**Excerpt from *Louisiana Offshore Terminal Authority Environmental Monitoring, 2001-2002* (Barry A. Vittor & Associates, Inc.)**

**ABSTRACT**

The current Louisiana Offshore Oil Port (LOOP) monitoring program includes seasonal monitoring of aquatic and marine resources, sediment composition, and water quality on a five (5) -year cycle. These data provide an update to the existing long-term LOOP dataset that was collected annually from 1979 to 1994, as well as a measure of natural environmental variability in the project area. The monitoring program was designed to identify environmental impacts that could occur due to offshore vessel operations (at the Single-Point Mooring and Terminal Complex), brine discharge, storage facility operations, and pipeline construction and operation. Inshore benthic samples were collected utilizing a 0.023 $m^2$ Ekman grab sampler. Five replicates were collected at each inshore Lake Jesse and Clovelly station. Offshore samples were collected with a 0.1 $m^2$ Smith-McIntyre grab sampler. There were six replicates collected at each station adjacent to the LOOP brine diffuser and seven replicates collected at each station in the area of the LOOP Marine Terminal Complex (offshore). Samples were collected during August and November 2001 and June 2002. Environmental data and hydrographic profiles were conducted in conjunction with the benthic sampling. Sediment core samples were collected at the inshore benthic stations using a Barret-type coring device. Sediment core samples collected at the offshore benthic stations were collected using a Smith-McIntyre Grab sampler. Samples were analyzed for Polynuclear Aromatic Hydrocarbons (PAH) and grain size (percent gravel, sand, silt, clay).

Sediments at the Clovelly stations during all seasons were dominated by silt+clay (except Station 464 in June). Sediments at Station 464 were greater than 20% sand during



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August and November, but were completely organic during June. Estuarine salinities were present during all seasons, ranging from < 2 ppt in August to 6 ppt in June. Dissolved oxygen (DO) levels varied seasonally. DO levels were lowest in August (< 5 mg/l) and were greater than 7 mg/l during November and June. The gastropod, *Probythinella louisianae* dominated the benthic assemblage in August, the gastropod, *Amnicola limosa*, dominated in November, and the bivalve, *Mytilopsis leucophaeata*, dominated in June. There were significant differences in density and taxa richness between stations for each season. In no instance was the control station significantly different than both of the test stations. These differences could be explained by subtle variations in sediment type between stations as well as stochastic variability inherent in benthic assessments. There was no measurable impact of the LOOP facilities on benthic macroinfaunal assemblages at the Clovelly site.

Sediments at the Lake Jesse stations during all seasons were dominated by silt+clay. Estuarine salinities were present during all seasons, ranging from 4.7 ppt in August to 6.8 ppt in November. DO levels did not vary seasonally and were between 7 and 8 mg/l during all sampling events. The oligochaete family, Tubificidae (LPIL), dominated the benthic assemblage in August, the polychaete, *Mediomastus* (LPIL), dominated in November, and the ascidiacean family, Ascidiacea (LPIL), dominated the assemblage in June. There were no significant differences in density or taxa richness between stations for each season. There was no measurable impact of the LOOP facilities on benthic macroinfaunal assemblages at the Lake Jesse site.

Sediments at the Brine Diffuser stations during all seasons were dominated by silt + clay. The sediment at Station 475 in August was 45% sand. Bottom salinities varied



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seasonally and were between 28-30 ppt in August, 31-32 ppt in November, and 35-36 ppt in June. Hypoxic conditions (DO = 1.88 mg/l) were present at Station 435 during August; however, DO levels at the remaining stations ranged from 2.79 mg/l at Station 473 to 3.66 mg/l at Station 475. In November, bottom DO levels ranged from 4.8 mg/l at Station 475 to 7.1 mg/l at Station 435. In June, hypoxic conditions were present at all stations with DO ranging from 1.0 mg/l at Station 475 to 1.5 mg/l at Stations 435 and 474. The polychaete, *Paraprionospio pinnata*, dominated the benthic assemblage in August and November, while the polychaete, *Mediomastus* (LPIL), dominated the benthos in June. There were no significant differences in densities between stations for each season. There were no significant differences in taxa richness between stations during August and November; in June, Station 435 had significantly greater taxa richness than the remaining stations. It is probable that the hypoxia experienced by the benthic assemblage in June was responsible for variations in taxa richness. There was no measurable impact of the LOOP facilities on benthic macroinfaunal assemblages at the Brine Diffuser site.

Sediments at the Offshore stations during all seasons were dominated by silt + clay. Bottom salinities varied seasonally and ranged from 32.4 ppt at Station 481 in August to 38.6 ppt at Station 484 in August. Hypoxic conditions were present at Stations 481 (DO = 1.60 mg/l) and 484 (DO = 1.88 mg/l) during August; no bottom DO data were collected from Station 484. In November, bottom DO levels ranged from 2.8 mg/l at Station 481 to 8.1 mg/l at Station 482. In June, bottom DO levels ranged from 6.0 mg/l at Station 482 to 6.9 mg/l at Station 484. The polychaete, *Paraprionospio pinnata*, dominated the benthic assemblage in August and June, while the gastropod, *Vitrinella helicoidea*, dominated the



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## SCOPE

The current LOOP monitoring program includes seasonal monitoring of aquatic and marine resources, sediment composition, and water quality on a five -year cycle. These data provide an update to the existing long-term LOOP dataset that was collected annually from 1979 to 1994, as well as a measure of natural environmental variability in the project area. The monitoring program was designed to identify environmental impacts that could occur due to offshore vessel operations (at the Single-Point Mooring and Terminal Complex), brine discharge, storage facility operations, and pipeline construction and operation.



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# METHODOLOGY

Vittor & Associates (BVA) conducted each study element of the monitoring program in accordance with the specifications in the previous section, using methodologies similar to the past program to ensure that proposed program data were compatible with previously collected data.

BVA's principal modifications to the present program included use of Differential Global Positioning System for sample station positioning, availability of back-up field equipment for all survey tasks, use of certified analytical laboratories for water and sediment chemistries, and use of a database management system that provides monthly data compilation/reduction.

## Biological Methods

### Benthos

Benthic samples were collected at various inshore and offshore sample stations (Figure 1). Inshore benthic samples were collected utilizing a 0.023 $m^2$ Ekman grab sampler. Five replicates were collected at each inshore benthic station. Offshore samples were collected with a 0.1 $m^2$ Smith-McIntyre grab sampler. There were six replicates collected at each station adjacent to the LOOP brine diffuser and seven replicates collected at each station in the area of the LOOP Marine Terminal Complex (= offshore). Samples were sieved through a 0.533 mm-mesh brass screen. All material retained on the screen was preserved in a 10-15% solution of filtered ambient water and buffered formalin stained with Rose Bengal. Samples were collected during August and November 2001 and June 2002.



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**Benthic Sample Analysis**

In BVA's laboratory, benthic samples were inventoried, rinsed gently through a 0.5–mm mesh sieve to remove preservatives and sediment, stained with Rose Bengal, and stored in 70% isopropanol solution until processing. Sample material (sediment, detritus, organisms) was placed in white enamel trays for sorting under Wild M-5A dissecting microscopes. All macroinvertebrates were removed with forceps and placed in labeled glass vials containing 70% isopropanol. Each vial represented a major taxonomic group (*e.g.* Oligochaeta, Mollusca, Arthropoda). Oligochaetes were individually mounted and cleared on microscope slides prior to identification. All sorted macroinvertebrates were identified to the lowest practical identification level (LPIL), which in most cases was to species level unless the specimen was a juvenile, damaged, or otherwise unidentifiable. The number of individuals of each taxon, excluding fragments, was recorded. A voucher collection was prepared, composed of representative individuals of each species not previously encountered in samples from the Gulf of Mexico region.

**Assemblage Analyses**

All data generated as a result of laboratory analysis of macroinfauna samples were first coded on data sheets. Enumeration data were entered for each species according to station and replicate. These data were reduced to a data summary report for each station, which included a taxonomic species list and benthic community parameters information. Documentation of BVA's standard QA/QC procedures can be seen in the Quality Assurance Plan submitted to LOTA (BVA 2001) and QA/QC results for this project are available upon request.



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Several numerical indices were chosen for analysis and interpretation of the macroinfaunal data. Abundance is reported as the total number of individuals per station and the total number of individuals per square meter (= density). Taxa richness is reported as the total number of taxa represented in a given station collection. Taxa diversity, which is often related to the ecological stability and environmental "quality" of the benthos, was estimated by the Shannon-Weaver Diversity Index H' (Pielou 1966), according to the following formula:

$$H' = -\sum_{i=1}^{S} p_i(\ln p_i)$$

where, S = is the number of taxa in the sample,

i = is the $i^{th}$ taxon in the sample, and

$p_i$ = is the number of individuals of the $i^{th}$ taxon divided by the total number of individuals in the sample.

Taxa diversity within a given community is dependent upon the number of taxa present (taxa richness) and the distribution of all individuals among those taxa (equitability or evenness). In order to quantify and compare the equitability in the fauna to the taxa diversity for a given area, Pielou's Evenness Index J' (Pielou 1966) was calculated as $J' = H'/\ln S$, where $\ln S = H'_{max}$, or the maximum possible diversity, when all taxa are represented by the same number of individuals; thus, $J' = H'/H'_{max}$.

Density and taxa richness data for a given facility (Offshore Pumping Station and Single Point Mooring Complex, Brine Diffuser, Lake Jesse pipeline crossing, Clovelly Salt Domes) were graphically and statistically analyzed for potential impacts (comparisons to control stations) and seasonal differences.



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## Hydrography

Continuous hydrographic profiles were conducted in conjunction with the benthic sampling. The following environmental data were collected at all sampling stations:

| | |
|---|---|
| Air Temperature: | Brunton portable weather station, degrees Centigrade |
| Barometric Pressure: | Brunton portable weather station, mm of mercury |
| Wind Speed: | Brunton portable weather station, recorded in knots |
| Wind Direction: | Brunton portable weather station, recorded in degrees from which the wind is coming |
| Cloud Cover: | Visually estimated percentage of the celestial dome covered by clouds |
| Wave Height: | Visually estimated in meters from crest to trough |
| Secchi Depth: | 30 cm Secchi disc lowered until no longer visible, then raised until visible and the average of two readings recorded in meters. |

A HydroLab Surveyor and a Datasonde 4 were used to collect instantaneous measurements (depth, temperature, salinity, dissolved oxygen) at all monitoring stations. Continuous hydrographic profiles were collected at all offshore stations during each sampling event. The instrument was lowered by hand to discrete depths (1 meter intervals or surface, middle, and bottom) and the data recorded on field data sheets. In August 2001 there was an equipment failure at the Offshore site and a continuous profile was not captured for Station 484.

## Sediment

Sediment samples were collected in conjunction with benthic sampling events. Sediment core samples were collected at the inshore benthic stations using a Barret-type coring device. Sediment core samples collected at the offshore benthic stations were collected using a Smith-McIntyre Grab sampler. There were two



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samples collected at each station. The samples were collected in a butyrate core tube (6.99 cm outside diameter x 6.67 inside diameter x 30.48 cm long). The interstitial pH of one sample was tested in the field with a hand-held Orion pH probe by the slurry method. One sediment sample was analyzed for Polynuclear Aromatic Hydrocarbons (PAH; Appendices I, II and III) and another was analyzed for grain size (percent gravel, sand, silt, clay).

## Laboratory Analysis Specifications

Water and sediment chemistry analysis USEPA methods, and method detection limits, are: Dissolved Oxygen, Method 4500-OG, 0.01 mg/L; Salinity, Method 2520-OB; Turbidity, Method 180.1, 0.1 NTU; and Sediment PAH, Method 8100. Severn Trent Laboratories (STL-Mobile) are certified for sediment PAH analysis, and used standard QA/QC procedures such as sample spikes, sample blanks, and duplicate analyses.

BVA's taxonomy laboratory conducts routine QA/QC checks for all benthic analyses, including re-analysis of 10% of all samples, use of verified reference collections, and use of outside taxonomic experts for verification of laboratory identifications.



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## Brine Diffuser

### Sediment Characteristics

**August 2001.** Station location and sediment data for the Brine stations in August are given in Table 62 and Figure 14. The sediment at Station 475 was dominated by sand (45%), and the sediment at Stations 435, 473, and 474 was dominated by clay (50%, 63%, and 75 %, respectively).

**November 2001.** Station location and sediment data for the Brine stations in November are given in Table 63 and Figure 14. The sediment at all stations was dominated by the silt + clay fraction. Sand composition varied from 4% at Station 475 to 13% at Station 474.

**June 2002.** Station location and sediment data for the Brine stations in November are given in Table 64 and Figure 14. The sediment at all stations was dominated by the silt + clay fractions (99%, 94%, 95%, 80% for Stations 435, 473, 474, and 475, respectively). Sand composition varied from 0.5% at Station 435 to 20% at Station 475.

### Weather and Water Quality Data

**August 2001.** Weather condition data for the Brine stations in August are given in Table 65. Water quality data and depth profiles are provided in Tables 66, 67, 68, and 69 and Figures 15, 16, 17, and 18. Bottom temperatures ranged from 29.3 °C at Station 473 to 30.1 °C at Station 475. Hypoxic conditions were present at Station 435 (9.8 m depth; 1.88 mg/l DO). Bottom dissolved oxygen levels were above hypoxic levels at Stations 473 (9.5 m depth; 2.79 mg/l DO), 474 (9.4 m depth; 3.30 mg/l DO) and 475 (9.4 m depth; 3.66 mg/l DO). Bottom salinities were between 28 ppt and 30 ppt at the four stations.



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**November 2001.** Weather condition data for the Brine stations in November are given in Table 70. Water quality data and depth profiles are provided in Tables 71, 72, 73 and 74 and Figures 15, 16, 17, and 18. The bottom temperature was 23°C at all stations. Bottom dissolved oxygen levels ranged from 4.8 mg/l at Station 475 to 7.1 mg/l at Station 435. Bottom salinities were between 31 and 32 ppt for the four stations.

**June 2002.** Weather condition data for the Brine stations in June are given in Table 75. Water quality data and depth profiles are provided in Tables 76, 77, 78, and 79 and Figures 15, 16, 17, and 18. The bottom temperature was 24.8°C for all stations. Hypoxic conditions were present at Stations 435 (9.5 and 10.1 m depth; 1.5 and 1.4 mg/l DO), 473 (9.2 and 10.4 m depth; 1.1 and 1.2 mg/l DO), 474 (8.9 and 10.5 m depth; 1.5 and 1.3 mg/l DO), and 475 (8.8 and 10.1 m depth; 1.0 and 1.2 mg/l DO). Bottom salinities were between 35 and 36 ppt at all stations.

## Benthic Assemblage Characteristics

**August 2001.** Twenty-eight taxa representing 1,553 individuals were collected from the Brine stations in August (Table 80). Polychaetes, gastropods and other taxa were the most numerous taxa collected representing 57%, 25%, and 14% of the total, respectively (Table 80). Polychaetes and gastropods also represented 94% and 5% of the total number of individuals collected, respectively.

Major taxonomic groups collected from the Brine stations in August are summarized by station in Table 81 and Figure 19. The distribution and abundance of individual families collected at the Brine stations are given in Table 82. Those families which made up greater than 10% of the total assemblage at a given station are listed in Table 83.



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The distribution and abundance of individual taxa collected at the Brine stations in August are given in Table 84. The polychaete, *Paraprionospio pinnata*, made up 67% of the total assemblage, and several taxa were widely distributed occurring at 100% of the stations (Table 84). Those taxa which made up greater than 10% of the total assemblage at a given station are listed in Table 85.

A summary of assemblage parameters for the Brine stations in August is given in Table 86 and Figures 20, 21, 22, and 23. Mean macroinvertebrate densities ranged from 4741.7 nos/$m^2$ (± 365) at Station 473 to 916.7 nos/$m^2$ (± 414) at Station 474 (Figure 20). Mean number of taxa (taxa richness) ranged from 5.7 (± 2.4) at Station 473 to 6.5 (±2.4 and ±1.5, respectively) at Stations 435 and 474 (Figure 21). Diversity (H') ranged from 0.89 at Station 435 to 1.21 at Station 473 (Figure 22). Evenness (J') ranged from 0.31 at Station 435 to 0.44 at Station 473 (Figure 23). There was no significant difference in taxa richness (Table 17; F = 0.120, Prob >F = 0.895) or densities (Table 17; F = 1.441, Prob > F = 0.261) between the stations.

**November 2001.** Ninety-three taxa representing 4,048 individuals were collected from the Brine stations in November (Table 87). Polychaetes, bivalves, and gastropods were the most numerous taxa collected representing 47%, 14%, and 14% of the total, respectively (Table 87). Polychaetes, bivalves and rhynchocoels represented 69%, 10%, and 8% of the total number of individuals collected, respectively.

Major taxonomic groups collected from the Brine stations in November are summarized by station in Tables 88 and Figure 19. The distribution and abundance of individual families collected at the Brine stations are given in Table 89. Those families

which made up greater than 10% of the total assemblage at a given station are listed in Table 90.

The distribution and abundance of individual taxa collected at the Brine stations in November are given in Table 91. The polychaete, *Paraprionospio pinnata*, made up 23% of the total assemblage, and several taxa were widely distributed at 100% of the Brine stations (Table 91). Those taxa which made up greater than 10% of the total assemblage at a given station are listed in Table 92.

A summary of assemblage parameters for the Brine stations in November is given in Table 93 and Figures 20, 21, 22, and 23. Mean macroinvertebrate densities ranged from 1153.3 nos/$m^2$ (± 566) at Station 475 to 2093.3 nos/$m^2$ (± 668) at Station 435 (Figure 20). Mean number of taxa (taxa richness) ranged from 21.5 (± 6.1) at Station 473 to 28.8 (±4.9) at Station 435 (Figure 21). Diversity (H') ranged from 2.62 at Station 473 to 3.07 at Station 435 (Figure 22). Evenness (J') ranged from 0.68 at Station 473 to 0.75 at Station 475 (Figure 23). There was no significant difference in taxa richness (Table 17; F = 1.779, Prob >F = 0.184) or densities (Table 17; F = 1.965, Prob >F = 0.152) between the stations.

**June 2002.** One hundred and fourteen taxa representing 3,791 individuals were collected from the Brine stations in June (Table 94). Polychaetes, bivalves and gastropods were the most numerous taxa collected representing 47%, 18%, and 17% of the total, respectively (Table 94). Polychaetes, bivalves and other taxa also represented 73%, 17%, and 6% of the total number of individuals collected, respectively.

Major taxonomic groups collected from the Brine stations in June are summarized by station in Tables 95 and Figure 19. The distribution and abundance of individual

families collected at the Brine stations are given in Table 96. Those families which made up greater than 10% of the total assemblage at a given station are listed in Table 97.

The distribution and abundance of individual taxa collected at the Brine stations in June are given in Table 98. The polychaete, *Mediomastus* (LPIL), made up 28% of the total assemblage, and several taxa were widely distributed occurring at 100% of the Brine stations (Table 98). Those taxa which made up greater than 10% of the total assemblage at a given station are listed in Table 99.

A summary of assemblage parameters for the Brine stations in June is given in Table 100 and Figures 20, 21, 22, and 23. Mean macroinvertebrate densities ranged from 938.3 nos/$m^2$ (± 302) at Station 473 to 2001.7 nos/$m^2$ (± 1096) at Station 435 (Figure 20). Mean number of taxa (taxa richness) ranged from 15.5 (± 4.0) at Station 473 to 32.2 (± 7.3) at Stations 435 (Figure 21). Diversity (H') ranged from 2.23 at Station 473 to 3.07 at Station 435 (Figure 22). Evenness (J') ranged from 0.57 at Station 474 to 0.71 at Station 435 (Figure 23). Control station 435 had significantly greater taxa richness than Stations 473, 474, and 475 (Table 17; F = 8.128, Prob > F = 0.001). There were no significant difference in taxa densities (Table 17; F = 1.440, Prob > F = 0.261) between the stations.

## Offshore Stations

### Sediment Characteristics

**August 2001.** Station location and sediment data for the Offshore stations in August are given in Table 101 and Figure 24. Clay was the dominant sediment type at all stations (>54%). Sand composition varied from 7% at Station 482 to 18% at Station 484.



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6. There was no measurable impact of the LOOP facilities on benthic macroinfaunal assemblages at the Lake Jesse site.

**Brine Diffuser**

1. Sediments at the Brine Diffuser stations during all seasons were dominated by silt + clay. The sediment at Station 475 in August was 45% sand.

2. Bottom salinities varied seasonally and were between 28-30 ppt in August, 31-32 ppt in November, and 35-36 ppt in June.

3. Hypoxic conditions (DO = 1.88 mg/l) were present at Station 435 during August; however, DO levels at the remaining stations ranged from 2.79 mg/l at Station 473 to 3.66 mg/l at Station 475. In November, bottom DO levels ranged from 4.8 mg/l at Station 475 to 7.1 mg/l at Station 435. In June, hypoxic conditions were present at all stations with DO ranging from 1.0 mg/l at Station 475 to 1.5 at Stations 435 and 474.

4. The polychaete *Paraprionospio pinnata* dominated the benthic assemblage in August and November, while the polychaete *Mediomastus* (LPIL) dominated the benthos in June.

5. There were no significant differences in densities between stations for each season. There were no significant differences in taxa richness between stations during August and November; in June, Station 435 had significantly greater taxa richness than the remaining stations. It is probable that the hypoxia experienced by the benthic assemblage in June was responsible for variations in taxa richness.

6. There was no measurable impact of the LOOP facilities on benthic macroinfaunal assemblages at the Brine Diffuser site.

**Offshore Stations**

1. Sediments at the Offshore stations during all seasons were dominated by silt + clay.

2. Bottom salinities varied seasonally and ranged from 32.4 ppt at Station 481 in August to 38.6 ppt at Station 484 in August.

3. Hypoxic conditions were present at Stations 481 (DO = 1.60 mg/l) and 484 (DO = 1.88 mg/l) during August; no bottom DO data was collected from Station 484. In November, bottom DO levels ranged from 2.8 mg/l at Station 481 to 8.1 mg/l at Station 482. In June, bottom DO levels ranged from 6.0 mg/l at Station 482 to 6.9 mg/l at Station 484.



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Table 80. Summary of overall abundance of major benthic macroinfauna taxonomic groups for the LOOP - Brine stations, August 2001.

| Taxa | Total No. Taxa | % Total | Total No. Individuals | % Total |
|---|---|---|---|---|
| **Annelida** | | | | |
| **Polychaeta** | 16 | 57.1 | 1,458 | 93.9 |
| **Mollusca** | | | | |
| **Gastropoda** | 7 | 25.0 | 83 | 5.3 |
| **Arthropoda** | | | | |
| **Malacostraca** | 1 | 3.6 | 2 | 0.1 |
| **Other Taxa** | 4 | 14.3 | 10 | 0.6 |
| **Total** | **28** | | **1,553** | |

Table 81. Summary of abundance of major benthic macroinfauna taxonomic groups by station for the LOOP - Brine stations, August 2001.

| Station | Taxa | No. of Taxa | % of Total | No. of Individuals | % of Total |
|---|---|---|---|---|---|
| **435** | Annelida | 11 | 61.1 | 327 | 90.3 |
| | Mollusca | 5 | 27.8 | 32 | 8.8 |
| | Cnidaria | 1 | 5.6 | 2 | 0.6 |
| | Other Taxa | 1 | 5.6 | 1 | 0.3 |
| | **Total** | **18** | | **362** | |
| **473** | Annelida | 9 | 56.3 | 260 | 91.9 |
| | Mollusca | 4 | 25.0 | 18 | 6.4 |
| | Arthropoda | 1 | 6.3 | 1 | 0.4 |
| | Other Taxa | 2 | 12.5 | 4 | 1.4 |
| | **Total** | **16** | | **283** | |
| **474** | Annelida | 10 | 66.7 | 530 | 96.4 |
| | Mollusca | 4 | 26.7 | 19 | 3.5 |
| | Arthropoda | 0 | 0.0 | 0 | 0.0 |
| | Other Taxa | 1 | 6.7 | 1 | 0.2 |
| | **Total** | **15** | | **550** | |
| **475** | Annelida | 12 | 75.0 | 341 | 95.3 |
| | Mollusca | 1 | 6.3 | 14 | 3.9 |
| | Arthropoda | 1 | 6.3 | 1 | 0.3 |
| | Other Taxa | 2 | 12.5 | 2 | 0.6 |
| | **Total** | **16** | | **358** | |

Table 82. Distribution and abundance of families for the LOOP - Brine stations, August 2001.

| Taxon Name | Phylum | Class | No. of Individuals | % of Total | Cumulative % | Station Occurrence | Station % Occurrence |
|---|---|---|---|---|---|---|---|
| Spionidae | Ann | Poly | 1039 | 66.90 | 66.90 | 4 | 100 |
| Magelonidae | Ann | Poly | 324 | 20.86 | 87.77 | 4 | 100 |
| Nassariidae | Mol | Gast | 73 | 4.70 | 92.47 | 4 | 100 |
| Pilargiidae | Ann | Poly | 51 | 3.28 | 95.75 | 4 | 100 |
| Nereidae | Ann | Poly | 15 | 0.97 | 96.72 | 4 | 100 |
| Cossuridae | Ann | Poly | 10 | 0.64 | 97.36 | 4 | 100 |
| Other Taxa | – | – | 10 | 0.64 | 98.00 | 4 | 100 |
| Goniadidae | Ann | Poly | 8 | 0.52 | 98.52 | 3 | 75 |
| Amphinomidae | Ann | Poly | 5 | 0.32 | 98.84 | 4 | 100 |
| Polynoidae | Ann | Poly | 4 | 0.26 | 99.10 | 3 | 75 |
| Naticidae | Mol | Gast | 3 | 0.19 | 99.29 | 3 | 75 |
| Vitrinellidae | Mol | Gast | 3 | 0.19 | 99.48 | 2 | 50 |
| Calyptraeidae | Mol | Gast | 2 | 0.13 | 99.61 | 2 | 50 |
| Phyllodocidae | Ann | Poly | 2 | 0.13 | 99.74 | 2 | 50 |
| Pinnotheridae | Art | Mala | 2 | 0.13 | 99.87 | 2 | 50 |
| Lineidae | Rhy | Anop | 1 | 0.06 | 99.94 | 1 | 25 |
| Pyramidellidae | Mol | Gast | 1 | 0.06 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
Poly = Polychaeta

Art = Arthropoda
Mala = Malacostraca

Mol = Mollusca
Gast = Gastropoda

Table 83. Percentage abundance of dominant families (>10% of the total) for the LOOP - Brine stations, August 2001.

| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| Magelonidae | | 30.4 | 16.9 | 37.7 |
| Spionidae | 80.7 | 56.9 | 72.9 | 51.7 |

Table 84. Distribution and abundance of taxa for the LOOP - Brine stations, August 2001.

| Taxon Name | Phylum | Class | No. of Individuals | % Total | Cumulative % | Station Occurrence | Station % Occurrence |
|---|---|---|---|---|---|---|---|
| *Paraprionospio pinnata* | Ann | Poly | 1039 | 66.90 | 66.90 | 4 | 100 |
| *Magelona* sp. H | Ann | Poly | 324 | 20.86 | 87.77 | 4 | 100 |
| *Nassarius acutus* | Mol | Gast | 73 | 4.70 | 92.47 | 4 | 100 |
| *Sigambra tentaculata* | Ann | Poly | 32 | 2.06 | 94.53 | 4 | 100 |
| *Ancistrosyllis jonesi* | Ann | Poly | 14 | 0.90 | 95.43 | 4 | 100 |
| *Laeonereis culveri* | Ann | Poly | 10 | 0.64 | 96.07 | 3 | 75 |
| *Cossura delta* | Ann | Poly | 8 | 0.52 | 96.59 | 3 | 75 |
| *Glycinde solitaria* | Ann | Poly | 7 | 0.45 | 97.04 | 2 | 50 |
| Actiniaria (LPIL) | Cni | Anth | 5 | 0.32 | 97.36 | 3 | 75 |
| Nereididae (LPIL) | Ann | Poly | 5 | 0.32 | 97.68 | 3 | 75 |
| *Paramphinome* sp. B | Ann | Poly | 5 | 0.32 | 98.00 | 4 | 100 |
| *Sigambra* (LPIL) | Ann | Poly | 4 | 0.26 | 98.26 | 2 | 50 |
| Polynoidae (LPIL) | Ann | Poly | 3 | 0.19 | 98.45 | 3 | 75 |
| Rhynchocoela (LPIL) | Rhy | – | 3 | 0.19 | 98.65 | 2 | 50 |
| *Tectonatica pusilla* | Mol | Gast | 3 | 0.19 | 98.84 | 3 | 75 |
| Calyptraeidae (LPIL) | Mol | Gast | 2 | 0.13 | 98.97 | 2 | 50 |
| *Cossura* (LPIL) | Ann | Poly | 2 | 0.13 | 99.10 | 1 | 25 |
| *Phyllodoce arenae* | Ann | Poly | 2 | 0.13 | 99.23 | 2 | 50 |
| *Pinnixa* (LPIL) | Art | Mala | 2 | 0.13 | 99.36 | 2 | 50 |
| Vitrinellidae (LPIL) | Mol | Gast | 2 | 0.13 | 99.48 | 2 | 50 |
| Gastropoda (LPIL) | Mol | Gast | 1 | 0.06 | 99.55 | 1 | 25 |
| *Lepidasthenia varia* | Ann | Poly | 1 | 0.06 | 99.61 | 1 | 25 |
| Lineidae (LPIL) | Rhy | Anop | 1 | 0.06 | 99.68 | 1 | 25 |
| *Ophioglycera* sp. A | Ann | Poly | 1 | 0.06 | 99.74 | 1 | 25 |
| Pyramidellidae (LPIL) | Mol | Gast | 1 | 0.06 | 99.81 | 1 | 25 |
| *Sigambra grubii* | Ann | Poly | 1 | 0.06 | 99.87 | 1 | 25 |
| Turbellaria (LPIL) | Pla | Turb | 1 | 0.06 | 99.94 | 1 | 25 |
| *Vitrinella helicoidea* | Mol | Gast | 1 | 0.06 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
Poly = Polychaeta

Cni = Cnidaria
Anth = Anthozoa

Pla = Platyhelminthes
Turb = Turbellaria

Art = Arthropoda
Mala = Malacostraca

Mol = Mollusca
Gast = Gastropoda

Rhy = Rhynchocoela
Anop = Anopla

Table 85. Percentage abundance of dominant taxa (10% of the total) for the LOOP - Brine stations, August 2001.

| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| *Magelona* sp. H | | 30.4 | 16.9 | 37.7 |
| *Paraprionospio pinnata* | 80.7 | 56.9 | 72.9 | 51.7 |

Table 86. Summary of benthic macroinfaunal data for the LOOP - Brine stations, August 2001.

| Station | Rep | Taxa | Indvs | Density | Mean No. Taxa | Taxa (SD) | Mean Density | Density (SD) | Total No Taxa | Total No. Individuals | H' Diversity | J' Evenness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **435** | A | 4 | 54 | 540 | 6.5 | 2.4 | 603.3 | 427.9 | 18 | 362 | 0.89 | 0.31 |
| | B | 9 | 138 | 1380 | | | | | | | | |
| | C | 6 | 53 | 530 | | | | | | | | |
| | D | 5 | 71 | 710 | | | | | | | | |
| | E | 5 | 31 | 310 | | | | | | | | |
| | F | 10 | 15 | 150 | | | | | | | | |
| **473** | A | 6 | 78 | 780 | 5.7 | 2.4 | 471.7 | 364.5 | 16 | 283 | 1.21 | 0.44 |
| | B | 6 | 21 | 210 | | | | | | | | |
| | C | 5 | 11 | 110 | | | | | | | | |
| | D | 4 | 50 | 500 | | | | | | | | |
| | E | 10 | 102 | 1020 | | | | | | | | |
| | F | 3 | 21 | 210 | | | | | | | | |
| **474** | A | 5 | 64 | 640 | 6.5 | 1.5 | 916.7 | 414.2 | 15 | 550 | 0.96 | 0.36 |
| | B | 5 | 74 | 740 | | | | | | | | |
| | C | 7 | 134 | 1340 | | | | | | | | |
| | D | 6 | 33 | 330 | | | | | | | | |
| | E | 7 | 109 | 1090 | | | | | | | | |
| | F | 9 | 136 | 1360 | | | | | | | | |
| **475** | A | 3 | 6 | 60 | 6.2 | 2.1 | 596.7 | 334.2 | 16 | 358 | 1.17 | 0.42 |
| | B | 5 | 40 | 400 | | | | | | | | |
| | C | 6 | 75 | 750 | | | | | | | | |
| | D | 8 | 104 | 1040 | | | | | | | | |
| | E | 6 | 70 | 700 | | | | | | | | |
| | F | 9 | 63 | 630 | | | | | | | | |

Table 87. Summary of overall abundance of major benthic macroinfauna taxonomic groups for the LOOP - Brine stations, November 2001.

| Taxa | Total No. Taxa | % Total | Total No. Individuals | % Total |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | 44 | 47.3 | 2,793 | 69.0 |
| **Mollusca** | | | | |
| Bivalvia | 13 | 14.0 | 413 | 10.2 |
| Gastropoda | 13 | 14.0 | 242 | 6.0 |
| **Arthropoda** | | | | |
| Malacostraca | 11 | 11.8 | 125 | 3.1 |
| **Echinodermata** | | | | |
| Ophiuroidea | 1 | 1.1 | 10 | 0.2 |
| **Rhynchocoela** | | | | |
| Anopla | 2 | 2.2 | 312 | 7.7 |
| Rhynchocoela (LPIL) | 1 | 1.1 | 65 | 1.6 |
| **Other Taxa** | 8 | 8.6 | 88 | 2.2 |
| **Total** | **93** | | **4,048** | |

Table 88. Summary of abundance of major benthic macroinfauna taxonomic groups by station for the LOOP - Brine stations, November 2001.

| Station | Taxa | No. of Taxa | % of Total | No. of Individuals | % of Total |
|---|---|---|---|---|---|
| **435** | Annelida | 34 | 51.5 | 901 | 71.7 |
| | Mollusca | 19 | 28.8 | 152 | 12.1 |
| | Arthropoda | 3 | 4.5 | 18 | 1.4 |
| | Echinodermata | 1 | 1.5 | 9 | 0.7 |
| | Rhynchocoela | 3 | 4.5 | 139 | 11.1 |
| | Other Taxa | 6 | 9.1 | 37 | 2.9 |
| | **Total** | **66** | | **1,256** | |
| **473** | Annelida | 24 | 50.0 | 645 | 76.1 |
| | Mollusca | 14 | 29.2 | 105 | 12.4 |
| | Arthropoda | 4 | 8.3 | 18 | 2.1 |
| | Echinodermata | 1 | 2.1 | 1 | 0.1 |
| | Rhynchocoela | 3 | 6.3 | 69 | 8.1 |
| | Other Taxa | 2 | 4.2 | 10 | 1.2 |
| | **Total** | **48** | | **848** | |
| **474** | Annelida | 28 | 50.0 | 741 | 59.2 |
| | Mollusca | 15 | 26.8 | 328 | 26.2 |
| | Arthropoda | 8 | 14.3 | 59 | 4.7 |
| | Echinodermata | 0 | 0.0 | 0 | 0.0 |
| | Rhynchocoela | 3 | 5.4 | 117 | 9.3 |
| | Other Taxa | 2 | 3.6 | 7 | 0.6 |
| | **Total** | **56** | | **1,252** | |
| **475** | Annelida | 29 | 55.8 | 506 | 73.1 |
| | Mollusca | 10 | 19.2 | 70 | 10.1 |
| | Arthropoda | 6 | 11.5 | 30 | 4.3 |
| | Echinodermata | 0 | 0.0 | 0 | 0.0 |
| | Rhynchocoela | 3 | 5.8 | 52 | 7.5 |
| | Other Taxa | 4 | 7.7 | 34 | 4.9 |
| | **Total** | **52** | | **692** | |

Table 89. Distribution and abundance of families for the LOOP - Brine stations, November 2001.

| Family | Phylum | Class | Total No. Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| Spionidae | Ann | Poly | 1027 | 25.37 | 25.37 | 4 | 100 |
| Capitellidae | Ann | Poly | 481 | 11.88 | 37.25 | 4 | 100 |
| Pilargiidae | Ann | Poly | 477 | 11.78 | 49.04 | 4 | 100 |
| Magelonidae | Ann | Poly | 274 | 6.77 | 55.81 | 4 | 100 |
| Other Taxa | Art | Mala | 273 | 6.74 | 62.55 | 4 | 100 |
| Tubulanidae | Rhy | Anop | 231 | 5.71 | 68.26 | 4 | 100 |
| Semelidae | Mol | Biva | 172 | 4.25 | 72.50 | 4 | 100 |
| Ampharetidae | Ann | Poly | 105 | 2.59 | 75.10 | 4 | 100 |
| Diastylidae | Art | Mala | 101 | 2.50 | 77.59 | 4 | 100 |
| Sigalionidae | Ann | Poly | 101 | 2.50 | 80.09 | 4 | 100 |
| Nassariidae | Mol | Gast | 87 | 2.15 | 82.24 | 4 | 100 |
| Lineidae | Rhy | Anop | 81 | 2.00 | 84.24 | 4 | 100 |
| Scaphandridae | Mol | Gast | 76 | 1.88 | 86.12 | 4 | 100 |
| Ptychoderidae | Hem | Ente | 71 | 1.75 | 87.87 | 4 | 100 |
| Opheliidae | Ann | Poly | 62 | 1.53 | 89.40 | 4 | 100 |
| Amphinomidae | Ann | Poly | 58 | 1.43 | 90.83 | 2 | 50 |
| Goniadidae | Ann | Poly | 58 | 1.43 | 92.27 | 4 | 100 |
| Hesionidae | Ann | Poly | 56 | 1.38 | 93.65 | 4 | 100 |
| Mactridae | Mol | Biva | 46 | 1.14 | 94.79 | 4 | 100 |
| Vitrinellidae | Mol | Gast | 30 | 0.74 | 95.53 | 4 | 100 |
| Nereidae | Ann | Poly | 29 | 0.72 | 96.25 | 4 | 100 |
| Pyramidellidae | Mol | Gast | 27 | 0.67 | 96.91 | 4 | 100 |
| Cossuridae | Ann | Poly | 21 | 0.52 | 97.43 | 4 | 100 |
| Phyllodocidae | Ann | Poly | 19 | 0.47 | 97.90 | 4 | 100 |
| Pinnotheridae | Art | Mala | 13 | 0.32 | 98.22 | 3 | 75 |
| Naticidae | Mol | Gast | 12 | 0.30 | 98.52 | 3 | 75 |
| Tellinidae | Mol | Biva | 12 | 0.30 | 98.81 | 3 | 75 |
| Oweniidae | Ann | Poly | 11 | 0.27 | 99.09 | 4 | 100 |
| Chaetopteridae | Ann | Poly | 6 | 0.15 | 99.23 | 3 | 75 |
| Arcidae | Mol | Biva | 5 | 0.12 | 99.36 | 2 | 50 |
| Paguridae | Art | Mala | 4 | 0.10 | 99.46 | 2 | 50 |
| Nuculanidae | Mol | Biva | 3 | 0.07 | 99.53 | 2 | 50 |
| Onuphidae | Ann | Poly | 3 | 0.07 | 99.60 | 2 | 50 |
| Polynoidae | Ann | Poly | 3 | 0.07 | 99.68 | 2 | 50 |
| Aspidosiphonidae | Sip | - | 1 | 0.02 | 99.70 | 1 | 25 |
| Epitoniidae | Mol | Gast | 1 | 0.02 | 99.73 | 1 | 25 |
| Glyceridae | Ann | Poly | 1 | 0.02 | 99.75 | 1 | 25 |
| Melitidae | Art | Mala | 1 | 0.02 | 99.78 | 1 | 25 |
| Paraonidae | Ann | Poly | 1 | 0.02 | 99.80 | 1 | 25 |
| Penaeidae | Art | Mala | 1 | 0.02 | 99.83 | 1 | 25 |
| Philinidae | Mol | Gast | 1 | 0.02 | 99.85 | 1 | 25 |
| Phoronidae | Pho | - | 1 | 0.02 | 99.88 | 1 | 25 |
| Processidae | Art | Mala | 1 | 0.02 | 99.90 | 1 | 25 |
| Sipunculidae | Sip | - | 1 | 0.02 | 99.93 | 1 | 25 |
| Solenidae | Mol | Biva | 1 | 0.02 | 99.95 | 1 | 25 |
| Turridae | Mol | Gast | 1 | 0.02 | 99.98 | 1 | 25 |
| Veneridae | Mol | Biva | 1 | 0.02 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
Poly = Polychaeta

Art = Arthropoda
Mala = Malacostraca

Hem = Hemichordata
Ente = Enteropneusta

Mol = Mollusca
Biva = Bivalvia
Gast = Gastropoda

Pho = Phoronida

Rhy = Rhynchocoela
Anop = Anopla

Sip = Sipuncula

Table 90. Percentage abundance of dominant families (>10% of the total) for LOOP - Brine stations, November 2001.

| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| Capitellidae | 11.9 | | 16.9 | |
| Magelonidae | | | | 12.4 |
| Pilargiidae | 14.3 | 16.7 | | |
| Spionidae | 20.8 | 34.6 | 23.0 | 26.7 |

Table 91. Distribution and abundance of taxa for the LOOP - Brine stations, November 2001.

| Taxon Name | Phylum | Class | Total No. Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| *Paraprionospio pinnata* | Ann | Poly | 937 | 23.15 | 23.15 | 4 | 100 |
| *Mediomastus* (LPIL) | Ann | Poly | 470 | 11.61 | 34.76 | 4 | 100 |
| *Sigambra tentaculata* | Ann | Poly | 335 | 8.28 | 43.03 | 4 | 100 |
| *Magelona* sp. H | Ann | Poly | 272 | 6.72 | 49.75 | 4 | 100 |
| *Tubulanus* (LPIL) | Rhy | Anop | 231 | 5.71 | 55.46 | 4 | 100 |
| Bivalvia (LPIL) | Mol | Biva | 173 | 4.27 | 59.73 | 4 | 100 |
| *Ancistrosyllis jonesi* | Ann | Poly | 120 | 2.96 | 62.70 | 4 | 100 |
| *Sthenelais* sp. A | Ann | Poly | 101 | 2.50 | 65.19 | 4 | 100 |
| Ampharetidae (LPIL) | Ann | Poly | 95 | 2.35 | 67.54 | 4 | 100 |
| *Nassarius acutus* | Mol | Gast | 87 | 2.15 | 69.69 | 4 | 100 |
| *Abra* (LPIL) | Mol | Biva | 83 | 2.05 | 71.74 | 1 | 25 |
| Lineidae (LPIL) | Rhy | Anop | 81 | 2.00 | 73.74 | 4 | 100 |
| *Acteocina bidentata* | Mol | Gast | 76 | 1.88 | 75.62 | 4 | 100 |
| *Balanoglossus* (LPIL) | Hem | Ente | 71 | 1.75 | 77.37 | 4 | 100 |
| Rhynchocoela (LPIL) | Rhy | - | 65 | 1.61 | 78.98 | 4 | 100 |
| *Armandia maculata* | Ann | Poly | 61 | 1.51 | 80.48 | 4 | 100 |
| *Paramphinome* sp. B | Ann | Poly | 58 | 1.43 | 81.92 | 2 | 50 |
| *Glycinde solitaria* | Ann | Poly | 56 | 1.38 | 83.30 | 4 | 100 |
| *Oxyurostylis* (LPIL) | Art | Mala | 51 | 1.26 | 84.56 | 4 | 100 |
| *Prionospio* (LPIL) | Ann | Poly | 51 | 1.26 | 85.82 | 4 | 100 |
| *Oxyurostylis lecroyae* | Art | Mala | 50 | 1.24 | 87.06 | 4 | 100 |
| *Podarkeopsis levifuscina* | Ann | Poly | 46 | 1.14 | 88.19 | 4 | 100 |
| Semelidae (LPIL) | Mol | Biva | 45 | 1.11 | 89.30 | 2 | 50 |
| *Abra aequalis* | Mol | Biva | 44 | 1.09 | 90.39 | 4 | 100 |
| Mactridae (LPIL) | Mol | Biva | 42 | 1.04 | 91.43 | 4 | 100 |
| *Nereis micromma* | Ann | Poly | 27 | 0.67 | 92.09 | 4 | 100 |
| Spionidae (LPIL) | Ann | Poly | 26 | 0.64 | 92.74 | 3 | 75 |
| *Cossura delta* | Ann | Poly | 21 | 0.52 | 93.26 | 4 | 100 |
| *Odostomia weberi* | Mol | Gast | 17 | 0.42 | 93.68 | 4 | 100 |
| *Vitrinella helicoidea* | Mol | Gast | 16 | 0.40 | 94.07 | 3 | 75 |
| *Prionospio perkinsi* | Ann | Poly | 13 | 0.32 | 94.39 | 2 | 50 |
| *Phyllodoce arenae* | Ann | Poly | 12 | 0.30 | 94.69 | 4 | 100 |
| *Tectonatica pusilla* | Mol | Gast | 12 | 0.30 | 94.99 | 3 | 75 |
| *Tellina* (LPIL) | Mol | Biva | 11 | 0.27 | 95.26 | 3 | 75 |
| Vitrinellidae (LPIL) | Mol | Gast | 11 | 0.27 | 95.53 | 2 | 50 |
| Ophiuroidea (LPIL) | Ech | Ophi | 10 | 0.25 | 95.78 | 2 | 50 |
| *Pinnixa* (LPIL) | Art | Mala | 10 | 0.25 | 96.02 | 3 | 75 |
| Turbellaria (LPIL) | Pla | Turb | 9 | 0.22 | 96.25 | 3 | 75 |
| Gastropoda (LPIL) | Mol | Gast | 7 | 0.17 | 96.42 | 2 | 50 |
| *Owenia fusiformis* | Ann | Poly | 7 | 0.17 | 96.59 | 4 | 100 |
| *Phyllodoce* (LPIL) | Ann | Poly | 7 | 0.17 | 96.76 | 4 | 100 |
| Genus C Hesionidae Genus C | Ann | Poly | 6 | 0.15 | 96.91 | 1 | 25 |
| *Hobsonia florida* | Ann | Poly | 6 | 0.15 | 97.06 | 1 | 25 |
| *Mediomastus californiensis* | Ann | Poly | 6 | 0.15 | 97.21 | 2 | 50 |
| *Sigambra* (LPIL) | Ann | Poly | 6 | 0.15 | 97.36 | 4 | 100 |
| *Sigambra pettiboneae* | Ann | Poly | 6 | 0.15 | 97.50 | 3 | 75 |
| *Spiochaetopterus oculatus* | Ann | Poly | 6 | 0.15 | 97.65 | 3 | 75 |
| *Turbonilla* (LPIL) | Mol | Gast | 6 | 0.15 | 97.80 | 3 | 75 |
| *Mediomastus ambiseta* | Ann | Poly | 5 | 0.12 | 97.92 | 1 | 25 |
| *Sigambra grubii* | Ann | Poly | 5 | 0.12 | 98.05 | 4 | 100 |
| Arcidae (LPIL) | Mol | Biva | 4 | 0.10 | 98.15 | 2 | 50 |
| *Galathowenia oculata* | Ann | Poly | 4 | 0.10 | 98.25 | 2 | 50 |
| *Mulinia lateralis* | Mol | Biva | 4 | 0.10 | 98.34 | 2 | 50 |
| *Odostomia* (LPIL) | Mol | Gast | 4 | 0.10 | 98.44 | 1 | 25 |
| *Pagurus* (LPIL) | Art | Mala | 4 | 0.10 | 98.54 | 2 | 50 |
| *Sigambra wassi* | Ann | Poly | 4 | 0.10 | 98.64 | 3 | 75 |
| Actiniaria (LPIL) | Cni | Anth | 3 | 0.07 | 98.72 | 2 | 50 |
| *Amphicteis gunneri* | Ann | Poly | 3 | 0.07 | 98.79 | 2 | 50 |
| *Cyclostremiscus pentagonus* | Mol | Gast | 3 | 0.07 | 98.86 | 1 | 25 |

Table 91 continued:

| Taxon Name | Phylum | Class | Total No. Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| *Diopatra cuprea* | Ann | Poly | 3 | 0.07 | 98.94 | 2 | 50 |
| Nuculanidae (LPIL) | Mol | Biva | 3 | 0.07 | 99.01 | 2 | 50 |
| Pinnotheridae (LPIL) | Art | Mala | 3 | 0.07 | 99.09 | 2 | 50 |
| Goniadidae (LPIL) | Ann | Poly | 2 | 0.05 | 99.14 | 2 | 50 |
| Hesionidae (LPIL) | Ann | Poly | 2 | 0.05 | 99.18 | 2 | 50 |
| Magelonidae (LPIL) | Ann | Poly | 2 | 0.05 | 99.23 | 1 | 25 |
| Mysidacea (LPIL) | Art | Mala | 2 | 0.05 | 99.28 | 1 | 25 |
| *Parahesione luteola* | Ann | Poly | 2 | 0.05 | 99.33 | 1 | 25 |
| Polynoidae (LPIL) | Ann | Poly | 2 | 0.05 | 99.38 | 2 | 50 |
| *Anadara transversa* | Mol | Biva | 1 | 0.02 | 99.41 | 1 | 25 |
| *Ancistrosyllis hartmanae* | Ann | Poly | 1 | 0.02 | 99.43 | 1 | 25 |
| *Aricidea* (LPIL) | Ann | Poly | 1 | 0.02 | 99.46 | 1 | 25 |
| *Asabellides oculata* | Ann | Poly | 1 | 0.02 | 99.48 | 1 | 25 |
| *Aspidosiphon albus* | Sip | - | 1 | 0.02 | 99.51 | 1 | 25 |
| Brachiopoda (LPIL) | Bra | - | 1 | 0.02 | 99.53 | 1 | 25 |
| *Chione* sp. B | Mol | Biva | 1 | 0.02 | 99.56 | 1 | 25 |
| *Cryoturris cerinella* | Mol | Gast | 1 | 0.02 | 99.58 | 1 | 25 |
| Decapoda (LPIL) | Art | Mala | 1 | 0.02 | 99.60 | 1 | 25 |
| *Ensis* (LPIL) | Mol | Biva | 1 | 0.02 | 99.63 | 1 | 25 |
| *Epitonium* (LPIL) | Mol | Gast | 1 | 0.02 | 99.65 | 1 | 25 |
| *Glycera americana* | Ann | Poly | 1 | 0.02 | 99.68 | 1 | 25 |
| *Lepidasthenia varia* | Ann | Poly | 1 | 0.02 | 99.70 | 1 | 25 |
| Melitidae (LPIL) | Art | Mala | 1 | 0.02 | 99.73 | 1 | 25 |
| *Nereis falsa* | Ann | Poly | 1 | 0.02 | 99.75 | 1 | 25 |
| *Nereis succinea* | Ann | Poly | 1 | 0.02 | 99.78 | 1 | 25 |
| Opheliidae (LPIL) | Ann | Poly | 1 | 0.02 | 99.80 | 1 | 25 |
| Penaeidae (LPIL) | Art | Mala | 1 | 0.02 | 99.83 | 1 | 25 |
| *Philine sagra* | Mol | Gast | 1 | 0.02 | 99.85 | 1 | 25 |
| *Phoronis* (LPIL) | Pho | - | 1 | 0.02 | 99.88 | 1 | 25 |
| *Processa* (LPIL) | Art | Mala | 1 | 0.02 | 99.90 | 1 | 25 |
| Sipuncula (LPIL) | Sip | - | 1 | 0.02 | 99.93 | 1 | 25 |
| *Sipunculus nudus* | Sip | - | 1 | 0.02 | 99.95 | 1 | 25 |
| Stomatopoda (LPIL) | Art | Mala | 1 | 0.02 | 99.98 | 1 | 25 |
| *Tellina versicolor* | Mol | Biva | 1 | 0.02 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
Poly = Polychaeta

Cni = Cnidaria
Anth = Anthozoa

Mol = Mollusca
Biva = Bivalvia
Gast = Gastropoda

Rhy = Rhynchocoela
Anop = Anopla

Art = Arthropoda
Mala = Malacostraca

Ech = Echinodermata
Ophi = Ophiuroidea

Pho = Phoronida

Sip = Sipuncula

Bra = Brachiopoda

Hem = Hemichordata
Ente = Enteropneusta

Pla = Platyhelminthes
Turb = Turbellaria

Table 92. Percentage abundance of dominant taxa (>10% of the total) for the LOOP - Brine stations, November 2001.

| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| *Magelona* sp. H | | | | 12.4 |
| *Mediomastus* (LPIL) | 11.1 | | 16.8 | |
| *Paraprionospio pinnata* | 17.8 | 34.2 | 21.8 | 21.7 |
| *Sigambra tentaculata* | 10.9 | | | |

Table 93. Summary of benthic macroinfaunal data for the LOOP - Brine stations, November 2001.

| Station | Rep | Taxa | Indvs | Density | Mean No. Taxa | Taxa (SD) | Mean Density | Density (SD) | Total No. Taxa | Total No. Individuals | H' Diversity | J' Evenness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **435** | A | 27 | 198 | 1980 | 28.8 | 4.9 | 2093.3 | 668.2 | 66 | 1256 | 3.07 | 0.73 |
| | B | 27 | 199 | 1990 | | | | | | | | |
| | C | 25 | 120 | 1200 | | | | | | | | |
| | D | 35 | 320 | 3200 | | | | | | | | |
| | E | 35 | 240 | 2400 | | | | | | | | |
| | F | 24 | 179 | 1790 | | | | | | | | |
| **473** | A | 27 | 148 | 1480 | 21.5 | 6.1 | 1413.3 | 528.5 | 48 | 848 | 2.62 | 0.68 |
| | B | 19 | 88 | 880 | | | | | | | | |
| | C | 31 | 222 | 2220 | | | | | | | | |
| | D | 17 | 112 | 1120 | | | | | | | | |
| | E | 16 | 96 | 960 | | | | | | | | |
| | F | 19 | 182 | 1820 | | | | | | | | |
| **474** | A | 30 | 230 | 2300 | 26.3 | 7.6 | 2086.7 | 1319.1 | 56 | 1252 | 2.87 | 0.71 |
| | B | 39 | 447 | 4470 | | | | | | | | |
| | C | 28 | 242 | 2420 | | | | | | | | |
| | D | 19 | 110 | 1100 | | | | | | | | |
| | E | 21 | 114 | 1140 | | | | | | | | |
| | F | 21 | 109 | 1090 | | | | | | | | |
| **475** | A | 29 | 222 | 2220 | 23.7 | 4.3 | 1153.3 | 566.4 | 52 | 692 | 2.97 | 0.75 |
| | B | 24 | 90 | 900 | | | | | | | | |
| | C | 16 | 60 | 600 | | | | | | | | |
| | D | 23 | 89 | 890 | | | | | | | | |
| | E | 24 | 104 | 1040 | | | | | | | | |
| | F | 26 | 127 | 1270 | | | | | | | | |

Table 94. Summary of overall abundance of major benthic macroinfaunal taxonomic groups for the LOOP - Brine stations, June 2002.

| Taxa | Total No. Taxa | % of Total | Total No. Individuals | % of Total |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | 53 | 46.5 | 2,754 | 72.6 |
| **Mollusca** | | | | |
| Bivalvia | 20 | 17.5 | 636 | 16.8 |
| Gastropoda | 19 | 16.7 | 115 | 3.0 |
| **Arthropoda** | | | | |
| Malacostraca | 11 | 9.6 | 43 | 1.1 |
| Ostracoda | 1 | 0.9 | 1 | 0.0 |
| **Echinodermata** | | | | |
| Ophiuroidea | 2 | 1.8 | 2 | 0.1 |
| **Other Taxa** | 8 | 7.0 | 240 | 6.3 |
| **Total** | **114** | | **3,791** | |

Table 95. Summary of abundance of major benthic macroinfaunal taxonomic groups by station for the LOOP - Brine stations, June 2002.

| Station | Taxa | No. of Taxa | % of Total | No. of Individuals | % of Total |
|---|---|---|---|---|---|
| **435** | Annelida | 30 | 39.5 | 572 | 47.6 |
| | Mollusca | 28 | 36.8 | 515 | 42.9 |
| | Arthropoda | 12 | 15.8 | 39 | 3.2 |
| | Echinodermata | 1 | 1.3 | 1 | 0.1 |
| | Other Taxa | 5 | 6.6 | 74 | 6.2 |
| | **Total** | **76** | | **1,201** | |
| **473** | Annelida | 19 | 44.2 | 477 | 84.7 |
| | Mollusca | 17 | 39.5 | 45 | 8.0 |
| | Arthropoda | 0 | 0.0 | 0 | 0.0 |
| | Echinodermata | 0 | 0.0 | 0 | 0.0 |
| | Other Taxa | 7 | 16.3 | 41 | 7.3 |
| | **Total** | **43** | | **563** | |
| **474** | Annelida | 32 | 53.3 | 991 | 84.1 |
| | Mollusca | 19 | 31.7 | 112 | 9.5 |
| | Arthropoda | 2 | 3.3 | 4 | 0.3 |
| | Echinodermata | 0 | 0.0 | 0 | 0.0 |
| | Other Taxa | 7 | 11.7 | 72 | 6.1 |
| | **Total** | **60** | | **1,179** | |
| **475** | Annelida | 29 | 54.7 | 714 | 84.2 |
| | Mollusca | 18 | 34.0 | 79 | 9.3 |
| | Arthropoda | 1 | 1.9 | 1 | 0.1 |
| | Echinodermata | 1 | 1.9 | 1 | 0.1 |
| | Other Taxa | 4 | 7.5 | 53 | 6.3 |
| | **Total** | **53** | | **848** | |

Table 96. Distribution and abundance of families for the LOOP - Brine stations, June 2002.

| Family | Phylum | Class | No. of Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| Capitellidae | Ann | Poly | 1078 | 28.44 | 28.44 | 4 | 100 |
| Spionidae | Ann | Poly | 587 | 15.48 | 43.92 | 4 | 100 |
| Petricolidae | Mol | Biva | 336 | 8.86 | 52.78 | 1 | 25 |
| Magelonidae | Ann | Poly | 290 | 7.65 | 60.43 | 4 | 100 |
| Ampharetidae | Ann | Poly | 245 | 6.46 | 66.90 | 4 | 100 |
| Pilargiidae | Ann | Poly | 200 | 5.28 | 72.17 | 4 | 100 |
| Goniadidae | Ann | Poly | 179 | 4.72 | 76.89 | 4 | 100 |
| Tubulanidae | Rhy | Anop | 121 | 3.19 | 80.08 | 4 | 100 |
| Other Taxa | – | – | 104 | 2.74 | 82.83 | 4 | 100 |
| Arcidae | Mol | Biva | 72 | 1.90 | 84.73 | 3 | 75 |
| Nuculanidae | Mol | Biva | 64 | 1.69 | 86.42 | 4 | 100 |
| Amphinomidae | Ann | Poly | 59 | 1.56 | 87.97 | 4 | 100 |
| Lineidae | Rhy | Anop | 52 | 1.37 | 89.34 | 4 | 100 |
| Tellinidae | Mol | Biva | 47 | 1.24 | 90.58 | 4 | 100 |
| Nassariidae | Mol | Gast | 39 | 1.03 | 91.61 | 4 | 100 |
| Mactridae | Mol | Biva | 30 | 0.79 | 92.40 | 4 | 100 |
| Onuphidae | Ann | Poly | 27 | 0.71 | 93.12 | 3 | 75 |
| Semelidae | Mol | Biva | 26 | 0.69 | 93.80 | 3 | 75 |
| Columbellidae | Mol | Gast | 19 | 0.50 | 94.30 | 4 | 100 |
| Sigalionidae | Ann | Poly | 17 | 0.45 | 94.75 | 4 | 100 |
| Paguridae | Art | Mala | 17 | 0.45 | 95.20 | 2 | 50 |
| Pyramidellidae | Mol | Gast | 17 | 0.45 | 95.65 | 4 | 100 |
| Vitrinellidae | Mol | Gast | 15 | 0.40 | 96.04 | 4 | 100 |
| Cirratulidae | Ann | Poly | 13 | 0.34 | 96.39 | 3 | 75 |
| Veneridae | Mol | Biva | 13 | 0.34 | 96.73 | 3 | 75 |
| Hesionidae | Ann | Poly | 12 | 0.32 | 97.05 | 4 | 100 |
| Nereidae | Ann | Poly | 10 | 0.26 | 97.31 | 4 | 100 |
| Naticidae | Mol | Gast | 10 | 0.26 | 97.57 | 4 | 100 |
| Cossuridae | Ann | Poly | 8 | 0.21 | 97.78 | 3 | 75 |
| Scaphandridae | Mol | Gast | 8 | 0.21 | 98.00 | 4 | 100 |
| Pinnotheridae | Art | Mala | 6 | 0.16 | 98.15 | 2 | 50 |
| Lumbrineridae | Ann | Poly | 5 | 0.13 | 98.29 | 2 | 50 |
| Maldanidae | Ann | Poly | 5 | 0.13 | 98.42 | 1 | 25 |
| Xanthidae | Art | Mala | 5 | 0.13 | 98.55 | 1 | 25 |
| Phyllodocidae | Ann | Poly | 4 | 0.11 | 98.65 | 3 | 75 |
| Polynoidae | Ann | Poly | 4 | 0.11 | 98.76 | 3 | 75 |
| Terebellidae | Ann | Poly | 4 | 0.11 | 98.87 | 2 | 50 |
| Ptychoderidae | Hem | Ente | 4 | 0.11 | 98.97 | 1 | 25 |
| Terebridae | Mol | Gast | 4 | 0.11 | 99.08 | 2 | 50 |
| Golfingiidae | Sip | – | 4 | 0.11 | 99.18 | 3 | 75 |
| Nephtyidae | Ann | Poly | 3 | 0.08 | 99.26 | 1 | 25 |
| Diastylidae | Art | Mala | 3 | 0.08 | 99.34 | 2 | 50 |
| Isaeidae | Art | Mala | 3 | 0.08 | 99.42 | 1 | 25 |
| Mysidae | Art | Mala | 3 | 0.08 | 99.50 | 1 | 25 |
| Sergestidae | Art | Mala | 3 | 0.08 | 99.58 | 1 | 25 |
| Corbulidae | Mol | Biva | 3 | 0.08 | 99.66 | 2 | 50 |
| Oweniidae | Ann | Poly | 2 | 0.05 | 99.71 | 1 | 25 |
| Portunidae | Art | Mala | 2 | 0.05 | 99.76 | 1 | 25 |
| Phoronidae | Pho | – | 2 | 0.05 | 99.82 | 2 | 50 |

Table 96 continued:

| Family | Phylum | Class | No. of Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| Chaetopteridae | Ann | Poly | 1 | 0.03 | 99.84 | 1 | 25 |
| Opheliidae | Ann | Poly | 1 | 0.03 | 99.87 | 1 | 25 |
| Liljeborgiidae | Art | Mala | 1 | 0.03 | 99.89 | 1 | 25 |
| Sarsiellidae | Art | Ostr | 1 | 0.03 | 99.92 | 1 | 25 |
| Amphiuridae | Ech | Ophi | 1 | 0.03 | 99.95 | 1 | 25 |
| Epitoniidae | Mol | Gast | 1 | 0.03 | 99.97 | 1 | 25 |
| Turridae | Mol | Gast | 1 | 0.03 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
Poly = Polychaeta
Art = Arthropoda
Mala = Malacostraca
Ostr = Ostracoda
Ech = Echinodermata
Ophi = Ophiuroidea
Hem = Hemichordata
Ente = Enteropneusta
Mol = Mollusca
Biva = Bivalvia
Gast = Gastropoda
Pho = Phoronida
Rhy = Rhynchocoela
Anop = Anopla
Sip = Sipuncula

Table 97. Percentage abundance of dominant families (>10 % of the total) for the LOOP - Brine stations, June 2002.

| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| Capitellidae | | 18.3 | 45.2 | 40.3 |
| Magelonidae | | | 10.4 | |
| Spionidae | 11.8 | 41.4 | 10.3 | 10.6 |
| **Mollusca** | | | | |
| Bivalvia | | | | |
| Petricolidae | 28.0 | | | |

Table 98. Distribution and abundance of taxa for the LOOP - Brine stations, June 2002.

| Taxon Name | Phylum | Class | No. of Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| *Mediomastus* (LPIL) | Ann | Poly | 1071 | 28.25 | 28.25 | 4 | 100 |
| *Paraprionospio pinnata* | Ann | Poly | 489 | 12.90 | 41.15 | 4 | 100 |
| *Petricola pholadiformis* | Mol | Biva | 336 | 8.86 | 50.01 | 1 | 25 |
| *Magelona* sp. H | Ann | Poly | 288 | 7.60 | 57.61 | 4 | 100 |
| *Asabellides oculata* | Ann | Poly | 245 | 6.46 | 64.07 | 4 | 100 |
| *Glycinde solitaria* | Ann | Poly | 179 | 4.72 | 68.79 | 4 | 100 |
| *Tubulanus* (LPIL) | Rhy | Anop | 121 | 3.19 | 71.99 | 4 | 100 |
| *Ancistrosyllis jonesi* | Ann | Poly | 118 | 3.11 | 75.10 | 4 | 100 |
| *Sigambra tentaculata* | Ann | Poly | 68 | 1.79 | 76.89 | 4 | 100 |
| *Paramphinome* sp. B | Ann | Poly | 59 | 1.56 | 78.45 | 4 | 100 |
| *Anadara transversa* | Mol | Biva | 59 | 1.56 | 80.01 | 3 | 75 |
| Lineidae (LPIL) | Rhy | Anop | 52 | 1.37 | 81.38 | 4 | 100 |
| Bivalvia (LPIL) | Mol | Biva | 45 | 1.19 | 82.56 | 4 | 100 |
| *Nuculana concentrica* | Mol | Biva | 41 | 1.08 | 83.65 | 4 | 100 |
| *Prionospio perkinsi* | Ann | Poly | 39 | 1.03 | 84.67 | 3 | 75 |
| *Nassarius acutus* | Mol | Gast | 39 | 1.03 | 85.70 | 4 | 100 |
| Spionidae (LPIL) | Ann | Poly | 35 | 0.92 | 86.63 | 4 | 100 |
| Tellinidae (LPIL) | Mol | Biva | 33 | 0.87 | 87.50 | 3 | 75 |
| Rhynchocoela (LPIL) | Rhy | – | 32 | 0.84 | 88.34 | 4 | 100 |
| *Mulinia lateralis* | Mol | Biva | 27 | 0.71 | 89.05 | 4 | 100 |
| Nuculanidae (LPIL) | Mol | Biva | 23 | 0.61 | 89.66 | 3 | 75 |
| *Diopatra cuprea* | Ann | Poly | 22 | 0.58 | 90.24 | 3 | 75 |
| Turbellaria (LPIL) | Pla | Turb | 20 | 0.53 | 90.77 | 2 | 50 |
| *Abra aequalis* | Mol | Biva | 16 | 0.42 | 91.19 | 3 | 75 |
| *Sthenelais* sp. A | Ann | Poly | 15 | 0.40 | 91.59 | 4 | 100 |
| *Pagurus* (LPIL) | Art | Mala | 15 | 0.40 | 91.98 | 2 | 50 |
| *Anachis obesa* | Mol | Gast | 14 | 0.37 | 92.35 | 2 | 50 |
| *Dipolydora socialis* | Ann | Poly | 11 | 0.29 | 92.64 | 1 | 25 |
| *Podarkeopsis levifuscina* | Ann | Poly | 11 | 0.29 | 92.93 | 4 | 100 |
| *Chione cancellata* | Mol | Biva | 11 | 0.29 | 93.22 | 3 | 75 |
| *Vitrinella helicoidea* | Mol | Gast | 11 | 0.29 | 93.51 | 4 | 100 |
| Semelidae (LPIL) | Mol | Biva | 10 | 0.26 | 93.77 | 1 | 25 |
| *Tectonatica pusilla* | Mol | Gast | 10 | 0.26 | 94.04 | 4 | 100 |
| *Prionospio* (LPIL) | Ann | Poly | 8 | 0.21 | 94.25 | 2 | 50 |
| *Tellina versicolor* | Mol | Biva | 8 | 0.21 | 94.46 | 3 | 75 |
| *Acteocina bidentata* | Mol | Gast | 8 | 0.21 | 94.67 | 4 | 100 |
| Arcidae (LPIL) | Mol | Biva | 7 | 0.18 | 94.86 | 2 | 50 |
| *Chaetozone* sp. D | Ann | Poly | 6 | 0.16 | 95.01 | 2 | 50 |
| *Nereis micromma* | Ann | Poly | 6 | 0.16 | 95.17 | 3 | 75 |
| *Pinnixa* (LPIL) | Art | Mala | 6 | 0.16 | 95.33 | 2 | 50 |
| *Anadara ovalis* | Mol | Biva | 6 | 0.16 | 95.49 | 1 | 25 |
| *Cossura delta* | Ann | Poly | 5 | 0.13 | 95.62 | 3 | 75 |
| *Sigambra wassi* | Ann | Poly | 5 | 0.13 | 95.75 | 3 | 75 |
| Xanthidae (LPIL) | Art | Mala | 5 | 0.13 | 95.88 | 1 | 25 |
| Actiniaria (LPIL) | Cni | Anth | 5 | 0.13 | 96.02 | 3 | 75 |
| *Odostomia gibbosa* | Mol | Gast | 5 | 0.13 | 96.15 | 2 | 50 |
| Cirratulidae (LPIL) | Ann | Poly | 4 | 0.11 | 96.25 | 2 | 50 |
| *Clymenella torquata* | Ann | Poly | 4 | 0.11 | 96.36 | 1 | 25 |
| *Mediomastus ambiseta* | Ann | Poly | 4 | 0.11 | 96.47 | 2 | 50 |
| Onuphidae (LPIL) | Ann | Poly | 4 | 0.11 | 96.57 | 2 | 50 |
| *Polydora cornuta* | Ann | Poly | 4 | 0.11 | 96.68 | 1 | 25 |
| Terebellidae (LPIL) | Ann | Poly | 4 | 0.11 | 96.78 | 2 | 50 |
| *Balanoglossus* (LPIL) | Hem | Ente | 4 | 0.11 | 96.89 | 1 | 25 |
| *Macoma tenta* | Mol | Biva | 4 | 0.11 | 96.99 | 1 | 25 |
| *Turbonilla conradi* | Mol | Gast | 4 | 0.11 | 97.10 | 2 | 50 |
| *Phascolion strombi* | Sip | – | 4 | 0.11 | 97.20 | 3 | 75 |
| *Chaetozone* (LPIL) | Ann | Poly | 3 | 0.08 | 97.28 | 2 | 50 |
| *Cossura soyeri* | Ann | Poly | 3 | 0.08 | 97.36 | 1 | 25 |
| Lumbrineridae (LPIL) | Ann | Poly | 3 | 0.08 | 97.44 | 2 | 50 |
| *Nephtys* (LPIL) | Ann | Poly | 3 | 0.08 | 97.52 | 1 | 25 |
| *Notomastus daueri* | Ann | Poly | 3 | 0.08 | 97.60 | 1 | 25 |
| *Sigambra* (LPIL) | Ann | Poly | 3 | 0.08 | 97.68 | 2 | 50 |

Table 98 continued:

| Taxon Name | Phylum | Class | No. of Individuals | % of Total | Cumulative % | Station Occurrence | % Station Occurrence |
|---|---|---|---|---|---|---|---|
| *Sigambra pettiboneae* | Ann | Poly | 3 | 0.08 | 97.76 | 2 | 50 |
| *Americamysis* (LPIL) | Art | Mala | 3 | 0.08 | 97.84 | 1 | 25 |
| *Microprotopus raneyi* | Art | Mala | 3 | 0.08 | 97.92 | 1 | 25 |
| *Oxyurostylis lecroyae* | Art | Mala | 3 | 0.08 | 98.00 | 2 | 50 |
| Sergestidae (LPIL) | Art | Mala | 3 | 0.08 | 98.07 | 1 | 25 |
| Mactridae (LPIL) | Mol | Biva | 3 | 0.08 | 98.15 | 2 | 50 |
| *Mitrella lunata* | Mol | Gast | 3 | 0.08 | 98.23 | 1 | 25 |
| *Odostomia* (LPIL) | Mol | Gast | 3 | 0.08 | 98.31 | 2 | 50 |
| *Odostomia weberi* | Mol | Gast | 3 | 0.08 | 98.39 | 2 | 50 |
| *Teinostoma biscaynense* | Mol | Gast | 3 | 0.08 | 98.47 | 1 | 25 |
| *Terebra* sp. A | Mol | Gast | 3 | 0.08 | 98.55 | 1 | 25 |
| *Fimbriosthenelais* (LPIL) | Ann | Poly | 2 | 0.05 | 98.60 | 1 | 25 |
| *Lepidasthenia varia* | Ann | Poly | 2 | 0.05 | 98.65 | 1 | 25 |
| *Magelona* (LPIL) | Ann | Poly | 2 | 0.05 | 98.71 | 1 | 25 |
| Nereididae (LPIL) | Ann | Poly | 2 | 0.05 | 98.76 | 2 | 50 |
| *Owenia fusiformis* | Ann | Poly | 2 | 0.05 | 98.81 | 1 | 25 |
| *Phyllodoce* (LPIL) | Ann | Poly | 2 | 0.05 | 98.87 | 2 | 50 |
| *Phyllodoce arenae* | Ann | Poly | 2 | 0.05 | 98.92 | 2 | 50 |
| *Scoletoma verrilli* | Ann | Poly | 2 | 0.05 | 98.97 | 2 | 50 |
| Paguridae (LPIL) | Art | Mala | 2 | 0.05 | 99.02 | 1 | 25 |
| *Corbula contracta* | Mol | Biva | 2 | 0.05 | 99.08 | 1 | 25 |
| *Tellina* (LPIL) | Mol | Biva | 2 | 0.05 | 99.13 | 2 | 50 |
| Columbellidae (LPIL) | Mol | Gast | 2 | 0.05 | 99.18 | 2 | 50 |
| *Turbonilla* (LPIL) | Mol | Gast | 2 | 0.05 | 99.24 | 2 | 50 |
| *Phoronis* (LPIL) | Pho | – | 2 | 0.05 | 99.29 | 2 | 50 |
| *Ancistrosyllis hartmanae* | Ann | Poly | 1 | 0.03 | 99.31 | 1 | 25 |
| *Armandia maculata* | Ann | Poly | 1 | 0.03 | 99.34 | 1 | 25 |
| Hesionidae (LPIL) | Ann | Poly | 1 | 0.03 | 99.37 | 1 | 25 |
| *Kinbergonuphis* (LPIL) | Ann | Poly | 1 | 0.03 | 99.39 | 1 | 25 |
| *Lepidonotus* sp. A | Ann | Poly | 1 | 0.03 | 99.42 | 1 | 25 |
| Maldanidae (LPIL) | Ann | Poly | 1 | 0.03 | 99.45 | 1 | 25 |
| *Malmgreniella maccraryae* | Ann | Poly | 1 | 0.03 | 99.47 | 1 | 25 |
| *Nereis* (LPIL) | Ann | Poly | 1 | 0.03 | 99.50 | 1 | 25 |
| *Nereis succinea* | Ann | Poly | 1 | 0.03 | 99.53 | 1 | 25 |
| *Sigambra bassi* | Ann | Poly | 1 | 0.03 | 99.55 | 1 | 25 |
| *Sigambra grubii* | Ann | Poly | 1 | 0.03 | 99.58 | 1 | 25 |
| *Spiochaetopterus oculatus* | Ann | Poly | 1 | 0.03 | 99.60 | 1 | 25 |
| *Streblospio benedicti* | Ann | Poly | 1 | 0.03 | 99.63 | 1 | 25 |
| *Listriella barnardi* | Art | Mala | 1 | 0.03 | 99.66 | 1 | 25 |
| Portunidae (LPIL) | Art | Mala | 1 | 0.03 | 99.68 | 1 | 25 |
| *Portunus gibbesii* | Art | Mala | 1 | 0.03 | 99.71 | 1 | 25 |
| *Eusarsiella texana* | Art | Ostr | 1 | 0.03 | 99.74 | 1 | 25 |
| Amphiuridae (LPIL) | Ech | Ophi | 1 | 0.03 | 99.76 | 1 | 25 |
| Ophiuroidea (LPIL) | Ech | Ophi | 1 | 0.03 | 99.79 | 1 | 25 |
| *Chione* (LPIL) | Mol | Biva | 1 | 0.03 | 99.82 | 1 | 25 |
| Corbulidae (LPIL) | Mol | Biva | 1 | 0.03 | 99.84 | 1 | 25 |
| Veneridae (LPIL) | Mol | Biva | 1 | 0.03 | 99.87 | 1 | 25 |
| *Cryoturris cerinella* | Mol | Gast | 1 | 0.03 | 99.89 | 1 | 25 |
| *Epitonium* (LPIL) | Mol | Gast | 1 | 0.03 | 99.92 | 1 | 25 |
| Gastropoda (LPIL) | Mol | Gast | 1 | 0.03 | 99.95 | 1 | 25 |
| *Terebra dislocata* | Mol | Gast | 1 | 0.03 | 99.97 | 1 | 25 |
| Vitrinellidae (LPIL) | Mol | Gast | 1 | 0.03 | 100.00 | 1 | 25 |

**Taxa Key**

Ann = Annelida
  Poly = Polychaeta
Art = Arthropoda
  Mala = Malacostraca
  Ostr = Ostracoda
Cni = Cnidaria
  Anth = Anthozoa
Ech = Echinodermata
  Ophi = Ophiuroidea
Hem = Hemichordata
  Ente = Enteropneusta
Mol = Mollusca
  Biva = Bivalvia
  Gast = Gastropoda
Pho = Phoronida
Pla = Platyhelminthes
  Turb = Turbellaria
Rhy = Rhynchocoela
  Anop = Anopla
Sip = Sipuncula

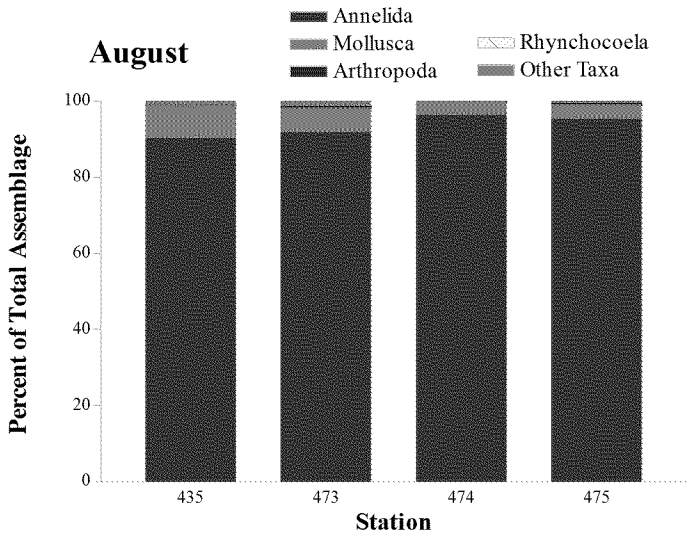
Table 99. Percentage abundance of dominant taxa (>10% of the total) for the LOOP - Brine stations, June 2002.

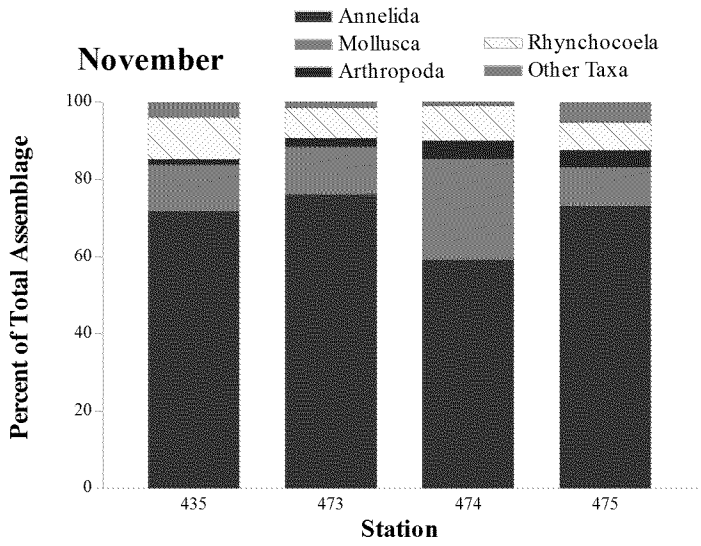
| Taxa | 435 | 473 | 474 | 475 |
|---|---|---|---|---|
| **Annelida** | | | | |
| Polychaeta | | | | |
| *Magelona* sp. H | | | 10.4 | |
| *Mediomastus* (LPIL) | | 18.3 | 44.9 | 40.3 |
| *Paraprionospio pinnata* | | 40.9 | | |
| **Mollusca** | | | | |
| Bivalvia | | | | |
| *Petricola pholadiformis* | 28.0 | | | |

Table 100. Summary of benthic macroinfaunal data for the LOOP - Brine stations, June 2002.

| Station | Rep | Taxa | Indvs | Density | Mean No. Taxa | Taxa (SD) | Mean Density | Density (SD) | Total No. Taxa | Total No. Individuals | H' Diversity | J' Evenness |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **435** | A | 34 | 141 | 1410 | 32.2 | 7.3 | 2001.7 | 1095.8 | 76 | 1201 | 3.07 | 0.71 |
| | B | 33 | 305 | 3050 | | | | | | | | |
| | C | 38 | 216 | 2160 | | | | | | | | |
| | D | 41 | 351 | 3510 | | | | | | | | |
| | E | 24 | 93 | 930 | | | | | | | | |
| | F | 23 | 95 | 950 | | | | | | | | |
| **473** | A | 15 | 153 | 1530 | 15.5 | 4.0 | 938.3 | 302.7 | 43 | 563 | 2.23 | 0.59 |
| | B | 14 | 77 | 770 | | | | | | | | |
| | C | 11 | 93 | 930 | | | | | | | | |
| | D | 14 | 70 | 700 | | | | | | | | |
| | E | 16 | 79 | 790 | | | | | | | | |
| | F | 23 | 91 | 910 | | | | | | | | |
| **474** | A | 20 | 151 | 1510 | 22.0 | 8.0 | 1965.0 | 1650.7 | 60 | 1179 | 2.32 | 0.57 |
| | B | 31 | 329 | 3290 | | | | | | | | |
| | C | 33 | 457 | 4570 | | | | | | | | |
| | D | 18 | 33 | 330 | | | | | | | | |
| | E | 16 | 155 | 1550 | | | | | | | | |
| | F | 14 | 54 | 540 | | | | | | | | |
| **475** | A | 25 | 162 | 1620 | 21.3 | 2.7 | 1413.3 | 485.3 | 53 | 848 | 2.37 | 0.60 |
| | B | 20 | 107 | 1070 | | | | | | | | |
| | C | 23 | 105 | 1050 | | | | | | | | |
| | D | 17 | 125 | 1250 | | | | | | | | |
| | E | 21 | 231 | 2310 | | | | | | | | |
| | F | 22 | 118 | 1180 | | | | | | | | |

Figure 19. Percent abundance of major taxonomic groups for the LOOP - Brine stations, 2001-2002.



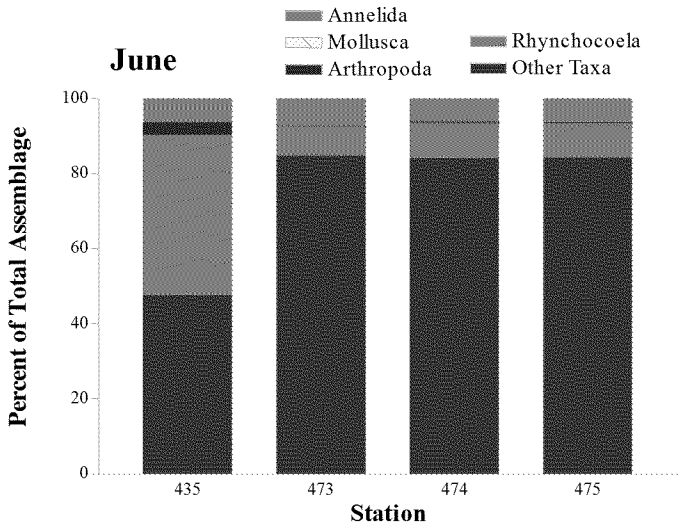



Figure 20. Macroinvertebrate density data for the LOOP - Brine stations, 2001-2002.

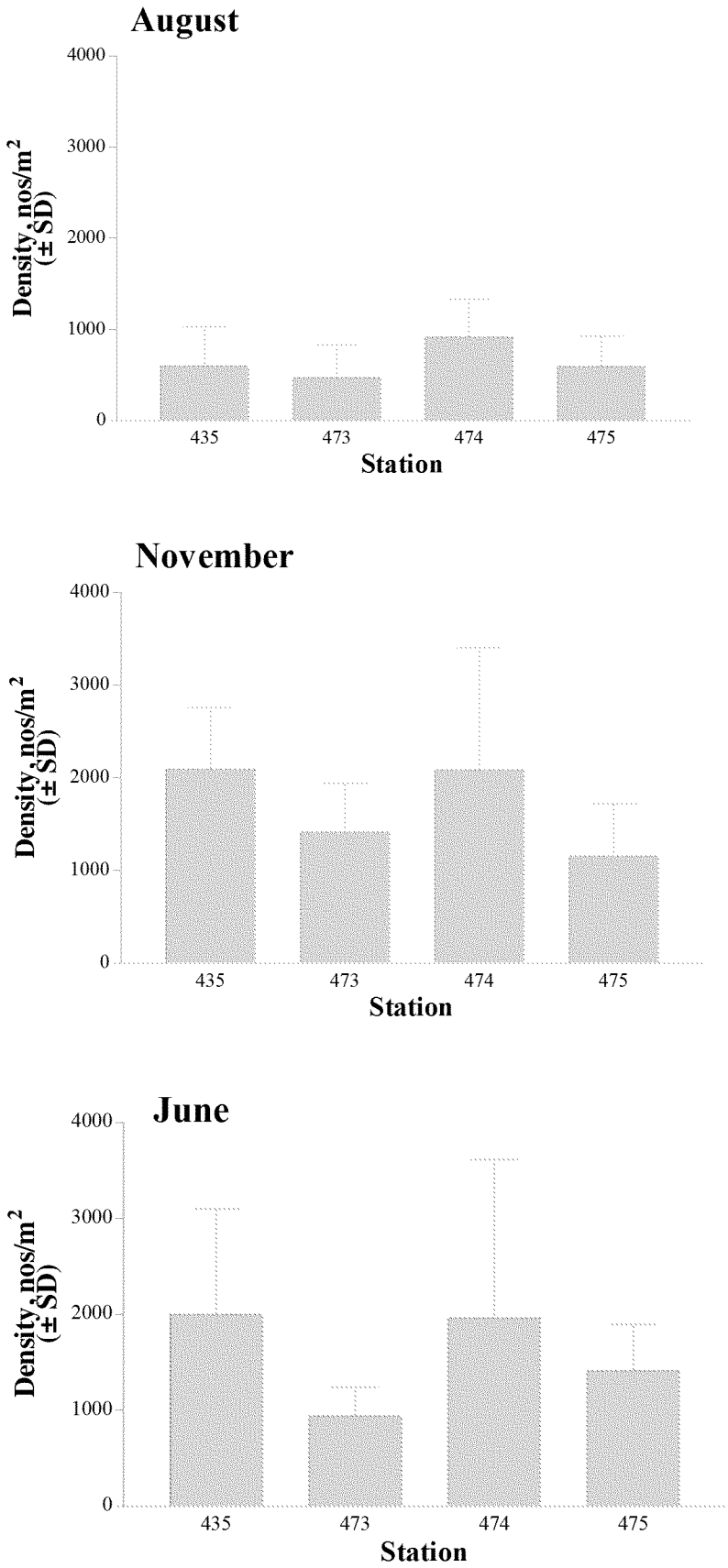
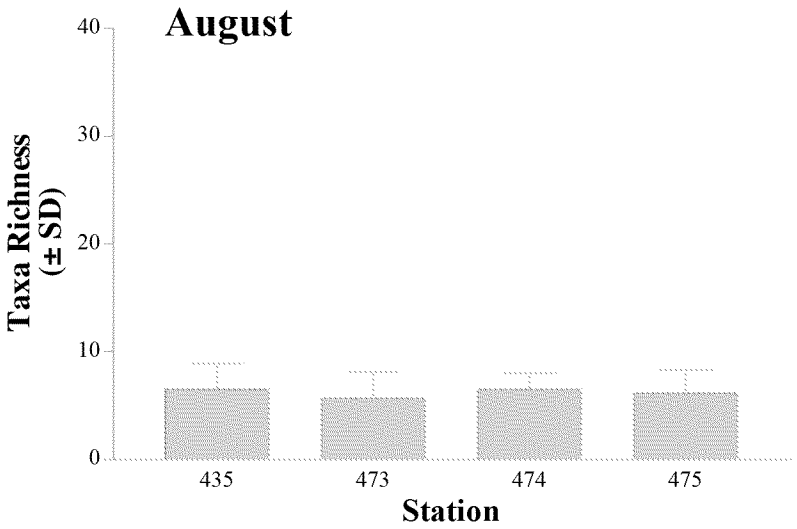
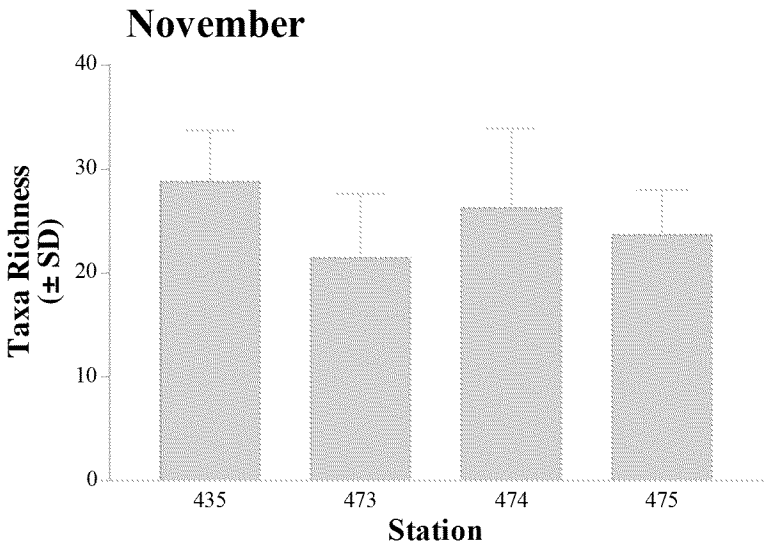


Figure 21. Taxa richness data for the LOOP - Brine stations, 2001-2002.



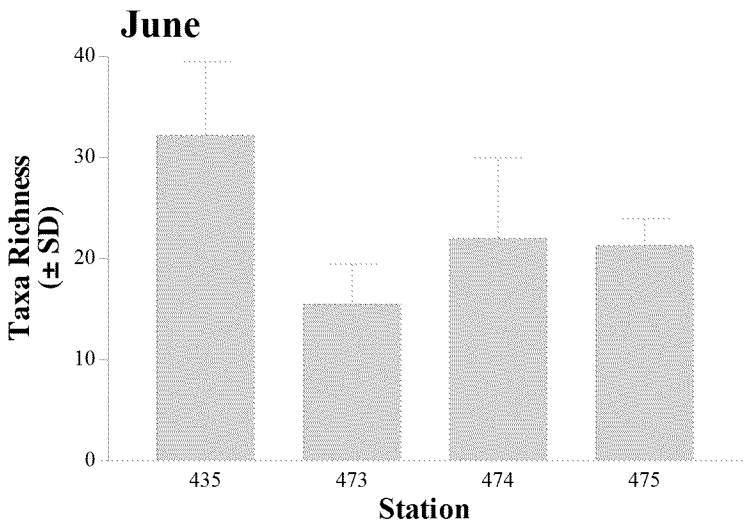
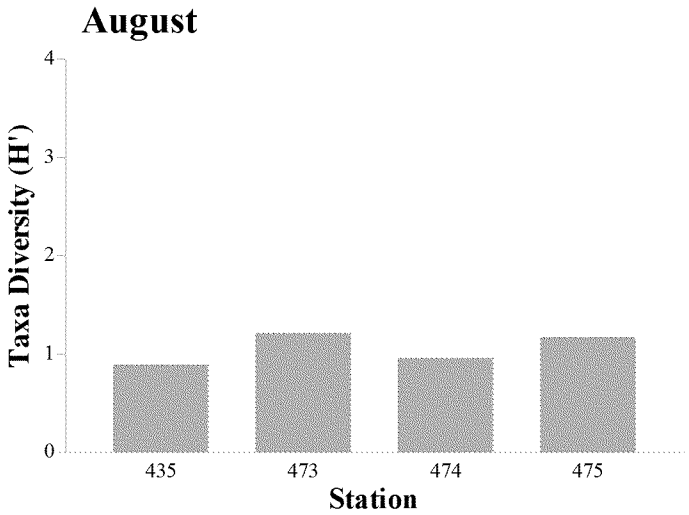
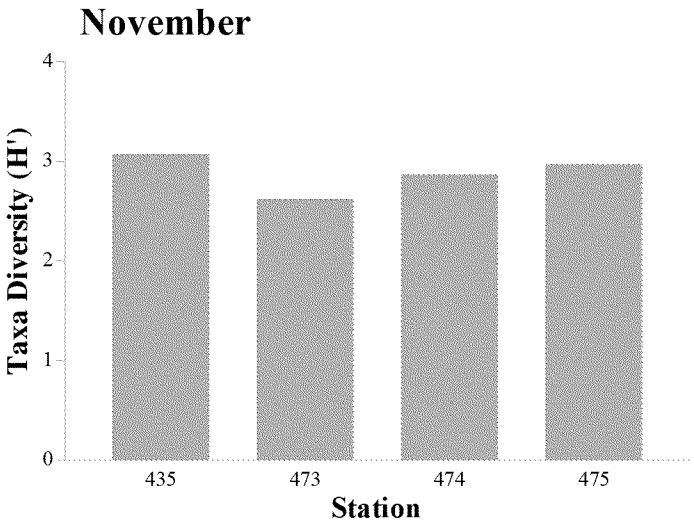



Figure 22. Taxa diversity (H') data for the LOOP - Brine stations, 2001-2002.



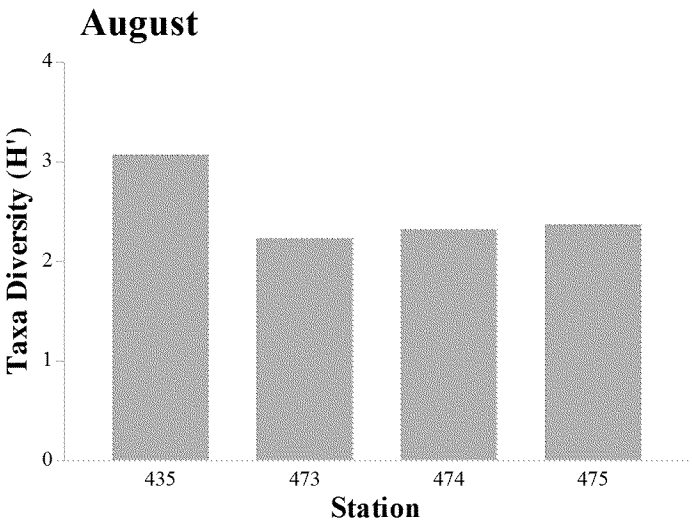
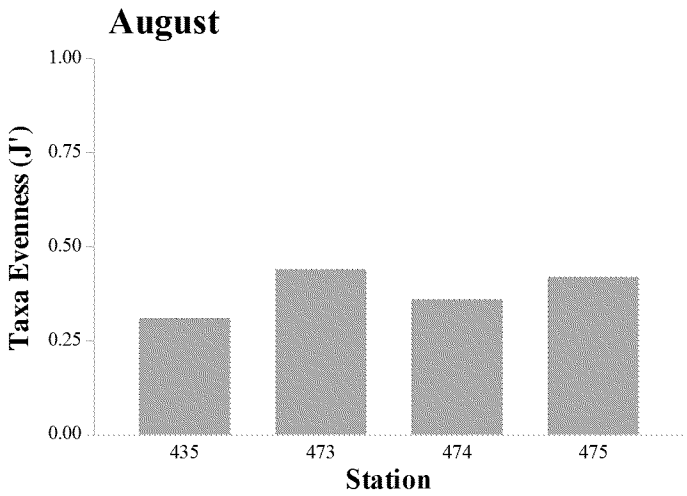
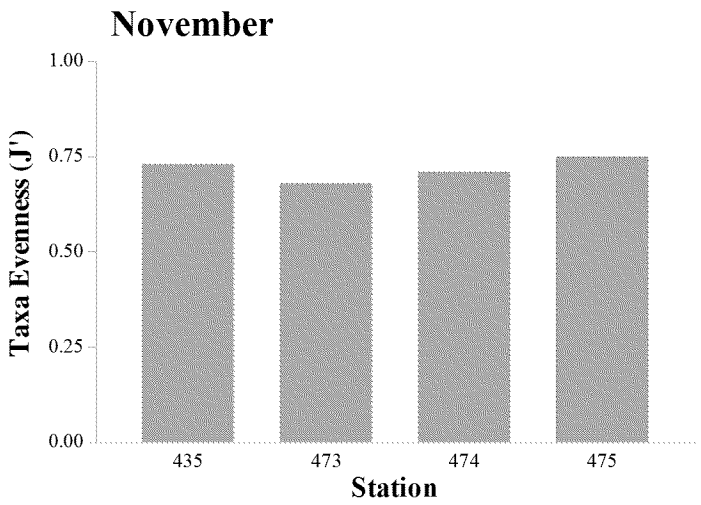
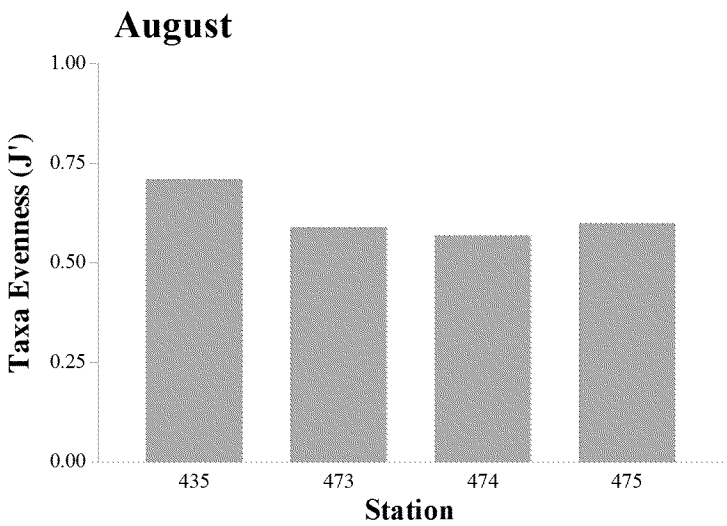




Figure 23. Taxa evenness (J') for the LOOP - Brine Stations, 2001-2002.