WA 2302
9-19-07
8a

Marcia Bailey/R10/USEPA/US
09/19/2007 01:22 PM

To Christy Brown/R10/USEPA/US@EPA, Christy Brown/R10/USEPA/US,Christy Brown@EPA
cc
bcc
Subject Fw: Points in Boeing Plant Two Arguments

Hi Christy,
Lon wrote this a few months ago but in running across it, I thought we should tuck it away from Rhone as well.
Marcia

----- Forwarded by Marcia Bailey/R10/USEPA/US on 09/19/2007 12:46 PM -----

Lon Kissinger/R10/USEPA/US
06/07/2007 05:12 PM

To bailey.marcia@epa.gov, sierra_moon@msn.com, Shawn Blocker/R10/USEPA/US@EPA, Julius Nwosu/R10/USEPA/US@EPA
cc
Subject Points in Boeing Plant Two Arguments

FILE COPY

Arguments for inclusion of API and Tribal scenarios at BP2:

1) The 1999 King County seafood consumption survey documented crab and bottomfish consumption at T105 (SEE slide 3 in the attached power point) and the Spokane Street Bridge at the base of the East Waterway. In fact, the Spokane Street Bridge was one of the most popular harvest locations.

2) Crab and English Sole PCB homolog patterns were similar to PCB homolog patterns for LDW sediments as a whole rather than PCB homolog patterns near Boeing Plant 2, indicating that the home range of this species is throughout the LDW and that contaminants from Boeing Plant 2 could be increasing PCB body burdens of crab and English Sole at harvest points in the downstream parts of the LDW. General information on home ranges of these species supports this assertion.

3) Assessment of seafood consumption risks for subsections of the Duwamish are similar to risks for the LDW as a whole, indicating the sediment PCBs are being dispersed through aquatic biota throughout the site.

4) Considerations of future use argue for inclusion of Tribal and API scenarios. The Muckleshoot Tribe sets gill nets throughout the LDW indicating that they would use the LDW to harvest resident species if contamination levels were low enough. The Suquamish Tribe has noted that shellfish beaches that have been closed experience high use when they are re-opened. The Duwamish represents the only marine U&A available to the Muckleshoot Tribe. The Muckleshoot Tribe has experienced great interest in improving the LDW to the point where shellfish could be harvested.

Human Use of the Lower Duwamish Waterway.ppt

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Human Use of the Lower Duwamish Waterway

Lon Kissinger, U.S. EPA Region 10

Contacts/Resources

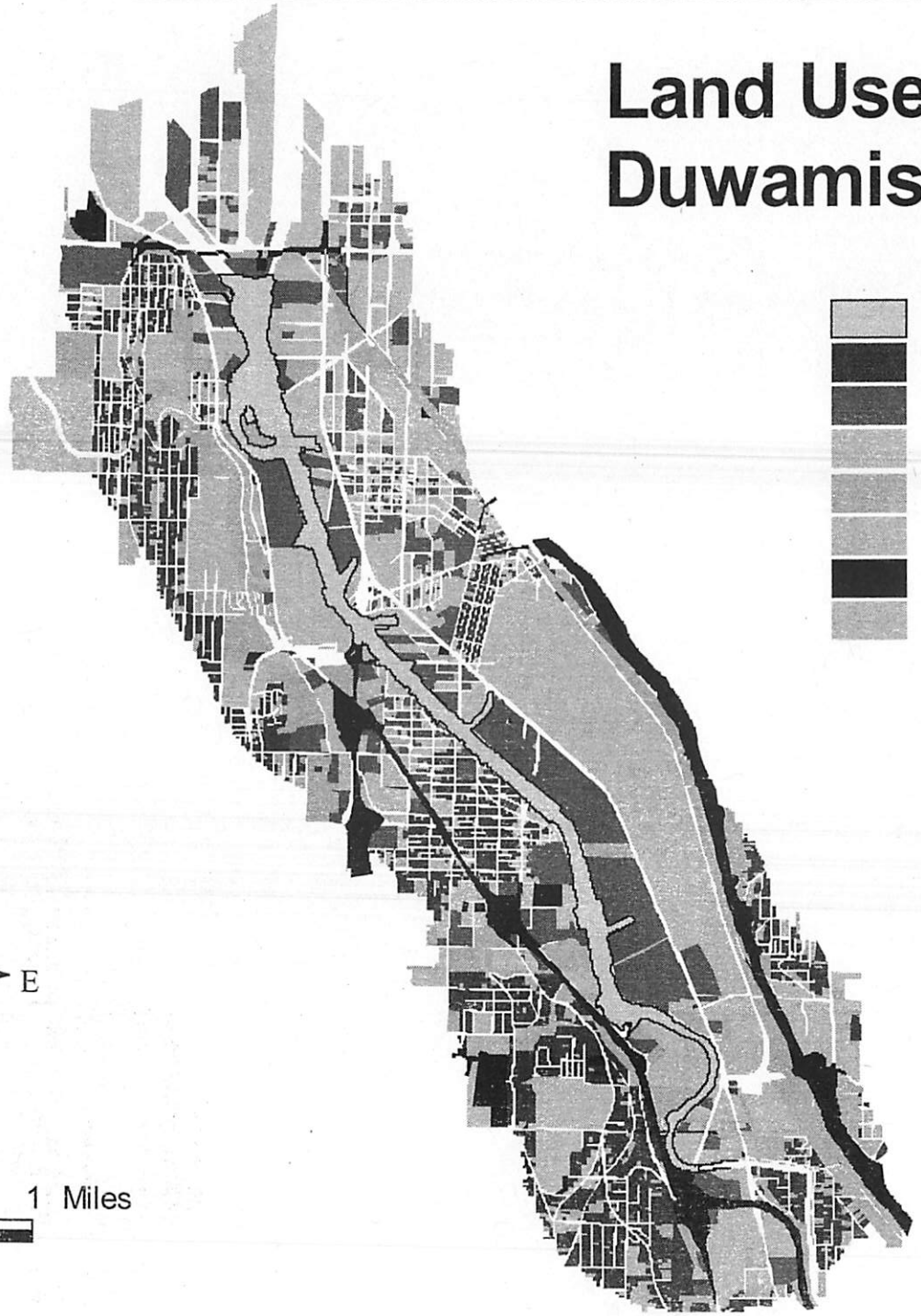
EPA

- Allison Hiltner, *site manager, sediments*
- Kris Flint, *source control*
- Bruce Duncan/Erika Hoffman, *ecological risk assessment*
- Lon Kissinger, *human health risk assessment*
- Gina Grepo Grove, *analytical chemistry*
- Martha Lentz, *hydrogeology*

WA Dept. of Ecology

- Rick Huey, *site manager, source control*
- Rick Thomas, *source control*
- Brad Helland/Tom Gries, *technical resources*
- Fu-Shin Lee, *human health risk assessment*

Land Use in the Lower Duwamish Corridor



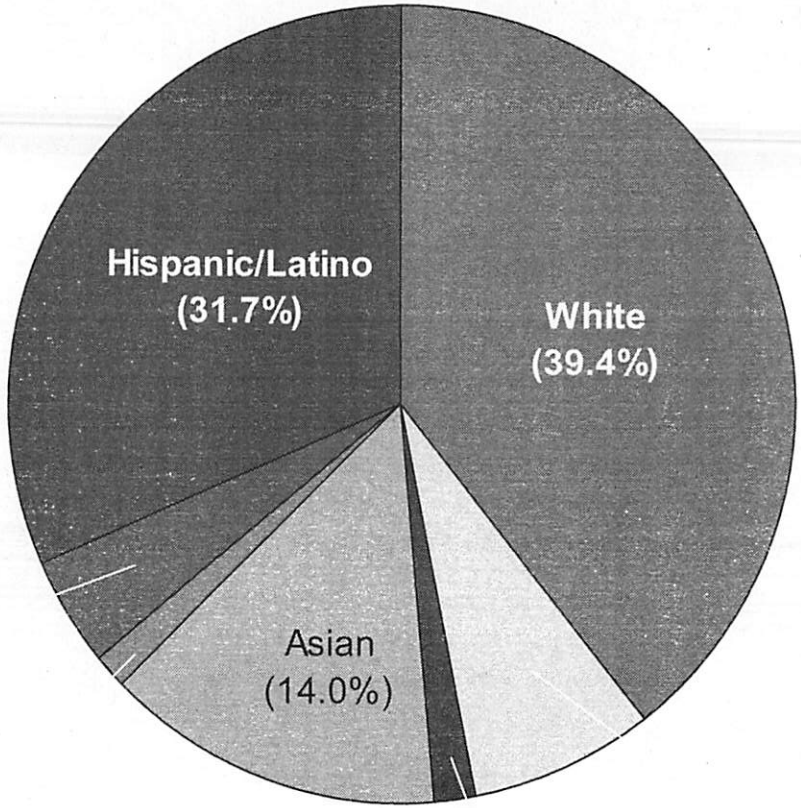
Lower Duwamish Waterway
Residential
Industrial
Commercial
Vacant
Public
Transportation/unspecified
Open Space

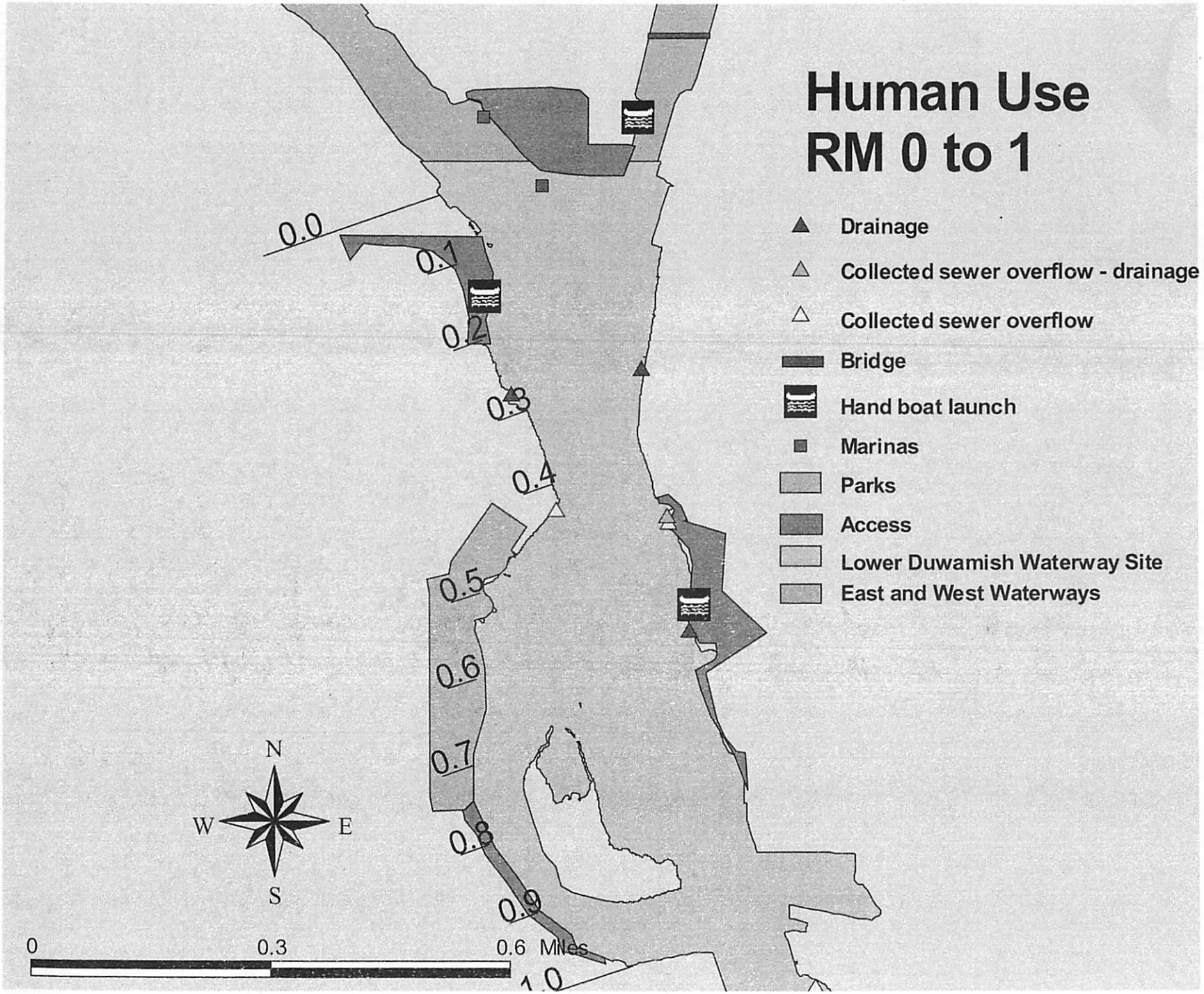
N
W E
S

0 0.5 1 Miles

Land Use Group	Subcategory	Total
Commercial	*Entertainment*	*3.12%*
	Hotel/Motel	*0.10%*
	Institutions	*0.19%*
	Mixed Use	*0.03%*
	Office	*1.18%*
	Parking	*0.35%*
	Retail/Service	*1.02%*
	Warehouse	*9.90%*
	Total:	**15.90%**
Industrial		**15.93%**
Open Space		**2.59%**
Public	*Public Facilities*	*0.07%*
	Schools	*1.70%*
	Total:	**1.77%**
Residential	*Duplex/Triplex*	*0.54%*
	Multi-Family	*1.37%*
	Other Housing	*0.24%*
	Single Family	*12.69%*
	Total:	**14.84%**
Transportation		**18.17%**
Unsure		**13.41%**
Vacant		**17.39%**

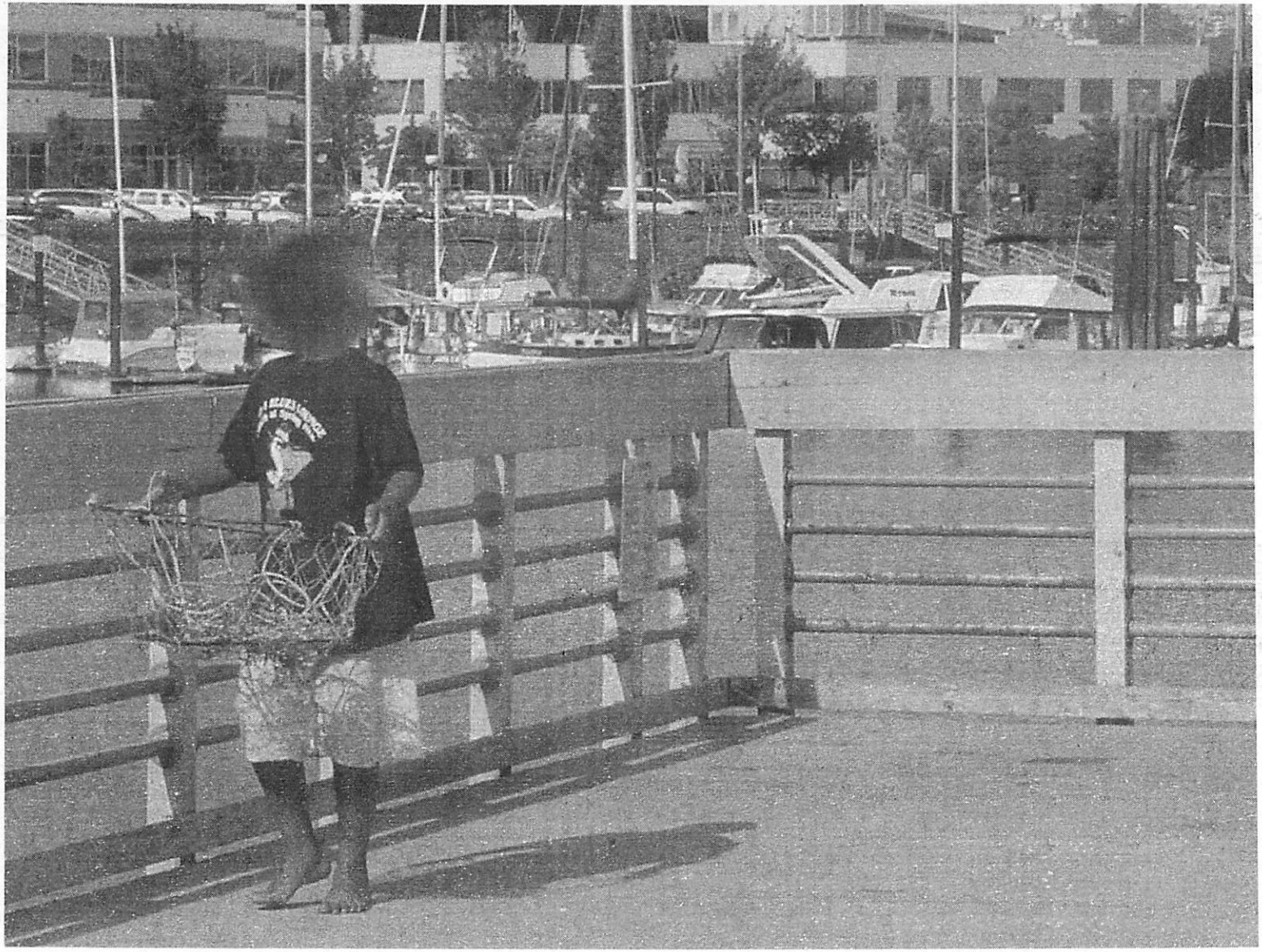
Demographics of Georgetown & South Park Neighborhoods



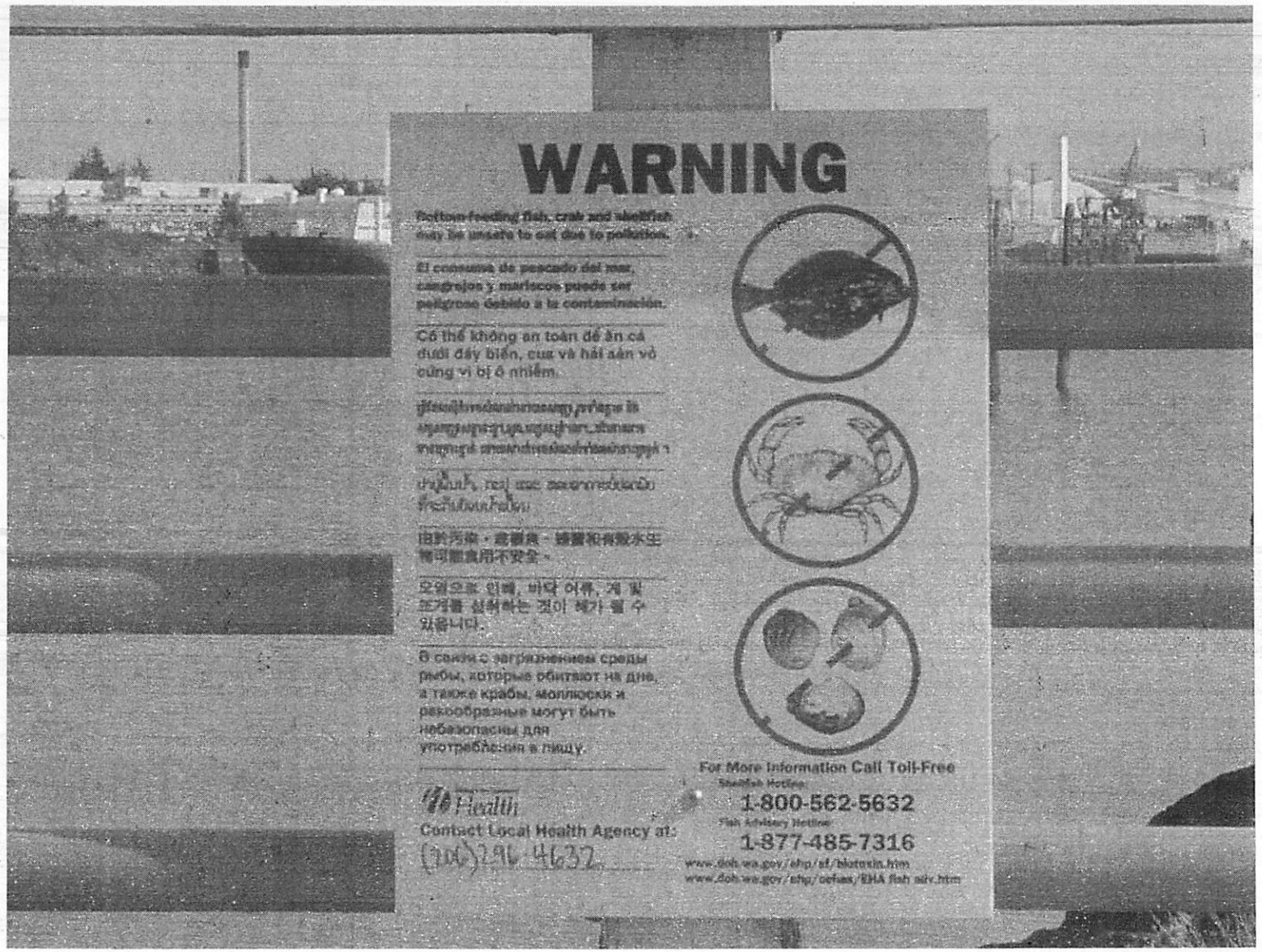

Human Use
RM 0 to 1
Drainage
Collected sewer overflow - drainage
Collected sewer overflow
Bridge
Hand boat launch
Marinas
Parks
Access
Lower Duwamish Waterway Site
East and West Waterways
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
N
W
E
S
0
0.3
0.6 Miles

Terminal 105

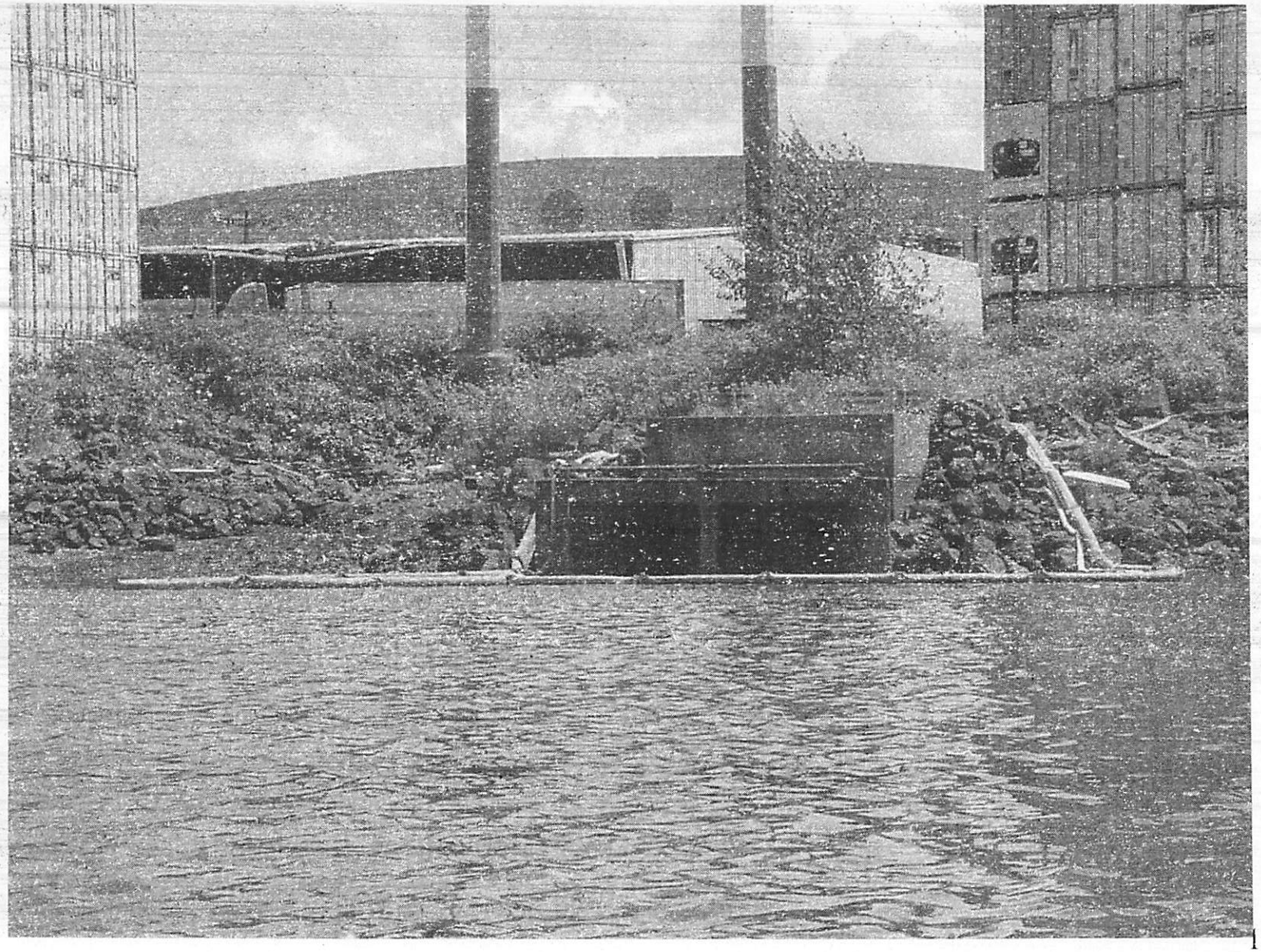
Crabber at T-105



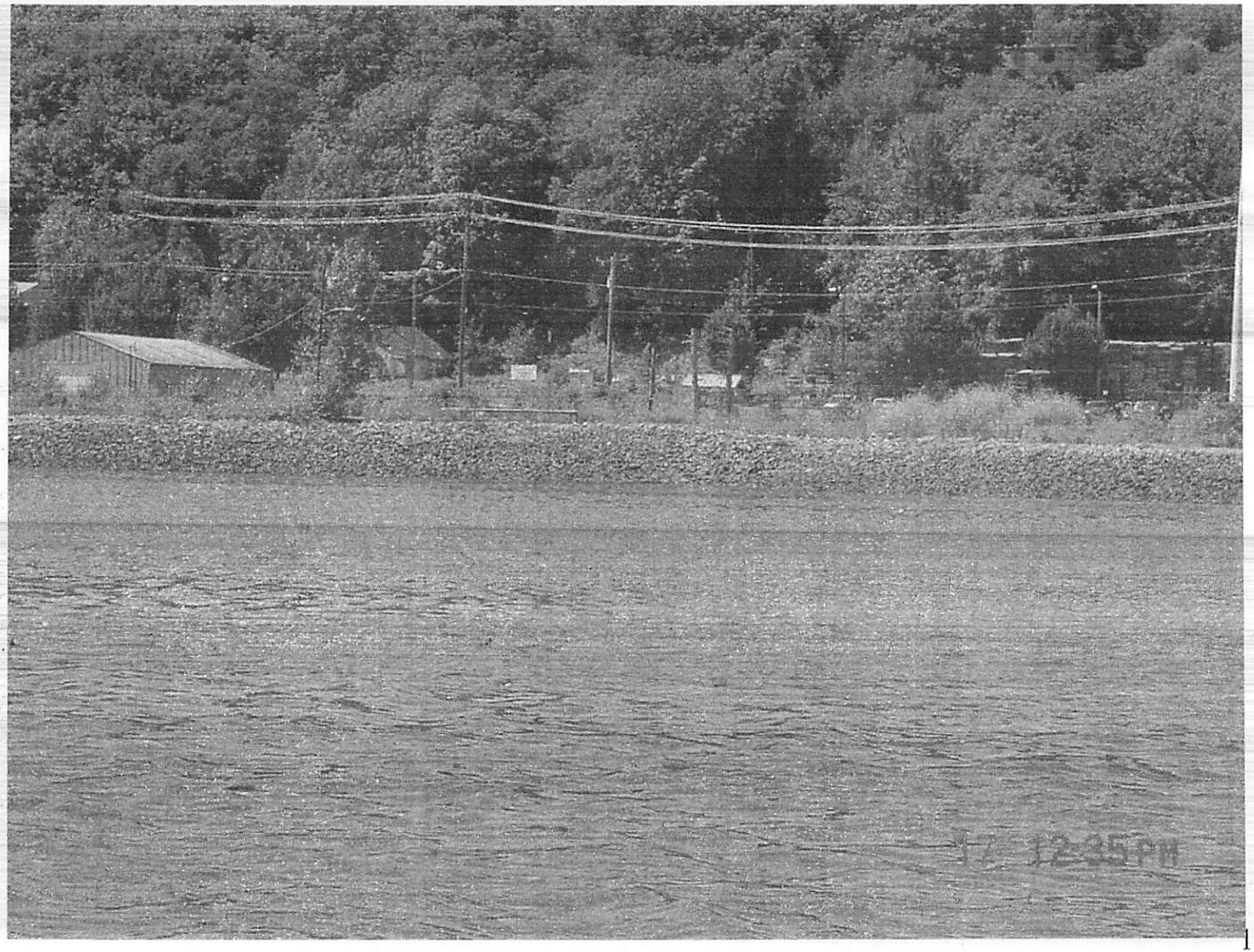
Fish/shellfish Consumption Warning Sign



Duwamish/Diagonal Way CSO

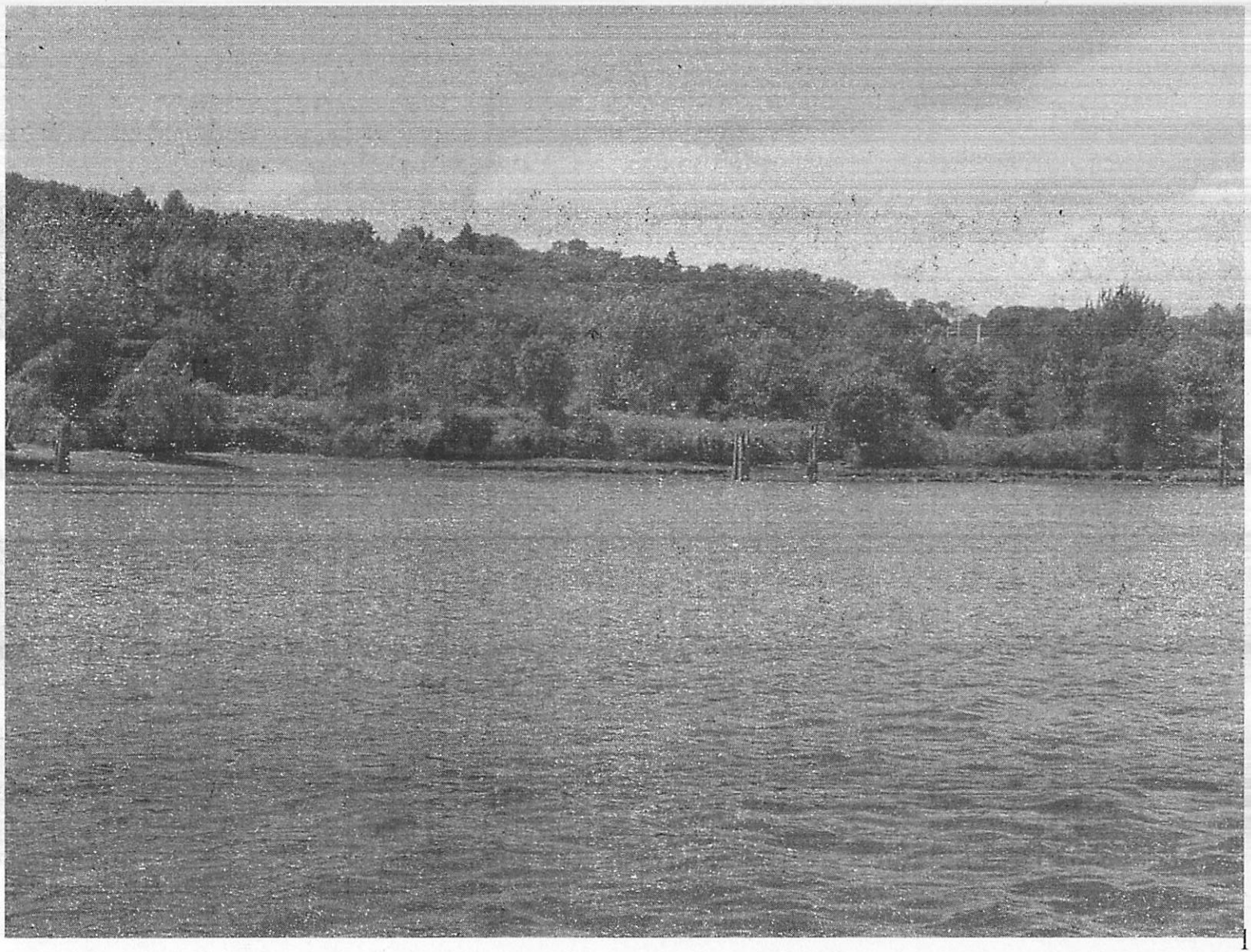


Herring House Park

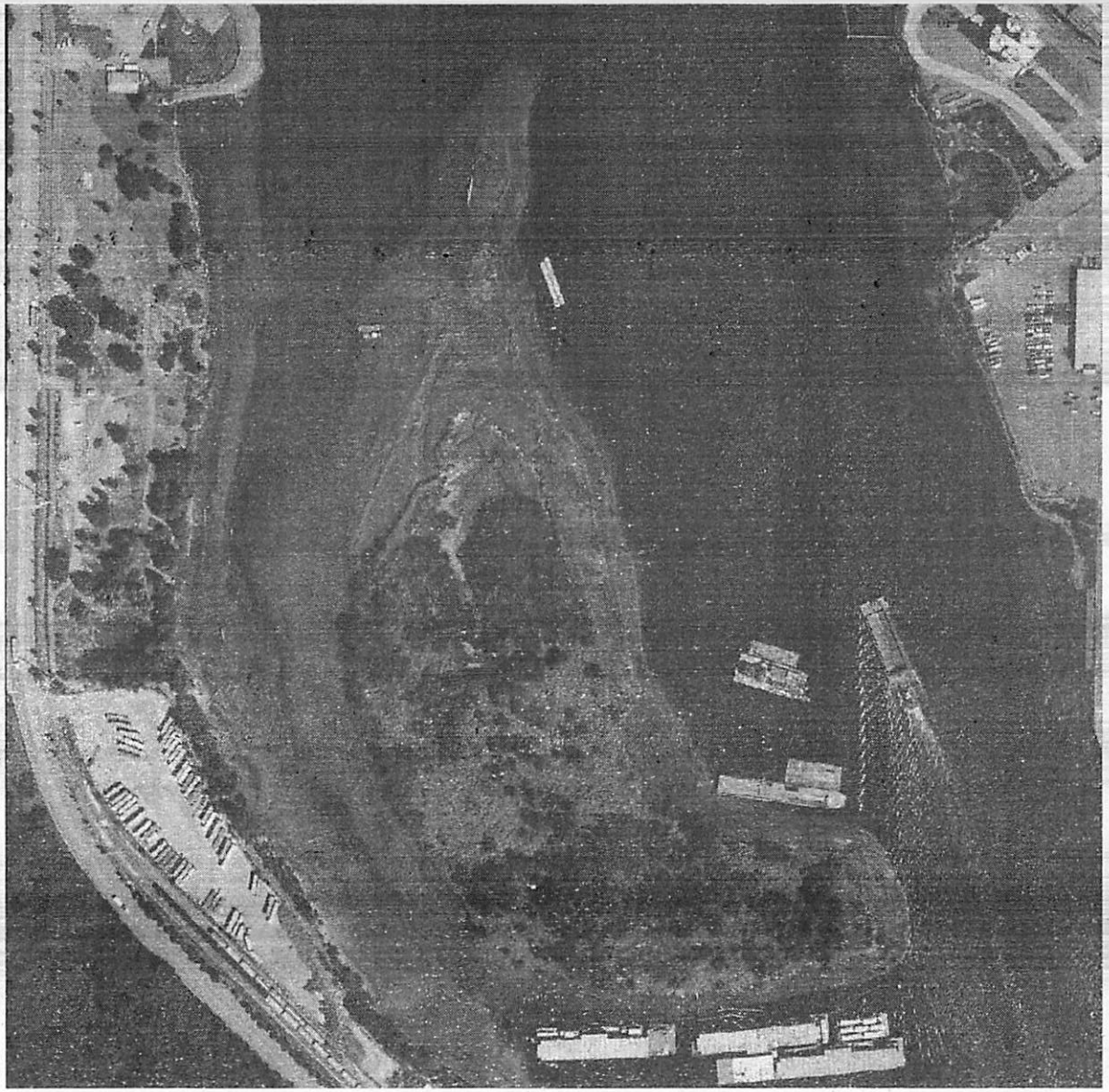


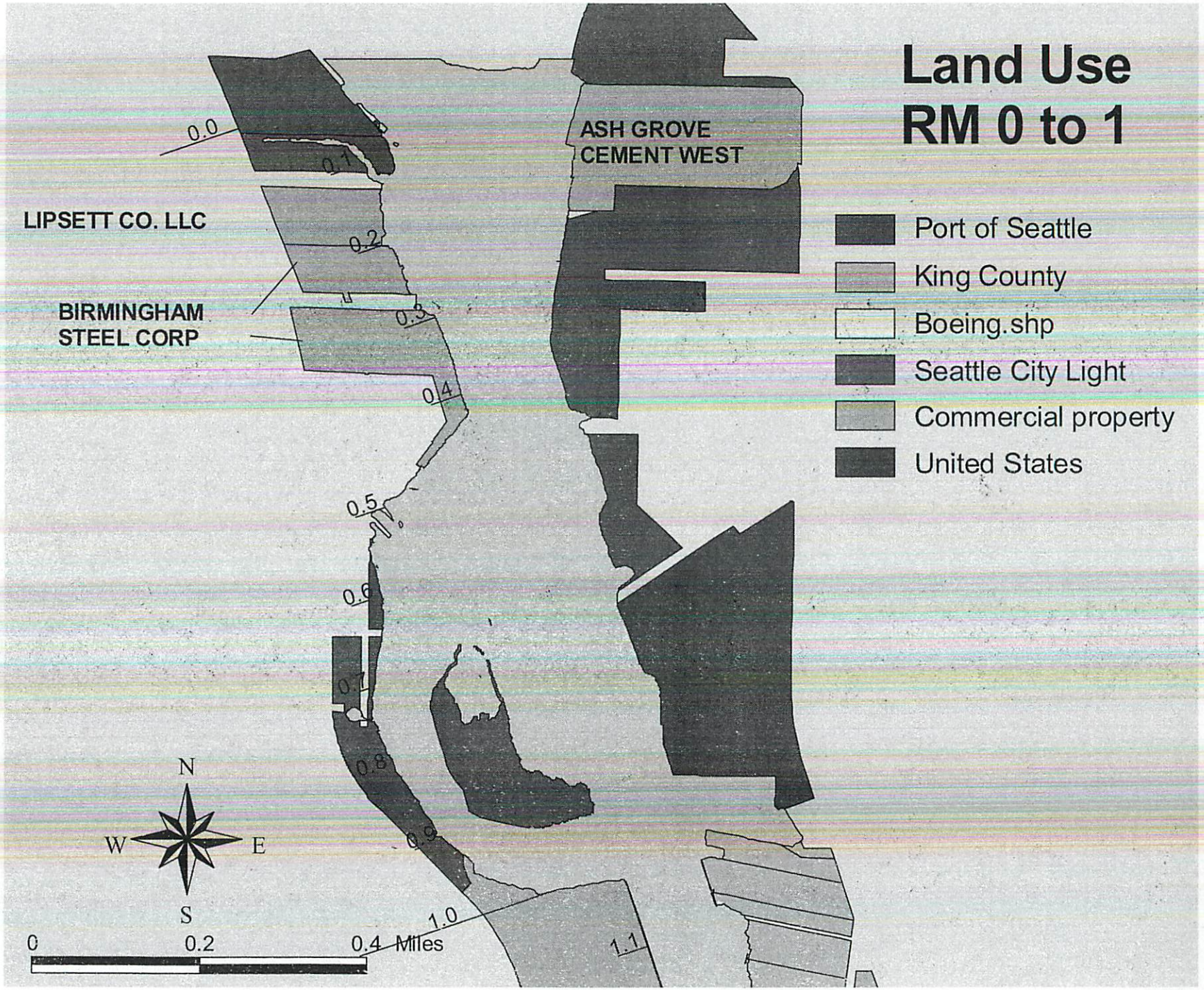
Herring House Park

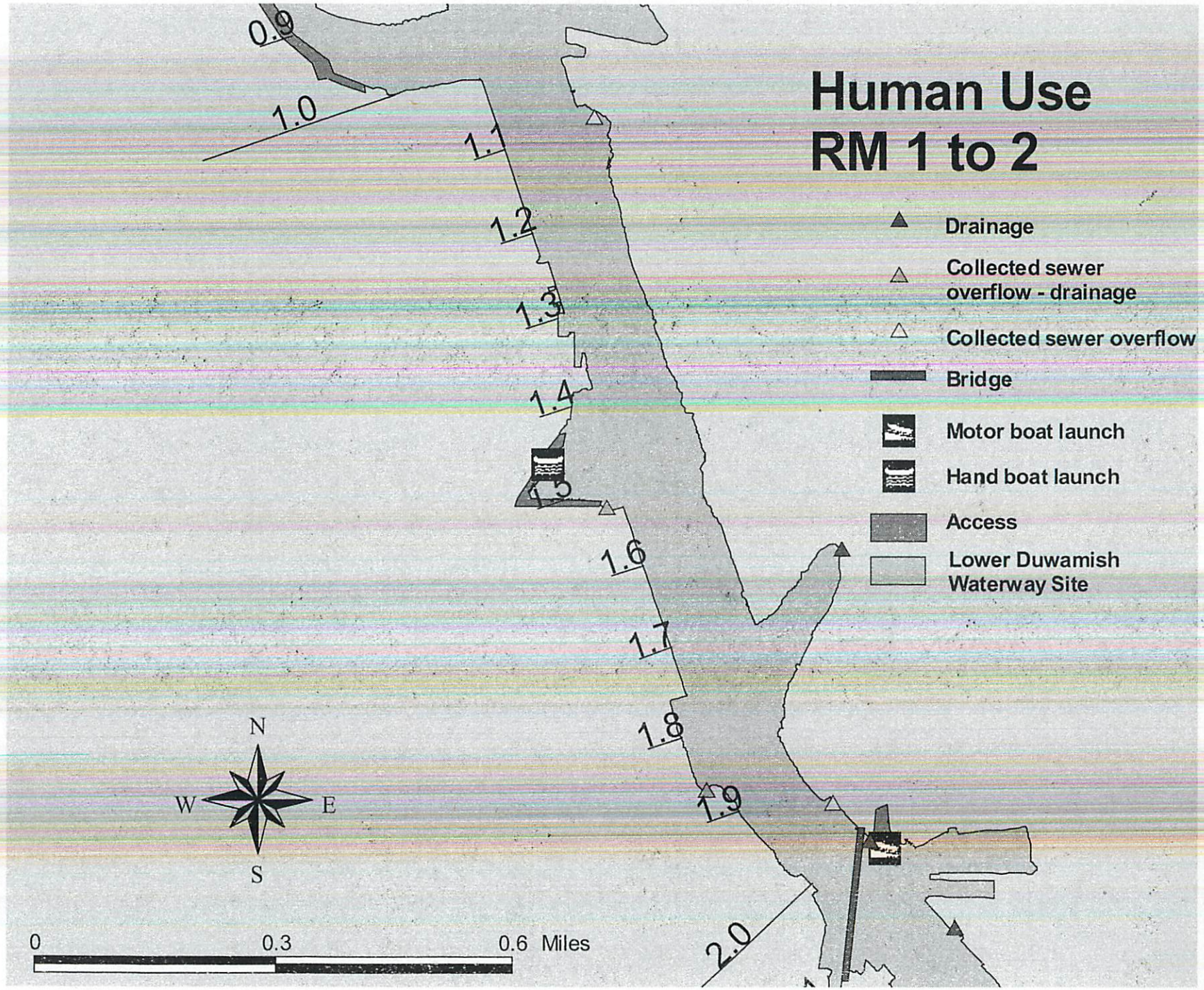
Kellogg Island



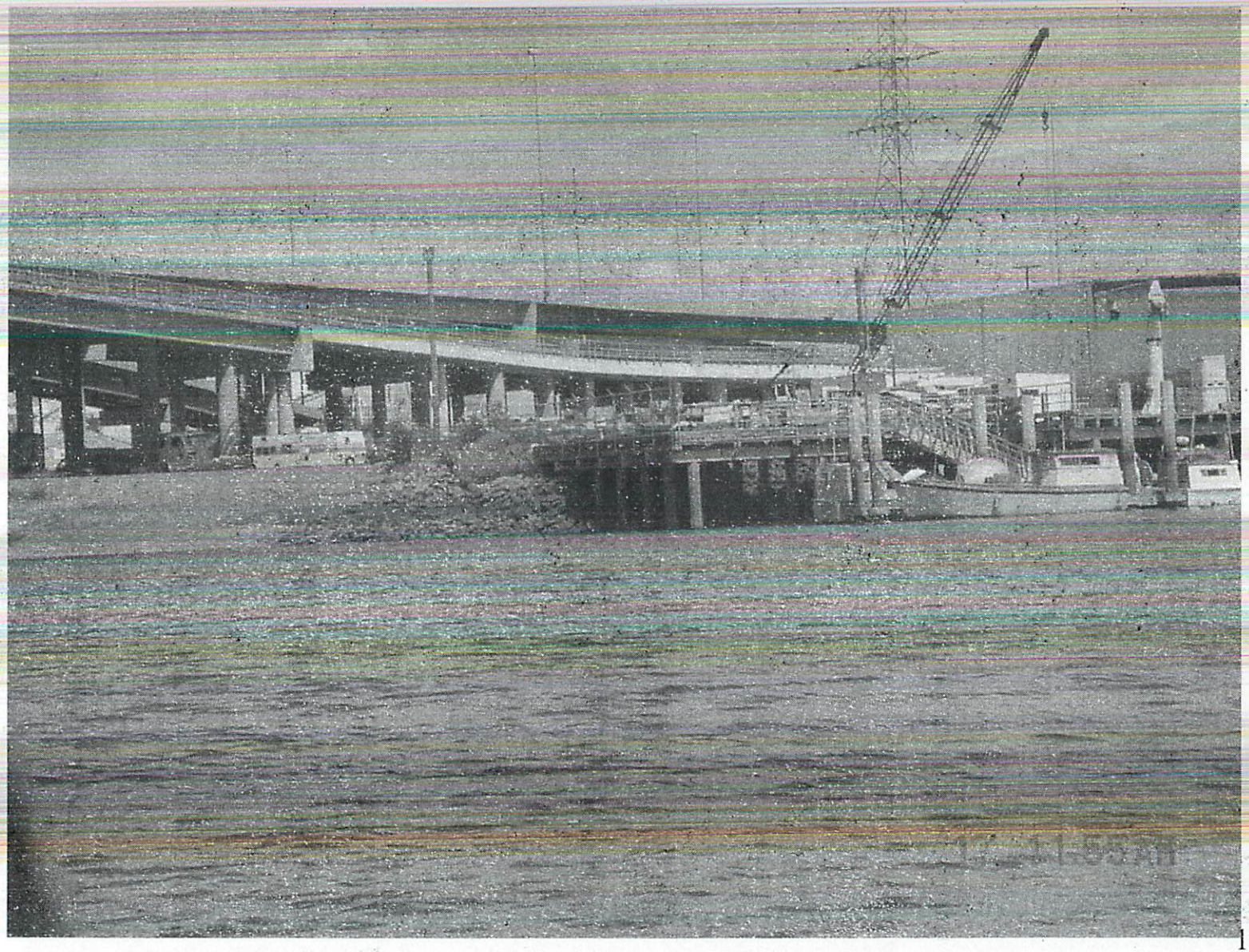
Kellogg Island, Aerial View

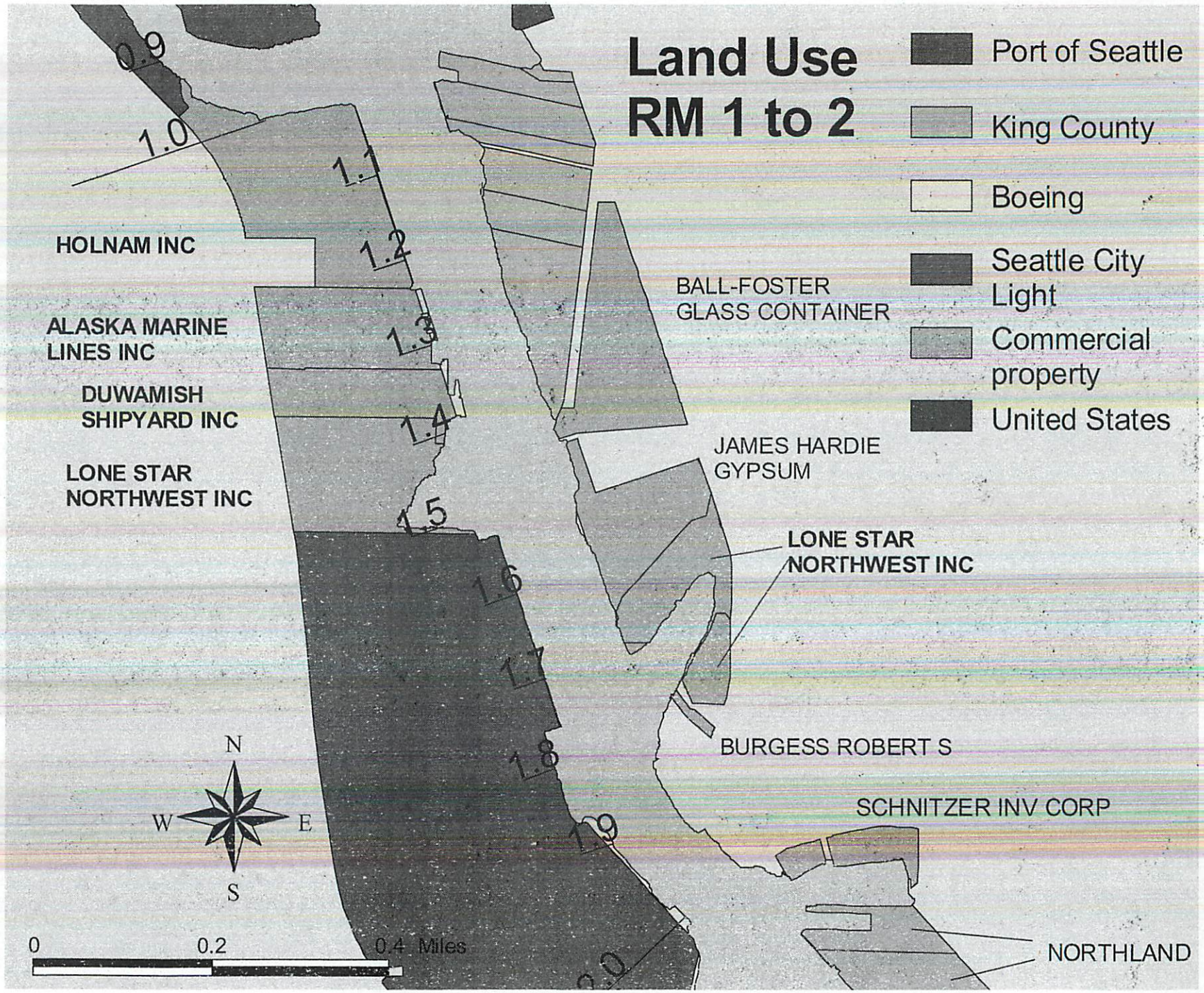



Land Use
RM 0 to 1
Port of Seattle
King County
Boeing.shp
Seattle City Light
Commercial property
United States
ASH GROVE
CEMENT WEST
LIPSETT CO. LLC
BIRMINGHAM
STEEL CORP
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
N
W
E
S
0
0.2
0.4 Miles

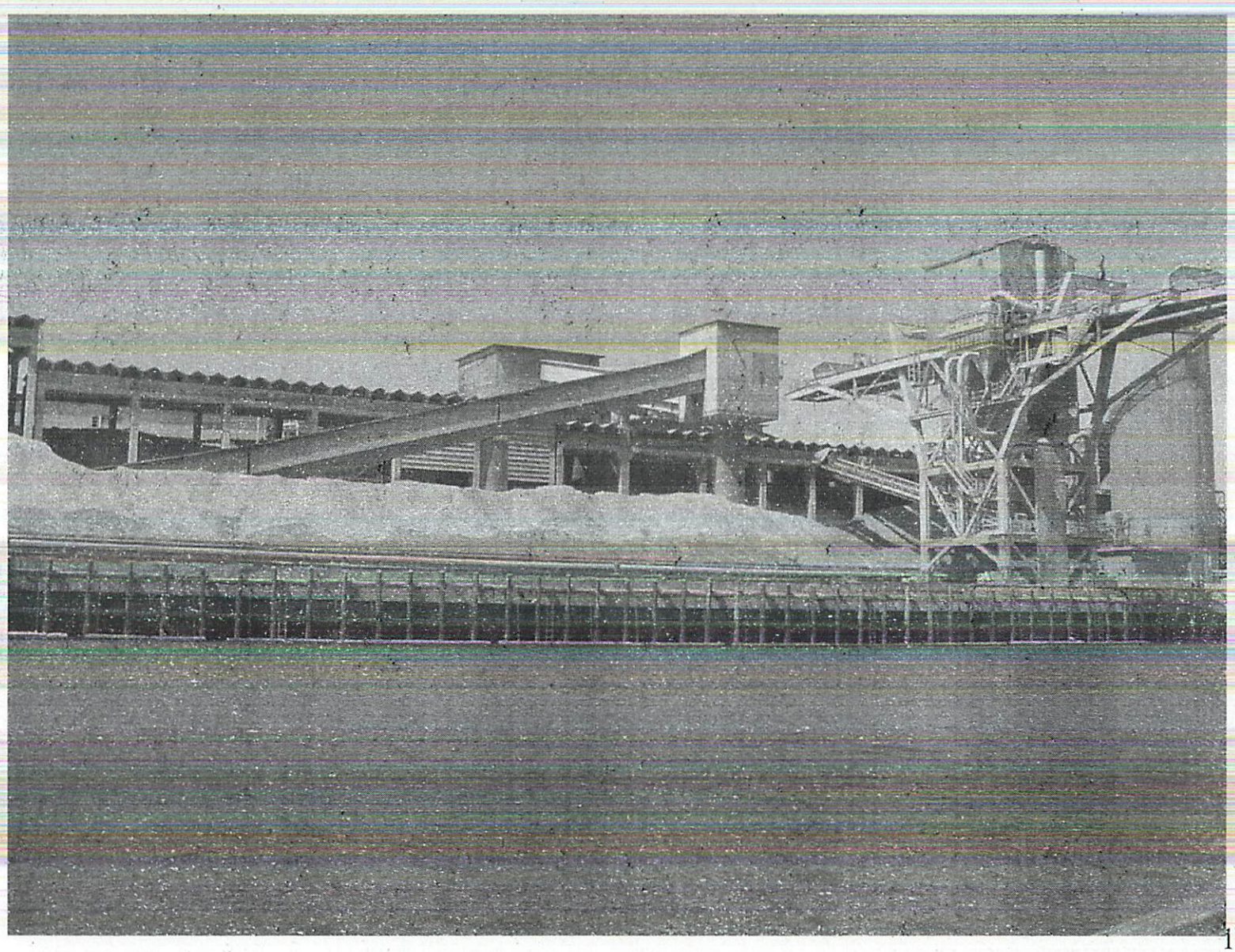

Human Use
RM 1 to 2
Drainage
Collected sewer overflow - drainage
Collected sewer overflow
Bridge
Motor boat launch
Hand boat launch
Access
Lower Duwamish Waterway Site
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
N
W
E
S
0
0.3
0.6 Miles

First Avenue Boat Ramp

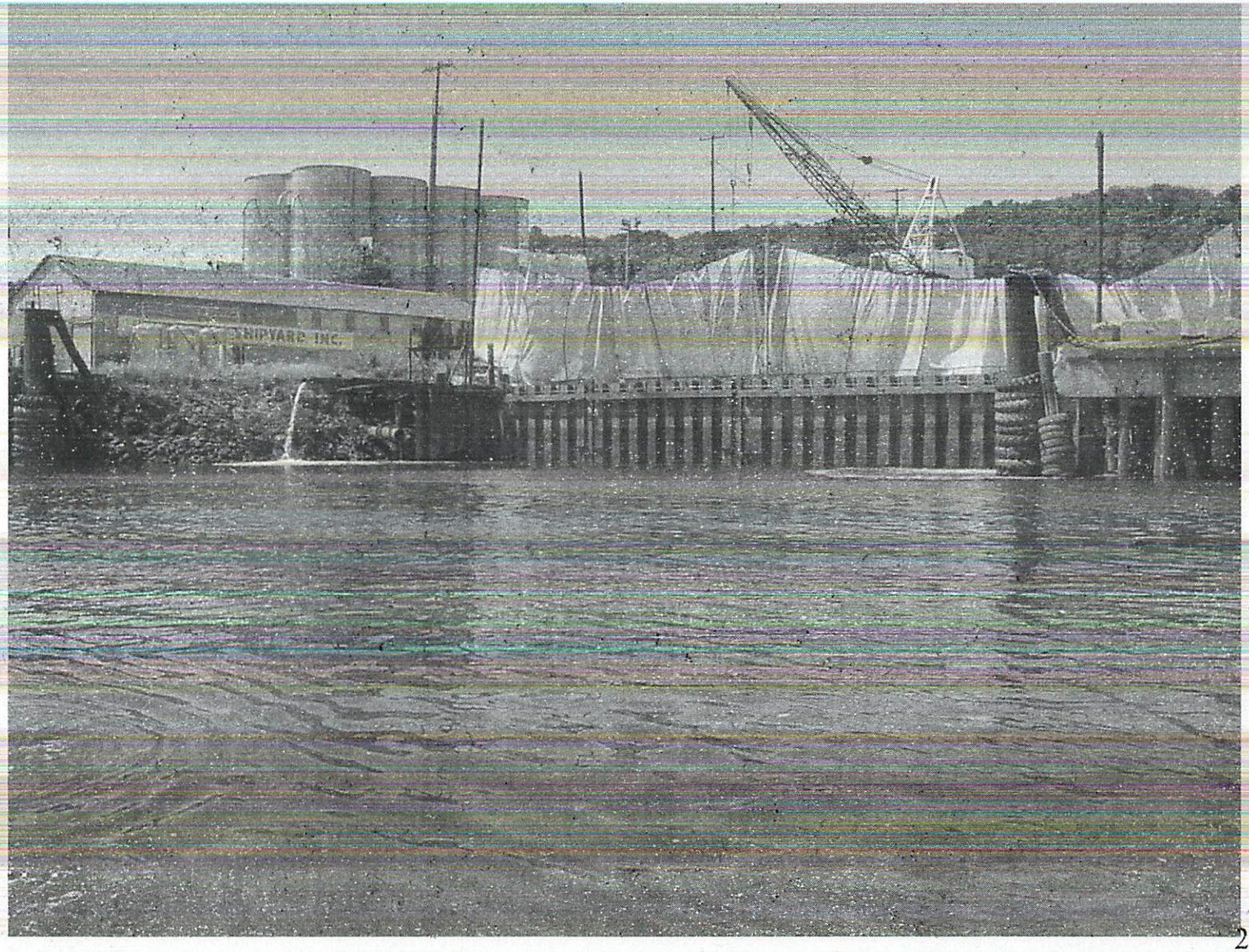



Land Use
RM 1 to 2
Port of Seattle
King County
Boeing
Seattle City Light
Commercial property
United States
0.9
1.0
1.1
1.2
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2.0
HOLNAM INC
ALASKA MARINE LINES INC
DUWAMISH SHIPYARD INC
LONE STAR NORTHWEST INC
BALL-FOSTER GLASS CONTAINER
JAMES HARDIE GYPSUM
LONE STAR NORTHWEST INC
BURGESS ROBERT S
SCHNITZER INV CORP
NORTHLAND
N
W
E
S
0
0.2
0.4 Miles

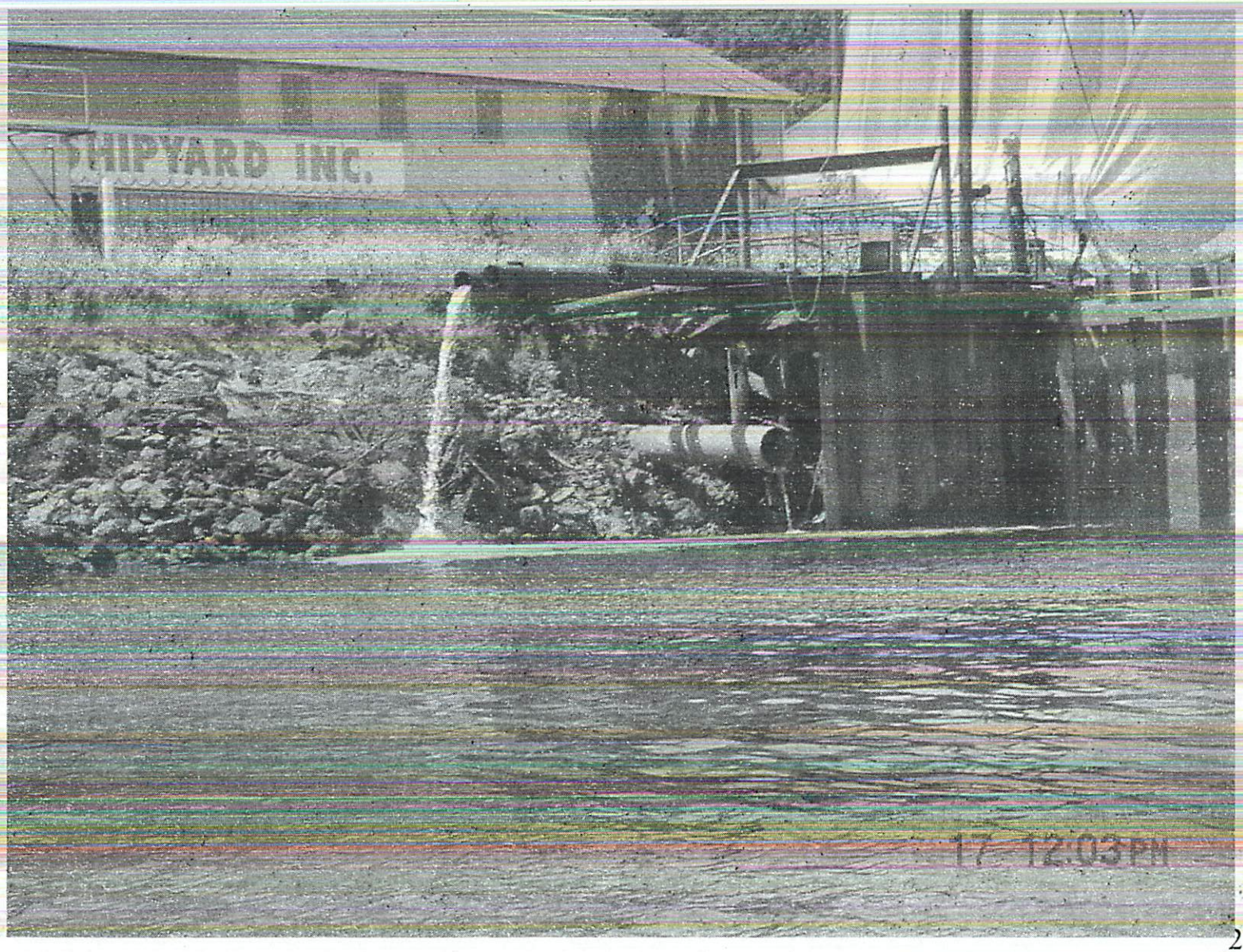
Holnam Cement

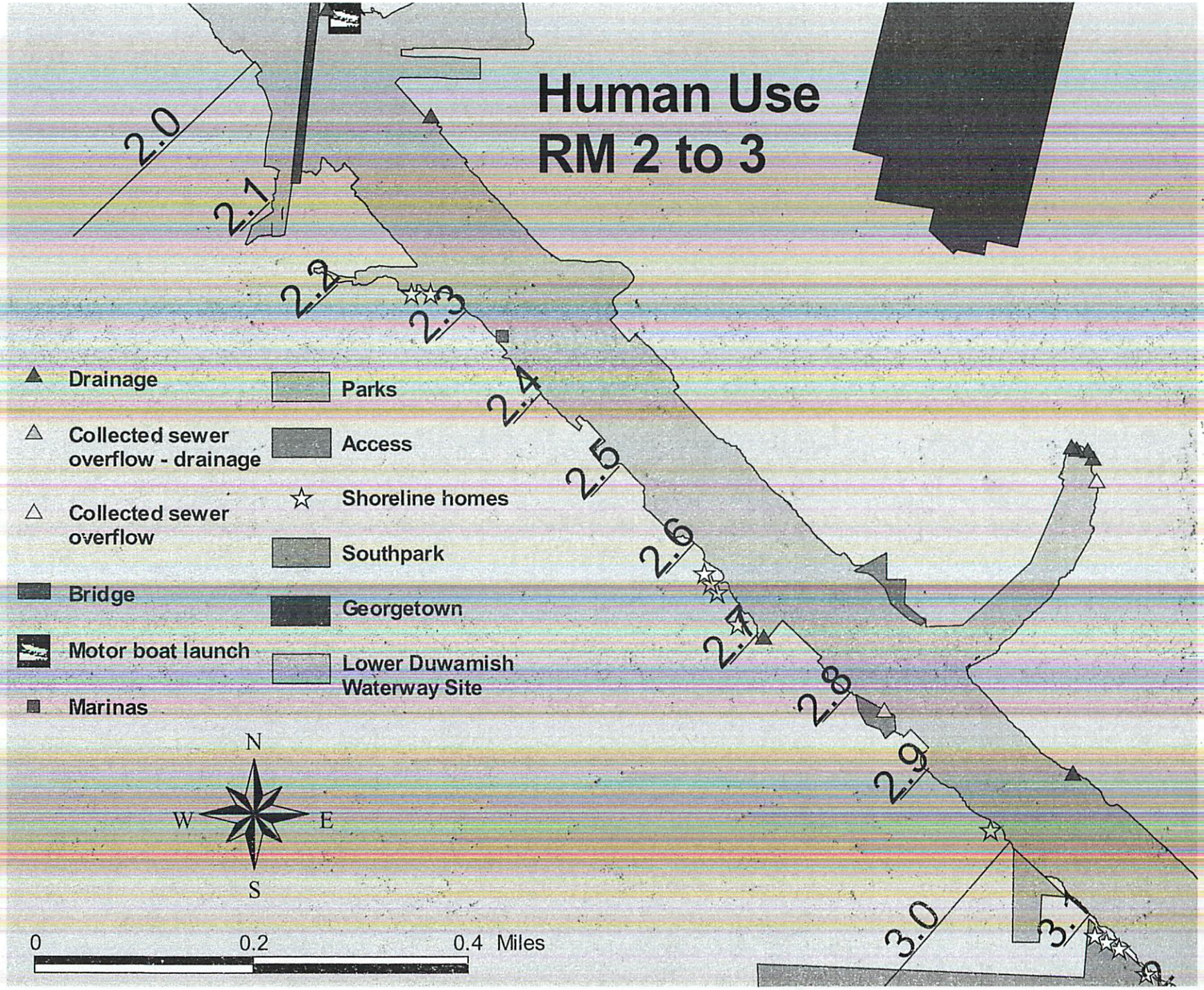


Duwamish Shipyard

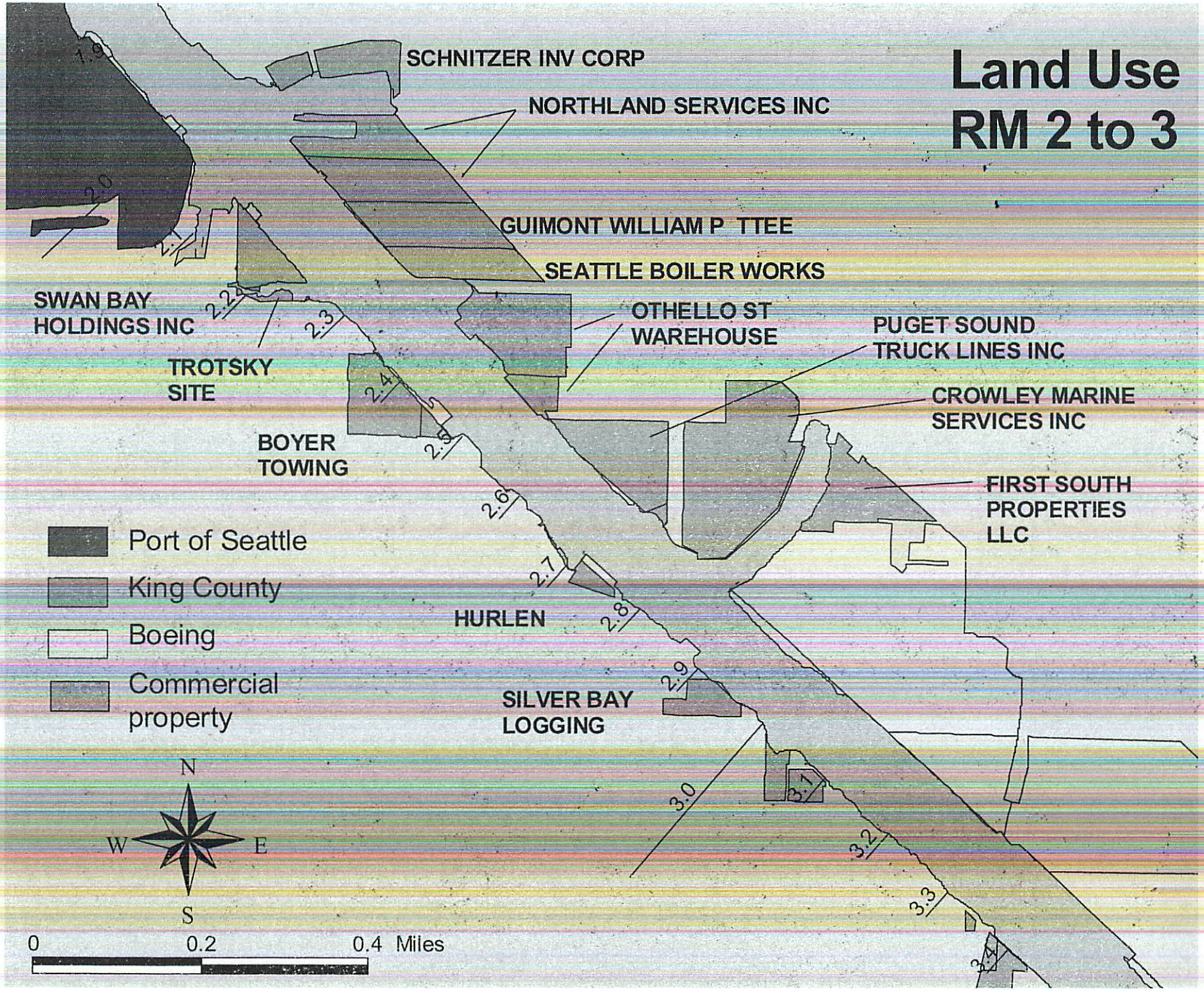


Duwamish Shipyard Outfalls

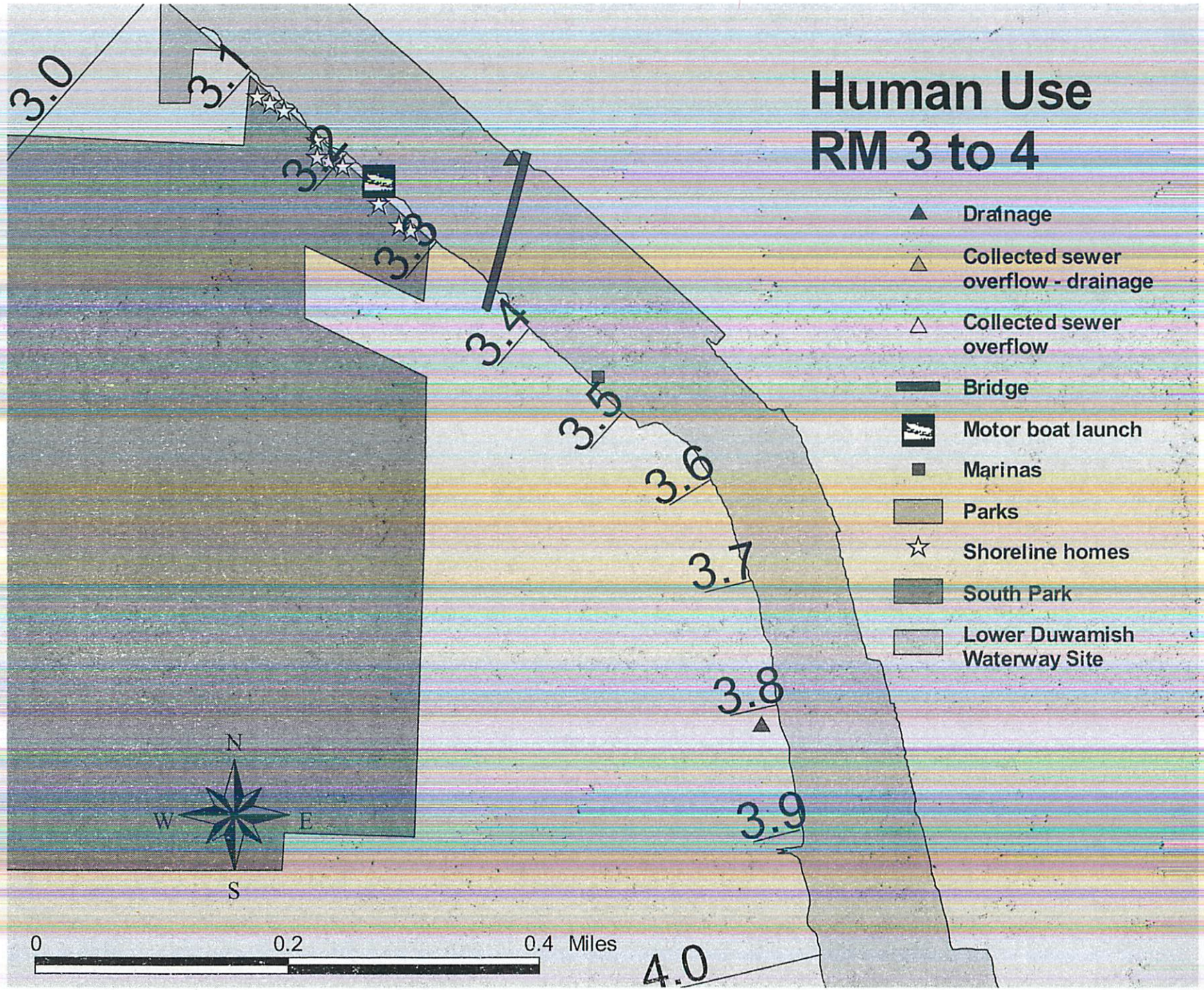



Human Use
RM 2 to 3
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
Drainage
Collected sewer overflow - drainage
Collected sewer overflow
Bridge
Motor boat launch
Marinas
Parks
Access
Shoreline homes
Southpark
Georgetown
Lower Duwamish Waterway Site
N
W
E
S
0
0.2
0.4 Miles

Gateway Park South


Land Use
RM 2 to 3
SCHNITZER INV CORP
NORTHLAND SERVICES INC
GUIMONT WILLIAM P TTEE
SEATTLE BOILER WORKS
OTHELLO ST WAREHOUSE
PUGET SOUND TRUCK LINES INC
CROWLEY MARINE SERVICES INC
FIRST SOUTH PROPERTIES LLC
SWAN BAY HOLDINGS INC
TROTSKY SITE
BOYER TOWING
HURLEN
SILVER BAY LOGGING
1.9
2.0
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
3.1
3.2
3.3
3.4
Port of Seattle
King County
Boeing
Commercial property
N
W
E
S
0
0.2
0.4 Miles

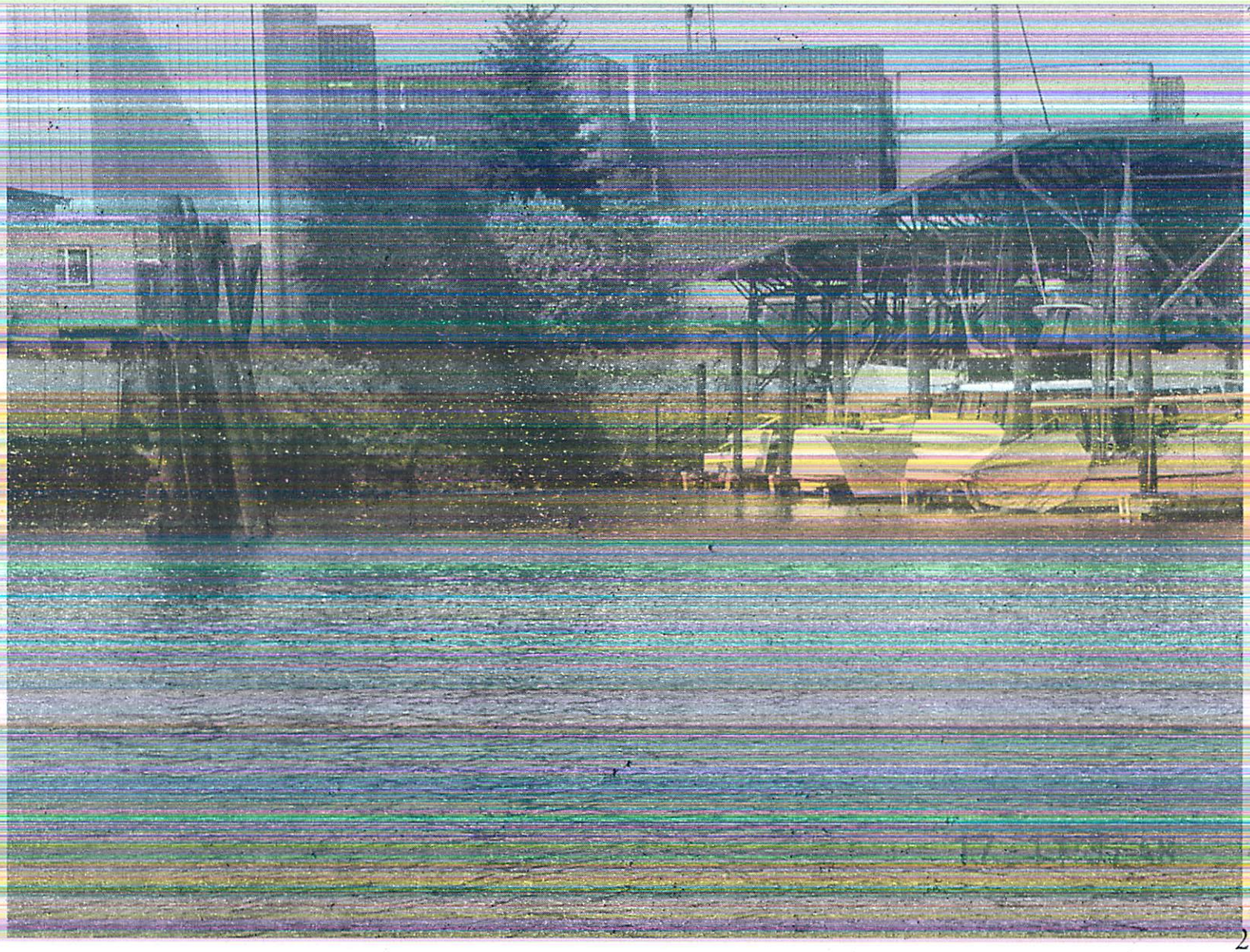
Othello Street Warehouse

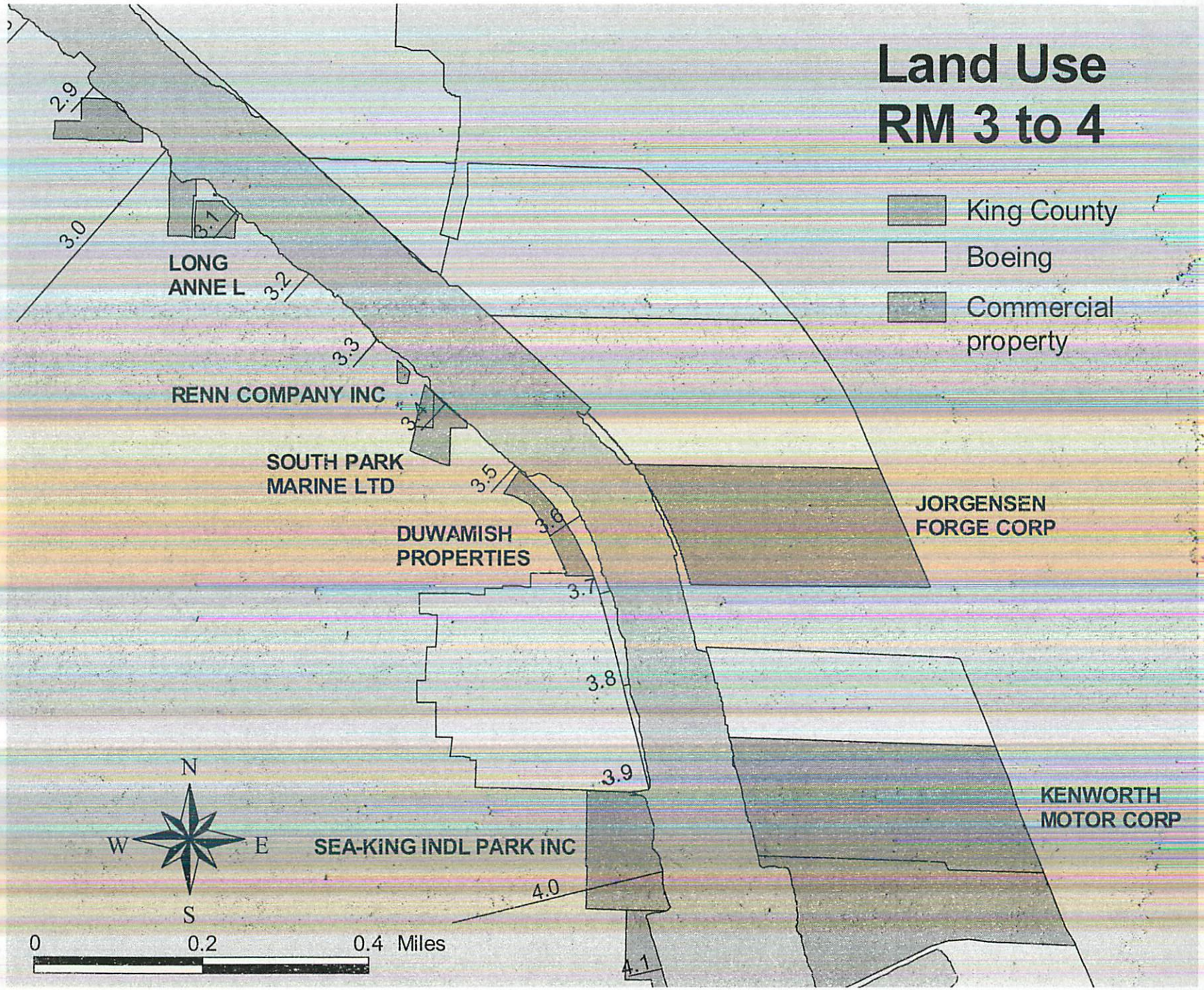

Human Use
RM 3 to 4
Drainage
Collected sewer overflow - drainage
Collected sewer overflow
Bridge
Motor boat launch
Marinas
Parks
Shoreline homes
South Park
Lower Duwamish Waterway Site
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4.0
N
W
E
S
0
0.2
0.4 Miles

Duwamish River Park

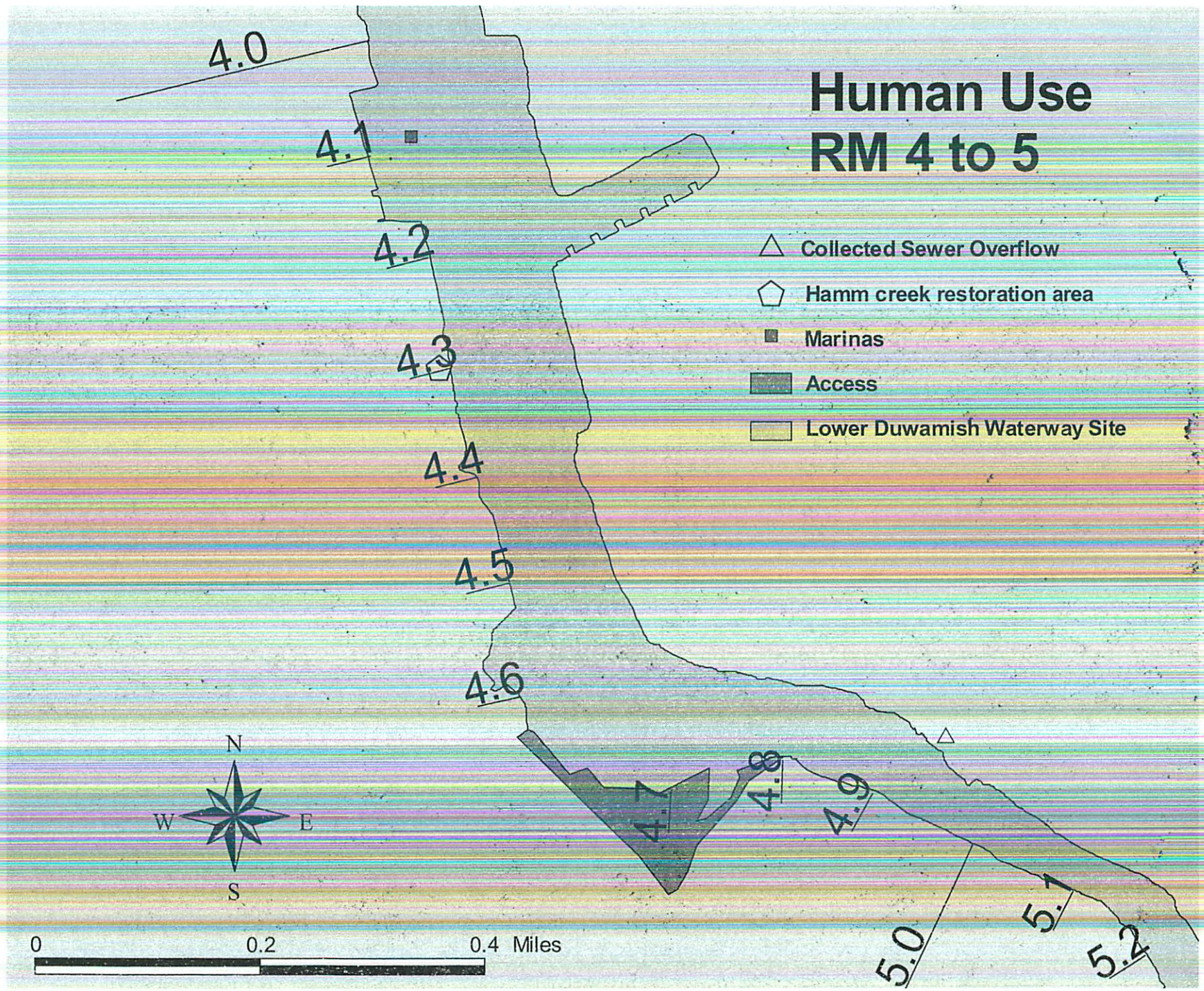
House Along the Duwamish

South Park Marina



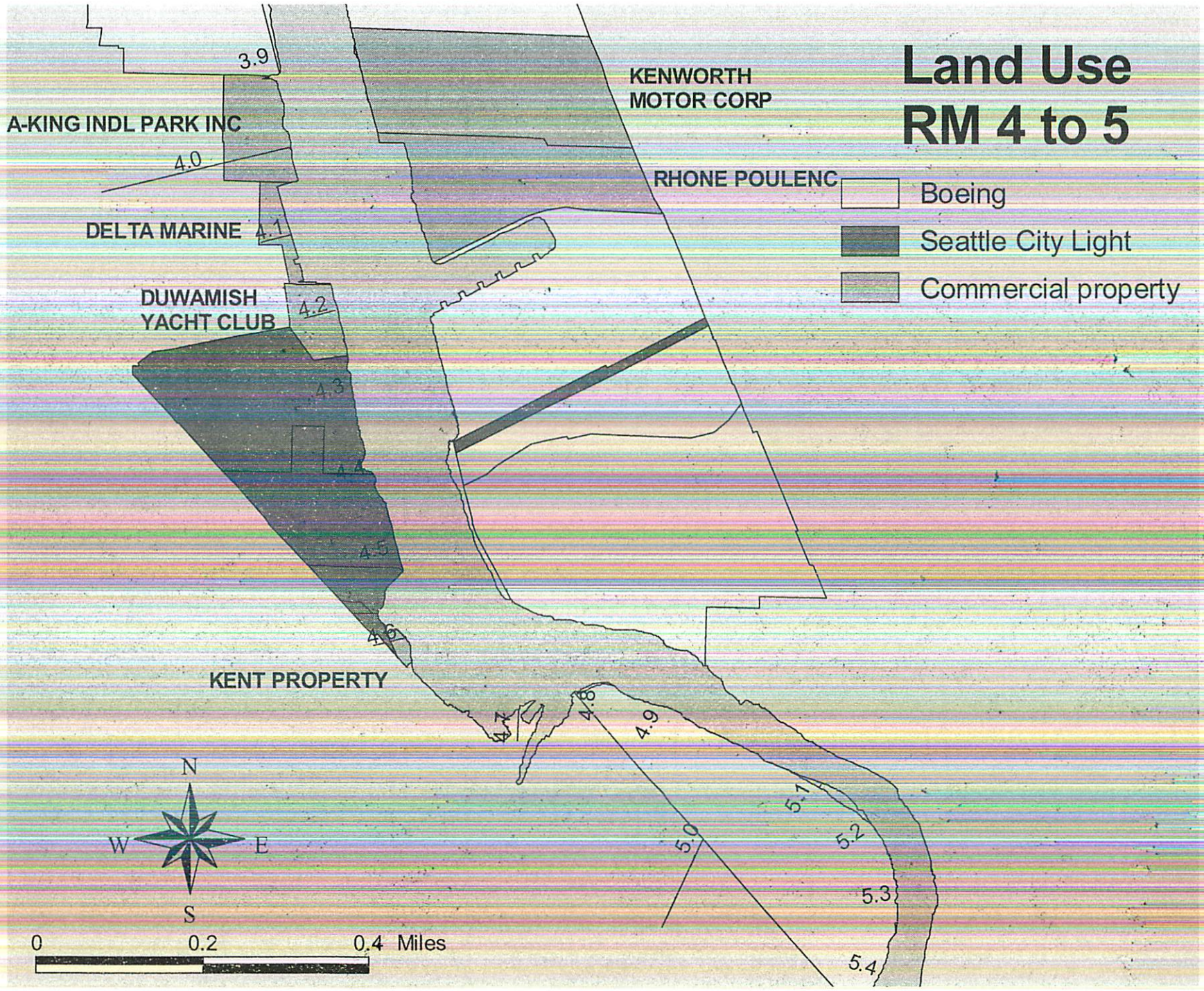

Land Use
RM 3 to 4
King County
Boeing
Commercial property
2.9
3.0
3.1
LONG
ANNE L
3.2
3.3
RENN COMPANY INC
SOUTH PARK
MARINE LTD
3.5
3.6
DUWAMISH
PROPERTIES
3.7
3.8
3.9
JORGENSEN
FORGE CORP
KENWORTH
MOTOR CORP
SEA-KING INDL PARK INC
4.0
4.1
N
W
E
S
0
0.2
0.4 Miles

Jorgensen Forge


Human Use
RM 4 to 5
Collected Sewer Overflow
Hamm creek restoration area
Marinas
Access
Lower Duwamish Waterway Site
4.0
4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8
4.9
5.0
5.1
5.2
N
W
E
S
0
0.2
0.4 Miles

Hamm Creek Restoration

Hamm Creek Restoration

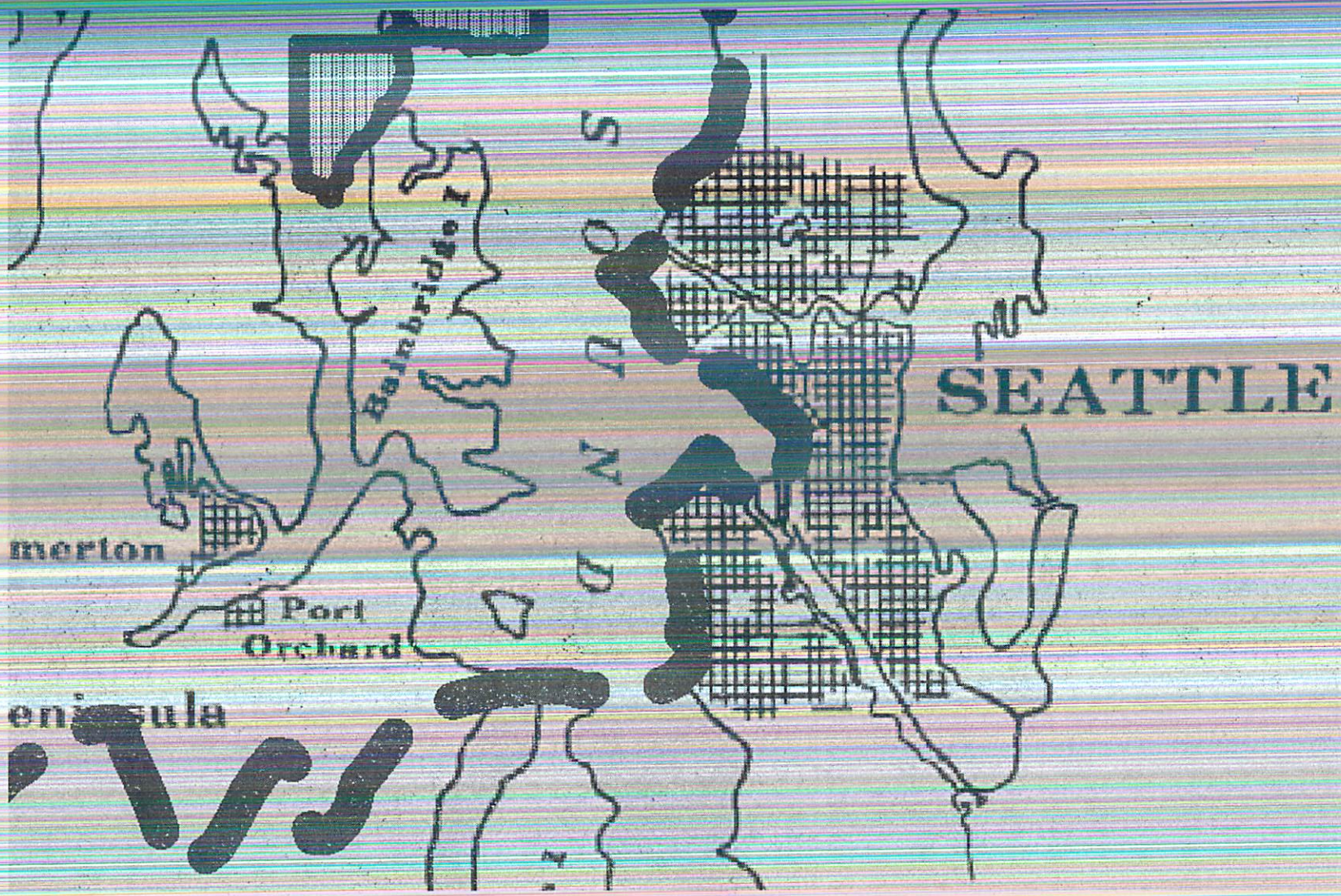

Land Use
RM 4 to 5
Boeing
Seattle City Light
Commercial property
KENWORTH
MOTOR CORP
RHONE POULENC
A-KING INDL PARK INC
DELTA MARINE
DUWAMISH
YACHT CLUB
KENT PROPERTY
3.9
4.0
4.1
4.2
4.3
4.4
4.5
4.6
4.7
4.8
4.9
5.0
5.1
5.2
5.3
5.4
N
W
E
S
0
0.2
0.4 Miles

The Duwamish, A Mixed Use Estuary

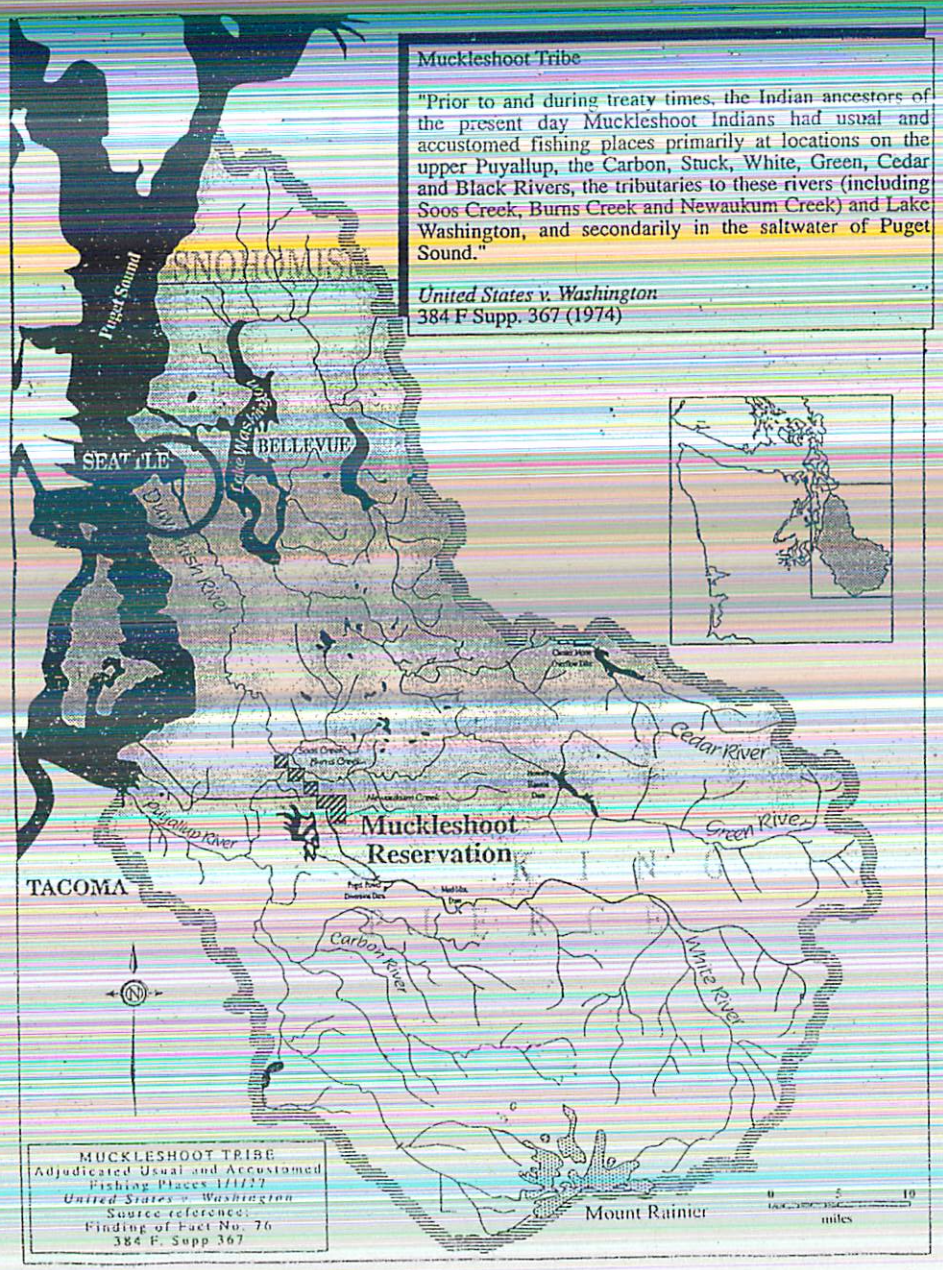
- Commercial facilities: cement plants, glass recycling, foundries, chemical manufacturing and shipping.
- Tribal salmon net fishing
- Residences and marinas are found throughout the Waterway.
- Recreational: hiking, kayaking, playing at parks, crabbing, *fishing, swimming*

Tribal Shellfish Issues

Suquamish
Tribe of U&A
Port Madison
Indian
Reservation
SEATTLE


SEATTLE
merton
Port
Orchard

MUCKLESHOOT INDIAN TRIBE
TREATY AREA DRAINAGE



Muckleshoot Tribe

"Prior to and during treaty times, the Indian ancestors of the present day Muckleshoot Indians had usual and accustomed fishing places primarily at locations on the upper Puyallup, the Carbon, Stuck, White, Green, Cedar and Black Rivers, the tributaries to these rivers (including Soos Creek, Burns Creek and Newaukum Creek) and Lake Washington, and secondarily in the saltwater of Puget Sound."

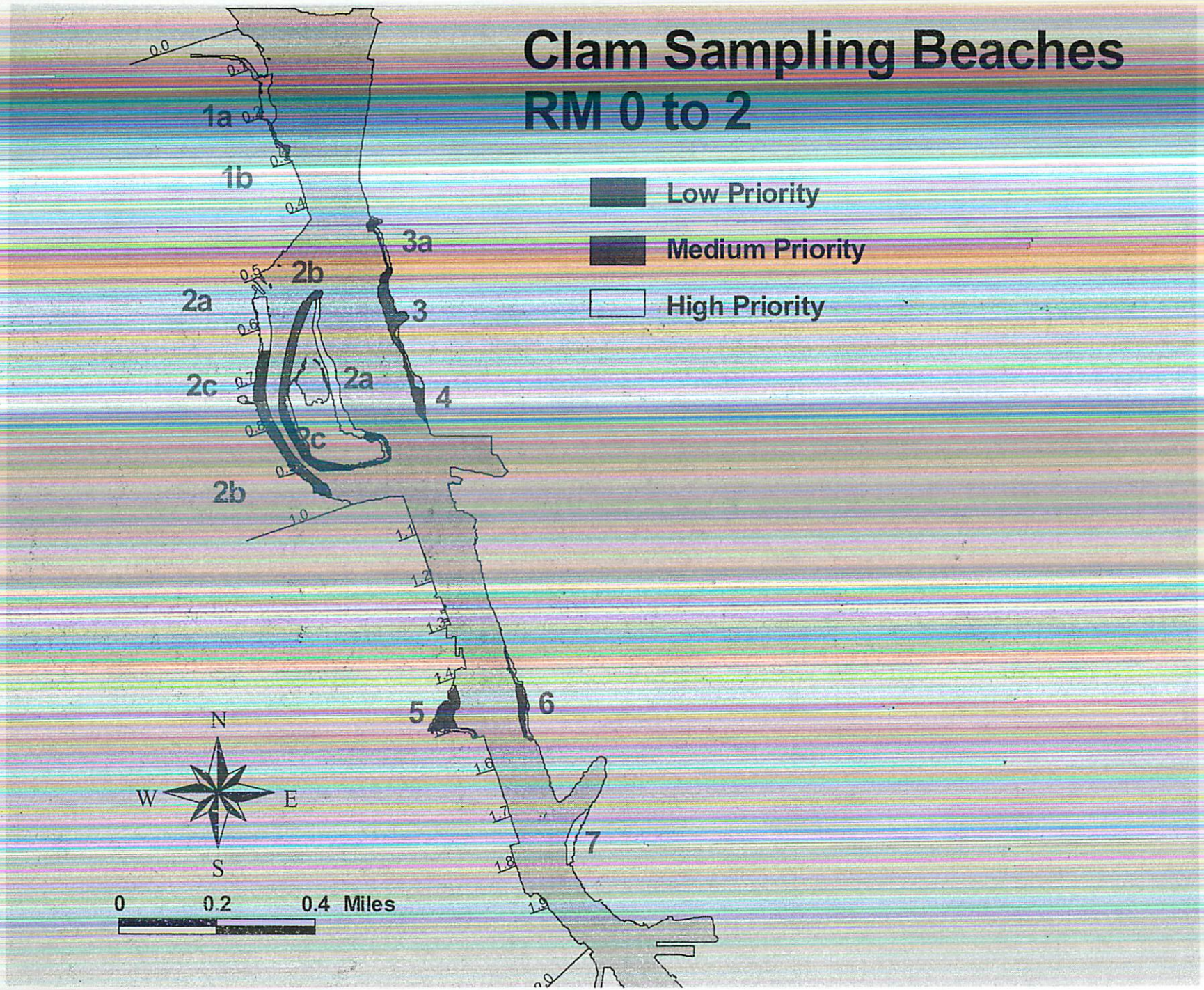
United States v. Washington
384 F Supp. 367 (1974)

Human Health Risk Analysis and Duwamish Shellfish Resources

- Contamination precludes shellfish harvest.
- However, analysis of health risks done assuming resources are safe.
- Quantity and type of shellfish resources a factor in selecting shellfish ingestion rates for risk analysis.
- Separate clam and crab/shrimp surveys being conducted.

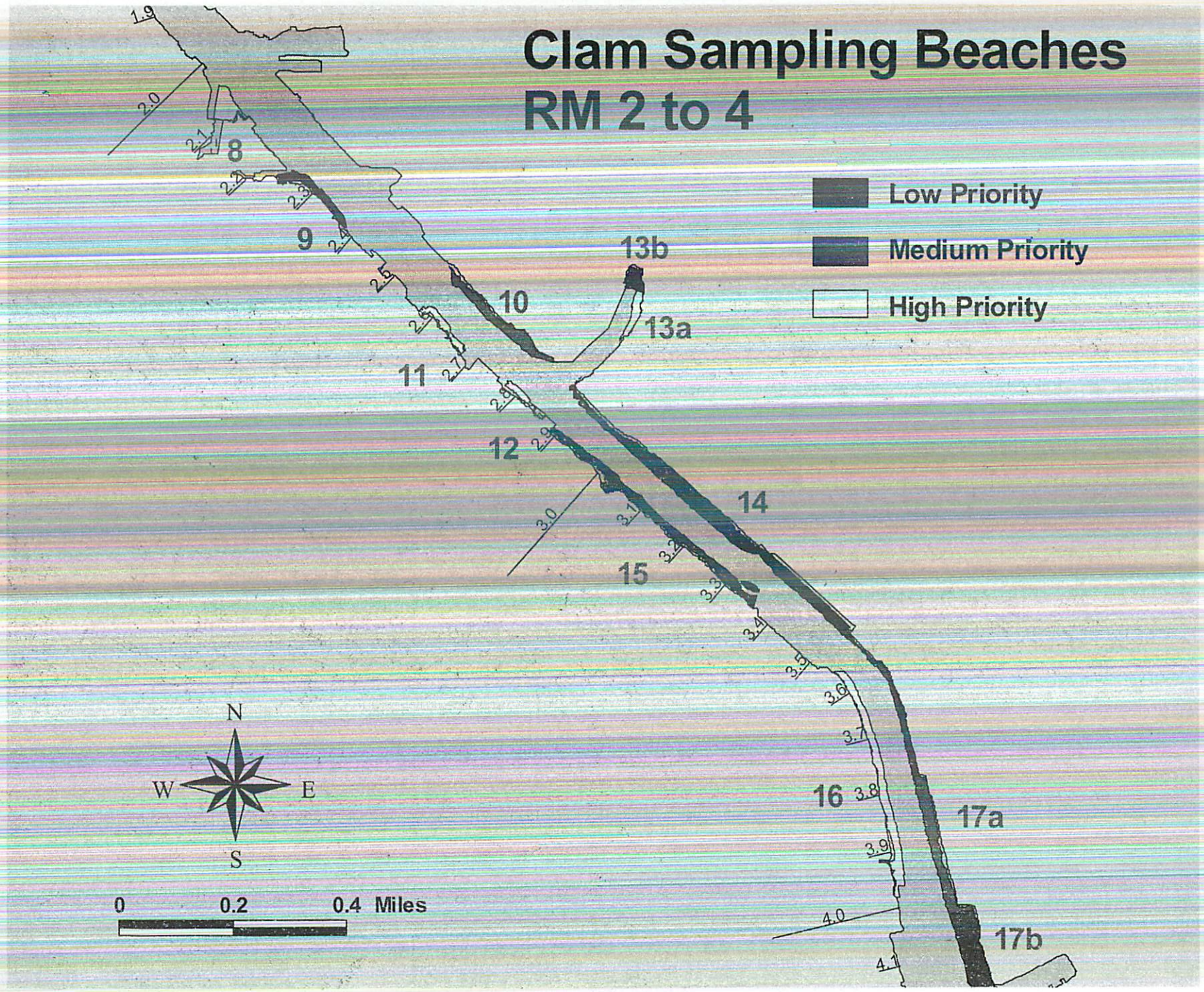
Components of the Clam Survey

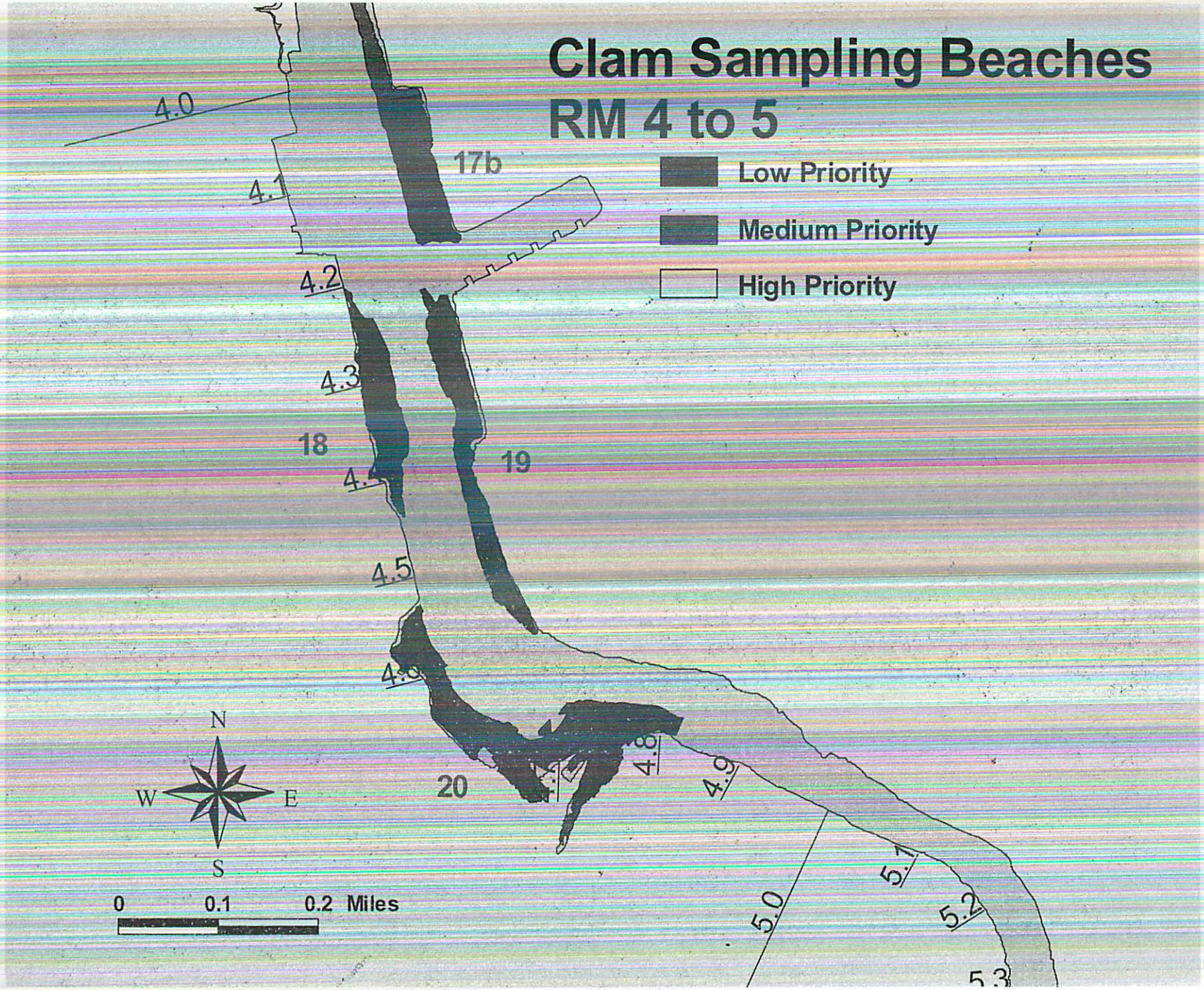
- Systematic grid survey of beaches using a random component to assess clam density.
- Catch per unit effort (CPUE) to determine potential harvest by a subsistence consumer.


Clam Sampling Beaches
RM 0 to 2
Low Priority
Medium Priority
High Priority
1a
1b
2a
2b
2c
3a
3
4
5
6
7
N
W
E
S
0
0.2
0.4 Miles

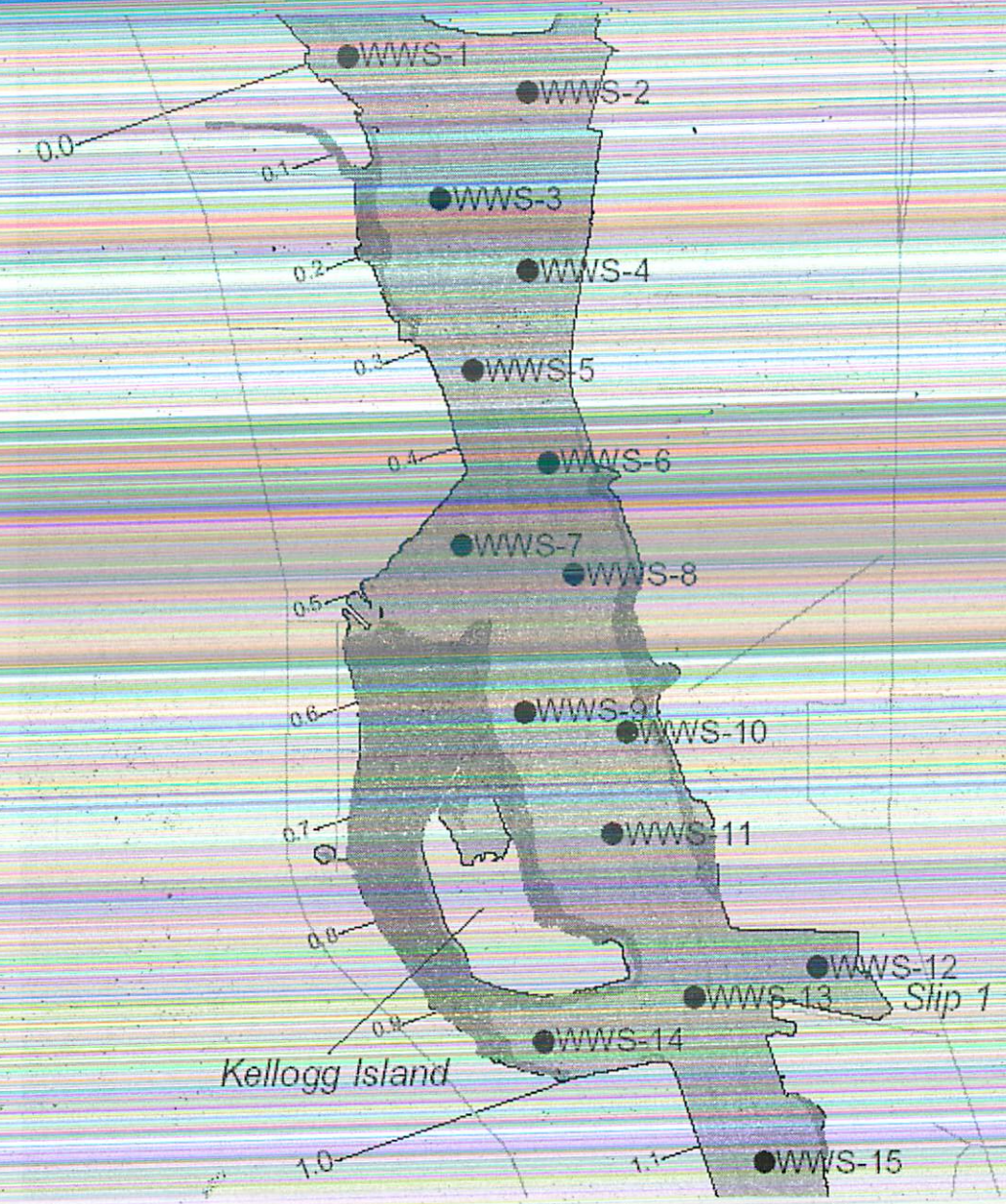
Initial Findings of Clam Survey

- Clam densities lower than those found at commercial beaches.
- Clams generally of small size.
- CPUE study found substantial harvest of edible clams possible.


Clam Sampling Beaches
RM 2 to 4
Low Priority
Medium Priority
High Priority
8
9
10
11
12
13a
13b
14
15
16
17a
17b
1.9
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4.0
4.1
N
W
E
S
0
0.2
0.4 Miles

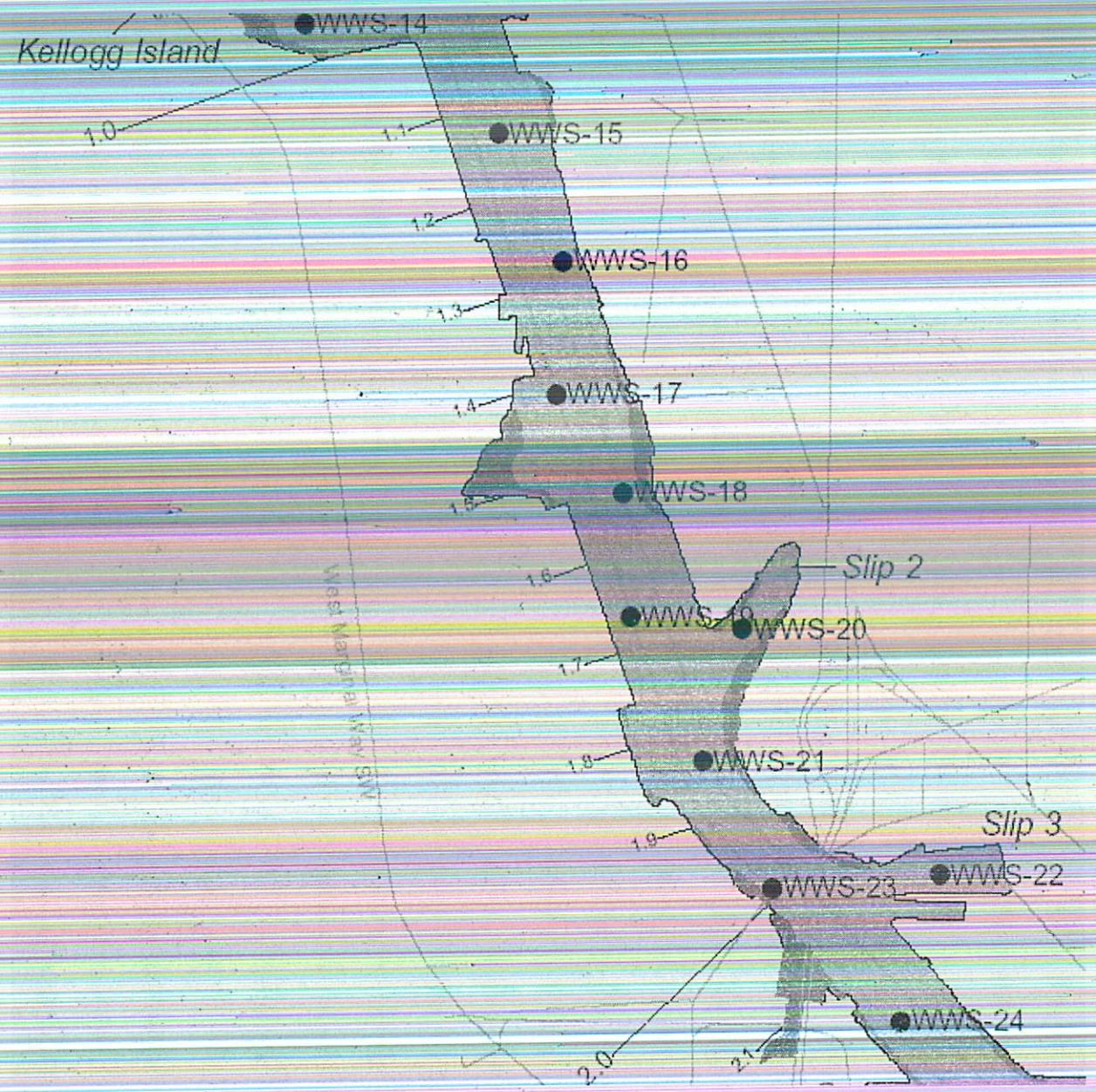

Clam Sampling Beaches
RM 4 to 5
Low Priority
Medium Priority
High Priority
4.0
4.1
4.2
4.3
4.4
4.5
4.6
4.8
4.9
5.0
5.1
5.2
5.3
17b
18
19
20
N
W
E
S
0
0.1
0.2 Miles

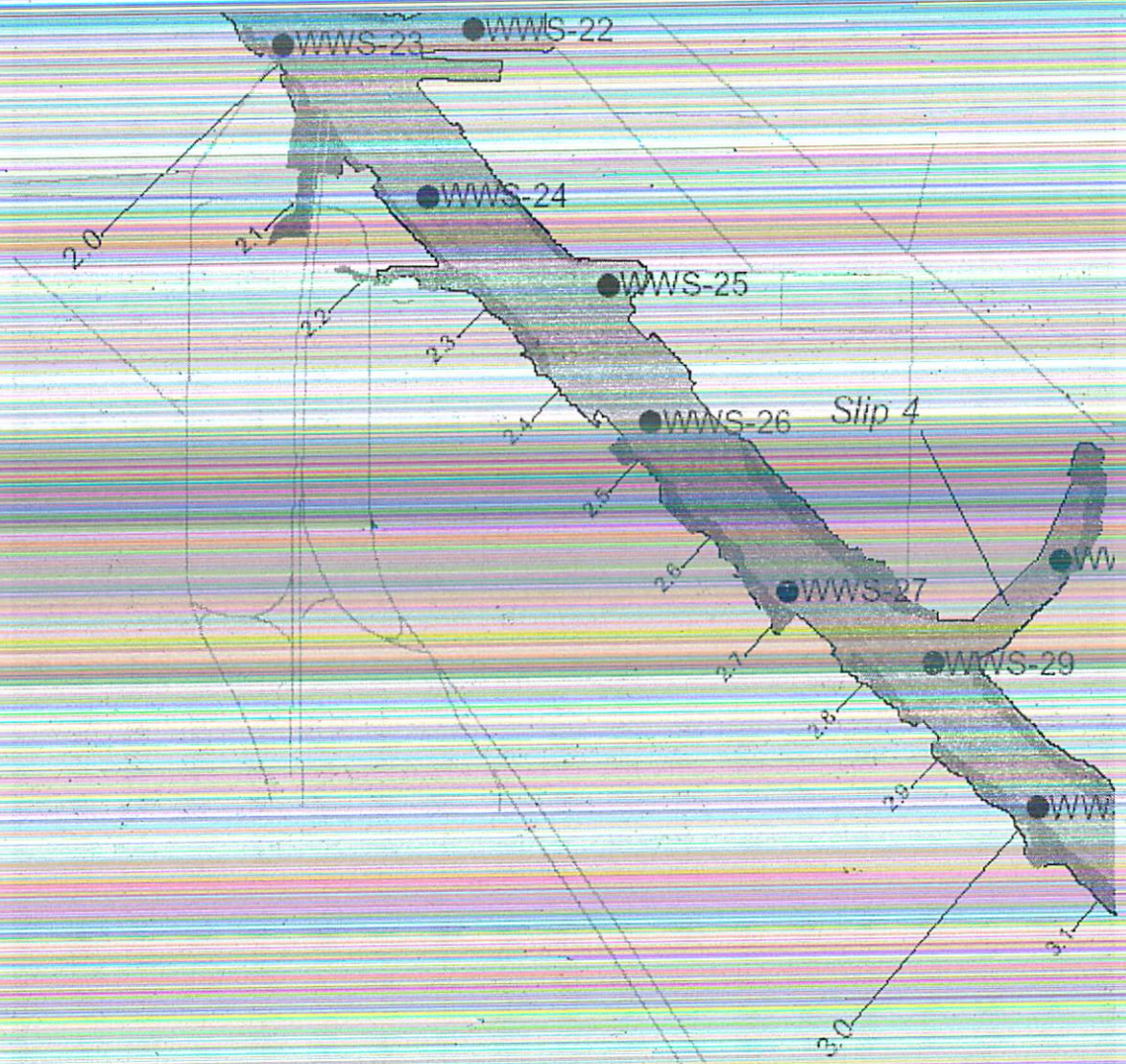
Crab and Shrimp Sampling



Pilot Study Crab Catch
(4 hr/24 hr soak times)

Station	C. Gracilis	C. Productus	C. Magister
WWS-1	5/0	9/2	6/5
WWS-2	10/1	1/0	1/5
WWS-4	12/0	2/4	7/5
WWS-8	14/4	0/1	1/1
WWS-12	11/5	0/0	1/0
WWS-14	10/4	0/0	1/0


Kellogg Island
WWS-14
1.0
1.1
WWS-15
1.2
WWS-16
1.3
1.4
WWS-17
WWS-18
1.5
1.6
Slip 2
WWS-19
WWS-20
1.7
1.8
WWS-21
1.9
Slip 3
WWS-23
WWS-22
WWS-24
2.0
2.1


WWS-23
WWS-22
WWS-24
WWS-25
WWS-26
Slip 4
WWS-27
WWS-29
2.0
2.1
2.2
2.3
2.4
2.5
2.6
2.7
2.8
2.9
3.0
3.1

WWS-30
WWS-31
WWS-32
WWS-33
WWS-34
WWS-35
WWS-36
WWS-37
WWS-38
Slip 6
Turning Basin 3
2.9
3.0
3.1
3.2
3.3
3.4
3.5
3.6
3.7
3.8
3.9
4.0
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4.2
4.3
4.4
4.5
4.6
4.7
4.8
5.1
5.2
5.3

Acknowledgements

- **WA Dept. of Health:** Marcia Henning, Gary Palcisko, Robert Duff
- **King County Public Health:** Peter Isaacson
- **Windward Environmental:** Scott Shotwell
- **NOAA**
- **Muckleshoot Tribe**
- **Suquamish Tribe**