
Yellow perch	5,577	333	95	81	22	129	394	1,443	175	38	328	377	8,992	0.1%
White bass	66	24	31	1,684	1,829	1,659	1,493	1,993	76			29	8,885	0.1%
Pumpkinseed	2,365	8		32	112	126	1,490	610	76	300	1,305	326	6,748	0.1%
White crappie								3,397				2,231	5,628	0.1%
Channel catfish	1,236	17	24	39	98	634	1,683	729	76	890			5,426	0.1%
Smallmouth bass	2,118	7		7	110	296	1,521	383	25	162		18	4,647	0.05%
Rock bass	2,267	19	7	25	51	19	209	191		53	297	248	3,386	0.03%
Common carp	4	0	0	14	0	7	87		32	714	1,299	0	2,156	0.02%
Silver lamprey	1,048	24	21		3	19		102	76	223		245	1,762	0.02%
Muskellenge										1,045			1,045	0.01%
Brook silverside							39	474		193		165	871	0.01%
Fathead minnow							830						830	0.01%
Largemouth bass			4	4	32	4	332	190	98		136		798	0.01%
Logperch	17					131	413	191					752	0.01%
Rainbow smelt		4	7					173	392				576	0.01%
Redhorse sucker		3	7	7		4	6	447	76				551	0.01%
Yellow bullhead								349	179				527	0.01%
Walleye			7	24	32	73		349					484	0.005%
Brown bullhead	44	4	4		4			105				225	384	0.004%
Silver chub	147		22		30	3			123				325	0.003%
Orangespotted sunfish	151					35	88						274	0.003%
Green sunfish	8					7				193	61		269	0.003%
Northern pike		4	7	18	3		42			77		103	254	0.003%
Quillback			7					130	98				235	0.002%
Golden redhorse										223			223	0.002%
Spotfin shiner									179				179	0.002%
Bluntnose minnow						3					161		165	0.002%
Tadpole madtom	143											10	153	0.002%
Black bullhead	17				70	18	42						146	0.001%
Longnose gar		3						63				39	105	0.001%
Black crappie			3									71	74	0.001%
Northern longear sunfish										53			53	0.001%
Sea lamprey			4				42						46	<0.001%
Bowfin										38			38	<0.001%
Smallmouth buffalo									32				32	<0.001%
White sucker				3			18						21	<0.001%
Common shiner			10	11									21	<0.001%
Petromyzontidae		12											12	<0.001%
Black buffalo						9							9	<0.001%
Stonecat	8												8	<0.001%
Threespine stickleback		4											4	<0.001%
Ameiurus spp.		4											4	<0.001%
Lepomis spp.						3							3	<0.001%
Noturus spp.		3											3	<0.001%
TOTAL	**545,633**	**3,170**	**3,812**	**6,619**	**78,228**	**61,546**	**203,635**	**1,254,050**	**790,919**	**3,433,547**	**3,201,469**	**156,157**	**9,738,785**	**100%**

Individual estimates may not add to totals due to rounding.

Table 6. Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH1 - Estimated Weight of Impinged Fish (kg)												Total (kg)	% of Total
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06		
Gizzard shad	10590.961	18.045	13.581	6.062	10.420	30.286	621.439	18617.385	11439.126	135740.676	63954.405	3036.486	244078.873	95.4%
Freshwater drum	960.820	19.007	62.849	26.520	45.125	92.950	297.389	660.183	1813.312			45.412	4023.568	1.6%
White perch	80.311	36.568	8.465	19.395	259.765	246.412	572.252	59.903	26.690	106.436	123.642		1539.839	0.6%
Yellow perch	319.457	16.277	6.795	4.751	2.754	6.997	6.924	132.637	0.717	10.463	37.342	95.239	640.353	0.3%
Smallmouth bass	748.887	0.060		0.029	5.417	5.091	24.291	26.959	0.484	39.882		2.100	853.199	0.3%
Goldfish	467.743	4.909			0.191		3.688	15.399	25.063	118.909	63.894	9.380	709.176	0.3%
Emerald shiner	31.705	5.262	11.309	0.502	0.270	0.427	0.480	31.232	18.890	87.152	386.883	28.578	602.690	0.2%
Round goby	187.992	2.870	1.346	4.254	8.167	9.665	19.141	37.353	12.648	75.681	14.244	54.214	427.575	0.2%
Redhorse sucker		2.067	4.699	4.501		3.504	0.131	351.883	49.731				416.515	0.2%
Pumpkinseed	124.347	0.255		1.813	5.756	3.116	6.900	18.479	4.958	11.500	67.848	20.312	265.283	0.1%
Northern pike		0.849	7.200	11.337	2.490		10.709			119.450		104.262	256.295	0.1%
Spottail shiner	54.520	0.167	0.441	0.151	1.086	11.560	34.092	81.410	3.669	17.230	8.426	7.278	220.030	0.1%
Bluegill	8.379		0.011	0.150	0.182	4.969	17.805	15.663	4.649	10.403	115.546	14.507	192.264	0.1%
Bowfin										190.390			190.390	0.1%
Golden redhorse										190.197			190.197	0.1%
Largemouth bass			4.218	2.424	0.550	0.074	97.539	43.427	26.797		1.087		176.116	0.1%
Quillback			11.407					84.248	63.186				158.841	0.1%
Trout-perch	49.620	3.714	0.443	0.101	0.345	6.547	37.322	2.661	2.064	15.878	7.959	12.319	138.972	0.1%
Channel catfish	3.144	0.440	8.811	7.291	2.616	6.830	17.757	26.617	16.267	45.375			135.147	0.1%
Muskellenge										132.661			132.661	0.1%
Silver lamprey	67.595	1.630	1.274		0.062	0.568		7.230	5.422	22.993		17.424	124.197	0.05%
White bass	0.652	8.214	8.190	10.994	7.317	17.226	30.180	28.609	4.260			0.225	115.867	0.05%
Rock bass	15.240	1.987	0.280	1.232	6.382	1.778	2.707	1.348		0.211	16.495	1.239	48.899	0.02%
Common carp	0.853			0.065		3.096	0.177		15.254	10.343	16.173		45.960	0.02%
White crappie								18.770				25.844	44.614	0.02%
Yellow bullhead								31.831	1.071				32.902	0.01%
Brown bullhead	12.389	0.662	0.674		1.572			0.859				13.971	30.126	0.01%
Smallmouth buffalo									28.839				28.839	0.01%
Longnose gar		0.351						5.829				21.534	27.714	0.01%
Walleye			0.886	3.281	1.829	13.449		4.221					23.665	0.01%
Fathead minnow							20.574						20.574	0.01%
Black crappie			0.054									19.452	19.506	0.01%
Silver chub	8.826		0.155		1.006	0.166			3.682				13.835	0.01%
Black bullhead	0.107				0.263	0.070	12.790						13.229	0.01%
White sucker				0.249			11.582						11.832	0.005%
Black buffalo						7.193							7.193	0.003%
Logperch	0.115					1.072	2.684	1.155					5.025	0.002%
Sea lamprey			0.159				3.122						3.280	0.001%
Green sunfish	0.239					0.128				0.386	0.671		1.424	0.001%
Tadpole madtom	1.287											0.049	1.336	0.001%
Spotfin shiner									1.250				1.250	<0.001%
Brook silverside							0.078	0.544		0.193		0.165	0.980	<0.001%
Orangespotted sunfish	0.478					0.140	0.286						0.904	<0.001%
Stonecat	0.758												0.758	<0.001%
Rainbow smelt		0.044	0.084					0.176	0.400				0.704	<0.001%
Petromyzontidae		0.666											0.666	<0.001%
Bluntnose minnow						0.021					0.483		0.504	<0.001%
Noturus spp.		0.289											0.289	<0.001%
Common shiner			0.136	0.116									0.251	<0.001%
Northern longear sunfish										0.105			0.105	<0.001%
Ameiurus spp.		0.044											0.044	<0.001%
Threespine stickleback		0.009											0.009	<0.001%
Lepomis spp.						0.007							0.007	<0.001%
TOTAL	**13,736**	**124**	**153**	**105**	**364**	**473**	**1,852**	**20,306**	**13,568**	**136,947**	**64,815**	**3,530**	**255,974**	**100%**

Individual estimates may not add to totals due to rounding.

Table 7. Estimated Number of Fish Impinged each Month at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH2 - Estimated Number of Impinged Fish													% of Total
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total	
Gizzard shad	1,060,381	240	90	2,153	2,106	4,060	122,226	1,164,216	843,360	6,467,420	3,591,005	1,603,071	14,860,328	96.4%
White perch	13,908	1,169	233	1,834	40,234	36,949	69,915	11,013	3,651	15,692	5,362	7,119	207,079	1.3%
Emerald shiner	23,044	4,457	2,379	164	143	253	2,886	20,055	4,571	21,594	21,309	9,157	110,013	0.7%
Spottail shiner	21,289	309	24	14	150	2,447	4,575	3,825	791	8,720	4,481	13,504	60,129	0.4%
Bluegill	2,496	16	7	145	79	1,086	4,064	7,740	2,195	3,013	7,406	5,922	34,167	0.2%
Trout-perch	4,735	1,871	114	7		1,480	10,669	1,010	126	3,360	3,763	1,288	28,423	0.2%
White bass	21	177	65	2,452	3,495	7,171	2,644	1,232	175	2,549			19,981	0.1%
Goldfish	1,678	60					52	240	998	8,728	6,591	655	19,001	0.1%
Round goby	4,704	82	97	185	334	318	2,227	754	1,204	935		2,995	13,836	0.1%
Freshwater drum	1,822	187	617	566	712	671	3,137	1,442	385		636	80	10,253	0.1%
Yellow perch	683	487	90	31	103	163	550	976	119	2,600		3,043	8,844	0.1%
Channel catfish	592	40	24	31	63	209	2,223	713		1,717			5,611	0.04%
Longnose gar	21	20		23		60		1,927	56		318	2,941	5,366	0.03%
Pumpkinseed	1,354	7	7	32	7	68	350	217	7	155		2,630	4,832	0.03%
Smallmouth bass	4	6	14	74	162	580	1,161	758	25	1,699		117	4,599	0.03%
White crappie										4,047			4,047	0.03%
Common carp	223	7						248		1,562	1,348		3,387	0.02%
Northern pike	11	24	7	32		41		396	63			2,513	3,086	0.02%
Redhorse sucker	195	40	24			16						2,513	2,788	0.02%
Green sunfish	310		4		4						1,727	59	2,102	0.01%
Largemouth bass			3		24	7		487		155	1,181		1,858	0.01%
Walleye	7	33	136	87	204	175	280	553					1,474	0.01%
Brook silverside						28	170	460	119				777	0.01%
Rainbow smelt		23	48	7	3			649					729	0.005%
Logperch	4		4			112	309	209					638	0.004%
Silver lamprey	401	16	14						147				578	0.004%
Silver chub	14								56	465			535	0.003%
Rock bass		49	21	79	39	64	168					59	479	0.003%
White sucker		7				4						462	472	0.003%
Brown bullhead			21				137	278					436	0.003%
Bowfin	195											222	417	0.003%
Orangespotted sunfish	195					8		165					368	0.002%
Muskellunge	4											222	226	0.001%
Quillback		16	21	17	3			109				59	224	0.001%
Black crappie		3					17	189					209	0.001%
Creek chub										157			157	0.001%
Common shiner										155			155	0.001%
Yellow bullhead					108								108	0.001%
Sea lamprey			10				70	27					107	0.001%
Cyprinidae				7			74						80	0.001%
Bigmouth buffalo									63				63	0.000%
Bluntnose minnow				7	3								10	0.000%
Northern hog sucker	4												4	<0.001%
Centrarchidae	4												4	<0.001%
Mimic shiner			4										4	<0.001%
Steelcolor shiner			4										4	<0.001%
Redear sunfish					3								3	<0.001%
Steelhead trout					3								3	<0.001%
Black bullhead					3								3	<0.001%
Spotted gar			3										3	<0.001%
Pomoxis spp.		3											3	<0.001%
Noturus spp.		3											3	<0.001%
TOTAL	**1,138,297**	**9,352**	**4,083**	**7,947**	**47,987**	**55,969**	**227,902**	**1,219,884**	**858,109**	**6,544,723**	**3,645,127**	**1,658,628**	**15,418,008**	**100%**

Individual estimates may not add to totals due to rounding.

Table 8. Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH2 - Estimated Weight of Impinged Fish (kg)													% of Total
	Apr 05/06	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Total (kg)	
Gizzard shad	32086.496	104.467	36.651	64.014	35.115	61.673	1292.884	17708.829	14345.749	255381.376	134505.065	55243.078	510865.397	96.3%
Freshwater drum	766.599	143.204	366.202	211.925	162.852	99.645	176.747	35.016	436.750		12.090	166.038	2577.068	0.5%
Northern pike	23.863	45.852	4.690	33.610		9.908		401.468	46.116			1256.395	1821.902	0.3%
Longnose gar	5.243	2.634		0.346		8.040		661.350	6.167		302.243	699.978	1685.999	0.3%
Yellow perch	72.661	22.037	5.421	2.529	7.190	12.581	5.084	193.306	17.070	499.773		792.613	1630.266	0.3%
White perch	80.086	114.149	22.937	37.231	148.787	235.998	440.898	65.736	23.823	96.684	51.942	58.478	1376.749	0.3%
Bowfin	547.814											636.592	1184.406	0.2%
Channel catfish	2.552	15.583	7.360	2.497	6.270	3.013	35.849	701.233		390.065			1164.423	0.2%
White bass	1.971	37.058	23.389	76.997	39.830	64.910	34.688	51.934	25.865	521.673			878.314	0.2%
Largemouth bass			4.991		3.762	0.081		83.700		7.128	753.754		853.415	0.2%
Walleye	12.460	30.779	38.344	3.847	42.825	75.440	321.862	324.853					850.410	0.2%
Redhorse sucker	39.032	29.293	24.215			0.867						746.299	839.706	0.2%
Round goby	256.898	2.971	4.730	7.759	9.327	8.509	31.029	142.009	73.778	12.595		260.590	810.196	0.2%
Emerald shiner	100.300	22.311	23.594	0.581	0.341	0.537	8.029	65.779	19.697	84.325	123.466	43.017	491.976	0.1%
Goldfish	45.061	27.039					0.710	5.589	12.542	180.229	167.183	23.039	461.392	0.1%
Pumpkinseed	180.870	0.178	0.567	2.272	0.263	0.749	2.784	0.442	0.035	0.620		244.977	433.758	0.1%
Common carp	91.191	12.379	0.000	0.000	0.000	0.000	0.000	222.671	0.000	18.913	16.277	0.000	361.431	0.1%
Spottail shiner	125.018	2.057	0.158	0.195	0.502	11.381	23.565	31.166	4.674	46.234	23.606	74.543	343.099	0.1%
Smallmouth bass	5.215	2.298	4.171	3.091	2.436	20.511	29.472	27.498	8.225	150.385		78.741	332.043	0.1%
White sucker		2.128				1.736						265.027	268.892	0.1%
Quillback		26.250	23.251	27.152	1.461			169.688				0.527	248.328	0.05%
Brown bullhead			9.568				33.782	136.357					179.707	0.03%
Trout-perch	31.028	9.762	0.580	0.034		4.655	32.424	3.865	0.574	35.947	18.814	9.501	147.183	0.03%
Bluegill	9.683	1.404	0.497	0.751	0.236	5.491	12.178	12.895	4.817	11.015	32.543	31.753	123.262	0.02%
Silver lamprey	38.496	1.246	0.843						61.268				101.853	0.02%
Bigmouth buffalo									84.480				84.480	0.02%
Muskellunge	31.010											27.958	58.968	0.01%
Rock bass		3.300	2.967	5.095	6.080	7.059	0.550					3.861	28.911	0.01%
White crappie										28.330			28.330	0.01%
Green sunfish	8.066		0.137		0.018						17.458	0.293	25.970	0.005%
Rainbow smelt		0.436	0.147	0.040	0.003			18.079					18.706	0.004%
Silver chub	0.270								2.232	10.537			13.038	0.002%
Logperch	0.025		0.011			0.669	5.111	0.910					6.725	0.001%
Sea lamprey			0.513				3.468	0.742					4.723	0.001%
Common shiner										3.254			3.254	0.001%
Northern hog sucker	2.590												2.590	<.001%
Black crappie		0.224					0.301	1.729					2.254	<.001%
Black bullhead					1.859								1.859	<.001%
Spotted gar			1.856										1.856	<.001%
Brook silverside						0.024	0.351	0.932	0.250				1.557	<.001%
Creek chub										0.944			0.944	<.001%
Steelhead trout					0.861								0.861	<.001%
Centrarchidae	0.840												0.840	<.001%
Orangespotted sunfish	0.390					0.025		0.404					0.818	<.001%
Pomoxis spp.		0.667											0.667	<.001%
Yellow bullhead					0.538								0.538	<.001%
Redear sunfish					0.271								0.271	<.001%
Cyprinidae				0.020			0.185						0.205	<.001%
Bluntnose minnow				0.074	0.069								0.143	<.001%
Noturus spp.		0.026											0.026	<.001%
Steelcolor shiner			0.018										0.018	<.001%
Mimic shiner			0.014										0.014	<.001%
TOTAL	**34,566**	**660**	**608**	**480**	**471**	**634**	**2,492**	**21,068**	**15,174**	**257,480**	**136,024**	**60,663**	**530,320**	**100.0%**

Individual estimates may not add to totals due to rounding.

Table 9. Estimated Number of Fish Impinged each Month at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)

	MONPP Cooling Water + GSW: Estimated Number of Impinged Fish													
Species	**Apr 05/06**	**May-05**	**June-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Total**	**% of Total**
Gizzard shad	1,567,149	288	119	3,165	3,224	6,682	189,039	2,352,981	1,505,536	10,031,281	6,769,421	1,773,704	24,202,588	94.5%
White perch	27,455	1,600	364	4,424	114,110	85,729	155,222	21,237	5,206	15,425	25,233	7,267	463,272	1.8%
Emerald shiner	31,743	5,925	5,535	277	269	345	3,072	32,840	13,192	42,123	111,111	16,061	262,495	1.0%
Freshwater drum	5,310	225	746	1,388	2,047	2,566	27,451	49,068	137,249		647	153	226,850	0.9%
Spottail shiner	30,138	336	75	36	419	4,465	10,581	12,593	1,599	13,044	6,370	15,272	94,927	0.4%
Bluegill	5,737	16	10	228	145	2,275	9,165	13,508	2,699	5,095	22,420	9,382	70,682	0.3%
Trout-perch	12,132	2,573	190	21	47	3,769	21,847	2,102	677	5,669	5,646	3,139	57,810	0.2%
White bass	88	203	97	4,185	5,382	8,927	4,191	3,271	3,969	22,717		30	53,062	0.2%
Goldfish	3,216	85			31		180	1,142	2,965	14,897	12,861	1,295	36,671	0.1%
Round goby	7,736	157	151	317	578	960	3,572	2,919	2,187	7,062	1,774	5,061	32,473	0.1%
Yellow perch	6,358	828	187	113	126	296	956	2,453	299	2,689	334	3,492	18,131	0.1%
Pumpkinseed	3,777	14	7	64	120	196	1,864	838	85	464	1,327	3,017	11,774	0.05%
Channel catfish	1,856	57	49	71	163	852	3,003	1,463	78	2,657			10,248	0.04%
Smallmouth bass	2,155	13	14	82	276	885	2,717	1,157	50	1,897		138	9,383	0.04%
White crappie								3,446				4,210	7,656	0.03%
Common carp	230	7		15		7	88	251	32	2,320	2,692		5,641	0.02%
Longnose gar	21	23		24		60		2,018	57		324	3,043	5,570	0.02%
Rock bass	2,302	69	28	105	91	84	382	194		54	302	313	3,925	0.02%
Northern pike	11	29	14	50	3	41	43	401	64	78		2,670	3,404	0.01%
Redhorse sucker	198	44	31	7		20	6	454	78			2,565	3,404	0.01%
Largemouth bass			7	4	57	11	336	686	99	158	1,340		2,698	0.01%
Green sunfish	323		4		4	7				197	1,818	60	2,412	0.01%
Silver lamprey	1,471	41	35		3	19		103	227	228		250	2,378	0.01%
Walleye	7	33	144	112	238	250	284	915					1,984	0.01%
Brown bullhead	44	4	25		4		1,092	389				230	1,787	0.01%
Brook silverside						28	211	947	121	197		169	1,673	0.01%
Logperch	20		4			246	731	406					1,407	0.01%
Rainbow smelt		27	55	7	3			833	399				1,325	0.01%
Muskellunge	4									1,065		227	1,295	0.01%
Silver chub	163		22		31	4			182	474			875	0.003%
Fathead minnow							840						840	0.003%
Orangespotted sunfish	352					44	89	168					652	0.003%
Yellow bullhead					109			354	182				644	0.003%
White sucker		7		4		4	18					471	503	0.002%
Quillback		17	28	17	3			242	99			60	466	0.002%
Bowfin	198									39		227	464	0.002%
Black crappie		3	3				17	192				72	288	0.001%
Golden redhorse										228			228	0.001%
Spotfin shiner									182				182	0.001%
Common shiner			11	11						158			179	0.001%
Bluntnose minnow				7	3	4					164		178	0.001%
Creek chub										160			160	0.001%
Tadpole madtom	145											10	155	0.001%
Sea lamprey			14				113	28					155	0.001%
Black bullhead	17				74	18	43						151	0.001%
Cyprinidae				7			74						81	0.0003%
Bigmouth buffalo									64				64	0.0003%
Northern longear sunfish										54			54	0.0002%
Smallmouth buffalo									32				32	0.0001%
Lamprey spp.		12											12	<0.0001%
Black buffalo						9							9	<0.0001%
Stonecat	8												8	<0.0001%
Madtom (Noturus spp.)		7											7	<0.0001%
Bullhead spp.		4											4	<0.0001%
Threespine stickleback		4											4	<0.0001%
Centrarchidae	4												4	<0.0001%
Northern hog sucker	4												4	<0.0001%
Mimic shiner			4										4	<0.0001%
Steelcolor shiner			4										4	<0.0001%
Hybrid sunfish						4							4	<0.0001%
Redear sunfish					3								3	<0.0001%
Steelhead trout					3								3	<0.0001%
Spotted gar			3										3	<0.0001%
Crappie spp.		3											3	<0.0001%
Total	**1,710,374**	**12,656**	**7,980**	**14,738**	**127,568**	**118,806**	**437,227**	**2,509,601**	**1,677,607**	**10,170,426**	**6,963,782**	**1,852,586**	**25,603,352**	**100.0%**

Individual estimates may not add to totals due to rounding.

Table 10. Estimated Weight (kg) of Fish Impinged each Month at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)

	MONPP Cooling Water + GSW: Estimated Weight of Impinged Fish (kg)													
Species	**Apr 05/06**	**May-05**	**June-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Total**	**% of Total**
Gizzard shad	43,347.653	123.818	50.769	70.905	46.023	92.969	1,939.571	36,849.937	26,231.757	398,654.082	201,856.278	59,493.493	768,757.255	96.0%
Freshwater drum	1,754.526	163.940	433.637	241.264	210.208	194.711	480.389	705.222	2,289.058		12.297	215.854	6,701.106	0.8%
White perch	162.908	152.324	31.738	57.296	412.932	487.708	1026.509	127.450	27.152	108.486	178.589	59.696	2,832.788	0.4%
Yellow perch	398.266	38.722	12.347	7.367	10.050	19.793	12.16637	330.643	18.095	520.061	37.982	906.355	2,311.847	0.3%
Northern pike	24.222	47.199	12.017	45.478	2.517	10.017	10.850	407.256	46.915	121.750		1,388.999	2,117.219	0.3%
Longnose gar	5.322	3.017		0.350		8.128		676.797	6.274		307.416	736.541	1,743.844	0.2%
Bowfin	556.417									194.057		649.851	1,400.326	0.2%
Channel catfish	5.785	16.194	16.344	9.903	8.981	9.950	38.103	738.345	16.549	443.826			1,303.979	0.2%
Redhorse sucker	39.645	31.694	29.223	4.554		4.419	0.133	356.956	50.592			761.844	1,279.060	0.2%
Round goby	451.860	5.903	6.141	12.155	17.682	18.374	50.832	181.948	87.924	89.976	14.488	321.361	1,258.644	0.2%
Smallmouth bass	765.941	2.382	4.216	3.156	7.937	25.884	54.472	55.242	8.860	193.930		82.525	1,204.546	0.2%
Goldfish	520.851	32.288			0.193		4.456	21.290	38.256	304.899	235.032	33.095	1,190.361	0.1%
White bass	2.663	45.754	31.917	89.031	47.653	83.038	65.724	81.705	54.883	659.141		0.229	1,161.736	0.1%
Emerald shiner	134.075	27.867	35.276	1.096	0.617	0.975	8.621	98.410	39.255	174.777	519.084	73.087	1,113.139	0.1%
Largemouth bass			9.307	2.453	4.359	0.156	98.826	128.960	27.262	7.265	767.761		1,046.347	0.1%
Walleye	12.648	31.107	39.649	7.212	45.133	89.865	326.107	333.818					885.539	0.1%
Pumpkinseed	310.010	0.437	0.573	4.133	6.084	3.907	9.812	19.194	5.079	12.353	69.009	270.815	711.407	0.1%
Spottail shiner	182.357	2.248	0.605	0.350	1.605	23.193	58.418	114.199	8.487	64.686	32.580	83.526	572.255	0.1%
Common carp	93.467	12.511		0.066		3.130	0.179	225.882	15.518	29.819	33.005		413.576	0.1%
Quillback		26.529	35.029	27.473	1.477			257.597	64.281			0.537	412.923	0.1%
Bluegill	18.345	1.419	0.513	0.911	0.422	10.575	30.378	28.970	9.629	21.830	150.623	47.224	320.841	0.04%
Trout-perch	81.909	13.620	1.033	0.136	0.348	11.325	70.666	6.620	2.684	52.822	27.231	22.274	290.670	0.04%
White sucker		2.151		0.252		1.755	11.735					270.548	286.441	0.04%
Silver lamprey	107.756	2.906	2.140		0.062	0.574		7.334	67.846	23.436		17.787	229.841	0.03%
Brown bullhead	12.583	0.669	10.351		1.588		50.438	139.194				14.262	229.085	0.03%
Muskellunge	31.477									135.216		28.540	195.232	0.02%
Golden redhorse										193.860			193.860	0.02%
Bigmouth buffalo									85.944				85.944	0.01%
Rock bass	15.478	5.343	3.282	6.402	12.595	8.934	3.300	1.367		0.215	16.777	5.207	78.900	0.01%
White crappie								19.041				26.382	45.423	0.01%
Yellow bullhead					0.543			32.289	1.090				33.923	0.004%
Smallmouth buffalo									29.338				29.338	0.004%
Green sunfish	8.435		0.138		0.018	0.130				0.393	18.439	0.299	27.852	0.003%
Silver chub	9.238		0.157		1.017	0.168			6.017	10.740			27.336	0.003%
Black crappie		0.227	0.055				0.305	1.754				19.857	22.198	0.003%
Fathead minnow							20.846						20.846	0.003%
Rainbow smelt		0.485	0.233	0.041	0.003			18.518	0.407				19.688	0.002%
Black bullhead	0.109				2.144	0.071	12.958						15.282	0.002%
Logperch	0.142		0.011			1.760	7.897	2.095					11.905	0.001%
Sea lamprey			0.679				6.677	0.752					8.108	0.001%
Black buffalo						7.271							7.271	0.001%
Common shiner			0.137	0.117						3.317			3.571	0.0004%
Northern hog sucker	2.629												2.629	0.0003%
Brook silverside						0.025	0.226	1.497	0.254	0.197		0.169	2.366	0.0003%
Spotted gar			1.876										1.876	0.0002%
Orangespotted sunfish	0.882					0.166	0.290	0.409					1.748	0.0002%
Tadpole madtom	1.307											0.050	1.357	0.0002%
Spotfin shiner									1.272				1.272	0.0002%
Creek chub										0.962			0.962	0.0001%
Steelhead trout					0.870								0.870	0.0001%
Centrarchidae	0.853												0.853	0.0001%
Stonecat	0.770												0.770	0.0001%
Crappie spp.		0.674											0.674	0.0001%
Lamprey spp.		0.673											0.673	0.0001%
Bluntnose minnow				0.075	0.069	0.021					0.491		0.657	0.0001%
Madtom (Noturus spp.)		0.318											0.318	<0.0001%
Redear sunfish					0.274								0.274	<0.0001%
Cyprinidae				0.020			0.187						0.207	<0.0001%
Northern longear sunfish										0.107			0.107	<0.0001%
Bullhead spp.		0.044											0.044	<0.0001%
Steelcolor shiner			0.018										0.018	<0.0001%
Mimic shiner			0.014										0.014	<0.0001%
Threespine stickleback		0.009											0.009	<0.0001%
Hybrid sunfish						0.007							0.007	<0.0001%
Total	**49,061**	**792**	**769**	**592**	**843**	**1,119**	**4,401**	**41,971**	**29,241**	**402,022**	**204,277**	**65,530**	**800,619**	**100.0%**

Individual estimates may not add to totals due to rounding.

Figure 13
Total Extrapolated Number of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

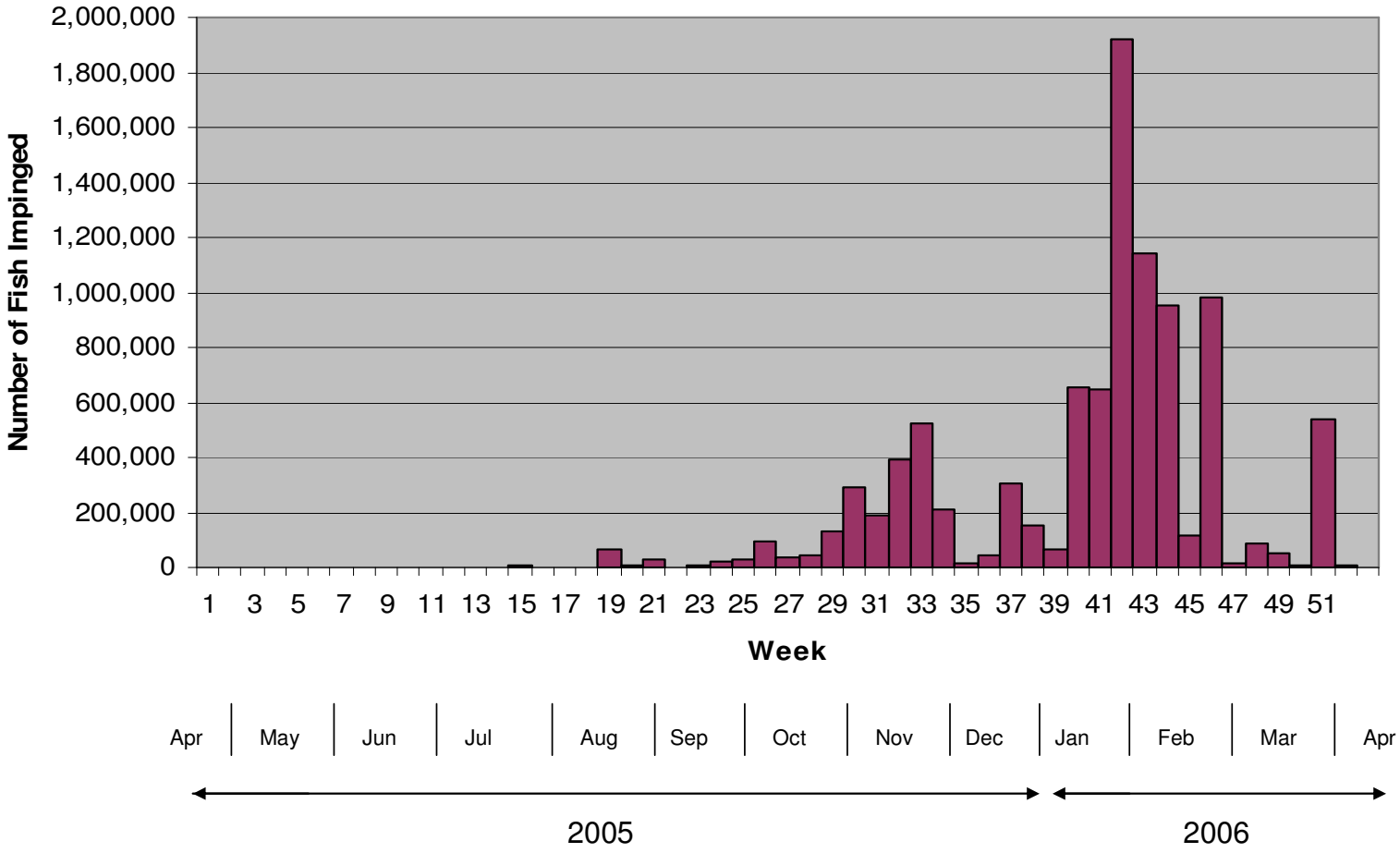


Figure 14
Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

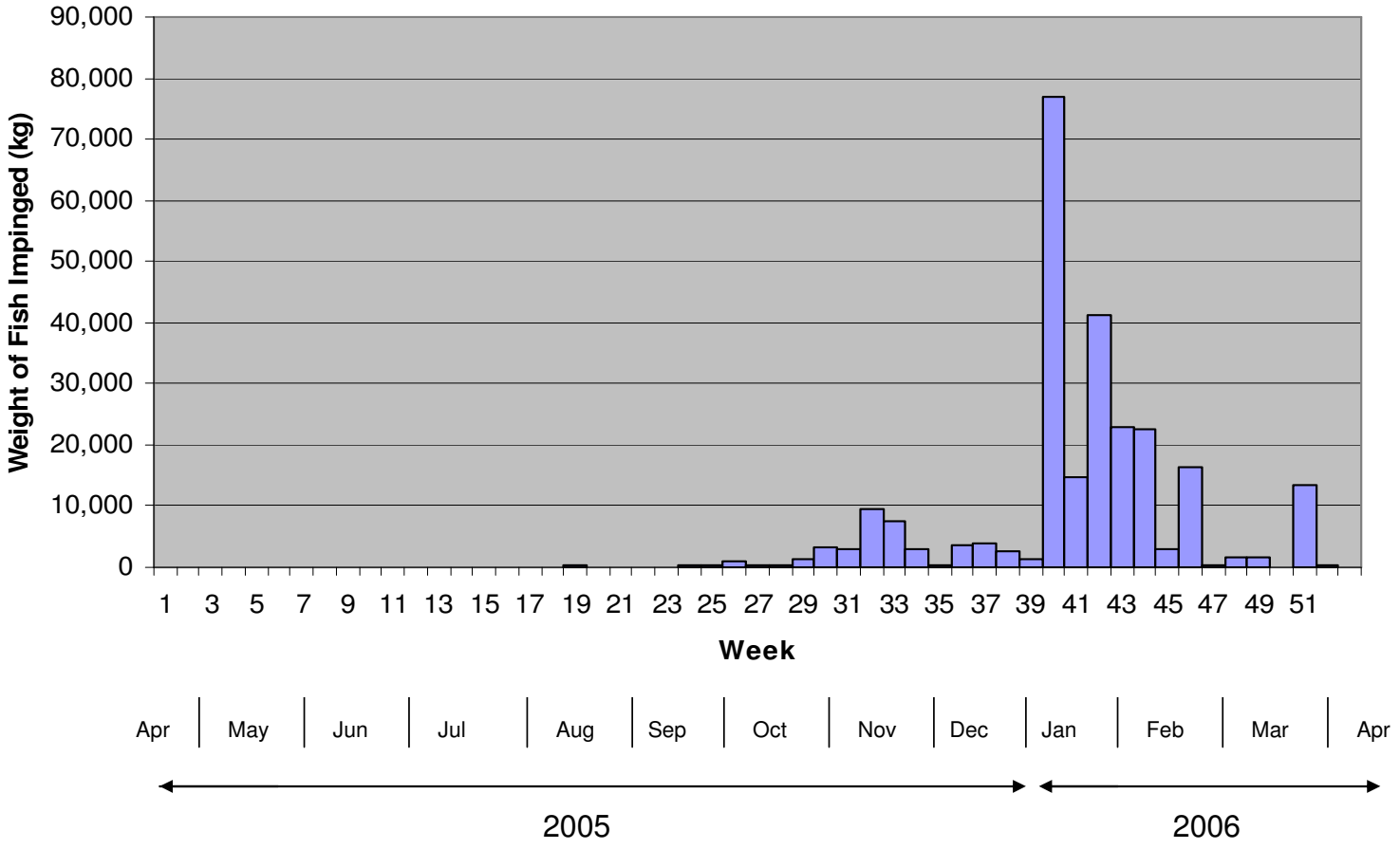


Figure 15
Total Extrapolated Number of Fish Impinged on a Weekly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

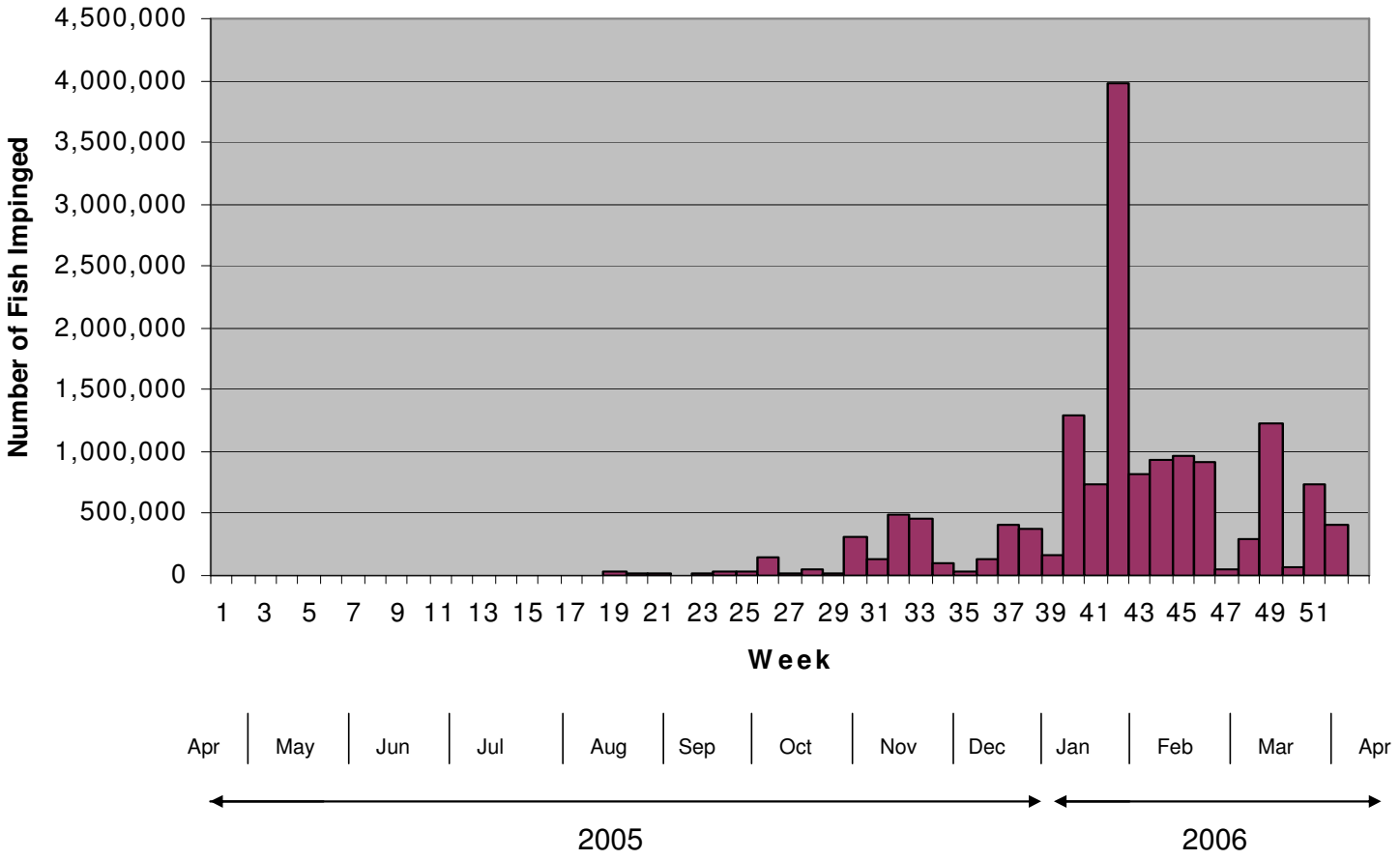


Figure 16
Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

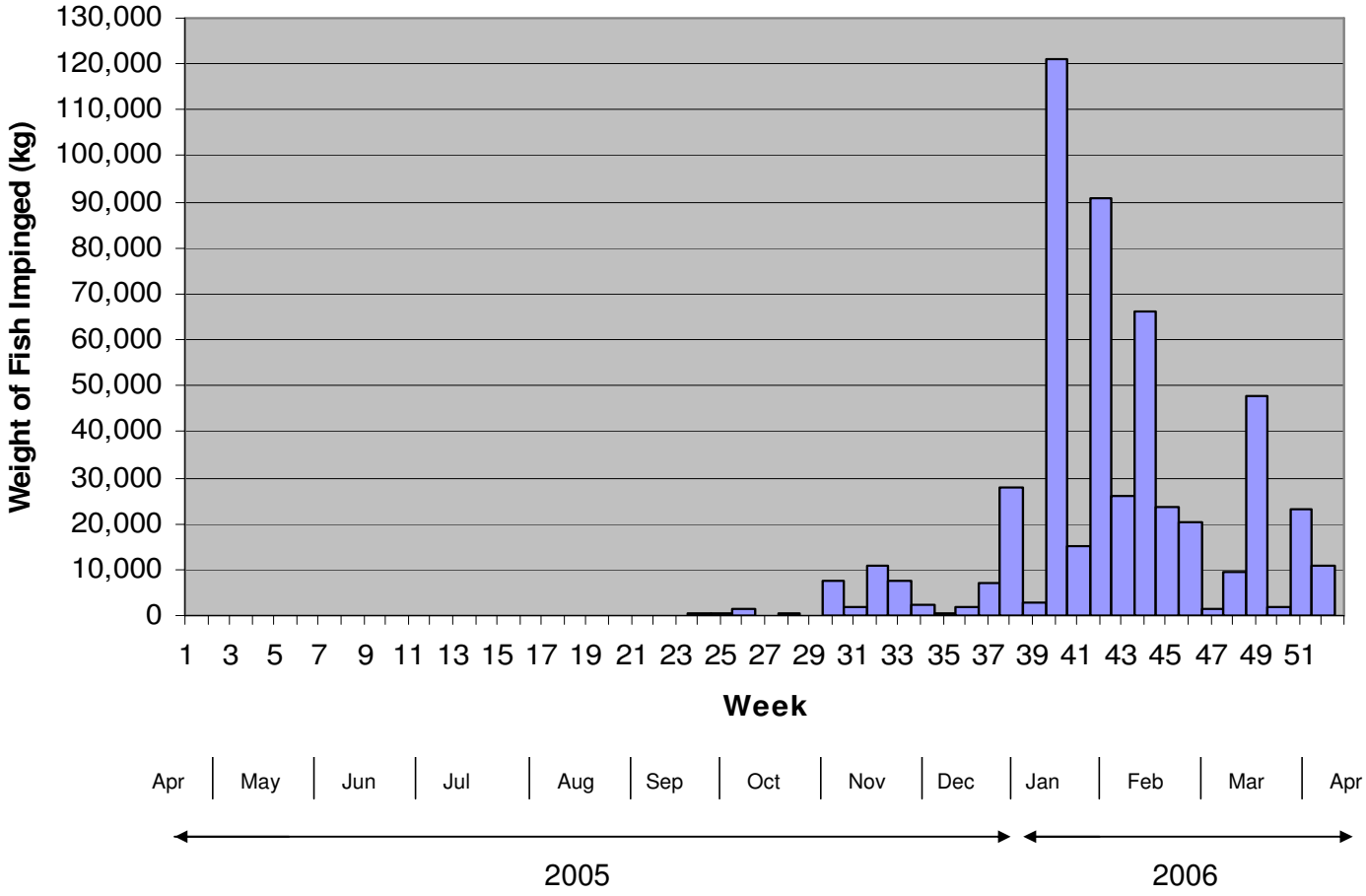


Figure 17
Total Extrapolated Number of Fish Impinged on a Weekly Basis at
Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)

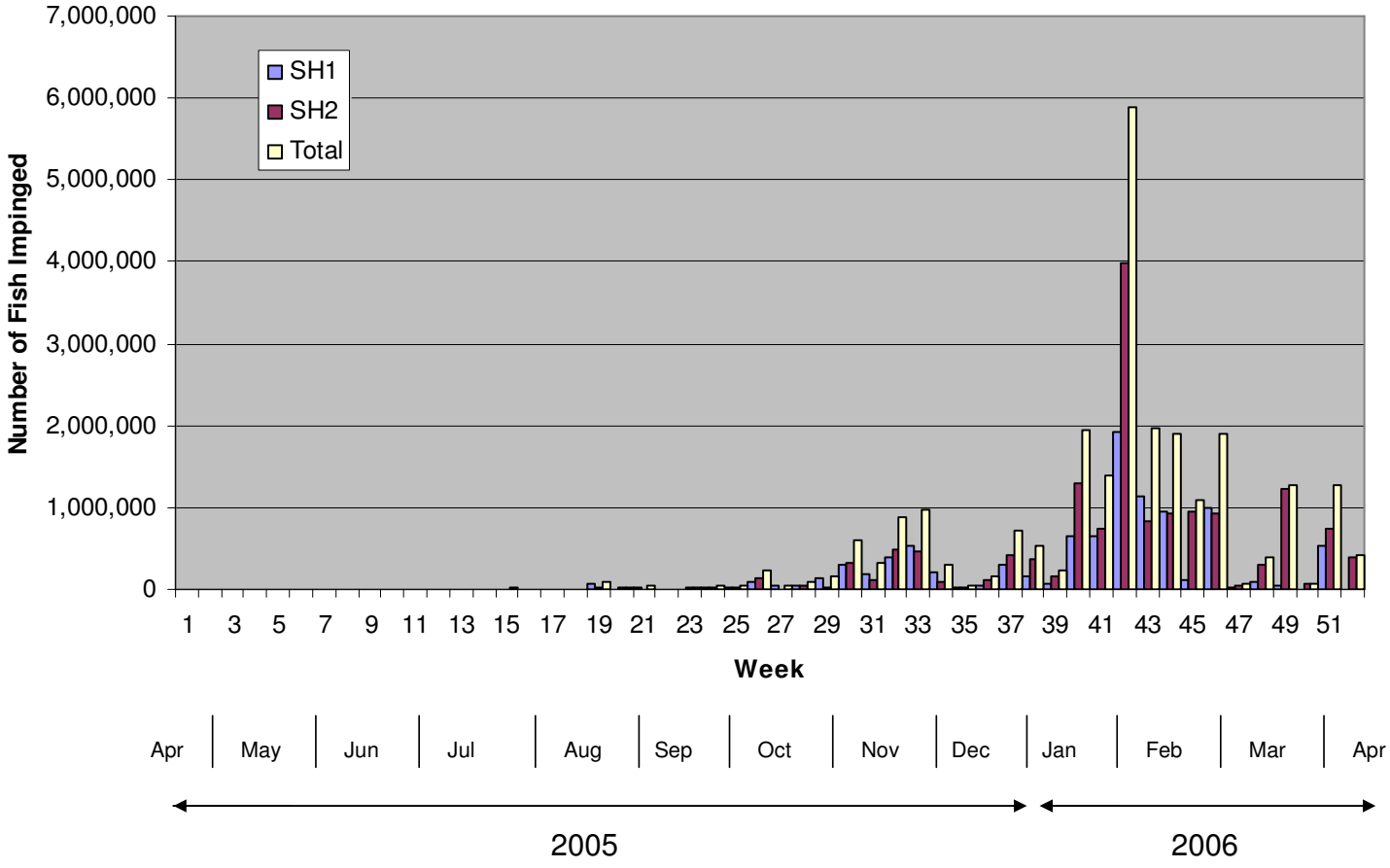


Figure 18
Total Extrapolated Weight (kg) of Fish Impinged on a Weekly Basis at Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April 2006)

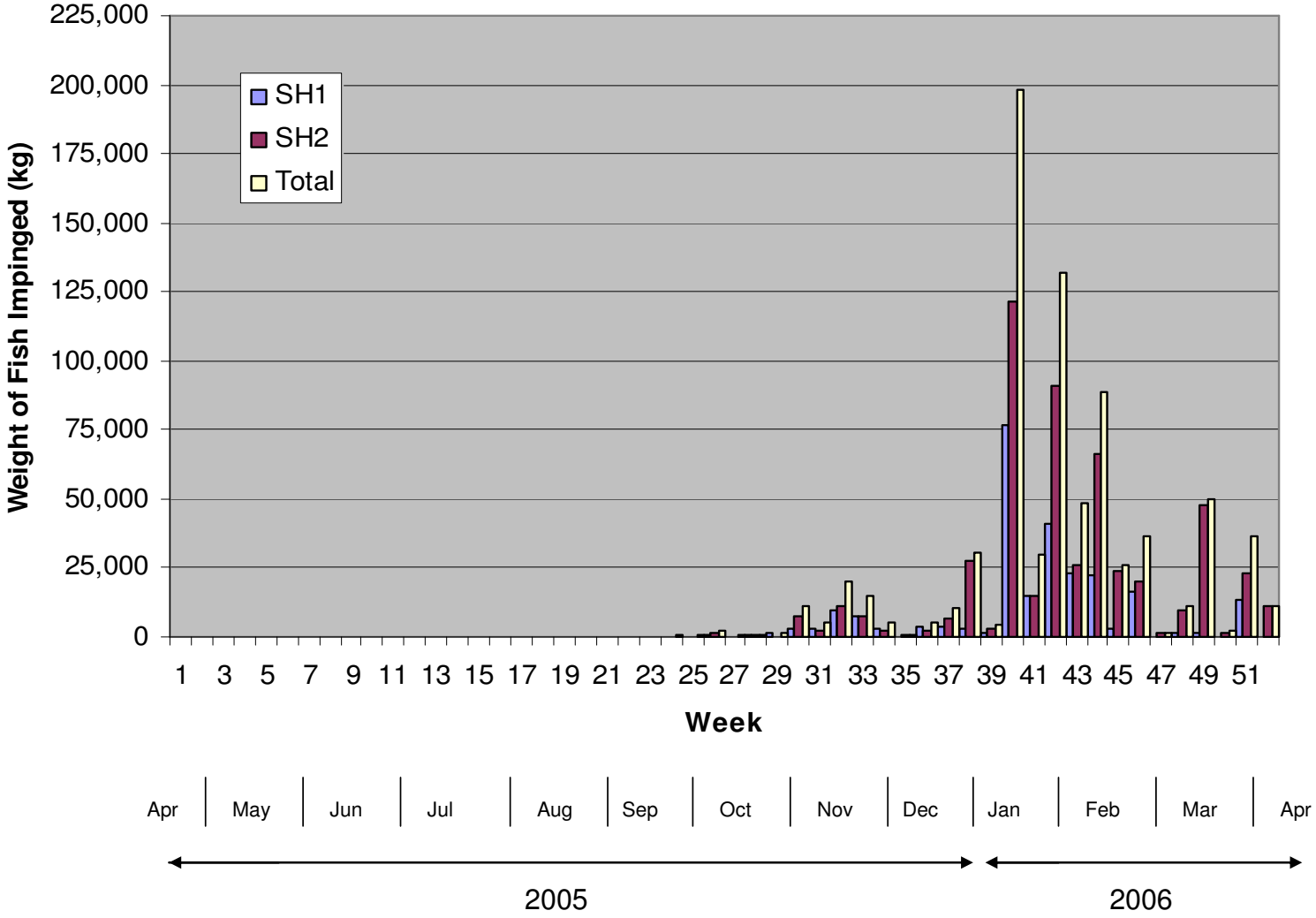


Figure 19
Total Extrapolated Number of Fish Impinged on a Monthly Basis at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April, 2006)

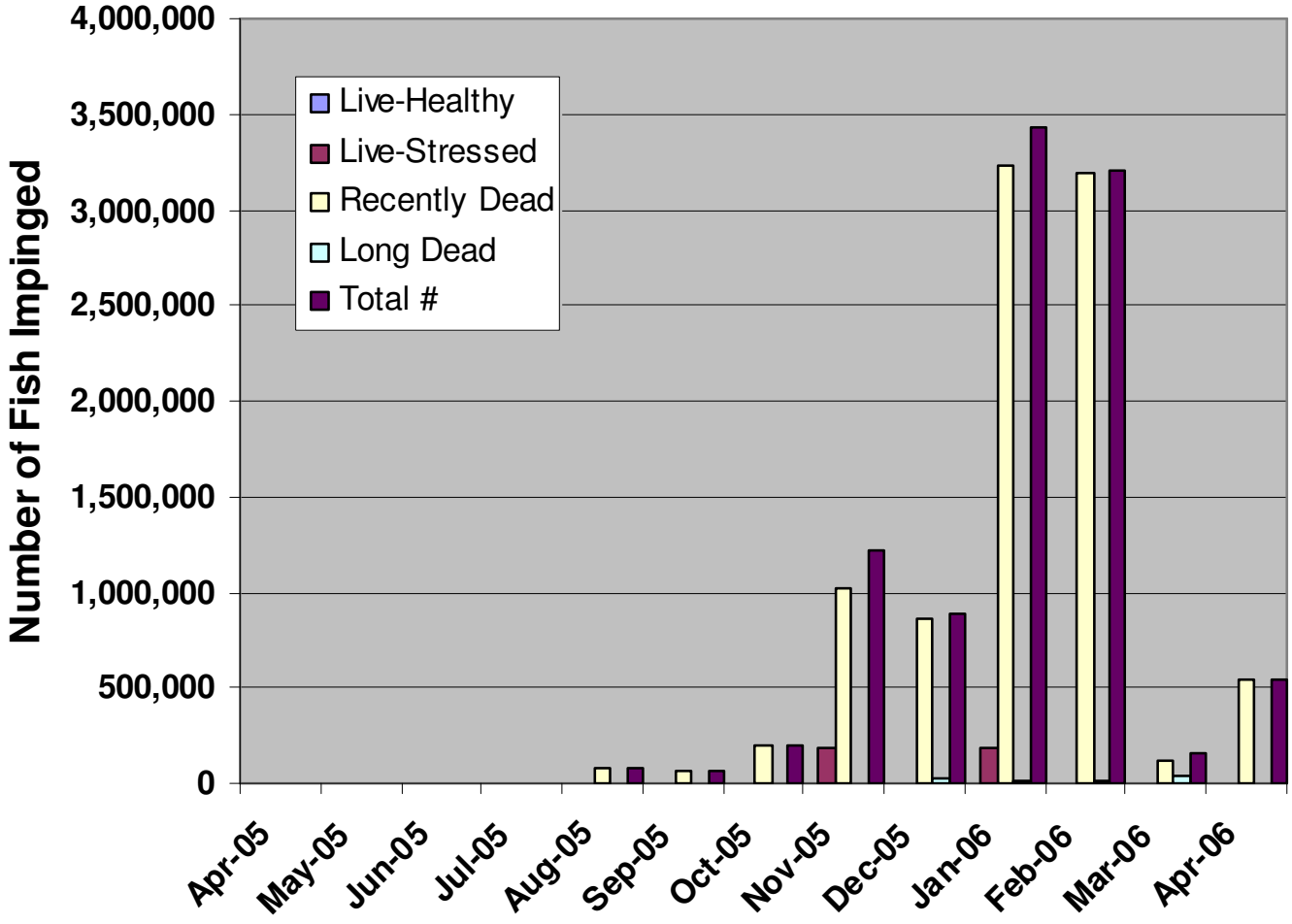


Figure 20
Total Extrapolated Number of Fish Impinged on a Monthly Basis at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April, 2006)

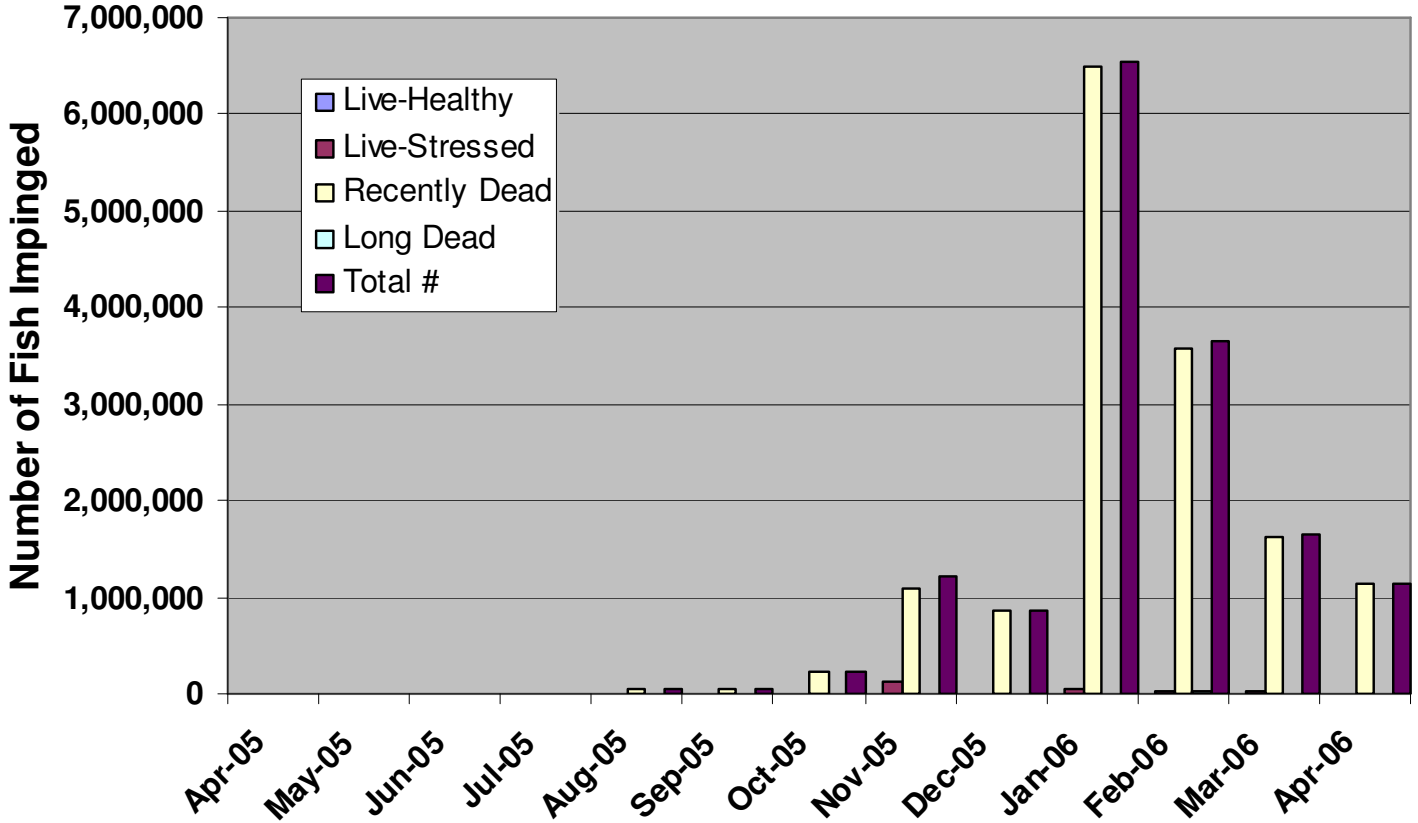
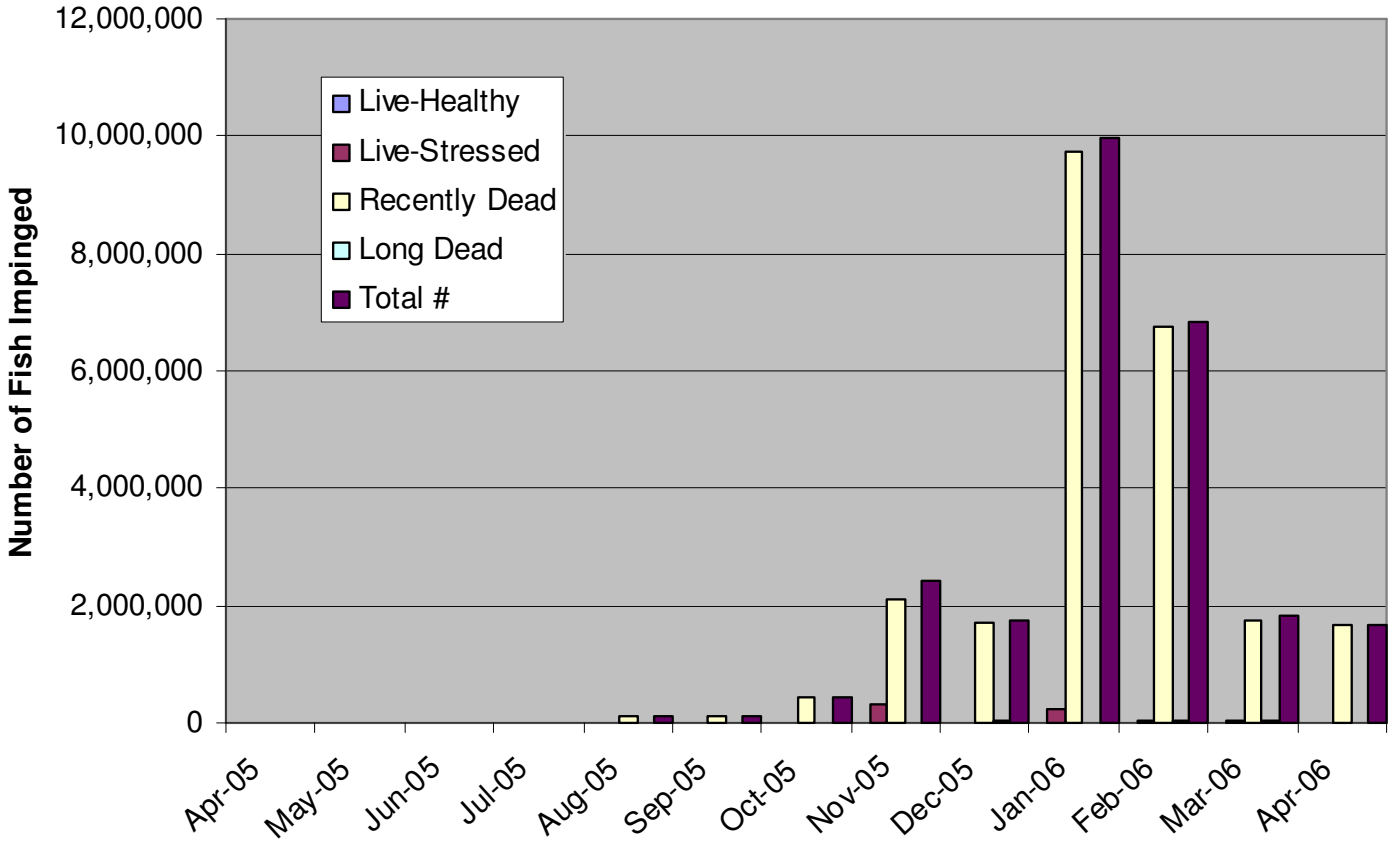


Figure 21
Total Extrapolated Number of Fish Impinged on a Monthly Basis at
Monroe Power Plant SH1 + SH2, Monroe County, Michigan (April 2005 – April, 2006)



3.4.2 Length Distribution of Impinged Fish

The length of impinged fish was recorded as part of the impingement abundance study. A summary of length distributions for commonly impinged specimens is presented in Appendix 22.

3.5 QA/QC for Larval Fish Identification

A summary of the QA/QC process for larval fish identification is presented in Appendix 23. Five percent of 432 samples containing fish larvae were re-examined to evaluate the overall accuracy of the larval fish identification procedure. The error rate for larval identification was determined to be 1.3%.

All fish egg identifications were verified by an independent evaluator.

3.6 QA/QC for Fish Impingement Subsampling

For large impingement collections, fish and debris were mixed evenly and spread over the entire area of the truck bed. Eight (8) depth measurements were recorded and the total volume of the impinged sample was determined by multiplying the area of the truck bed by the average depth of the impinged sample. Subsamples of the fish/debris mixture were randomly collected at various locations within the truck bed and placed in 5-gallon containers. Estimates of the numbers and weights of impinged fish were determined using the volumes of fish/debris processed in the subsamples and the total volume of the impinged sample in the truck.

Eight separate studies were conducted to evaluate the overall effectiveness of the subsampling procedure. The results of these studies are presented in Appendix 24. The subsampling protocol revealed modest variability between 5 gallon containers when the species percentages were less than 5%. This is to be expected.

3.7 Species List

Over the duration of this study 57 different species of fish were impinged at MONPP. The corresponding numbers of fish eggs, larval fish and juvenile fish entrained at MONPP that could be identified to species were 11, 20 and 12, respectively. In many cases, it was possible to identify entrained specimens only to the level of genus or family. A list of taxa entrained and impinged at MONPP is presented in Table 11.

3.8 Water Quality and Meteorological Parameters

Water quality was assessed at the intake of MONPP at the beginning and end of each sampling event. Water quality was also assessed at the mid-point of most sampling events, contingent on the fish sampling protocol during that event. Daily water quality and weather observations are presented in Appendix 25. A summary of water quality and air temperature data is provided in Table 12.

A comparison of influent temperature versus fish impingement is presented in Figure 22. Peak levels of impinged fish were observed when the influent temperature dropped from 43°F (January 29, 2006) to 41°F (January 30, 2006). The majority of fish impinged on January 30, 2006 (99.7%) were gizzard shad.

Table 11
List of Taxa Entrained and Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Common Species Name	Scientific Name	Entrainment			Impingement
		Eggs	Larvae	Juvenile	
Alewife	*Alosa pseudoharengus*	Yes	Yes	Yes	
Bigmouth buffalo	*Ictiobus cyprinellus*				Yes [1]
Black buffalo [1]	*Ictiobus niger* [1]				Yes
Black bullhead	*Ameiurus melas*				Yes
Black crappie	*Pomoxis nigromaculatus*				Yes
Bluegill	*Lepomis macrochirus*		Yes		Yes
Bluntnose minnow	*Pimephales notatus*			Yes	Yes
Bowfin	*Amia calva*				Yes
Brook silverside	*Labidesthes sicculus*		Yes		Yes
Brown bullhead	*Ameiurus nebulosus*				Yes
Channel catfish	*Ictalurus punctatus*		Yes		Yes
Common carp	*Cyprinus carpio*		Yes		Yes
Common shiner	*Luxilus cornutus*				Yes
Creek chub	*Semotilus atromaculatus*				Yes
Emerald shiner	*Notropis atherinoides*		Yes	Yes	Yes
Fathead minnow	*Pimephales promelas*				Yes
Freshwater drum	*Aplodinotus grunniens*	Yes	Yes		Yes
Gizzard shad	*Dorosoma cepedianum*	Yes	Yes	Yes	Yes
Golden redhorse	*Moxostoma erythrurum*				Yes
Goldfish	*Carassius auratus*		Yes		Yes
Green sunfish	*Lepomis cyanellus*				Yes
Lake whitefish	*Coregonus clupesformis*		Yes		
Largemouth bass	*Micropterus salmoides*	Yes			Yes
Logperch	*Percina caprodes*		Yes	Yes	Yes
Longnose gar	*Lepisosteus osseus*				Yes
Mimic shiner	*Notropis volucellus*				Yes
Muskellunge	*Esox masquinongy*				Yes
Northern hog sucker	*Hypentelium nigricans*				Yes
Northern longear sunfish	*Lepomis megalotis*				Yes
Northern pike	*Esox lucius*	Yes			Yes
Orangespotted sunfish	*Lepomis humilis*				Yes
Pumpkinseed	*Lepomis gibbosus*				Yes
Quillback	*Carpiodes cyprinus*	Yes	Yes		Yes
Rainbow smelt	*Osmerus mordax*	Yes	Yes	Yes	Yes
Redear sunfish	*Lepomis microlophus*				Yes
Redhorse sucker	*Moxostoma spp.*				Yes
Rock bass	*Ambloplites rupestris*	Yes		Yes	Yes
Round goby	*Neogobius melanostomus*			Yes	Yes
Sea lamprey	*Petromyzon marinus*				Yes

Table 11 (cont'd)
List of Taxa Entrained and Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

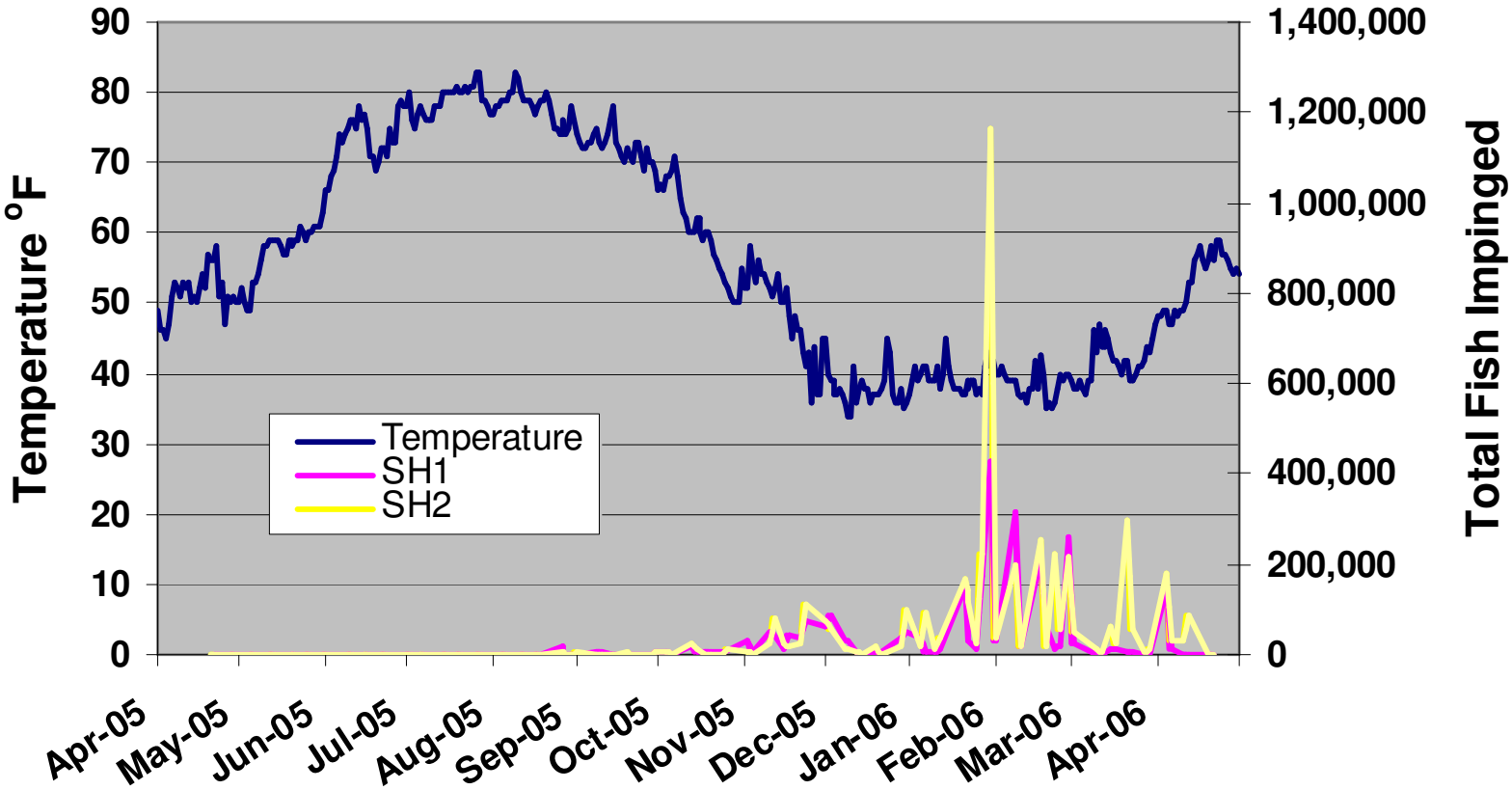
Common Species Name	Scientific Name	Entrainment			Impingement
		Eggs	Larvae	Juvenile	
Silver chub [1]	*Macrhybopsis storeriana* [1]			Yes [1]	Yes [1]
Silver lamprey	*Ichthyomyzon unicuspis*				Yes
Smallmouth bass	*Micropterus dolomieu*	Yes			Yes
Smallmouth buffalo	*Ictiobus bubalus*				Yes
Spotfin shiner	*Cyprinella spiloptera*		Yes		Yes
Spottail shiner	*Notropis hudsonius*				Yes
Spotted gar [1]	*Lepisosteus oculatus* [1]				Yes [1]
Steelcolor shiner	*Cyprinella whipplei*				Yes
Steelhead trout	*Oncorhynchus mykiss*				Yes
Stonecat	*Noturus flavus*				Yes
Tadpole madtom	*Noturus gyrinus*				Yes
Threespine stickleback	*Gasterosteus aculeatus*				Yes
Trout-perch	*Percopsis omiscomaycus*		Yes	Yes	Yes
Walleye	*Sander vitreus*	Yes	Yes		Yes
White bass	*Morone chrysops*		Yes	Yes	Yes
White crappie	*Pomoxis annularis*				Yes
White perch	*Morone americana*	Yes	Yes	Yes	Yes
White sucker	*Catostomus commersonii*		Yes		Yes
Yellow bullhead	*Ameiurus natalis*				Yes
Yellow perch	*Perca flavescens*		Yes		Yes
Common Genus Name	**Scientific Name**				
Basses	*Micropterus spp.*	Yes	Yes		
Bullheads	*Ameiurus spp.*				Yes
Crappies	*Pomoxis spp.*		Yes		Yes
Madtoms	*Noturus spp.*				Yes
Minnows	*Dionda spp.*				Yes
Shiners	*Notropis spp.*		Yes	Yes	
Sunfishes	*Lepomis spp.*		Yes	Yes	Yes
Temperate basses	*Morone spp.*	Yes	Yes	Yes	
Common Family Name	**Scientific Name**				
Carps and minnows	Cyprinidae		Yes	Yes	Yes
Lampreys	Petromyzontidae				Yes
Perches	Percidae		Yes	Yes	
Suckers	Catostomidae		Yes		
Sunfishes	Centrarchidae				Yes

[1] State Status = Special Concern

Table 12
Summary of Water Quality and Air Temperature Data Collected During Entrainment and Impingement Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH
	Minimum	572.5	9.0	8.0	271	4.0	0.7	6.7
APRIL 2005	Maximum	573.9	16.0	24.0	490	12.4	7.1	8.6
	Average	573.2	12.3	14.2	390	9.5	2.2	7.7
	Minimum	572.5	9.3	6.0	149	7.1	0.3	7.6
MAY 2005	Maximum	575.0	19.4	29.0	516	13.0	2.0	8.5
	Average	573.4	14.9	16.0	326	10.1	0.8	8.2
	Minimum	572.0	19.2	17.0	268	3.1	0.5	6.5
JUNE 2005	Maximum	574.0	27.3	32.4	419	10.8	2.0	8.6
	Average	573.0	23.7	23.3	345	8.4	1.0	7.9
	Minimum	572.0	24.5	20.0	268	3.8	0.5	6.5
JULY 2005	Maximum	573.5	29.7	28.0	430	9.3	1.5	8.5
	Average	572.8	27.1	24.9	323	6.5	0.9	7.7
	Minimum	572.0	23.3	18.0	269	3.5	0.3	6.9
AUG 2005	Maximum	573.5	28.3	28.0	705	10.5	1.1	8.7
	Average	572.7	25.7	23.6	393	6.6	0.6	8.1
	Minimum	570.5	18.7	8.0	272	5.1	0.3	6.6
SEP 2005	Maximum	573.3	24.8	23.0	441	10.2	1.0	8.9
	Average	572.5	22.4	18.2	334	6.7	0.5	8.1
	Minimum	572.0	11.4	4.0	186	4.9	0.4	6.1
OCT 2005	Maximum	573.0	20.6	21.0	454	9.9	0.6	8.1
	Average	572.6	15.9	12.2	301	7.2	0.5	7.1
	Minimum	527.0	6.5	-1.0	160	6.9	0.1	6.5
NOV 2005	Maximum	574.0	14.7	15.0	498	12.3	1.1	8.2
	Average	568.1	10.3	6.1	309	8.5	0.5	7.7
	Minimum	573.0	-1.0	-15.0	345	8.6	0.3	6.5
DEC 2005	Maximum	576.0	5.5	12.0	773	12.5	1.0	8.3
	Average	574.8	3.4	-5.1	515	10.4	0.6	7.6
	Minimum	574.0	2.2	-5.0	546	7.5	0.2	6.9
JAN 2006	Maximum	576.0	7.0	10.0	664	15.6	0.4	8.3
	Average	575.4	4.8	2.2	599	10.4	0.3	7.5
	Minimum	575.0	0.8	-15.0	241	8.7	0.1	6.4
FEB 2006	Maximum	576.0	6.0	10.0	680	14.1	0.7	8.3
	Average	575.6	3.9	-3.9	548	11.4	0.3	7.8
	Minimum	575.0	3.7	-6.0	281	8.6	0.1	7.1
MAR 2006	Maximum	575.3	9.0	10.0	680	12.7	1.4	8.4
	Average	575.2	6.4	1.1	562	10.6	0.6	7.8
	Minimum	572.0	8.6	-1.0	487	6.7	0.3	7.3
APR 2006	Maximum	573.5	14.9	15.0	645	10.7	1.2	8.5
	Average	572.8	11.5	8.0	596	8.5	0.5	8.0

Figure 22
Comparison of Influent Temperature versus Daily Numbers of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)



4.0 REFERENCES

Detroit Edison Company. Monroe Power Plant, Study Report on Cooling Water Intake. (1976).

Golder Associates. Impingement and Entrainment Sampling Plans for Monroe and Harbor Beach Power Plants. Prepared for Detroit Edison Company. October 2004.

Michigan Department of Natural Resources. Monroe Fish Impingement Report, 1985-1986. Unpublished draft report (1987).

University of Michigan. Impingement and Entrainment of Fish and Effectiveness of the Fish Return System at the Monroe Power Plant, Western Lake Erie, 1982-1983. Special Report No. 101 of the Great Lakes Research Division. Prepared by Jude D.J., Mansfield P.J., Perrone M. Jr. (1983).

White, A.M. (1986). The condition of fishes impinged at the Ohio Edison Edgewater Generating Facility April 15, 1985 – October 15, 1985. Report Prepared for Ohio Edison Company, Akron, Ohio.

APPENDIX 1

Preservative for Egg and Larval Fish Samples

Davidson's B Solution:

1. 37-40g Formaldelhyde + 10-15g MeOH fill to 100 mL with deionized H_2O to produce a stock solution of 100% Formalin.

2. Dilute to 10% Formalin with deionized H_2O

3. 400 ml of 10% formalin solution + 400 ml glycerol + 2 L ethanol or methanol + 1200 ml distilled water

This solution preserves the chromatophores (dark pigmented patterns) and prevents specimens from drying out. It also clears the tissues so that the myomeres can be counted.

Reference:

Humason, 1972. A Manual of Tissue Techniques. Published by Wilt Freeman.

APPENDIX 2
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Apr-05	2	0	322	3	2	805
2-Apr-05	2	0	322	3	2	805
3-Apr-05	2	0	322	3	2	805
4-Apr-05	2	0	322	3	1	644
5-Apr-05	2	0	322	3	1	644
6-Apr-05	3	0	483	3	0	483
7-Apr-05	3	0	483	3	0	483
8-Apr-05	3	0	483	3	0	483
9-Apr-05	3	0	483	3	1	644
10-Apr-05	3	0	483	3	1	644
11-Apr-05	3	0	483	3	2	805
12-Apr-05	3	0	483	3	2	805
13-Apr-05	3	0	483	3	2	805
14-Apr-05	3	0	483	3	2	805
15-Apr-05	3	0	483	3	2	805
16-Apr-05	3	0	483	3	2	805
17-Apr-05	3	0	483	3	3	966
18-Apr-05	3	0	483	3	3	966
19-Apr-05	3	0	483	3	3	966
20-Apr-05	3	0	483	3	3	966
21-Apr-05	3	0	483	3	3	966
22-Apr-05	3	0	483	3	3	966
23-Apr-05	3	0	483	3	3	966
24-Apr-05	3	0	483	3	3	966
25-Apr-05	3	0	483	2	3	805
26-Apr-05	3	0	483	2	3	805
27-Apr-05	3	0	483	2	3	805
28-Apr-05	3	1	644	2	3	805
29-Apr-05	3	1	644	1	3	644
30-Apr-05	3	2	805	2	3	805

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-May-05	3	2	805	2	3	805
2-May-05	3	2	805	3	3	966
3-May-05	3	2	805	3	3	966
4-May-05	3	3	966	3	3	966
5-May-05	3	3	966	3	3	966
6-May-05	3	3	966	3	2	805
7-May-05	3	3	966	3	2	805
8-May-05	3	3	966	3	2	805
9-May-05	3	3	966	3		483
10-May-05	3	3	966	3	2	805
11-May-05	3	3	966	3	2	805
12-May-05	3	3	966	3	2	805
13-May-05	3	3	966	3	2	805
14-May-05	3	3	966	3	2	805
15-May-05	3	3	966	3	2	805
16-May-05	3	3	966	3	2	805
17-May-05	3	3	966	3	2	805
18-May-05	2	3	805	3	2	805
19-May-05	1	3	644	3	3	966
20-May-05	1	3	644	3	3	966
21-May-05	1	3	644	3	3	966
22-May-05	1	3	644	3	3	966
23-May-05	1	3	644	3	3	966
24-May-05	1	3	644	3	3	966
25-May-05	1	3	644	3	3	966
26-May-05	2	3	805	3	3	966
27-May-05	2	3	805	3	3	966
28-May-05	2	3	805	3	3	966
29-May-05	2	2	644	3	3	966
30-May-05	3	2	805	3	3	966
31-May-05	3	2	805	3	3	966

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Jun-05	3	2	805	3	3	966
2-Jun-05	3	2	805	3	3	966
3-Jun-05	3	2	805	3	3	966
4-Jun-05	3	2	805	3	2	805
5-Jun-05	3	3	966	3	3	966
6-Jun-05	3	3	966	3	3	966
7-Jun-05	3	3	966	3	3	966
8-Jun-05	3	3	966	3	3	966
9-Jun-05	3	3	966	3	3	966
10-Jun-05	3	3	966	3	3	966
11-Jun-05	3	3	966	3	3	966
12-Jun-05	3	3	966	3	3	966
13-Jun-05	3	3	966	3	3	966
14-Jun-05	3	3	966	3	3	966
15-Jun-05	3	3	966	3	3	966
16-Jun-05	3	3	966	3	3	966
17-Jun-05	3	3	966	3	3	966
18-Jun-05	3	3	966	3	3	966
19-Jun-05	3	3	966	3	3	966
20-Jun-05	3	3	966	3	3	966
21-Jun-05	3	3	966	3	3	966
22-Jun-05	3	3	966	3	3	966
23-Jun-05	3	3	966	3	3	966
24-Jun-05	3	3	966	3	3	966
25-Jun-05	3	3	966	3	3	966
26-Jun-05	3	3	966	3	3	966
27-Jun-05	3	3	966	3	3	966
28-Jun-05	3	3	966	3	3	966
29-Jun-05	3	3	966	3	3	966
30-Jun-05	3	3	966	3	3	966

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Jul-05	3	3	966	3	3	966
2-Jul-05	3	3	966	3	3	966
3-Jul-05	3	3	966	3	3	966
4-Jul-05	3	3	966	3	3	966
5-Jul-05	3	3	966	3	3	966
6-Jul-05	3	3	966	3	3	966
7-Jul-05	3	3	966	3	3	966
8-Jul-05	3	3	966	3	3	966
9-Jul-05	3	3	966	3	3	966
10-Jul-05	3	3	966	3	3	966
11-Jul-05	3	3	966	3	3	966
12-Jul-05	3	3	966	3	3	966
13-Jul-05	3	3	966	3	3	966
14-Jul-05	3	3	966	3	3	966
15-Jul-05	3	3	966	3	3	966
16-Jul-05	3	3	966	3	3	966
17-Jul-05	3	3	966	3	3	966
18-Jul-05	3	3	966	3	3	966
19-Jul-05	3	3	966	3	3	966
20-Jul-05	3	3	966	3	3	966
21-Jul-05	3	3	966	3	3	966
22-Jul-05	3	3	966	3	3	966
23-Jul-05	3	3	966	3	3	966
24-Jul-05	3	3	966	3	3	966
25-Jul-05	3	3	966	3	3	966
26-Jul-05	3	3	966	3	3	966
27-Jul-05	3	3	966	3	3	966
28-Jul-05	3	3	966	3	3	966
29-Jul-05	3	3	966	3	3	966
30-Jul-05	3	3	966	3	3	966
31-Jul-05	3	3	966	3	3	966

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Aug-05	3	3	966	3	3	966
2-Aug-05	3	3	966	3	3	966
3-Aug-05	3	3	966	3	3	966
4-Aug-05	3	3	966	3	3	966
5-Aug-05	3	3	966	3	3	966
6-Aug-05	3	3	966	3	3	966
7-Aug-05	3	3	966	3	3	966
8-Aug-05	3	3	966	3	3	966
9-Aug-05	3	3	966	3	3	966
10-Aug-05	3	3	966	3	3	966
11-Aug-05	3	2	805	3	3	966
12-Aug-05	3	2	805	3	3	966
13-Aug-05	3	3	966	3	3	966
14-Aug-05	3	3	966	3	3	966
15-Aug-05	3	3	966	3	3	966
16-Aug-05	3	3	966	3	3	966
17-Aug-05	3	3	966	3	3	966
18-Aug-05	3	3	966	3	3	966
19-Aug-05	3	3	966	3	3	966
20-Aug-05	3	3	966	3	3	966
21-Aug-05	3	3	966	3	3	966
22-Aug-05	3	3	966	3	3	966
23-Aug-05	3	3	966	3	3	966
24-Aug-05	3	3	966	3	3	966
25-Aug-05	3	3	966	3	3	966
26-Aug-05	3	3	966	3	3	966
27-Aug-05	3	3	966	3	3	966
28-Aug-05	3	3	966	3	3	966
29-Aug-05	3	3	966	3	3	966
30-Aug-05	3	3	966	3	3	966
31-Aug-05	2	3	805	3	3	966

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Sep-05	1	3	644	3	3	966
2-Sep-05	1	3	644	3	3	966
3-Sep-05	1	3	644	3	3	966
4-Sep-05	2	3	805	3	3	966
5-Sep-05	2	3	805	3	3	966
6-Sep-05	2	3	805	3	3	966
7-Sep-05	3	3	966	3	3	966
8-Sep-05	3	3	966	3	3	966
9-Sep-05	3	3	966	3	3	966
10-Sep-05	3	3	966	3	3	966
11-Sep-05	3	3	966	3	3	966
12-Sep-05	3	3	966	3	3	966
13-Sep-05	3	3	966	3	3	966
14-Sep-05	3	3	966	3	3	966
15-Sep-05	3	3	966	3	3	966
16-Sep-05	3	3	966	3	3	966
17-Sep-05	3	3	966	3	3	966
18-Sep-05	3	3	966	3	3	966
19-Sep-05	3	3	966	3	3	966
20-Sep-05	3	3	966	3	3	966
21-Sep-05	3	3	966	3	3	966
22-Sep-05	3	3	966	3	3	966
23-Sep-05	3	3	966	3	3	966
24-Sep-05	3	3	966	3	3	966
25-Sep-05	3	3	966	3	2	805
26-Sep-05	3	3	966	3	1	644
27-Sep-05	3	3	966	3	1	644
28-Sep-05	3	3	966	3	2	805
29-Sep-05	3	3	966	3	3	966
30-Sep-05	3	3	966	3	3	966

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Oct-05	3	3	966	3	3	966
2-Oct-05	3	3	966	3	3	966
3-Oct-05	3	2	805	3	3	966
4-Oct-05	3	2	805	3	3	966
5-Oct-05	2	1	483	3	3	966
6-Oct-05	2	1	483	3	3	966
7-Oct-05	2	2	644	3	3	966
8-Oct-05	2	3	805	3	3	966
9-Oct-05	2	3	805	3	3	966
10-Oct-05	2	3	805	3	3	966
11-Oct-05	2	3	805	3	3	966
12-Oct-05	2	3	805	3	3	966
13-Oct-05	2	3	805	3	3	966
14-Oct-05	2	3	805	3	3	966
15-Oct-05	2	3	805	3	3	966
16-Oct-05	2	3	805	3	3	966
17-Oct-05	2	3	805	3	3	966
18-Oct-05	2	3	805	3	3	966
19-Oct-05	2	3	805	3	3	966
20-Oct-05	2	3	805	3	3	966
21-Oct-05	2	3	805	2	3	805
22-Oct-05	2	3	805	2	3	805
23-Oct-05	2	3	805	1	3	644
24-Oct-05	2	3	805	1	3	644
25-Oct-05	2	3	805	1	3	644
26-Oct-05	2	3	805	1	3	644
27-Oct-05	2	3	805	1	3	644
28-Oct-05	2	3	805	1	3	644
29-Oct-05	2	3	805	1	3	644
30-Oct-05	2	3	805	1	2	483
31-Oct-05	2	3	805	1	2	483

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Nov-05	2	3	805	2	2	644
2-Nov-05	2	3	805	2	2	644
3-Nov-05	2	3	805	2	2	644
4-Nov-05	2	3	805	2	2	644
5-Nov-05	2	3	805	3	2	805
6-Nov-05	2	3	805	3	2	805
7-Nov-05	2	3	805	2	2	644
8-Nov-05	2	3	805	2	2	644
9-Nov-05	2	3	805	3	2	805
10-Nov-05	2	3	805	3	3	966
11-Nov-05	2	3	805	3	2	805
12-Nov-05	2	3	805	3	2	805
13-Nov-05	2	3	805	3	3	966
14-Nov-05	2	3	805	3	2	805
15-Nov-05	2	3	805	3	2	805
16-Nov-05	2	3	805	3	3	966
17-Nov-05	2	3	805	2	3	805
18-Nov-05	2	2	644	2	2	644
19-Nov-05	2	2	644	2	2	644
20-Nov-05	2	2	644	2	2	644
21-Nov-05	2	2	644	2	2	644
22-Nov-05	3	2	805	2	2	644
23-Nov-05	2	2	644	2	2	644
24-Nov-05	2	2	644	2	2	644
25-Nov-05	2	2	644	2	2	644
26-Nov-05	2	2	644	2	2	644
27-Nov-05	2	2	644	2	2	644
28-Nov-05	2	2	644	2	2	644
29-Nov-05	2	3	805	2	2	644
30-Nov-05	2	3	805	2	2	644

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Dec-05	2	2	644	2	2	644
2-Dec-05	2	2	644	2	2	644
3-Dec-05	2	2	644	2	2	644
4-Dec-05	2	2	644	2	2	644
5-Dec-05	2	2	644	2	2	644
6-Dec-05	2	2	644	2	2	644
7-Dec-05	2	2	644	2	2	644
8-Dec-05	2	2	644	2	2	644
9-Dec-05	2	2	644	2	2	644
10-Dec-05	2	2	644	2	2	644
11-Dec-05	2	2	644	2	2	644
12-Dec-05	2	2	644	2	2	644
13-Dec-05	2	2	644	2	2	644
14-Dec-05	2	2	644	2	2	644
15-Dec-05	2	2	644	2	2	644
16-Dec-05	2	2	644	2	2	644
17-Dec-05	2	2	644	2	2	644
18-Dec-05	2	2	644	2	2	644
19-Dec-05	2	2	644	2	2	644
20-Dec-05	2	2	644	2	2	644
21-Dec-05	2	2	644	2	2	644
22-Dec-05	2	2	644	2	2	644
23-Dec-05	2	2	644	2	2	644
24-Dec-05	2	2	644	2	2	644
25-Dec-05	2	2	644	2	2	644
26-Dec-05	2	2	644	2	2	644
27-Dec-05	2	2	644	2	2	644
28-Dec-05	2	2	644	2	2	644
29-Dec-05	2	2	644	2	2	644
30-Dec-05	2	2	644	2	2	644
31-Dec-05	2	2	644	2	2	644

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Jan-06	2	2	644	2	2	644
2-Jan-06	2	2	644	2	2	644
3-Jan-06	2	2	644	2	2	644
4-Jan-06	2	2	644	2	2	644
5-Jan-06	2	2	644	2	2	644
6-Jan-06	2	2	644	2	2	644
7-Jan-06	2	2	644	2	2	644
8-Jan-06	2	2	644	2	2	644
9-Jan-06	2	2	644	2	2	644
10-Jan-06	2	2	644	2	0	322
11-Jan-06	2	2	644	2	0	322
12-Jan-06	2	2	644	2	0	322
13-Jan-06	2	2	644	2	0	322
14-Jan-06	2	2	644	2	0	322
15-Jan-06	2	2	644	3	0	483
16-Jan-06	2	2	644	2	1	483
17-Jan-06	2	2	644	2	1	483
18-Jan-06	1	2	483	2	1	483
19-Jan-06	1	2	483	2	0	322
20-Jan-06	1	2	483	2	0	322
21-Jan-06	2	2	644	2	0	322
22-Jan-06	2	2	644	2	0	322
23-Jan-06	2	2	644	2	0	322
24-Jan-06	2	2	644	2	2	644
25-Jan-06	2	2	644	2	2	644
26-Jan-06	2	2	644	2	2	644
27-Jan-06	2	2	644	2	2	644
28-Jan-06	2	2	644	2	2	644
29-Jan-06	2	2	644	2	2	644
30-Jan-06	1	2	483	2	2	644
31-Jan-06	1	2	483	2	2	644

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Feb-06	2	2	644	2	2	644
2-Feb-06	1	2	483	0	2	322
3-Feb-06	2	2	644	2	2	644
4-Feb-06	2	2	644	2	2	644
5-Feb-06	2	2	644	2	2	644
6-Feb-06	2	2	644	2	2	644
7-Feb-06	2	2	644	3	2	805
8-Feb-06	2	2	644	2	2	644
9-Feb-06	2	2	644	2	2	644
10-Feb-06	2	2	644	3	2	805
11-Feb-06	2	1	483	2	2	644
12-Feb-06	2	2	644	2	2	644
13-Feb-06	2	2	644	2	2	644
14-Feb-06	2	2	644	2	2	644
15-Feb-06	2	2	644	2	2	644
16-Feb-06	2	2	644	2	2	644
17-Feb-06	2	2	644	2	2	644
18-Feb-06	2	2	644	2	2	644
19-Feb-06	2	2	644	2	1	483
20-Feb-06	2	2	644	2	2	644
21-Feb-06	2	2	644	2	2	644
22-Feb-06	2	2	644	2	2	644
23-Feb-06	2	2	644	2	2	644
24-Feb-06	2	2	644	2	2	644
25-Feb-06	2	2	644	2	2	644
26-Feb-06	2	2	644	2	2	644
27-Feb-06	2	2	644	2	2	644
28-Feb-06	2	2	644	2	2	644

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Mar-06	2	2	644	2	2	644
2-Mar-06	2	2	644	2	2	644
3-Mar-06	2	2	644	2	2	644
4-Mar-06	2	2	644	2	2	644
5-Mar-06	2	2	644	2	2	644
6-Mar-06	0	2	322	2	2	644
7-Mar-06	0	2	322	2	2	644
8-Mar-06	0	2	322	2	2	644
9-Mar-06	0	2	322	2	2	644
10-Mar-06	0	2	322	2	2	644
11-Mar-06	0	2	322	2	2	644
12-Mar-06	0	2	322	3	2	805
13-Mar-06	0	2	322	2	2	644
14-Mar-06	0	2	322	2	2	644
15-Mar-06	0	2	322	2	2	644
16-Mar-06	0	2	322	2	2	644
17-Mar-06	0	2	322	2	2	644
18-Mar-06	0	2	322	2	2	644
19-Mar-06	0	2	322	2	2	644
20-Mar-06	0	2	322	2	2	644
21-Mar-06	0	2	322	2	2	644
22-Mar-06	0	2	322	2	2	644
23-Mar-06	0	2	322	2	2	644
24-Mar-06	0	2	322	2	2	644
25-Mar-06	0	2	322	2	2	644
26-Mar-06	0	2	322	3	2	805
27-Mar-06	0	2	322	2	2	644
28-Mar-06	0	2	322	2	2	644
29-Mar-06	0	2	322	2	2	644
30-Mar-06	0	2	322	2	2	644
31-Mar-06	0	2	322	2	2	644

APPENDIX 2 (cont'd)
Cooling Water Volumes for Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Date	MONPP SH1			MONPP SH2		
	Circulating Pumps in Operation		Cooling Water	Circulating Pumps in Operation		Cooling Water
	Unit 1	Unit 2	MGD	Unit 3	Unit 4	MGD
1-Apr-06	0	2	322	2	3	805
2-Apr-06	0	2	322	2	3	805
3-Apr-06	0	2	322	3	3	966
4-Apr-06	0	2	322	3	3	966
5-Apr-06	0	2	322	3	3	966
6-Apr-06	0	2	322	3	3	966
7-Apr-06	0	2	322	3	3	966
8-Apr-06	0	2	322	3	3	966
9-Apr-06	0	2	322	3	3	966
10-Apr-06	0	2	322	3	3	966
11-Apr-06	0	3	483	3	3	966
12-Apr-06	0	3	483	3	3	966
13-Apr-06	0	3	483	3	3	966
14-Apr-06	0	3	483	3	3	966
15-Apr-06	0	3	483	3	3	966
16-Apr-06	0	3	483	3	3	966
17-Apr-06	0	3	483	3	3	966
18-Apr-06	0	3	483	2	3	805
19-Apr-06	0	3	483	1	3	644
20-Apr-06	0	3	483	1	3	644
21-Apr-06	2	3	805	1	3	644
22-Apr-06	2	3	805	2	3	805
23-Apr-06	2	3	805	2	3	805
24-Apr-06	2	3	805	3	3	966
25-Apr-06	2	3	805	3	3	966
26-Apr-06	2	3	805	3	3	966
27-Apr-06	2	3	805	3	3	966
28-Apr-06	2	3	805	3	3	966
29-Apr-06	2	3	805	3	3	966
30-Apr-06	2	3	805	3	3	966

APPENDIX 3
Monthly Cooling Water and General Service Water Volumes for Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	SH1 + SH2 Cooling Water Millon Gallons	001B Million Gallons	001F Million Gallons	001B + 001F Million Gallons
April 2005	19,803	151	147	298
May 2005	53,291	235	333	568
June 2005	57,155	245	366	611
July 2005	59,892	301	406	708
August 2005	59,409	241	396	637
September 2005	55,545	235	375	610
October 2005	50,876	284	388	671
November 2005	44,114	263	373	636
December 2005	39,928	308	384	692
January 2006	35,259	284	395	679
February 2006	35,581	253	356	609
March 2006	31,878	278	386	664
April 2006	19,803	129	182	311

APPENDIX 4
Estimated Daily Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP Eggs Collected			Volume Filtered (m^3)	MONPP Eggs per 1,000 m^3			Flow MGD	Flow 1,000 m^3	MONPP Estimated Eggs per Day		
			Live	Dead	Total #		Live	Dead	Total #			Live	Dead	Total #
	19-Apr-05	Freshwater drum	0	1	1	1,408	0.00	0.71	0.71	1,449	5,485	0	3,896	3,896
	19-Apr-05	Walleye	2	2	4	1,408	1.42	1.42	2.84	1,449	5,485	7,791	7,791	15,583
1	19-Apr-05	Daily Total	2	3	5		1.42	2.13	3.55	1,449	5,485	7,791	11,687	19,478
	26-Apr-05	Northen pike	0	1	1	2,672	0.00	0.37	0.37	1,288	4,876	0	1,825	1,825
	26-Apr-05	Unknown	0	1	1	2,672	0.00	0.37	0.37	1,288	4,876	0	1,825	1,825
	26-Apr-05	Walleye	0	1	1	2,672	0.00	0.37	0.37	1,288	4,876	0	1,825	1,825
2	26-Apr-05	Daily Total	0	3	3		0.00	1.12	1.12	1,288	4,876	0	5,474	5,474
	27-Apr-05	Rainbow smelt	1	0	1	1,856	0.54	0.00	0.54	1,288	4,876	2,627	0	2,627
	27-Apr-05	Walleye	0	1	1	1,856	0.00	0.54	0.54	1,288	4,876	0	2,627	2,627
3	27-Apr-05	Daily Total	1	1	2		0.54	0.54	1.08	1,288	4,876	2,627	2,627	5,254
	3-May-05	Northen pike	0	1	1	1,744	0.00	0.57	0.57	1,771	6,704	0	3,844	3,844
	3-May-05	Walleye	1	0	1	1,744	0.57	0.00	0.57	1,771	6,704	3,844	0	3,844
4	3-May-05	Daily Total	1	1	2		0.57	0.57	1.15	1,771	6,704	3,844	3,844	7,688
	4-May-05	Walleye	0	1	1	1,522	0.00	0.57	0.57	1,932	7,313	0	4,193	4,193
5	4-May-05	Daily Total	0	1	1		0.00	0.57	0.57	1,932	7,313	0	4,193	4,193
	10-May-05	Gizzard shad	2	0	2	1,360	1.47	0.00	1.47	1,771	6,704	9,859	0	9,859
	10-May-05	Largemouth bass	5	1	6	1,360	3.68	0.74	4.41	1,771	6,704	24,647	4,929	29,576
	10-May-05	Micropterus spp.	2	0	2	1,360	1.47	0.00	1.47	1,771	6,704	9,859	0	9,859
	10-May-05	Quillback	8	0	8	1,360	5.88	0.00	5.88	1,771	6,704	39,435	0	39,435
	10-May-05	Rock bass	0	1	1	1,360	0.00	0.74	0.74	1,771	6,704	0	4,929	4,929
	10-May-05	Smallmouth bass	86	10	96	1,360	63.24	7.35	70.59	1,771	6,704	423,926	49,294	473,220
	10-May-05	Walleye	2	0	2	1,360	1.47	0.00	1.47	1,771	6,704	9,859	0	9,859
6	10-May-05	Daily Total	105	12	117		77.21	8.82	86.03	1,771	6,704	517,584	59,152	576,736
	11-May-05	Largemouth bass	1	0	1	1,088	0.92	0.00	0.92	1,771	6,704	6,162	0	6,162
	11-May-05	Micropterus spp.	22	0	22	1,088	20.22	0.00	20.22	1,771	6,704	135,558	0	135,558
	11-May-05	Rock bass	7	0	7	1,088	6.43	0.00	6.43	1,771	6,704	43,132	0	43,132
	11-May-05	Smallmouth bass	21	0	21	1,088	19.30	0.00	19.30	1,771	6,704	129,396	0	129,396
	11-May-05	Unknown	0	1	1	1,088	0.00	0.92	0.92	1,771	6,704	0	6,162	6,162
	11-May-05	Walleye	1	0	1	1,088	0.92	0.00	0.92	1,771	6,704	6,162	0	6,162
7	11-May-05	Daily Total	52	1	53		47.79	0.92	48.71	1,771	6,704	320,409	6,162	326,571
	18-May-05	Alewife/Shad/Smelt	1	1	2	1,168	0.86	0.86	1.71	1,610	6,094	5,218	5,218	10,436
	18-May-05	Largemouth bass	2	0	2	1,168	1.71	0.00	1.71	1,610	6,094	10,436	0	10,436
8	18-May-05	Daily Total	3	1	4		2.57	0.86	3.42	1,610	6,094	15,654	5,218	20,872
	19-May-05	Quillback	1	0	1	960	1.04	0.00	1.04	1,610	6,094	6,348	0	6,348
	19-May-05	Smallmouth bass	5	9	14	960	5.21	9.38	14.58	1,610	6,094	31,742	57,136	88,878
9	19-May-05	Daily Total	6	9	15		6.25	9.38	15.63	1,610	6,094	38,091	57,136	95,226
	25-May-05	Alewife/Shad/Smelt	1	0	1	912	1.10	0.00	1.10	1,610	6,094	6,683	0	6,683
	25-May-05	Morone spp.	2	0	2	912	2.19	0.00	2.19	1,610	6,094	13,365	0	13,365
	25-May-05	Quillback	8	1	9	912	8.77	1.10	9.87	1,610	6,094	53,460	6,683	60,143
	25-May-05	Smallmouth bass	8	1	9	912	8.77	1.10	9.87	1,610	6,094	53,460	6,683	60,143
	25-May-05	Unknown	0	1	1	912	0.00	1.10	1.10	1,610	6,094	0	6,683	6,683
10	25-May-05	Daily Total	19	3	22		20.83	3.29	24.12	1,610	6,094	126,969	20,048	147,016

Individual estimates may not add to totals due to rounding

APPENDIX 4 (cont'd)
Estimated Daily Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP Eggs Collected			Volume Filtered (m^3)	MONPP Eggs per 1,000 m^3			Flow MGD	Flow 1,000 m^3	MONPP Estimated Eggs per Day		
			Live	Dead	Total #		Live	Dead	Total #			Live	Dead	Total #
	26-May-05	Gizzard shad	51	0	51	1,024	49.80	0.00	49.80	1,771	6,704	333,888	0	333,888
	26-May-05	Smallmouth bass	2	1	3	1,024	1.95	0.98	2.93	1,771	6,704	13,094	6,547	19,640
	26-May-05	White perch	18	1	19	1,024	17.58	0.98	18.55	1,771	6,704	117,843	6,547	124,390
11	26-May-05	Daily Total	71	2	73		69.34	1.95	71.29	1,771	6,704	464,824	13,094	477,918
	31-May-05	Alewife/Shad/Smelt	1	0	1	944	1.06	0.00	1.06	1,771	6,704	7,102	0	7,102
	31-May-05	Freshwater drum	2	0	2	944	2.12	0.00	2.12	1,771	6,704	14,203	0	14,203
	31-May-05	Gizzard shad	4	0	4	944	4.24	0.00	4.24	1,771	6,704	28,407	0	28,407
	31-May-05	Morone spp.	10	0	10	944	10.59	0.00	10.59	1,771	6,704	71,016	0	71,016
	31-May-05	Smallmouth bass	6	3	9	944	6.36	3.18	9.53	1,771	6,704	42,610	21,305	63,915
	31-May-05	White perch	7	0	7	944	7.42	0.00	7.42	1,771	6,704	49,711	0	49,711
12	31-May-05	Daily Total	30	3	33		31.78	3.18	34.96	1,771	6,704	213,049	21,305	234,354
	1-Jun-05	Largemouth bass	4	11	15	1,024	3.91	10.74	14.65	1,771	6,704	26,187	72,015	98,202
	1-Jun-05	Micropterus spp.	1	1	2	1,024	0.98	0.98	1.95	1,771	6,704	6,547	6,547	13,094
	1-Jun-05	Morone spp.	9	4	13	1,024	8.79	3.91	12.70	1,771	6,704	58,921	26,187	85,109
	1-Jun-05	Smallmouth bass	3	2	5	1,024	2.93	1.95	4.88	1,771	6,704	19,640	13,094	32,734
	1-Jun-05	Unknown	1	1	2	1,024	0.98	0.98	1.95	1,771	6,704	6,547	6,547	13,094
	1-Jun-05	White perch	3	0	3	1,024	2.93	0.00	2.93	1,771	6,704	19,640	0	19,640
13	1-Jun-05	Daily Total	21	19	40		20.51	18.55	39.06	1,771	6,704	137,483	124,390	261,873
14	9-Jun-05	Daily Total	0	0	0	864	0.00	0.00	0.00	1,932	7,313	0	0	0
15	10-Jun-05	Daily Total	0	0	0	624	0.00	0.00	0.00	1,932	7,313	0	0	0
16	15-Jun-05	Daily Total	0	0	0	512	0.00	0.00	0.00	1,932	7,313	0	0	0
17	16-Jun-05	Daily Total	0	0	0	512	0.00	0.00	0.00	1,932	7,313	0	0	0
18	21-Jun-05	Daily Total	0	0	0	960	0.00	0.00	0.00	1,932	7,313	0	0	0
19	22-Jun-05	Daily Total	0	0	0	928	0.00	0.00	0.00	1,932	7,313	0	0	0
20	30-Jun-05	Daily Total	0	0	0	656	0.00	0.00	0.00	1,932	7,313	0	0	0
21	1-Jul-05	Daily Total	0	0	0	672	0.00	0.00	0.00	1,932	7,313	0	0	0
22	5-Jul-05	Daily Total	0	0	0	593	0.00	0.00	0.00	1,932	7,313	0	0	0
23	6-Jul-05	Daily Total	0	0	0	644	0.00	0.00	0.00	1,932	7,313	0	0	0
24	14-Jul-05	Daily Total	0	0	0	538	0.00	0.00	0.00	1,932	7,313	0	0	0
25	15-Jul-05	Daily Total	0	0	0	686	0.00	0.00	0.00	1,932	7,313	0	0	0
26	19-Jul-05	Daily Total	0	0	0	612	0.00	0.00	0.00	1,932	7,313	0	0	0
27	20-Jul-05	Daily Total	0	0	0	614	0.00	0.00	0.00	1,932	7,313	0	0	0
28	26-Jul-05	Daily Total	0	0	0	593	0.00	0.00	0.00	1,932	7,313	0	0	0
29	27-Jul-05	Daily Total	0	0	0	686	0.00	0.00	0.00	1,932	7,313	0	0	0
30	4-Aug-05	Daily Total	0	0	0	610	0.00	0.00	0.00	1,932	7,313	0	0	0
31	5-Aug-05	Daily Total	0	0	0	577	0.00	0.00	0.00	1,932	7,313	0	0	0
32	10-Aug-05	Daily Total	0	0	0	643	0.00	0.00	0.00	1,932	7,313	0	0	0

Individual estimates may not add to totals due to rounding

APPENDIX 4 (cont'd)
Estimated Daily Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP Eggs Collected			Volume Filtered (m^3)	MONPP Eggs per 1,000 m^3			Flow MGD	Flow 1,000 m^3	MONPP Estimated Eggs per Day		
			Live	Dead	Total #		Live	Dead	Total #			Live	Dead	Total #
33	11-Aug-05	Daily Total	0	0	0	988	0.00	0.00	0.00	1,771	6,704	0	0	0
34	16-Aug-05	Daily Total	0	0	0	1,012	0.00	0.00	0.00	1,932	7,313	0	0	0
35	17-Aug-05	Daily Total	0	0	0	945	0.00	0.00	0.00	1,932	7,313	0	0	0
36	25-Aug-05	Daily Total	0	0	0	1,021	0.00	0.00	0.00	1,932	7,313	0	0	0
37	26-Aug-05	Daily Total	0	0	0	1,061	0.00	0.00	0.00	1,932	7,313	0	0	0
38	29-Aug-05	Daily Total	0	0	0	1,061	0.00	0.00	0.00	1,932	7,313	0	0	0
39	30-Aug-05	Daily Total	0	0	0	922	0.00	0.00	0.00	1,932	7,313	0	0	0
40	8-Sep-05	Daily Total	0	0	0	1,086	0.00	0.00	0.00	1,932	7,313	0	0	0
41	9-Sep-05	Daily Total	0	0	0	1,102	0.00	0.00	0.00	1,932	7,313	0	0	0
42	12-Sep-05	Daily Total	0	0	0	1,112	0.00	0.00	0.00	1,932	7,313	0	0	0
43	13-Sep-05	Daily Total	0	0	0	1,275	0.00	0.00	0.00	1,932	7,313	0	0	0
44	18-Oct-05	Daily Total	0	0	0	1,915	0.00	0.00	0.00	1,771	6,704	0	0	0
45	10-Nov-05	Daily Total	0	0	0	1,720	0.00	0.00	0.00	1,771	6,704	0	0	0
46	9-Dec-05	Daily Total	0	0	0	1,316	0.00	0.00	0.00	1,288	4,876	0	0	0
47	5-Jan-06	Daily Total	0	0	0	1,134	0.00	0.00	0.00	1,288	4,876	0	0	0
48	8-Feb-06	Daily Total	0	0	0	1,306	0.00	0.00	0.00	1,288	4,876	0	0	0
49	21-Mar-06	Daily Total	0	0	0	1,280	0.00	0.00	0.00	966	3,657	0	0	0
50	22-Mar-06	Daily Total	0	0	0	1,238	0.00	0.00	0.00	966	3,657	0	0	0
51	27-Mar-06	Daily Total	0	0	0	1,185	0.00	0.00	0.00	966	3,657	0	0	0
52	28-Mar-06	Daily Total	0	0	0	1,345	0.00	0.00	0.00	966	3,657	0	0	0
53	4-Apr-06	Daily Total	0	0	0	1,534	0.00	0.00	0.00	1,288	4,876	0	0	0
54	5-Apr-06	Daily Total	0	0	0	1,044	0.00	0.00	0.00	1,288	4,876	0	0	0
55	10-Apr-06	Daily Total	0	0	0	1,651	0.00	0.00	0.00	1,288	4,876	0	0	0
56	11-Apr-06	Daily Total	0	0	0	1,550	0.00	0.00	0.00	1,449	5,485	0	0	0
57	19-Apr-06	Daily Total	0	0	0	1,517	0.00	0.00	0.00	1,127	4,266	0	0	0
	TOTAL		**311**	**59**	**370**									

Individual estimates may not add to totals due to rounding

APPENDIX 5
Estimated Weekly Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Eggs per 2 Sampling Days			Weekly Extrapolation Factor	MONPP Eggs per Week		
		Live	Dead	Total		Live	Dead	Total
	Freshwater drum	0	3,896	3,896	7	0	27,269	27,269
	Walleye	7,791	7,791	15,583	7	54,539	54,539	109,078
1	17-Apr-05 to 23-Apr-05	7,791	11,687	19,478	7	54,539	81,808	136,347
	Northen pike	0	1,825	1,825	3.75	0	6,843	6,843
	Rainbow smelt	2,627	0	2,627	3.75	9,851	0	9,851
	Unknown	0	1,825	1,825	3.75	0	6,843	6,843
	Walleye	0	4,452	4,452	3.75	0	16,694	16,694
2	24-Apr-05 to 30-Apr-05	2,627	8,101	10,728	3.75	9,851	30,379	40,230
	Northen pike	0	3,844	3,844	3.39	0	13,031	13,031
	Walleye	3,844	4,193	8,037	3.39	13,031	14,216	27,247
3	1-May-05 to 7-May-05	3,844	8,037	11,881	3.39	13,031	27,247	40,278
	Gizzard shad	9,859	0	9,859	3.41	33,618	0	33,618
	Largemouth bass	30,809	4,929	35,738	3.41	105,057	16,809	121,866
	Micropterus spp.	145,416	0	145,416	3.41	495,870	0	495,870
	Quillback	39,435	0	39,435	3.41	134,473	0	134,473
	Rock bass	43,132	4,929	48,061	3.41	147,080	16,809	163,889
	Smallmouth bass	553,322	49,294	602,615	3.41	1,886,827	168,092	2,054,919
	Unknown	0	6,162	6,162	3.41	0	21,011	21,011
	Walleye	16,020	0	16,020	3.41	54,630	0	54,630
4	8-May-05 to 14-May-05	837,993	65,314	903,307	3.41	2,857,556	222,721	3,080,277
	Alewife/Shad/Smelt	5,218	5,218	10,436	3.65	19,045	19,045	38,091
	Largemouth bass	10,436	0	10,436	3.65	38,091	0	38,091
	Quillback	6,348	0	6,348	3.65	23,172	0	23,172
	Smallmouth bass	31,742	57,136	88,878	3.65	115,859	208,546	324,405
5	15-May-05 to 21-May-05	53,744	62,354	116,098	3.65	196,167	227,591	423,758
	Alewife/Shad/Smelt	6,683	0	6,683	3.476	23,229	0	23,229
	Gizzard shad	333,888	0	333,888	3.476	1,160,594	0	1,160,594
	Morone spp.	13,365	0	13,365	3.476	46,457	0	46,457
	Quillback	53,460	6,683	60,143	3.476	185,829	23,229	209,057
	Smallmouth bass	66,554	13,229	79,783	3.476	231,342	45,985	277,327
	Unknown	0	6,683	6,683	3.476	0	23,229	23,229
	White perch	117,843	6,547	124,390	3.476	409,621	22,757	432,378
6	22-May-05 to 28-May-05	591,793	33,141	624,934	3.476	2,057,072	115,199	2,172,271

Weekly extrapolation factor = weekly cooling water volume / cooling water volume for 2 sampling days.
Individual estimates may not add to totals due to rounding.

APPENDIX 5 (cont'd)
Estimated Weekly Entrainment of Fish Eggs at Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Eggs per 2 Sampling Days			Weekly Extrapolation Factor	MONPP Eggs per Week		
		Live	Dead	Total		Live	Dead	Total
	Alewife/Shad/Smelt	7,102	0	7,102	3.41	24,217	0	24,217
	Freshwater drum	14,203	0	14,203	3.41	48,433	0	48,433
	Gizzard shad	28,407	0	28,407	3.41	96,866	0	96,866
	Largemouth bass	26,187	72,015	98,202	3.41	89,299	245,571	334,870
	Micropterus spp.	6,547	6,547	13,094	3.41	22,325	22,325	44,649
	Morone spp.	129,938	26,187	156,125	3.41	443,088	89,299	532,386
	Smallmouth bass	62,250	34,399	96,649	3.41	212,273	117,299	329,572
	Unknown	6,547	6,547	13,094	3.41	22,325	22,325	44,649
	White perch	69,352	0	69,352	3.41	236,490	0	236,490
7	29-May-05 to 4-Jun-05	350,532	145,694	496,227	3.41	1,195,315	496,818	1,692,133
8	5-Jun-05 to 11-Jun-05	0	0	0	*	0	0	0
9	12-Jun-05 to 18-Jun-05	0	0	0	*	0	0	0
10	19-Jun-05 to 25-Jun-05	0	0	0	*	0	0	0
11	26-Jun-05 to 2-Jul-05	0	0	0	*	0	0	0
12	3-Jul-05 to 9-Jul-05	0	0	0	*	0	0	0
13	10-Jul-05 to 16-Jul-05	0	0	0	*	0	0	0
14	17-Jul-05 to 23-Jul-05	0	0	0	*	0	0	0
15	24-Jul-05 to 30-Jul-05	0	0	0	*	0	0	0
16	31-Jul-05 to 6-Aug-05	0	0	0	*	0	0	0
17	7-Aug-05 to 13-Aug-05	0	0	0	*	0	0	0
18	14-Aug-05 to 20-Aug-05	0	0	0	*	0	0	0
19	21-Aug-05 to 27-Aug-05	0	0	0	*	0	0	0
20	28-Aug-05 to 3-Sep-05	0	0	0	*	0	0	0
21	4-Sep-05 to 10-Sep-05	0	0	0	*	0	0	0
22	11-Sep-05 to 17-Sep-05	0	0	0	*	0	0	0
23	18-Sep-05 to 24-Sep-05	0	0	0	*	0	0	0
24	25-Sep-05 to 1-Oct-05	0	0	0	*	0	0	0

Weekly extrapolation factor = weekly cooling water volume / cooling water volume for 2 sampling days.
Individual estimates may not add to totals due to rounding.

APPENDIX 5 (cont'd)
Estimated Weekly Entrainment of Fish Eggs at Monroe Power Plant,
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Eggs per 2 Sampling Days			Weekly Extrapolation Factor	MONPP Eggs per Week		
		Live	Dead	Total		Live	Dead	Total
25	2-Oct-05 to 8-Oct-05	0	0	0	*	0	0	0
26	9-Oct-05 to 15-Oct-05	0	0	0	*	0	0	0
27	16-Oct-05 to 22-Oct-05	0	0	0	*	0	0	0
28	23-Oct-05 to 29-Oct-05	0	0	0	*	0	0	0
29	30-Oct-05 to 5-Nov-05	0	0	0	*	0	0	0
30	6-Nov-05 to 12-Nov-05	0	0	0	*	0	0	0
31	13-Nov-05 to 19-Nov-05	0	0	0	*	0	0	0
32	20-Nov-05 to 26-Nov-05	0	0	0	*	0	0	0
33	27-Nov-05 to 3-Dec-05	0	0	0	*	0	0	0
34	4-Dec-05 to 10-Dec-05	0	0	0	*	0	0	0
35	11-Dec-05 to 17-Dec-05	0	0	0	*	0	0	0
36	18-Dec-05 to 24-Dec-05	0	0	0	*	0	0	0
37	25-Dec-05 to 31-Dec-05	0	0	0	*	0	0	0
38	1-Jan-06 to 7-Jan-06	0	0	0	*	0	0	0
39	8-Jan-06 to 14-Jan-06	0	0	0	*	0	0	0
40	15-Jan-06 to 21-Jan-06	0	0	0	*	0	0	0
41	22-Jan-06 to 28-Jan-06	0	0	0	*	0	0	0
42	29-Jan-06 to 4-Feb-06	0	0	0	*	0	0	0
43	5-Feb-06 to 11-Feb-06	0	0	0	*	0	0	0
44	12-Feb-06 to 18-Feb-06	0	0	0	*	0	0	0
45	19-Feb-06 to 25-Feb-06	0	0	0	*	0	0	0
46	26-Feb-06 to 4-Mar-06	0	0	0	*	0	0	0
47	5-Mar-06 to 11-Mar-06	0	0	0	*	0	0	0
48	12-Mar-06 to 18-Mar-06	0	0	0	*	0	0	0
49	19-Mar-06 to 25-Mar-06	0	0	0	*	0	0	0
50	26-Mar-06 to 1-Apr-06	0	0	0	*	0	0	0
51	2-Apr-06 to 8-Apr-06	0	0	0	*	0	0	0
52	9-Apr-06 to 15-Apr-06	0	0	0	*	0	0	0
	TOTAL					**6,383,530**	**1,201,764**	**7,585,294**

Weekly extrapolation factor = weekly cooling water volume / cooling water volume for 2 sampling days.
Individual estimates may not add to totals due to rounding.

APPENDIX 6
Estimated Monthly Entrainment of Fish Eggs at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Eggs per Month Cooling Water			MONPP Eggs per Month GSW			MONPP Eggs per Month TOTAL		
	Live	Dead	Total	Live	Dead	Total	Live	Dead	Total
Freshwater drum	0	27,269	27,269	0	410	410	0	27,680	27,680
Northen pike	0	6,843	6,843	0	103	103	0	6,946	6,946
Rainbow smelt	9,851	0	9,851	148	0	148	9,999	0	9,999
Unknown	0	6,843	6,843	0	103	103	0	6,946	6,946
Walleye	54,539	71,232	125,771	821	1,072	1,893	55,360	72,304	127,664
April 2005	**64,390**	**112,187**	**176,577**	**969**	**1,688**	**2,657**	**65,359**	**113,875**	**179,234**
Alewife/Shad/Smelt	52,652	19,045	71,698	561	203	764	53,214	19,248	72,462
Freshwater drum	20,757	0	20,757	221	0	221	20,978	0	20,978
Gizzard shad	1,235,726	0	1,235,726	13,171	0	13,171	1,248,897	0	1,248,897
Largemouth bass	181,419	122,054	303,473	1,934	1,301	3,235	183,352	123,355	306,707
Micropterus spp.	505,438	9,568	515,005	5,387	102	5,489	510,825	9,670	520,495
Morone spp.	236,352	38,271	274,623	2,519	408	2,927	238,871	38,679	277,550
Northen pike	0	13,031	13,031	0	139	139	0	13,170	13,170
Quillback	343,474	23,229	366,702	3,661	248	3,908	347,134	23,476	370,611
Rock bass	147,080	16,809	163,889	1,568	179	1,747	148,648	16,988	165,636
Smallmouth bass	2,325,003	472,894	2,797,896	24,781	5,040	29,821	2,349,783	477,934	2,827,718
Unknown	9,568	53,808	63,375	102	574	675	9,670	54,381	64,051
Walleye	67,661	14,216	81,877	721	152	873	68,382	14,367	82,749
White perch	510,974	22,757	533,731	5,446	243	5,689	516,420	22,999	539,420
May 2005	**5,636,103**	**805,681**	**6,441,784**	**60,072**	**8,587**	**68,659**	**5,696,175**	**814,268**	**6,510,443**
Alewife/Shad/Smelt	13,838	0	13,838	148	0	148	13,986	0	13,986
Freshwater drum	27,676	0	27,676	296	0	296	27,972	0	27,972
Gizzard shad	55,352	0	55,352	592	0	592	55,944	0	55,944
Largemouth bass	51,028	140,326	191,354	545	1,500	2,046	51,573	141,827	193,400
Micropterus spp.	12,757	12,757	25,514	136	136	273	12,893	12,893	25,787
Morone spp.	253,193	51,028	304,221	2,707	545	3,252	255,900	51,573	307,473
Smallmouth bass	121,299	67,028	188,327	1,297	717	2,013	122,596	67,745	190,340
Unknown	12,757	12,757	25,514	136	136	273	12,893	12,893	25,787
White perch	135,137	0	135,137	1,445	0	1,445	136,582	0	136,582
June 2005	**683,037**	**283,896**	**966,933**	**7,302**	**3,035**	**10,337**	**690,339**	**286,931**	**977,270**
July 2005	0	0	0	0	0	0	0	0	0
August 2005	0	0	0	0	0	0	0	0	0
September 2005	0	0	0	0	0	0	0	0	0
October 2005	0	0	0	0	0	0	0	0	0
November 2005	0	0	0	0	0	0	0	0	0
December 2005	0	0	0	0	0	0	0	0	0
January 2006	0	0	0	0	0	0	0	0	0
Februray 2006	0	0	0	0	0	0	0	0	0
March 2006	0	0	0	0	0	0	0	0	0
April 2006	0	0	0	0	0	0	0	0	0
52 WEEK TOTAL	**6,383,530**	**1,201,764**	**7,585,294**	**68,343**	**13,310**	**81,653**	**6,451,873**	**1,215,074**	**7,666,947**

Individual estimates may not add to totals due to rounding.

APPENDIX 7
Diel Distribution of Fish Eggs Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Sampling Dates	Total Eggs Mean Density (No. per 1,000 m^3)			
		Dawn	Day	Dusk	Night
1	17-Apr-05 to 23-Apr-05	0.00	14.20	0.00	0.00
2	24-Apr-05 to 30-Apr-05	2.65	0.88	0.00	0.88
3	1-May-05 to 7-May-05	0.00	1.22	2.45	0.00
4	8-May-05 to 14-May-05	70.26	55.56	14.71	137.25
5	15-May-05 to 21-May-05	0.00	1.88	13.16	20.68
6	22-May-05 to 28-May-05	8.26	0.00	111.57	76.45
7	29-May-05 to 4-Jun-05	16.26	38.62	54.88	38.62
8	5-Jun-05 to 11-Jun-05	0.00	0.00	0.00	0.00
9	12-Jun-05 to 18-Jun-05	0.00	0.00	0.00	0.00
10	19-Jun-05 to 25-Jun-05	0.00	0.00	0.00	0.00
11	26-Jun-05 to 2-Jul-05	0.00	0.00	0.00	0.00
12	3-Jul-05 to 9-Jul-05	0.00	0.00	0.00	0.00
13	10-Jul-05 to 16-Jul-05	0.00	0.00	0.00	0.00
14	17-Jul-05 to 23-Jul-05	0.00	0.00	0.00	0.00
15	24-Jul-05 to 30-Jul-05	0.00	0.00	0.00	0.00
16	31-Jul-05 to 6-Aug-05	0.00	0.00	0.00	0.00
17	7-Aug-05 to 13-Aug-05	0.00	0.00	0.00	0.00
18	14-Aug-05 to 20-Aug-05	0.00	0.00	0.00	0.00
19	21-Aug-05 to 27-Aug-05	0.00	0.00	0.00	0.00
20	28-Aug-05 to 3-Sep-05	0.00	0.00	0.00	0.00
21	4-Sep-05 to 10-Sep-05	0.00	0.00	0.00	0.00
22	11-Sep-05 to 17-Sep-05	0.00	0.00	0.00	0.00
27	16-Oct-05 to 22-Oct-05	0.00	0.00	0.00	0.00
30	6-Nov-05 to 12-Nov-05	0.00	0.00	0.00	0.00
34	4-Dec-05 to 10-Dec-05	0.00	0.00	0.00	0.00
38	1-Jan-06 to 7-Jan-06	0.00	0.00	0.00	0.00
43	5-Feb-06 to 11-Feb-06	0.00	0.00	0.00	0.00
49	19-Mar-06 to 25-Mar-06	0.00	0.00	0.00	0.00
50	26-Mar-06 to 1-Apr-06	0.00	0.00	0.00	0.00
51	2-Apr-06 to 8-Apr-06	0.00	0.00	0.00	0.00
52	9-Apr-06 to 15-Apr-06	0.00	0.00	0.00	0.00

APPENDIX 8
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	19-Apr-05	Cyprinidae	YSL	0	1	0	1	1,408	0.00	0.71	0.00	0.71	1,449	5,485	0	3,896	0	3,896
1	**19-Apr-05**	**DAILY TOTAL**		**0**	**1**	**0**	**1**	**1,408**	**0.00**	**0.71**	**0.00**	**0.71**	**1,449**		**0**	**3,896**	**0**	**3,896**
	26-Apr-05	Gizzard shad	PYSL	0	1	0	1	2,672	0.00	0.37	0.00	0.37	1,288	4,876	0	1,825	0	1,825
	26-Apr-05	Gizzard shad	YSL	0	4	0	4	2,672	0.00	1.50	0.00	1.50	1,288	4,876	0	7,299	0	7,299
	26-Apr-05	Logperch	YSL	0	1	0	1	2,672	0.00	0.37	0.00	0.37	1,288	4,876	0	1,825	0	1,825
	26-Apr-05	Smelt/Shad/Alewife	YSL	0	1	0	1	2,672	0.00	0.37	0.00	0.37	1,288	4,876	0	1,825	0	1,825
2	**26-Apr-05**	**DAILY TOTAL**		**0**	**7**	**0**	**7**	**2,672**	**0.00**	**2.62**	**0.00**	**2.62**	**1,288**	**4,876**	**0**	**12,773**	**0**	**12,773**
	27-Apr-05	Lake whitefish	PYSL	0	1	0	1	1,856	0.00	0.54	0.00	0.54	1,288	4,876	0	2,627	0	2,627
	27-Apr-05	Round goby	JUV	0	3	0	3	1,856	0.00	1.62	0.00	1.62	1,288	4,876	0	7,881	0	7,881
	27-Apr-05	Unidentifiable	undetermined	0	5	0	5	1,856	0.00	2.69	0.00	2.69	1,288	4,876	0	13,135	0	13,135
	27-Apr-05	White sucker	PYSL	0	1	0	1	1,856	0.00	0.54	0.00	0.54	1,288	4,876	0	2,627	0	2,627
3	**27-Apr-05**	**DAILY TOTAL**		**0**	**10**	**0**	**10**	**1,856**	**0.00**	**5.39**	**0.00**	**5.39**	**1,288**	**4,876**	**0**	**26,269**	**0**	**26,269**
	3-May-05	Bluegill	YSL	0	1	0	1	1,744	0.00	0.57	0.00	0.57	1,771	6,704	0	3,844	0	3,844
	3-May-05	Cyprinidae	PYSL	0	2	0	2	1,744	0.00	1.15	0.00	1.15	1,771	6,704	0	7,688	0	7,688
	3-May-05	Cyprinidae	YSL	0	7	2	9	1,744	0.00	4.01	1.15	5.16	1,771	6,704	0	26,908	7,688	34,596
	3-May-05	Darter	YSL	0	2	0	2	1,744	0.00	1.15	0.00	1.15	1,771	6,704	0	7,688	0	7,688
	3-May-05	Emerald shiner	YSL	0	2	0	2	1,744	0.00	1.15	0.00	1.15	1,771	6,704	0	7,688	0	7,688
	3-May-05	Gizzard shad	PYSL	0	2	0	2	1,744	0.00	1.15	0.00	1.15	1,771	6,704	0	7,688	0	7,688
	3-May-05	Gizzard shad	YSL	0	9	4	13	1,744	0.00	5.16	2.29	7.45	1,771	6,704	0	34,596	15,376	49,972
	3-May-05	Logperch	YSL	0	5	0	5	1,744	0.00	2.87	0.00	2.87	1,771	6,704	0	19,220	0	19,220
	3-May-05	Notropis spp.	PYSL	0	0	1	1	1,744	0.00	0.00	0.57	0.57	1,771	6,704	0	0	3,844	3,844
	3-May-05	Notropis spp.	YSL	0	14	5	19	1,744	0.00	8.03	2.87	10.89	1,771	6,704	0	53,816	19,220	73,036
	3-May-05	Round goby	JUV	0	0	1	1	1,744	0.00	0.00	0.57	0.57	1,771	6,704	0	0	3,844	3,844
	3-May-05	Smelt/Shad/Alewife	YSL	0	2	3	5	1,744	0.00	1.15	1.72	2.87	1,771	6,704	0	7,688	11,532	19,220
	3-May-05	Unidentifiable	undetermined	0	1	0	1	1,744	0.00	0.57	0.00	0.57	1,771	6,704	0	3,844	0	3,844
	3-May-05	Yellow perch	YSL	0	3	0	3	1,744	0.00	1.72	0.00	1.72	1,771	6,704	0	11,532	0	11,532
4	**3-May-05**	**DAILY TOTAL**		**0**	**50**	**16**	**66**	**1,744**	**0.00**	**28.67**	**9.17**	**37.84**	**1,771**	**6,704**	**0**	**192,200**	**61,504**	**253,704**
	4-May-05	Gizzard shad	PYSL	0	1	0	1	1,552	0.00	0.64	0.00	0.64	1,932	7,313	0	4,712	0	4,712
	4-May-05	Lake whitefish	PYSL	0	1	0	1	1,552	0.00	0.64	0.00	0.64	1,932	7,313	0	4,712	0	4,712
	4-May-05	Logperch	YSL	0	1	0	1	1,552	0.00	0.64	0.00	0.64	1,932	7,313	0	4,712	0	4,712
	4-May-05	Quillback	PYSL	1	0	0	1	1,552	0.64	0.00	0.00	0.64	1,932	7,313	4,712	0	0	4,712
	4-May-05	Smelt/Shad/Alewife	PYSL	0	1	0	1	1,552	0.00	0.64	0.00	0.64	1,932	7,313	0	4,712	0	4,712
	4-May-05	Unidentifiable	undetermined	0	9	0	9	1,552	0.00	5.80	0.00	5.80	1,932	7,313	0	42,410	0	42,410
	4-May-05	White sucker	PYSL	0	1	0	1	1,552	0.00	0.64	0.00	0.64	1,932	7,313	0	4,712	0	4,712
	4-May-05	Yellow perch	YSL	0	12	0	12	1,552	0.00	7.73	0.00	7.73	1,932	7,313	0	56,547	0	56,547
5	**4-May-05**	**DAILY TOTAL**		**1**	**26**	**0**	**27**	**1,552**	**0.64**	**16.75**	**0.00**	**17.40**	**1,932**	**7,313**	**4,712**	**122,518**	**0**	**127,230**
6	**10-May-05**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,360**	**0.00**	**0.00**	**0.00**	**0.00**	**1,771**	**6,704**	**0**	**0**	**0**	**0**
	11-May-05	Walleye	PYSL	0	1	0	1	1,088	0.00	0.92	0.00	0.92	1,771	6,704	0	6,162	0	6,162
7	**11-May-05**	**DAILY TOTAL**		**0**	**1**	**0**	**1**	**1,088**	**0.00**	**0.92**	**0.00**	**0.92**	**1,771**	**6,704**	**0**	**6,162**	**0**	**6,162**
	18-May-05	Cyprinidae	PYSL	2	1	0	3	1,168	1.71	0.86	0.00	2.57	1,610	6,094	10,436	5,218	0	15,654
	18-May-05	Cyprinidae	YSL	1	0	0	1	1,168	0.86	0.00	0.00	0.86	1,610	6,094	5,218	0	0	5,218
	18-May-05	Logperch	PYSL	0	1	0	1	1,168	0.00	0.86	0.00	0.86	1,610	6,094	0	5,218	0	5,218
	18-May-05	Notropis spp.	PYSL	1	0	0	1	1,168	0.86	0.00	0.00	0.86	1,610	6,094	5,218	0	0	5,218
	18-May-05	Notropis spp.	YSL	0	1	0	1	1,168	0.00	0.86	0.00	0.86	1,610	6,094	0	5,218	0	5,218
	18-May-05	Quillback	PYSL	0	1	0	1	1,168	0.00	0.86	0.00	0.86	1,610	6,094	0	5,218	0	5,218
	18-May-05	Round goby	JUV	0	0	1	1	1,168	0.00	0.00	0.86	0.86	1,610	6,094	0	0	5,218	5,218
	18-May-05	Smelt/Shad/Alewife	YSL	0	1	0	1	1,168	0.00	0.86	0.00	0.86	1,610	6,094	0	5,218	0	5,218
	18-May-05	Trout-perch	YSL	0	1	0	1	1,168	0.00	0.86	0.00	0.86	1,610	6,094	0	5,218	0	5,218
8	**18-May-05**	**DAILY TOTAL**		**4**	**6**	**1**	**11**	**1,168**	**3.42**	**5.14**	**0.86**	**9.42**	**1,610**	**6,094**	**20,872**	**31,307**	**5,218**	**57,397**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	19-May-05	Carp/Goldfish	PYSL	1	0	0	1	960	1.04	0.00	0.00	1.04	1,610	6,094	6,348	0	0	6,348
	19-May-05	Notropis spp.	PYSL	1	0	0	1	960	1.04	0.00	0.00	1.04	1,610	6,094	6,348	0	0	6,348
	19-May-05	Notropis spp.	YSL	1	0	0	1	960	1.04	0.00	0.00	1.04	1,610	6,094	6,348	0	0	6,348
	19-May-05	Quillback	YSL	3	0	0	3	960	3.13	0.00	0.00	3.13	1,610	6,094	19,045	0	0	19,045
	19-May-05	Round goby	JUV	0	1	1	2	960	0.00	1.04	1.04	2.08	1,610	6,094	0	6,348	6,348	12,697
	19-May-05	Walleye	PYSL	0	1	0	1	960	0.00	1.04	0.00	1.04	1,610	6,094	0	6,348	0	6,348
	19-May-05	Yellow perch	YSL	0	1	0	1	960	0.00	1.04	0.00	1.04	1,610	6,094	0	6,348	0	6,348
9	**19-May-05**	**DAILY TOTAL**		**6**	**3**	**1**	**10**	**960**	**6.25**	**3.13**	**1.04**	**10.42**	**1,610**	**6,094**	**38,091**	**19,045**	**6,348**	**63,484**
	25-May-05	Carp/Goldfish	YSL	1	0	0	1	912	1.10	0.00	0.00	1.10	1,610	6,094	6,683	0	0	6,683
	25-May-05	Cyprinidae	YSL	0	1	1	2	912	0.00	1.10	1.10	2.19	1,610	6,094	0	6,683	6,683	13,365
	25-May-05	Emerald shiner	PYSL	1	0	0	1	912	1.10	0.00	0.00	1.10	1,610	6,094	6,683	0	0	6,683
	25-May-05	Gizzard shad	YSL	0	1	0	1	912	0.00	1.10	0.00	1.10	1,610	6,094	0	6,683	0	6,683
	25-May-05	Logperch	YSL	0	0	1	1	912	0.00	0.00	1.10	1.10	1,610	6,094	0	0	6,683	6,683
	25-May-05	Morone spp.	YSL	0	1	0	1	912	0.00	1.10	0.00	1.10	1,610	6,094	0	6,683	0	6,683
	25-May-05	Notropis spp.	PYSL	0	1	0	1	912	0.00	1.10	0.00	1.10	1,610	6,094	0	6,683	0	6,683
	25-May-05	Notropis spp.	YSL	1	0	0	1	912	1.10	0.00	0.00	1.10	1,610	6,094	6,683	0	0	6,683
	25-May-05	Yellow perch	PYSL	0	1	0	1	912	0.00	1.10	0.00	1.10	1,610	6,094	0	6,683	0	6,683
10	**25-May-05**	**DAILY TOTAL**		**3**	**5**	**2**	**10**	**912**	**3.29**	**5.48**	**2.19**	**10.96**	**1,610**	**6,094**	**20,048**	**33,413**	**13,365**	**66,826**
	26-May-05	Morone spp.	YSL	0	1	0	1	1,024	0.00	0.98	0.00	0.98	1,771	6,704	0	6,547	0	6,547
	26-May-05	Round goby	JUV	1	0	0	1	1,024	0.98	0.00	0.00	0.98	1,771	6,704	6,547	0	0	6,547
	26-May-05	Unidentifiable	undetermined	0	1	2	3	1,024	0.00	0.98	1.95	2.93	1,771	6,704	0	6,547	13,094	19,640
11	**26-May-05**	**DAILY TOTAL**		**1**	**2**	**2**	**5**	**1,024**	**0.98**	**1.95**	**1.95**	**4.88**	**1,771**	**6,704**	**6,547**	**13,094**	**13,094**	**32,734**
	31-May-05	Catostomidae	YSL	1	0	0	1	944	1.06	0.00	0.00	1.06	1,771	6,704	7,102	0	0	7,102
	31-May-05	Cyprinidae	PYSL	0	2	1	3	944	0.00	2.12	1.06	3.18	1,771	6,704	0	14,203	7,102	21,305
	31-May-05	Gizzard shad	YSL	0	1	1	2	944	0.00	1.06	1.06	2.12	1,771	6,704	0	7,102	7,102	14,203
	31-May-05	Logperch	PYSL	0	1	1	2	944	0.00	1.06	1.06	2.12	1,771	6,704	0	7,102	7,102	14,203
	31-May-05	Notropis spp.	PYSL	1	0	0	1	944	1.06	0.00	0.00	1.06	1,771	6,704	7,102	0	0	7,102
	31-May-05	Notropis spp.	YSL	0	1	3	4	944	0.00	1.06	3.18	4.24	1,771	6,704	0	7,102	21,305	28,407
	31-May-05	Quillback	PYSL	1	0	0	1	944	1.06	0.00	0.00	1.06	1,771	6,704	7,102	0	0	7,102
	31-May-05	Unidentifiable	undetermined	0	1	1	2	944	0.00	1.06	1.06	2.12	1,771	6,704	0	7,102	7,102	14,203
12	**31-May-05**	**DAILY TOTAL**		**3**	**6**	**7**	**16**	**944**	**3.18**	**6.36**	**7.42**	**16.95**	**1,771**	**6,704**	**21,305**	**42,610**	**49,711**	**113,626**
	1-Jun-05	Cyprinidae	PYSL	1	1	0	2	1,024	0.98	0.98	0.00	1.95	1,771	6,704	6,547	6,547	0	13,094
	1-Jun-05	Freshwater drum	PYSL	0	1	0	1	1,024	0.00	0.98	0.00	0.98	1,771	6,704	0	6,547	0	6,547
	1-Jun-05	Morone spp.	PYSL	0	4	0	4	1,024	0.00	3.91	0.00	3.91	1,771	6,704	0	26,187	0	26,187
	1-Jun-05	Morone spp.	YSL	0	3	0	3	1,024	0.00	2.93	0.00	2.93	1,771	6,704	0	19,640	0	19,640
	1-Jun-05	Notropis spp.	PYSL	1	0	0	1	1,024	0.98	0.00	0.00	0.98	1,771	6,704	6,547	0	0	6,547
	1-Jun-05	Quillback	PYSL	1	0	0	1	1,024	0.98	0.00	0.00	0.98	1,771	6,704	6,547	0	0	6,547
	1-Jun-05	Round goby	JUV	1	0	1	2	1,024	0.98	0.00	0.98	1.95	1,771	6,704	6,547	0	6,547	13,094
	1-Jun-05	Trout-perch	YSL	0	1	0	1	1,024	0.00	0.98	0.00	0.98	1,771	6,704	0	6,547	0	6,547
	1-Jun-05	Unidentifiable	undetermined	0	2	0	2	1,024	0.00	1.95	0.00	1.95	1,771	6,704	0	13,094	0	13,094
	1-Jun-05	Yellow perch	PYSL	0	4	0	4	1,024	0.00	3.91	0.00	3.91	1,771	6,704	0	26,187	0	26,187
	1-Jun-05	Yellow perch	YSL	0	17	1	18	1,024	0.00	16.60	0.98	17.58	1,771	6,704	0	111,296	6,547	117,843
13	**1-Jun-05**	**DAILY TOTAL**		**4**	**33**	**2**	**39**	**1,024**	**3.91**	**32.23**	**1.95**	**38.09**	**1,771**	**6,704**	**26,187**	**216,045**	**13,094**	**255,326**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	9-Jun-05	Cyprinidae	YSL	0	20	0	20	864	0.00	23.15	0.00	23.15	1,932	7,313	0	169,292	0	169,292
	9-Jun-05	Emerald shiner	JUV	0	12	0	12	864	0.00	13.89	0.00	13.89	1,932	7,313	0	101,575	0	101,575
	9-Jun-05	Gizzard shad	PYSL	0	112	28	140	864	0.00	129.63	32.41	162.04	1,932	7,313	0	948,032	237,008	1,185,041
	9-Jun-05	Gizzard shad	YSL	0	16	0	16	864	0.00	18.52	0.00	18.52	1,932	7,313	0	135,433	0	135,433
	9-Jun-05	Logperch	PYSL	0	24	0	24	864	0.00	27.78	0.00	27.78	1,932	7,313	0	203,150	0	203,150
	9-Jun-05	Morone spp.	PYSL	0	328	92	420	864	0.00	379.63	106.48	486.11	1,932	7,313	0	2,776,381	778,741	3,555,122
	9-Jun-05	Morone spp.	YSL	0	0	8	8	864	0.00	0.00	9.26	9.26	1,932	7,313	0	0	67,717	67,717
	9-Jun-05	Round goby	JUV	0	8	0	8	864	0.00	9.26	0.00	9.26	1,932	7,313	0	67,717	0	67,717
	9-Jun-05	Smelt/Shad/Alewife	PYSL	0	16	0	16	864	0.00	18.52	0.00	18.52	1,932	7,313	0	135,433	0	135,433
	9-Jun-05	Spotfin shiner	PYSL	0	8	0	8	864	0.00	9.26	0.00	9.26	1,932	7,313	0	67,717	0	67,717
	9-Jun-05	Trout-perch	PYSL	0	4	0	4	864	0.00	4.63	0.00	4.63	1,932	7,313	0	33,858	0	33,858
	9-Jun-05	Yellow perch	PYSL	0	32	8	40	864	0.00	37.04	9.26	46.30	1,932	7,313	0	270,866	67,717	338,583
14	**9-Jun-05**	**DAILY TOTAL**		**0**	**580**	**136**	**716**	**864**	**0.00**	**671.30**	**157.41**	**828.70**	**1,932**	**7,313**	**0**	**4,909,454**	**1,151,182**	**6,060,636**
	10-Jun-05	Alewife	PYSL	0	34	0	34	624	0.00	54.49	0.00	54.49	1,932	7,313	0	398,486	0	398,486
	10-Jun-05	Carp/Goldfish	PYSL	0	2	0	2	624	0.00	3.21	0.00	3.21	1,932	7,313	0	23,440	0	23,440
	10-Jun-05	Cyprinidae	PYSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
	10-Jun-05	Freshwater drum	PYSL	0	8	0	8	624	0.00	12.82	0.00	12.82	1,932	7,313	0	93,761	0	93,761
	10-Jun-05	Gizzard shad	PYSL	0	72	0	72	624	0.00	115.38	0.00	115.38	1,932	7,313	0	843,853	0	843,853
	10-Jun-05	Morone spp.	PYSL	0	288	0	288	624	0.00	461.54	0.00	461.54	1,932	7,313	0	3,375,412	0	3,375,412
	10-Jun-05	Morone spp.	YSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
	10-Jun-05	Notropis spp.	PYSL	0	16	0	16	624	0.00	25.64	0.00	25.64	1,932	7,313	0	187,523	0	187,523
	10-Jun-05	Notropis spp.	YSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
	10-Jun-05	Round goby	JUV	0	2	0	2	624	0.00	3.21	0.00	3.21	1,932	7,313	0	23,440	0	23,440
	10-Jun-05	Smelt/Shad/Alewife	PYSL	0	42	0	42	624	0.00	67.31	0.00	67.31	1,932	7,313	0	492,248	0	492,248
	10-Jun-05	Spotfin shiner	PYSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
	10-Jun-05	Trout-perch	YSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
	10-Jun-05	Unidentifiable	undetermined	0	8	0	8	624	0.00	12.82	0.00	12.82	1,932	7,313	0	93,761	0	93,761
	10-Jun-05	Yellow perch	YSL	0	4	0	4	624	0.00	6.41	0.00	6.41	1,932	7,313	0	46,881	0	46,881
15	**10-Jun-05**	**DAILY TOTAL**		**0**	**496**	**0**	**496**	**624**	**0.00**	**794.87**	**0.00**	**794.87**	**1,932**	**7,313**	**0**	**5,813,210**	**0**	**5,813,210**
	15-Jun-05	Cyprinidae	PYSL	0	118	0	118	512	0.00	230.47	0.00	230.47	1,932	7,313	0	1,685,508	0	1,685,508
	15-Jun-05	Cyprinidae	YSL	0	24	0	24	512	0.00	46.88	0.00	46.88	1,932	7,313	0	342,815	0	342,815
	15-Jun-05	Emerald shiner	PYSL	0	35	0	35	512	0.00	68.36	0.00	68.36	1,932	7,313	0	499,939	0	499,939
	15-Jun-05	Gizzard shad	JUV	0	56	0	56	512	0.00	109.38	0.00	109.38	1,932	7,313	0	799,902	0	799,902
	15-Jun-05	Gizzard shad	PYSL	0	514	44	558	512	0.00	1003.91	85.94	1089.84	1,932	7,313	0	7,341,961	628,495	7,970,455
	15-Jun-05	Logperch	PYSL	0	204	0	204	512	0.00	398.44	0.00	398.44	1,932	7,313	0	2,913,930	0	2,913,930
	15-Jun-05	Logperch	YSL	0	5	0	5	512	0.00	9.77	0.00	9.77	1,932	7,313	0	71,420	0	71,420
	15-Jun-05	Morone spp.	PYSL	0	382	8	390	512	0.00	746.09	15.63	761.72	1,932	7,313	0	5,456,477	114,272	5,570,748
	15-Jun-05	Notropis spp.	PYSL	0	60	4	64	512	0.00	117.19	7.81	125.00	1,932	7,313	0	857,038	57,136	914,174
	15-Jun-05	Notropis spp.	YSL	0	2	0	2	512	0.00	3.91	0.00	3.91	1,932	7,313	0	28,568	0	28,568
	15-Jun-05	Round goby	JUV	0	14	0	14	512	0.00	27.34	0.00	27.34	1,932	7,313	0	199,976	0	199,976
	15-Jun-05	Unidentifiable	undetermined	0	0	2	2	512	0.00	0.00	3.91	3.91	1,932	7,313	0	0	28,568	28,568
	15-Jun-05	Yellow perch	PYSL	0	22	0	22	512	0.00	42.97	0.00	42.97	1,932	7,313	0	314,247	0	314,247
	15-Jun-05	Yellow perch	YSL	0	1	0	1	512	0.00	1.95	0.00	1.95	1,932	7,313	0	14,284	0	14,284
16	**15-Jun-05**	**DAILY TOTAL**		**0**	**1437**	**58**	**1495**	**512**	**0.00**	**2806.64**	**113.28**	**2919.92**	**1,932**	**7,313**	**0**	**20,526,065**	**828,470**	**21,354,536**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	16-Jun-05	Alewife	JUV	0	73	0	73	512	0.00	142.58	0.00	142.58	1,932	7,313	0	1,042,730	0	1,042,730
	16-Jun-05	Alewife	PYSL	0	510	0	510	512	0.00	996.09	0.00	996.09	1,932	7,313	0	7,284,825	0	7,284,825
	16-Jun-05	Cyprinidae	PYSL	0	5	0	5	512	0.00	9.77	0.00	9.77	1,932	7,313	0	71,420	0	71,420
	16-Jun-05	Emerald shiner	JUV	0	4	0	4	512	0.00	7.81	0.00	7.81	1,932	7,313	0	57,136	0	57,136
	16-Jun-05	Emerald shiner	PYSL	0	82	0	82	512	0.00	160.16	0.00	160.16	1,932	7,313	0	1,171,286	0	1,171,286
	16-Jun-05	Freshwater drum	PYSL	0	52	0	52	512	0.00	101.56	0.00	101.56	1,932	7,313	0	742,766	0	742,766
	16-Jun-05	Freshwater drum	YSL	0	22	0	22	512	0.00	42.97	0.00	42.97	1,932	7,313	0	314,247	0	314,247
	16-Jun-05	Gizzard shad	JUV	0	283	0	283	512	0.00	552.73	0.00	552.73	1,932	7,313	0	4,042,364	0	4,042,364
	16-Jun-05	Gizzard shad	PYSL	0	831	1	832	512	0.00	1623.05	1.95	1625.00	1,932	7,313	0	11,869,979	14,284	11,884,263
	16-Jun-05	Lepomis spp.	PYSL	0	1	0	1	512	0.00	1.95	0.00	1.95	1,932	7,313	0	14,284	0	14,284
	16-Jun-05	Logperch	PYSL	0	1	0	1	512	0.00	1.95	0.00	1.95	1,932	7,313	0	14,284	0	14,284
	16-Jun-05	Morone spp.	PYSL	0	367	2	369	512	0.00	716.80	3.91	720.70	1,932	7,313	0	5,242,217	28,568	5,270,785
	16-Jun-05	Morone spp.	YSL	0	2	0	2	512	0.00	3.91	0.00	3.91	1,932	7,313	0	28,568	0	28,568
	16-Jun-05	Notropis spp.	PYSL	0	39	0	39	512	0.00	76.17	0.00	76.17	1,932	7,313	0	557,075	0	557,075
	16-Jun-05	Pomoxis spp.	YSL	0	4	0	4	512	0.00	7.81	0.00	7.81	1,932	7,313	0	57,136	0	57,136
	16-Jun-05	Round goby	JUV	0	22	0	22	512	0.00	42.97	0.00	42.97	1,932	7,313	0	314,247	0	314,247
	16-Jun-05	Smelt/Shad/Alewife	JUV	0	21	0	21	512	0.00	41.02	0.00	41.02	1,932	7,313	0	299,963	0	299,963
	16-Jun-05	Smelt/Shad/Alewife	PYSL	0	166	0	166	512	0.00	324.22	0.00	324.22	1,932	7,313	0	2,371,139	0	2,371,139
	16-Jun-05	Unidentifiable	undetermined	0	28	2	30	512	0.00	54.69	3.91	58.59	1,932	7,313	0	399,951	28,568	428,519
	16-Jun-05	Yellow perch	YSL	0	18	0	18	512	0.00	35.16	0.00	35.16	1,932	7,313	0	257,111	0	257,111
17	**16-Jun-05**	**DAILY TOTAL**		**0**	**2531**	**5**	**2536**	**512**	**0.00**	**4943.36**	**9.77**	**4953.13**	**1,932**	**7,313**	**0**	**36,152,729**	**71,420**	**36,224,149**
	21-Jun-05	Carp/Goldfish	PYSL	0	1	0	1	960	0.00	1.04	0.00	1.04	1,932	7,313	0	7,618	0	7,618
	21-Jun-05	Carp/Goldfish	YSL	0	2	0	2	960	0.00	2.08	0.00	2.08	1,932	7,313	0	15,236	0	15,236
	21-Jun-05	Cyprinidae	PYSL	0	112	0	112	960	0.00	116.67	0.00	116.67	1,932	7,313	0	853,229	0	853,229
	21-Jun-05	Cyprinidae	YSL	0	10	0	10	960	0.00	10.42	0.00	10.42	1,932	7,313	0	76,181	0	76,181
	21-Jun-05	Darter	JUV	0	1	0	1	960	0.00	1.04	0.00	1.04	1,932	7,313	0	7,618	0	7,618
	21-Jun-05	Emerald shiner	JUV	0	40	0	40	960	0.00	41.67	0.00	41.67	1,932	7,313	0	304,725	0	304,725
	21-Jun-05	Emerald shiner	PYSL	0	89	0	89	960	0.00	92.71	0.00	92.71	1,932	7,313	0	678,012	0	678,012
	21-Jun-05	Freshwater drum	PYSL	0	7	0	7	960	0.00	7.29	0.00	7.29	1,932	7,313	0	53,327	0	53,327
	21-Jun-05	Gizzard shad	JUV	0	16	0	16	960	0.00	16.67	0.00	16.67	1,932	7,313	0	121,890	0	121,890
	21-Jun-05	Gizzard shad	PYSL	0	183	2	185	960	0.00	190.63	2.08	192.71	1,932	7,313	0	1,394,116	15,236	1,409,352
	21-Jun-05	Gizzard shad	YSL	0	4	0	4	960	0.00	4.17	0.00	4.17	1,932	7,313	0	30,472	0	30,472
	21-Jun-05	Logperch	PYSL	0	85	0	85	960	0.00	88.54	0.00	88.54	1,932	7,313	0	647,540	0	647,540
	21-Jun-05	Morone spp.	JUV	0	1	0	1	960	0.00	1.04	0.00	1.04	1,932	7,313	0	7,618	0	7,618
	21-Jun-05	Morone spp.	PYSL	0	120	2	122	960	0.00	125.00	2.08	127.08	1,932	7,313	0	914,174	15,236	929,410
	21-Jun-05	Notropis spp.	PYSL	0	65	1	66	960	0.00	67.71	1.04	68.75	1,932	7,313	0	495,178	7,618	502,796
	21-Jun-05	Quillback	PYSL	0	4	0	4	960	0.00	4.17	0.00	4.17	1,932	7,313	0	30,472	0	30,472
	21-Jun-05	Round goby	JUV	0	21	0	21	960	0.00	21.88	0.00	21.88	1,932	7,313	0	159,980	0	159,980
	21-Jun-05	Unidentifiable	undetermined	0	0	1	1	960	0.00	0.00	1.04	1.04	1,932	7,313	0	0	7,618	7,618
	21-Jun-05	Yellow perch	PYSL	0	16	0	16	960	0.00	16.67	0.00	16.67	1,932	7,313	0	121,890	0	121,890
18	**21-Jun-05**	**DAILY TOTAL**		**0**	**777**	**6**	**783**	**960**	**0.00**	**809.38**	**6.25**	**815.63**	**1,932**	**7,313**	**0**	**5,919,277**	**45,709**	**5,964,986**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	22-Jun-05	Alewife	JUV	0	5	0	5	928	0.00	5.39	0.00	5.39	1,932	7,313	0	39,404	0	39,404
	22-Jun-05	Alewife	PYSL	0	10	0	10	928	0.00	10.78	0.00	10.78	1,932	7,313	0	78,808	0	78,808
	22-Jun-05	Cyprinidae	PYSL	0	196	0	196	928	0.00	211.21	0.00	211.21	1,932	7,313	0	1,544,639	0	1,544,639
	22-Jun-05	Emerald shiner	JUV	0	9	0	9	928	0.00	9.70	0.00	9.70	1,932	7,313	0	70,927	0	70,927
	22-Jun-05	Emerald shiner	PYSL	0	485	0	485	928	0.00	522.63	0.00	522.63	1,932	7,313	0	3,822,193	0	3,822,193
	22-Jun-05	Freshwater drum	PYSL	0	5	0	5	928	0.00	5.39	0.00	5.39	1,932	7,313	0	39,404	0	39,404
	22-Jun-05	Gizzard shad	JUV	0	60	0	60	928	0.00	64.66	0.00	64.66	1,932	7,313	0	472,849	0	472,849
	22-Jun-05	Gizzard shad	PYSL	0	347	1	348	928	0.00	373.92	1.08	375.00	1,932	7,313	0	2,734,641	7,881	2,742,522
	22-Jun-05	Lepomis spp.	PYSL	0	1	0	1	928	0.00	1.08	0.00	1.08	1,932	7,313	0	7,881	0	7,881
	22-Jun-05	Morone spp.	JUV	0	14	0	14	928	0.00	15.09	0.00	15.09	1,932	7,313	0	110,331	0	110,331
	22-Jun-05	Morone spp.	PYSL	0	415	0	415	928	0.00	447.20	0.00	447.20	1,932	7,313	0	3,270,537	0	3,270,537
	22-Jun-05	Notropis spp.	PYSL	0	749	0	749	928	0.00	807.11	0.00	807.11	1,932	7,313	0	5,902,728	0	5,902,728
	22-Jun-05	Round goby	JUV	0	4	0	4	928	0.00	4.31	0.00	4.31	1,932	7,313	0	31,523	0	31,523
	22-Jun-05	Smelt/Shad/Alewife	PYSL	0	48	0	48	928	0.00	51.72	0.00	51.72	1,932	7,313	0	378,279	0	378,279
	22-Jun-05	Spotfin shiner	PYSL	0	2	0	2	928	0.00	2.16	0.00	2.16	1,932	7,313	0	15,762	0	15,762
	22-Jun-05	Trout-perch	YSL	0	12	0	12	928	0.00	12.93	0.00	12.93	1,932	7,313	0	94,570	0	94,570
	22-Jun-05	Unidentifiable	undetermined	0	2	1	3	928	0.00	2.16	1.08	3.23	1,932	7,313	0	15,762	7,881	23,642
	22-Jun-05	White perch	PYSL	0	8	0	8	928	0.00	8.62	0.00	8.62	1,932	7,313	0	63,046	0	63,046
	22-Jun-05	Yellow perch	PYSL	0	6	0	6	928	0.00	6.47	0.00	6.47	1,932	7,313	0	47,285	0	47,285
	22-Jun-05	Yellow perch	YSL	0	9	0	9	928	0.00	9.70	0.00	9.70	1,932	7,313	0	70,927	0	70,927
19	**22-Jun-05**	**DAILY TOTAL**		**0**	**2387**	**2**	**2389**	**928**	**0.00**	**2572.20**	**2.16**	**2574.35**	**1,932**	**7,313**	**0**	**18,811,496**	**15,762**	**18,827,258**
	30-Jun-05	Cyprinidae	JUV	0	20	0	20	656	0.00	30.49	0.00	30.49	1,932	7,313	0	222,969	0	222,969
	30-Jun-05	Cyprinidae	PYSL	0	108	0	108	656	0.00	164.63	0.00	164.63	1,932	7,313	0	1,204,034	0	1,204,034
	30-Jun-05	Cyprinidae	YSL	0	5	0	5	656	0.00	7.62	0.00	7.62	1,932	7,313	0	55,742	0	55,742
	30-Jun-05	Darter	JUV	0	2	0	2	656	0.00	3.05	0.00	3.05	1,932	7,313	0	22,297	0	22,297
	30-Jun-05	Emerald shiner	JUV	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Emerald shiner	PYSL	0	215	0	215	656	0.00	327.74	0.00	327.74	1,932	7,313	0	2,396,920	0	2,396,920
	30-Jun-05	Freshwater drum	PYSL	0	17	0	17	656	0.00	25.91	0.00	25.91	1,932	7,313	0	189,524	0	189,524
	30-Jun-05	Gizzard shad	JUV	0	23	0	23	656	0.00	35.06	0.00	35.06	1,932	7,313	0	256,415	0	256,415
	30-Jun-05	Gizzard shad	PYSL	0	92	1	93	656	0.00	140.24	1.52	141.77	1,932	7,313	0	1,025,659	11,148	1,036,807
	30-Jun-05	Lake whitefish	PYSL	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Logperch	PYSL	0	23	0	23	656	0.00	35.06	0.00	35.06	1,932	7,313	0	256,415	0	256,415
	30-Jun-05	Logperch	YSL	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Micropterus spp.	PYSL	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Morone spp.	JUV	0	8	0	8	656	0.00	12.20	0.00	12.20	1,932	7,313	0	89,188	0	89,188
	30-Jun-05	Morone spp.	PYSL	0	99	1	100	656	0.00	150.91	1.52	152.44	1,932	7,313	0	1,103,698	11,148	1,114,846
	30-Jun-05	Notropis spp.	JUV	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Notropis spp.	PYSL	0	46	0	46	656	0.00	70.12	0.00	70.12	1,932	7,313	0	512,829	0	512,829
	30-Jun-05	Round goby	JUV	0	11	0	11	656	0.00	16.77	0.00	16.77	1,932	7,313	0	122,633	0	122,633
	30-Jun-05	Trout-perch	JUV	0	1	0	1	656	0.00	1.52	0.00	1.52	1,932	7,313	0	11,148	0	11,148
	30-Jun-05	Yellow perch	PYSL	0	6	0	6	656	0.00	9.15	0.00	9.15	1,932	7,313	0	66,891	0	66,891
20	**30-Jun-05**	**DAILY TOTAL**		**0**	**681**	**2**	**683**	**656**	**0.00**	**1038.11**	**3.05**	**1041.16**	**1,932**	**7,313**	**0**	**7,592,104**	**22,297**	**7,614,401**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	1-Jul-05	Carp/Goldfish	PYSL	0	6	0	6	672	0.00	8.93	0.00	8.93	1,932	7,313	0	65,298	0	65,298
	1-Jul-05	Carp/Goldfish	YSL	0	2	0	2	672	0.00	2.98	0.00	2.98	1,932	7,313	0	21,766	0	21,766
	1-Jul-05	Cyprinidae	PYSL	0	9	0	9	672	0.00	13.39	0.00	13.39	1,932	7,313	0	97,947	0	97,947
	1-Jul-05	Emerald shiner	JUV	0	6	0	6	672	0.00	8.93	0.00	8.93	1,932	7,313	0	65,298	0	65,298
	1-Jul-05	Emerald shiner	PYSL	0	40	1	41	672	0.00	59.52	1.49	61.01	1,932	7,313	0	435,321	10,883	446,204
	1-Jul-05	Freshwater drum	PYSL	0	14	0	14	672	0.00	20.83	0.00	20.83	1,932	7,313	0	152,362	0	152,362
	1-Jul-05	Gizzard shad	JUV	0	23	1	24	672	0.00	34.23	1.49	35.71	1,932	7,313	0	250,310	10,883	261,193
	1-Jul-05	Gizzard shad	PYSL	0	54	4	58	672	0.00	80.36	5.95	86.31	1,932	7,313	0	587,683	43,532	631,215
	1-Jul-05	Morone spp.	JUV	0	82	0	82	672	0.00	122.02	0.00	122.02	1,932	7,313	0	892,408	0	892,408
	1-Jul-05	Morone spp.	PYSL	0	261	1	262	672	0.00	388.39	1.49	389.88	1,932	7,313	0	2,840,470	10,883	2,851,353
	1-Jul-05	Morone spp.	YSL	0	2	0	2	672	0.00	2.98	0.00	2.98	1,932	7,313	0	21,766	0	21,766
	1-Jul-05	Notropis spp.	PYSL	0	46	0	46	672	0.00	68.45	0.00	68.45	1,932	7,313	0	500,619	0	500,619
	1-Jul-05	Round goby	JUV	0	18	0	18	672	0.00	26.79	0.00	26.79	1,932	7,313	0	195,894	0	195,894
	1-Jul-05	Spotfin shiner	PYSL	0	1	0	1	672	0.00	1.49	0.00	1.49	1,932	7,313	0	10,883	0	10,883
	1-Jul-05	Spotfin shiner	YSL	0	1	0	1	672	0.00	1.49	0.00	1.49	1,932	7,313	0	10,883	0	10,883
	1-Jul-05	White bass	JUV	0	1	0	1	672	0.00	1.49	0.00	1.49	1,932	7,313	0	10,883	0	10,883
21	**1-Jul-05**	**DAILY TOTAL**		**0**	**566**	**7**	**573**	**672**	**0.00**	**842.26**	**10.42**	**852.68**	**1,932**	**7,313**	**0**	**6,159,792**	**76,181**	**6,235,973**
	5-Jul-05	Alewife	PYSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	Cyprinidae	JUV	0	75	0	75	593	0.00	126.48	0.00	126.48	1,932	7,313	0	924,965	0	924,965
	5-Jul-05	Cyprinidae	PYSL	0	24	0	24	593	0.00	40.47	0.00	40.47	1,932	7,313	0	295,989	0	295,989
	5-Jul-05	Darter	PYSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	5-Jul-05	Emerald shiner	JUV	0	94	3	97	593	0.00	158.52	5.06	163.58	1,932	7,313	0	1,159,290	36,999	1,196,289
	5-Jul-05	Emerald shiner	PYSL	0	203	9	212	593	0.00	342.33	15.18	357.50	1,932	7,313	0	2,503,573	110,996	2,614,569
	5-Jul-05	Freshwater drum	PYSL	0	1	1	2	593	0.00	1.69	1.69	3.37	1,932	7,313	0	12,333	12,333	24,666
	5-Jul-05	Gizzard shad	JUV	0	13	0	13	593	0.00	21.92	0.00	21.92	1,932	7,313	0	160,327	0	160,327
	5-Jul-05	Gizzard shad	PYSL	0	137	14	151	593	0.00	231.03	23.61	254.64	1,932	7,313	0	1,689,603	172,660	1,862,264
	5-Jul-05	Logperch	PYSL	0	14	5	19	593	0.00	23.61	8.43	32.04	1,932	7,313	0	172,660	61,664	234,325
	5-Jul-05	Morone spp.	JUV	0	16	0	16	593	0.00	26.98	0.00	26.98	1,932	7,313	0	197,326	0	197,326
	5-Jul-05	Morone spp.	PYSL	0	79	4	83	593	0.00	133.22	6.75	139.97	1,932	7,313	0	974,297	49,331	1,023,628
	5-Jul-05	Morone spp.	YSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	Notropis spp.	JUV	0	10	0	10	593	0.00	16.86	0.00	16.86	1,932	7,313	0	123,329	0	123,329
	5-Jul-05	Notropis spp.	PYSL	0	61	2	63	593	0.00	102.87	3.37	106.24	1,932	7,313	0	752,305	24,666	776,971
	5-Jul-05	Notropis spp.	YSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	5-Jul-05	Quillback	PYSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	Rock Bass	JUV	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	Round goby	JUV	0	10	0	10	593	0.00	16.86	0.00	16.86	1,932	7,313	0	123,329	0	123,329
	5-Jul-05	Unidentifiable	undetermined	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	White bass	JUV	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	5-Jul-05	White bass	PYSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	5-Jul-05	Yellow perch	PYSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
22	**5-Jul-05**	**DAILY TOTAL**		**0**	**750**	**38**	**788**	**593**	**0.00**	**1264.76**	**64.08**	**1328.84**	**1,932**	**7,313**	**0**	**9,249,654**	**468,649**	**9,718,303**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	6-Jul-05	Cyprinidae	PYSL	0	3	2	5	644	0.00	4.66	3.11	7.76	1,932	7,313	0	34,069	22,712	56,781
	6-Jul-05	Cyprinidae	YSL	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Emerald shiner	JUV	0	102	1	103	644	0.00	158.39	1.55	159.94	1,932	7,313	0	1,158,332	11,356	1,169,689
	6-Jul-05	Emerald shiner	PYSL	0	54	0	54	644	0.00	83.85	0.00	83.85	1,932	7,313	0	613,235	0	613,235
	6-Jul-05	Freshwater drum	PYSL	0	2	1	3	644	0.00	3.11	1.55	4.66	1,932	7,313	0	22,712	11,356	34,069
	6-Jul-05	Gizzard shad	JUV	0	32	0	32	644	0.00	49.69	0.00	49.69	1,932	7,313	0	363,398	0	363,398
	6-Jul-05	Gizzard shad	PYSL	0	90	10	100	644	0.00	139.75	15.53	155.28	1,932	7,313	0	1,022,058	113,562	1,135,620
	6-Jul-05	Lepomis spp.	JUV	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Logperch	JUV	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Logperch	PYSL	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Morone spp.	JUV	0	2	0	2	644	0.00	3.11	0.00	3.11	1,932	7,313	0	22,712	0	22,712
	6-Jul-05	Morone spp.	PYSL	0	50	5	55	644	0.00	77.64	7.76	85.40	1,932	7,313	0	567,810	56,781	624,591
	6-Jul-05	Notropis spp.	PYSL	0	6	0	6	644	0.00	9.32	0.00	9.32	1,932	7,313	0	68,137	0	68,137
	6-Jul-05	Round goby	JUV	0	18	3	21	644	0.00	27.95	4.66	32.61	1,932	7,313	0	204,412	34,069	238,480
	6-Jul-05	Smelt/Shad/Alewife	JUV	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Smelt/Shad/Alewife	PYSL	0	3	1	4	644	0.00	4.66	1.55	6.21	1,932	7,313	0	34,069	11,356	45,425
	6-Jul-05	Unidentifiable	undetermined	0		4	4	644	0.00	0.00	6.21	6.21	1,932	7,313	0	0	45,425	45,425
	6-Jul-05	White bass	JUV	0	12	0	12	644	0.00	18.63	0.00	18.63	1,932	7,313	0	136,274	0	136,274
	6-Jul-05	White bass	PYSL	0	8	0	8	644	0.00	12.42	0.00	12.42	1,932	7,313	0	90,850	0	90,850
	6-Jul-05	White perch	JUV	0	2	0	2	644	0.00	3.11	0.00	3.11	1,932	7,313	0	22,712	0	22,712
	6-Jul-05	White perch	PYSL	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
	6-Jul-05	Yellow perch	YSL	0	1	0	1	644	0.00	1.55	0.00	1.55	1,932	7,313	0	11,356	0	11,356
23	**6-Jul-05**	**DAILY TOTAL**		**0**	**391**	**27**	**418**	**644**	**0.00**	**607.14**	**41.93**	**649.07**	**1,932**	**7,313**	**0**	**4,440,274**	**306,617**	**4,746,892**
	14-Jul-05	Alewife	PYSL	0	12	0	12	538	0.00	22.30	0.00	22.30	1,932	7,313	0	163,124	0	163,124
	14-Jul-05	Cyprinidae	JUV	0	14	1	15	538	0.00	26.02	1.86	27.88	1,932	7,313	0	190,311	13,594	203,905
	14-Jul-05	Cyprinidae	PYSL	0	49	0	49	538	0.00	91.08	0.00	91.08	1,932	7,313	0	666,090	0	666,090
	14-Jul-05	Cyprinidae	YSL	0	4	0	4	538	0.00	7.43	0.00	7.43	1,932	7,313	0	54,375	0	54,375
	14-Jul-05	Emerald shiner	JUV	0	3	0	3	538	0.00	5.58	0.00	5.58	1,932	7,313	0	40,781	0	40,781
	14-Jul-05	Emerald shiner	PYSL	0	81	0	81	538	0.00	150.56	0.00	150.56	1,932	7,313	0	1,101,087	0	1,101,087
	14-Jul-05	Gizzard shad	JUV	0	1	0	1	538	0.00	1.86	0.00	1.86	1,932	7,313	0	13,594	0	13,594
	14-Jul-05	Gizzard shad	PYSL	0	26	0	26	538	0.00	48.33	0.00	48.33	1,932	7,313	0	353,435	0	353,435
	14-Jul-05	Morone spp.	JUV	0	9	0	9	538	0.00	16.73	0.00	16.73	1,932	7,313	0	122,343	0	122,343
	14-Jul-05	Morone spp.	PYSL	0	6	0	6	538	0.00	11.15	0.00	11.15	1,932	7,313	0	81,562	0	81,562
	14-Jul-05	Notropis spp.	PYSL	0	63	0	63	538	0.00	117.10	0.00	117.10	1,932	7,313	0	856,401	0	856,401
	14-Jul-05	Round goby	JUV	0	22	0	22	538	0.00	40.89	0.00	40.89	1,932	7,313	0	299,061	0	299,061
24	**14-Jul-05**	**DAILY TOTAL**		**0**	**290**	**1**	**291**	**538**	**0.00**	**539.03**	**1.86**	**540.89**	**1,932**	**7,313**	**0**	**3,942,163**	**13,594**	**3,955,757**
	15-Jul-05	Brook silverside	PYSL	0	7	0	7	686	0.00	10.20	0.00	10.20	1,932	7,313	0	74,626	0	74,626
	15-Jul-05	Cyprinidae	JUV	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	15-Jul-05	Cyprinidae	PYSL	0	14	0	14	686	0.00	20.41	0.00	20.41	1,932	7,313	0	149,253	0	149,253
	15-Jul-05	Emerald shiner	JUV	0	10	0	10	686	0.00	14.58	0.00	14.58	1,932	7,313	0	106,609	0	106,609
	15-Jul-05	Emerald shiner	PYSL	0	55	0	55	686	0.00	80.17	0.00	80.17	1,932	7,313	0	586,351	0	586,351
	15-Jul-05	Gizzard shad	JUV	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	15-Jul-05	Gizzard shad	PYSL	0	8	0	8	686	0.00	11.66	0.00	11.66	1,932	7,313	0	85,287	0	85,287
	15-Jul-05	Lepomis spp.	JUV	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	15-Jul-05	Lepomis spp.	PYSL	0	3	0	3	686	0.00	4.37	0.00	4.37	1,932	7,313	0	31,983	0	31,983
	15-Jul-05	Morone spp.	PYSL	0	8	0	8	686	0.00	11.66	0.00	11.66	1,932	7,313	0	85,287	0	85,287
	15-Jul-05	Notropis spp.	PYSL	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	15-Jul-05	Round goby	JUV	0	5	0	5	686	0.00	7.29	0.00	7.29	1,932	7,313	0	53,305	0	53,305
	15-Jul-05	Smelt/Shad/Alewife	PYSL	0	3	0	3	686	0.00	4.37	0.00	4.37	1,932	7,313	0	31,983	0	31,983
	15-Jul-05	Unidentifiable	undetermined	0	4	0	4	686	0.00	5.83	0.00	5.83	1,932	7,313	0	42,644	0	42,644
	15-Jul-05	White bass	JUV	0	3	0	3	686	0.00	4.37	0.00	4.37	1,932	7,313	0	31,983	0	31,983
	15-Jul-05	White bass	PYSL	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
25	**15-Jul-05**	**DAILY TOTAL**		**0**	**125**	**0**	**125**	**686**	**0.00**	**182.22**	**0.00**	**182.22**	**1,932**	**7,313**	**0**	**1,332,615**	**0**	**1,332,615**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	19-Jul-05	Cyprinidae	JUV	0	1	0	1	612	0.00	1.63	0.00	1.63	1,932	7,313	0	11,950	0	11,950
	19-Jul-05	Cyprinidae	PYSL	0	24	0	24	612	0.00	39.22	0.00	39.22	1,932	7,313	0	286,800	0	286,800
	19-Jul-05	Cyprinidae	YSL	0	2	0	2	612	0.00	3.27	0.00	3.27	1,932	7,313	0	23,900	0	23,900
	19-Jul-05	Emerald shiner	JUV	0	14	0	14	612	0.00	22.88	0.00	22.88	1,932	7,313	0	167,300	0	167,300
	19-Jul-05	Emerald shiner	PYSL	0	165	1	166	612	0.00	269.61	1.63	271.24	1,932	7,313	0	1,971,748	11,950	1,983,698
	19-Jul-05	Gizzard shad	JUV	0	1	0	1	612	0.00	1.63	0.00	1.63	1,932	7,313	0	11,950	0	11,950
	19-Jul-05	Gizzard shad	PYSL	0	12	0	12	612	0.00	19.61	0.00	19.61	1,932	7,313	0	143,400	0	143,400
	19-Jul-05	Logperch	PYSL	0	1	0	1	612	0.00	1.63	0.00	1.63	1,932	7,313	0	11,950	0	11,950
	19-Jul-05	Morone spp.	PYSL	0	2	0	2	612	0.00	3.27	0.00	3.27	1,932	7,313	0	23,900	0	23,900
	19-Jul-05	Notropis spp.	PYSL	0	36	0	36	612	0.00	58.82	0.00	58.82	1,932	7,313	0	430,200	0	430,200
	19-Jul-05	Round goby	JUV	0	10	0	10	612	0.00	16.34	0.00	16.34	1,932	7,313	0	119,500	0	119,500
	19-Jul-05	Yellow perch	PYSL	0	1	0	1	612	0.00	1.63	0.00	1.63	1,932	7,313	0	11,950	0	11,950
26	**19-Jul-05**	**DAILY TOTAL**		**0**	**269**	**1**	**270**	**612**	**0.00**	**439.54**	**1.63**	**441.18**	**1,932**	**7,313**	**0**	**3,214,547**	**11,950**	**3,226,497**
	20-Jul-05	Cyprinidae	PYSL	0	1	0	1	614	0.00	1.63	0.00	1.63	1,932	7,313	0	11,911	0	11,911
	20-Jul-05	Emerald shiner	JUV	0	6	0	6	614	0.00	9.77	0.00	9.77	1,932	7,313	0	71,466	0	71,466
	20-Jul-05	Emerald shiner	PYSL	0	44	0	44	614	0.00	71.66	0.00	71.66	1,932	7,313	0	524,087	0	524,087
	20-Jul-05	Gizzard shad	PYSL	0	8	0	8	614	0.00	13.03	0.00	13.03	1,932	7,313	0	95,289	0	95,289
	20-Jul-05	Gizzard shad	YSL	0	1	0	1	614	0.00	1.63	0.00	1.63	1,932	7,313	0	11,911	0	11,911
	20-Jul-05	Morone spp.	PYSL	0	4	0	4	614	0.00	6.51	0.00	6.51	1,932	7,313	0	47,644	0	47,644
	20-Jul-05	Round goby	JUV	0	36	0	36	614	0.00	58.63	0.00	58.63	1,932	7,313	0	428,798	0	428,798
	20-Jul-05	Smelt/Shad/Alewife	PYSL	0	3	0	3	614	0.00	4.89	0.00	4.89	1,932	7,313	0	35,733	0	35,733
	20-Jul-05	Unidentifiable	undetermined	0	2	0	2	614	0.00	3.26	0.00	3.26	1,932	7,313	0	23,822	0	23,822
	20-Jul-05	White bass	JUV	0	3	0	3	614	0.00	4.89	0.00	4.89	1,932	7,313	0	35,733	0	35,733
	20-Jul-05	Yellow perch	PYSL	0	2	0	2	614	0.00	3.26	0.00	3.26	1,932	7,313	0	23,822	0	23,822
27	**20-Jul-05**	**DAILY TOTAL**		**0**	**110**	**0**	**110**	**614**	**0.00**	**179.15**	**0.00**	**179.15**	**1,932**	**7,313**	**0**	**1,310,217**	**0**	**1,310,217**
	26-Jul-05	Channel catfish	PYSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	26-Jul-05	Cyprinidae	JUV	0	8	0	8	593	0.00	13.49	0.00	13.49	1,932	7,313	0	98,663	0	98,663
	26-Jul-05	Cyprinidae	PYSL	0	7	0	7	593	0.00	11.80	0.00	11.80	1,932	7,313	0	86,330	0	86,330
	26-Jul-05	Cyprinidae	YSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	26-Jul-05	Emerald shiner	JUV	0	9	0	9	593	0.00	15.18	0.00	15.18	1,932	7,313	0	110,996	0	110,996
	26-Jul-05	Emerald shiner	PYSL	0	32	0	32	593	0.00	53.96	0.00	53.96	1,932	7,313	0	394,652	0	394,652
	26-Jul-05	Gizzard shad	PYSL	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	26-Jul-05	Lepomis spp.	JUV	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	26-Jul-05	Morone spp.	JUV	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	26-Jul-05	Morone spp.	PYSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	26-Jul-05	Notropis spp.	PYSL	0	5	0	5	593	0.00	8.43	0.00	8.43	1,932	7,313	0	61,664	0	61,664
	26-Jul-05	Notropis spp.	YSL	0	2	0	2	593	0.00	3.37	0.00	3.37	1,932	7,313	0	24,666	0	24,666
	26-Jul-05	Rock Bass	JUV	0	1	0	1	593	0.00	1.69	0.00	1.69	1,932	7,313	0	12,333	0	12,333
	26-Jul-05	Round goby	JUV	0	16	1	17	593	0.00	26.98	1.69	28.67	1,932	7,313	0	197,326	12,333	209,659
28	**26-Jul-05**	**DAILY TOTAL**		**0**	**88**	**1**	**89**	**593**	**0.00**	**148.40**	**1.69**	**150.08**	**1,932**	**7,313**	**0**	**1,085,293**	**12,333**	**1,097,626**
	27-Jul-05	Channel catfish	PYSL	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	27-Jul-05	Cyprinidae	PYSL	0	0	1	1	686	0.00	0.00	1.46	1.46	1,932	7,313	0	0	10,661	10,661
	27-Jul-05	Emerald shiner	JUV	0	27	0	27	686	0.00	39.36	0.00	39.36	1,932	7,313	0	287,845	0	287,845
	27-Jul-05	Emerald shiner	PYSL	0	49	0	49	686	0.00	71.43	0.00	71.43	1,932	7,313	0	522,385	0	522,385
	27-Jul-05	Morone spp.	PYSL	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	27-Jul-05	Round goby	JUV	0	26	1	27	686	0.00	37.90	1.46	39.36	1,932	7,313	0	277,184	10,661	287,845
	27-Jul-05	White bass	JUV	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	27-Jul-05	White perch	JUV	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	27-Jul-05	White perch	PYSL	0	1	0	1	686	0.00	1.46	0.00	1.46	1,932	7,313	0	10,661	0	10,661
	27-Jul-05	Yellow perch	PYSL	0	5	0	5	686	0.00	7.29	0.00	7.29	1,932	7,313	0	53,305	0	53,305
	27-Jul-05	Yellow perch	YSL	0	3	0	3	686	0.00	4.37	0.00	4.37	1,932	7,313	0	31,983	0	31,983
29	**27-Jul-05**	**DAILY TOTAL**		**0**	**115**	**2**	**117**	**686**	**0.00**	**167.64**	**2.92**	**170.55**	**1,932**	**7,313**	**0**	**1,226,006**	**21,322**	**1,247,328**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	4-Aug-05	Bluntnose minnow	JUV	0	5	0	5	610	0.00	8.20	0.00	8.20	1,932	7,313	0	59,946	0	59,946
	4-Aug-05	Cyprinidae	JUV	0	11	0	11	610	0.00	18.03	0.00	18.03	1,932	7,313	0	131,881	0	131,881
	4-Aug-05	Cyprinidae	PYSL	0	2	0	2	610	0.00	3.28	0.00	3.28	1,932	7,313	0	23,978	0	23,978
	4-Aug-05	Cyprinidae	YSL	0	1	0	1	610	0.00	1.64	0.00	1.64	1,932	7,313	0	11,989	0	11,989
	4-Aug-05	Emerald shiner	JUV	0	16	0	16	610	0.00	26.23	0.00	26.23	1,932	7,313	0	191,827	0	191,827
	4-Aug-05	Emerald shiner	PYSL	0	12	0	12	610	0.00	19.67	0.00	19.67	1,932	7,313	0	143,870	0	143,870
	4-Aug-05	Logperch	PYSL	0	1	0	1	610	0.00	1.64	0.00	1.64	1,932	7,313	0	11,989	0	11,989
	4-Aug-05	Notropis spp.	JUV	0	4	0	4	610	0.00	6.56	0.00	6.56	1,932	7,313	0	47,957	0	47,957
	4-Aug-05	Notropis spp.	PYSL	0	10	0	10	610	0.00	16.39	0.00	16.39	1,932	7,313	0	119,892	0	119,892
	4-Aug-05	Round goby	JUV	0	13	0	13	610	0.00	21.31	0.00	21.31	1,932	7,313	0	155,859	0	155,859
30	**4-Aug-05**	**DAILY TOTAL**		**0**	**75**	**0**	**75**	**610**	**0.00**	**122.95**	**0.00**	**122.95**	**1,932**	**7,313**	**0**	**899,188**	**0**	**899,188**
	5-Aug-05	Cyprinidae	JUV	0	2	0	2	577	0.00	3.47	0.00	3.47	1,932	7,313	0	25,350	0	25,350
	5-Aug-05	Cyprinidae	PYSL	0	2	0	2	577	0.00	3.47	0.00	3.47	1,932	7,313	0	25,350	0	25,350
	5-Aug-05	Emerald shiner	JUV	0	26	0	26	577	0.00	45.06	0.00	45.06	1,932	7,313	0	329,546	0	329,546
	5-Aug-05	Emerald shiner	PYSL	0	14	0	14	577	0.00	24.26	0.00	24.26	1,932	7,313	0	177,448	0	177,448
	5-Aug-05	Freshwater drum	PYSL	0	1	0	1	577	0.00	1.73	0.00	1.73	1,932	7,313	0	12,675	0	12,675
	5-Aug-05	Round goby	JUV	0	7	0	7	577	0.00	12.13	0.00	12.13	1,932	7,313	0	88,724	0	88,724
31	**5-Aug-05**	**DAILY TOTAL**		**0**	**52**	**0**	**52**	**577**	**0.00**	**90.12**	**0.00**	**90.12**	**1,932**	**7,313**	**0**	**659,093**	**0**	**659,093**
	10-Aug-05	Notropis spp.	PYSL	0	1	0	1	643	0.00	1.56	0.00	1.56	1,932	7,313	0	11,374	0	11,374
	10-Aug-05	Round goby	JUV	0	5	0	5	643	0.00	7.78	0.00	7.78	1,932	7,313	0	56,869	0	56,869
	10-Aug-05	Spotfin shiner	PYSL	0	1	0	1	643	0.00	1.56	0.00	1.56	1,932	7,313	0	11,374	0	11,374
32	**10-Aug-05**	**DAILY TOTAL**		**0**	**7**	**0**	**7**	**643**	**0.00**	**10.89**	**0.00**	**10.89**	**1,932**	**7,313**	**0**	**79,617**	**0**	**79,617**
	11-Aug-05	Emerald shiner	JUV	1	2	0	3	988	1.01	2.02	0.00	3.04	1,771	6,704	6,785	13,571	0	20,356
	11-Aug-05	Emerald shiner	PYSL	0	1	0	1	988	0.00	1.01	0.00	1.01	1,771	6,704	0	6,785	0	6,785
	11-Aug-05	Lepomis spp.	PYSL	0	4	0	4	988	0.00	4.05	0.00	4.05	1,771	6,704	0	27,141	0	27,141
	11-Aug-05	Round goby	JUV	0	11	0	11	988	0.00	11.13	0.00	11.13	1,771	6,704	0	74,639	0	74,639
	11-Aug-05	Silver chub	JUV	0	1	0	1	988	0.00	1.01	0.00	1.01	1,771	6,704	0	6,785	0	6,785
	11-Aug-05	Yellow perch	PYSL	0	1	0	1	988	0.00	1.01	0.00	1.01	1,771	6,704	0	6,785	0	6,785
33	**11-Aug-05**	**DAILY TOTAL**		**1**	**20**	**0**	**21**	**988**	**1.01**	**20.24**	**0.00**	**21.26**	**1,771**	**6,704**	**6,785**	**135,707**	**0**	**142,493**
	16-Aug-05	Emerald shiner	JUV	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Freshwater drum	PYSL	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Gizzard shad	JUV	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Lepomis spp.	PYSL	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Logperch	YSL	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Notropis spp.	PYSL	0	3	0	3	1,012	0.00	2.96	0.00	2.96	1,932	7,313	0	21,680	0	21,680
	16-Aug-05	Notropis spp.	YSL	0	1	0	1	1,012	0.00	0.99	0.00	0.99	1,932	7,313	0	7,227	0	7,227
	16-Aug-05	Round goby	JUV	0	10	0	10	1,012	0.00	9.88	0.00	9.88	1,932	7,313	0	72,267	0	72,267
34	**16-Aug-05**	**DAILY TOTAL**		**0**	**19**	**0**	**19**	**1,012**	**0.00**	**18.77**	**0.00**	**18.77**	**1,932**	**7,313**	**0**	**137,307**	**0**	**137,307**
	17-Aug-05	Emerald shiner	JUV	0	7	0	7	945	0.00	7.41	0.00	7.41	1,932	7,313	0	54,173	0	54,173
	17-Aug-05	Lepomis spp.	JUV	0	1	0	1	945	0.00	1.06	0.00	1.06	1,932	7,313	0	7,739	0	7,739
	17-Aug-05	Round goby	JUV	0	14	0	14	945	0.00	14.81	0.00	14.81	1,932	7,313	0	108,347	0	108,347
	17-Aug-05	Unidentifiable	undetermined	0	1	0	1	945	0.00	1.06	0.00	1.06	1,932	7,313	0	7,739	0	7,739
	17-Aug-05	Yellow perch	YSL	0	1	0	1	945	0.00	1.06	0.00	1.06	1,932	7,313	0	7,739	0	7,739
35	**17-Aug-05**	**DAILY TOTAL**		**0**	**24**	**0**	**24**	**945**	**0.00**	**25.40**	**0.00**	**25.40**	**1,932**	**7,313**	**0**	**185,737**	**0**	**185,737**
	25-Aug-05	Cyprinidae	JUV	0	1	0	1	1,021	0.00	0.98	0.00	0.98	1,932	7,313	0	7,163	0	7,163
	25-Aug-05	Emerald shiner	PYSL	0	1	0	1	1,021	0.00	0.98	0.00	0.98	1,932	7,313	0	7,163	0	7,163
	25-Aug-05	Morone spp.	PYSL	0	1	0	1	1,021	0.00	0.98	0.00	0.98	1,932	7,313	0	7,163	0	7,163
	25-Aug-05	Notropis spp.	PYSL	0	1	0	1	1,021	0.00	0.98	0.00	0.98	1,932	7,313	0	7,163	0	7,163
	25-Aug-05	Round goby	JUV	1	10	0	11	1,021	0.98	9.79	0.00	10.77	1,932	7,313	7,163	71,630	0	78,793
36	**25-Aug-05**	**DAILY TOTAL**		**1**	**14**	**0**	**15**	**1,021**	**0.98**	**13.71**	**0.00**	**14.69**	**1,932**	**7,313**	**7,163**	**100,282**	**0**	**107,445**

Individual estimates may not add to totals due to rounding.

APPENDIX 8 (cont'd)
Estimated Daily Entrainment of Larval and Entrainable Juvenile Fish at Monroe Power, Monroe County, Michigan (April 2005 – April 2006)

Event No	Date	Species	Life Stage	MONPP Larvae/Juveniles Collected				Volume Filtered (m^3)	MONPP Larvae/Juveniles per 1,000 m^3				Flow MGD	Flow 1,000 m^3	MONPP Larvae/Juveniles per Day			
				Live	Recently Dead	Long Dead	Total		Live	Recently Dead	Long Dead	Total			Live	Recently Dead	Long Dead	Total
	26-Aug-05	Brook silverside	PYSL	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	26-Aug-05	Emerald shiner	JUV	0	2	0	2	1,061	0.00	1.89	0.00	1.89	1,932	7,313	0	13,786	0	13,786
	26-Aug-05	Emerald shiner	PYSL	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	26-Aug-05	Round goby	JUV	0	9	0	9	1,061	0.00	8.48	0.00	8.48	1,932	7,313	0	62,036	0	62,036
37	**26-Aug-05**	**DAILY TOTAL**		**0**	**13**	**0**	**13**	**1,061**	**0.00**	**12.25**	**0.00**	**12.25**	**1,932**	**7,313**	**0**	**89,608**	**0**	**89,608**
	29-Aug-05	Emerald shiner	JUV	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	29-Aug-05	Emerald shiner	PYSL	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	29-Aug-05	Logperch	YSL	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	29-Aug-05	Morone spp.	PYSL	0	1	0	1	1,061	0.00	0.94	0.00	0.94	1,932	7,313	0	6,893	0	6,893
	29-Aug-05	Round goby	JUV	0	35	0	35	1,061	0.00	32.99	0.00	32.99	1,932	7,313	0	241,252	0	241,252
38	**29-Aug-05**	**DAILY TOTAL**		**0**	**39**	**0**	**39**	**1,061**	**0.00**	**36.76**	**0.00**	**36.76**	**1,932**	**7,313**	**0**	**268,824**	**0**	**268,824**
	30-Aug-05	Emerald shiner	JUV	0	1	0	1	922	0.00	1.08	0.00	1.08	1,932	7,313	0	7,932	0	7,932
	30-Aug-05	Lepomis spp.	JUV	0	2	0	2	922	0.00	2.17	0.00	2.17	1,932	7,313	0	15,864	0	15,864
	30-Aug-05	Round goby	JUV	4	21	0	25	922	4.34	22.78	0.00	27.11	1,932	7,313	31,728	166,574	0	198,302
	30-Aug-05	Round goby	JUV	2	3	0	5	922	2.17	3.25	0.00	5.42	1,932	7,313	15,864	23,796	0	39,660
	30-Aug-05	Yellow perch	PYSL	0	2	0	2	922	0.00	2.17	0.00	2.17	1,932	7,313	0	15,864	0	15,864
39	**30-Aug-05**	**DAILY TOTAL**		**6**	**29**	**0**	**35**	**922**	**6.51**	**31.45**	**0.00**	**37.96**	**1,932**	**7,313**	**47,593**	**230,031**	**0**	**277,623**
	8-Sep-05	Emerald shiner	PYSL	0	3	0	3	1,086	0.00	2.76	0.00	2.76	1,932	7,313	0	20,203	0	20,203
	8-Sep-05	Logperch	PYSL	0	1	0	1	1,086	0.00	0.92	0.00	0.92	1,932	7,313	0	6,734	0	6,734
	8-Sep-05	Round goby	JUV	0	8	0	8	1,086	0.00	7.37	0.00	7.37	1,932	7,313	0	53,874	0	53,874
40	**8-Sep-05**	**DAILY TOTAL**		**0**	**12**	**0**	**12**	**1,086**	**0.00**	**11.05**	**0.00**	**11.05**	**1,932**	**7,313**	**0**	**80,811**	**0**	**80,811**
	9-Sep-05	Round goby	JUV	0	2	0	2	1,102	0.00	1.81	0.00	1.81	1,932	7,313	0	13,273	0	13,273
	9-Sep-05	Yellow perch	YSL	0	1	0	1	1,102	0.00	0.91	0.00	0.91	1,932	7,313	0	6,636	0	6,636
41	**9-Sep-05**	**DAILY TOTAL**		**0**	**3**	**0**	**3**	**1,102**	**0.00**	**2.72**	**0.00**	**2.72**	**1,932**	**7,313**	**0**	**19,909**	**0**	**19,909**
	12-Sep-05	Round goby	JUV	0	1	0	1	1,112	0.00	0.90	0.00	0.90	1,932	7,313	0	6,577	0	6,577
42	**12-Sep-05**	**DAILY TOTAL**		**0**	**1**	**0**	**1**	**1,112**	**0.00**	**0.90**	**0.00**	**0.90**	**1,932**	**7,313**	**0**	**6,577**	**0**	**6,577**
	13-Sep-05	Emerald shiner	JUV	0	1	0	1	1,275	0.00	0.78	0.00	0.78	1,932	7,313	0	5,736	0	5,736
	13-Sep-05	Rainbow smelt	PYSL	0	1	0	1	1,275	0.00	0.78	0.00	0.78	1,932	7,313	0	5,736	0	5,736
	13-Sep-05	Round goby	JUV	0	9	0	9	1,275	0.00	7.06	0.00	7.06	1,932	7,313	0	51,624	0	51,624
43	**13-Sep-05**	**DAILY TOTAL**		**0**	**11**	**0**	**11**	**1,275**	**0.00**	**8.63**	**0.00**	**8.63**	**1,932**	**7,313**	**0**	**63,096**	**0**	**63,096**
44	**18-Oct-05**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,915**	**0.00**	**0.00**	**0.00**	**0.00**	**1,771**	**6,704**	**0**	**0**	**0**	**0**
45	**10-Nov-05**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,720**	**0.00**	**0.00**	**0.00**	**0.00**	**1,771**	**6,704**	**0**	**0**	**0**	**0**
	9-Dec-05	Rainbow smelt	JUV	1	0	0	1	1,316	0.76	0.00	0.00	0.76	1,288	4,876	3,705	0	0	3,705
46	**9-Dec-05**	**DAILY TOTAL**		**1**	**0**	**0**	**1**	**1,316**	**0.76**	**0.00**	**0.00**	**0.76**	**1,288**	**4,876**	**3,705**	**0**	**0**	**3,705**
47	**5-Jan-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,134**	**0.00**	**0.00**	**0.00**	**0.00**	**1,288**	**4,876**	**0**	**0**	**0**	**0**
48	**8-Feb-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,306**	**0.00**	**0.00**	**0.00**	**0.00**	**1,288**	**4,876**	**0**	**0**	**0**	**0**
49	**21-Mar-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,280**	**0.00**	**0.00**	**0.00**	**0.00**	**966**	**3,657**	**0**	**0**	**0**	**0**
	22-Mar-06	Round goby	JUV	0	1	0	1	1,238	0.00	0.81	0.00	0.81	966	3,657	0	2,953	0	2,953
	22-Mar-06	Round goby	JUV	3	0	0	3	1,238	2.42	0.00	0.00	2.42	966	3,657	8,859	0	0	8,859
50	**22-Mar-06**	**DAILY TOTAL**		**3**	**1**	**0**	**4**	**1,238**	**2.42**	**0.81**	**0.00**	**3.23**	**966**	**3,657**	**8,859**	**2,953**	**0**	**11,812**
51	**27-Mar-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,185**	**0.00**	**0.00**	**0.00**	**0.00**	**966**	**3,657**	**0**	**0**	**0**	**0**
52	**28-Mar-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,345**	**0.00**	**0.00**	**0.00**	**0.00**	**966**	**3,657**	**0**	**0**	**0**	**0**
53	**4-Apr-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,534**	**0.00**	**0.00**	**0.00**	**0.00**	**1,288**	**4,876**	**0**	**0**	**0**	**0**
54	**5-Apr-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,044**	**0.00**	**0.00**	**0.00**	**0.00**	**1,288**	**4,876**	**0**	**0**	**0**	**0**
55	**10-Apr-06**	**DAILY TOTAL**		**0**	**0**	**0**	**0**	**1,651**	**0.00**	**0.00**	**0.00**	**0.00**	**1,288**	**4,876**	**0**	**0**	**0**	**0**
	11-Apr-06	Lake whitefish	PYSL	6	2	0	8	1,550	3.87	1.29	0.00	5.16	1,449	5,485	21,226	7,075	0	28,301
	11-Apr-06	Lake whitefish	PYSL	1	9	0	10	1,550	0.64	5.80	0.00	6.45	1,449	5,485	3,538	31,839	0	35,377
56	**11-Apr-06**	**DAILY TOTAL**		**7**	**11**	**0**	**18**	**1,550**	**4.51**	**7.09**	**0.00**	**11.61**	**1,449**	**5,485**	**24,764**	**38,914**	**0**	**63,678**
	19-Apr-06	Cyprinidae	PYSL	0	1	0	1	1,517	0.00	0.66	0.00	0.66	1,127	4,266	0	2,812	0	2,812
	19-Apr-06	Lake whitefish	PYSL	6	13	0	19	1,517	3.95	8.57	0.00	12.52	1,127	4,266	16,870	36,552	0	53,423
	19-Apr-06	Round goby	JUV	3	0	0	3	1,517	1.98	0.00	0.00	1.98	1,127	4,266	8,435	0	0	8,435
57	**19-Apr-06**	**DAILY TOTAL**		**9**	**14**	**0**	**23**	**1,517**	**5.93**	**9.23**	**0.00**	**15.16**	**1,127**	**4,266**	**25,306**	**39,364**	**0**	**64,670**
		ANNUAL TOTAL		**50**	**12,088**	**317**	**12,455**											

Individual estimates may not add to totals due to rounding.

APPENDIX 9
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Cyprinidae	YSL	0	27,269	0	27,269
1	**17-Apr-05 to 23-Apr-05**		**0**	**27,269**	**0**	**27,269**
	Gizzard shad	PYSL	0	6,843	0	6,843
	Gizzard shad	YSL	0	27,370	0	27,370
	Lake whitefish	PYSL	0	9,851	0	9,851
	Logperch	YSL	0	6,843	0	6,843
	Smelt/Shad/Alewife	YSL	0	6,843	0	6,843
	Unidentifiable	undetermined	0	49,255	0	49,255
	White sucker	PYSL	0	9,851	0	9,851
2	**24-Apr-05 to 30-Apr-05**		**0**	**116,855**	**0**	**116,855**
	Bluegill	YSL	0	13,036	0	13,036
	Cyprinidae	PYSL	0	26,072	0	26,072
	Cyprinidae	YSL	0	91,253	26,072	117,326
	Darter	YSL	0	26,072	0	26,072
	Emerald shiner	YSL	0	26,072	0	26,072
	Gizzard shad	PYSL	0	42,053	0	42,053
	Gizzard shad	YSL	0	117,326	52,145	169,470
	Lake whitefish	PYSL	0	15,981	0	15,981
	Logperch	YSL	0	81,162	0	81,162
	Notropis spp.	PYSL	0	0	13,036	13,036
	Notropis spp.	YSL	0	182,507	65,181	247,688
	Quillback	PYSL	15,981	0	0	15,981
	Smelt/Shad/Alewife	PYSL	0	15,981	0	15,981
	Smelt/Shad/Alewife	YSL	0	26,072	39,109	65,181
	Unidentifiable	undetermined	0	156,862	0	156,862
	White sucker	PYSL	0	15,981	0	15,981
	Yellow perch	YSL	0	230,876	0	230,876
3	**1-May-05 to 7-May-05**		**15,981**	**1,067,306**	**195,543**	**1,278,829**
	Walleye	PYSL	0	21,006	0	21,006
4	**8-May-05 to 14-May-05**		**0**	**21,006**	**0**	**21,006**
	Carp/Goldfish	PYSL	23,172	0	0	23,172
	Cyprinidae	PYSL	38,091	19,045	0	57,136
	Cyprinidae	YSL	19,045	0	0	19,045
	Logperch	PYSL	0	19,045	0	19,045
	Notropis spp.	PYSL	42,217	0	0	42,217
	Notropis spp.	YSL	23,172	19,045	0	42,217
	Quillback	PYSL	0	19,045	0	19,045
	Quillback	YSL	69,515	0	0	69,515
	Smelt/Shad/Alewife	YSL	0	19,045	0	19,045
	Trout-perch	YSL	0	19,045	0	19,045
	Walleye	PYSL	0	23,172	0	23,172
	Yellow perch	YSL	0	23,172	0	23,172
5	**15-May-05 to 21-May-05**		**215,212**	**160,615**	**0**	**375,827**

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APPENDIX 9 (cont'd)
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Carp/Goldfish	YSL	23,230	0	0	23,230
	Cyprinidae	YSL	0	23,230	23,230	46,460
	Emerald shiner	PYSL	23,230	0	0	23,230
	Gizzard shad	YSL	0	23,230	0	23,230
	Logperch	YSL	0	0	23,230	23,230
	Morone spp.	YSL	0	45,988	0	45,988
	Notropis spp.	YSL	23,230	23,230	0	46,460
	Unidentifiable	undetermined	0	22,758	45,516	68,274
	Yellow perch	PYSL	0	23,230	0	23,230
6	**22-May-05 to 28-May-05**		**69,690**	**161,665**	**91,976**	**323,330**
	Catostomidae	YSL	24,210	0	0	24,210
	Cyprinidae	PYSL	22,319	70,739	24,210	117,268
	Freshwater drum	PYSL	0	22,319	0	22,319
	Gizzard shad	YSL	0	24,210	24,210	48,420
	Logperch	PYSL	0	24,210	24,210	48,420
	Morone spp.	PYSL	0	89,275	0	89,275
	Morone spp.	YSL	0	66,956	0	66,956
	Notropis spp.	PYSL	46,529	0	0	46,529
	Notropis spp.	YSL	0	24,210	72,630	96,840
	Quillback	PYSL	46,529	0	0	46,529
	Trout-perch	YSL	0	22,319	0	22,319
	Unidentifiable	undetermined	0	68,848	24,210	93,058
	Yellow perch	PYSL	0	89,275	0	89,275
	Yellow perch	YSL	0	379,418	22,319	401,737
7	**29-May-05 to 4-Jun-05**		**139,586**	**881,778**	**191,790**	**1,213,154**
	Alewife	PYSL	0	1,394,702	0	1,394,702
	Carp/Goldfish	PYSL	0	82,041	0	82,041
	Cyprinidae	PYSL	0	164,083	0	164,083
	Cyprinidae	YSL	0	592,520	0	592,520
	Freshwater drum	PYSL	0	328,165	0	328,165
	Gizzard shad	PYSL	0	6,271,599	829,528	7,101,127
	Gizzard shad	YSL	0	474,016	0	474,016
	Logperch	PYSL	0	711,024	0	711,024
	Morone spp.	PYSL	0	21,531,274	2,725,593	24,256,867
	Morone spp.	YSL	0	164,083	237,008	401,091
	Notropis spp.	PYSL	0	656,330	0	656,330
	Notropis spp.	YSL	0	164,083	0	164,083
	Smelt/Shad/Alewife	PYSL	0	2,196,883	0	2,196,883
	Spotfin shiner	PYSL	0	401,091	0	401,091
	Trout-perch	YSL	0	282,587	0	282,587
	Unidentifiable	undetermined	0	328,165	0	328,165
	Yellow perch	PYSL	0	948,032	237,008	1,185,041
	Yellow perch	YSL	0	164,083	0	164,083
8	**5-Jun-05 to 11-Jun-05**		**0**	**36,854,760**	**4,029,138**	**40,883,897**

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APPENDIX 9 (cont'd)
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Alewife	PYSL	0	25,496,887	0	25,496,887
	Cyprinidae	PYSL	0	6,149,249	0	6,149,249
	Cyprinidae	YSL	0	1,199,854	0	1,199,854
	Emerald shiner	PYSL	0	5,849,286	0	5,849,286
	Freshwater drum	PYSL	0	2,599,683	0	2,599,683
	Freshwater drum	YSL	0	1,099,866	0	1,099,866
	Gizzard shad	PYSL	0	67,241,790	2,249,725	69,491,516
	Lepomis spp.	PYSL	0	49,994	0	49,994
	Logperch	PYSL	0	10,248,749	0	10,248,749
	Logperch	YSL	0	249,969	0	249,969
	Morone spp.	PYSL	0	37,445,428	499,939	37,945,367
	Morone spp.	YSL	0	99,988	0	99,988
	Notropis spp.	PYSL	0	4,949,396	199,976	5,149,371
	Notropis spp.	YSL	0	99,988	0	99,988
	Pomoxis spp.	YSL	0	199,976	0	199,976
	Smelt/Shad/Alewife	PYSL	0	8,298,987	0	8,298,987
	Unidentifiable	undetermined	0	1,399,829	199,976	1,599,805
	Yellow perch	PYSL	0	1,099,866	0	1,099,866
	Yellow perch	YSL	0	949,884	0	949,884
9	**12-Jun-05 to 18-Jun-05**		**0**	**174,728,667**	**3,149,615**	**177,878,282**
	Alewife	PYSL	0	275,828	0	275,828
	Carp/Goldfish	PYSL	0	26,663	0	26,663
	Carp/Goldfish	YSL	0	53,327	0	53,327
	Cyprinidae	PYSL	0	8,392,539	0	8,392,539
	Cyprinidae	YSL	0	266,634	0	266,634
	Emerald shiner	PYSL	0	15,750,721	0	15,750,721
	Freshwater drum	PYSL	0	324,558	0	324,558
	Gizzard shad	PYSL	0	14,450,649	80,910	14,531,559
	Gizzard shad	YSL	0	106,654	0	106,654
	Lepomis spp.	PYSL	0	27,583	0	27,583
	Logperch	PYSL	0	2,266,390	0	2,266,390
	Morone spp.	PYSL	0	14,646,488	53,327	14,699,814
	Notropis spp.	PYSL	0	22,392,668	26,663	22,419,332
	Quillback	PYSL	0	106,654	0	106,654
	Smelt/Shad/Alewife	PYSL	0	1,323,976	0	1,323,976
	Spotfin shiner	PYSL	0	55,166	0	55,166
	Trout-perch	YSL	0	330,994	0	330,994
	Unidentifiable	undetermined	0	55,166	54,246	109,412
	White perch	PYSL	0	220,663	0	220,663
	Yellow perch	PYSL	0	592,112	0	592,112
	Yellow perch	YSL	0	248,246	0	248,246
10	**19-Jun-05 to 25-Jun-05**		**0**	**81,913,677**	**215,146**	**82,128,823**

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APPENDIX 9 (cont'd)
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Carp/Goldfish	PYSL	0	228,544	0	228,544
	Carp/Goldfish	YSL	0	76,181	0	76,181
	Cyprinidae	PYSL	0	4,556,935	0	4,556,935
	Cyprinidae	YSL	0	195,098	0	195,098
	Emerald shiner	PYSL	0	9,912,843	38,091	9,950,934
	Freshwater drum	PYSL	0	1,196,602	0	1,196,602
	Gizzard shad	PYSL	0	5,646,697	191,382	5,838,079
	Lake whitefish	PYSL	0	39,020	0	39,020
	Logperch	PYSL	0	897,451	0	897,451
	Logperch	YSL	0	39,020	0	39,020
	Micropterus spp.	PYSL	0	39,020	0	39,020
	Morone spp.	PYSL	0	13,804,586	77,110	13,881,697
	Morone spp.	YSL	0	76,181	0	76,181
	Notropis spp.	PYSL	0	3,547,070	0	3,547,070
	Spotfin shiner	PYSL	0	38,091	0	38,091
	Spotfin shiner	YSL	0	38,091	0	38,091
	Yellow perch	PYSL	0	234,118	0	234,118
11	**26-Jun-05 to 2-Jul-05**		**0**	**40,565,547**	**306,583**	**40,872,129**
	Alewife	PYSL	0	43,165	0	43,165
	Cyprinidae	PYSL	0	1,155,201	79,493	1,234,695
	Cyprinidae	YSL	0	39,747	0	39,747
	Darter	PYSL	0	86,330	0	86,330
	Emerald shiner	PYSL	0	10,908,827	388,485	11,297,312
	Freshwater drum	PYSL	0	122,658	82,912	205,570
	Gizzard shad	PYSL	0	9,490,815	1,001,778	10,492,593
	Logperch	PYSL	0	644,057	215,825	859,883
	Morone spp.	PYSL	0	5,397,374	371,394	5,768,768
	Morone spp.	YSL	0	43,165	0	43,165
	Notropis spp.	PYSL	0	2,871,548	86,330	2,957,878
	Notropis spp.	YSL	0	86,330	0	86,330
	Quillback	PYSL	0	43,165	0	43,165
	Smelt/Shad/Alewife	PYSL	0	119,240	39,747	158,987
	Unidentifiable	undetermined	0	43,165	158,987	202,152
	White bass	PYSL	0	404,304	0	404,304
	Yellow perch	PYSL	0	82,912	0	82,912
	Yellow perch	YSL	0	39,747	0	39,747
12	**3-Jul-05 to 9-Jul-05**		**0**	**31,621,751**	**2,424,951**	**34,046,701**
	Alewife	PYSL	0	570,934	0	570,934
	Brook silverside	PYSL	0	261,193	0	261,193
	Cyprinidae	PYSL	0	2,853,699	0	2,853,699
	Cyprinidae	YSL	0	190,311	0	190,311
	Emerald shiner	PYSL	0	5,906,032	0	5,906,032
	Gizzard shad	PYSL	0	1,535,530	0	1,535,530
	Lepomis spp.	PYSL	0	111,940	0	111,940
	Morone spp.	PYSL	0	583,973	0	583,973
	Notropis spp.	PYSL	0	3,034,717	0	3,034,717
	Smelt/Shad/Alewife	PYSL	0	111,940	0	111,940
	Unidentifiable	undetermined	0	149,253	0	149,253
	White bass	PYSL	0	37,313	0	37,313
13	**10-Jul-05 to 16-Jul-05**		**0**	**15,346,834**	**0**	**15,346,834**

Individual estimates may not add to totals due to rounding.

APPENDIX 9 (cont'd)
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Cyprinidae	PYSL	0	1,045,488	0	1,045,488
	Cyprinidae	YSL	0	83,650	0	83,650
	Emerald shiner	PYSL	0	8,735,422	41,825	8,777,247
	Gizzard shad	PYSL	0	835,409	0	835,409
	Gizzard shad	YSL	0	41,689	0	41,689
	Logperch	PYSL	0	41,825	0	41,825
	Morone spp.	PYSL	0	250,405	0	250,405
	Notropis spp.	PYSL	0	1,505,699	0	1,505,699
	Smelt/Shad/Alewife	PYSL	0	125,066	0	125,066
	Unidentifiable	undetermined	0	83,377	0	83,377
	Yellow perch	PYSL	0	125,202	0	125,202
14	**17-Jul-05 to 23-Jul-05**		**0**	**12,873,232**	**41,825**	**12,915,057**
	Channel catfish	PYSL	0	80,478	0	80,478
	Cyprinidae	PYSL	0	302,155	37,313	339,469
	Cyprinidae	YSL	0	86,330	0	86,330
	Emerald shiner	PYSL	0	3,209,630	0	3,209,630
	Gizzard shad	PYSL	0	43,165	0	43,165
	Morone spp.	PYSL	0	123,643	0	123,643
	Notropis spp.	PYSL	0	215,825	0	215,825
	Notropis spp.	YSL	0	86,330	0	86,330
	White perch	PYSL	0	37,313	0	37,313
	Yellow perch	PYSL	0	186,566	0	186,566
	Yellow perch	YSL	0	111,940	0	111,940
15	**24-Jul-05 to 30-Jul-05**		**0**	**4,483,376**	**37,313**	**4,520,690**
	Cyprinidae	PYSL	0	172,648	0	172,648
	Cyprinidae	YSL	0	41,962	0	41,962
	Emerald shiner	PYSL	0	1,124,613	0	1,124,613
	Freshwater drum	PYSL	0	44,362	0	44,362
	Logperch	PYSL	0	41,962	0	41,962
	Notropis spp.	PYSL	0	419,621	0	419,621
16	**31-Jul-05 to 6-Aug-05**		**0**	**1,845,168**	**0**	**1,845,168**
	Emerald shiner	PYSL	0	24,191	0	24,191
	Lepomis spp.	PYSL	0	96,765	0	96,765
	Notropis spp.	PYSL	0	40,550	0	40,550
	Spotfin shiner	PYSL	0	40,550	0	40,550
	Yellow perch	PYSL	0	24,191	0	24,191
17	**7-Aug-05 to 13-Aug-05**		**0**	**226,248**	**0**	**226,248**
	Freshwater drum	PYSL	0	25,293	0	25,293
	Lepomis spp.	PYSL	0	25,293	0	25,293
	Logperch	YSL	0	25,293	0	25,293
	Notropis spp.	PYSL	0	75,880	0	75,880
	Notropis spp.	YSL	0	25,293	0	25,293
	Unidentifiable	undetermined	0	27,087	0	27,087
	Yellow perch	YSL	0	27,087	0	27,087
18	**14-Aug-05 to 20-Aug-05**		**0**	**231,227**	**0**	**231,227**
	Brook silverside	PYSL	0	24,125	0	24,125
	Emerald shiner	PYSL	0	49,196	0	49,196
	Morone spp.	PYSL	0	25,070	0	25,070
	Notropis spp.	PYSL	0	25,070	0	25,070
19	**21-Aug-05 to 27-Aug-05**		**0**	**123,462**	**0**	**123,462**

Individual estimates may not add to totals due to rounding.

APPENDIX 9 (cont'd)
Estimated Weekly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP Estimated Larval Fish per Week			
			Live	Recently Dead	Long Dead	Total
	Emerald shiner	PYSL	0	22,115	0	22,115
	Logperch	YSL	0	22,115	0	22,115
	Morone spp.	PYSL	0	22,115	0	22,115
	Yellow perch	PYSL	0	50,898	0	50,898
20	**28-Aug-05 to 3-Sep-05**		**0**	**117,242**	**0**	**117,242**
	Emerald shiner	PYSL	0	68,184	0	68,184
	Logperch	PYSL	0	22,728	0	22,728
	Yellow perch	YSL	0	22,398	0	22,398
21	**4-Sep-05 to 10-Sep-05**		**0**	**113,310**	**0**	**113,310**
	Rainbow smelt	PYSL	0	20,076	0	20,076
22	**11-Sep-05 to 17-Sep-05**		**0**	**20,076**	**0**	**20,076**
	Rainbow smelt	PYSL	0	20,076	0	20,076
23	**18-Sep-05 to 24-Sep-05**		**0**	**20,076**	**0**	**20,076**
	Rainbow smelt	PYSL	0	18,651	0	18,651
24	**25-Sep-05 to 1-Oct-05**		**0**	**18,651**	**0**	**18,651**
25	**2-Oct-05 to 8-Oct-05**		**0**	**0**	**0**	**0**
26	**9-Oct-05 to 15-Oct-05**		**0**	**0**	**0**	**0**
27	**16-Oct-05 to 22-Oct-05**		**0**	**0**	**0**	**0**
28	**23-Oct-05 to 29-Oct-05**		**0**	**0**	**0**	**0**
29	**30-Oct-05 to 5-Nov-05**		**0**	**0**	**0**	**0**
30	**6-Nov-05 to 12-Nov-05**		**0**	**0**	**0**	**0**
31	**13-Nov-05 to 19-Nov-05**		**0**	**0**	**0**	**0**
32	**20-Nov-05 to 26-Nov-05**		**0**	**0**	**0**	**0**
33	**27-Nov-05 to 3-Dec-05**		**0**	**0**	**0**	**0**
34	**4-Dec-05 to 10-Dec-05**		**0**	**0**	**0**	**0**
35	**11-Dec-05 to 17-Dec-05**		**0**	**0**	**0**	**0**
36	**18-Dec-05 to 24-Dec-05**		**0**	**0**	**0**	**0**
37	**25-Dec-05 to 31-Dec-05**		**0**	**0**	**0**	**0**
38	**1-Jan-06 to 7-Jan-06**		**0**	**0**	**0**	**0**
39	**8-Jan-06 to 14-Jan-06**		**0**	**0**	**0**	**0**
40	**15-Jan-06 to 21-Jan-06**		**0**	**0**	**0**	**0**
41	**22-Jan-06 to 28-Jan-06**		**0**	**0**	**0**	**0**
42	**29-Jan-06 to 4-Feb-06**		**0**	**0**	**0**	**0**
43	**5-Feb-06 to 11-Feb-06**		**0**	**0**	**0**	**0**
44	**12-Feb-06 to 18-Feb-06**		**0**	**0**	**0**	**0**
45	**19-Feb-06 to 25-Feb-06**		**0**	**0**	**0**	**0**
46	**26-Feb-06 to 4-Mar-06**		**0**	**0**	**0**	**0**
47	**5-Mar-06 to 11-Mar-06**		**0**	**0**	**0**	**0**
48	**12-Mar-06 to 18-Mar-06**		**0**	**0**	**0**	**0**
49	**19-Mar-06 to 25-Mar-06**		**0**	**0**	**0**	**0**
50	**26-Mar-06 to 1-Apr-06**		**0**	**0**	**0**	**0**
51	**2-Apr-06 to 8-Apr-06**		**0**	**0**	**0**	**0**
	Lake whitefish	PYSL	88,858	139,634	0	228,492
52	**9-Apr-06 to 15-Apr-06**		**88,858**	**139,634**	**0**	**228,492**
	TOTAL		**529,326**	**403,679,432**	**10,683,879**	**414,892,637**

Individual estimates may not add to totals due to rounding.

APPENDIX 10
Estimated Monthly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Larvae per Month Cooling Water				MONPP Estimated Larvae per Month GSW				MONPP Estimated Larvae per Month Total			
		Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Cyprinidae	YSL	0	27,269	0	27,269	0	410	0	410	0	27,680	0	27,680
Gizzard shad	PYSL	0	6,843	0	6,843	0	103	0	103	0	6,946	0	6,946
Gizzard shad	YSL	0	27,370	0	27,370	0	412	0	412	0	27,782	0	27,782
Lake whitefish	PYSL	0	9,851	0	9,851	0	148	0	148	0	9,999	0	9,999
Logperch	YSL	0	6,843	0	6,843	0	103	0	103	0	6,946	0	6,946
Smelt/Shad/Alewife	YSL	0	6,843	0	6,843	0	103	0	103	0	6,946	0	6,946
Unidentifiable	undetermined	0	49,255	0	49,255	0	741	0	741	0	49,996	0	49,996
White sucker	PYSL	0	9,851	0	9,851	0	148	0	148	0	9,999	0	9,999
April 2005		**0**	**144,125**	**0**	**144,125**	**0**	**2,169**	**0**	**2,169**	**0**	**146,294**	**0**	**146,294**
Bluegill	YSL	0	13,036	0	13,036	0	139	0	139	0	13,175	0	13,175
Carp/Goldfish	PYSL	23,172	0	0	23,172	247	0	0	247	23,419	0	0	23,419
Carp/Goldfish	YSL	23,230	0	0	23,230	248	0	0	248	23,477	0	0	23,477
Catostomidae	YSL	10,376	0	0	10,376	111	0	0	111	10,486	0	0	10,486
Cyprinidae	PYSL	47,656	75,434	10,376	133,466	508	804	111	1,423	48,164	76,238	10,486	134,888
Cyprinidae	YSL	19,045	114,483	49,302	182,831	203	1,220	525	1,949	19,248	115,703	49,828	184,779
Darter	YSL	0	26,072	0	26,072	0	278	0	278	0	26,350	0	26,350
Emerald shiner	PYSL	23,230	0	0	23,230	248	0	0	248	23,477	0	0	23,477
Emerald shiner	YSL	0	26,072	0	26,072	0	278	0	278	0	26,350	0	26,350
Freshwater drum	PYSL	0	9,565	0	9,565	0	102	0	102	0	9,667	0	9,667
Gizzard shad	PYSL	0	42,053	0	42,053	0	448	0	448	0	42,501	0	42,501
Gizzard shad	YSL	0	150,931	62,521	213,452	0	1,609	666	2,275	0	152,540	63,187	215,727
Lake whitefish	PYSL	0	15,981	0	15,981	0	170	0	170	0	16,151	0	16,151
Logperch	PYSL	0	29,421	10,376	39,797	0	314	111	424	0	29,735	10,486	40,221
Logperch	YSL	0	81,162	23,230	104,391	0	865	248	1,113	0	82,027	23,477	105,504
Morone spp.	PYSL	0	38,261	0	38,261	0	408	0	408	0	38,668	0	38,668
Morone spp.	YSL	0	74,683	0	74,683	0	796	0	796	0	75,479	0	75,479
Notropis spp.	PYSL	62,158	0	13,036	75,194	663	0	139	801	62,821	0	13,175	75,996
Notropis spp.	YSL	46,402	235,158	96,308	377,867	495	2,506	1,026	4,027	46,896	237,664	97,335	381,895
Quillback	PYSL	35,922	19,045	0	54,967	383	203	0	586	36,304	19,248	0	55,553
Quillback	YSL	69,515	0	0	69,515	741	0	0	741	70,256	0	0	70,256
Smelt/Shad/Alewife	PYSL	0	15,981	0	15,981	0	170	0	170	0	16,151	0	16,151
Smelt/Shad/Alewife	YSL	0	45,118	39,109	84,226	0	481	417	898	0	45,599	39,525	85,124
Trout-perch	YSL	0	28,610	0	28,610	0	305	0	305	0	28,915	0	28,915
Unidentifiable	undetermined	0	209,126	55,892	265,018	0	2,229	596	2,825	0	211,355	56,487	267,842
Walleye	PYSL	0	44,178	0	44,178	0	471	0	471	0	44,648	0	44,648
White sucker	PYSL	0	15,981	0	15,981	0	170	0	170	0	16,151	0	16,151
Yellow perch	PYSL	0	61,490	0	61,490	0	655	0	655	0	62,146	0	62,146
Yellow perch	YSL	0	416,656	9,565	426,221	0	4,441	102	4,543	0	421,097	9,667	430,764
May 2005		**360,705**	**1,788,497**	**369,714**	**2,518,916**	**3,845**	**19,063**	**3,941**	**26,848**	**364,549**	**1,807,560**	**373,655**	**2,545,764**

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APPENDIX 10 (cont'd)
Estimated Monthly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Larvae per Month Cooling Water				MONPP Estimated Larvae per Month GSW				MONPP Estimated Larvae per Month Total			
		Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Alewife	PYSL	0	27,167,417	0	27,167,417	0	290,426	0	290,426	0	27,457,843	0	27,457,843
Carp/Goldfish	PYSL	0	271,950	0	271,950	0	2,907	0	2,907	0	274,857	0	274,857
Carp/Goldfish	YSL	0	53,327	0	53,327	0	570	0	570	0	53,897	0	53,897
Carp/Goldfish	YSL	0	54,415	0	54,415	0	582	0	582	0	54,997	0	54,997
Catostomidae	YSL	13,834	0	0	13,834	148	0	0	148	13,982	0	0	13,982
Cyprinidae	PYSL	12,754	18,001,246	13,834	18,027,834	136	192,437	148	192,722	12,890	18,193,683	13,982	18,220,556
Cyprinidae	YSL	0	2,198,364	0	2,198,364	0	23,501	0	23,501	0	2,221,865	0	2,221,865
Emerald shiner	PYSL	0	28,680,609	27,208	28,707,816	0	306,602	291	306,893	0	28,987,211	27,498	29,014,709
Freshwater drum	PYSL	0	4,119,875	0	4,119,875	0	44,042	0	44,042	0	4,163,917	0	4,163,917
Freshwater drum	YSL	0	1,099,866	0	1,099,866	0	11,758	0	11,758	0	1,111,624	0	1,111,624
Gizzard shad	PYSL	0	91,997,394	3,296,865	95,294,259	0	983,473	35,244	1,018,717	0	92,980,867	3,332,109	96,312,976
Gizzard shad	YSL	0	594,504	13,834	608,339	0	6,355	148	6,503	0	600,860	13,982	614,842
Lake whitefish	PYSL	0	27,871	0	27,871	0	298	0	298	0	28,169	0	28,169
Lepomis spp.	PYSL	0	77,577	0	77,577	0	829	0	829	0	78,406	0	78,406
Logperch	PYSL	0	13,881,034	13,834	13,894,868	0	148,391	148	148,539	0	14,029,425	13,982	14,043,408
Logperch	YSL	0	277,841	0	277,841	0	2,970	0	2,970	0	280,811	0	280,811
Micropterus spp.	PYSL	0	27,871	0	27,871	0	298	0	298	0	28,169	0	28,169
Morone spp.	PYSL	0	83,534,623	3,333,938	86,868,561	0	893,004	35,641	928,645	0	84,427,627	3,369,578	87,797,206
Morone spp.	YSL	0	356,746	237,008	593,754	0	3,814	2,534	6,347	0	360,560	239,542	600,102
Notropis spp.	PYSL	26,588	30,532,015	226,639	30,785,242	284	326,394	2,423	329,101	26,872	30,858,410	229,062	31,114,344
Notropis spp.	YSL	0	277,905	41,503	319,408	0	2,971	444	3,415	0	280,876	41,947	322,822
Pomoxis spp.	YSL	0	199,976	0	199,976	0	2,138	0	2,138	0	202,113	0	202,113
Quillback	PYSL	26,588	106,654	0	133,242	284	1,140	0	1,424	26,872	107,794	0	134,666
Smelt/Shad/Alewife	PYSL	0	11,819,846	0	11,819,846	0	126,357	0	126,357	0	11,946,203	0	11,946,203
Spotfin shiner	PYSL	0	483,464	0	483,464	0	5,168	0	5,168	0	488,632	0	488,632
Spotfin shiner	YSL	0	27,208	0	27,208	0	291	0	291	0	27,498	0	27,498
Trout-perch	YSL	0	626,334	0	626,334	0	6,696	0	6,696	0	633,030	0	633,030
Unidentifiable	undetermined	0	1,822,501	268,056	2,090,557	0	19,483	2,866	22,349	0	1,841,984	270,922	2,112,906
White perch	PYSL	0	220,663	0	220,663	0	2,359	0	2,359	0	223,022	0	223,022
Yellow perch	PYSL	0	2,858,251	237,008	3,095,259	0	30,555	2,534	33,089	0	2,888,806	239,542	3,128,348
Yellow perch	YSL	0	1,579,022	12,754	1,591,776	0	16,880	136	17,016	0	1,595,902	12,890	1,608,792
June 2005		**79,764**	**322,976,367**	**7,722,481**	**330,778,612**	**853**	**3,452,691**	**82,555**	**3,536,099**	**80,616**	**326,429,058**	**7,805,036**	**334,314,711**

Individual estimates may not add to totals due to rounding.

APPENDIX 10 (cont'd)
Estimated Monthly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Larvae per Month Cooling Water				MONPP Estimated Larvae per Month GSW				MONPP Estimated Larvae per Month Total			
		Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Alewife	PYSL	0	614,099	0	614,099	0	7,259	0	7,259	0	621,358	0	621,358
Brook silverside	PYSL	0	261,193	0	261,193	0	3,088	0	3,088	0	264,280	0	264,280
Carp/Goldfish	PYSL	0	65,298	0	65,298	0	772	0	772	0	66,070	0	66,070
Carp/Goldfish	YSL	0	21,766	0	21,766	0	257	0	257	0	22,023	0	22,023
Channel catfish	PYSL	0	80,478	0	80,478	0	951	0	951	0	81,430	0	81,430
Cyprinidae	PYSL	0	6,683,189	116,807	6,799,996	0	79,004	1,381	80,385	0	6,762,193	118,187	6,880,380
Cyprinidae	YSL	0	461,775	0	461,775	0	5,459	0	5,459	0	467,234	0	467,234
Darter	PYSL	0	86,330	0	86,330	0	1,021	0	1,021	0	87,351	0	87,351
Emerald shiner	PYSL	0	31,752,811	441,193	32,194,004	0	375,359	5,215	380,574	0	32,128,170	446,409	32,574,579
Freshwater drum	PYSL	0	470,882	82,912	553,794	0	5,566	980	6,547	0	476,449	83,892	560,340
Gizzard shad	PYSL	0	13,518,261	1,056,458	14,574,719	0	159,803	12,489	172,292	0	13,678,064	1,068,947	14,747,011
Gizzard shad	YSL	0	41,689	0	41,689	0	493	0	493	0	42,182	0	42,182
Lake whitefish	PYSL	0	11,148	0	11,148	0	132	0	132	0	11,280	0	11,280
Lepomis spp.	PYSL	0	111,940	0	111,940	0	1,323	0	1,323	0	113,263	0	113,263
Logperch	PYSL	0	948,292	215,825	1,164,117	0	11,210	2,551	13,761	0	959,502	218,377	1,177,878
Logperch	YSL	0	11,148	0	11,148	0	132	0	132	0	11,280	0	11,280
Micropterus spp.	PYSL	0	11,148	0	11,148	0	132	0	132	0	11,280	0	11,280
Morone spp.	PYSL	0	10,299,562	393,425	10,692,988	0	121,754	4,651	126,405	0	10,421,316	398,076	10,819,392
Morone spp.	YSL	0	64,931	0	64,931	0	768	0	768	0	65,699	0	65,699
Notropis spp.	PYSL	0	8,701,183	86,330	8,787,513	0	102,859	1,021	103,880	0	8,804,042	87,351	8,891,393
Notropis spp.	YSL	0	172,660	0	172,660	0	2,041	0	2,041	0	174,701	0	174,701
Quillback	PYSL	0	43,165	0	43,165	0	510	0	510	0	43,675	0	43,675
Smelt/Shad/Alewife	PYSL	0	356,246	39,747	395,993	0	4,211	470	4,681	0	360,457	40,217	400,674
Spotfin shiner	PYSL	0	10,883	0	10,883	0	129	0	129	0	11,012	0	11,012
Spotfin shiner	YSL	0	10,883	0	10,883	0	129	0	129	0	11,012	0	11,012
Unidentifiable	undetermined	0	275,795	158,987	434,782	0	3,260	1,879	5,140	0	279,056	160,866	439,922
White bass	PYSL	0	441,617	0	441,617	0	5,220	0	5,220	0	446,837	0	446,837
White perch	PYSL	0	37,313	0	37,313	0	441	0	441	0	37,754	0	37,754
Yellow perch	PYSL	0	461,571	0	461,571	0	5,456	0	5,456	0	467,027	0	467,027
Yellow perch	YSL	0	151,686	0	151,686	0	1,793	0	1,793	0	153,480	0	153,480
July 2005		**0**	**76,178,944**	**2,591,684**	**78,770,628**	**0**	**900,533**	**30,637**	**931,170**	**0**	**77,079,477**	**2,622,321**	**79,701,798**

Individual estimates may not add to totals due to rounding.

APPENDIX 10 (cont'd)
Estimated Monthly Entrainment of Larval Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Larvae per Month Cooling Water				MONPP Estimated Larvae per Month GSW				MONPP Estimated Larvae per Month Total			
		Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Brook silverside	PYSL	0	24,125	0	24,125	0	259	0	259	0	24,384	0	24,384
Cyprinidae	PYSL	0	147,984	0	147,984	0	1,587	0	1,587	0	149,571	0	149,571
Cyprinidae	YSL	0	35,968	0	35,968	0	386	0	386	0	36,353	0	36,353
Emerald shiner	PYSL	0	1,049,978	0	1,049,978	0	11,258	0	11,258	0	1,061,236	0	1,061,236
Freshwater drum	PYSL	0	63,318	0	63,318	0	679	0	679	0	63,997	0	63,997
Lepomis spp.	PYSL	0	122,059	0	122,059	0	1,309	0	1,309	0	123,367	0	123,367
Logperch	PYSL	0	35,968	0	35,968	0	386	0	386	0	36,353	0	36,353
Logperch	YSL	0	37,930	0	37,930	0	407	0	407	0	38,337	0	38,337
Morone spp.	PYSL	0	37,707	0	37,707	0	404	0	404	0	38,112	0	38,112
Notropis spp.	PYSL	0	501,176	0	501,176	0	5,374	0	5,374	0	506,550	0	506,550
Notropis spp.	YSL	0	25,293	0	25,293	0	271	0	271	0	25,565	0	25,565
Spotfin shiner	PYSL	0	40,550	0	40,550	0	435	0	435	0	40,985	0	40,985
Unidentifiable	undetermined	0	27,087	0	27,087	0	290	0	290	0	27,377	0	27,377
Yellow perch	PYSL	0	53,276	0	53,276	0	571	0	571	0	53,847	0	53,847
Yellow perch	YSL	0	27,087	0	27,087	0	290	0	290	0	27,377	0	27,377
August 2005		**0**	**2,229,505**	**0**	**2,229,505**	**0**	**23,905**	**0**	**23,905**	**0**	**2,253,411**	**0**	**2,253,411**
Emerald shiner	PYSL	0	77,662	0	77,662	0	853	0	853	0	78,515	0	78,515
Logperch	PYSL	0	22,728	0	22,728	0	250	0	250	0	22,978	0	22,978
Logperch	YSL	0	9,478	0	9,478	0	104	0	104	0	9,582	0	9,582
Morone spp.	PYSL	0	9,478	0	9,478	0	104	0	104	0	9,582	0	9,582
Rainbow smelt	PYSL	0	58,803	0	58,803	0	646	0	646	0	59,449	0	59,449
Yellow perch	PYSL	0	21,813	0	21,813	0	240	0	240	0	22,053	0	22,053
Yellow perch	YSL	0	22,398	0	22,398	0	246	0	246	0	22,644	0	22,644
September 2005		**0**	**222,360**	**0**	**222,360**	**0**	**2,442**	**0**	**2,442**	**0**	**224,802**	**0**	**224,802**
October 2005		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
November 2005		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
December 2005		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
January 2006		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
February 2006		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
March 2006		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Lake whitefish	PYSL	88,858	139,634	0	228,492	1,395	2,193	0	3,588	90,253	141,827	0	232,080
April 2006		**88,858**	**139,634**	**0**	**228,492**	**1,395**	**2,193**	**0**	**3,588**	**90,253**	**141,827**	**0**	**232,080**
TOTAL		**529,326**	**403,679,432**	**10,683,879**	**414,892,637**	**6,093**	**4,402,995**	**117,133**	**4,526,221**	**535,419**	**408,082,428**	**10,801,012**	**419,418,858**

Individual estimates may not add to totals due to rounding.

APPENDIX 11
Estimated Weekly Entrainment of Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP Estimated Juveniles per Week			
		Live	Recently Dead	Long Dead	Total
1	**17-Apr-05 to 23-Apr-05**	**0**	**0**	**0**	**0**
	Round goby	0	29,553	0	29,553
2	**24-Apr-05 to 30-Apr-05**	**0**	**29,553**	**0**	**29,553**
	Round goby	0	0	13,036	13,036
3	**1-May-05 to 7-May-05**	**0**	**0**	**13,036**	**13,036**
4	**8-May-05 to 14-May-05**	**0**	**0**	**0**	**0**
	Round goby	0	23,172	42,217	65,389
5	**15-May-05 to 21-May-05**	**0**	**23,172**	**42,217**	**65,389**
	Round goby	22,758	0	0	22,758
6	**22-May-05 to 28-May-05**	**22,758**	**0**	**0**	**22,758**
	Round goby	22,319	0	22,319	44,637
7	**29-May-05 to 4-Jun-05**	**22,319**	**0**	**22,319**	**44,637**
	Emerald shiner	0	355,512	0	355,512
	Round goby	0	319,049	0	319,049
8	**5-Jun-05 to 11-Jun-05**	**0**	**674,562**	**0**	**674,562**
	Alewife	0	3,649,554	0	3,649,554
	Emerald shiner	0	199,976	0	199,976
	Gizzard shad	0	16,947,931	0	16,947,931
	Round goby	0	1,799,780	0	1,799,780
	Smelt/Shad/Alewife	0	1,049,872	0	1,049,872
9	**12-Jun-05 to 18-Jun-05**	**0**	**23,647,113**	**0**	**23,647,113**
	Alewife	0	137,914	0	137,914
	Darter	0	26,663	0	26,663
	Emerald shiner	0	1,314,782	0	1,314,782
	Gizzard shad	0	2,081,585	0	2,081,585
	Morone spp.	0	412,823	0	412,823
	Round goby	0	670,263	0	670,263
10	**19-Jun-05 to 25-Jun-05**	**0**	**4,644,031**	**0**	**4,644,031**
	Cyprinidae	0	780,393	0	780,393
	Darter	0	78,039	0	78,039
	Emerald shiner	0	267,563	0	267,563
	Gizzard shad	0	1,773,535	38,091	1,811,626
	Morone spp.	0	3,435,585	0	3,435,585
	Notropis spp.	0	39,020	0	39,020
	Round goby	0	1,114,846	0	1,114,846
	Trout-perch	0	39,020	0	39,020
	White bass	0	38,091	0	38,091
11	**26-Jun-05 to 2-Jul-05**	**0**	**7,566,091**	**38,091**	**7,604,182**

Individual estimates may not add to totals due to rounding.

APPENDIX 11 (cont'd)
Estimated Weekly Entrainment of Entrainable Juvenile Fish at
Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP Estimated Juveniles per Week			
		Live	Recently Dead	Long Dead	Total
	Cyprinidae	0	3,237,379	0	3,237,379
	Emerald shiner	0	8,111,678	169,242	8,280,920
	Gizzard shad	0	1,833,040	0	1,833,040
	Lepomis spp.	0	39,747	0	39,747
	Logperch	0	39,747	0	39,747
	Morone spp.	0	770,134	0	770,134
	Notropis spp.	0	431,651	0	431,651
	Rock bass	0	43,165	0	43,165
	Round goby	0	1,147,091	119,240	1,266,331
	Smelt/Shad/Alewife	0	39,747	0	39,747
	White bass	0	520,125	0	520,125
	White perch	0	79,493	0	79,493
12	**3-Jul-05 to 9-Jul-05**	**0**	**16,292,997**	**288,482**	**16,581,479**
	Cyprinidae	0	703,403	47,578	750,981
	Emerald shiner	0	515,866	0	515,866
	Gizzard shad	0	84,891	0	84,891
	Lepomis spp.	0	37,313	0	37,313
	Morone spp.	0	428,201	0	428,201
	Round goby	0	1,233,278	0	1,233,278
	White bass	0	111,940	0	111,940
13	**10-Jul-05 to 16-Jul-05**	**0**	**3,114,892**	**47,578**	**3,162,470**
	Cyprinidae	0	41,825	0	41,825
	Emerald shiner	0	835,682	0	835,682
	Gizzard shad	0	41,825	0	41,825
	Round goby	0	1,919,044	0	1,919,044
	White bass	0	125,066	0	125,066
14	**17-Jul-05 to 23-Jul-05**	**0**	**2,963,441**	**0**	**2,963,441**
	Cyprinidae	0	345,320	0	345,320
	Emerald shiner	0	1,395,943	0	1,395,943
	Lepomis spp.	0	43,165	0	43,165
	Morone spp.	0	43,165	0	43,165
	Rock bass	0	43,165	0	43,165
	Round goby	0	1,660,785	80,478	1,741,263
	White bass	0	37,313	0	37,313
	White perch	0	37,313	0	37,313
15	**24-Jul-05 to 30-Jul-05**	**0**	**3,606,169**	**80,478**	**3,686,648**

Individual estimates may not add to totals due to rounding.

APPENDIX 11 (cont'd)
Estimated Weekly Entrainment of Entrainable Juvenile Fish at
Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP Estimated Juveniles per Week			
		Live	Recently Dead	Long Dead	Total
	Bluntnose minnow	0	209,810	0	209,810
	Cyprinidae	0	550,307	0	550,307
	Emerald shiner	0	1,824,805	0	1,824,805
	Notropis spp.	0	167,848	0	167,848
	Round goby	0	856,041	0	856,041
16	**31-Jul-05 to 6-Aug-05**	**0**	**3,608,812**	**0**	**3,608,812**
	Emerald shiner	24,191	48,383	0	72,574
	Round goby	0	468,856	0	468,856
	Silver chub	0	24,191	0	24,191
17	**7-Aug-05 to 13-Aug-05**	**24,191**	**541,430**	**0**	**565,621**
	Emerald shiner	0	214,900	0	214,900
	Gizzard shad	0	25,293	0	25,293
	Lepomis spp.	0	27,087	0	27,087
	Round goby	0	632,147	0	632,147
18	**14-Aug-05 to 20-Aug-05**	**0**	**899,426**	**0**	**899,426**
	Cyprinidae	0	25,070	0	25,070
	Emerald shiner	0	48,250	0	48,250
	Round goby	25,070	467,831	0	492,901
19	**21-Aug-05 to 27-Aug-05**	**25,070**	**541,152**	**0**	**566,222**
	Emerald shiner	0	47,564	0	47,564
	Lepomis spp.	0	50,898	0	50,898
	Round goby	50,898	850,364	0	901,262
	Round goby	101,795	534,425	0	636,220
20	**28-Aug-05 to 3-Sep-05**	**152,693**	**1,483,251**	**0**	**1,635,943**
	Round goby	0	226,621	0	226,621
21	**4-Sep-05 to 10-Sep-05**	**0**	**226,621**	**0**	**226,621**
	Emerald shiner	0	20,076	0	20,076
	Round goby	0	203,703	0	203,703
22	**11-Sep-05 to 17-Sep-05**	**0**	**223,779**	**0**	**223,779**
	Emerald shiner	0	20,076	0	20,076
	Round goby	0	203,703	0	203,703
23	**18-Sep-05 to 24-Sep-05**	**0**	**223,779**	**0**	**223,779**
	Emerald shiner	0	18,651	0	18,651
	Round goby	0	189,240	0	189,240
24	**25-Sep-05 to 1-Oct-05**	**0**	**207,890**	**0**	**207,890**
25	**2-Oct-05 to 8-Oct-05**	**0**	**0**	**0**	**0**
26	**9-Oct-05 to 15-Oct-05**	**0**	**0**	**0**	**0**
27	**16-Oct-05 to 22-Oct-05**	**0**	**0**	**0**	**0**

Individual estimates may not add to totals due to rounding.

APPENDIX 11 (cont'd)
Estimated Weekly Entrainment of Entrainable Juvenile Fish at
Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP Estimated Juveniles per Week			
		Live	Recently Dead	Long Dead	Total
28	23-Oct-05 to 29-Oct-05	0	0	0	0
29	30-Oct-05 to 5-Nov-05	0	0	0	0
30	6-Nov-05 to 12-Nov-05	0	0	0	0
31	13-Nov-05 to 19-Nov-05	0	0	0	0
32	20-Nov-05 to 26-Nov-05	0	0	0	0
33	27-Nov-05 to 3-Dec-05	0	0	0	0
	Rainbow smelt	25,934	0	0	25,934
34	4-Dec-05 to 10-Dec-05	25,934	0	0	25,934
35	11-Dec-05 to 17-Dec-05	0	0	0	0
36	18-Dec-05 to 24-Dec-05	0	0	0	0
37	25-Dec-05 to 31-Dec-05	0	0	0	0
38	1-Jan-06 to 7-Jan-06	0	0	0	0
39	8-Jan-06 to 14-Jan-06	0	0	0	0
40	15-Jan-06 to 21-Jan-06	0	0	0	0
41	22-Jan-06 to 28-Jan-06	0	0	0	0
42	29-Jan-06 to 4-Feb-06	0	0	0	0
43	5-Feb-06 to 11-Feb-06	0	0	0	0
44	12-Feb-06 to 18-Feb-06	0	0	0	0
45	19-Feb-06 to 25-Feb-06	0	0	0	0
46	26-Feb-06 to 4-Mar-06	0	0	0	0
47	5-Mar-06 to 11-Mar-06	0	0	0	0
48	12-Mar-06 to 18-Mar-06	0	0	0	0
	Round goby	31,006	10,335	0	41,341
49	19-Mar-06 to 25-Mar-06	31,006	10,335	0	41,341
50	26-Mar-06 to 1-Apr-06	0	0	0	0
51	2-Apr-06 to 8-Apr-06	0	0	0	0
52	9-Apr-06 to 15-Apr-06	0	0	0	0
		303,971	70,528,495	532,201	71,364,667

Individual estimates may not add to totals due to rounding.

APPENDIX 12
Estimated Monthly Entrainment of Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Estimated Juveniles per Month Cooling Water				MONPP Estimated Juveniles per Month GSW				MONPP Estimated Juveniles per Month TOTAL			
	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Round goby	0	29,553	0	29,553	0	445	0	445	0	29,998	0	29,998
April 2005	**0**	**29,553**	**0**	**29,553**	**0**	**445**	**0**	**445**	**0**	**29,998**	**0**	**29,998**
Round goby	32,323	23,172	64,818	120,313	345	247	691	1,282	32,668	23,419	65,509	121,596
May 2005	**32,323**	**23,172**	**64,818**	**120,313**	**345**	**247**	**691**	**1,282**	**32,668**	**23,419**	**65,509**	**121,596**
Cyprinidae	0	557,423	0	557,423	0	5,959	0	5,959	0	563,382	0	563,382
Darter	0	82,406	0	82,406	0	881	0	881	0	83,287	0	83,287
Emerald shiner	0	2,061,386	0	2,061,386	0	22,037	0	22,037	0	2,083,423	0	2,083,423
Morone spp.	0	2,866,813	0	2,866,813	0	30,647	0	30,647	0	2,897,459	0	2,897,459
Notropis spp.	0	27,871	0	27,871	0	298	0	298	0	28,169	0	28,169
Rainbow smelt/Clupeidae	0	25,133,667	27,208	25,160,874	0	268,685	291	268,975	0	25,402,351	27,498	25,429,850
Round goby	12,754	3,585,412	12,754	3,610,919	136	38,329	136	38,602	12,890	3,623,740	12,890	3,649,520
Trout-perch	0	27,871	0	27,871	0	298	0	298	0	28,169	0	28,169
White bass	0	27,208	0	27,208	0	291	0	291	0	27,498	0	27,498
June 2005	**12,754**	**34,370,056**	**39,961**	**34,422,771**	**136**	**367,424**	**427**	**367,987**	**12,890**	**34,737,480**	**40,388**	**34,790,758**
Bluntnose minnow	0	29,973	0	29,973	0	354	0	354	0	30,327	0	30,327
Cyprinidae	0	4,629,512	47,578	4,677,089	0	54,727	562	55,289	0	4,684,238	48,140	4,732,379
Darter	0	22,297	0	22,297	0	264	0	264	0	22,561	0	22,561
Emerald shiner	0	11,196,301	169,242	11,365,543	0	132,355	2,001	134,355	0	11,328,656	171,243	11,499,898
Lepomis spp.	0	120,225	0	120,225	0	1,421	0	1,421	0	121,646	0	121,646
Logperch	0	39,747	0	39,747	0	470	0	470	0	40,217	0	40,217
Morone spp.	0	2,223,096	0	2,223,096	0	26,280	0	26,280	0	2,249,375	0	2,249,375
Notropis spp.	0	466,777	0	466,777	0	5,518	0	5,518	0	472,295	0	472,295
Rainbow smelt/Clupeidae	0	2,506,227	10,883	2,517,110	0	29,627	129	29,755	0	2,535,854	11,012	2,546,866
Rock bass	0	86,330	0	86,330	0	1,021	0	1,021	0	87,351	0	87,351
Round goby	0	6,401,017	199,718	6,600,735	0	75,668	2,361	78,029	0	6,476,685	202,079	6,678,765
Trout-perch	0	11,148	0	11,148	0	132	0	132	0	11,280	0	11,280
White bass	0	805,328	0	805,328	0	9,520	0	9,520	0	814,848	0	814,848
White perch	0	116,807	0	116,807	0	1,381	0	1,381	0	118,187	0	118,187
July 2005	**0**	**28,654,784**	**427,421**	**29,082,205**	**0**	**338,736**	**5,053**	**343,789**	**0**	**28,993,520**	**432,474**	**29,425,994**

Individual estimates may not add to totals due to rounding.

APPENDIX 12 (cont'd)
Estimated Monthly Entrainment of Entrainable Juvenile Fish at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Estimated Juveniles per Month Cooling Water				MONPP Estimated Juveniles per Month GSW				MONPP Estimated Juveniles per Month TOTAL			
	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total	Live	Recently Dead	Long Dead	Total
Bluntnose minnow	0	179,838	0	179,838	0	1,928	0	1,928	0	181,766	0	181,766
Cyprinidae	0	496,762	0	496,762	0	5,326	0	5,326	0	502,089	0	502,089
Emerald shiner	24,191	1,902,831	0	1,927,022	259	20,403	0	20,662	24,451	1,923,234	0	1,947,684
Rainbow smelt/Clupeidae	0	25,293	0	25,293	0	271	0	271	0	25,565	0	25,565
Lepomis spp.	0	56,171	0	56,171	0	602	0	602	0	56,773	0	56,773
Notropis spp.	0	143,870	0	143,870	0	1,543	0	1,543	0	145,413	0	145,413
Round goby	112,323	3,093,891	0	3,206,215	1,204	33,174	0	34,378	113,528	3,127,065	0	3,240,593
Silver chub	0	24,191	0	24,191	0	259	0	259	0	24,451	0	24,451
August 2005	**136,515**	**5,922,848**	**0**	**6,059,362**	**1,464**	**63,506**	**0**	**64,970**	**137,979**	**5,986,354**	**0**	**6,124,333**
Emerald shiner	0	79,187	0	79,187	0	870	0	870	0	80,057	0	80,057
Lepomis spp.	0	21,813	0	21,813	0	240	0	240	0	22,053	0	22,053
Round goby	65,440	1,416,747	0	1,482,187	719	15,559	0	16,278	66,158	1,432,306	0	1,498,465
September 2005	**65,440**	**1,517,748**	**0**	**1,583,188**	**719**	**16,668**	**0**	**17,387**	**66,158**	**1,534,416**	**0**	**1,600,574**
October 2005	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
November 2005	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Rainbow smelt/Clupeidae	25,934	0	0	25,934	449	0	0	449	26,383	0	0	26,383
December 2005	**25,934**	**0**	**0**	**25,934**	**449**	**0**	**0**	**449**	**26,383**	**0**	**0**	**26,383**
January 2006	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
February 2006	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Round goby	31,006	10,335	0	41,341	646	215	0	861	31,652	10,551	0	42,202
March 2006	**31,006**	**10,335**	**0**	**41,341**	**646**	**215**	**0**	**861**	**31,652**	**10,551**	**0**	**42,202**
April 2006	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL	**303,971**	**70,528,495**	**532,201**	**71,364,667**	**3,759**	**787,241**	**6,171**	**797,171**	**307,730**	**71,315,737**	**538,371**	**72,161,838**

Individual estimates may not add to totals due to rounding.

APPENDIX 13
Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Sampling Dates	Total Larvae/Juvenile Fish Mean Density (No. per 1,000 m^3)			
		Dawn	Day	Dusk	Night
1	17-Apr-05 to 23-Apr-05	0.00	2.84	0.00	0.00
2	24-Apr-05 to 30-Apr-05	0.88	0.88	5.30	7.95
3	1-May-05 to 7-May-05	33.98	32.77	31.55	14.56
4	8-May-05 to 14-May-05	0.00	0.00	0.00	1.63
5	15-May-05 to 21-May-05	5.64	5.64	13.16	15.04
6	22-May-05 to 28-May-05	8.26	2.07	0.00	20.66
7	29-May-05 to 4-Jun-05	22.36	6.10	12.20	71.14
8	5-Jun-05 to 11-Jun-05	1430.11	559.14	413.98	854.84
9	12-Jun-05 to 18-Jun-05	6593.75	3742.19	1488.28	3921.88
10	19-Jun-05 to 25-Jun-05	1173.73	775.42	533.90	4237.29
11	26-Jun-05 to 2-Jul-05	1789.16	572.29	686.75	734.94
12	3-Jul-05 to 9-Jul-05	947.45	611.16	452.71	1888.44
13	10-Jul-05 to 16-Jul-05	653.59	251.63	104.58	349.67
14	17-Jul-05 to 23-Jul-05	349.10	81.57	107.67	701.47
15	24-Jul-05 to 30-Jul-05	228.30	150.12	28.15	281.47
16	31-Jul-05 to 6-Aug-05	74.14	33.70	43.81	276.33
17	7-Aug-05 to 13-Aug-05	7.36	7.36	7.36	49.05
18	14-Aug-05 to 20-Aug-05	14.31	4.09	10.22	69.49
19	21-Aug-05 to 27-Aug-05	9.61	0.00	1.92	42.27
20	28-Aug-05 to 3-Sep-05	18.15	0.00	62.53	68.58
21	4-Sep-05 to 10-Sep-05	3.66	0.00	12.80	10.97
22	11-Sep-05 to 17-Sep-05	1.68	1.68	13.41	3.35
27	16-Oct-05 to 22-Oct-05	0.00	0.00	0.00	0.00
30	6-Nov-05 to 12-Nov-05	0.00	0.00	0.00	0.00
34	4-Dec-05 to 10-Dec-05	3.04	0.00	0.00	0.00
38	1-Jan-06 to 7-Jan-06	0.00	0.00	0.00	0.00
43	5-Feb-06 to 11-Feb-06	0.00	0.00	0.00	0.00
49	19-Mar-06 to 25-Mar-06	0.00	0.00	1.59	4.77
50	26-Mar-06 to 1-Apr-06	0.00	0.00	0.00	0.00
51	2-Apr-06 to 8-Apr-06	0.00	0.00	0.00	0.00
52	9-Apr-06 to 15-Apr-06	1.25	0.00	12.50	8.75

APPENDIX 13 (cont'd)
Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Sampling Dates	Gizzard Shad Larvae/Juvenile Fish Mean Density (No. per 1,000 m^3)			
		Dawn	Day	Dusk	Night
1	17-Apr-05 to 23-Apr-05	0.00	0.00	0.00	0.00
2	24-Apr-05 to 30-Apr-05	0.00	0.00	3.53	0.88
3	1-May-05 to 7-May-05	2.43	6.07	7.28	3.64
4	8-May-05 to 14-May-05	0.00	0.00	0.00	0.00
5	15-May-05 to 21-May-05	0.00	0.00	0.00	0.00
6	22-May-05 to 28-May-05	0.00	0.00	0.00	2.07
7	29-May-05 to 4-Jun-05	0.00	0.00	2.03	2.03
8	5-Jun-05 to 11-Jun-05	322.58	64.52	96.77	129.03
9	12-Jun-05 to 18-Jun-05	2,921.88	1,484.38	800.78	1,546.88
10	19-Jun-05 to 25-Jun-05	555.08	330.51	150.42	262.71
11	26-Jun-05 to 2-Jul-05	271.08	114.46	135.54	75.30
12	3-Jul-05 to 9-Jul-05	333.06	278.09	97.01	248.99
13	10-Jul-05 to 16-Jul-05	45.75	19.61	42.48	9.80
14	17-Jul-05 to 23-Jul-05	13.05	32.63	13.05	13.05
15	24-Jul-05 to 30-Jul-05	3.13	0.00	0.00	0.00
16	31-Jul-05 to 6-Aug-05	0.00	0.00	0.00	0.00
17	7-Aug-05 to 13-Aug-05	0.00	0.00	0.00	0.00
18	14-Aug-05 to 20-Aug-05	0.00	0.00	0.00	2.04
19	21-Aug-05 to 27-Aug-05	0.00	0.00	0.00	0.00
20	28-Aug-05 to 3-Sep-05	0.00	0.00	0.00	0.00
21	4-Sep-05 to 10-Sep-05	0.00	0.00	0.00	0.00
22	11-Sep-05 to 17-Sep-05	0.00	0.00	0.00	0.00
27	16-Oct-05 to 22-Oct-05	0.00	0.00	0.00	0.00
30	6-Nov-05 to 12-Nov-05	0.00	0.00	0.00	0.00
34	4-Dec-05 to 10-Dec-05	0.00	0.00	0.00	0.00
38	1-Jan-06 to 7-Jan-06	0.00	0.00	0.00	0.00
43	5-Feb-06 to 11-Feb-06	0.00	0.00	0.00	0.00
49	19-Mar-06 to 25-Mar-06	0.00	0.00	0.00	0.00
50	26-Mar-06 to 1-Apr-06	0.00	0.00	0.00	0.00
51	2-Apr-06 to 8-Apr-06	0.00	0.00	0.00	0.00
52	9-Apr-06 to 15-Apr-06	0.00	0.00	0.00	0.00

APPENDIX 13 (cont'd)
Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Sampling Dates	*Morone spp.* Larvae/Juvenile Fish Mean Density (No. per 1,000 m^3)			
		Dawn	Day	Dusk	Night
1	17-Apr-05 to 23-Apr-05	0.00	0.00	0.00	0.00
2	24-Apr-05 to 30-Apr-05	0.00	0.00	0.00	0.00
3	1-May-05 to 7-May-05	0.00	0.00	0.00	0.00
4	8-May-05 to 14-May-05	0.00	0.00	0.00	0.00
5	15-May-05 to 21-May-05	0.00	0.00	0.00	0.00
6	22-May-05 to 28-May-05	2.07	0.00	0.00	2.07
7	29-May-05 to 4-Jun-05	10.16	0.00	2.03	10.16
8	5-Jun-05 to 11-Jun-05	774.19	354.84	247.31	559.14
9	12-Jun-05 to 18-Jun-05	1,093.75	593.75	246.09	1,039.06
10	19-Jun-05 to 25-Jun-05	93.22	241.53	188.56	646.19
11	26-Jun-05 to 2-Jul-05	536.14	231.93	313.25	286.14
12	3-Jul-05 to 9-Jul-05	139.05	161.68	103.48	103.48
13	10-Jul-05 to 16-Jul-05	29.41	16.34	9.80	19.61
14	17-Jul-05 to 23-Jul-05	9.79	3.26	0.00	6.53
15	24-Jul-05 to 30-Jul-05	3.13	0.00	6.25	3.13
16	31-Jul-05 to 6-Aug-05	0.00	0.00	0.00	0.00
17	7-Aug-05 to 13-Aug-05	0.00	0.00	2.45	0.00
18	14-Aug-05 to 20-Aug-05	0.00	0.00	0.00	0.00
19	21-Aug-05 to 27-Aug-05	1.92	0.00	0.00	0.00
20	28-Aug-05 to 3-Sep-05	0.00	0.00	0.00	2.02
21	4-Sep-05 to 10-Sep-05	0.00	0.00	0.00	0.00
22	11-Sep-05 to 17-Sep-05	0.00	0.00	0.00	0.00
27	16-Oct-05 to 22-Oct-05	0.00	0.00	0.00	0.00
30	6-Nov-05 to 12-Nov-05	0.00	0.00	0.00	0.00
34	4-Dec-05 to 10-Dec-05	0.00	0.00	0.00	0.00
38	1-Jan-06 to 7-Jan-06	0.00	0.00	0.00	0.00
43	5-Feb-06 to 11-Feb-06	0.00	0.00	0.00	0.00
49	19-Mar-06 to 25-Mar-06	0.00	0.00	0.00	0.00
50	26-Mar-06 to 1-Apr-06	0.00	0.00	0.00	0.00
51	2-Apr-06 to 8-Apr-06	0.00	0.00	0.00	0.00
52	9-Apr-06 to 15-Apr-06	0.00	0.00	0.00	0.00

APPENDIX 13 (cont'd)
Diel Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Week No.	Sampling Dates	Emerald shiner Larvae/Juvenile Fish Mean Density (No. per 1,000 m^3)			
		Dawn	Day	Dusk	Night
1	17-Apr-05 to 23-Apr-05	0.00	0.00	0.00	0.00
2	24-Apr-05 to 30-Apr-05	0.00	0.00	0.00	0.00
3	1-May-05 to 7-May-05	0.00	1.21	1.21	0.00
4	8-May-05 to 14-May-05	0.00	0.00	0.00	0.00
5	15-May-05 to 21-May-05	0.00	0.00	0.00	0.00
6	22-May-05 to 28-May-05	0.00	0.00	0.00	2.07
7	29-May-05 to 4-Jun-05	0.00	0.00	0.00	0.00
8	5-Jun-05 to 11-Jun-05	32.26	0.00	0.00	0.00
9	12-Jun-05 to 18-Jun-05	93.75	218.75	27.34	132.81
10	19-Jun-05 to 25-Jun-05	177.97	16.95	36.02	1,086.86
11	26-Jun-05 to 2-Jul-05	524.10	72.29	129.52	66.27
12	3-Jul-05 to 9-Jul-05	339.53	116.41	158.45	892.48
13	10-Jul-05 to 16-Jul-05	274.51	65.36	22.88	124.18
14	17-Jul-05 to 23-Jul-05	280.59	26.10	48.94	394.78
15	24-Jul-05 to 30-Jul-05	165.75	128.23	6.25	109.46
16	31-Jul-05 to 6-Aug-05	60.66	30.33	16.85	121.31
17	7-Aug-05 to 13-Aug-05	0.00	0.00	0.00	9.81
18	14-Aug-05 to 20-Aug-05	4.09	0.00	0.00	12.26
19	21-Aug-05 to 27-Aug-05	0.00	0.00	0.00	7.68
20	28-Aug-05 to 3-Sep-05	6.05	0.00	0.00	0.00
21	4-Sep-05 to 10-Sep-05	1.83	0.00	3.66	0.00
22	11-Sep-05 to 17-Sep-05	0.00	1.68	0.00	0.00
27	16-Oct-05 to 22-Oct-05	0.00	0.00	0.00	0.00
30	6-Nov-05 to 12-Nov-05	0.00	0.00	0.00	0.00
34	4-Dec-05 to 10-Dec-05	0.00	0.00	0.00	0.00
38	1-Jan-06 to 7-Jan-06	0.00	0.00	0.00	0.00
43	5-Feb-06 to 11-Feb-06	0.00	0.00	0.00	0.00
49	19-Mar-06 to 25-Mar-06	0.00	0.00	0.00	0.00
50	26-Mar-06 to 1-Apr-06	0.00	0.00	0.00	0.00
51	2-Apr-06 to 8-Apr-06	0.00	0.00	0.00	0.00
52	9-Apr-06 to 15-Apr-06	0.00	0.00	0.00	0.00

APPENDIX 14

Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Cyprinidae						
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Apr-06**
2.5 - 3.5		2	1			
3.5 - 4.5		5	7			
4.5 - 5.5	1	4	12	6		
5.5 - 6.5		2	16	6	1	
6.5 - 7.5			11	3		1
7.5 - 8.5		2	23	13		
8.5 - 9.5		1	38	12		
9.5 - 10.5			38	14		
10.5 - 11.5			29	18	1	
11.5 - 12.5			11	7		
12.5 - 13.5			3	10		
13.5 - 14.5			2	14	2	
14.5 - 15.5			1	11		
15.5 - 16.5			1	17	2	
16.5 - 17.5			1	8	3	
17.5 - 18.5				8	4	
18.5 - 19.5				17		
19.5 - 20.5			1	9	2	
20.5 - 21.5				7	1	
21.5 - 22.5				5		
22.5 - 23.5				2		
23.5 - 24.5			2	1	1	
24.5 - 25.5			3	3		
25.5 - 26.5			3			
26.5 - 27.5			4			
27.5 - 28.5				2		
28.5 - 29.5			1			
29.5 - 30.5			1	1	1	
30.5 - 31.5						
31.5 - 32.5						
32.5 - 33.5						
Sample Size	**1**	**16**	**209**	**194**	**18**	**1**
Maximum	**4.5**	**8.8**	**30.2**	**29.5**	**29.5**	**7.3**
Minimum	**4.5**	**2.4**	**3.4**	**4.9**	**5.9**	**7.3**
Average	**4.5**	**5.1**	**10.1**	**14.2**	**17.4**	**7.3**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Emerald shiner					
Length Range (TL, mm)	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**
2.5 - 3.5					
3.5 - 4.5	1				
4.5 - 5.5	1				
5.5 - 6.5					
6.5 - 7.5		2	2		
7.5 - 8.5		11	2		
8.5 - 9.5		29	29		
9.5 - 10.5	1	80	92	1	1
10.5 - 11.5		83	114	2	2
11.5 - 12.5		49	149	11	
12.5 - 13.5		14	121	11	
13.5 - 14.5		1	106	5	
14.5 - 15.5		6	91	12	
15.5 - 16.5		2	49	3	
16.5 - 17.5			31	8	
17.5 - 18.5			20	5	
18.5 - 19.5			27	8	
19.5 - 20.5			22	7	
20.5 - 21.5			13	5	
21.5 - 22.5			19	3	
22.5 - 23.5			12	1	
23.5 - 24.5			5		
24.5 - 25.5			2		
25.5 - 26.5					
26.5 - 27.5			2	1	
27.5 - 28.5			1		
28.5 - 29.5					
29.5 - 30.5				1	
30.5 - 31.5					1
31.5 - 32.5				1	
32.5 - 33.5					
33.5 - 34.5			3		
34.5 - 35.5					
35.5 - 36.5				1	
36.5 - 37.5			1		
37.5 - 38.5				1	
Sample Size	**3**	**277**	**913**	**87**	**4**
Maximum	**9.8**	**15.5**	**36.8**	**37.7**	**31.0**
Minimum	**4.4**	**6.8**	**6.5**	**10.2**	**9.8**
Average	**6.4**	**10.7**	**13.8**	**16.9**	**15.6**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Freshwater drum			
Length Range (TL, mm)	**Jun-05**	**Jul-05**	**Aug-05**
2.5 to 3.5			
3.5 to 4.5	11		
4.5 to 5.5	16		
5.5 to 6.5	4		
6.5 to 7.5	4		
7.5 to 8.5	4		1
8.5 to 9.5	4	3	
9.5 to 10.5	6	3	
10.5 to 11.5	2	4	
11.5 to 12.5	2	3	1
12.5 to 13.5	1	1	
13.5 to 14.5	1	4	
14.5 to 15.5		2	
15.5 to 16.5		1	
16.5 to 17.5			
Sample Size	**55.0**	**21.0**	**2.0**
Maximum	**14.1**	**15.5**	**12.2**
Minimum	**4.0**	**8.8**	**8.0**
Average	**6.9**	**11.7**	**10.1**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Gizzard shad					
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05
2.5 - 3.5		1	1		
3.5 - 4.5	1	4	1		
4.5 - 5.5	3	9	3		
5.5 - 6.5		2	8	1	
6.5 - 7.5			29	1	
7.5 - 8.5			49	4	
8.5 - 9.5			89	7	
9.5 - 10.5		1	105	22	
10.5 - 11.5			94	28	
11.5 - 12.5			76	46	
12.5 - 13.5			76	38	
13.5 - 14.5			98	56	
14.5 - 15.5			96	56	
15.5 - 16.5			75	30	
16.5 - 17.5			49	20	
17.5 - 18.5			38	15	
18.5 - 19.5			25	8	
19.5 - 20.5			36	20	
20.5 - 21.5			27	7	
21.5 - 22.5			29	5	
22.5 - 23.5			20	5	
23.5 - 24.5			14	11	1
24.5 - 25.5			10	4	
25.5 - 26.5			3	7	
26.5 - 27.5				3	
27.5 - 28.5				3	
28.5 - 29.5				2	
29.5 - 30.5			1		
30.5 - 31.5				1	
31.5 - 32.5					
32.5 - 33.5				1	
33.5 - 34.5					
34.5 - 35.5					
35.5 - 36.5				1	
36.5 - 37.5					
37.5 - 38.5				1	
Sample Size	**4**	**17**	**1,052**	**403**	**1**
Maximum	**5.4**	**9.8**	**30.0**	**37.9**	**23.9**
Minimum	**4.4**	**3.4**	**3.4**	**6.1**	**23.9**
Average	**4.9**	**5.2**	**13.8**	**15.4**	**23.9**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Gizzard shad / Alewife / Rainbow smelt			
Length Range (TL, mm)	May-05	Jun-05	Jul-05
2.5 - 3.5	2		
3.5 - 4.5	2		
4.5 - 5.5	2		
5.5 - 6.5			
6.5 - 7.5		2	
7.5 - 8.5		3	
8.5 - 9.5		13	1
9.5 - 10.5	1	14	1
10.5 - 11.5		18	1
11.5 - 12.5		23	4
12.5 - 13.5		23	1
13.5 - 14.5		36	2
14.5 - 15.5		35	6
15.5 - 16.5		44	1
16.5 - 17.5		21	1
17.5 - 18.5		18	
18.5 - 19.5		11	
19.5 - 20.5		10	
20.5 - 21.5		8	1
21.5 - 22.5		9	
22.5 - 23.5		1	
23.5 - 24.5		2	
Sample Size	**7**	**291**	**19**
Maximum	**10.0**	**24.3**	**21.3**
Minimum	**3.4**	**7.2**	**8.6**
Average	**5.1**	**14.8**	**13.8**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Lake whitefish				
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Apr-06**
2.5 - 3.5				
3.5 - 4.5				
4.5 - 5.5				
5.5 - 6.5				
6.5 - 7.5				
7.5 - 8.5				
8.5 - 9.5				
9.5 - 10.5				
10.5 - 11.5				
11.5 - 12.5				1
12.5 - 13.5				5
13.5 - 14.5				18
14.5 - 15.5		1		11
15.5 - 16.5				2
16.5 - 17.5	1		1	
17.5 - 18.5				
Sample Size	**1**	**1**	**1**	**37**
Maximum	**16.8**	**14.8**	**17.1**	**15.5**
Minimum	**16.8**	**14.8**	**17.1**	**12.4**
Average	**16.8**	**14.8**	**17.1**	**14.2**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Logperch						
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05
2.5 - 3.5						
3.5 - 4.5		1	1			
4.5 - 5.5	1	5	3		2	
5.5 - 6.5		1	6	1		
6.5 - 7.5		1	5	3		
7.5 - 8.5		1	15	2		
8.5 - 9.5		1	22	4	1	1
9.5 - 10.5			34	4		
10.5 - 11.5			32	4		
11.5 - 12.5			18			
12.5 - 13.5			11			
13.5 - 14.5			5			
14.5 - 15.5			3			
15.5 - 16.5			1	1		
16.5 - 17.5				1		
17.5 - 18.5				1		
18.5 - 19.5				1		
19.5 - 20.5						
20.5 - 21.5						
21.5 - 22.5						
22.5 - 23.5						
23.5 - 24.5			1			
24.5 - 25.5						
25.5 - 26.5						
Sample Size	**1**	**10**	**157**	**22**	**3**	**1**
Maximum	**5.1**	**9.3**	**24.4**	**18.8**	**8.8**	**9.4**
Minimum	**5.1**	**3.9**	**3.9**	**5.9**	**4.9**	**9.4**
Average	**5.1**	**5.8**	**10.3**	**10.6**	**6.2**	**9.4**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Morone Spp.				
Length Range (TL, mm)	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**
2.5 - 3.5				
3.5 - 4.5	2	2	1	
4.5 - 5.5		10	6	
5.5 - 6.5		21	5	
6.5 - 7.5		35	8	
7.5 - 8.5		40	11	1
8.5 - 9.5		58	11	
9.5 - 10.5		90	17	1
10.5 - 11.5		96	21	
11.5 - 12.5		109	19	
12.5 - 13.5		86	27	
13.5 - 14.5		75	45	
14.5 - 15.5		47	44	
15.5 - 16.5		29	46	1
16.5 - 17.5		12	46	
17.5 - 18.5		10	33	
18.5 - 19.5		5	21	
19.5 - 20.5		7	28	
20.5 - 21.5		5	13	
21.5 - 22.5		3	13	
22.5 - 23.5		2	9	
23.5 - 24.5		2	4	
24.5 - 25.5			2	
25.5 - 26.5				
26.5 - 27.5			4	
27.5 - 28.5			4	
28.5 - 29.5				
29.5 - 30.5			2	
30.5 - 31.5				
31.5 - 32.5			2	
32.5 - 33.5				
Sample Size	**2**	**744**	**442**	**3**
Maximum	**4.3**	**23.9**	**32.2**	**16.1**
Minimum	**4.0**	**4.3**	**4.4**	**8.3**
Average	**4.2**	**11.7**	**15.6**	**11.5**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Notropis spp.				
Length Range (TL, mm)	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**
2.5 - 3.5				
3.5 - 4.5	11	2		
4.5 - 5.5	11	1	4	1
5.5 - 6.5	5	7		
6.5 - 7.5		6	3	
7.5 - 8.5	2	17	5	
8.5 - 9.5	1	19	9	
9.5 - 10.5		60	20	1
10.5 - 11.5	1	71	27	1
11.5 - 12.5		28	23	1
12.5 - 13.5		6	23	4
13.5 - 14.5		6	22	1
14.5 - 15.5		4	14	2
15.5 - 16.5			9	2
16.5 - 17.5			2	2
17.5 - 18.5			5	
18.5 - 19.5			7	2
19.5 - 20.5			1	1
20.5 - 21.5			3	
21.5 - 22.5		1	1	
22.5 - 23.5				
23.5 - 24.5			2	
24.5 - 25.5			1	1
25.5 - 26.5				
26.5 - 27.5				
27.5 - 28.5				1
Sample Size	**31**	**228**	**181**	**20**
Maximum	**10.5**	**22.0**	**24.6**	**28.3**
Minimum	**3.9**	**3.9**	**4.9**	**5.1**
Average	**5.3**	**10.3**	**12.8**	**15.5**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Round goby								
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Mar-06	Apr-06
2.5 - 3.5								
3.5 - 4.5								
4.5 - 5.5				1		1		
5.5 - 6.5				8	19	3		
6.5 - 7.5			18	38	63	4		
7.5 - 8.5	1	4	28	63	56	10		3
8.5 - 9.5	2	1	6	40	2	2	4	
9.5 - 10.5				6				
10.5 - 11.5			1	1	3			
11.5 - 12.5				1				
12.5 - 13.5				1				
13.5 - 14.5				1				
14.5 - 15.5				1				
15.5 - 16.5				1				
16.5 - 17.5								
17.5 - 18.5								
18.5 - 19.5								
19.5 - 20.5				1				
20.5 - 21.5								
Sample Size	**3**	**5**	**53**	**163**	**143**	**20**	**4**	**3**
Maximum	**8.8**	**8.8**	**11.2**	**19.9**	**10.8**	**8.6**	**8.7**	**8.3**
Minimum	**7.5**	**8.0**	**6.8**	**5.4**	**5.9**	**5.2**	**8.5**	**7.9**
Average	**8.3**	**8.3**	**7.9**	**8.2**	**7.4**	**7.4**	**8.6**	**8.0**

APPENDIX 14 (cont'd)
Length Distribution of Larval and Entrainable Juvenile Fish Entrained at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Yellow perch					
Length Range (TL, mm)	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sep-05**
2.5 - 3.5					
3.5 - 4.5		1			
4.5 - 5.5	6	7	1		
5.5 - 6.5	10	16	1	1	
6.5 - 7.5		5	1		
7.5 - 8.5		3	5		1
8.5 - 9.5		2	3		
9.5 - 10.5	1			1	
10.5 - 11.5		7	1	1	
11.5 - 12.5		5		1	
12.5 - 13.5		5			
13.5 - 14.5		2			
14.5 - 15.5		8	1		
15.5 - 16.5					
16.5 - 17.5		1			
17.5 - 18.5					
Sample Size	**17**	**62**	**13**	**4**	**1**
Maximum	**10.2**	**16.6**	**14.6**	**12.4**	**7.5**
Minimum	**5.0**	**4.4**	**5.0**	**6.3**	**7.5**
Average	**5.9**	**9.3**	**8.5**	**9.9**	**7.5**

APPENDIX 15
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County SH1, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
1	**20-Apr-05**	**Trucks removed from SH1 prior to scheduled collection**																	
	21-Apr-05	Emerald shiner		0	0	3	0	3	0.013	24	8	1	1	0	0	3	0	3	0.013
	21-Apr-05	Gizzard shad	adult	0	0	1	0	1	0.155	24	8	1	1	0	0	1	0	1	0.155
	21-Apr-05	Goldfish		0	0	2	0	2	0.557	24	8	1	1	0	0	2	0	2	0.557
	21-Apr-05	Rock bass	adult	0	0	2	0	2	0.155	24	8	1	1	0	0	2	0	2	0.155
	21-Apr-05	Round goby		0	0	15	0	15	0.731	24	8	1	1	0	0	15	0	15	0.731
	21-Apr-05	Silver lamprey		0	0	1	0	1	0.046	24	8	1	1	0	0	1	0	1	0.046
	21-Apr-05	Spottail shiner		0	0	2	0	2	0.011	24	8	1	1	0	0	2	0	2	0.011
	21-Apr-05	Trout-perch		0	0	22	1	23	0.155	24	8	1	1	0	0	22	1	23	0.155
	21-Apr-05	White bass	JUV(<150mm)	0	0	2	0	2	0.013	24	8	1	1	0	0	2	0	2	0.013
	21-Apr-05	White perch	JUV(<150mm)	0	0	3	0	3	0.011	24	8	1	1	0	0	3	0	3	0.011
	21-Apr-05	Yellow perch	adult	0	0	1	1	2	0.186	24	8	1	1	0	0	1	1	2	0.186
2	**21-Apr-05**	**TOTAL**		**0**	**0**	**54**	**2**	**56**	**2.033**					**0**	**0**	**54**	**2**	**56**	**2.033**
	27-Apr-05	Common carp	adult	0	0	1	0	1	0.237	24	8	1	1	0	0	1	0	1	0.237
	27-Apr-05	Emerald shiner		0	0	1	0	1	0.001	24	8	1	1	0	0	1	0	1	0.001
	27-Apr-05	Freshwater drum	adult	0	0	1	0	1	2.200	24	8	1	1	0	0	1	0	1	2.200
	27-Apr-05	Rock bass	adult	0	1	0	1	2	0.155	24	8	1	1	0	1	0	1	2	0.155
	27-Apr-05	Yellow perch	JUV(<150mm)	0	0	1	1	2	0.051	24	8	1	1	0	0	1	1	2	0.051
	27-Apr-05	White perch	JUV(<150mm)	0	0	4	0	4	0.034	24	8	1	1	0	0	4	0	4	0.034
	27-Apr-05	Round goby		0	1	5	0	6	0.252	24	8	1	1	0	1	5	0	6	0.252
	27-Apr-05	Trout-perch		0	0	28	0	28	0.243	24	8	1	1	0	0	28	0	28	0.243
3	**27-Apr-05**	**TOTAL**		**0**	**2**	**41**	**2**	**45**	**3.173**					**0**	**2**	**41**	**2**	**45**	**3.173**
	28-Apr-05	Channel catfish	adult	0	0	1	0	1	0.024	24	8	1	1	0	0	1	0	1	0.024
	28-Apr-05	Rock bass	adult	0	0	1	0	1	0.256	24	8	1	1	0	0	1	0	1	0.256
	28-Apr-05	Silver chub		0	0	1	0	1	0.029	24	8	1	1	0	0	1	0	1	0.029
	28-Apr-05	Silver lamprey		0	0	1	0	1	0.250	24	8	1	1	0	0	1	0	1	0.250
	28-Apr-05	Spottail shiner		0	0	1	0	1	0.017	24	8	1	1	0	0	1	0	1	0.017
	28-Apr-05	Yellow perch	adult	0	0	3	0	3	0.161	24	8	1	1	0	0	3	0	3	0.161
	28-Apr-05	Round goby		0	0	10	0	10	0.467	24	8	1	1	0	0	10	0	10	0.467
	28-Apr-05	White perch	JUV(<150mm)	0	0	11	0	11	0.188	24	8	1	1	0	0	11	0	11	0.188
	28-Apr-05	Trout-perch		0	0	21	0	21	0.140	24	8	1	1	0	0	21	0	21	0.140
4	**28-Apr-05**	**TOTAL**		**0**	**0**	**50**	**0**	**50**	**1.532**					**0**	**0**	**50**	**0**	**50**	**1.532**
	4-May-05	Gizzard shad	adult	0	0	1	0	1	0.600	24	8	1	1	0	0	1	0	1	0.600
	4-May-05	Rock bass	adult	0	0	1	0	1	0.092	24	8	1	1	0	0	1	0	1	0.092
	4-May-05	Spottail shiner		0	0	1	0	1	0.007	24	8	1	1	0	0	1	0	1	0.007
	4-May-05	Round goby		0	0	3	0	3	0.096	24	8	1	1	0	0	3	0	3	0.096
	4-May-05	Silver lamprey		0	0	3	0	3	0.178	24	8	1	1	0	0	3	0	3	0.178
	4-May-05	White perch	JUV(<150mm)	0	0	3	0	3	0.055	24	8	1	1	0	0	3	0	3	0.055
	4-May-05	Yellow perch	adult	0	0	6	0	6	0.369	24	8	1	1	0	0	6	0	6	0.369
	4-May-05	Trout-perch		0	0	8	0	8	0.074	24	8	1	1	0	0	8	0	8	0.074
5	**4-May-05**	**TOTAL**		**0**	**0**	**26**	**0**	**26**	**1.471**					**0**	**0**	**26**	**0**	**26**	**1.471**
	5-May-05	Longnose gar	adult	0	0	1	0	1	0.108	24	8	1	1	0	0	1	0	1	0.108
	5-May-05	Madtom (Noturus spp.)		0	0	1	0	1	0.089	24	8	1	1	0	0	1	0	1	0.089
	5-May-05	Pumpkinseed		0	0	1	0	1	0.042	24	8	1	1	0	0	1	0	1	0.042
	5-May-05	Rock bass	adult	0	0	1	0	1	0.127	24	8	1	1	0	0	1	0	1	0.127
	5-May-05	Gizzard shad	adult	0	0	2	0	2	1.150	24	8	1	1	0	0	2	0	2	1.150
	5-May-05	Trout-perch		0	0	2	0	2	0.012	24	8	1	1	0	0	2	0	2	0.012
	5-May-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.060	24	8	1	1	0	0	3	0	3	0.060
	5-May-05	Emerald shiner		0	0	3	0	3	0.027	24	8	1	1	0	0	3	0	3	0.027
	5-May-05	Spottail shiner		0	0	3	0	3	0.025	24	8	1	1	0	0	3	0	3	0.025
	5-May-05	White perch	JUV(<150mm)	0	0	3	0	3	0.093	24	8	1	1	0	0	3	0	3	0.093
	5-May-05	Round goby		0	0	4	0	4	0.218	24	8	1	1	0	0	4	0	4	0.218
	5-May-05	Yellow perch	adult	0	0	6	0	6	0.401	24	8	1	1	0	0	6	0	6	0.401
6	**5-May-05**	**TOTAL**		**0**	**0**	**30**	**0**	**30**	**2.352**					**0**	**0**	**30**	**0**	**30**	**2.352**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	11-May-05	Brown bullhead		0	0	1	0	1	0.189	24	8	1	1	0	0	1	0	1	0.189
	11-May-05	White bass	adult	0	0	1	0	1	0.593	24	8	1	1	0	0	1	0	1	0.593
	11-May-05	Round goby		0	0	2	0	2	0.007	24	8	1	1	0	0	2	0	2	0.007
	11-May-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.017	24	8	1	1	0	0	2	0	2	0.017
	11-May-05	Goldfish		0	0	3	0	3	0.561	24	8	1	1	0	0	3	0	3	0.561
	11-May-05	Spottail shiner		0	0	3	0	3	0.018	24	8	1	1	0	0	3	0	3	0.018
	11-May-05	White perch	JUV(<150mm)	0	0	3	0	3	0.012	24	8	1	1	0	0	3	0	3	0.012
	11-May-05	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.077	24	8	1	1	0	0	3	0	3	0.077
	11-May-05	Freshwater drum	adult	0	0	4	0	4	2.620	24	8	1	1	0	0	4	0	4	2.620
	11-May-05	Gizzard shad	adult	0	0	4	0	4	1.509	24	8	1	1	0	0	4	0	4	1.509
	11-May-05	Emerald shiner		0	0	36	0	36	0.130	24	8	1	1	0	0	36	0	36	0.130
	11-May-05	Trout-perch		0	0	118	0	118	0.650	24	8	1	1	0	0	118	0	118	0.650
7	**11-May-05**	**TOTAL**		**0**	**0**	**180**	**0**	**180**	**6.383**					**0**	**0**	**180**	**0**	**180**	**6.383**
	12-May-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	12-May-05	Goldfish		0	0	1	0	1	0.124	24	8	1	1	0	0	1	0	1	0.124
	12-May-05	White bass	adult	0	0	1	0	1	0.470	24	8	1	1	0	0	1	0	1	0.470
	12-May-05	Gizzard shad	adult	0	0	2	0	2	0.626	24	8	1	1	0	0	2	0	2	0.626
	12-May-05	Round goby		0	0	2	0	2	0.008	24	8	1	1	0	0	2	0	2	0.008
	12-May-05	Silver lamprey		0	2	0	0	2	0.132	24	8	1	1	0	2	0	0	2	0.132
	12-May-05	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.048	24	8	1	1	0	0	3	0	3	0.048
	12-May-05	White perch	adult	0	0	5	0	5	0.350	24	8	1	1	0	0	5	0	5	0.350
	12-May-05	Emerald shiner		0	0	12	0	12	0.048	24	8	1	1	0	0	12	0	12	0.048
	12-May-05	Trout-perch		0	0	40	0	40	0.226	24	8	1	1	0	0	40	0	40	0.226
8	**12-May-05**	**TOTAL**		**0**	**2**	**67**	**0**	**69**	**2.035**					**0**	**2**	**67**	**0**	**69**	**2.035**
	19-May-05	Freshwater drum	adult	0	0	1	0	1	0.196	25.25	8	1	0.95	0	0	1	0	1	0.186
	19-May-05	Gizzard shad	adult	0	0	1	0	1	0.224	25.25	8	1	0.95	0	0	1	0	1	0.213
	19-May-05	Silver lamprey		0	0	1	0	1	0.092	25.25	8	1	0.95	0	0	1	0	1	0.087
	19-May-05	Emerald shiner		0	0	2	0	2	0.004	25.25	8	1	0.95	0	0	2	0	2	0.004
	19-May-05	Trout-perch		0	0	2	0	2	0.006	25.25	8	1	0.95	0	0	2	0	2	0.006
	19-May-05	Round goby		0	0	3	0	3	0.102	25.25	8	1	0.95	0	0	3	0	3	0.097
	19-May-05	Yellow perch	adult	0	0	3	0	3	0.134	25.25	8	1	0.95	0	0	3	0	3	0.127
	19-May-05	White perch	adult	0	0	20	0	20	1.532	25.25	8	1	0.95	0	0	19	0	19	1.455
9	**19-May-05**	**TOTAL**		**0**	**0**	**33**	**0**	**33**	**2.290**					**0**	**0**	**31**	**0**	**31**	**2.176**
	20-May-05	Bullhead spp.		0	0	1	0	1	0.010	24	8	1	1	0	0	1	0	1	0.010
	20-May-05	Northern pike		0	0	1	0	1	0.194	24	8	1	1	0	0	1	0	1	0.194
	20-May-05	Pumpkinseed		0	0	1	0	1	0.027	24	8	1	1	0	0	1	0	1	0.027
	20-May-05	Rainbow smelt		0	0	1	0	1	0.010	24	8	1	1	0	0	1	0	1	0.010
	20-May-05	Threespine stickleback		0	0	1	0	1	0.002	24	8	1	1	0	0	1	0	1	0.002
	20-May-05	Rock bass	JUV(<100mm)	0	0	2	0	2	0.230	24	8	1	1	0	0	2	0	2	0.230
	20-May-05	Lamprey spp.		0	1	1	0	2	0.127	24	8	1	1	0	1	1	0	2	0.127
	20-May-05	Round goby		0	0	0	3	3	0.161	24	8	1	1	0	0	0	3	3	0.161
	20-May-05	Trout-perch		0	0	17	0	17	0.077	24	8	1	1	0	0	17	0	17	0.077
	20-May-05	White perch	adult	0	0	11	16	27	2.870	24	8	1	1	0	0	11	16	27	2.870
	20-May-05	Yellow perch	adult	0	0	20	12	32	1.532	24	8	1	1	0	0	20	12	32	1.532
	20-May-05	Emerald shiner		0	0	274	0	274	1.016	24	8	1	1	0	0	274	0	274	1.016
10	**20-May-05**	**TOTAL**		**0**	**1**	**330**	**31**	**362**	**6.256**					**0**	**1**	**330**	**31**	**362**	**6.256**
	25-May-05	Channel catfish	adult	0	0	1	0	1	0.068	24	8	1	1	0	0	1	0	1	0.068
	25-May-05	Freshwater drum	adult	0	0	1	0	1	0.945	24	8	1	1	0	0	1	0	1	0.945
	25-May-05	Redhorse sucker		0	0	1	0	1	0.600	24	8	1	1	0	0	1	0	1	0.600
	25-May-05	Goldfish		0	0	2	0	2	0.502	24	8	1	1	0	0	2	0	2	0.502
	25-May-05	Round goby		0	0	2	0	2	0.108	24	8	1	1	0	0	2	0	2	0.108
	25-May-05	Trout-perch		0	0	2	0	2	0.002	24	8	1	1	0	0	2	0	2	0.002
	25-May-05	White bass	adult	0	0	2	0	2	0.804	24	8	1	1	0	0	2	0	2	0.804
	25-May-05	Emerald shiner		0	0	5	0	5	0.020	24	8	1	1	0	0	5	0	5	0.020
	25-May-05	White perch	adult	0	0	15	0	15	1.502	24	8	1	1	0	0	15	0	15	1.502
	25-May-05	Yellow perch	adult	0	0	16	0	16	0.690	24	8	1	1	0	0	16	0	16	0.690
11	**25-May-05**	**TOTAL**		**0**	**0**	**47**	**0**	**47**	**5.241**					**0**	**0**	**47**	**0**	**47**	**5.241**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	26-May-05	Emerald shiner		0	0	1	0	1	0.006	24	8	1	1	0	0	1	0	1	0.006
	26-May-05	Rock bass	adult	0	0	1	0	1	0.078	24	8	1	1	0	0	1	0	1	0.078
	26-May-05	Round goby		0	0	1	0	1	0.086	24	8	1	1	0	0	1	0	1	0.086
	26-May-05	Lamprey spp.		0	0	1	0	1	0.032	24	8	1	1	0	0	1	0	1	0.032
	26-May-05	Silver lamprey		0	0	1	0	1	0.060	24	8	1	1	0	0	1	0	1	0.060
	26-May-05	White bass	adult	0	0	2	0	2	0.466	24	8	1	1	0	0	2	0	2	0.466
	26-May-05	Freshwater drum	adult	0	0	3	0	3	1.560	24	8	1	1	0	0	3	0	3	1.560
	26-May-05	Gizzard shad	adult	0	0	3	0	3	1.148	24	8	1	1	0	0	3	0	3	1.148
	26-May-05	Yellow perch	adult	0	0	16	0	16	0.804	24	8	1	1	0	0	16	0	16	0.804
	26-May-05	White perch	JUV(<150mm)	0	0	32	0	32	3.038	24	8	1	1	0	0	32	0	32	3.038
12	**26-May-05**	**TOTAL**		**0**	**0**	**61**	**0**	**61**	**7.278**					**0**	**0**	**61**	**0**	**61**	**7.278**
	31-May-05	Freshwater drum	adult	0	0	1	0	1	0.116	24	8	1	1	0	0	1	0	1	0.116
	31-May-05	Goldfish		0	0	1	0	1	0.230	24	8	1	1	0	0	1	0	1	0.230
	31-May-05	White bass	adult	0	0	1	0	1	0.035	24	8	1	1	0	0	1	0	1	0.035
	31-May-05	White perch	adult	0	0	1	0	1	0.076	24	8	1	1	0	0	1	0	1	0.076
	31-May-05	Yellow perch	adult	0	0	3	0	3	0.274	24	8	1	1	0	0	3	0	3	0.274
13	**31-May-05**	**TOTAL**		**0**	**0**	**7**	**0**	**7**	**0.731**					**0**	**0**	**7**	**0**	**7**	**0.731**
	1-Jun-05	Gizzard shad	adult	0	0	1	0	1	0.598	24	8	1	1	0	0	1	0	1	0.598
	1-Jun-05	Walleye	adult	0	0	1	0	1	0.174	24	8	1	1	0	0	1	0	1	0.174
	1-Jun-05	Redhorse sucker		0	0	2	0	2	1.382	24	8	1	1	0	0	2	0	2	1.382
	1-Jun-05	Silver lamprey		0	0	2	0	2	0.174	24	8	1	1	0	0	2	0	2	0.174
	1-Jun-05	White perch	adult	0	0	2	0	2	0.150	24	8	1	1	0	0	2	0	2	0.150
	1-Jun-05	Freshwater drum	adult	0	0	3	0	3	1.722	24	8	1	1	0	0	3	0	3	1.722
	1-Jun-05	Yellow perch	adult	0	0	3	0	3	0.160	24	8	1	1	0	0	3	0	3	0.160
	1-Jun-05	White bass	adult	0	0	4	0	4	0.846	24	8	1	1	0	0	4	0	4	0.846
14	**1-Jun-05**	**TOTAL**		**0**	**0**	**18**	**0**	**18**	**5.206**					**0**	**0**	**18**	**0**	**18**	**5.206**
	9-Jun-05	Gizzard shad	adult	0	0	1	0	1	0.820	24	8	1	1	0	0	1	0	1	0.820
	9-Jun-05	Rock bass	adult	0	0	1	0	1	0.052	24	8	1	1	0	0	1	0	1	0.052
	9-Jun-05	Walleye	JUV(<200mm)	0	0	1	0	1	0.084	24	8	1	1	0	0	1	0	1	0.084
	9-Jun-05	White bass	adult	0	0	1	0	1	0.236	24	8	1	1	0	0	1	0	1	0.236
	9-Jun-05	Trout-perch		0	0	2	0	2	0.014	24	8	1	1	0	0	2	0	2	0.014
	9-Jun-05	Yellow perch	adult	0	0	2	0	2	0.314	24	8	1	1	0	0	2	0	2	0.314
	9-Jun-05	Silver lamprey		0	0	3	0	3	0.124	24	8	1	1	0	0	3	0	3	0.124
	9-Jun-05	Freshwater drum	adult	0	0	6	0	6	5.200	24	8	1	1	0	0	6	0	6	5.200
	9-Jun-05	White perch	adult	0	0	7	0	7	0.418	24	8	1	1	0	0	7	0	7	0.418
	9-Jun-05	Emerald shiner		0	0	425	0	425	1.736	24	8	1	1	0	0	425	0	425	1.736
15	**9-Jun-05**	**TOTAL**		**0**	**0**	**449**	**0**	**449**	**8.998**					**0**	**0**	**449**	**0**	**449**	**8.998**
	10-Jun-05	Northern pike		0	0	1	0	1	1.246	24	8	1	1	0	0	1	0	1	1.246
	10-Jun-05	Quillback		0	0	1	0	1	1.603	24	8	1	1	0	0	1	0	1	1.603
	10-Jun-05	Trout-perch		0	0	1	0	1	0.007	24	8	1	1	0	0	1	0	1	0.007
	10-Jun-05	Gizzard shad	adult	0	0	2	0	2	0.725	24	8	1	1	0	0	2	0	2	0.725
	10-Jun-05	Round goby		0	0	2	0	2	0.015	24	8	1	1	0	0	2	0	2	0.015
	10-Jun-05	Spottail shiner		0	0	2	0	2	0.032	24	8	1	1	0	0	2	0	2	0.032
	10-Jun-05	Yellow perch	adult	0	0	2	0	2	0.174	24	8	1	1	0	0	2	0	2	0.174
	10-Jun-05	Freshwater drum	adult	0	0	3	0	3	1.666	24	8	1	1	0	0	3	0	3	1.666
	10-Jun-05	White perch	adult	0	0	7	0	7	0.382	24	8	1	1	0	0	7	0	7	0.382
	10-Jun-05	Emerald shiner		0	0	406	0	406	1.330	24	8	1	1	0	0	406	0	406	1.330
16	**10-Jun-05**	**TOTAL**		**0**	**0**	**427**	**0**	**427**	**7.180**					**0**	**0**	**427**	**0**	**427**	**7.180**
17	**15-Jun-05**	**Trucks removed from SH1 prior to scheduled collection**																	
	16-Jun-05	Common shiner		0	0	1	0	1	0.012	24.25	8	1	0.99	0	0	1	0	1	0.012
	16-Jun-05	Round goby		0	0	1	0	1	0.042	24.25	8	1	0.99	0	0	1	0	1	0.042
	16-Jun-05	Trout-perch		0	0	1	0	1	0.008	24.25	8	1	0.99	0	0	1	0	1	0.008
	16-Jun-05	White bass	adult	0	0	1	0	1	0.340	24.25	8	1	0.99	0	0	1	0	1	0.337
	16-Jun-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.034	24.25	8	1	0.99	0	0	1	0	1	0.034
	16-Jun-05	Channel catfish	adult	0	0	2	0	2	1.004	24.25	8	1	0.99	0	0	2	0	2	0.994
	16-Jun-05	Gizzard shad	adult	0	0	2	0	2	0.886	24.25	8	1	0.99	0	0	2	0	2	0.877
	16-Jun-05	Freshwater drum	adult	0	0	5	0	5	2.238	24.25	8	1	0.99	0	0	5	0	5	2.216
	16-Jun-05	Emerald shiner		0	0	16	2	18	0.042	24.25	8	1	0.99	0	0	16	2	18	0.042
18	**16-Jun-05**	**TOTAL**		**0**	**0**	**30**	**2**	**32**	**4.606**					**0**	**0**	**30**	**2**	**32**	**4.560**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	21-Jun-05	Black crappie	adult	0	0	1	0	1	0.016	24.75	8	1	0.97	0	0	1	0	1	0.016
	21-Jun-05	Rainbow smelt		0	0	1	0	1	0.013	24.75	8	1	0.97	0	0	1	0	1	0.013
	21-Jun-05	Round goby		0	0	1	0	1	0.045	24.75	8	1	0.97	0	0	1	0	1	0.044
	21-Jun-05	White bass	adult	0	0	1	0	1	0.363	24.75	8	1	0.97	0	0	1	0	1	0.352
	21-Jun-05	Channel catfish	adult	0	0	2	0	2	0.545	24.75	8	1	0.97	0	0	2	0	2	0.529
	21-Jun-05	Spottail shiner		0	0	2	0	2	0.013	24.75	8	1	0.97	0	0	2	0	2	0.013
	21-Jun-05	Yellow perch	adult	0	0	2	0	2	0.114	24.75	8	1	0.97	0	0	2	0	2	0.111
	21-Jun-05	Emerald shiner		0	0	3	0	3	0.007	24.75	8	1	0.97	0	0	3	0	3	0.007
	21-Jun-05	Freshwater drum	adult	0	0	4	0	4	2.425	24.75	8	1	0.97	0	0	4	0	4	2.352
	21-Jun-05	White perch	JUV(<150mm)	0	0	4	0	4	0.160	24.75	8	1	0.97	0	0	4	0	4	0.155
	21-Jun-05	Trout-perch		0	0	9	0	9	0.051	24.75	8	1	0.97	0	0	9	0	9	0.049
19	**21-Jun-05**	**TOTAL**		**0**	**0**	**30**	**0**	**30**	**3.752**					**0**	**0**	**29**	**0**	**29**	**3.639**
	22-Jun-05	Brown bullhead		0	0	1	0	1	0.187	23.25	8	1	1.03	0	0	1	0	1	0.193
	22-Jun-05	Largemouth bass	adult	0	0	0	1	1	1.170	23.25	8	1	1.03	0	0	0	1	1	1.205
	22-Jun-05	Quillback		0	0	1	0	1	1.608	23.25	8	1	1.03	0	0	1	0	1	1.656
	22-Jun-05	Rainbow smelt		0	0	1	0	1	0.011	23.25	8	1	1.03	0	0	1	0	1	0.011
	22-Jun-05	Sea lamprey		0	0	1	0	1	0.044	23.25	8	1	1.03	0	0	1	0	1	0.045
	22-Jun-05	Silver lamprey		0	0	1	0	1	0.069	23.25	8	1	1.03	0	0	1	0	1	0.071
	22-Jun-05	Round goby		0	0	3	0	3	0.024	23.25	8	1	1.03	0	0	3	0	3	0.025
	22-Jun-05	Freshwater drum	adult	0	0	4	0	4	0.649	23.25	8	1	1.03	0	0	4	0	4	0.668
	22-Jun-05	Silver chub		0	0	6	0	6	0.043	23.25	8	1	1.03	0	0	6	0	6	0.044
	22-Jun-05	Trout-perch		0	0	6	1	7	0.039	23.25	8	1	1.03	0	0	6	1	7	0.040
	22-Jun-05	Spottail shiner		0	0	10	0	10	0.079	23.25	8	1	1.03	0	0	10	0	10	0.081
	22-Jun-05	Yellow perch	adult	0	0	10	0	10	0.608	23.25	8	1	1.03	0	0	10	0	10	0.626
	22-Jun-05	White perch	adult	0	0	11	1	12	0.757	23.25	8	1	1.03	0	0	11	1	12	0.780
	22-Jun-05	Emerald shiner		0	0	15	0	15	0.073	23.25	8	1	1.03	0	0	15	0	15	0.075
20	**22-Jun-05**	**TOTAL**		**0**	**0**	**70**	**3**	**73**	**5.361**					**0**	**0**	**72**	**3**	**75**	**5.522**
	30-Jun-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	30-Jun-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.001	24	8	1	1	0	0	1	0	1	0.001
	30-Jun-05	Common shiner		0	0	1	0	1	0.015	24	8	1	1	0	0	1	0	1	0.015
	30-Jun-05	Northern pike		0	0	1	0	1	0.811	24	8	1	1	0	0	1	0	1	0.811
	30-Jun-05	Rock bass	adult	0	0	1	0	1	0.028	24	8	1	1	0	0	1	0	1	0.028
	30-Jun-05	White bass	adult	0	0	1	0	1	0.257	24	8	1	1	0	0	1	0	1	0.257
	30-Jun-05	White perch	adult	0	0	4	0	4	0.538	24	8	1	1	0	0	4	0	4	0.538
	30-Jun-05	Freshwater drum	adult	0	0	4	1	5	1.966	24	8	1	1	0	0	4	1	5	1.966
	30-Jun-05	Yellow perch	adult	0	0	6	0	6	0.494	24	8	1	1	0	0	6	0	6	0.494
	30-Jun-05	Round goby		0	0	7	0	7	0.218	24	8	1	1	0	0	7	0	7	0.218
21	**30-Jun-05**	**TOTAL**		**0**	**0**	**27**	**1**	**28**	**4.331**					**0**	**0**	**27**	**1**	**28**	**4.331**
	1-Jul-05	Channel catfish	adult	0	0	0	1	1	0.591	24	8	1	1	0	0	0	1	1	0.591
	1-Jul-05	Common shiner		0	0	1	0	1	0.009	24	8	1	1	0	0	1	0	1	0.009
	1-Jul-05	Redhorse sucker		0	0	0	1	1	0.643	24	8	1	1	0	0	0	1	1	0.643
	1-Jul-05	Rock bass	adult	0	0	1	0	1	0.030	24	8	1	1	0	0	1	0	1	0.030
	1-Jul-05	Walleye	adult	0	0	1	0	1	0.433	24	8	1	1	0	0	1	0	1	0.433
	1-Jul-05	White perch	JUV(<150mm)	0	0	1	0	1	0.041	24	8	1	1	0	0	1	0	1	0.041
	1-Jul-05	Yellow perch	adult	0	0	1	0	1	0.073	24	8	1	1	0	0	1	0	1	0.073
	1-Jul-05	Freshwater drum	adult	0	0	2	0	2	0.406	24	8	1	1	0	0	2	0	2	0.406
	1-Jul-05	White bass	adult	0	0	2	0	2	0.451	24	8	1	1	0	0	2	0	2	0.451
	1-Jul-05	Round goby		0	0	4	0	4	0.224	24	8	1	1	0	0	4	0	4	0.224
	1-Jul-05	Emerald shiner		0	0	10	1	11	0.052	24	8	1	1	0	0	10	1	11	0.052
22	**1-Jul-05**	**TOTAL**		**0**	**0**	**23**	**3**	**26**	**2.953**					**0**	**0**	**23**	**3**	**26**	**2.953**
	5-Jul-05	**Trucks removed from SH1 prior to scheduled collection**																	
23	**6-Jul-05**	**Trucks removed from SH1 prior to scheduled collection**																	
	14-Jul-05	Emerald shiner		0	0	1	0	1	0.002	25.5	8	1	0.94	0	0	1	0	1	0.002
	14-Jul-05	Freshwater drum	adult	0	0	7	0	7	2.096	25.5	8	1	0.94	0	0	7	0	7	1.970
	14-Jul-05	Gizzard shad	JUV(<200mm)	0	0	4	0	4	0.010	25.5	8	1	0.94	0	0	4	0	4	0.009
	14-Jul-05	Round goby		0	0	5	0	5	0.074	25.5	8	1	0.94	0	0	5	0	5	0.070
	14-Jul-05	Trout-perch		0	0	2	0	2	0.011	25.5	8	1	0.94	0	0	2	0	2	0.010
	14-Jul-05	White bass	JUV(<150mm)	0	0	6	0	6	0.012	25.5	8	1	0.94	0	0	6	0	6	0.011
	14-Jul-05	White perch	adult	0	0	1	1	2	0.260	25.5	8	1	0.94	0	0	1	1	2	0.244
24	**14-Jul-05**	**TOTAL**		**0**	**0**	**26**	**1**	**27**	**2.465**					**0**	**0**	**24**	**1**	**25**	**2.317**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	15-Jul-05	Emerald shiner		0	0	1	0	1	0.004	20.25	8	1	1.19	0	0	1	0	1	0.005
	15-Jul-05	Freshwater drum	adult	0	0	1	0	1	0.132	20.25	8	1	1.19	0	0	1	0	1	0.157
	15-Jul-05	Gizzard shad	JUV (<200mm)	0	0	3	0	3	0.008	20.25	8	1	1.19	0	0	4	0	4	0.010
	15-Jul-05	Largemouth bass		0	0	1	0	1	0.582	20.25	8	1	1.19	0	0	1	0	1	0.693
	15-Jul-05	Round goby		0	0	3	0	3	0.009	20.25	8	1	1.19	0	0	4	0	4	0.011
	15-Jul-05	Walleye	JUV(<200mm)	0	0	3	1	4	0.060	20.25	8	1	1.19	0	0	4	1	5	0.071
	15-Jul-05	White bass	JUV(<150mm)	0	0	2	0	2	0.005	20.25	8	1	1.19	0	0	2	0	2	0.006
25	**15-Jul-05**	**TOTAL**		**0**	**0**	**14**	**1**	**15**	**0.800**					**0**	**0**	**17**	**1**	**18**	**0.952**
	19-Jul-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.010	24.25	8	1	0.99	0	0	1	0	1	0.010
	19-Jul-05	Emerald shiner		0	0	1	0	1	0.004	24.25	8	1	0.99	0	0	1	0	1	0.004
	19-Jul-05	Freshwater drum	adult	0	0	5	0	5	0.937	24.25	8	1	0.99	0	0	5	0	5	0.928
	19-Jul-05	Gizzard shad	JUV(<200mm)	0	0	14	0	14	0.924	24.25	8	1	0.99	0	0	14	0	14	0.915
	19-Jul-05	Round goby		0	0	1	1	2	0.013	24.25	8	1	0.99	0	0	1	1	2	0.013
	19-Jul-05	White bass	adult	0	0	10	2	12	0.030	24.25	8	1	0.99	0	0	10	2	12	0.030
	19-Jul-05	White sucker		0	0	1	0	1	0.072	24.25	8	1	0.99	0	0	1	0	1	0.071
	19-Jul-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.004	24.25	8	1	0.99	0	0	1	0	1	0.004
26	**19-Jul-05**	**TOTAL**		**0**	**0**	**34**	**3**	**37**	**1.994**					**0**	**0**	**34**	**3**	**37**	**1.974**
	20-Jul-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.002	23.75	8	1	1.01	0	0	1	0	1	0.002
	20-Jul-05	Gizzard shad	JUV(<200mm)	0	0	30	0	30	0.107	23.75	8	1	1.01	0	0	30	0	30	0.108
	20-Jul-05	Pumpkinseed		0	0	1	0	1	0.002	23.75	8	1	1.01	0	0	1	0	1	0.002
	20-Jul-05	Round goby		0	0	2	1	3	0.148	23.75	8	1	1.01	0	0	2	1	3	0.149
	20-Jul-05	White bass	JUV(<150mm)	0	0	20	0	20	0.119	23.75	8	1	1.01	0	0	20	0	20	0.120
	20-Jul-05	White perch	JUV(<150mm)	0	0	6	0	6	0.130	23.75	8	1	1.01	0	0	6	0	6	0.131
27	**20-Jul-05**	**TOTAL**		**0**	**0**	**60**	**1**	**61**	**0.508**					**0**	**0**	**61**	**1**	**62**	**0.513**
	26-Jul-05	Common carp	JUV(<150mm)	0	0	2	0	2	0.009	23.25	8	1/2	2.06	0	0	4	0	4	0.019
	26-Jul-05	Emerald shiner		0	0	3	0	3	0.014	23.25	8	1/2	2.06	0	0	6	0	6	0.029
	26-Jul-05	Freshwater drum	JUV(<200mm)	0	0	70	4	74	0.272	23.25	8	1/2	2.06	0	0	144	8	152	0.560
	26-Jul-05	Gizzard shad	JUV(<200mm)	0	0	15	2	17	0.071	23.25	8	1/2	2.06	0	0	31	4	35	0.146
	26-Jul-05	Round goby		0	0	4	0	4	0.149	23.25	8	1/2	2.06	0	0	8	0	8	0.307
	26-Jul-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.004	23.25	8	1/2	2.06	0	0	2	0	2	0.008
	26-Jul-05	Spottail shiner		0	0	3	0	3	0.021	23.25	8	1/2	2.06	0	0	6	0	6	0.043
	26-Jul-05	Trout-perch		0	0	1	0	1	0.009	23.25	8	1/2	2.06	0	0	2	0	2	0.019
	26-Jul-05	White bass	JUV(<150mm)	0	0	68	0	68	0.450	23.25	8	1/2	2.06	0	0	140	0	140	0.927
	26-Jul-05	White perch	JUV(<150mm)	0	0	121	1	122	0.764	23.25	8	1/2	2.06	0	0	249	2	251	1.574
	26-Jul-05	Yellow perch	adult	0	0	1	0	1	0.059	23.25	8	1/2	2.06	0	0	2	0	2	0.122
28	**26-Jul-05**	**TOTAL**		**0**	**0**	**289**	**7**	**296**	**1.822**					**0**	**0**	**595**	**14**	**610**	**3.753**
	27-Jul-05	Bluegill	JUV(<100mm)	0	0	5	0	5	0.007	24	8	1/4	4.00	0	0	20	0	20	0.028
	27-Jul-05	Channel catfish	adult	0	0	2	0	2	0.225	24	8	1/4	4.00	0	0	8	0	8	0.900
	27-Jul-05	Freshwater drum	JUV(<200mm)	0	0	14	0	14	0.296	24	8	1/4	4.00	0	0	56	0	56	1.184
	27-Jul-05	Gizzard shad	JUV(<200mm)	0	0	47	1	48	0.136	24	8	1/4	4.00	0	0	188	4	192	0.544
	27-Jul-05	Northern pike		0	0	1	0	1	0.607	24	8	1/4	4.00	0	0	4	0	4	2.428
	27-Jul-05	Pumpkinseed		0	0	2	0	2	0.129	24	8	1/4	4.00	0	0	8	0	8	0.516
	27-Jul-05	Rock bass	adult	0	0	1	0	1	0.066	24	8	1/4	4.00	0	0	4	0	4	0.264
	27-Jul-05	White bass	JUV(<150mm)	0	0	74	0	74	0.222	24	8	1/4	4.00	0	0	296	0	296	0.888
	27-Jul-05	White perch	JUV(<150mm)	0	0	115	0	115	0.743	24	8	1/4	4.00	0	0	460	0	460	2.972
	27-Jul-05	Yellow perch	adult	0	1	2	0	3	0.148	24	8	1/4	4.00	0	4	8	0	12	0.592
29	**27-Jul-05**	**TOTAL**		**0**	**1**	**263**	**1**	**265**	**2.579**					**0**	**4**	**1,052**	**4**	**1,060**	**10.316**
	4-Aug	Freshwater drum	adult	0	0	5	0	5	0.532	23.5	8	1	1.02	0	0	5	0	5	0.543
	4-Aug	Gizzard shad	JUV(<200mm)	0	0	13	5	18	0.069	23.5	8	1	1.02	0	0	13	5	18	0.070
	4-Aug	Round goby		0	0	1	0	1	0.026	23.5	8	1	1.02	0	0	1	0	1	0.027
	4-Aug	Walleye	JUV(<200mm)	0	0	0	1	1	0.017	23.5	8	1	1.02	0	0	0	1	1	0.017
	4-Aug	White bass	JUV(<150mm)	0	0	18	0	18	0.076	23.5	8	1	1.02	0	0	18	0	18	0.078
	4-Aug	White perch	JUV(<150mm)	0	0	6	0	6	0.018	23.5	8	1	1.02	0	0	6	0	6	0.018
30	**4-Aug-05**	**TOTAL**		**0**	**0**	**43**	**6**	**49**	**0.738**					**0**	**0**	**44**	**6**	**50**	**0.753**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	5-Aug	Channel catfish	adult	0	0		1	1	0.389	24.5	8	1	0.98	0	0	0	1	1	0.381
	5-Aug	Freshwater drum	adult	0	0	5	0	5	1.431	24.5	8	1	0.98	0	0	5	0	5	1.402
	5-Aug	Gizzard shad	JUV(<200mm)	0	0	5	2	7	0.066	24.5	8	1	0.98	0	0	5	2	7	0.065
	5-Aug	Largemouth bass	JUV(<150mm)	0	0	1	0	1	0.007	24.5	8	1	0.98	0	0	1	0	1	0.007
	5-Aug	Northern pike		0	0	1	0	1	0.726	24.5	8	1	0.98	0	0	1	0	1	0.711
	5-Aug	Round goby		0	0	1	2	3	0.114	24.5	8	1	0.98	0	0	1	2	3	0.112
	5-Aug	Silver lamprey		0	0	1	0	1	0.018	24.5	8	1	0.98	0	0	1	0	1	0.018
	5-Aug	Smallmouth bass	adult	0	0	1	0	1	1.002	24.5	8	1	0.98	0	0	1	0	1	0.982
	5-Aug	Walleye	JUV(<200mm)	0	0	1	0	1	0.018	24.5	8	1	0.98	0	0	1	0	1	0.018
	5-Aug	White bass	JUV(<150mm)	0	0	9	1	10	0.044	24.5	8	1	0.98	0	0	9	1	10	0.043
31	**5-Aug-05**	**TOTAL**		**0**	**0**	**25**	**6**	**31**	**3.815**					**0**	**0**	**25**	**6**	**30**	**3.739**
	11-Aug	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.003	24.25	8	1	0.99	0	0	1	0	1	0.003
	11-Aug	Freshwater drum	adult	0	0	4	0	4	0.567	24.25	8	1	0.99	0	0	4	0	4	0.561
	11-Aug	Largemouth bass	JUV(<150mm)	0	0	1	0	1	0.010	24.25	8	1	0.99	0	0	1	0	1	0.010
	11-Aug	Round goby		0	0	3	0	3	0.045	24.25	8	1	0.99	0	0	3	0	3	0.045
	11-Aug	White bass	JUV(<150mm)	0	0	10	0	10	0.046	24.25	8	1	0.99	0	0	10	0	10	0.046
	11-Aug	White perch	adult	0	0	2	0	2	0.230	24.25	8	1	0.99	0	0	2	0	2	0.228
32	**11-Aug-05**	**TOTAL**		**0**	**0**	**21**	**0**	**21**	**0.901**					**0**	**0**	**21**	**0**	**21**	**0.892**
	12-Aug	Bluegill	JUV(<100mm)	0	0	8	0	8	0.012	24.25	8	1	0.99	0	0	8	0	8	0.012
	12-Aug	Channel catfish	adult	0	0	2	0	2	0.206	24.25	8	1	0.99	0	0	2	0	2	0.204
	12-Aug	Emerald shiner		0	0	2	0	2	0.008	24.25	8	1	0.99	0	0	2	0	2	0.008
	12-Aug	Freshwater drum	adult	0	0	5	1	6	0.903	24.25	8	1	0.99	0	0	5	1	6	0.894
	12-Aug	Gizzard shad	JUV(<200mm)	0	0	22	13	35	0.174	24.25	8	1	0.99	0	0	22	13	35	0.172
	12-Aug	Round goby		0	0	17	2	19	0.491	24.25	8	1	0.99	0	0	17	2	19	0.486
	12-Aug	Smallmouth bass	JUV(<150mm)	0	0	2	1	3	0.024	24.25	8	1	0.99	0	0	2	1	3	0.024
	12-Aug	Spottail shiner		0	0	7	0	7	0.022	24.25	8	1	0.99	0	0	7	0	7	0.022
	12-Aug	Walleye	adult	0	0	0	3	3	0.254	24.25	8	1	0.99	0	0	0	3	3	0.251
	12-Aug	White bass	JUV(<150mm)	0	0	136	2	138	0.414	24.25	8	1	0.99	0	0	135	2	137	0.410
	12-Aug	White perch	JUV(<150mm)	0	0	220	1	221	0.955	24.25	8	1	0.99	0	0	218	1	219	0.945
	12-Aug	Yellow perch	adult	0	0	1	0	1	0.101	24.25	8	1	0.99	0	0	1	0	1	0.100
33	**12-Aug-05**	**TOTAL**		**0**	**0**	**422**	**23**	**445**	**3.564**					**0**	**0**	**418**	**23**	**441**	**3.528**
	16-Aug	Bluegill	JUV(<100mm)	0	0	2	0	2	0.005	24	8	1	1.00	0	0	2	0	2	0.005
	16-Aug	Brown bullhead		0	0	1	0	1	0.449	24	8	1	1.00	0	0	1	0	1	0.449
	16-Aug	Channel catfish	JUV(<150mm)	0	0	3	2	5	0.040	24	8	1	1.00	0	0	3	2	5	0.040
	16-Aug	Emerald shiner		0	0	1	0	1	0.004	24	8	1	1.00	0	0	1	0	1	0.004
	16-Aug	Freshwater drum	adult	0	0	8	0	8	0.702	24	8	1	1.00	0	0	8	0	8	0.702
	16-Aug	Gizzard shad	JUV(<200mm)	0	0	23	0	23	0.216	24	8	1	1.00	0	0	23	0	23	0.216
	16-Aug	Largemouth bass	JUV(<150mm)	0	0	2	0	2	0.034	24	8	1	1.00	0	0	2	0	2	0.034
	16-Aug	Rock bass	adult	0	0	1	0	1	0.145	24	8	1	1.00	0	0	1	0	1	0.145
	16-Aug	Round goby		0	0	5	0	5	0.068	24	8	1	1.00	0	0	5	0	5	0.068
	16-Aug	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.017	24	8	1	1.00	0	0	1	0	1	0.017
	16-Aug	Spottail shiner		0	0	3	0	3	0.015	24	8	1	1.00	0	0	3	0	3	0.015
	16-Aug	Trout-perch		0	0	1	0	1	0.003	24	8	1	1.00	0	0	1	0	1	0.003
	16-Aug	White bass	JUV(<150mm)	0	0	61	1	62	0.268	24	8	1	1.00	0	0	61	1	62	0.268
	16-Aug	White perch	JUV(<150mm)	0	0	105	0	105	0.347	24	8	1	1.00	0	0	105	0	105	0.347
	16-Aug	Yellow perch	adult	0	0	1	0	1	0.085	24	8	1	1.00	0	0	1	0	1	0.085
34	**16-Aug-05**	**TOTAL**		**0**	**0**	**218**	**3**	**221**	**2.398**					**0**	**0**	**218**	**3**	**221**	**2.398**
	17-Aug	Freshwater drum	adult	0	0	20	0	20	4.036	23.5	8	1	1.02	0	0	20	0	20	4.117
	17-Aug	Gizzard shad	JUV(<200mm)	0	0	20	0	20	0.200	23.5	8	1	1.02	0	0	20	0	20	0.204
	17-Aug	Pumpkinseed		0	0	8	0	8	0.296	23.5	8	1	1.02	0	0	8	0	8	0.302
	17-Aug	Round goby		0	0	20	0	20	0.680	23.5	8	1	1.02	0	0	20	0	20	0.694
	17-Aug	Spottail shiner		0	0	20	0	20	0.088	23.5	8	1	1.02	0	0	20	0	20	0.090
	17-Aug	White bass	JUV(<150mm)	0	0	64	0	64	0.344	23.5	8	1	1.02	0	0	65	0	65	0.351
	17-Aug	White perch	JUV(<150mm)	0	0	244	8	252	1.396	23.5	8	1	1.02	0	0	249	8	257	1.424
	17-Aug	Yellow perch	adult	0	0	4	0	4	0.576	23.5	8	1	1.02	0	0	4	0	4	0.588
35	**17-Aug-05**	**TOTAL**		**0**	**0**	**400**	**8**	**408**	**7.616**					**0**	**0**	**408**	**8**	**416**	**7.768**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	26-Aug	Emerald shiner		0	0	32	0	32	0.064	24	8	1	1.00	0	0	32	0	32	0.064
	26-Aug	Freshwater drum	JUV(<200mm)	0	0	64	0	64	0.512	24	8	1	1.00	0	0	64	0	64	0.512
	26-Aug	Gizzard shad	JUV(<200mm)	0	0	32	0	32	0.384	24	8	1	1.00	0	0	32	0	32	0.384
	26-Aug	Spottail shiner		0	0	0	32	32	0.096	24	8	1	1.00	0	0	0	32	32	0.096
	26-Aug	White perch	JUV(<150mm)	0	0	15,392	0	15,392	51.040	24	8	1	1.00	0	0	15,392	0	15,392	51.040
36	**26-Aug-05**	**TOTAL**		**0**	**0**	**15,520**	**32**	**15,552**	**52.096**					**0**	**0**	**15,520**	**32**	**15,552**	**52.096**
	27-Aug	Black bullhead		0	0	20	0	20	0.075	24	8	1	1.00	0	0	20	0	20	0.075
	27-Aug	Channel catfish	JUV(<150mm)	0	0	15	0	15	0.075	24	8	1	1.00	0	0	15	0	15	0.075
	27-Aug	Freshwater drum	JUV(<200mm)	0	0	30	0	30	0.270	24	8	1	1.00	0	0	30	0	30	0.270
	27-Aug	Gizzard shad	JUV(<200mm)	0	0	140	0	140	1.660	24	8	1	1.00	0	0	140	0	140	1.660
	27-Aug	Goldfish		0	0	5	0	5	0.025	24	8	1	1.00	0	0	5	0	5	0.025
	27-Aug	Largemouth bass	JUV(<150mm)	0	0	5	0	5	0.105	24	8	1	1.00	0	0	5	0	5	0.105
	27-Aug	Pumpkinseed		0	0	20	0	20	1.020	24	8	1	1.00	0	0	20	0	20	1.020
	27-Aug	Rock bass	adult	0	0	10	0	10	1.545	24	8	1	1.00	0	0	10	0	10	1.545
	27-Aug	Round goby		0	0	10	0	10	0.690	24	8	1	1.00	0	0	10	0	10	0.690
	27-Aug	Silver chub		0	0	5	0	5	0.050	24	8	1	1.00	0	0	5	0	5	0.050
	27-Aug	Smallmouth bass	JUV(<150mm)	0	0	15	0	15	0.325	24	8	1	1.00	0	0	15	0	15	0.325
	27-Aug	Spottail shiner		0	0	5	0	5	0.055	24	8	1	1.00	0	0	5	0	5	0.055
	27-Aug	Trout-perch		0	0	5	0	5	0.025	24	8	1	1.00	0	0	5	0	5	0.025
	27-Aug	White bass	JUV(<150mm)	0	0	60	0	60	0.455	24	8	1	1.00	0	0	60	0	60	0.455
	27-Aug	White perch	JUV(<150mm)	0	0	2,340	0	2,340	9.985	24	8	1	1.00	0	0	2,340	0	2,340	9.985
37	**27-Aug-05**	**TOTAL**		**0**	**0**	**2,685**	**0**	**2,685**	**16.360**					**0**	**0**	**2,685**	**0**	**2,685**	**16.360**
	30-Aug	Bluegill	JUV(<100mm)	0	0	8	0	8	0.036	23.5	8	1	1.02	0	0	8	0	8	0.037
	30-Aug	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.016	23.5	8	1	1.02	0	0	4	0	4	0.016
	30-Aug	Freshwater drum	JUV(<200mm)	0	0	12	0	12	1.232	23.5	8	1	1.02	0	0	12	0	12	1.257
	30-Aug	Gizzard shad	JUV(<200mm)	0	0	16	0	16	0.148	23.5	8	1	1.02	0	0	16	0	16	0.151
	30-Aug	Goldfish		0	0	4	0	4	0.032	23.5	8	1	1.02	0	0	4	0	4	0.033
	30-Aug	Pumpkinseed		0	0	4	0	4	0.348	23.5	8	1	1.02	0	0	4	0	4	0.355
	30-Aug	Rock bass	adult	0	0	4	0	4	0.144	23.5	8	1	1.02	0	0	4	0	4	0.147
	30-Aug	Round goby		0	0	4	0	4	0.148	23.5	8	1	1.02	0	0	4	0	4	0.151
	30-Aug	Silver chub		0	0	4	0	4	0.256	23.5	8	1	1.02	0	0	4	0	4	0.261
	30-Aug	Smallmouth bass	JUV(<150mm)	0	0	12	0	12	0.212	23.5	8	1	1.02	0	0	12	0	12	0.216
	30-Aug	Spottail shiner		0	0	8	0	8	0.032	23.5	8	1	1.02	0	0	8	0	8	0.033
	30-Aug	Trout-perch		0	0	8	0	8	0.076	23.5	8	1	1.02	0	0	8	0	8	0.078
	30-Aug	Walleye	adult	0	0	0	4	4	0.216	23.5	8	1	1.02	0	0	0	4	4	0.220
	30-Aug	White bass	JUV(<150mm)	0	0	24	0	24	0.120	23.5	8	1	1.02	0	0	24	0	24	0.122
	30-Aug	White perch	JUV(<150mm)	0	0	364	0	364	2.044	23.5	8	1	1.02	0	0	371	0	371	2.085
38	**30-Aug-05**	**TOTAL**		**0**	**0**	**476**	**4**	**480**	**5.060**					**0**	**0**	**486**	**4**	**490**	**5.161**
	31-Aug	Freshwater drum	JUV(<200mm)	0	0	240	0	240	2.768	23.75	8	1	1.01	0	0	242	0	242	2.796
	31-Aug	Gizzard shad	JUV(<200mm)	0	0	0	16	16	0.048	23.75	8	1	1.01	0	0	0	16	16	0.048
	31-Aug	White bass	JUV(<150mm)	0	0	128	0	128	0.288	23.75	8	1	1.01	0	0	129	0	129	0.291
	31-Aug	White perch	JUV(<150mm)	0	0	2,224	32	2,256	8.896	23.75	8	1	1.01	0	0	2,246	32	2,279	8.985
39	**31-Aug-05**	**TOTAL**		**0**	**0**	**2,592**	**48**	**2,640**	**12.000**					**0**	**0**	**2,618**	**48**	**2,666**	**12.120**
	8-Sep	Bluegill	JUV(<100mm)	0	0	24	8	32	0.204	24.5	8	1	0.98	0	0	24	8	31	0.200
	8-Sep	Channel catfish	JUV(<150mm)	0	0	12	0	12	0.068	24.5	8	1	0.98	0	0	12	0	12	0.067
	8-Sep	Channel catfish	adult	0	0	100	8	108	1.188	24.5	8	1	0.98	0	0	98	8	106	1.164
	8-Sep	Freshwater drum	JUV(<200mm)	0	0	96	4	100	3.776	24.5	8	1	0.98	0	0	94	4	98	3.700
	8-Sep	Pumpkinseed		0	0	4	0	4	0.008	24.5	8	1	0.98	0	0	4	0	4	0.008
	8-Sep	Round goby		0	0	16	0	16	0.160	24.5	8	1	0.98	0	0	16	0	16	0.157
	8-Sep	Trout-perch		0	0	24	0	24	0.076	24.5	8	1	0.98	0	0	24	0	24	0.074
	8-Sep	Walleye	JUV(<200mm)	0	0	8	0	8	0.028	24.5	8	1	0.98	0	0	8	0	8	0.027
	8-Sep	White bass	JUV(<150mm)	0	0	72	0	72	0.348	24.5	8	1	0.98	0	0	71	0	71	0.341
	8-Sep	White perch	JUV(<150mm)	0	0	4,036	0	4,036	18.528	24.5	8	1	0.98	0	0	3,955	0	3,955	18.157
40	**8-Sep-05**	**TOTAL**		**0**	**0**	**4,392**	**20**	**4,412**	**24.384**					**0**	**0**	**4,304**	**20**	**4,324**	**23.896**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	9-Sep	Bluegill	JUV(<100mm)	0	0	32	0	32	0.024	24	8	1	1.00	0	0	32	0	32	0.024
	9-Sep	Emerald shiner		0	0	16	0	16	0.096	24	8	1	1.00	0	0	16	0	16	0.096
	9-Sep	Freshwater drum	JUV(<200mm)	0	0	96	0	96	7.536	24	8	1	1.00	0	0	96	0	96	7.536
	9-Sep	Gizzard shad	JUV(<200mm)	0	0	32	16	48	0.288	24	8	1	1.00	0	0	32	16	48	0.288
	9-Sep	Round goby		0	0	16	0	16	0.352	24	8	1	1.00	0	0	16	0	16	0.352
	9-Sep	Spottail shiner		0	0	48	0	48	0.256	24	8	1	1.00	0	0	48	0	48	0.256
	9-Sep	White perch	JUV(<150mm)	0	0	3,408	112	3,520	15.664	24	8	1	1.00	0	0	3,408	112	3,520	15.664
41	**9-Sep-05**	**TOTAL**		**0**	**0**	**3,648**	**128**	**3,776**	**24.216**					**0**	**0**	**3,648**	**128**	**3,776**	**24.216**
	13-Sep	Bluegill	JUV(<100mm)	0	0	4	0	4	0.031	24	8	1	1.00	0	0	4	0	4	0.031
	13-Sep	Channel catfish	JUV(<150mm)	0	0	6	0	6	0.100	24	8	1	1.00	0	0	6	0	6	0.100
	13-Sep	Emerald shiner		0	0	2	0	2	0.007	24	8	1	1.00	0	0	2	0	2	0.007
	13-Sep	Freshwater drum	JUV(<200mm)	0	0	52	0	52	1.796	24	8	1	1.00	0	0	52	0	52	1.796
	13-Sep	Gizzard shad	JUV(<200mm)	0	0	65	0	65	0.985	24	8	1	1.00	0	0	65	0	65	0.985
	13-Sep	Largemouth bass	JUV(<150mm)	0	0	1	0	1	0.021	24	8	1	1.00	0	0	1	0	1	0.021
	13-Sep	Logperch		0	0	1	0	1	0.004	24	8	1	1.00	0	0	1	0	1	0.004
	13-Sep	Pumpkinseed		0	0	1	0	1	0.010	24	8	1	1.00	0	0	1	0	1	0.010
	13-Sep	Redhorse sucker		0	0	1	0	1	1.001	24	8	1	1.00	0	0	1	0	1	1.001
	13-Sep	Round goby		0	0	31	0	31	0.375	24	8	1	1.00	0	0	31	0	31	0.375
	13-Sep	Silver lamprey		0	0	1	0	1	0.029	24	8	1	1.00	0	0	1	0	1	0.029
	13-Sep	Smallmouth bass	JUV(<150mm)	0	0	18	0	18	0.457	24	8	1	1.00	0	0	18	0	18	0.457
	13-Sep	Spottail shiner		0	0	25	0	25	0.132	24	8	1	1.00	0	0	25	0	25	0.132
	13-Sep	Trout-perch		0	0	4	0	4	0.014	24	8	1	1.00	0	0	4	0	4	0.014
	13-Sep	Walleye	adult	0	0	3	0	3	0.519	24	8	1	1.00	0	0	3	0	3	0.519
	13-Sep	White bass	JUV(<150mm)	0	0	69	0	69	0.717	24	8	1	1.00	0	0	69	0	69	0.717
	13-Sep	White perch	JUV(<150mm)	0	0	221	0	221	1.024	24	8	1	1.00	0	0	221	0	221	1.024
	13-Sep	Yellow perch	JUV(<150mm)	0	0	4	0	4	0.222	24	8	1	1.00	0	0	4	0	4	0.222
42	**13-Sep-05**	**TOTAL**		**0**	**0**	**509**	**0**	**509**	**7.444**					**0**	**0**	**509**	**0**	**509**	**7.444**
	14-Sep	Bluegill	JUV(<100mm)	0	0	4	0	4	0.010	24.25	8	1	0.99	0	0	4	0	4	0.010
	14-Sep	Bluntnose minnow		0	0	1	0	1	0.006	24.25	8	1	0.99	0	0	1	0	1	0.006
	14-Sep	Channel catfish	JUV(<150mm)	0	0	6	0	6	0.067	24.25	8	1	0.99	0	0	6	0	6	0.066
	14-Sep	Common carp	JUV(<150mm)	0	0	1	0	1	0.040	24.25	8	1	0.99	0	0	1	0	1	0.040
	14-Sep	Emerald shiner		0	0	1	0	1	0.001	24.25	8	1	0.99	0	0	1	0	1	0.001
	14-Sep	Freshwater drum	JUV(<200mm)	0	0	33	0	33	1.963	24.25	8	1	0.99	0	0	33	0	33	1.943
	14-Sep	Gizzard shad	JUV(<200mm)	0	0	53	2	55	0.619	24.25	8	1	0.99	0	0	52	2	54	0.613
	14-Sep	Green sunfish		0	0	2	0	2	0.037	24.25	8	1	0.99	0	0	2	0	2	0.037
	14-Sep	Hybrid sunfish		0	0	1	0	1	0.002	24.25	8	1	0.99	0	0	1	0	1	0.002
	14-Sep	Logperch		0	0	5	0	5	0.032	24.25	8	1	0.99	0	0	5	0	5	0.032
	14-Sep	Pumpkinseed		0	0	2	0	2	0.009	24.25	8	1	0.99	0	0	2	0	2	0.009
	14-Sep	Round goby		0	1	10	1	12	0.216	24.25	8	1	0.99	0	1	10	1	12	0.214
	14-Sep	Silver chub		0	0	1	0	1	0.048	24.25	8	1	0.99	0	0	1	0	1	0.048
	14-Sep	Silver lamprey		0	0	1	0	1	0.035	24.25	8	1	0.99	0	0	1	0	1	0.035
	14-Sep	Smallmouth bass	JUV(<150mm)	0	0	5	0	5	0.082	24.25	8	1	0.99	0	0	5	0	5	0.081
	14-Sep	Spottail shiner		0	0	31	1	32	0.187	24.25	8	1	0.99	0	0	31	1	32	0.185
	14-Sep	Trout-perch		0	0	17	0	17	0.068	24.25	8	1	0.99	0	0	17	0	17	0.067
	14-Sep	White bass	JUV(<150mm)	0	0	48	3	51	0.557	24.25	8	1	0.99	0	0	48	3	50	0.551
	14-Sep	White perch	JUV(<150mm)	0	0	265	5	270	1.315	24.25	8	1	0.99	0	0	262	5	267	1.302
	14-Sep	Yellow perch	JUV(<150mm)	0	0	5	1	6	0.387	24.25	8	1	0.99	0	0	5	1	6	0.383
43	**14-Sep-05**	**TOTAL**		**0**	**1**	**492**	**13**	**506**	**5.681**					**0**	**1**	**487**	**13**	**501**	**5.624**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	19-Sep	Bluegill	JUV(<100mm)	0	0	25	1	26	0.206	24	8	1	1.00	0	0	25	1	26	0.206
	19-Sep	Channel catfish	JUV(<150mm)	0	0	5	0	5	0.067	24	8	1	1.00	0	0	5	0	5	0.067
	19-Sep	Common carp	adult	0	0	1	0	1	0.845	24	8	1	1.00	0	0	1	0	1	0.845
	19-Sep	Emerald shiner		0	0	3	2	5	0.015	24	8	1	1.00	0	0	3	2	5	0.015
	19-Sep	Freshwater drum	JUV(<200mm)	0	0	63	0	63	1.054	24	8	1	1.00	0	0	63	0	63	1.054
	19-Sep	Freshwater drum	adult	0	0	8	0	8	2.325	24	8	1	1.00	0	0	8	0	8	2.325
	19-Sep	Gizzard shad	JUV(<200mm)	0	0	97	10	107	1.603	24	8	1	1.00	0	0	97	10	107	1.603
	19-Sep	Logperch		0	0	4	0	4	0.023	24	8	1	1.00	0	0	4	0	4	0.023
	19-Sep	Pumpkinseed		0	0	5	2	7	0.434	24	8	1	1.00	0	0	5	2	7	0.434
	19-Sep	Rock bass	JUV(<100mm)	0	0	3	0	3	0.053	24	8	1	1.00	0	0	3	0	3	0.053
	19-Sep	Round goby		0	0	33	0	33	0.665	24	8	1	1.00	0	0	33	0	33	0.665
	19-Sep	Silver lamprey		0	0	1	0	1	0.031	24	8	1	1.00	0	0	1	0	1	0.031
	19-Sep	Smallmouth bass	JUV(<150mm)	0	0	23	1	24	0.434	24	8	1	1.00	0	0	23	1	24	0.434
	19-Sep	Spottail shiner		0	0	38	16	54	0.313	24	8	1	1.00	0	0	38	16	54	0.313
	19-Sep	Trout-perch		0	0	33	9	42	0.110	24	8	1	1.00	0	0	33	9	42	0.110
	19-Sep	Walleye	JUV(<200mm)	0	0	3	0	3	0.143	24	8	1	1.00	0	0	3	0	3	0.143
	19-Sep	White bass	JUV(<150mm)	0	0	111	23	134	1.694	24	8	1	1.00	0	0	111	23	134	1.694
	19-Sep	White perch	JUV(<150mm)	0	0	479	14	493	2.988	24	8	1	1.00	0	0	479	14	493	2.988
	19-Sep	White perch	adult	0	0	14	2	16	1.494	24	8	1	1.00	0	0	14	2	16	1.494
	19-Sep	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.129	24	8	1	1.00	0	0	2	0	2	0.129
44	**19-Sep-05**	**TOTAL**		**0**	**0**	**951**	**80**	**1,031**	**14.626**					**0**	**0**	**951**	**80**	**1,031**	**14.626**
	20-Sep	Black buffalo		0	0	0	1	1	0.822	24	8	2/5	2.50	0	0	0	3	3	2.055
	20-Sep	Bluegill	JUV(<100mm)	0	0	15	1	16	0.080	24	8	2/5	2.50	0	0	38	3	40	0.200
	20-Sep	Channel catfish	JUV(<150mm)	0	0	2	2	4	0.068	24	8	2/5	2.50	0	0	5	5	10	0.170
	20-Sep	Emerald shiner		0	0	1	0	1	0.004	24	8	2/5	2.50	0	0	3	0	3	0.010
	20-Sep	Freshwater drum	JUV(<200mm)	0	0	6	17	23	1.382	24	8	2/5	2.50	0	0	15	43	58	3.455
	20-Sep	Gizzard shad	JUV(<200mm)	0	0	28	4	32	0.286	24	8	2/5	2.50	0	0	70	10	80	0.715
	20-Sep	Gizzard shad	adult	0	0	1	0	1	0.490	24	8	2/5	2.50	0	0	3	0	3	1.225
	20-Sep	Logperch		0	0	1	0	1	0.007	24	8	2/5	2.50	0	0	3	0	3	0.018
	20-Sep	Orangespotted sunfish		0	0	2	0	2	0.008	24	8	2/5	2.50	0	0	5	0	5	0.020
	20-Sep	Pumpkinseed		0	0	5	0	5	0.160	24	8	2/5	2.50	0	0	13	0	13	0.400
	20-Sep	Rock bass	adult	0	0	0	1	1	0.182	24	8	2/5	2.50	0	0	0	3	3	0.455
	20-Sep	Round goby		0	0	4	0	4	0.050	24	8	2/5	2.50	0	0	10	0	10	0.125
	20-Sep	Silver lamprey		0	0	1	0	1	0.027	24	8	2/5	2.50	0	0	3	0	3	0.068
	20-Sep	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.041	24	8	2/5	2.50	0	0	8	0	8	0.103
	20-Sep	Spottail shiner		0	0	22	3	25	0.128	24	8	2/5	2.50	0	0	55	8	63	0.320
	20-Sep	Trout-perch		0	0	6	1	7	0.016	24	8	2/5	2.50	0	0	15	3	18	0.040
	20-Sep	Walleye	adult	0	0	1	0	1	0.460	24	8	2/5	2.50	0	0	3	0	3	1.150
	20-Sep	White bass	JUV(<150mm)	0	0	34	2	36	0.266	24	8	2/5	2.50	0	0	85	5	90	0.665
	20-Sep	White bass	adult	0	0	2	0	2	0.087	24	8	2/5	2.50	0	0	5	0	5	0.218
	20-Sep	White perch	JUV(<150mm)	0	0	247	3	250	1.243	24	8	2/5	2.50	0	0	618	8	625	3.108
	20-Sep	White perch	adult	0	0	1	0	1	0.113	24	8	2/5	2.50	0	0	3	0	3	0.283
45	**20-Sep-05**	**TOTAL**		**0**	**0**	**382**	**35**	**417**	**5.920**					**0**	**0**	**955**	**88**	**1,043**	**14.800**
	28-Sep	Black bullhead		0	0	1	0	1	0.004	24	8	1/5	5.00	0	0	5	0	5	0.020
	28-Sep	Bluegill	JUV(<100mm)	0	0	28	1	29	0.114	24	8	1/5	5.00	0	0	140	5	145	0.570
	28-Sep	Channel catfish	JUV(<150mm)	0	0	1	2	3	0.017	24	8	1/5	5.00	0	0	5	10	15	0.085
	28-Sep	Freshwater drum	JUV(<200mm)	0	0	17	1	18	0.370	24	8	1/5	5.00	0	0	85	5	90	1.850
	28-Sep	Gizzard shad	JUV(<200mm)	0	0	34	3	37	0.301	24	8	1/5	5.00	0	0	170	15	185	1.505
	28-Sep	Logperch		0	0	2	0	2	0.015	24	8	1/5	5.00	0	0	10	0	10	0.075
	28-Sep	Pumpkinseed		0	0	1	0	1	0.003	24	8	1/5	5.00	0	0	5	0	5	0.015
	28-Sep	Round goby		0	0	5	0	5	0.047	24	8	1/5	5.00	0	0	25	0	25	0.235
	28-Sep	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.010	24	8	1/5	5.00	0	0	5	0	5	0.050
	28-Sep	Spottail shiner		0	0	23	2	25	0.197	24	8	1/5	5.00	0	0	115	10	125	0.985
	28-Sep	Trout-perch		0	0	48	0	48	0.136	24	8	1/5	5.00	0	0	240	0	240	0.680
	28-Sep	Walleye	adult	0	0	1	0	1	0.401	24	8	1/5	5.00	0	0	5	0	5	2.005
	28-Sep	White bass	JUV(<150mm)	0	0	6	0	6	0.040	24	8	1/5	5.00	0	0	30	0	30	0.200
	28-Sep	White perch	JUV(<150mm)	0	0	306	8	314	1.571	24	8	1/5	5.00	0	0	1,530	40	1,570	7.855
	28-Sep	White perch	adult	0	0	2	0	2	0.298	24	8	1/5	5.00	0	0	10	0	10	1.490
	28-Sep	Yellow perch	JUV(<150mm)	0	0	1	1	2	0.017	24	8	1/5	5.00	0	0	5	5	10	0.085
46	**28-Sep-05**	**TOTAL**		**0**	**0**	**477**	**18**	**495**	**3.541**					**0**	**0**	**2,385**	**90**	**2,475**	**17.705**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	29-Sep	Bluegill	JUV(<100mm)	0	0	10	1	11	0.039	24	8	1/5	5.00	0	0	50	5	55	0.195
	29-Sep	Channel catfish	JUV(<150mm)	0	1	5	0	6	0.064	24	8	1/5	5.00	0	5	25	0	30	0.320
	29-Sep	Freshwater drum	JUV(<200mm)	0	0	9	0	9	0.264	24	8	1/5	5.00	0	0	45	0	45	1.320
	29-Sep	Freshwater drum	adult	0	0	1	0	1	0.476	24	8	1/5	5.00	0	0	5	0	5	2.380
	29-Sep	Gizzard shad	JUV(<200mm)	0	0	38	0	38	0.348	24	8	1/5	5.00	0	0	190	0	190	1.740
	29-Sep	Logperch		0	0	3	0	3	0.031	24	8	1/5	5.00	0	0	15	0	15	0.155
	29-Sep	Orangespotted sunfish		0	0	1	0	1	0.004	24	8	1/5	5.00	0	0	5	0	5	0.020
	29-Sep	Pumpkinseed		0	0	1	0	1	0.003	24	8	1/5	5.00	0	0	5	0	5	0.015
	29-Sep	Round goby		0	3	5	0	8	0.135	24	8	1/5	5.00	0	15	25	0	40	0.675
	29-Sep	Smallmouth bass	JUV(<150mm)	0	0	5	0	5	0.066	24	8	1/5	5.00	0	0	25	0	25	0.330
	29-Sep	Spottail shiner		0	0	42	2	44	0.226	24	8	1/5	5.00	0	0	210	10	220	1.130
	29-Sep	Trout-perch		0	0	57	3	60	0.178	24	8	1/5	5.00	0	0	285	15	300	0.890
	29-Sep	White bass	JUV(<150mm)	0	0	6	0	6	0.112	24	8	1/5	5.00	0	0	30	0	30	0.560
	29-Sep	White perch	JUV(<150mm)	0	0	704	0	704	3.727	24	8	1/5	5.00	0	0	3,520	0	3,520	18.635
	29-Sep	White perch	adult	0	0	1	0	1	0.164	24	8	1/5	5.00	0	0	5	0	5	0.820
	29-Sep	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.236	24	8	1/5	5.00	0	0	15	0	15	1.180
47	**29-Sep-05**	**TOTAL**		**0**	**4**	**891**	**6**	**901**	**6.073**					**0**	**20**	**4,455**	**30**	**4,505**	**30.365**
	3-Oct-05	Bluegill	JUV(<100mm)	0	0	73	0	73	0.257	25.25	8	1/10	9.50	0	0	693	0	693	2.443
	3-Oct-05	Channel catfish	adult	0	0	7	1	8	0.083	25.25	8	1/10	9.50	0	0	66	9	75	0.789
	3-Oct-05	Common carp	adult	0	0	2	1	3	0.006	25.25	8	1/10	9.50	0	0	19	9	28	0.057
	3-Oct-05	Freshwater drum	JUV(<200mm)	0	0	63	2	65	0.981	25.25	8	1/10	9.50	0	0	598	19	617	9.323
	3-Oct-05	Gizzard shad	JUV(<200mm)	0	0	25	6	31	0.294	25.25	8	1/10	9.50	0	0	237	57	294	2.794
	3-Oct-05	Goldfish		0	0	1	0	1	0.079	25.25	8	1/10	9.50	0	0	9	0	9	0.751
	3-Oct-05	Largemouth bass		0	0	2	0	2	0.154	25.25	8	1/10	9.50	0	0	19	0	19	1.464
	3-Oct-05	Logperch		0	0	9	0	9	0.058	25.25	8	1/10	9.50	0	0	85	0	85	0.551
	3-Oct-05	Orangespotted sunfish		0	0	1	0	1	0.004	25.25	8	1/10	9.50	0	0	9	0	9	0.038
	3-Oct-05	Pumpkinseed		0	0	43	0	43	0.174	25.25	8	1/10	9.50	0	0	408	0	408	1.654
	3-Oct-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.005	25.25	8	1/10	9.50	0	0	9	0	9	0.048
	3-Oct-05	Round goby		0	0	8	1	9	0.063	25.25	8	1/10	9.50	0	0	76	9	85	0.599
	3-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	18	1	19	0.237	25.25	8	1/10	9.50	0	0	171	9	180	2.252
	3-Oct-05	Spottail shiner		0	0	58	5	63	0.377	25.25	8	1/10	9.50	0	0	551	47	598	3.583
	3-Oct-05	Trout-perch		0	0	30	1	31	0.104	25.25	8	1/10	9.50	0	0	285	9	294	0.988
	3-Oct-05	White bass	JUV(<150mm)	0	0	16	0	16	0.249	25.25	8	1/10	9.50	0	0	152	0	152	2.366
	3-Oct-05	White perch	JUV(<150mm)	0	0	376	1	377	2.137	25.25	8	1/10	9.50	0	0	3,573	9	3,582	20.310
	3-Oct-05	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.019	25.25	8	1/10	9.50	0	0	28	0	28	0.181
48	**3-Oct-05**	**TOTAL**		**0**	**0**	**736**	**19**	**755**	**5.281**					**0**	**0**	**6,988**	**177**	**7,165**	**50.191**
	4-Oct-05	Bluegill	JUV(<100mm)	0	0	50	2	52	0.183	22.75	8	2/5	2.64	0	0	131	5	136	0.483
	4-Oct-05	Channel catfish	JUV(<150mm)	0	0	9	0	9	0.078	22.75	8	2/5	2.64	0	0	23	0	23	0.206
	4-Oct-05	Emerald shiner		0	0	11	0	11	0.047	22.75	8	2/5	2.64	0	0	29	0	29	0.124
	4-Oct-05	Freshwater drum	JUV(<200mm)	0	0	37	5	42	0.981	22.75	8	2/5	2.64	0	0	97	13	110	2.587
	4-Oct-05	Freshwater drum	adult	0	0	4	0	4	1.622	22.75	8	2/5	2.64	0	0	10	0	10	4.277
	4-Oct-05	Gizzard shad	JUV(<200mm)	0	0	16	1	17	0.169	22.75	8	2/5	2.64	0	0	42	2	44	0.446
	4-Oct-05	Goldfish		0	0	3	0	3	0.060	22.75	8	2/5	2.64	0	0	7	0	7	0.158
	4-Oct-05	Logperch		0	0	8	0	8	0.045	22.75	8	2/5	2.64	0	0	21	0	21	0.119
	4-Oct-05	Orangespotted sunfish		0	0	3	0	3	0.011	22.75	8	2/5	2.64	0	0	7	0	7	0.029
	4-Oct-05	Pumpkinseed		0	0	16	0	16	0.157	22.75	8	2/5	2.64	0	0	42	0	42	0.414
	4-Oct-05	Redhorse sucker		0	0	1	0	1	0.016	22.75	8	2/5	2.64	0	0	2	0	2	0.042
	4-Oct-05	Rock bass	adult	0	0	1	0	1	0.069	22.75	8	2/5	2.64	0	0	2	0	2	0.182
	4-Oct-05	Round goby		0	0	8	0	8	0.054	22.75	8	2/5	2.64	0	0	21	0	21	0.142
	4-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	20	0	20	0.389	22.75	8	2/5	2.64	0	0	52	0	52	1.026
	4-Oct-05	White bass	JUV(<150mm)	0	0	29	1	30	0.447	22.75	8	2/5	2.64	0	0	76	2	78	1.179
	4-Oct-05	White bass	adult	0	0	1	0	1	0.403	22.75	8	2/5	2.64	0	0	2	0	2	1.063
	4-Oct-05	White perch	JUV(<150mm)	0	0	217	4	221	1.148	22.75	8	2/5	2.64	0	0	572	10	582	3.027
	4-Oct-05	White perch	adult	0	0	1	0	1	0.106	22.75	8	2/5	2.64	0	0	2	0	2	0.280
	4-Oct-05	Yellow perch	JUV(<150mm)	0	0	4	0	4	0.133	22.75	8	2/5	2.64	0	0	10	0	10	0.351
49	**4-Oct-05**	**TOTAL**		**0**	**0**	**439**	**13**	**452**	**6.118**					**0**	**0**	**1,148**	**32**	**1,180**	**16.133**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	12-Oct-05	Bluegill	JUV(<100mm)	0	0	7	0	7	0.025	24.17	8	1/40	39.72	0	0	278	0	278	0.993
	12-Oct-05	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.040	24.17	8	1/40	39.72	0	0	158	0	158	1.589
	12-Oct-05	Fathead minnow		0	0	5	1	6	0.148	24.17	8	1/40	39.72	0	0	198	39	237	5.878
	12-Oct-05	Freshwater drum	adult	0	0	128	7	135	1.300	24.17	8	1/40	39.72	0	0	5,084	278	5,362	51.635
	12-Oct-05	Largemouth bass	JUV(<150mm)	0	0	1	0	1	0.664	24.17	8	1/40	39.72	0	0	39	0	39	26.373
	12-Oct-05	Largemouth bass		0	0	1	0	1	0.005	24.17	8	1/40	39.72	0	0	39	0	39	0.199
	12-Oct-05	Round goby		0	0	4	0	4	0.064	24.17	8	1/40	39.72	0	0	158	0	158	2.542
	12-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.074	24.17	8	1/40	39.72	0	0	119	0	119	2.939
	12-Oct-05	Spottail shiner		0	0	13	2	15	0.077	24.17	8	1/40	39.72	0	0	516	79	595	3.058
	12-Oct-05	Trout-perch		0	0	24	1	25	0.086	24.17	8	1/40	39.72	0	0	953	39	992	3.416
	12-Oct-05	White bass	JUV(<150mm)	0	0	2	0	2	0.066	24.17	8	1/40	39.72	0	0	79	0	79	2.621
	12-Oct-05	White perch	adult	0	0	2	0	2	0.203	24.17	8	1/40	39.72	0	0	79	0	79	8.063
	12-Oct-05	White perch	JUV (<150mm)	0	0	325	4	329	2.217	24.17	8	1/40	39.72	0	0	12,908	158	13,066	88.057
50	**12-Oct-05**	**TOTAL**		**0**	**0**	**519**	**15**	**534**	**4.969**					**0**	**0**	**20,608**	**593**	**21,201**	**197.364**
	13-Oct-05	Black bullhead		0	0	1	0	1	0.295	23.25	8	1/12	12.39	0	0	12	0	12	3.654
	13-Oct-05	Bluegill	JUV(<100mm)	0	0	5	0	5	0.031	23.25	8	1/12	12.39	0	0	61	0	61	0.384
	13-Oct-05	Channel catfish	adult	0	0	13	0	13	0.141	23.25	8	1/12	12.39	0	0	161	0	161	1.747
	13-Oct-05	Freshwater drum	JUV(<200mm)	0	0	21	0	21	0.643	23.25	8	1/12	12.39	0	0	260	0	260	7.965
	13-Oct-05	Gizzard shad	JUV(<200mm)	0	0	75	3	78	0.982	23.25	8	1/12	12.39	0	0	929	37	966	12.164
	13-Oct-05	Logperch		0	0	2	0	2	0.014	23.25	8	1/12	12.39	0	0	24	0	24	0.173
	13-Oct-05	Northern pike		0	0	1	0	1	0.247	23.25	8	1/12	12.39	0	0	12	0	12	3.060
	13-Oct-05	Round goby		0	0	4	0	4	0.121	23.25	8	1/12	12.39	0	0	49	0	49	1.499
	13-Oct-05	Sea lamprey		0	0	1	0	1	0.072	23.25	8	1/12	12.39	0	0	12	0	12	0.892
	13-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.013	23.25	8	1/12	12.39	0	0	12	0	12	0.161
	13-Oct-05	Spottail shiner		0	0	16	2	18	0.129	23.25	8	1/12	12.39	0	0	198	24	222	1.598
	13-Oct-05	Trout-perch		0	0	85	2	87	0.299	23.25	8	1/12	12.39	0	0	1,052	24	1,076	3.704
	13-Oct-05	White bass	JUV(<150mm)	0	0	4	0	4	0.064	23.25	8	1/12	12.39	0	0	49	0	49	0.793
	13-Oct-05	White perch	JUV(<150mm)	0	0	183	1	184	1.209	23.25	8	1/12	12.39	0	0	2,266	12	2,278	14.976
	13-Oct-05	White perch	adult	0	0	1	0	1	0.132	23.25	8	1/12	12.39	0	0	12	0	12	1.635
	13-Oct-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.099	23.25	8	1/12	12.39	0	0	24	0	24	1.226
51	**13-Oct-05**	**TOTAL**		**0**	**0**	**415**	**8**	**423**	**4.491**					**0**	**0**	**5,133**	**97**	**5,230**	**55.630**
	18-Oct-05	Bluegill	JUV(<100mm)	0	0	8	0	8	0.019	25	8	1/16	15.36	0	0	122	0	122	0.292
	18-Oct-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.012	25	8	1/16	15.36	0	0	15	0	15	0.184
	18-Oct-05	Freshwater drum	JUV(<200mm)	0	0	12	0	12	0.247	25	8	1/16	15.36	0	0	184	0	184	3.794
	18-Oct-05	Gizzard shad	JUV(<200mm)	0	0	422	3	425	4.020	25	8	1/16	15.36	0	0	6,481	46	6,527	61.741
	18-Oct-05	Round goby		0	0	1	0	1	0.013	25	8	1/16	15.36	0	0	15	0	15	0.200
	18-Oct-05	White bass	JUV(<150mm)	0	0	2	0	2	0.019	25	8	1/16	15.36	0	0	30	0	30	0.292
	18-Oct-05	White perch	JUV(<150mm)	0	0	32	0	32	0.200	25	8	1/16	15.36	0	0	491	0	491	3.072
52	**18-Oct-05**	**TOTAL**		**0**	**0**	**478**	**3**	**481**	**4.530**					**0**	**0**	**7,338**	**46**	**7,384**	**69.575**
	19-Oct-05	Bluegill	JUV(<100mm)	0	0	9	0	9	0.035	21.5	8	1/10	11.16	0	0	100	0	100	0.391
	19-Oct-05	Brook silverside		0	0	1	0	1	0.002	21.5	8	1/10	11.16	0	0	11	0	11	0.022
	19-Oct-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.050	21.5	8	1/10	11.16	0	0	33	0	33	0.558
	19-Oct-05	Emerald shiner		0	0	1	0	1	0.002	21.5	8	1/10	11.16	0	0	11	0	11	0.022
	19-Oct-05	Freshwater drum	JUV(<200mm)	0	0	10	0	10	0.158	21.5	8	1/10	11.16	0	0	111	0	111	1.764
	19-Oct-05	Gizzard shad	JUV(<200mm)	0	0	166	5	171	1.577	21.5	8	1/10	11.16	0	0	1,853	55	1,908	17.604
	19-Oct-05	Orangespotted sunfish		0	0	1	0	1	0.002	21.5	8	1/10	11.16	0	0	11	0	11	0.022
	19-Oct-05	Pumpkinseed		0	0	1	0	1	0.004	21.5	8	1/10	11.16	0	0	11	0	11	0.045
	19-Oct-05	Round goby		0	0	3	0	3	0.032	21.5	8	1/10	11.16	0	0	33	0	33	0.357
	19-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.012	21.5	8	1/10	11.16	0	0	22	0	22	0.134
	19-Oct-05	Spottail shiner		0	0	2	0	2	0.009	21.5	8	1/10	11.16	0	0	22	0	22	0.100
	19-Oct-05	Trout-perch		0	0	3	0	3	0.011	21.5	8	1/10	11.16	0	0	33	0	33	0.123
	19-Oct-05	White bass	JUV(<150mm)	0	0	3	0	3	0.037	21.5	8	1/10	11.16	0	0	33	0	33	0.413
	19-Oct-05	White perch	JUV(<150mm)	0	0	118	0	118	0.740	21.5	8	1/10	11.16	0	0	1,317	0	1,317	8.261
	19-Oct-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.007	21.5	8	1/10	11.16	0	0	22	0	22	0.078
53	**19-Oct-05**	**TOTAL**		**0**	**0**	**325**	**5**	**330**	**2.678**					**0**	**0**	**3,623**	**55**	**3,678**	**29.895**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	24-Oct-05	Bluegill	JUV(<100mm)	0	0	11	1	12	0.037	23.57	8	1/5	5.09	0	0	56	5	61	0.188
	24-Oct-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.007	23.57	8	1/5	5.09	0	0	5	0	5	0.036
	24-Oct-05	Emerald shiner		0	0	1	0	1	0.001	23.57	8	1/5	5.09	0	0	5	0	5	0.005
	24-Oct-05	Freshwater drum	adult	0	0	23	0	23	0.505	23.57	8	1/5	5.09	0	0	117	0	117	2.571
	24-Oct-05	Gizzard shad	JUV(<200mm)	0	0	919	2	921	9.620	23.57	8	1/5	5.09	0	0	4,678	10	4,688	48.975
	24-Oct-05	Pumpkinseed		0	0	1	0	1	0.005	23.57	8	1/5	5.09	0	0	5	0	5	0.025
	24-Oct-05	Rock bass	adult		2	8	0	10	0.112	23.57	8	1/5	5.09	0	10	40	0	50	0.570
	24-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.083	23.57	8	1/5	5.09	0	0	20	0	20	0.423
	24-Oct-05	Spottail shiner		0	0	23	0	23	0.150	23.57	8	1/5	5.09	0	0	117	0	117	0.764
	24-Oct-05	Trout-perch		0	0	8	0	8	0.027	23.57	8	1/5	5.09	0	0	40	0	40	0.137
	24-Oct-05	White bass	JUV(<150mm)	0	0	6	0	6	0.083	23.57	8	1/5	5.09	0	0	30	0	30	0.423
	24-Oct-05	White perch	JUV(<150mm)	0	0	70	0	70	0.468	23.57	8	1/5	5.09	0	0	356	0	356	2.383
	24-Oct-05	White sucker		0	0	1	0	1	0.650	23.57	8	1/5	5.09	0	0	5	0	5	3.309
54	**24-Oct-05**	**TOTAL**		**0**	**2**	**1,076**	**3**	**1,081**	**11.748**					**0**	**10**	**5,474**	**15**	**5,499**	**59.809**
	25-Oct-05	Bluegill	JUV(<100mm)	0	0	6	0	6	0.022	21.25	8	1/10	11.29	0	0	67	0	67	0.248
	25-Oct-05	Channel catfish	JUV(<150mm)	0	0	2	0	2	0.007	21.25	8	1/10	11.29	0	0	22	0	22	0.079
	25-Oct-05	Freshwater drum	JUV(<200mm)	0	0	14	0	14	0.257	21.25	8	1/10	11.29	0	0	158	0	158	2.903
	25-Oct-05	Gizzard shad	JUV(<200mm)	0	0	354	0	354	3.028	21.25	8	1/10	11.29	0	0	3,998	0	3,998	34.198
	25-Oct-05	Goldfish		0	0	2	0	2	0.022	21.25	8	1/10	11.29	0	0	22	0	22	0.248
	25-Oct-05	Pumpkinseed		0	0	1	0	1	0.006	21.25	8	1/10	11.29	0	0	11	0	11	0.068
	25-Oct-05	Round goby		0	0	2	0	2	0.019	21.25	8	1/10	11.29	0	0	22	0	22	0.215
	25-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	5	0	5	0.034	21.25	8	1/10	11.29	0	0	56	0	56	0.384
	25-Oct-05	Spottail shiner		0	0	17	0	17	0.093	21.25	8	1/10	11.29	0	0	191	0	191	1.050
	25-Oct-05	Trout-perch		0	0	63	0	63	0.213	21.25	8	1/10	11.29	0	0	711	0	711	2.406
	25-Oct-05	White perch	JUV(<150mm)	0	0	222	0	222	1.429	21.25	8	1/10	11.29	0	0	2,507	0	2,507	16.139
	25-Oct-05	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.018	21.25	8	1/10	11.29	0	0	33	0	33	0.203
55	**25-Oct-05**			**0**	**0**	**691**	**0**	**691**	**5.148**					**0**	**0**	**7,798**	**0**	**7,798**	**58.142**
	2-Nov-05	Bluegill	JUV(<100mm)	0	0	18	0	18	0.065	23.67	8	1/22	22.63	0	0	407	0	407	1.471
	2-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.011	23.67	8	1/22	22.63	0	0	22	0	22	0.249
	2-Nov-05	Gizzard shad	JUV(<200mm)	0	0	1,294	2	1,296	12.270	23.67	8	1/22	22.63	0	0	29,284	45	29,329	277.682
	2-Nov-05	Round goby		0	0	1	0	1	0.004	23.67	8	1/22	22.63	0	0	22	0	22	0.091
	2-Nov-05	White perch	JUV(<150mm)	0	0	7	0	7	0.048	23.67	8	1/22	22.63	0	0	158	0	158	1.086
56	**2-Nov-05**	**TOTAL**		**0**	**0**	**1,321**	**2**	**1,323**	**12.398**					**0**	**0**	**29,893**	**45**	**29,938**	**280.579**
	3-Nov-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.025	22	8	1/16	17.45	0	0	52	0	52	0.436
	3-Nov-05	Freshwater drum	JUV(<200mm)	0	0	3	0	3	0.050	22	8	1/16	17.45	0	0	52	0	52	0.873
	3-Nov-05	Freshwater drum	adult	0	0	1	0	1	0.300	22	8	1/16	17.45	0	0	17	0	17	5.237
	3-Nov-05	Gizzard shad	JUV(<200mm)	0	0	359	6	365	3.861	22	8	1/16	17.45	0	0	6,266	104	6,370	67.394
	3-Nov-05	Goldfish		0	0	1	0	1	0.010	22	8	1/16	17.45	0	0	17	0	17	0.175
	3-Nov-05	Largemouth bass		0	0	1	0	1	0.126	22	8	1/16	17.45	0	0	17	0	17	2.199
	3-Nov-05	Round goby		0	0	2	0	2	0.164	22	8	1/16	17.45	0	0	34	0	34	2.863
	3-Nov-05	White bass	JUV(<150mm)	0	0	23	0	23	0.156	22	8	1/16	17.45	0	0	401	0	401	2.723
	3-Nov-05	White crappie	JUV(<150mm)	0	0	1	0	1	0.005	22	8	1/16	17.45	0	0	17	0	17	0.087
57	**3-Nov-05**	**TOTAL**		**0**	**0**	**394**	**6**	**400**	**4.697**					**0**	**0**	**6,873**	**104**	**6,977**	**81.986**
	10-Nov-05	Bluegill	JUV(<100mm)	0	0	8	0	8	0.019	24	8	1/41	41.05	0	0	328	0	328	0.780
	10-Nov-05	Freshwater drum	JUV(<200mm)	0	0	2	0	2	0.032	24	8	1/41	41.05	0	0	82	0	82	1.314
	10-Nov-05	Freshwater drum	adult	0	0	1	0	1	0.198	24	8	1/41	41.05	0	0	41	0	41	8.128
	10-Nov-05	Gizzard shad	JUV(<200mm)	0	0	1,167	0	1,167	12.270	24	8	1/41	41.05	0	0	47,905	0	47,905	503.684
	10-Nov-05	Goldfish		0	0	1	0	1	0.008	24	8	1/41	41.05	0	0	41	0	41	0.328
	10-Nov-05	Pumpkinseed		0	0	1	0	1	0.004	24	8	1/41	41.05	0	0	41	0	41	0.164
	10-Nov-05	Round goby		0	0	1	0	1	0.007	24	8	1/41	41.05	0	0	41	0	41	0.287
	10-Nov-05	Spottail shiner		0	0	2	1	3	0.015	24	8	1/41	41.05	0	0	82	41	123	0.616
	10-Nov-05	White perch	JUV(<150mm)	0	0	5	0	5	0.060	24	8	1/41	41.05	0	0	205	0	205	2.463
	10-Nov-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.007	24	8	1/41	41.05	0	0	41	0	41	0.287
58	**10-Nov-05**	**TOTAL**		**0**	**0**	**1,189**	**1**	**1,190**	**12.620**					**0**	**0**	**48,807**	**41**	**48,848**	**518.051**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	11-Nov-05	Bluegill	JUV(<100mm)	0	0	8	1	9	0.022	24	8	1/31	30.67	0	0	245	30	275	0.675
	11-Nov-05	Brown bullhead		0	0	1	0	1	0.008	24	8	1/31	30.67	0	0	30	0	30	0.245
	11-Nov-05	Emerald shiner		0	0	1	0	1	0.003	24	8	1/31	30.67	0	0	30	0	30	0.092
	11-Nov-05	Gizzard shad	JUV(<200mm)	0	0	1,071	11	1,082	13.230	24	8	1/31	30.67	0	0	32,847	337	33,184	405.764
	11-Nov-05	Goldfish		0	0	1	0	1	0.012	24	8	1/31	30.67	0	0	30	0	30	0.368
	11-Nov-05	Round goby		0	0	3	0	3	0.041	24	8	1/31	30.67	0	0	92	0	92	1.257
	11-Nov-05	Spottail shiner		0	0	2	2	4	0.025	24	8	1/31	30.67	0	0	61	61	122	0.767
	11-Nov-05	White bass	adult	0	0	1	0	1	0.071	24	8	1/31	30.67	0	0	30	0	30	2.178
	11-Nov-05	White perch	JUV(<150mm)	0	0	3	0	3	0.016	24	8	1/31	30.67	0	0	92	0	92	0.491
	11-Nov-05	Yellow perch	adult	0	1	0	0	1	0.155	24	8	1/31	30.67	0	30	0	0	30	4.754
	11-Nov-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.010	24	8	1/31	30.67	0	0	30	0	30	0.307
59	**11-Nov-05**			**0**	**1**	**1,092**	**14**	**1,107**	**13.593**					**0**	**30**	**33,487**	**428**	**33,945**	**416.897**
	15-Nov-05	Bluegill	JUV(<100mm)	0	1	5	1	7	0.024	24.73	8	1/20	19.41	0	19	97	19	135	0.466
	15-Nov-05	Brook silverside		0	0	2	0	2	0.003	24.73	8	1/20	19.41	0	0	38	0	38	0.058
	15-Nov-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.008	24.73	8	1/20	19.41	0	0	19	0	19	0.155
	15-Nov-05	Freshwater drum	JUV(<200mm)	0	0	0	1	1	0.030	24.73	8	1/20	19.41	0	0	0	19	19	0.582
	15-Nov-05	Freshwater drum	adult	0	0	641	56	697	8.700	24.73	8	1/20	19.41	0	0	12,441	1,086	13,527	168.867
	15-Nov-05	Longnose gar	adult	0	1		0	1	0.091	24.73	8	1/20	19.41	0	19	0	0	19	1.766
	15-Nov-05	Round goby		0	0	3	1	4	0.131	24.73	8	1/20	19.41	0	0	58	19	77	2.543
	15-Nov-05	Spottail shiner		0	0	7	1	8	0.056	24.73	8	1/20	19.41	0	0	135	19	154	1.087
	15-Nov-05	White perch	JUV(<150mm)	0	0	20	1	21	0.122	24.73	8	1/20	19.41	0	0	388	19	407	2.368
	15-Nov-05	Yellow perch	adult	0	0	1	0	1	0.102	24.73	8	1/20	19.41	0	0	19	0	19	1.980
	15-Nov-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.007	24.73	8	1/20	19.41	0	0	38	0	38	0.136
60	**15-Nov-05**	**TOTAL**		**0**	**2**	**682**	**61**	**745**	**9.274**					**0**	**38**	**13,233**	**1,181**	**14,452**	**180.008**
	16-Nov-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.002	22	8	1/53	58.35	0	0	58	0	58	0.117
	16-Nov-05	Channel catfish	JUV(<150mm)	0	0	2	0	2	0.015	22	8	1/53	58.35	0	0	116	0	116	0.875
	16-Nov-05	Emerald shiner		0	0	5	0	5	0.009	22	8	1/53	58.35	0	0	291	0	291	0.525
	16-Nov-05	Freshwater drum	JUV(<200mm)	0	0	5	0	5	0.105	22	8	1/53	58.35	0	0	291	0	291	6.127
	16-Nov-05	Gizzard shad	JUV(<200mm)	0	0	670	0	670	12.318	22	8	1/53	58.35	0	0	39,096	0	39,096	718.792
	16-Nov-05	Logperch		0	0	1	0	1	0.006	22	8	1/53	58.35	0	0	58	0	58	0.350
	16-Nov-05	Pumpkinseed		0	1	0	0	1	0.055	22	8	1/53	58.35	0	58	0	0	58	3.209
	16-Nov-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.007	22	8	1/53	58.35	0	0	58	0	58	0.408
	16-Nov-05	Round goby		0	0	4	0	4	0.029	22	8	1/53	58.35	0	0	233	0	233	1.692
	16-Nov-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.140	22	8	1/53	58.35	0	0	116	0	116	8.169
	16-Nov-05	Spottail shiner		0	0	33	0	33	0.202	22	8	1/53	58.35	0	0	1,925	0	1,925	11.787
	16-Nov-05	Trout-perch		0	0	1	0	1	0.002	22	8	1/53	58.35	0	0	58	0	58	0.117
	16-Nov-05	White bass	JUV(<150mm)	0	0	2	0	2	0.030	22	8	1/53	58.35	0	0	116	0	116	1.751
	16-Nov-05	White perch	JUV(<150mm)	0	0	34	0	34	0.186	22	8	1/53	58.35	0	0	1,984	0	1,984	10.854
	16-Nov-05	Yellow perch	adult	0	0	1	0	1	0.180	22	8	1/53	58.35	0	0	58	0	58	10.504
	16-Nov-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.009	22	8	1/53	58.35	0	0	58	0	58	0.525
61	**16-Nov-05**	**TOTAL**		**0**	**1**	**763**	**0**	**764**	**13.295**					**0**	**58**	**44,516**	**0**	**44,574**	**775.803**
	21-Nov-05	Bluegill	JUV(<100mm)	0	0	8	0	8	0.020	23.67	8	1/54	54.96	0	0	439	0	439	1.099
	21-Nov-05	Brook silverside		0	0	2	0	2	0.002	23.67	8	1/54	54.96	0	0	109	0	109	0.110
	21-Nov-05	Emerald shiner		0	0	33	0	33	0.103	23.67	8	1/54	54.96	0	0	1,813	0	1,813	5.660
	21-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.133	23.67	8	1/54	54.96	0	0	54	0	54	7.309
	21-Nov-05	Gizzard shad	JUV(<200mm)	0	0	595	0	595	15.063	23.67	8	1/54	54.96	0	0	32,698	0	32,698	827.802
	21-Nov-05	Gizzard shad	adult	0	0	1	0	1	0.091	23.67	8	1/54	54.96	0	0	54	0	54	5.001
	21-Nov-05	Goldfish		0	1	1	0	2	0.044	23.67	8	1/54	54.96	0	54	54	0	108	2.418
	21-Nov-05	Pumpkinseed		0	0	1	0	1	0.004	23.67	8	1/54	54.96	0	0	54	0	54	0.220
	21-Nov-05	Rainbow smelt		0	0	1	0	1	0.001	23.67	8	1/54	54.96	0	0	54	0	54	0.055
	21-Nov-05	Spottail shiner		0	0	3	0	3	0.170	23.67	8	1/54	54.96	0	0	164	0	164	9.343
	21-Nov-05	Trout-perch		0	0	3	0	3	0.007	23.67	8	1/54	54.96	0	0	164	0	164	0.385
	21-Nov-05	Walleye	adult	0	0	2	0	2	0.024	23.67	8	1/54	54.96	0	0	109	0	109	1.319
	21-Nov-05	White crappie	adult	0	14	5	0	19	0.105	23.67	8	1/54	54.96	0	769	274	0	1,043	5.770
	21-Nov-05	Yellow bullhead		0	2	0	0	2	0.181	23.67	8	1/54	54.96	0	109	0	0	109	9.947
	21-Nov-05	Yellow perch	adult	0	0	1	0	1	0.005	23.67	8	1/54	54.96	0	0	54	0	54	0.275
62	**21-Nov-05**	**TOTAL**		**0**	**17**	**657**	**0**	**674**	**15.953**					**0**	**932**	**36,094**	**0**	**37,026**	**876.713**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County SH1, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	22-Nov-05	Emerald shiner		0	0	4	0	4	0.014	22.5	8	1/102	108.83	0	0	435	0	435	1.524
	22-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.006	22.5	8	1/102	108.83	0	0	108	0	108	0.653
	22-Nov-05	Gizzard shad	JUV(<200mm)	0	0	678	0	678	15.454	22.5	8	1/102	108.83	0	0	73,788	0	73,788	1,681.890
	22-Nov-05	Redhorse sucker		0	0	1	0	1	0.820	22.5	8	1/102	108.83	0	0	108	0	108	89.242
	22-Nov-05	Spottail shiner		0	0	1	0	1	0.012	22.5	8	1/102	108.83	0	0	108	0	108	1.306
	22-Nov-05	Trout-perch		0	0	1	0	1	0.003	22.5	8	1/102	108.83	0	0	108	0	108	0.326
	22-Nov-05	Yellow perch	adult	0	1	0	0	1	0.200	22.5	8	1/102	108.83	0	108	0	0	108	21.766
63	**22-Nov-05**	**TOTAL**		**0**	**1**	**686**	**0**	**687**	**16.509**					**0**	**108**	**74,655**	**0**	**74,763**	**1,796.707**
	30-Nov-05	Channel catfish	adult	0	0	1	0	1	0.210	23.75	8	1/54	54.77	0	0	54	0	54	11.502
	30-Nov-05	Emerald shiner		0	0	24	0	24	0.028	23.75	8	1/54	54.77	0	0	1,314	0	1,314	1.534
	30-Nov-05	Gizzard shad	JUV(<200mm)	0	956	156	0	1,112	14.909	23.75	8	1/54	54.77	0	52,361	8,544	0	60,905	816.581
	30-Nov-05	Goldfish		0	0	1	0	1	0.028	23.75	8	1/54	54.77	0	0	54	0	54	1.534
	30-Nov-05	Pumpkinseed		0	1	0	0	1	0.064	23.75	8	1/54	54.77	0	54	0	0	54	3.505
	30-Nov-05	Redhorse sucker		0	0	1	0	1	0.642	23.75	8	1/54	54.77	0	0	54	0	54	35.163
	30-Nov-05	Round goby		0	0	3	0	3	0.033	23.75	8	1/54	54.77	0	0	164	0	164	1.807
	30-Nov-05	Silver lamprey		0	0	1	0	1	0.070	23.75	8	1/54	54.77	0	0	54	0	54	3.834
	30-Nov-05	White bass	adult	0	1	0	0	1	0.055	23.75	8	1/54	54.77	0	54	0	0	54	3.012
	30-Nov-05	White perch	JUV(<150mm)	0	0	3	0	3	0.013	23.75	8	1/54	54.77	0	0	164	0	164	0.712
64	**30-Nov-05**	**TOTAL**		**0**	**958**	**190**	**0**	**1,148**	**16.052**					**0**	**52,469**	**10,402**	**0**	**62,871**	**879.184**
	1-Dec-05	Emerald shiner		0	0	12	0	12	0.025	24.08	8	1/70	69.92	0	0	839	0	839	1.748
	1-Dec-05	Gizzard shad	JUV(<200mm)	0	0	1,227	0	1,227	17.200	24.08	8	1/70	69.92	0	0	85,788	0	85,788	1,202.572
	1-Dec-05	Goldfish		0	0	1	0	1	0.013	24.08	8	1/70	69.92	0	0	69	0	69	0.909
	1-Dec-05	Largemouth bass		0	0	1	0	1	0.271	24.08	8	1/70	69.92	0	0	69	0	69	18.948
	1-Dec-05	Quillback		0	0	1	0	1	0.639	24.08	8	1/70	69.92	0	0	69	0	69	44.677
	1-Dec-05	Round goby		0	0	1	0	1	0.032	24.08	8	1/70	69.92	0	0	69	0	69	2.237
	1-Dec-05	White perch	JUV(<150mm)	0	0	1	0	1	0.006	24.08	8	1/70	69.92	0	0	69	0	69	0.420
65	**1-Dec-05**	**TOTAL**		**0**	**0**	**1,244**	**0**	**1,244**	**18.186**					**0**	**0**	**86,972**	**0**	**86,972**	**1,271.511**
	8-Dec-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.003	24	8	1/26	25.59	0	0	25	0	25	0.077
	8-Dec-05	Emerald shiner		0	0	3	0	3	0.006	24	8	1/26	25.59	0	0	76	0	76	0.154
	8-Dec-05	Gizzard shad	JUV(<200mm)	0	0	1,034	128	1,162	16.270	24	8	1/26	25.59	0	0	26,460	3,275	29,735	416.349
	8-Dec-05	Goldfish		0	0	3	0	3	0.050	24	8	1/26	25.59	0	0	76	0	76	1.280
	8-Dec-05	Rainbow smelt		0	0	1	0	1	0.001	24	8	1/26	25.59	0	0	25	0	25	0.026
	8-Dec-05	Round goby		0	0	2	0	2	0.009	24	8	1/26	25.59	0	0	51	0	51	0.230
	8-Dec-05	Spottail shiner		0	0	1	0	1	0.005	24	8	1/26	25.59	0	0	25	0	25	0.128
	8-Dec-05	Trout-perch		0	0	1	0	1	0.003	24	8	1/26	25.59	0	0	25	0	25	0.077
	8-Dec-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.004	24	8	1/26	25.59	0	0	25	0	25	0.102
66	**8-Dec-05**	**TOTAL**		**0**	**0**	**1,047**	**128**	**1,175**	**16.351**					**0**	**0**	**26,788**	**3,275**	**30,063**	**418.422**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	Life Stage	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
				Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	12-Dec-05	Bluegill	JUV(<100mm)	0	0	3	0	3	0.135	25	8	1/8	7.68	0	0	23	0	23	1.037
	12-Dec-05	Emerald shiner		0	0	4	0	4	0.009	25	8	1/8	7.68	0	0	30	0	30	0.069
	12-Dec-05	Gizzard shad	JUV(<200mm)	0	0	424	0	424	6.010	25	8	1/8	7.68	0	0	3,256	0	3,256	46.157
	12-Dec-05	Goldfish		0	0	5	0	5	0.080	25	8	1/8	7.68	0	0	38	0	38	0.614
	12-Dec-05	Rainbow smelt		0	0	2	0	2	0.002	25	8	1/8	7.68	0	0	15	0	15	0.015
	12-Dec-05	Round goby		0	0	1	0	1	0.012	25	8	1/8	7.68	0	0	7	0	7	0.092
	12-Dec-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.018	25	8	1/8	7.68	0	0	7	0	7	0.138
	12-Dec-05	Spottail shiner		0	0	3	0	3	0.017	25	8	1/8	7.68	0	0	23	0	23	0.131
	12-Dec-05	White perch	JUV(<150mm)	0	0	2	0	2	0.010	25	8	1/8	7.68	0	0	15	0	15	0.077
67	**12-Dec-05**	**TOTAL**		**0**	**0**	**445**	**0**	**445**	**6.293**					**0**	**0**	**3,414**	**0**	**3,414**	**48.330**
	13-Dec-05	Bluegill	JUV(<100mm)	0	0	4	0	4	0.026	23.5	8	2/5	2.55	0	0	10	0	10	0.066
	13-Dec-05	Emerald shiner		0	0	1	0	1	0.004	23.5	8	2/5	2.55	0	0	2	0	2	0.010
	13-Dec-05	Gizzard shad	JUV(<200mm)	0	0	531	94	625	7.120	23.5	8	2/5	2.55	0	0	1,355	239	1,594	18.177
	13-Dec-05	Goldfish		0	0	16	0	16	0.120	23.5	8	2/5	2.55	0	0	40	0	40	0.306
	13-Dec-05	Round goby		0	0	3	0	3	0.028	23.5	8	2/5	2.55	0	0	7	0	7	0.071
	13-Dec-05	Spottail shiner		0	0	3	0	3	0.016	23.5	8	2/5	2.55	0	0	7	0	7	0.041
	13-Dec-05	Trout-perch		0	0	1	0	1	0.011	23.5	8	2/5	2.55	0	0	2	0	2	0.028
	13-Dec-05	White perch	JUV(<150mm)	0	0	1	0	1	0.004	23.5	8	2/5	2.55	0	0	2	0	2	0.010
68	**13-Dec-05**	**TOTAL**		**0**	**0**	**560**	**94**	**654**	**7.329**					**0**	**0**	**1,425**	**239**	**1,664**	**18.711**
	19-Dec-05	Emerald shiner		0	0	23	0	23	0.061	24	8	1/51	51.02	0	0	1,173	0	1,173	3.112
	19-Dec-05	Gizzard shad	JUV(<200mm)	0	0	100	0	100	17.240	24	8	1/51	51.02	0	0	5,102	0	5,102	879.585
	19-Dec-05	Goldfish		0	0	3	0	3	0.037	24	8	1/51	51.02	0	0	153	0	153	1.888
	19-Dec-05	Round goby		0	0	1	0	1	0.026	24	8	1/51	51.02	0	0	51	0	51	1.327
	19-Dec-05	Trout-perch		0	0	2	0	2	0.008	24	8	1/51	51.02	0	0	102	0	102	0.408
	19-Dec-05	White perch	JUV(<150mm)	0	0	12	0	12	0.064	24	8	1/51	51.02	0	0	612	0	612	3.265
	19-Dec-05	Yellow bullhead		0	0	1	0	1	0.006	24	8	1/51	51.02	0	0	51	0	51	0.306
	19-Dec-05	Spotfin shiner		0	0	1	0	1	0.007	24	8	1/51	51.02	0	0	51	0	51	0.357
69	**19-Dec-05**	**TOTAL**		**0**	**0**	**143**	**0**	**143**	**17.449**					**0**	**0**	**7,295**	**0**	**7,295**	**890.248**
	20-Dec-05	Bluegill	JUV(<100mm)	0	0	5	0	5	0.008	24.67	8	1/10	9.73	0	0	48	0	48	0.078
	20-Dec-05	Common carp	adult	0	0	0	1	1	0.448	24.67	8	1/10	9.73	0	0	0	9	9	4.358
	20-Dec-05	Emerald shiner		0	0	7	1	8	0.020	24.67	8	1/10	9.73	0	0	68	9	77	0.195
	20-Dec-05	Gizzard shad	JUV(<200mm)	0	0	588	0	588	8.290	24.67	8	1/10	9.73	0	0	5,720	0	5,720	80.645
	20-Dec-05	Goldfish		0	0	7	0	7	0.043	24.67	8	1/10	9.73	0	0	68	0	68	0.418
	20-Dec-05	Round goby		0	0	1	0	1	0.003	24.67	8	1/10	9.73	0	0	9	0	9	0.029
	20-Dec-05	White perch	JUV(<150mm)	0	0	4	0	4	0.022	24.67	8	1/10	9.73	0	0	38	0	38	0.214
	20-Dec-05	Smallmouth buffalo	adult	0	0	1	0	1	0.847	24.67	8	1/10	9.73	0	0	9	0	9	8.240
70	**20-Dec-05**	**TOTAL**		**0**	**0**	**613**	**2**	**615**	**9.681**					**0**	**0**	**5,960**	**18**	**5,978**	**94.177**
	28-Dec-05	Freshwater drum	JUV(<200mm)	0	0	1,096	0	1,096	14.773	24	8	1/35	35.07	0	0	38,436	0	38,436	518.089
	28-Dec-05	Silver chub		0	0	1	0	1	0.030	24	8	1/35	35.07	0	0	35	0	35	1.052
	28-Dec-05	White perch	JUV(<150mm)	0	0	5	0	5	0.025	24	8	1/35	35.07	0	0	175	0	175	0.877
71	**28-Dec-05**	**TOTAL**		**0**	**0**	**1,102**	**0**	**1,102**	**14.828**					**0**	**0**	**38,646**	**0**	**38,646**	**520.018**
	29-Dec-05	Emerald shiner		0	0	2	0	2	0.008	24	8	1/48	47.83	0	0	95	0	95	0.383
	29-Dec-05	Gizzard shad	JUV(<200mm)	0	0	992	0	992	12.443	24	8	1/48	47.83	0	0	47,447	0	47,447	595.149
	29-Dec-05	Goldfish		0	0	1	0	1	0.008	24	8	1/48	47.83	0	0	47	0	47	0.383
	29-Dec-05	Rainbow smelt		0	0	1	0	1	0.001	24	8	1/48	47.83	0	0	47	0	47	0.048
	29-Dec-05	Spottail shiner		0	0	3	0	3	0.013	24	8	1/48	47.83	0	0	143	0	143	0.622
	29-Dec-05	White perch	JUV(<150mm)	0	0	11	0	11	0.057	24	8	1/48	47.83	0	0	526	0	526	2.726
72	**29-Dec-05**	**TOTAL**		**0**	**0**	**1,010**	**0**	**1,010**	**12.530**					**0**	**0**	**48,305**	**0**	**48,305**	**599.310**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	4-Jan-06	Bluegill	0	0	1	0	1	0.002	24	8	0.018	55.10	0	0	55	0	55	0.110
	4-Jan-06	Brook silverside	0	0	1	0	1	0.001	24	8	0.018	55.10	0	0	55	0	55	0.055
	4-Jan-06	Green sunfish	0	0	1	0	1	0.002	24	8	0.018	55.10	0	0	55	0	55	0.110
	4-Jan-06	Spottail shiner	0	0	4	0	4	0.024	24	8	0.018	55.10	0	0	220	0	220	1.322
	4-Jan-06	Trout-perch	0	0	6	0	6	0.039	24	8	0.018	55.10	0	0	331	0	331	2.149
	4-Jan-06	Emerald shiner	0	0	9	0	9	0.038	24	8	0.018	55.10	0	0	496	0	496	2.094
	4-Jan-06	Gizzard shad	0	0	618	0	618	11.340	24	8	0.018	55.10	0	0	34,052	0	34,052	624.834
73	**4-Jan-06**	**TOTAL**	**0**	**0**	**640**	**0**	**640**	**11.446**					**0**	**0**	**35,264**	**0**	**35,264**	**630.675**
	5-Jan-06	Bluegill	0	0	1	0	1	0.002	24	8	0.081	12.30	0	0	12	0	12	0.025
	5-Jan-06	Spottail shiner	0	0	1	0	1	0.008	24	8	0.081	12.30	0	0	12	0	12	0.098
	5-Jan-06	Goldfish	0	0	2	0	2	0.022	24	8	0.081	12.30	0	0	25	0	25	0.271
	5-Jan-06	Round goby	0	0	1	1	2	0.006	24	8	0.081	12.30	0	0	12	12	25	0.074
	5-Jan-06	White perch	0	0	2	0	2	0.012	24	8	0.081	12.30	0	0	25	0	25	0.148
	5-Jan-06	Gizzard shad	0	0	711	0	711	12.814	24	8	0.081	12.30	0	0	8,748	0	8,748	157.663
74	**5-Jan-06**	**TOTAL**	**0**	**0**	**718**	**1**	**719**	**12.864**					**0**	**0**	**8,834**	**12**	**8,847**	**158.279**
	9-Jan-06	Bowfin	1	0	0	0	1	4.986	24.75	8	0.089	10.91	11	0	0	0	11	54.397
	9-Jan-06	Emerald shiner	0	0	1	0	1	0.010	24.75	8	0.089	10.91	0	0	11	0	11	0.109
	9-Jan-06	White perch	0	0	1	0	1	0.004	24.75	8	0.089	10.91	0	0	11	0	11	0.044
	9-Jan-06	Yellow perch	0	0	1	0	1	0.274	24.75	8	0.089	10.91	0	0	11	0	11	2.989
	9-Jan-06	Gizzard shad	0	0	681	0	681	10.900	24.75	8	0.089	10.91	0	0	7,430	0	7,430	118.919
75	**9-Jan-06**	**TOTAL**	**1**	**0**	**684**	**0**	**685**	**16.174**					**11**	**0**	**7,462**	**0**	**7,473**	**176.458**
	10-Jan-06	Northern longear sunfish	0	0	1	0	1	0.002	23.75	8	0.067	15.05	0	0	15	0	15	0.030
	10-Jan-06	Rock bass	0	0	1	0	1	0.004	23.75	8	0.067	15.05	0	0	15	0	15	0.060
	10-Jan-06	Spottail shiner	0	0	1	0	1	0.004	23.75	8	0.067	15.05	0	0	15	0	15	0.060
	10-Jan-06	Common carp	0	0	2	0	2	0.018	23.75	8	0.067	15.05	0	0	30	0	30	0.271
	10-Jan-06	Goldfish	0	0	2	0	2	0.018	23.75	8	0.067	15.05	0	0	30	0	30	0.271
	10-Jan-06	Bluegill	0	0	3	0	3	0.007	23.75	8	0.067	15.05	0	0	45	0	45	0.105
	10-Jan-06	Emerald shiner	0	0	3	0	3	0.015	23.75	8	0.067	15.05	0	0	45	0	45	0.226
	10-Jan-06	Round goby	0	0	4	0	4	0.084	23.75	8	0.067	15.05	0	0	60	0	60	1.264
	10-Jan-06	Gizzard shad	0	0	719	0	719	11.500	23.75	8	0.067	15.05	0	0	10,821	0	10,821	173.075
76	**10-Jan-06**	**TOTAL**	**0**	**0**	**736**	**0**	**736**	**11.652**					**0**	**0**	**11,077**	**0**	**11,077**	**175.363**
	20-Jan-06	Channel catfish	0	1	0	0	1	0.051	25.25	8	0.004	247.11	0	247	0	0	247	12.604
	20-Jan-06	Spottail shiner	0	0	1	0	1	0.003	25.25	8	0.004	247.11	0	0	247	0	247	0.741
	20-Jan-06	Gizzard shad	0	206	396	0	602	82.971	25.25	8	0.004	247.11	0	50,911	97,867	0	148,778	20,505.453
77	**20-Jan-06**	**TOTAL**	**0**	**207**	**397**	**0**	**604**	**83.025**					**0**	**51,158**	**98,115**	**0**	**149,273**	**20,518.799**
	21-Jan-06	Bluegill	0	0	1	0	1	0.002	24.5	8	0.02	62.01	0	0	62	0	62	0.124
	21-Jan-06	Golden redhorse	0	0	1	0	1	0.852	24.5	8	0.02	62.01	0	0	62	0	62	52.833
	21-Jan-06	Pumpkinseed	0	0	1	0	1	0.036	24.5	8	0.02	62.01	0	0	62	0	62	2.232
	21-Jan-06	Silver lamprey	0	1	0	0	1	0.103	24.5	8	0.02	62.01	0	62	0	0	62	6.387
	21-Jan-06	White perch	0	0	1	0	1	0.004	24.5	8	0.02	62.01	0	0	62	0	62	0.248
	21-Jan-06	Common carp	0	0	2	0	2	0.037	24.5	8	0.02	62.01	0	0	124	0	124	2.294
	21-Jan-06	Emerald shiner	0	0	5	0	5	0.026	24.5	8	0.02	62.01	0	0	310	0	310	1.612
	21-Jan-06	Gizzard shad	0	0	498	0	498	13.091	24.5	8	0.02	62.01	0	0	30,881	0	30,881	811.773
78	**21-Jan-06**	**TOTAL**	**0**	**1**	**509**	**0**	**510**	**14.151**					**0**	**62**	**31,563**	**0**	**31,625**	**877.504**
	25-Jan-06	Goldfish	0	1	0	0	1	0.097	22.58	8	0.05	21.99	0	22	0	0	22	2.133
	25-Jan-06	Northern pike	0	0	1	0	1	1.552	22.58	8	0.05	21.99	0	0	22	0	22	34.128
	25-Jan-06	Pumpkinseed	0	0	1	0	1	0.045	22.58	8	0.05	21.99	0	0	22	0	22	0.990
	25-Jan-06	Round goby	0	0	1	0	1	0.017	22.58	8	0.05	21.99	0	0	22	0	22	0.374
	25-Jan-06	Spottail shiner	0	0	3	0	3	0.013	22.58	8	0.05	21.99	0	0	66	0	66	0.286
	25-Jan-06	Emerald shiner	0	0	9	0	9	0.036	22.58	8	0.05	21.99	0	0	198	0	198	0.792
	25-Jan-06	Gizzard shad	0	0	422	0	422	12.060	22.58	8	0.05	21.99	0	0	9,280	0	9,280	265.199
79	**25-Jan-06**	**TOTAL**	**0**	**1**	**437**	**0**	**438**	**13.820**					**0**	**22**	**9,610**	**0**	**9,632**	**303.902**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	26-Jan-06	Bluegill	0	0	1	0	1	0.003	24.42	8	0.003	298.45	0	0	298	0	298	0.895
	26-Jan-06	Muskellunge	0	1	0	0	1	0.127	24.42	8	0.003	298.45	0	298	0	0	298	37.903
	26-Jan-06	Trout-perch	0	0	1	0	1	0.008	24.42	8	0.003	298.45	0	0	298	0	298	2.388
	26-Jan-06	Spottail shiner	0	0	2	0	2	0.008	24.42	8	0.003	298.45	0	0	597	0	597	2.388
	26-Jan-06	Goldfish	0	1	2	0	3	0.077	24.42	8	0.003	298.45	0	298	597	0	895	22.981
	26-Jan-06	Round goby	0	2	1	0	3	0.046	24.42	8	0.003	298.45	0	597	298	0	895	13.729
	26-Jan-06	White perch	0	0	11	0	11	0.082	24.42	8	0.003	298.45	0	0	3,283	0	3,283	24.473
	26-Jan-06	Emerald shiner	0	2	13	0	15	0.066	24.42	8	0.003	298.45	0	597	3,880	0	4,477	19.698
	26-Jan-06	Gizzard shad	0	0	537	11	548	12.530	24.42	8	0.003	298.45	0	0	160,268	3,283	163,551	3,739.579
80	**26-Jan-06**	**TOTAL**	**0**	**6**	**568**	**11**	**585**	**12.947**					**0**	**1,791**	**169,520**	**3,283**	**174,593**	**3,864.032**
	30-Jan-06	Goldfish	0	0	1	0	1	0.011	25.5	8	0.002	553.17	0	0	553	0	553	6.085
	30-Jan-06	Round goby	0	0	1	0	1	0.008	25.5	8	0.002	553.17	0	0	553	0	553	4.425
	30-Jan-06	White perch	0	0	1	0	1	0.005	25.5	8	0.002	553.17	0	0	553	0	553	2.766
	30-Jan-06	Gizzard shad	0	0	768	0	768	16.754	25.5	8	0.002	553.17	0	0	424,835	0	424,835	9,267.810
81	**30-Jan-06**	**TOTAL**	**0**	**0**	**771**	**0**	**771**	**16.778**					**0**	**0**	**426,494**	**0**	**426,494**	**9,281.086**
	31-Jan-06	Common carp	0	0	1	0	1	0.007	23	8	0.03	38.60	0	0	39	0	39	0.270
	31-Jan-06	Goldfish	0	1	0	0	1	0.022	23	8	0.03	38.60	0	39	0	0	39	0.849
	31-Jan-06	Round goby	0	0	1	0	1	0.019	23	8	0.03	38.60	0	0	39	0	39	0.733
	31-Jan-06	Smallmouth bass	0	0	1	0	1	0.246	23	8	0.03	38.60	0	0	39	0	39	9.496
	31-Jan-06	Bluegill	0	1	1	0	2	0.037	23	8	0.03	38.60	0	39	39	0	77	1.428
	31-Jan-06	Emerald shiner	0	0	2	0	2	0.007	23	8	0.03	38.60	0	0	77	0	77	0.270
	31-Jan-06	White perch	0	0	6	0	6	0.047	23	8	0.03	38.60	0	0	232	0	232	1.814
	31-Jan-06	Gizzard shad	0	0	769	0	769	14.165	23	8	0.03	38.60	0	0	29,683	0	29,683	546.769
82	**31-Jan-06**	**TOTAL**	**0**	**2**	**781**	**0**	**783**	**14.550**					**0**	**77**	**30,147**	**0**	**30,224**	**561.630**
	8-Feb-06	Bluegill	0	0	1	0	1	0.003	22	8	0.003	418.11	0	0	418	0	418	1.254
	8-Feb-06	Round goby	0	0	1	0	1	0.009	22	8	0.003	418.11	0	0	418	0	418	3.763
	8-Feb-06	Goldfish	0	0	2	0	2	0.029	22	8	0.003	418.11	0	0	836	0	836	12.125
	8-Feb-06	Emerald shiner	0	0	25	0	25	0.116	22	8	0.003	418.11	0	0	10,453	0	10,453	48.502
	8-Feb-06	Gizzard shad	0	0	731	0	731	15.054	22	8	0.003	418.11	0	0	305,646	0	305,646	6,294.378
83	**8-Feb-06**	**TOTAL**	**0**	**0**	**760**	**0**	**760**	**15.211**					**0**	**0**	**317,771**	**0**	**317,771**	**6,360.023**
	9-Feb-06	Green sunfish	0	0	1	0	1	0.011	24	8	0.06	17.94	0	0	18	0	18	0.197
	9-Feb-06	Emerald shiner	0	0	173	0	173	0.721	24	8	0.06	17.94	0	0	3,104	0	3,104	12.935
	9-Feb-06	Gizzard shad	0	0	875	0	875	18.019	24	8	0.06	17.94	0	0	15,698	0	15,698	323.261
84	**9-Feb-06**	**TOTAL**	**0**	**0**	**1,049**	**0**	**1,049**	**18.751**					**0**	**0**	**18,819**	**0**	**18,819**	**336.393**
	17-Feb-06	White perch	0	0	1	0	1	0.004	23.25	8	0.004	284.38	0	0	284	0	284	1.138
	17-Feb-06	Emerald shiner	0	0	30	0	30	0.117	23.25	8	0.004	284.38	0	0	8,531	0	8,531	33.272
	17-Feb-06	Gizzard shad	0	0	698	14	712	16.929	23.25	8	0.004	284.38	0	0	198,497	3,981	202,479	4,814.269
85	**17-Feb-06**	**TOTAL**	**0**	**0**	**729**	**14**	**743**	**17.050**					**0**	**0**	**207,313**	**3,981**	**211,294**	**4,848.679**
	18-Feb-06	White perch	0	0	1	0	1	0.008	23.58	8	0.01	107.91	0	0	108	0	108	0.863
	18-Feb-06	Bluegill	0	0	6	0	6	0.020	23.58	8	0.01	107.91	0	0	647	0	647	2.158
	18-Feb-06	Emerald shiner	0	0	8	0	8	0.032	23.58	8	0.01	107.91	0	0	863	0	863	3.453
	18-Feb-06	Gizzard shad	0	0	550	0	550	15.026	23.58	8	0.01	107.91	0	0	59,351	0	59,351	1,621.456
86	**18-Feb-06**	**TOTAL**	**0**	**0**	**565**	**0**	**565**	**15.086**					**0**	**0**	**60,969**	**0**	**60,969**	**1,627.930**
	22-Feb-06	Emerald shiner	0	0	1	0	1	0.006	21.5	8	0.05	23.89	0	0	24	0	24	0.143
	22-Feb-06	Goldfish	0	0	2	0	2	0.031	21.5	8	0.05	23.89	0	0	48	0	48	0.741
	22-Feb-06	Yellow perch	0	1	1	0	2	0.410	21.5	8	0.05	23.89	0	24	24	0	48	9.795
	22-Feb-06	Gizzard shad	0	0	577	0	577	15.592	21.5	8	0.05	23.89	0	0	13,785	0	13,785	372.493
87	**22-Feb-06**	**TOTAL**	**0**	**1**	**581**	**0**	**582**	**16.039**					**0**	**24**	**13,880**	**0**	**13,904**	**383.172**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	23-Feb-06	Largemouth bass	0	0	1	0	1	0.008	24.25	8	0.03	38.83	0	0	39	0	39	0.311
	23-Feb-06	Rock bass	0	0	0	1	1	0.119	24.25	8	0.03	38.83	0	0	0	39	39	4.621
	23-Feb-06	Goldfish	0	0	2	0	2	0.017	24.25	8	0.03	38.83	0	0	78	0	78	0.660
	23-Feb-06	Bluegill	0	0	4	0	4	0.021	24.25	8	0.03	38.83	0	0	155	0	155	0.815
	23-Feb-06	Common carp	0	4	2	0	6	0.087	24.25	8	0.03	38.83	0	155	78	0	233	3.378
	23-Feb-06	Spottail shiner	0	0	6	0	6	0.030	24.25	8	0.03	38.83	0	0	233	0	233	1.165
	23-Feb-06	Emerald shiner	0	0	9	0	9	0.026	24.25	8	0.03	38.83	0	0	349	0	349	1.010
	23-Feb-06	Gizzard shad	0	0	487	0	487	10.909	24.25	8	0.03	38.83	0	0	18,910	0	18,910	423.596
88	**23-Feb-06**	**TOTAL**	**0**	**4**	**511**	**1**	**516**	**11.217**					**0**	**155**	**19,842**	**39**	**20,036**	**435.556**
	27-Feb-06	Pumpkinseed	0	0	1	0	1	0.052	24.75	8	0.003	372.79	0	0	373	0	373	19.385
	27-Feb-06	Trout-perch	0	0	1	0	1	0.005	24.75	8	0.003	372.79	0	0	373	0	373	1.864
	27-Feb-06	Goldfish	0	0	2	0	2	0.013	24.75	8	0.003	372.79	0	0	746	0	746	4.846
	27-Feb-06	Emerald shiner	0	0	5	0	5	0.032	24.75	8	0.003	372.79	0	0	1,864	0	1,864	11.929
	27-Feb-06	Bluegill	0	0	6	0	6	0.072	24.75	8	0.003	372.79	0	0	2,237	0	2,237	26.841
	27-Feb-06	White perch	0	0	12	0	12	0.082	24.75	8	0.003	372.79	0	0	4,473	0	4,473	30.569
	27-Feb-06	Gizzard shad	0	0	664	0	664	11.340	24.75	8	0.003	372.79	0	0	247,533	0	247,533	4,227.439
89	**27-Feb-06**	**TOTAL**	**0**	**0**	**691**	**0**	**691**	**11.596**					**0**	**0**	**257,598**	**0**	**257,598**	**4,322.873**
	28-Feb-06	Bluntnose minnow	0	0	1	0	1	0.003	23.25	8	0.02	46.02	0	0	46	0	46	0.138
	28-Feb-06	Goldfish	0	0	1	0	1	0.005	23.25	8	0.02	46.02	0	0	46	0	46	0.230
	28-Feb-06	Rock bass	0	0	1	0	1	0.002	23.25	8	0.02	46.02	0	0	46	0	46	0.092
	28-Feb-06	Yellow perch	0	0	1	0	1	0.019	23.25	8	0.02	46.02	0	0	46	0	46	0.874
	28-Feb-06	Round goby	0	0	2	0	2	0.009	23.25	8	0.02	46.02	0	0	92	0	92	0.414
	28-Feb-06	Common carp	0	0	3	0	3	0.027	23.25	8	0.02	46.02	0	0	138	0	138	1.243
	28-Feb-06	Trout-perch	0	0	3	0	3	0.009	23.25	8	0.02	46.02	0	0	138	0	138	0.414
	28-Feb-06	Spottail shiner	0	0	6	0	6	0.027	23.25	8	0.02	46.02	0	0	276	0	276	1.243
	28-Feb-06	Emerald shiner	0	0	7	0	7	0.023	23.25	8	0.02	46.02	0	0	322	0	322	1.058
	28-Feb-06	White perch	0	0	15	0	15	0.060	23.25	8	0.02	46.02	0	0	690	0	690	2.761
	28-Feb-06	Bluegill	0	0	16	0	16	0.043	23.25	8	0.02	46.02	0	0	736	0	736	1.979
	28-Feb-06	Gizzard shad	0	0	464	0	464	8.363	23.25	8	0.02	46.02	0	0	21,353	0	21,353	384.865
90	**28-Feb-06**	**TOTAL**	**0**	**0**	**520**	**0**	**520**	**8.590**					**0**	**0**	**23,930**	**0**	**23,930**	**395.312**
	9-Mar-06	Longnose gar	0	1	0	0	1	0.546	24.33	8	0.1	9.86	0	10	0	0	10	5.384
	9-Mar-06	Spottail shiner	0	0	1	0	1	0.005	24.33	8	0.1	9.86	0	0	10	0	10	0.049
	9-Mar-06	Bluegill	0	0	1	1	2	0.004	24.33	8	0.1	9.86	0	0	10	10	20	0.039
	9-Mar-06	Round goby	0	0	2	0	2	0.049	24.33	8	0.1	9.86	0	0	20	0	20	0.483
	9-Mar-06	White perch	0	0	5	0	5	0.034	24.33	8	0.1	9.86	0	0	49	0	49	0.335
	9-Mar-06	Gizzard shad	0	0	181	0	181	3.708	24.33	8	0.1	9.86	0	0	1,785	0	1,785	36.561
91	**9-Mar-06**	**TOTAL**	**0**	**1**	**190**	**1**	**192**	**4.346**					**0**	**10**	**1,873**	**10**	**1,893**	**42.852**
	10-Mar-06	Bluegill	0	0	1	0	1	0.002	24.5	8	0.2	4.90	0	0	5	0	5	0.010
	10-Mar-06	Brown bullhead	0	1	0	0	1	0.006	24.5	8	0.2	4.90	0	5	0	0	5	0.029
	10-Mar-06	Emerald shiner	0	0	1	0	1	0.004	24.5	8	0.2	4.90	0	0	5	0	5	0.020
	10-Mar-06	Round goby	0	0	1	0	1	0.007	24.5	8	0.2	4.90	0	0	5	0	5	0.034
	10-Mar-06	Trout-perch	0	0	1	0	1	0.005	24.5	8	0.2	4.90	0	0	5	0	5	0.024
	10-Mar-06	White bass	0	0	1	0	1	0.005	24.5	8	0.2	4.90	0	0	5	0	5	0.024
	10-Mar-06	White perch	0	0	1	0	1	0.008	24.5	8	0.2	4.90	0	0	5	0	5	0.039
	10-Mar-06	Spottail shiner	0	0	3	0	3	0.015	24.5	8	0.2	4.90	0	0	15	0	15	0.073
	10-Mar-06	Gizzard shad		0	290	0	290	6.022	24.5	8	0.2	4.90	0	0	1,420	0	1,420	29.496
92	**10-Mar-06**	**TOTAL**	**0**	**1**	**299**	**0**	**300**	**6.074**					**0**	**5**	**1,465**	**0**	**1,469**	**29.750**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	15-Mar-06	Goldfish	0	0	0	1	1	0.015	24.17	8	0.01	70.82	0	0	0	71	71	1.062
	15-Mar-06	Rock bass	0	0	0	1	1	0.005	24.17	8	0.01	70.82	0	0	0	71	71	0.354
	15-Mar-06	Round goby	0	0	1	0	1	0.014	24.17	8	0.01	70.82	0	0	71	0	71	0.991
	15-Mar-06	Spottail shiner	0	0	0	3	3	0.013	24.17	8	0.01	70.82	0	0	0	212	212	0.921
	15-Mar-06	Trout-perch	0	0	4	0	4	0.025	24.17	8	0.01	70.82	0	0	283	0	283	1.771
	15-Mar-06	Bluegill	0	0	4	5	9	0.025	24.17	8	0.01	70.82	0	0	283	354	637	1.771
	15-Mar-06	White crappie	0	0	3	6	9	0.049	24.17	8	0.01	70.82	0	0	212	425	637	3.470
	15-Mar-06	Emerald shiner	0	0	1	11	12	0.053	24.17	8	0.01	70.82	0	0	71	779	850	3.753
	15-Mar-06	Gizzard shad	0	0	12	104	116	3.459	24.17	8	0.01	70.82	0	0	850	7,365	8,215	244.966
93	**15-Mar-06**	**TOTAL**	**0**	**0**	**25**	**131**	**156**	**3.658**					**0**	**0**	**1,771**	**9,277**	**11,048**	**259.060**
	16-Mar-06	Goldfish	0	0	1	0	1	0.013	24.08	8	0.03	29.32	0	0	29	0	29	0.381
	16-Mar-06	Northern pike	0	1	0	0	1	1.016	24.08	8	0.03	29.32	0	29	0	0	29	29.789
	16-Mar-06	Trout-perch	0	0	1	0	1	0.009	24.08	8	0.03	29.32	0	0	29	0	29	0.264
	16-Mar-06	White perch	0	0	1	0	1	0.007	24.08	8	0.03	29.32	0	0	29	0	29	0.205
	16-Mar-06	Brown bullhead	0	0	2	0	2	0.135	24.08	8	0.03	29.32	0	0	59	0	59	3.958
	16-Mar-06	Pumpkinseed	0	0	2	0	2	0.087	24.08	8	0.03	29.32	0	0	59	0	59	2.551
	16-Mar-06	Yellow perch	0	0	2	0	2	0.258	24.08	8	0.03	29.32	0	0	59	0	59	7.565
	16-Mar-06	Round goby	0	0	3	0	3	0.022	24.08	8	0.03	29.32	0	0	88	0	88	0.645
	16-Mar-06	Spottail shiner	0	0	3	0	3	0.020	24.08	8	0.03	29.32	0	0	88	0	88	0.586
	16-Mar-06	Bluegill	0	0	4	2	6	0.040	24.08	8	0.03	29.32	0	0	117	59	176	1.173
	16-Mar-06	Emerald shiner	0	0	26	5	31	0.124	24.08	8	0.03	29.32	0	0	762	147	909	3.636
	16-Mar-06	Gizzard shad	0	0	400	0	400	4.196	24.08	8	0.03	29.32	0	0	11,728	0	11,728	123.027
94	**16-Mar-06**	**TOTAL**	**0**	**1**	**445**	**7**	**453**	**5.927**					**0**	**29**	**13,047**	**205**	**13,282**	**173.780**
	21-Mar-06	Black crappie	0	0	1	0	1	0.275	23.67	8	0.05	20.21	0	0	20	0	20	5.558
	21-Mar-06	Emerald shiner	0	0	1	0	1	0.006	23.67	8	0.05	20.21	0	0	20	0	20	0.121
	21-Mar-06	Freshwater drum	0	0	1	0	1	0.642	23.67	8	0.05	20.21	0	0	20	0	20	12.975
	21-Mar-06	Goldfish	0	0	1	0	1	0.030	23.67	8	0.05	20.21	0	0	20	0	20	0.606
	21-Mar-06	Silver lamprey	0	1	0	0	1	0.075	23.67	8	0.05	20.21	0	20	0	0	20	1.516
	21-Mar-06	Yellow perch	0	0	1	0	1	0.305	23.67	8	0.05	20.21	0	0	20	0	20	6.164
	21-Mar-06	Bluegill	0	0	2	0	2	0.038	23.67	8	0.05	20.21	0	0	40	0	40	0.768
	21-Mar-06	Spottail shiner	0	0	2	0	2	0.012	23.67	8	0.05	20.21	0	0	40	0	40	0.243
	21-Mar-06	Trout-perch	0	0	2	0	2	0.030	23.67	8	0.05	20.21	0	0	40	0	40	0.606
	21-Mar-06	White perch	0	0	8	0	8	0.058	23.67	8	0.05	20.21	0	0	162	0	162	1.172
	21-Mar-06	Round goby	0	0	13	0	13	0.461	23.67	8	0.05	20.21	0	0	263	0	263	9.317
	21-Mar-06	Gizzard shad	0	0	246	0	246	8.817	23.67	8	0.05	20.21	0	0	4,972	0	4,972	178.192
95	**21-Mar-06**	**TOTAL**	**0**	**1**	**278**	**0**	**279**	**10.749**					**0**	**20**	**5,618**	**0**	**5,639**	**217.237**
	22-Mar-06	Pumpkinseed	0	0	5	0	5	0.500	25.417	8	0.2	4.72	0	0	24	0	24	2.360
	22-Mar-06	Yellow perch	0	0	5	0	5	2.765	25.417	8	0.2	4.72	0	0	24	0	24	13.051
	22-Mar-06	Bluegill	0	0	10	0	10	0.075	25.417	8	0.2	4.72	0	0	47	0	47	0.354
	22-Mar-06	Brook silverside	0	0	10	0	10	0.010	25.417	8	0.2	4.72	0	0	47	0	47	0.047
	22-Mar-06	Goldfish	0	0	10	0	10	0.120	25.417	8	0.2	4.72	0	0	47	0	47	0.566
	22-Mar-06	Silver lamprey	0	5	5	0	10	0.675	25.417	8	0.2	4.72	0	24	24	0	47	3.186
	22-Mar-06	Spottail shiner	0	0	10	0	10	0.040	25.417	8	0.2	4.72	0	0	47	0	47	0.189
	22-Mar-06	Round goby	0	0	15	0	15	0.485	25.417	8	0.2	4.72	0	0	71	0	71	2.289
	22-Mar-06	Emerald shiner	0	0	20	0	20	0.135	25.417	8	0.2	4.72	0	0	94	0	94	0.637
	22-Mar-06	Trout-perch	0	0	30	0	30	0.165	25.417	8	0.2	4.72	0	0	142	0	142	0.779
	22-Mar-06	White perch	0	0	55	0	55	0.385	25.417	8	0.2	4.72	0	0	260	0	260	1.817
	22-Mar-06	Gizzard shad	0	0	1,743	37	1,780	46.777	25.417	8	0.2	4.72	0	0	8,227	175	8,402	220.787
96	**22-Mar-06**	**TOTAL**	**0**	**5**	**1,918**	**37**	**1,960**	**52.132**					**0**	**24**	**9,053**	**175**	**9,251**	**246.063**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	27-Mar-06	Pumpkinseed	0	0	1	0	1	0.149	24	8	0.4	2.50	0	0	3	0	3	0.373
	27-Mar-06	Silver lamprey	0	1	0	0	1	0.109	24	8	0.4	2.50	0	3	0	0	3	0.273
	27-Mar-06	Smallmouth bass	0	0	1	0	1	0.008	24	8	0.4	2.50	0	0	3	0	3	0.020
	27-Mar-06	Yellow perch	0	0	1	0	1	0.038	24	8	0.4	2.50	0	0	3	0	3	0.095
	27-Mar-06	Bluegill	0	0	2	0	2	0.012	24	8	0.4	2.50	0	0	5	0	5	0.030
	27-Mar-06	Goldfish	0	0	2	0	2	0.025	24	8	0.4	2.50	0	0	5	0	5	0.063
	27-Mar-06	Trout-perch	0	0	3	0	3	0.026	24	8	0.4	2.50	0	0	8	0	8	0.065
	27-Mar-06	Round goby	0	0	4	1	5	0.074	24	8	0.4	2.50	0	0	10	3	13	0.185
	27-Mar-06	White perch	0	0	8	0	8	0.087	24	8	0.4	2.50	0	0	20	0	20	0.218
	27-Mar-06	Gizzard shad	0	0	324	71	395	6.946	24	8	0.4	2.50	0	0	810	178	988	17.365
97	**27-Mar-06**	**TOTAL**	**0**	**1**	**346**	**72**	**419**	**7.474**					**0**	**3**	**865**	**180**	**1,048**	**18.685**
	28-Mar-06	Goldfish	0	0	1	0	1	0.023	17.25	8	0.5	2.78	0	0	3	0	3	0.064
	28-Mar-06	Smallmouth bass	0	0	1	0	1	0.207	17.25	8	0.5	2.78	0	0	3	0	3	0.576
	28-Mar-06	Tadpole madtom	0	1	0	0	1	0.005	17.25	8	0.5	2.78	0	3	0	0	3	0.014
	28-Mar-06	Trout-perch	0	0	1	0	1	0.004	17.25	8	0.5	2.78	0	0	3	0	3	0.011
	28-Mar-06	White bass	0	0	1	0	1	0.013	17.25	8	0.5	2.78	0	0	3	0	3	0.036
	28-Mar-06	Yellow perch	0	0	0	1	1	0.121	17.25	8	0.5	2.78	0	0	0	3	3	0.337
	28-Mar-06	Pumpkinseed	0	0	3	0	3	0.187	17.25	8	0.5	2.78	0	0	8	0	8	0.520
	28-Mar-06	White perch	0	0	3	0	3	0.026	17.25	8	0.5	2.78	0	0	8	0	8	0.072
	28-Mar-06	Round goby	0	0	10	0	10	0.528	17.25	8	0.5	2.78	0	0	28	0	28	1.469
	28-Mar-06	Gizzard shad	0	0	157	3	160	2.778	17.25	8	0.5	2.78	0	0	437	8	445	7.731
98	**28-Mar-06**	**TOTAL**	**0**	**1**	**177**	**4**	**182**	**3.892**					**0**	**3**	**493**	**11**	**507**	**10.831**
	4-Apr-06	Channel catfish	0	0	1	0	1	0.002	21.5	8	0.004	296.31	0	0	296	0	296	0.593
	4-Apr-06	Goldfish	0	0	1	0	1	0.440	21.5	8	0.004	296.31	0	0	296	0	296	130.376
	4-Apr-06	Round goby	0	0	1	0	1	0.093	21.5	8	0.004	296.31	0	0	296	0	296	27.557
	4-Apr-06	Silver lamprey	0	0	1	0	1	0.064	21.5	8	0.004	296.31	0	0	296	0	296	18.964
	4-Apr-06	Pumpkinseed	0	0	2	0	2	0.109	21.5	8	0.004	296.31	0	0	593	0	593	32.298
	4-Apr-06	Rock bass	0	0	2	0	2	0.012	21.5	8	0.004	296.31	0	0	593	0	593	3.556
	4-Apr-06	Smallmouth bass	0	0	2	0	2	0.717	21.5	8	0.004	296.31	0	0	593	0	593	212.454
	4-Apr-06	Bluegill	0	0	3	0	3	0.008	21.5	8	0.004	296.31	0	0	889	0	889	2.370
	4-Apr-06	Freshwater drum	0	0	3	0	3	0.867	21.5	8	0.004	296.31	0	0	889	0	889	256.901
	4-Apr-06	Yellow perch	0	2	3	0	5	0.248	21.5	8	0.004	296.31	0	593	889	0	1,482	73.485
	4-Apr-06	Trout-perch	0	0	6	0	6	0.041	21.5	8	0.004	296.31	0	0	1,778	0	1,778	12.149
	4-Apr-06	Emerald shiner	0	0	7	0	7	0.028	21.5	8	0.004	296.31	0	0	2,074	0	2,074	8.297
	4-Apr-06	Spottail shiner	0	0	7	0	7	0.047	21.5	8	0.004	296.31	0	0	2,074	0	2,074	13.927
	4-Apr-06	White perch	0	0	11	0	11	0.068	21.5	8	0.004	296.31	0	0	3,259	0	3,259	20.149
	4-Apr-06	Gizzard shad	0	0	430	0	430	9.242	21.5	8	0.004	296.31	0	0	127,413	0	127,413	2,738.497
99	**4-Apr-06**	**TOTAL**	**0**	**2**	**480**	**0**	**482**	**11.986**					**0**	**593**	**142,229**	**0**	**142,821**	**3,551.572**
	5-Apr-06	Channel catfish	0	0	1	0	1	0.003	23.5	8	0.025	40.85	0	0	41	0	41	0.123
	5-Apr-06	Freshwater drum	0	0	1	0	1	0.035	23.5	8	0.025	40.85	0	0	41	0	41	1.430
	5-Apr-06	Orangespotted sunfish	0	0	1	0	1	0.003	23.5	8	0.025	40.85	0	0	41	0	41	0.123
	5-Apr-06	Pumpkinseed	0	0	1	0	1	0.035	23.5	8	0.025	40.85	0	0	41	0	41	1.430
	5-Apr-06	Rock bass	0	0	1	0	1	0.001	23.5	8	0.025	40.85	0	0	41	0	41	0.041
	5-Apr-06	Silver chub	0	0	0	1	1	0.061	23.5	8	0.025	40.85	0	0	0	41	41	2.492
	5-Apr-06	Tadpole madtom	0	1	0	0	1	0.009	23.5	8	0.025	40.85	0	41	0	0	41	0.368
	5-Apr-06	Yellow perch	0	0	1	0	1	0.010	23.5	8	0.025	40.85	0	0	41	0	41	0.409
	5-Apr-06	Trout-perch	0	0	2	0	2	0.017	23.5	8	0.025	40.85	0	0	82	0	82	0.694
	5-Apr-06	Goldfish	0	0	3	0	3	0.052	23.5	8	0.025	40.85	0	0	123	0	123	2.124
	5-Apr-06	Spottail shiner	0	0	4	0	4	0.020	23.5	8	0.025	40.85	0	0	163	0	163	0.817
	5-Apr-06	Emerald shiner	0	0	6	0	6	0.016	23.5	8	0.025	40.85	0	0	245	0	245	0.654
	5-Apr-06	Round goby	0	1	7	0	8	0.296	23.5	8	0.025	40.85	0	41	286	0	327	12.092
	5-Apr-06	White perch	0	0	8	0	8	0.040	23.5	8	0.025	40.85	0	0	327	0	327	1.634
	5-Apr-06	Gizzard shad	0	0	219	0	219	6.322	23.5	8	0.025	40.85	0	0	8,946	0	8,946	258.254
100	**5-Apr-06**	**TOTAL**	**0**	**2**	**255**	**1**	**258**	**6.920**					**0**	**82**	**10,417**	**41**	**10,539**	**282.682**

Individual estimates may not add to totals due to rounding.

APPENDIX 15 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH1, Monroe County, Michigan (April 2005 – April 2006)

Event No.	Date	Species	MONPP SH1: Fish Collected						Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	MONPP SH1: Estimated 24-hour Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)					Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	10-Apr-06	Channel catfish	0	0	1	0	1	0.010	27.67	8	0.4	2.17	0	0	2	0	2	0.022
	10-Apr-06	Goldfish	0	0	1	0	1	0.013	27.67	8	0.4	2.17	0	0	2	0	2	0.028
	10-Apr-06	Green sunfish	0	0	1	0	1	0.029	27.67	8	0.4	2.17	0	0	2	0	2	0.063
	10-Apr-06	Orangespotted sunfish	0	0	1	0	1	0.006	27.67	8	0.4	2.17	0	0	2	0	2	0.013
	10-Apr-06	Stonecat	0	0	1	0	1	0.092	27.67	8	0.4	2.17	0	0	2	0	2	0.199
	10-Apr-06	White bass	0	0	1	0	1	0.015	27.67	8	0.4	2.17	0	0	2	0	2	0.033
	10-Apr-06	Black bullhead	0	0	2	0	2	0.013	27.67	8	0.4	2.17	0	0	4	0	4	0.028
	10-Apr-06	Freshwater drum	0	0	2	0	2	1.623	27.67	8	0.4	2.17	0	0	4	0	4	3.519
	10-Apr-06	Logperch	0	0	1	1	2	0.014	27.67	8	0.4	2.17	0	0	2	2	4	0.030
	10-Apr-06	Pumpkinseed	0	0	2	0	2	0.127	27.67	8	0.4	2.17	0	0	4	0	4	0.275
	10-Apr-06	Rock bass	0	0	3	0	3	0.011	27.67	8	0.4	2.17	0	0	7	0	7	0.024
	10-Apr-06	Bluegill	0	0	5	0	5	0.010	27.67	8	0.4	2.17	0	0	11	0	11	0.022
	10-Apr-06	Yellow perch	0	0	5	0	5	0.485	27.67	8	0.4	2.17	0	0	11	0	11	1.051
	10-Apr-06	Trout-perch	0	0	7	0	7	0.057	27.67	8	0.4	2.17	0	0	15	0	15	0.124
	10-Apr-06	Emerald shiner	0	0	7	1	8	0.036	27.67	8	0.4	2.17	0	0	15	2	17	0.078
	10-Apr-06	Round goby	0	1	14	1	16	0.394	27.67	8	0.4	2.17	0	2	30	2	35	0.854
	10-Apr-06	Spottail shiner	0	0	16	1	17	0.097	27.67	8	0.4	2.17	0	0	35	2	37	0.210
	10-Apr-06	White perch	0	0	23	0	23	0.145	27.67	8	0.4	2.17	0	0	50	0	50	0.314
	10-Apr-06	Gizzard shad	0	0	409	13	422	7.711	27.67	8	0.4	2.17	0	0	887	28	915	16.717
101	**10-Apr-06**	**TOTAL**	**0**	**1**	**502**	**17**	**520**	**10.888**					**0**	**2**	**1,088**	**37**	**1,127**	**23.605**
	11-Apr-06	Brown bullhead	0	0	0	1	1	0.283	20.83	8	0.1	11.52	0	0	0	12	12	3.260
	11-Apr-06	Channel catfish	0	0	1	0	1	0.011	20.83	8	0.1	11.52	0	0	12	0	12	0.127
	11-Apr-06	Smallmouth bass	0	0	1	0	1	0.121	20.83	8	0.1	11.52	0	0	12	0	12	1.394
	11-Apr-06	White bass	0	0	1	0	1	0.010	20.83	8	0.1	11.52	0	0	12	0	12	0.115
	11-Apr-06	Freshwater drum	0	0	3	0	3	0.808	20.83	8	0.1	11.52	0	0	35	0	35	9.308
	11-Apr-06	Pumpkinseed	0	0	3	0	3	0.120	20.83	8	0.1	11.52	0	0	35	0	35	1.382
	11-Apr-06	Yellow perch	0	1	3	0	4	1.251	20.83	8	0.1	11.52	0	12	35	0	46	14.412
	11-Apr-06	Trout-perch	0	0	7	0	7	0.040	20.83	8	0.1	11.52	0	0	81	0	81	0.461
	11-Apr-06	White perch	0	0	7	0	7	0.046	20.83	8	0.1	11.52	0	0	81	0	81	0.530
	11-Apr-06	Spottail shiner	0	0	9	0	9	0.045	20.83	8	0.1	11.52	0	0	104	0	104	0.518
	11-Apr-06	Round goby	0	0	10	0	10	0.874	20.83	8	0.1	11.52	0	0	115	0	115	10.068
	11-Apr-06	Gizzard shad	0	0	41	0	41	0.862	20.83	8	0.1	11.52	0	0	472	0	472	9.930
102	**11-Apr-06**	**TOTAL**	**0**	**1**	**86**	**1**	**88**	**4.471**					**0**	**12**	**991**	**12**	**1,014**	**51.506**
	19-Apr-06	Bluegill	0	0	1	0	1	0.003	25	8	0.25	3.84	0	0	4	0	4	0.012
	19-Apr-06	Goldfish	0	1	0	0	1	0.170	25	8	0.25	3.84	0	4	0	0	4	0.653
	19-Apr-06	Trout-perch	0	0	1	0	1	0.005	25	8	0.25	3.84	0	0	4	0	4	0.019
	19-Apr-06	White perch	0	0	1	0	1	0.004	25	8	0.25	3.84	0	0	4	0	4	0.015
	19-Apr-06	Freshwater drum	0	0	2	0	2	1.039	25	8	0.25	3.84	0	0	8	0	8	3.990
	19-Apr-06	Smallmouth bass	0	0	2	0	2	1.597	25	8	0.25	3.84	0	0	8	0	8	6.132
	19-Apr-06	Yellow perch	0	0	2	0	2	0.133	25	8	0.25	3.84	0	0	8	0	8	0.511
	19-Apr-06	Rock bass	0	1	2	0	3	0.242	25	8	0.25	3.84	0	4	8	0	12	0.929
	19-Apr-06	Round goby	0	1	3	0	4	0.036	25	8	0.25	3.84	0	4	12	0	15	0.138
	19-Apr-06	Emerald shiner	0	0	6	0	6	0.014	25	8	0.25	3.84	0	0	23	0	23	0.054
	19-Apr-06	Spottail shiner	0	0	7	0	7	0.046	25	8	0.25	3.84	0	0	27	0	27	0.177
	19-Apr-06	Gizzard shad	0	0	20	3	23	0.412	25	8	0.25	3.84	0	0	77	0	77	1.582
103	**19-Apr-06**	**TOTAL**	**0**	**3**	**47**	**3**	**53**	**3.701**					**0**	**12**	**180**	**0**	**192**	**14.212**
	20-Apr-06	Gizzard shad	0	0	1	0	1	0.599	24	8	1	1.00	0	0	1	0	1	0.599
	20-Apr-06	Pumpkinseed	0	0	1	0	1	0.076	24	8	1	1.00	0	0	1	0	1	0.076
	20-Apr-06	Freshwater drum	0	1	7	0	8	4.796	24	8	1	1.00	0	1	7	0	8	4.796
104	**20-Apr-06**	**TOTAL**	**0**	**1**	**9**	**0**	**10**	**5.471**					**0**	**1**	**9**	**0**	**10**	**5.471**

APPENDIX 16
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	20-Apr-05	Channel catfish	adult	0	0	1	0	1	0.335	24	8	1	1	0	0	1	0	1	0.335
	20-Apr-05	Muskellunge		0	0	1	0	1	8.860	24	8	1	1	0	0	1	0	1	8.860
	20-Apr-05	Northern hog sucker		0	0	1	0	1	0.740	24	8	1	1	0	0	1	0	1	0.740
	20-Apr-05	Pumpkinseed		0	0	1	0	1	0.160	24	8	1	1	0	0	1	0	1	0.160
	20-Apr-05	Silver lamprey		0	0	1	0	1	0.250	24	8	1	1	0	0	1	0	1	0.250
	20-Apr-05	Centrarchidae		0	0	1	0	1	0.240	24	8	1	1	0	0	1	0	1	0.240
	20-Apr-05	Walleye	adult	0	0	1	0	1	0.960	24	8	1	1	0	0	1	0	1	0.960
	20-Apr-05	White bass	adult	0	0	1	0	1	0.375	24	8	1	1	0	0	1	0	1	0.375
	20-Apr-05	Northern pike		0	0	2	0	2	4.550	24	8	1	1	0	0	2	0	2	4.550
	20-Apr-05	Bluegill	adult	0	0	3	0	3	0.415	24	8	1	1	0	0	3	0	3	0.415
	20-Apr-05	Common carp	adult	0	0	3	0	3	8.500	24	8	1	1	0	0	3	0	3	8.500
	20-Apr-05	Freshwater drum	adult	0	0	3	0	3	1.800	24	8	1	1	0	0	3	0	3	1.800
	20-Apr-05	White perch	adult	0	0	9	0	9	2.725	24	8	1	1	0	0	9	0	9	2.725
	20-Apr-05	Yellow perch	adult	0	0	14	0	14	2.625	24	8	1	1	0	0	14	0	14	2.625
	20-Apr-05	Gizzard shad	adult	0	0	15	0	15	5.571	24	8	1	1	0	0	15	0	15	5.571
	20-Apr-05	Round goby		0	0	16	0	16	3.085	24	8	1	1	0	0	16	0	16	3.085
	20-Apr-05	Emerald shiner		0	0	30	0	30	0.650	24	8	1	1	0	0	30	0	30	0.650
	20-Apr-05	Trout-perch		0	0	30	0	30	0.682	24	8	1	1	0	0	30	0	30	0.682
1	**20-Apr-05**	**TOTAL**		**0**	**0**	**133**	**0**	**133**	**42.523**					**0**	**0**	**133**	**0**	**133**	**42.523**
	21-Apr-05	Logperch		0	0	1	0	1	0.007	24	8	1	1	0	0	1	0	1	0.007
	21-Apr-05	Pumpkinseed		0	0	1	0	1	0.037	24	8	1	1	0	0	1	0	1	0.037
	21-Apr-05	Silver lamprey		0	0	1	0	1	0.174	24	8	1	1	0	0	1	0	1	0.174
	21-Apr-05	Freshwater drum	adult	0	0	3	0	3	1.800	24	8	1	1	0	0	3	0	3	1.800
	21-Apr-05	Longnose gar	adult	0	0	3	0	3	0.800	24	8	1	1	0	0	3	0	3	0.800
	21-Apr-05	White bass	JUV(<150mm)	0	0	3	0	3	0.014	24	8	1	1	0	0	3	0	3	0.014
	21-Apr-05	Goldfish		0	0	6	0	6	1.535	24	8	1	1	0	0	6	0	6	1.535
	21-Apr-05	Yellow perch	adult	0	0	8	0	8	0.274	24	8	1	1	0	0	8	0	8	0.274
	21-Apr-05	Gizzard shad	adult	0	0	10	0	10	2.102	24	8	1	1	0	0	10	0	10	2.102
	21-Apr-05	Spottail shiner		0	0	11	0	11	0.072	24	8	1	1	0	0	11	0	11	0.072
	21-Apr-05	White perch	JUV(<150mm)	0	0	11	0	11	0.431	24	8	1	1	0	0	11	0	11	0.431
	21-Apr-05	Round goby		0	0	20	0	20	1.400	24	8	1	1	0	0	20	0	20	1.400
	21-Apr-05	Emerald shiner		0	0	25	0	25	0.244	24	8	1	1	0	0	25	0	25	0.244
	21-Apr-05	Trout-perch		0	0	81	0	81	0.647	24	8	1	1	0	0	81	0	81	0.647
2	**21-Apr-05**	**TOTAL**		**0**	**0**	**184**	**0**	**184**	**9.537**					**0**	**0**	**184**	**0**	**184**	**9.537**
	27-Apr-05	Longnose gar	adult	0	1	0	0	1	0.128	24	8	1	1	0	1	0	0	1	0.128
	27-Apr-05	Walleye	adult	0	0	0	1	1	2.600	24	8	1	1	0	0	0	1	1	2.600
	27-Apr-05	White bass	adult	0	0	2	0	2	0.174	24	8	1	1	0	0	2	0	2	0.174
	27-Apr-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.064	24	8	1	1	0	0	3	0	3	0.064
	27-Apr-05	Round goby		0	0	3	0	3	0.156	24	8	1	1	0	0	3	0	3	0.156
	27-Apr-05	White perch	JUV(<150mm)	0	0	3	0	3	0.014	24	8	1	1	0	0	3	0	3	0.014
	27-Apr-05	Yellow perch	adult	0	0	3	0	3	0.115	24	8	1	1	0	0	3	0	3	0.115
	27-Apr-05	Freshwater drum	adult	0	0	3	1	4	3.104	24	8	1	1	0	0	3	1	4	3.104
	27-Apr-05	Common carp	adult	0	0	5	0	5	1.440	24	8	1	1	0	0	5	0	5	1.440
	27-Apr-05	Gizzard shad	adult	0	0	7	0	7	3.435	24	8	1	1	0	0	7	0	7	3.435
	27-Apr-05	Emerald shiner		0	1	9	0	10	0.104	24	8	1	1	0	1	9	0	10	0.104
	27-Apr-05	Trout-perch		0	0	52	0	52	0.285	24	8	1	1	0	0	52	0	52	0.285
3	**27-Apr-05**	**TOTAL**		**0**	**2**	**90**	**2**	**94**	**11.619**					**0**	**2**	**90**	**2**	**94**	**11.619**
	28-Apr-05	Bluegill	adult	0	0	1	0	1	0.047	24	8	1	1	0	0	1	0	1	0.047
	28-Apr-05	Freshwater drum	adult	0	0	1	0	1	0.391	24	8	1	1	0	0	1	0	1	0.391
	28-Apr-05	Goldfish		0	0	1	0	1	0.382	24	8	1	1	0	0	1	0	1	0.382
	28-Apr-05	Northern pike		0	0	1	0	1	2.268	24	8	1	1	0	0	1	0	1	2.268
	28-Apr-05	Pumpkinseed		0	0	1	0	1	0.042	24	8	1	1	0	0	1	0	1	0.042
	28-Apr-05	Silver lamprey		0	0	1	0	1	0.092	24	8	1	1	0	0	1	0	1	0.092
	28-Apr-05	Smallmouth bass	adult	0	0	1	0	1	1.490	24	8	1	1	0	0	1	0	1	1.490
	28-Apr-05	Longnose gar	adult	0	0	2	0	2	0.570	24	8	1	1	0	0	2	0	2	0.570
	28-Apr-05	Silver chub		0	0	4	0	4	0.077	24	8	1	1	0	0	4	0	4	0.077
	28-Apr-05	Yellow perch	adult	0	0	5	0	5	0.582	24	8	1	1	0	0	5	0	5	0.582
	28-Apr-05	Round goby		0	0	7	0	7	0.333	24	8	1	1	0	0	7	0	7	0.333
	28-Apr-05	Gizzard shad	adult	0	0	12	0	12	6.028	24	8	1	1	0	0	12	0	12	6.028
	28-Apr-05	White perch	JUV(<150mm)	0	0	15	0	15	0.052	24	8	1	1	0	0	15	0	15	0.052
	28-Apr-05	Emerald shiner		0	0	17	0	17	0.049	24	8	1	1	0	0	17	0	17	0.049
	28-Apr-05	Spottail shiner		0	0	32	0	32	0.255	24	8	1	1	0	0	32	0	32	0.255
	28-Apr-05	Trout-perch		0	0	57	0	57	0.347	24	8	1	1	0	0	57	0	57	0.347
4	**28-Apr-05**	**TOTAL**		**0**	**0**	**158**	**0**	**158**	**13.005**					**0**	**0**	**158**	**0**	**158**	**13.005**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	4-May-05	Bluegill	adult	0	0	1	0	1	0.391	24	8	1	1	0	0	1	0	1	0.391
	4-May-05	Channel catfish	adult	0	0	1	0	1	0.167	24	8	1	1	0	0	1	0	1	0.167
	4-May-05	Round goby		0	0	1	0	1	0.007	24	8	1	1	0	0	1	0	1	0.007
	4-May-05	Silver lamprey		0	0	1	0	1	0.104	24	8	1	1	0	0	1	0	1	0.104
	4-May-05	White perch	JUV(<150mm)	0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	4-May-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.015	24	8	1	1	0	0	1	0	1	0.015
	4-May-05	Quillback		0	0	2	0	2	3.000	24	8	1	1	0	0	2	0	2	3.000
	4-May-05	Rainbow smelt		0	0	2	0	2	0.009	24	8	1	1	0	0	2	0	2	0.009
	4-May-05	Goldfish		0	0	3	0	3	0.803	24	8	1	1	0	0	3	0	3	0.803
	4-May-05	Walleye	adult	0	0	3	0	3	3.000	24	8	1	1	0	0	3	0	3	3.000
	4-May-05	Freshwater drum	adult	0	0	4	0	4	1.400	24	8	1	1	0	0	4	0	4	1.400
	4-May-05	Gizzard shad	adult	0	0	5	0	5	1.200	24	8	1	1	0	0	5	0	5	1.200
	4-May-05	Spottail shiner		0	0	8	0	8	0.084	24	8	1	1	0	0	8	0	8	0.084
	4-May-05	Emerald shiner		0	0	39	0	39	0.177	24	8	1	1	0	0	39	0	39	0.177
	4-May-05	Trout-perch		0	0	54	0	54	0.396	24	8	1	1	0	0	54	0	54	0.396
5	**4-May-05**	**TOTAL**		**0**	**0**	**126**	**0**	**126**	**10.756**					**0**	**0**	**126**	**0**	**126**	**10.756**
	5-May-05	Channel catfish	adult	0	0	1	0	1	4.080	24	8	1	1	0	0	1	0	1	4.080
	5-May-05	Common carp	adult	0	0	1	0	1	1.900	24	8	1	1	0	0	1	0	1	1.900
	5-May-05	Goldfish		0	0	1	0	1	0.322	24	8	1	1	0	0	1	0	1	0.322
	5-May-05	Longnose gar	adult	0	0	1	0	1	0.075	24	8	1	1	0	0	1	0	1	0.075
	5-May-05	Northern pike		0	0	1	0	1	1.755	24	8	1	1	0	0	1	0	1	1.755
	5-May-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.008	24	8	1	1	0	0	1	0	1	0.008
	5-May-05	Walleye	adult	0	0	1	0	1	2.785	24	8	1	1	0	0	1	0	1	2.785
	5-May-05	Yellow perch	adult	0	0	1	0	1	0.054	24	8	1	1	0	0	1	0	1	0.054
	5-May-05	Round goby		0	0	2	0	2	0.014	24	8	1	1	0	0	2	0	2	0.014
	5-May-05	White bass	adult	0	0	3	0	3	0.532	24	8	1	1	0	0	3	0	3	0.532
	5-May-05	White perch	JUV(<150mm)	0	0	3	0	3	0.151	24	8	1	1	0	0	3	0	3	0.151
	5-May-05	Freshwater drum	adult	0	0	8	0	8	7.352	24	8	1	1	0	0	8	0	8	7.352
	5-May-05	Gizzard shad	adult	0	0	8	0	8	4.060	24	8	1	1	0	0	8	0	8	4.060
	5-May-05	Spottail shiner		0	0	11	0	11	0.095	24	8	1	1	0	0	11	0	11	0.095
	5-May-05	Emerald shiner		0	0	21	0	21	0.158	24	8	1	1	0	0	21	0	21	0.158
	5-May-05	Trout-perch		0	0	66	0	66	0.366	24	8	1	1	0	0	66	0	66	0.366
6	**5-May-05**	**TOTAL**		**0**	**0**	**130**	**0**	**130**	**23.707**					**0**	**0**	**130**	**0**	**130**	**23.707**
	11-May-05	Black crappie	adult	0	0	1	0	1	0.068	24	8	1	1	0	0	1	0	1	0.068
	11-May-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.004	24	8	1	1	0	0	1	0	1	0.004
	11-May-05	Common carp	adult	0	0	1	0	1	1.880	24	8	1	1	0	0	1	0	1	1.880
	11-May-05	Rainbow smelt		0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	11-May-05	Rock bass	adult	0	0	1	0	1	0.177	24	8	1	1	0	0	1	0	1	0.177
	11-May-05	Spottail shiner		0	0	1	0	1	0.004	24	8	1	1	0	0	1	0	1	0.004
	11-May-05	Goldfish		0	0	2	0	2	0.434	24	8	1	1	0	0	2	0	2	0.434
	11-May-05	Pumpkinseed		0	0	2	0	2	0.054	24	8	1	1	0	0	2	0	2	0.054
	11-May-05	White bass	adult	0	0	2	0	2	1.040	24	8	1	1	0	0	2	0	2	1.040
	11-May-05	Round goby		0	1	2	0	3	0.192	24	8	1	1	0	1	2	0	3	0.192
	11-May-05	Freshwater drum	adult	0	0	4	0	4	4.760	24	8	1	1	0	0	4	0	4	4.760
	11-May-05	Gizzard shad	adult	0	0	7	0	7	2.541	24	8	1	1	0	0	7	0	7	2.541
	11-May-05	Yellow perch	adult	0	2	9	0	11	0.557	24	8	1	1	0	2	9	0	11	0.557
	11-May-05	White perch	JUV(<150mm)	0	0	12	0	12	0.172	24	8	1	1	0	0	12	0	12	0.172
	11-May-05	Emerald shiner		0	0	46	0	46	0.213	24	8	1	1	0	0	46	0	46	0.213
	11-May-05	Trout-perch		0	0	186	0	186	0.977	24	8	1	1	0	0	186	0	186	0.977
7	**11-May-05**	**TOTAL**		**0**	**3**	**278**	**0**	**281**	**13.076**					**0**	**3**	**278**	**0**	**281**	**13.076**
	12-May-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.001	24	8	1	1	0	0	1	0	1	0.001
	12-May-05	Crappie spp.		0	0	1	0	1	0.202	24	8	1	1	0	0	1	0	1	0.202
	12-May-05	Quillback		0	0	0	1	1	0.748	24	8	1	1	0	0	0	1	1	0.748
	12-May-05	Rainbow smelt		0	0	1	0	1	0.113	24	8	1	1	0	0	1	0	1	0.113
	12-May-05	Silver lamprey		0	1	0	0	1	0.030	24	8	1	1	0	1	0	0	1	0.030
	12-May-05	White sucker		0	0	0	1	1	0.570	24	8	1	1	0	0	0	1	1	0.570
	12-May-05	Goldfish		0	0	2	0	2	0.443	24	8	1	1	0	0	2	0	2	0.443
	12-May-05	Spottail shiner		0	0	2	0	2	0.022	24	8	1	1	0	0	2	0	2	0.022
	12-May-05	Walleye	adult	0	0	1	1	2	2.011	24	8	1	1	0	0	1	1	2	2.011
	12-May-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.036	24	8	1	1	0	0	3	0	3	0.036
	12-May-05	Freshwater drum	adult	0	0	3	0	3	4.037	24	8	1	1	0	0	3	0	3	4.037
	12-May-05	Round goby		0	1	2	0	3	0.057	24	8	1	1	0	1	2	0	3	0.057
	12-May-05	White bass	adult	0	0	4	0	4	2.019	24	8	1	1	0	0	4	0	4	2.019
	12-May-05	Gizzard shad	adult	0	0	3	5	8	4.512	24	8	1	1	0	0	3	5	8	4.512
	12-May-05	White perch	adult	0	0	16	0	16	1.493	24	8	1	1	0	0	16	0	16	1.493
	12-May-05	Emerald shiner		0	0	32	0	32	0.132	24	8	1	1	0	0	32	0	32	0.132
	12-May-05	Trout-perch		0	0	89	0	89	0.464	24	8	1	1	0	0	89	0	89	0.464
8	**12-May-05**	**TOTAL**		**0**	**2**	**160**	**8**	**170**	**16.890**					**0**	**2**	**160**	**8**	**170**	**16.890**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	19-May-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.020	26.83	8	1	0.895	0	0	1	0	1	0.018
	19-May-05	Redhorse sucker		0	0	1	0	1	0.764	26.83	8	1	0.895	0	0	1	0	1	0.680
	19-May-05	Rock bass	adult	0	0	1	0	1	0.108	26.83	8	1	0.895	0	0	1	0	1	0.096
	19-May-05	Smallmouth bass	adult	0	0	1	0	1	0.772	26.83	8	1	0.895	0	0	1	0	1	0.687
	19-May-05	White bass	adult	0	0	1	0	1	0.384	26.83	8	1	0.895	0	0	1	0	1	0.342
	19-May-05	Trout-perch		0	0	2	0	2	0.016	26.83	8	1	0.895	0	0	2	0	2	0.014
	19-May-05	Yellow perch	adult	0	0	2	0	2	0.084	26.83	8	1	0.895	0	0	2	0	2	0.075
	19-May-05	Freshwater drum	adult	0	0	3	0	3	2.116	26.83	8	1	0.895	0	0	3	0	3	1.883
	19-May-05	Gizzard shad	adult	0	0	9	0	9	4.200	26.83	8	1	0.895	0	0	8	0	8	3.738
	19-May-05	White perch	adult	0	0	37	0	37	5.000	26.83	8	1	0.895	0	0	33	0	33	4.450
9	**19-May-05**	**TOTAL**		**0**	**0**	**58**	**0**	**58**	**13.464**					**0**	**0**	**52**	**0**	**52**	**11.983**
	20-May-05	Bluegill	adult	0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	20-May-05	Quillback		0	0	0	1	1	1.380	24	8	1	1	0	0	0	1	1	1.380
	20-May-05	Smallmouth bass	adult	0	0	1	0	1	0.031	24	8	1	1	0	0	1	0	1	0.031
	20-May-05	Madtom (*Noturus spp*).		0	0	1	0	1	0.008	24	8	1	1	0	0	1	0	1	0.008
	20-May-05	Channel catfish	adult	0	0	2	0	2	0.079	24	8	1	1	0	0	2	0	2	0.079
	20-May-05	Silver lamprey		0	2	0	0	2	0.174	24	8	1	1	0	2	0	0	2	0.174
	20-May-05	Walleye	adult	0	0	1	1	2	1.586	24	8	1	1	0	0	1	1	2	1.586
	20-May-05	Longnose gar	adult	0	3	0	0	3	0.410	24	8	1	1	0	3	0	0	3	0.410
	20-May-05	Rainbow smelt		0	0	3	0	3	0.008	24	8	1	1	0	0	3	0	3	0.008
	20-May-05	Redhorse sucker		0	0	2	1	3	2.800	24	8	1	1	0	0	2	1	3	2.800
	20-May-05	Goldfish		0	0	2	2	4	1.286	24	8	1	1	0	0	2	2	4	1.286
	20-May-05	Rock bass	adult	0	1	4	1	6	0.211	24	8	1	1	0	1	4	1	6	0.211
	20-May-05	Freshwater drum	adult	0	1	4	2	7	5.200	24	8	1	1	0	1	4	2	7	5.200
	20-May-05	White bass	adult	0	0	10		10	1.842	24	8	1	1	0	0	10	0	10	1.842
	20-May-05	Round goby		0	2	7	2	11	0.247	24	8	1	1	0	2	7	2	11	0.247
	20-May-05	Gizzard shad	adult	0	0	6	6	12	5.200	24	8	1	1	0	0	6	6	12	5.200
	20-May-05	Yellow perch	adult	0	4	43	7	54	2.708	24	8	1	1	0	4	43	7	54	2.708
	20-May-05	Spottail shiner		0	0	61	0	61	0.360	24	8	1	1	0	0	61	0	61	0.360
	20-May-05	Trout-perch		0	0	121	4	125	0.554	24	8	1	1	0	0	121	4	125	0.554
	20-May-05	White perch	adult	0	3	106	43	152	11.769	24	8	1	1	0	3	106	43	152	11.769
	20-May-05	Emerald shiner		0	0	1057	0	1057	4.433	24	8	1	1	0	0	1057	0	1057	4.433
	20-May-05	White bass	JUV(<150mm)	0	0	8	2	10	0.080	24	8	1	1	0	0	8	2	10	0.080
10	**20-May-05**	**TOTAL**		**0**	**16**	**1440**	**72**	**1528**	**40.369**					**0**	**16**	**1440**	**72**	**1528**	**40.369**
	25-May-05	Bluegill	adult	0	0	1	0	1	0.018	24	8	1	1	0	0	1	0	1	0.018
	25-May-05	Round goby		0	0	1	0	1	0.044	24	8	1	1	0	0	1	0	1	0.044
	25-May-05	Walleye	JUV(<200mm)	0	0	1	0	1	0.042	24	8	1	1	0	0	1	0	1	0.042
	25-May-05	Channel catfish	adult	0	0	2	0	2	0.222	24	8	1	1	0	0	2	0	2	0.222
	25-May-05	Longnose gar	adult	0	0	2	0	2	0.308	24	8	1	1	0	0	2	0	2	0.308
	25-May-05	Goldfish		0	0	3	0	3	2.214	24	8	1	1	0	0	3	0	3	2.214
	25-May-05	Redhorse sucker		0	0	3	0	3	1.498	24	8	1	1	0	0	3	0	3	1.498
	25-May-05	Rock bass	adult	0	0	3	0	3	0.172	24	8	1	1	0	0	3	0	3	0.172
	25-May-05	Northern pike		0	0	6	0	6	11.471	24	8	1	1	0	0	6	0	6	11.471
	25-May-05	Freshwater drum	adult	0	0	12	0	12	6.132	24	8	1	1	0	0	12	0	12	6.132
	25-May-05	Gizzard shad	adult	0	0	12	0	12	4.248	24	8	1	1	0	0	12	0	12	4.248
	25-May-05	White bass	adult	0	0	18	0	18	3.812	24	8	1	1	0	0	18	0	18	3.812
	25-May-05	Yellow perch	JUV(<150mm)	0	0	23	0	23	0.528	24	8	1	1	0	0	23	0	23	0.528
	25-May-05	Trout-perch		0	0	26	0	26	0.110	24	8	1	1	0	0	26	0	26	0.110
	25-May-05	Yellow perch	adult	0	0	30	0	30	1.464	24	8	1	1	0	0	30	0	30	1.464
	25-May-05	White perch	adult	0	0	87	0	87	10.376	24	8	1	1	0	0	87	0	87	10.376
	25-May-05	Emerald shiner		0	0	103	0	103	1.382	24	8	1	1	0	0	103	0	103	1.382
11	**25-May-05**	**TOTAL**		**0**	**0**	**333**	**0**	**333**	**44.041**					**0**	**0**	**333**	**0**	**333**	**44.041**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	26-May-05	Channel catfish	adult	0	0	1	0	1	0.008	24	8	1	1	0	0	1	0	1	0.008
	26-May-05	Rock bass	adult	0	0	1	0	1	0.096	24	8	1	1	0	0	1	0	1	0.096
	26-May-05	Silver lamprey		0	0	1	0	1	0.072	24	8	1	1	0	0	1	0	1	0.072
	26-May-05	Walleye	adult	0	0	1	0	1	0.034	24	8	1	1	0	0	1	0	1	0.034
	26-May-05	Goldfish		0	0	3	0	3	2.464	24	8	1	1	0	0	3	0	3	2.464
	26-May-05	Round goby		0	0	3	0	3	0.256	24	8	1	1	0	0	3	0	3	0.256
	26-May-05	White bass	adult	0	0	3	0	3	0.910	24	8	1	1	0	0	3	0	3	0.910
	26-May-05	Redhorse sucker		0	0	4	0	4	2.850	24	8	1	1	0	0	4	0	4	2.850
	26-May-05	Freshwater drum	adult	0	0	6	0	6	4.196	24	8	1	1	0	0	6	0	6	4.196
	26-May-05	Gizzard shad	adult	0	0	10	0	10	4.722	24	8	1	1	0	0	10	0	10	4.722
	26-May-05	Spottail shiner		0	0	11	0	11	0.064	24	8	1	1	0	0	11	0	11	0.064
	26-May-05	Yellow perch	adult	0	0	14	0	14	0.686	24	8	1	1	0	0	14	0	14	0.686
	26-May-05	Trout-perch		0	0	18	0	18	0.068	24	8	1	1	0	0	18	0	18	0.068
	26-May-05	White perch	adult	0	0	35	0	35	4.470	24	8	1	1	0	0	35	0	35	4.470
	26-May-05	Emerald shiner		0	0	65	0	65	0.266	24	8	1	1	0	0	65	0	65	0.266
12	**26-May-05**	**TOTAL**		**0**	**0**	**176**	**0**	**176**	**21.162**					**0**	**0**	**176**	**0**	**176**	**21.162**
	31-May-05	Channel catfish	adult	0	0	1	0	1	0.172	23.75	8	1	1.011	0	0	1	0	1	0.174
	31-May-05	Quillback		0	0	1	0	1	2.800	23.75	8	1	1.011	0	0	1	0	1	2.828
	31-May-05	Redhorse sucker		0	0	1	0	1	0.856	23.75	8	1	1.011	0	0	1	0	1	0.865
	31-May-05	Round goby		0	0	1	0	1	0.070	23.75	8	1	1.011	0	0	1	0	1	0.071
	31-May-05	Spottail shiner		0	0	1	0	1	0.004	23.75	8	1	1.011	0	0	1	0	1	0.004
	31-May-05	White sucker		0	0	1	0	1	0.072	23.75	8	1	1.011	0	0	1	0	1	0.073
	31-May-05	Gizzard shad	adult	0	0	2	0	2	1.194	23.75	8	1	1.011	0	0	2	0	2	1.206
	31-May-05	Rock bass	adult	0	0	2	0	2	0.224	23.75	8	1	1.011	0	0	2	0	2	0.226
	31-May-05	White bass	adult	0	0	2	0	2	0.426	23.75	8	1	1.011	0	0	2	0	2	0.430
	31-May-05	Trout-perch		0	0	4	0	4	0.026	23.75	8	1	1.011	0	0	4	0	4	0.026
	31-May-05	Freshwater drum	adult	0	0	9	0	9	7.838	23.75	8	1	1.011	0	0	9	0	9	7.916
	31-May-05	Yellow perch	adult	0	0	9	0	9	0.494	23.75	8	1	1.011	0	0	9	0	9	0.499
	31-May-05	Emerald shiner		0	0	10	0	10	0.038	23.75	8	1	1.011	0	0	10	0	10	0.038
	31-May-05	White perch	adult	0	0	13	0	13	1.250	23.75	8	1	1.011	0	0	13	0	13	1.263
13	**31-May-05**	**TOTAL**		**0**	**0**	**57**	**0**	**57**	**15.464**					**0**	**0**	**58**	**0**	**58**	**15.619**
	1-Jun-05	Channel catfish	adult	0	0	1	0	1	0.532	24	8	1	1	0	0	1	0	1	0.532
	1-Jun-05	Largemouth bass		0	0	1	0	1	1.468	24	8	1	1	0	0	1	0	1	1.468
	1-Jun-05	Pumpkinseed		0	0	1	0	1	0.066	24	8	1	1	0	0	1	0	1	0.066
	1-Jun-05	Quillback		0	0	1	0	1	1.008	24	8	1	1	0	0	1	0	1	1.008
	1-Jun-05	Rock bass	adult	0	0	1	0	1	0.060	24	8	1	1	0	0	1	0	1	0.060
	1-Jun-05	Spotted gar		0	0	1	0	1	0.546	24	8	1	1	0	0	1	0	1	0.546
	1-Jun-05	White bass	adult	0	0	2	0	2	0.582	24	8	1	1	0	0	2	0	2	0.582
	1-Jun-05	Round goby		0	0	3	0	3	0.178	24	8	1	1	0	0	3	0	3	0.178
	1-Jun-05	Yellow perch	adult	0	0	5	0	5	0.238	24	8	1	1	0	0	5	0	5	0.238
	1-Jun-05	Redhorse sucker		0	0	6	0	6	5.578	24	8	1	1	0	0	6	0	6	5.578
	1-Jun-05	Gizzard shad	adult	0	0	7	0	7	3.050	24	8	1	1	0	0	7	0	7	3.050
	1-Jun-05	Freshwater drum	adult	0	0	11	0	11	9.882	24	8	1	1	0	0	11	0	11	9.882
	1-Jun-05	Trout-perch		0	0	11	0	11	0.044	24	8	1	1	0	0	11	0	11	0.044
	1-Jun-05	White perch	adult	0	0	14	0	14	1.056	24	8	1	1	0	0	14	0	14	1.056
	1-Jun-05	Emerald shiner		0	0	18	0	18	0.074	24	8	1	1	0	0	18	0	18	0.074
14	**1-Jun-05**	**TOTAL**		**0**	**0**	**83**	**0**	**83**	**24.362**					**0**	**0**	**83**	**0**	**83**	**24.362**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	9-Jun-05	Brown bullhead		0	0	1	0	1	0.438	24	8	1	1	0	0	1	0	1	0.438
	9-Jun-05	Northern pike		0	0	1	0	1	0.140	24	8	1	1	0	0	1	0	1	0.140
	9-Jun-05	Pumpkinseed		0	0	1	0	1	0.098	24	8	1	1	0	0	1	0	1	0.098
	9-Jun-05	Redhorse sucker		0	0	1	0	1	1.500	24	8	1	1	0	0	1	0	1	1.500
	9-Jun-05	Quillback		0	0	2	0	2	2.532	24	8	1	1	0	0	2	0	2	2.532
	9-Jun-05	Rock bass	adult	0	0	2	0	2	0.448	24	8	1	1	0	0	2	0	2	0.448
	9-Jun-05	Silver lamprey		0	0	2	0	2	0.136	24	8	1	1	0	0	2	0	2	0.136
	9-Jun-05	Walleye	adult	0	0	2	0	2	0.662	24	8	1	1	0	0	2	0	2	0.662
	9-Jun-05	Trout-perch		0	0	3	0	3	0.024	24	8	1	1	0	0	3	0	3	0.024
	9-Jun-05	Round goby		0	0	4	0	4	0.338	24	8	1	1	0	0	4	0	4	0.338
	9-Jun-05	Yellow perch	adult	0	0	4	0	4	0.256	24	8	1	1	0	0	4	0	4	0.256
	9-Jun-05	Gizzard shad	adult	0	0	5	0	5	1.600	24	8	1	1	0	0	5	0	5	1.600
	9-Jun-05	White perch	adult	0	0	12	0	12	1.570	24	8	1	1	0	0	12	0	12	1.570
	9-Jun-05	Freshwater drum	adult	0	0	29	0	29	13.600	24	8	1	1	0	0	29	0	29	13.600
	9-Jun-05	Emerald shiner		0	0	167	0	167	5.193	24	8	1	1	0	0	167	0	167	5.193
15	**9-Jun-05**	**TOTAL**		**0**	**0**	**236**	**0**	**236**	**28.535**					**0**	**0**	**236**	**0**	**236**	**28.535**
	10-Jun-05	Brown bullhead		0	0	1	0	1	0.722	24	8	1	1	0	0	1	0	1	0.722
	10-Jun-05	Channel catfish	adult	0	0	1	0	1	0.250	24	8	1	1	0	0	1	0	1	0.250
	10-Jun-05	Green sunfish		0	0	1	0	1	0.039	24	8	1	1	0	0	1	0	1	0.039
	10-Jun-05	Yellow perch	adult	0	0	1	0	1	0.051	24	8	1	1	0	0	1	0	1	0.051
	10-Jun-05	Quillback		0	0	2	0	2	2.029	24	8	1	1	0	0	2	0	2	2.029
	10-Jun-05	Rainbow smelt		0	0	2	0	2	0.008	24	8	1	1	0	0	2	0	2	0.008
	10-Jun-05	White bass	adult	0	0	5	0	5	1.045	24	8	1	1	0	0	5	0	5	1.045
	10-Jun-05	Gizzard shad	adult	0	0	6	0	6	2.192	24	8	1	1	0	0	6	0	6	2.192
	10-Jun-05	Walleye	adult	0	0	6	0	6	2.220	24	8	1	1	0	0	6	0	6	2.220
	10-Jun-05	White perch	adult	0	0	13	0	13	1.156	24	8	1	1	0	0	13	0	13	1.156
	10-Jun-05	Freshwater drum	adult	0	0	13	5	18	7.500	24	8	1	1	0	0	13	5	18	7.500
	10-Jun-05	Emerald shiner		0	0	269		269	0.797	24	8	1	1	0	0	269	0	269	0.797
16	**10-Jun-05**	**TOTAL**		**0**	**0**	**320**	**5**	**325**	**18.009**					**0**	**0**	**320**	**5**	**325**	**18.009**
	15-Jun-05	Brown bullhead		0	0	1	0	1	0.499	24	8	1	1	0	0	1	0	1	0.499
	15-Jun-05	Logperch		0	0	1	0	1	0.003	24	8	1	1	0	0	1	0	1	0.003
	15-Jun-05	Northern pike		0	0	1	0	1	1.200	24	8	1	1	0	0	1	0	1	1.200
	15-Jun-05	Smallmouth bass	adult	0	0	1	0	1	1.156	24	8	1	1	0	0	1	0	1	1.156
	15-Jun-05	White perch	adult	0	0	1	0	1	0.132	24	8	1	1	0	0	1	0	1	0.132
	15-Jun-05	Channel catfish	adult	0	0	2	0	2	0.223	24	8	1	1	0	0	2	0	2	0.223
	15-Jun-05	Gizzard shad	adult	0	0	2	0	2	1.140	24	8	1	1	0	0	2	0	2	1.140
	15-Jun-05	Spottail shiner		0	0	2	0	2	0.011	24	8	1	1	0	0	2	0	2	0.011
	15-Jun-05	White bass	adult	0	0	2	0	2	0.406	24	8	1	1	0	0	2	0	2	0.406
	15-Jun-05	Rainbow smelt		0	0	3	0	3	0.005	24	8	1	1	0	0	3	0	3	0.005
	15-Jun-05	Yellow perch	JUV(<150mm)	0	0	5	0	5	0.180	24	8	1	1	0	0	5	0	5	0.180
	15-Jun-05	Round goby		0	1	8	0	9	0.590	24	8	1	1	0	1	8	0	9	0.590
	15-Jun-05	Trout-perch		0	0	11	3	14	0.071	24	8	1	1	0	0	11	3	14	0.071
	15-Jun-05	Walleye	adult	0	0	16	1	17	4.682	24	8	1	1	0	0	16	1	17	4.682
	15-Jun-05	Freshwater drum	adult	0	0	23	1	24	12.106	24	8	1	1	0	0	23	1	24	12.106
	15-Jun-05	Emerald shiner		0	0	139	46	185	0.544	24	8	1	1	0	0	139	46	185	0.544
17	**15-Jun-05**	**TOTAL**		**0**	**1**	**218**	**51**	**270**	**22.948**					**0**	**1**	**218**	**51**	**270**	**22.948**
	16-Jun-05	Brown bullhead		0	0	1	0	1	0.366	24.25	8	1	0.990	0	0	1	0	1	0.362
	16-Jun-05	Quillback		0	0	1	0	1	1.114	24.25	8	1	0.990	0	0	1	0	1	1.103
	16-Jun-05	Rainbow smelt		0	0	1	0	1	0.004	24.25	8	1	0.990	0	0	1	0	1	0.004
	16-Jun-05	Rock bass	adult	0	0	1	0	1	0.160	24.25	8	1	0.990	0	0	1	0	1	0.158
	16-Jun-05	Sea lamprey		0	1		0	1	0.022	24.25	8	1	0.990	0	1	0	0	1	0.022
	16-Jun-05	White bass	adult	0	0	1	0	1	0.259	24.25	8	1	0.990	0	0	1	0	1	0.256
	16-Jun-05	Channel catfish	adult	0	0	1	1	2	1.108	24.25	8	1	0.990	0	0	1	1	2	1.097
	16-Jun-05	Silver lamprey		0	0	1	1	2	0.106	24.25	8	1	0.990	0	0	1	1	2	0.105
	16-Jun-05	Gizzard shad	adult	0	0	3	0	3	1.412	24.25	8	1	0.990	0	0	3	0	3	1.398
	16-Jun-05	Trout-perch		0	0	3	0	3	0.012	24.25	8	1	0.990	0	0	3	0	3	0.012
	16-Jun-05	Yellow perch	adult	0	0	3	0	3	0.386	24.25	8	1	0.990	0	0	3	0	3	0.382
	16-Jun-05	Round goby		0	0	5	0	5	0.108	24.25	8	1	0.990	0	0	5	0	5	0.107
	16-Jun-05	White perch	adult	0	0	6	0	6	0.604	24.25	8	1	0.990	0	0	6	0	6	0.598
	16-Jun-05	Walleye	adult	0	0	9	1	10	2.330	24.25	8	1	0.990	0	0	9	1	10	2.307
	16-Jun-05	Freshwater drum	adult	0	0	25	1	26	15.594	24.25	8	1	0.990	0	0	25	1	26	15.438
	16-Jun-05	Emerald shiner		0	0	24	3	27	0.080	24.25	8	1	0.990	0	0	24	3	27	0.079
18	**16-Jun-05**	**TOTAL**		**0**	**1**	**85**	**7**	**93**	**23.665**					**0**	**1**	**84**	**7**	**92**	**23.428**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	21-Jun-05	Bluegill	adult	0	0	0	1	1	0.074	25	8	1	0.96	0	0	0	1	1	0.071
	21-Jun-05	Brown bullhead		0	0	1	0	1	0.371	25	8	1	0.96	0	0	1	0	1	0.356
	21-Jun-05	Gizzard shad	adult	0	0	0	1	1	0.324	25	8	1	0.96	0	0	0	1	1	0.311
	21-Jun-05	Round goby		0	0	1	0	1	0.005	25	8	1	0.96	0	0	1	0	1	0.005
	21-Jun-05	Sea lamprey		0	0	1	0	1	0.065	25	8	1	0.96	0	0	1	0	1	0.062
	21-Jun-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.003	25	8	1	0.96	0	0	1	0	1	0.003
	21-Jun-05	Spottail shiner		0	0	1	0	1	0.011	25	8	1	0.96	0	0	1	0	1	0.011
	21-Jun-05	Walleye	adult	0	0	1	1	2	0.565	25	8	1	0.96	0	0	1	1	2	0.542
	21-Jun-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.030	25	8	1	0.96	0	0	2	0	2	0.029
	21-Jun-05	White bass	adult	0	0	3	0	3	1.816	25	8	1	0.96	0	0	3	0	3	1.743
	21-Jun-05	Rainbow smelt		0	0	4	0	4	0.013	25	8	1	0.96	0	0	4	0	4	0.012
	21-Jun-05	Emerald shiner		0	0	6	0	6	0.025	25	8	1	0.96	0	0	6	0	6	0.024
	21-Jun-05	White perch	adult	0	0	11	0	11	1.079	25	8	1	0.96	0	0	11	0	11	1.036
	21-Jun-05	Freshwater drum	adult	0	0	13	3	16	11.745	25	8	1	0.96	0	0	12	3	15	11.275
19	**21-Jun-05**	**TOTAL**		**0**	**0**	**45**	**6**	**51**	**16.126**					**0**	**0**	**43**	**6**	**49**	**15.481**
20	**22-Jun-05**	**Screen maintenance prevented sampling**																	
	30-Jun-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.016	24	8	1	1	0	0	1	0	1	0.016
	30-Jun-05	Gizzard shad	adult	0	0	1	0	1	0.557	24	8	1	1	0	0	1	0	1	0.557
	30-Jun-05	Mimic shiner		0	0	1	0	1	0.004	24	8	1	1	0	0	1	0	1	0.004
	30-Jun-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.030	24	8	1	1	0	0	1	0	1	0.030
	30-Jun-05	Steelcolor shiner		0	0	1	0	1	0.005	24	8	1	1	0	0	1	0	1	0.005
	30-Jun-05	Rock bass	adult	0	0	1	1	2	0.183	24	8	1	1	0	0	1	1	2	0.183
	30-Jun-05	Trout-perch		0	0	1	1	2	0.016	24	8	1	1	0	0	1	1	2	0.016
	30-Jun-05	Emerald shiner		0	0	2	1	3	0.008	24	8	1	1	0	0	2	1	3	0.008
	30-Jun-05	Spottail shiner		0	0	3	0	3	0.013	24	8	1	1	0	0	3	0	3	0.013
	30-Jun-05	White bass	adult	0	0	1	2	3	0.923	24	8	1	1	0	0	1	2	3	0.923
	30-Jun-05	Yellow perch	adult	0	0	4	0	4	0.391	24	8	1	1	0	0	4	0	4	0.391
	30-Jun-05	Round goby		0	0	5	0	5	0.134	24	8	1	1	0	0	5	0	5	0.134
	30-Jun-05	Freshwater drum	adult	0	0	28	10	38	23.835	24	8	1	1	0	0	28	10	38	23.835
21	**30-Jun-05**	**TOTAL**		**0**	**0**	**50**	**15**	**65**	**26.115**					**0**	**0**	**50**	**15**	**65**	**26.115**
	1-Jul-05	Walleye	JUV(<200mm)	0	0	0	1	1	0.003	24	8	1	1	0	0	0	1	1	0.003
	1-Jul-05	Yellow perch	adult	0	0	1	0	1	0.063	24	8	1	1	0	0	1	0	1	0.063
	1-Jul-05	Round goby		0	0	2	1	3	0.018	24	8	1	1	0	0	2	1	3	0.018
	1-Jul-05	Freshwater drum	adult	0	0	6	1	7	2.599	24	8	1	1	0	0	6	1	7	2.599
	1-Jul-05	Emerald shiner		0	0	5	3	8	0.029	24	8	1	1	0	0	5	3	8	0.029
22	**1-Jul-05**	**TOTAL**		**0**	**0**	**14**	**6**	**20**	**2.712**					**0**	**0**	**14**	**6**	**20**	**2.712**
	5-Jul-05	**Trucks removed from SH2 prior to scheduled collection**																	
	6-Jul-05	Bluegill	JUV(<100mm)	0	0	2	0	2	0.022	25	8	1	0.96	0	0	2	0	2	0.021
	6-Jul-05	Bluntnose minnow		0	0	1	0	1	0.011	25	8	1	0.96	0	0	1	0	1	0.011
	6-Jul-05	Channel catfish	adult	0	0	2	0	2	0.115	25	8	1	0.96	0	0	2	0	2	0.110
	6-Jul-05	Emerald shiner		0	0	1	0	1	0.003	25	8	1	0.96	0	0	1	0	1	0.003
	6-Jul-05	Freshwater drum	adult	0	0	17	4	21	9.812	25	8	1	0.96	0	0	16	4	20	9.420
	6-Jul-05	Gizzard shad	JUV(<200mm)	0	0	7	1	8	2.081	25	8	1	0.96	0	0	7	1	8	1.998
	6-Jul-05	Gizzard shad	adult	0	0	4	1	5	2.125	25	8	1	0.96	0	0	4	1	5	2.040
	6-Jul-05	Quillback		0	0	1	0	1	1.313	25	8	1	0.96	0	0	1	0	1	1.260
	6-Jul-05	Rainbow smelt		0	0	1	0	1	0.006	25	8	1	0.96	0	0	1	0	1	0.006
	6-Jul-05	Round goby		0	0	5	1	6	0.172	25	8	1	0.96	0	0	5	1	6	0.165
	6-Jul-05	Trout-perch		0	0	1	0	1	0.005	25	8	1	0.96	0	0	1	0	1	0.005
	6-Jul-05	Cyprinidae		0	0	1	0	1	0.003	25	8	1	0.96	0	0	1	0	1	0.003
	6-Jul-05	Walleye	adult	0	0	1	0	1	0.224	25	8	1	0.96	0	0	1	0	1	0.215
	6-Jul-05	White perch	adult	0	0	18	2	20	1.292	25	8	1	0.96	0	0	17	2	19	1.240
	6-Jul-05	Yellow perch	adult	0	0	1	2	3	0.244	25	8	1	0.96	0	0	1	2	3	0.234
23	**6-Jul-05**	**TOTAL**		**0**	**0**	**63**	**11**	**74**	**17.428**					**0**	**0**	**60**	**11**	**71**	**14.733**
24	**14-Jul-05**	**Trucks removed from SH2 prior to scheduled collection**																	

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	15-Jul-05	Bluegill	JUV(<100mm)	0	0	2	0	2	0.010	17	8	1	1.41	0	0	3	0	3	0.014
	15-Jul-05	Freshwater drum	adult	0	0	16	0	16	10.885	17	8	1	1.41	0	0	23	0	23	15.348
	15-Jul-05	Gizzard shad	adult	0	0	7	0	7	2.931	17	8	1	1.41	0	0	10	0	10	4.133
	15-Jul-05	Longnose gar	adult	0	0	2	0	2	0.030	17	8	1	1.41	0	0	3	0	3	0.042
	15-Jul-05	Quillback		0	0	1	0	1	1.857	17	8	1	1.41	0	0	1	0	1	2.618
	15-Jul-05	Rock bass	adult	0	0	2	0	2	0.328	17	8	1	1.41	0	0	3	0	3	0.462
	15-Jul-05	Round goby		0	0	4	0	4	0.358	17	8	1	1.41	0	0	6	0	6	0.505
	15-Jul-05	White bass	JUV(<150mm)	0	0	5	0	5	0.007	17	8	1	1.41	0	0	7	0	7	0.010
	15-Jul-05	White perch	adult	0	0	3	0	3	0.177	17	8	1	1.41	0	0	4	0	4	0.250
25	**15-Jul-05**	**TOTAL**		**0**	**0**	**42**	**0**	**42**	**16.583**					**0**	**0**	**59**	**0**	**59**	**23.382**
	19-Jul-05	Channel catfish	adult	0	0	2	0	2	0.378	24.25	8	1	0.99	0	0	2	0	2	0.374
	19-Jul-05	Emerald shiner		0	0	6	1	7	0.025	24.25	8	1	0.99	0	0	6	1	7	0.025
	19-Jul-05	Freshwater drum	adult	0	0	8	0	8	3.611	24.25	8	1	0.99	0	0	8	0	8	3.575
	19-Jul-05	Gizzard shad	JUV(<200mm)	0	0	9	0	9	0.049	24.25	8	1	0.99	0	0	9	0	9	0.049
	19-Jul-05	Round goby		0	0	3	0	3	0.172	24.25	8	1	0.99	0	0	3	0	3	0.170
	19-Jul-05	Smallmouth bass	adult	0	0	1	1	2	0.823	24.25	8	1	0.99	0	0	1	1	2	0.815
	19-Jul-05	Walleye	JUV(<200mm)	0	0	3	0	3	0.028	24.25	8	1	0.99	0	0	3	0	3	0.028
	19-Jul-05	White bass	JUV(<150mm)	0	0	3	1	4	0.012	24.25	8	1	0.99	0	0	3	1	4	0.012
	19-Jul-05	White perch	adult	0	0	1	0	1	0.116	24.25	8	1	0.99	0	0	1	0	1	0.115
	19-Jul-05	Yellow perch	adult	0	0	1	0	1	0.086	24.25	8	1	0.99	0	0	1	0	1	0.085
26	**19-Jul-05**	**TOTAL**		**0**	**0**	**37**	**3**	**40**	**5.300**					**0**	**0**	**37**	**3**	**40**	**5.247**
	20-Jul-05	Emerald shiner		0	0	0	2	2	0.002	23.75	8	1	1.01	0	0	0	2	2	0.002
	20-Jul-05	Freshwater drum	adult	0	0	5	0	5	1.208	23.75	8	1	1.01	0	0	5	0	5	1.220
	20-Jul-05	Gizzard shad	JUV(<200mm)	0	0	4	2	6	0.028	23.75	8	1	1.01	0	0	4	2	6	0.028
	20-Jul-05	Longnose gar	adult	0	0	1	0	1	0.014	23.75	8	1	1.01	0	0	1	0	1	0.014
	20-Jul-05	Round goby		0	0	4	0	4	0.248	23.75	8	1	1.01	0	0	4	0	4	0.250
	20-Jul-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.004	23.75	8	1	1.01	0	0	1	0	1	0.004
	20-Jul-05	Walleye	adult	0	0	2	1	3	0.442	23.75	8	1	1.01	0	0	2	1	3	0.446
	20-Jul-05	White bass	JUV(<150mm)	0	1	6	0	7	0.025	23.75	8	1	1.01	0	1	6	0	7	0.025
	20-Jul-05	White perch	adult	0	0	2	1	3	0.149	23.75	8	1	1.01	0	0	2	1	3	0.150
27	**20-Jul-05**	**TOTAL**		**0**	**1**	**25**	**6**	**32**	**2.120**					**0**	**1**	**25**	**6**	**32**	**2.141**
	26-Jul-05	Channel catfish	JUV(<150mm)	0	1	1	1	3	0.115	23.25	8	1	1.03	0	1	1	1	3	0.118
	26-Jul-05	Emerald shiner		0	0	4	0	4	0.016	23.25	8	1	1.03	0	0	4	0	4	0.016
	26-Jul-05	Freshwater drum	JUV(<200mm)	0	0	6	2	8	0.378	23.25	8	1	1.03	0	0	6	2	8	0.389
	26-Jul-05	Gizzard shad	JUV(<200mm)	0	0	0	19	19	0.101	23.25	8	1	1.03	0	0	0	20	20	0.104
	26-Jul-05	Northern pike		0	0	1	0	1	0.531	23.25	8	1	1.03	0	0	1	0	1	0.547
	26-Jul-05	Pumpkinseed		0	0	1	0	1	0.001	23.25	8	1	1.03	0	0	1	0	1	0.001
	26-Jul-05	Rock bass	adult	0	0	1	0	1	0.127	23.25	8	1	1.03	0	0	1	0	1	0.131
	26-Jul-05	Round goby		0	0	3	1	4	0.076	23.25	8	1	1.03	0	0	3	1	4	0.078
	26-Jul-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.008	23.25	8	1	1.03	0	0	2	0	2	0.008
	26-Jul-05	Spottail shiner		0	0	3	1	4	0.054	23.25	8	1	1.03	0	0	3	1	4	0.056
	26-Jul-05	White bass	JUV(<150mm)	0	0	77	4	81	1.039	23.25	8	1	1.03	0	0	79	4	83	1.070
	26-Jul-05	White perch	JUV(<150mm)	0	0	67	4	71	0.746	23.25	8	1	1.03	0	0	69	4	73	0.768
	26-Jul-05	Yellow perch	adult	0	0	1	0	1	0.103	23.25	8	1	1.03	0	0	1	0	1	0.106
28	**26-Jul-05**	**TOTAL**		**0**	**1**	**167**	**32**	**200**	**3.295**					**0**	**1**	**172**	**33**	**206**	**3.394**
	27-Jul-05	Bluegill	JUV(<100mm)	0	0	4	0	4	0.018	24	8	1/8	8.00	0	0	32	0	32	0.144
	27-Jul-05	Emerald shiner		0	0	3	0	3	0.011	24	8	1/8	8.00	0	0	24	0	24	0.088
	27-Jul-05	Freshwater drum	JUV(<200mm)	0	0	6	0	6	0.404	24	8	1/8	8.00	0	0	48	0	48	3.232
	27-Jul-05	Gizzard shad	JUV(<200mm)	0	0	65	2	67	0.221	24	8	1/8	8.00	0	0	520	16	536	1.768
	27-Jul-05	Northern pike		0	0	1	0	1	1.132	24	8	1/8	8.00	0	0	8	0	8	9.056
	27-Jul-05	Pumpkinseed		0	0	1	0	1	0.081	24	8	1/8	8.00	0	0	8	0	8	0.648
	27-Jul-05	Rock bass	adult	0	0	2	0	2	0.050	24	8	1/8	8.00	0	0	16	0	16	0.400
	27-Jul-05	Round goby		0	1	1	0	2	0.045	24	8	1/8	8.00	0	8	8	0	16	0.360
	27-Jul-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.007	24	8	1/8	8.00	0	0	16	0	16	0.056
	27-Jul-05	Walleye	JUV(<200mm)	0	0	2	0	2	0.024	24	8	1/8	8.00	0	0	16	0	16	0.192
	27-Jul-05	White bass	JUV(<150mm)	0	0	74	0	74	2.609	24	8	1/8	8.00	0	0	592	0	592	20.872
	27-Jul-05	White perch	JUV(<150mm)	0	0	39	0	39	0.111	24	8	1/8	8.00	0	0	312	0	312	0.888
	27-Jul-05	White perch	adult	0	0	11	0	11	0.717	24	8	1/8	8.00	0	0	88	0	88	5.736
29	**27-Jul-05**	**TOTAL**		**0**	**1**	**211**	**2**	**214**	**5.430**					**0**	**8**	**1688**	**16**	**1712**	**22.568**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	4-Aug-05	Channel catfish	adult	0	0	1	0	1	0.442	23.5	8	1	1.02	0	0	1	0	1	0.451
	4-Aug-05	Emerald shiner		0	0	1	0	1	0.005	23.5	8	1	1.02	0	0	1	0	1	0.005
	4-Aug-05	Freshwater drum	adult	0	0	11	0	11	9.146	23.5	8	1	1.02	0	0	11	0	11	9.329
	4-Aug-05	Gizzard shad	JUV(<200mm)	0	0	5	0	5	0.079	23.5	8	1	1.02	0	0	5	0	5	0.081
	4-Aug-05	Largemouth bass	JUV(<150mm)	0	0	1	0	1	0.020	23.5	8	1	1.02	0	0	1	0	1	0.020
	4-Aug-05	Rock bass	adult	0	0	1	0	1	0.196	23.5	8	1	1.02	0	0	1	0	1	0.200
	4-Aug-05	Round goby		0	0	7	0	7	0.275	23.5	8	1	1.02	0	0	7	0	7	0.281
	4-Aug-05	Walleye	adult	0	0	1	1	2	1.292	23.5	8	1	1.02	0	0	1	1	2	1.318
	4-Aug-05	White bass	JUV(<150mm)	0	0	21	1	22	1.175	23.5	8	1	1.02	0	0	21	1	22	1.199
	4-Aug-05	White perch	JUV(<150mm)	0	0	3	0	3	0.005	23.5	8	1	1.02	0	0	3	0	3	0.005
	4-Aug-05	Yellow perch	adult	0	0	1	0	1	0.020	23.5	8	1	1.02	0	0	1	0	1	0.020
30	**4-Aug-05**	**TOTAL**		**0**	**0**	**53**	**2**	**55**	**12.655**					**0**	**0**	**54**	**2**	**56**	**11.710**
	5-Aug-05	Channel catfish	adult	0	0	3	0	3	0.634	24.5	8	1	0.98	0	0	3	0	3	0.621
	5-Aug-05	Emerald shiner		0	0	1	0	1	0.001	24.5	8	1	0.98	0	0	1	0	1	0.001
	5-Aug-05	Freshwater drum	adult	0	0	12	2	14	7.547	24.5	8	1	0.98	0	0	12	2	14	7.396
	5-Aug-05	Gizzard shad	JUV(<200mm)	0	0	18	0	18	0.125	24.5	8	1	0.98	0	0	18	0	18	0.123
	5-Aug-05	Largemouth bass	JUV(<150mm)	0	0	3	0	3	0.030	24.5	8	1	0.98	0	0	3	0	3	0.029
	5-Aug-05	Redear sunfish		0	0	1	0	1	0.079	24.5	8	1	0.98	0	0	1	0	1	0.077
	5-Aug-05	Rock bass	adult	0	0	1	0	1	0.139	24.5	8	1	0.98	0	0	1	0	1	0.136
	5-Aug-05	Round goby		0	0	8	2	10	0.378	24.5	8	1	0.98	0	0	8	2	10	0.370
	5-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.017	24.5	8	1	0.98	0	0	3	0	3	0.017
	5-Aug-05	Steelhead trout		0	0	1	0	1	0.251	24.5	8	1	0.98	0	0	1	0	1	0.246
	5-Aug-05	Walleye	adult	0	0	2	0	2	2.112	24.5	8	1	0.98	0	0	2	0	2	2.070
	5-Aug-05	White bass	JUV(<150mm)	0	0	41	3	44	0.777	24.5	8	1	0.98	0	0	40	3	43	0.761
	5-Aug-05	Yellow perch	adult	0	0	2	1	3	0.295	24.5	8	1	0.98	0	0	2	1	3	0.289
31	**5-Aug-05**	**TOTAL**		**0**	**0**	**96**	**8**	**104**	**12.385**					**0**	**0**	**94**	**8**	**102**	**12.137**
	11-Aug-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.001	24.5	8	1	0.98	0	0	1	0	1	0.001
	11-Aug-05	Bluntnose minnow		0	0	1	0	1	0.020	24.5	8	1	0.98	0	0	1	0	1	0.020
	11-Aug-05	Emerald shiner		0	0	1	0	1	0.004	24.5	8	1	0.98	0	0	1	0	1	0.004
	11-Aug-05	Freshwater drum	adult	0	0	13	0	13	5.475	24.5	8	1	0.98	0	0	13	0	13	5.366
	11-Aug-05	Gizzard shad	JUV(<200mm)	0	0	16	0	16	0.610	24.5	8	1	0.98	0	0	16	0	16	0.598
	11-Aug-05	Quillback		0	0	1	0	1	0.426	24.5	8	1	0.98	0	0	1	0	1	0.417
	11-Aug-05	Round goby		0	0	5	0	5	0.228	24.5	8	1	0.98	0	0	5	0	5	0.223
	11-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.100	24.5	8	1	0.98	0	0	2	0	2	0.098
	11-Aug-05	Walleye	adult	0	0	1	0	1	1.438	24.5	8	1	0.98	0	0	1	0	1	1.409
	11-Aug-05	White bass	JUV(<150mm)	0	0	51	2	53	0.802	24.5	8	1	0.98	0	0	50	2	52	0.786
	11-Aug-05	White perch	JUV(<150mm)	0	0	11	2	13	0.029	24.5	8	1	0.98	0	0	11	2	13	0.028
	11-Aug-05	Yellow perch	adult	0	0	0	1	1	0.035	24.5	8	1	0.98	0	0	0	1	1	0.034
32	**11-Aug-05**	**TOTAL**		**0**	**0**	**103**	**5**	**108**	**9.168**					**0**	**0**	**101**	**5**	**106**	**8.985**
	12-Aug-05	Black bullhead		0	0	1	0	1	0.542	24.5	8	1	0.98	0	0	1	0	1	0.531
	12-Aug-05	Bluegill	JUV(<100mm)	0	0	2	0	2	0.008	24.5	8	1	0.98	0	0	2	0	2	0.008
	12-Aug-05	Channel catfish	adult	0	0	7	1	8	0.603	24.5	8	1	0.98	0	0	7	1	8	0.591
	12-Aug-05	Emerald shiner		0	0	5	1	6	0.018	24.5	8	1	0.98	0	0	5	1	6	0.018
	12-Aug-05	Freshwater drum	adult	0	0	11	0	11	2.482	24.5	8	1	0.98	0	0	11	0	11	2.432
	12-Aug-05	Gizzard shad	JUV(<200mm)	0	0	48	0	48	0.417	24.5	8	1	0.98	0	0	47	0	47	0.409
	12-Aug-05	Largemouth bass		0	0	2	0	2	1.003	24.5	8	1	0.98	0	0	2	0	2	0.983
	12-Aug-05	Pumpkinseed		0	0	1	0	1	0.041	24.5	8	1	0.98	0	0	1	0	1	0.040
	12-Aug-05	Rainbow smelt		0	0	1	0	1	0.001	24.5	8	1	0.98	0	0	1	0	1	0.001
	12-Aug-05	Rock bass	adult	0	0	1	0	1	0.143	24.5	8	1	0.98	0	0	1	0	1	0.140
	12-Aug-05	Round goby		0	1	18	0	19	0.436	24.5	8	1	0.98	0	1	18	0	19	0.427
	12-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	10	0	10	0.124	24.5	8	1	0.98	0	0	10	0	10	0.122
	12-Aug-05	Spottail shiner		0	0	6	0	6	0.029	24.5	8	1	0.98	0	0	6	0	6	0.028
	12-Aug-05	Walleye	JUV(<200mm)	0	0	2	0	2	0.146	24.5	8	1	0.98	0	0	2	0	2	0.143
	12-Aug-05	White bass	JUV(<150mm)	0	0	288	0	288	6.050	24.5	8	1	0.98	0	0	282	0	282	5.929
	12-Aug-05	White perch	JUV(<150mm)	0	0	130	0	130	0.882	24.5	8	1	0.98	0	0	127	0	127	0.864
	12-Aug-05	Yellow perch	adult	0	0	2	0	2	0.277	24.5	8	1	0.98	0	0	2	0	2	0.271
33	**12-Aug-05**	**TOTAL**		**0**	**1**	**535**	**2**	**538**	**13.202**					**0**	**1**	**524**	**2**	**527**	**12.938**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	16-Aug-05	Bluegill	JUV(<100mm)	0	0	3	0	3	0.017	24	8	1	1.00	0	0	3	0	3	0.017
	16-Aug-05	Channel catfish	JUV(<150mm)	0	0	2	0	2	0.063	24	8	1	1.00	0	0	2	0	2	0.063
	16-Aug-05	Emerald shiner		0	0	3	0	3	0.008	24	8	1	1.00	0	0	3	0	3	0.008
	16-Aug-05	Freshwater drum	adult	0	0	5	1	6	3.441	24	8	1	1.00	0	0	5	1	6	3.441
	16-Aug-05	Gizzard shad	JUV(<200mm)	0	0	18	0	18	1.065	24	8	1	1.00	0	0	18	0	18	1.065
	16-Aug-05	Green sunfish		0	0	1	0	1	0.005	24	8	1	1.00	0	0	1	0	1	0.005
	16-Aug-05	Largemouth bass		0	0	1	0	1	0.042	24	8	1	1.00	0	0	1	0	1	0.042
	16-Aug-05	Pumpkinseed		0	0	1	0	1	0.035	24	8	1	1.00	0	0	1	0	1	0.035
	16-Aug-05	Round goby		0	0	1	1	2	0.161	24	8	1	1.00	0	0	1	1	2	0.161
	16-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.036	24	8	1	1.00	0	0	3	0	3	0.036
	16-Aug-05	White bass	JUV(<150mm)	0	0	26	0	26	0.165	24	8	1	1.00	0	0	26	0	26	0.165
	16-Aug-05	White perch	JUV(<150mm)	0	0	15	0	15	0.244	24	8	1	1.00	0	0	15	0	15	0.244
	16-Aug-05	Yellow perch	adult	0	0	2	0	2	0.146	24	8	1	1.00	0	0	2	0	2	0.146
34	**16-Aug-05**	**TOTAL**		**0**	**0**	**81**	**2**	**83**	**5.428**					**0**	**0**	**81**	**2**	**83**	**5.428**
	17-Aug-05	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.064	24	8	1	1.02	0	0	4	0	4	0.065
	17-Aug-05	Freshwater drum	adult	0	0	8	0	8	0.960	24	8	1	1.02	0	0	8	0	8	0.979
	17-Aug-05	Gizzard shad	JUV(<200mm)	0	0	64	0	64	0.380	24	8	1	1.02	0	0	65	0	65	0.388
	17-Aug-05	Rock bass	adult	0	0	4	0	4	0.536	24	8	1	1.02	0	0	4	0	4	0.547
	17-Aug-05	Round goby		0	0	16	0	16	0.340	24	8	1	1.02	0	0	16	0	16	0.347
	17-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	12	0	12	0.180	24	8	1	1.02	0	0	12	0	12	0.184
	17-Aug-05	Spottail shiner		0	0	20	0	20	0.044	24	8	1	1.02	0	0	20	0	20	0.045
	17-Aug-05	Walleye	adult	0	0	8	0	8	2.756	24	8	1	1.02	0	0	8	0	8	2.811
	17-Aug-05	White bass	JUV(<150mm)	0	0	104	0	104	0.176	24	8	1	1.02	0	0	106	0	106	0.180
	17-Aug-05	White perch	JUV(<150mm)	0	0	136	0	136	0.724	24	8	1	1.02	0	0	139	0	139	0.738
	17-Aug-05	Yellow perch	adult	0	0	4	0	4	0.436	24	8	1	1.02	0	0	4	0	4	0.445
35	**17-Aug-05**	**TOTAL**		**0**	**0**	**380**		**380**	**6.596**					**0**	**0**	**388**	**0**	**388**	**6.728**
	26-Aug-05	Freshwater drum	JUV(<200mm)	0	0	32	0	32	0.160	25	8	1	0.96	0	0	31	0	31	0.154
	26-Aug-05	Gizzard shad	JUV(<200mm)	0	0	32	32	64	0.096	25	8	1	0.96	0	0	31	31	61	0.092
	26-Aug-05	Walleye	JUV(<200mm)	0	0	32	0	32	0.800	25	8	1	0.96	0	0	31	0	31	0.768
	26-Aug-05	White bass	JUV(<150mm)	0	0	64	0	64	0.528	25	8	1	0.96	0	0	61	0	61	0.507
	26-Aug-05	White perch	JUV(<150mm)	0	0	6016	0	6016	20.576	25	8	1	0.96	0	0	5775	0	5775	19.753
	26-Aug-05	Yellow bullhead		0	0	32	0	32	0.160	25	8	1	0.96	0	0	31	0	31	0.154
36	**26-Aug-05**	**TOTAL**		**0**	**0**	**6208**	**32**	**6240**	**22.320**					**0**	**0**	**5960**	**31**	**5990**	**21.427**
	27-Aug-05	Bluegill	JUV(<100mm)	0	0	16	0	16	0.040	23	8	1	1.04	0	0	17	0	17	0.042
	27-Aug-05	Emerald shiner		0	0	16	0	16	0.028	23	8	1	1.04	0	0	17	0	17	0.029
	27-Aug-05	Freshwater drum	adult	0	0	16	0	16	3.092	23	8	1	1.04	0	0	17	0	17	3.216
	27-Aug-05	Gizzard shad	JUV(<200mm)	0	0	224	0	224	5.520	23	8	1	1.04	0	0	233	0	233	5.741
	27-Aug-05	Round goby		0	0	8	0	8	0.368	23	8	1	1.04	0	0	8	0	8	0.383
	27-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	8	0	8	0.180	23	8	1	1.04	0	0	8	0	8	0.187
	27-Aug-05	Spottail shiner		0	0	8	4	12	0.036	23	8	1	1.04	0	0	8	4	12	0.037
	27-Aug-05	Walleye	JUV(<200mm)	0	0	8	0	8	0.188	23	8	1	1.04	0	0	8	0	8	0.196
	27-Aug-05	White bass	JUV(<150mm)	0	0	16	0	16	0.132	23	8	1	1.04	0	0	17	0	17	0.137
	27-Aug-05	White perch	JUV(<150mm)	0	0	1436	0	1436	5.108	23	8	1	1.04	0	0	1493	0	1493	5.312
	27-Aug-05	Yellow perch	adult	0	0	12	0	12	0.800	23	8	1	1.04	0	0	12	0	12	0.832
37	**27-Aug-05**	**TOTAL**		**0**	**0**	**1768**	**4**	**1772**	**15.492**					**0**	**0**	**1839**	**4**	**1843**	**16.112**
	30-Aug-05	Emerald shiner		0	0	12	0	12	0.032	23.5	8	1	1.02	0	0	12	0	12	0.033
	30-Aug-05	Freshwater drum	adult	0	0	44	0	44	13.352	23.5	8	1	1.02	0	0	45	0	45	13.619
	30-Aug-05	Gizzard shad	JUV(<200mm)	0	0	116	4	120	1.460	23.5	8	1	1.02	0	0	118	4	122	1.489
	30-Aug-05	Rock bass	adult	0	0	4	0	4	0.700	23.5	8	1	1.02	0	0	4	0	4	0.714
	30-Aug-05	Round goby		0	0	12	0	12	0.416	23.5	8	1	1.02	0	0	12	0	12	0.424
	30-Aug-05	Smallmouth bass	JUV(<150mm)	0	0	8	0	8	0.052	23.5	8	1	1.02	0	0	8	0	8	0.053
	30-Aug-05	Spottail shiner		0	0	4	0	4	0.032	23.5	8	1	1.02	0	0	4	0	4	0.033
	30-Aug-05	Walleye	adult	0	0	4	0	4	3.452	23.5	8	1	1.02	0	0	4	0	4	3.521
	30-Aug-05	White bass	JUV(<150mm)	0	0	96	0	96	0.748	23.5	8	1	1.02	0	0	98	0	98	0.763
	30-Aug-05	White perch	JUV(<150mm)	0	0	284	4	288	1.080	23.5	8	1	1.02	0	0	290	4	294	1.102
	30-Aug-05	Yellow perch	JUV(<150mm)	0	0	4	0	4	0.016	23.5	8	1	1.02	0	0	4	0	4	0.016
38	**30-Aug-05**	**TOTAL**		**0**	**0**	**588**	**8**	**596**	**21.340**					**0**	**0**	**600**	**8**	**608**	**21.767**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	31-Aug-05	Freshwater drum	JUV(<200mm)	0	0	48	0	48	0.592	23.75	8	1	1.01	0	0	48	0	48	0.598
	31-Aug-05	Gizzard shad	JUV(<200mm)	0	0	0	16	16	0.048	23.75	8	1	1.01	0	0	0	16	16	0.048
	31-Aug-05	Round goby		0	0	16	0	16	0.048	23.75	8	1	1.01	0	0	16	0	16	0.048
	31-Aug-05	White bass	JUV(<150mm)	0	0	288	0	288	0.944	23.75	8	1	1.01	0	0	291	0	291	0.953
	31-Aug-05	White perch	JUV(<150mm)	0	0	3584	16	3600	14.320	23.75	8	1	1.01	0	0	3620	16	3636	14.463
39	**31-Aug-05**	**TOTAL**		**0**	**0**	**3936**	**32**	**3968**	**15.952**					**0**	**0**	**3975**	**32**	**4008**	**16.112**
	8-Sep-05	Bluegill	JUV(<100mm)	0	0	18	0	18	0.060	25.5	8	1	0.94	0	0	17	0	17	0.056
	8-Sep-05	Channel catfish	JUV(<150mm)	0	0	12	0	12	0.078	25.5	8	1	0.94	0	0	11	0	11	0.073
	8-Sep-05	Freshwater drum	adult	0	0	30	0	30	11.760	25.5	8	1	0.94	0	0	28	0	28	11.054
	8-Sep-05	Gizzard shad	JUV(<200mm)	0	0	192	30	222	4.824	25.5	8	1	0.94	0	0	180	28	209	4.535
	8-Sep-05	Round goby		0	0	6	0	6	0.015	25.5	8	1	0.94	0	0	6	0	6	0.014
	8-Sep-05	Smallmouth bass	JUV(<150mm)	0	0	18	0	18	0.420	25.5	8	1	0.94	0	0	17	0	17	0.395
	8-Sep-05	Spottail shiner		0	0	66	0	66	0.240	25.5	8	1	0.94	0	0	62	0	62	0.226
	8-Sep-05	Trout-perch		0	0	6	0	6	0.018	25.5	8	1	0.94	0	0	6	0	6	0.017
	8-Sep-05	Walleye	adult	0	0	6	0	6	3.468	25.5	8	1	0.94	0	0	6	0	6	3.260
	8-Sep-05	White bass	JUV(<150mm)	0	0	108	6	114	0.648	25.5	8	1	0.94	0	0	102	6	107	0.609
	8-Sep-05	White perch	JUV(<150mm)	0	0	1050	6	1056	4.674	25.5	8	1	0.94	0	0	987	6	993	4.394
	8-Sep-05	Yellow perch	adult	0	0	6	0	6	0.480	25.5	8	1	0.94	0	0	6	0	6	0.451
40	**8-Sep-05**	**TOTAL**		**0**	**0**	**1518**	**42**	**1560**	**26.685**					**0**	**0**	**1427**	**39**	**1466**	**25.084**
	9-Sep-05	White bass	JUV(<150mm)	0	0	108	6	114	0.648	24	8	1	1.00	0	0	108	6	114	0.648
	9-Sep-05	White perch	JUV(<150mm)	0	0	1050	6	1056	4.674	24	8	1	1.00	0	0	1050	6	1056	4.674
41	**9-Sep-05**	**TOTAL**		**0**	**0**	**1158**	**12**	**1170**	**5.322**					**0**	**0**	**1158**	**12**	**1170**	**5.322**
	13-Sep-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.004	24	8	1	1.00	0	0	1	0	1	0.004
	13-Sep-05	Channel catfish	JUV(<150mm)	0	0	3	0	3	0.044	24	8	1	1.00	0	0	3	0	3	0.044
	13-Sep-05	Emerald shiner		0	0	3	0	3	0.007	24	8	1	1.00	0	0	3	0	3	0.007
	13-Sep-05	Freshwater drum	adult	0	0	19	0	19	5.335	24	8	1	1.00	0	0	19	0	19	5.335
	13-Sep-05	Gizzard shad	JUV(<200mm)	0	0	91	0	91	1.502	24	8	1	1.00	0	0	91	0	91	1.502
	13-Sep-05	Largemouth bass	JUV(<150mm)	0	0	2	0	2	0.023	24	8	1	1.00	0	0	2	0	2	0.023
	13-Sep-05	Logperch		0	0	1	0	1	0.010	24	8	1	1.00	0	0	1	0	1	0.010
	13-Sep-05	Longnose gar	adult	0	1	0	0	1	0.065	24	8	1	1.00	0	1	0	0	1	0.065
	13-Sep-05	Pumpkinseed		0	0	1	0	1	0.005	24	8	1	1.00	0	0	1	0	1	0.005
	13-Sep-05	Rock bass	adult	0	0	1	0	1	0.200	24	8	1	1.00	0	0	1	0	1	0.200
	13-Sep-05	Round goby		0	0	3	0	3	0.041	24	8	1	1.00	0	0	3	0	3	0.041
	13-Sep-05	Smallmouth bass	adult	0	0	1	0	1	0.585	24	8	1	1.00	0	0	1	0	1	0.585
	13-Sep-05	Spottail shiner		0	0	26	0	26	0.125	24	8	1	1.00	0	0	26	0	26	0.125
	13-Sep-05	Trout-perch		0	0	1	0	1	0.002	24	8	1	1.00	0	0	1	0	1	0.002
	13-Sep-05	Walleye	adult	0	0	4	0	4	3.695	24	8	1	1.00	0	0	4	0	4	3.695
	13-Sep-05	White bass	JUV(<150mm)	0	0	28	0	28	0.305	24	8	1	1.00	0	0	28	0	28	0.305
	13-Sep-05	White perch	JUV(<150mm)	0	0	32	0	32	0.158	24	8	1	1.00	0	0	32	0	32	0.158
	13-Sep-05	White sucker		0	0	1	0	1	0.496	24	8	1	1.00	0	0	1	0	1	0.496
	13-Sep-05	Yellow perch	adult	0	0	1	0	1	0.077	24	8	1	1.00	0	0	1	0	1	0.077
42	**13-Sep-05**	**TOTAL**		**0**	**1**	**219**	**0**	**220**	**12.679**					**0**	**1**	**219**	**0**	**220**	**12.679**
	14-Sep-05	Bluegill	JUV(<100mm)	0	0	3	1	4	0.014	24.25	8	1	0.99	0	0	3	1	4	0.014
	14-Sep-05	Brook silverside		0	0	2	0	2	0.001	24.25	8	1	0.99	0	0	2	0	2	0.001
	14-Sep-05	Channel catfish	JUV(<150mm)	0	0	0	4	4	0.061	24.25	8	1	0.99	0	0	0	4	4	0.060
	14-Sep-05	Emerald shiner		0	0	8	1	9	0.024	24.25	8	1	0.99	0	0	8	1	9	0.024
	14-Sep-05	Freshwater drum	JUV(<200mm)	0	0	15	5	20	5.324	24.25	8	1	0.99	0	0	15	5	20	5.271
	14-Sep-05	Gizzard shad	JUV(<200mm)	0	0	117	3	120	3.238	24.25	8	1	0.99	0	0	116	3	119	3.206
	14-Sep-05	Logperch		0	0	3	0	3	0.013	24.25	8	1	0.99	0	0	3	0	3	0.013
	14-Sep-05	Rock bass	adult	0	0	4	1	5	0.555	24.25	8	1	0.99	0	0	4	1	5	0.549
	14-Sep-05	Round goby		0	0	4	3	7	0.237	24.25	8	1	0.99	0	0	4	3	7	0.235
	14-Sep-05	Smallmouth bass	JUV(<150mm)	0	0	6	0	6	0.131	24.25	8	1	0.99	0	0	6	0	6	0.130
	14-Sep-05	Spottail shiner		0	0	27	7	34	0.147	24.25	8	1	0.99	0	0	27	7	34	0.146
	14-Sep-05	Walleye	adult	0	0	4	1	5	1.974	24.25	8	1	0.99	0	0	4	1	5	1.954
	14-Sep-05	White bass	JUV(<150mm)	0	0	43	9	52	0.576	24.25	8	1	0.99	0	0	43	9	51	0.570
	14-Sep-05	White perch	JUV(<150mm)	0	0	86	10	96	0.488	24.25	8	1	0.99	0	0	85	10	95	0.483
	14-Sep-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.009	24.25	8	1	0.99	0	0	1	0	1	0.009
43	**14-Sep-05**	**TOTAL**		**0**	**0**	**323**	**45**	**368**	**12.792**					**0**	**0**	**320**	**45**	**364**	**12.664**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	19-Sep-05	Bluegill	JUV(<100mm)	0	0	11	0	11	0.097	24	8	1/8	8.00	0	0	88	0	88	0.776
	19-Sep-05	Channel catfish	JUV(<150mm)	0	0	0	1	1	0.023	24	8	1/8	8.00	0	0	0	8	8	0.184
	19-Sep-05	Emerald shiner		0	0	3	2	5	0.009	24	8	1/8	8.00	0	0	24	16	40	0.072
	19-Sep-05	Freshwater drum	JUV(<200mm)	0	0	4	1	5	0.320	24	8	1/8	8.00	0	0	32	8	40	2.560
	19-Sep-05	Longnose gar	adult	0	2		0	2	0.279	24	8	1/8	8.00	0	16	0	0	16	2.232
	19-Sep-05	Pumpkinseed		0	1	1	0	2	0.020	24	8	1/8	8.00	0	8	8	0	16	0.160
	19-Sep-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.003	24	8	1/8	8.00	0	0	8	0	8	0.024
	19-Sep-05	Round goby		0	1	5	0	6	0.194	24	8	1/8	8.00	0	8	40	0	48	1.552
	19-Sep-05	Smallmouth bass	JUV(<150mm)	0	1	9	0	10	0.275	24	8	1/8	8.00	0	8	72	0	80	2.200
	19-Sep-05	Spottail shiner		0	0	16	2	18	0.080	24	8	1/8	8.00	0	0	128	16	144	0.640
	19-Sep-05	Trout-perch		0	0	5	1	6	0.014	24	8	1/8	8.00	0	0	40	8	48	0.112
	19-Sep-05	Walleye	adult	0	0	3	0	3	0.786	24	8	1/8	8.00	0	0	24	0	24	6.288
	19-Sep-05	White bass	JUV(<150mm)	0	0	27	0	27	0.317	24	8	1/8	8.00	0	0	216	0	216	2.536
	19-Sep-05	White bass	adult	0	0	154	9	163	1.101	24	8	1/8	8.00	0	0	1232	72	1304	8.808
	19-Sep-05	White perch	JUV(<150mm)	0	2	156	8	166	0.900	24	8	1/8	8.00	0	16	1248	64	1328	7.200
	19-Sep-05	White perch	adult	0	0	6	1	7	0.736	24	8	1/8	8.00	0	0	48	8	56	5.888
	19-Sep-05	Yellow perch	adult	0	0	2	0	2	0.308	24	8	1/8	8.00	0	0	16	0	16	2.464
44	**19-Sep-05**	**TOTAL**		**0**	**7**	**403**	**25**	**435**	**5.462**					**0**	**56**	**3224**	**200**	**3480**	**43.696**
	20-Sep-05	Bluegill	JUV(<100mm)	0	0	9	0	9	0.032	24	8	1/2	2.00	0	0	18	0	18	0.064
	20-Sep-05	Brook silverside		0	0	3	0	3	0.003	24	8	1/2	2.00	0	0	6	0	6	0.006
	20-Sep-05	Channel catfish	JUV(<150mm)	0	1	4	0	5	0.052	24	8	1/2	2.00	0	2	8	0	10	0.104
	20-Sep-05	Emerald shiner		0	0	7	2	9	0.023	24	8	1/2	2.00	0	0	14	4	18	0.046
	20-Sep-05	Freshwater drum	JUV(<200mm)	0	0	4	0	4	0.117	24	8	1/2	2.00	0	0	8	0	8	0.234
	20-Sep-05	Freshwater drum	adult	0	0	1	0	1	0.326	24	8	1/2	2.00	0	0	2	0	2	0.652
	20-Sep-05	Gizzard shad	JUV(<200mm)	0	0	49	5	54	0.490	24	8	1/2	2.00	0	0	98	10	108	0.980
	20-Sep-05	Rock bass	adult	0	0	1	0	1	0.278	24	8	1/2	2.00	0	0	2	0	2	0.556
	20-Sep-05	Round goby		0	0	2	0	2	0.061	24	8	1/2	2.00	0	0	4	0	4	0.122
	20-Sep-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.767	24	8	1/2	2.00	0	0	8	0	8	1.534
	20-Sep-05	Spottail shiner		0	0	30	2	32	0.152	24	8	1/2	2.00	0	0	60	4	64	0.304
	20-Sep-05	Trout-perch		0	0	3	0	3	0.007	24	8	1/2	2.00	0	0	6	0	6	0.014
	20-Sep-05	Walleye	adult	0	0	1	0	1	0.897	24	8	1/2	2.00	0	0	2	0	2	1.794
	20-Sep-05	White bass	JUV(<150mm)	0	0	34	0	34	0.280	24	8	1/2	2.00	0	0	68	0	68	0.560
	20-Sep-05	White bass	adult	0	0	3	0	3	0.180	24	8	1/2	2.00	0	0	6	0	6	0.360
	20-Sep-05	White perch	JUV(<150mm)	0	0	224	2	226	1.126	24	8	1/2	2.00	0	0	448	4	452	2.252
	20-Sep-05	White perch	adult	0	0	1	0	1	0.063	24	8	1/2	2.00	0	0	2	0	2	0.126
	20-Sep-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.008	24	8	1/2	2.00	0	0	2	0	2	0.016
45	**20-Sep-05**	**TOTAL**		**0**	**1**	**381**	**11**	**393**	**4.862**					**0**	**2**	**762**	**22**	**786**	**9.724**
	28-Sep-05	Bluegill	JUV(<100mm)	0	6	20	0	26	0.104	24	8	2/5	2.5	0	15	50	0	65	0.260
	28-Sep-05	Channel catfish	JUV(<150mm)	0	0	2	0	2	0.021	24	8	2/5	2.5	0	0	5	0	5	0.053
	28-Sep-05	Emerald shiner		0	0	1	0	1	0.002	24	8	2/5	2.5	0	0	3	0	3	0.005
	28-Sep-05	Freshwater drum	JUV(<200mm)	0	0	7	0	7	0.212	24	8	2/5	2.5	0	0	18	0	18	0.530
	28-Sep-05	Freshwater drum	adult	0	0	1	0	1	0.207	24	8	2/5	2.5	0	0	3	0	3	0.518
	28-Sep-05	Gizzard shad	JUV(<200mm)	0	0	64	2	66	0.589	24	8	2/5	2.5	0	0	160	5	165	1.473
	28-Sep-05	Gizzard shad	adult	0	0	1	0	1	0.644	24	8	2/5	2.5	0	0	3	0	3	1.610
	28-Sep-05	Northern pike		0	1	0	0	1	0.151	24	8	2/5	2.5	0	3	0	0	3	0.378
	28-Sep-05	Orangespotted sunfish		0	0	1	0	1	0.003	24	8	2/5	2.5	0	0	3	0	3	0.008
	28-Sep-05	Pumpkinseed		0	0	1	0	1	0.021	24	8	2/5	2.5	0	0	3	0	3	0.053
	28-Sep-05	Redhorse sucker		0	0	1	1	2	0.106	24	8	2/5	2.5	0	0	3	3	5	0.265
	28-Sep-05	Rock bass	adult	0	1	0	0	1	0.294	24	8	2/5	2.5	0	3	0	0	3	0.735
	28-Sep-05	Round goby		0	1	1	0	2	0.032	24	8	2/5	2.5	0	3	3	0	5	0.080
	28-Sep-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.103	24	8	2/5	2.5	0	0	8	0	8	0.258
	28-Sep-05	Spottail shiner		0	0	22	0	22	0.119	24	8	2/5	2.5	0	0	55	0	55	0.298
	28-Sep-05	Trout-perch		0	0	11	0	11	0.035	24	8	2/5	2.5	0	0	28	0	28	0.088
	28-Sep-05	White bass	JUV(<150mm)	0	0	21	0	21	0.238	24	8	2/5	2.5	0	0	53	0	53	0.595
	28-Sep-05	White bass	adult	0	0	1	0	1	0.089	24	8	2/5	2.5	0	0	3	0	3	0.223
	28-Sep-05	White perch	JUV(<150mm)	0	0	247	2	249	1.292	24	8	2/5	2.5	0	0	618	5	623	3.230
	28-Sep-05	White perch	adult	0	0	2	0	2	0.235	24	8	2/5	2.5	0	0	5	0	5	0.588
	28-Sep-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.011	24	8	2/5	2.5	0	0	3	0	3	0.028
46	**28-Sep-05**	**TOTAL**		**0**	**9**	**408**	**5**	**422**	**4.508**					**0**	**23**	**1020**	**13**	**1055**	**11.270**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	29-Sep-05	Bluegill	JUV(<100mm)	0	0	13	0	13	0.044	24	8	1/10	10.00	0	0	130	0	130	0.440
	29-Sep-05	Channel catfish	JUV(<150mm)	0	0	2	0	2	0.037	24	8	1/10	10.00	0	0	20	0	20	0.370
	29-Sep-05	Freshwater drum	JUV(<200mm)	0	0	6	0	6	0.255	24	8	1/10	10.00	0	0	60	0	60	2.550
	29-Sep-05	Gizzard shad	JUV(<200mm)	0	0	48	3	51	0.483	24	8	1/10	10.00	0	0	480	30	510	4.830
	29-Sep-05	Logperch		0	0	3	0	3	0.018	24	8	1/10	10.00	0	0	30	0	30	0.180
	29-Sep-05	Northern pike		0	0	1	0	1	0.265	24	8	1/10	10.00	0	0	10	0	10	2.650
	29-Sep-05	Round goby		0	0	1	1	2	0.042	24	8	1/10	10.00	0	0	10	10	20	0.420
	29-Sep-05	Smallmouth bass	JUV(<150mm)	0	0	4	1	5	0.083	24	8	1/10	10.00	0	0	40	10	50	0.830
	29-Sep-05	Spottail shiner		0	0	30	4	34	0.164	24	8	1/10	10.00	0	0	300	40	340	1.640
	29-Sep-05	Trout-perch		0	0	34	2	36	0.118	24	8	1/10	10.00	0	0	340	20	360	1.180
	29-Sep-05	Walleye	adult	0	0	1	0	1	0.488	24	8	1/10	10.00	0	0	10	0	10	4.880
	29-Sep-05	White bass	JUV(<150mm)	0	0	9	0	9	0.140	24	8	1/10	10.00	0	0	90	0	90	1.400
	29-Sep-05	White bass	adult	0	0	2	0	2	0.222	24	8	1/10	10.00	0	0	20	0	20	2.220
	29-Sep-05	White perch	JUV(<150mm)	0	0	636	0	636	4.021	24	8	1/10	10.00	0	0	6360	0	6360	40.210
	29-Sep-05	White perch	adult	0	0	1	0	1	0.116	24	8	1/10	10.00	0	0	10	0	10	1.160
	29-Sep-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.059	24	8	1/10	10.00	0	0	20	0	20	0.590
47	**29-Sep-05**	**TOTAL**		**0**	**0**	**793**	**11**	**804**	**6.555**					**0**	**0**	**7930**	**110**	**8040**	**65.550**
	3-Oct-05	Bluegill	adult	0	0	56	1	57	0.136	25.25	8	1/10	9.5	0	0	532	9	541	1.293
	3-Oct-05	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.044	25.25	8	1/10	9.5	0	0	38	0	38	0.418
	3-Oct-05	Emerald shiner		0	0	9	0	9	0.023	25.25	8	1/10	9.5	0	0	85	0	85	0.219
	3-Oct-05	Freshwater drum	JUV(<200mm)	0	0	24	1	25	0.808	25.25	8	1/10	9.5	0	0	228	9	237	7.680
	3-Oct-05	Gizzard shad	JUV(<200mm)	0	0	71	10	81	0.614	25.25	8	1/10	9.5	0	0	674	95	769	5.836
	3-Oct-05	Logperch		0	0	5	0	5	0.133	25.25	8	1/10	9.5	0	0	47	0	47	1.264
	3-Oct-05	Pumpkinseed		0	0	3	0	3	0.013	25.25	8	1/10	9.5	0	0	28	0	28	0.124
	3-Oct-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.004	25.25	8	1/10	9.5	0	0	9	0	9	0.038
	3-Oct-05	Round goby		0	0	5	0	5	0.042	25.25	8	1/10	9.5	0	0	47	0	47	0.399
	3-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.108	25.25	8	1/10	9.5	0	0	38	0	38	1.027
	3-Oct-05	Trout-perch		0	0	14	0	14	0.036	25.25	8	1/10	9.5	0	0	133	0	133	0.342
	3-Oct-05	White bass	JUV(<150mm)	0	0	21	1	22	0.022	25.25	8	1/10	9.5	0	0	199	9	208	0.209
	3-Oct-05	White perch	JUV(<150mm)	0	0	291	9	300	1.522	25.25	8	1/10	9.5	0	0	2765	85	2850	14.467
	3-Oct-05	White perch	adult	0	0	2	0	2	0.189	25.25	8	1/10	9.5	0	0	19	0	19	1.796
	3-Oct-05	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.013	25.25	8	1/10	9.5	0	0	28	0	28	0.124
48	**3-Oct-05**	**TOTAL**		**0**	**0**	**513**	**22**	**535**	**3.707**					**0**	**0**	**4870**	**207**	**5077**	**35.235**
	4-Oct-05	Bluegill	JUV(<100mm)	0	10	3	2	15	0.062	22.75	8	1/10	10.5	0	105	31	21	157	0.654
	4-Oct-05	Channel catfish	adult	0	0	1	2	3	0.166	22.75	8	1/10	10.5	0	0	10	21	31	1.751
	4-Oct-05	Emerald shiner		0	0	7	0	7	0.065	22.75	8	1/10	10.5	0	0	73	0	73	0.686
	4-Oct-05	Freshwater drum	JUV(<200mm)	0	0	10	0	10	0.933	22.75	8	1/10	10.5	0	0	105	0	105	9.842
	4-Oct-05	Gizzard shad	adult	0	0	36	3	39	0.382	22.75	8	1/10	10.5	0	0	379	31	410	4.030
	4-Oct-05	Goldfish		0	0	1	0	1	0.007	22.75	8	1/10	10.5	0	0	10	0	10	0.074
	4-Oct-05	Logperch		0	0	3	0	3	0.014	22.75	8	1/10	10.5	0	0	31	0	31	0.148
	4-Oct-05	Pumpkinseed		0	2	1	0	3	0.050	22.75	8	1/10	10.5	0	21	10	0	31	0.527
	4-Oct-05	Round goby		0	0	1	0	1	0.007	22.75	8	1/10	10.5	0	0	10	0	10	0.074
	4-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.149	22.75	8	1/10	10.5	0	0	42	0	42	1.572
	4-Oct-05	Spottail shiner		0	0	2	2	4	0.021	22.75	8	1/10	10.5	0	0	21	21	42	0.222
	4-Oct-05	Cyprinidae		0	0	2	0	2	0.005	22.75	8	1/10	10.5	0	0	21	0	21	0.053
	4-Oct-05	Walleye	adult	0	1	3	0	4	3.367	22.75	8	1/10	10.5	0	10	31	0	41	35.518
	4-Oct-05	White bass	JUV(<150mm)	0	0	19	0	19	0.198	22.75	8	1/10	10.5	0	0	200	0	200	2.089
	4-Oct-05	White perch	JUV(<150mm)	0	0	149	3	152	0.760	22.75	8	1/10	10.5	0	0	1571	31	1602	8.017
	4-Oct-05	White perch	adult	0	0	1	0	1	0.074	22.75	8	1/10	10.5	0	0	10	0	10	0.781
	4-Oct-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.006	22.75	8	1/10	10.5	0	0	10	0	10	0.063
49	**4-Oct-05**	**TOTAL**		**0**	**13**	**244**	**12**	**269**	**6.266**					**0**	**136**	**2565**	**125**	**2826**	**66.100**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	12-Oct-05	Bluegill	adult	0	0	8	0	8	0.026	24.17	8	1/40	39.7	0	0	317	0	317	1.033
	12-Oct-05	Brown bullhead		0	0	1	0	1	0.243	24.17	8	1/40	39.7	0	0	39	0	39	9.652
	12-Oct-05	Channel catfish	adult	0	3	3	0	6	0.071	24.17	8	1/40	39.7	0	119	119	0	238	2.820
	12-Oct-05	Emerald shiner		0	0	7	1	8	0.015	24.17	8	1/40	39.7	0	0	278	39	317	0.596
	12-Oct-05	Freshwater drum	JUV(<200mm)	0	0	4	0	4	0.089	24.17	8	1/40	39.7	0	0	158	0	158	3.535
	12-Oct-05	Gizzard shad	JUV(<200mm)	0	0	287	1	288	2.560	24.17	8	1/40	39.7	0	0	11399	39	11438	101.683
	12-Oct-05	Gizzard shad	adult	0	0	1	0	1	0.752	24.17	8	1/40	39.7	0	0	39	0	39	29.869
	12-Oct-05	Rock bass	JUV(<100mm)	0	0	1	0	1	0.003	24.17	8	1/40	39.7	0	0	39	0	39	0.119
	12-Oct-05	Round goby		0	0	0	1	1	0.063	24.17	8	1/40	39.7	0	0	0	39	39	2.502
	12-Oct-05	Spottail shiner		0	0	14	1	15	0.071	24.17	8	1/40	39.7	0	0	556	39	595	2.820
	12-Oct-05	Trout-perch		0	0	40	2	42	0.130	24.17	8	1/40	39.7	0	0	1588	79	1667	5.164
	12-Oct-05	Walleye	adult	0	0	1	0	1	1.421	24.17	8	1/40	39.7	0	0	39	0	39	56.442
	12-Oct-05	White bass	JUV(<150mm)	0	0	4	0	4	0.067	24.17	8	1/40	39.7	0	0	158	0	158	2.661
	12-Oct-05	White perch	JUV(<150mm)	0	0	282	0	282	1.783	24.17	8	1/40	39.7	0	0	11201	0	11201	70.821
	12-Oct-05	Yellow perch	JUV(<150mm)	0	0	2	0	2	0.019	24.17	8	1/40	39.7	0	0	79	0	79	0.755
50	**12-Oct-05**	**TOTAL**		**0**	**3**	**655**	**6**	**664**	**7.313**					**0**	**119**	**26009**	**235**	**26363**	**290.472**
	13-Oct-05	Bluegill	JUV(<100mm)	0	0	4	0	4	0.016	23.25	8	1/20	20.6	0	0	82	0	82	0.330
	13-Oct-05	Brook silverside		0	0	1	0	1	0.002	23.25	8	1/20	20.6	0	0	20	0	20	0.041
	13-Oct-05	Channel catfish	JUV(<150mm)	0	0	11	0	11	0.174	23.25	8	1/20	20.6	0	0	227	0	227	3.592
	13-Oct-05	Emerald shiner		0	0	10	0	10	0.019	23.25	8	1/20	20.6	0	0	206	0	206	0.392
	13-Oct-05	Freshwater drum	JUV(<200mm)	0	0	10	0	10	0.253	23.25	8	1/20	20.6	0	0	206	0	206	5.223
	13-Oct-05	Freshwater drum	adult	0	0	1	0	1	0.409	23.25	8	1/20	20.6	0	0	20	0	20	8.444
	13-Oct-05	Gizzard shad	JUV(<200mm)	0	0	491	4	495	3.396	23.25	8	1/20	20.6	0	0	10136	82	10218	70.110
	13-Oct-05	Pumpkinseed		0	0	2	0	2	0.007	23.25	8	1/20	20.6	0	0	41	0	41	0.145
	13-Oct-05	Round goby		0	0	1	0	1	0.073	23.25	8	1/20	20.6	0	0	20	0	20	1.507
	13-Oct-05	Sea lamprey		0	1	0	0	1	0.048	23.25	8	1/20	20.6	0	20	0	0	20	0.991
	13-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.089	23.25	8	1/20	20.6	0	0	82	0	82	1.837
	13-Oct-05	Spottail shiner		0	0	23	1	24	0.128	23.25	8	1/20	20.6	0	0	474	20	494	2.643
	13-Oct-05	Trout-perch		0	0	45	0	45	0.133	23.25	8	1/20	20.6	0	0	929	0	929	2.746
	13-Oct-05	White bass	JUV(<150mm)	0	0	6	0	6	0.091	23.25	8	1/20	20.6	0	0	123	0	123	1.879
	13-Oct-05	White perch	JUV(<150mm)	0	0	87	0	87	0.542	23.25	8	1/20	20.6	0	0	1796	0	1796	11.190
	13-Oct-05	White perch	adult	0	0	1	0	1	0.166	23.25	8	1/20	20.6	0	0	20	0	20	3.427
	13-Oct-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.011	23.25	8	1/20	20.6	0	0	20	0	20	0.227
51	**13-Oct-05**	**TOTAL**		**0**	**1**	**698**	**5**	**704**	**5.557**					**0**	**20**	**14402**	**102**	**14524**	**114.724**
	18-Oct-05	Bluegill	JUV(<100mm)	0	0	6	0	6	0.016	25	8	1/8	7.7	0	0	46	0	46	0.123
	18-Oct-05	Brook silverside		0	0	1	0	1	0.002	25	8	1/8	7.7	0	0	7	0	7	0.015
	18-Oct-05	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.047	25	8	1/8	7.7	0	0	30	0	30	0.361
	18-Oct-05	Emerald shiner		0	0	0	1	1	0.001	25	8	1/8	7.7	0	0	0	7	7	0.008
	18-Oct-05	Freshwater drum	JUV(<200mm)	0	0	3	0	3	0.078	25	8	1/8	7.7	0	0	23	0	23	0.599
	18-Oct-05	Gizzard shad	JUV(<200mm)	0	0	70	19	89	1.105	25	8	1/8	7.7	0	0	537	145	682	8.486
	18-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	1	0	1	0.007	25	8	1/8	7.7	0	0	7	0	7	0.054
	18-Oct-05	Spottail shiner		0	0	2	0	2	0.016	25	8	1/8	7.7	0	0	15	0	15	0.123
	18-Oct-05	White bass	JUV(<150mm)	0	0	0	1	1	0.002	25	8	1/8	7.7	0	0	0	7	7	0.015
	18-Oct-05	White bass	adult	0	0	1	0	1	0.055	25	8	1/8	7.7	0	0	7	0	7	0.422
	18-Oct-05	White perch	JUV(<150mm)	0	0	35	0	35	0.203	25	8	1/8	7.7	0	0	268	0	268	1.559
52	**18-Oct-05**	**TOTAL**		**0**	**0**	**123**	**21**	**144**	**1.532**					**0**	**0**	**940**	**159**	**1099**	**11.766**
	19-Oct-05	Black crappie	JUV(<150mm)	0	0	1	0	1	0.016	21.05	8	1/5	5.7	0	0	5	0	5	0.091
	19-Oct-05	Bluegill	JUV(<100mm)	0	0	4	0	4	0.010	21.05	8	1/5	5.7	0	0	22	0	22	0.057
	19-Oct-05	Channel catfish	JUV(<150mm)	0	9	1	0	10	0.208	21.05	8	1/5	5.7	0	51	5	0	56	1.186
	19-Oct-05	Emerald shiner		0	0	3	0	3	0.013	21.05	8	1/5	5.7	0	0	17	0	17	0.074
	19-Oct-05	Freshwater drum	JUV(<200mm)	0	0	18	0	18	0.428	21.05	8	1/5	5.7	0	0	102	0	102	2.440
	19-Oct-05	Freshwater drum	adult	0	0	2	0	2	0.669	21.05	8	1/5	5.7	0	0	11	0	11	3.813
	19-Oct-05	Gizzard shad	JUV(<200mm)	0	0	197	1	198	1.800	21.05	8	1/5	5.7	0	0	1122	5	1127	10.260
	19-Oct-05	Goldfish		0	0	1	0	1	0.024	21.05	8	1/5	5.7	0	0	5	0	5	0.137
	19-Oct-05	Logperch		0	0	2	0	2	0.009	21.05	8	1/5	5.7	0	0	11	0	11	0.051
	19-Oct-05	Round goby		0	0	2	0	2	0.007	21.05	8	1/5	5.7	0	0	11	0	11	0.040
	19-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.071	21.05	8	1/5	5.7	0	0	17	0	17	0.405
	19-Oct-05	Trout-perch		0	0	2	0	2	0.008	21.05	8	1/5	5.7	0	0	11	0	11	0.046
	19-Oct-05	White bass	JUV(<150mm)	0	0	5	0	5	0.062	21.05	8	1/5	5.7	0	0	28	0	28	0.353
	19-Oct-05	White bass	adult	0	0	1	0	1	0.379	21.05	8	1/5	5.7	0	0	5	0	5	2.160
	19-Oct-05	White perch	JUV(<150mm)	0	0	150	0	150	0.949	21.05	8	1/5	5.7	0	0	855	0	855	5.409
53	**19-Oct-05**	**TOTAL**		**0**	**9**	**392**	**1**	**402**	**4.653**					**0**	**51**	**2227**	**5**	**2283**	**26.522**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	24-Oct-05	Brook silverside		0	0	1	0	1	0.002	21.5	8	1/20	22.3	0	0	22	0	22	0.045
	24-Oct-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.013	21.5	8	1/20	22.3	0	0	22	0	22	0.290
	24-Oct-05	Gizzard shad	JUV(<200mm)	0	0	95	5	100	2.894	21.5	8	1/20	22.3	0	0	2120	111	2231	64.611
	24-Oct-05	Round goby		0	0	20	2	22	0.191	21.5	8	1/20	22.3	0	0	446	44	490	4.264
	24-Oct-05	Smallmouth bass	adult	0	0	3	0	3	0.091	21.5	8	1/20	22.3	0	0	66	0	66	2.032
	24-Oct-05	Trout-perch		0	0	3	0	3	0.008	21.5	8	1/20	22.3	0	0	66	0	66	0.179
	24-Oct-05	White bass	JUV(<150mm)	0	0	1	0	1	0.013	21.5	8	1/20	22.3	0	0	22	0	22	0.290
54	**24-Oct-05**	**TOTAL**		**0**	**0**	**124**	**7**	**131**	**3.212**					**0**	**0**	**2764**	**155**	**2919**	**71.711**
	25-Oct-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.010	23.67	8	1/20	20.3	0	0	20	0	20	0.203
	25-Oct-05	Emerald shiner		0	0	6	0	6	0.016	23.67	8	1/20	20.3	0	0	121	0	121	0.324
	25-Oct-05	Freshwater drum	adult	0	0	1	0	1	0.445	23.67	8	1/20	20.3	0	0	20	0	20	9.024
	25-Oct-05	Gizzard shad	JUV(<200mm)	0	0	398	2	400	3.727	23.67	8	1/20	20.3	0	0	8071	40	8111	75.580
	25-Oct-05	Round goby		0	0	1	0	1	0.004	23.67	8	1/20	20.3	0	0	20	0	20	0.081
	25-Oct-05	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.075	23.67	8	1/20	20.3	0	0	81	0	81	1.521
	25-Oct-05	Spottail shiner		0	0	8	0	8	0.046	23.67	8	1/20	20.3	0	0	162	0	162	0.933
	25-Oct-05	Trout-perch		0	0	12	0	12	0.039	23.67	8	1/20	20.3	0	0	243	0	243	0.791
	25-Oct-05	White perch	JUV(<150mm)	0	0	70	0	70	0.439	23.67	8	1/20	20.3	0	0	1419	0	1419	8.902
	25-Oct-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.014	23.67	8	1/20	20.3	0	0	20	0	20	0.284
55	**25-Oct-05**	**TOTAL**		**0**	**0**	**502**	**2**	**504**	**4.815**					**0**	**0**	**10177**	**40**	**10217**	**97.643**
	2-Nov-05	Bluegill	JUV(<100mm)	0	2	4	0	6	0.018	23.67	8	1/10	10.1	0	20	40	0	60	0.183
	2-Nov-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.012	23.67	8	1/10	10.1	0	0	10	0	10	0.122
	2-Nov-05	Common carp	JUV(<150mm)	0	0	1	0	1	0.046	23.67	8	1/10	10.1	0	0	10	0	10	0.466
	2-Nov-05	Gizzard shad	JUV(<200mm)	0	0	460	1	461	4.090	23.67	8	1/10	10.1	0	0	4663	10	4673	41.469
	2-Nov-05	Longnose gar	JUV(<200mm)	0	0	1	0	1	0.108	23.67	8	1/10	10.1	0	0	10	0	10	1.095
	2-Nov-05	Orangespotted sunfish		0	0	1	0	1	0.002	23.67	8	1/10	10.1	0	0	10	0	10	0.020
	2-Nov-05	White perch	JUV(<150mm)	0	0	9	0	9	0.058	23.67	8	1/10	10.1	0	0	91	0	91	0.588
	2-Nov-05	Yellow perch	JUV(<150mm)	0	0	1	0	1	0.057	23.67	8	1/10	10.1	0	0	10	0	10	0.578
56	**2-Nov-05**	**TOTAL**		**0**	**2**	**478**	**1**	**481**	**4.391**					**0**	**20**	**4844**	**10**	**4874**	**44.520**
	3-Nov-05	Bluegill	JUV(<100mm)	0	0	10	0	10	0.027	22	8	1/8	8.7	0	0	87	0	87	0.236
	3-Nov-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.005	22	8	1/8	8.7	0	0	8	0	8	0.044
	3-Nov-05	Freshwater drum	JUV(<200mm)	0	0	4	0	4	0.215	22	8	1/8	8.7	0	0	34	0	34	1.876
	3-Nov-05	Gizzard shad	JUV(<200mm)	0	0	121	0	121	1.364	22	8	1/8	8.7	0	0	1055	0	1055	11.904
	3-Nov-05	Goldfish		0	0	2	0	2	0.028	22	8	1/8	8.7	0	0	17	0	17	0.244
	3-Nov-05	Largemouth bass		0	0	1	0	1	0.101	22	8	1/8	8.7	0	0	8	0	8	0.881
	3-Nov-05	Logperch		0	0	1	0	1	0.006	22	8	1/8	8.7	0	0	8	0	8	0.052
	3-Nov-05	Round goby		0	1	4	0	5	0.105	22	8	1/8	8.7	0	8	34	0	42	0.916
	3-Nov-05	Sea lamprey		0	0	1	0	1	0.025	22	8	1/8	8.7	0	0	8	0	8	0.218
	3-Nov-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.058	22	8	1/8	8.7	0	0	17	0	17	0.506
	3-Nov-05	Spottail shiner		0	0	1	0	1	0.014	22	8	1/8	8.7	0	0	8	0	8	0.122
	3-Nov-05	White bass	JUV(<150mm)	0	0	2	0	2	0.045	22	8	1/8	8.7	0	0	17	0	17	0.393
	3-Nov-05	White perch	JUV(<150mm)	0	0	30	0	30	0.226	22	8	1/8	8.7	0	0	261	0	261	1.972
57	**3-Nov-05**	**TOTAL**		**0**	**1**	**180**	**0**	**181**	**2.219**					**0**	**8**	**1562**	**0**	**1570**	**19.365**
	10-Nov-05	Bluegill	adult	0	0	7	1	8	0.016	24	8	1/36	35.7	0	0	249	35	284	0.571
	10-Nov-05	Channel catfish	JUV(<150mm)	0	0	1	0	1	0.009	24	8	1/36	35.7	0	0	35	0	35	0.321
	10-Nov-05	Emerald shiner		0	0	0	1	1	0.001	24	8	1/36	35.7	0	0	0	35	35	0.036
	10-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	1	2	0.037	24	8	1/36	35.7	0	0	35	35	70	1.319
	10-Nov-05	Gizzard shad	JUV(<200mm)	0	0	513	51	564	6.533	24	8	1/36	35.7	0	0	18293	1818	20111	232.967
	10-Nov-05	Longnose gar	adult	0	0	7	1	8	3.200	24	8	1/36	35.7	0	0	249	35	284	114.112
	10-Nov-05	Pumpkinseed		0	0	1	1	2	0.004	24	8	1/36	35.7	0	0	35	35	70	0.143
	10-Nov-05	Quillback		0	0	1	0	1	1.535	24	8	1/36	35.7	0	0	35	0	35	54.738
	10-Nov-05	Round goby		0	0	1	0	1	0.006	24	8	1/36	35.7	0	0	35	0	35	0.214
	10-Nov-05	Smallmouth bass	JUV(<150mm)	0	0	3	0	3	0.022	24	8	1/36	35.7	0	0	106	0	106	0.785
	10-Nov-05	Spottail shiner		0	0	5	1	6	0.030	24	8	1/36	35.7	0	0	178	35	213	1.070
	10-Nov-05	White perch	JUV(<150mm)	0	0	15	1	16	0.088	24	8	1/36	35.7	0	0	534	35	569	3.138
58	**10-Nov-05**	**TOTAL**		**0**	**0**	**555**	**58**	**613**	**11.481**					**0**	**0**	**19784**	**2063**	**21847**	**409.412**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	11-Nov-05	Black crappie	JUV(<150mm)	0	0	1	0	1	0.009	24	8	1/62	62.0	0	0	61	0	61	0.558
	11-Nov-05	Bluegill	JUV(<100mm)	0	0	11	0	11	0.002	24	8	1/62	62.0	0	0	681	0	681	0.118
	11-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.036	24	8	1/62	62.0	0	0	61	0	61	2.231
	11-Nov-05	Gizzard shad	JUV(<200mm)	0	0	1282	0	1282	15.455	24	8	1/62	62.0	0	0	79432	0	79432	957.592
	11-Nov-05	Longnose gar	adult	0	1	0	0	1	0.154	24	8	1/62	62.0	0	61	0	0	61	9.529
	11-Nov-05	Rainbow smelt		0	0	1	0	1	0.001	24	8	1/62	62.0	0	0	61	0	61	0.062
	11-Nov-05	Round goby		0	1	0	0	1	0.655	24	8	1/62	62.0	0	61	0	0	61	40.584
	11-Nov-05	Smallmouth bass	JUV(<150mm)	0	1	0	0	1	0.072	24	8	1/62	62.0	0	61	0	0	61	4.461
	11-Nov-05	Spottail shiner		0	0	5	1	6	0.080	24	8	1/62	62.0	0	0	309	61	370	4.957
	11-Nov-05	Walleye	adult	0	0	1	0	1	1.052	24	8	1/62	62.0	0	0	61	0	61	65.182
	11-Nov-05	White bass	adult	0	1	0	0	1	0.071	24	8	1/62	62.0	0	61	0	0	61	4.399
	11-Nov-05	White perch	JUV(<150mm)	0	0	1	0	1	0.006	24	8	1/62	62.0	0	0	61	0	61	0.372
59	**11-Nov-05**	**TOTAL**		**0**	**4**	**1303**	**1**	**1308**	**17.593**					**0**	**244**	**80727**	**61**	**81032**	**1090.044**
	15-Nov-05	Bluegill	JUV(<100mm)	0	0	18	0	18	0.042	22.5	8	1/20	20.9	0	0	376	0	376	0.879
	15-Nov-05	Brook silverside		0	0	1	0	1	0.002	22.5	8	1/20	20.9	0	0	20	0	20	0.042
	15-Nov-05	Channel catfish	JUV(<150mm)	0	1	4	0	5	0.102	22.5	8	1/20	20.9	0	20	83	0	103	2.134
	15-Nov-05	Emerald shiner		0	0	5	1	6	0.023	22.5	8	1/20	20.9	0	0	104	20	124	0.481
	15-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.038	22.5	8	1/20	20.9	0	0	20	0	20	0.795
	15-Nov-05	Gizzard shad	JUV(<200mm)	0	0	971	0	971	13.210	22.5	8	1/20	20.9	0	0	20310	0	20310	276.314
	15-Nov-05	Largemouth bass		0	0	1	0	1	0.077	22.5	8	1/20	20.9	0	0	20	0	20	1.611
	15-Nov-05	Longnose gar	adult	0	1	0	0	1	0.519	22.5	8	1/20	20.9	0	20	0	0	20	10.856
	15-Nov-05	Orangespotted sunfish		0	0	2	0	2	0.005	22.5	8	1/20	20.9	0	0	41	0	41	0.105
	15-Nov-05	Rainbow smelt		0	0	1	0	1	0.005	22.5	8	1/20	20.9	0	0	20	0	20	0.105
	15-Nov-05	Round goby		0	0	2	0	2	0.027	22.5	8	1/20	20.9	0	0	41	0	41	0.565
	15-Nov-05	Spottail shiner		0	0	11	0	11	0.076	22.5	8	1/20	20.9	0	0	230	0	230	1.590
	15-Nov-05	White bass	adult	0	0	1	0	1	0.050	22.5	8	1/20	20.9	0	0	20	0	20	1.046
	15-Nov-05	White perch	JUV(<150mm)	0	0	20	0	20	0.101	22.5	8	1/20	20.9	0	0	418	0	418	2.113
60	**15-Nov-05**	**TOTAL**		**0**	**2**	**1038**	**1**	**1041**	**14.277**					**0**	**40**	**21703**	**20**	**21763**	**298.632**
	16-Nov-05	Bluegill	JUV(<100mm)	0	0	4	0	4	0.008	22.5	8	1/82	87.5	0	0	349	0	349	0.700
	16-Nov-05	Brown bullhead		0	0	1	0	1	0.487	22.5	8	1/82	87.5	0	0	87	0	87	42.612
	16-Nov-05	Emerald shiner		0	0	1	0	1	0.004	22.5	8	1/82	87.5	0	0	87	0	87	0.350
	16-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.029	22.5	8	1/82	87.5	0	0	87	0	87	2.537
	16-Nov-05	Gizzard shad	JUV(<200mm)	0	0	182	0	182	2.786	22.5	8	1/82	87.5	0	0	15924	0	15924	243.769
	16-Nov-05	Spottail shiner		0	0	1	0	1	0.007	22.5	8	1/82	87.5	0	0	87	0	87	0.612
	16-Nov-05	Trout-perch		0	0	1	0	1	0.004	22.5	8	1/82	87.5	0	0	87	0	87	0.350
	16-Nov-05	White bass	JUV(<150mm)	0	0	2	0	2	0.073	22.5	8	1/82	87.5	0	0	174	0	174	6.387
	16-Nov-05	White perch	JUV(<150mm)	0	0	11	0	11	0.064	22.5	8	1/82	87.5	0	0	962	0	962	5.600
61	**16-Nov-05**	**TOTAL**		**0**	**0**	**204**	**0**	**204**	**3.462**					**0**	**0**	**17844**	**0**	**17844**	**302.918**
	21-Nov-05	Emerald shiner		0	0	31	0	31	0.131	23.42	8	1/51	52.3	0	0	1620	0	1620	6.849
	21-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.025	23.42	8	1/51	52.3	0	0	52	0	52	1.307
	21-Nov-05	Gizzard shad	JUV(<200mm)	0	0	447	0	447	14.000	23.42	8	1/51	52.3	0	0	23370	0	23370	731.976
	21-Nov-05	Gizzard shad	adult	0	0	6	0	6	0.576	23.42	8	1/51	52.3	0	0	313	0	313	30.116
	21-Nov-05	Goldfish		0	0	1	0	1	0.026	23.42	8	1/51	52.3	0	0	52	0	52	1.359
	21-Nov-05	Largemouth bass		0	1		0	1	0.182	23.42	8	1/51	52.3	0	52	0	0	52	9.516
	21-Nov-05	Logperch		0	0	1	0	1	0.004	23.42	8	1/51	52.3	0	0	52	0	52	0.209
	21-Nov-05	Longnose gar	adult	0	0	2	0	2	0.518	23.42	8	1/51	52.3	0	0	104	0	104	27.088
	21-Nov-05	Northern pike		0	0	1	0	1	1.274	23.42	8	1/51	52.3	0	0	52	0	52	66.610
	21-Nov-05	Rainbow smelt		0	0	1	0	1	0.001	23.42	8	1/51	52.3	0	0	52	0	52	0.052
	21-Nov-05	Round goby		0	0	1	0	1	0.058	23.42	8	1/51	52.3	0	0	52	0	52	3.032
	21-Nov-05	Smallmouth bass	adult	0	0	1	0	1	0.052	23.42	8	1/51	52.3	0	0	52	0	52	2.719
	21-Nov-05	Spottail shiner		0	0	1	0	1	0.010	23.42	8	1/51	52.3	0	0	52	0	52	0.523
	21-Nov-05	Trout-perch		0	0	4	0	4	0.015	23.42	8	1/51	52.3	0	0	209	0	209	0.784
	21-Nov-05	Walleye	JUV(<200mm)	0	0	1	0	1	0.043	23.42	8	1/51	52.3	0	0	52	0	52	2.248
	21-Nov-05	Walleye	adult	0	0	1	0	1	0.628	23.42	8	1/51	52.3	0	0	52	0	52	32.834
	21-Nov-05	White bass	JUV(<150mm)	0	0	2	0	2	0.072	23.42	8	1/51	52.3	0	0	104	0	104	3.764
	21-Nov-05	White perch	JUV(<150mm)	0	0	13	0	13	0.081	23.42	8	1/51	52.3	0	0	679	0	679	4.235
	21-Nov-05	Yellow perch	adult	0	3	1	0	4	0.755	23.42	8	1/51	52.3	0	156	52	0	208	39.474
62	**21-Nov-05**	**TOTAL**		**0**	**4**	**516**	**0**	**520**	**18.451**					**0**	**208**	**26971**	**0**	**27179**	**964.697**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	22-Nov-05	Brook silverside		0	0	1	0	1	0.002	22.83	8	1/108	114.0	0	0	113	0	113	0.228
	22-Nov-05	Emerald shiner		0	0	4	0	4	0.014	22.83	8	1/108	114.0	0	0	455	0	455	1.596
	22-Nov-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	0.006	22.83	8	1/108	114.0	0	0	113	0	113	0.684
	22-Nov-05	Gizzard shad	JUV(<200mm)	0	0	986	0	986	16.181	22.83	8	1/108	114.0	0	0	112369	0	112369	1844.068
	22-Nov-05	Longnose gar	JUV(<200mm)	0	1	0	0	1	0.363	22.83	8	1/108	114.0	0	113	0	0	113	41.369
	22-Nov-05	Spottail shiner		0	0	2	0	2	0.008	22.83	8	1/108	114.0	0	0	227	0	227	0.912
63	**22-Nov-05**	**TOTAL**		**0**	**1**	**994**	**0**	**995**	**16.574**					**0**	**113**	**113277**	**0**	**113390**	**1888.856**
	30-Nov-05	Bluegill	JUV(<100mm)	0	0	9	0	9	0.020	23.75	8	1/61	61.3	0	0	551	0	551	1.225
	30-Nov-05	Channel catfish	adult	0	0	1	0	1	3.231	23.75	8	1/61	61.3	0	0	61	0	61	197.957
	30-Nov-05	Common carp	adult	0	0	1	0	1	1.031	23.75	8	1/61	61.3	0	0	61	0	61	63.167
	30-Nov-05	Emerald shiner		0	0	56	0	56	0.156	23.75	8	1/61	61.3	0	0	3431	0	3431	9.558
	30-Nov-05	Gizzard shad	JUV(<200mm)	0	615	523	0	1138	14.227	23.75	8	1/61	61.3	0	37679	32043	0	69722	871.660
	30-Nov-05	Largemouth bass		0	1	0	0	1	0.197	23.75	8	1/61	61.3	0	61	0	0	61	12.070
	30-Nov-05	Northern pike		0	0	1	0	1	0.785	23.75	8	1/61	61.3	0	0	61	0	61	48.095
	30-Nov-05	Rainbow smelt		0	0	1	0	1	0.081	23.75	8	1/61	61.3	0	0	61	0	61	4.963
	30-Nov-05	White perch	JUV(<150mm)	0	0	5	0	5	0.031	23.75	8	1/61	61.3	0	0	306	0	306	1.899
	30-Nov-05	Yellow perch	adult	0	0	1	0	1	0.248	23.75	8	1/61	61.3	0	0	61	0	61	15.194
64	**30-Nov-05**	**TOTAL**		**0**	**616**	**598**	**0**	**1214**	**20.007**					**0**	**37740**	**36636**	**0**	**74376**	**1225.789**
	1-Dec-05	Bluegill	JUV(<100mm)	0	0	1	0	1	0.001	24	8	1/55	55.5	0	0	55	0	55	0.055
	1-Dec-05	Emerald shiner		0	0	1	0	1	0.003	24	8	1/55	55.5	0	0	55	0	55	0.166
	1-Dec-05	Gizzard shad	JUV(<200mm)	0	0	1019	0	1019	16.818	24	8	1/55	55.5	0	0	56544	0	56544	933.231
	1-Dec-05	Round goby		0	0	1	0	1	0.099	24	8	1/55	55.5	0	0	55	0	55	5.494
65	**1-Dec-05**	**TOTAL**		**0**	**0**	**1022**	**0**	**1022**	**16.921**					**0**	**0**	**56709**	**0**	**56709**	**938.946**
	8-Dec-05	Emerald shiner		0	0	5	2	7	0.027	24	8	1/21	21.4	0	0	107	42	149	0.578
	8-Dec-05	Gizzard shad	JUV(<200mm)	0	0	578	24	602	14.170	24	8	1/21	21.4	0	0	12369	513	12882	303.238
	8-Dec-05	Gizzard shad	adult	0	0	2	0	2	1.313	24	8	1/21	21.4	0	0	42	0	42	28.098
	8-Dec-05	Round goby		0	0	1	0	1	0.003	24	8	1/21	21.4	0	0	21	0	21	0.064
	8-Dec-05	Silver lamprey		0	0	1	0	1	0.409	24	8	1/21	21.4	0	0	21	0	21	8.753
66	**8-Dec-05**	**TOTAL**		**0**	**0**	**587**	**26**	**613**	**15.922**					**0**	**0**	**12560**	**555**	**13115**	**340.731**
	12-Dec-05	Bluegill	JUV(<100mm)	0	0	3	0	3	0.009	25.5	8	1/18	16.8	0	0	50	0	50	0.151
	12-Dec-05	Emerald shiner		0	0	10	0	10	0.043	25.5	8	1/18	16.8	0	0	167	0	167	0.722
	12-Dec-05	Gizzard shad	JUV(<200mm)	0	0	400	8	408	6.350	25.5	8	1/18	16.8	0	0	6712	134	6846	106.559
	12-Dec-05	Goldfish		0	2	8	0	10	0.133	25.5	8	1/18	16.8	0	33	134	0	167	2.232
	12-Dec-05	Longnose gar	JUV(<200mm)	0	1	0	0	1	0.105	25.5	8	1/18	16.8	0	16	0	0	16	1.762
	12-Dec-05	Round goby		0	0	2	0	2	0.024	25.5	8	1/18	16.8	0	0	33	0	33	0.403
	12-Dec-05	Silver chub		0	0	1	0	1	0.038	25.5	8	1/18	16.8	0	0	16	0	16	0.638
	12-Dec-05	Spottail shiner		0	0	2	0	2	0.015	25.5	8	1/18	16.8	0	0	33	0	33	0.252
	12-Dec-05	Trout-perch		0	0	1	0	1	0.004	25.5	8	1/18	16.8	0	0	16	0	16	0.067
	12-Dec-05	White bass	adult	0	0	1	0	1	0.400	25.5	8	1/18	16.8	0	0	16	0	16	6.712
	12-Dec-05	White perch	JUV(<150mm)	0	0	1	0	1	0.005	25.5	8	1/18	16.8	0	0	16	0	16	0.084
	12-Dec-05	Yellow perch	adult	0	0	1	0	1	0.162	25.5	8	1/18	16.8	0	0	16	0	16	2.719
67	**12-Dec-05**	**TOTAL**		**0**	**3**	**430**	**8**	**441**	**7.288**					**0**	**49**	**7209**	**134**	**7392**	**122.300**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

				MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Life Stage	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	13-Dec-05	Bluegill	JUV(<100mm)	0	0	7	0	7	0.018	24	8	2/5	2.5	0	0	17	0	17	0.045
	13-Dec-05	Emerald shiner		0	0	35	7	42	0.138	24	8	2/5	2.5	0	0	87	17	104	0.345
	13-Dec-05	Gizzard shad	JUV(<200mm)	0	0	393	168	561	7.140	24	8	2/5	2.5	0	0	982	420	1402	17.850
	13-Dec-05	Goldfish		0	0	3	0	3	0.027	24	8	2/5	2.5	0	0	7	0	7	0.068
	13-Dec-05	Pumpkinseed		0	0	1	0	1	0.004	24	8	2/5	2.5	0	0	2	0	2	0.010
	13-Dec-05	Round goby		0	0	6	0	6	0.061	24	8	2/5	2.5	0	0	15	0	15	0.153
	13-Dec-05	Smallmouth bass	JUV(<150mm)	0	0	2	0	2	0.020	24	8	2/5	2.5	0	0	5	0	5	0.050
	13-Dec-05	Smallmouth bass	adult	0	0	1	0	1	0.920	24	8	2/5	2.5	0	0	2	0	2	2.300
	13-Dec-05	Spottail shiner		0	0	5	0	5	0.039	24	8	2/5	2.5	0	0	12	0	12	0.098
	13-Dec-05	Trout-perch		0	0	1	0	1	0.009	24	8	2/5	2.5	0	0	2	0	2	0.023
	13-Dec-05	White perch	JUV(<150mm)	0	0	6	0	6	0.033	24	8	2/5	2.5	0	0	15	0	15	0.083
68	**13-Dec-05**	**TOTAL**		**0**	**0**	**460**	**175**	**635**	**8.409**					**0**	**0**	**1146**	**437**	**1583**	**21.023**
	19-Dec-05	Bluegill	JUV(<100mm)	0	0	8	0	8	0.016	24	8	1/18	17.8	0	0	142	0	142	0.285
	19-Dec-05	Brook silverside		0	0	1	0	1	0.002	24	8	1/18	17.8	0	0	17	0	17	0.036
	19-Dec-05	Emerald shiner		0	0	15	0	15	0.071	24	8	1/18	17.8	0	0	267	0	267	1.266
	19-Dec-05	Gizzard shad	JUV(<200mm)	0	0	979	0	979	16.868	24	8	1/18	17.8	0	0	17455	0	17455	300.756
	19-Dec-05	Round goby		0	0	1	0	1	0.005	24	8	1/18	17.8	0	0	17	0	17	0.089
	19-Dec-05	Spottail shiner		0	0	2	0	2	0.012	24	8	1/18	17.8	0	0	35	0	35	0.214
	19-Dec-05	White bass	JUV(<150mm)	0	0	1	0	1	0.019	24	8	1/18	17.8	0	0	17	0	17	0.339
	19-Dec-05	White perch	JUV(<150mm)	0	0	2	0	2	0.014	24	8	1/18	17.8	0	0	35	0	35	0.250
69	**19-Dec-05**	**TOTAL**		**0**	**0**	**1009**	**0**	**1009**	**17.007**					**0**	**0**	**17985**	**0**	**17985**	**303.235**
70	**20-Dec-05**	**Trucks removed from SH2 prior to scheduled collection**																	
	28-Dec-05	Emerald shiner		0	0	8	0	8	0.038	24.67	8	1/19	18.6	0	0	148	0	148	0.707
	28-Dec-05	Gizzard shad	JUV(<200mm)	0	1	1002	0	1003	12.585	24.67	8	1/19	18.6	0	18	18647	0	18665	234.207
	28-Dec-05	Goldfish		0	0	6	0	6	0.069	24.67	8	1/19	18.6	0	0	111	0	111	1.284
	28-Dec-05	Northern pike		0	0	1	0	1	0.708	24.67	8	1/19	18.6	0	0	18	0	18	13.176
	28-Dec-05	Round goby		0	0	3	0	3	0.154	24.67	8	1/19	18.6	0	0	55	0	55	2.866
	28-Dec-05	Spottail shiner		0	0	6	0	6	0.030	24.67	8	1/19	18.6	0	0	111	0	111	0.558
	28-Dec-05	Trout-perch		0	0	1	0	1	0.004	24.67	8	1/19	18.6	0	0	18	0	18	0.074
	28-Dec-05	White perch	JUV(<150mm)	0	0	9	0	9	0.062	24.67	8	1/19	18.6	0	0	167	0	167	1.154
	28-Dec-05	Yellow perch	JUV(<150mm)	0	1	0	0	1	0.116	24.67	8	1/19	18.6	0	18	0	0	18	2.159
	28-Dec-05	Bigmouth buffalo		0	0	0	1	1	1.297	24.67	8	1/19	18.6	0	0	0	18	18	24.137
71	**28-Dec-05**	**TOTAL**		**0**	**2**	**1036**	**1**	**1039**	**15.063**					**0**	**36**	**19275**	**18**	**19329**	**280.322**
	29-Dec-05	Bluegill	JUV(<100mm)	0	0	2	0	2	0.005	23.17	8	1/107	110.8	0	0	221	0	221	0.554
	29-Dec-05	Freshwater drum	JUV(<200mm)	0	0	1	0	1	1.126	23.17	8	1/107	110.8	0	0	110	0	110	124.786
	29-Dec-05	Gizzard shad	JUV(<200mm)	0	1	870	0	871	12.841	23.17	8	1/107	110.8	0	110	96415	0	96525	1423.065
	29-Dec-05	Gizzard shad	adult	0	0	1	1	2	1.080	23.17	8	1/107	110.8	0	0	110	110	220	119.688
	29-Dec-05	Round goby		0	0	1	0	1	0.107	23.17	8	1/107	110.8	0	0	110	0	110	11.858
	29-Dec-05	White perch	JUV(<150mm)	0	0	7	0	7	0.045	23.17	8	1/107	110.8	0	0	775	0	775	4.987
72	**29-Dec-05**	**TOTAL**		**0**	**1**	**882**	**1**	**884**	**15.204**					**0**	**110**	**97741**	**110**	**97961**	**1684.938**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	4-Jan-06	Bluegill	0	0	1	0	1	0.002	24	8	0.043	23.28	0	0	23	0	23	0.047
	4-Jan-06	Gizzard shad	0	0	733	0	733	13.438	24	8	0.043	23.28	0	0	17064	0	17064	312.837
73	**4-Jan-06**	**TOTAL**	**0**	**0**	**734**	**0**	**734**	**13.440**					**0**	**0**	**17088**	**0**	**17088**	**312.883**
	5-Jan-06	Gizzard shad	0	0	770	0	770	65.000	24	8	0.009	117.02	0	0	90105	0	90105	7606.300
	5-Jan-06	Goldfish	0	0	2	0	2	0.020	24	8	0.009	117.02	0	0	234	0	234	2.340
	5-Jan-06	Spottail shiner	0	0	3	0	3	0.017	24	8	0.009	117.02	0	0	351	0	351	1.989
	5-Jan-06	Trout-perch	0	0	1	0	1	0.005	24	8	0.009	117.02	0	0	117	0	117	0.585
	5-Jan-06	White perch	0	0	3	0	3	0.018	24	8	0.009	117.02	0	0	351	0	351	2.106
74	**5-Jan-06**	**TOTAL**	**0**	**0**	**779**	**0**	**779**	**65.060**					**0**	**0**	**91159**	**0**	**91159**	**7613.321**
	9-Jan-06	Bluegill	0	0	4	0	4	0.008	24.83	8	0.064	15.17	0	0	61	0	61	0.121
	9-Jan-06	Common carp	0	0	5	0	5	0.042	24.83	8	0.064	15.17	0	0	76	0	76	0.637
	9-Jan-06	Emerald shiner	0	0	21	0	21	0.089	24.83	8	0.064	15.17	0	0	319	0	319	1.350
	9-Jan-06	Gizzard shad	0	0	824	0	824	13.180	24.83	8	0.064	15.17	0	0	12500	0	12500	199.941
	9-Jan-06	White perch	0	0	4	0	4	0.019	24.83	8	0.064	15.17	0	0	61	0	61	0.288
75	**9-Jan-06**	**TOTAL**	**0**	**0**	**858**	**0**	**858**	**13.338**					**0**	**0**	**13016**	**0**	**13016**	**202.337**
	10-Jan-06	Bluegill	0	0	4	0	4	0.016	23.83	8	0.019	51.65	0	0	207	0	207	0.826
	10-Jan-06	Common carp	0	0	2	0	2	0.017	23.83	8	0.019	51.65	0	0	103	0	103	0.878
	10-Jan-06	Common shiner	0	0	1	0	1	0.021	23.83	8	0.019	51.65	0	0	52	0	52	1.085
	10-Jan-06	Emerald shiner	0	0	6	0	6	0.028	23.83	8	0.019	51.65	0	0	310	0	310	1.446
	10-Jan-06	Gizzard shad	0	0	728	0	728	14.500	23.83	8	0.019	51.65	0	0	37601	0	37601	748.925
	10-Jan-06	Goldfish	0	0	3	0	3	0.070	23.83	8	0.019	51.65	0	0	155	0	155	3.616
	10-Jan-06	Largemouth bass	0	0	1	0	1	0.046	23.83	8	0.019	51.65	0	0	52	0	52	2.376
	10-Jan-06	Pumpkinseed	0	0	1	0	1	0.004	23.83	8	0.019	51.65	0	0	52	0	52	0.207
	10-Jan-06	Round goby	0	0	1	0	1	0.046	23.83	8	0.019	51.65	0	0	52	0	52	2.376
	10-Jan-06	Silver chub	0	0	3	0	3	0.068	23.83	8	0.019	51.65	0	0	155	0	155	3.512
	10-Jan-06	Spottail shiner	0	0	2	0	2	0.013	23.83	8	0.019	51.65	0	0	103	0	103	0.671
	10-Jan-06	White perch	0	0	2	0	2	0.018	23.83	8	0.019	51.65	0	0	103	0	103	0.930
76	**10-Jan-06**	**TOTAL**	**0**	**0**	**754**	**0**	**754**	**14.847**					**0**	**0**	**38944**	**0**	**38944**	**766.848**
	20-Jan-06	Bluegill	0	0	1	0	1	0.006	25.75	8	0.007	138.44	0	0	138	0	138	0.831
	20-Jan-06	Channel catfish	0	0	1	0	1	0.016	25.75	8	0.007	138.44	0	0	138	0	138	2.215
	20-Jan-06	Common carp	0	0	1	0	1	0.016	25.75	8	0.007	138.44	0	0	138	0	138	2.215
	20-Jan-06	Emerald shiner	0	0	3	0	3	0.009	25.75	8	0.007	138.44	0	0	415	0	415	1.246
	20-Jan-06	Gizzard shad	0	58	1147	0	1205	162.120	25.75	8	0.007	138.44	0	8030	158791	0	166820	22443.893
	20-Jan-06	Goldfish	0	0	1	0	1	0.019	25.75	8	0.007	138.44	0	0	138	0	138	2.630
	20-Jan-06	Round goby	0	0	1	0	1	0.006	25.75	8	0.007	138.44	0	0	138	0	138	0.831
	20-Jan-06	Spottail shiner	0	0	4	0	4	0.016	25.75	8	0.007	138.44	0	0	554	0	554	2.215
77	**20-Jan-06**	**TOTAL**	**0**	**58**	**1159**	**0**	**1217**	**162.208**					**0**	**8030**	**160452**	**0**	**168481**	**22456.076**
	21-Jan-06	Bluegill	0	0	1	0	1	0.002	24.25	8	0.003	299.79	0	0	300	0	300	0.600
	21-Jan-06	Emerald shiner	0	0	2	0	2	0.009	24.25	8	0.003	299.79	0	0	600	0	600	2.698
	21-Jan-06	Gizzard shad	0	0	392	0	392	14.618	24.25	8	0.003	299.79	0	0	117518	0	117518	4382.330
	21-Jan-06	White crappie	0	0	3	0	3	0.021	24.25	8	0.003	299.79	0	0	899	0	899	6.296
	21-Jan-06	Yellow perch	0	1	0	0	1	0.266	24.25	8	0.003	299.79	0	300	0	0	300	79.744
78	**21-Jan-06**	**TOTAL**	**0**	**1**	**398**	**0**	**399**	**14.916**					**0**	**300**	**119316**	**0**	**119616**	**4471.668**
	25-Jan-06	Bluegill	0	0	1	0	1	0.010	22.83	8	0.020	52.42	0	0	52	0	52	0.524
	25-Jan-06	Creek chub	0	0	1	0	1	0.006	22.83	8	0.020	52.42	0	0	52	0	52	0.315
	25-Jan-06	Common carp	0	0	1	0	1	0.014	22.83	8	0.020	52.42	0	0	52	0	52	0.734
	25-Jan-06	Emerald shiner	0	0	4	0	4	0.021	22.83	8	0.020	52.42	0	0	210	0	210	1.101
	25-Jan-06	Gizzard shad	0	0	422	0	422	14.899	22.83	8	0.020	52.42	0	0	22121	0	22121	781.006
	25-Jan-06	Goldfish	0	0	4	0	4	0.072	22.83	8	0.020	52.42	0	0	210	0	210	3.774
	25-Jan-06	Round goby	0	0	1	0	1	0.011	22.83	8	0.020	52.42	0	0	52	0	52	0.577
	25-Jan-06	Spottail shiner	0	0	2	0	2	0.012	22.83	8	0.020	52.42	0	0	105	0	105	0.629
	25-Jan-06	Trout-perch	0	0	1	0	1	0.011	22.83	8	0.020	52.42	0	0	52	0	52	0.577
	25-Jan-06	White perch	0	0	5	0	5	0.056	22.83	8	0.020	52.42	0	0	262	0	262	2.936
	25-Jan-06	Yellow perch	0	1	0	0	1	0.160	22.83	8	0.020	52.42	0	52	0	0	52	8.387
79	**25-Jan-06**	**TOTAL**	**0**	**1**	**442**	**0**	**443**	**15.272**					**0**	**52**	**23170**	**0**	**23222**	**800.558**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	26-Jan-06	Channel catfish	0	1	0	0	1	0.024	24.67	8	0.003	283.21	0	283	0	0	283	6.797
	26-Jan-06	Emerald shiner	0	0	10	0	10	0.049	24.67	8	0.003	283.21	0	0	2832	0	2832	13.877
	26-Jan-06	Gizzard shad	0	0	748	0	748	13.576	24.67	8	0.003	283.21	0	0	211841	0	211841	3844.859
	26-Jan-06	Goldfish	0	1	6	0	7	0.157	24.67	8	0.003	283.21	0	283	1699	0	1982	44.464
	26-Jan-06	Smallmouth bass	0	0	2	0	2	0.177	24.67	8	0.003	283.21	0	0	566	0	566	50.128
	26-Jan-06	Spottail shiner	0	0	4	0	4	0.023	24.67	8	0.003	283.21	0	0	1133	0	1133	6.514
	26-Jan-06	Trout-perch	0	1	2	0	3	0.037	24.67	8	0.003	283.21	0	283	566	0	850	10.479
	26-Jan-06	White bass	0	0	3	0	3	0.614	24.67	8	0.003	283.21	0	0	850	0	850	173.891
	26-Jan-06	White perch	0	0	7	0	7	0.058	24.67	8	0.003	283.21	0	0	1982	0	1982	16.426
	26-Jan-06	Yellow perch	0	0	1	0	1	0.094	24.67	8	0.003	283.21	0	0	283	0	283	26.622
80	**26-Jan-06**	**TOTAL**	**0**	**3**	**783**	**0**	**786**	**14.809**					**0**	**850**	**221753**	**0**	**222603**	**4194.057**
	30-Jan-06	Emerald shiner	0	0	1	0	1	0.002	24	8	0.0006	1675.14	0	0	1675	0	1675	3.350
	30-Jan-06	Gizzard shad	0	0	695	0	695	15.791	24	8	0.0006	1675.14	0	0	1164222	0	1164222	26452.136
	30-Jan-06	White perch	0	0	1	0	1	0.003	24	8	0.0006	1675.14	0	0	1675	0	1675	5.025
81	**30-Jan-06**	**TOTAL**	**0**	**0**	**697**	**0**	**697**	**15.796**					**0**	**0**	**1167573**	**0**	**1167573**	**26460.511**
	31-Jan-06	Channel catfish	0	0	1	0	1	1.473	24.75	8	0.013	74.00	0	0	74	0	74	109.002
	31-Jan-06	Common carp	0	0	1	0	1	0.009	24.75	8	0.013	74.00	0	0	74	0	74	0.666
	31-Jan-06	Emerald shiner	0	0	2	0	2	0.009	24.75	8	0.013	74.00	0	0	148	0	148	0.666
	31-Jan-06	Gizzard shad	0	0	486	0	486	11.999	24.75	8	0.013	74.00	0	0	35964	0	35964	887.926
	31-Jan-06	Goldfish	0	0	1	0	1	0.019	24.75	8	0.013	74.00	0	0	74	0	74	1.406
	31-Jan-06	Spottail shiner	0	0	4	0	4	0.024	24.75	8	0.013	74.00	0	0	296	0	296	1.776
	31-Jan-06	Trout-perch	0	0	1	0	1	0.003	24.75	8	0.013	74.00	0	0	74	0	74	0.222
	31-Jan-06	White perch	0	0	7	0	7	0.045	24.75	8	0.013	74.00	0	0	518	0	518	3.330
	31-Jan-06	Yellow perch	0	1	0	0	1	0.147	24.75	8	0.013	74.00	0	74	0	0	74	10.878
82	**31-Jan-06**	**TOTAL**	**0**	**1**	**503**	**0**	**504**	**13.728**					**0**	**74**	**37222**	**0**	**37296**	**1015.872**
	8-Feb-06	Emerald shiner	0	0	6	0	6	0.021	21.75	8	0.003	427.47	0	0	2565	0	2565	8.977
	8-Feb-06	Gizzard shad	0	0	456	0	456	15.054	21.75	8	0.003	427.47	0	0	194926	0	194926	6435.133
	8-Feb-06	Goldfish	0	0	2	0	2	0.036	21.75	8	0.003	427.47	0	0	855	0	855	15.389
	8-Feb-06	Spottail shiner	0	0	1	0	1	0.007	21.75	8	0.003	427.47	0	0	427	0	427	2.992
83	**8-Feb-06**	**TOTAL**	**0**	**0**	**465**	**0**	**465**	**15.118**					**0**	**0**	**198774**	**0**	**198774**	**6462.491**
	9-Feb-06	Emerald shiner	0	0	13	0	13	0.063	24	8	0.038	26.57	0	0	345		345	1.674
	9-Feb-06	Gizzard shad	0	0	664	0	664	12.900	24	8	0.038	26.57	0	0	17642		17642	342.753
	9-Feb-06	Green sunfish	0	0	2	0	2	0.074	24	8	0.038	26.57	0	0	53		53	1.966
	9-Feb-06	White perch	0	0	1	0	1	0.008	24	8	0.038	26.57	0	0	27		27	0.213
84	**9-Feb-06**	**TOTAL**	**0**	**0**	**680**	**0**	**680**	**13.045**					**0**	**0**	**18068**	**0**	**18068**	**346.606**
	17-Feb-06	Gizzard shad	0	20	474	15	509	14.657	22	8	0.002	493.70	0	9874	234014	7406	251293	7236.161
85	**17-Feb-06**	**TOTAL**	**0**	**20**	**474**	**15**	**509**	**14.657**					**0**	**9874**	**234014**	**7406**	**251293**	**7236.161**
	18-Feb-06	Bluegill	0	0	1	0	1	0.005	24	8	0.001	699.89	0	0	27	0	27	3.499
	18-Feb-06	Emerald shiner	0	0	4	0	4	0.020	24	8	0.001	699.89	0	0	106	0	106	13.998
	18-Feb-06	Gizzard shad	0	24	582	6	612	16.705	24	8	0.001	699.89	0	638	15464	159	16261	11691.662
	18-Feb-06	White perch	0	0	1	0	1	0.008	24	8	0.001	699.89	0	0	27	0	27	5.599
86	**18-Feb-06**	**TOTAL**	**0**	**24**	**588**	**6**	**618**	**16.738**					**0**	**638**	**15623**	**159**	**16420**	**11714.759**
	22-Feb-06	Emerald shiner	0	0	4	1	5	0.013	21.33	8	0.003	347.48	0	0	1390	347	1737	4.517
	22-Feb-06	Gizzard shad	0	0	635	0	635	15.252	21.33	8	0.003	347.48	0	0	220650	0	220650	5299.765
	22-Feb-06	Goldfish	0	0	2	0	2	0.034	21.33	8	0.003	347.48	0	0	695	0	695	11.814
	22-Feb-06	Green sunfish	0	0	0	1	1	0.007	21.33	8	0.003	347.48	0	0	0	347	347	2.432
	22-Feb-06	Largemouth bass	0	0	0	1	1	0.638	21.33	8	0.003	347.48	0	0	0	347	347	221.692
87	**22-Feb-06**	**TOTAL**	**0**	**0**	**641**	**3**	**644**	**15.944**					**0**	**0**	**222735**	**1042**	**223777**	**5540.221**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	23-Feb-06	Bluegill	0	0	3	0	3	0.009	24.42	8	0.010	100.97	0	0	303	0	303	0.909
	23-Feb-06	Common carp	0	1	2	0	3	0.040	24.42	8	0.010	100.97	0	101	202	0	303	4.039
	23-Feb-06	Emerald shiner	0	0	4	0	4	0.015	24.42	8	0.010	100.97	0	0	404	0	404	1.515
	23-Feb-06	Gizzard shad	0	0	557	6	563	13.381	24.42	8	0.010	100.97	0	0	56240	606	56846	1351.080
	23-Feb-06	Goldfish	0	0	1	0	1	0.018	24.42	8	0.010	100.97	0	0	101	0	101	1.817
	23-Feb-06	Green sunfish	0	0	1	0	1	0.005	24.42	8	0.010	100.97	0	0	101	0	101	0.505
	23-Feb-06	Spottail shiner	0	0	5	0	5	0.029	24.42	8	0.010	100.97	0	0	505	0	505	2.928
	23-Feb-06	Trout-perch	0	0	1	0	1	0.005	24.42	8	0.010	100.97	0	0	101	0	101	0.505
	23-Feb-06	White perch	0	0	1	0	1	0.007	24.42	8	0.010	100.97	0	0	101	0	101	0.707
88	**23-Feb-06**	**TOTAL**	**0**	**1**	**575**	**6**	**582**	**13.509**					**0**	**101**	**58058**	**606**	**58765**	**1364.004**
	27-Feb-06	Bluegill	0	0	3	0	3	0.007	24.5	8	0.003	325.66	0	0	977	0	977	2.280
	27-Feb-06	Emerald shiner	0	0	2	0	2	0.011	24.5	8	0.003	325.66	0	0	651	0	651	3.582
	27-Feb-06	Gizzard shad	0	0	651	0	651	13.920	24.5	8	0.003	325.66	0	0	212005	0	212005	4533.187
	27-Feb-06	Spottail shiner	0	0	1	0	1	0.002	24.5	8	0.003	325.66	0	0	326	0	326	0.651
	27-Feb-06	Trout-perch	0	0	3	0	3	0.015	24.5	8	0.003	325.66	0	0	977	0	977	4.885
	27-Feb-06	White perch	0	0	2	0	2	0.013	24.5	8	0.003	325.66	0	0	651	0	651	4.234
89	**27-Feb-06**	**TOTAL**	**0**	**0**	**662**	**0**	**662**	**13.968**					**0**	**0**	**215587**	**0**	**215587**	**4548.819**
	28-Feb-06	Bluegill	0	0	9	0	9	0.029	23.25	8	0.011	90.90	0	0	818	0	818	2.636
	28-Feb-06	Common carp	0	0	1	0	1	0.008	23.25	8	0.011	90.90	0	0	91	0	91	0.727
	28-Feb-06	Emerald shiner	0	0	1	0	1	0.003	23.25	8	0.011	90.90	0	0	91	0	91	0.273
	28-Feb-06	Freshwater drum	0	0	2	0	2	0.038	23.25	8	0.011	90.90	0	0	182	0	182	3.454
	28-Feb-06	Gizzard shad	0	0	507	0	507	12.644	23.25	8	0.011	90.90	0	0	46086	0	46086	1149.340
	28-Feb-06	Goldfish	0	0	2	0	2	0.196	23.25	8	0.011	90.90	0	0	182	0	182	17.816
	28-Feb-06	Longnose gar	0	1	0	0	1	0.950	23.25	8	0.011	90.90	0	91	0	0	91	86.355
	28-Feb-06	White perch	0	0	8	0	8	0.045	23.25	8	0.011	90.90	0	0	727	0	727	4.091
90	**28-Feb-06**	**TOTAL**	**0**	**1**	**530**	**0**	**531**	**13.913**					**0**	**91**	**48177**	**0**	**48268**	**1264.692**
	9-Mar-06	Emerald shiner	0	0	4	0	4	0.018	24.33	8	0.043	22.72	0	0	91	0	91	0.409
	9-Mar-06	Freshwater drum	0	0	1	0	1	2.088	24.33	8	0.043	22.72	0	0	23	0	23	47.439
	9-Mar-06	Gizzard shad	0	0	484	0	484	11.284	24.33	8	0.043	22.72	0	0	10996	0	10996	256.372
	9-Mar-06	Longnose gar	0	1	0	0	1	0.487	24.33	8	0.043	22.72	0	23	0	0	23	11.065
	9-Mar-06	Round goby	0	0	1	0	1	0.010	24.33	8	0.043	22.72	0	0	23	0	23	0.227
	9-Mar-06	Spottail shiner	0	0	2	0	2	0.010	24.33	8	0.043	22.72	0	0	45	0	45	0.227
	9-Mar-06	Trout-perch	0	0	7	0	7	0.032	24.33	8	0.043	22.72	0	0	159	0	159	0.727
	9-Mar-06	White perch	0	0	6	0	6	0.030	24.33	8	0.043	22.72	0	0	136	0	136	0.682
91	**9-Mar-06**	**TOTAL**	**0**	**1**	**505**	**0**	**506**	**13.959**					**0**	**23**	**11474**	**0**	**11496**	**317.148**
	10-Mar-06	Emerald shiner	0	0	3	0	3	0.013	24.5	8	0.050	19.59	0	0	59	0	59	0.255
	10-Mar-06	Gizzard shad	0	0	209	0	209	5.312	24.5	8	0.050	19.59	0	0	4094	0	4094	104.062
	10-Mar-06	Goldfish	0	0	1	0	1	0.186	24.5	8	0.050	19.59	0	0	20	0	20	3.644
	10-Mar-06	Longnose gar	1	0	0	0	1	0.824	24.5	8	0.050	19.59	20	0	0	0	20	16.142
	10-Mar-06	Spottail shiner	0	0	3	0	3	0.022	24.5	8	0.050	19.59	0	0	59	0	59	0.431
	10-Mar-06	Trout-perch	0	0	1	0	1	0.011	24.5	8	0.050	19.59	0	0	20	0	20	0.215
	10-Mar-06	White perch	0	0	3	0	3	0.018	24.5	8	0.050	19.59	0	0	59	0	59	0.353
	10-Mar-06	Yellow perch	0	1	0	0	1	0.101	24.5	8	0.050	19.59	0	20	0	0	20	1.979
92	**10-Mar-06**	**TOTAL**	**1**	**1**	**220**	**0**	**222**	**6.487**					**20**	**20**	**4310**	**0**	**4349**	**127.080**
	15-Mar-06	Bluegill	0	0	1	0	1	0.004	24.17	8	0.008	130.49	0	0	130	0	130	0.522
	15-Mar-06	Emerald shiner	0	0	10	0	10	0.041	24.17	8	0.008	130.49	0	0	1305	0	1305	5.350
	15-Mar-06	Gizzard shad	0	0	438	0	438	13.211	24.17	8	0.008	130.49	0	0	57155	0	57155	1723.903
	15-Mar-06	Spottail shiner	0	0	9	0	9	0.045	24.17	8	0.008	130.49	0	0	1174	0	1174	5.872
93	**15-Mar-06**	**TOTAL**	**0**	**0**	**458**	**0**	**458**	**13.301**					**0**	**0**	**59764**	**0**	**59764**	**1735.647**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	16-Mar-06	Bluegill	0	1	0	0	1	0.007	24.08	8	0.016	61.21	0	61	0	0	61	0.428
	16-Mar-06	Bowfin	0	1	0	0	1	2.869	24.08	8	0.016	61.21	0	61	0	0	61	175.611
	16-Mar-06	Emerald shiner	0	0	12	0	12	0.061	24.08	8	0.016	61.21	0	0	735	0	735	3.734
	16-Mar-06	Gizzard shad	0	105	246	0	351	10.000	24.08	8	0.016	61.21	0	6427	15058	0	21485	612.100
	16-Mar-06	Goldfish	0	0	2	0	2	0.029	24.08	8	0.016	61.21	0	0	122	0	122	1.775
	16-Mar-06	Longnose gar	0	1	0	0	1	0.760	24.08	8	0.016	61.21	0	61	0	0	61	46.520
	16-Mar-06	Muskellunge	0	0	1	0	1	0.126	24.08	8	0.016	61.21	0	0	61	0	61	7.712
	16-Mar-06	Spottail shiner	0	0	5	0	5	0.030	24.08	8	0.016	61.21	0	0	306	0	306	1.836
	16-Mar-06	White perch	0	0	1	0	1	0.006	24.08	8	0.016	61.21	0	0	61	0	61	0.367
94	**16-Mar-06**	**TOTAL**	**0**	**108**	**267**	**0**	**375**	**13.888**					**0**	**6611**	**16343**	**0**	**22954**	**850.084**
	21-Mar-06	Bluegill	0	0	2	0	2	0.009	23.667	8	0.001	717.94	0	0	1436	0	1436	6.461
	21-Mar-06	Gizzard shad	0	0	402	0	402	14.401	23.667	8	0.001	717.94	0	0	288612	0	288612	10339.054
	21-Mar-06	Longnose gar	0	0	1	0	1	0.150	23.667	8	0.001	717.94	0	0	718	0	718	107.691
	21-Mar-06	Northern pike	0	0	1	0	1	0.500	23.667	8	0.001	717.94	0	0	718	0	718	358.970
	21-Mar-06	Pumpkinseed	0	0	1	0	1	0.094	23.667	8	0.001	717.94	0	0	718	0	718	67.486
	21-Mar-06	Redhorse sucker	0	0	1	0	1	0.297	23.667	8	0.001	717.94	0	0	718	0	718	213.228
	21-Mar-06	Round goby	0	0	1	0	1	0.097	23.667	8	0.001	717.94	0	0	718	0	718	69.640
	21-Mar-06	Spottail shiner	0	0	3	0	3	0.017	23.667	8	0.001	717.94	0	0	2154	0	2154	12.205
	21-Mar-06	White perch	0	0	2	0	2	0.016	23.667	8	0.001	717.94	0	0	1436	0	1436	11.487
	21-Mar-06	Yellow perch	0	0	1	0	1	0.257	23.667	8	0.001	717.94	0	0	718	0	718	184.511
95	**21-Mar-06**	**TOTAL**	**0**	**0**	**415**	**0**	**415**	**15.838**					**0**	**0**	**297945**	**0**	**297945**	**11370.734**
	22-Mar-06	Emerald shiner	0	0	1	0	1	0.009	24.85	8	0.007	131.92	0	0	132	0	132	1.187
	22-Mar-06	Gizzard shad	0	0	410	0	410	16.726	24.85	8	0.007	131.92	0	0	54087	0	54087	2206.494
	22-Mar-06	Trout-perch	0	0	1	0	1	0.011	24.85	8	0.007	131.92	0	0	132	0	132	1.451
	22-Mar-06	White sucker	0	0	1	0	1	0.574	24.85	8	0.007	131.92	0	0	132	0	132	75.722
	22-Mar-06	Yellow perch	0	0	1	0	1	0.303	24.85	8	0.007	131.92	0	0	132	0	132	39.972
96	**22-Mar-06**	**TOTAL**	**0**	**0**	**414**	**0**	**414**	**17.623**					**0**	**0**	**54615**	**0**	**54615**	**2324.826**
	27-Mar-06	Bluegill	0	0	1	0	1	0.090	24	8	0.064	15.60	0	0	16	0	16	1.404
	27-Mar-06	Emerald shiner	0	0	5	1	6	0.030	24	8	0.064	15.60	0	0	78	16	94	0.468
	27-Mar-06	Gizzard shad	0	0	334	7	341	8.618	24	8	0.064	15.60	0	0	5210	109	5320	134.441
	27-Mar-06	Green sunfish	0	0	1	0	1	0.005	24	8	0.064	15.60	0	0	16	0	16	0.078
	27-Mar-06	Longnose gar	0	0	1	0	1	1.012	24	8	0.064	15.60	0	0	16	0	16	15.787
	27-Mar-06	Pumpkinseed	0	0	1	1	2	0.150	24	8	0.064	15.60	0	0	16	16	31	2.340
	27-Mar-06	Quillback	0	0	1	0	1	0.009	24	8	0.064	15.60	0	0	16	0	16	0.140
	27-Mar-06	Rock bass	0	0	1	0	1	0.066	24	8	0.064	15.60	0	0	16	0	16	1.030
	27-Mar-06	Round goby	0	0	2	0	2	0.133	24	8	0.064	15.60	0	0	31	0	31	2.075
	27-Mar-06	Smallmouth bass	0	0	2	0	2	1.346	24	8	0.064	15.60	0	0	31	0	31	20.998
	27-Mar-06	Spottail shiner	0	0	4	0	4	0.027	24	8	0.064	15.60	0	0	62	0	62	0.421
	27-Mar-06	Trout-perch	0	0	1	0	1	0.007	24	8	0.064	15.60	0	0	16	0	16	0.109
	27-Mar-06	White perch	0	0	13	0	13	0.118	24	8	0.064	15.60	0	0	203	0	203	1.841
97	**27-Mar-06**	**TOTAL**	**0**	**0**	**367**	**9**	**376**	**11.611**					**0**	**0**	**5725**	**140**	**5866**	**181.132**
	28-Mar-06	Bluegill	0	0	1	0	1	0.003	18	8	0.035	38.04	0	0	38	0	38	0.114
	28-Mar-06	Emerald shiner	0	0	3	0	3	0.013	18	8	0.035	38.04	0	0	114	0	114	0.495
	28-Mar-06	Gizzard shad	0	0	321	0	321	7.711	18	8	0.035	38.04	0	0	12211	0	12211	293.326
	28-Mar-06	Goldfish	0	0	1	0	1	0.027	18	8	0.035	38.04	0	0	38	0	38	1.027
	28-Mar-06	Round goby	0	0	2	0	2	0.058	18	8	0.035	38.04	0	0	76	0	76	2.206
	28-Mar-06	Trout-perch	0	0	1	0	1	0.005	18	8	0.035	38.04	0	0	38	0	38	0.190
	28-Mar-06	White perch	0	0	3	0	3	0.045	18	8	0.035	38.04	0	0	114	0	114	1.712
98	**28-Mar-06**	**TOTAL**	**0**	**0**	**332**	**0**	**332**	**7.862**					**0**	**0**	**12629**	**0**	**12629**	**299.070**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	4-Apr-06	Emerald shiner	0	0	10	0	10	0.043	21.5	8	0.003	393.23	0	0	3932	0	3932	16.909
	4-Apr-06	Gizzard shad	0	0	425	4	429	13.749	21.5	8	0.003	393.23	0	0	167123	1573	168696	5406.519
	4-Apr-06	Goldfish	0	0	1	0	1	0.017	21.5	8	0.003	393.23	0	0	393	0	393	6.685
	4-Apr-06	Pumpkinseed	0	0	1	0	1	0.134	21.5	8	0.003	393.23	0	0	393	0	393	52.693
	4-Apr-06	Round goby	0	0	2	0	2	0.076	21.5	8	0.003	393.23	0	0	786	0	786	29.885
	4-Apr-06	Spottail shiner	0	0	9	0	9	0.056	21.5	8	0.003	393.23	0	0	3539	0	3539	22.021
	4-Apr-06	Trout-perch	0	0	2	0	2	0.011	21.5	8	0.003	393.23	0	0	786	0	786	4.326
	4-Apr-06	White perch	0	0	8	0	8	0.038	21.5	8	0.003	393.23	0	0	3146	0	3146	14.943
99	**4-Apr-06**	**TOTAL**	**0**	**0**	**458**	**4**	**462**	**14.124**					**0**	**0**	**180099**	**1573**	**181672**	**5553.981**
	5-Apr-06	Bluegill	0	0	8	0	8	0.026	22.75	8	0.012	90.80	0	0	726	0	726	2.361
	5-Apr-06	Emerald shiner	0	0	7	0	7	0.025	22.75	8	0.012	90.80	0	0	636	0	636	2.270
	5-Apr-06	Freshwater drum	0	0	2	0	2	1.136	22.75	8	0.012	90.80	0	0	182	0	182	103.149
	5-Apr-06	Gizzard shad	0	0	338	0	338	12.332	22.75	8	0.012	90.80	0	0	30690	0	30690	1119.746
	5-Apr-06	Goldfish	0	0	1	0	1	0.050	22.75	8	0.012	90.80	0	0	91	0	91	4.540
	5-Apr-06	Green sunfish	0	0	1	0	1	0.026	22.75	8	0.012	90.80	0	0	91	0	91	2.361
	5-Apr-06	Round goby	0	0	1	0	1	0.069	22.75	8	0.012	90.80	0	0	91	0	91	6.265
	5-Apr-06	Spottail shiner	0	0	8	0	8	0.041	22.75	8	0.012	90.80	0	0	726	0	726	3.723
	5-Apr-06	Trout-perch	0	0	1	0	1	0.014	22.75	8	0.012	90.80	0	0	91	0	91	1.271
	5-Apr-06	White perch	0	0	1	0	1	0.006	22.75	8	0.012	90.80	0	0	91	0	91	0.545
100	**5-Apr-06**	**TOTAL**	**0**	**0**	**368**	**0**	**368**	**13.725**					**0**	**0**	**33414**	**0**	**33414**	**1246.230**
	10-Apr-06	Bowfin	0	0	1	0	1	2.807	29.167	8	0.015	55.76	0	0	56	0	56	156.518
	10-Apr-06	Common carp	0	0	1	0	1	0.289	29.167	8	0.015	55.76	0	0	56	0	56	16.115
	10-Apr-06	Emerald shiner	0	0	10	0	10	0.041	29.167	8	0.015	55.76	0	0	558	0	558	2.286
	10-Apr-06	Freshwater drum	0	0	3	0	3	1.773	29.167	8	0.015	55.76	0	0	167	0	167	98.862
	10-Apr-06	Gizzard shad	0	0	465	0	465	10.915	29.167	8	0.015	55.76	0	0	25928	0	25928	608.620
	10-Apr-06	Orangespotted sunfish	0	0	1	0	1	0.002	29.167	8	0.015	55.76	0	0	56	0	56	0.112
	10-Apr-06	Redhorse sucker	0	0	1	0	1	0.200	29.167	8	0.015	55.76	0	0	56	0	56	11.152
	10-Apr-06	Round goby	0	0	2	0	2	0.097	29.167	8	0.015	55.76	0	0	112	0	112	5.409
	10-Apr-06	Silver lamprey	0	2	0	0	2	0.188	29.167	8	0.015	55.76	0	112	0	0	112	10.483
	10-Apr-06	Spottail shiner	0	0	7	0	7	0.039	29.167	8	0.015	55.76	0	0	390	0	390	2.175
	10-Apr-06	Trout-perch	0	0	2	0	2	0.014	29.167	8	0.015	55.76	0	0	112	0	112	0.781
	10-Apr-06	White perch	0	0	8	0	8	0.040	29.167	8	0.015	55.76	0	0	446	0	446	2.230
101	**10-Apr-06**	**TOTAL**	**0**	**2**	**501**	**0**	**503**	**16.405**					**0**	**112**	**27936**	**0**	**28047**	**914.743**
	11-Apr-06	Channel catfish	0	0	1	0	1	0.002	18.67	8	0.008	165.04	0	0	165	0	165	0.330
	11-Apr-06	Emerald shiner	0	0	9	0	9	0.040	18.67	8	0.008	165.04	0	0	1485	0	1485	6.602
	11-Apr-06	Freshwater drum	0	0	1	0	1	0.075	18.67	8	0.008	165.04	0	0	165	0	165	12.378
	11-Apr-06	Gizzard shad	0	0	499	0	499	13.154	18.67	8	0.008	165.04	0	0	82355	0	82355	2170.936
	11-Apr-06	Round goby	0	0	1	1	2	0.168	18.67	8	0.008	165.04	0	0	165	165	330	27.727
	11-Apr-06	Spottail shiner	0	0	9	0	9	0.049	18.67	8	0.008	165.04	0	0	1485	0	1485	8.087
	11-Apr-06	Trout-perch	0	0	1	0	1	0.004	18.67	8	0.008	165.04	0	0	165	0	165	0.660
	11-Apr-06	White perch	0	0	2	0	2	0.014	18.67	8	0.008	165.04	0	0	330	0	330	2.311
	11-Apr-06	Yellow perch	0	0	1	0	1	0.104	18.67	8	0.008	165.04	0	0	165	0	165	17.164
102	**11-Apr-06**	**TOTAL**	**0**	**0**	**524**	**1**	**525**	**13.610**					**0**	**0**	**86481**	**165**	**86646**	**2246.194**

Individual estimates may not add to totals due to rounding.

APPENDIX 16 (cont'd)
Estimated Daily Impingement of Fish at Monroe Power Plant SH2, Monroe County, Michigan (April 2005 – April 2006)

			MONPP: Fish Collected										MONPP: Estimated 24-hour Impingement					
Event No.	Date	Species	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Sample Duration (h)	Active Screens	Sub-sample	Conversion Factor	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	19-Apr-06	Bluntnose minnow	0	0	1	0	1	0.009	25	8	0.075	12.84	0	0	13	0	13	0.116
	19-Apr-06	Emerald shiner	0	0	5	0	5	0.026	25	8	0.075	12.84	0	0	64	0	64	0.334
	19-Apr-06	Freshwater drum	0	0	10	0	10	6.445	25	8	0.075	12.84	0	0	128	0	128	82.754
	19-Apr-06	Gizzard shad	0	0	95	0	95	2.710	25	8	0.075	12.84	0	0	1220	0	1220	34.796
	19-Apr-06	Goldfish	0	0	2	0	2	0.003	25	8	0.075	12.84	0	0	26	0	26	0.039
	19-Apr-06	Pumpkinseed	0	0	4	0	4	0.238	25	8	0.075	12.84	0	0	51	0	51	3.056
	19-Apr-06	Quillback	0	0	1	0	1	0.036	25	8	0.075	12.84	0	0	13	0	13	0.462
	19-Apr-06	Rainbow smelt	0	0	1	0	1	0.008	25	8	0.075	12.84	0	0	13	0	13	0.103
	19-Apr-06	Rock bass	0	0	1	0	1	0.001	25	8	0.075	12.84	0	0	13	0	13	0.013
	19-Apr-06	Round goby	0	0	7	0	7	0.113	25	8	0.075	12.84	0	0	90	0	90	1.451
	19-Apr-06	Smallmouth bass	0	0	1	0	1	1.582	25	8	0.075	12.84	0	0	13	0	13	20.313
	19-Apr-06	Spottail shiner	0	0	19	0	19	0.124	25	8	0.075	12.84	0	0	244	0	244	1.592
	19-Apr-06	Trout-perch	0	0	2	0	2	0.008	25	8	0.075	12.84	0	0	26	0	26	0.103
	19-Apr-06	Cyprinidae	0	0	1	0	1	0.002	25	8	0.075	12.84	0	0	13	0	13	0.026
	19-Apr-06	Yellow perch	0	0	2	0	2	0.314	25	8	0.075	12.84	0	0	26	0	26	4.032
103	**19-Apr-06**	**TOTAL**	**0**	**0**	**152**	**0**	**152**	**11.619**					**0**	**0**	**1952**	**0**	**1952**	**149.188**
	20-Apr-06	Bluegill	0	0	2	0	2	0.010	24	8	0.330	3.03	0	0	6	0	6	0.030
	20-Apr-06	Channel catfish	0	0	1	0	1	0.032	24	8	0.330	3.03	0	0	3	0	3	0.097
	20-Apr-06	Emerald shiner	0	0	4	0	4	0.019	24	8	0.330	3.03	0	0	12	0	12	0.058
	20-Apr-06	Freshwater drum	0	1	11	0	12	6.067	24	8	0.330	3.03	0	3	33	0	36	18.383
	20-Apr-06	Gizzard shad	0	0	62	0	62	1.975	24	8	0.330	3.03	0	0	188	0	188	5.984
	20-Apr-06	Pumpkinseed	0	0	3	0	3	0.176	24	8	0.330	3.03	0	0	9	0	9	0.533
	20-Apr-06	Round goby	0	0	2	0	2	0.100	24	8	0.330	3.03	0	0	6	0	6	0.303
	20-Apr-06	Smallmouth bass	0	0	2	0	2	0.815	24	8	0.330	3.03	0	0	6	0	6	2.469
	20-Apr-06	Spottail shiner	0	0	4	0	4	0.031	24	8	0.330	3.03	0	0	12	0	12	0.094
	20-Apr-06	Trout-perch	0	0	4	0	4	0.029	24	8	0.330	3.03	0	0	12	0	12	0.088
	20-Apr-06	White perch	0	0	2	0	2	0.260	24	8	0.330	3.03	0	0	6	0	6	0.788
	20-Apr-06	Yellow perch	0	0	4	0	4	0.409	24	8	0.330	3.03	0	0	12	0	12	1.239
104	**20-Apr-06**	**TOTAL**	**0**	**1**	**101**	**0**	**102**	**9.923**					**0**	**3**	**306**	**0**	**309**	**30.067**

Individual estimates may not add to totals due to rounding.

APPENDIX 17
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Emerald shiner		0	0	21	0	21	0.091
	Gizzard shad	adult	0	0	7	0	7	1.085
	Goldfish		0	0	14	0	14	3.899
	Rock bass	adult	0	0	14	0	14	1.085
	Round goby		0	0	105	0	105	5.117
	Silver lamprey		0	0	7	0	7	0.322
	Spottail shiner		0	0	14	0	14	0.077
	Trout-perch		0	0	154	7	161	1.085
	White bass	JUV(<150mm)	0	0	14	0	14	0.091
	White perch	JUV(<150mm)	0	0	21	0	21	0.077
	Yellow perch	adult	0	0	7	7	14	1.302
1	**17-Apr-05 to 23-Apr-05**		**0**	**0**	**378**	**14**	**392**	**14.231**
	Channel catfish	adult	0	0	4	0	4	0.086
	Common carp	adult	0	0	4	0	4	0.853
	Emerald shiner		0	0	4	0	4	0.004
	Freshwater drum	adult	0	0	4	0	4	7.920
	Rock bass	adult	0	4	4	4	11	1.480
	Round goby		0	4	54	0	58	2.588
	Silver chub		0	0	4	0	4	0.104
	Silver lamprey		0	0	4	0	4	0.900
	Spottail shiner		0	0	4	0	4	0.061
	Trout-perch		0	0	176	0	176	1.379
	White perch	JUV(<150mm)	0	0	54	0	54	0.799
	Yellow perch	adult	0	0	11	0	11	0.580
	Yellow perch	JUV(<150mm)	0	0	4	4	7	0.184
2	**24-Apr-05 to 30-Apr-05**		**0**	**7**	**328**	**7**	**342**	**16.938**
	Channel catfish	JUV(<150mm)	0	0	10	0	10	0.195
	Emerald shiner		0	0	10	0	10	0.088
	Gizzard shad	adult	0	0	10	0	10	5.688
	Longnose gar	adult	0	0	3	0	3	0.351
	Madtom (Noturus spp.)		0	0	3	0	3	0.289
	Pumpkinseed		0	0	3	0	3	0.137
	Rock bass	adult	0	0	7	0	7	0.712
	Round goby		0	0	23	0	23	1.021
	Silver lamprey		0	0	10	0	10	0.579
	Spottail shiner		0	0	13	0	13	0.104
	Trout-perch		0	0	33	0	33	0.280
	White perch	JUV(<150mm)	0	0	20	0	20	0.481
	Yellow perch	adult	0	0	39	0	39	2.503
3	**1-May-05 to 7-May-05**		**0**	**0**	**182**	**0**	**182**	**12.425**
	Brown bullhead		0	0	4	0	4	0.662
	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.011
	Emerald shiner		0	0	168	0	168	0.623
	Freshwater drum	adult	0	0	14	0	14	9.170
	Gizzard shad	adult	0	0	21	0	21	7.473
	Goldfish		0	0	14	0	14	2.398
	Round goby		0	0	14	0	14	0.053
	Silver lamprey		0	7	0	0	7	0.462
	Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.060
	Spottail shiner		0	0	11	0	11	0.063
	Trout-perch		0	0	553	0	553	3.066
	White bass	adult	0	0	7	0	7	3.721
	White perch	adult	0	0	18	0	18	1.225
	White perch	JUV(<150mm)	0	0	11	0	11	0.042
	Yellow perch	JUV(<150mm)	0	0	21	0	21	0.438
4	**8-May-05 to 14-May-05**		**0**	**7**	**865**	**0**	**872**	**29.463**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bullhead spp.		0	0	4	0	4	0.044
	Emerald shiner		0	0	1,207	0	1,207	4.462
	Freshwater drum	adult	0	0	4	0	4	0.815
	Gizzard shad	adult	0	0	4	0	4	0.931
	lamprey spp.		0	4	4	0	9	0.556
	Northern pike		0	0	4	0	4	0.849
	Pumpkinseed		0	0	4	0	4	0.118
	Rainbow smelt		0	0	4	0	4	0.044
	Rock bass	JUV(<100mm)	0	0	9	0	9	1.006
	Round goby		0	0	12	13	26	1.128
	Silver lamprey		0	0	4	0	4	0.382
	Threespine stickleback		0	0	4	0	4	0.009
	Trout-perch		0	0	83	0	83	0.362
	White perch	adult	0	0	131	70	201	18.924
	Yellow perch	adult	0	0	100	53	152	7.259
5	**15-May-05 to 21-May-05**		**0**	**4**	**1,581**	**136**	**1,721**	**36.888**
	Channel catfish	adult	0	0	3	0	3	0.234
	Emerald shiner		0	0	21	0	21	0.090
	Freshwater drum	adult	0	0	14	0	14	8.628
	Gizzard shad	adult	0	0	10	0	10	3.954
	Goldfish		0	0	7	0	7	1.729
	lamprey spp.		0	0	3	0	3	0.110
	Redhorse sucker		0	0	3	0	3	2.067
	Rock bass	adult	0	0	3	0	3	0.269
	Round goby		0	0	10	0	10	0.668
	Silver lamprey		0	0	3	0	3	0.207
	Trout-perch		0	0	7	0	7	0.007
	White bass	adult	0	0	14	0	14	4.374
	White perch	adult	0	0	52	0	52	5.174
	White perch	JUV(<150mm)	0	0	110	0	110	10.464
	Yellow perch	adult	0	0	110	0	110	5.146
6	**22-May-05 to 28-May-05**		**0**	**0**	**372**	**0**	**372**	**43.121**
	Freshwater drum	adult	0	0	14	0	14	6.249
	Gizzard shad	adult	0	0	3	0	3	2.033
	Goldfish		0	0	3	0	3	0.782
	Redhorse sucker		0	0	7	0	7	4.699
	Silver lamprey		0	0	7	0	7	0.592
	Walleye	adult	0	0	3	0	3	0.592
	White bass	adult	0	0	17	0	17	2.995
	White perch	adult	0	0	10	0	10	0.768
	Yellow perch	adult	0	0	20	0	20	1.476
7	**29-May-05 to 4-Jun-05**		**0**	**0**	**85**	**0**	**85**	**20.186**
	Emerald shiner		0	0	2,909	0	2,909	10.731
	Freshwater drum	adult	0	0	32	0	32	24.031
	Gizzard shad	adult	0	0	11	0	11	5.408
	Northern pike		0	0	4	0	4	4.361
	Quillback		0	0	4	0	4	5.611
	Rock bass	adult	0	0	4	0	4	0.182
	Round goby		0	0	7	0	7	0.053
	Silver lamprey		0	0	11	0	11	0.434
	Spottail shiner		0	0	7	0	7	0.112
	Trout-perch		0	0	11	0	11	0.074
	Walleye	JUV(<200mm)	0	0	4	0	4	0.294
	White bass	adult	0	0	4	0	4	0.826
	White perch	adult	0	0	49	0	49	2.800
	Yellow perch	adult	0	0	14	0	14	1.708
8	**5-Jun-05 to 11-Jun-05**		**0**	**0**	**3,066**	**0**	**3,066**	**56.623**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Channel catfish	adult	0	0	14	0	14	6.958
	Common shiner		0	0	7	0	7	0.083
	Emerald shiner		0	0	111	14	125	0.291
	Freshwater drum	adult	0	0	35	0	35	15.509
	Gizzard shad	adult	0	0	14	0	14	6.140
	Round goby		0	0	7	0	7	0.291
	Trout-perch		0	0	7	0	7	0.055
	White bass	adult	0	0	7	0	7	2.356
	Yellow perch	JUV(<150mm)	0	0	7	0	7	0.236
9	**12-Jun-05 to 18-Jun-05**		**0**	**0**	**208**	**14**	**222**	**31.920**
	Black crappie	adult	0	0	3	0	3	0.054
	Brown bullhead		0	0	4	0	4	0.674
	Channel catfish	adult	0	0	7	0	7	1.850
	Emerald shiner		0	0	64	0	64	0.287
	Freshwater drum	adult	0	0	28	0	28	10.573
	Largemouth bass	adult	0	0	0	4	4	4.218
	Quillback		0	0	4	0	4	5.797
	Rainbow smelt		0	0	7	0	7	0.084
	Round goby		0	0	14	0	14	0.239
	Sea lamprey		0	0	4	0	4	0.159
	Silver chub		0	0	22	0	22	0.155
	Silver lamprey		0	0	4	0	4	0.249
	Spottail shiner		0	0	43	0	43	0.329
	Trout-perch		0	0	52	4	56	0.314
	White bass	adult	0	0	3	0	3	1.232
	White perch	adult	0	0	40	4	43	2.729
	White perch	JUV(<150mm)	0	0	14	0	14	0.543
	Yellow perch	adult	0	0	43	0	43	2.579
10	**19-Jun-05 to 25-Jun-06**		**0**	**0**	**354**	**11**	**365**	**32.064**
	Bluegill	JUV(<100mm)	0	0	4	0	4	0.011
	Channel catfish	adult	0	0	0	4	4	2.069
	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.004
	Common shiner		0	0	7	0	7	0.084
	Emerald shiner		0	0	35	4	39	0.182
	Freshwater drum	adult	0	0	21	4	25	8.302
	Northern pike		0	0	4	0	4	2.839
	Redhorse sucker		0	0	0	4	4	2.251
	Rock bass	adult	0	0	7	0	7	0.203
	Round goby		0	0	39	0	39	1.547
	Walleye	adult	0	0	4	0	4	1.516
	White bass	adult	0	0	11	0	11	2.478
	White perch	adult	0	0	14	0	14	1.883
	White perch	JUV(<150mm)	0	0	4	0	4	0.144
	Yellow perch	adult	0	0	25	0	25	1.985
11	**26-Jun-05 to 2-Jul-05**		**0**	**0**	**175**	**14**	**189**	**25.494**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	JUV(<100mm)	0	0	4	0	4	0.011
	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.004
	Channel catfish	adult	0	0	0	4	4	2.069
	Common shiner		0	0	7	0	7	0.084
	Emerald shiner		0	0	35	4	39	0.182
	Freshwater drum	adult	0	0	21	4	25	8.302
	Northern pike		0	0	4	0	4	2.839
	Redhorse sucker		0	0	0	4	4	2.251
	Rock bass	adult	0	0	7	0	7	0.203
	Round goby		0	0	39	0	39	1.547
	Walleye	adult	0	0	4	0	4	1.516
	White bass	adult	0	0	11	0	11	2.478
	White perch	adult	0	0	14	0	14	1.883
	White perch	JUV(<150mm)	0	0	4	0	4	0.144
	Yellow perch	adult	0	0	25	0	25	1.985
12	**3-Jul-05 to 9-Jul-05**		**0**	**0**	**175**	**14**	**189**	**25.494**
	Emerald shiner		0	0	7	0	7	0.023
	Freshwater drum	adult	0	0	27	0	27	7.446
	Gizzard shad	JUV(<200mm)	0	0	26	0	26	0.066
	Largemouth bass		0	0	4	0	4	2.424
	Round goby		0	0	29	0	29	0.281
	Trout-perch		0	0	7	0	7	0.036
	Walleye	JUV(<200mm)	0	0	12	4	17	0.250
	White bass	JUV(<150mm)	0	0	28	0	28	0.060
	White perch	adult	0	0	3	3	7	0.855
13	**10-Jul-05 to 16-Jul-05**		**0**	**0**	**144**	**7**	**151**	**11.442**
	Bluegill	JUV(<100mm)	0	0	7	0	7	0.042
	Emerald shiner		0	0	4	0	4	0.014
	Freshwater drum	adult	0	0	18	0	18	3.247
	Gizzard shad	JUV(<200mm)	0	0	154	0	154	3.581
	Pumpkinseed		0	0	4	0	4	0.007
	Round goby		0	0	11	7	18	0.568
	White bass	adult	0	0	35	7	42	0.104
	White bass	JUV(<150mm)	0	0	71	0	71	0.421
	White perch	JUV(<150mm)	0	0	21	0	21	0.460
	White sucker		0	0	3	0	3	0.249
	Yellow perch	JUV(<150mm)	0	0	3	0	3	0.014
14	**17-Jul-05 to 23-Jul-05**		**0**	**0**	**330**	**14**	**344**	**8.706**
	Bluegill	JUV(<100mm)	0	0	70	0	70	0.098
	Channel catfish	adult	0	0	28	0	28	3.150
	Common carp	JUV(<150mm)	0	0	14	0	14	0.065
	Emerald shiner		0	0	22	0	22	0.101
	Freshwater drum	JUV(<200mm)	0	0	701	29	730	6.105
	Gizzard shad	JUV(<200mm)	0	0	766	28	795	2.416
	Northern pike		0	0	14	0	14	8.498
	Pumpkinseed		0	0	28	0	28	1.806
	Rock bass	adult	0	0	14	0	14	0.924
	Round goby		0	0	29	0	29	1.074
	Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.029
	Spottail shiner		0	0	22	0	22	0.151
	Trout-perch		0	0	7	0	7	0.065
	White bass	JUV(<150mm)	0	0	1,526	0	1,526	6.353
	White perch	JUV(<150mm)	0	0	2,482	7	2,490	15.910
	Yellow perch	adult	0	14	35	0	49	2.497
15	**24-Jul-05 to 30-Jul-05**		**0**	**14**	**5,766**	**64**	**5,844**	**49.243**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Channel catfish	adult	0	0	0	3	3	1.334
	Freshwater drum	adult	0	0	35	0	35	6.808
	Gizzard shad	JUV(<200mm)	0	0	64	25	88	0.473
	Largemouth bass	JUV(<150mm)	0	0	3	0	3	0.024
	Northern pike		0	0	3	0	3	2.490
	Round goby		0	0	7	7	14	0.484
	Silver lamprey		0	0	3	0	3	0.062
	Smallmouth bass	adult	0	0	3	0	3	3.437
	Walleye	JUV(<200mm)	0	0	3	4	7	0.122
	White bass	JUV(<150mm)	0	0	95	3	99	0.422
	White perch	JUV(<150mm)	0	0	21	0	21	0.064
16	**31-Jul-05 to 6-Aug-05**		**0**	**0**	**239**	**42**	**281**	**15.720**
	Bluegill	JUV(<100mm)	0	0	32	0	32	0.048
	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.012
	Channel catfish	adult	0	0	8	0	8	0.816
	Emerald shiner		0	0	8	0	8	0.032
	Freshwater drum	adult	0	0	36	4	40	5.821
	Gizzard shad	JUV(<200mm)	0	0	87	51	139	0.689
	Largemouth bass	JUV(<150mm)	0	0	4	0	4	0.040
	Round goby		0	0	79	8	87	2.123
	Smallmouth bass	JUV(<150mm)	0	0	8	4	12	0.095
	Spottail shiner		0	0	28	0	28	0.087
	Walleye	adult	0	0	0	12	12	1.006
	White bass	JUV(<150mm)	0	0	578	8	586	1.822
	White perch	adult	0	0	8	0	8	0.911
	White perch	JUV(<150mm)	0	0	871	4	875	3.782
	Yellow perch	adult	0	0	4	0	4	0.400
17	**7-Aug-05 to 13-Aug-05**		**0**	**0**	**1,754**	**91**	**1,845**	**17.681**
	Bluegill	JUV(<100mm)	0	0	7	0	7	0.018
	Brown bullhead		0	0	4	0	4	1.572
	Channel catfish	JUV(<150mm)	0	0	11	7	18	0.140
	Emerald shiner		0	0	4	0	4	0.014
	Freshwater drum	adult	0	0	99	0	99	16.866
	Gizzard shad	JUV(<200mm)	0	0	152	0	152	1.470
	Largemouth bass	JUV(<150mm)	0	0	7	0	7	0.119
	Pumpkinseed		0	0	29	0	29	1.057
	Rock bass	adult	0	0	4	0	4	0.508
	Round goby		0	0	89	0	89	2.666
	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.060
	Spottail shiner		0	0	82	0	82	0.367
	Trout-perch		0	0	4	0	4	0.011
	White bass	JUV(<150mm)	0	0	442	4	445	2.166
	White perch	JUV(<150mm)	0	0	1,239	29	1,267	6.198
	Yellow perch	adult	0	0	18	0	18	2.354
18	**14-Aug-05 to 20-Aug-05**		**0**	**0**	**2,191**	**39**	**2,230**	**35.582**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Black bullhead		0	0	70	0	70	0.263
	Channel catfish	JUV(<150mm)	0	0	53	0	53	0.263
	Emerald shiner		0	0	112	0	112	0.224
	Freshwater drum	JUV(<200mm)	0	0	329	0	329	2.737
	Gizzard shad	JUV(<200mm)	0	0	602	0	602	7.154
	Goldfish		0	0	18	0	18	0.088
	Largemouth bass	JUV(<150mm)	0	0	18	0	18	0.368
	Pumpkinseed		0	0	70	0	70	3.570
	Rock bass	adult	0	0	35	0	35	5.408
	Round goby		0	0	35	0	35	2.415
	Silver chub		0	0	18	0	18	0.175
	Smallmouth bass	JUV(<150mm)	0	0	53	0	53	1.138
	Spottail shiner		0	0	18	112	130	0.529
	Trout-perch		0	0	18	0	18	0.088
	White bass	JUV(<150mm)	0	0	210	0	210	1.593
	White perch	JUV(<150mm)	0	0	62,062	0	62,062	213.588
19	**21-Aug-05 to 27-Aug-05**		**0**	**0**	**63,718**	**112**	**63,830**	**239.596**
	Bluegill	JUV(<100mm)	0	0	26	0	26	0.117
	Channel catfish	JUV(<150mm)	0	0	13	0	13	0.052
	Freshwater drum	JUV(<200mm)	0	0	810	0	810	12.894
	Gizzard shad	JUV(<200mm)	0	0	52	51	103	0.635
	Goldfish		0	0	13	0	13	0.104
	Pumpkinseed		0	0	13	0	13	1.129
	Rock bass	adult	0	0	13	0	13	0.467
	Round goby		0	0	13	0	13	0.480
	Silver chub		0	0	13	0	13	0.831
	Smallmouth bass	JUV(<150mm)	0	0	39	0	39	0.688
	Spottail shiner		0	0	26	0	26	0.104
	Trout-perch		0	0	26	0	26	0.247
	Walleye	adult	0	0	0	13	13	0.701
	White bass	JUV(<150mm)	0	0	489	0	489	1.315
	White perch	JUV(<150mm)	0	0	8,328	103	8,431	35.222
20	**28-Aug-05 to 3-Sep-05**		**0**	**0**	**9,875**	**167**	**10,042**	**54.986**
	Bluegill	JUV(<100mm)	0	0	180	25	206	0.728
	Channel catfish	JUV(<150mm)	0	0	38	0	38	0.217
	Channel catfish	adult	0	0	319	25	344	3.784
	Emerald shiner		0	0	52	0	52	0.312
	Freshwater drum	JUV(<200mm)	0	0	618	13	631	36.519
	Gizzard shad	JUV(<200mm)	0	0	104	52	156	0.936
	Pumpkinseed		0	0	13	0	13	0.025
	Round goby		0	0	103	0	103	1.654
	Spottail shiner		0	0	156	0	156	0.832
	Trout-perch		0	0	76	0	76	0.242
	Walleye	JUV(<200mm)	0	0	25	0	25	0.089
	White bass	JUV(<150mm)	0	0	229	0	229	1.108
	White perch	JUV(<150mm)	0	0	23,931	364	24,295	109.920
21	**4-Sep-05 to 10-Sep-05**		**0**	**0**	**25,845**	**480**	**26,324**	**156.365**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	JUV(<100mm)	0	0	28	0	28	0.143
	Bluntnose minnow		0	0	3	0	3	0.021
	Channel catfish	JUV(<150mm)	0	0	42	0	42	0.582
	Common carp	JUV(<150mm)	0	0	3	0	3	0.139
	Emerald shiner		0	0	10	0	10	0.028
	Freshwater drum	JUV(<200mm)	0	0	296	0	296	13.088
	Gizzard shad	JUV(<200mm)	0	0	411	7	418	5.592
	Green sunfish		0	0	7	0	7	0.128
	Hybrid sunfish		0	0	3	0	3	0.007
	Largemouth bass	JUV(<150mm)	0	0	4	0	4	0.074
	Logperch		0	0	21	0	21	0.125
	Pumpkinseed		0	0	10	0	10	0.066
	Redhorse sucker		0	0	4	0	4	3.504
	Round goby		0	3	143	3	150	2.061
	Silver chub		0	0	3	0	3	0.166
	Silver lamprey		0	0	7	0	7	0.223
	Smallmouth bass	JUV(<150mm)	0	0	80	0	80	1.884
	Spottail shiner		0	0	195	3	198	1.110
	Trout-perch		0	0	73	0	73	0.285
	Walleye	adult	0	0	11	0	11	1.817
	White bass	JUV(<150mm)	0	0	408	10	418	4.440
	White perch	JUV(<150mm)	0	0	1,692	17	1,709	8.140
	Yellow perch	JUV(<150mm)	0	0	31	3	35	2.118
22	**11-Sep-05 to 17-Sep-05**		**0**	**3**	**3,486**	**45**	**3,535**	**45.739**
	Black buffalo		0	0	0	9	9	7.193
	Bluegill	JUV(<100mm)	0	0	219	12	231	1.421
	Channel catfish	JUV(<150mm)	0	0	35	18	53	0.830
	Common carp	adult	0	0	4	0	4	2.958
	Emerald shiner		0	0	19	7	26	0.088
	Freshwater drum	JUV(<200mm)	0	0	273	149	422	15.782
	Freshwater drum	adult	0	0	28	0	28	8.138
	Gizzard shad	JUV(<200mm)	0	0	585	70	655	8.113
	Gizzard shad	adult	0	0	9	0	9	4.288
	Logperch		0	0	23	0	23	0.142
	Orangespotted sunfish		0	0	18	0	18	0.070
	Pumpkinseed		0	0	61	7	68	2.919
	Rock bass	JUV(<100mm)	0	0	11	0	11	0.186
	Rock bass	adult	0	0	0	9	9	1.593
	Round goby		0	0	151	0	151	2.765
	Silver lamprey		0	0	12	0	12	0.345
	Smallmouth bass	JUV(<150mm)	0	0	107	4	110	1.878
	Spottail shiner		0	0	326	82	408	2.216
	Trout-perch		0	0	168	40	208	0.525
	Walleye	JUV(<200mm)	0	0	11	0	11	0.501
	Walleye	adult	0	0	9	0	9	4.025
	White bass	JUV(<150mm)	0	0	686	98	784	8.257
	White bass	adult	0	0	18	0	18	0.761
	White perch	JUV(<150mm)	0	0	3,838	75	3,913	21.334
	White perch	adult	0	0	58	7	65	6.218
	Yellow perch	JUV(<150mm)	0	0	7	0	7	0.452
23	**18-Sep-05 to 24-Sep-05**		**0**	**0**	**6,671**	**586**	**7,257**	**102.991**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Black bullhead		0	0	18	0	18	0.070
	Bluegill	JUV(<100mm)	0	0	665	35	700	2.678
	Channel catfish	JUV(<150mm)	0	18	105	35	158	1.418
	Freshwater drum	JUV(<200mm)	0	0	455	18	473	11.095
	Freshwater drum	adult	0	0	18	0	18	8.330
	Gizzard shad	JUV(<200mm)	0	0	1,260	53	1,313	11.358
	Logperch		0	0	88	0	88	0.805
	Orangespotted sunfish		0	0	18	0	18	0.070
	Pumpkinseed		0	0	35	0	35	0.105
	Round goby		0	53	175	0	228	3.185
	Smallmouth bass	JUV(<150mm)	0	0	105	0	105	1.330
	Spottail shiner		0	0	1,138	70	1,208	7.403
	Trout-perch		0	0	1,838	53	1,890	5.495
	Walleye	adult	0	0	18	0	18	7.018
	White bass	JUV(<150mm)	0	0	210	0	210	2.660
	White perch	adult	0	0	53	0	53	8.085
	White perch	JUV(<150mm)	0	0	17,675	140	17,815	92.715
	Yellow perch	JUV(<150mm)	0	0	70	18	88	4.428
24	**25-Sep-05 to 1-Oct-05**		**0**	**70**	**23,940**	**420**	**24,430**	**168.245**
	Bluegill	JUV(<100mm)	0	0	2,554	16	2,570	9.068
	Channel catfish	adult	0	0	205	28	233	2.445
	Channel catfish	JUV(<150mm)	0	0	71	0	71	0.638
	Common carp	adult	0	0	59	28	87	0.177
	Emerald shiner		0	0	90	0	90	0.384
	Freshwater drum	JUV(<200mm)	0	0	2,155	99	2,254	36.922
	Freshwater drum	adult	0	0	31	0	31	13.259
	Gizzard shad	JUV(<200mm)	0	0	865	183	1,048	10.043
	Goldfish		0	0	50	0	50	2.818
	Largemouth bass		0	0	59	0	59	4.537
	Logperch		0	0	329	0	329	2.077
	Orangespotted sunfish		0	0	50	0	50	0.208
	Pumpkinseed		0	0	1,395	0	1,395	6.410
	Redhorse sucker		0	0	6	0	6	0.131
	Rock bass	JUV(<100mm)	0	0	28	0	28	0.147
	Rock bass	adult	0	0	6	0	6	0.564
	Round goby		0	0	301	28	329	2.298
	Smallmouth bass	JUV(<150mm)	0	0	691	28	719	10.163
	Spottail shiner		0	0	1,708	146	1,854	11.107
	Trout-perch		0	0	884	28	911	3.064
	White bass	JUV(<150mm)	0	0	707	6	713	10.990
	White bass	adult	0	0	6	0	6	3.294
	White perch	JUV(<150mm)	0	0	12,850	59	12,908	72.346
	White perch	adult	0	0	6	0	6	0.867
	Yellow perch	JUV(<150mm)	0	0	118	0	118	1.647
25	**2-Oct-05 to 8-Oct-05**		**0**	**0**	**25,222**	**648**	**25,870**	**205.604**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Black bullhead		0	0	42	0	42	12.790
	Bluegill	JUV(<100mm)	0	0	1,187	0	1,187	4.819
	Channel catfish	JUV(<150mm)	0	0	553	0	553	5.561
	Channel catfish	adult	0	0	564	0	564	6.113
	Fathead minnow		0	0	693	137	830	20.574
	Freshwater drum	adult	0	0	17,794	973	18,767	180.721
	Freshwater drum	JUV(<200mm)	0	0	910	0	910	27.877
	Gizzard shad	JUV(<200mm)	0	0	3,252	130	3,381	42.574
	Largemouth bass	JUV(<150mm)	0	0	137	0	137	92.307
	Largemouth bass		0	0	137	0	137	0.695
	Logperch		0	0	84	0	84	0.607
	Northern pike		0	0	42	0	42	10.709
	Round goby		0	0	725	0	725	14.143
	Sea lamprey		0	0	42	0	42	3.122
	Smallmouth bass	JUV(<150mm)	0	0	459	0	459	10.851
	Spottail shiner		0	0	2,499	361	2,860	16.297
	Trout-perch		0	0	7,018	221	7,238	24.918
	White bass	JUV(<150mm)	0	0	448	0	448	11.950
	White perch	adult	0	0	319	0	319	33.943
	White perch	JUV(<150mm)	0	0	53,109	595	53,704	360.616
	Yellow perch	JUV(<150mm)	0	0	84	0	84	4.292
26	**9-Oct-05 to 15-Oct-05**		**0**	**0**	**90,094**	**2,415**	**92,509**	**885.478**
	Bluegill	JUV(<100mm)	0	0	777	0	777	2.389
	Brook silverside		0	0	39	0	39	0.078
	Channel catfish	JUV(<150mm)	0	0	168	0	168	2.599
	Emerald shiner		0	0	39	0	39	0.078
	Freshwater drum	JUV(<200mm)	0	0	1,033	0	1,033	19.452
	Gizzard shad	JUV(<200mm)	0	0	29,169	354	29,523	277.708
	Orangespotted sunfish		0	0	39	0	39	0.078
	Pumpkinseed		0	0	39	0	39	0.156
	Round goby		0	0	168	0	168	1.949
	Smallmouth bass	JUV(<150mm)	0	0	77	0	77	0.469
	Spottail shiner		0	0	77	0	77	0.352
	Trout-perch		0	0	116	0	116	0.430
	White bass	JUV(<150mm)	0	0	221	0	221	2.467
	White perch	JUV(<150mm)	0	0	6,328	0	6,328	39.664
	Yellow perch	JUV(<150mm)	0	0	77	0	77	0.273
27	**16-Oct-05 to 22-Oct-05**		**0**	**0**	**38,364**	**354**	**38,717**	**348.142**
	Bluegill	JUV(<100mm)	0	0	431	18	448	1.529
	Channel catfish	JUV(<150mm)	0	0	95	0	95	0.401
	Emerald shiner		0	0	18	0	18	0.018
	Freshwater drum	adult	0	0	410	0	410	8.998
	Freshwater drum	JUV(<200mm)	0	0	553	0	553	10.159
	Gizzard shad	JUV(<200mm)	0	0	30,366	35	30,401	291.114
	Goldfish		0	0	77	0	77	0.870
	Pumpkinseed		0	0	56	0	56	0.334
	Rock bass	adult	0	35	140	0	175	1.996
	Round goby		0	0	77	0	77	0.751
	Smallmouth bass	JUV(<150mm)	0	0	266	0	266	2.809
	Spottail shiner		0	0	1,078	0	1,078	6.336
	Trout-perch		0	0	2,629	0	2,629	8.910
	White bass	JUV(<150mm)	0	0	105	0	105	1.479
	White perch	JUV(<150mm)	0	0	10,021	0	10,021	64.817
	White sucker		0	0	18	0	18	11.582
	Yellow perch	JUV(<150mm)	0	0	116	0	116	0.712
28	**23-Oct-05 to 29-Oct-05**		**0**	**35**	**46,452**	**53**	**46,540**	**412.814**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	JUV(<100mm)	0	0	1,425	0	1,425	5.149
	Channel catfish	JUV(<150mm)	0	0	182	0	182	1.527
	Freshwater drum	JUV(<200mm)	0	0	259	0	259	3.930
	Freshwater drum	adult	0	0	60	0	60	18.328
	Gizzard shad	JUV(<200mm)	0	0	124,425	522	124,947	1207.753
	Goldfish		0	0	60	0	60	0.611
	Largemouth bass		0	0	60	0	60	7.698
	Round goby		0	0	196	0	196	10.334
	White bass	JUV(<150mm)	0	0	1,404	0	1,404	9.530
	White crappie	JUV(<150mm)	0	0	60	0	60	0.305
	White perch	JUV(<150mm)	0	0	553	0	553	3.802
29	**30-Oct-05 to 5-Nov-05**		**0**	**0**	**128,681**	**522**	**129,203**	**1268.967**
	Bluegill	JUV(<100mm)	0	0	2,006	105	2,111	5.075
	Brown bullhead		0	0	105	0	105	0.859
	Emerald shiner		0	0	105	0	105	0.322
	Freshwater drum	JUV(<200mm)	0	0	287	0	287	4.598
	Freshwater drum	adult	0	0	144	0	144	28.448
	Gizzard shad	JUV(<200mm)	0	0	282,632	1,180	283,812	3183.054
	Goldfish		0	0	249	0	249	2.444
	Pumpkinseed		0	0	144	0	144	0.575
	Round goby		0	0	466	0	466	5.416
	Spottail shiner		0	0	501	357	858	4.850
	White bass	adult	0	0	105	0	105	7.621
	White perch	JUV(<150mm)	0	0	1,040	0	1,040	10.336
	Yellow perch	JUV(<150mm)	0	0	249	0	249	2.091
	Yellow perch	adult	0	105	0	0	105	16.638
30	**6-Nov-05 to 12-Nov-05**		**0**	**105**	**288,029**	**1,642**	**289,776**	**3272.327**
	Bluegill	JUV(<100mm)	0	63	512	63	637	1.922
	Brook silverside		0	0	125	0	125	0.192
	Channel catfish	JUV(<150mm)	0	0	446	0	446	3.401
	Emerald shiner		0	0	960	0	960	1.733
	Freshwater drum	JUV(<200mm)	0	0	41,055	3,584	44,639	557.261
	Freshwater drum	adult	0	0	960	63	1,023	22.141
	Gizzard shad	JUV(<200mm)	0	0	129,017	0	129,017	2372.014
	Logperch		0	0	191	0	191	1.155
	Longnose gar	adult	0	63	0	0	63	5.829
	Pumpkinseed		0	191	0	0	191	10.591
	Rock bass	JUV(<100mm)	0	0	191	0	191	1.348
	Round goby		0	0	960	63	1,023	13.975
	Smallmouth bass	JUV(<150mm)	0	0	383	0	383	26.959
	Spottail shiner		0	0	6,798	63	6,861	42.485
	Trout-perch		0	0	191	0	191	0.385
	White bass	JUV(<150mm)	0	0	383	0	383	5.777
	White perch	JUV(<150mm)	0	0	7,828	63	7,890	43.632
	Yellow perch	adult	0	0	254	0	254	41.195
	Yellow perch	JUV(<150mm)	0	0	317	0	317	2.181
31	**13-Nov-05 to 19-Nov-05**		**0**	**317**	**190,572**	**3,897**	**194,786**	**3154.178**
	Bluegill	JUV(<100mm)	0	0	1,405	0	1,405	3.517
	Brook silverside		0	0	349	0	349	0.352
	Emerald shiner		0	0	7,194	0	7,194	22.989
	Freshwater drum	JUV(<200mm)	0	0	518	0	518	25.479
	Gizzard shad	adult	0	0	173	0	173	16.003
	Gizzard shad	JUV(<200mm)	0	0	340,755	0	340,755	8031.014
	Goldfish		0	173	173	0	346	7.738
	Pumpkinseed		0	0	173	0	173	0.703
	Rainbow smelt		0	0	173	0	173	0.176
	Redhorse sucker		0	0	346	0	346	285.575
	Spottail shiner		0	0	870	0	870	34.075
	Trout-perch		0	0	870	0	870	2.276
	Walleye	adult	0	0	349	0	349	4.221
	White crappie	adult	0	2,461	877	0	3,338	18.465
	Yellow bullhead		0	349	0	0	349	31.831
	Yellow perch	adult	0	346	173	0	518	70.532
32	**20-Nov-05 to 26-Nov-05**		**0**	**3,328**	**354,397**	**0**	**357,725**	**8554.946**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH1: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Channel catfish	adult	0	0	178	0	178	37.956
	Emerald shiner		0	0	7,105	0	7,105	10.829
	Gizzard shad	JUV(<200mm)	0	172,791	311,296	0	484,087	6663.206
	Goldfish		0	0	406	0	406	8.060
	Largemouth bass		0	0	228	0	228	62.527
	Pumpkinseed		0	178	0	0	178	11.568
	Quillback		0	0	228	0	228	147.434
	Redhorse sucker		0	0	178	0	178	116.038
	Round goby		0	0	769	0	769	13.348
	Silver lamprey		0	0	178	0	178	12.652
	White bass	adult	0	178	0	0	178	9.941
	White perch	JUV(<150mm)	0	0	769	0	769	3.734
33	**27-Nov-05 to 3-Dec-05**		**0**	**173,148**	**321,334**	**0**	**494,482**	**7097.292**
	Bluegill	JUV(<100mm)	0	0	175	0	175	0.537
	Emerald shiner		0	0	532	0	532	1.075
	Gizzard shad	JUV(<200mm)	0	0	185,220	22,925	208,145	2914.445
	Goldfish		0	0	532	0	532	8.957
	Rainbow smelt		0	0	175	0	175	0.179
	Round goby		0	0	357	0	357	1.612
	Spottail shiner		0	0	175	0	175	0.896
	Trout-perch		0	0	175	0	175	0.537
	Yellow perch	JUV(<150mm)	0	0	175	0	175	0.717
34	**4-Dec-05 to 10-Dec-05**		**0**	**0**	**187,516**	**22,925**	**210,441**	**2928.955**
	Bluegill	JUV(<100mm)	0	0	116	0	116	3.839
	Emerald shiner		0	0	112	0	112	0.277
	Gizzard shad	JUV(<200mm)	0	0	16,139	837	16,975	225.179
	Goldfish		0	0	273	0	273	3.235
	Rainbow smelt		0	0	53	0	53	0.054
	Round goby		0	0	49	0	49	0.568
	Smallmouth bass	JUV(<150mm)	0	0	25	0	25	0.484
	Spottail shiner		0	0	105	0	105	0.597
	Trout-perch		0	0	7	0	7	0.098
	White perch	JUV(<150mm)	0	0	60	0	60	0.304
35	**11-Dec-05 to 17-Dec-05**		**0**	**0**	**16,937**	**837**	**17,773**	**234.634**
	Bluegill	JUV(<100mm)	0	0	168	0	168	0.272
	Common carp	adult	0	0	0	32	32	15.254
	Emerald shiner		0	0	4,344	32	4,375	11.558
	Gizzard shad	JUV(<200mm)	0	0	37,877	0	37,877	3360.822
	Goldfish		0	0	774	0	774	8.077
	Round goby		0	0	210	0	210	4.748
	Smallmouth buffalo	adult	0	0	32	0	32	28.839
	Spotfin shiner		0	0	179	0	179	1.250
	Trout-perch		0	0	357	0	357	1.429
	White perch	JUV(<150mm)	0	0	2,275	0	2,275	12.163
	Yellow bullhead		0	0	179	0	179	1.071
36	**18-Dec-05 to 24-Dec-05**		**0**	**0**	**46,393**	**63**	**46,456**	**3445.482**
	Emerald shiner		0	0	333	0	333	1.339
	Freshwater drum	JUV(<200mm)	0	0	134,526	0	134,526	1813.312
	Gizzard shad	JUV(<200mm)	0	0	166,065	0	166,065	2083.020
	Goldfish		0	0	165	0	165	1.339
	Rainbow smelt		0	0	165	0	165	0.167
	Silver chub		0	0	123	0	123	3.682
	Spottail shiner		0	0	501	0	501	2.176
	White perch	JUV(<150mm)	0	0	2,454	0	2,454	12.622
37	**25-Dec-05 to 31-Dec-05**		**0**	**0**	**304,329**	**0**	**304,329**	**3917.659**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH1: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	236	0	236	0.456
	Brook silverside	0	0	193	0	193	0.193
	Emerald shiner	0	0	1,736	0	1,736	7.328
	Gizzard shad	0	0	149,800	0	149,800	2738.729
	Goldfish	0	0	86	0	86	0.947
	Green sunfish	0	0	193	0	193	0.386
	Round goby	0	0	43	43	86	0.258
	Spottail shiner	0	0	814	0	814	4.978
	Trout-perch	0	0	1,157	0	1,157	7.521
	White perch	0	0	86	0	86	0.517
38	**1-Jan-06 to 7-Jan-06**	**0**	**0**	**154,344**	**43**	**154,387**	**2761.314**
	Bluegill	0	0	158	0	158	0.369
	Bowfin	38	0	0	0	38	190.390
	Common carp	0	0	105	0	105	0.948
	Emerald shiner	0	0	196	0	196	1.175
	Gizzard shad	0	0	63,877	0	63,878	1021.983
	Goldfish	0	0	105	0	105	0.948
	Northern longear sunfish	0	0	53	0	53	0.105
	Rock bass	0	0	53	0	53	0.211
	Round goby	0	0	211	0	211	4.425
	Spottail shiner	0	0	53	0	53	0.211
	White perch	0	0	38	0	38	0.153
	Yellow perch	0	0	38	0	38	10.463
39	**8-Jan-06 to 14-Jan-06**	**38**	**0**	**64,887**	**0**	**64,926**	**1231.380**
	Bluegill	0	0	223	0	223	0.446
	Channel catfish	0	890	0	0	890	45.375
	Common carp	0	0	446	0	446	8.260
	Emerald shiner	0	0	1,116	0	1,116	5.804
	Gizzard shad	0	183,279	463,494	0	646,773	76742.003
	Golden redhorse	0	0	223	0	223	190.197
	Pumpkinseed	0	0	223	0	223	8.036
	Silver lamprey	0	223	0	0	223	22.993
	Spottail shiner	0	0	890	0	890	2.669
	White perch	0	0	223	0	223	0.893
40	**15-Jan-06 to 21-Jan-06**	**0**	**184,392**	**466,840**	**0**	**651,232**	**77026.677**
	Bluegill	0	0	1,045	0	1,045	3.134
	Emerald shiner	0	2,089	14,272	0	16,361	71.707
	Gizzard shad	0	0	593,416	11,490	604,906	14016.725
	Goldfish	0	1,122	2,089	0	3,211	87.887
	Muskellenge	0	1,045	0	0	1,045	132.661
	Northern pike	0	0	77	0	77	119.450
	Pumpkinseed	0	0	77	0	77	3.463
	Round goby	0	2,089	1,122	0	3,211	49.345
	Spottail shiner	0	0	2,320	0	2,320	9.372
	Trout-perch	0	0	1,045	0	1,045	8.357
	White perch	0	0	11,490	0	11,490	85.655
41	**22-Jan-06 to 28-Jan-06**	**0**	**6,344**	**626,952**	**11,490**	**644,787**	**14587.756**
	Bluegill	0	162	162	0	324	5.998
	Common carp	0	0	162	0	162	1.135
	Emerald shiner	0	0	324	0	324	1.135
	Gizzard shad	0	0	1,908,975	0	1,908,975	41221.237
	Goldfish	0	162	2,323	0	2,485	29.126
	Round goby	0	0	2,485	0	2,485	21.653
	Smallmouth bass	0	0	162	0	162	39.882
	White perch	0	0	3,296	0	3,296	19.219
42	**29-Jan-06 to 4-Feb-06**	**0**	**324**	**1,917,891**	**0**	**1,918,215**	**41339.384**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH1: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	1,422	0	1,422	4.265
	Emerald shiner	0	0	46,093	0	46,093	208.869
	Gizzard shad	0	0	1,092,567	0	1,092,567	22499.971
	Goldfish	0	0	2,843	0	2,843	41.227
	Green sunfish	0	0	61	0	61	0.671
	Round goby	0	0	1,422	0	1,422	12.794
43	**5-Feb-06 to 11-Feb-06**	**0**	**0**	**1,144,407**	**0**	**1,144,407**	**22767.796**
	Bluegill	0	0	2,266	0	2,266	7.554
	Emerald shiner	0	0	32,881	0	32,881	128.529
	Gizzard shad	0	0	902,467	13,935	916,402	22525.052
	White perch	0	0	1,373	0	1,373	6.991
44	**12-Feb-06 to 18-Feb-06**	**0**	**0**	**938,988**	**13,935**	**952,922**	**22668.125**
	Bluegill	0	0	544	0	544	2.854
	Common carp	0	544	272	0	815	11.824
	Emerald shiner	0	0	1,307	0	1,307	4.024
	Gizzard shad	0	0	114,432	0	114,432	2786.303
	Goldfish	0	0	439	0	439	4.900
	Largemouth bass	0	0	136	0	136	1.087
	Rock bass	0	0	0	136	136	16.173
	Spottail shiner	0	0	815	0	815	4.077
	Yellow perch	0	84	84	0	167	34.282
45	**19-Feb-06 to 25-Feb-06**	**0**	**627**	**118,028**	**136**	**118,791**	**2865.524**
	Bluegill	0	0	10,406	0	10,406	100.873
	Bluntnose minnow	0	0	161	0	161	0.483
	Common carp	0	0	483	0	483	4.349
	Emerald shiner	0	0	7,651	0	7,651	45.462
	Gizzard shad	0	0	941,100	0	941,100	16143.080
	Goldfish	0	0	2,771	0	2,771	17.767
	Pumpkinseed	0	0	1,305	0	1,305	67.848
	Rock bass	0	0	161	0	161	0.322
	Round goby	0	0	322	0	322	1.450
	Spottail shiner	0	0	966	0	966	4.349
	Trout-perch	0	0	1,788	0	1,788	7.959
	White perch	0	0	18,073	0	18,073	116.651
	Yellow perch	0	0	161	0	161	3.060
46	**26-Feb-06 to 4-Mar-06**	**0**	**0**	**985,349**	**0**	**985,349**	**16513.653**
	Bluegill	0	0	59	39	98	0.198
	Brown bullhead	0	20	0	0	20	0.118
	Emerald shiner	0	0	20	0	20	0.078
	Gizzard shad	0	0	12,820	0	12,820	264.244
	Longnose gar	0	39	0	0	39	21.534
	Round goby	0	0	98	0	98	2.053
	Spottail shiner	0	0	98	0	98	0.477
	Trout-perch	0	0	20	0	20	0.098
	White bass	0	0	20	0	20	0.098
	White perch	0	0	217	0	217	1.501
47	**5-Mar-06 to 11-Mar-06**	**0**	**59**	**13,352**	**39**	**13,450**	**290.398**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH1: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	1,402	1,445	2,847	10.292
	Brown bullhead	0	0	205	0	205	13.854
	Emerald shiner	0	0	2,916	3,240	6,156	25.850
	Gizzard shad	0	0	44,022	25,778	69,801	1287.989
	Goldfish	0	0	103	248	350	5.044
	Northern pike	0	103	0	0	103	104.262
	Pumpkinseed	0	0	205	0	205	8.928
	Rock bass	0	0	0	248	248	1.239
	Round goby	0	0	556	0	556	5.745
	Spottail shiner	0	0	308	744	1,051	5.287
	Trout-perch	0	0	1,094	0	1,094	7.107
	White crappie	0	0	744	1,487	2,231	12.146
	White perch	0	0	103	0	103	0.718
	Yellow perch	0	0	205	0	205	26.476
48	**12-Mar-06 to 18-Mar-06**	**0**	**103**	**51,863**	**33,189**	**85,155**	**1514.936**
	Black crappie	0	0	71	0	71	19.452
	Bluegill	0	0	307	0	307	3.913
	Brook silverside	0	0	165	0	165	0.165
	Emerald shiner	0	0	401	0	401	2.650
	Freshwater drum	0	0	71	0	71	45.412
	Gizzard shad	0	0	46,195	611	46,806	1396.421
	Goldfish	0	0	236	0	236	4.117
	Pumpkinseed	0	0	83	0	83	8.260
	Round goby	0	0	1,167	0	1,167	40.624
	Silver lamprey	0	153	83	0	236	16.470
	Spottail shiner	0	0	307	0	307	1.514
	Trout-perch	0	0	637	0	637	4.852
	White perch	0	0	1,474	0	1,474	10.473
	Yellow perch	0	0	153	0	153	67.249
49	**19-Mar-06 to 25-Mar-06**	**0**	**153**	**51,350**	**611**	**52,114**	**1621.572**
	Bluegill	0	0	18	0	18	0.105
	Gizzard shad	0	0	4,364	649	5,014	87.833
	Goldfish	0	0	27	0	27	0.219
	Pumpkinseed	0	0	38	0	38	3.124
	Round goby	0	0	132	9	141	5.793
	Silver lamprey	0	9	0	0	9	0.954
	Smallmouth bass	0	0	18	0	18	2.100
	Tadpole madtom	0	10	0	0	10	0.049
	Trout-perch	0	0	36	0	36	0.263
	White bass	0	0	10	0	10	0.127
	White perch	0	0	99	0	99	1.006
	Yellow perch	0	0	9	11	19	1.523
50	**26-Mar-06 to 1-Apr-06**	**0**	**18**	**4,752**	**669**	**5,439**	**103.093**

Individual estimates may not add to totals due to rounding.

APPENDIX 17 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH1: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	3,111	0	3,111	8.297
	Channel catfish	0	0	1,180	0	1,180	2.494
	Emerald shiner	0	0	8,117	0	8,117	31.313
	Freshwater drum	0	0	3,254	0	3,254	904.158
	Gizzard shad	0	0	477,258	0	477,258	10488.615
	Goldfish	0	0	1,466	0	1,466	463.737
	Orangespotted sunfish	0	0	143	0	143	0.429
	Pumpkinseed	0	0	2,217	0	2,217	118.047
	Rock bass	0	0	2,217	0	2,217	12.585
	Round goby	0	143	2,038	0	2,181	138.781
	Silver chub	0	0	0	143	143	8.721
	Silver lamprey	0	0	1,037	0	1,037	66.373
	Smallmouth bass	0	0	2,074	0	2,074	743.590
	Spottail shiner	0	0	7,831	0	7,831	51.613
	Tadpole madtom	0	143	0	0	143	1.287
	Trout-perch	0	0	6,508	0	6,508	44.935
	White perch	0	0	12,552	0	12,552	76.227
	Yellow perch	0	2,074	3,254	0	5,328	258.632
51	**2-Apr-06 to 8-Apr-06**	**0**	**2,360**	**534,259**	**143**	**536,763**	**13419.835**
	Black bullhead	0	0	16	0	16	0.107
	Bluegill	0	0	41	0	41	0.082
	Brown bullhead	0	0	0	44	44	12.389
	Channel catfish	0	0	52	0	52	0.564
	Emerald shiner	0	0	58	8	66	0.297
	Freshwater drum	0	0	148	0	148	48.742
	Gizzard shad	0	0	5,164	107	5,271	101.261
	Goldfish	0	0	8	0	8	0.107
	Green sunfish	0	0	8	0	8	0.239
	Logperch	0	0	8	8	16	0.115
	Orangespotted sunfish	0	0	8	0	8	0.049
	Pumpkinseed	0	0	148	0	148	6.299
	Rock bass	0	0	25	0	25	0.091
	Round goby	0	8	553	8	570	41.506
	Smallmouth bass	0	0	44	0	44	5.297
	Spottail shiner	0	0	526	8	534	2.769
	Stonecat	0	0	8	0	8	0.758
	Trout-perch	0	0	364	0	364	2.221
	White bass	0	0	52	0	52	0.561
	White perch	0	0	496	0	496	3.208
	Yellow perch	0	44	173	0	216	58.759
52	**9-Apr-06 to 15-Apr-06**	**0**	**52**	**7,900**	**184**	**8,136**	**285.422**
	52 Week Total	**38**	**371,472**	**9,271,203**	**96,071**	**9,738,785**	**255,974**

Individual estimates may not add to totals due to rounding.

APPENDIX 18
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	adult	0	0	11	0	11	1.453
	Centrarchidae		0	0	4	0	4	0.840
	Channel catfish	adult	0	0	4	0	4	1.173
	Common carp	adult	0	0	11	0	11	29.750
	Emerald shiner		0	0	193	0	193	3.129
	Freshwater drum		0	0	21	0	21	12.600
	Gizzard shad		0	0	88	0	88	26.856
	Goldfish		0	0	21	0	21	5.373
	Logperch		0	0	4	0	4	0.025
	Longnose gar	adult	0	0	11	0	11	2.800
	Muskellunge		0	0	4	0	4	31.010
	Northern hog sucker		0	0	4	0	4	2.590
	Northern pike		0	0	7	0	7	15.925
	Pumpkinseed		0	0	7	0	7	0.690
	Round goby		0	0	126	0	126	15.698
	Silver lamprey		0	0	7	0	7	1.484
	Spottail shiner		0	0	39	0	39	0.252
	Trout-perch		0	0	389	0	389	4.652
	Walleye	adult	0	0	4	0	4	3.360
	White bass		0	0	14	0	14	1.362
	White perch		0	0	70	0	70	11.046
	Yellow perch		0	0	77	0	77	10.147
1	**17-Apr-05 to 23-Apr-05**		**0**	**0**	**1,110**	**0**	**1,110**	**182.210**
	Bluegill	adult	0	0	4	0	4	0.165
	Channel catfish	JUV(<150mm)	0	0	11	0	11	0.224
	Common carp	adult	0	0	18	0	18	5.040
	Emerald shiner		0	4	91	0	95	0.536
	Freshwater drum		0	0	14	4	18	12.233
	Gizzard shad		0	0	67	0	67	33.121
	Goldfish		0	0	4	0	4	1.337
	Longnose gar		0	4	7	0	11	2.443
	Northern pike		0	0	4	0	4	7.938
	Pumpkinseed		0	0	4	0	4	0.147
	Round goby		0	0	35	0	35	1.712
	Silver chub		0	0	14	0	14	0.270
	Silver lamprey		0	0	4	0	4	0.322
	Smallmouth bass	adult	0	0	4	0	4	5.215
	Spottail shiner		0	0	112	0	112	0.893
	Trout-perch		0	0	382	0	382	2.212
	Walleye	adult	0	0	0	4	4	9.100
	White bass	adult	0	0	7	0	7	0.609
	White perch		0	0	63	0	63	0.231
	Yellow perch		0	0	28	0	28	2.440
2	**24-Apr-05 to 30-Apr-05**		**0**	**7**	**868**	**7**	**882**	**86.184**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	adult	0	0	3	0	3	1.271
	Channel catfish		0	0	7	0	7	13.803
	Common carp	adult	0	0	3	0	3	6.175
	Emerald shiner		0	0	195	0	195	1.089
	Freshwater drum		0	0	39	0	39	28.444
	Gizzard shad		0	0	42	0	42	17.095
	Goldfish		0	0	13	0	13	3.656
	Longnose gar	adult	0	0	3	0	3	0.244
	Northern pike		0	0	3	0	3	5.704
	Quillback		0	0	7	0	7	9.750
	Rainbow smelt		0	0	7	0	7	0.029
	Rock bass	JUV(<100mm)	0	0	3	0	3	0.026
	Round goby		0	0	10	0	10	0.068
	Silver lamprey		0	0	3	0	3	0.338
	Spottail shiner		0	0	62	0	62	0.582
	Trout-perch		0	0	390	0	390	2.477
	Walleye		0	0	13	0	13	18.801
	White bass	adult	0	0	10	0	10	1.729
	White perch		0	0	13	0	13	0.501
	Yellow perch		0	0	7	0	7	0.224
3	**1-May-05 to 7-May-05**		**0**	**0**	**832**	**0**	**832**	**112.005**
	Black crappie	adult	0	0	3	0	3	0.224
	Bluegill	JUV(<100mm)	0	0	3	0	3	0.003
	Channel catfish		0	0	13	0	13	0.132
	Common carp	adult	0	0	3	0	3	6.204
	Crappie spp.		0	0	3	0	3	0.667
	Emerald shiner		0	0	257	0	257	1.139
	Freshwater drum		0	0	23	0	23	29.030
	Gizzard shad		0	0	33	17	50	23.275
	Goldfish		0	0	13	0	13	2.894
	Pumpkinseed		0	0	7	0	7	0.178
	Quillback		0	0	0	3	3	2.468
	Rainbow smelt		0	0	7	0	7	0.383
	Rock bass	adult	0	0	3	0	3	0.584
	Round goby		0	7	13	0	20	0.822
	Silver lamprey		0	3	0	0	3	0.099
	Spottail shiner		0	0	10	0	10	0.086
	Trout-perch		0	0	908	0	908	4.755
	Walleye	adult	0	0	3	3	7	6.636
	White bass		0	0	20	0	20	10.095
	White perch		0	0	92	0	92	5.495
	White sucker		0	0	0	3	3	1.881
	Yellow perch	adult	0	7	30	0	36	1.838
4	**8-May-05 to 14-May-05**		**0**	**17**	**1,445**	**26**	**1,488**	**98.888**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill		0	0	6	0	6	0.067
	Channel catfish	adult	0	0	6	0	6	0.253
	Emerald shiner		0	0	3,382	0	3,382	14.186
	Freshwater drum		0	3	21	6	31	22.666
	Gizzard shad		0	0	45	19	64	28.602
	Goldfish		0	0	6	6	13	4.115
	Longnose gar	adult	0	10	0	0	10	1.312
	Madtom (Noturus spp.)		0	0	3	0	3	0.026
	Quillback		0	0	0	3	3	4.416
	Rainbow smelt		0	0	10	0	10	0.024
	Redhorse sucker		0	0	9	3	12	11.136
	Rock bass		0	3	16	3	22	0.983
	Round goby		0	6	22	6	35	0.790
	Silver lamprey		0	6	0	0	6	0.557
	Smallmouth bass		0	0	6	0	6	2.298
	Spottail shiner		0	0	195	0	195	1.152
	Trout-perch		0	0	393	13	406	1.818
	Walleye	adult	0	0	3	3	6	5.075
	White bass		0	0	60	6	67	7.244
	White perch		0	10	445	138	592	51.901
	Yellow perch		0	13	143	22	178	8.905
5	**15-May-05 to 21-May-05**		**0**	**51**	**4,773**	**230**	**5,055**	**167.525**
	Bluegill	adult	0	0	4	0	4	0.063
	Channel catfish		0	0	11	0	11	0.805
	Emerald shiner		0	0	588	0	588	5.768
	Freshwater drum		0	0	63	0	63	36.148
	Gizzard shad		0	0	77	0	77	31.395
	Goldfish		0	0	21	0	21	16.373
	Longnose gar	adult	0	0	7	0	7	1.078
	Northern pike		0	0	21	0	21	40.149
	Redhorse sucker		0	0	25	0	25	15.218
	Rock bass		0	0	14	0	14	0.938
	Round goby		0	0	14	0	14	1.050
	Silver lamprey		0	0	4	0	4	0.252
	Spottail shiner		0	0	39	0	39	0.224
	Trout-perch		0	0	154	0	154	0.623
	Walleye		0	0	7	0	7	0.266
	White bass		0	0	74	0	74	16.527
	White perch		0	0	427	0	427	51.961
	Yellow perch		0	0	235	0	235	9.373
6	**22-May-05 to 28-May-05**		**0**	**0**	**1,782**	**0**	**1,782**	**228.211**
	Channel catfish		0	0	7	0	7	2.399
	Emerald shiner		0	0	96	0	96	0.382
	Freshwater drum		0	0	68	0	68	60.514
	Gizzard shad		0	0	31	0	31	14.470
	Largemouth bass		0	0	3	0	3	4.991
	Pumpkinseed		0	0	3	0	3	0.224
	Quillback		0	0	7	0	7	13.042
	Redhorse sucker		0	0	24	0	24	21.905
	Rock bass		0	0	10	0	10	0.973
	Round goby		0	0	14	0	14	0.846
	Spottail shiner		0	0	3	0	3	0.014
	Spotted gar		0	0	3	0	3	1.856
	Trout-perch		0	0	51	0	51	0.239
	White bass		0	0	14	0	14	3.442
	White perch		0	0	92	0	92	7.883
	White sucker		0	0	3	0	3	0.247
	Yellow perch		0	0	48	0	48	2.506
7	**29-May-05 to 4-Jun-05**		**0**	**0**	**478**	**0**	**478**	**135.934**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Brown bullhead		0	0	7	0	7	4.060
	Channel catfish	adult	0	0	4	0	4	0.875
	Emerald shiner		0	0	1,526	0	1,526	20.965
	Freshwater drum		0	0	147	18	165	73.850
	Gizzard shad		0	0	39	0	39	13.272
	Green sunfish		0	0	4	0	4	0.137
	Northern pike		0	0	4	0	4	0.490
	Pumpkinseed		0	0	4	0	4	0.343
	Quillback		0	0	14	0	14	15.964
	Rainbow smelt		0	0	7	0	7	0.028
	Redhorse sucker		0	0	4	0	4	5.250
	Rock bass	adult	0	0	7	0	7	1.568
	Round goby		0	0	14	0	14	1.183
	Silver lamprey		0	0	7	0	7	0.476
	Trout-perch		0	0	11	0	11	0.084
	Walleye		0	0	28	0	28	10.087
	White bass	adult	0	0	18	0	18	3.658
	White perch		0	0	88	0	88	9.541
	Yellow perch		0	0	18	0	18	1.075
8	**5-Jun-05 to 11-Jun-05**		**0**	**0**	**1,946**	**18**	**1,964**	**162.904**
	Brown bullhead		0	0	7	0	7	3.015
	Channel catfish		0	0	10	3	14	4.620
	Emerald shiner		0	0	570	171	741	2.181
	Freshwater drum		0	0	167	7	174	96.404
	Gizzard shad		0	0	17	0	17	8.883
	Logperch		0	0	4	0	4	0.011
	Northern pike		0	0	4	0	4	4.200
	Quillback		0	0	3	0	3	3.860
	Rainbow smelt		0	0	14	0	14	0.031
	Rock bass	adult	0	0	3	0	3	0.554
	Round goby		0	4	45	0	49	2.439
	Sea lamprey		0	3	0	0	3	0.076
	Silver lamprey		0	0	3	3	7	0.367
	Smallmouth bass	adult	0	0	4	0	4	4.046
	Spottail shiner		0	0	7	0	7	0.039
	Trout-perch		0	0	49	11	59	0.290
	Walleye		0	0	87	7	94	24.460
	White bass		0	0	10	0	10	2.318
	White perch		0	0	24	0	24	2.555
	Yellow perch		0	0	28	0	28	1.967
9	**12-Jun-05 to 18-Jun-05**		**0**	**7**	**1,058**	**203**	**1,267**	**162.317**
	Bluegill	adult	0	0	0	7	7	0.497
	Brown bullhead		0	0	7	0	7	2.493
	Emerald shiner		0	0	40	0	40	0.168
	Freshwater drum	adult	0	0	87	20	108	78.926
	Gizzard shad	adult	0	0	0	7	7	2.177
	Rainbow smelt		0	0	27	0	27	0.087
	Round goby		0	0	7	0	7	0.034
	Sea lamprey		0	0	7	0	7	0.437
	Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.020
	Spottail shiner		0	0	7	0	7	0.074
	Walleye	adult	0	0	7	7	13	3.797
	White bass	adult	0	0	20	0	20	12.204
	White perch	adult	0	0	74	0	74	7.251
	Yellow perch	JUV(<150mm)	0	0	13	0	13	0.202
10	**19-Jun-05 to 25-Jun-05**		**0**	**0**	**302**	**40**	**343**	**108.367**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Channel catfish	JUV(<150mm)	0	0	4	0	4	0.056
	Emerald shiner		0	0	25	14	39	0.130
	Freshwater drum		0	0	119	39	158	92.519
	Gizzard shad	adult	0	0	4	0	4	1.950
	Mimic shiner		0	0	4	0	4	0.014
	Rock bass	adult	0	0	4	4	7	0.641
	Round goby		0	0	25	4	28	0.532
	Smallmouth bass	JUV(<150mm)	0	0	4	0	4	0.105
	Spottail shiner		0	0	11	0	11	0.046
	Steelcolor shiner		0	0	4	0	4	0.018
	Trout-perch		0	0	4	4	7	0.056
	Walleye	JUV(<200mm)	0	0	0	4	4	0.011
	White bass	adult	0	0	4	7	11	3.231
	Yellow perch		0	0	18	0	18	1.589
11	**26-Jun-05 to 2-Jul-05**		**0**	**0**	**224**	**74**	**298**	**100.895**
	Bluegill	JUV(<100mm)	0	0	13	0	13	0.148
	Bluntnose minnow		0	0	7	0	7	0.074
	Channel catfish	adult	0	0	13	0	13	0.773
	Cyprinidae		0	0	7	0	7	0.020
	Emerald shiner		0	0	7	0	7	0.020
	Freshwater drum	adult	0	0	114	27	141	65.937
	Gizzard shad		0	0	74	13	87	28.264
	Quillback		0	0	7	0	7	8.823
	Rainbow smelt		0	0	7	0	7	0.040
	Round goby		0	0	34	7	40	1.156
	Trout-perch		0	0	7	0	7	0.034
	Walleye	adult	0	0	7	0	7	1.505
	White perch	adult	0	0	121	13	134	8.682
	Yellow perch	adult	0	0	7	13	20	1.640
12	**3-Jul-05 to 9-Jul-05**		**0**	**0**	**423**	**74**	**497**	**117.116**
	Bluegill	JUV(<100mm)	0	0	20	0	20	0.099
	Freshwater drum	adult	0	0	158	0	158	107.435
	Gizzard shad	adult	0	0	69	0	69	28.929
	Longnose gar	adult	0	0	20	0	20	0.296
	Quillback		0	0	10	0	10	18.329
	Rock bass	adult	0	0	20	0	20	3.237
	Round goby		0	0	39	0	39	3.533
	White bass	JUV(<150mm)	0	0	49	0	49	0.069
	White perch	adult	0	0	30	0	30	1.747
13	**10-Jul-05 to 16-Jul-05**		**0**	**0**	**415**	**0**	**415**	**163.674**
	Channel catfish	adult	0	0	7	0	7	1.310
	Emerald shiner		0	0	21	11	31	0.094
	Freshwater drum		0	0	45	0	45	16.782
	Gizzard shad		0	0	45	7	52	0.269
	Longnose gar	adult	0	0	4	0	4	0.049
	Round goby		0	0	25	0	25	1.473
	Smallmouth bass		0	0	7	3	10	2.866
	Walleye		0	0	17	4	21	1.659
	White bass		0	4	32	3	39	0.130
	White perch		0	0	11	4	14	0.929
	Yellow perch	adult	0	0	3	0	3	0.298
14	**17-Jul-05 to 23-Jul-05**		**0**	**4**	**217**	**32**	**252**	**25.859**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	JUV(<100mm)	0	0	112	0	112	0.504
	Channel catfish	JUV(<150mm)	0	4	4	4	11	0.415
	Emerald shiner		0	0	98	0	98	0.366
	Freshwater drum		0	0	190	7	197	12.675
	Gizzard shad		0	0	1,820	124	1,944	6.552
	Northern pike		0	0	32	0	32	33.610
	Pumpkinseed		0	0	32	0	32	2.272
	Rock bass		0	0	60	0	60	1.858
	Round goby		0	28	39	4	70	1.534
	Smallmouth bass		0	0	63	0	63	0.225
	Spottail shiner		0	0	11	4	14	0.195
	Walleye	JUV(<200mm)	0	0	56	0	56	0.672
	White bass		0	0	2,350	14	2,364	76.798
	White perch		0	0	1,642	14	1,656	25.873
	Yellow perch	adult	0	0	4	0	4	0.371
15	**24-Jul-05 to 30-Jul-05**		**0**	**32**	**6,510**	**171**	**6,713**	**163.918**
	Channel catfish		0	0	14	0	14	3.753
	Emerald shiner		0	0	7	0	7	0.021
	Freshwater drum		0	0	80	7	87	58.537
	Gizzard shad		0	0	80	0	80	0.711
	Largemouth bass		0	0	14	0	14	0.174
	Redear sunfish		0	0	3	0	3	0.271
	Rock bass		0	0	7	0	7	1.176
	Round goby		0	0	52	7	59	2.278
	Smallmouth bass	JUV(<150mm)	0	0	10	0	10	0.058
	Steelhead trout		0	0	3	0	3	0.861
	Walleye		0	0	10	4	14	11.857
	White bass		0	0	216	14	229	6.860
	White perch	JUV(<150mm)	0	0	11	0	11	0.018
	Yellow perch		0	0	10	3	14	1.083
16	**31-Jul-05 to 6-Aug-05**		**0**	**0**	**518**	**35**	**553**	**87.659**
	Black bullhead		0	0	3	0	3	1.859
	Bluegill		0	0	10	0	10	0.031
	Bluntnose minnow		0	0	3	0	3	0.069
	Channel catfish	adult	0	0	24	3	27	2.068
	Emerald shiner		0	0	21	3	24	0.075
	Freshwater drum		0	0	82	0	82	27.293
	Gizzard shad		0	0	220	0	220	3.523
	Largemouth bass		0	0	7	0	7	3.441
	Pumpkinseed		0	0	3	0	3	0.141
	Quillback		0	0	3	0	3	1.461
	Rainbow smelt		0	0	3	0	3	0.003
	Rock bass	adult	0	0	3	0	3	0.490
	Round goby		0	3	79	0	82	2.278
	Smallmouth bass		0	0	41	0	41	0.768
	Spottail shiner		0	0	21	0	21	0.099
	Walleye		0	0	10	0	10	5.433
	White bass		0	0	1,163	7	1,170	23.502
	White perch		0	0	484	7	490	3.125
	Yellow perch		0	0	7	3	10	1.070
17	**7-Aug-05 to 13-Aug-05**		**0**	**3**	**2,188**	**24**	**2,216**	**76.730**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	JUV(<100mm)	0	0	11	0	11	0.060
	Channel catfish		0	0	21	0	21	0.449
	Emerald shiner		0	0	11	0	11	0.028
	Freshwater drum		0	0	46	4	50	15.471
	Gizzard shad		0	0	291	0	291	5.084
	Green sunfish		0	0	4	0	4	0.018
	Largemouth bass		0	0	4	0	4	0.147
	Pumpkinseed		0	0	4	0	4	0.123
	Rock bass	adult	0	0	14	0	14	1.914
	Round goby		0	0	61	4	64	1.777
	Smallmouth bass		0	0	53	0	53	0.769
	Spottail shiner		0	0	71	0	71	0.157
	Walleye	adult	0	0	29	0	29	9.839
	White bass		0	0	462	0	462	1.206
	White perch		0	0	538	0	538	3.439
	Yellow perch		0	0	21	0	21	2.068
18	**14-Aug-05 to 20-Aug-05**		**0**	**0**	**1,640**	**7**	**1,647**	**42.546**
	Bluegill	JUV(<100mm)	0	0	58	0	58	0.146
	Emerald shiner		0	0	58	0	58	0.102
	Freshwater drum		0	0	166	0	166	11.792
	Gizzard shad		0	0	923	108	1,030	20.415
	Round goby		0	0	29	0	29	1.340
	Smallmouth bass	JUV(<150mm)	0	0	29	0	29	0.655
	Spottail shiner		0	0	29	15	44	0.131
	Walleye		0	0	137	0	137	3.372
	White bass		0	0	273	0	273	2.255
	White perch		0	0	25,441	0	25,441	87.728
	Yellow bullhead		0	0	108	0	108	0.538
	Yellow perch	adult	0	0	44	0	44	2.912
19	**21-Aug-05 to 27-Aug-05**		**0**	**0**	**27,294**	**122**	**27,416**	**131.386**
	Emerald shiner		0	0	43	0	43	0.114
	Freshwater drum		0	0	327	0	327	49.759
	Gizzard shad		0	0	414	71	485	5.382
	Rock bass	adult	0	0	14	0	14	2.499
	Round goby		0	0	99	0	99	1.655
	Smallmouth bass	JUV(<150mm)	0	0	29	0	29	0.186
	Spottail shiner		0	0	14	0	14	0.114
	Walleye	adult	0	0	14	0	14	12.324
	White bass		0	0	1,361	0	1,361	6.007
	White perch		0	0	13,683	71	13,754	54.477
	Yellow perch	JUV(<150mm)	0	0	14	0	14	0.057
20	**28-Aug-05 to 3-Sep-05**		**0**	**0**	**16,013**	**142**	**16,155**	**132.574**
	Bluegill	JUV(<100mm)	0	0	59	0	59	0.197
	Channel catfish	JUV(<150mm)	0	0	39	0	39	0.257
	Freshwater drum	adult	0	0	99	0	99	38.690
	Gizzard shad	JUV(<200mm)	0	0	632	99	730	15.871
	Round goby		0	0	20	0	20	0.049
	Smallmouth bass	JUV(<150mm)	0	0	59	0	59	1.382
	Spottail shiner		0	0	217	0	217	0.790
	Trout-perch		0	0	20	0	20	0.059
	Walleye	adult	0	0	20	0	20	11.410
	White bass		0	0	733	41	774	4.400
	White perch		0	0	7,130	41	7,170	31.736
	Yellow perch	adult	0	0	20	0	20	1.579
21	**4-Sep-05 to 10-Sep-05**		**0**	**0**	**9,047**	**180**	**9,227**	**106.421**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill		0	0	14	3	17	0.063
	Brook silverside		0	0	7	0	7	0.003
	Channel catfish		0	0	11	14	24	0.365
	Emerald shiner		0	0	38	3	42	0.108
	Freshwater drum		0	0	118	17	136	37.120
	Gizzard shad		0	0	724	10	734	16.477
	Largemouth bass	JUV(<150mm)	0	0	7	0	7	0.081
	Logperch		0	0	14	0	14	0.080
	Longnose gar	adult	0	4	0	0	4	0.228
	Pumpkinseed		0	0	4	0	4	0.018
	Rock bass		0	0	17	3	21	2.623
	Round goby		0	0	24	10	35	0.965
	Smallmouth bass		0	0	24	0	24	2.501
	Spottail shiner		0	0	185	24	209	0.947
	Trout-perch		0	0	4	0	4	0.007
	Walleye		0	0	28	3	31	19.772
	White bass		0	0	247	31	278	3.063
	White perch		0	0	410	35	445	2.244
	White sucker		0	0	4	0	4	1.736
	Yellow perch		0	0	7	0	7	0.301
22	**11-Sep-05 to 17-Sep-05**		**0**	**4**	**1,886**	**156**	**2,045**	**88.701**
	Bluegill		0	0	371	0	371	2.940
	Brook silverside		0	0	21	0	21	0.021
	Channel catfish		0	7	28	28	63	1.008
	Emerald shiner		0	0	133	70	203	0.413
	Freshwater drum		0	0	147	28	175	12.061
	Gizzard shad	JUV(<200mm)	0	0	343	35	378	3.430
	Longnose gar	adult	0	56	0	0	56	7.812
	Pumpkinseed		0	28	28	0	56	0.560
	Rock bass		0	0	35	0	35	2.030
	Round goby		0	28	154	0	182	5.859
	Smallmouth bass		0	28	280	0	308	13.069
	Spottail shiner		0	0	658	70	728	3.304
	Trout-perch		0	0	161	28	189	0.441
	Walleye		0	0	91	0	91	28.287
	White bass		0	0	5,327	252	5,579	42.924
	White perch		0	56	6,111	266	6,433	54.131
	Yellow perch		0	0	63	0	63	8.680
23	**18-Sep-05 to 24-Sep-05**		**0**	**203**	**13,951**	**777**	**14,931**	**186.970**
	Bluegill		0	49	589	0	638	2.291
	Channel catfish		0	0	82	0	82	1.383
	Emerald shiner		0	0	8	0	8	0.016
	Freshwater drum		0	0	262	0	262	11.774
	Gizzard shad		0	0	2,103	115	2,217	25.895
	Logperch		0	0	98	0	98	0.589
	Northern pike		0	8	33	0	41	9.908
	Orangespotted sunfish		0	0	8	0	8	0.025
	Pumpkinseed		0	0	8	0	8	0.172
	Redhorse sucker		0	0	8	8	16	0.867
	Rock bass	adult	0	8	0	0	8	2.405
	Round goby		0	8	41	33	82	1.636
	Smallmouth bass		0	0	155	33	188	3.559
	Spottail shiner		0	0	1,162	131	1,293	6.341
	Trout-perch		0	0	1,203	65	1,268	4.148
	Walleye	adult	0	0	33	0	33	15.971
	White bass		0	0	540	0	540	14.523
	White perch		0	0	22,885	16	22,901	147.886
	Yellow perch		0	0	74	0	74	2.021
24	**25-Sep-05 to 1-Oct-05**		**0**	**74**	**29,291**	**401**	**29,765**	**251.411**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill		0	368	1,971	105	2,443	6.814
	Channel catfish		0	0	168	74	242	7.593
	Cyprinidae		0	0	74	0	74	0.185
	Emerald shiner		0	0	553	0	553	3.165
	Freshwater drum		0	0	1,166	32	1,197	61.328
	Gizzard shad		0	0	3,686	441	4,127	34.530
	Goldfish		0	0	35	0	35	0.258
	Logperch		0	0	273	0	273	4.941
	Pumpkinseed		0	74	133	0	207	2.279
	Rock bass	JUV(<100mm)	0	0	32	0	32	0.133
	Round goby		0	0	200	0	200	1.656
	Smallmouth bass		0	0	280	0	280	9.094
	Spottail shiner		0	0	74	74	147	0.775
	Trout-perch		0	0	466	0	466	1.198
	Walleye	adult	0	35	109	0	144	124.315
	White bass		0	0	1,397	32	1,428	8.042
	White perch		0	0	15,278	406	15,684	87.713
	Yellow perch		0	0	133	0	133	0.654
25	**2-Oct-05 to 8-Oct-05**		**0**	**476**	**26,023**	**1,162**	**27,661**	**354.673**
	Bluegill		0	0	1,397	0	1,397	4.771
	Brook silverside		0	0	70	0	70	0.145
	Brown bullhead		0	0	137	0	137	33.782
	Channel catfish		0	417	1,211	0	1,628	22.443
	Emerald shiner		0	0	1,694	137	1,831	3.458
	Freshwater drum		0	0	1,344	0	1,344	60.207
	Gizzard shad		0	0	75,509	424	75,933	705.821
	Pumpkinseed		0	0	144	0	144	0.506
	Rock bass	JUV(<100mm)	0	0	137	0	137	0.417
	Round goby		0	0	70	137	207	14.033
	Sea lamprey		0	70	0	0	70	3.468
	Smallmouth bass	JUV(<150mm)	0	0	287	0	287	6.431
	Spottail shiner		0	0	3,605	207	3,812	19.119
	Trout-perch		0	0	8,810	277	9,086	27.683
	Walleye	adult	0	0	137	0	137	197.547
	White bass		0	0	984	0	984	15.890
	White perch		0	0	45,560	0	45,560	299.031
	Yellow perch		0	0	347	0	347	3.436
26	**9-Oct-05 to 15-Oct-05**		**0**	**487**	**141,439**	**1,180**	**143,105**	**1,418.188**
	Black crappie	JUV(<150mm)	0	0	17	0	17	0.301
	Bluegill		0	0	224	0	224	0.594
	Brook silverside		0	0	23	0	23	0.051
	Channel catfish		0	168	116	0	284	5.104
	Emerald shiner		0	0	56	23	79	0.270
	Freshwater drum		0	0	449	0	449	22.611
	Gizzard shad		0	0	5,475	495	5,970	61.863
	Goldfish		0	0	17	0	17	0.451
	Logperch		0	0	36	0	36	0.169
	Round goby		0	0	36	0	36	0.132
	Smallmouth bass		0	0	79	0	79	1.513
	Spottail shiner		0	0	50	0	50	0.406
	Trout-perch		0	0	36	0	36	0.150
	White bass		0	0	132	23	155	9.740
	White perch		0	0	3,706	0	3,706	22.996
27	**16-Oct-05 to 22-Oct-05**		**0**	**168**	**10,451**	**541**	**11,161**	**126.350**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Brook silverside		0	0	77	0	77	0.156
	Channel catfish	JUV(<150mm)	0	0	70	0	70	0.710
	Emerald shiner		0	0	424	0	424	1.136
	Freshwater drum		0	0	147	0	147	32.600
	Gizzard shad		0	0	35,669	529	36,197	490.669
	Round goby		0	0	1,631	154	1,785	15.209
	Smallmouth bass		0	0	515	0	515	12.434
	Spottail shiner		0	0	567	0	567	3.265
	Trout-perch		0	0	1,082	0	1,082	3.393
	White bass	JUV(<150mm)	0	0	77	0	77	1.016
	White perch	JUV(<150mm)	0	0	4,967	0	4,967	31.159
	Yellow perch	JUV(<150mm)	0	0	70	0	70	0.994
28	**23-Oct-05 to 29-Oct-05**		**0**	**0**	**45,294**	**683**	**45,976**	**592.741**
	Bluegill		0	68	432	0	500	1.422
	Channel catfish		0	0	61	0	61	0.562
	Common carp	JUV(<150mm)	0	0	34	0	34	1.586
	Freshwater drum	JUV(<200mm)	0	0	116	0	116	6.379
	Gizzard shad		0	0	19,441	34	19,475	181.465
	Goldfish		0	0	58	0	58	0.831
	Largemouth bass		0	0	27	0	27	2.997
	Logperch		0	0	27	0	27	0.178
	Longnose gar	JUV(<200mm)	0	0	34	0	34	3.723
	Orangespotted sunfish		0	0	34	0	34	0.069
	Round goby		0	27	116	0	143	3.116
	Sea lamprey		0	0	27	0	27	0.742
	Smallmouth bass	JUV(<150mm)	0	0	58	0	58	1.721
	Spottail shiner		0	0	27	0	27	0.415
	White bass	JUV(<150mm)	0	0	58	0	58	1.335
	White perch		0	0	1,197	0	1,197	8.705
	Yellow perch	JUV(<150mm)	0	0	34	0	34	1.965
29	**30-Oct-05 to 5-Nov-05**		**0**	**95**	**21,780**	**34**	**21,910**	**217.211**
	Black crappie	JUV(<150mm)	0	0	189	0	189	1.729
	Bluegill		0	0	2,883	109	2,992	2.134
	Channel catfish	JUV(<150mm)	0	0	109	0	109	0.995
	Emerald shiner		0	0	0	109	109	0.111
	Freshwater drum		0	0	298	109	406	11.005
	Gizzard shad		0	0	302,948	5,636	308,583	3,690.732
	Longnose gar		0	189	772	109	1,070	383.287
	Pumpkinseed		0	0	109	109	217	0.442
	Quillback		0	0	109	0	109	169.688
	Rainbow smelt		0	0	189	0	189	0.192
	Round goby		0	189	109	0	298	126.473
	Smallmouth bass		0	189	329	0	518	16.261
	Spottail shiner		0	0	1,510	298	1,807	18.682
	Walleye	adult	0	0	189	0	189	202.064
	White bass	adult	0	189	0	0	189	13.637
	White perch		0	0	1,845	109	1,953	10.881
30	**6-Nov-05 to 12-Nov-05**		**0**	**756**	**311,584**	**6,584**	**318,925**	**4,648.313**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill		0	0	2,320	0	2,320	5.051
	Brook silverside		0	0	64	0	64	0.134
	Brown bullhead		0	0	278	0	278	136.357
	Channel catfish	JUV(<150mm)	0	64	266	0	330	6.827
	Emerald shiner		0	0	611	64	675	2.659
	Freshwater drum		0	0	342	0	342	10.663
	Gizzard shad		0	0	115,949	0	115,949	1,664.266
	Largemouth bass		0	0	64	0	64	5.154
	Longnose gar	adult	0	64	0	0	64	34.739
	Orangespotted sunfish		0	0	131	0	131	0.335
	Rainbow smelt		0	0	64	0	64	0.335
	Round goby		0	0	131	0	131	1.807
	Spottail shiner		0	0	1,014	0	1,014	7.047
	Trout-perch		0	0	278	0	278	1.120
	White bass		0	0	621	0	621	23.786
	White perch		0	0	4,416	0	4,416	24.680
31	**13-Nov-05 to 19-Nov-05**		**0**	**128**	**126,550**	**64**	**126,742**	**1,924.960**
	Brook silverside		0	0	396	0	396	0.798
	Emerald shiner		0	0	7,263	0	7,263	29.556
	Freshwater drum		0	0	578	0	578	6.968
	Gizzard shad		0	0	476,182	0	476,182	9,121.557
	Goldfish		0	0	182	0	182	4.758
	Largemouth bass		0	182	0	0	182	33.305
	Logperch		0	0	182	0	182	0.732
	Longnose gar		0	396	364	0	760	239.601
	Northern pike		0	0	182	0	182	233.134
	Rainbow smelt		0	0	182	0	182	0.183
	Round goby		0	0	182	0	182	10.614
	Smallmouth bass	adult	0	0	182	0	182	9.516
	Spottail shiner		0	0	977	0	977	5.021
	Trout-perch		0	0	732	0	732	2.745
	Walleye		0	0	364	0	364	122.789
	White bass	JUV(<150mm)	0	0	364	0	364	13.176
	White perch	JUV(<150mm)	0	0	2,377	0	2,377	14.823
	Yellow perch	adult	0	546	182	0	728	138.160
32	**20-Nov-05 to 26-Nov-05**		**0**	**1,124**	**490,868**	**0**	**491,992**	**9,987.436**
	Bluegill		0	0	2,121	0	2,121	4.483
	Channel catfish	adult	0	0	214	0	214	692.849
	Common carp	adult	0	0	214	0	214	221.086
	Emerald shiner		0	0	12,201	0	12,201	34.035
	Gizzard shad		0	131,877	310,055	0	441,931	6,317.117
	Largemouth bass		0	214	0	0	214	42.244
	Northern pike		0	0	214	0	214	168.334
	Rainbow smelt		0	0	214	0	214	17.369
	Round goby		0	0	193	0	193	19.227
	White perch	JUV(<150mm)	0	0	1,071	0	1,071	6.648
	Yellow perch	adult	0	0	214	0	214	53.181
33	**27-Nov-05 to 3-Dec-05**		**0**	**132,090**	**326,708**	**0**	**458,798**	**7,576.573**

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APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	Life Stage	MONPP SH2: Estimated Weekly Impingement					
			Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Emerald shiner		0	0	749	294	1,043	4.045
	Gizzard shad		0	0	86,877	3,591	90,468	2,319.353
	Round goby		0	0	147	0	147	0.449
	Silver lamprey		0	0	147	0	147	61.268
34	**4-Dec-05 to 10-Dec-05**		**0**	**0**	**87,920**	**3,885**	**91,805**	**2,385.116**
	Bluegill		0	0	235	0	235	0.686
	Emerald shiner		0	0	889	60	949	3.733
	Gizzard shad		0	0	26,929	1,939	28,868	435.433
	Goldfish		0	116	494	0	609	8.048
	Longnose gar	JUV(<200mm)	0	56	0	0	56	6.167
	Pumpkinseed		0	0	7	0	7	0.035
	Round goby		0	0	168	0	168	1.943
	Silver chub		0	0	56	0	56	2.232
	Smallmouth bass		0	0	25	0	25	8.225
	Spottail shiner		0	0	158	0	158	1.222
	Trout-perch		0	0	63	0	63	0.314
	White bass	adult	0	0	56	0	56	23.493
	White perch		0	0	109	0	109	0.582
	Yellow perch	adult	0	0	56	0	56	9.515
35	**11-Dec-05 to 17-Dec-05**		**0**	**172**	**29,243**	**1,999**	**31,413**	**501.628**
	Bluegill	JUV(<100mm)	0	0	994	0	994	1.997
	Brook silverside		0	0	119	0	119	0.250
	Emerald shiner		0	0	1,869	0	1,869	8.862
	Gizzard shad	JUV(<200mm)	0	0	122,185	0	122,185	2,105.295
	Round goby		0	0	119	0	119	0.624
	Spottail shiner		0	0	245	0	245	1.498
	White bass	JUV(<150mm)	0	0	119	0	119	2.371
	White perch	JUV(<150mm)	0	0	245	0	245	1.747
36	**18-Dec-05 to 24-Dec-05**		**0**	**0**	**125,895**	**0**	**125,895**	**2,122.644**
	Bigmouth buffalo		0	0	0	63	63	84.480
	Bluegill	JUV(<100mm)	0	0	774	0	774	1.939
	Emerald shiner		0	0	518	0	518	2.475
	Freshwater drum	JUV(<200mm)	0	0	385	0	385	436.750
	Gizzard shad		0	448	403,102	385	403,935	6,219.360
	Goldfish		0	0	389	0	389	4.494
	Northern pike		0	0	63	0	63	46.116
	Round goby		0	0	578	0	578	51.534
	Spottail shiner		0	0	389	0	389	1.954
	Trout-perch		0	0	63	0	63	0.261
	White perch		0	0	3,297	0	3,297	21.493
	Yellow perch	JUV(<150mm)	0	63	0	0	63	7.556
37	**25-Dec-05 to 31-Dec-05**		**0**	**511**	**409,556**	**448**	**410,515**	**6,878.410**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH2: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	81	0	81	0.163
	Gizzard shad	0	0	375,094	0	375,094	27,716.978
	Goldfish	0	0	819	0	819	8.191
	Spottail shiner	0	0	1,229	0	1,229	6.963
	Trout-perch	0	0	410	0	410	2.048
	White perch	0	0	1,229	0	1,229	7.372
38	**1-Jan-06 to 7-Jan-06**	**0**	**0**	**378,861**	**0**	**378,861**	**27,741.715**
	Bluegill	0	0	802	0	802	2.843
	Common carp	0	0	537	0	537	4.546
	Common shiner	0	0	155	0	155	3.254
	Emerald shiner	0	0	1,885	0	1,885	8.389
	Gizzard shad	0	0	150,304	0	150,304	2,846.597
	Goldfish	0	0	465	0	465	10.847
	Largemouth bass	0	0	155	0	155	7.128
	Pumpkinseed	0	0	155	0	155	0.620
	Round goby	0	0	155	0	155	7.128
	Silver chub	0	0	465	0	465	10.537
	Spottail shiner	0	0	310	0	310	2.014
	White perch	0	0	492	0	492	3.654
39	**8-Jan-06 to 14-Jan-06**	**0**	**0**	**155,880**	**0**	**155,880**	**2,907.555**
	Bluegill	0	0	1,972	0	1,972	6.436
	Channel catfish	0	0	623	0	623	9.968
	Common carp	0	0	623	0	623	9.968
	Emerald shiner	0	0	4,567	0	4,567	17.748
	Gizzard shad	0	36,133	1,243,388	0	1,279,520	120,718.004
	Goldfish	0	0	623	0	623	11.837
	Round goby	0	0	623	0	623	3.738
	Spottail shiner	0	0	2,492	0	2,492	9.968
	White crappie	0	0	4,047	0	4,047	28.330
	Yellow perch	0	1,349	0	0	1,349	358.849
40	**15-Jan-06 to 21-Jan-06**	**0**	**37,482**	**1,258,958**	**0**	**1,296,440**	**121,174.844**
	Bluegill	0	0	157	0	157	1.573
	Channel catfish	0	850	0	0	850	20.391
	Common carp	0	0	157	0	157	2.202
	Creek chub	0	0	157	0	157	0.944
	Emerald shiner	0	0	9,125	0	9,125	44.934
	Gizzard shad	0	0	701,887	0	701,887	13,877.594
	Goldfish	0	850	5,727	0	6,576	144.715
	Round goby	0	0	157	0	157	1.730
	Smallmouth bass	0	0	1,699	0	1,699	150.385
	Spottail shiner	0	0	3,713	0	3,713	21.429
	Trout-perch	0	850	1,857	0	2,706	33.166
	White bass	0	0	2,549	0	2,549	521.673
	White perch	0	0	6,734	0	6,734	58.085
	Yellow perch	0	157	850	0	1,007	105.027
41	**22-Jan-06 to 28-Jan-06**	**0**	**2,706**	**734,769**	**0**	**737,475**	**14,983.845**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH2: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Channel catfish	0	0	244	0	244	359.707
	Common carp	0	0	244	0	244	2.198
	Emerald shiner	0	0	6,016	0	6,016	13.254
	Gizzard shad	0	0	3,960,615	0	3,960,615	90,222.204
	Goldfish	0	0	244	0	244	4.640
	Spottail shiner	0	0	977	0	977	5.861
	Trout-perch	0	0	244	0	244	0.733
	White perch	0	0	7,237	0	7,237	27.573
	Yellow perch	0	244	0	0	244	35.897
42	**29-Jan-06 to 4-Feb-06**	**0**	**244**	**3,975,822**	**0**	**3,976,066**	**90,672.065**
	Emerald shiner	0	0	11,059	0	11,059	40.473
	Gizzard shad	0	0	807,761	0	807,761	25,755.968
	Goldfish	0	0	3,249	0	3,249	58.478
	Green sunfish	0	0	202	0	202	7.471
	Spottail shiner	0	0	1,624	0	1,624	11.371
	White perch	0	0	101	0	101	0.808
43	**5-Feb-06 to 11-Feb-06**	**0**	**0**	**823,996**	**0**	**823,996**	**25,874.569**
	Bluegill	0	0	93	0	93	12.248
	Emerald shiner	0	0	372	0	372	48.992
	Gizzard shad	0	36,791	873,171	26,477	936,439	66,247.382
	White perch	0	0	93	0	93	19.597
44	**12-Feb-06 to 18-Feb-06**	**0**	**36,791**	**873,729**	**26,477**	**936,997**	**66,328.219**
	Bluegill	0	0	1,030	0	1,030	3.090
	Common carp	0	343	687	0	1,030	13.732
	Emerald shiner	0	0	6,099	1,181	7,280	20.508
	Gizzard shad	0	0	941,426	2,060	943,486	22,612.871
	Goldfish	0	0	2,706	0	2,706	46.348
	Green sunfish	0	0	343	1,181	1,525	9.987
	Largemouth bass	0	0	0	1,181	1,181	753.754
	Spottail shiner	0	0	1,716	0	1,716	9.956
	Trout-perch	0	0	343	0	343	1.716
	White perch	0	0	343	0	343	2.403
45	**19-Feb-06 to 25-Feb-06**	**0**	**343**	**954,694**	**5,604**	**960,642**	**23,474.364**
	Bluegill	0	0	6,283	0	6,283	17.205
	Common carp	0	0	318	0	318	2.545
	Emerald shiner	0	0	2,598	0	2,598	13.492
	Freshwater drum	0	0	636	0	636	12.090
	Gizzard shad	0	0	903,318	0	903,318	19,888.844
	Goldfish	0	0	636	0	636	62.357
	Longnose gar	0	318	0	0	318	302.243
	Spottail shiner	0	0	1,140	0	1,140	2.280
	Trout-perch	0	0	3,419	0	3,419	17.097
	White perch	0	0	4,825	0	4,825	29.134
46	**26-Feb-06 to 4-Mar-06**	**0**	**318**	**923,174**	**0**	**923,492**	**20,347.287**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH2: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Emerald shiner	0	0	524	0	524	2.323
	Freshwater drum	0	0	80	0	80	166.038
	Gizzard shad	0	0	52,818	0	52,818	1,261.521
	Goldfish	0	0	69	0	69	12.753
	Longnose gar	69	80	0	0	148	95.224
	Round goby	0	0	80	0	80	0.795
	Spottail shiner	0	0	365	0	365	2.304
	Trout-perch	0	0	625	0	625	3.299
	White perch	0	0	683	0	683	3.620
	Yellow perch	0	69	0	0	69	6.925
47	**5-Mar-06 to 11-Mar-06**	**69**	**148**	**55,242**	**0**	**55,459**	**1,554.801**
	Bluegill	0	222	473	0	695	3.445
	Bowfin	0	222	0	0	222	636.592
	Emerald shiner	0	0	7,393	0	7,393	32.929
	Gizzard shad	0	23,298	261,770	0	285,068	8,468.012
	Goldfish	0	0	444	0	444	6.435
	Longnose gar	0	222	0	0	222	168.634
	Muskellunge	0	0	222	0	222	27.958
	Spottail shiner	0	0	5,367	0	5,367	27.943
	White perch	0	0	222	0	222	1.331
48	**12-Mar-06 to 18-Mar-06**	**0**	**23,964**	**275,890**	**0**	**299,853**	**9,373.278**
	Bluegill	0	0	5,026	0	5,026	22.615
	Emerald shiner	0	0	462	0	462	4.155
	Gizzard shad	0	0	1,199,447	0	1,199,447	43,909.418
	Longnose gar	0	0	2,513	0	2,513	376.919
	Northern pike	0	0	2,513	0	2,513	1,256.395
	Pumpkinseed	0	0	2,513	0	2,513	236.202
	Redhorse sucker	0	0	2,513	0	2,513	746.299
	Round goby	0	0	2,513	0	2,513	243.741
	Spottail shiner	0	0	7,538	0	7,538	42.717
	Trout-perch	0	0	462	0	462	5.079
	White perch	0	0	5,026	0	5,026	40.205
	White sucker	0	0	462	0	462	265.027
	Yellow perch	0	0	2,975	0	2,975	785.688
49	**19-Mar-06 to 25-Mar-06**	**0**	**0**	**1,233,960**	**0**	**1,233,960**	**47,934.460**
	Bluegill	0	0	201	0	201	5.693
	Emerald shiner	0	0	720	59	779	3.609
	Gizzard shad	0	0	65,330	410	65,739	1,604.127
	Goldfish	0	0	143	0	143	3.852
	Green sunfish	0	0	59	0	59	0.293
	Longnose gar	0	0	59	0	59	59.202
	Pumpkinseed	0	0	59	59	117	8.775
	Quillback	0	0	59	0	59	0.527
	Rock bass	0	0	59	0	59	3.861
	Round goby	0	0	402	0	402	16.054
	Smallmouth bass	0	0	117	0	117	78.741
	Spottail shiner	0	0	234	0	234	1.580
	Trout-perch	0	0	201	0	201	1.123
	White perch	0	0	1,188	0	1,188	13.322
50	**26-Mar-06 to 1-Apr-06**	**0**	**0**	**68,829**	**527**	**69,356**	**1,800.758**

Individual estimates may not add to totals due to rounding.

APPENDIX 18 (cont'd)
Estimated Weekly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Week No.	Species	MONPP SH2: Estimated Weekly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
	Bluegill	0	0	2,482	0	2,482	8.066
	Emerald shiner	0	0	15,607	0	15,607	65.528
	Freshwater drum	0	0	620	0	620	352.425
	Gizzard shad	0	0	675,862	5,374	681,236	22,298.072
	Goldfish	0	0	1,654	0	1,654	38.352
	Green sunfish	0	0	310	0	310	8.066
	Pumpkinseed	0	0	1,344	0	1,344	180.034
	Round goby	0	0	2,997	0	2,997	123.515
	Spottail shiner	0	0	14,574	0	14,574	87.958
	Trout-perch	0	0	2,997	0	2,997	19.122
	White perch	0	0	11,059	0	11,059	52.916
51	**2-Apr-06 to 8-Apr-06**	**0**	**0**	**729,505**	**5,374**	**734,879**	**23,234.053**
	Bowfin	0	0	195	0	195	547.814
	Channel catfish	0	0	578	0	578	1.155
	Common carp	0	0	195	0	195	56.401
	Emerald shiner	0	0	7,150	0	7,150	31.107
	Freshwater drum	0	0	1,163	0	1,163	389.342
	Gizzard shad	0	0	378,992	0	378,992	9,728.448
	Orangespotted sunfish	0	0	195	0	195	0.390
	Redhorse sucker	0	0	195	0	195	39.032
	Round goby	0	0	968	578	1,546	115.974
	Silver lamprey	0	390	0	0	390	36.690
	Spottail shiner	0	0	6,565	0	6,565	35.916
	Trout-perch	0	0	968	0	968	5.043
	White perch	0	0	2,717	0	2,717	15.893
	Yellow perch	0	0	578	0	578	60.075
52	**9-Apr-06 to 15-Apr-06**	**0**	**390**	**400,459**	**578**	**401,426**	**11,063.280**
	52 WEEK TOTAL	**69**	**238,793**	**15,121,289**	**57,857**	**15,418,008**	**530,320**

APPENDIX 19
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Channel catfish	adult	0	0	4	0	4	0.086
Common carp	adult	0	0	4	0	4	0.853
Emerald shiner		0	0	25	0	25	0.095
Freshwater drum	adult	0	0	4	0	4	7.920
Gizzard shad	adult	0	0	7	0	7	1.085
Goldfish		0	0	14	0	14	3.899
Rock bass	adult	0	4	18	4	25	2.565
Round goby		0	4	159	0	163	7.705
Silver chub		0	0	4	0	4	0.104
Silver lamprey		0	0	11	0	11	1.222
Spottail shiner		0	0	18	0	18	0.138
Trout-perch		0	0	330	7	337	2.464
White bass	JUV(<150mm)	0	0	14	0	14	0.091
White perch	JUV(<150mm)	0	0	75	0	75	0.876
Yellow perch	adult	0	0	18	7	25	1.882
Yellow perch	JUV(<150mm)	0	0	4	4	7	0.184
Apr-05		**0**	**7**	**706**	**21**	**734**	**31.169**
Brown bullhead		0	0	4	0	4	0.662
Bullhead spp.		0	0	4	0	4	0.044
Channel catfish	adult	0	0	3	0	3	0.234
Channel catfish	JUV(<150mm)	0	0	13	0	13	0.206
Emerald shiner		0	0	1,405	0	1,405	5.262
Freshwater drum	adult	0	0	35	0	35	19.007
Gizzard shad	adult	0	0	45	0	45	18.045
Goldfish		0	0	14	0	14	2.398
Goldfish		0	0	7	0	7	1.729
Goldfish		0	0	3	0	3	0.782
Lamprey spp.		0	4	8	0	12	0.666
Longnose gar	adult	0	0	3	0	3	0.351
Madtom (Noturus spp.)		0	0	3	0	3	0.289
Northern pike		0	0	4	0	4	0.849
Pumpkinseed		0	0	8	0	8	0.255
Rainbow smelt		0	0	4	0	4	0.044
Redhorse sucker		0	0	3	0	3	2.067
Rock bass	adult	0	0	10	0	10	0.980
Rock bass	JUV(<100mm)	0	0	9	0	9	1.006
Round goby		0	0	60	13	73	2.870
Silver lamprey		0	7	17	0	24	1.630
Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.060
Spottail shiner		0	0	24	0	24	0.167
Threespine stickleback		0	0	4	0	4	0.009
Trout-perch		0	0	675	0	675	3.714
White bass	adult	0	0	24	0	24	8.214
White perch	adult	0	0	204	70	274	25.581
White perch	JUV(<150mm)	0	0	140	0	140	10.987
Yellow perch	adult	0	0	259	53	312	15.840
Yellow perch	JUV(<150mm)	0	0	21	0	21	0.438
May-05		**0**	**11**	**3,023**	**136**	**3,170**	**124.382**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	adult	0	0	3	0	3	0.054
Bluegill	JUV(<100mm)	0	0	4	0	4	0.011
Brown bullhead		0	0	4	0	4	0.674
Channel catfish	adult	0	0	21	0	21	8.808
Channel catfish	JUV(<150mm)	0	0	4	0	4	0.004
Common shiner		0	0	10	0	10	0.136
Emerald shiner		0	0	3,084	14	3,098	11.309
Freshwater drum	adult	0	0	118	4	122	62.849
Gizzard shad	adult	0	0	28	0	28	13.581
Largemouth bass	adult	0	0	0	4	4	4.218
Northern pike		0	0	7	0	7	7.200
Quillback		0	0	7	0	7	11.407
Rainbow smelt		0	0	7	0	7	0.084
Redhorse sucker		0	0	7	0	7	4.699
Rock bass	adult	0	0	7	0	7	0.280
Round goby		0	0	53	0	53	1.346
Sea lamprey		0	0	4	0	4	0.159
Silver chub		0	0	22	0	22	0.155
Silver lamprey		0	0	21	0	21	1.274
Spottail shiner		0	0	50	0	50	0.441
Trout-perch		0	0	70	4	73	0.443
Walleye	adult	0	0	3	0	3	0.592
Walleye	JUV(<200mm)	0	0	4	0	4	0.294
White bass	adult	0	0	31	0	31	8.190
White perch	adult	0	0	109	4	113	7.922
White perch	JUV(<150mm)	0	0	14	0	14	0.543
Yellow perch	adult	0	0	88	0	88	6.560
Yellow perch	JUV(<150mm)	0	0	7	0	7	0.236
Jun-05		**0**	**0**	**3,784**	**28**	**3,812**	**153.466**
Bluegill	JUV(<100mm)	0	0	81	0	81	0.150
Channel catfish	adult	0	0	28	7	35	7.287
Channel catfish	JUV(<150mm)	0	0	4	0	4	0.004
Common carp	JUV(<150mm)	0	0	14	0	14	0.065
Common shiner		0	0	11	0	11	0.116
Emerald shiner		0	0	103	7	110	0.502
Freshwater drum	adult	0	0	73	4	76	20.415
Freshwater drum	JUV(<200mm)	0	0	701	29	730	6.105
Gizzard shad	JUV(<200mm)	0	0	946	28	974	6.063
Largemouth bass		0	0	4	0	4	2.424
Northern pike		0	0	18	0	18	11.337
Pumpkinseed		0	0	32	0	32	1.813
Redhorse sucker		0	0	0	7	7	4.501
Rock bass	adult	0	0	25	0	25	1.232
Round goby		0	0	121	7	128	4.254
Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.029
Spottail shiner		0	0	22	0	22	0.151
Trout-perch		0	0	14	0	14	0.101
Walleye	adult	0	0	7	0	7	3.031
Walleye	JUV(<200mm)	0	0	12	4	17	0.250
White bass	adult	0	0	52	7	59	4.160
White bass	JUV(<150mm)	0	0	1,625	0	1,625	6.833
White perch	adult	0	0	17	3	21	2.738
White perch	JUV(<150mm)	0	0	2,511	7	2,518	16.657
White sucker		0	0	3	0	3	0.249
Yellow perch	adult	0	14	63	0	77	4.737
Yellow perch	JUV(<150mm)	0	0	3	0	3	0.014
Jul-05		**0**	**14**	**6,495**	**110**	**6,619**	**105.220**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead		0	0	70	0	70	0.263
Bluegill	JUV(<100mm)	0	0	65	0	65	0.182
Brown bullhead		0	0	4	0	4	1.572
Channel catfish	adult	0	0	8	3	11	2.150
Channel catfish	JUV(<150mm)	0	0	80	7	87	0.466
Emerald shiner		0	0	123	0	123	0.270
Freshwater drum	adult	0	0	170	4	174	29.494
Freshwater drum	JUV(<200mm)	0	0	1,139	0	1,139	15.631
Gizzard shad	JUV(<200mm)	0	0	957	128	1,084	10.420
Goldfish		0	0	30	0	30	0.191
Largemouth bass	JUV(<150mm)	0	0	32	0	32	0.550
Northern pike		0	0	3	0	3	2.490
Pumpkinseed		0	0	112	0	112	5.756
Rock bass	adult	0	0	51	0	51	6.382
Round goby		0	0	223	15	238	8.167
Silver chub		0	0	30	0	30	1.006
Silver lamprey		0	0	3	0	3	0.062
Smallmouth bass	adult	0	0	3	0	3	3.437
Smallmouth bass	JUV(<150mm)	0	0	103	4	107	1.980
Spottail shiner		0	0	153	112	265	1.086
Trout-perch		0	0	47	0	47	0.345
Walleye	adult	0	0	0	25	25	1.707
Walleye	JUV(<200mm)	0	0	3	4	7	0.122
White bass	JUV(<150mm)	0	0	1,815	15	1,829	7.317
White perch	adult	0	0	8	0	8	0.911
White perch	JUV(<150mm)	0	0	72,522	135	72,657	258.854
Yellow perch	adult	0	0	22	0	22	2.754
Aug-05		**0**	**0**	**77,777**	**452**	**78,228**	**363.565**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black buffalo		0	0	0	9	9	7.193
Black bullhead		0	0	18	0	18	0.070
Bluegill	JUV(<100mm)	0	0	1,092	73	1,165	4.969
Bluntnose minnow		0	0	3	0	3	0.021
Channel catfish	adult	0	0	319	25	344	3.784
Channel catfish	JUV(<150mm)	0	18	220	53	290	3.046
Common carp	adult	0	0	4	0	4	2.958
Common carp	JUV(<150mm)	0	0	3	0	3	0.139
Emerald shiner		0	0	82	7	89	0.427
Freshwater drum	adult	0	0	46	0	46	16.468
Freshwater drum	JUV(<200mm)	0	0	1,642	179	1,821	76.483
Gizzard shad	adult	0	0	9	0	9	4.288
Gizzard shad	JUV(<200mm)	0	0	2,360	181	2,541	25.999
Green sunfish		0	0	7	0	7	0.128
Hybrid sunfish		0	0	3	0	3	0.007
Largemouth bass	JUV(<150mm)	0	0	4	0	4	0.074
Logperch		0	0	131	0	131	1.072
Orangespotted sunfish		0	0	35	0	35	0.140
Pumpkinseed		0	0	119	7	126	3.116
Redhorse sucker		0	0	4	0	4	3.504
Rock bass	adult	0	0	0	9	9	1.593
Rock bass	JUV(<100mm)	0	0	11	0	11	0.186
Round goby		0	56	572	3	631	9.665
Silver chub		0	0	3	0	3	0.166
Silver lamprey		0	0	19	0	19	0.568
Smallmouth bass	JUV(<150mm)	0	0	292	4	296	5.091
Spottail shiner		0	0	1,814	156	1,970	11.560
Trout-perch		0	0	2,155	93	2,248	6.547
Walleye	adult	0	0	37	0	37	12.859
Walleye	JUV(<200mm)	0	0	36	0	36	0.590
White bass	adult	0	0	18	0	18	0.761
White bass	JUV(<150mm)	0	0	1,533	108	1,642	16.464
White perch	adult	0	0	110	7	117	14.303
White perch	JUV(<150mm)	0	0	47,135	597	47,732	232.109
Yellow perch	JUV(<150mm)	0	0	108	21	129	6.997
Sep-05		**0**	**73**	**59,942**	**1,531**	**61,546**	**473.340**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead		0	0	42	0	42	12.790
Bluegill	JUV(<100mm)	0	0	4,948	33	4,981	17.805
Brook silverside		0	0	39	0	39	0.078
Channel catfish	adult	0	0	768	28	796	8.558
Channel catfish	JUV(<150mm)	0	0	887	0	887	9.198
Common carp	adult	0	0	59	28	87	0.177
Emerald shiner		0	0	146	0	146	0.480
Fathead minnow		0	0	693	137	830	20.574
Freshwater drum	adult	0	0	18,235	973	19,208	202.979
Freshwater drum	JUV(<200mm)	0	0	4,650	99	4,749	94.410
Gizzard shad	JUV(<200mm)	0	0	63,651	701	64,352	621.439
Goldfish		0	0	127	0	127	3.688
Largemouth bass	JUV(<150mm)	0	0	137	0	137	92.307
Largemouth bass		0	0	195	0	195	5.232
Logperch		0	0	413	0	413	2.684
Northern pike		0	0	42	0	42	10.709
Orangespotted sunfish		0	0	88	0	88	0.286
Pumpkinseed		0	0	1,490	0	1,490	6.900
Redhorse sucker		0	0	6	0	6	0.131
Rock bass	adult	0	35	174	0	209	2.707
Round goby		0	0	1,270	28	1,298	19.141
Sea lamprey		0	0	42	0	42	3.122
Smallmouth bass	JUV(<150mm)	0	0	1,493	28	1,521	24.291
Spottail shiner		0	0	5,362	506	5,868	34.092
Trout-perch		0	0	10,645	248	10,893	37.322
White bass	adult	0	0	6	0	6	3.294
White bass	JUV(<150mm)	0	0	1,480	6	1,487	26.886
White perch	adult	0	0	325	0	325	34.810
White perch	JUV(<150mm)	0	0	82,307	654	82,961	537.442
White sucker		0	0	18	0	18	11.582
Yellow perch	JUV(<150mm)	0	0	394	0	394	6.924
Oct-05		**0**	**35**	**200,131**	**3,469**	**203,635**	**1,852.038**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH1: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	JUV(<100mm)	0	63	5,346	168	5,577	15.663
Brook silverside		0	0	474	0	474	0.544
Brown bullhead		0	0	105	0	105	0.859
Channel catfish	adult	0	0	102	0	102	21.689
Channel catfish	JUV(<150mm)	0	0	628	0	628	4.928
Emerald shiner		0	0	12,319	0	12,319	31.232
Freshwater drum	adult	0	0	1,163	63	1,226	68.916
Freshwater drum	JUV(<200mm)	0	0	42,120	3,584	45,704	591.267
Gizzard shad	adult	0	0	173	0	173	16.003
Gizzard shad	JUV(<200mm)	0	98,738	1,054,712	1,701	1,155,151	18,601.382
Goldfish		0	173	713	0	886	15.399
Largemouth bass		0	0	190	0	190	43.427
Logperch		0	0	191	0	191	1.155
Longnose gar	adult	0	63	0	0	63	5.829
Pumpkinseed		0	293	316	0	610	18.479
Quillback		0	0	130	0	130	84.248
Rainbow smelt		0	0	173	0	173	0.176
Redhorse sucker		0	0	447	0	447	351.883
Rock bass	JUV(<100mm)	0	0	191	0	191	1.348
Round goby		0	0	2,061	63	2,124	37.353
Silver lamprey		0	0	102	0	102	7.230
Smallmouth bass	JUV(<150mm)	0	0	383	0	383	26.959
Spottail shiner		0	0	8,169	420	8,589	81.410
Trout-perch		0	0	1,062	0	1,062	2.661
Walleye	adult	0	0	349	0	349	4.221
White bass	adult	0	102	105	0	207	13.302
White bass	JUV(<150mm)	0	0	1,786	0	1,786	15.307
White crappie	adult	0	2,461	877	0	3,338	18.465
White crappie	JUV(<150mm)	0	0	60	0	60	0.305
White perch	JUV(<150mm)	0	0	9,859	63	9,922	59.903
Yellow bullhead		0	349	0	0	349	31.831
Yellow perch	adult	0	451	427	0	878	128.365
Yellow perch	JUV(<150mm)	0	0	565	0	565	4.272
Nov-05		**0**	**102,691**	**1,145,298**	**6,060**	**1,254,050**	**20,306.013**
Bluegill	JUV(<100mm)	0	0	459	0	459	4.649
Channel catfish	adult	0	0	76	0	76	16.267
Common carp	adult	0	0	0	32	32	15.254
Emerald shiner		0	0	8,365	32	8,396	18.890
Freshwater drum	JUV(<200mm)	0	0	134,526	0	134,526	1,813.312
Gizzard shad	JUV(<200mm)	0	74,053	538,712	23,762	636,527	11,439.126
Goldfish		0	0	1,917	0	1,917	25.063
Largemouth bass		0	0	98	0	98	26.797
Pumpkinseed		0	76	0	0	76	4.958
Quillback		0	0	98	0	98	63.186
Rainbow smelt		0	0	392	0	392	0.400
Redhorse sucker		0	0	76	0	76	49.731
Round goby		0	0	946	0	946	12.648
Silver chub		0	0	123	0	123	3.682
Silver lamprey		0	0	76	0	76	5.422
Smallmouth bass	JUV(<150mm)	0	0	25	0	25	0.484
Smallmouth buffalo	adult	0	0	32	0	32	28.839
Spotfin shiner		0	0	179	0	179	1.250
Spottail shiner		0	0	781	0	781	3.669
Trout-perch		0	0	539	0	539	2.064
White bass	adult	0	76	0	0	76	4.260
White perch	JUV(<150mm)	0	0	5,118	0	5,118	26.690
Yellow bullhead		0	0	179	0	179	1.071
Yellow perch	JUV(<150mm)	0	0	175	0	175	0.717
Dec-05		**0**	**74,206**	**692,888**	**23,825**	**790,919**	**13,568.427**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH1: Estimated Monthly Impingement					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	0	162	1,824	0	1,986	10.403
Bowfin	38	0	0	0	38	190.390
Brook silverside	0	0	193	0	193	0.193
Channel catfish	0	890	0	0	890	45.375
Common carp	0	0	714	0	714	10.343
Emerald shiner	0	2,089	17,644	0	19,733	87.149
Gizzard shad	0	183,279	3,179,563	11,490	3,374,333	135,740.676
Golden redhorse	0	0	223	0	223	190.197
Goldfish	0	1,284	4,604	0	5,888	118.909
Green sunfish	0	0	193	0	193	0.386
Muskellenge	0	1,045	0	0	1,045	132.661
Northern longear sunfish	0	0	53	0	53	0.105
Northern pike	0	0	77	0	77	119.450
Pumpkinseed	0	0	300	0	300	11.500
Rock bass	0	0	53	0	53	0.211
Round goby	0	2,089	3,861	43	5,993	75.681
Silver lamprey	0	223	0	0	223	22.993
Smallmouth bass	0	0	162	0	162	39.882
Spottail shiner	0	0	4,077	0	4,077	17.230
Trout-perch	0	0	2,202	0	2,202	15.878
White perch	0	0	15,134	0	15,134	106.436
Yellow perch	0	0	38	0	38	10.463
Jan-06	**38**	**191,061**	**3,230,914**	**11,533**	**3,433,547**	**136,946.510**
Bluegill	0	0	14,637	0	14,637	115.546
Bluntnose minnow	0	0	161	0	161	0.483
Common carp	0	544	755	0	1,299	16.173
Emerald shiner	0	0	87,932	0	87,932	386.883
Gizzard shad	0	0	3,050,566	13,935	3,064,501	63,954.405
Goldfish	0	0	6,053	0	6,053	63.894
Green sunfish	0	0	61	0	61	0.671
Largemouth bass	0	0	136	0	136	1.087
Pumpkinseed	0	0	1,305	0	1,305	67.848
Rock bass	0	0	161	136	297	16.495
Round goby	0	0	1,744	0	1,744	14.244
Spottail shiner	0	0	1,782	0	1,782	8.426
Trout-perch	0	0	1,788	0	1,788	7.959
White perch	0	0	19,446	0	19,446	123.642
Yellow perch	0	84	245	0	328	37.342
Feb-06	**0**	**627**	**3,186,771**	**14,071**	**3,201,469**	**64,815.098**

Individual estimates may not add to totals due to rounding.

APPENDIX 19 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH1
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH1: Estimated Monthly Impingement					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	0	0	71	0	71	19.452
Bluegill	0	0	1,785	1,484	3,269	14.507
Brook silverside	0	0	165	0	165	0.165
Brown bullhead	0	20	205	0	225	13.971
Emerald shiner	0	0	3,337	3,240	6,576	28.578
Freshwater drum	0	0	71	0	71	45.412
Gizzard shad	0	0	107,402	27,039	134,441	3,036.486
Goldfish	0	0	366	248	614	9.380
Longnose gar	0	39	0	0	39	21.534
Northern pike	0	103	0	0	103	104.262
Pumpkinseed	0	0	326	0	326	20.312
Rock bass	0	0	0	248	248	1.239
Round goby	0	0	1,954	9	1,963	54.214
Silver lamprey	0	162	83	0	245	17.424
Smallmouth bass	0	0	18	0	18	2.100
Spottail shiner	0	0	713	744	1,456	7.278
Tadpole madtom	0	10	0	0	10	0.049
Trout-perch	0	0	1,787	0	1,787	12.319
White bass	0	0	29	0	29	0.225
White crappie	0	0	2,637	1,487	4,124	25.844
Yellow perch	0	0	367	11	378	95.248
Mar-06	**0**	**333**	**121,316**	**34,508**	**156,157**	**3,530.000**
Black bullhead	0	0	16	0	16	0.107
Bluegill	0	0	3,152	0	3,152	8.379
Brown bullhead	0	0	0	44	44	12.389
Channel catfish	0	0	1,232	0	1,232	3.058
Emerald shiner	0	0	8,175	8	8,183	31.610
Freshwater drum	0	0	3,402	0	3,402	952.900
Gizzard shad	0	0	482,422	107	482,529	10,589.876
Goldfish	0	0	1,474	0	1,474	463.844
Green sunfish	0	0	8	0	8	0.239
Logperch	0	0	8	8	16	0.115
Orangespotted sunfish	0	0	151	0	151	0.478
Pumpkinseed	0	0	2,365	0	2,365	124.347
Rock bass	0	0	2,242	0	2,242	12.676
Round goby	0	151	2,591	8	2,750	180.287
Silver chub	0	0	0	143	143	8.721
Silver lamprey	0	0	1,037	0	1,037	66.373
Smallmouth bass	0	0	2,118	0	2,118	748.887
Spottail shiner	0	0	8,357	8	8,366	54.382
Stonecat	0	0	8	0	8	0.758
Tadpole madtom	0	143	0	0	143	1.287
Trout-perch	0	0	6,873	0	6,873	47.156
White bass	0	0	52	0	52	0.561
White perch	0	0	13,048	0	13,048	79.435
Yellow perch	0	2,118	3,427	0	5,545	317.391
Apr-06	**0**	**2,412**	**542,160**	**327**	**544,899**	**13,705.257**
TOTAL	**38**	**371,472**	**9,271,203**	**96,071**	**9,738,785**	**255,974.484**

Individual estimates may not add to totals due to rounding.

APPENDIX 20
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	adult	0	0	14	0	14	1.617
Centrarchidae		0	0	4	0	4	0.840
Channel catfish	adult	0	0	4	0	4	1.173
Channel catfish	JUV(<150mm)	0	0	11	0	11	0.224
Common carp	adult	0	0	28	0	28	34.790
Emerald shiner		0	4	284	0	287	3.665
Freshwater drum	adult	0	0	35	4	39	24.833
Gizzard shad	adult	0	0	154	0	154	59.976
Goldfish		0	0	25	0	25	6.710
Logperch		0	0	4	0	4	0.025
Longnose gar	adult	0	4	18	0	21	5.243
Muskellunge		0	0	4	0	4	31.010
Northern hog sucker		0	0	4	0	4	2.590
Northern pike		0	0	11	0	11	23.863
Pumpkinseed		0	0	11	0	11	0.837
Round goby		0	0	161	0	161	17.409
Silver chub		0	0	14	0	14	0.270
Silver lamprey		0	0	11	0	11	1.806
Smallmouth bass	adult	0	0	4	0	4	5.215
Spottail shiner		0	0	151	0	151	1.145
Trout-perch		0	0	770	0	770	6.864
Walleye	adult	0	0	4	4	7	12.460
White bass	adult	0	0	11	0	11	1.922
White bass	JUV(<150mm)	0	0	11	0	11	0.049
White perch	adult	0	0	32	0	32	9.538
White perch	JUV(<150mm)	0	0	102	0	102	1.740
Yellow perch	adult	0	0	105	0	105	12.586
APRIL 2005		**0**	**7**	**1,978**	**7**	**1,992**	**268.394**
Black crappie	adult	0	0	3	0	3	0.224
Bluegill	adult	0	0	10	0	10	1.343
Bluegill	JUV(<100mm)	0	0	6	0	6	0.060
Channel catfish	adult	0	0	27	0	27	15.451
Channel catfish	JUV(<150mm)	0	0	13	0	13	0.132
Common carp	adult	0	0	7	0	7	12.379
Crappie spp.		0	0	3	0	3	0.667
Emerald shiner		0	0	4,457	0	4,457	22.311
Freshwater drum	adult	0	3	177	6	187	143.204
Gizzard shad	adult	0	0	204	36	240	104.467
Goldfish		0	0	54	6	60	27.039
Longnose gar	adult	0	10	10	0	20	2.634
Madtom (Noturus spp.)		0	0	3	0	3	0.026
Northern pike		0	0	24	0	24	45.852
Pumpkinseed		0	0	7	0	7	0.178
Quillback		0	0	10	7	16	26.250
Rainbow smelt		0	0	23	0	23	0.436
Redhorse sucker		0	0	37	3	40	29.293
Rock bass	adult	0	3	40	3	46	3.274
Rock bass	JUV(<100mm)	0	0	3	0	3	0.026
Round goby		0	13	63	6	82	2.971
Silver lamprey		0	10	7	0	16	1.246
Smallmouth bass	adult	0	0	6	0	6	2.298
Spottail shiner		0	0	309	0	309	2.057
Trout-perch		0	0	1,858	13	1,871	9.762
Walleye	adult	0	0	23	7	30	30.632
Walleye	JUV(<200mm)	0	0	4	0	4	0.147
White bass	adult	0	0	145	0	145	36.802
White bass	JUV(<150mm)	0	0	26	6	32	0.256
White perch	adult	0	10	969	138	1,116	113.081
White perch	JUV(<150mm)	0	0	53	0	53	1.068
White sucker		0	0	3	3	7	2.128
Yellow perch	adult	0	19	361	22	403	20.140
Yellow perch	JUV(<150mm)	0	0	84	0	84	1.897
MAY 2005		**0**	**68**	**9,028**	**257**	**9,352**	**659.731**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	adult	0	0	0	7	7	0.497
Brown bullhead		0	0	21	0	21	9.568
Channel catfish	adult	0	0	17	3	21	7.304
Channel catfish	JUV(<150mm)	0	0	4	0	4	0.056
Emerald shiner		0	0	2,204	175	2,379	23.594
Freshwater drum	adult	0	0	537	80	617	366.202
Gizzard shad	adult	0	0	83	7	90	36.651
Green sunfish		0	0	4	0	4	0.137
Largemouth bass		0	0	3	0	3	4.991
Logperch		0	0	4	0	4	0.011
Mimic shiner		0	0	4	0	4	0.014
Northern pike		0	0	7	0	7	4.690
Pumpkinseed		0	0	7	0	7	0.567
Quillback		0	0	21	0	21	23.251
Rainbow smelt		0	0	48	0	48	0.147
Redhorse sucker		0	0	24	0	24	24.215
Rock bass	adult	0	0	17	4	21	2.967
Round goby		0	4	94	0	97	4.730
Sea lamprey		0	3	7	0	10	0.513
Silver lamprey		0	0	10	3	14	0.843
Smallmouth bass	adult	0	0	4	0	4	4.046
Smallmouth bass	JUV(<150mm)	0	0	10	0	10	0.125
Spottail shiner		0	0	24	0	24	0.158
Spotted gar		0	0	3	0	3	1.856
Steelcolor shiner		0	0	4	0	4	0.018
Trout-perch		0	0	100	14	114	0.580
Walleye	adult	0	0	122	14	136	38.344
White bass	adult	0	0	58	7	65	23.389
White perch	adult	0	0	233	0	233	22.937
Yellow perch	adult	0	0	59	0	59	4.590
Yellow perch	JUV(<150mm)	0	0	31	0	31	0.832
JUNE 2005		**0**	**7**	**3,763**	**313**	**4,083**	**607.821**
Bluegill	JUV(<100mm)	0	0	145	0	145	0.751
Bluntnose minnow		0	0	7	0	7	0.074
Channel catfish	adult	0	0	20	0	20	2.083
Channel catfish	JUV(<150mm)	0	4	4	4	11	0.415
Cyprinidae		0	0	7	0	7	0.020
Emerald shiner		0	0	143	21	164	0.581
Freshwater drum	adult	0	0	339	30	369	199.250
Freshwater drum	JUV(<200mm)	0	0	190	7	197	12.675
Gizzard shad	adult	0	0	96	7	103	43.209
Gizzard shad	JUV(<200mm)	0	0	1,912	138	2,051	20.805
Longnose gar	adult	0	0	23	0	23	0.346
Northern pike		0	0	32	0	32	33.610
Pumpkinseed		0	0	32	0	32	2.272
Quillback		0	0	17	0	17	27.152
Rainbow smelt		0	0	7	0	7	0.040
Rock bass	adult	0	0	79	0	79	5.095
Round goby		0	28	143	14	185	7.759
Smallmouth bass	adult	0	0	3	3	7	2.852
Smallmouth bass	JUV(<150mm)	0	0	67	0	67	0.239
Spottail shiner		0	0	11	4	14	0.195
Trout-perch		0	0	7	0	7	0.034
Walleye	adult	0	0	14	4	17	3.068
Walleye	JUV(<200mm)	0	0	66	4	70	0.780
White bass	JUV(<150mm)	0	4	2,431	18	2,452	76.997
White perch	adult	0	0	469	17	486	31.434
White perch	JUV(<150mm)	0	0	1,334	14	1,348	5.797
Yellow perch	adult	0	0	17	13	31	2.529
JULY 2005		**0**	**35**	**7,614**	**298**	**7,947**	**480.060**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead		0	0	3	0	3	1.859
Bluegill	JUV(<100mm)	0	0	79	0	79	0.236
Bluntnose minnow		0	0	3	0	3	0.069
Channel catfish	adult	0	0	38	3	41	5.821
Channel catfish	JUV(<150mm)	0	0	21	0	21	0.449
Emerald shiner		0	0	139	3	143	0.341
Freshwater drum	adult	0	0	424	10	434	160.222
Freshwater drum	JUV(<200mm)	0	0	277	0	277	2.630
Gizzard shad	JUV(<200mm)	0	0	1,928	178	2,106	35.115
Green sunfish		0	0	4	0	4	0.018
Largemouth bass	JUV(<150mm)	0	0	14	0	14	0.174
Largemouth bass		0	0	10	0	10	3.588
Pumpkinseed		0	0	7	0	7	0.263
Quillback		0	0	3	0	3	1.461
Rainbow smelt		0	0	3	0	3	0.003
Redear sunfish		0	0	3	0	3	0.271
Rock bass	adult	0	0	39	0	39	6.080
Round goby		0	3	320	10	334	9.327
Smallmouth bass	JUV(<150mm)	0	0	162	0	162	2.436
Spottail shiner		0	0	135	15	150	0.502
Steelhead trout		0	0	3	0	3	0.861
Walleye	adult	0	0	57	4	60	38.952
Walleye	JUV(<200mm)	0	0	144	0	144	3.873
White bass	JUV(<150mm)	0	0	3,475	21	3,495	39.830
White perch	JUV(<150mm)	0	0	40,156	78	40,234	148.787
Yellow bullhead		0	0	108	0	108	0.538
Yellow perch	adult	0	0	82	7	89	7.133
Yellow perch	JUV(<150mm)	0	0	14	0	14	0.057
AUG 2005		**0**	**3**	**47,654**	**329**	**47,987**	**470.895**
Bluegill	JUV(<100mm)	0	49	1,033	3	1,086	5.491
Brook silverside		0	0	28	0	28	0.024
Channel catfish	JUV(<150mm)	0	7	160	42	209	3.013
Emerald shiner		0	0	179	73	253	0.537
Freshwater drum	adult	0	0	180	0	180	61.339
Freshwater drum	JUV(<200mm)	0	0	446	45	491	38.307
Gizzard shad	adult	0	0	8	0	8	5.269
Gizzard shad	JUV(<200mm)	0	0	3,793	259	4,052	56.404
Largemouth bass	JUV(<150mm)	0	0	7	0	7	0.081
Logperch		0	0	112	0	112	0.669
Longnose gar	adult	0	60	0	0	60	8.040
Northern pike		0	8	33	0	41	9.908
Orangespotted sunfish		0	0	8	0	8	0.025
Pumpkinseed		0	28	40	0	68	0.749
Redhorse sucker		0	0	8	8	16	0.867
Rock bass	adult	0	8	24	3	36	6.975
Rock bass	JUV(<100mm)	0	0	28	0	28	0.084
Round goby		0	36	239	43	318	8.509
Smallmouth bass	adult	0	0	4	0	4	2.048
Smallmouth bass	JUV(<150mm)	0	28	515	33	576	18.464
Spottail shiner		0	0	2,222	225	2,447	11.381
Trout-perch		0	0	1,387	93	1,480	4.655
Walleye	adult	0	0	171	3	175	75.440
White bass	adult	0	0	4,407	252	4,659	40.082
White bass	JUV(<150mm)	0	0	2,441	72	2,513	24.828
White perch	adult	0	0	224	28	252	26.768
White perch	JUV(<150mm)	0	56	36,311	330	36,697	209.230
White sucker		0	0	4	0	4	1.736
Yellow perch	adult	0	0	79	0	79	10.473
Yellow perch	JUV(<150mm)	0	0	84	0	84	2.108
SEP 2005		**0**	**280**	**54,175**	**1,514**	**55,969**	**633.502**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	JUV(<150mm)	0	0	17	0	17	0.301
Bluegill	adult	0	0	2,972	32	3,003	8.139
Bluegill	JUV(<100mm)	0	368	620	74	1,061	4.039
Brook silverside		0	0	170	0	170	0.145
Brown bullhead		0	417	588	74	1,078	49.781
Channel catfish	JUV(<150mm)	0	168	1,113	0	1,281	19.850
Cyprinidae		0	0	74	0	74	0.185
Emerald shiner		0	0	2,727	160	2,886	8.029
Freshwater drum	adult	0	0	176	0	176	73.722
Freshwater drum	JUV(<200mm)	0	0	2,929	32	2,961	103.025
Gizzard shad	adult	0	0	1,463	109	1,572	118.647
Gizzard shad	JUV(<200mm)	0	0	118,875	1,780	120,654	1,174.237
Goldfish		0	0	52	0	52	0.710
Logperch		0	0	309	0	309	5.111
Pumpkinseed		0	74	277	0	350	2.784
Rock bass	JUV(<100mm)	0	0	168	0	168	0.550
Round goby		0	0	1,937	291	2,227	31.029
Sea lamprey		0	70	0	0	70	3.468
Smallmouth bass	adult	0	0	231	0	231	7.111
Smallmouth bass	JUV(<150mm)	0	0	930	0	930	22.361
Spottail shiner		0	0	4,295	280	4,575	23.565
Trout-perch		0	0	10,393	277	10,669	32.424
Walleye	adult	0	35	245	0	280	321.862
White bass	adult	0	0	40	0	40	8.523
White bass	JUV(<150mm)	0	0	2,549	55	2,604	26.165
White perch	adult	0	0	172	0	172	21.014
White perch	JUV(<150mm)	0	0	69,338	406	69,744	419.880
Yellow perch	JUV(<150mm)	0	0	550	0	550	5.084
OCT 2005		**0**	**1,131**	**223,206**	**3,565**	**227,902**	**2,491.741**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	JUV(<150mm)	0	0	189	0	189	1.729
Bluegill	adult	0	0	772	109	880	1.769
Bluegill	JUV(<100mm)	0	68	6,791	0	6,859	11.127
Brook silverside		0	0	460	0	460	0.932
Brown bullhead		0	0	278	0	278	136.357
Channel catfish	adult	0	0	214	0	214	692.849
Channel catfish	JUV(<150mm)	0	64	435	0	499	8.384
Common carp	adult	0	0	214	0	214	221.086
Common carp	JUV(<150mm)	0	0	34	0	34	1.586
Emerald shiner		0	0	19,882	173	20,055	65.779
Freshwater drum	JUV(<200mm)	0	0	1,333	109	1,442	35.016
Gizzard shad	adult	0	0	1,096	0	1,096	105.405
Gizzard shad	JUV(<200mm)	0	131,877	1,025,575	5,670	1,163,121	17,603.425
Goldfish		0	0	240	0	240	5.589
Largemouth bass		0	396	91	0	487	83.700
Logperch		0	0	209	0	209	0.910
Longnose gar	adult	0	253	1,136	109	1,498	512.834
Longnose gar	JUV(<200mm)	0	396	34	0	430	148.516
Northern pike		0	0	396	0	396	401.468
Orangespotted sunfish		0	0	165	0	165	0.404
Pumpkinseed		0	0	109	109	217	0.442
Quillback		0	0	109	0	109	169.688
Rainbow smelt		0	0	649	0	649	18.079
Round goby		0	216	537	0	754	142.009
Sea lamprey		0	0	27	0	27	0.742
Smallmouth bass	adult	0	0	182	0	182	9.516
Smallmouth bass	JUV(<150mm)	0	189	386	0	576	17.982
Spottail shiner		0	0	3,528	298	3,825	31.166
Trout-perch		0	0	1,010	0	1,010	3.865
Walleye	adult	0	0	371	0	371	316.984
Walleye	JUV(<200mm)	0	0	182	0	182	7.869
White bass	adult	0	189	64	0	253	16.984
White bass	JUV(<150mm)	0	0	979	0	979	34.950
White perch	JUV(<150mm)	0	0	10,905	109	11,013	65.736
Yellow perch	adult	0	546	396	0	942	191.341
Yellow perch	JUV(<150mm)	0	0	34	0	34	1.965
NOV 2005		**0**	**134,193**	**1,079,009**	**6,682**	**1,219,884**	**21,068.180**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP SH2: Estimated Monthly Impingement					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bigmouth buffalo		0	0	0	63	63	84.480
Bluegill	JUV(<100mm)	0	0	2,195	0	2,195	4.817
Brook silverside		0	0	119	0	119	0.250
Emerald shiner		0	0	4,218	354	4,571	19.697
Freshwater drum	JUV(<200mm)	0	0	385	0	385	436.750
Gizzard shad	adult	0	0	679	385	1,064	615.595
Gizzard shad	JUV(<200mm)	0	448	836,318	5,530	842,296	13,730.154
Goldfish		0	116	882	0	998	12.542
Longnose gar	JUV(<200mm)	0	56	0	0	56	6.167
Northern pike		0	0	63	0	63	46.116
Pumpkinseed		0	0	7	0	7	0.035
Round goby		0	0	1,204	0	1,204	73.778
Silver chub		0	0	56	0	56	2.232
Silver lamprey		0	0	147	0	147	61.268
Smallmouth bass	adult	0	0	7	0	7	8.050
Smallmouth bass	JUV(<150mm)	0	0	18	0	18	0.175
Spottail shiner		0	0	791	0	791	4.674
Trout-perch		0	0	126	0	126	0.574
White bass	adult	0	0	56	0	56	23.493
White bass	JUV(<150mm)	0	0	3,770	0	3,770	26.194
Yellow perch	adult	0	0	56	0	56	9.515
Yellow perch	JUV(<150mm)	0	63	0	0	63	7.556
DEC 2005		**0**	**683**	**851,095**	**6,332**	**858,109**	**15,174.110**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH2: Estimated Monthly Impingement					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	0	0	3,013	0	3,013	11.015
Channel catfish	0	850	867	0	1,717	390.065
Common carp	0	0	1,562	0	1,562	18.913
Common shiner	0	0	155	0	155	3.254
Creek chub	0	0	157	0	157	0.944
Emerald shiner	0	0	21,594	0	21,594	84.325
Gizzard shad	0	36,133	6,431,287	0	6,467,420	255,381.376
Goldfish	0	850	7,878	0	8,728	180.229
Largemouth bass	0	0	155	0	155	7.128
Pumpkinseed	0	0	155	0	155	0.620
Round goby	0	0	935	0	935	12.595
Silver chub	0	0	465	0	465	10.537
Smallmouth bass	0	0	1,699	0	1,699	150.385
Spottail shiner	0	0	8,720	0	8,720	46.234
Trout-perch	0	850	2,510	0	3,360	35.947
White bass	0	0	22,288	0	22,288	646.687
Yellow perch	0	1,751	850	0	2,600	499.773
JAN 2006	**0**	**40,432**	**6,504,290**	**0**	**6,544,723**	**257,480.025**
Bluegill	0	0	7,406	0	7,406	32.543
Common carp	0	343	1,005	0	1,348	16.277
Emerald shiner	0	0	20,128	1,181	21,309	123.466
Freshwater drum	0	0	636	0	636	12.090
Gizzard shad	0	36,791	3,525,677	28,537	3,591,005	134,505.065
Goldfish	0	0	6,591	0	6,591	167.183
Green sunfish	0	0	545	1,181	1,727	17.458
Largemouth bass	0	0	0	1,181	1,181	753.754
Longnose gar	0	318	0	0	318	302.243
Spottail shiner	0	0	4,481	0	4,481	23.606
Trout-perch	0	0	3,763	0	3,763	18.814
White perch	0	0	5,362	0	5,362	51.942
FEB 2006	**0**	**37,452**	**3,575,594**	**32,081**	**3,645,127**	**136,024.440**

Individual estimates may not add to totals due to rounding.

APPENDIX 20 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant SH2
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP SH2: Estimated Monthly Impingement					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	0	222	5,700	0	5,922	31.753
Bowfin	0	222	0	0	222	636.592
Emerald shiner	0	0	9,099	59	9,157	43.017
Freshwater drum	0	0	80	0	80	166.038
Gizzard shad	0	23,298	1,579,364	410	1,603,071	55,243.078
Goldfish	0	0	655	0	655	23.039
Green sunfish	0	0	59	0	59	0.293
Longnose gar	69	301	2,571	0	2,941	699.978
Muskellunge	0	0	222	0	222	27.958
Northern pike	0	0	2,513	0	2,513	1,256.395
Pumpkinseed	0	0	2,571	59	2,630	244.977
Quillback	0	0	59	0	59	0.527
Redhorse sucker	0	0	2,513	0	2,513	746.299
Rock bass	0	0	59	0	59	3.861
Round goby	0	0	2,995	0	2,995	260.590
Smallmouth bass	0	0	117	0	117	78.741
Spottail shiner	0	0	13,504	0	13,504	74.543
Trout-perch	0	0	1,288	0	1,288	9.501
White perch	0	0	7,119	0	7,119	58.478
White sucker	0	0	462	0	462	265.027
Yellow perch	0	69	2,975	0	3,043	792.613
MAR 2006	**69**	**24,112**	**1,633,921**	**527**	**1,658,628**	**60,663.297**
Bluegill	0	0	2,482	0	2,482	8.066
Bowfin	0	0	195	0	195	547.814
Channel catfish	0	0	578	0	578	1.155
Common carp	0	0	195	0	195	56.401
Emerald shiner	0	0	22,757	0	22,757	96.635
Freshwater drum	0	0	1,784	0	1,784	741.767
Gizzard shad	0	0	1,054,853	5,374	1,060,227	32,026.520
Goldfish	0	0	1,654	0	1,654	38.352
Green sunfish	0	0	310	0	310	8.066
Orangespotted sunfish	0	0	195	0	195	0.390
Pumpkinseed	0	0	1,344	0	1,344	180.034
Redhorse sucker	0	0	195	0	195	39.032
Round goby	0	0	3,965	578	4,543	239.489
Silver lamprey	0	390	0	0	390	36.690
Spottail shiner	0	0	21,139	0	21,139	123.873
Trout-perch	0	0	3,965	0	3,965	24.165
White perch	0	0	13,775	0	13,775	68.809
Yellow perch	0	0	578	0	578	60.075
APRIL 2006	**0**	**390**	**1,129,964**	**5,952**	**1,136,306**	**34,297.333**
ANNUAL TOTAL	**69**	**238,793**	**15,121,289**	**57,857**	**15,418,008**	**530,320**

Individual estimates may not add to totals due to rounding.

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APPENDIX 21
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	adult	0	0	14	0	14	1.617	0	0	0	0	0	0.024	0	0	14	0	14	1.641
Centrarchidae		0	0	4	0	4	0.840	0	0	0	0	0	0.013	0	0	4	0	4	0.853
Channel catfish	adult	0	0	7	0	7	1.259	0	0	0	0	0	0.019	0	0	7	0	7	1.278
Channel catfish	JUV(<150mm)	0	0	11	0	11	0.224	0	0	0	0	0	0.003	0	0	11	0	11	0.227
Common carp	adult	0	0	32	0	32	35.643	0	0	0	0	0	0.536	0	0	32	0	32	36.180
Emerald shiner		0	4	309	0	312	3.759	0	0	5	0	5	0.057	0	4	313	0	317	3.816
Freshwater drum	adult	0	0	39	4	42	32.753	0	0	1	0	1	0.493	0	0	39	4	43	33.245
Gizzard shad	adult	0	0	161	0	161	61.061	0	0	2	0	2	0.919	0	0	163	0	163	61.980
Goldfish		0	0	39	0	39	10.609	0	0	1	0	1	0.160	0	0	39	0	39	10.768
Logperch		0	0	4	0	4	0.025	0	0	0	0	0	0.000	0	0	4	0	4	0.025
Longnose gar	adult	0	4	18	0	21	5.243	0	0	0	0	0	0.079	0	4	18	0	21	5.322
Muskellunge		0	0	4	0	4	31.010	0	0	0	0	0	0.467	0	0	4	0	4	31.477
Northern hog sucker		0	0	4	0	4	2.590	0	0	0	0	0	0.039	0	0	4	0	4	2.629
Northern pike		0	0	11	0	11	23.863	0	0	0	0	0	0.359	0	0	11	0	11	24.222
Pumpkinseed		0	0	11	0	11	0.837	0	0	0	0	0	0.013	0	0	11	0	11	0.849
Rock bass	adult	0	4	18	4	25	2.565	0	0	0	0	0	0.039	0	4	18	4	25	2.603
Round goby		0	4	320	0	324	25.114	0	0	5	0	5	0.378	0	4	325	0	328	25.492
Silver chub		0	0	18	0	18	0.374	0	0	0	0	0	0.006	0	0	18	0	18	0.380
Silver lamprey		0	0	21	0	21	3.028	0	0	0	0	0	0.046	0	0	21	0	21	3.074
Smallmouth bass	adult	0	0	4	0	4	5.215	0	0	0	0	0	0.078	0	0	4	0	4	5.293
Spottail shiner		0	0	168	0	168	1.283	0	0	3	0	3	0.019	0	0	171	0	171	1.302
Trout-perch		0	0	1,100	7	1,107	9.327	0	0	17	0	17	0.140	0	0	1,117	7	1,124	9.468
Walleye	adult	0	0	4	4	7	12.460	0	0	0	0	0	0.188	0	0	4	4	7	12.648
White bass	adult	0	0	11	0	11	1.922	0	0	0	0	0	0.029	0	0	11	0	11	1.950
White bass	JUV(<150mm)	0	0	25	0	25	0.140	0	0	0	0	0	0.002	0	0	25	0	25	0.142
White perch	adult	0	0	32	0	32	9.538	0	0	0	0	0	0.144	0	0	32	0	32	9.681
White perch	JUV(<150mm)	0	0	177	0	177	2.616	0	0	3	0	3	0.039	0	0	179	0	179	2.655
Yellow perch	adult	0	0	123	7	130	14.468	0	0	2	0	2	0.218	0	0	125	7	132	14.685
Yellow perch	JUV(<150mm)	0	0	4	4	7	0.184	0	0	0	0	0	0.003	0	0	4	4	7	0.186
APRIL 2005		**0**	**14**	**2,684**	**28**	**2,726**	**299.563**	**0**	**0**	**40**	**0**	**41**	**4.508**	**0**	**14**	**2,724**	**29**	**2,767**	**304.071**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	adult	0	0	3	0	3	0.224	0	0	0	0	0	0.002	0	0	3	0	3	0.227
Bluegill	adult	0	0	10	0	10	1.343	0	0	0	0	0	0.014	0	0	10	0	10	1.358
Bluegill	JUV(<100mm)	0	0	6	0	6	0.060	0	0	0	0	0	0.001	0	0	6	0	6	0.061
Brown bullhead		0	0	4	0	4	0.662	0	0	0	0	0	0.007	0	0	4	0	4	0.669
Bullhead spp.		0	0	4	0	4	0.044	0	0	0	0	0	0.000	0	0	4	0	4	0.044
Channel catfish	adult	0	0	30	0	30	15.685	0	0	0	0	0	0.167	0	0	31	0	31	15.853
Channel catfish	JUV(<150mm)	0	0	26	0	26	0.338	0	0	0	0	0	0.004	0	0	27	0	27	0.341
Common carp	adult	0	0	7	0	7	12.379	0	0	0	0	0	0.132	0	0	7	0	7	12.511
Crappie spp.		0	0	3	0	3	0.667	0	0	0	0	0	0.007	0	0	3	0	3	0.674
Emerald shiner		0	0	5,863	0	5,863	27.573	0	0	62	0	62	0.294	0	0	5,925	0	5,925	27.867
Freshwater drum	adult	0	3	213	6	222	162.212	0	0	2	0	2	1.729	0	3	215	6	225	163.940
Gizzard shad	adult	0	0	249	36	285	122.512	0	0	3	0	3	1.306	0	0	252	36	288	123.818
Goldfish		0	0	78	6	84	31.947	0	0	1	0	1	0.341	0	0	79	6	85	32.288
Lamprey spp.		0	4	8	0	12	0.666	0	0	0	0	0	0.007	0	4	8	0	12	0.673
Longnose gar	adult	0	10	14	0	23	2.985	0	0	0	0	0	0.032	0	10	14	0	23	3.017
Madtom (Noturus spp.)		0	0	6	0	6	0.315	0	0	0	0	0	0.003	0	0	7	0	7	0.318
Northern pike		0	0	29	0	29	46.701	0	0	0	0	0	0.498	0	0	29	0	29	47.199
Pumpkinseed		0	0	14	0	14	0.433	0	0	0	0	0	0.005	0	0	14	0	14	0.437
Quillback		0	0	10	7	16	26.250	0	0	0	0	0	0.280	0	0	10	7	17	26.529
Rainbow smelt		0	0	27	0	27	0.480	0	0	0	0	0	0.005	0	0	27	0	27	0.485
Redhorse sucker		0	0	41	3	44	31.360	0	0	0	0	0	0.334	0	0	41	3	44	31.694
Rock bass	adult	0	3	50	3	56	4.255	0	0	1	0	1	0.045	0	3	50	3	57	4.300
Rock bass	JUV(<100mm)	0	0	12	0	12	1.032	0	0	0	0	0	0.011	0	0	12	0	12	1.043
Round goby		0	13	122	20	155	5.840	0	0	1	0	2	0.062	0	13	124	20	157	5.903
Silver lamprey		0	17	24	0	41	2.875	0	0	0	0	0	0.031	0	17	24	0	41	2.906
Smallmouth bass	adult	0	0	6	0	6	2.298	0	0	0	0	0	0.024	0	0	6	0	6	2.322
Smallmouth bass	JUV(<150mm)	0	0	7	0	7	0.060	0	0	0	0	0	0.001	0	0	7	0	7	0.060
Spottail shiner		0	0	332	0	332	2.224	0	0	4	0	4	0.024	0	0	336	0	336	2.248
Threespine stickleback		0	0	4	0	4	0.009	0	0	0	0	0	0.000	0	0	4	0	4	0.009
Trout-perch		0	0	2,533	13	2,546	13.477	0	0	27	0	27	0.144	0	0	2,560	13	2,573	13.620
Walleye	adult	0	0	23	7	30	30.632	0	0	0	0	0	0.326	0	0	23	7	30	30.958
Walleye	JUV(<200mm)	0	0	4	0	4	0.147	0	0	0	0	0	0.002	0	0	4	0	4	0.149
White bass	adult	0	0	169	0	169	45.016	0	0	2	0	2	0.480	0	0	171	0	171	45.495
White bass	JUV(<150mm)	0	0	26	6	32	0.256	0	0	0	0	0	0.003	0	0	26	6	32	0.259
White perch	adult	0	10	1,173	208	1,390	138.662	0	0	13	2	15	1.478	0	10	1,185	210	1,405	140.140
White perch	JUV(<150mm)	0	0	193	0	193	12.055	0	0	2	0	2	0.128	0	0	195	0	195	12.184
White sucker		0	0	3	3	7	2.128	0	0	0	0	0	0.023	0	0	3	3	7	2.151
Yellow perch	adult	0	19	621	75	715	35.979	0	0	7	1	8	0.383	0	20	627	76	722	36.363
Yellow perch	JUV(<150mm)	0	0	105	0	105	2.334	0	0	1	0	1	0.025	0	0	106	0	106	2.359
MAY 2005		**0**	**79**	**12,051**	**392**	**12,523**	**784.113**	**0**	**1**	**128**	**4**	**133**	**8.357**	**0**	**80**	**12,179**	**397**	**12,656**	**792.470**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	adult	0	0	3	0	3	0.054	0	0	0	0	0	0.001	0	0	3	0	3	0.055
Bluegill	adult	0	0	0	7	7	0.497	0	0	0	0	0	0.005	0	0	0	7	7	0.503
Bluegill	JUV(<100mm)	0	0	4	0	4	0.011	0	0	0	0	0	0.000	0	0	4	0	4	0.011
Brown bullhead		0	0	24	0	24	10.242	0	0	0	0	0	0.109	0	0	25	0	25	10.351
Channel catfish	adult	0	0	38	3	41	16.112	0	0	0	0	0	0.172	0	0	38	4	42	16.284
Channel catfish	JUV(<150mm)	0	0	7	0	7	0.060	0	0	0	0	0	0.001	0	0	7	0	7	0.060
Common shiner		0	0	10	0	10	0.136	0	0	0	0	0	0.001	0	0	11	0	11	0.137
Emerald shiner		0	0	5,288	189	5,477	34.903	0	0	57	2	59	0.373	0	0	5,344	191	5,535	35.276
Freshwater drum	adult	0	0	655	83	738	429.051	0	0	7	1	8	4.587	0	0	662	84	746	433.637
Gizzard shad	adult	0	0	111	7	118	50.232	0	0	1	0	1	0.537	0	0	112	7	119	50.769
Green sunfish		0	0	4	0	4	0.137	0	0	0	0	0	0.001	0	0	4	0	4	0.138
Largemouth bass	adult	0	0	3	4	7	9.209	0	0	0	0	0	0.098	0	0	3	4	7	9.307
Logperch		0	0	4	0	4	0.011	0	0	0	0	0	0.000	0	0	4	0	4	0.011
Mimic shiner		0	0	4	0	4	0.014	0	0	0	0	0	0.000	0	0	4	0	4	0.014
Northern pike		0	0	14	0	14	11.890	0	0	0	0	0	0.127	0	0	14	0	14	12.017
Pumpkinseed		0	0	7	0	7	0.567	0	0	0	0	0	0.006	0	0	7	0	7	0.573
Quillback		0	0	28	0	28	34.658	0	0	0	0	0	0.371	0	0	28	0	28	35.029
Rainbow smelt		0	0	55	0	55	0.231	0	0	1	0	1	0.002	0	0	55	0	55	0.233
Redhorse sucker		0	0	31	0	31	28.914	0	0	0	0	0	0.309	0	0	31	0	31	29.223
Rock bass	adult	0	0	24	4	28	3.247	0	0	0	0	0	0.035	0	0	25	4	28	3.282
Round goby		0	4	146	0	150	6.076	0	0	2	0	2	0.065	0	4	148	0	151	6.141
Sea lamprey		0	3	10	0	14	0.672	0	0	0	0	0	0.007	0	4	10	0	14	0.679
Silver chub		0	0	22	0	22	0.155	0	0	0	0	0	0.002	0	0	22	0	22	0.157
Silver lamprey		0	0	31	3	35	2.118	0	0	0	0	0	0.023	0	0	32	4	35	2.140
Smallmouth bass	adult	0	0	4	0	4	4.046	0	0	0	0	0	0.043	0	0	4	0	4	4.089
Smallmouth bass	JUV(<150mm)	0	0	10	0	10	0.125	0	0	0	0	0	0.001	0	0	10	0	10	0.126
Spottail shiner		0	0	74	0	74	0.599	0	0	1	0	1	0.006	0	0	75	0	75	0.605
Spotted gar		0	0	3	0	3	1.856	0	0	0	0	0	0.020	0	0	3	0	3	1.876
Steelcolor shiner		0	0	4	0	4	0.018	0	0	0	0	0	0.000	0	0	4	0	4	0.018
Trout-perch		0	0	170	18	188	1.022	0	0	2	0	2	0.011	0	0	172	18	190	1.033
Walleye	adult	0	0	125	14	139	38.936	0	0	1	0	1	0.416	0	0	127	14	140	39.352
Walleye	JUV(<200mm)	0	0	4	0	4	0.294	0	0	0	0	0	0.003	0	0	4	0	4	0.297
White bass	adult	0	0	89	7	96	31.579	0	0	1	0	1	0.338	0	0	90	7	97	31.917
White perch	adult	0	0	343	4	346	30.859	0	0	4	0	4	0.330	0	0	346	4	350	31.189
White perch	JUV(<150mm)	0	0	14	0	14	0.543	0	0	0	0	0	0.006	0	0	14	0	14	0.549
Yellow perch	adult	0	0	147	0	147	11.150	0	0	2	0	2	0.119	0	0	149	0	149	11.269
Yellow perch	JUV(<150mm)	0	0	38	0	38	1.067	0	0	0	0	0	0.011	0	0	38	0	38	1.079
JUNE 2005		**0**	**7**	**7,547**	**341**	**7,895**	**761.287**	**0**	**0**	**81**	**4**	**84**	**8.138**	**0**	**7**	**7,628**	**345**	**7,980**	**769.426**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	JUV(<100mm)	0	0	226	0	226	0.901	0	0	3	0	3	0.011	0	0	228	0	228	0.911
Bluntnose minnow		0	0	7	0	7	0.074	0	0	0	0	0	0.001	0	0	7	0	7	0.075
Channel catfish	adult	0	0	48	7	55	9.370	0	0	1	0	1	0.111	0	0	49	7	56	9.480
Channel catfish	JUV(<150mm)	0	4	7	4	14	0.418	0	0	0	0	0	0.005	0	4	7	4	14	0.423
Common carp	JUV(<150mm)	0	0	14	0	14	0.065	0	0	0	0	0	0.001	0	0	15	0	15	0.066
Common shiner		0	0	11	0	11	0.116	0	0	0	0	0	0.001	0	0	11	0	11	0.117
Cyprinidae		0	0	7	0	7	0.020	0	0	0	0	0	0.000	0	0	7	0	7	0.020
Emerald shiner		0	0	246	28	274	1.083	0	0	3	0	3	0.013	0	0	249	28	277	1.096
Freshwater drum	adult	0	0	411	34	445	219.666	0	0	5	0	5	2.597	0	0	416	34	450	222.263
Freshwater drum	JUV(<200mm)	0	0	890	36	926	18.780	0	0	11	0	11	0.222	0	0	901	36	937	19.002
Gizzard shad	adult	0	0	96	7	103	43.209	0	0	1	0	1	0.511	0	0	97	7	104	43.720
Gizzard shad	JUV(<200mm)	0	0	2,858	167	3,025	26.868	0	0	34	2	36	0.318	0	0	2,892	169	3,061	27.185
Largemouth bass		0	0	4	0	4	2.424	0	0	0	0	0	0.029	0	0	4	0	4	2.453
Longnose gar	adult	0	0	23	0	23	0.346	0	0	0	0	0	0.004	0	0	24	0	24	0.350
Northern pike		0	0	49	0	49	44.947	0	0	1	0	1	0.531	0	0	50	0	50	45.478
Pumpkinseed		0	0	63	0	63	4.085	0	0	1	0	1	0.048	0	0	64	0	64	4.133
Quillback		0	0	17	0	17	27.152	0	0	0	0	0	0.321	0	0	17	0	17	27.473
Rainbow smelt		0	0	7	0	7	0.040	0	0	0	0	0	0.000	0	0	7	0	7	0.041
Redhorse sucker		0	0	0	7	7	4.501	0	0	0	0	0	0.053	0	0	0	7	7	4.554
Rock bass	adult	0	0	104	0	104	6.327	0	0	1	0	1	0.075	0	0	105	0	105	6.402
Round goby		0	28	264	21	313	12.013	0	0	3	0	4	0.142	0	28	267	21	317	12.155
Smallmouth bass	adult	0	0	3	3	7	2.852	0	0	0	0	0	0.034	0	0	4	4	7	2.885
Smallmouth bass	JUV(<150mm)	0	0	74	0	74	0.268	0	0	1	0	1	0.003	0	0	75	0	75	0.271
Spottail shiner		0	0	32	4	36	0.346	0	0	0	0	0	0.004	0	0	33	4	36	0.350
Trout-perch		0	0	21	0	21	0.135	0	0	0	0	0	0.002	0	0	21	0	21	0.136
Walleye	adult	0	0	21	4	24	6.099	0	0	0	0	0	0.072	0	0	21	4	25	6.171
Walleye	JUV(<200mm)	0	0	79	8	87	1.029	0	0	1	0	1	0.012	0	0	80	8	88	1.042
White bass	adult	0	0	52	7	59	4.160	0	0	1	0	1	0.049	0	0	53	7	60	4.210
White bass	JUV(<150mm)	0	4	4,056	18	4,077	83.830	0	0	48	0	48	0.991	0	4	4,104	18	4,125	84.821
White perch	adult	0	0	486	20	507	34.172	0	0	6	0	6	0.404	0	0	492	21	513	34.576
White perch	JUV(<150mm)	0	0	3,844	22	3,866	22.454	0	0	45	0	46	0.265	0	0	3,890	22	3,911	22.720
White sucker		0	0	3	0	3	0.249	0	0	0	0	0	0.003	0	0	4	0	4	0.252
Yellow perch	adult	0	14	81	13	108	7.267	0	0	1	0	1	0.086	0	14	81	14	109	7.353
Yellow perch	JUV(<150mm)	0	0	3	0	3	0.014	0	0	0	0	0	0.000	0	0	4	0	4	0.014
JULY 2005		**0**	**49**	**14,108**	**408**	**14,565**	**585.279**	**0**	**1**	**167**	**5**	**172**	**6.919**	**0**	**50**	**14,275**	**413**	**14,738**	**592.198**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead		0	0	73	0	73	2.122	0	0	1	0	1	0.023	0	0	74	0	74	2.144
Bluegill	JUV(<100mm)	0	0	144	0	144	0.418	0	0	2	0	2	0.004	0	0	145	0	145	0.422
Bluntnose minnow		0	0	3	0	3	0.069	0	0	0	0	0	0.001	0	0	3	0	3	0.069
Brown bullhead		0	0	4	0	4	1.572	0	0	0	0	0	0.017	0	0	4	0	4	1.588
Channel catfish	adult	0	0	46	7	53	7.971	0	0	0	0	1	0.085	0	0	46	7	53	8.056
Channel catfish	JUV(<150mm)	0	0	101	7	108	0.915	0	0	1	0	1	0.010	0	0	102	7	109	0.925
Emerald shiner		0	0	263	3	266	0.611	0	0	3	0	3	0.007	0	0	265	3	269	0.617
Freshwater drum	adult	0	0	594	14	608	189.716	0	0	6	0	7	2.034	0	0	601	14	615	191.751
Freshwater drum	JUV(<200mm)	0	0	1,416	0	1,416	18.261	0	0	15	0	15	0.196	0	0	1,432	0	1,432	18.457
Gizzard shad	JUV(<200mm)	0	0	2,884	306	3,190	45.535	0	0	31	3	34	0.488	0	0	2,915	309	3,224	46.023
Goldfish		0	0	30	0	30	0.191	0	0	0	0	0	0.002	0	0	31	0	31	0.193
Green sunfish		0	0	4	0	4	0.018	0	0	0	0	0	0.000	0	0	4	0	4	0.018
Largemouth bass	JUV(<150mm)	0	0	46	0	46	0.724	0	0	0	0	0	0.008	0	0	46	0	46	0.732
Largemouth bass	adult	0	0	10	0	10	3.588	0	0	0	0	0	0.038	0	0	10	0	10	3.626
Northern pike		0	0	3	0	3	2.490	0	0	0	0	0	0.027	0	0	3	0	3	2.517
Pumpkinseed		0	0	118	0	118	6.019	0	0	1	0	1	0.065	0	0	120	0	120	6.084
Quillback		0	0	3	0	3	1.461	0	0	0	0	0	0.016	0	0	3	0	3	1.477
Rainbow smelt		0	0	3	0	3	0.003	0	0	0	0	0	0.000	0	0	3	0	3	0.003
Redear sunfish		0	0	3	0	3	0.271	0	0	0	0	0	0.003	0	0	3	0	3	0.274
Rock bass	adult	0	0	90	0	90	12.462	0	0	1	0	1	0.134	0	0	91	0	91	12.595
Round goby		0	3	544	25	572	17.495	0	0	6	0	6	0.188	0	3	549	26	578	17.682
Silver chub		0	0	30	0	30	1.006	0	0	0	0	0	0.011	0	0	31	0	31	1.017
Silver lamprey		0	0	3	0	3	0.062	0	0	0	0	0	0.001	0	0	3	0	3	0.062
Smallmouth bass	adult	0	0	3	0	3	3.437	0	0	0	0	0	0.037	0	0	3	0	3	3.474
Smallmouth bass	JUV(<150mm)	0	0	265	4	269	4.416	0	0	3	0	3	0.047	0	0	268	4	272	4.463
Spottail shiner		0	0	288	127	415	1.588	0	0	3	1	4	0.017	0	0	292	128	419	1.605
Steelhead trout		0	0	3	0	3	0.861	0	0	0	0	0	0.009	0	0	3	0	3	0.870
Trout-perch		0	0	47	0	47	0.345	0	0	1	0	1	0.004	0	0	47	0	47	0.348
Walleye	adult	0	0	57	28	85	40.658	0	0	1	0	1	0.436	0	0	57	29	86	41.094
Walleye	JUV(<200mm)	0	0	147	4	151	3.996	0	0	2	0	2	0.043	0	0	149	4	152	4.038
White bass	JUV(<150mm)	0	0	5,289	36	5,325	47.147	0	0	57	0	57	0.506	0	0	5,346	36	5,382	47.653
White perch	adult	0	0	8	0	8	0.911	0	0	0	0	0	0.010	0	0	8	0	8	0.921
White perch	JUV(<150mm)	0	0	112,678	213	112,891	407.641	0	0	1,208	2	1,210	4.371	0	0	113,886	215	114,102	412.011
Yellow bullhead		0	0	108	0	108	0.538	0	0	1	0	1	0.006	0	0	109	0	109	0.543
Yellow perch	adult	0	0	104	7	111	9.887	0	0	1	0	1	0.106	0	0	105	7	112	9.993
Yellow perch	JUV(<150mm)	0	0	14	0	14	0.057	0	0	0	0	0	0.001	0	0	14	0	14	0.058
AUG 2005		**0**	**3**	**125,431**	**781**	**126,215**	**834.460**	**0**	**0**	**1,345**	**8**	**1,353**	**8.947**	**0**	**3**	**126,776**	**789**	**127,568**	**843.407**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black buffalo		0	0	0	9	9	7.193	0	0	0	0	0	0.079	0	0	0	9	9	7.271
Black bullhead		0	0	18	0	18	0.070	0	0	0	0	0	0.001	0	0	18	0	18	0.071
Bluegill	JUV(<100mm)	0	49	2,125	76	2,251	10.460	0	1	23	1	25	0.115	0	50	2,149	77	2,275	10.575
Bluntnose minnow		0	0	3	0	3	0.021	0	0	0	0	0	0.000	0	0	4	0	4	0.021
Brook silverside		0	0	28	0	28	0.024	0	0	0	0	0	0.000	0	0	28	0	28	0.025
Channel catfish	adult	0	0	319	25	344	3.784	0	0	3	0	4	0.042	0	0	322	26	348	3.825
Channel catfish	JUV(<150mm)	0	25	380	94	499	6.058	0	0	4	1	5	0.067	0	25	384	95	504	6.125
Common carp	adult	0	0	4	0	4	2.958	0	0	0	0	0	0.032	0	0	4	0	4	2.990
Common carp	JUV(<150mm)	0	0	3	0	3	0.139	0	0	0	0	0	0.002	0	0	4	0	4	0.140
Emerald shiner		0	0	261	80	342	0.964	0	0	3	1	4	0.011	0	0	264	81	345	0.975
Freshwater drum	adult	0	0	226	0	226	77.806	0	0	2	0	2	0.854	0	0	228	0	228	78.661
Freshwater drum	JUV(<200mm)	0	0	2,088	224	2,312	114.790	0	0	23	2	25	1.261	0	0	2,111	227	2,337	116.050
Gizzard shad	adult	0	0	17	0	17	9.557	0	0	0	0	0	0.105	0	0	17	0	17	9.662
Gizzard shad	JUV(<200mm)	0	0	6,153	440	6,593	82.403	0	0	68	5	72	0.905	0	0	6,220	445	6,665	83.308
Green sunfish		0	0	7	0	7	0.128	0	0	0	0	0	0.001	0	0	7	0	7	0.130
Hybrid sunfish		0	0	3	0	3	0.007	0	0	0	0	0	0.000	0	0	4	0	4	0.007
Largemouth bass	JUV(<150mm)	0	0	11	0	11	0.154	0	0	0	0	0	0.002	0	0	11	0	11	0.156
Logperch		0	0	243	0	243	1.741	0	0	3	0	3	0.019	0	0	246	0	246	1.760
Longnose gar	adult	0	60	0	0	60	8.040	0	1	0	0	1	0.088	0	60	0	0	60	8.128
Northern pike		0	8	33	0	41	9.908	0	0	0	0	0	0.109	0	8	33	0	41	10.017
Orangespotted sunfish		0	0	43	0	43	0.165	0	0	0	0	0	0.002	0	0	44	0	44	0.166
Pumpkinseed		0	28	159	7	194	3.865	0	0	2	0	2	0.042	0	28	161	7	196	3.907
Redhorse sucker		0	0	12	8	20	4.371	0	0	0	0	0	0.048	0	0	12	8	20	4.419
Rock bass	adult	0	8	24	12	45	8.567	0	0	0	0	0	0.094	0	8	25	12	45	8.661
Rock bass	JUV(<100mm)	0	0	39	0	39	0.270	0	0	0	0	0	0.003	0	0	39	0	39	0.272
Round goby		0	92	811	47	949	18.174	0	1	9	1	10	0.200	0	93	820	47	960	18.374
Silver chub		0	0	3	0	3	0.166	0	0	0	0	0	0.002	0	0	4	0	4	0.168
Silver lamprey		0	0	19	0	19	0.568	0	0	0	0	0	0.006	0	0	19	0	19	0.574
Smallmouth bass	adult	0	0	4	0	4	2.048	0	0	0	0	0	0.022	0	0	4	0	4	2.070
Smallmouth bass	JUV(<150mm)	0	28	808	36	872	23.555	0	0	9	0	10	0.259	0	28	816	37	881	23.814
Spottail shiner		0	0	4,035	381	4,416	22.941	0	0	44	4	49	0.252	0	0	4,080	385	4,465	23.193
Trout-perch		0	0	3,542	186	3,728	11.202	0	0	39	2	41	0.123	0	0	3,581	188	3,769	11.325
Walleye	adult	0	0	208	3	212	88.299	0	0	2	0	2	0.970	0	0	210	4	214	89.269
Walleye	JUV(<200mm)	0	0	36	0	36	0.590	0	0	0	0	0	0.006	0	0	36	0	36	0.596
White bass	adult	0	0	4,424	252	4,676	40.843	0	0	49	3	51	0.449	0	0	4,473	255	4,727	41.291
White bass	JUV(<150mm)	0	0	3,974	180	4,154	41.293	0	0	44	2	46	0.453	0	0	4,017	182	4,200	41.746
White perch	adult	0	0	334	35	369	41.071	0	0	4	0	4	0.451	0	0	338	35	373	41.522
White perch	JUV(<150mm)	0	56	83,446	926	84,428	441.339	0	1	916	10	927	4.847	0	57	84,362	937	85,356	446.186
White sucker		0	0	4	0	4	1.736	0	0	0	0	0	0.019	0	0	4	0	4	1.755
Yellow perch	adult	0	0	79	0	79	10.473	0	0	1	0	1	0.115	0	0	80	0	80	10.588
Yellow perch	JUV(<150mm)	0	0	192	21	213	9.105	0	0	2	0	2	0.100	0	0	195	21	216	9.205
SEPTEMBER 2005		**0**	**354**	**114,117**	**3,045**	**117,515**	**1106.842**	**0**	**4**	**1,253**	**33**	**1,291**	**12.155**	**0**	**357**	**115,370**	**3,078**	**118,806**	**1,118.997**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead		0	0	42	0	42	12.790	0	0	1	0	1	0.169	0	0	43	0	43	12.958
Black crappie	JUV(<150mm)	0	0	17	0	17	0.301	0	0	0	0	0	0.004	0	0	17	0	17	0.305
Bluegill	adult	0	0	2,972	32	3,003	8.139	0	0	39	0	40	0.107	0	0	3,011	32	3,043	8.246
Bluegill	JUV(<100mm)	0	368	5,568	107	6,042	21.844	0	5	73	1	80	0.288	0	372	5,642	108	6,122	22.132
Brook silverside		0	0	209	0	209	0.223	0	0	3	0	3	0.003	0	0	211	0	211	0.226
Brown bullhead		0	417	588	74	1,078	49.781	0	5	8	1	14	0.657	0	422	596	74	1,092	50.438
Channel catfish	adult	0	0	768	28	796	8.558	0	0	10	0	10	0.113	0	0	778	28	806	8.671
Channel catfish	JUV(<150mm)	0	168	2,000	0	2,168	29.048	0	2	26	0	29	0.383	0	171	2,026	0	2,197	29.431
Common carp	adult	0	0	59	28	87	0.177	0	0	1	0	1	0.002	0	0	60	28	88	0.179
Cyprinidae		0	0	74	0	74	0.185	0	0	1	0	1	0.002	0	0	74	0	74	0.187
Emerald shiner		0	0	2,873	160	3,032	8.509	0	0	38	2	40	0.112	0	0	2,910	162	3,072	8.621
Fathead minnow		0	0	693	137	830	20.574	0	0	9	2	11	0.271	0	0	702	138	840	20.846
Freshwater drum	adult	0	0	18,411	973	19,384	276.701	0	0	243	13	256	3.649	0	0	18,654	986	19,639	280.350
Freshwater drum	JUV(<200mm)	0	0	7,579	131	7,710	197.435	0	0	100	2	102	2.604	0	0	7,679	132	7,811	200.039
Gizzard shad	adult	0	0	1,463	109	1,572	118.647	0	0	19	1	21	1.565	0	0	1,482	110	1,592	120.212
Gizzard shad	JUV(<200mm)	0	0	182,526	2,480	185,007	1795.676	0	0	2,407	33	2,440	23.683	0	0	184,933	2,513	187,447	1,819.359
Goldfish		0	0	178	0	178	4.398	0	0	2	0	2	0.058	0	0	180	0	180	4.456
Largemouth bass	JUV(<150mm)	0	0	332	0	332	97.539	0	0	4	0	4	1.286	0	0	336	0	336	98.826
Logperch		0	0	722	0	722	7.794	0	0	10	0	10	0.103	0	0	731	0	731	7.897
Northern pike		0	0	42	0	42	10.709	0	0	1	0	1	0.141	0	0	43	0	43	10.850
Orangespotted sunfish		0	0	88	0	88	0.286	0	0	1	0	1	0.004	0	0	89	0	89	0.290
Pumpkinseed		0	74	1,766	0	1,840	9.685	0	1	23	0	24	0.128	0	74	1,789	0	1,864	9.812
Redhorse sucker		0	0	6	0	6	0.131	0	0	0	0	0	0.002	0	0	6	0	6	0.133
Rock bass	adult	0	35	174	0	209	2.707	0	0	2	0	3	0.036	0	35	176	0	212	2.743
Rock bass	JUV(<100mm)	0	0	168	0	168	0.550	0	0	2	0	2	0.007	0	0	170	0	170	0.557
Round goby		0	0	3,207	318	3,525	50.170	0	0	42	4	46	0.662	0	0	3,249	323	3,572	50.832
Sea lamprey		0	70	42	0	112	6.590	0	1	1	0	1	0.087	0	71	43	0	113	6.677
Smallmouth bass	adult	0	0	231	0	231	7.111	0	0	3	0	3	0.094	0	0	234	0	234	7.205
Smallmouth bass	JUV(<150mm)	0	0	2,423	28	2,450	46.652	0	0	32	0	32	0.615	0	0	2,454	28	2,483	47.268
Spottail shiner		0	0	9,657	786	10,443	57.657	0	0	127	10	138	0.760	0	0	9,784	797	10,581	58.418
Trout-perch		0	0	21,038	525	21,563	69.746	0	0	277	7	284	0.920	0	0	21,315	532	21,847	70.666
Walleye	adult	0	35	245	0	280	321.862	0	0	3	0	4	4.245	0	35	248	0	284	326.107
White bass	adult	0	0	46	0	46	11.817	0	0	1	0	1	0.156	0	0	46	0	46	11.973
White bass	JUV(<150mm)	0	0	4,030	61	4,091	53.051	0	0	53	1	54	0.700	0	0	4,083	62	4,144	53.751
White perch	adult	0	0	496	0	496	55.824	0	0	7	0	7	0.736	0	0	503	0	503	56.560
White perch	JUV(<150mm)	0	0	151,645	1,060	152,705	957.322	0	0	2,000	14	2,014	12.626	0	0	153,645	1,074	154,719	969.948
White sucker		0	0	18	0	18	11.582	0	0	0	0	0	0.153	0	0	18	0	18	11.735
Yellow perch	JUV(<150mm)	0	0	944	0	944	12.008	0	0	12	0	12	0.158	0	0	956	0	956	12.166
OCT 2005		**0**	**1,166**	**423,336**	**7,034**	**431,536**	**4343.779**	**0**	**15**	**5,583**	**93**	**5,691**	**57.290**	**0**	**1,181**	**428,919**	**7,127**	**437,227**	**4,401.069**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	JUV(<150mm)	0	0	189	0	189	1.729	0	0	3	0	3	0.025	0	0	192	0	192	1.754
Bluegill	adult	0	0	772	109	880	1.769	0	0	11	2	13	0.026	0	0	783	110	893	1.794
Bluegill	JUV(<100mm)	0	131	12,138	168	12,436	26.790	0	2	175	2	179	0.386	0	133	12,313	170	12,615	27.176
Brook silverside		0	0	934	0	934	1.476	0	0	13	0	13	0.021	0	0	947	0	947	1.497
Brown bullhead		0	0	383	0	383	137.216	0	0	6	0	6	1.978	0	0	389	0	389	139.194
Channel catfish	adult	0	0	315	0	315	714.538	0	0	5	0	5	10.302	0	0	320	0	320	724.840
Channel catfish	JUV(<150mm)	0	64	1,063	0	1,127	13.312	0	1	15	0	16	0.192	0	65	1,078	0	1,143	13.504
Common carp	adult	0	0	214	0	214	221.086	0	0	3	0	3	3.187	0	0	217	0	217	224.273
Common carp	JUV(<150mm)	0	0	34	0	34	1.586	0	0	0	0	0	0.023	0	0	34	0	34	1.609
Emerald shiner		0	0	32,201	173	32,374	97.011	0	0	464	2	467	1.399	0	0	32,665	175	32,840	98.410
Freshwater drum	adult	0	0	1,163	63	1,226	68.916	0	0	17	1	18	0.994	0	0	1,180	64	1,244	69.910
Freshwater drum	JUV(<200mm)	0	0	43,453	3,692	47,145	626.283	0	0	626	53	680	9.029	0	0	44,079	3,746	47,825	635.312
Gizzard shad	adult	0	0	1,268	0	1,268	121.408	0	0	18	0	18	1.750	0	0	1,287	0	1,287	123.158
Gizzard shad	JUV(<200mm)	0	230,614	2,080,287	7,371	2,318,272	36204.807	0	3,325	29,992	106	33,423	521.972	0	233,939	2,110,279	7,477	2,351,695	36,726.779
Goldfish		0	173	953	0	1,125	20.988	0	2	14	0	16	0.303	0	175	966	0	1,142	21.290
Largemouth bass		0	396	281	0	676	127.127	0	6	4	0	10	1.833	0	401	285	0	686	128.960
Logperch		0	0	401	0	401	2.065	0	0	6	0	6	0.030	0	0	406	0	406	2.095
Longnose gar	adult	0	316	1,136	109	1,560	518.663	0	5	16	2	22	7.478	0	320	1,152	110	1,583	526.141
Longnose gar	JUV(<200mm)	0	396	34	0	430	148.516	0	6	0	0	6	2.141	0	401	34	0	436	150.657
Northern pike		0	0	396	0	396	401.468	0	0	6	0	6	5.788	0	0	401	0	401	407.256
Orangespotted sunfish		0	0	165	0	165	0.404	0	0	2	0	2	0.006	0	0	168	0	168	0.409
Pumpkinseed		0	293	425	109	827	18.921	0	4	6	2	12	0.273	0	297	431	110	838	19.194
Quillback		0	0	239	0	239	253.936	0	0	3	0	3	3.661	0	0	242	0	242	257.597
Rainbow smelt		0	0	821	0	821	18.255	0	0	12	0	12	0.263	0	0	833	0	833	18.518
Redhorse sucker		0	0	447	0	447	351.883	0	0	6	0	6	5.073	0	0	454	0	454	356.956
Rock bass	JUV(<100mm)	0	0	191	0	191	1.348	0	0	3	0	3	0.019	0	0	194	0	194	1.367
Round goby		0	216	2,598	63	2,877	179.362	0	3	37	1	41	2.586	0	219	2,636	64	2,919	181.948
Sea lamprey		0	0	27	0	27	0.742	0	0	0	0	0	0.011	0	0	28	0	28	0.752
Silver lamprey		0	0	102	0	102	7.230	0	0	1	0	1	0.104	0	0	103	0	103	7.334
Smallmouth bass	adult	0	0	182	0	182	9.516	0	0	3	0	3	0.137	0	0	185	0	185	9.653
Smallmouth bass	JUV(<150mm)	0	189	769	0	958	44.942	0	3	11	0	14	0.648	0	192	780	0	972	45.589
Spottail shiner		0	0	11,697	717	12,414	112.576	0	0	169	10	179	1.623	0	0	11,865	728	12,593	114.199
Trout-perch		0	0	2,072	0	2,072	6.526	0	0	30	0	30	0.094	0	0	2,102	0	2,102	6.620
Walleye	adult	0	0	720	0	720	321.205	0	0	10	0	10	4.631	0	0	730	0	730	325.836
Walleye	JUV(<200mm)	0	0	182	0	182	7.869	0	0	3	0	3	0.113	0	0	185	0	185	7.982
White bass	adult	0	291	169	0	460	30.286	0	4	2	0	7	0.437	0	295	171	0	467	30.723
White bass	JUV(<150mm)	0	0	2,765	0	2,765	50.258	0	0	40	0	40	0.725	0	0	2,805	0	2,805	50.982
White crappie	adult	0	2,461	877	0	3,338	18.465	0	35	13	0	48	0.266	0	2,496	889	0	3,386	18.731
White crappie	JUV(<150mm)	0	0	60	0	60	0.305	0	0	1	0	1	0.004	0	0	60	0	60	0.310
White perch	JUV(<150mm)	0	0	20,764	171	20,935	125.639	0	0	299	2	302	1.811	0	0	21,064	174	21,237	127.450
Yellow bullhead		0	349	0	0	349	31.831	0	5	0	0	5	0.459	0	354	0	0	354	32.289
Yellow perch	adult	0	997	822	0	1,819	319.706	0	14	12	0	26	4.609	0	1,011	834	0	1,845	324.316
Yellow perch	JUV(<150mm)	0	0	599	0	599	6.237	0	0	9	0	9	0.090	0	0	608	0	608	6.327
NOV 2005		**0**	**236,884**	**2,224,307**	**12,743**	**2,473,934**	**41374.193**	**0**	**3,415**	**32,068**	**184**	**35,667**	**596.500**	**0**	**240,300**	**2,256,375**	**12,926**	**2,509,601**	**41,970.693**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	Life Stage	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
		Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bigmouth buffalo		0	0	0	63	63	84.480	0	0	0	1	1	1.464	0	0	0	64	64	85.944
Bluegill	JUV(<100mm)	0	0	2,653	0	2,653	9.465	0	0	46	0	46	0.164	0	0	2,699	0	2,699	9.629
Brook silverside		0	0	119	0	119	0.250	0	0	2	0	2	0.004	0	0	121	0	121	0.254
Channel catfish	adult	0	0	76	0	76	16.267	0	0	1	0	1	0.282	0	0	78	0	78	16.549
Common carp	adult	0	0	0	32	32	15.254	0	0	0	1	1	0.264	0	0	0	32	32	15.518
Emerald shiner		0	0	12,582	385	12,967	38.587	0	0	218	7	225	0.669	0	0	12,801	392	13,192	39.255
Freshwater drum	JUV(<200mm)	0	0	134,911	0	134,911	2250.061	0	0	2,338	0	2,338	38.996	0	0	137,249	0	137,249	2,289.058
Gizzard shad	adult	0	0	679	385	1,064	615.595	0	0	12	7	18	10.669	0	0	691	392	1,082	626.264
Gizzard shad	JUV(<200mm)	0	74,501	1,375,030	29,292	1,478,823	25169.280	0	1,291	23,831	508	25,630	436.214	0	75,793	1,398,861	29,799	1,504,453	25,605.494
Goldfish		0	116	2,799	0	2,914	37.605	0	2	49	0	51	0.652	0	118	2,847	0	2,965	38.256
Largemouth bass		0	0	98	0	98	26.797	0	0	2	0	2	0.464	0	0	99	0	99	27.262
Longnose gar	JUV(<200mm)	0	56	0	0	56	6.167	0	1	0	0	1	0.107	0	57	0	0	57	6.274
Northern pike		0	0	63	0	63	46.116	0	0	1	0	1	0.799	0	0	64	0	64	46.915
Pumpkinseed		0	76	7	0	83	4.993	0	1	0	0	1	0.087	0	78	7	0	85	5.079
Quillback		0	0	98	0	98	63.186	0	0	2	0	2	1.095	0	0	99	0	99	64.281
Rainbow smelt		0	0	392	0	392	0.400	0	0	7	0	7	0.007	0	0	399	0	399	0.407
Redhorse sucker		0	0	76	0	76	49.731	0	0	1	0	1	0.862	0	0	78	0	78	50.592
Round goby		0	0	2,150	0	2,150	86.426	0	0	37	0	37	1.498	0	0	2,187	0	2,187	87.924
Silver chub		0	0	179	0	179	5.914	0	0	3	0	3	0.103	0	0	182	0	182	6.017
Silver lamprey		0	0	223	0	223	66.691	0	0	4	0	4	1.156	0	0	227	0	227	67.846
Smallmouth bass	adult	0	0	7	0	7	8.050	0	0	0	0	0	0.140	0	0	7	0	7	8.190
Smallmouth bass	JUV(<150mm)	0	0	42	0	42	0.659	0	0	1	0	1	0.011	0	0	43	0	43	0.670
Smallmouth buffalo	adult	0	0	32	0	32	28.839	0	0	1	0	1	0.500	0	0	32	0	32	29.338
Spotfin shiner		0	0	179	0	179	1.250	0	0	3	0	3	0.022	0	0	182	0	182	1.272
Spottail shiner		0	0	1,572	0	1,572	8.343	0	0	27	0	27	0.145	0	0	1,599	0	1,599	8.487
Trout-perch		0	0	665	0	665	2.638	0	0	12	0	12	0.046	0	0	677	0	677	2.684
White bass	adult	0	76	56	0	132	27.754	0	1	1	0	2	0.481	0	78	57	0	135	28.235
White bass	JUV(<150mm)	0	0	3,770	0	3,770	26.194	0	0	65	0	65	0.454	0	0	3,835	0	3,835	26.648
White perch	JUV(<150mm)	0	0	5,118	0	5,118	26.690	0	0	89	0	89	0.463	0	0	5,206	0	5,206	27.152
Yellow bullhead		0	0	179	0	179	1.071	0	0	3	0	3	0.019	0	0	182	0	182	1.090
Yellow perch	adult	0	0	56	0	56	9.515	0	0	1	0	1	0.165	0	0	57	0	57	9.680
Yellow perch	JUV(<150mm)	0	63	175	0	238	8.272	0	1	3	0	4	0.143	0	64	178	0	242	8.416
DEC 2005		**0**	**74,889**	**1,543,983**	**30,156**	**1,649,028**	**28742.537**	**0**	**1,298**	**26,759**	**523**	**28,580**	**498.143**	**0**	**76,187**	**1,570,742**	**30,679**	**1,677,607**	**29,240.680**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Bluegill	0	162	4,836	0	4,999	21	0	3	93	0	96	0.412	0	165	4,930	0	5,095	21.830
Bowfin	38	0	0	0	38	190.390	1	0	0	0	1	3.666	39	0	0	0	39	194.057
Brook silverside	0	0	193	0	193	0.193	0	0	4	0	4	0.004	0	0	197	0	197	0.197
Channel catfish	0	1,739	867	0	2,607	435	0	33	17	0	50	8.385	0	1,773	884	0	2,657	443.826
Common carp	0	0	2,276	0	2,276	29	0	0	44	0	44	0.563	0	0	2,320	0	2,320	29.819
Common shiner	0	0	155	0	155	3.254	0	0	3	0	3	0.063	0	0	158	0	158	3.317
Creek chub	0	0	157	0	157	0.944	0	0	3	0	3	0.018	0	0	160	0	160	0.962
Emerald shiner	0	2,089	39,238	0	41,328	171	0	40	756	0	796	3.302	0	2,129	39,994	0	42,123	174.777
Gizzard shad	0	219,412	9,610,850	11,490	9,841,753	391,122	0	4,225	185,081	221	189,528	7,532.031	0	223,637	9,795,931	11,712	10,031,281	398,654.082
Golden redhorse	0	0	223	0	223	190.197	0	0	4	0	4	3.663	0	0	228	0	228	193.860
Goldfish	0	2,133	12,482	0	14,615	299	0	41	240	0	281	5.761	0	2,174	12,722	0	14,897	304.899
Green sunfish	0	0	193	0	193	0.386	0	0	4	0	4	0.007	0	0	197	0	197	0.393
Largemouth bass	0	0	155	0	155	7.128	0	0	3	0	3	0.137	0	0	158	0	158	7.265
Muskellenge	0	1,045	0	0	1,045	132.661	0	20	0	0	20	2.555	0	1,065	0	0	1,065	135.216
Northern longear sunfish	0	0	53	0	53	0.105	0	0	1	0	1	0.002	0	0	54	0	54	0.107
Northern pike	0	0	77	0	77	119.450	0	0	1	0	1	2.300	0	0	78	0	78	121.750
Pumpkinseed	0	0	455	0	455	12	0	0	9	0	9	0.233	0	0	464	0	464	12.353
Rock bass	0	0	53	0	53	0.211	0	0	1	0	1	0.004	0	0	54	0	54	0.215
Round goby	0	2,089	4,796	43	6,928	88	0	40	92	1	133	1.700	0	2,129	4,888	44	7,062	89.976
Silver chub	0	0	465	0	465	10.537	0	0	9	0	9	0.203	0	0	474	0	474	10.740
Silver lamprey	0	223	0	0	223	22.993	0	4	0	0	4	0.443	0	228	0	0	228	23.436
Smallmouth bass	0	0	1,861	0	1,861	190	0	0	36	0	36	3.664	0	0	1,897	0	1,897	193.930
Spottail shiner	0	0	12,797	0	12,797	63	0	0	246	0	246	1.222	0	0	13,044	0	13,044	64.686
Trout-perch	0	850	4,712	0	5,562	52	0	16	91	0	107	0.998	0	866	4,803	0	5,669	52.822
White bass	0	0	22,288	0	22,288	646.687	0	0	429	0	429	12.454	0	0	22,717	0	22,717	659.141
White perch	0	0	15,134	0	15,134	106.436	0	0	291	0	291	2.050	0	0	15,425	0	15,425	108.486
Yellow perch	0	1,751	888	0	2,638	510	0	34	17	0	51	9.826	0	1,784	905	0	2,689	520.061
JAN 2006	**38**	**231,493**	**9,735,204**	**11,533**	**9,978,270**	**394426.535**	**1**	**4,458**	**187,476**	**222**	**192,156**	**7,595.667**	**39**	**235,951**	**9,922,680**	**11,755**	**10,170,426**	**402,022.202**
Bluegill	0	0	22,043	0	22,043	148	0	0	377	0	377	2.535	0	0	22,420	0	22,420	150.623
Bluntnose minnow	0	0	161	0	161	0.483	0	0	3	0	3	0.008	0	0	164	0	164	0.491
Common carp	0	887	1,760	0	2,647	32	0	15	30	0	45	0.555	0	902	1,790	0	2,692	33.005
Emerald shiner	0	0	108,060	1,181	109,241	510	0	0	1,850	20	1,870	8.735	0	0	109,909	1,202	111,111	519.084
Freshwater drum	0	0	636	0	636	12.090	0	0	11	0	11	0.207	0	0	647	0	647	12.297
Gizzard shad	0	36,791	6,576,244	42,472	6,655,506	198,459	0	630	112,558	727	113,915	3,396.808	0	37,421	6,688,802	43,199	6,769,421	201,856.278
Goldfish	0	0	12,644	0	12,644	231	0	0	216	0	216	3.955	0	0	12,861	0	12,861	235.032
Green sunfish	0	0	606	1,181	1,788	18	0	0	10	20	31	0.310	0	0	617	1,202	1,818	18.439
Largemouth bass	0	0	136	1,181	1,317	755	0	0	2	20	23	12.920	0	0	138	1,202	1,340	767.761
Longnose gar	0	318	0	0	318	302.243	0	5	0	0	5	5.173	0	324	0	0	324	307.416
Pumpkinseed	0	0	1,305	0	1,305	67.848	0	0	22	0	22	1.161	0	0	1,327	0	1,327	69.009
Rock bass	0	0	161	136	297	16.495	0	0	3	2	5	0.282	0	0	164	138	302	16.777
Round goby	0	0	1,744	0	1,744	14.244	0	0	30	0	30	0.244	0	0	1,774	0	1,774	14.488
Spottail shiner	0	0	6,263	0	6,263	32	0	0	107	0	107	0.548	0	0	6,370	0	6,370	32.580
Trout-perch	0	0	5,551	0	5,551	27	0	0	95	0	95	0.458	0	0	5,646	0	5,646	27.231
White perch	0	0	24,808	0	24,808	176	0	0	425	0	425	3.005	0	0	25,233	0	25,233	178.589
Yellow perch	0	84	245	0	328	37.342	0	1	4	0	6	0.639	0	85	249	0	334	37.982
FEB 2006	**0**	**38,080**	**6,762,365**	**46,152**	**6,846,596**	**200839.538**	**0**	**652**	**115,744**	**790**	**117,185**	**3,437.545**	**0**	**38,731**	**6,878,109**	**46,942**	**6,963,782**	**204,277.082**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black crappie	0	0	71	0	71	19.452	0	0	1	0	1	0.405	0	0	72	0	72	19.857
Bluegill	0	222	7,485	1,484	9,191	46	0	5	156	31	191	0.964	0	227	7,641	1,515	9,382	47.224
Bowfin	0	222	0	0	222	636.592	0	5	0	0	5	13.260	0	227	0	0	227	649.851
Brook silverside	0	0	165	0	165	0.165	0	0	3	0	3	0.003	0	0	169	0	169	0.169
Brown bullhead	0	20	205	0	225	13.971	0	0	4	0	5	0.291	0	20	210	0	230	14.262
Emerald shiner	0	0	12,436	3,298	15,734	72	0	0	259	69	328	1.491	0	0	12,695	3,367	16,061	73.087
Freshwater drum	0	0	150	0	150	211	0	0	3	0	3	4.404	0	0	153	0	153	215.854
Gizzard shad	0	23,298	1,686,766	27,448	1,737,512	58,280	0	485	35,134	572	36,191	1,213.929	0	23,783	1,721,900	28,020	1,773,704	59,493.493
Goldfish	0	0	1,021	248	1,269	32	0	0	21	5	26	0.675	0	0	1,042	253	1,295	33.095
Green sunfish	0	0	59	0	59	0.293	0	0	1	0	1	0.006	0	0	60	0	60	0.299
Longnose gar	69	341	2,571	0	2,981	722	1	7	54	0	62	15.029	70	348	2,625	0	3,043	736.541
Muskellunge	0	0	222	0	222	27.958	0	0	5	0	5	0.582	0	0	227	0	227	28.540
Northern pike	0	103	2,513	0	2,615	1,361	0	2	52	0	54	28.342	0	105	2,565	0	2,670	1,388.999
Pumpkinseed	0	0	2,897	59	2,956	265	0	0	60	1	62	5.526	0	0	2,957	60	3,017	270.815
Quillback	0	0	59	0	59	0.527	0	0	1	0	1	0.011	0	0	60	0	60	0.537
Redhorse sucker	0	0	2,513	0	2,513	746.299	0	0	52	0	52	15.545	0	0	2,565	0	2,565	761.844
Rock bass	0	0	59	248	306	5	0	0	1	5	6	0.106	0	0	60	253	313	5.207
Round goby	0	0	4,949	9	4,957	315	0	0	103	0	103	6.557	0	0	5,052	9	5,061	321.361
Silver lamprey	0	162	83	0	245	17.424	0	3	2	0	5	0.363	0	165	84	0	250	17.787
Smallmouth bass	0	0	135	0	135	81	0	0	3	0	3	1.684	0	0	138	0	138	82.525
Spottail shiner	0	0	14,217	744	14,960	82	0	0	296	15	312	1.704	0	0	14,513	759	15,272	83.526
Tadpole madtom	0	10	0	0	10	0.049	0	0	0	0	0	0.001	0	10	0	0	10	0.050
Trout-perch	0	0	3,075	0	3,075	22	0	0	64	0	64	0.454	0	0	3,139	0	3,139	22.274
White bass	0	0	29	0	29	0.225	0	0	1	0	1	0.005	0	0	30	0	30	0.229
White crappie	0	0	2,637	1,487	4,124	25.844	0	0	55	31	86	0.538	0	0	2,692	1,518	4,210	26.382
White perch	0	0	7,119	0	7,119	58.478	0	0	148	0	148	1.218	0	0	7,267	0	7,267	59.696
White sucker	0	0	462	0	462	265.027	0	0	10	0	10	5.520	0	0	471	0	471	270.548
Yellow perch	0	69	3,342	11	3,421	888	0	1	70	0	71	18.494	0	70	3,411	11	3,492	906.355
MAR 2006	**69**	**24,445**	**1,755,236**	**35,035**	**1,814,785**	**64,193**	**1**	**509**	**36,561**	**730**	**37,801**	**1,337.109**	**70**	**24,954**	**1,791,797**	**35,765**	**1,852,586**	**65,530.405**

Individual estimates may not add to totals due to rounding.

APPENDIX 21 (cont'd)
Estimated Monthly Impingement of Fish at Monroe Power Plant
Monroe County, Michigan (April 2005 – April 2006)

Species	MONPP Estimated Monthly Impingement Cooling Water						MONPP Estimated Monthly Impingement GSW						MONPP Estimated Monthly Impingement TOTAL					
	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)	Live-Healthy	Live-Stressed	Recently Dead	Long Dead	Total #	Weight (kg)
Black bullhead	0	0	16	0	16	0.107	0	0	0	0	0	0.002	0	0	17	0	17	0.109
Bluegill	0	0	5,634	0	5,634	16	0	0	88	0	88	0.258	0	0	5,723	0	5,723	16.703
Bowfin	0	0	195	0	195	547.814	0	0	3	0	3	8.603	0	0	198	0	198	556.417
Brown bullhead	0	0	0	44	44	12.389	0	0	0	1	1	0.195	0	0	0	44	44	12.583
Channel catfish	0	0	1,810	0	1,810	4	0	0	28	0	28	0.066	0	0	1,838	0	1,838	4.280
Common carp	0	0	195	0	195	56.401	0	0	3	0	3	0.886	0	0	198	0	198	57.287
Emerald shiner	0	0	30,932	8	30,941	128	0	0	486	0	486	2.014	0	0	31,418	8	31,427	130.259
Freshwater drum	0	0	5,186	0	5,186	1,695	0	0	81	0	81	26.614	0	0	5,267	0	5,267	1,721.281
Gizzard shad	0	0	1,537,276	5,481	1,542,757	42,616	0	0	24,142	86	24,229	669.277	0	0	1,561,418	5,567	1,566,986	43,285.673
Goldfish	0	0	3,128	0	3,128	502	0	0	49	0	49	7.887	0	0	3,177	0	3,177	510.083
Green sunfish	0	0	318	0	318	8	0	0	5	0	5	0.130	0	0	323	0	323	8.435
Logperch	0	0	8	8	16	0.115	0	0	0	0	0	0.002	0	0	8	8	17	0.117
Orangespotted sunfish	0	0	346	0	346	1	0	0	5	0	5	0.014	0	0	352	0	352	0.882
Pumpkinseed	0	0	3,708	0	3,708	304	0	0	58	0	58	4.780	0	0	3,767	0	3,767	309.161
Redhorse sucker	0	0	195	0	195	39.032	0	0	3	0	3	0.613	0	0	198	0	198	39.645
Rock bass	0	0	2,242	0	2,242	12.676	0	0	35	0	35	0.199	0	0	2,277	0	2,277	12.875
Round goby	0	151	6,556	586	7,293	420	0	2	103	9	115	6.592	0	154	6,659	595	7,408	426.368
Silver chub	0	0	0	143	143	8.721	0	0	0	2	2	0.137	0	0	0	145	145	8.858
Silver lamprey	0	390	1,037	0	1,427	103	0	6	16	0	22	1.619	0	396	1,053	0	1,450	104.682
Smallmouth bass	0	0	2,118	0	2,118	748.887	0	0	33	0	33	11.761	0	0	2,151	0	2,151	760.648
Spottail shiner	0	0	29,496	8	29,504	178	0	0	463	0	463	2.799	0	0	29,959	8	29,967	181.055
Stonecat	0	0	8	0	8	0.758	0	0	0	0	0	0.012	0	0	8	0	8	0.770
Tadpole madtom	0	143	0	0	143	1.287	0	2	0	0	2	0.020	0	145	0	0	145	1.307
Trout-perch	0	0	10,838	0	10,838	71	0	0	170	0	170	1.120	0	0	11,008	0	11,008	72.441
White bass	0	0	52	0	52	0.561	0	0	1	0	1	0.009	0	0	53	0	53	0.570
White perch	0	0	26,823	0	26,823	148	0	0	421	0	421	2.328	0	0	27,244	0	27,244	150.572
Yellow perch	0	2,118	4,004	0	6,122	377	0	33	63	0	96	5.928	0	2,151	4,067	0	6,218	383.394
APRIL 2006	**0**	**2,802**	**1,672,124**	**6,279**	**1,681,205**	**48002.590**	**0**	**44**	**26,260**	**99**	**26,403**	**753.866**	**0**	**2,846**	**1,698,384**	**6,377**	**1,707,607**	**48,756.456**
TOTAL	**107**	**610,265**	**24,392,492**	**153,928**	**25,156,793**	**786,294**	**2**	**10,397**	**433,465**	**2,694**	**446,559**	**14,325**	**109**	**620,662**	**24,825,958**	**156,622**	**25,603,352**	**800,619**

Individual estimates may not add to totals due to rounding.

APPENDIX 22
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Bluegill sunfish													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34				1			1	1					
35-44		1		5	3	2	29	6	3			1	
45-54	1			3	10	26	104	52	14	8	11	7	7
55-64		1		1	5	66	91	54	13	9	27	8	5
65-74	1		1		4	45	28	6	4	1	6	5	4
75-84	2			1		17	9	1	1	1	3	5	3
85-94				1		10	5	1	1	1	1	1	
95-104	1	1		2			1		1				
105-114	1	1				1					1		
115-124						2						1	
125-134	1									1			
135-144	1												
145-154			1								1		
155-164	1												
165-174												1	
175-184												1	
185-194													
195-204													
205-214													
215-224													
225-234		1											
235-244													
245-254													
Sample Size	**9**	**5**	**2**	**14**	**22**	**169**	**268**	**121**	**37**	**21**	**50**	**30**	**19**
Maximum	**161**	**229**	**154**	**99**	**73**	**120**	**95**	**89**	**95**	**125**	**149**	**178**	**80**
Minimum	**50**	**41**	**73**	**31**	**40**	**38**	**32**	**25**	**40**	**45**	**46**	**40**	**45**
Average	**103**	**108**	**114**	**57**	**53**	**65**	**56**	**54**	**57**	**61**	**63**	**72**	**60**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Channel catfish													
Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44													
45-54					1								
55-64	1	1			1	2	2						2
65-74		2		2	4	6	2						1
75-84	1	3	1		2	4	6	2					1
85-94					2	10	11	2					
95-104			1		3	2	11	1					
105-114						6	13	3					
115-124			1		1	3	8	3					1
125-134					1	7	15	2					
135-144		1	1		2	5	5						
145-154	1	1			1	2	4			1			
155-164		2				2		1					
165-174			1	1	1	2	1	1					1
175-184													
185-194				1	1		1						
195-204	1				1								
205-214		1		1									
215-224		2					1						
225-234	1	1		1									
235-244													
245-254			2										
255-264													
265-274													
275-284			1	1									
285-294				1									
295-304		2		1	2								
305-314													
315-324													
325-334					1								
335-344					1								
345-354													
355-364													
365-374													
375-384			1		1								
385-394		1			2								
395-404													
405-414													
415-424			1										
425-434													
435-444													
445-454													
455-464			1										
465-474			1										
475-484													
485-494										1			
495-504													
595-604								1					
725-734		1											
Sample Size	**5**	**18**	**12**	**9**	**28**	**51**	**80**	**16**	**0**	**2**	**0**	**0**	**6**
Maximum	**230**	**730**	**469**	**303**	**391**	**169**	**222**	**600**		**492**			**167**
Minimum	**63**	**64**	**77**	**65**	**48**	**60**	**51**	**77**		**150**			**60**
Average	**144**	**203**	**258**	**200**	**168**	**108**	**112**	**144**		**321**			**93**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Emerald shiner													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34				2							1		
35-44	1			1	2						1		
45-54		5	5		4		3	6	1				
55-64	5	14	56			17	18	22	17		3	1	1
65-74	3	27	105	11	3	4	9	45	31	7	21	2	12
75-84	13	175	113	8	8	13	11	39	25	17	45	9	16
85-94	22	271	143	1	5	7	15	50	38	40	87	44	27
95-104	10	32	16		1		1	16	11	29	48	28	15
105-114	10	6	2				2				1	1	1
115-124	6	6						1					
125-134	6	2											
135-144	4	1	1				1						
145-154													
155-164													
Sample Size	**80**	**539**	**441**	**23**	**23**	**41**	**60**	**179**	**123**	**93**	**207**	**85**	**72**
Maximum	**135**	**135**	**139**	**87**	**99**	**91**	**135**	**122**	**101**	**100**	**106**	**106**	**105**
Minimum	**42**	**51**	**45**	**25**	**42**	**57**	**50**	**48**	**52**	**66**	**25**	**64**	**59**
Average	**96**	**85**	**78**	**69**	**73**	**72**	**75**	**78**	**79**	**88**	**87**	**91**	**86**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Freshwater drum													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
25-34						1							
35-44				3									
45-54				23									
55-64				43		1							
65-74		1		19	5		4						
75-84				4	6	2	5						
85-94					7	14	6	3					
95-104				1	10	24	7	2					1
105-114		1			8	58	18						1
115-124					4	58	33	2					
125-134				1	3	38	69	5			1		
135-144						26	63	3					3
145-154			1	1		10	43	8			1		
155-164		1	1			3	7	1					2
165-174			1			2	5						
175-184		1		1	1	3							
185-194			2	2									
195-204			1	4	2	1	2						
205-214				4	3	2							
215-224			1	3	5	3							
225-234			4	3	8	3	1						
235-244		2	4	5	2	4	1	1					
245-254		1	9	3	2	3							
255-264		1	3	3	5	5	1						
265-274		1	5	2	6	7	1						
275-284		1	10	4	5	3	1						
285-294	2	1	12	3	5	4	1	1					1
295-304		6	12	5	5	5	1						2
305-314		4	11	1	3	1							
315-324		1	9	1	7	4							1
325-334		2	3	1	6	5		1					2
335-344		2	6	2	1	3	2						5
345-354	1	1	5	1	3	4							2
355-364	1	4	7	2	2	1							6
365-374	1	8	11	3	2	4	2						4
375-384	2	1	3	1	1	3	1					1	3
385-394		2	4	1	2	1							2

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Freshwater drum													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
395-404	1	4	6	1	3		1						3
405-414	1		5	2	1	1							4
415-424	2		3	2	1								3
425-434	1	3	1	1									
435-444		5	6			1							
445-454		2	7										
455-464		1	5										
465-474		4	1	1	1								
475-484		1	1	2									
485-494		4	3		1								
495-504		1	5	2	3				1				1
505-514		3	2		1								1
515-524		1	1	1	1								
525-534		1	2	1									
535-544		2	4									1	
545-554	1	2	1										
555-564		1	3		1								
565-574	1		2										
575-584			1		1								
585-594			1		1	1							
595-604		1											
605-614													
615-624													
625-634		1	1										
635-644			1	2									
654-654													
655-664													
665-674													
675-684													
685-694													
695-704													
705-715		1											
715-724													
725-734													
735-744					1								
Sample Size	**14**	**80**	**187**	**165**	**135**	**309**	**275**	**27**	**1**	**0**	**2**	**2**	**47**
Maximum	**570**	**705**	**644**	**639**	**744**	**585**	**403**	**330**	**501**		**150**	**540**	**505**
Minimum	**290**	**66**	**151**	**40**	**67**	**26**	**66**	**87**	**501**		**128**	**375**	**103**
Average	**401**	**392**	**360**	**169**	**249**	**160**	**140**	**147**	**501**		**139**	**458**	**337**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Gizzard shad													
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06
5-14								2	1				
15-24													
25-34						3							
35-44					1								
45-54				32	7	3	1						
55-64				88	33	22	10	2			1		
65-74				59	38	69	125	7	2				
75-84				12	42	128	185	27	21	1	1	1	
85-94				10	37	91	150	72	81	10	5		1
95-104				7	42	131	294	288	175	31	20	9	1
105-114				5	42	131	298	519	249	113	79	58	18
115-124				3	28	98	166	428	219	324	199	196	112
125-134		1		1	29	61	69	269	119	440	280	292	186
135-144	1				19	27	18	150	108	279	262	268	204
145-154		1			4	12	7	103	61	185	218	210	133
155-164	2				2	5	4	60	31	132	215	177	132
165-174	1					4	3	36	13	97	126	141	82
175-184	1				2	3	3	15	5	65	96	98	30
185-194	1	1			2	1	1	4	4	27	56	65	12
195-204		1						1	2	13	18	30	5
205-214		1								5	6	15	3
215-224								1		4	4	7	
225-234										4		3	
235-244												1	
245-254													
255-264													

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Gizzard shad													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
265-274	1												
275-284	2	1											
285-294	3	5	1								1		
295-304	7	5											
305-314	3	11	1	3									
315-324	5	5		1									1
325-334	1	5	2	1									
335-344	1	5	3	1						1	1	1	
345-354	3	3	5									1	
355-364	1	5	1		1				1				2
365-374	1	5	2	2		2					1		
375-384	1	10	1							1			
385-394	2	5		1		1			1	2			
395-404	1	5		1		2			2	1		1	1
405-414	4	7	1			1	1						1
415-424	2	4	2		1								
425-434		3	1	1									
435-444		4	1		1						1		
445-454													
455-464			1										
465-474		1		1							1		
475-484			1										
485-494													
495-504						1							
505-514													
Sample Size	**45**	**94**	**23**	**229**	**331**	**796**	**1335**	**1984**	**1095**	**1735**	**1591**	**1574**	**924**
Maximum	**420**	**465**	**477**	**474**	**436**	**499**	**413**	**220**	**400**	**395**	**473**	**395**	**407**
Minimum	**143**	**128**	**290**	**45**	**40**	**25**	**52**	**11**	**11**	**83**	**55**	**76**	**94**
Average	**315**	**351**	**372**	**82**	**100**	**103**	**100**	**119**	**118**	**138**	**145**	**147**	**145**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Goldfish													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
25-34									1				
35-44									6				
45-54									17				
55-64		1							14				
65-74					1				8		1		
75-84							3		5	2	2		
85-94							2	3		3	3	3	
95-104					1		1	2		6	3	3	2
105-114								1		8	7	2	1
115-124							1	3	1	2		3	2
125-134							1	1	1	3	1		
135-144									1				1
145-154											1		1
155-164										2			
165-174													
175-184													
185-194		1								1			
195-204		1											1
205-214	1	2											
215-224	1	4											
225-234	1	4											
235-244	2	1									1		
245-254		4										1	
255-264	3	2											
265-274	1	1											1
275-284		1											
285-294													
295-304													
305-314		1											
315-324													
325-334													
495-504		2											
Sample Size	**9**	**25**	**0**	**0**	**2**	**0**	**8**	**10**	**54**	**27**	**19**	**12**	**9**
Maximum	**270**	**503**			**98**		**125**	**125**	**139**	**187**	**237**	**247**	**265**
Minimum	**210**	**62**			**74**		**79**	**85**	**33**	**82**	**72**	**90**	**95**
Average	**242**	**251**			**86**		**95**	**104**	**89**	**112**	**109**	**118**	**143**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Largemouth bass													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
75-84					2								
85-94				1	2	1							
95-104					3						1		
105-114					2								
115-124					1	2							
125-134					1	1							
135-144													
145-154					1								
155-164										1			
165-174							1						
175-184							1	1					
185-194													
195-204								1					
205-214								1					
215-224													
225-234													
235-244													
245-254								1					
255-264								1					
265-274													
275-284													
285-294													
295-304													
305-314								1					
315-324													
325-334													
335-344				1			1						
345-354													
355-364				1									
365-374													
375-384											1		
385-394													
395-404													
405-414													
415-424													
425-434													
435-444													
445-454		1	1										
Sample Size	**0**	**1**	**1**	**3**	**12**	**4**	**3**	**6**	**0**	**1**	**2**	**0**	**0**
Maximum		**445**	**449**	**360**	**150**	**126**	**342**	**305**		**160**	**378**		
Minimum		**445**	**449**	**86**	**77**	**89**	**174**	**175**		**160**	**100**		
Average		**445**	**449**	**263**	**105**	**112**	**231**	**232**		**160**	**239**		

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Logperch													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24						1							
25-34													
35-44													
45-54													
55-64													
65-74						3	1						
75-84			1			3	14	1					
85-94						8	10	2					1
95-104	1					4	4						1
105-114						1	1						
115-124						1							
125-134													
Sample Size	**1**	**0**	**1**	**0**	**0**	**21**	**30**	**3**	**0**	**0**	**0**	**0**	**2**
Maximum	**96**		**75**			**123**	**113**	**92**					**97**
Minimum	**96**		**75**			**17**	**69**	**76**					**94**
Average	**96**		**75**			**87**	**86**	**86**					**96**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Longnose gar													
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06
195-204				1									
205-214				1									
215-224				1									
225-234													
235-244													
245-254													
255-264													
265-274													
275-284													
285-294													
295-304													
305-314													
315-324													
325-334													
335-344	1												
345-354	1					1							
355-364		1											
365-374		1											
375-384		2						1					
385-394	1	1							1				
395-404													
405-414	1	1				1							
415-424												1	
425-434		1											
435-444						1							
445-454													
455-464													
465-474													

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Longnose gar													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
475-484								1					
485-494								1					
495-504								1					
505-514													
515-524								1					
525-534													
535-544								2					
545-554													
555-564													
565-574								1					
575-584													
585-594													
595-604								1				1	
605-614		1						1				1	
615-624								1					
625-634													
635-644	1							1					
645-654													
655-664								2					
665-674												1	
675-684												1	
685-694	1												
695-704	1												
705-714													
715-724											1		
725-734													
735-744													
745-754												1	
Sample Size	**7**	**8**	**0**	**3**	**0**	**3**	**0**	**14**	**1**	**0**	**1**	**6**	**0**
Maximum	**700**	**610**		**217**		**444**		**660**	**392**		**720**	**750**	
Minimum	**335**	**363**		**204**		**354**		**382**	**392**		**720**	**418**	
Average	**502**	**415**		**210**		**403**		**555**	**392**		**720**	**621**	

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Pumpkinseed													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44							1						
45-54				2		1	3	2					1
55-64						3	48	1		1		2	
65-74						6	13	1	1				
75-84					1	2	1						
85-94						1							
95-104						1							
105-114		2											
115-124	2	1			1		2			1		1	1
125-134	1	1			3	1	2					2	5
135-144		1		2	2	2		1		1		1	2
145-154					1	1		1					4
155-164				1		1					1	2	3
165-174			1		1	2						1	
175-184												1	1
185-194													
Sample Size	**3**	**5**	**1**	**5**	**9**	**21**	**70**	**6**	**1**	**3**	**1**	**10**	**17**
Maximum	**132**	**140**	**171**	**157**	**169**	**168**	**128**	**150**	**71**	**135**	**158**	**182**	**175**
Minimum	**115**	**108**	**171**	**48**	**78**	**50**	**44**	**50**	**71**	**63**	**158**	**55**	**50**
Average	**123**	**122**	**171**	**107**	**130**	**97**	**65**	**87**	**71**	**71**	**158**	**131**	**137**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Rock bass													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44					1								
45-54							1						3
55-64		1				1	2			1	1		2
65-74				1		1	1					1	4
75-84		1						1					
85-94		1											
95-104		1				2							
105-114						2							
115-124			2										
125-134	1	4	1	2									1
135-144		2	1	1	1								
145-154		2					2					1	
155-164		5				1							
165-174		1											
175-184	1		1		1								
185-194		2	2	1	1						1		
195-204		1			2								
205-214	1	1			2								
215-224						3							
225-234				1		1							
235-244						2							
245-254			1		1								
255-264													
265-274													
Sample Size	**3**	**22**	**8**	**6**	**9**	**13**	**6**	**1**	**0**	**1**	**2**	**2**	**10**
Maximum	**208**	**205**	**245**	**229**	**246**	**239**	**151**	**75**		**63**	**192**	**154**	**133**
Minimum	**126**	**60**	**115**	**74**	**40**	**57**	**54**	**75**		**63**	**56**	**66**	**50**
Average	**171**	**145**	**163**	**164**	**179**	**157**	**91**	**75**		**63**	**124**	**110**	**67**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Round goby													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44	1												
45-54	2	1	1	2	1	1	1						
55-64	3	5	5	7	3	3	4	3	3				3
65-74	1	5	4	3	9	12	11	3	7	3	2	2	7
75-84	5	3	3	4	9	15	12	6	2	3			5
85-94	4	2	8	3	9	8	8	3	1	1	1	10	5
95-104	3	1	2	3	11	11	7	3	1	2		6	3
105-114		3	2		10	7	5	2	3	2		1	2
115-124	7	2		2	7	9	3	3	2			2	6
125-134	5	3		2	4	9	1	2		1		5	7
135-144	11	8	1	1	4	7	2	1	1			4	5
145-154	4	5	2		6	5	1	1		1		4	3
155-164	8	4	5	2	2	4	3					3	4
165-174	10	3	3	5	7	1				1		1	2
175-184	8	1	3	2	4			1	2			5	1
185-194	2	1	3	1	3		1	3				1	1
195-204	1	1	2	1	1								1
205-214	2		1	1									
215-224		1											
225-234													
235-244					1								
245-254													
255-264													
265-274													
275-284					1								
285-294													
295-304													
305-314				1									
315-324													
Sample Size	**77**	**49**	**45**	**40**	**92**	**92**	**59**	**31**	**22**	**14**	**3**	**44**	**55**
Maximum	**210**	**215**	**205**	**314**	**278**	**167**	**192**	**194**	**183**	**165**	**90**	**191**	**196**
Minimum	**42**	**54**	**52**	**48**	**54**	**54**	**50**	**57**	**56**	**65**	**70**	**71**	**60**
Average	**135**	**121**	**120**	**117**	**118**	**104**	**94**	**107**	**95**	**98**	**77**	**124**	**115**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Smallmouth bass													
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06
5-14													
15-24													
25-34													
35-44													
45-54				1									
55-64			1	1	1		1	1					
65-74				5	2		4		1				
75-84					5	4	12	3					
85-94		1			6	10	13	1					
95-104		1			6	13	10	1					1
105-114					10	13	9		2				1
115-124					4	18	10						
125-134			1		2	13	5						
135-144						9	3						
145-154						2	6	1					
155-164							3	2					
165-174						2	1						
175-184						1							1
185-194										2			
195-204													1
205-214													
215-224												1	
225-234													
235-244													
245-254										1		1	
255-264													
265-274													

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Smallmouth bass													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
275-284													
285-294													
295-304													
305-314													
315-324													
325-334													
335-344													1
345-354													
355-364						2							
365-374									1				1
375-384													
385-394		1											
395-404													
405-414				1									
415-424												1	
425-434													1
435-444					1								
445-454													1
455-464			1										
465-474	1												
475-484													
485-494													
495-504													
505-514													
Sample Size	**1**	**3**	**3**	**8**	**37**	**87**	**77**	**9**	**4**	**3**	**0**	**3**	**8**
Maximum	**470**	**385**	**461**	**406**	**435**	**355**	**168**	**160**	**372**	**253**		**415**	**446**
Minimum	**470**	**88**	**60**	**50**	**61**	**79**	**57**	**63**	**72**	**190**		**219**	**96**
Average	**470**	**190**	**217**	**109**	**108**	**121**	**107**	**106**	**164**	**212**		**295**	**270**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Spottail shiner													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44					1								
45-54					2								
55-64	1	1			3	3	2						
65-74	1	26	1		14	46	14	1		1		1	1
75-84	11	32	4		8	184	75	20	8	11	3	12	24
85-94	14	20	9	4	2	102	121	33	13	15	11	19	53
95-104	4	10	1	2	2	15	13	12	5	4	5	8	20
105-114	11	8	1		3	7	9	6				1	2
115-124	2	2	2			6	5	2					
125-134	1	3	2	1									
135-144													
145-154													
155-164													
165-174													
175-184													
185-194	1												
195-204													
Sample Size	**46**	**102**	**20**	**7**	**35**	**363**	**239**	**74**	**26**	**31**	**19**	**41**	**100**
Maximum	**190**	**130**	**134**	**125**	**111**	**121**	**118**	**119**	**100**	**99**	**98**	**110**	**109**
Minimum	**63**	**58**	**72**	**88**	**42**	**60**	**60**	**65**	**75**	**72**	**75**	**71**	**70**
Average	**96**	**85**	**94**	**97**	**75**	**83**	**87**	**91**	**88**	**87**	**90**	**88**	**89**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Trout-perch													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44													
45-54						1							
55-64		6				45	22						
65-74	13	99	1			119	198	6	1	1		2	6
75-84	100	330	14	1	2	54	111	3	3	4	7	9	8
85-94	64	119	16	2	1	20	4	1	2	2	1	11	9
95-104	28	34	6	1		4	11			1		3	2
105-114	41	32	3			1	1		1	2		2	9
115-124	29	15	3							3		2	1
125-134	9	5											
135-144	2				1								
145-154													
155-164													
165-174													
175-184													
185-194													
195-204													
205-214													
215-224		1											
Sample Size	**286**	**641**	**43**	**4**	**4**	**244**	**347**	**10**	**7**	**13**	**8**	**29**	**35**
Maximum	**135**	**224**	**118**	**100**	**135**	**110**	**105**	**87**	**110**	**123**	**89**	**120**	**116**
Minimum	**66**	**59**	**71**	**83**	**78**	**52**	**55**	**66**	**74**	**71**	**76**	**71**	**65**
Average	**93**	**84**	**90**	**90**	**97**	**72**	**73**	**74**	**85**	**95**	**81**	**90**	**90**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Walleye													
Length Range (TL, mm)	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sept-05	Oct-05	Nov-05	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06
45-54													
55-64				1	1								
65-74			1			1							
75-84						1							
85-94		1											
95-104				2									
105-114				5									
115-124				1	1								
125-134				3	3								
135-144					1	1							
145-154		1			4	1							
155-164					1								
165-174			1			1							
175-184		1				2		1					
185-194		1											
195-204					1								
205-214						1							
215-224			1			1							
225-234						1							
235-244													
245-254													
255-264													
265-274													
275-284			3										
285-294			3										
295-304		1	4	1									
305-314			8		1								
315-324			7										
325-334			1			1							
335-344			2										
345-354			2			1							
355-364			1	1		1							
365-374			4										
375-384			1			2	2						
385-394						2							
395-404						1		1					
405-414													

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Walleye													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
415-424													
425-434		1											
435-444						1							
445-454					1								
455-464													
465-474	1												
475-484													
485-494		1											
495-504						2							
505-514		1			1	1							
515-524													
525-534			1				1	1					
535-544													
545-554		1											
555-564					1	1	1						
565-574					1	1							
575-584		1			1		1						
585-594													
655-664													
665-674		1			1								
675-684													
685-694	1												
Sample Size	**2**	**11**	**40**	**14**	**19**	**24**	**5**	**3**	**0**	**0**	**0**	**0**	**0**
Maximum	**685**	**665**	**531**	**361**	**666**	**570**	**582**	**529**					
Minimum	**470**	**89**	**71**	**56**	**62**	**73**	**380**	**180**					
Average	**578**	**374**	**313**	**141**	**280**	**320**	**487**	**369**					

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

White bass													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
35-44				4	1								
45-54				47	13		1						
55-64				112	149	2							
65-74	2			48	146	23							
75-84	1	1		13	87	76	7						
85-94	1			10	47	156	25	1				1	
95-104	1			1	24	114	36	1					
105-114				1	13	47	21	1	1			1	
115-124					10	24	14	3		1			2
125-134					2	15	7	1					
135-144					2	17	4	1		1			
145-154		1			1	8	2	3					
155-164		7				3	5						
165-174		4				4		3					
175-184	1	2			1	1		1					
185-194	1	1				2	1						
195-204		2											
205-214			1										
215-224		1		1									
225-234		1											
235-244		2	1										
245-254	1	3	4										
255-264		1	3		1								
265-274		2	1	3	1								
275-284		1	1	2		1							
285-294		1			1								
295-304		7	1		2		1						
305-314		3	1	1					1				
315-324		4	2				1						
325-334		3	1										
335-344		2	1	1						1			
345-354		2	1	1									
355-364		2	1	1	1								
365-374		1											
375-384		1	1										
385-394			1										
395-404		1											
405-414													
Sample Size	**8**	**56**	**21**	**246**	**502**	**493**	**125**	**15**	**2**	**3**	**0**	**2**	**2**
Maximum	**250**	**397**	**387**	**355**	**361**	**281**	**315**	**183**	**306**	**340**		**110**	**117**
Minimum	**74**	**82**	**212**	**36**	**44**	**58**	**49**	**87**	**114**	**115**		**88**	**115**
Average	**128**	**259**	**293**	**71**	**76**	**98**	**110**	**138**	**210**	**197**		**99**	**116**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

White perch													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
5-14													
15-24													
25-34													
35-44				1		1							
45-54		1		32	26								
55-64	7	8		125	440	85	15	3	1		2	1	
65-74	18	15		51	447	570	234	38	13	6	6	5	18
75-84	14	9	1	13	170	640	674	111	29	18	16	26	25
85-94	4	3	1	2	24	165	319	51	15	16	14	20	17
95-104		4		1	6	31	57	12	3	7	3	14	8
105-114		2				10	10	4	1	4		7	1
115-124		3	2			2	4	1		1			
125-134	1	4	2		1	1	2				1	1	
135-144	2	7	5	2	1	1						1	
145-154		29	9	4	1								
155-164		34	9	6	1	2							
165-174		36	5	23	2	6							
175-184		24	3	8	2	7	3						
185-194	2	47	11	3	4	10							1
195-204	3	74	14	2	2	2	3						
205-214		79	5		3	1	1						
215-224	2	58	3	1		1							1
225-234	2	30	1				1						
235-244	3	12	4	1	1								
245-254	1	1	1										
255-264													
265-274		2	1		1								
275-284			1										
285-294		1											
295-304		1											
305-314													
Sample Size	**59**	**484**	**78**	**275**	**1132**	**1535**	**1323**	**220**	**62**	**52**	**42**	**75**	**71**
Maximum	**250**	**299**	**280**	**238**	**270**	**216**	**225**	**121**	**110**	**116**	**127**	**144**	**215**
Minimum	**55**	**54**	**79**	**44**	**45**	**37**	**55**	**63**	**64**	**70**	**60**	**63**	**65**
Average	**108**	**184**	**180**	**81**	**69**	**78**	**82**	**81**	**81**	**88**	**83**	**89**	**85**

APPENDIX 22 (cont'd)
Length Distribution of Fish Impinged at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Yellow perch													
Length Range (TL, mm)	**Apr-05**	**May-05**	**Jun-05**	**Jul-05**	**Aug-05**	**Sept-05**	**Oct-05**	**Nov-05**	**Dec-05**	**Jan-06**	**Feb-06**	**Mar-06**	**Apr-06**
45-54													
55-64		1											
65-74		4		1		4		1					
75-84	1	1			1	1	2	2					5
85-94	1	2					3		1				
95-104	1	9				5	2	2				1	
105-114	1	12				1		1					2
115-124	2	11	5			1	2						
125-134	6	15	1	2						1	1		
135-144	5	26	1		1	1							
145-154		34	3		1							1	
155-164	6	41	12	1	1	1	1						
165-174	3	29	4	2	2			1					
175-184	2	27	5	1		1		1					4
185-194		12	1	2	2	2							3
195-204	3	9	4		1	1		1		1			2
205-214	1	1	3		4	2			1			1	
215-224	2	3			1		1	2				1	2
225-234	1	2	1	1	1					1		1	2
235-244	1		1		1			3	1		1		
245-254					1	1		1			1		
255-264		1	1			1							
265-274	1							1		1		2	1
275-284						1		2		1		1	
285-294						1							
295-304			1										
305-314													
315-324			1									1	2
325-334													1
335-344													
Sample Size	**37**	**240**	**44**	**10**	**17**	**24**	**11**	**18**	**3**	**5**	**3**	**9**	**24**
Maximum	**266**	**257**	**316**	**225**	**248**	**285**	**219**	**281**	**244**	**275**	**247**	**320**	**330**
Minimum	**83**	**55**	**115**	**68**	**83**	**71**	**79**	**74**	**88**	**125**	**130**	**98**	**78**
Average	**159**	**153**	**176**	**162**	**187**	**151**	**112**	**185**	**181**	**218**	**204**	**227**	**185**

APPENDIX 23
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
1	4-May-05	MN-3-D	Yellow perch	Yellow perch	1	
2	18-May-05	MN-6-N-A	Shiner	Shiner	1	
3	25-May-05	MN-8-N-A	UNK Minnow	UNK Minnow	1	
4	1-Jun-05	MN-7-N-A	Round goby	Round goby	1	
			UNK Minnow	Emerald shiner		1
5	1-Jun-05	MN-7-N-B	Yellow perch	Yellow perch	1	
			Yellow perch	Yellow perch	1	
			Yellow perch	Yellow perch	1	
			Morone spp.	Yellow perch		1
			Yellow perch	Yellow perch	1	
			Yellow perch	Yellow perch	1	
			Morone spp.	Yellow perch		1
			Morone spp.	Yellow perch		1
6	10-Jun-05	MN-3-N-B	Morone spp.	Morone spp.	1	
			ShadAlewife	ShadAlewife	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Shad/Alewife/Smelt	Shad/Alewife/Smelt	1	

APPENDIX 23 (cont'd)
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
7	16-Jun-05	MN-6-D-B	Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Morone spp.	Morone spp.	1	
			Alewife	Alewife	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Alewife	Alewife	1	
			Shad/Alewife/Smelt	Shad/Alewife/Smelt	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Freshwater drum	Freshwater drum	1	
			Shad/Alewife/Smelt	Shad/Alewife/Smelt	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Morone spp.	Morone spp.	1	
8	16-Jun-05	MN-6-D-C	Morone spp.	Morone spp.	1	

APPENDIX 23 (cont'd)
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
9	22-Jun-05	MN-3-D-B	Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Alewife	Alewife	1	

APPENDIX 23 (cont'd)
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
10	22-Jun-05	MN-5-D-B	Morrone spp.	Morrone spp.	1	
			Morone spp.	Morone spp.	1	
			Trout perch	Trout perch	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morrone spp.	Morrone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Freshwater drum	Freshwater drum	1	
			Morone spp.	Morone spp.	1	

Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
10	22-Jun-05	MN-5-D-B	UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Round goby	Round goby	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	

APPENDIX 23 (cont'd)
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
11	1-Jul-05	MN-1-N-B	Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Freshwater drum	Freshwater drum	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Freshwater drum	Freshwater drum	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			UNK Minnow	UNK Minnow	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			UNK Minnow	UNK Minnow	1	

APPENDIX 23 (cont'd)
Quality Assessment of Larval Fish Identification
Monroe Power Plant

Sample #	Date	Sample ID	Technician # 1 (BGSU)	Technician # 2 (Kinectrics)	# Correct	# Incorrect
12	5-Jul-05	MN-5-D-B	Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Emerald shiner	Emerald shiner	1	
			Gizzard shad	Gizzard shad	1	
			Emerald shiner	Emerald shiner	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Morone spp.	Morone spp.	1	
			Emerald shiner	Emerald shiner	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Morone spp.	Morone spp.	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
			Emerald shiner	Emerald shiner	1	
			Gizzard shad	Gizzard shad	1	
			Gizzard shad	Gizzard shad	1	
13	15-Jul-05	MN-8-D-B	Emerald shiner	Emerald shiner	1	
			Emerald shiner	Emerald shiner	1	
			Emerald shiner	Emerald shiner	1	
14	20-Jul-05	MN-3-N-B	Emerald shiner	Emerald shiner	1	
15	27-Jul-05	MN-5-N-B	Round goby	Round goby	1	
			Round goby	Round goby	1	
			Emerald shiner	Emerald shiner	1	
			Round goby	Round goby	1	
			Round goby	Round goby	1	
			Round goby	Round goby	1	
			Emerald shiner	Emerald shiner	1	
			Round goby	Round goby	1	
			Emerald shiner	Emerald shiner	1	
			Round goby	Round goby	1	
			Round goby	Round goby	1	
			Emerald shiner	Emerald shiner	1	
			Round goby	Round goby	1	
16	4-Aug-05	MN-6-D-B	Emerald shiner	Emerald shiner	1	
			Emerald shiner	Emerald shiner	1	
17	11-Aug-05	MN-3-D-B	Round goby	Round goby	1	
18	17-Aug-05	MN-4-N-B	Round goby	Round goby	1	
19	26-Aug-05	MN-1-D-B	Round goby	Round goby	1	
20	30-Aug-05	MN-8-N-A	Round goby	Round goby	1	
			Round goby	Round goby	1	
			Round goby	Round goby	1	
21	30-Aug-05	MN-8-N-B	Round goby	Round goby	1	
			Round goby	Round goby	1	
22	9-Sep-05	MN-5-N-B	Round goby	Round goby	1	
23	13-Sep-05	MN-8-D-B	Emerald shiner	Emerald shiner	1	
24	8-Dec-05	MN-2-D-A	Rainbow smelt	Rainbow smelt	1	
				TOTAL	**311**	**4**

Error Rate: **1.3%**

APPENDIX 24
QA/QC for Fish Impingement Subsampling
Monroe Power Plant

Subsampling Variability Test #1 - MONPP SH1 February 27, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	664	96.1%	808	97.9%	692	94.0%
White perch	12	1.7%	6	0.7%	19	2.6%
Bluegill	6	0.9%	4	0.5%	14	1.9%
Pumpkinseed	1	0.1%	1	0.1%	0	0.0%
Goldfish	2	0.3%	0	0.0%	2	0.3%
Trout perch	1	0.1%	0	0.0%	0	0.0%
Emerald shiner	5	0.7%	4	0.5%	3	0.4%
Spottail shiner	0	0.0%	2	0.2%	3	0.4%
Yellow perch	0	0.0%	0	0.0%	1	0.1%
Round goby	0	0.0%	0	0.0%	1	0.1%
Smallmouth bass	0	0.0%	0	0.0%	1	0.1%
Total	691		825		736	

Subsampling Variability Test #2 - MONPP SH2 February 27, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	651	98.3%	689	98.0%	720	97.3%
Bluegill	3	0.5%	4	0.6%	4	0.5%
Emerald shiner	2	0.3%	5	0.7%	10	1.4%
Spottail shiner	1	0.2%		0.0%		0.0%
White perch	2	0.3%	2	0.3%	4	0.5%
Trout perch	3	0.5%		0.0%		0.0%
Goldfish		0.0%	3	0.4%	1	0.1%
Round goby		0.0%		0.0%	1	0.1%
Total	662		703		740	

APPENDIX 24 (cont'd)
QA/QC for Fish Impingement Subsampling
Monroe Power Plant

Subsampling Variability Test #3 - MONPP SH1 February 28, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	464	89.2%	380	96.7%	328	91.9%
White perch	15	2.9%	8	2.0%	9	2.5%
Bluegill	16	3.1%	3	0.8%	6	1.7%
Emerald shiner	7	1.3%		0.0%	5	1.4%
Spottail shiner	6	1.2%		0.0%	2	0.6%
Trout perch	3	0.6%		0.0%		0.0%
Common carp	3	0.6%		0.0%		0.0%
Round goby	2	0.4%	2	0.5%	1	0.3%
Yellow perch	1	0.2%		0.0%		0.0%
Goldfish	1	0.2%		0.0%	4	1.1%
Bluntnose minnow	1	0.2%		0.0%		0.0%
Rock bass	1	0.2%		0.0%		0.0%
Freshwater drum		0.0%		0.0%	1	0.3%
Green sunfish		0.0%		0.0%	1	0.3%
Total	520		393		357	

Subsampling Variability Test #4 - MONPP SH2 February 28, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	507	95.5%	542	96.3%	473	96.7%
Bluegill	9	1.7%	8	1.4%	2	0.4%
White perch	8	1.5%	7	1.2%	1	0.2%
Freshwater drum	2	0.4%		0.0%		0.0%
Goldfish	2	0.4%	2	0.4%	1	0.2%
Common carp	1	0.2%		0.0%	1	0.2%
Emerald shiner	1	0.2%	3	0.5%	5	1.0%
Longnose gar	1	0.2%		0.0%		0.0%
Spottail shiner		0.0%	1	0.2%	1	0.2%
Round goby		0.0%		0.0%	2	0.4%
Trout perch		0.0%		0.0%	1	0.2%
Rock bass		0.0%		0.0%	1	0.2%
Golden redhorse		0.0%		0.0%	1	0.2%
Total	531		563		489	

APPENDIX 24 (cont'd)
QA/QC for Fish Impingement Subsampling
Monroe Power Plant

Subsampling Variability Test #5 - MONPP SH1 March 15, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**
Gizzard shad	331	89.2%	316	82.9%	317	80.1%
Bluegill	9	2.4%	17	4.5%	9	2.3%
White perch	9	2.4%	8	2.1%	12	3.0%
Goldfish	1	0.3%	1	0.3%	4	1.0%
Emerald shiner	12	3.2%	24	6.3%	42	10.6%
Spottail shiner	3	0.8%	6	1.6%	4	1.0%
Round goby	1	0.3%	1	0.3%	0	0.0%
Trout perch	4	1.1%	1	0.3%	3	0.8%
Rock bass	1	0.3%	2	0.5%	3	0.8%
Channel catfish	0	0.0%	1	0.3%	1	0.3%
Smallmouth bass	0	0.0%	0	0.0%	1	0.3%
White Bass	0	0.0%	1	0.3%	0	0.0%
Yellow perch	0	0.0%	2	0.5%	0	0.0%
Pumpkinseed	0	0.0%	1	0.3%	0	0.0%
Total	371		381		396	

Subsampling Variability Test #6 - MONPP SH2 March 15, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	**Number**	**% of Total**	**Number**	**% of Total**	**Number**	**% of Total**
Gizzard shad	438	95.6%	438	96.5%	445	97.6%
Emerald shiner	10	2.2%	12	2.6%	6	1.3%
Goldfish	0	0.0%	1	0.2%	2	0.4%
Spottail shiner	9	2.0%	3	0.7%	2	0.4%
Round goby	0	0.0%	0	0.0%	1	0.2%
Bluegill	1	0.2%	0	0.0%	0	0.0%
Total	458		454		456	

APPENDIX 24 (cont'd)
QA/QC for Fish Impingement Subsampling
Monroe Power Plant

Subsampling Variability Test #7 - MONPP SH1 March 16, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	416	90.0%	410	88.6%	382	91.8%
Emerald shiner	26	5.6%	31	6.7%	19	4.6%
Spottail shiner	5	1.1%	3	0.6%	2	0.5%
Bluegill	10	2.2%	6	1.3%	8	1.9%
Channel catfish	1	0.2%	0	0.0%	0	0.0%
White perch	3	0.6%	1	0.2%	0	0.0%
Round goby	1	0.2%	3	0.6%	0	0.0%
Goldfish	0	0.0%	1	0.2%	2	0.5%
Trout perch	0	0.0%	1	0.2%	3	0.7%
Pumpkinseed	0	0.0%	2	0.4%	0	0.0%
Yellow perch	0	0.0%	2	0.4%	0	0.0%
Northern pike	0	0.0%	1	0.2%	0	0.0%
Brown bullhead	0	0.0%	2	0.4%	0	0.0%
Total	462		463		416	

Subsampling Variability Test #8 - MONPP SH2 March 16, 2006

	Bucket 1		Bucket 2		Bucket 3	
Species	Number	% of Total	Number	% of Total	Number	% of Total
Gizzard shad	351	93.6%	423	92.6%	436	95.8%
Bowfin	1	0.3%	0	0.0%	0	0.0%
Emerald shiner	12	3.2%	24	5.3%	10	2.2%
Longnose gar	1	0.3%	1	0.2%	0	0.0%
Goldfish	2	0.5%	1	0.2%	0	0.0%
Bluegill	1	0.3%	0	0.0%	2	0.4%
White perch	1	0.3%	0	0.0%	0	0.0%
Spottail shiner	5	1.3%	8	1.8%	5	1.1%
Muskellunge	1	0.3%	0	0.0%	0	0.0%
Common carp	0	0.0%	0	0.0%	1	0.2%
Yellow perch	0	0.0%	0	0.0%	1	0.2%
Total	375		457		455	

APPENDIX 25
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
19-Apr-05	Beginning	572.5	15.0	24.0	490	7.1	0.7	8.0	No	0%	calm	calm
19-Apr-05	End	572.5	16.0	22.0	n/a	n/a	7.1	8.5	No	100%	calm	calm
20-Apr-05	Beginning	572.5	16.0	22.0	n/a	n/a	7.1	8.5	No	90%	calm	calm
20-Apr-05	End	573.9	15.0	14.0	271	12.4	1.0	6.9	No	0%	3	SW
26-Apr-05	Beginning	573.0	10.1	9.0	401	11.2	0.8	6.7	Yes	100%	3	SW
26-Apr-05	End	573.5	9.9	10.0	397	10.8	0.8	6.9	No	100%	5	SW
27-Apr-05	Beginning	573.5	9.9	10.0	397	10.8	0.8	6.9	No	100%	5	SW
27-Apr-05	Mid	573.5	9.9	9.0	384	4.0	0.8	8.2	No	100%	10	SW
27-Apr-05	End	573.5	9.0	8.0	n/a	9.9	0.8	8.6	No	75%	calm	calm
APRIL 2005	Minimum	572.5	9.0	8.0	271	4.0	0.7	6.7				
	Maximum	573.9	16.0	24.0	490	12.4	7.1	8.6				
	Average	573.2	12.3	14.2	390	9.5	2.2	7.7				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
3-May-05	Beginning	573.0	9.3	6.0	279	7.4	0.8	7.6	No	100%	calm	calm
3-May-05	Mid	574.0	9.5	8.9	229	8.9	0.7	8.3	No	100%	calm	calm
3-May-05	End	574.0	9.8	13.0	281	7.4	0.8	8.4	No	0%	calm	NE
4-May-05	Beginning	574.0	9.8	13.0	281	7.4	0.8	8.4	No	0%	calm	NE
4-May-05	Mid	575.0	11.3	14.2	285	7.5	0.9	8.4	No	0%	calm	calm
4-May-05	End	574.0	11.7	10.5	332	7.1	0.9	8.4	No	70%	calm	calm
10-May-05	Beginning	573.5	16.2	18.0	481	11.6	1.1	8.3	No	100%	2	NW
10-May-05	Mid	573.0	18.8	29.0	516	11.7	1.0	8.4	No	30%	calm	calm
10-May-05	End	573.0	16.2	23.0	335	11.8	1.3	8.3	No	70%	calm	calm
11-May-05	Beginning	573.0	16.2	23.0	335	11.8	1.3	8.3	No	70%	calm	calm
11-May-05	Mid	572.5	16.5	14.0	295	12.3	1.8	8.4	Yes	90%	calm	calm
11-May-05	End	573.5	14.5	14.0	360	13.0	0.8	8.3	No	50%	10 - 15	NW
18-May-05	Beginning	573.5	15.1	16.0	474	9.9	0.8	8.3	No	90%	5 - 10	NW
18-May-05	Mid	572.5	15.2	14.0	213	11.4	0.8	8.5	No	70%	10	NE
18-May-05	End	573.5	14.6	14.0	154	11.3	0.5	8.4	Yes	100%	5 - 10	NE
19-May-05	Beginning	573.5	14.6	14.0	154	11.3	0.5	8.4	Yes	100%	5 - 10	NE
19-May-05	Mid	573.5	14.2	12.0	149	10.4	0.5	8.2	Yes	100%	15	NE
19-May-05	End	573.5	15.6	18.0	275	11.7	0.3	8.1		5%	5 - 10	NE
25-May-05	Beginning	573.0	15.8	11.0	261	10.7	0.5	7.7	No	0%	5	NE
25-May-05	Mid	573.5	14.7	12.0	384	9.3	0.3	8.2	No	0%	5	NE
25-May-05	End	573.0	16.5	22.0	379	10.6	0.5	8.0	No	0%	5	E
26-May-05	Beginning	573.0	16.5	22.0	379	10.6	0.5	8.0	No	0%	5	E
26-May-05	Mid	573.0	15.8	14.0	318	8.6	0.8	8.1	No	0%	5	NW
26-May-05	End	573.0	18.6	22.0	494	12.3	1.3	8.1	No	95%	calm	calm
31-May-05	Beginning	573.0	16.7	14.0	387	7.2	0.8	8.3	Yes	85%	<5	NE
31-May-05	Mid	573.0	18.4	22.0	364	9.5	0.3	8.2	No	0%	5 - 10	NE
31-May-05	End	573.5	19.4	19.0	408	9.1	2.0	8.3	No	0%	5	NE
MAY 2005	Minimum	572.5	9.3	6.0	149	7.1	0.3	7.6				
	Maximum	575.0	19.4	29.0	516	13.0	2.0	8.5				
	Average	573.4	14.9	16.0	326	10.1	0.8	8.2				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
1-Jun-05	Beginning	573.5	19.4	19.0	408	9.1	2.0	8.3	No	0%	5	NE
1-Jun-05	Mid	573.5	19.5	23.0	301	9.4	0.8	8.5	No	20%	5 - 10	NE
1-Jun-05	End	574.0	19.2	17.0	323	9.1	1.3	8.1	No	20%	5 - 10	NE
9-Jun-05	Beginning	573.0	24.3	24.0	409	7.6	1.0	7.9	No	50%	5 - 10	N
9-Jun-05	Mid	573.8	27.2	31.7	375	7.3	1.0	8.1	No	20%	10	SE
9-Jun-05	End	573.5	24.4	23.0	329	7.6	0.7	8.3	Yes	100%	5 - 10	SW
10-Jun-05	Beginning	573.5	24.4	23.0	329	7.6	0.7	8.3	Yes	100%	5 - 10	SW
10-Jun-05	Mid	573.2	27.3	32.4	366	7.6	1.0	8.0	No	10%	5 - 10	SW
10-Jun-05	End	573.0	25.8	27.0	341	8.3	0.8	8.2	No	50%	5 - 10	SW
15-Jun-05	Beginning	573.0	24.1	25.2	321	8.3	0.5	8.1	No	40%	10	SW
15-Jun-05	Mid	572.5	24.9	22.0	366	7.6	0.6	7.9	No	95%	20	W
15-Jun-05	End	572.0	24.2	18.0	366	8.9	1.0	7.9	No	100%	5	NW
16-Jun-05	Beginning	572.0	24.2	18.0	366	8.9	1.0	7.9	No	100%	5	NW
16-Jun-05	Mid	573.0	22.4	n/a	383	8.7	0.6	7.4	No	10%	10	W
16-Jun-05	End	573.0	23.2	22.0	377	9.1	1.3	7.8	No	70%	15	W
21-Jun-05	Beginning	572.5	21.3	18.0	368	10.8	0.6	7.3	No	2%	2	E
21-Jun-05	Mid	573.0	23.3	26.0	322	9.4	1.0	8.4	No	50%	10 - 15	NW
21-Jun-05	End	573.0	23.7	26.0	325	10.5	1.0	8.6	No	90%	5	W
22-Jun-05	Beginning	573.0	23.7	26.0	325	10.5	1.0	8.6	No	90%	5	W
22-Jun-05	Mid	573.0	22.0	22.0	316	8.2	0.9	7.9	No	0%	5 - 10	W
22-Jun-05	End	573.0	22.7	23.0	419	10.0	0.6	7.3	No	0%	5 - 10	NE
30-Jun-05	Beginning	573.0	25.5	23.5	288	3.1	1.7	7.5	No	50%	5 - 10	NE
30-Jun-05	Mid	573.0	26.0	21.5	295	5.7	1.5	6.7	No	20%	5 - 10	W
30-Jun-05	End	573.0	26.1	25.0	268	8.6	1.3	6.5	No	90%	5 - 10	W
JUNE 2005	Minimum	572.0	19.2	17.0	268	3.1	0.5	6.5				
	Maximum	574.0	27.3	32.4	419	10.8	2.0	8.6				
	Average	573.0	23.7	23.3	345	8.4	1.0	7.9				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
1-Jul-05	Beginning	573.0	26.1	25.0	268	8.6	1.3	6.5	No	90%	5 - 10	W
1-Jul-05	Mid	572.5	25.1	20.5	382	4.4	0.6	7.3	No	100%	10 - 15	NW
1-Jul-05	End	572.5	25.7	20.0	312	8.4	1.5	6.6	No	40%	5 - 10	NW
5-Jul-05	Mid	573.0	25.6	21.0	388	5.2	1.3	7.8	yes	100%	calm	NW
5-Jul-05	End	573.0	26.0	25.0	316	9.3	1.0	7.3	no	5%	3-5	N
6-Jul-05	Beginning	573.0	26.0	25.0	316	9.3	1.0	7.3	no	5%	3-5	N
6-Jul-05	Mid	573.0	24.5	20.0	316	8.8	0.8	7.8	no	100%	3-5	NW
6-Jul-05	End	573.0	25.1	23.0	311	7.2	0.8	7.4	no	80%	5	N
14-Jul-05	Beginning	572.5	26.7	25.0	290	4.6	0.8	7.7	no	5%	5	SW
14-Jul-05	Mid	573.0	26.9	24.0	284	3.8	1.0	6.8	no	50%	2	NW
14-Jul-05	End	572.0	28.1	26.0	383	8.5	0.9	8.2	no	10%	0-5	N
15-Jul-05	Beginning	572.0	28.1	26.0	383	8.5	0.9	8.2	no	10%	0-5	N
15-Jul-05	Mid	572.5	26.2	21.0	286	5.7	0.8	7.5	no	30%	3	NW
15-Jul-05	End	573.0	27.8	28.0	285	7.5	1.0	7.4	no	50%	10	SW
19-Jul-05	Beginning	572.5	27.0	25.0	279	5.2	0.8	7.7	no	100%	10	NW
19-Jul-05	Mid	572.5	27.5	26.0	277	4.7	1.3	8.0	no	0%	5	W
19-Jul-05	End	573.0	28.4	28.0	290	5.4	1.3	8.3	no	20%	5	W
20-Jul-05	Beginning	573.0	28.4	28.0	290	5.4	1.3	8.3	no	20%	5	W
20-Jul-05	Mid	573.0	26.9	26.0	301	5.3	1.3	8.4	no	0%	calm	calm
20-Jul-05	End	573.5	28.3	28.0	272	6.3	0.8	7.2	yes	85%	10-15	NW
26-Jul-05	Beginning	572.5	27.2	26.0	430	4.2	0.5	7.7	no	15%	5	SW
26-Jul-05	Mid	573.0	28.8	26.0	372	5.8	0.8	8.4	no	90%	15-20	NW
26-Jul-05	End	573.0	29.7	27.0	371	8.2	0.8	8.5	no	80%	3-5	N
27-Jul-05	Beginning	573.0	29.7	27.0	371	8.2	0.8	8.5	no	80%	3-5	N
27-Jul-05	Mid	573.0	26.6	25.0	293	5.2	0.6	8.3	yes	100%	3-5	W
27-Jul-05	End	573.0	27.5	27.0	341	5.7	0.7	8.4	no	20%	0-3	NW
JULY 2005	Minimum	572.0	24.5	20.0	268	3.8	0.5	6.5				
	Maximum	573.5	29.7	28.0	430	9.3	1.5	8.5				
	Average	572.8	27.1	24.9	323	6.5	0.9	7.7				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
4-Aug-05	Beginning	572.5	26.5	23.0	300	6.6	1.0	7.8	no	0%	5-10	N
4-Aug-05	Mid	572.5	26.6	24.0	350	3.5	1.1	8.2	no	10%	10	N-NW
4-Aug-05	End	572.5	27.4	27.0	341	4.8	0.8	8.2	no	50%	10	W
5-Aug-05	Beginning	572.5	27.4	27.0	341	4.8	0.8	8.2	no	50%	10	W
5-Aug-05	Mid	572.8	26.3	20.0	284	4.8	0.8	7.4	no	50%	3	W
5-Aug-05	End	572.5	27.6	27.0	278	8.0	0.8	8.4	no	20%	3	W
10-Aug-05	Beginning	573.0	27.8	24.0	329	6.2	0.6	8.3	no	15%	5	NW
10-Aug-05	Mid	573.0	28.3	25.0	316	6.7	0.6	6.9	yes	75%	3	E
10-Aug-05	End	572.5	26.6	24.0	320	3.8	0.6	8.0	no	30%	5	NE
11-Aug-05	Beginning	572.5	26.6	24.0	320	3.8	0.6	8.0	no	30%	5	NE
11-Aug-05	Mid	572.0	27.1	24.0	316	7.8	0.6	7.8	yes	90%	3	N
11-Aug-05	End	573.0	26.3	25.0	355	4.4	0.6	8.0	no	100%	10	W
16-Aug-05	Beginning	572.5	25.0	26.5	581	8.3	0.6	8.3	no	0%	3	NW
16-Aug-05	Mid	572.5	25.9	24.0	674	7.6	0.5	8.2	no	90%	5	NW
16-Aug-05	End	572.0	25.5	26.0	617	7.2	0.5	8.1	no	10%	1	NE
17-Aug-05	Beginning	572.0	25.5	26.0	617	7.2	0.5	8.1	no	10%	1	NE
17-Aug-05	Mid	573.3	26.9	25.0	705	6.6	0.6	8.4	no	10%	3-5	NE
17-Aug-05	End	573.0	26.2	22.0	677	6.9	0.6	8.2	no	25%	5	E
25-Aug-05	Beginning	572.5	23.3	21.0	293	6.7	0.3	8.5	no	0%	calm	calm
25-Aug-05	Mid	573.3	24.2	24.0	322	10.5	0.4	8.7	no	90%	10	NE
25-Aug-05	End	572.5	23.5	18.0	413	7.1	0.4	8.3	no	75%	calm	calm
26-Aug-05	Beginning	572.5	23.5	18.0	413	7.1	0.4	8.3	no	75%	calm	calm
26-Aug-05	Mid	573.0	24.7	28.0	401	6.7	0.5	8.6	no	25%	3	NE
26-Aug-05	End	573.0	24.3	22.0	376	8.2	0.8	8.6	yes	100%	5	NE
29-Aug-05	Beginning	572.5	23.8	20.0	269	4.8	0.6	8.0	no	50%	calm	calm
29-Aug-05	Mid	573.5	25.4	26.0	347	6.2	0.6	8.3	no	40%	10	E
29-Aug-05	End	572.5	25.0	24.2	287	8.4	0.5	8.2	no	100%	calm	calm
30-Aug-05	Beginning	572.5	25.0	24.2	287	8.4	0.5	8.2	no	100%	calm	calm
30-Aug-05	Mid	573.3	24.7	20.0	309	8.4	0.4	8.0	yes	100%	10	NE
30-Aug-05	End	573.3	24.4	19.5	359	6.2	0.4	8.1	no	100%	10	NW
AUG 2005	Minimum	572.0	23.3	18.0	269	3.5	0.3	6.9				
	Maximum	573.5	28.3	28.0	705	10.5	1.1	8.7				
	Average	572.7	25.7	23.6	393	6.6	0.6	8.1				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
8-Sep-05	Beginning	573.0	23.2	18.0	279	7.6	0.3	8.5	no	0%	10	SW
8-Sep-05	Mid	572.0	23.8	19.5	294	5.7	0.5	8.6	no	99%	5	W
8-Sep-05	End	573.3	24.5	21.0	298	6.2	0.6	8.8	no	50%	7	N
9-Sep-05	Beginning	573.3	24.5	21.0	298	6.2	0.6	8.8	no	50%	7	N
9-Sep-05	Mid	573.0	22.4	19.0	275	6.5	0.5	8.6	no	25%	15	NE
9-Sep-05	End	572.9	23.8	19.5	272	7.6	0.6	8.9	no	0%	2	SE
12-Sep-05	Beginning	572.5	23.2	21.2	297	10.2	0.6	8.1	no	0%	calm	calm
12-Sep-05	Mid	573.0	24.7	22.0	411	8.6	0.5	8.1	no	20%	10	SE
12-Sep-05	End	572.5	23.7	21.0	313	6.8	0.8	8.5	no	0%	5	W
13-Sep-05	Beginning	572.5	23.7	21.0	313	6.8	0.8	8.5	no	0%	5	W
13-Sep-05	Mid	573.0	24.8	23.0	328	8.6	0.5	8.1	no	0%	15	SE
13-Sep-05	End	572.0	22.1	22.0	340	5.1	0.5	8.1	no	0%	7	SW
19-Sep-05	Beginning	573.0	20.9	14.0	288	5.7	0.5	8.3	no	99%	5	SE
19-Sep-05	Mid	572.5	22.3	20.5	351	9.6	0.5	8.3	no	0%	5-7	E
19-Sep-05	End	573.0	21.6	18.0	344	5.4	0.5	8.1	no	85%	calm	calm
20-Sep-05	Beginning	573.0	21.6	18.0	344	5.4	0.5	8.1	no	85%	calm	calm
20-Sep-05	Mid	572.5	23.2	22.0	370	5.7	n/a	8.3	no	100%	5	SW
20-Sep-05	End	572.0	22.7	19.0	324	5.5	0.4	8.2	no	40%	5	NW
28-Sep-05	Beginning	572.0	20.7	10.0	373	5.6	0.5	7.4	no	0%	5	W
28-Sep-05	Mid	572.0	21.3	16.0	441	6.3	0.5	7.0	no	0%	5	SW
28-Sep-05	End	572.0	20.5	10.0	342	6.6	0.5	7.5	no	0%	5	SW
29-Sep-05	Beginning	572.0	20.5	10.0	342	6.6	0.5	7.5	no	0%	5	SW
29-Sep-05	Mid	572.5	18.7	22.0	424		0.5	6.6	no	100%	7-10	SW
29-Sep-05	End	570.5	19.6	8.0	363	6.0	1.0	8.0	no	30%	10	NW
SEP 2005	Minimum	570.5	18.7	8.0	272	5.1	0.3	6.6				
	Maximum	573.3	24.8	23.0	441	10.2	1.0	8.9				
	Average	572.5	22.4	18.2	334	6.7	0.5	8.1				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
3-Oct-05	Beginning	572.5	19.2	13.0	345	6.0	0.5	6.4	no	5%	5	SE
3-Oct-05	Mid	572.5	19.8	20.0	407	n/a	n/a	6.9	no	0%	5	SE
3-Oct-05	End	572.5	20.0	20.0	454	6.5	0.4	6.8	no	95%	5	SE
4-Oct-05	Beginning	572.5	20.0	20.0	454	6.5	0.4	6.8	no	95%	5	SE
4-Oct-05	Mid	572.5	20.6	21.0	340	7.3	n/a	6.7	no	10%	10-15	SE
4-Oct-05	End	572.5	20.2	21.0	333	5.9	0.4	6.8	no	15%	5	SE
12-Oct-05	Beginning	573.0	15.7	11.0	306	6.3	0.4	6.6	no	100%	5	N
12-Oct-05	Mid	572.5	16.3	13.0	275	7.4	n/a	6.8	no	100%	10	E
12-Oct-05	End	572.3	15.7	11.0	363	6.4	0.4	7.2	no	100%	calm	calm
13-Oct-05	Beginning	572.3	15.7	11.0	363	6.4	0.4	7.2	no	100%	calm	calm
13-Oct-05	Mid	572.5	16.1	14.0	369	5.9	n/a	6.6	no	100%	5	E
13-Oct-05	End	573.0	16.2	13.0	256	8.2	0.5	7.1	no	100%	5	NW
18-Oct-05	Beginning	573.0	14.8	4.0	213	9.9	0.6	7.8	no	0%	0	calm
18-Oct-05	Mid	572.5	16.0	14.0	240	8.4	n/a	7.6	no	100%	10	W
18-Oct-05	End	572.0	14.5	11.4	340	6.3	0.6	6.1	no	0%	0	calm
19-Oct-05	Beginning	572.0	14.5	11.4	340	6.3	0.6	6.1	no	0%	0	calm
19-Oct-05	Mid	572.0	16.7	20.0	274	4.9	0.6	6.2	no	0%	5	W
19-Oct-05	End	572.0	15.6	13.0	291	6.7	0.5	7.1	no	5%	10-15	W
24-Oct-05	Beginning	573.0	12.3	4.0	186	8.1	0.6	7.3	no	100%	5	SW
24-Oct-05	Mid	572.5	12.9	9.0	204	7.8	n/a	7.8	no	60%	5	SW
24-Oct-05	End	573.0	12.1	4.0	240	8.5	0.4	7.8	no	95%	5	SW
25-Oct-05	Beginning	573.0	12.1	4.0	240	8.5	0.4	7.8	no	95%	5	SW
25-Oct-05	Mid	573.0	12.1	6.0	209	9.1	n/a	8.1	yes	100%	5	SW
25-Oct-05	End	573.0	11.4	5.0	189	7.6	0.4	8.0	no	80%	5	W
OCT 2005	Minimum	572.0	11.4	4.0	186.0	4.9	0.4	6.1				
	Maximum	573.0	20.6	21.0	454.0	9.9	0.6	8.1				
	Average	572.6	15.9	12.2	301.3	7.2	0.5	7.1				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
2-Nov-05	Beginning	572.0	11.8	8.0	282	7.3	1.1	8.1	yes	199%	5	SW
2-Nov-05	Mid	572.8	12.2	8.0	256	7.7	n/a	8.2	no	0%	5-10	W
2-Nov-05	End	573.4	10.8	8.1	351	7.2	0.9	8.1	no	0%	calm	calm
3-Nov-05	Beginning	573.4	10.8	8.1	351	7.2	0.9	8.1	no	0%	calm	calm
3-Nov-05	Mid	572.5	12.5	12.0	276	7.4	n/a	8.1	no	0%	5	S
3-Nov-05	End	571.4	14.7	7.0	351	6.9	0.9	8.2	no	0%	7	SW
10-Nov-05	Beginning	573.0	13.1	15.0	350	8.3	0.5	7.6	no	100%	10	S
10-Nov-05	Mid	571.5	12.9	10.0	344	7.6	n/a	8.0	no	10%	10-15	S
10-Nov-05	End	527.0	10.8	4.0	259	8.5	0.6	7.8	yes	85%	15-20	NW
11-Nov-05	Beginning	527.0	10.8	4.0	259	8.5	0.6	7.8	yes	85%	15-20	NW
11-Nov-05	Mid	573.0	12.4	7.0	268	8.4	n/a	8.1	no	90%	15-20	NW
11-Nov-05	End	573.0	10.3	0.0	363	8.1	0.6	7.9	no	0%	0-5	SE
14-Nov-05	Beginning	570.5	11.8	12.0	342	8.1	0.7	8.0	no	100%	15-20	SW
14-Nov-05	Mid	572.5	13.0	10.0	296	8.3	n/a	6.6	no	100%	20-30	W
14-Nov-05	End	573.0	9.9	3.0	269	7.3	0.4	6.9	no	0%	calm	calm
15-Nov-05	Beginning	573.0	9.9	3.0	269	7.3	0.4	6.9	no	0%	calm	calm
15-Nov-05	Mid	573.0	10.2	7.0	277	12.3	n/a	8.0	no	50%	15	W
15-Nov-05	End	572.0	10.7	5.0	277	7.0	0.1	7.2	yes	100%	calm	calm
21-Nov-05	Beginning		6.6	4.0	458	10.1	0.3	6.8	no	0%	5	W
21-Nov-05	Mid		8.7	9.0	232	11.6	0.3	8.2	no	0%	10	SW
21-Nov-05	End		7.5	2.0	160	9.0	0.1	8.1	no	5%	5-10	SW
22-Nov-05	Beginning		7.5	2.0	160	9.0	0.1	8.1	no	5%	5-10	SW
22-Nov-05	Mid		6.6	3.0	498	9.3	n/a	8.2	yes	100%	10-15	SW
22-Nov-05	End		6.5	0.0	418	9.8	0.3	7.2	no	80%	5	W
30-Nov-05	Beginning	574.0	6.7	8.0	353	9.2	0.5	6.5	no	90%	15	W
30-Nov-05	End	574.0		-1.0			0.4		yes	90%	5	S
NOV 2005	Minimum	527.0	6.5	-1.0	160.0	6.9	0.1	6.5				
	Maximum	574.0	14.7	15.0	498.0	12.3	1.1	8.2				
	Average	568.1	10.3	6.1	308.8	8.5	0.5	7.7				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
1-Dec-05	Beginning	574.0		-1.0			0.4		yes	90%	5	S
1-Dec-05	Mid	574.5	5.3	-1.0	520	10.5	n/a	8.2	no	100%	5	W
1-Dec-05	End	573.0	4.1	-3.0	592	8.7	0.3	6.7	no	60%	calm	calm
8-Dec-05	Beginning	575.0	2.5	-8.0	415	10.8	0.3	7.7	no	0%	5	W
8-Dec-05	Mid	574.0	1.5	-10.0	425	10.3	n/a	8.0	no	0%	5	W
8-Dec-05	End	575.0	1.5	-13.0	345	10.4	0.6	7.7	no	15%	5	SW
9-Dec-05	Beginning	575.0	1.5	-13.0	345	10.4	0.6	7.7	no	15%	5	SW
9-Dec-05	End	575.0	2.1	-15.0	350	9.4	n/a	7.0	no	100%	5	W
12-Dec-05	Beginning	574.5	4.4	-2.0	445	8.8	0.7	8.1	yes	100%	5	SW
12-Dec-05	Mid	574.0	2.2	-1.5	377	10.5	n/a	6.5	no	10%	3-5	SE
12-Dec-05	End	575.0	4.8	-9.0	527	10.0	0.8	8.1	no	0%	1	E
13-Dec-05	Beginning	575.0	4.8	-9.0	527	10.0	0.8	8.1	no	0%	1	E
13-Dec-05	Mid	574.5	5.5	12.0	514	8.6	n/a	8.2	no	5%	calm	calm
13-Dec-05	End	574.6	5.1	-6.0	457	9.0	1.0	8.2	no	0%	5	N
19-Dec-05	Beginning	576.0	4.6	-10.0	458	11.0	0.5	6.8	no	0%	5	SW
19-Dec-05	Mid	574.5	4.7	-3.0	448	9.3	n/a	8.0	no	0%	5-1-	SW
19-Dec-05	End	575.5	4.6	-12.0	460	10.6	0.5	7.9	no	0%	10	NW
20-Dec-05	Beginning	575.5	4.6	-12.0	460	10.6	0.5	7.9	no	0%	10	NW
20-Dec-05	Mid	575.0	4.3	-13.0	496		n/a	8.3	no	0%	5	NW
20-Dec-05	End	575.5	2.8	-11.0	537	12.3	0.5	7.3	no	0%	5	SW
28-Dec-05	Beginning	575.0	2.5	0.0	740	11.7	0.8	7.3	no	100%	5	SE
28-Dec-05	Mid	574.5	-1.0	0.0	773	12.5	n/a	7.2	no	80%	5	SE
28-Dec-05	End	575.0	4.0	2.0	595	12.0	0.7	7.1	no	80%	calm	calm
29-Dec-05	Beginning	575.0	4.0	2.0	595	12.0	0.7	7.1	no	80%	calm	calm
29-Dec-05	Mid	574.5	3.5	2.0	718	9.2	n/a	7.9	yes	100%	5	S
29-Dec-05	End	575.0	2.0	1.0	748	12.0	0.5	7.3	yes	100%	5	NW
DEC 2005	Minimum	573.0	-1.0	-15.0	345.0	8.6	0.3	6.5				
	Maximum	576.0	5.5	12.0	773.0	12.5	1.0	8.3				
	Average	574.8	3.4	-5.1	514.7	10.4	0.6	7.6				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
4-Jan-06	Beginning	575.7	5.3	2.0	568	7.5	0.31	7.9	no	100%	5.00	NE
4-Jan-06	Mid	575.5	7.0	3.0	653	10.8	0.21	8.0	no	10%	calm	calm
4-Jan-06	End	575.3	6.5	5.5	592	9.7	0.33	7.3	yes	n/a	10	SW
5-Jan-06	Beginning	575.3	6.5	5.5	592	9.7	0.33	7.3	yes	n/a	10	SW
5-Jan-06	Mid	575.3	5.5	5.0	583	9.3	0.30	7.3	yes	100%	5	W
5-Jan-06	End	574.0	4.8	2.0	664	*	0.30	7.3	yes	100%	10-15	SW
9-Jan-06	Beginning	576.0	3.7	-1.0	622	9.7	0.16	8.1	no	70%	5	E
9-Jan-06	Mid	576.0	4.1	0.0	611	10.2	n/a	8.3	no	0%	5	SW
9-Jan-06	End	575.0	3.9	1.0	613	n/a	0.30	7.0	no	15%	5-10	W
10-Jan-06	Beginning	575.0	3.9	1.0	613	n/a	0.30	7.0	no	15%	5-10	W
10-Jan-06	Mid	576.0	6.3	1.0	619	10.5	n/a	8.3	yes	100%	5-10	SW
10-Jan-06	End	575.5	6.2	-1.0	603	9.2	0.40	7.1	no	5%	5	SW
20-Jan-06	Beginning	575.5	2.2	-2.0	571	10.1	0.20	7.3	no	10%	calm	calm
20-Jan-06	Mid	575.5	2.9	6.0	553	11.0	n/a	7.4	no	10%	10	SW
20-Jan-06	End	575.8	4.5	10.0	605	12.6	0.23	7.4	no	75%	5-10	W
21-Jan-06	Beginning	575.8	4.5	10.0	605	12.6	0.23	7.4	no	75%	5-10	W
21-Jan-06	Mid	575.5	4.5	1.0	631	11.2	n/a	7.6	yes	100%	5-10	W
21-Jan-06	End	574.5	4.0	-1.0	586	*	0.20	7.5	yes	100%	15-20	SW
25-Jan-06	Beginning	575.0	3.4	0.0	575	9.9	0.15	7.1	no	90%	10-15	W
25-Jan-06	Mid	574.5	3.3	1.0	574	8.4	n/a	6.9	no	60%	5-10	SW
25-Jan-06	End	575.0	3.5	-2.0	555	12.3	0.20	7.4	no	100%	10-15	NW
26-Jan-06	Beginning	575.0	3.5	-2.0	555	12.3	0.20	7.4	no	100%	10-15	NW
26-Jan-06	Mid	576.0	4.7	-1.0	574	9.7	n/a	7.8	no	100%	10-15	SW
26-Jan-06	End	576.0	3.7	-5.0	568	15.6	0.25	7.3	no	90%	5-10	NW
30-Jan-06	Beginning	575.5	5.2	4.0	607	10.1	too dark	8.0	yes	100%	10-15	S
30-Jan-06	Mid	576.0	6.1	8.0	638	9.4	n/a	8.2	yes	100%	20-25	S
30-Jan-06	End	575.0	5.4	7.0	657	10.0	0.43	7.5	no	50%	20-30	NW
31-Jan-06	Beginning	575.0	5.4	7.0	657	10.0	0.43	7.5	no	50%	20-30	NW
31-Jan-06	Mid	575.5	6.4	2.0	585	9.5	n/a	7.6	yes	100%	0-5	SW
31-Jan-06	End	575.0	5.6	-2.0	546	10.3	0.20	7.7	no	100%	5-10	SW
JAN 2006	Minimum	574.0	2.2	-5.0	546.0	7.5	0.2	6.9				
	Maximum	576.0	7.0	10.0	664.0	15.6	0.4	8.3				
	Average	575.4	4.8	2.2	599.2	10.4	0.3	7.5				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
8-Feb-06	Beginning	575.7	4.0	-3.0	562	9.1	0.20	7.9	no	95%	3-5	W
8-Feb-06	Mid	575.8	2.0	-4.0	593	12.1	n/a	8.3	no	50%	5	SE
8-Feb-06	End	575.4	3.9	-6.0	546	8.7	0.10	7.1	no	100%	5	NW
9-Feb-06	Beginning	575.4	3.9	-6.0	546	8.7	0.10	7.1	no	100%	5	NW
9-Feb-06	Mid	576.0	3.4	-5.0	554	10.4	0.15	7.3	no	70%	calm	calm
9-Feb-06	End	575.8	2.3	-9.0	563	10.9	0.15	8.0	no	5%	10	E
17-Feb-06	Beginning	575.5	4.1	1.0	664	9.8	0.67	7.7	yes	100%	5	S
17-Feb-06	Mid	575.0	4.1	10.0	522	11.1	n/a	6.4	no	100%	15-10	SW
17-Feb-06	End	575.0	4.9	-5.0	680	13.1	0.45	7.9	no	85%	20-30	W
18-Feb-06	Beginning	575.0	4.9	-5.0	680	13.1	0.45	7.9	no	85%	20-30	W
18-Feb-06	Mid	575.0	4.0	-4.0	672	14.1	n/a	8.0	no	0%	15	NW
18-Feb-06	End	575.5	1.8	-15.0	241	13.8	0.05	7.8	no	5%	15-20	E
22-Feb-06	Beginning	575.8	0.8	-5.0	244	12.5	0.10	7.8	no	50%	7	S
22-Feb-06	Mid	576.0	3.9	0.0	505	10.9	n/a	7.7	no	0%	calm	calm
22-Feb-06	End	576.0	2.6	-2.0	498	13.4	0.05	7.8	no	30%	5	W
23-Feb-06	Beginning	576.0	2.6	-2.0	498	13.4	0.05	7.8	no	30%	5	W
23-Feb-06	Mid	576.0	4.3	4.0	535	11.3	n/a	7.6	no	0%	10-15	SW
23-Feb-06	End	575.5	4.4	-2.0	563	11.3	0.10	8.1	no	0%	calm	calm
27-Feb-06	Beginning	575.5	3.8	-9.0	604	10.3	0.50	8.1	no	0%	5	W
27-Feb-06	Mid	575.5	4.2	-5.0	583	11.8	n/a	8.2	no	0%	10	NW
27-Feb-06	End	575.8	5.6	-4.0	594	10.6	0.40	8.3	NO	100%	5	W
28-Feb-06	Beginning	575.8	5.6	-4.0	594	10.6	0.40	8.3	NO	100%	5	W
28-Feb-06	Mid	576.0	6.0	-4.0	563	10.6	n/a	8.2	yes	100%	5	W
28-Feb-06	End	576.0	5.4	-9.0	558	12.1	0.40	8.0	no	0%	5	W
FEB 2006	Minimum	575.0	0.8	-15.0	241.0	8.7	0.1	6.4				
	Maximum	576.0	6.0	10.0	680.0	14.1	0.7	8.3				
	Average	575.6	3.9	-3.9	548.4	11.4	0.3	7.8				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
9-Mar-06	Beginning	575.3	7.3	0.0	615	11.8	1.40	8.1	no	100%	5	W
9-Mar-06	Mid	574.0	7.4	5.0	585	9.8	n/a	7.8	no	100%	5	NW
9-Mar-06	End	575.0	7.4	8.0	568	10.3	0.50	8.2	yes	100%	10-15	W
10-Mar-06	Beginning	575.0	7.4	8.0	568	10.3	0.50	8.2	yes	100%	10-15	W
10-Mar-06	Mid	574.0	7.0	10.0	680	11.1	n/a	8.4	yes	100%	5	W
10-Mar-06	End	573.0	8.6	10.0	628	12.1	0.50	8.4	no	25%	10-20	NW
15-Mar-06	Beginning	573.5	7.6	0.0	500	9.6	0.20	6.5*	yes	100%	20-30	W
15-Mar-06	Mid	573.0	7.2	1.0	500	9.9	0.12	7.4	no	90%	15	W
15-Mar-06	End	575.0	6.3	-3.0	503	8.8	0.25	7.8	no	0%	15	NW
16-Mar-06	Beginning	575.0	6.3	-3.0	503	8.8	0.25	7.8	no	0%	15	NW
16-Mar-06	Mid	575.0	7.8	2.0	484	8.6	0.12	7.8	no	10%	5	W
16-Mar-06	End	574.5	6.2	-3.0	445	8.8	0.16	7.7	no	75%	calm	calm
21-Mar-06	Beginning	573.0	4.8	-4.0	581	9.7	1.00	7.3	no	0%	calm	calm
21-Mar-06	Mid	573.5	3.7	2.0	613	10.9	1.00	8.1	no	10%	0-5	W
21-Mar-06	End	575.0	5.5	-6.0	560	11.0	0.50	7.4	no	90%	5	NE
22-Mar-06	Beginning	575.0	5.5	-6.0	560	11.0	0.50	7.4	no	90%	5	NE
22-Mar-06	Mid	574.5	3.9	2.0	281	9.9	n/a	8.3	no	100%	5-10	W
22-Mar-06	End	574.0	3.8	-2.0	609	12.7	0.43	7.9	no	100%	5	NE
27-Mar-06	Beginning	575.0	5.5	-1.0	609	10.5	0.60	7.5	no	0%	5	E
27-Mar-06	Mid	575.0	6.5	3.5	567	10.8	n/a	7.2	no	100%	5	NE
27-Mar-06	End	575.0	6.1	-1.0	643	12.0	1.00	7.8	no	0%	calm	calm
28-Mar-06	Beginning	575.0	6.1	-1.0	643	12.0	1.00	7.8	no	0%	calm	calm
28-Mar-06	Mid	575.0	9.0	3.5	592	12.2	n/a	7.1	no	100%	calm	calm
28-Mar-06	End	575.0	7.1	2.0	646	11.5	1.00	7.2	yes	100%	5	NE
MAR 2006	Minimum	575.0	3.7	-6.0	281.0	8.6	0.1	7.1				
	Maximum	575.3	9.0	10.0	680.0	12.7	1.4	8.4				
	Average	575.2	6.4	1.1	561.8	10.6	0.6	7.8				

APPENDIX 25 (cont'd)
Water Quality and Meteorological Data Collected During Impingement & Entrainment Sampling at Monroe Power Plant, Monroe County, Michigan (April 2005 – April 2006)

Date	Time	Water Level	Intake Temp (°C)	Air Temp (°C)	Conductivity uS/cm	DO mg/L	Water Transparency (m)	pH	Precipitation	Cloud Cover	Wind Speed	Wind Direction
4-Apr-06	Beginning	572.0	9.7	12.0	642	10.7	0.30	8.1	no	80%	calm	calm
4-Apr-06	Mid	572.0	8.6	8.0	627	7.8	1.20	8.0	no	50%	10-15	W
4-Apr-06	End	574.0	9.6	8.0	645	6.7	0.37	7.9	no	0%	5	W
5-Apr-06	Beginning	574.0	9.6	8.0	645	6.7	0.37	7.9	no	0%	5	W
5-Apr-06	End	574.0	9.8	12.0	560	7.9	0.55	7.3	no	60%	5	W
10-Apr-06	Beginning	574.5	9.5	-1.0	629	10.0	0.40	8.0	no	0%	5	W
10-Apr-06	Mid	574.5	11.8	8.0	618	10.2	0.41	8.5	no	40%	calm	calm
10-Apr-06	End	574.0	9.7	4.0	599	8.4	0.32	8.1	no	0%	calm	calm
11-Apr-06	Beginning	574.0	9.7	4.0	599	8.4	0.32	8.1	no	0%	calm	calm
11-Apr-06	Mid	574.5	11.8	8.0	567	9.9	0.60	8.2	no	100%	5	SE
11-Apr-06	End	574.0	10.6	8.0	487	8.1	0.49	8.2	no	20%	calm	calm
19-Apr-06	Beginning	573.5	14.2	5.0	524	8.6	0.50	7.7	no	0%	calm	calm
19-Apr-06	End	573.5	14.8	9.0	626	8.8	0.60	7.9	no	0%	calm	calm
20-Apr-06	Beginning	573.5	14.8	9.0	626	8.8	0.60	7.9	no	0%	calm	calm
20-Apr-06	Mid	573.5	14.5	15.0	587	7.2	0.45	8.1	no	10%	calm	calm
20-Apr-06	End	573.5	14.9	11.0	562	8.0	0.65	8.3	no	0%	1-2	SW
APR 2006	Minimum	572.0	8.6	-1.0	487.0	6.7	0.3	7.3				
	Maximum	573.5	14.9	15.0	645.0	10.7	1.2	8.5				
	Average	572.8	11.5	8.0	596.4	8.5	0.5	8.0				