

**SPECIAL PUBLICATION SJ2011-SP4**

**PRELIMINARY ANALYSIS OF BENTHIC  
MACROINVERTEBRATE DATA FROM 40 SURFACE  
WATER SITES WITHIN THE LOWER ST. JOHNS  
RIVER BASIN, 2000 - 2003**





# Preliminary Analysis of Benthic Macroinvertebrate Data from 40 Surface Water Sites Within the Lower St. Johns River Basin, 2000 - 2003

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**June 2004**  
01-5057-03



# Contents

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Section	Page
<b>1 Introduction</b> .....	<b>1</b>
<b>2 Methods</b> .....	<b>1</b>
2.1 Description of Sampling Locations.....	1
2.2 Laboratory Analysis, Data Tabulation, and Benthic Community Metrics .....	1
2.3 Statistical Analysis.....	2
<b>3 Results and Discussion</b> .....	<b>3</b>
3.1 Species Composition and Community Metrics .....	3
3.2 Morphological Deformities.....	3
3.3 Data Analysis and Evaluation .....	4
<b>4 Summary of Findings</b> .....	<b>6</b>
<b>5 Conclusions and Recommendations</b> .....	<b>7</b>
<b>6 Literature Cited</b> .....	<b>8</b>
<b>7 Glossary</b> .....	<b>9</b>

## Figures

1	Nonmetric Multidimensional Scaling Ordination for 2000-2003 Macroinvertebrate Data Replicates Combined
2	Nonmetric Multidimensional Scaling Ordination for 2000-2003 Macroinvertebrate Data with Percent Salt-tolerant Organisms Replicates Combined
3	Shannon-Wiener Species Diversity (SWDI) vs. Percent Salt-tolerant Location Class
4	No. of Unique Taxa by Location Class
5	Pielou's Evenness by Location Class
6	Average Salinity (ppt) by Location Class
7	Percent-Pollution-tolerant by Location Class
8	Percent Pollution-tolerant vs. Percent Salt-tolerant Location Class
9	Total Raw Count vs. Number of Salt-tolerant
10	No. of Unique Taxa vs. No. of Salt-tolerant
11	Shannon-Wiener Species Diversity (SWDI) vs. No. of Salt-tolerant
12	Composite Benthic Sediment Quality Index (CBSI) vs. No. of Salt-tolerant
13	No. of Unique Taxa vs. Total Raw Count
14	Shannon-Wiener Species Diversity (SWDI) vs. Percent Pollution-tolerant
15	Composite Benthic Sediment Quality Index (CBSI) vs. Percent Pollution-tolerant
16	No. of Unique Taxa vs. Percent Pollution-tolerant
17	No. of Deformities vs. Percent Salt-tolerant Fresh and Salt-dominated Sites
18	No. of Deformities vs. Percent Pollution-tolerant
19	No. of Unique Taxa vs. Total Organic Carbon in Sediments
20	Shannon-Wiener Species Diversity Index (SWDI) vs. Total Organic Carbon in Sediments
21	Shannon-Wiener Species Diversity Index (SWDI) vs. Percent Fines in Sediments

# Contents, Continued

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## Tables

- 1 Benthic Sampling Locations and Collection Dates at 40 Sites in the Lower St. Johns River Basin, Florida, 2000-2003
- 2 List of Macroinvertebrate Taxa Collected from 40 Sites in the Lower St. Johns River Basin, Florida 2000-2003
- 3 Benthic Community Metrics at 40 Sites in the Lower St. Johns River Basin, Florida, 2000-2003
- 4 Number and Percent Occurrence of Morphological Deformities Observed at 40 Sites in the Lower St. Johns River Basin, Florida, 2000-2003
- 5 Biological Metrics, Location Class, Salinity and Dissolved Oxygen at 40 Sites in the Lower St. Johns River Basin, Florida, 2000-2003

## Appendix

- A Site Location Maps
- B Benthic Macroinvertebrate Data

# 1 Introduction

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The state of Florida created the St. Johns River Water Management District (SJRWMD) in 1972, and authorized it to protect and preserve the state's water resources. Additional authority was provided by the state, through the Surface Water Improvement and Management (SWIM) Act of 1987, to restore and protect the Lower St. Johns River Basin (LSJRB). In response to these directives, SJRWMD developed the LSJRB - SWIM Plan, with the goals to (1) restore and protect the basin's surface water quality to meet or exceed Florida Class III water standards, and to (2) restore and protect the natural systems associated with the basin's surface water. To achieve these goals, there is a need for additional information on the LSJRB benthic community structure. This information can be used to guide and prioritize restoration efforts.

Benthic macroinvertebrate communities are influenced by their environment and can serve as indicators of water and sediment quality. Benthic invertebrates are particularly useful as biological indicators because many are stationary and unable to avoid stressful environmental conditions. Changes in benthic invertebrate assemblages also may affect other biological communities. Because benthic macroinvertebrates provide an important food resource for many types of fish, invertebrate abundance and diversity can influence fisheries production. Because of the potential usefulness of benthic invertebrate data in making water resource management decisions, a preliminary survey of the benthic invertebrate communities in specific areas of the Lower St. Johns River and its tributaries was conducted from March through August 2000 (Evans and Higman 2001). A second supplemental benthic invertebrate survey was conducted from October 2002 through August 2003. The supplemental data collected in 2002 and 2003 were evaluated by Evans et al. (2004a). SJRWMD retained Water & Air Research, Inc. (Water & Air) to evaluate the combined data collected at each of 40 surface water sites sampled during the period 2000 through 2003. The results of the combined data evaluation are described in this report.

## 2 Methods

### 2.1 Description of Sampling Locations

Locations of 40 sampling sites within freshwater and estuarine rivers and streams of the Lower St. Johns River Basin in northeast Florida are depicted in Figures A-1, A-2, and A-3 of Appendix A. These 40 benthic sampling locations were selected because sediments in these locations were known or suspected to be contaminated. Sediment samples were collected along with the benthic invertebrate samples at these 40 locations and analyzed for contaminants. Station identification code, site location, collection dates, collection times, and latitude/longitude coordinates are presented in Table 1.

### 2.2 Laboratory Analysis, Data Tabulation, and Benthic Community Metrics

SJRWMD staff recorded instantaneous field measurements of water temperature, dissolved oxygen, conductivity and salinity at the 40 locations. Typically, measurements were taken at approximately 50 cm below the water surface. These data were entered into the SJRWMD database and salinity and dissolved oxygen data were submitted to Water & Air for inclusion in this report.

Four replicate petite Ponar grabs were collected from each site and preserved in the field. Samples were not composited. Samples were analyzed in Water & Air's biological laboratory in accordance with Water & Air's Quality Assurance Manual (#900322). This plan addresses sample

logging/tracking/custody, verification of sorting completeness, accuracy of taxonomic identification, verification of data entry, and other processes.

Each grab sample was sorted independently in the laboratory and organisms were identified to the lowest practical identification level and enumerated. Gross morphological deformities in chironomid menta and ligulae were recorded during organism identification. The number of deformed chironomid larvae and the percent occurrence of morphological deformities were calculated for each taxon in which deformities were observed. Although exposure to sediment contaminants may result in deformities in benthic invertebrates other than the Chironomidae, such deformities are not known to have been demonstrated or documented in readily available literature.

After all samples were processed and organisms were identified and enumerated, data were tabulated, reviewed and revised using upward taxonomic collapsing techniques described in the Florida Department of Environmental Protection Standard Operating Procedures LT 7100 Section 4.2.1. The following benthic community metrics were then calculated: total organism density, number of taxa, Shannon-Wiener species diversity, and the number and percent occurrence of deformities in chironomid larvae, pollution-tolerant taxa and salt-tolerant taxa.

In addition, a composite benthic sediment quality index (CBSI) was calculated for each sampling location. This index, specifically developed by Water & Air staff (Evans et al. 2004b) for estuarine portions of the LSJRB, is based on two metrics, Shannon-Wiener species diversity (SWDI) and the total number of taxa (NTAXA), using the following equation:

$$\text{CBSI} = 2\text{SWDI} + \text{NTAXA}$$

The CBSI is inversely correlated with a sediment hazard index that was derived from threshold effects concentrations applicable to Florida estuaries (MacDonald et al. 2000). This inverse relationship is based on significant Spearman's rank correlations. Values of CBSI below 14 corresponded to medium to high sediment contamination hazard risk. CBSI values of 14 and above corresponded to low sediment hazard risk (Evans et al. 2004b).

## 2.3 Statistical Analysis

Multivariate statistical analyses were performed using Primer 5 for Windows version 5.2.9 (Clarke and Gorley 2001; Clarke and Warwick 2001). Non-metric multidimensional scaling (MDS) was performed on Bray-Curtis similarity matrices (Bray and Curtis 1957) derived from square root transformed station-specific macroinvertebrate abundances. For MDS plots, the stress value displayed indicated how well the two-dimensional plot represented the multidimensional ordination, with lower values indicating a better fit (Clarke and Gorley 2001; Clarke and Warwick 2001). Primer 5 software was used to overlay graphic representations (bubble plots) of biological metric values on sites represented by macroinvertebrate data ordinations (Clarke and Gorley 2001).

Conventional statistical analyses were performed using Minitab release version 13.32 software (Minitab 2000). For parametric one-way Analysis of Variance (ANOVA) performed with Fisher's pair-wise comparison, data were tested for normality using the Anderson-Darling test. Data found to be non-normally distributed were transformed using the Box-Cox procedure. Where a specific p-value is not given, significance was determined at the  $p \leq 0.05$  level.

When non-parametric tests (e.g., Spearman's rank correlation tests) were used, analysis was performed on untransformed data. Spearman's rank correlation tests can be used to reveal significant correlations among database variables (Walpole and Myers 1978). The Spearman's rank correlation procedure was

used to identify significant relationships of water quality variables with biological metrics, and among macroinvertebrate metrics. Correlations were performed on all biological metrics except organism density, which is derived from organism abundance.

Insufficient data from some of the 40 sites prevented the calculation of certain metrics for these sites (e.g. CBSI). In such cases, sites with missing data were removed from the data set prior to analyses.

## 3 Results and Discussion

### 3.1 Species Composition and Community Metrics

Species abundance tables are presented for each sampling site in Appendix B. Table 2 presents a list of taxa collected at the 40 sites. The most diverse taxonomic groups were annelid worms (24 taxa), chironomid larvae (13 taxa), and amphipods (11 taxa).

The sites exhibited wide ranges in average organism density (11 to 1,776 m<sup>-2</sup>), number of taxa (1 to 15), and Shannon-Wiener species diversity (0.00 to 3.02).

Percent dominance by pollution-tolerant taxa at the sites ranged from 17 to 100 percent (Table 3) and was greater than 60 percent at 34 of the 40 sites.

Some metrics (number of unique taxa and Shannon-Wiener diversity) presented in Table 3 for samples collected in 2000 differ slightly from metrics reported by Evans and Higman (2001). Upward taxonomic collapsing referenced in Section 2.2 was performed prior to calculating the metric values presented in Table 3. Upward taxonomic collapsing was not performed prior to calculating metrics presented by Evans and Higman (2001). This difference in treatment of the data resulted in different metric values for some of the sites sampled in 2000.

### 3.2 Morphological Deformities

The presence of deformities indicates the potential presence of contaminants at sub-lethal concentrations. Elevated metal concentrations, particularly lead and copper, can cause deformities and perhaps growth inhibition in *Chironomus* larvae (Janssens de Bisthoven et al. 1992). Some organic compounds (e.g. pesticides) also are hypothesized to induce morphological deformities (Hamilton and Saether 1971, Warwick 1980). Additional information linking deformities to other contaminants was not available at the writing of this report.

Morphological deformities occurred at 21 of the 40 sites (Table 4, Figures A-4, A-5 and A-6). As shown in Table 4 the highest numbers of deformed larvae were collected at the following sites: Cedar River (CED062=61), Little Fish Weir (LFW01=38), South NAS (SNAS02=23), Julington Creek (JULC01=12, JUL021=9), Palmo Cove (PALM01=12), Cedar River (CED01=10), Ortega River (ORT051=9, ORT361=9), and South Side (SSID02=7). A total of 190 deformities [approximately 90 percent of the total number of deformities recorded (212)] were observed at these ten sites.

Where deformities were observed, percent occurrence within the deformed taxa ranged from approximately 20 percent to 100 percent (Table 4). As previously indicated, these deformities, and perhaps reduced larval growth rates, may be caused by the presence of elevated concentrations of metals or other contaminants in sediments (Janssens de Bisthoven et al. 1992). Further evaluation of sediment and water quality data may reveal possible relationships between contaminant concentrations and the frequency of morphological deformities.

### 3.3 Data Analysis and Evaluation

#### 3.3.1 Non-metric Multidimensional Scaling on Bray-Curtis Similarity Matrices

Initial exploratory analysis consisted of non-metric multidimensional scaling (MDS) performed on Bray-Curtis similarity matrices. Sites located on the mainstem of the St. Johns River tended to cluster on the right half of the plot and tributary sites were grouped on the left half (Figure 1). Cluster designations shown in the legend of Figure 1 provided a method to group sites with regard to their location (e.g. mainstem, tributary) as explained in Section 3.3.2.

Figure 2 is a similar MDS plot with bubble size indicating proportional percent abundance of salt-tolerant invertebrate fauna. Mainstem sites tended to cluster on right side of plot and the percentage of salt-tolerant organisms increased from the upper right quadrant (freshwater) to the lower right quadrant of the plot (more saline sites). Sites located in tributaries of the St. Johns River tended to cluster on the left side of the plot but no apparent trend was indicated by the MDS relating to the percent of salt-tolerant organisms in the tributaries. Cluster designations shown in the legend of Figure 2 provided a method to group sites with regard to the percentage of salt-tolerant organisms (e.g. fresh tributary, salt mainstem). These designations are further explained in Section 3.3.2. MDS results suggest that salinity may play an important role in shaping benthic macroinvertebrate assemblages in the Lower St. Johns River Basin. Salinity may be acting in tandem or independently of human-induced environmental conditions that can be construed as causing biological impairment.

#### 3.3.2 Location Class Designation

Since salinity seems to have a significant influence in shaping benthic macroinvertebrate assemblages in the Lower St. Johns River Basin, salinity tolerance was used to classify sample site locations. Consequently, the 40 sites were placed into location classes, in order to compare conditions and key biological metrics. The percent dominance by salt-tolerant taxa was used to place sites in the following location classes (Table 5):

**Fresh-dominated Mainstem (FM):** FM sites were located in the river mainstem and were dominated (> 50 percent) by freshwater benthic macroinvertebrates.

**Salt-dominated Mainstem (SM):** SM sites were located in the river mainstem and were dominated (> 50 percent) by salt-tolerant benthic macroinvertebrates.

**Fresh-dominated Tributary (FT):** FT sites were located in tributaries of the St. Johns River and were dominated (> 50 percent) by freshwater benthic macroinvertebrates,

**Salt-dominated Tributary (ST):** ST sites were located in tributaries of the St. Johns River and were dominated (> 50 percent) by salt-tolerant benthic macroinvertebrates,

**Connected Lake (CL):** A single site, DRLK01 was placed in a unique location class (CL) because it was located in Doctors Lake, an oligohaline lake connected to the river mainstem

**Salt-dominated Mainstem South of Marine Influence (SMS):** SMS is a single mainstem site, RC051, that is located near Palatka. RC051 was placed in a separate class because it was dominated by salt-tolerant organisms, but was located outside the influence of marine waters. Salt-tolerant organisms can dominate this segment of the river due to high chlorinity and conductivity concentrations characteristic of groundwater inflow upstream of Palatka (Morris 1995).

### 3.3.3 Comparison of Sites by Location Class

Biological metrics and conditions within each site location class were compared to explore the influence of salinity on benthic macroinvertebrate assemblages in the Lower St. Johns River Basin. ANOVA revealed no significant differences in mean diversity (SWDI) among the location classes. The four major site location classes, FT, FM, ST and SM, were represented by a broad range of SWDI values (Figure 3, Table 5) and although salinity may influence species composition (Figures 1 and 2), other factors, such as sediment quality may explain the broad range of SWDI values observed (see Section 3.3.6).

The mean number of unique taxa recorded at ST sites (8) was significantly higher than the mean number of unique taxa (5) at FM sites (Figure 4). Mean Pielou's evenness (Pielou 1966) was significantly higher at FM sites (0.73) than at FT sites (0.55; Figure 5) indicating a more even distribution in the abundance of species collected at the FM sites. There were no significant differences in mean organism abundance (total raw count) among the four major site location classes.

Mean salinity recorded at the ST sites (13.5 ppt) was significantly higher than mean salinity recorded at FT sites (1.8 ppt), FM sites (2.6 ppt), and SM sites (5.1 ppt; Figure 6). Mean salinity at SM sites was significantly higher than salinity at FT sites, but was not significantly different from mean salinity observed at FM sites. No significant difference in salinity was observed between FM and FT sites.

A significantly higher percentage of pollution-tolerant organisms occurred at FM sites (mean = 86.23 percent) than at SM sites (mean = 67.00 percent; Figures 7 and 8), but differences between other location classes were not significant.

### 3.3.4 Composite Benthic Sediment Quality Index

Composite benthic sediment quality index (CBSI) values were calculated for estuarine sites (sites influenced by marine waters). Freshwater sites for which CBSI was not calculated are marked "NA" for this parameter in Table 5. Evans et al. (2004b) interpreted CBSI values for sites within the LSJRB estuary in relation to hazard index values. Values of CBSI below 14 corresponded to medium to high sediment contamination hazard risk. CBSI values of 14 and above corresponded to low sediment hazard risk. Among the 40 sites evaluated in this report, four sites, Arlington River (ARL109), Goodby's Creek (GDBY01), Dunn River (DUNR01), and Clapboard Creek (CLAP01) had CBSI values above 14, indicating a low sediment hazard risk. CBSI values for the remainder of the marine-influenced sites indicated medium to high sediment contamination hazard risk (Table 5).

### 3.3.5 Rank Correlation Relationships among Biological Variables

Positive correlations were observed between the number of salt-tolerant organisms and the total raw count (Figure 9), number of unique taxa (Figure 10), SWDI (Figure 11) and CBSI (Figure 12). Number of unique taxa also tends to be higher at sites with relatively high total raw count (Figure 13). These relationships suggest that salinity did not limit invertebrate production (total raw count) and diversity (SWDI).

Low SWDI and CBSI values tend to occur where environmental stress is prevalent, pollution-sensitive taxa are rare or absent, and pollution-tolerant species dominate. The data in the present study showed an inverse correlation between percent dominance by pollution-tolerant organisms and Shannon-Wiener species diversity index (Figure 14), CBSI (Figure 15), and the number of unique taxa (Figure 16) indicating environmental stress. The total raw count was not significantly correlated with the percent dominance by pollution-tolerant organisms. Review of additional water and sediment quality data is needed to confirm that these biological conditions are linked with human-induced impairment in the Lower St. Johns River Basin.

Percent dominance by salt-tolerant organisms tended to increase with increasing salinity. The chironomid larvae, *Chironomus*, *Coelotanypus* and *Djalmabatista*, are known to prefer freshwater environments; therefore the number of chironomid larvae decreased with the percent dominance by salt-tolerant organisms. Since the number of deformities recorded is dependent upon the presence of chironomid larvae, it is not surprising to find a lower occurrence of deformities at sites dominated by salt-tolerant organisms (Figure 17).

Among sites dominated by freshwater organisms, where deformities were most prevalent, the number of deformities tended to be highest among sites that have the highest number of pollution-tolerant organisms (Figure 18). This finding indirectly supports the hypothesis that occurrence of deformities is linked to human-induced site impairment. Review and evaluation of additional water and sediment quality data is needed to confirm this hypothesized linkage.

### 3.3.6 Rank Correlation Relationships Among Abiotic Variables

Evans et al. (2004b) reported Spearman rank correlation results for biological variables versus sediment quality variables based on observations at 22 estuarine sites within the LSJRB. Twelve of the 22 sites evaluated by Evans et al. (2004b) were among the 40 sites listed in Table 1 of this report and are depicted in Figures A-1 and A-2: ARL109, GBY01, GBY02, GCRB11, JUL021, LFW01, MON104, NAS01, ORT051, ORT361, RIB105, and TRT01.

Inverse correlations were observed between the number of unique taxa and total organic carbon content (TOC) of sediments (Figure 19). Inverse correlations also were observed between SWDI and TOC (Figure 20), and percent fines in sediment (Figure 21). Biological diversity tended to be reduced where TOC and fine particulates are highest.

## 4 Summary of Findings

Benthic macroinvertebrate data were summarized using biological metrics: average organism density, total number of taxa observed, pooled Shannon-Wiener species diversity index, percent dominance of pollution-tolerant taxa, the total number of deformed larvae, percent dominance of salt-tolerant taxa, and the composite benthic sediment quality index at each sampling site.

Average organism density ranged from 11 to 1,776 m<sup>-2</sup>, total number of taxa from 1 to 15, and Shannon-Wiener species diversity index from 0.00 to 3.02. Percent dominance by pollution-tolerant taxa ranged from 17 to 100 percent.

Gross morphological deformities in chironomid menta and ligulae were recorded during organism identification. Morphological deformities were observed at 21 of the 40 sites, with percent occurrence ranging from 20 percent to 100 percent. Highest numbers of deformed larvae were collected at Cedar River (CED062=61), Little Fish Weir (LFW01=38), South NAS (SNAS02=23), Julington Creek (JULC01=12, JUL021=9), Palmo Cove (PALM01=12), Cedar River (CED01=10), Ortega River (ORT051=9, ORT361=9), and South Side (SSID02=7). Approximately 90 percent of the recorded deformities (212) were observed in these ten samples, suggesting presence of metals or other contaminants.

Non-metric multidimensional scaling using Bray-Curtis similarity values indicated that site location in the river mainstem or tributaries and salinity regimes have a strong influence on the species composition of benthic invertebrate assemblages, particularly the dominance by salt-tolerant organisms. Based on this finding, sites were classified by location (tributary or mainstem) and dominance by salt-tolerant or freshwater fauna. ANOVA showed the following differences in biological metrics among four major site

classes (salt-dominated tributaries, fresh-dominated tributaries, salt-dominated mainstem, and fresh-dominated mainstem sites):

- The mean number of unique taxa recorded at ST sites (8) was significantly higher than the mean number of taxa at FM sites (5).
- Mean Pielou's evenness was significantly higher at FM sites (0.73) than at FT sites (0.55) indicating a more even distribution in the abundance of species collected at the FM sites.
- Mean salinity recorded at the ST sites (13.5 ppt) was significantly higher than mean salinity recorded at all other site location classes. Mean salinity at SM sites was significantly higher than salinity at FT sites.

Salinity did not have a detrimental effect on the composition of macroinvertebrate assemblages as shown by the positive correlations found between the number of salt-tolerant organisms, number of unique taxa, diversity (SWDI) and CBSI. The number of chironomid deformities decreased with increasing percent dominance by salt-tolerant organisms. This result was expected because the chironomid larvae, *Chironomus*, *Coelotanytus* and *Djalmabatista*, are known to prefer freshwater environments.

In contrast, the occurrence of chironomid deformities increased with increasing percent dominance by pollution-tolerant organisms. The SWDI and CBSI decreased with increasing percent dominance by pollution-tolerant organisms. Four sites, Arlington River (ARL109), Goodby's Creek (GDBY01), Dunn River (DUNR01), and Clapboard Creek (CLAP01) had CBSI values above 14, indicating a low sediment hazard risk. All other marine-influenced sites had CBSI values below 14, indicating medium to high sediment contamination hazard risk. The combination of low CBSI values, increases in the occurrence of deformities and reduced species diversity may be linked to human-induced site impairment.

Evans et al. (2004b) observed inverse correlations between the number of unique taxa and sediment TOC. Similarly, inverse correlations were observed between SWDI and sediment TOC, as well as SWDI and percent fines. These relationships indicate that sediment quality may have a strong influence on benthic invertebrate diversity. More specifically, diversity may be reduced where TOC and percent fines are highest.

## 5 Conclusions and Recommendations

A combination of natural and anthropogenic conditions give rise to the varying composition of benthic macroinvertebrate assemblages of the Lower St. Johns River Basin. This report addresses the influence of salinity on benthic invertebrate assemblages and demonstrates that tidally-influenced salinity regimes can shape the benthic community by eliminating organisms that require freshwater and favoring those that tolerate or require a saline environment. Furthermore, findings presented in this report suggest that benthic macroinvertebrate data may provide a useful tool in assessing biological response to toxic substances, and other sources of environmental stress.

Although the biological results presented in this report indicate the degree to which sampled sites were biologically altered, they do not in themselves identify sources of stress, which may include toxic substances, low dissolved oxygen, poor sediment quality, or another combination of factors. Therefore it would be useful to further investigate the relationship between these sources of stress and biological responses through a review and statistical analysis of additional biological, water and sediment quality data. Also investigations using bioassays, biomarkers and other physiological measures of exposure

would help to quantify the negative effects of these sources of stress on the benthic macroinvertebrate community and on other riverine biota living in the Lower St. Johns River Basin.

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## 7 Glossary

**Analysis of Variance (ANOVA)** — A statistical method whereby the means of several *a priori* categories are tested for statistical differences simultaneously.

**Anderson-Darling Test** — A procedure that graphs the data being tested (versus a set of normal probability reference values) for normality and calculates the probability that the data represent a normal distribution.

**Average Organism Density** — The average number of invertebrate organisms collected per unit area. Usually presented as the number of individuals per square meter.

**Benthic** — Associated with sediments or other substrates on the bottom of water bodies.

**Box Cox Procedure** — An iterative procedure that identifies and applies the ideal *lambda* value to transform non-normal data into a normal or more normal distribution.

**Bray-Curtis Similarity Matrices** — A matrix of similarity or dissimilarity values calculated for all pairs of sites for the group of stations under consideration. The equation  $d[jk] = (\text{sum abs}(x[ji]-x[ik]) / (\text{sum}(x[ji]+x[ik])))$  represents the calculation for stations *j* and *k* for species abundance *x* and for *i*th species. Data are often transformed to reduce the influence of common species and increase the effect of rare species prior to constructing the similarity matrix.

**Estuarine** — Pertaining to waterbodies where ocean water and fresh water mix.

**Eutrophic** — Nutrient-enriched. In this context, waters that have relatively high concentrations of inorganic plant nutrients and abundant algal populations.

**Macroinvertebrate** — An invertebrate organism that is retained by U.S. Standard No. 30 mesh sieve and is generally visible to the naked eye.

**Metrics** — Calculated or measured variables that characterize a biological community.

**Non-metric Multidimensional Scaling (MDS)** — A statistical ordination procedure that portrays the relationships among site/station similarity distances (the Bray-Curtis measure is often used for biological data; the Euclidean distance measure is often used for environmental data) in a three dimensional space. The *stress* value for a given MDS ordination indicates the degree to which the three dimensional portrayal relates the actual similarities among all sites, with lower values indicating a better fit.

**Non-Parametric Tests** — Statistical tests that do not require data with normal distributions or homogeneity of variance in order to function properly.

**Parametric Tests** — Statistical tests that require data with normal distributions and/or homogeneity of variance in order to function properly (e.g., ANOVA).

**Petite Ponar Grab** — A sediment sample taken with a petite Ponar dredge (dimensions: 6" by 6").

**Pielou's Evenness** — The equitability of species as given by their relative abundance.

**RCC** — Abbreviation for Spearman's rank correlation coefficient.

**Replicate Samples** — Multiple grab samples collected at the same sampling location.

**Shannon-Wiener Species Diversity Index** — A calculated index value expressing the degree of species diversity in a given sample or group of samples. The calculation is influenced by both the number of species present as well as the evenness of abundance among the species. Values generally range from 0 to 5, with values at the high end of the range indicating high species diversity. This index also is known as the Shannon-Weaver Species Diversity Index.

**Spearman's Rank Correlation Test** — A non-parametric correlation procedure that is performed on ranks (calculated in a standard manner) for the data rather than on the actual data.

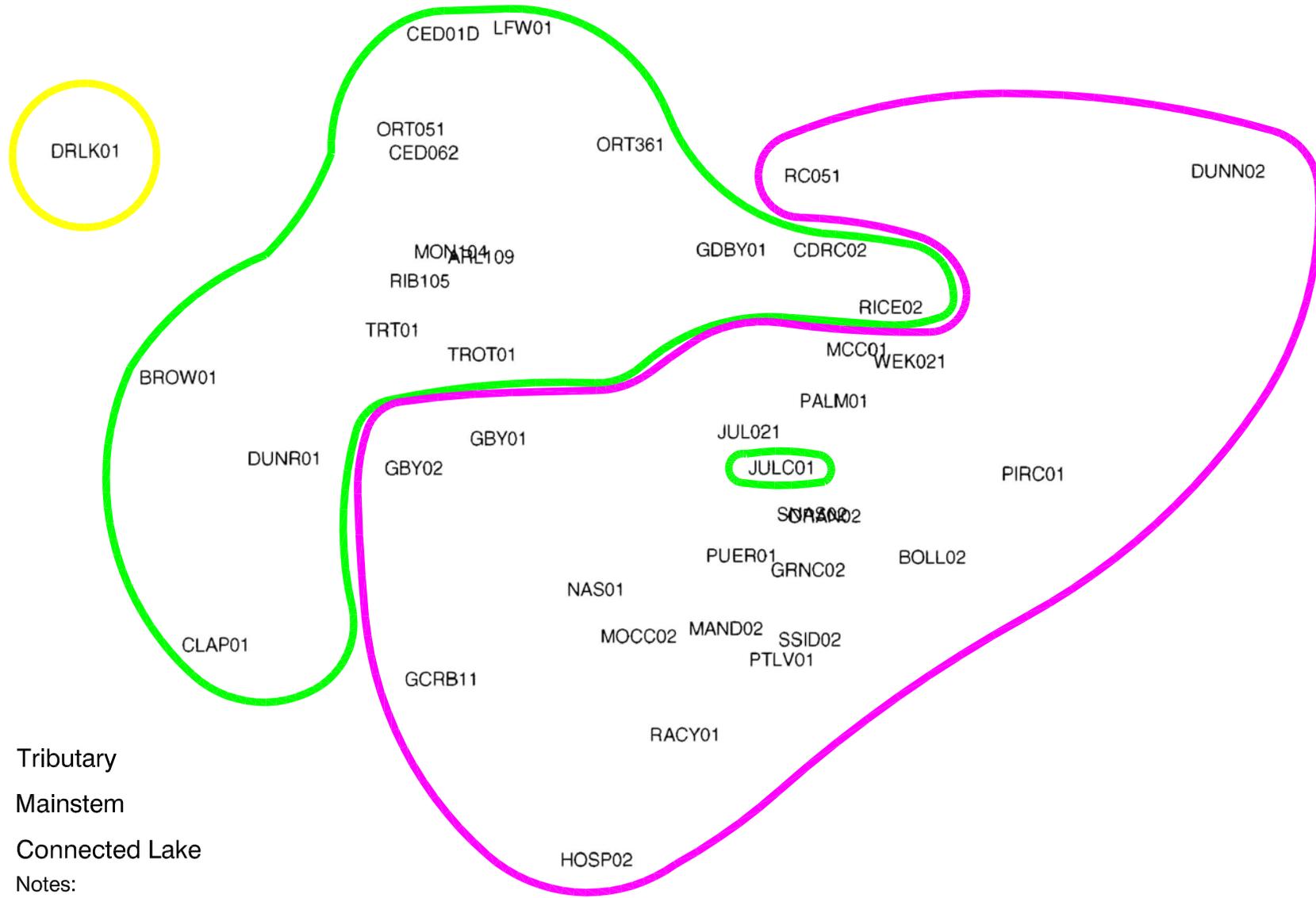
**Taxa** — The plural form of taxon (taxonomic unit). A taxon is a morphologically unique set of organisms. A taxon may consist of one or more species.

**TOC** — Total organic carbon concentration in sediments.

Figures

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Stress: 0.14



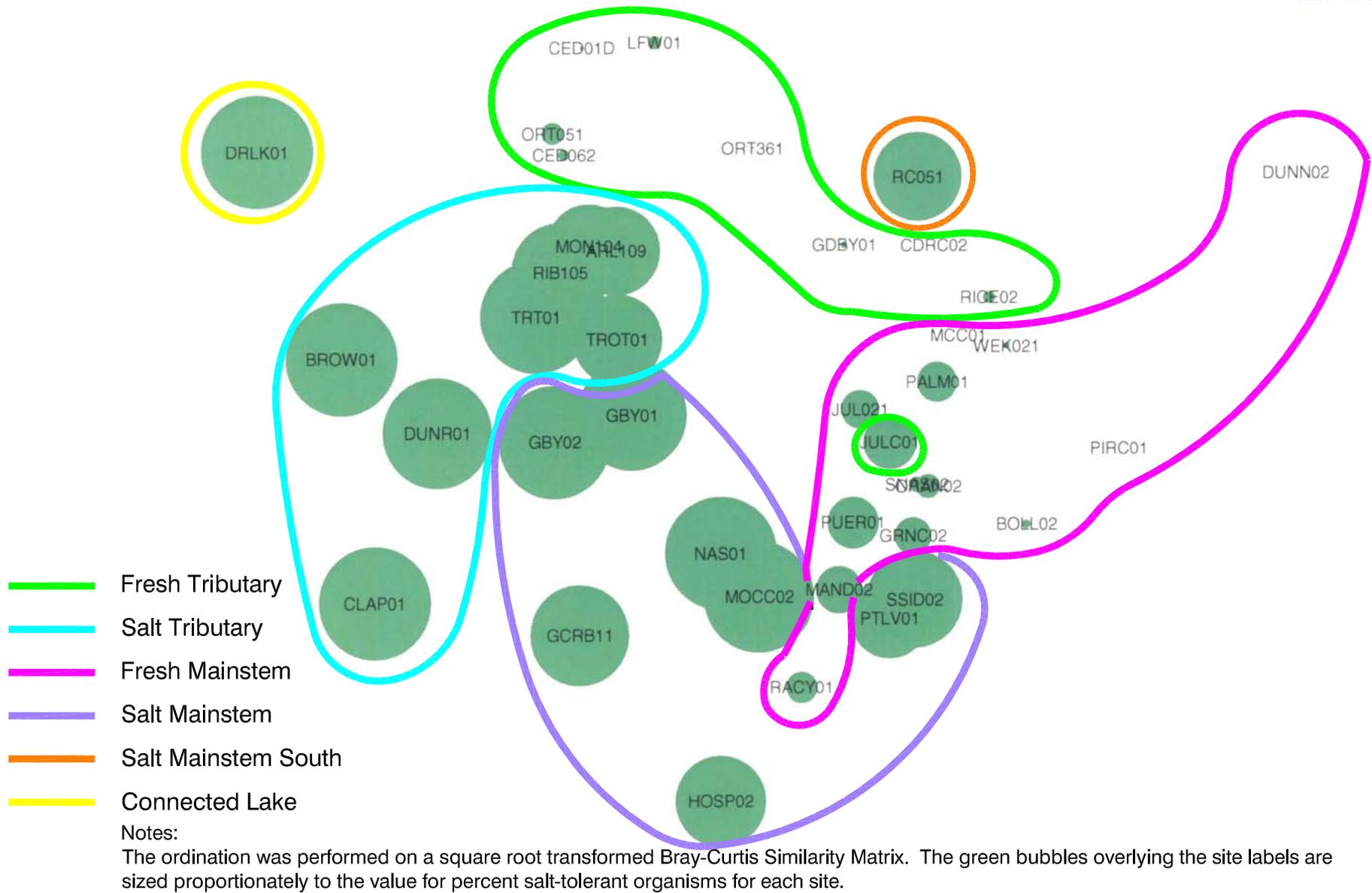
- Tributary
- Mainstem
- Connected Lake

Notes:

The ordination was performed on a square root transformed Bray-Curtis Similarity Matrix.

FIGURE 1.  
Nonmetric Multidimensional Scaling Ordination for 2000 - 2003 Macroinvertebrate Data  
Replicates Combined

Stress: 0.14



**FIGURE 2.**  
 Nonmetric Multidimensional Scaling Ordination for 2000 - 2003 Macroinvertebrate Data with Percent Salt-Tolerant Organisms  
 Replicates Combined



**Figure 3**  
**Shannon-Wiener Species Diversity (SWDI) vs. Percent Salt-tolerant**  
**Location Class**

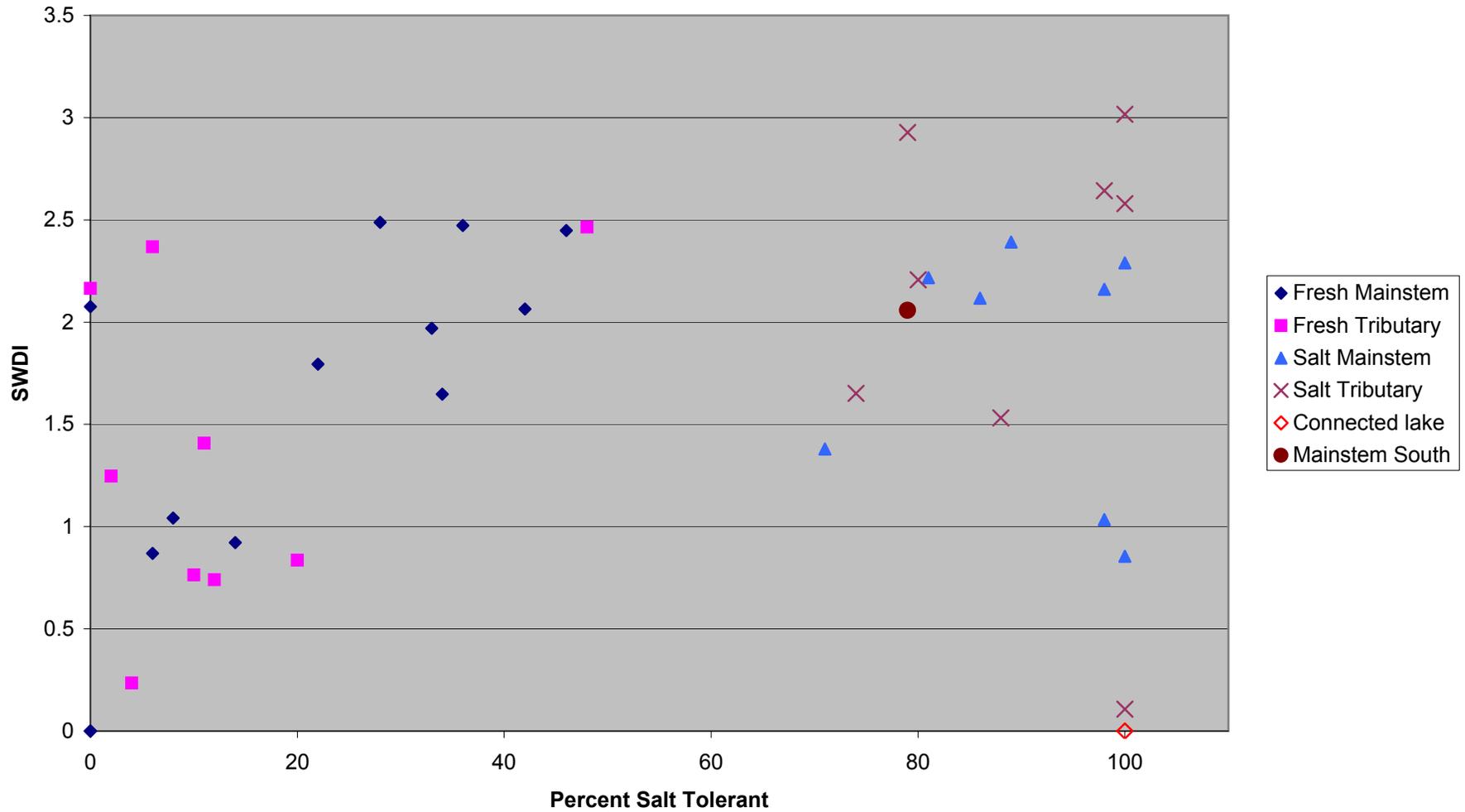


Figure 4. Number of Unique Taxa by Location Class

(means are indicated by solid circles)

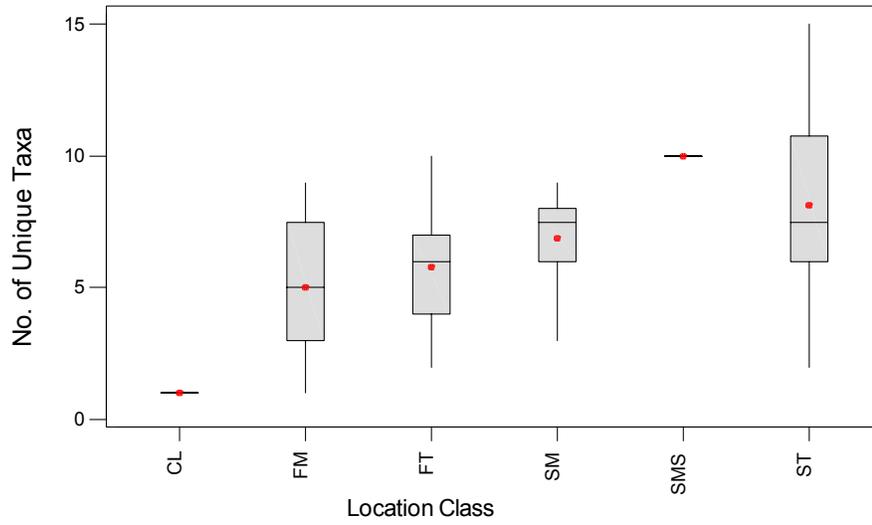


Figure 5. Pielou's Evenness by Location Class

(means are indicated by solid circles)

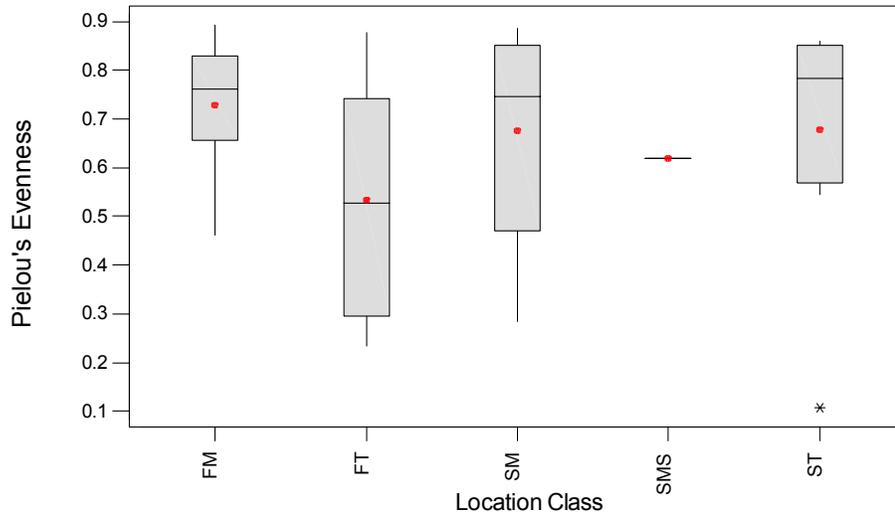


Figure 6. Average Salinity (ppt) by Location Class

(means are indicated by solid circles)

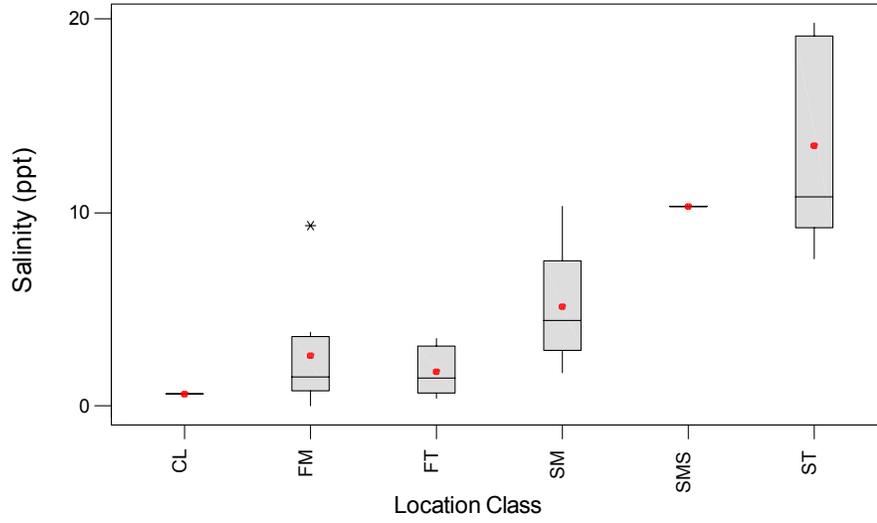
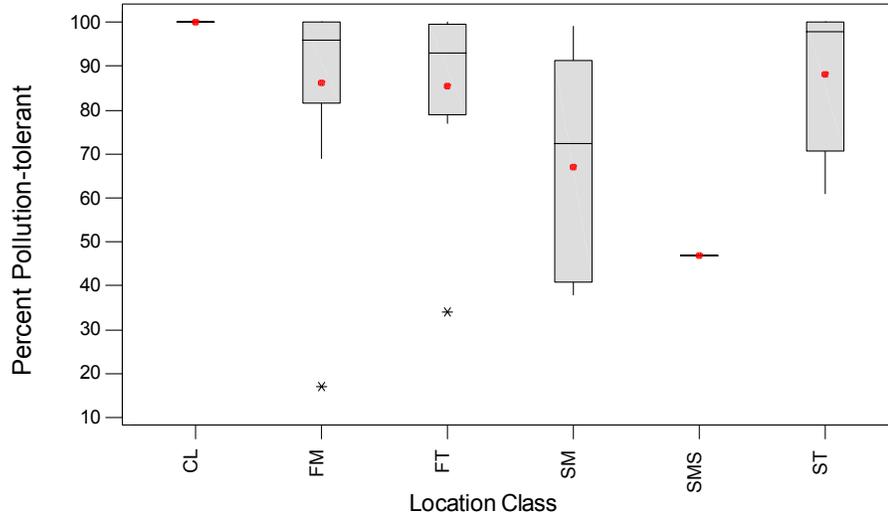
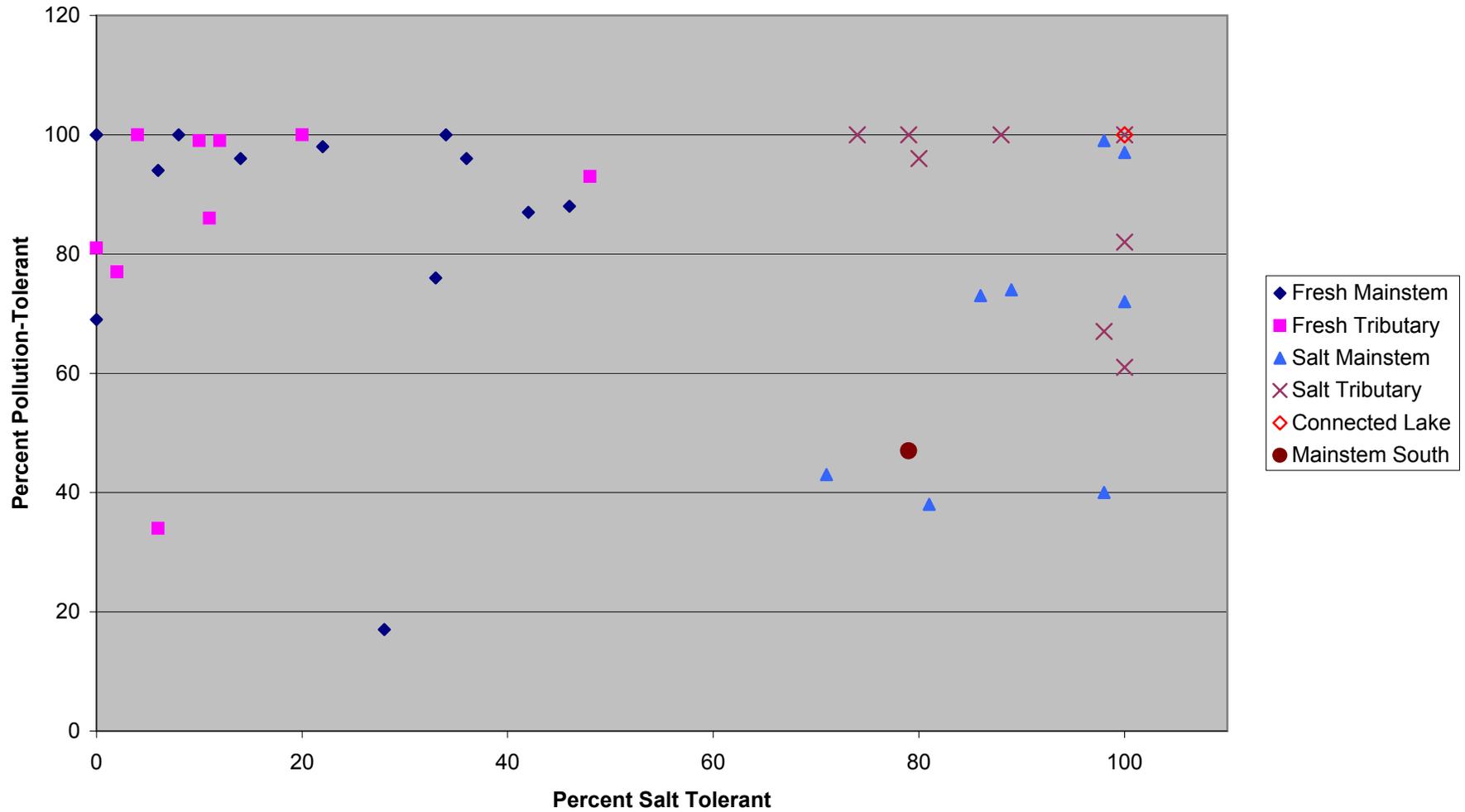


Figure 7. Percent Pollution-tolerant by Location Class

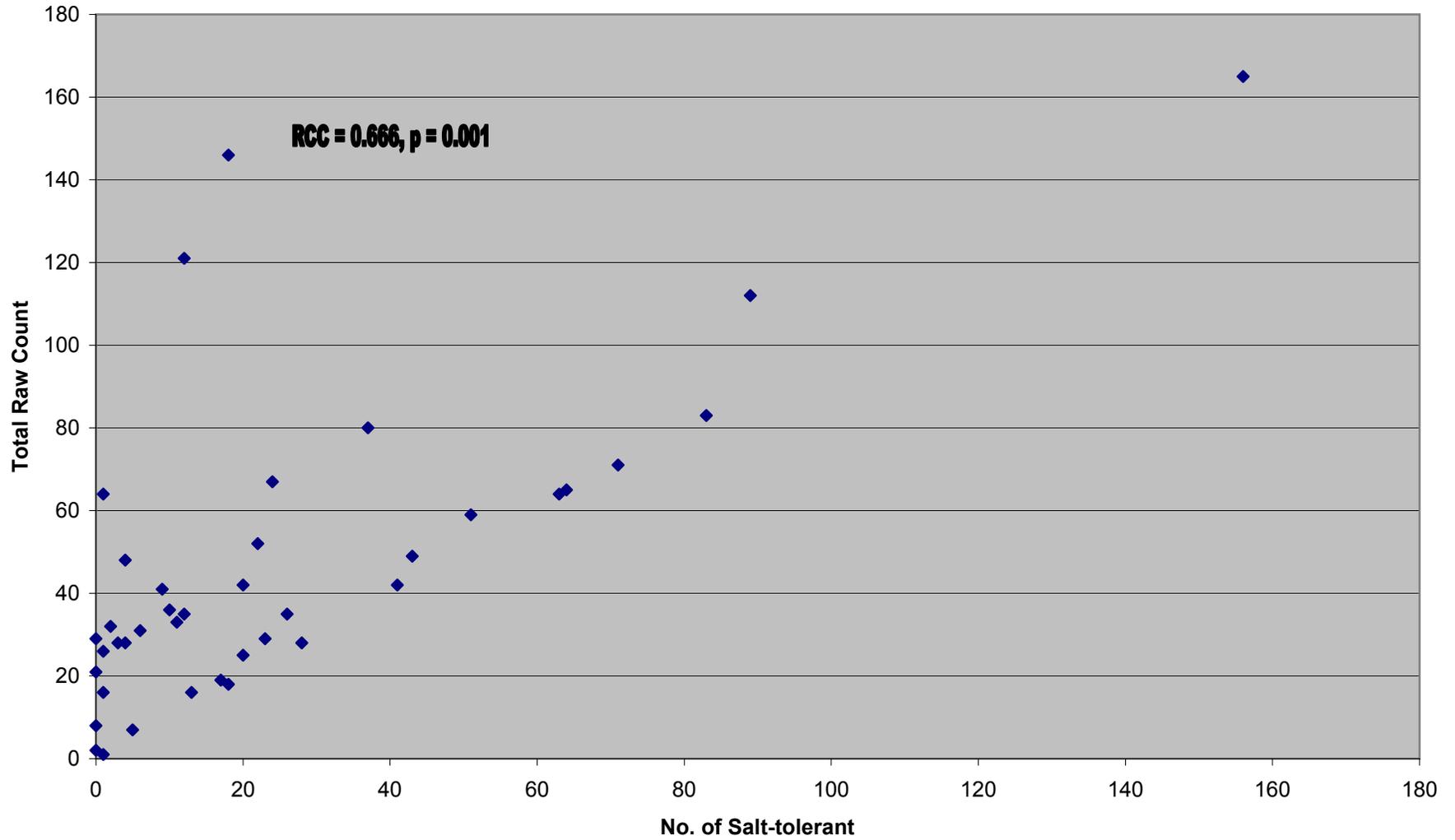
(means are indicated by solid circles)



**Figure 8**  
**Percent Pollution-tolerant vs. Percent Salt-tolerant**  
**Location Class**



**Figure 9**  
**Total Raw Count vs. Number of Salt-tolerant**



**Figure 10**  
**No. of Unique Taxa vs. No. of Salt-tolerant**

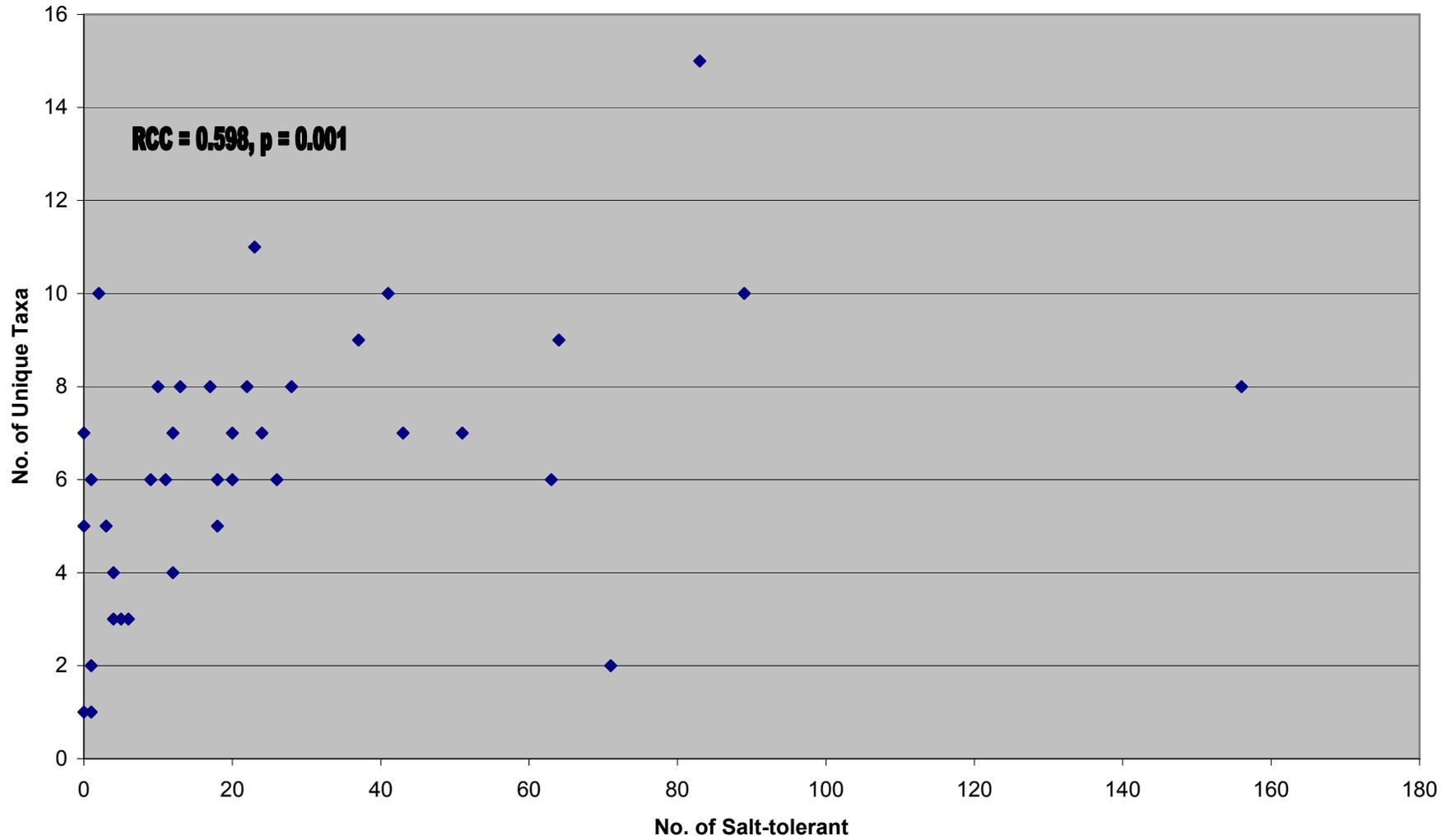
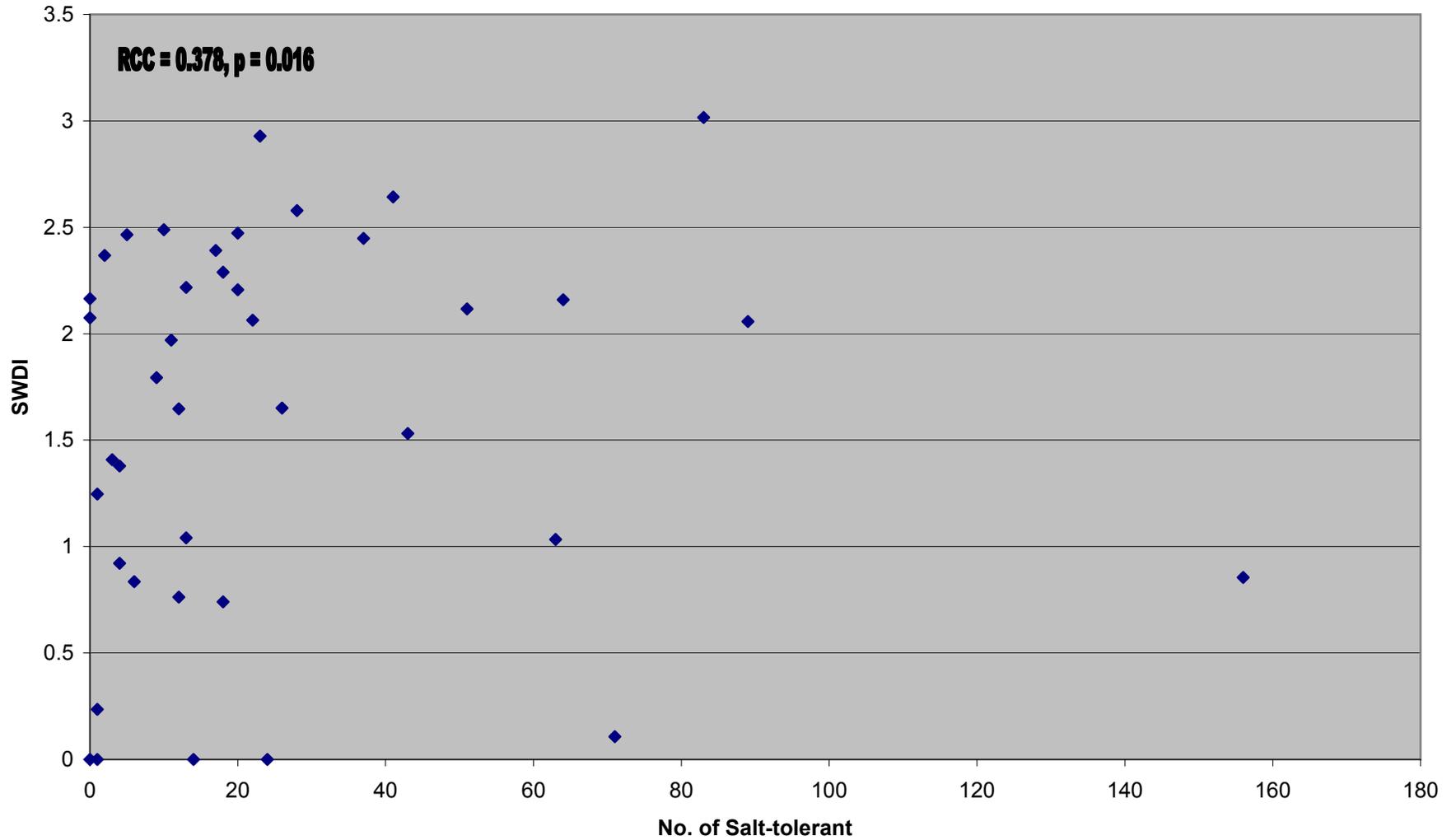
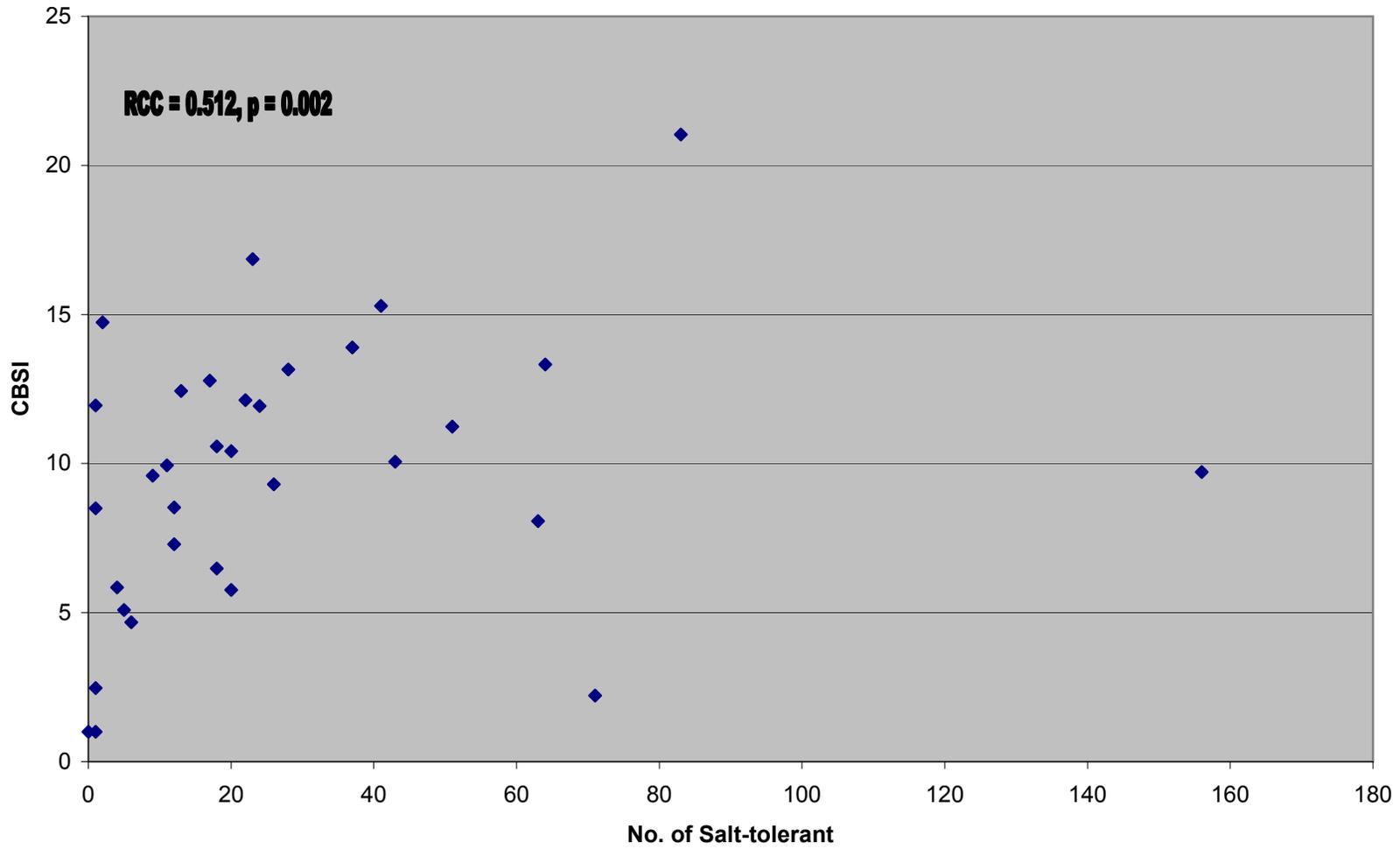


Figure 11  
Shannon-Wiener Species Diversity (SWDI) vs. No. of Salt-tolerant



**Figure 12**  
**Composite Benthic Sediment Quality Index (CBSI) vs. No. of Salt-tolerant**



**Figure 13**  
**No. of Unique Taxa vs. Total Raw Count**

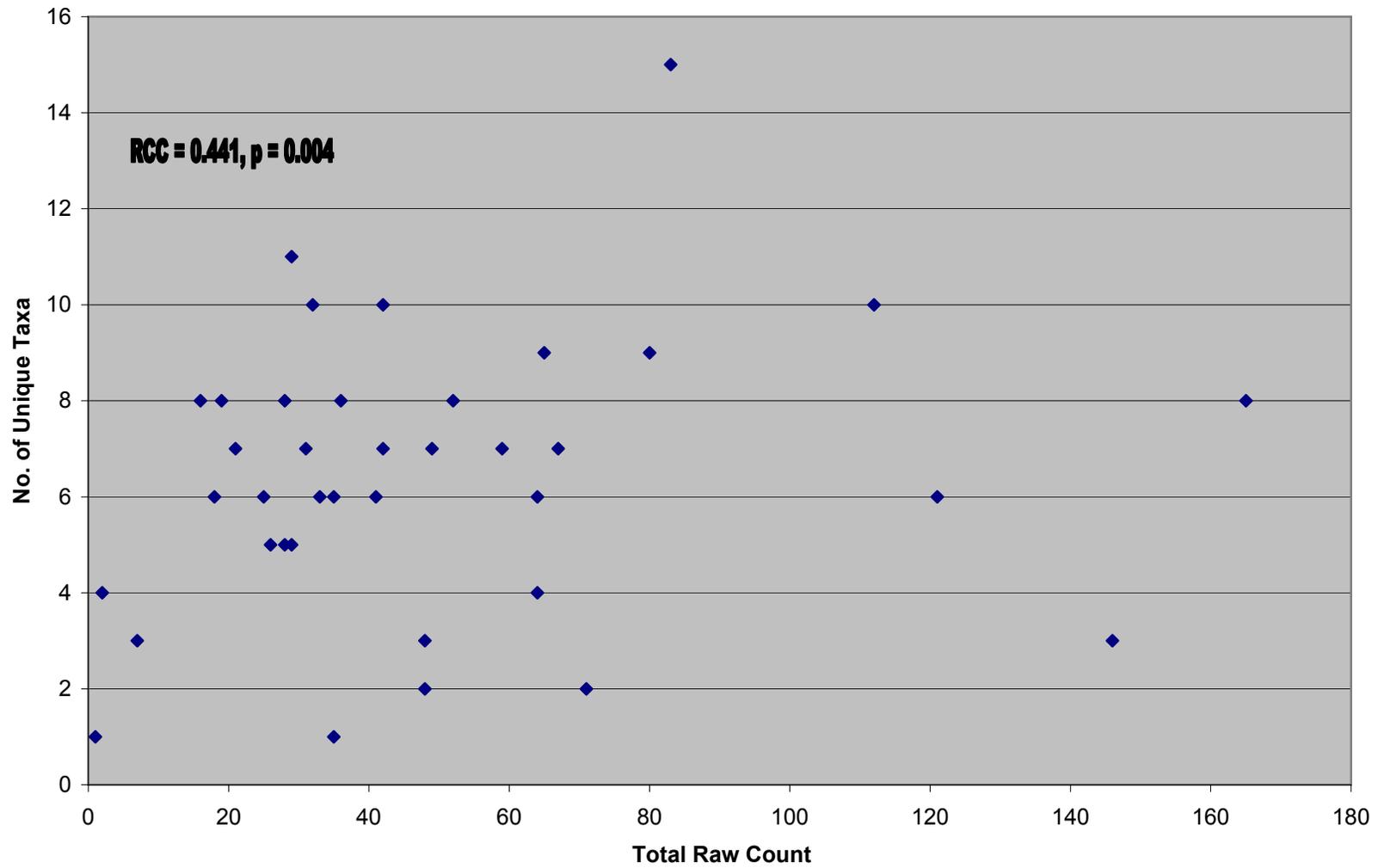
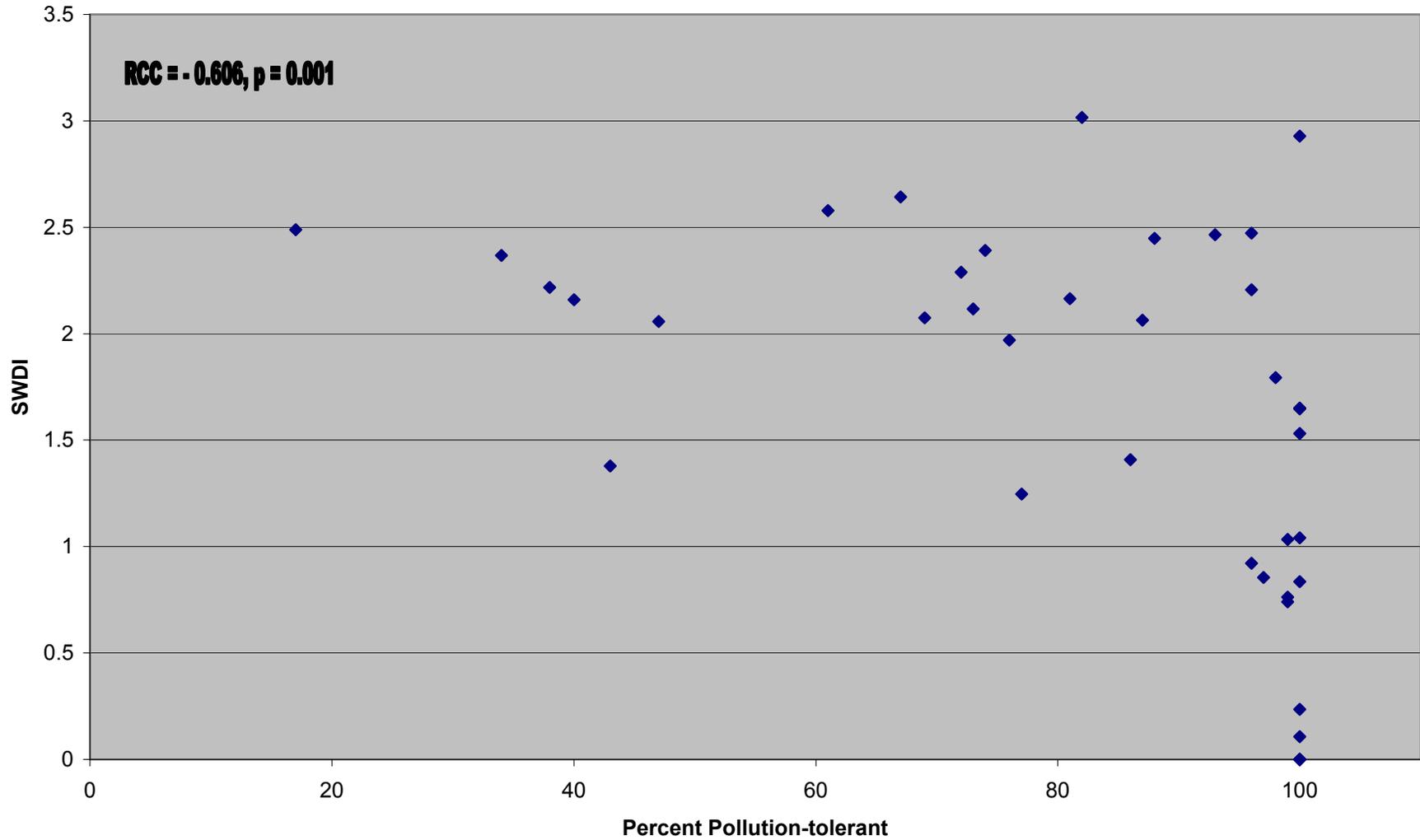


Figure 14  
Shannon-Wiener Species Diversity (SWDI) vs. Percent Pollution-tolerant



**Figure 15**  
**Composite Benthic Sediment Quality Index (CBSI) vs. Percent Pollution-tolerant**

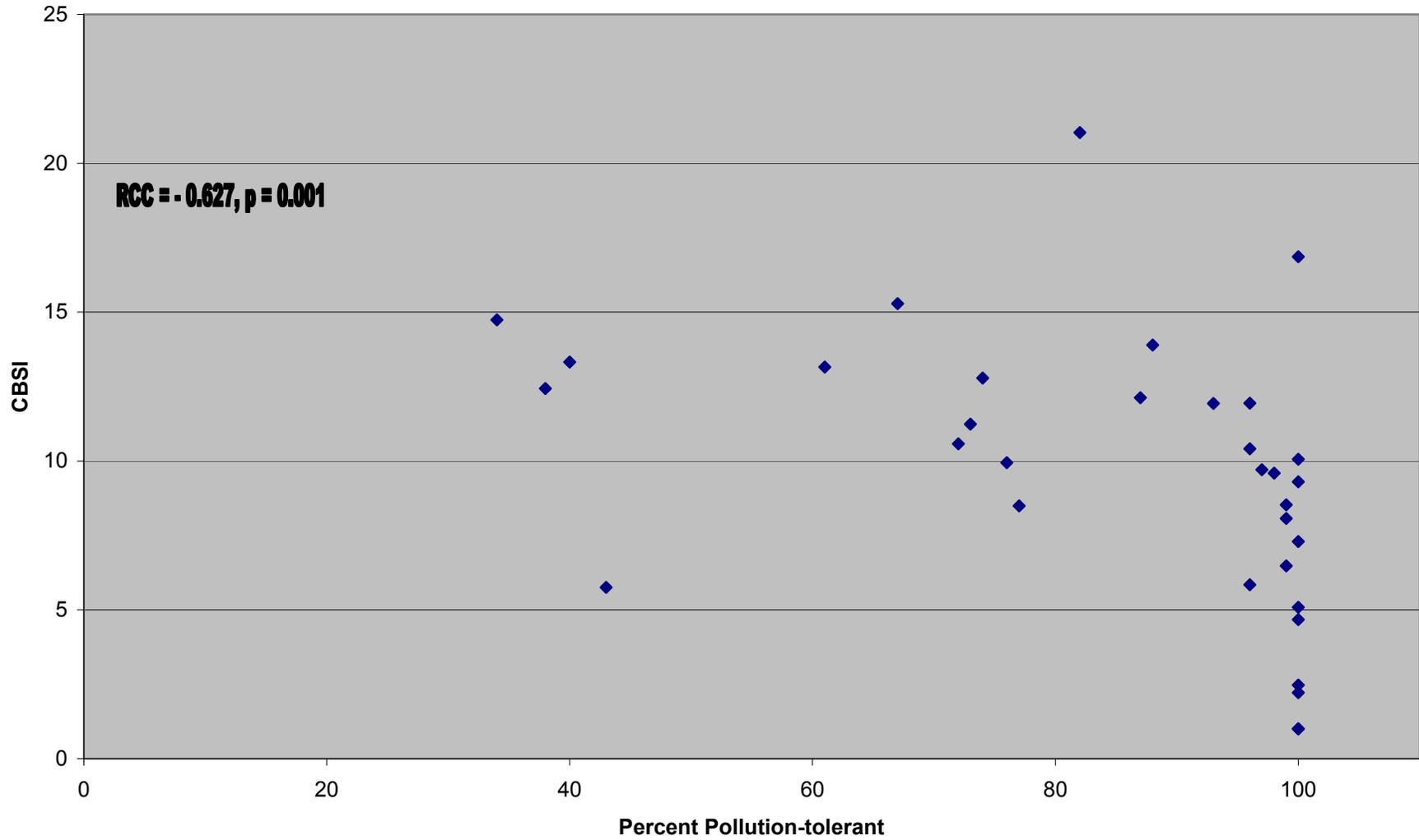
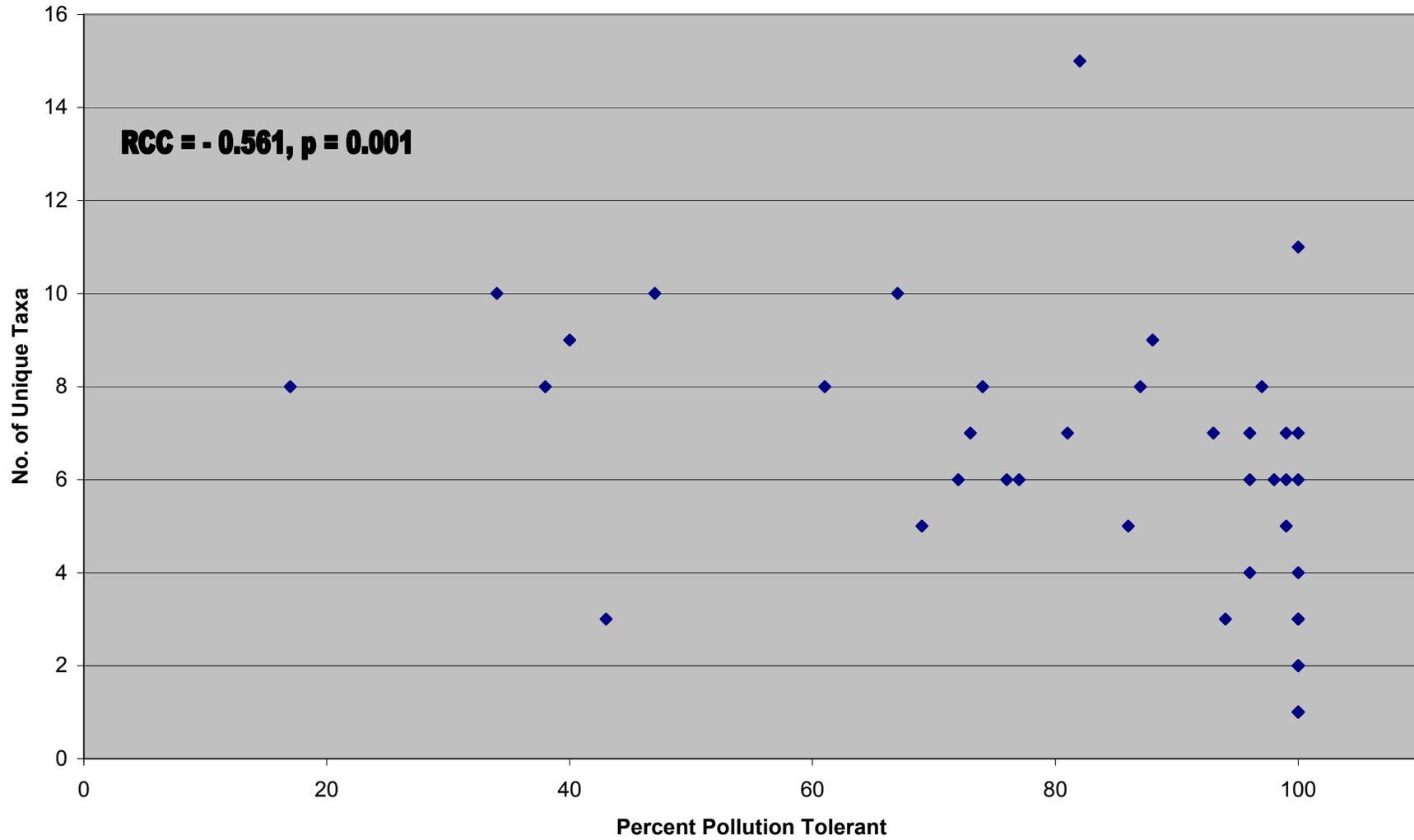
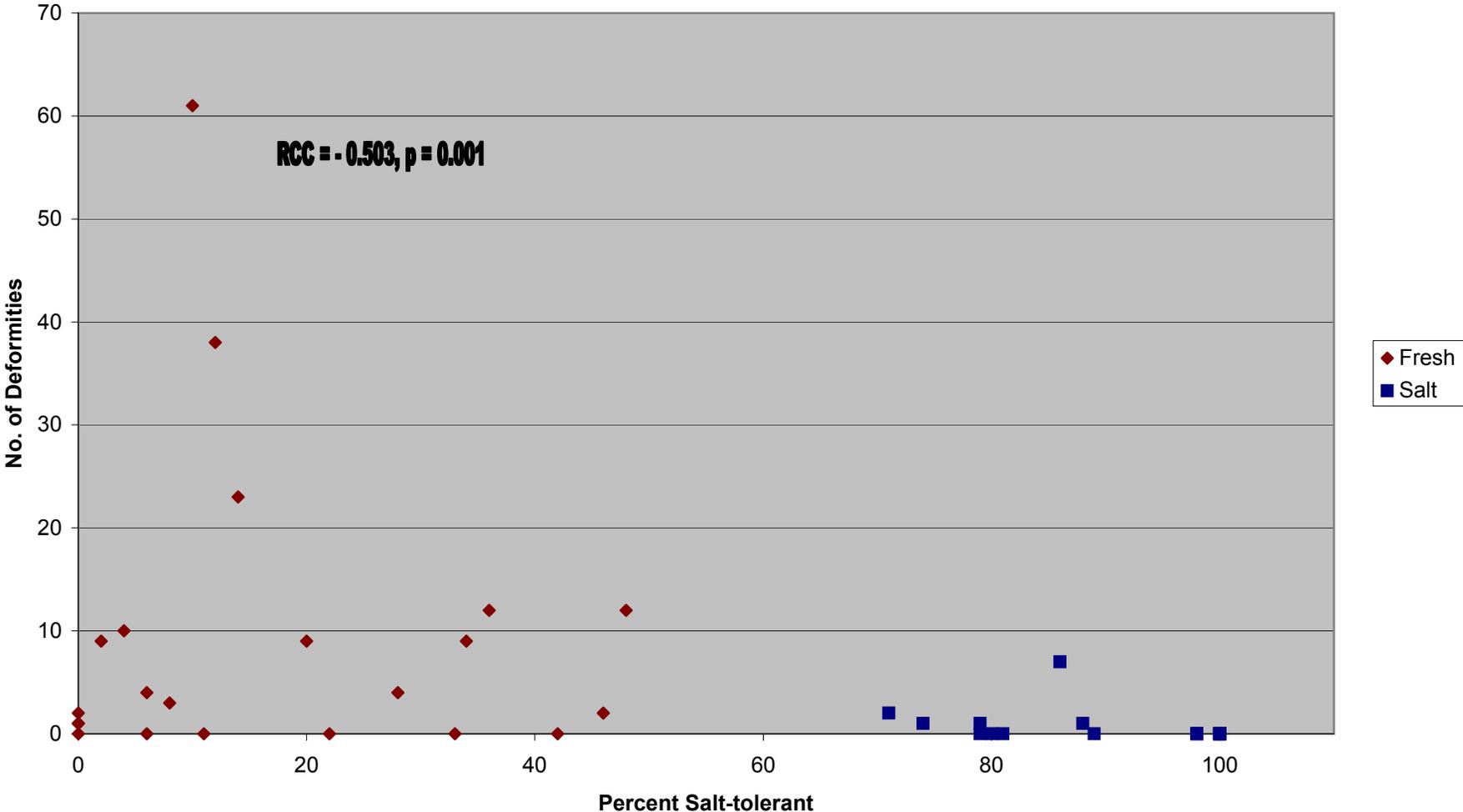


Figure 16  
No. of Unique Taxa vs. Percent Pollution-tolerant

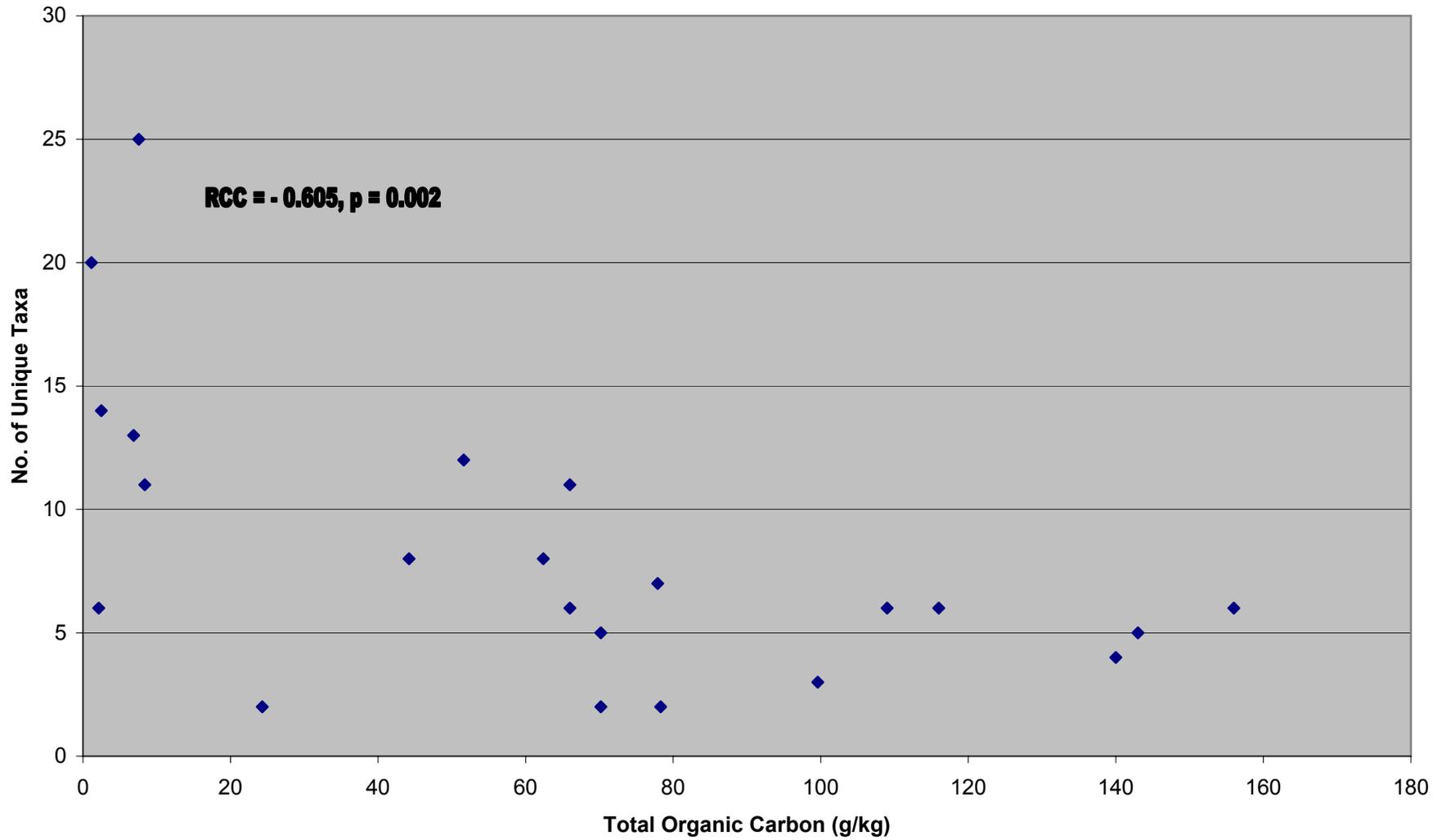


**Figure 17**  
**No. of Deformities vs. Percent Salt-tolerant**  
**Fresh and Salt-Dominated Sites**

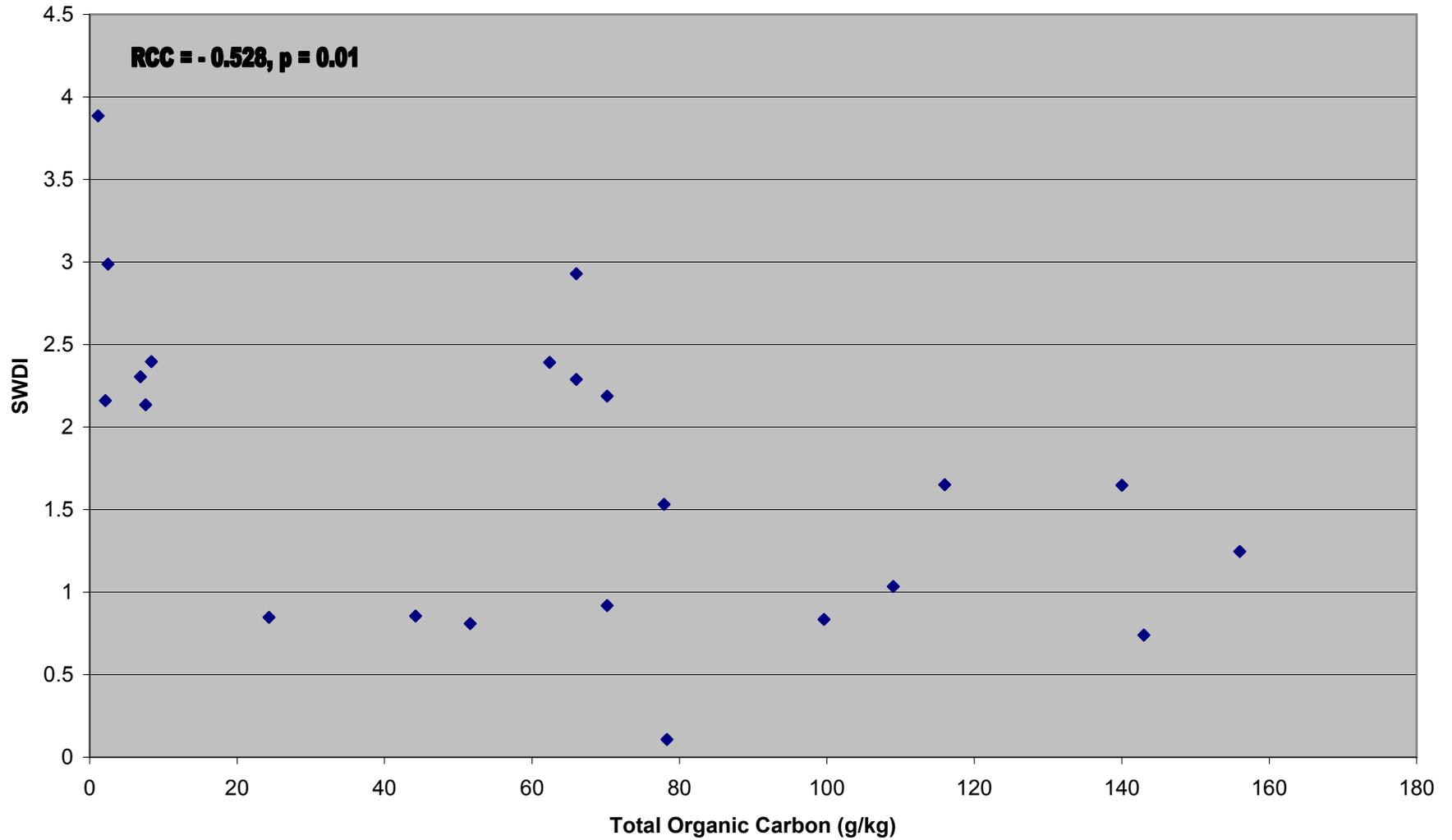




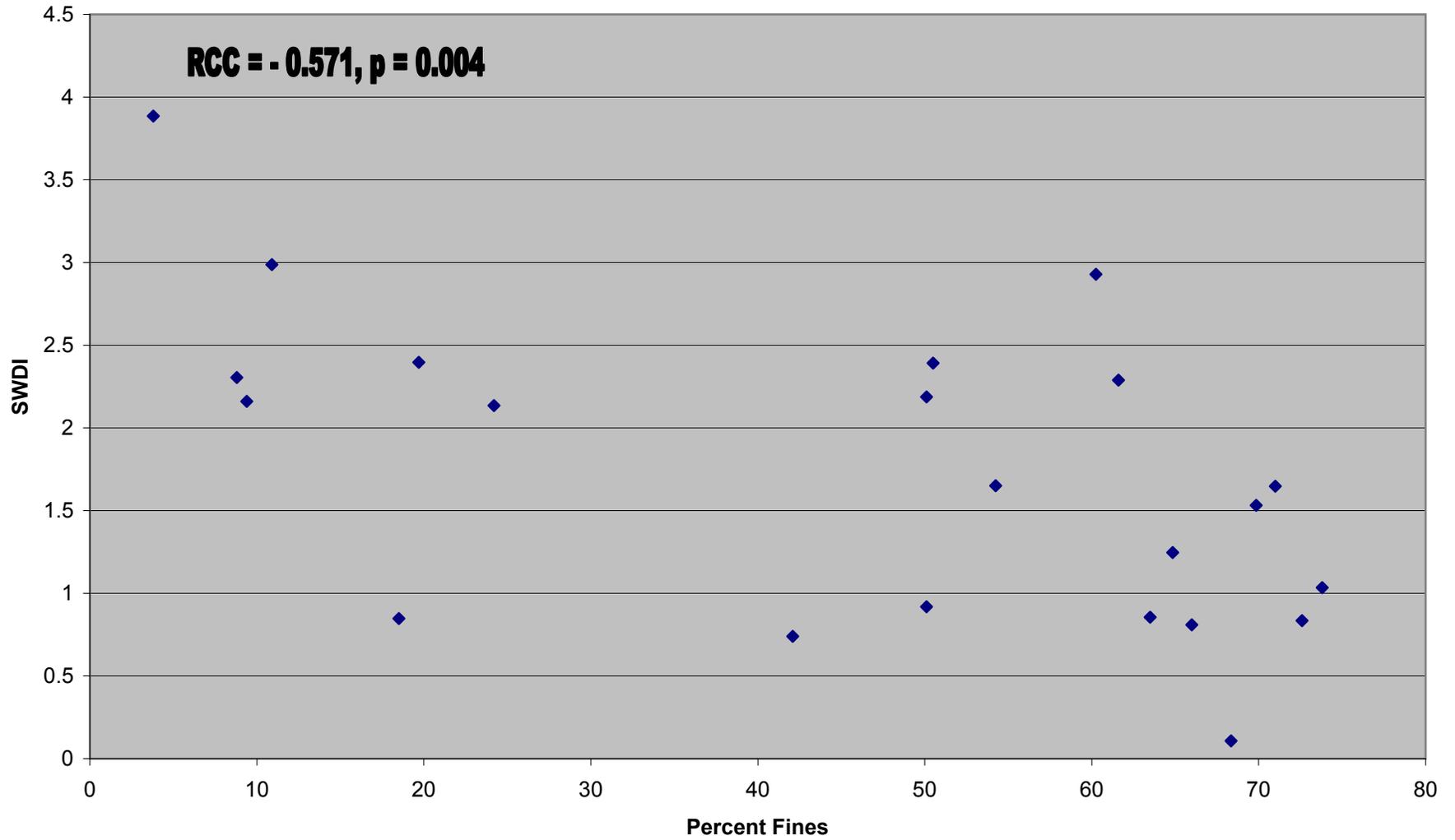
**Figure 19**  
**No. of Unique Taxa vs. Total Organic Carbon in Sediments**



**Figure 20**  
**Shannon-Wiener Species Diversity (SWDI) vs. Total Organic Carbon in Sediments**



**Figure 21**  
**Shannon-Wiener Species Diversity (SWDI) vs. Percent Fines in Sediments**



Tables

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Table 1

Benthic Sampling Locations and Collection Dates at 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Station Identification Code	Site Location	Collection Date	Collection Time	Latitude (DD.MMSS) NORTH	Longitude (DD.MMSS) WEST
<b>2000 Sites</b>					
LFW01	Little Fish Weir	3/20/00	10:30	30.1727	81.4237
JUL021	Julington Creek	4/6/00	14:55	30.0711	81.3840
TRT01	Trout River	4/3/00	14:15	30.2506	81.4114
ARL109	Arlington River	4/3/00	10:00	30.1909	81.3643
NAS01	NAS Jax Outfall	4/7/00	14:15	30.1504	81.4048
RIB105	Ribault River	4/3/00	11:30	30.2418	81.4035
RICE02	Rice Creek	4/5/00	11:45	29.4205	81.3958
RC051	Rice Creek	4/5/00	13:10	29.4154	81.3904
CDRC02	Cedar Creek	3/14/00	10:00	29.4828	81.3526
CED01D	Cedar River	3/14/00	14:50	30.1715	81.4423
GCRB11	Green Cove Springs - Red Bay	5/17/00	10:40	29.5923	81.3815
ORT361	Ortega River	3/20/00	13:50	30.1546	81.4304
ORT051	Ortega River	3/20/00	11:35	30.1644	81.4240
CED062	Cedar River	3/20/00	12:40	30.1611	81.4347
MCC01	McCullough Creek	3/14/00	11:40	29.4746	81.3205
DUNN02	Dunn's Creek	3/22/00	14:05	29.3614	81.3640
WEK021	Welaka	3/22/00	11:50	29.2838	81.4053
MON104	Moncrief Creek	3/17/00	10:10	30.2335	81.3942
GBY01	Goodby's Creek	8/1/00	11:25	30.1308	81.3734
GBY02	Goodby's Creek	8/25/00	13:00	30.1239	81.3809
<b>2002 - 2003 Sites</b>					
RACY01	Racy Point	10/2/02	10:26	29.8047	81.5530
MAND02	Mandarin	10/3/02	15:11	30.2153	81.6546
HOSP02	Baptist Hosp	10/3/02	10:25	30.2770	81.6749
ORAN02	Orangedale	10/4/02	10:49	30.0051	81.6150
PUER01	Puerto Rico	10/8/02	12:04	29.9464	81.6095
GRNC02	Green Cove	10/23/02	12:38	29.9817	81.6397
DRLK01	Doctors Lake	10/29/02	9:20	30.1106	81.7491
TROT02	Trout River	11/20/02	13:51	30.4162	81.6870
PALM01	Palmo Cove	10/30/02	10:26	29.9711	81.5668
GDBY01	Goodby's Creek	1/16/03	11:33	30.2158	81.6135
JULC01	Julington Creek	2/3/03	16:20	30.1337	81.6231
PTLV01	Point La Vista	2/19/03	15:35	30.2879	81.6615
SSID02	South Side	2/19/03	11:05	30.2468	81.6794
PIRC01	Pirate Cove	2/28/03	10:30	30.2502	81.6864
SNAS02	South NAS	5/19/03	14:13	30.1970	81.6868
MOCC02	Moccasin Slough	6/25/03	13:08	30.1237	81.6872
BOLL02	Bolles School	7/31/03	10:19	30.2412	81.6324
BROW01	Broward River	8/6/03	12:10	30.4199	81.6112
DUNR01	Dunn River	8/21/03	10:56	30.4227	81.5841
CLAP01	Clapboard Creek	8/26/03	11:37	30.4389	81.5133

Table 2

List of Macroinvertebrate Taxa Collected from 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Major Taxonomic Group	Scientific Name	Pollution Tolerance	Salt Tolerance
<b>Nemertea</b>	NEMERTEA (LPIL)	T	S
<b>Annelida</b>			
<b>Polychaeta</b>	CAPITELLA CAPITATA	T	S
	HETEROMASTUS FILIFORMIS	T	S
	MEDIOMASTUS CALIFORNIENSIS	T	S
	CAPITELLIDAE (LPIL)	T	S
	SABACO AMERICANUS	T	S
	NEREIDAE (LPIL)	T	S
	LAEONEREIS CULVERI	T	S
	NEANTHES SUCCINEA	T	S
	ORBINIIDAE (LPIL)	I	S
	SCOLOPLOS RUBRA	I	S
	ETEONE HETEROPODA	T	S
	MARENZELLERIA VIRIDIS	T	S
	PARAPRIONOSPIO PINNATA	T	S
	POLYDORA SP.	T	S
	SPIONIDAE (LPIL)	T	S
	STREBLOSPIO SP.	T	S
	POLYCHAETA (LPIL)	T	S
	PRIONOSPIO SP.	T	S
	SYLLIDAE (LPIL)	T	S
<b>Oligochaeta</b>	AULODRILUS PIGUETI	T	F
	LIMNODRILUS HOFFMEISTERI	T	F
	QUISTADRILUS MULTISETOSUS	T	F
	TUBIFICOIDES SP.	T	S
<b>Hirudinea</b>	HIRUDINEA (LPIL)	T	F
<b>Crustacea</b>			
<b>Cirrepedia</b>	BALANUS SP. A	T	S
	BALANUS SP. B	T	S
<b>Cumacea</b>	ALMYRACUMA SP.	I	S
	CYCLASPIS VARIANS	I	S
<b>Mysidacea</b>	AMERICAMYSIS BIGELOWI	I	S
<b>Isopoda</b>	CYATHURA POLITA	T	S
	EDOTIA TRILOBA	T	S

Table 2

List of Macroinvertebrate Taxa Collected from 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Major Taxonomic Group	Scientific Name	Pollution Tolerance	Salt Tolerance
<b>Amphipoda</b>			
	AMEROCULODES SP.	I	S
	AMPELISCA SP.	I	S
	AMPHIPODA (LPIL)	T	S
	AMPHIPODA SP. A	I	S
	APOCOROPHIUM LACUSTRE	T	S
	CERAPUS BENTHOPHILUS	T	S
	GAMMARUS SP.	T	S
	GRANDIDIERELLA BONNIEROIDES	T	S
	HARTMANODES SP.	I	S
	MELITA NITIDA	I	S
	OEDICEROTIDAE (LPIL)	I	S
<b>Decapoda</b>			
	DECAPODA (LPIL)	I	S
	RHITHROPANOPEUS HARRISII	T	S
<b>Insecta</b>			
<b>Ephemeroptera</b>			
	CAENIS SP.	T	F
<b>Plecoptera</b>			
	PLECOPTERA (LPIL)	I	F
<b>Odonata</b>			
	MACROMIA TAENIOLATA	I	F
	PERITHEMIS TENERA SEMINOLE	T	F
<b>Coleoptera</b>			
	CELINA HUBBELLI	T	F
<b>Diptera - Chironomidae</b>			
	CHIRONOMUS CRASSICAUDATUS	T	F
	CHIRONOMUS SP.	T	F
	CLADOTANYTARSUS SP.	I	F
	COELOTANYPUS SP.	T	F
	COELOTANYPUS TRICOLOR	T	F
	CRYPTOCHIRONOMUS SP.	T	F
	DJALMABATISTA PULCHRA	I	F
	EINFELDIA NATCHITOCHAEAE	T	F
	POLYPEDILUM HALTERALE GROUP	I	F
	POLYPEDILUM SCALAENUM GROUP	I	F
	PROCLADIUS (HOLOTANYPUS) SP.	I	F
	TANYTARSUS SP.	I	F
	TANYTARSUS SP. L	I	F
<b>Diptera - Other</b>			
	CHAOBORUS PUNCTIPENNIS	T	F
<b>Trichoptera</b>			
	OECETIS SP.	I	F

Table 2

List of Macroinvertebrate Taxa Collected from 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Major Taxonomic Group	Scientific Name	Pollution Tolerance	Salt Tolerance
<b>Mollusca</b>			
<b>Gastropoda</b>			
	HYDROBIIDAE (LPIL)	T	F
	LITTORIDINOPS SP.	T	F
<b>Bivalvia</b>			
	BIVALVIA (LPIL)	T	S
	CORBICULA SP. (FORM A)	I	F
	MACOMA TENTA	T	S
	MULINIA LATERALIS	T	S
	MYTILOPSIS LEUCOPHAEATA	T	S
	RANGIA CUNEATA	T	S

LPIL - Lowest Practical Identification Level

T - Pollution-tolerant

I - Pollution-intolerant

S - Salt-tolerant

F - Freshwater

Table 3

Benthic Community Metrics at 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Station Identification Code	Site Location	Density	No. of Taxa	Diversity	Percent Dominance by Tolerant Taxa
<b>2000 Sites *</b>					
ARL109	Arlington River	312	11	2.93	100
CDRC02	Cedar Creek	226	7	2.16	81
MCC01	McCullough Creek	312	5	2.08	69
GCRB11	Green Cove Springs	205	8	2.39	74
NAS01	NAS Jax Outfall	194	6	2.29	72
RICE02	Rice Creek	301	5	1.41	86
RC051	Rice Creek	1205	10	2.06	47
JUL021	Julington Creek	377	4	1.65	100
MON104	Moncrief Creek	377	6	1.65	100
RIB105	Ribault River	527	7	1.53	100
ORT361	Ortega River	689	6	1.25	77
GBY01	Goodby's Creek	689	6	1.03	99
GBY02	Goodby's Creek	1776	8	0.86	97
ORT051	Ortega River	323	3	0.84	100
CED062	Cedar River	1302	7	0.76	99
LFW01	Little Fish Weir	1571	5	0.74	99
CED01D	Cedar River	291	2	0.24	100
TRT01	Trout River	764	6	2.21	100
<b>2002-2003 Sites</b>					
CLAP01	Clapboard Creek	896	15	3.02	82
DUNR01	Dunn River	453	10	2.64	67
BROW01	Broward River	303	8	2.58	61
RACY01	Racy Point	389	8	2.49	17
PALM01	Palmo Cove	722	7	2.47	96
JULC01	Julington Creek	453	7	2.47	93
PUER01	Puerto Rico	863	9	2.45	88
GDBY01	Goodby's Creek	346	10	2.37	34
HOSP02	Baptist Hosp	174	8	2.22	38
TROT02	Trout River	269	6	2.21	96
MOCC02	Moccasin Slough	701	9	2.16	40
SSID02	South Side	635	7	2.12	73
MAND02	Mandarin	559	8	2.06	87
GRNC02	Green Cove	356	6	1.97	76
ORAN02	Orangedale	442	6	1.79	98
PTLV01	Point La Vista	76	3	1.38	43
BOLL02	Bolles School	517	3	1.04	100
SNAS02	South NAS	302	4	0.92	96
DRLK01	Doctors Lake	11	1	0.00	100
PIRC01	Pirate Cove	22	1	0.00	100

\* Slightly different values for 2000 metrics were reported by Evans and Higman 2001. See Section 3.1 of this report for explanation.

Table 4

Number and Percent Occurrence of Morphological Deformities Observed at 40 Sites in the Lower St. Johns River Basin, Florida, 2000 - 2003

Station Identification Code	Site Location	Taxon	No. of Deformities	Total Count for Taxon	Percent Occurrence Deformities
CED062	Cedar River	Chironomus sp.	61	107	57.01
LFW01	Little Fish Weir	Chironomus sp.	38	126	30.16
SNAS02	South NAS	Coelotanypus sp.	23	23	100.00
PALM01	Palmo Cove	Coelotanypus sp.	12	12	100.00
JULC01	Julington Creek	Coelotanypus sp.	12	12	100.00
CED01D	Cedar River	Chironomus sp.	10	25	40.00
ORT361	Ortega River	Chironomus sp./Coelotanypus	9	47	19.15
ORT051	Ortega River	Chironomus sp.	9	25	36.00
JUL021	Julington Creek	Coelotanypus concinnus	9	18	50.00
SSID02	South Side	Coelotanypus sp.	7	7	100.00
RACY01	Racy Point	Djalmabatista variant	4	4	100.00
GDBY01	Goodby's Creek	Coelotanypus sp.	4	4	100.00
BOLL02	Bolles School	Coelotanypus sp.	3	8	37.50
PUER01	Puerto Rico	Coelotanypus /Djalmabatista	2	9	22.22
PTLV01	Point La Vista	Coelotanypus sp.	2	2	100.00
PIRC01	Pirate Cove	Coelotanypus sp.	2	2	100.00
RIB105	Ribault River	Chironomus sp.	1	1	100.00
MON104	Moncrief Creek	Chironomus sp.	1	1	100.00
RC051	Rice Creek	Coelotanypus concinnus	1	3	33.33
MCC01	McCullough Creek	Chironomus sp.	1	1	100.00
CDRC02	Cedar Creek	Chironomus sp.	1	1	100.00
TRT01	Trout River	Absent	0	N/A	0.00
ARL109	Arlington River	Chironomus sp.	0	4	0.00
NAS01	NAS Jax Outfall	Absent	0	N/A	0.00
RICE02	Rice Creek	Coelotanypus sp.	0	2	0.00
GCRB11	Green Cove Springs - Red Bay	Absent	0	N/A	0.00
DUNN02	Dunn's Creek	Coelotanypus tricolor	0	8	0.00
WEK021	Welaka	Coelotanypus sp.	0	2	0.00
GBY01	Goodby's Creek	Coelotanypus sp.	0	1	0.00
GBY02	Goodby's Creek	Absent	0	N/A	0.00
MAND02	Mandarin	Coelotanypus sp.	0	30	0.00
HOSP02	Baptist Hosp	Polypedilum scalaenum gr.	0	1	0.00
ORAN02	Orangedale	Coelotanypus sp.	0	22	0.00
GRNC02	Green Cove	Coelotanypus sp.	0	14	0.00
DRLK01	Doctors Lake	Absent	0	N/A	0.00
TROT02	Trout River	Polypedilum halterale gr.	0	1	0.00
MOCC02	Moccasin Slough	Absent	0	N/A	0.00
BROW01	Broward River	Absent	0	N/A	0.00
DUNR01	Dunn River	Absent	0	N/A	0.00
CLAP01	Clapboard Creek	Absent	0	N/A	0.00

N/A - No indicator taxa were observed.

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Appendix A  
Site Location Maps

## Appendix B

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### Benthic Macroinvertebrate Data

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Petite Ponar Samples Collected March -August, 2000





BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	--	--	--	--	--	--	2
RANGIA CUNEATA		--	--	--	--	--	--	--	--	--
TOTAL NUMBER OF ORGANISMS		146	64	31	121	8	16	35	29	35
NUMBER OF TAXA		5	6	3	7	1	3	6	5	4

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	6	--	--	--	--	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLIDAE (LPIL)		--	4	--	--	--	--	--	--	--
POLYCHAETA - SYLLIDAE										
SYLLIDAE (LPIL)		--	1	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
NEANTHES SUCCINEA		--	--	--	1	--	--	--	--	--
NEREIDAE (LPIL)		--	2	--	1	--	--	--	--	--
POLYCHAETA - PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	1	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
PARAPRIONOSPIO PINNATA		--	--	--	--	--	--	--	--	--
POLYDORA SP.		--	--	--	--	--	--	--	--	3
PRIONOSPIO SP.		--	1	6	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	1	--	--	--	--	--	--	1
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	2	--	--
LIMNODRILUS HOFFMEISTERI		--	1	--	1	20	--	11	--	--
QUISTADRILUS MULTISETOSUS		--	--	--	--	2	--	--	--	--
HIRUDINEA										
HIRUDINEA (LPIL)		--	1	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
MYSIDACEA (LPIL)		--	--	--	--	--	--	--	--	--
CRUSTACEA - AMPHIPODA										
AMPHIPODA SP. A		--	--	--	--	--	43	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
AMPHIPODA - COROPHIIDAE										
APOCOROPHIUM LACUSTRE		--	--	--	--	--	45	--	--	--
APOCOROPHIUM SP.		--	--	1	--	--	--	--	--	1
AMPHIPODA - GAMMARIDAE										
GAMMARUS NEAR TIGRINUS		--	--	--	--	--	1	--	--	--
AMPHIPODA - OEDICEROTIDAE										
AMEROCULODES SP.		--	--	3	--	--	--	--	--	2
HARTMANODES SP.		--	--	1	--	3	--	--	--	--
AMPHIPODA - MELITIDAE										
MELITA NITIDA		--	--	--	--	--	--	--	--	1
CRUSTACEA - CUMACEA										
ALMYRACUMA SP.		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
MACROMIA TAENIOLATA		--	--	--	--	--	--	--	--	--
INSECTA - PLECOPTERA										
PLECOPTERA (LPIL)		--	--	--	--	--	--	1	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS CRASSICAUDATUS		--	--	--	--	--	--	--	--	--
CHIRONOMUS SP.		--	4	--	5	--	1	1	25	--
CLADOTANYTARSUS SP.		--	--	--	--	--	1	--	--	--
COELOTANYPUS CONCINNUS		--	--	--	--	2	5	1	--	--
COELOTANYPUS TRICOLOR		--	--	--	--	--	2	2	--	--
DJALMABATISTA PULCHRA		--	--	--	--	--	3	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	1	10	--	--	--
PROCLADIUS SP.		--	--	--	--	--	1	3	--	--
TANYTARSUS SP.		--	--	--	--	--	--	--	--	1
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	1	--	--	--	--	--	--	--
CORBICULA SP. (FORM A)		--	--	--	--	--	--	--	--	1
MACOMA TENTA	70	--	10	--	34	--	--	--	--	--
MULINIA LATERALIS		--	3	--	--	--	--	--	1	9

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	5	--	--	--	--	--	--
RANGIA CUNEATA	1		--	2	--	--	--	--	--	--
TOTAL NUMBER OF ORGANISMS		71	29	18	49	28	112	21	26	19
NUMBER OF TAXA		2	11	6	7	5	10	7	2	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
NEMERTEA			
NEMERTEA (LPIL)		--	6
POLYCHAETA - CAPITELLIDAE			
CAPITELLIDAE (LPIL)		--	--
POLYCHAETA - SYLLIDAE			
SYLLIDAE (LPIL)		--	--
POLYCHAETA - NEREIDAE			
NEANTHES SUCCINEA		--	1
NEREIDAE (LPIL)		--	--
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	1
POLYCHAETA - SPIONIDAE			
PARAPRIONOSPIO PINNATA		--	--
POLYDORA SP.		--	--
PRIONOSPIO SP.		51	144
SPIONIDAE (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
LIMNODRILUS HOFFMEISTERI		--	--
QUISTADRILUS MULTISETOSUS		--	--
HIRUDINEA			
HIRUDINEA (LPIL)		--	--
CRUSTACEA - MYSIDACEA			
MYSIDACEA (LPIL)		--	--
CRUSTACEA - AMPHIPODA			
AMPHIPODA SP. A		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		--	--
APOCOROPHIUM SP.		--	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS NEAR TIGRINUS		--	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		1	1
HARTMANODES SP.		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		--	--
CRUSTACEA - CUMACEA			
ALMYRACUMA SP.		1	--
INSECTA - ODONATA			
MACROMIA TAENIOLATA		--	--
INSECTA - PLECOPTERA			
PLECOPTERA (LPIL)		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS CRASSICAUDATUS		--	--
CHIRONOMUS SP.		--	--
CLADOTANYTARSUS SP.		--	--
COELOTANYPUS CONCINNUS		1	--
COELOTANYPUS TRICOLOR		--	--
DJALMABATISTA PULCHRA		--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
PROCLADIUS SP.		--	--
TANYTARSUS SP.		--	--
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
CORBICULA SP. (FORM A)		--	--
MACOMA TENTA		9	3
MULINIA LATERALIS		1	7

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
MYTILOPSIS LEUCOPHAEATA		--	2
RANGIA CUNEATA		--	--
TOTAL NUMBER OF ORGANISMS		64	165
NUMBER OF TAXA		6	8





BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	--	--	--	--	--	--	22
RANGIA CUNEATA		--	--	--	--	--	--	--	--	--
TOTAL NUMBER OF ORGANISMS		1575	691	334	1305	86	173	378	313	378
NUMBER OF TAXA		5	6	3	7	1	3	6	5	4

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	65	--	--	--	--	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLIDAE (LPIL)		--	43	--	--	--	--	--	--	--
POLYCHAETA - SYLLIDAE										
SYLLIDAE (LPIL)		--	11	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
NEANTHES SUCCINEA		--	--	--	11	--	--	--	--	--
NEREIDAE (LPIL)		--	22	--	11	--	--	--	--	--
POLYCHAETA - PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	11	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
PARAPRIONOSPIO PINNATA		--	--	--	--	--	--	--	--	--
POLYDORA SP.		--	--	--	--	--	--	--	--	32
PRIONOSPIO SP.		--	11	65	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	11	--	--	--	--	--	--	11
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	22	--	--
LIMNODRILUS HOFFMEISTERI		--	11	--	11	216	--	119	--	--
QUISTADRILUS MULTISETOSUS		--	--	--	--	22	--	--	--	--
HIRUDINEA										
HIRUDINEA (LPIL)		--	11	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
MYSIDACEA (LPIL)		--	--	--	--	--	--	--	--	--
CRUSTACEA - AMPHIPODA										
AMPHIPODA SP. A		--	--	--	--	--	463	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
AMPHIPODA - COROPHIIDAE										
APOCOROPHIUM LACUSTRE		--	--	--	--	--	485	--	--	--
APOCOROPHIUM SP.		--	--	11	--	--	--	--	--	11
AMPHIPODA - GAMMARIDAE										
GAMMARUS NEAR TIGRINUS		--	--	--	--	--	11	--	--	--
AMPHIPODA - OEDICEROTIDAE										
AMEROCULODES SP.		--	--	32	--	--	--	--	--	22
HARTMANODES SP.		--	--	11	--	32	--	--	--	--
AMPHIPODA - MELITIDAE										
MELITA NITIDA		--	--	--	--	--	--	--	--	11
CRUSTACEA - CUMACEA										
ALMYRACUMA SP.		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
MACROMIA TAENIOLATA		--	--	--	--	--	--	--	--	--
INSECTA - PLECOPTERA										
PLECOPTERA (LPIL)		--	--	--	--	--	--	11	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS CRASSICAUDATUS		--	--	--	--	--	--	--	--	--
CHIRONOMUS SP.		--	43	--	54	--	11	11	269	--
CLADOTANYTARSUS SP.		--	--	--	--	--	11	--	--	--
COELOTANYPUS CONCINNUS		--	--	--	--	22	54	11	--	--
COELOTANYPUS TRICOLOR		--	--	--	--	--	22	22	--	--
DJALMABATISTA PULCHRA		--	--	--	--	--	32	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	11	108	--	--	--
PROCLADIUS SP.		--	--	--	--	--	11	32	--	--
TANYTARSUS SP.		--	--	--	--	--	--	--	--	11
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	11	--	--	--	--	--	--	--
CORBICULA SP. (FORM A)		--	--	--	--	--	--	--	--	11
MACOMA TENTA		754	108	--	366	--	--	--	--	--
MULINIA LATERALIS		--	32	--	--	--	--	--	11	97

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	54	--	--	--	--	--	--
RANGIA CUNEATA		11	--	22	--	--	--	--	--	--
TOTAL NUMBER OF ORGANISMS		765	314	195	529	303	1208	228	280	206
NUMBER OF TAXA		2	11	6	7	5	10	7	2	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
NEMERTEA			
NEMERTEA (LPIL)		--	65
POLYCHAETA - CAPITELLIDAE			
CAPITELLIDAE (LPIL)		--	--
POLYCHAETA - SYLLIDAE			
SYLLIDAE (LPIL)		--	--
POLYCHAETA - NEREIDAE			
NEANTHES SUCCINEA		--	11
NEREIDAE (LPIL)		--	--
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	11
POLYCHAETA - SPIONIDAE			
PARAPRIONOSPIO PINNATA		--	--
POLYDORA SP.		--	--
PRIONOSPIO SP.		550	1552
SPIONIDAE (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
LIMNODRILUS HOFFMEISTERI		--	--
QUISTADRILUS MULTISETOSUS		--	--
HIRUDINEA			
HIRUDINEA (LPIL)		--	--
CRUSTACEA - MYSIDACEA			
MYSIDACEA (LPIL)		--	--
CRUSTACEA - AMPHIPODA			
AMPHIPODA SP. A		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		--	--
APOCOROPHIUM SP.		--	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS NEAR TIGRINUS		--	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		11	11
HARTMANODES SP.		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		--	--
CRUSTACEA - CUMACEA			
ALMYRACUMA SP.		11	--
INSECTA - ODONATA			
MACROMIA TAENIOLATA		--	--
INSECTA - PLECOPTERA			
PLECOPTERA (LPIL)		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS CRASSICAUDATUS		--	--
CHIRONOMUS SP.		--	--
CLADOTANYTARSUS SP.		--	--
COELOTANYPUS CONCINUS		11	--
COELOTANYPUS TRICOLOR		--	--
DJALMABATISTA PULCHRA		--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
PROCLADIUS SP.		--	--
TANYTARSUS SP.		--	--
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
CORBICULA SP. (FORM A)		--	--
MACOMA TENTA		97	32
MULINIA LATERALIS		11	75

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
MYTILOPSIS LEUCOPHAEATA		--	22
RANGIA CUNEATA		--	--
TOTAL NUMBER OF ORGANISMS		691	1779
NUMBER OF TAXA		6	8





BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	--	--	--	--	--	--	5.8
RANGIA CUNEATA		--	--	--	--	--	--	--	--	--
TOTAL		100	100	100	100	100	100	100	100	100
NUMBER OF TAXA		5	6	3	7	1	3	6	5	4

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	12.3	--	--	--	--	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLIDAE (LPIL)		--	13.7	--	--	--	--	--	--	--
POLYCHAETA - SYLLIDAE										
SYLLIDAE (LPIL)		--	3.5	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
NEANTHES SUCCINEA		--	--	--	2.1	--	--	--	--	--
NEREIDAE (LPIL)		--	7.0	--	2.1	--	--	--	--	--
POLYCHAETA PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	2.1	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
PARAPRIONOSPIO PINNATA		--	--	--	--	--	--	--	--	--
POLYDORA SP.		--	--	--	--	--	--	--	--	15.5
PRIONOSPIO SP.		--	3.5	33.3	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	3.5	--	--	--	--	--	--	5.3
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	9.6	--	--
LIMNODRILUS HOFFMEISTERI		--	3.5	--	2.1	71.3	--	52.2	--	--
QUISTADRILUS MULTISETOSUS		--	--	--	--	7.3	--	--	--	--
HIRUDINEA										
HIRUDINEA (LPIL)		--	3.5	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
MYSIDACEA (LPIL)		--	--	--	--	--	--	--	--	--
CRUSTACEA - AMPHIPODA										
AMPHIPODA SP. A		--	--	--	--	--	38.3	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
AMPHIPODA - COROPHIIDAE										
APOCOROPHIUM LACUSTRE		--	--	--	--	--	40.1	--	--	--
APOCOROPHIUM SP.		--	--	5.6	--	--	--	--	--	5.3
AMPHIPODA - GAMMARIDAE										
GAMMARUS NEAR TIGRINUS		--	--	--	--	--	0.9	--	--	--
AMPHIPODA - OEDICEROTIDAE										
AMEROCULODES SP.		--	--	16.4	--	--	--	--	--	10.7
HARTMANODES SP.		--	--	5.6	--	10.6	--	--	--	--
AMPHIPODA - MELITIDAE										
MELITA NITIDA		--	--	--	--	--	--	--	--	5.3
CRUSTACEA - CUMACEA										
ALMYRACUMA SP.		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
MACROMIA TAENIOLATA										
		--	--	--	--	--	--	--	--	--
INSECTA - PLECOPTERA										
PLECOPTERA (LPIL)		--	--	--	--	--	--	4.8	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS CRASSICAUDATUS		--	--	--	--	--	--	--	--	--
CHIRONOMUS SP.		--	13.7	--	10.2	--	0.9	4.8	96.1	--
CLADOTANYTARSUS SP.		--	--	--	--	--	0.9	--	--	--
COELOTANYPUS CONCINNUS		--	--	--	--	7.3	4.5	4.8	--	--
COELOTANYPUS TRICOLOR		--	--	--	--	--	1.8	9.6	--	--
DJALMABATISTA PULCHRA		--	--	--	--	--	2.6	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	3.6	8.9	--	--	--
PROCLADIUS SP.		--	--	--	--	--	0.9	14.0	--	--
TANYTARSUS SP.		--	--	--	--	--	--	--	--	5.3
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	3.5	--	--	--	--	--	--	--
CORBICULA SP. (FORM A)		--	--	--	--	--	--	--	--	5.3
MACOMA TENTA		98.6	34.4	--	69.2	--	--	--	--	--
MULINIA LATERALIS		--	10.2	--	--	--	--	--	3.9	47.1

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
MYTILOPSIS LEUCOPHAEATA		--	--	27.7	--	--	--	--	--	--
RANGIA CUNEATA		1.4	--	11.3	--	--	--	--	--	--
TOTAL		100	100	100	100	100	100	100	100	100
NUMBER OF TAXA		2	11	6	7	5	10	7	2	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
NEMERTEA			
NEMERTEA (LPIL)		--	3.7
POLYCHAETA - CAPITELLIDAE			
CAPITELLIDAE (LPIL)		--	--
POLYCHAETA - SYLLIDAE			
SYLLIDAE (LPIL)		--	--
POLYCHAETA - NEREIDAE			
NEANTHES SUCCINEA		--	0.6
NEREIDAE (LPIL)		--	--
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	0.6
POLYCHAETA - SPIONIDAE			
PARAPRIONOSPIO PINNATA		--	--
POLYDORA SP.		--	--
PRIONOSPIO SP.		79.6	87.2
SPIONIDAE (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
LIMNODRILUS HOFFMEISTERI		--	--
QUISTADRILUS MULTISETOSUS		--	--
HIRUDINEA			
HIRUDINEA (LPIL)		--	--
CRUSTACEA - MYSIDACEA			
MYSIDACEA (LPIL)		--	--
CRUSTACEA - AMPHIPODA			
AMPHIPODA SP. A		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		--	--
APOCOROPHIUM SP.		--	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS NEAR TIGRINUS		--	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		1.6	0.6
HARTMANODES SP.		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		--	--
CRUSTACEA - CUMACEA			
ALMYRACUMA SP.		1.6	--
INSECTA - ODONATA			
MACROMIA TAENIOLATA		--	--
INSECTA - PLECOPTERA			
PLECOPTERA (LPIL)		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS CRASSICAUDATUS		--	--
CHIRONOMUS SP.		--	--
CLADOTANYTARSUS SP.		--	--
COELOTANYPUS CONCINNUS		1.6	--
COELOTANYPUS TRICOLOR		--	--
DJALMABATISTA PULCHRA		--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
PROCLADIUS SP.		--	--
TANYTARSUS SP.		--	--
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
CORBICULA SP. (FORM A)		--	--
MACOMA TENTA		14.0	1.8
MULINIA LATERALIS		1.6	4.2

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02
CONTINUED FROM PREVIOUS PAGE			
MYTILOPSIS LEUCOPHAEATA		--	1.2
RANGIA CUNEATA		--	--
TOTAL		100	100
NUMBER OF TAXA		6	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

STATION INDICES

Station	SHANNON-WIENER DIVERSITY BASE 2	PIELOU'S EVENNESS (H/Hmax)
LFW01	0.740	0.319
ORT361	1.247	0.482
ORT051	0.835	0.527
CED062	0.763	0.272
DUNN02	0.000	0.000
WEK021	0.869	0.548
MON104	1.651	0.638
MCC01	2.075	0.893
JUL021	1.647	0.823
TRT01	0.107	0.107
ARL109	2.928	0.846
NAS01	2.289	0.885
RIB105	1.531	0.545
RICE02	1.408	0.606
RC051	2.057	0.619
CDRC02	2.164	0.771
CED01D	0.235	0.235
GCRB11	2.391	0.797
GBY01	1.034	0.400
GBY02	0.855	0.285

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
NEMERTEA										
Number of Taxa		--	--	--	1	--	--	1	--	--
NUMBER PER SQUARE METER		--	--	--	11	--	--	11	--	--
Organisms % All Stations		--	--	--	7	--	--	7	--	--
Organisms % This Station		--	--	--	1	--	--	3	--	--
POLYCHAETA - CAPITELLIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
POLYCHAETA - SYLLIDAE										
Number of Taxa		1	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		22	--	--	--	--	--	--	--	--
Organisms % All Stations		67	--	--	--	--	--	--	--	--
Organisms % This Station		1	--	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
Number of Taxa		1	1	--	--	--	--	1	--	--
NUMBER PER SQUARE METER		162	11	--	--	--	--	22	--	--
Organisms % All Stations		65	4	--	--	--	--	9	--	--
Organisms % This Station		10	2	--	--	--	--	6	--	--
POLYCHAETA - PHYLLODOCIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
Number of Taxa		1	--	1	1	--	--	1	--	--
NUMBER PER SQUARE METER		11	--	11	43	--	--	11	--	--
Organisms % All Stations		0	--	0	2	--	--	0	--	--
Organisms % This Station		1	--	3	3	--	--	3	--	--
OLIGOCHAETA - TUBIFICIDAE										
Number of Taxa		--	--	--	--	--	1	1	1	1
NUMBER PER SQUARE METER		--	--	--	--	--	140	22	65	54
Organisms % All Stations		--	--	--	--	--	21	3	10	8
Organisms % This Station		--	--	--	--	--	81	6	21	14
HIRUDINEA										
Number of Taxa		--	--	--	1	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	11	--	--	--	--	--
Organisms % All Stations		--	--	--	50	--	--	--	--	--
Organisms % This Station		--	--	--	1	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
Number of Taxa		--	--	--	1	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	11	--	--	--	--	--
Organisms % All Stations		--	--	--	100	--	--	--	--	--
Organisms % This Station		--	--	--	1	--	--	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
CONTINUED FROM PREVIOUS PAGE										
CRUSTACEA - AMPHIPODA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - COROPHIIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - GAMMARIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - OEDICEROTIDAE										
Number of Taxa		--	--	--	--	--	1	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	11	--	--	--
Organisms % All Stations		--	--	--	--	--	8	--	--	--
Organisms % This Station		--	--	--	--	--	6	--	--	--
AMPHIPODA - MELITIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
CRUSTACEA - CUMACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
Number of Taxa		--	1	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	140	--	--	--	--	--	--	--
Organisms % All Stations		--	100	--	--	--	--	--	--	--
Organisms % This Station		--	20	--	--	--	--	--	--	--
INSECTA - PLECOPTERA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
Number of Taxa		2	4	1	2	1	1	1	4	1
NUMBER PER SQUARE METER		1380	540	269	1164	86	22	75	248	194
Organisms % All Stations		29	11	6	25	2	0	2	5	4
Organisms % This Station		88	78	81	89	100	13	20	79	51

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	LFW01	ORT361	ORT051	CED062	DUNN02	WEK021	MON104	MCC01	JUL021
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
Number of Taxa		--	--	1	1	--	--	1	--	2
NUMBER PER SQUARE METER		--	--	54	65	--	--	237	--	130
Organisms % All Stations		--	--	2	3	--	--	11	--	6
Organisms % This Station		--	--	16	5	--	--	63	--	34
SUMMARY TOTALS FOR STATIONS										
Number of Taxa		5	6	3	7	1	3	6	5	4
NUMBER PER SQUARE METER		1575	691	334	1305	86	173	378	313	378
Organisms % All Stations		13	6	3	11	1	1	3	3	3



BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
CRUSTACEA - AMPHIPODA										
Number of Taxa		--	--	--	--	--	1	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	463	--	--	--
Organisms % All Stations		--	--	--	--	--	100	--	--	--
Organisms % This Station		--	--	--	--	--	38	--	--	--
AMPHIPODA - COROPHIIDAE										
Number of Taxa		--	--	1	--	--	1	--	--	1
NUMBER PER SQUARE METER		--	--	11	--	--	485	--	--	11
Organisms % All Stations		--	--	2	--	--	96	--	--	2
Organisms % This Station		--	--	6	--	--	40	--	--	5
AMPHIPODA - GAMMARIDAE										
Number of Taxa		--	--	--	--	--	1	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	11	--	--	--
Organisms % All Stations		--	--	--	--	--	100	--	--	--
Organisms % This Station		--	--	--	--	--	1	--	--	--
AMPHIPODA - OEDICEROTIDAE										
Number of Taxa		--	--	2	--	1	--	--	--	1
NUMBER PER SQUARE METER		--	--	43	--	32	--	--	--	22
Organisms % All Stations		--	--	33	--	25	--	--	--	17
Organisms % This Station		--	--	22	--	11	--	--	--	11
AMPHIPODA - MELITIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	1
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	11
Organisms % All Stations		--	--	--	--	--	--	--	--	100
Organisms % This Station		--	--	--	--	--	--	--	--	5
CRUSTACEA - CUMACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - PLECOPTERA										
Number of Taxa		--	--	--	--	--	--	1	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	11	--	--
Organisms % All Stations		--	--	--	--	--	--	100	--	--
Organisms % This Station		--	--	--	--	--	--	5	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
Number of Taxa		--	1	--	1	2	7	4	1	1
NUMBER PER SQUARE METER		--	43	--	54	33	249	76	269	11
Organisms % All Stations		--	1	--	1	1	5	2	6	0
Organisms % This Station		--	14	--	10	11	21	33	96	5

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	TRT01	ARL109	NAS01	RIB105	RICE02	RC051	CDRC02	CED01D	GCRB11
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
Number of Taxa		2	3	2	1	--	--	--	1	2
NUMBER PER SQUARE METER		765	151	76	366	--	--	--	11	108
Organisms % All Stations		35	7	3	17	--	--	--	1	5
Organisms % This Station		100	48	39	69	--	--	--	4	52
SUMMARY TOTALS FOR STATIONS										
Number of Taxa		2	11	6	7	5	10	7	2	8
NUMBER PER SQUARE METER		765	314	195	529	303	1208	228	280	206
Organisms % All Stations		7	3	2	5	3	10	2	2	2

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02	MEAN VALUES
<b>NEMERTEA</b>				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	65	8
Organisms % All Stations		--	43	--
Organisms % This Station		--	4	1
<b>POLYCHAETA - CAPITELLIDAE</b>				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	2
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
<b>POLYCHAETA - SYLLIDAE</b>				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	2
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
<b>POLYCHAETA - NEREIDAE</b>				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	11	13
Organisms % All Stations		--	4	--
Organisms % This Station		--	1	2
<b>POLYCHAETA - PHYLLODOCIDAE</b>				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	11	1
Organisms % All Stations		--	50	--
Organisms % This Station		--	1	0
<b>POLYCHAETA - SPIONIDAE</b>				
Number of Taxa		1	1	1
NUMBER PER SQUARE METER		550	1552	115
Organisms % All Stations		24	67	--
Organisms % This Station		80	87	20
<b>OLIGOCHAETA - TUBIFICIDAE</b>				
Number of Taxa		--	--	1
NUMBER PER SQUARE METER		--	--	34
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	6
<b>HIRUDINEA</b>				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
<b>CRUSTACEA - MYSIDACEA</b>				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02	MEAN VALUES
CONTINUED FROM PREVIOUS PAGE				
CRUSTACEA - AMPHIPODA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	23
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	4
AMPHIPODA - COROPHIIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	25
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	4
AMPHIPODA - GAMMARIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
AMPHIPODA - OEDICEROTIDAE				
Number of Taxa		1	1	0
NUMBER PER SQUARE METER		11	11	7
Organisms % All Stations		8	8	--
Organisms % This Station		2	1	1
AMPHIPODA - MELITIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
CRUSTACEA - CUMACEA				
Number of Taxa		1	--	0
NUMBER PER SQUARE METER		11	--	1
Organisms % All Stations		100	--	--
Organisms % This Station		2	--	0
INSECTA - ODONATA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	7
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	1
INSECTA - PLECOPTERA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
INSECTA - DIPTERA - CHIRONOMIDAE				
Number of Taxa		1	--	2
NUMBER PER SQUARE METER		11	--	236
Organisms % All Stations		0	--	--
Organisms % This Station		2	--	40

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED MARCH - AUGUST, 2000  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GBY01	GBY02	MEAN VALUES
CONTINUED FROM PREVIOUS PAGE				
MOLLUSCA - BIVALVIA				
Number of Taxa		2	3	1
NUMBER PER SQUARE METER		108	129	110
Organisms % All Stations		5	6	--
Organisms % This Station		16	7	19
SUMMARY TOTALS FOR STATIONS				
Number of Taxa		6	8	6
NUMBER PER SQUARE METER		691	1779	587
Organisms % All Stations		6	15	--



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Petite Ponar Samples Collected October 2002 – August 2003

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	--	--	--	--	7	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLA CAPITATA		--	--	--	--	--	--	--	--	--
HETEROMASTUS FILIFORMIS		--	--	--	--	--	--	--	--	--
MEDIOMASTUS CALIFORNIENSIS		--	--	--	--	--	--	--	--	--
POLYCHAETA - MALDANIDAE										
SABACO AMERICANUS		--	--	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
LAONEREIS CULVERI		--	--	--	--	--	--	--	--	--
NEANTHES SUCCINEA		--	--	--	--	--	--	--	--	--
POLYCHAETA - ORBINIIDAE										
ORBINIIDAE (LPIL)		--	--	--	--	--	--	--	--	--
SCOLOPLOS RUBRA		--	--	--	--	--	--	--	--	--
POLYCHAETA - PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	--	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
MARENZELLERIA VIRIDIS		--	--	--	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	1	--	--	--	--	--	--	--
STREBLOSPIO SP.		--	--	--	--	--	--	--	--	--
POLYCHAETA										
POLYCHAETA (LPIL)		--	--	1	--	--	--	--	--	--
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	--	--	--
CF. TUBIFICOIDES SP.		--	--	1	--	--	--	--	3	--
LIMNODRILUS HOFFMEISTERI		--	--	--	1	2	--	--	4	20
TUBIFICOIDES SP.		--	--	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
AMERICAMYSIS BIGELOWI		--	--	--	--	1	--	--	--	--



BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
DECAPODA - XANTHIDAE										
RHITHROPANOPEUS HARRISII		--	3	--	--	--	--	--	1	--
CRUSTACEA - CUMACEA										
CYCLASPIS VARIANS		--	--	--	--	--	--	--	--	--
INSECTA - EPHEMEROPTERA										
CAENIS SP.		--	--	--	1	--	--	--	--	--
INSECTA - ODONATA										
PERITHEMIS TENERA SEMINOLE		--	--	--	--	--	--	--	--	--
INSECTA - COLEOPTERA										
CELINA HUBBELLI		--	--	1	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
COELOTANYPUS SP.		1	30	--	22	7	14	--	--	12
COELOTANYPUS TRICOLOR		--	--	--	--	--	--	--	--	8
CRYPTOCHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
DJALMABATISTA PULCHRA		4	--	--	--	2	--	--	--	--
EINFELDIA NATCHITOCHEAE		--	--	--	--	--	--	--	--	--
POLYPEDILUM HALTERALE GROUP		7	--	--	--	2	7	--	1	--
POLYPEDILUM SCALAENUM GROUP		--	--	1	--	--	--	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	--	--	--	--	3
TANYTARSUS SP.		--	--	--	--	--	--	--	--	--
TANYTARSUS SP. L		14	--	--	--	--	--	--	--	--
INSECTA - DIPTERA - OTHER										
CHAOBORUS PUNCTIPENNIS		--	--	--	--	--	1	--	--	--
INSECTA - TRICHOPTERA										
OECETIS SP.		--	--	--	--	--	--	--	--	--
MOLLUSCA - GASTROPODA										
HYDROBIIDAE (LPIL)		--	--	1	--	30	--	--	--	--
LITTORIDINOPS SP.		--	--	--	8	--	--	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		1	--	--	--	--	--	--	--	--
MACOMA TENTA		--	--	--	--	--	--	1	9	--
MYTILOPSIS LEUCOPHAEATA		--	3	--	--	10	1	--	--	15
RANGIA CUNEATA		--	--	--	8	21	9	--	--	8
TOTAL NUMBER OF ORGANISMS		36	52	16	41	80	33	1	25	67
NUMBER OF TAXA		8	8	8	6	9	6	1	6	7







BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	--	--	--	--	--	--	--	--
MACOMA TENTA		--	7	--	--	--	--	9	--	1
MYTILOPSIS LEUCOPHAEATA		--	11	--	3	--	3	7	4	--
RANGIA CUNEATA		--		--		--				
TOTAL NUMBER OF ORGANISMS		32	42	7	59	2	28	65	48	28
NUMBER OF TAXA		10	7	3	7	1	4	9	3	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
NEMERTEA			
NEMERTEA (LPIL)		1	8
POLYCHAETA - CAPITELLIDAE			
CAPITELLA CAPITATA		--	1
HETEROMASTUS FILIFORMIS		12	--
MEDIOMASTUS CALIFORNIENSIS		--	3
POLYCHAETA - MALDANIDAE			
SABACO AMERICANUS		--	2
POLYCHAETA - NEREIDAE			
LAONEREIS CULVERI		--	--
NEANTHES SUCCINEA		4	--
POLYCHAETA - ORBINIIDAE			
ORBINIIDAE (LPIL)		--	2
SCOLOPLOS RUBRA		--	2
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	1
POLYCHAETA - SPIONIDAE			
MARENZELLERIA VIRIDIS		1	--
SPIONIDAE (LPIL)		--	--
STREBLOSPIO SP.		5	13
POLYCHAETA			
POLYCHAETA (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
CF. TUBIFICOIDES SP.		--	--
LIMNODRILUS HOFFMEISTERI		--	--
TUBIFICOIDES SP.		--	1
CRUSTACEA - MYSIDACEA			
AMERICAMYSIS BIGELOWI		--	1

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
ISOPODA - IDOTEIDAE			
EDOTIA TRILOBA		--	--
AMPHIPODA - AMPELISCIDAE			
AMPELISCA SP.		--	9
CRUSTACEA - AMPHIPODA			
AMPHIPODA (LPIL)		--	3
CERAPUS BENTHOPHILUS		--	30
AMPHIPODA - AORIDAE			
GRANDIDIERELLA BONNIEROIDES		--	6
CRUSTACEA			
BALANUS SP. A		--	--
BALANUS SP. B		--	--
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		1	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS SP.		--	--
AMPHIPODA - HAUSTORIIDAE			
CYATHURA POLITA		1	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		--	--
OEDICEROTIDAE (LPIL)		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		13	--
CRUSTACEA - DECAPODA			
DECAPODA (LPIL)		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
DECAPODA - XANTHIDAE			
RHITHROPANOPEUS HARRISII		--	--
CRUSTACEA - CUMACEA			
CYCLASPIS VARIANS		--	1
INSECTA - EPHEMEROPTERA			
CAENIS SP.		--	--
INSECTA - ODONATA			
PERITHEMIS TENERA SEMINOLE		--	--
INSECTA - COLEOPTERA			
CELINA HUBBELLI		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS SP.		--	--
COELOTANYPUS SP.		--	--
COELOTANYPUS TRICOLOR		--	--
CRYPTOCHIRONOMUS SP.		--	--
DJALMABATISTA PULCHRA		--	--
EINFELDIA NATCHITOCHEAE		--	--
POLYPEDILUM HALTERALE GROUP		--	--
POLYPEDILUM SCALAENUM GROUP		1	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
TANYTARSUS SP.		--	--
TANYTARSUS SP. L		--	--
INSECTA - DIPTERA - OTHER			
CHAOBORUS PUNCTIPENNIS		--	--
INSECTA - TRICHOPTERA			
OECETIS SP.		--	--
MOLLUSCA - GASTROPODA			
HYDROBIIDAE (LPIL)		--	--
LITTORIDINOPS SP.		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

RAW DATA

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
MACOMA TENTA		3	--
MYTILOPSIS LEUCOPHAEATA		--	--
RANGIA CUNEATA		--	--
TOTAL NUMBER OF ORGANISMS		42	83
NUMBER OF TAXA		10	15

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	--	--	--	--	75	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLA CAPITATA		--	--	--	--	--	--	--	--	--
HETEROMASTUS FILIFORMIS		--	--	--	--	--	--	--	--	--
MEDIOMASTUS CALIFORNIENSIS		--	--	--	--	--	--	--	--	--
POLYCHAETA - MALDANIDAE										
SABACO AMERICANUS		--	--	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
LAONEREIS CULVERI		--	--	--	--	--	--	--	--	--
NEANTHES SUCCINEA		--	--	--	--	--	--	--	--	--
POLYCHAETA - ORBINIIDAE										
ORBINIIDAE (LPIL)		--	--	--	--	--	--	--	--	--
SCOLOPLOS RUBRA		--	--	--	--	--	--	--	--	--
POLYCHAETA - PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	--	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
MARENZELLERIA VIRIDIS		--	--	--	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	11	--	--	--	--	--	--	--
STREBLOSPIO SP.		--	--	--	--	--	--	--	--	--
POLYCHAETA										
POLYCHAETA (LPIL)		--	--	11	--	--	--	--	--	--
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	--	--	--
CF. TUBIFICOIDES SP.		--	--	11	--	--	--	--	32	--
LIMNODRILUS HOFFMEISTERI		--	--	--	11	22	--	--	43	216
TUBIFICOIDES SP.		--	--	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
AMERICAMYSIS BIGELOWI		--	--	--	--	11	--	--	--	--



BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
DECAPODA - XANTHIDAE										
RHITHROPANOPEUS HARRISII		--	32	--	--	--	--	--	11	--
CRUSTACEA - CUMACEA										
CYCLASPIS VARIANS		--	--	--	--	--	--	--	--	--
INSECTA - EPHEMEROPTERA										
CAENIS SP.		--	--	--	11	--	--	--	--	--
INSECTA - ODONATA										
PERITHEMIS TENERA SEMINOLE		--	--	--	--	--	--	--	--	--
INSECTA - COLEOPTERA										
CELINA HUBBELLII		--	--	11	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
COELOTANYPUS SP.		11	323	--	237	75	151	--	--	129
COELOTANYPUS TRICOLOR		--	--	--	--	--	--	--	--	86
CRYPTOCHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
DJALMABATISTA PULCHRA		43	--	--	--	22	--	--	--	--
EINFELDIA NATCHITOCHAEAE		--	--	--	--	--	--	--	--	--
POLYPEDILUM HALTERALE GROUP		75	--	--	--	22	75	--	11	--
POLYPEDILUM SCALAENUM GROUP		--	--	11	--	--	--	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	--	--	--	--	32
TANYTARSUS SP.		--	--	--	--	--	--	--	--	--
TANYTARSUS SP. L		151	--	--	--	--	--	--	--	--
INSECTA - DIPTERA - OTHER										
CHAOBORUS PUNCTIPENNIS		--	--	--	--	--	11	--	--	--
INSECTA - TRICHOPTERA										
OECETIS SP.		--	--	--	--	--	--	--	--	--
MOLLUSCA - GASTROPODA										
HYDROBIIDAE (LPIL)		--	--	11	--	323	--	--	--	--
LITTORIDINOPS SP.		--	--	--	86	--	--	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		11	--	--	--	--	--	--	--	--
MACOMA TENTA		--	--	--	--	--	--	11	97	--
MYTILOPSIS LEUCOPHAEATA		--	32	--	--	108	11	--	--	162
RANGIA CUNEATA		--	--	--	86	226	97	--	--	86
TOTAL NUMBER OF ORGANISMS		389	559	174	442	863	356	11	269	722
NUMBER OF TAXA		8	8	8	6	9	6	1	6	7







BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	--	--	--	--	--	--	--	--
MACOMA TENTA		--	--	--	--	--	--	--	--	11
MYTILOPSIS LEUCOPHAEATA		--	75	--	--	--	--	97	--	--
RANGIA CUNEATA		--	119	--	32	--	32	75	43	--
TOTAL NUMBER OF ORGANISMS		346	453	76	635	22	302	701	517	303
NUMBER OF TAXA		10	7	3	7	1	4	9	3	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
NEMERTEA			
NEMERTEA (LPIL)		11	86
POLYCHAETA - CAPITELLIDAE			
CAPITELLA CAPITATA		--	11
HETEROMASTUS FILIFORMIS		129	--
MEDIOMASTUS CALIFORNIENSIS		--	32
POLYCHAETA - MALDANIDAE			
SABACO AMERICANUS		--	22
POLYCHAETA - NEREIDAE			
LAONEREIS CULVERI		--	--
NEANTHES SUCCINEA		43	--
POLYCHAETA - ORBINIIDAE			
ORBINIIDAE (LPIL)		--	22
SCOLOPLOS RUBRA		--	22
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	11
POLYCHAETA - SPIONIDAE			
MARENZELLERIA VIRIDIS		11	--
SPIONIDAE (LPIL)		--	--
STREBLOSPIO SP.		54	140
POLYCHAETA			
POLYCHAETA (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
CF. TUBIFICOIDES SP.		--	--
LIMNODRILUS HOFFMEISTERI		--	--
TUBIFICOIDES SP.		--	11
CRUSTACEA - MYSIDACEA			
AMERICAMYSIS BIGELOWI		--	11

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
ISOPODA - IDOTEIDAE			
EDOTIA TRILOBA		--	--
AMPHIPODA - AMPELISCIDAE			
AMPELISCA SP.		--	97
CRUSTACEA - AMPHIPODA			
AMPHIPODA (LPIL)		--	32
CERAPUS BENTHOPHILUS		--	323
AMPHIPODA - AORIDAE			
GRANDIDIERELLA BONNIEROIDES		--	65
CRUSTACEA			
BALANUS SP. A		--	--
BALANUS SP. B		--	--
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		11	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS SP.		--	--
AMPHIPODA - HAUSTORIIDAE			
CYATHURA POLITA		11	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		--	--
OEDICEROTIDAE (LPIL)		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		140	--
CRUSTACEA - DECAPODA			
DECAPODA (LPIL)		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
DECAPODA - XANTHIDAE			
RHITHROPANOPEUS HARRISII		--	--
CRUSTACEA - CUMACEA			
CYCLASPIS VARIANS		--	11
INSECTA - EPHEMEROPTERA			
CAENIS SP.		--	--
INSECTA - ODONATA			
PERITHEMIS TENERA SEMINOLE		--	--
INSECTA - COLEOPTERA			
CELINA HUBBELLI		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS SP.		--	--
COELOTANYPUS SP.		--	--
COELOTANYPUS TRICOLOR		--	--
CRYPTOCHIRONOMUS SP.		--	--
DJALMABATISTA PULCHRA		--	--
EINFELDIA NATCHITOCHAEAE		--	--
POLYPEDILUM HALTERALE GROUP		--	--
POLYPEDILUM SCALAENUM GROUP		11	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
TANYTARSUS SP.		--	--
TANYTARSUS SP. L		--	--
INSECTA - DIPTERA - OTHER			
CHAOBORUS PUNCTIPENNIS		--	--
INSECTA - TRICHOPTERA			
OECETIS SP.		--	--
MOLLUSCA - GASTROPODA			
HYDROBIIDAE (LPIL)		--	--
LITTORIDINOPS SP.		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

NUMBER PER SQUARE METER

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
MACOMA TENTA		32	--
MYTILOPSIS LEUCOPHAEATA		--	--
RANGIA CUNEATA		--	--
TOTAL NUMBER OF ORGANISMS		453	896
NUMBER OF TAXA		10	15

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
NEMERTEA										
NEMERTEA (LPIL)		--	--	--	--	--	--	--	27.9	--
POLYCHAETA - CAPITELLIDAE										
CAPITELLA CAPITATA		--	--	--	--	--	--	--	--	--
HETEROMASTUS FILIFORMIS		--	--	--	--	--	--	--	--	--
MEDIOMASTUS CALIFORNIENSIS		--	--	--	--	--	--	--	--	--
POLYCHAETA - MALDANIDAE										
SABACO AMERICANUS		--	--	--	--	--	--	--	--	--
POLYCHAETA - NEREIDAE										
LAONEREIS CULVERI		--	--	--	--	--	--	--	--	--
NEANTHES SUCCINEA		--	--	--	--	--	--	--	--	--
POLYCHAETA - ORBINIIDAE										
ORBINIIDAE (LPIL)		--	--	--	--	--	--	--	--	--
SCOLOPLOS RUBRA		--	--	--	--	--	--	--	--	--
POLYCHAETA - PHYLLODOCIDAE										
ETEONE HETEROPODA		--	--	--	--	--	--	--	--	--
POLYCHAETA - SPIONIDAE										
MARENZELLERIA VIRIDIS		--	--	--	--	--	--	--	--	--
SPIONIDAE (LPIL)		--	2.0	--	--	--	--	--	--	--
STREBLOSPIO SP.		--	--	--	--	--	--	--	--	--
POLYCHAETA										
POLYCHAETA (LPIL)		--	--	6.3	--	--	--	--	--	--
OLIGOCHAETA - TUBIFICIDAE										
AULODRILUS PIGUETI		--	--	--	--	--	--	--	--	--
CF. TUBIFICOIDES SP.		--	--	6.3	--	--	--	--	11.9	--
LIMNODRILUS HOFFMEISTERI		--	--	--	2.5	2.5	--	--	16.0	29.9
TUBIFICOIDES SP.		--	--	--	--	--	--	--	--	--
CRUSTACEA - MYSIDACEA										
AMERICAMYSIS BIGELOWI		--	--	--	--	1.3	--	--	--	--



BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
DECAPODA - XANTHIDAE										
RHITHROPANOPEUS HARRISII		--	5.7	--	--	--	--	--	4.1	--
CRUSTACEA - CUMACEA										
CYCLASPIS VARIANS		--	--	--	--	--	--	--	--	--
INSECTA - EPHEMEROPTERA										
CAENIS SP.		--	--	--	2.5	--	--	--	--	--
INSECTA - ODONATA										
PERITHEMIS TENERA SEMINOLE		--	--	--	--	--	--	--	--	--
INSECTA - COLEOPTERA										
CELINA HUBBELLI		--	--	6.3	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
CHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
COELOTANYPUS SP.		2.8	57.8	--	53.6	8.7	42.4	--	--	17.9
COELOTANYPUS TRICOLOR		--	--	--	--	--	--	--	--	11.9
CRYPTOCHIRONOMUS SP.		--	--	--	--	--	--	--	--	--
DJALMABATISTA PULCHRA		11.1	--	--	--	2.5	--	--	--	--
EINFELDIA NATCHITOCHEAE		--	--	--	--	--	--	--	--	--
POLYPEDILUM HALTERALE GROUP		19.3	--	--	--	2.5	21.1	--	4.1	--
POLYPEDILUM SCALAENUM GROUP		--	--	6.3	--	--	--	--	--	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--	--	--	--	--	--	--	4.4
TANYTARSUS SP.		--	--	--	--	--	--	--	--	--
TANYTARSUS SP. L		38.8	--	--	--	--	--	--	--	--
INSECTA - DIPTERA - OTHER										
CHAOBORUS PUNCTIPENNIS		--	--	--	--	--	3.1	--	--	--
INSECTA - TRICHOPTERA										
OECETIS SP.		--	--	--	--	--	--	--	--	--
MOLLUSCA - GASTROPODA										
HYDROBIIDAE (LPIL)		--	--	6.3	--	37.4	--	--	--	--
LITTORIDINOPS SP.		--	--	--	19.5	--	--	--	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		2.8	--	--	--	--	--	--	--	--
MACOMA TENTA		--	--	--	--	--	--	100.0	36.1	--
MYTILOPSIS LEUCOPHAEATA		--	5.7	--	--	12.5	3.1	--	--	22.4
RANGIA CUNEATA		--	--	--	19.5	26.2	27.2	--	--	11.9
TOTAL		100	100	100	100	100	100	100	100	100
NUMBER OF TAXA		8	8	8	6	9	6	1	6	7







BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
MOLLUSCA - BIVALVIA										
BIVALVIA (LPIL)		--	--	--	--	--	--	--	--	--
MACOMA TENTA		--	--	--	--	--	--	--	--	3.6
MYTILOPSIS LEUCOPHAEATA		--	16.6	--	--	--	--	13.8	--	--
RANGIA CUNEATA		--	26.3	--	5.0	--	10.6	10.7	8.3	--
TOTAL		100	100	100	100	100	100	100	100	100
NUMBER OF TAXA		10	7	3	7	1	4	9	3	8

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
NEMERTEA			
NEMERTEA (LPIL)		2.4	9.6
POLYCHAETA - CAPITELLIDAE			
CAPITELLA CAPITATA		--	1.2
HETEROMASTUS FILIFORMIS		28.5	--
MEDIOMASTUS CALIFORNIENSIS		--	3.6
POLYCHAETA - MALDANIDAE			
SABACO AMERICANUS		--	2.5
POLYCHAETA - NEREIDAE			
LAONEREIS CULVERI		--	--
NEANTHES SUCCINEA		9.5	--
POLYCHAETA - ORBINIIDAE			
ORBINIIDAE (LPIL)		--	2.5
SCOLOPLOS RUBRA		--	2.5
POLYCHAETA - PHYLLODOCIDAE			
ETEONE HETEROPODA		--	1.2
POLYCHAETA - SPIONIDAE			
MARENZELLERIA VIRIDIS		2.4	--
SPIONIDAE (LPIL)		--	--
STREBLOSPIO SP.		11.9	15.6
POLYCHAETA			
POLYCHAETA (LPIL)		--	--
OLIGOCHAETA - TUBIFICIDAE			
AULODRILUS PIGUETI		--	--
CF. TUBIFICOIDES SP.		--	--
LIMNODRILUS HOFFMEISTERI		--	--
TUBIFICOIDES SP.		--	1.2
CRUSTACEA - MYSIDACEA			
AMERICAMYSIS BIGELOWI		--	1.2

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	DUNRO1	CLAP01
CONTINUED FROM PREVIOUS PAGE			
ISOPODA - IDOTEIDAE			
EDOTIA TRILOBA		--	--
AMPHIPODA - AMPELISCIDAE			
AMPELISCA SP.		--	10.8
CRUSTACEA - AMPHIPODA			
AMPHIPODA (LPIL)		--	3.6
CERAPUS BENTHOPHILUS		--	36.0
AMPHIPODA - AORIDAE			
GRANDIDIERELLA BONNIEROIDES		--	7.3
CRUSTACEA			
BALANUS SP. A		--	--
BALANUS SP. B		--	--
AMPHIPODA - COROPHIIDAE			
APOCOROPHIUM LACUSTRE		2.4	--
AMPHIPODA - GAMMARIDAE			
GAMMARUS SP.		--	--
AMPHIPODA - HAUSTORIIDAE			
CYATHURA POLITA		2.4	--
AMPHIPODA - OEDICEROTIDAE			
AMEROCULODES SP.		--	--
OEDICEROTIDAE (LPIL)		--	--
AMPHIPODA - MELITIDAE			
MELITA NITIDA		30.9	--
CRUSTACEA - DECAPODA			
DECAPODA (LPIL)		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
DECAPODA - XANTHIDAE			
RHITHROPANOPEUS HARRISII		--	--
CRUSTACEA - CUMACEA			
CYCLASPIS VARIANS		--	1.2
INSECTA - EPHEMEROPTERA			
CAENIS SP.		--	--
INSECTA - ODONATA			
PERITHEMIS TENERA SEMINOLE		--	--
INSECTA - COLEOPTERA			
CELINA HUBBELLI		--	--
INSECTA - DIPTERA - CHIRONOMIDAE			
CHIRONOMUS SP.		--	--
COELOTANYPUS SP.		--	--
COELOTANYPUS TRICOLOR		--	--
CRYPTOCHIRONOMUS SP.		--	--
DJALMABATISTA PULCHRA		--	--
EINFELDIA NATCHITOCHEAE		--	--
POLYPEDILUM HALTERALE GROUP		--	--
POLYPEDILUM SCALAENUM GROUP		2.4	--
PROCLADIUS (HOLOTANYPUS) SP.		--	--
TANYTARSUS SP.		--	--
TANYTARSUS SP. L		--	--
INSECTA - DIPTERA - OTHER			
CHAOBORUS PUNCTIPENNIS		--	--
INSECTA - TRICHOPTERA			
OECETIS SP.		--	--
MOLLUSCA - GASTROPODA			
HYDROBIIDAE (LPIL)		--	--
LITTORIDINOPS SP.		--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

PERCENT BY DENSITY

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01
CONTINUED FROM PREVIOUS PAGE			
MOLLUSCA - BIVALVIA			
BIVALVIA (LPIL)		--	--
MACOMA TENTA		7.1	--
MYTILOPSIS LEUCOPHAEATA		--	--
RANGIA CUNEATA		--	--
TOTAL		100	100
NUMBER OF TAXA		10	15

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

STATION INDICES

Station	SHANNON-WIENER DIVERSITY BASE 2	PIELOU'S EVENNESS (H/Hmax)
RACY01	2.488	0.829
MAND02	2.064	0.688
HOSP02	2.217	0.739
ORAN02	1.794	0.694
PUER01	2.448	0.772
GRNC02	1.970	0.762
DRLK01	0.000	0.000
TROT02	2.207	0.854
PALM01	2.472	0.880
GDBY01	2.368	0.713
JULC01	2.465	0.878
PTLV01	1.379	0.870
SSID02	2.117	0.754
PIRC01	0.000	0.000
SNAS02	0.922	0.461
MOCC02	2.160	0.681
BOLL02	1.041	0.657
BROW01	2.579	0.860
DUNR01	2.643	0.795
CLAP01	3.016	0.772

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
<b>NEMERTEA</b>										
Number of Taxa		--	--	--	--	--	--	--	1	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	75	--
Organisms % All Stations		--	--	--	--	--	--	--	30	--
Organisms % This Station		--	--	--	--	--	--	--	28	--
<b>POLYCHAETA - CAPITELLIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - MALDANIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - NEREIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - ORBINIIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - PHYLLODOCIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - SPIONIDAE</b>										
Number of Taxa		--	1	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	11	--	--	--	--	--	--	--
Organisms % All Stations		--	2	--	--	--	--	--	--	--
Organisms % This Station		--	2	--	--	--	--	--	--	--
<b>POLYCHAETA</b>										
Number of Taxa		--	--	1	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	11	--	--	--	--	--	--
Organisms % All Stations		--	--	100	--	--	--	--	--	--
Organisms % This Station		--	--	6	--	--	--	--	--	--
<b>OLIGOCHAETA - TUBIFICIDAE</b>										
Number of Taxa		--	--	1	1	1	--	--	2	1
NUMBER PER SQUARE METER		--	--	11	11	22	--	--	75	216
Organisms % All Stations		--	--	2	2	4	--	--	15	43
Organisms % This Station		--	--	6	2	3	--	--	28	30



BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
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 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
AMPHIPODA - OEDICEROTIDAE										
Number of Taxa		1	1	1	1	1	1	--	--	--
NUMBER PER SQUARE METER		54	75	97	11	54	11	--	--	--
Organisms % All Stations		6	8	10	1	6	1	--	--	--
Organisms % This Station		14	13	56	2	6	3	--	--	--
AMPHIPODA - MELITIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
CRUSTACEA - DECAPODA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
DECAPODA - XANTHIDAE										
Number of Taxa		--	1	--	--	--	--	--	1	--
NUMBER PER SQUARE METER		--	32	--	--	--	--	--	11	--
Organisms % All Stations		--	74	--	--	--	--	--	26	--
Organisms % This Station		--	6	--	--	--	--	--	4	--
CRUSTACEA - CUMACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - EPHEMEROPTERA										
Number of Taxa		--	--	--	1	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	11	--	--	--	--	--
Organisms % All Stations		--	--	--	100	--	--	--	--	--
Organisms % This Station		--	--	--	2	--	--	--	--	--
INSECTA - ODONATA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - COLEOPTERA										
Number of Taxa		--	--	1	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	11	--	--	--	--	--	--
Organisms % All Stations		--	--	100	--	--	--	--	--	--
Organisms % This Station		--	--	6	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
Number of Taxa		4	1	1	1	3	2	--	1	3
NUMBER PER SQUARE METER		280	323	11	237	119	226	--	11	247
Organisms % All Stations		12	14	0	10	5	10	--	0	11
Organisms % This Station		72	58	6	54	14	63	--	4	34

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
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 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	RACY01	MAND02	HOSP02	ORAN02	PUER01	GRNC02	DRLK01	TROT02	PALM01
CONTINUED FROM PREVIOUS PAGE										
INSECTA - DIPTERA - OTHER										
Number of Taxa		--	--	--	--	--	1	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	11	--	--	--
Organisms % All Stations		--	--	--	--	--	100	--	--	--
Organisms % This Station		--	--	--	--	--	3	--	--	--
INSECTA - TRICHOPTERA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
MOLLUSCA - GASTROPODA										
Number of Taxa		--	--	1	1	1	--	--	--	--
NUMBER PER SQUARE METER		--	--	11	86	323	--	--	--	--
Organisms % All Stations		--	--	1	11	40	--	--	--	--
Organisms % This Station		--	--	6	19	37	--	--	--	--
MOLLUSCA - BIVALVIA										
Number of Taxa		1	1	--	1	2	2	1	1	2
NUMBER PER SQUARE METER		11	32	--	86	334	108	11	97	248
Organisms % All Stations		1	2	--	6	23	7	1	7	17
Organisms % This Station		3	6	--	19	39	30	100	36	34
SUMMARY TOTALS FOR STATIONS										
Number of Taxa		8	8	8	6	9	6	1	6	7
NUMBER PER SQUARE METER		389	559	174	442	863	356	11	269	722
Organisms % All Stations		5	7	2	5	10	4	0	3	9

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
<b>NEMERTEA</b>										
Number of Taxa		1	--	--	--	--	--	--	--	1
NUMBER PER SQUARE METER		11	--	--	--	--	--	--	--	65
Organisms % All Stations		4	--	--	--	--	--	--	--	26
Organisms % This Station		3	--	--	--	--	--	--	--	21
<b>POLYCHAETA - CAPITELLIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	1
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	54
Organisms % All Stations		--	--	--	--	--	--	--	--	24
Organisms % This Station		--	--	--	--	--	--	--	--	18
<b>POLYCHAETA - MALDANIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - NEREIDAE</b>										
Number of Taxa		--	--	--	1	--	--	1	--	1
NUMBER PER SQUARE METER		--	--	--	54	--	--	22	--	32
Organisms % All Stations		--	--	--	36	--	--	15	--	21
Organisms % This Station		--	--	--	9	--	--	3	--	11
<b>POLYCHAETA - ORBINIIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - PHYLLODOCIDAE</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>POLYCHAETA - SPIONIDAE</b>										
Number of Taxa		--	--	1	1	--	--	1	--	--
NUMBER PER SQUARE METER		--	--	11	280	--	--	22	--	--
Organisms % All Stations		--	--	2	53	--	--	4	--	--
Organisms % This Station		--	--	14	44	--	--	3	--	--
<b>POLYCHAETA</b>										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
<b>OLIGOCHAETA - TUBIFICIDAE</b>										
Number of Taxa		1	2	--	--	--	1	1	--	1
NUMBER PER SQUARE METER		11	97	--	--	--	11	11	--	22
Organisms % All Stations		2	19	--	--	--	2	2	--	4
Organisms % This Station		3	21	--	--	--	4	2	--	7

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
CRUSTACEA - MYSIDACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
ISOPODA - IDOTEIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - AMPELISCIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
CRUSTACEA - AMPHIPODA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - AORIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
CRUSTACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
AMPHIPODA - COROPHIIDAE										
Number of Taxa		1	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		11	--	--	--	--	--	--	--	--
Organisms % All Stations		50	--	--	--	--	--	--	--	--
Organisms % This Station		3	--	--	--	--	--	--	--	--
AMPHIPODA - GAMMARIDAE										
Number of Taxa		--	--	--	1	--	--	1	--	--
NUMBER PER SQUARE METER		--	--	--	11	--	--	43	--	--
Organisms % All Stations		--	--	--	17	--	--	66	--	--
Organisms % This Station		--	--	--	2	--	--	6	--	--
AMPHIPODA - HAUSTORIIDAE										
Number of Taxa		--	--	--	--	--	--	1	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	11	--	--
Organisms % All Stations		--	--	--	--	--	--	25	--	--
Organisms % This Station		--	--	--	--	--	--	2	--	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
AMPHIPODA - OEDICEROTIDAE										
Number of Taxa		--	1	1	1	--	1	1	--	1
NUMBER PER SQUARE METER		--	22	43	172	--	11	388	--	11
Organisms % All Stations		--	2	5	18	--	1	41	--	1
Organisms % This Station		--	5	57	27	--	4	55	--	4
AMPHIPODA - MELITIDAE										
Number of Taxa		--	--	--	--	--	--	1	--	1
NUMBER PER SQUARE METER		--	--	--	--	--	--	32	--	97
Organisms % All Stations		--	--	--	--	--	--	12	--	36
Organisms % This Station		--	--	--	--	--	--	5	--	32
CRUSTACEA - DECAPODA										
Number of Taxa		--	--	--	--	--	--	--	--	1
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	11
Organisms % All Stations		--	--	--	--	--	--	--	--	100
Organisms % This Station		--	--	--	--	--	--	--	--	4
DECAPODA - XANTHIDAE										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
CRUSTACEA - CUMACEA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - EPHEMEROPTERA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - ODONATA										
Number of Taxa		1	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		11	--	--	--	--	--	--	--	--
Organisms % All Stations		100	--	--	--	--	--	--	--	--
Organisms % This Station		3	--	--	--	--	--	--	--	--
INSECTA - COLEOPTERA										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - DIPTERA - CHIRONOMIDAE										
Number of Taxa		5	2	1	2	1	1	--	1	--
NUMBER PER SQUARE METER		270	140	22	86	22	248	--	86	--
Organisms % All Stations		12	6	1	4	1	11	--	4	--
Organisms % This Station		78	31	29	14	100	82	--	17	--

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	GDBY01	JULC01	PTLV01	SSID02	PIRC01	SNAS02	MOCC02	BOLL02	BROW01
CONTINUED FROM PREVIOUS PAGE										
INSECTA - DIPTERA - OTHER										
Number of Taxa		--	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	--	--
Organisms % All Stations		--	--	--	--	--	--	--	--	--
Organisms % This Station		--	--	--	--	--	--	--	--	--
INSECTA - TRICHOPTERA										
Number of Taxa		1	--	--	--	--	--	--	--	--
NUMBER PER SQUARE METER		32	--	--	--	--	--	--	--	--
Organisms % All Stations		100	--	--	--	--	--	--	--	--
Organisms % This Station		9	--	--	--	--	--	--	--	--
MOLLUSCA - GASTROPODA										
Number of Taxa		--	--	--	--	--	--	--	1	--
NUMBER PER SQUARE METER		--	--	--	--	--	--	--	388	--
Organisms % All Stations		--	--	--	--	--	--	--	48	--
Organisms % This Station		--	--	--	--	--	--	--	75	--
MOLLUSCA - BIVALVIA										
Number of Taxa		--	2	--	1	--	1	2	1	1
NUMBER PER SQUARE METER		--	194	--	32	--	32	172	43	11
Organisms % All Stations		--	13	--	2	--	2	12	3	1
Organisms % This Station		--	43	--	5	--	11	25	8	4
SUMMARY TOTALS FOR STATIONS										
Number of Taxa		10	7	3	7	1	4	9	3	8
NUMBER PER SQUARE METER		346	453	76	635	22	302	701	517	303
Organisms % All Stations		4	5	1	7	0	4	8	6	4

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01	MEAN VALUES
<b>NEMERTEA</b>				
Number of Taxa		1	1	0
NUMBER PER SQUARE METER		11	86	12
Organisms % All Stations		4	35	--
Organisms % This Station		2	10	3
<b>POLYCHAETA - CAPITELLIDAE</b>				
Number of Taxa		1	2	0
NUMBER PER SQUARE METER		129	43	11
Organisms % All Stations		57	19	--
Organisms % This Station		28	5	3
<b>POLYCHAETA - MALDANIDAE</b>				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	22	1
Organisms % All Stations		--	100	--
Organisms % This Station		--	2	0
<b>POLYCHAETA - NEREIDAE</b>				
Number of Taxa		1	--	0
NUMBER PER SQUARE METER		43	--	8
Organisms % All Stations		28	--	--
Organisms % This Station		9	--	2
<b>POLYCHAETA - ORBINIIDAE</b>				
Number of Taxa		--	2	0
NUMBER PER SQUARE METER		--	44	2
Organisms % All Stations		--	100	--
Organisms % This Station		--	5	1
<b>POLYCHAETA - PHYLLODOCIDAE</b>				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	11	1
Organisms % All Stations		--	100	--
Organisms % This Station		--	1	0
<b>POLYCHAETA - SPIONIDAE</b>				
Number of Taxa		2	1	0
NUMBER PER SQUARE METER		65	140	26
Organisms % All Stations		12	26	--
Organisms % This Station		14	16	6
<b>POLYCHAETA</b>				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
<b>OLIGOCHAETA - TUBIFICIDAE</b>				
Number of Taxa		--	1	1
NUMBER PER SQUARE METER		--	11	25
Organisms % All Stations		--	2	--
Organisms % This Station		--	1	6

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01	MEAN VALUES
CONTINUED FROM PREVIOUS PAGE				
CRUSTACEA - MYSIDACEA				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	11	1
Organisms % All Stations		--	50	--
Organisms % This Station		--	1	0
ISOPODA - IDOTEIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
AMPHIPODA - AMPELISCIDAE				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	97	5
Organisms % All Stations		--	100	--
Organisms % This Station		--	11	1
CRUSTACEA - AMPHIPODA				
Number of Taxa		--	2	0
NUMBER PER SQUARE METER		--	355	20
Organisms % All Stations		--	89	--
Organisms % This Station		--	40	5
AMPHIPODA - AORIDAE				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	65	3
Organisms % All Stations		--	100	--
Organisms % This Station		--	7	1
CRUSTACEA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	4
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	1
AMPHIPODA - COROPHIIDAE				
Number of Taxa		1	--	0
NUMBER PER SQUARE METER		11	--	1
Organisms % All Stations		50	--	--
Organisms % This Station		2	--	0
AMPHIPODA - GAMMARIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	3
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	1
AMPHIPODA - HAUSTORIIDAE				
Number of Taxa		1	--	0
NUMBER PER SQUARE METER		11	--	2
Organisms % All Stations		25	--	--
Organisms % This Station		2	--	1

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

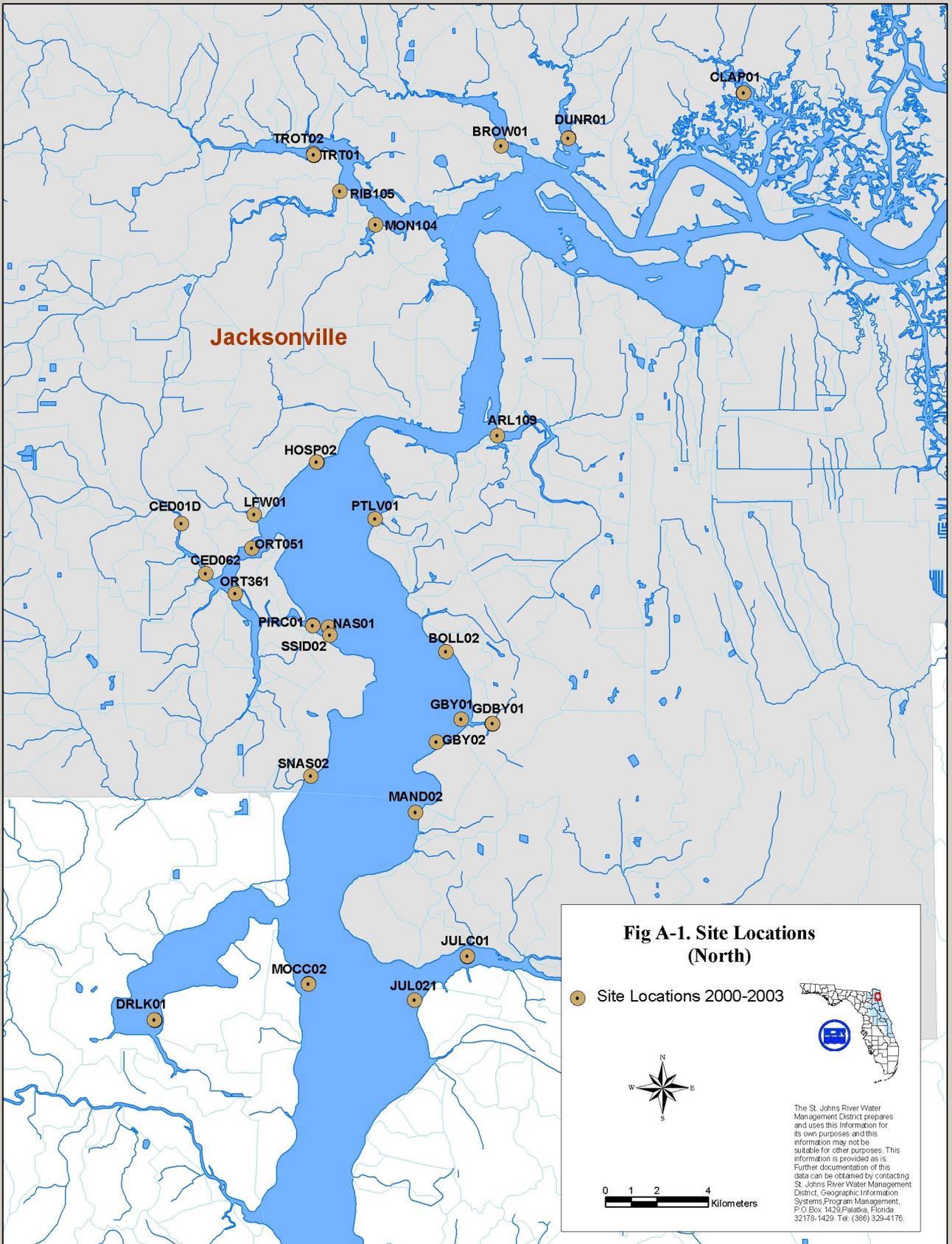
SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01	MEAN VALUES
CONTINUED FROM PREVIOUS PAGE				
AMPHIPODA - OEDICEROTIDAE				
Number of Taxa		--	--	1
NUMBER PER SQUARE METER		--	--	47
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	11
AMPHIPODA - MELITIDAE				
Number of Taxa		1	--	0
NUMBER PER SQUARE METER		140	--	13
Organisms % All Stations		52	--	--
Organisms % This Station		31	--	3
CRUSTACEA - DECAPODA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
DECAPODA - XANTHIDAE				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	2
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	1
CRUSTACEA - CUMACEA				
Number of Taxa		--	1	0
NUMBER PER SQUARE METER		--	11	1
Organisms % All Stations		--	100	--
Organisms % This Station		--	1	0
INSECTA - EPHEMEROPTERA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
INSECTA - ODONATA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
INSECTA - COLEOPTERA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
INSECTA - DIPTERA - CHIRONOMIDAE				
Number of Taxa		1	--	2
NUMBER PER SQUARE METER		11	--	117
Organisms % All Stations		0	--	--
Organisms % This Station		2	--	28

BENTHIC MACROINVERTEBRATE DATA, LOWER ST. JOHNS RIVER BASIN, FLORIDA  
 PETITE PONAR SAMPLES COLLECTED OCTOBER, 2002 - AUGUST, 2003  
 COLLAPSED DATA

SUMMARY TABLE

TAXONOMIC CLASSIFICATION	Station	DUNR01	CLAP01	MEAN VALUES
CONTINUED FROM PREVIOUS PAGE				
INSECTA - DIPTERA - OTHER				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	1
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
INSECTA - TRICHOPTERA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	2
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	0
MOLLUSCA - GASTROPODA				
Number of Taxa		--	--	0
NUMBER PER SQUARE METER		--	--	40
Organisms % All Stations		--	--	--
Organisms % This Station		--	--	10
MOLLUSCA - BIVALVIA				
Number of Taxa		1	--	1
NUMBER PER SQUARE METER		32	--	72
Organisms % All Stations		2	--	--
Organisms % This Station		7	--	17
SUMMARY TOTALS FOR STATIONS				
Number of Taxa		10	15	7
NUMBER PER SQUARE METER		453	896	424
Organisms % All Stations		5	11	--



**Jacksonville**

**Fig A-1. Site Locations (North)**

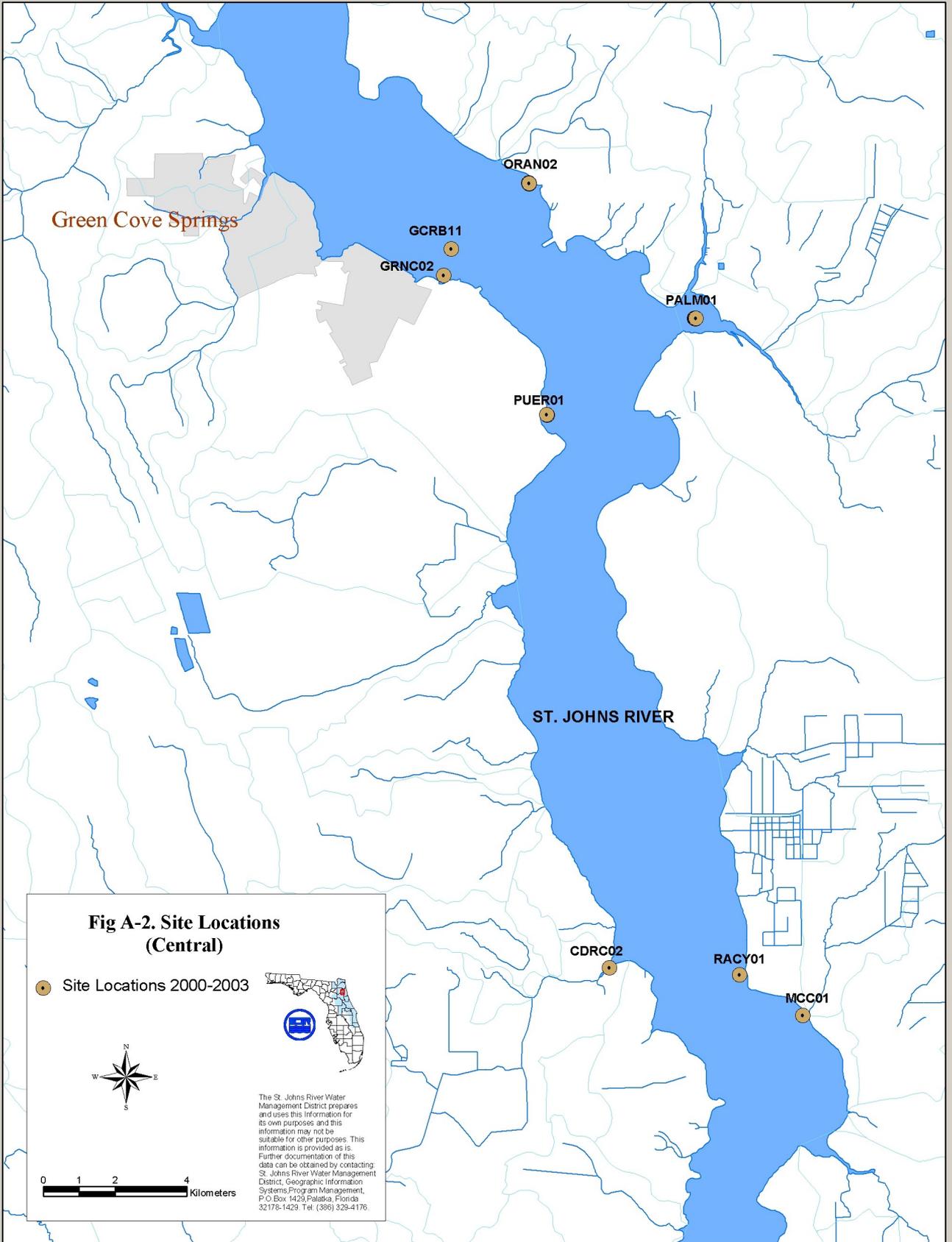
● Site Locations 2000-2003

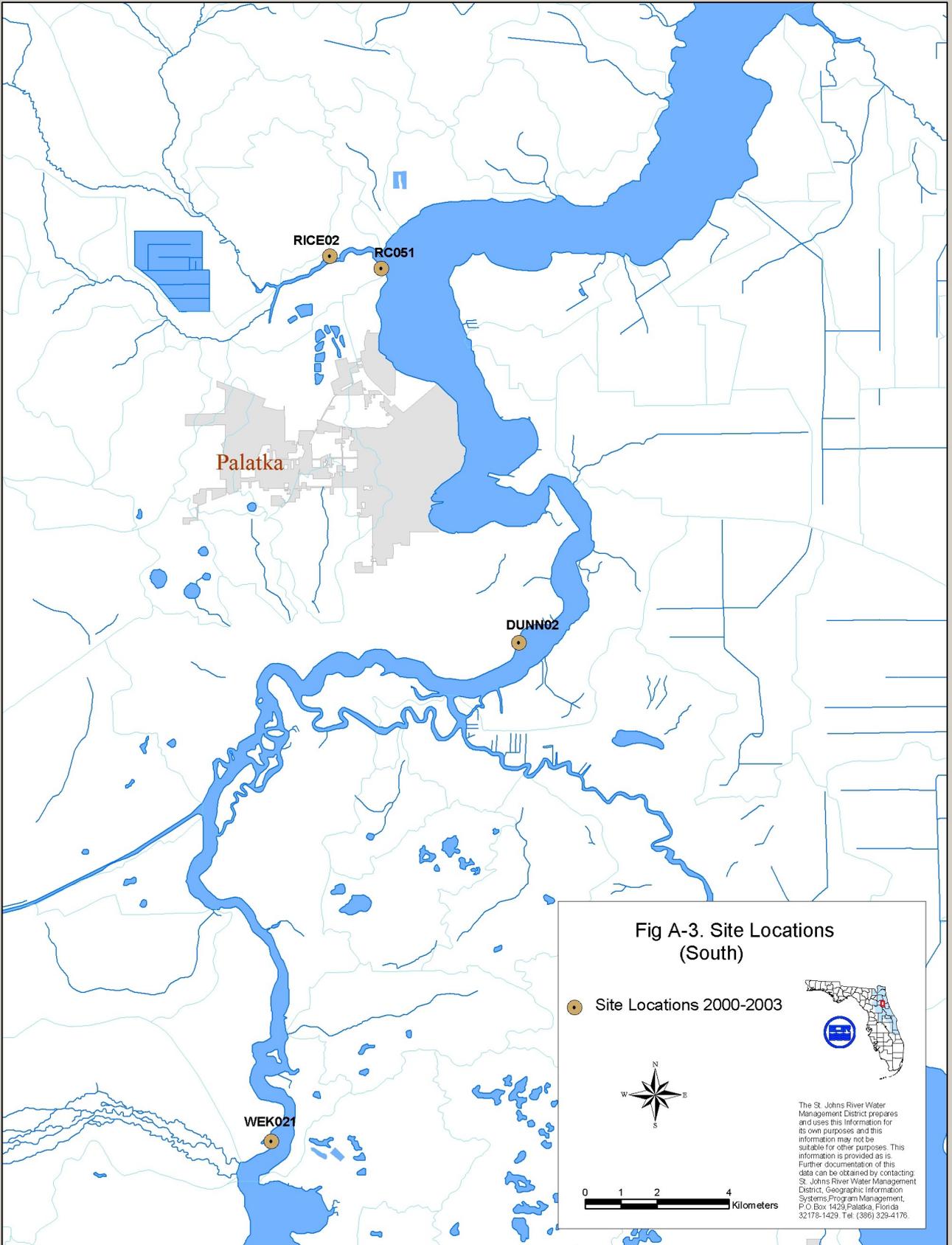


0 1 2 4 Kilometers



The St. Johns River Water Management District prepares and uses this information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting St. Johns River Water Management District, Geographic Information Systems, Program Management, P.O. Box 1429 Palatka, Florida 32178-1429. Tel. (386) 329-4176.





**Fig A-3. Site Locations (South)**

● Site Locations 2000-2003



0 1 2 4  
Kilometers

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