Canals in South Florida: A Technical Support Document

Appendix D

Summaries of Macroinvertebrate Studies

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Canal Science Inventory

Overview and Preliminary Analysis

FDEP Bioassessment Program – Stream Macroinvertebrate Data

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January 5, 2010

The Florida Department of Environmental Protection (FDEP) established its current Bioassessment Program for stream macroinvertebrates in the early 1990s[1]. Standard protocols have been developed for sample collection, processing, and reporting macroinvertebrate data. The database includes a total of 2313 unique sites, some sampled annually for trends, and including 53 minimally disturbed reference sites covering most of the state down to Lake Okeechobee. The state has been divided into 13 ecoregions with similar climatic and physiographic (topography, geology) characteristics using U.S. Environmental Protection Agency (USEPA) methods (Omernik 1987) (**Figure D-1**). The reference site data were used to lump ecoregions into 3 bioregions with similar macroinvertebrate communities (Fore et al. 2007) (**Figure D-1**). Quality thresholds for 10 macroinvertebrate metrics and the combined Stream Condition Index (SCI) have been established by the FDEP. SCI thresholds have not been developed for the Everglades bioregion in the extreme southern portion of the state (south of Lake Okeechobee) due to the lack of reference stream sites in this area dominated by wetlands and canals.

Since 1993, FDEP has sampled 156 canal sites in the southern portion of the peninsula bioregion and within the Everglades bioregions (**Figure D-2**). Although there are no SCI thresholds for the Everglades bioregion, the data are useful for quantifying living resource condition. Other studies have documented macroinvertebrate communities in canals of South Florida using these protocols (Snyder et al. 1998, FDEP 2001, DeBusk and Grace 2009a, DeBusk and Grace 2009b). This document includes two analyses: (1) overview of the FDEP data on 156 canals in South Florida, and (2) assessment of the southernmost stream reference sites for development of thresholds for low gradient streams and canals.

Canals in South Florida

Macroinvertebrate, habitat, and water quality data have been collected for 156 canal sites since 1993 (**Figure D-2**). The sites were identified using the following criteria:

- area south of latitude 81° 18” N (approximately Orlando), including the southern portion of the peninsula bioregion and the entire Everglades bioregion
- engineered channels (natural channels not included)
- knowledge of the site and/or “canal” in the site nickname
- at least one macroinvertebrate sample

[1] http://www.dep.state.fl.us/water/bioassess/currproj.htm#Streams

There were 140 canals located in the peninsula bioregion and 16 canals in the Everglades bioregion (**Table D-1**). Macroinvertebrate metrics included 10 used to calculate SCI scores: number of total taxa, number of Ephemeroptera taxa, number of Trichoptera taxa, percent filterers, number of long-lived taxa, number of clinger taxa, percent dominant taxa, percent Tanytarsini taxa, number of sensitive taxa, and percent very tolerant individuals. The database also included three additional metrics (number of Chironomidae taxa, percent Diptera taxa, percent EPT (Ephemeroptera, Plecoptera and Trichoptera] taxa) and the name of the dominant taxon. Habitat data were collected at 93 sites with macroinvertebrate data. There were 14 habitat metrics used to calculate the habitat scores: channelization, substrate availability, substrate diversity, habitat smothering, velocity, bank stability (L+R), riparian zone vegetation (L+R), and riparian zone width (L+R). Water quality data were collected at 42 sites with macroinvertebrate data. Water quality parameters included physicochemical measures at most sites (temperature, DO, conductivity, pH, velocity), nutrients at most sites (NO_3/NO_2, TKN, NH_3, TOTN, OrthoP, TOTP), primary production measures at most sites (chlorophyll *a*, phaeophytin *a*, algal growth potential), and other measures at a small number of sites (e.g., metals, coliforms, sulfate, turbidity, color, TSS, salinity, hardness).

Table D-1. Number of sites and metrics where macroinvertebrate, habitat, and water quality data have been collected in canals by FDEP.

Measure	# Metrics	# Sites by Bioregion	
		Peninsula	Everglades
macroinvertebrate	14	140	16
habitat	14	95	2
macroinvertebrate + habitat	28	93	2
water quality *	60	40	2

*not all WQ parameters reported at all sites

The 156 canal sites across South Florida had a diverse community of macroinvertebrates with a mean total richness of 24.2 (+/- 9.1) taxa, mean Chironomidae richness of 8.2 (+/- 4.8) taxa, and mean EPT richness of 2.1 (+/- 1.7) taxa (**Figure D-3**). There was little difference in mean richness metrics between the two bioregions indicating that canal biota were not affected by their geographic location (**Figure D-3**). The macroinvertebrate community appeared to be affected by habitat quality with a weak but significant correlation between the FDEP SCI and habitat score. Correlations were higher ($r^2 = 0.34$; n = 22) using the 1992 SCI and lower ($r^2 = 0.05$; n = 18) using the 2007 SCI (**Figure D-4**). Correlations were very weak between richness metrics and habitat quality with r^2 values < 0.10 (**Figure D-5**). Further analysis of these data and additional metrics is under development.

<u>Reference Sites in South Florida</u>

Two analyses were completed using data available from FDEP reference stream sites sampled from 1992 through 2006. First, metric values were compared between the eastern (zone 1) and western (zone 2) portions of the peninsula bioregion to assess regional differences within the bioregion. These two zones represent different ecoregions and thus have different physiographic characteristics that may affect the macroinvertebrate community. Only sites in the southern portion of this bioregion were assessed to minimize the effect of latitude and associated climatic effects (**Figure D-6**). The North Fork of the Loxahatchee River (site NFRLOXREF) was identified as an additional reference site suitable for this analysis. Second, the data were plotted over time to identify trends and define inter-annual variability; most sites had one sample per year over the 14-year period of record. There was no change in sample collection or processing methods during this period. Only metrics were assessed for trends; SCI scores were not included because SCI metrics and scoring thresholds have changed over this period.

Mean total richness values were similar between zone 1 and zone 2 (**Figure D-7**, bottom panel) indicating that conditions were similar across this bioregion for this metric. This was not surprising for this broad metric because there are numerous species with a broad range of pollution tolerances. In contrast, mean EPT richness values were different between zones, with zone 1 having fewer EPT taxa (**Figure D-7**, top panel). These differences are likely due to the steeper gradients, higher velocities, and higher dissolved oxygen conditions in zone 2 streams. Most EPT taxa are sensitive to velocity and organic pollution and are the foundation for most stream assessment programs around the world. Variability as measured by standard deviation (+/1 SD) was high for both metrics at all sites (**Figure D-7**).

Downward trends for total richness (**Figure D-8**) and EPT richness (**Figure D-9**) were found at most sites. These trends may be due to climatic conditions rather than anthropogenic stressors because it occurred at several sites over a large geographic area. Hurricanes from 2004 through 2006 may have dropped metric scores due to flushing and scouring. Extremely high flows carry high sediment loads and can move bed material and woody debris that dislodges invertebrates. Many of these perceived trends also had weak regressions (r^2 values < 0.15) indicating that they may be due to the high variability in metric values noted above.

These results confirm that that further work is needed before applying SCI quality thresholds to South Florida canals, as indicated by the differences between reference sites within the southern portion of the peninsula bioregion. Further investigation of the effects of gradient and velocity may help to identify biological conditions applicable to canals. Reference sites within the Everglades bioregion are also needed.

Summary Conclusions

- Canals had a diverse community of macroinvertebrates as indicated using three richness metrics. Additional analysis of other metrics is underway.
  - mean total richness 24.2 (+/- 9.1) taxa; n = 156
  - mean Chironomidae richness 8.2 (+/- 4.8) taxa; n = 156
  - mean EPT richness 2.1 (+/- 1.7) taxa; n = 156
- The macroinvertebrate communities in canals were typical of lotic systems with lower gradients, deeper channels, and lower velocities compared to natural streams.
- For canal sites, there were no differences in mean richness metrics between the Everglades and peninsula bioregions, indicating that canal biota were similar across this large geographic area and two bioregions.
- Habitat quality appeared to be an important stressor in canals although variability was high making regressions weak.
- There were inadequate data to assess the effect of water quality on the macroinvertebrate communities in canals because only grab samples were taken on the day of macroinvertebrate sampling.
- For reference stream sites, there were no differences in total richness between sites in the eastern and western zones of the peninsula bioregion. There were substantial differences in EPT richness between the two zones, and they should be investigated further before applying the SCI metrics and thresholds to canals. The differences may be due to differences in gradient, depth and velocity.
- There were downward trends in most metric values at most reference stream sites over a 14-year period (1992-2006), indicating that the trends may be due to climatic events that exerted effects over a large geographic area. The variability in macroinvertebrate metric values at reference sites help explain the variability observed at all stream and canal sites in southern Florida.
- Additional research is needed to select sensitive metrics and quality threshold applicable to low gradient streams and canals within the peninsula and Everglades bioregions.

Acknowledgements

This report was prepared in support of the District's Canal Science Inventory project. The data were collected, processed, and managed by the FDEP Bioassessment Program. Russ Frydenborg provided overall project coordination with FDEP, and Joy Jackson and Elizabeth Miller compiled the data on canals. Rick Householder with the District prepared Figure 2.

References

DeBusk, T. and K. Grace. 2009a. Relationships between water column nutrients and macroinvertebrate assemblages in the Reedy Creek Drainage Basin, Central Florida. Prepared by DB Environmental, Inc. and Azurea, Inc., Rockledge FL, July 21, 2009, 49 pp.

DeBusk, T. and K. Grace. 2009b. Characteristics of Macroinvertebrate Populations in South Florida Canals. Prepared by DB Environmental, Inc., Rockledge, FL, December 15, 2009, 39 pp.

Florida Department of Environmental Protection (FDEP). Stream Macroinvertebrate Bioassessment Program. Published protocols and database, hundreds of stream and canal sites in 13 ecoregions and 3 Bioregions. http://www.dep.state.fl.us/water/bioassess/index.htm.

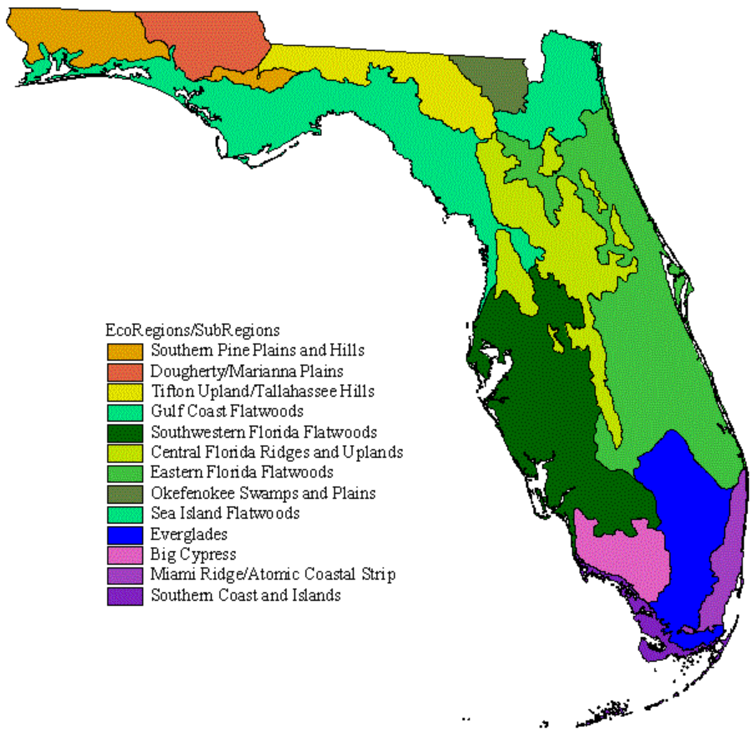
FDEP. Standard Operating Procedures (SOPs) for biological assessment: ftp://ftp.dep.state.fl.us/pub/labs/assessment/sopdoc/2008sops/lt7000.pdf

FDEP. 2001. An Investigation of canals in southwest Florida: relationships between biological health, water quality, and habitat. Division of Resource Assessment and Management, Bureau of Laboratories, 22 pages.

Fore, L., R.B. Frydenborg, D. Miller, T. Frick, D. Whiting, J. Espy, and L. Wolfe. 2007. Development and Testing of Biomonitoring Tools for Macroinvertebrates in Florida Streams. Florida Department of Environmental Protection. http://www.dep.state.fl.us/labs/library/index.htm

Omernik, J.M. 1987. Ecoregions of the Conterminous United States. *Annals of the Association of American Geographers* 77:118-125.

Snyder, B.D., Barbour, M.T., and Leppo, E.W. 1998. Development of a watershed-based approach for biomonitoring of fresh surface waters in coastal Florida canal systems. Prepared by Tetra Tech, Inc., Owings Mills Maryland, under contract with Metro-Dade Environmental Resources Management (DERM), 201 pages.



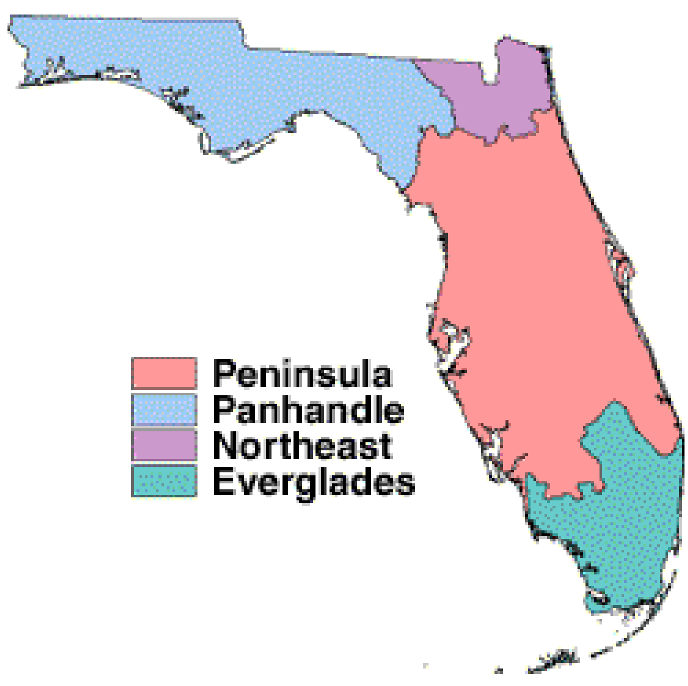


Figure D-1. Ecoregions (top) and bioregions (bottom) in Florida (FDEP).

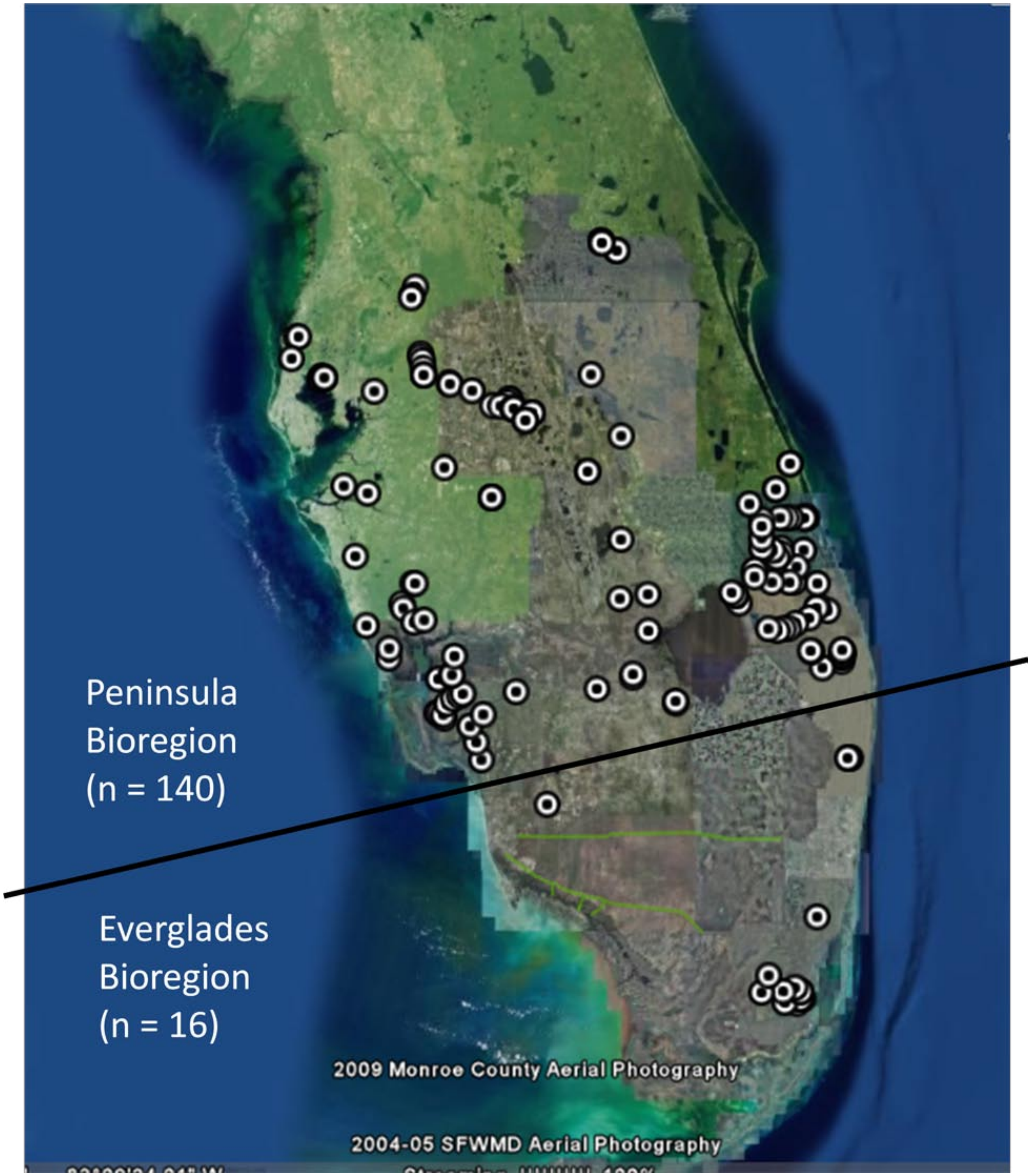


Figure D-2. Canal sites in two bioregions sampled for macroinvertebrates by FDEP.

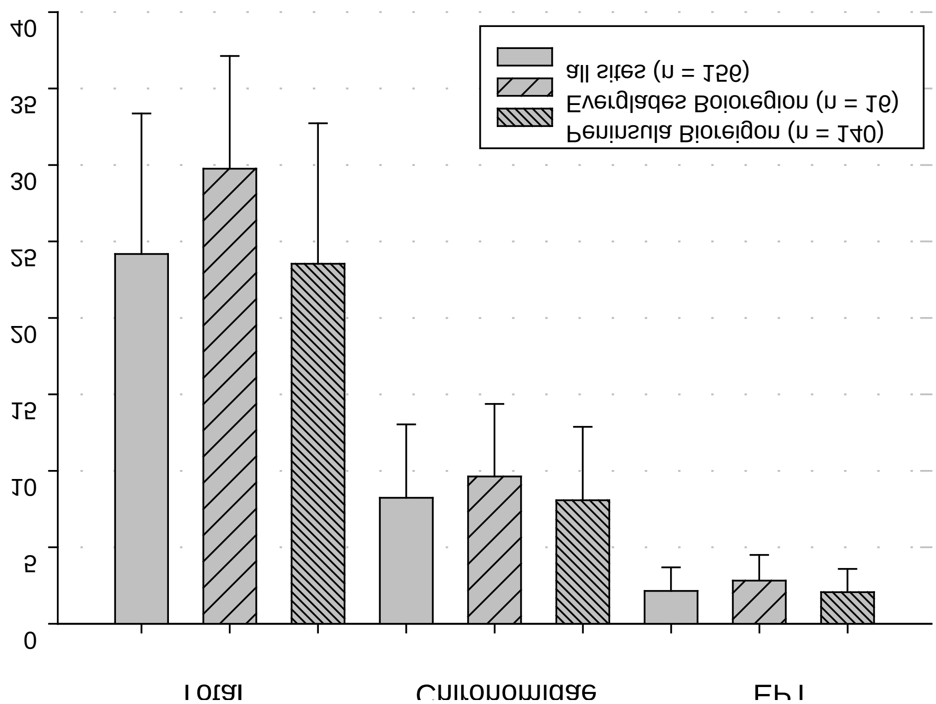


Figure D-3. Comparison of mean values (+/- 1 standard deviation) for 3 macroinvertebrate richness metrics between canal sites in the peninsula and Everglades bioregions, and for all canal sites combined.

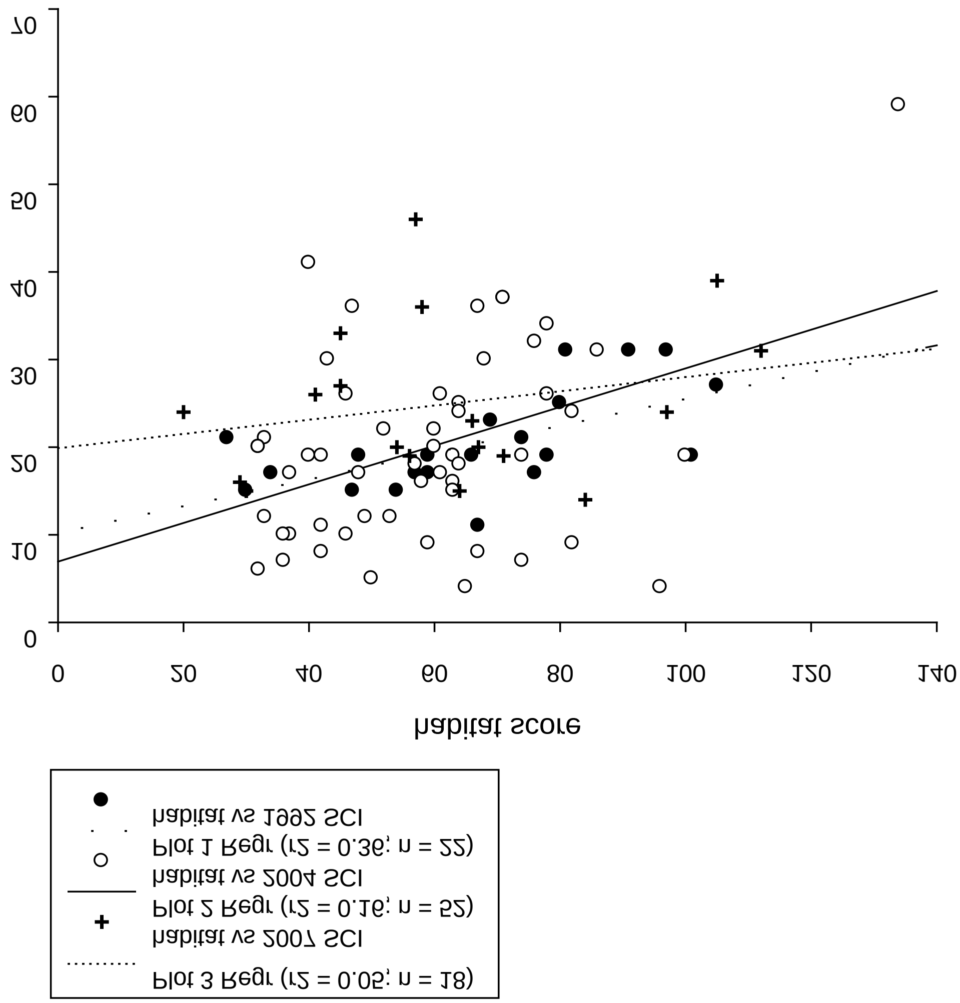


Figure D-4. Relationship between the macroinvertebrate community, as measured by the FDEP Stream Condtion Index (SCI), and habitat quality in South Florida canal sites; separate regressions provided using the 1992, 2004, and 2007 versions of the index.

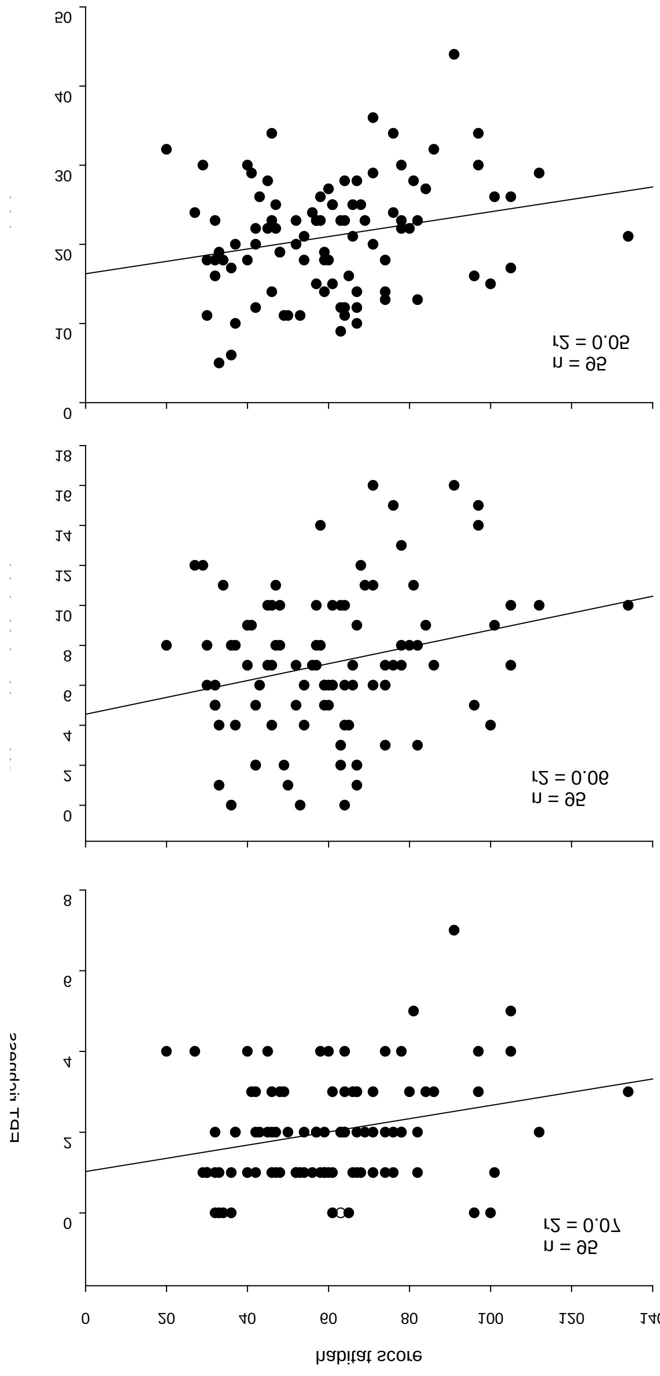


Figure D-5. Relationship between three macroinvertebrate richness metrics and habitat quality in South Florida canal sites.

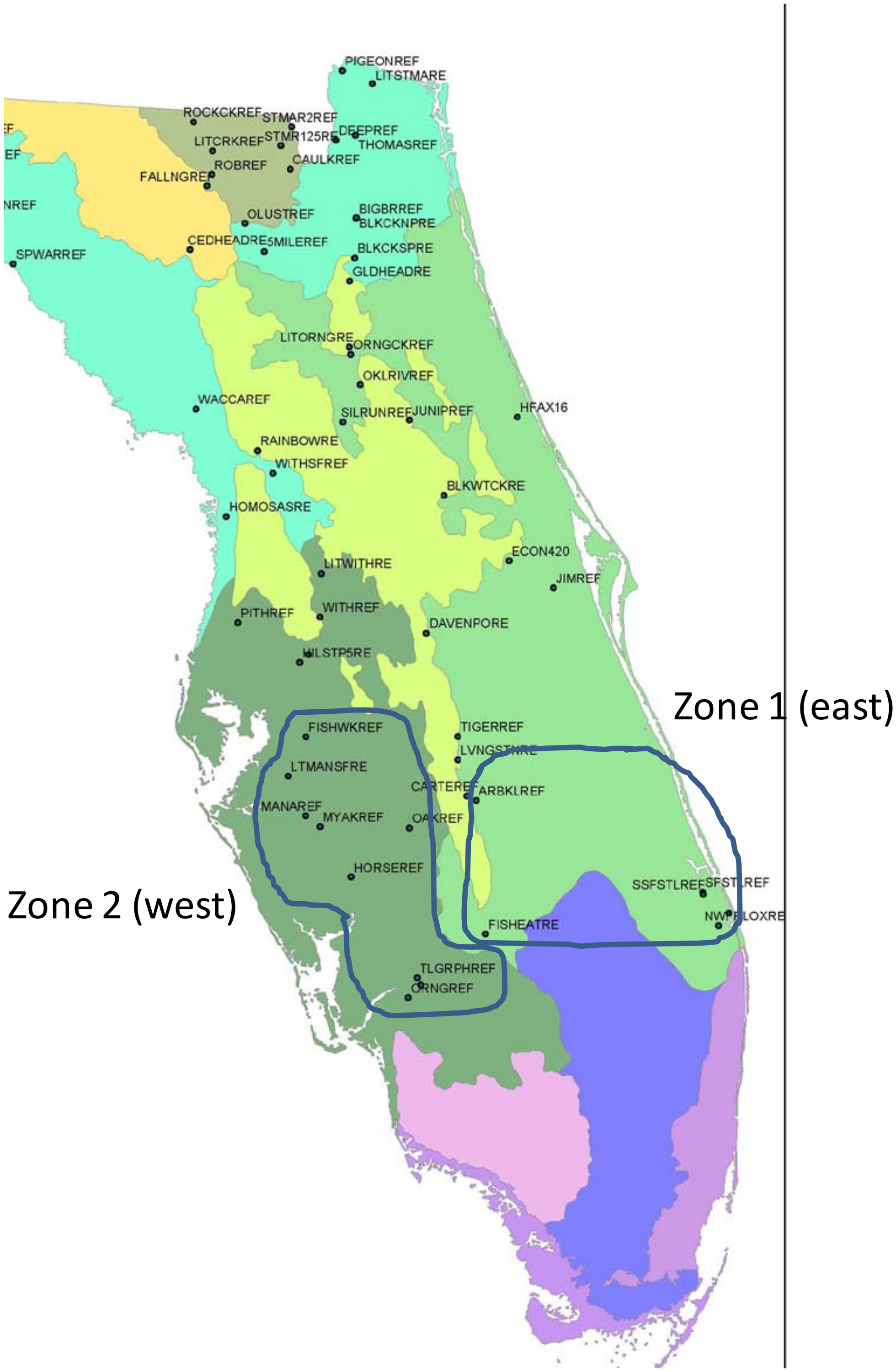


Figure D-6. FDEP reference sites used to develop the Stream Condition Index showing ecoregions (colors); the three ecoregions for the peninsula bioregion shown in light, medium, and dark green. Zone 1 and zone 2 selected to assess differences in macroinvertebrates within the bioregion. SCI thresholds have not been developed for the region south of Lake Okeechobee (blue and purples) due to the lack of reference sites.

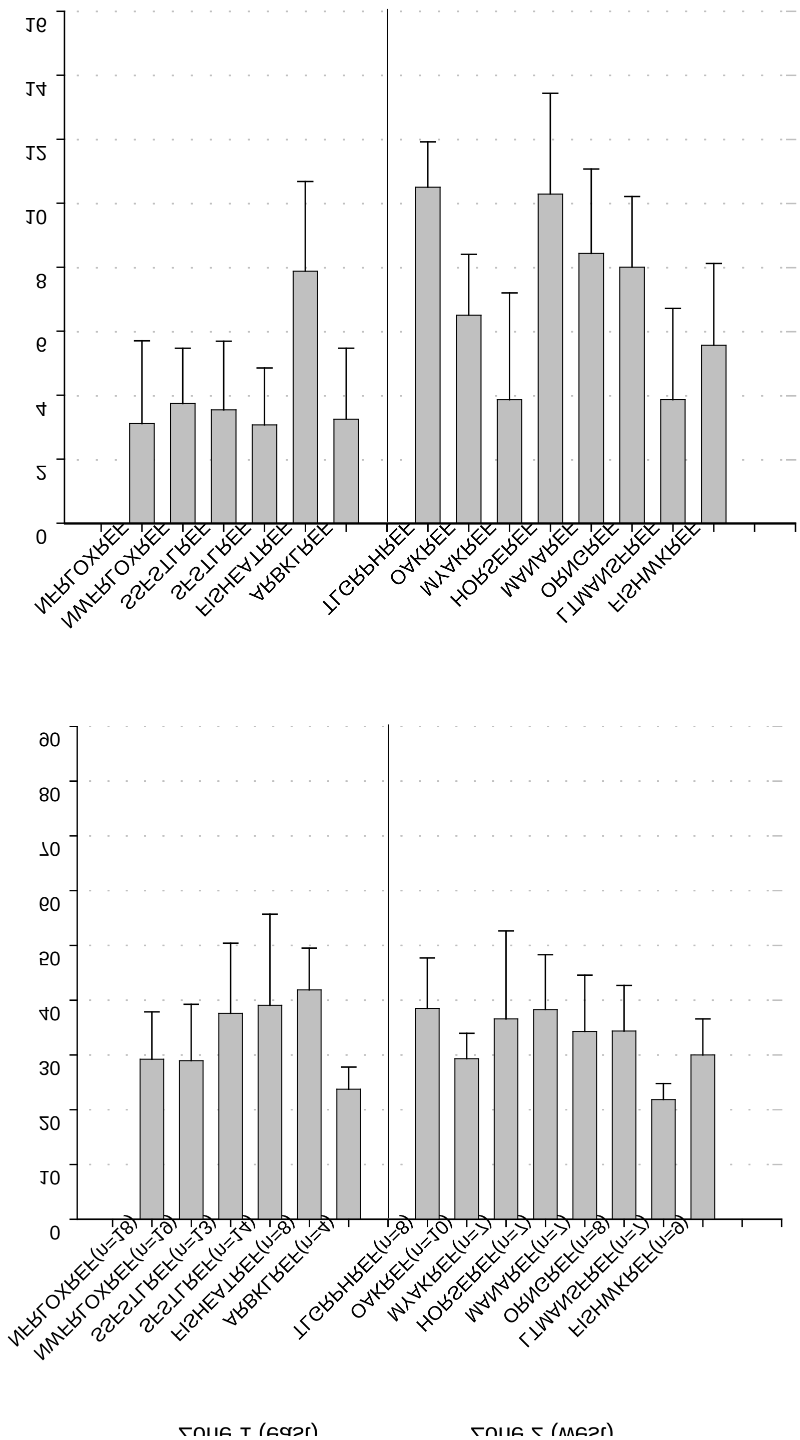


Figure D-7. Comparison of mean metric values (+/- 1 standard deviation) for total richness and EPT richness between zone 1 and zone 2 of the peninsula bioregion. Sites are stream reference sites in the FDEP database sampled 1992-2006 (see Figure D-6).

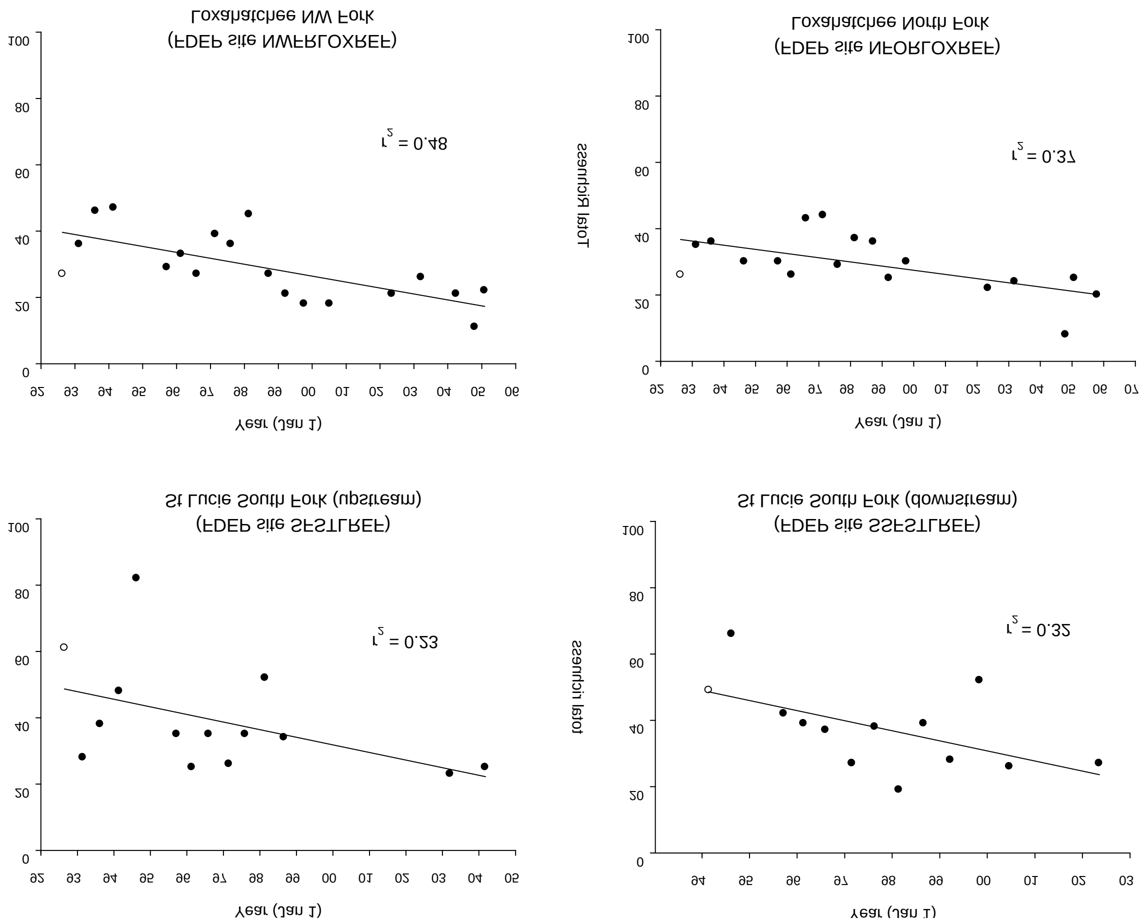


Figure D-8. Trends in total richness for four sites in zone 1 (east).

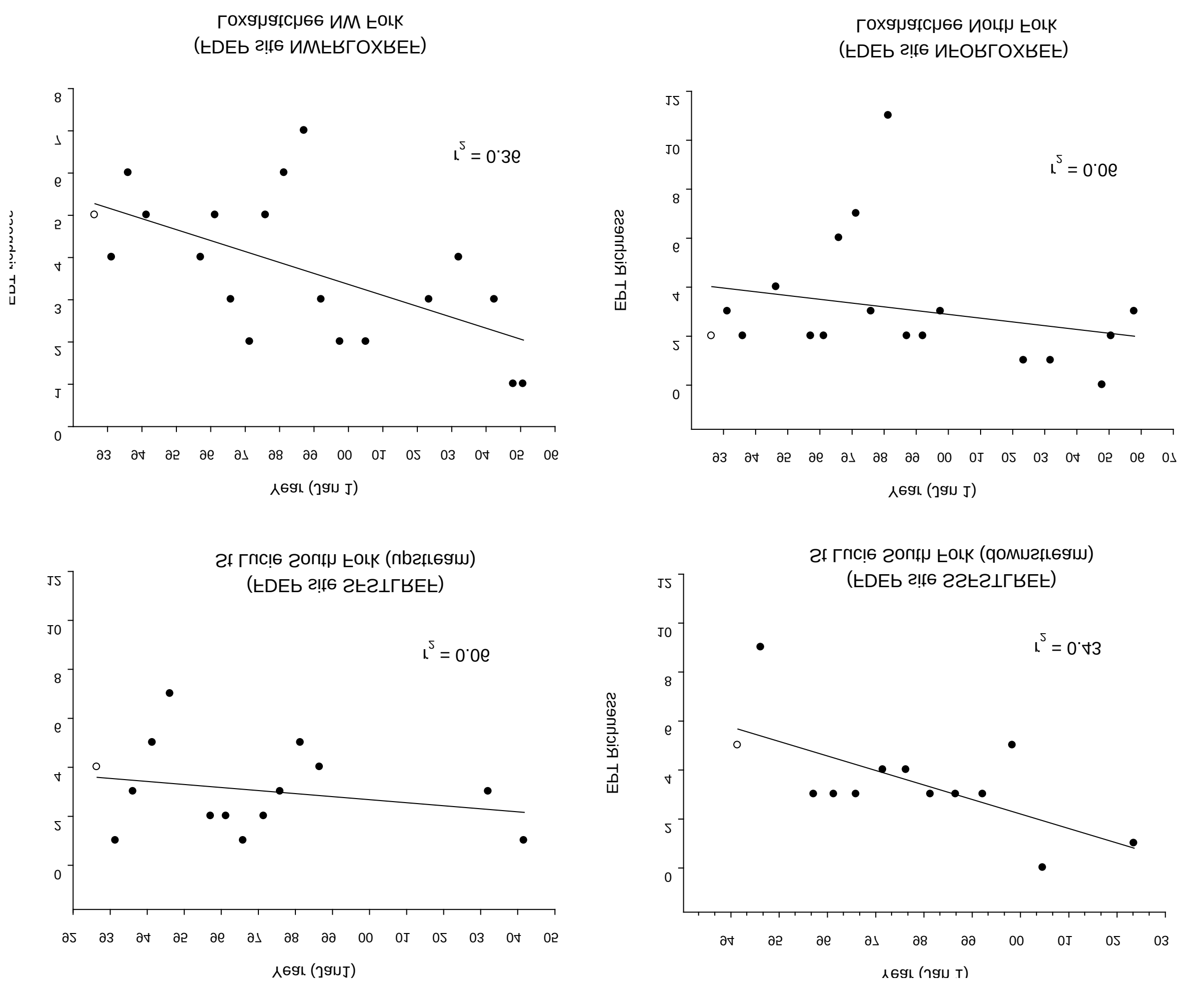


Figure D-9. Trends in EPT richness for four sites in zone 1 (east).

Canal Project – Report Summary

DB Environmental Inc. Report on Reedy Creek Drainage Basin

John Maxted

November 13, 2009

DeBusk, T. and K. Grace. 2009. Relationships between water column nutrients and macroinvertebrate assemblages in the Reedy Creek Drainage Basin, Central Florida. Prepared by DB Environmental, Inc. and Azurea, Inc., Rockledge, FL. July 21, 2009. 49 pp.

DeBusk and Grace (2009) examined the effects of improved water quality on the macroinvertebrate community at a single site (RC-14) on Reedy Creek near Orlando, Florida. Water quality, habitat, and macroinvertebrate data collected over a 26-year period (1980-2006) were used to assess the effects sewage treatment plant improvements in 1990. The mean annual total phosphorus (TP) concentration before 1990 was 266 µg/L compared to 75 µg/L after 1990; mean annual total nitrogen (TN) concentrations were 1.92 µg/L and 1.41 µg/L, respectively. The macroinvertebrate community showed little or no response to improved water quality. Five macroinvertebrate metrics (total richness, Ephemeroptera and Trichoptera [ET] richness, % ET, % dominant taxon, % very tolerant individuals) did not change, two metrics (% filterers and % Diptera richness) showed some improved response, and six metrics (Florida Biotic Index, E richness, % Diptera, clinger richness, % long-lived individuals, and % sensitive individuals) declined in biological condition with improved water quality. The site maintained “optimal” habitat conditions over the study period, including a natural meandering channel, diverse instream habitat, and good riparian vegetation.

Data were also collected in a tributary of Reedy Creek (Bonnet Creek) upstream of site RC-14. This site (D-12) was a channelized stream with poor habitat quality, providing a framework for looking at the effects of habitat quality on the macroinvertebrate community. The macroinvertebrate communities were compared between these two sites for the years that had comparable water quality conditions. Most metrics showed significant reductions in biological condition at site D-12 compared to site RC-14, indicating that habitat quality was a key stressor.

The finding of this study should be viewed with caution due to the limited number of sites assessed and the lack of replication. However, the findings are similar to those of FDEP (2001) and Snyder et al. (1998) that showed that channelized South Florida streams and wetlands are influenced substantially by surrounding land use and physical alterations of the channel and riparian habitat.

Canal Project – Report Summary

DB Environmental Inc. Report on Canals Near Lake Okeechobee

John Maxted

December 22, 2009

DeBusk, T. and K. Grace. 2009b. Characteristics of Macroinvertebrate Populations in South Florida Canals. Prepared by DB Environmental, Inc., Rockledge, FL, December 15, 2009, 39 pp.

DeBusk and Grace (2009) examined the water quality (WQ), physical habitat, and macroinvertebrate communities in five canals near Lake Okeechobee; three sites were north of the lake (and south of Lake Istokpoga) and two sites were in the Everglades Agricultural Area. Single samples were collected at each site on two occasions during 2007 (April and November) and 2008 (February and September). Field WQ parameters included pH, temperature, Secchi depth, and dissolved oxygen (surface, mid-depth, bottom). Laboratory water quality analyses included conductivity, turbidity, nutrients, turbidity, color, and chlorophyll *a*. Six months of WQ data collected by the South Florida Water Management District (District) at the nearest site were analyzed and compared to the grab sample data. Physical habitat was assessed visually for eight habitat attributes using Florida Department of Environmental Protection (FDEP) methods. All sites were engineered canals with habitat scores ranging 40-57 points (20-36 % of 160 points), indicating poor habitat quality. Macroinvertebrate samples were collected and processed using FDEP protocols employing a D-framed dip net jabbed in stable habitats along the canal margins. Macroinvertebrate data were summarized using several metrics and the combined Stream Condition Index (SCI) developed by FDEP. While the SCI quality thresholds are not directly applicable to canals, the SCI scores provided a relative measure of the overall biological condition. The investigators compared these data to macroinvertebrate data collected by FDEP as part of their SCI network that included 12 canals and 53 reference streams throughout Florida.

One objective of the study was to assess the effects of nutrients on the macroinvertebrate community in canals. However, nutrient concentrations, both grab samples and six-month averages at nearby District sites, were highly variable and similar between the five sites making it difficult to assess nutrients as a possible stressor. Low dissolved oxygen (DO) concentrations (< 3 mg/L) were found at all sites and occurred in surface and bottom samples indicating a lack of stratification. Chlorophyll *a* concentrations were also similar between sites and ranged from 2.9 to 34.0 mg/m^3, indicating a high level of primary production. The effects of physical habitat quality alone could not be assessed because all the sites had poor habitat quality.

The study provides an assessment of the physical, chemical, and biological conditions of five canals in the central and agricultural region of the District. Total richness ranged from 7 to 34 taxa, EPT richness ranged from 0 to 2 taxa, % dominant taxa ranged from 13 to 68 percent, and SCI scores ranged from 5 to 28 points (out of a possible 100 points) indicating: (1) lower quality conditions compared to natural streams, and (2) high variability in all metrics. SCI scores were similar to FDEP canal sites and lower than all but one of the FDEP reference stream sites. The metric and SCI values were also similar to other studies of canals in South Florida (Snyder et al. 1998, FDEP 2001, DeBusk and Grace 2009a). A direct assessment of the community could not be made because the report did not provide data on individual taxa. The metric and SCI data indicate that canals provide a diverse community of macroinvertebrates (20-30 taxa) typical of lentic environments with low velocities, high primary production, and depositional substrata.

References

DeBusk, T. and K. Grace. 2009a. Relationships between water column nutrients and macroinvertebrate assemblages in the Reedy Creek Drainage Basin, Central Florida. Prepared by DB Environmental, Inc. and Azurea, Inc., Rockledge FL, July 21, 2009, 49 pp.

DeBusk, T. and K. Grace. 2009b. Characteristics of Macroinvertebrate Populations in South Florida Canals. Prepared by DB Environmental, Inc., Rockledge, FL, December 15, 2009, 39 pp.

Florida Department of Environmental Protection. 2001. An investigation of canals in southwest Florida: relationships between biological health, water quality, and habitat. Division of Resource Assessment and Management, Bureau of Laboratories, 22 pages.

Snyder, B.D., Barbour, M.T., and Leppo, E.W. 1998. Development of a watershed-based approach for biomonitoring of fresh surface waters in coastal Florida canal systems. Prepared by Tetra Tech, Inc., Owings Mills Maryland, under contract with Metro-Dade Environmental Resources Management (DERM), 201 pages.

Canal Project – Report Summary

Florida DEP 1999 Canal Study

John Maxted

October 28, 2009

Florida Department of Environmental Protection. 2001. An Investigation of canals in southwest Florida: relationships between biological health, water quality, and habitat. Division of Resource Assessment and Management, Bureau of Laboratories, 22 pp.

In the fall of 1999 and the spring of 2000, the Florida Department of Environmental Protection (FDEP) collected habitat, invertebrate, physico-chemical (temperature, DO, pH, conductivity, turbidity), and water quality (NH_3, NO_3/NO_2, TKN, TP, algal growth potential) data at 18 sites. Thirteen sites were canals in residential areas in and around Ft. Myers and Cape Coral, Florida, three sites were canals in the failed residential development of Southern Golden Gate Estates (canals and roads but no houses or residents) referred to as Picayune Strand (the name of the natural area prior to construction of the canals), and two sites were natural sloughs (moving water channels) in relatively undisturbed wetland areas of Picayune Strand and Fakahatchee Strand State Preserve. The sites were selected to represent a disturbance gradient based upon the degree of local development, water quality (WQ), and habitat quality (HQ). There were three primary objectives of the study: (1) to assess the appropriateness of the FDEP Stream Condition Index (Fore et al. 2007) to urban canals, (2) to establish biological expectations for urban canals, and (3) to relate biological conditions to habitat and water quality measures.

The study provides an assessment of the biological conditions in urban canals across a range of development intensity and habitat conditions. There was insufficient data to assess WQ conditions in canals or to statistically correlate biology to water and habitat quality. This was due to the limited number of sites and sampling events (single samples at most sites) and the difficulty in separating WQ and HQ stressors in urban areas. Six sites served as both reference and test sites for WQ and HQ stressors. The three main study areas provide a framework for assessing the biological conditions in canals. The 13 urban sites were in fully developed urban catchments and could be compared to the three sites in Picayune Strand to assess the effects of urban land use on canals. The urban sites covered a wide range of habitat conditions which could also be used to assess the effects of physical habitat quality in canals in urban areas. The two wetland slough sites were natural channels with intact riparian vegetation and provided a reference condition prior to canal construction.

Results indicated that invertebrate communities were quite resilient to this type of physical alteration. Invertebrate metrics covered a similar range of values for each of the major site categories (**Figure D-10**). Variability was high within each site category, and even the canals with the highest degree of WQ and HQ disturbances had both high and low invertebrate metric values. Biological quality was generally related to habitat quality but variability was high making for poor correlations (**Figure D-11**). The study provides: (1) an indication of the biological expectations (and variability) in urban canals, and (2) a design option for assessing the conditions in District canals across a wide range of land use categories.

References

Fore, L., R.B. Frydenborg, D. Miller, T. Frick, D. Whiting, J. Espy, and L. Wolfe. Development and Testing of Biomonitoring Tools for Macroinvertebrates in Florida Streams. Florida Department of Environmental Protection, 2007.

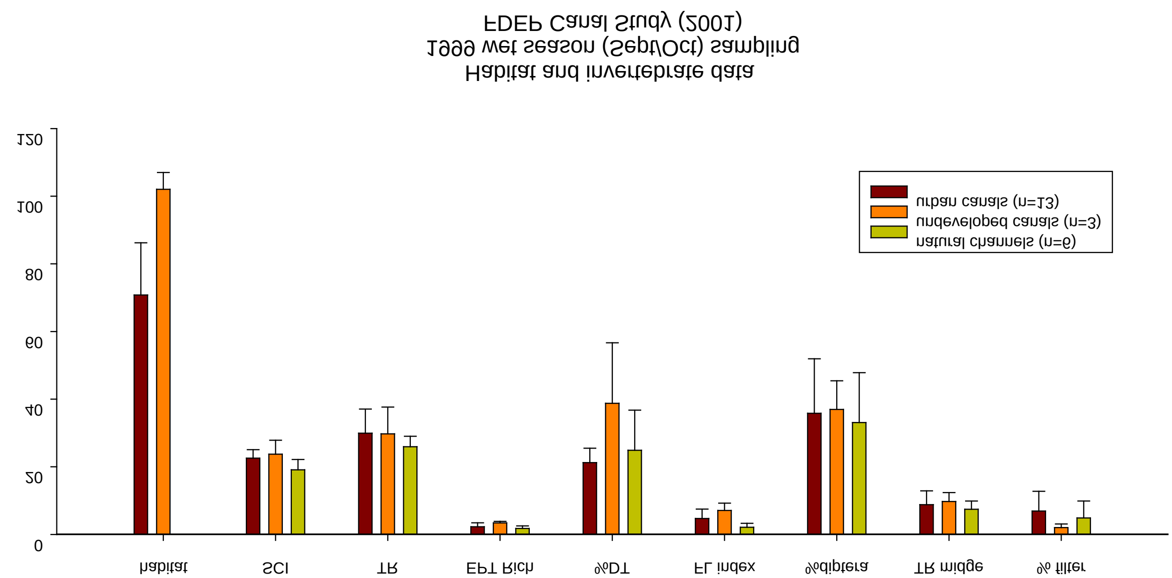


Figure D-10. Comparison of mean (+/- 1 SD) scores for habitat quality and 8 invertebrate metrics for 3 site types; canals in fully developed urban areas, canals in the undeveloped areas of Picayune Strand, and natural channels in undisturbed wetland sloughs.

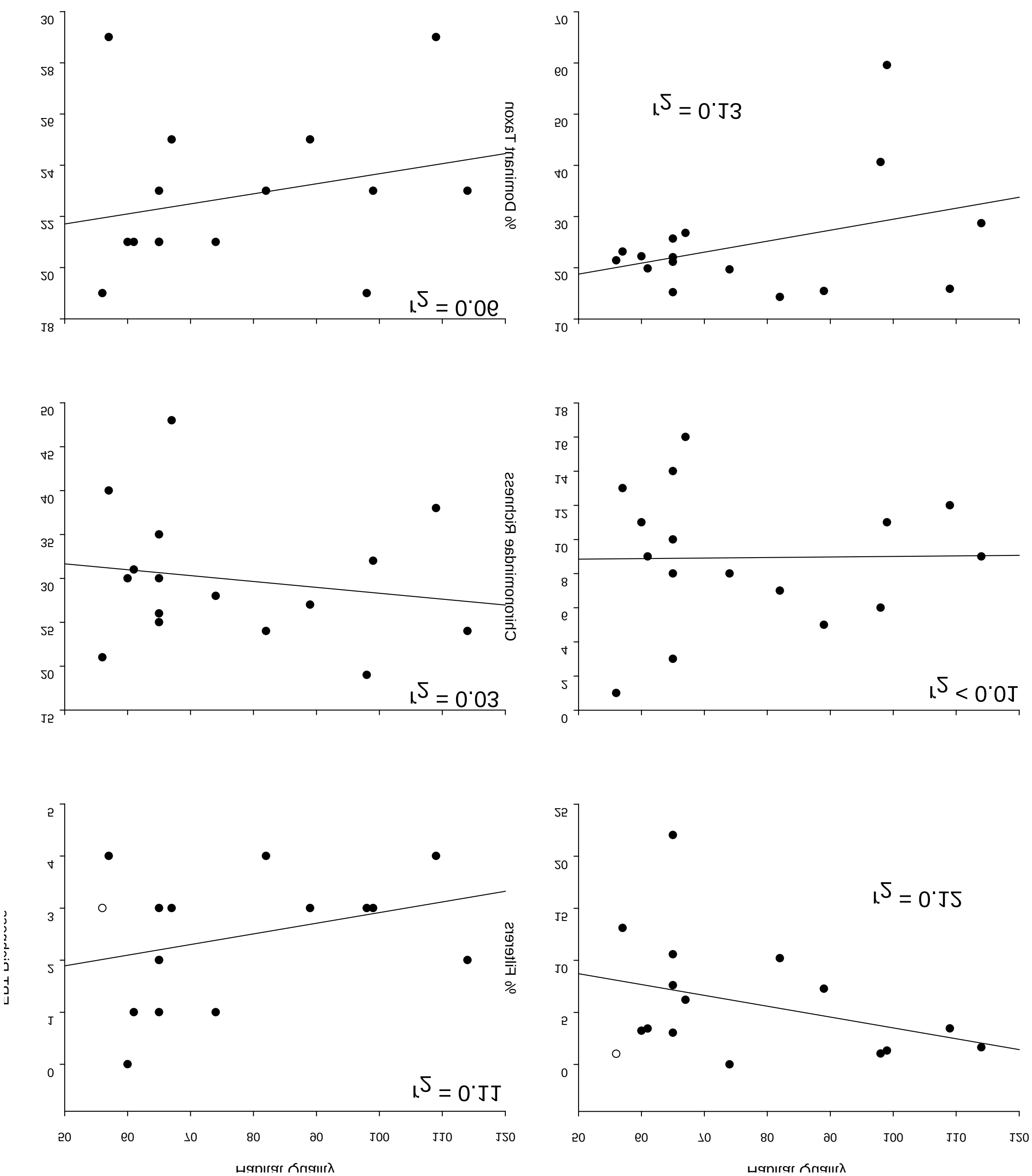


Figure D-11. Relationships between habitat quality and 5 invertebrate metrics and the combined Florida Stream Condition Index for 16 canal sites in and around Ft. Myers, Cape Coral, and Picayune Strand, Florida.

Canal Science Inventory

Overview and Preliminary Analysis

Biological Aspects of Water Quality in Florida

John Maxted

Ross, L.T. and D.A. Jones. 1979. Biological Aspects of Water Quality in Florida, Part IV: Lower Florida Drainage Basin. Department of Environmental Regulation, Tallahassee FL

Between 1975 and 1978, Ross and Jones (1979) conducted surveys of benthic macroinvertebrates from Lake Okeechobee southward, including canal sampling sites. Samples from the four primary canals just south of the lake revealed generally good biodiversity with pollution intolerant species typically absent. Pollution-tolerant oligochaete worms dominated most canal samples. The authors reported that biotic index numbers were low, indicating oxygen deficiencies. The larger St. Lucie Canal, exiting the lake to the east, contained a more diverse macroinvertebrate assemblage although oxygen stress was also indicated. Downstream sites on the West Palm Beach and Hillsborough canals near their eastern ends showed fairly good diversity, but there were also indications of low oxygen conditions. For canals, Ross and Jones (1979) compared natural and artificial substrates and suggest that the soft organic muck in canals provides poor habitat. The unconsolidated structure of muck and low oxygen conditions may be a key factor limiting diversity and promoting domination by pollution-tolerant species in canals.

Canal Project – Report Summary (revised)

Metro-Dade County 1998 Canal Study

John Maxted

November 12, 2009

Snyder, B.D., Barbour, M.T., and Leppo, E.W. 1998. Development of a watershed-based approach for biomonitoring of fresh surface waters in coastal Florida canal systems. Prepared by Tetra Tech, Inc., Owings Mills, Maryland, under contract with Metro-Dade Environmental Resources Management (DERM), 201 pp.

Macroinvertebrate and habitat quality data were collected at 32 sites in Miami-Dade County, Florida during February (winter, dry season) 1996 (**Figure D-12**). The sites were selected in four land use categories (wetlands, agriculture, suburban, and urban/industrial) to provide a disturbance gradient for these engineered waterways. Twenty sites were resampled in July (summer, wet season) 1996 to determine seasonal differences. Results for the winter sampling season are summarized here because there was little seasonal effect and more sites were sampled in the winter period. All sites were engineered canals with levees that physically separated the canals from the surrounding areas. Invertebrates were sampling using a 20-jab dip net method equivalent to the method used by the Florida Department of Environmental Protection (FDEP) for their Stream Condition Index (SCI). Invertebrate data were analysed using multi-dimensional scaling of the taxonomic data, several community metrics, and the SCI. Results were also compared to FDEP reference stream sites to assess the differences between canals and natural stream channels. Habitat was assessed using the FDEP and U.S. Environmental Protection Agency (USEPA) methods that visual assesses habitat quality using 7 to 10 habitat attributes. The objectives of the study were to: (1) test sampling methodologies, (2) characterize ecosystem health, and (3) identify stressor relationships. Stressor relationships included surrounding land use, habitat quality, and canal maintenance activities (dredging, weed control). No water quality (WQ) samples were collected, although two relevant studies were cited (see below) that showed higher phosphorus concentrations in canals compared to nearby marshes (Everglades).

Key drivers of invertebrate community condition were surrounding land use and habitat quality. Several invertebrate metrics (total richness, Florida index, % dominant taxon, % midge) and the SCI followed a pattern of increasing disturbance from wetlands → agricultural → suburban → urban/industrial. This pattern was also shown by multi-dimensional scaling of the raw taxonomic data. The highest quality sites were those with wetlands as the predominant surrounding land use, but had lower metric and SCI scores than FDEP reference sites. Biological condition as measured by the SCI was weakly correlated with habitat quality ($r^2 = 0.12$). The highest quality canal sites were dominated by long-lived taxa indicating that impacts were related to periodic stressors. These results indicate that: (1) canals have lower quality conditions than natural streams, (2) are affected by land use and habitat quality, and (3) other stressors are likely at play with nutrients and organic enrichment likely candidates. A valuable follow-up study would look at any water quality data that might be available in or near these sites including dissolved oxygen, conductivity, turbidity, nutrients, and other contaminants (site coordinates are published in the report). Selected figures from the report are reproduced below, along with Google Earth maps showing the highest (L3002) and lowest (C701) quality sites and their surround land uses.

Other relevant studies

Rudolph, HD. 1985. A biological basin assessment survey: a study of the macroinvertebrates collected in north Dade County canals during February and July 1995. Florida Department of Environmental Protection, Port St. Lucie, Florida.

McCormick, et al., 1996. Periphyton-water quality relationships along a nutrient gradient in the northern Florida everglades. *Journal of the North American Benthological Society* 15:433-439.

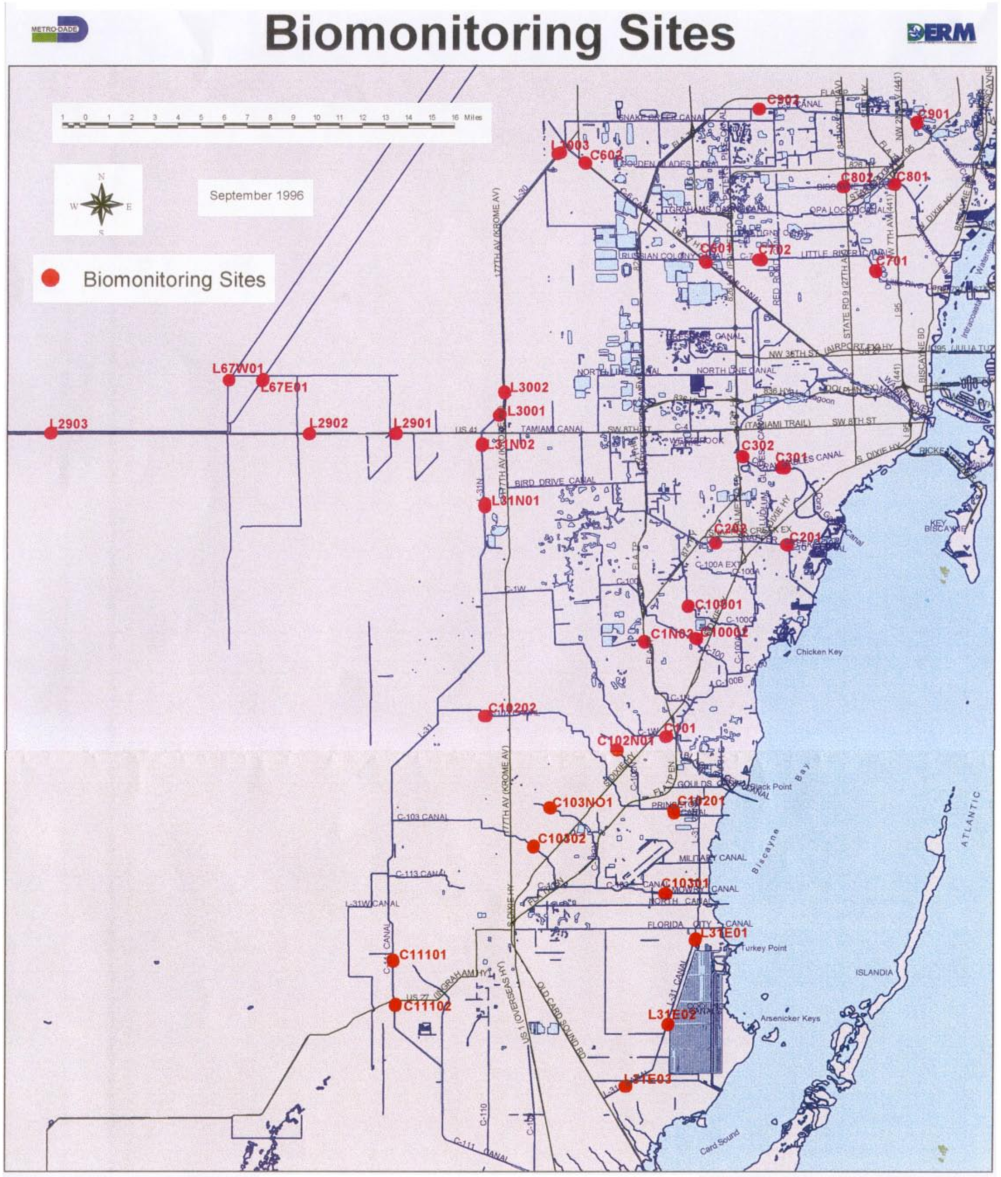


Figure D-12. Macroinvertebrate monitoring sites in Miami-Dade County (Snyder et al., 1996)

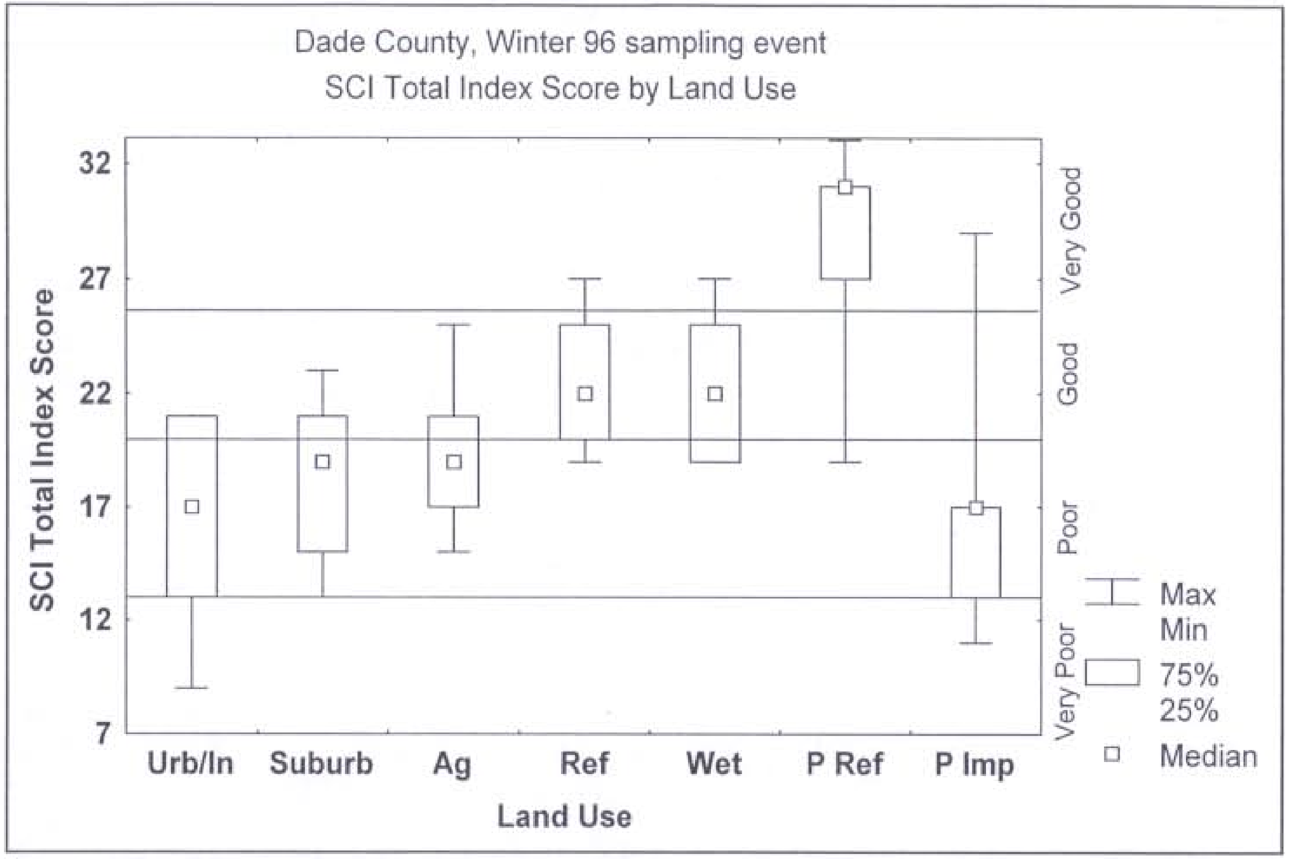


Figure 3-18. Dade County canal bioassessment results (winter 1996) segregated by land use designation. Land uses: urban/industrial (urb/in); suburban (suburb); agricultural (Ag); canals surrounded by wetlands (wet). Note: Ref = wetland canals with highest habitat index values; P Ref = DEP reference conditions for peninsular Florida; P Imp = DEP impaired site results for peninsular Florida.

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Figure D-13. Dade County SCI Score Related to Land Use

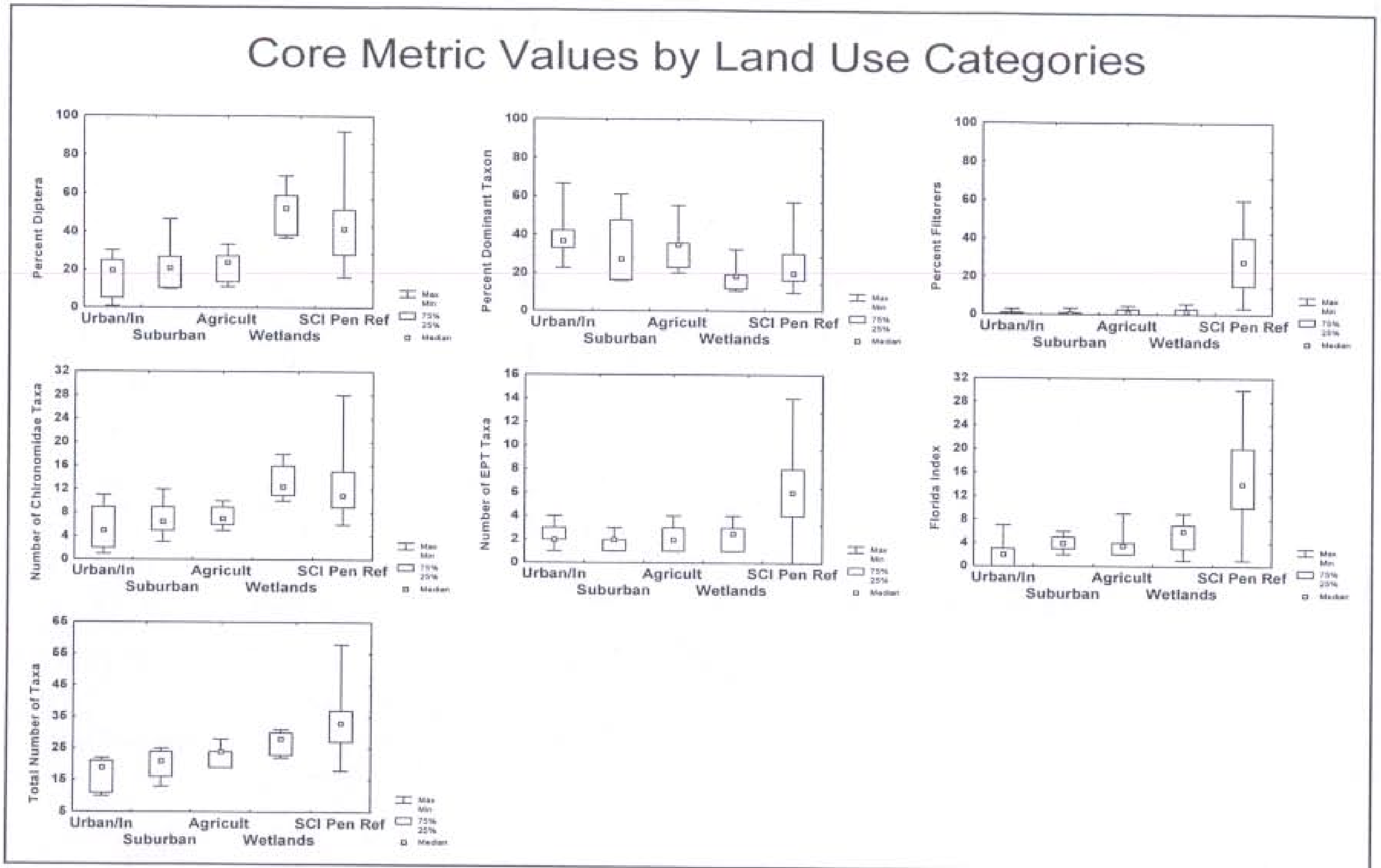

Figure 3-6. Core metric results for canal stations sampled during winter 1996. Note: SCI Pen Ref = Florida DEP reference conditions for streams of peninsular Florida.

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Figure D-14. Dade County Core Metric Values Related to Land Use

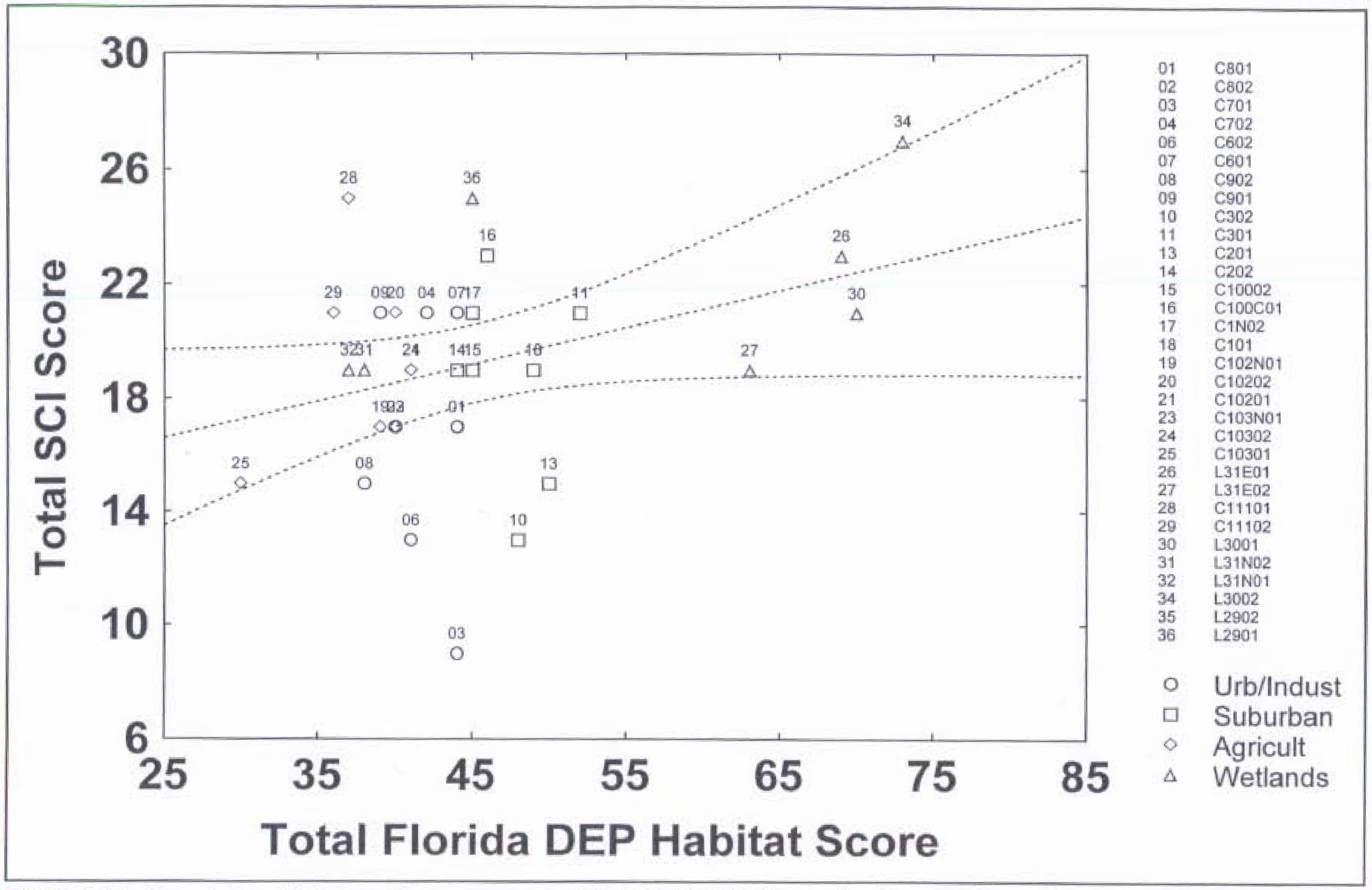

Figure 3-19. The relationship (regression and 95% confidence intervals) between benthic macroinvertebrate SCI scores and habitat assessment scores (r = 0.33), winter 1996.

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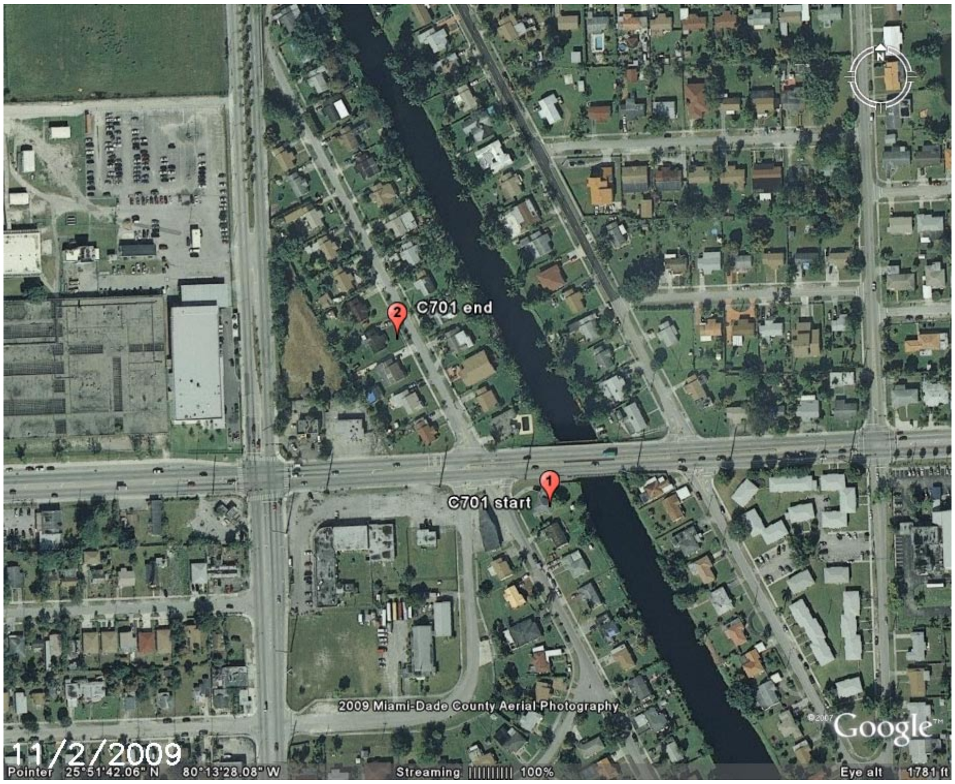
Figure D-15. Dade County SCI Score Related to Habitat Assessment Score

Figure D-16. Dade County Highest quality (biology and habitat) reference canal – site L3002



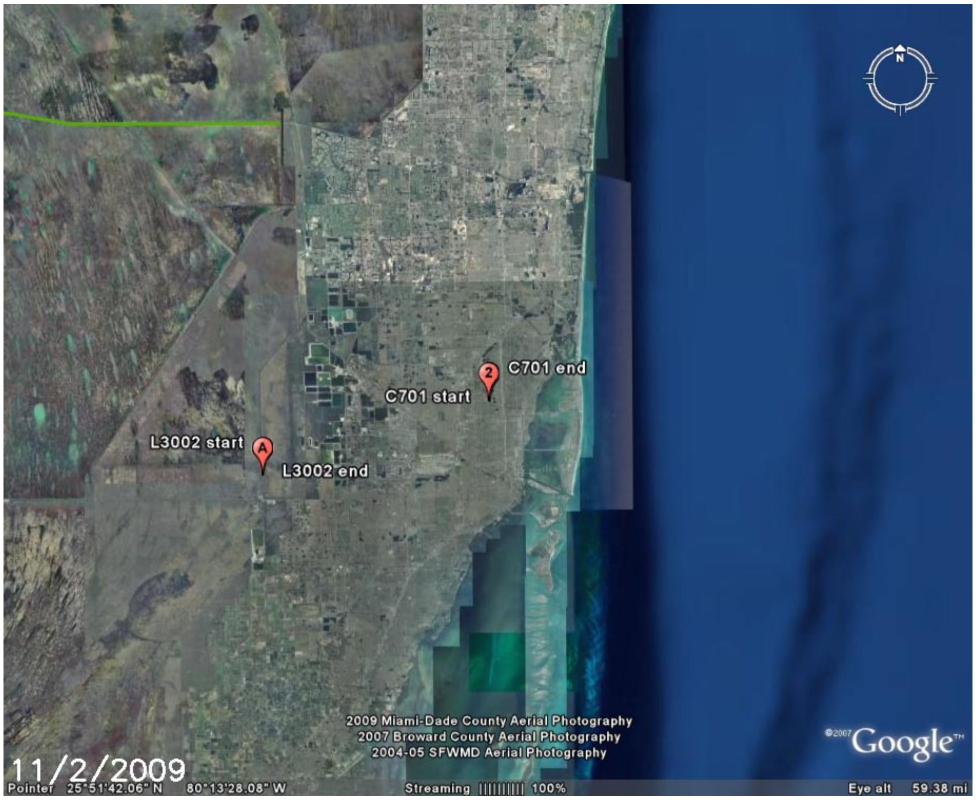


Figure D-17. Dade County Lowest quality (biology and habitat) urban/industrial canal – site C701.

Canal Project – Report Summary (revised)

Mid-Atlantic Region 1995 Study

John Maxted

December 14, 2009

Maxted, et al., 2000. Assessment framework for mid-Atlantic coastal plain streams using benthic macroinvertebrates. *Journal of the North American Benthological Society*, Vol. 19(1): 128-144.

A collaborative study among the six states along the mid-Atlantic seaboard of the USA developed a consistent approach for collecting and interpreting macroinvertebrate data for low gradient streams of the coastal plain. Macroinvertebrate, habitat quality (HQ), physico-chemical (DO, cond., TSS, pH), and water quality (TP, NO_3/NO_2) samples were collected in the fall of 1995. The study had three objectives: (1) to evaluate the spatial variability of reference sites across a large geographic (New Jersey to South Carolina), (2) to select biological metrics that best discriminate reference sites from sites impaired by habitat disturbance and organic pollution, and (3) to combine these metrics into an index of biological quality. There were 55 reference sites with natural channels and intact floodplains, stable channel banks, and natural and largely undisturbed riparian vegetation. There were 34 sites with impaired habitat quality and were all channelized waterways (i.e., canals); most (30) were in agricultural areas, four were in urban areas. There were 17 sites with impaired water quality defined by receiving the majority of its flow from a poorly treated municipal wastewater treatment plant discharge. These water quality (WQ) impaired sites had good habitat quality to focus on WQ stressors. Assessing the effects of each stressor type on biology was beyond the scope of this study. The data were reanalyzed to compare reference sites to canals and water quality sites separately. This analysis focused on bioregion 63N to reduce the variability between bioregions and because this bioregion had the majority of impaired sites.

The study provides an assessment of: (1) the biological conditions in canals as compared to reference streams with natural channels, and (2) the effects of wastewater discharges (poor WQ) on streams with natural channels and good riparian cover. There was insufficient data to correlate biology to individual WQ variables due to the limited data set (single samples and nutrients not collected at all sites). The biological results are not directly applicable to the aquatic fauna in Florida streams and canals, but some important conclusion can be reached on the effects of physical and WQ disturbances in canals.

There was separation between reference sites and both habitat impaired and WQ impaired sites indicating that both stressor types affected the biological communities in these low gradient streams (**Figure D-18**). The largest separation was observed for canal (habitat impaired) sites (EPT richness, the Hilsenhoff Biotic Index, and CPMI metrics) where the 75th percentile of the habitat group was less than the 25th percentile of the reference group. The study leads to important conclusions with regard to the management of canals in Florida. First, the maintenance of canal banks with the removal of riparian vegetation makes it difficult to achieve a high degree of biological quality in canals. Second, a high degree of biological quality can be achieved in streams with poor water quality if natural channels and riparian vegetation are maintained.

There is a third conclusion, although it has yet to be quantified with detailed WQ data. There was no separation in biological communities between state reference sites using multidimensional scaling of the taxonomic data (Figure 2B of the paper) even though the percentage of the catchments in forested land uses ranged from 19 to 99 percent. Assuming that water quality is proportional to the degree of development in the catchment, the high degree of urban and agricultural land uses at many reference sites did not adversely affect their biology. This subjective conclusion provides a further indication that WQ is less important than habitat quality in determining the biological conditions in canals.

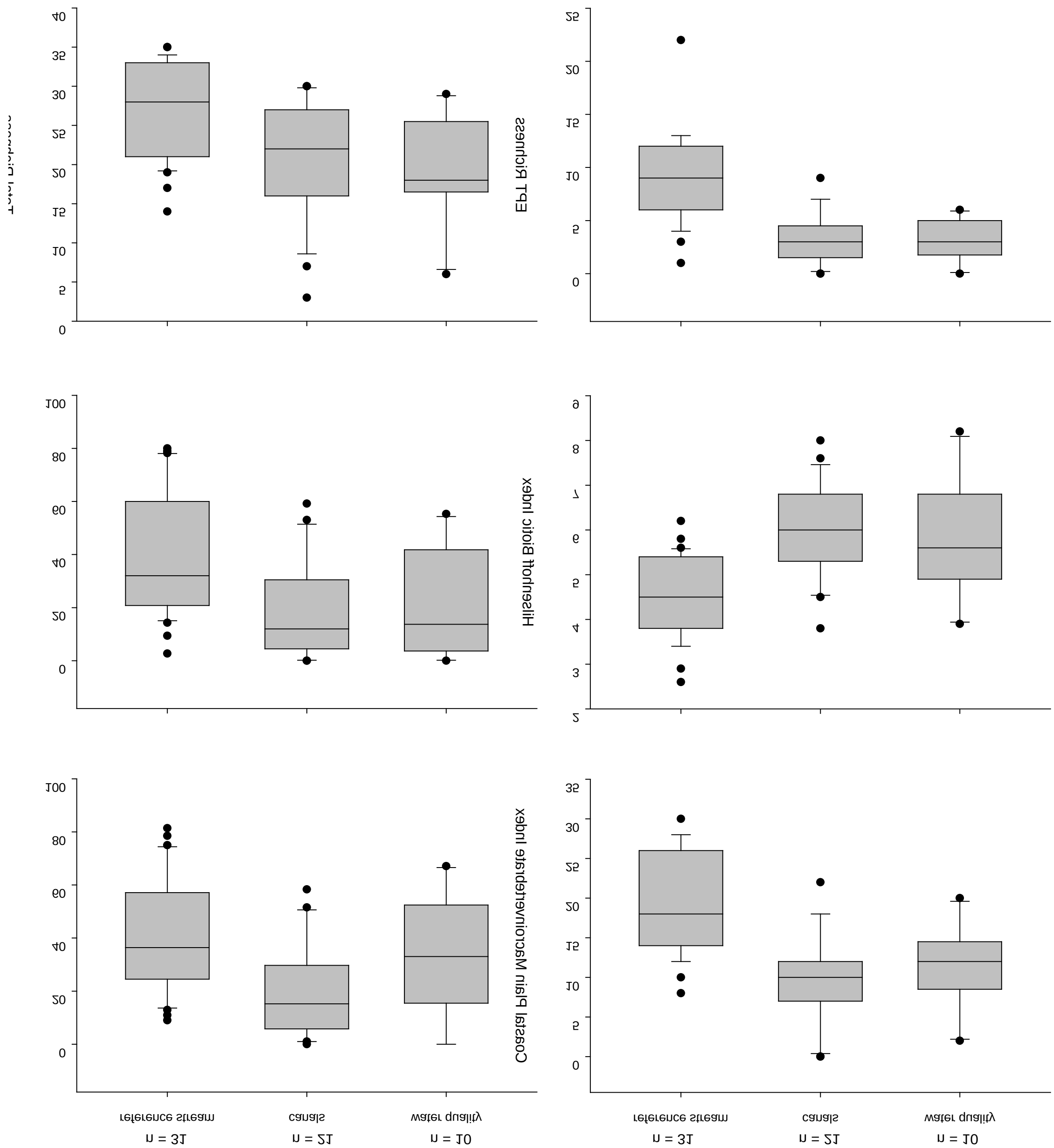


Figure D-18. Comparisons of probability distributions for five macroinvertebrate metrics and the combined Coastal Plain Macroinvertebrate Index (CPMI) for three site types in ecoregion 63N; reference streams, canals, and water quality sites; water quality sites had good riparian cover and poor water quality due to wastewater discharges. Data taken from Maxted et al., 2000, Journal of the North American Benthological Society, Vol 19(1).

Canals in South Florida: A Technical Support Document

Appendix E

Fish, Reptile and Wildlife Information

Table E-1. Historic deployment of grass carp for management of aquatic vegetation in SFWMD lakes, wetlands and canals, 1987 to 2010

Location	County	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Fish Lake	Osceola	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arch Creek	Miami-Dade	0	0	1,500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C12	Broward	0	0	0	5,379	0	0	0	0	0	0	0	0	0	280	0	0	2,250	0	2,400	1,700	1,000	0	0	0
C11, C11S	Broward	0	0	0	0	16,500	0	0	0	0	0	0	0	5,300	2,200	3,740	2,730	10,250	578	5,386	10,500	5,225	3,000	3,000	4,000
Holeyland	Palm Beach	0	0	0	0	0	0	213	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C13	Broward	0	0	0	0	0	0	0	0	0	10,000	0	0	1,000	1,520	1,800	3,335	2,250	3,000	7,000	0	0	4,000	3,500	5,000
C-100s	Miami-Dade	0	0	0	0	0	0	0	0	0	21,000	0	0	3,350	0	3,380	0	0	5,454	13,500	6,875	4,000	2,100	0	0
C14	Miami-Dade	0	0	0	0	0	0	0	0	0	0	16,500	0	0	1,640	3,260	3,940	7,050	7,050	0	0	0	0	0	0
C8	Miami-Dade	0	0	0	0	0	0	0	0	0	0	12,000	0	2,000	2,720	0	3,000	0	1,992	0	4,700	3,000	3,000	6,000	5,000
C9	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	20,000	4,200	4,200	5,000	0	0	0	10,750	5,461	4,500	7,000	5,000
C1	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	19,500	0	3,300	4,850	5,675	3,000	5,728	0	8,000	4,000	4,000	4,851
C1N	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	7,000	1,400	0	0	1,975	0	3,000	0	3,000	4,500	5,000	3,000
C102	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	3,400	680	2,480	8,000	7,810	4,500	4,980	0	4,199	3,000	3,500	5,000
C102N	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,435	0	0	0	0	0	3,000	3,500	2,500	3,000
C103& 103N	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	7,200	1,440	1,640	9,700	2,325	0	4,981	0	9,725	4,500	3,166	5,000
Airport Rd. Canal	Collier	0	0	0	0	0	0	0	0	0	0	0	0	900	0	0	0	0	0	0	0	0	0	0	0
C24	St. Lucie	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,265	400	600	0	0	0	0	0	0
C2	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21,497	10,000	5,000	8,250	0	0	0	0	0
C4	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,950	7,270	5,250	0	0	0	0	0
L31E	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,460	0	0	0	0	0	0	0
C113	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,060	1,000	0	0	1,000	1,000	1,500	0
B1 Pond	Palm Beach	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	0	0
C111	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,000	0	0	0	0	0	0
G16	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,200	0	0	0	0
C1W	Miami-Dade	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,000	1,247	1,500	0
C42	Glades										0	0	0	0	0	0	0	0	0	0	0	0	2,500	1,500	3,000
G15	Broward																						10,000	4,500	6,000

initial stocking numbers
initial stocking numbers (unsure of number)
had fish already from adjacent canals

Table E-2. Annotated list of fish, reptile and bird-related references reviewed by SFWMD staff

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Fish							
Ellis, G., Zokan, M., Loftus, W.F., and Lorenz, J.J.	2004					Inventory of Freshwater Fishes of the Big Cypress National Preserve	Final Report to the USGS Greater Everglades Priority Ecosystems Science Program
	Brief Notes - Canals supported the greatest diversity of species; most of these were saltwater-adapted or large freshwater predator species. Canals provide aquatic refuge during the dry season allowing rapid dispersal by fishes and spread of exotic species. Some species of exotic fish captured on the marsh were exclusively taken when adjacent to canals.						
Furse, J.B, Davis, L.J., and Bull, L.J.	1996	1992-1993	Lower Kissimmee	C-38 and tributaries	Fish / largemouth bass	Habitat Use and Movements of Largemouth Bass Associated with Changes in Dissolved Oxygen and Hydrology in Kissimmee River, Florida	1996 Proc. Annual Conf. SEAFWA 50:12-25
	Brief Notes - Tracked largemouth bass movements with a focus on floodplains.						
Howard, Loftus and Trexler	1995					Seasonal Dynamics of Fishes in Artificial Culvert Pools in the C-111 Basin, Dade County, Florida	Final Report to the United States Army Corps of Engineers under Everglades National Park Cooperative
	Brief Notes – Canals are deep, long linear habitats that offer refuge of differing value to fishes depending on their body size.						
Loftus, W.F. and Kushlan, J.A.	1987	December 1976 thru April 1983	LEC, Everglades, Big Cypress, Florida Bay tributaries, and 10000 Islands	Primarily water bodies south of Tamiami Highway	Native and Exotic	Freshwater Fishes of Southern Florida	*Bull. Florida State Mus., Biol. Sci.* 31(4):147-344.
	Brief Notes – The first systematic study of the distribution of fishes in southern Florida's fresh waters. Includes a table of distribution of fishes in fresh water in seven major habitats, including some canals.						
Nico, Herod and Loftus	2001					Life History Parameters and Population Dynamics of Freshwater Fishes of South Florida Canal Systems	American Society of Ichthyologists and Herpetologists 81st annual meeting, Pennsylvania State University, 5-10 July 2001. Abstract Only.
	Brief Notes - Extensive study across many canals in South Florida; in collaboration with Joel Trexler. Small-bodied fishes are typically short-lived and are most common in shallow marsh habitats. Contrasted with large-bodied fishes that are long-lived and more common in canals.						
Rehage and Trexler	2006					Assessing the net effect of anthropogenic disturbance on aquatic communities in wetlands community structure relative to distance from canals	*Hydrobiologia* 569:359-373.
	Brief Notes - Density of fish and macroinvertebrates changed within 5 m of canal; little change in composition; pattern most pronounced in dry season suggesting canals act as refugia. Most apparent impact of canals was as conduits for nutrients that stimulated local productivity in adjacent marsh; there was no evidence that canals were sources for predators into the marsh; however, more study is needed, particularly on how fish disperse from canals.						
Shafland, P.	1996		LEC, primarily	various	Exotic Fishes	Exotic Fishes of Florida - 1994	*Reviews in Fisheries Science* 4(2):101-122.
	Brief Notes - Review of exotic fishes in all of Florida with a major focus on waters of the District, 75 exotic species have been found at least once in Florida, 18 of these are considered to be permanent and 5 of these are believed to be reproducing. Some general characteristics are described for major species.						
Shafland, P. Gestring, K, Stanford, M	Multiple	1997-2002	LEC	Cutler Drain, Tamiami, Snake Creek, Cypress Creek, Boynton, and West Palm Beach Canals	Fisheries	Metropolitan Southeast Florida Canal Fisheries and Recently Introduced Exotic Fishes	FFWCC Tech Report
	Brief Notes - Sportfish and their forage species are reported. West Palm Beach and Boynton have higher "catch per effort" in electrofishing than other 4 canals to the south.						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Shafland, P.L., Hilton, B.D., and Metzger, R.J.	1985	1981-1985	LEC	Black Creek Canal (C-1, C-1N; Dade County)	Fisheries	Fishes of Black Creek Canal 1981-1985	FFWCC Tech Report
	Brief Notes - Description of populations of fishes in a Miami-Dade Canal. Spotted tilapia represented 50% of the population but largemouth bass populations were similar for other less disturbed Florida habitats.						
Shafland, P. Gestring, K, Stanford, M and numerous others	1982 through 2006	1982 through 2006	LEC	numerous LEC canals	Exotic Fishes	Annual Report of Non-Native Fish Research	FFWCC Tech Reports
	Brief Notes - Numerous annual reports that describe the types of fish caught via electroshocking and rotenone techniques						
Trexler, J.C., Loftus, W.F., Jordan, F. Lorenz, J.J., Chick, J.H., Kobza, R.M.	2000					Empirical assessment of fish introductions in a subtropical wetland: an evaluation of contrasting views	*Biological Invasions* 2(4): 265-277
	Canals held the largest introduced fish populations. Natural habitats distant from canals held few individuals of introduced fishes. Canals are a permanent aquatic refuge unlike any native Everglades habitat. Introduced fishes became established in South Florida within canals. Canals provide refuge from drought for native and exotic fish, which then serves as a prey base for large predatory fishes; native and introduced fish move from canals into marsh after dry seasons. Urban and Everglades canals differ in composition and proportion of native to exotic species, principally due to marsh requirement of native fishes.						
Turner, A.M., Trexler, J.C., Jordan, C.F., Slack, S.J., Geddes, P., Chick, J.H., Loftus, W.F.	1999					Targeting ecosystem features for conservation: Standing crops in the Florida Everglades	*Conservation Biology* 13(4): 898-911
	Brief Notes - Sharp nutrient gradients along canals resulted in greater fish biomass at enriched sites than reference sites, but no difference for invertebrates; suggested that fish are consuming the invertebrate production. Study indicated standing stocks in Everglades are unusual, possibly similar to seasonal-tropical wetlands with limited deep-water refugia for large-sized fish.						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Reptiles							
Barr, B.	1997					Food habits of the American alligator, Alligator mississippiensis, in the southern Everglades.	Ph.D Diss. University of Miami
	Brief Notes - Marsh study of Shark River Slough alligators. Best study available on Everglades alligator diets. Found that snakes are dominant prey of adult alligators, snails for sub-adults, and insects for juveniles. Fish were consumed far less than snakes; birds were rare in stomachs. This diet is unique among Everglades alligators. Alligators are in better condition during high water than low water in the marsh. Author suggested that canals have a different prey base and thermal gradient than sawgrass marshes.						
Chopp, M.D.	2002					Everglades alligator (Alligator mississippiensis) production in interior and canal habitats at Arthur R. Marshall Loxahatchee National Wildlife Refuge.	Masters Symp., Dept Wildlife Ecology and Conserv. Seminar Series, Gainesville, FL, December 2, 2002.
	Brief Notes - Study of juvenile alligators from L-38 canal. Apple snails and crayfish made up the vast majority of the diet. All study animals were in good condition.						
Chopp, M.D.	2003					Everglades Alligator Production And Natural History In Interior And Canal Habitats At Arthur R. Marshall Loxahatchee National Wildlife Refuge	M.S. Thesis, University of Florida, Gainesville, FL
	Brief Notes - Tree islands protect from nest flooding; canal nests were flooded more frequently; small numbers of young produced in canal nests; low production of canal alligators; canal adult populations are sustained by recruitment of adults from adjacent marsh habitat; canal alligators do not contribute to the overall Everglades population.						
Chopp, Percival, Rice	2001					Northern Everglades canals: alligator population sources or sinks?	Joint GEER and Fla. Bay Conf., Palm Harbor, FL. April 13-18, 2003.
	Brief Notes - Study of juvenile alligators from L-38 canal. Apple snails and crayfish made up the vast majority of the diet. All study animals were in good condition. This is from a conference abstract. Alligator study comparing border canal and interior marsh alligator populations at ARM. Canals were harsh environments for alligator reproduction compared to interior sites, due to flooding and predation of canal nests. Adult alligator density was high in canals due to immigration and high adult survival rates. Authors suggest canals are sinks for alligator reproduction..						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Chopp, Percival, Rice	2002					Everglades Alligator Production Differences between Marsh Interior and Marsh Canal habitats at ARM	Masters Symp. Dept. of Wildlife Ecology and Conservation Seminar Series, Gainesville, FL, December 2, 2002
	Brief Notes - Everglades alligators produce relatively small egg clutches compared to north Florida and Louisiana; therefore lower annual reproduction, comparatively. Nest flooding affects age structure of population, especially after repeated flooding at marsh canal habitats. Egg position in clutch significantly affects probability of egg being flooded and surviving; even small changes of nest elevation affect survivorship along canals. During 2000 all canal nests flooded, while no interior marsh nests flooded. Marsh nests are made of high-quality material; canal nests are made of poor nesting materials. Interior nests on tree islands may experience mammalian predation. Canal habitat is population sink reproductively speaking for alligators. Building spoil mounds on interior marsh side of canals could boost reproductive success and serve as an alternative to changing water management schedules.						
Chopp, Rice, Mazzotti, Percival	2000					The Effects of Canals on Alligators in the Everglades	2000 GEER Meeting, Naples, FL
	Brief Notes - Canals influence alligator populations 1 km into adjacent Everglades marsh. Canal alligators move over larger distances and have larger home ranges. Hatching success and young survivorship is lower in canals. Adult alligator density is higher in canals than in marsh. Alligators living in canals prefer to stay there. Canal alligators are healthier than marsh alligators. Canal alligators benefit from warmer canal water and better digestion rates.						
Craighead, F.C.	1968					The role of the alligator in shaping plant communities and maintaining wildlife in the Southern Everglades.	*Fla Naturalist*. 41:2-7, 69-74, 94.
	Brief Notes - Early (pre) drainage information about alligator ecology.						
Dalrymple, G.H.	1996					Growth of the American alligator in the Shark Valley region of the Everglades National Park.	*Copeia* 1:212-216
	Brief Notes - Study of alligators living in Shark Valley Canal. Growth is extremely slow for alligators in southern Florida.						
Dalrymple, G.H.	2001					American Alligator nesting and reproductive success in Everglades National Park an analysis of the systematic reconnaissance flight data (SRF) from 1985-1998	University of Miami-Everglades National Park Cooperative Agreement # CA528-03-9013. Everglades Research Group, Inc. Homestead, FL
	Brief Notes - 86% of alligator nests were in Shark River Slough. Surveys expanded starting 1993--after 1993, nests clumped within Shark River Slough west of L-67 canal--All other basins, including Northeast Shark River Slough, has very few nests. Within Shark River, nests were not clumped by location or ground surface elevation; no relationship between ground elevation and nest flooding; circumstantial, but no empirical, evidence suggests alligators build taller nests at lower elevations; More alligators built nests in wet years, but only 30-60% of females nest annually; 60% of eggs hatched over all years--similar to studies in other areas; Over duration of study only 70% of nests were flooded; Predation and egg infertility were minor; latter-year nesting females were smaller						
Fogarty and Albury	1967					Late summer foods of young alligators in Florida.	Proc. Southeast Assoc. Game Fish Comm. 21: 220-222
	Brief Notes - Study of juvenile alligators from L-38 canal. Apple snails and crayfish made up the vast majority of the diet. All study animals were in good condition.						
Fujisaki, Rice, Pearlstine, Mazzotti	2009					Relationship between body condition of American alligators and water depth in the Everglades, Florida	*Hydrobiologia* 635: 329-338
	Brief Notes - Marsh study. Alligators are very sensitive to changes in hydrology on a short time scale (days).						
Kushlan, J.A.	1974					Observations of the role of the American alligator in the southern Florida wetlands.	*Copeia* 1974(4): 993-996.
	Brief Notes - Canals are the primary refugia for alligators in many areas; many large alligators reside in canals. In areas without canals, ponds are disappearing from lack of large alligator presence. The importance of alligator ponds to Everglades alligators is decreasing due to canals.						
Kushlan, Mazzotti	1989					Historic and present distribution of the American crocodile in Florida.	*Journal of Herpetology* 23(1): 1–7.
	Brief Notes - Reported canal-dependant crocodiles range as far north as southern Biscayne Bay/Turkey Point; Easternmost observation of crocodiles are on northern Key Largo in old canals. Only permanent northern population is warm canals in Fort Lauderdale power plant. Reports of crocodiles moving 10 km inland using canals.						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Mazzotti, F.J.	1999					The American Crocodile in Florida Bay	*Estuaries* 22(2B): 552-561
	Brief Notes - Results of federal crocodile protection program presented, found that number and range of nests increased 1970-1995, but nesting success decreased. Increase in nesting was due to artificial substrates (canal spoil), which were prone to raccoon predation. At least 1.5% of marked hatchlings survived for at least 12 months and growth rates varied.						
Mazzotti, F.J. Brandt, L.A.	1994					Ecology of the American alligator in a seasonally fluctuating environment.	Everglades: The Ecosystem and its Restoration, Davis and Ogden (eds)
	Brief Notes - Cites highest abundance of alligators in canals.						
Mazzotti, Cherkiss	2003					Status and Conservation of the American Crocodile in Florida: Recovering an Endangered Species While Restoring an Endangered Ecosystem	University of Florida, final report submitted to the National Park Service
	Brief Notes - Canals are important nursery habitat for crocodiles in along southern Florida coast. In ENP, increased nesting effort occurred as a result excavated fill near man-made canals and use of canals for habitat. Canal construction has caused expansion of habitat into historic western range in Florida Bay. Cooling canals of Turkey Point have resulted in large crocodile populations. Canals provide wind protection, low salinity, abundant food, and protection from predators.						
Mazzotti, Cherkiss	2003					Final Report the 2002-2003 monitoring program for the endangered American crocodile in south Florida	Final Report prepared for Everglades National Park, Homestead, Florida
	Brief Notes - Most observations of crocodiles were from disturbed habitats (canals); In ENP during 2002, 50% of nests depredated by raccoons; crocodiles are not displaced by human activity that does not directly harass or threaten them; Nursery habitat for alligators requires protection from wind and waves, low salinity, abundant food, and refugia from predators--provided by estuarine creeks, ponds and canals.						
Meshaka, Babbitt	2005					Amphibians and Reptiles Status and Conservation in Florida	Kreiger Publishing Company, Melbourne, FL
	Brief Notes - Rise in water level of 15 cm after nest construction will begin to kill eggs of alligators; total mortality with rise of 30-45 cm of water. Except in central WCA-1 on tree islands. Changes in land use and land cover resulting from water management also have affected alligator populations. Some locations that were alligator habitat have been converted to agricultural and residential development. Other locations have not been developed, but are so overdrained that alligators only occur in permanent water bodies such as canals or ponds, or during periods of extremely high water. Alligators, initially displaced by development or drainage, have ended up in canals. Adult alligator and, especially, adult male alligator densities are higher in canal habitats than those in the natural marsh interior. The density and occupancy of alligator holes near canals is less than that of the marsh interior. The characteristics of alligator habitats have changed with the creation of canal systems now present in the Florida Everglades. As canals are removed, densities of alligators in adjacent marshes and occupancy of alligator holes is expected to increase.						
Morea, Rice, Percival, Howarter	2000					Home Range and Movement of Alligators in the Everglades more linear in canals	GEER Conference, December 2000
	ENP and WCA alligators do not differ in home range; males moved longer distances and had wider home ranges; canal alligators had linearly-shaped home ranges as opposed to marsh alligator home range size; large alligators moved less; movements increased with water level increase; spring season most important for males/summer for females; seasonal and hydrologic factors determine movements in the Everglades						
Palmer, Gross and Rice	1998					ATLSS American Alligator Production Index Model Basic Model Description	Institute for Environmental Modeling, University of Tennessee, Knoxville, Knoxville, TN
	Brief Notes - Marsh alligator density is highest in canals; canal habitats contain high concentrations of adult alligators; Survival of young alligators may be very low near canals due to decrease in number of alligator holes and brood habitat. Canals act as surrogate alligator holes and refugia. Telemetry data suggests that canal influence on alligator movement extends a kilometer into the surround marsh. Canals are a sink to adult animals and may contribute to an overall decrease in population.						
Phillips, M.L., K.G. Rice, C.R. Morea, H.F. Percival, S.R. Howarter	2003			Everglades	ENP	Habitat Selection and Home Range of American Alligators in the Greater Everglades	GEER Conf. 2003, Abstracts
	Brief Notes - Canal alligators strongly selected canals over all other cover types for daily and weekly locations. The creation of canals in the Greater Everglades has influenced alligator movement and habitat selection. Canal alligators spend most of their time in canals and move greater distances than alligators in WCA or ENP marshes.						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Rice, Hart, Mazzotti, Jeffery, Percival	2008					American Alligator Distribution, Size, and Hole Occupancy and American Crocodile Juvenile Growth and Survival	Monitoring and Assessment Plan 3.1.3.15 and 3.1.3.16, prepared for U.S. Army Corps of Engineers
	Brief Notes - 292 km of airboat trails and canal surveyed. Nesting increased in ENP after canals were plugged in 1980s. Canal construction has altered alligator habitat. Canals are refuge for large male alligators, with high densities over that of natural marsh. Marsh alligators move into canals during dry season. Marsh counts of alligators during dry season are very low. Virtually the entire increase in crocodiles nesting in Florida is due to nesting on artificial substrates in the Cape Sable/Flamingo area of ENP on canal banks that were created more than 40 years ago, and on the peat canal banks created at CLNWR, and at TP. Plugging canals in the Cape Sable/Flamingo area in the 1980s and 1990s to reduce saltwater intrusion and retain fresh water provided more suitable habitat for nesting for the few crocodiles present in the area and for growth and survival of hatchling crocodiles.						

Source/Author	Date published	Date of study	Region (of 9)	Specific Locale	Focus	Title	Source
Other Wildlife							
Dalrymple, N.K. and Dalrymple, G.H.	1996					Dade County lake belt plan, wildlife study-8th quarterly report exotic fish exotic species disturbance	Dade County Department of Environmental Resources Management, Florida City, FL
	Brief Notes - Canals served as focal point for wading birds and other wildlife for the Lake Belt Study Area (northwest Dade County). Some details of wildlife survey along canal are included						
Frederick, P.C., Dwyer, N, Fitzgerald, S., Bennetts, R.E.	1990					Relative abundance and habitat preferences of Least Bitterns (Ixobrychus exilis) in the Everglades	*Florida Field Naturalist* 18(1): 1-9
	Brief Notes -- Canals were poorest habitat studied for least bitterns.						

Acronyms and abbreviations:

ARM – Arthur R. Marshall Loxahatchee National Wildlife Refuge

ATLSS – Across Trophic Level System Simulation

CLNWR – Crocodile Lake National Wildlife Refuge

ENP – Everglades National Park

FFWCC – Florida Fish and Wildlife Conservation Commission

GEER – Greater Everglades Ecosystem Restoration

LEC – Lower East Coast

SEAFWA – Southeastern Association of Fish and Wildlife Agencies

TP – Turkey Point Power Plant

USGS – U.S. Geological Society

WCA – Water Conservation Area

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Appendix F

Water Quality Statistics

Page

Table F-1 . Summary Water Quality Statistics By Region

Test_ Code	Units	Region	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
ALK	mg/L	CAL	286	124	45	115	26	94	122	157	241
ALK	mg/L	EAA	4361	202	71	189	30	140	201	244	471
ALK	mg/L	KIS	2956	59	44	47	2	28	42	71	221
ALK	mg/L	LEC	1264	178	45	171	32	147	180	202	294
ALK	mg/L	LWC	478	209	48	202	3	179	214	246	310
ALK	mg/L	UEC	1554	120	50	108	12	82	121	159	238
ALK	mg/L	WCA	4171	188	59	179	44	145	187	224	444
CHLA	mg/M3	CAL	142	11.6	37.5	6.0	0.5	3.0	5.3	11.4	445.0
CHLA	mg/M3	EAA	223	18.6	32.4	10.7	0.5	6.0	10.0	18.6	269.7
CHLA	mg/M3	KIS	1245	15.5	15.9	10.4	0.5	6.0	12.1	21.0	291.4
CHLA	mg/M3	LEC	433	6.6	32.2	2.1	0.5	0.5	2.0	4.0	594.0
CHLA	mg/M3	LWC	16	9.2	13.4	5.7	1.5	3.5	5.3	8.6	56.5
CHLA	mg/M3	UEC	56	13.6	10.6	9.6	0.5	6.0	11.5	17.0	51.0
CHLA	mg/M3	WCA	890	5.5	8.3	2.8	0.5	1.4	2.1	6.0	74.3
CHLA2	mg/M3	CAL	137	8.5	11.7	5.0	0.3	2.5	4.5	8.7	73.8
CHLA2	mg/M3	EAA	221	14.3	28.0	7.9	0.5	4.8	7.0	13.2	232.3
CHLA2	mg/M3	KIS	1242	12.8	14.0	8.4	0.5	4.6	10.0	17.0	247.0
CHLA2	mg/M3	LEC	431	5.6	26.4	2.0	0.5	1.0	2.0	4.0	482.0
CHLA2	mg/M3	LWC	1469	4.0	5.6	2.7	1.5	1.5	1.5	4.8	99.9
CHLA2	mg/M3	UEC	56	10.0	7.3	7.1	0.5	4.5	8.5	14.0	34.0
CHLA2	mg/M3	WCA	929	5.4	8.5	2.7	0.4	1.3	2.0	5.3	101.0
CL	mg/L	CAL	291	59	44	51	7	39	50	62	451
CL	mg/L	EAA	4801	82	51	71	0	50	68	101	1045
CL	mg/L	KIS	2939	60	145	34	2	20	27	50	2457
CL	mg/L	LEC	1686	49	29	45	8	36	42	56	484
CL	mg/L	LWC	482	73	281	23	1	18	27	59	4500
CL	mg/L	UEC	2127	110	99	81	0	49	76	140	1195
CL	mg/L	WCA	4521	72	42	58	0	35	68	101	275
COLOR	PCU	CAL	388	102	80	84	28	54	74	121	644
COLOR	PCU	EAA	2633	84	50	72	18	43	76	110	486
COLOR	PCU	KIS	2939	133	92	110	19	71	112	164	875
COLOR	PCU	LEC	1241	36	22	30	3	16	37	46	177
COLOR	PCU	LWC	1469	74	57	60	3	40	60	100	800
COLOR	PCU	UEC	1528	112	97	82	10	41	76	147	616
COLOR	PCU	WCA	3403	65	32	57	1	41	63	84	229
DO	mg/L	CAL	488	5.75	2.15	5.23	0.39	4.02	6.05	7.48	12.20
DO	mg/L	EAA	9729	5.08	2.28	4.39	0.08	3.21	5.26	6.80	13.00
DO	mg/L	KIS	3061	5.56	2.41	4.74	0.06	3.79	5.90	7.35	12.30
DO	mg/L	LEC	3045	4.07	2.47	3.19	0.09	2.03	3.70	5.87	12.90
DO	mg/L	LWC	1959	5.63	2.33	5.07	0.18	3.75	5.55	7.36	13.61
DO	mg/L	UEC	2759	5.20	2.44	4.30	0.02	3.44	5.40	7.09	13.21
DO	mg/L	WCA	8308	4.19	2.00	3.63	0.08	2.68	4.05	5.49	13.03
NH4	mg/L	CAL	376	0.094	0.137	0.047	0.003	0.020	0.048	0.101	0.938
NH4	mg/L	EAA	5498	0.134	0.220	0.057	0.003	0.023	0.062	0.138	2.678
NH4	mg/L	KIS	2940	0.067	0.104	0.031	0.003	0.013	0.030	0.075	1.200
NH4	mg/L	LEC	1726	0.144	0.154	0.067	0.003	0.025	0.077	0.239	1.186
NH4	mg/L	LWC	372	0.041	0.050	0.021	0.004	0.005	0.020	0.054	0.390
NH4	mg/L	UEC	2857	0.127	0.894	0.043	0.003	0.017	0.046	0.119	29.719
NH4	mg/L	WCA	4503	0.103	0.270	0.039	0.002	0.018	0.034	0.076	3.505
NOX	mg/L	CAL	455	0.205	0.172	0.107	0.002	0.054	0.175	0.312	0.849
NOX	mg/L	EAA	6863	0.345	0.527	0.120	0.002	0.040	0.157	0.453	7.583
NOX	mg/L	KIS	4965	0.263	0.426	0.067	0.002	0.014	0.087	0.322	2.921
NOX	mg/L	LEC	3456	0.076	0.104	0.041	0.002	0.019	0.048	0.097	2.260
NOX	mg/L	LWC	1264	0.034	0.050	0.015	0.001	0.005	0.010	0.050	0.820
NOX	mg/L	UEC	3463	0.228	1.502	0.062	0.001	0.017	0.085	0.244	61.548
NOX	mg/L	WCA	6993	0.061	0.173	0.022	0.002	0.009	0.022	0.048	4.200
OPO4	mg/L	CAL	372	0.094	0.090	0.066	0.002	0.045	0.071	0.118	0.830
OPO4	mg/L	EAA	7090	0.054	0.063	0.027	0.001	0.010	0.037	0.074	0.826
OPO4	mg/L	KIS	2902	0.057	0.077	0.027	0.001	0.010	0.031	0.074	0.868
OPO4	mg/L	LEC	1815	0.016	0.036	0.004	0.001	0.002	0.002	0.008	0.344
OPO4	mg/L	LWC	1281	0.008	0.012	0.005	0.002	0.002	0.005	0.009	0.244
OPO4	mg/L	UEC	2195	0.202	0.214	0.110	0.001	0.054	0.121	0.287	1.610
OPO4	mg/L	WCA	4699	0.012	0.027	0.005	0.001	0.002	0.004	0.008	0.544
SCOND	µS/cm	CAL	480	524	246	484	146	391	468	591	2574

Table F-1 . Summary Water Quality Statistics By Region

Test_ Code	Units	Region	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
SCOND	µS/cm	EAA	10086	737	312	681	8	535	658	876	3390
SCOND	µS/cm	KIS	3091	390	532	280	58	165	238	436	7415
SCOND	µS/cm	LEC	3102	603	164	582	5	505	554	726	1939
SCOND	µS/cm	LWC	1945	667	722	587	178	476	579	699	16063
SCOND	µS/cm	UEC	2788	593	377	492	53	331	515	735	5007
SCOND	µS/cm	WCA	8408	628	337	577	1	455	596	752	7995
TEMP	°C	CAL	524	24.9	4.3	24.5	12.9	21.4	25.0	28.8	33.1
TEMP	°C	EAA	9963	25.1	4.2	24.7	3.2	21.8	25.8	28.7	36.5
TEMP	°C	KIS	3089	24.8	4.6	24.3	11.0	21.1	25.3	28.9	36.4
TEMP	°C	LEC	3139	25.3	2.8	25.2	15.3	23.4	25.6	27.4	32.6
TEMP	°C	LWC	2072	24.9	3.6	24.6	13.9	22.3	25.6	27.7	32.5
TEMP	°C	UEC	2803	24.4	4.4	24.0	10.3	21.2	25.0	28.2	39.8
TEMP	°C	WCA	7841	25.1	3.9	24.8	13.0	22.2	25.6	28.6	35.0
TKN	mg/L	CAL	474	1.31	0.38	1.25	0.03	1.05	1.24	1.47	3.03
TKN	mg/L	EAA	6996	1.94	0.95	1.79	0.03	1.36	1.68	2.23	30.52
TKN	mg/L	KIS	6594	1.45	0.63	1.36	0.10	1.10	1.34	1.69	24.00
TKN	mg/L	LEC	3784	0.93	0.38	0.85	0.03	0.61	0.87	1.19	5.45
TKN	mg/L	LWC	1146	0.68	0.37	0.58	0.02	0.46	0.62	0.82	3.43
TKN	mg/L	UEC	4150	1.46	0.96	1.35	0.13	1.10	1.36	1.64	29.56
TKN	mg/L	WCA	7704	1.39	0.59	1.31	0.03	1.04	1.28	1.58	11.09
TOTN	mg/L	CAL	454	1.49	0.34	1.46	0.50	1.30	1.43	1.60	3.00
TOTN	mg/L	EAA	6823	2.28	1.25	2.06	0.10	1.50	1.90	2.60	30.90
TOTN	mg/L	KIS	4933	1.80	0.78	1.69	0.10	1.30	1.70	2.10	25.20
TOTN	mg/L	LEC	3436	1.01	0.41	0.93	0.25	0.70	0.95	1.30	5.70
TOTN	mg/L	LWC	1070	0.73	0.38	0.64	0.05	0.50	0.70	0.90	3.40
TOTN	mg/L	UEC	3398	1.66	2.36	1.48	0.10	1.20	1.50	1.80	89.60
TOTN	mg/L	WCA	6937	1.47	0.67	1.37	0.25	1.10	1.30	1.60	11.10
TPO4	mg/L	CAL	458	0.145	0.096	0.126	0.020	0.092	0.121	0.170	1.136
TPO4	mg/L	EAA	16057	0.111	0.114	0.078	0.007	0.044	0.080	0.142	3.944
TPO4	mg/L	KIS	9581	0.129	0.181	0.100	0.002	0.062	0.091	0.149	10.000
TPO4	mg/L	LEC	5196	0.021	0.040	0.012	0.001	0.006	0.009	0.016	0.925
TPO4	mg/L	LWC	1231	0.025	0.026	0.020	0.002	0.012	0.020	0.030	0.435
TPO4	mg/L	UEC	5294	0.324	0.246	0.250	0.006	0.153	0.260	0.418	2.003
TPO4	mg/L	UKB	139	0.099	0.172	0.047	0.012	0.025	0.033	0.055	1.024
TPO4	mg/L	WCA	11994	0.030	0.086	0.020	0.001	0.011	0.017	0.033	8.540
TURB	NTU	CAL	385	6.4	7.0	4.4	0.4	2.5	3.8	7.5	56.8
TURB	NTU	EAA	4105	15.1	30.5	6.4	0.6	2.6	4.9	12.9	366.0
TURB	NTU	KIS	2970	4.9	4.1	4.0	0.1	2.6	3.8	5.7	57.6
TURB	NTU	LEC	1602	3.2	4.9	2.3	0.2	1.4	2.3	3.4	110.0
TURB	NTU	LWC	1563	2.1	2.4	1.5	0.1	0.9	1.5	2.5	53.2
TURB	NTU	UEC	1675	16.2	33.6	6.3	0.1	2.8	4.6	11.8	386.0
TURB	NTU	WCA	3789	3.0	7.8	1.7	0.1	0.9	1.5	2.8	243.0

Table F-2 . Summary Water Quality Statistics By Canal												
Test_ Code	**Units**	**Region**	**Canal**	**01_ N**	**02_ Mean**	**03_ StdDev**	**04_ GeoMean**	**05_ Min**	**06_ P25**	**07_ Median**	08_ P75	09_ Max
TOTN	mg/L	CAL	C-19	53	1.76	0.42	1.72	1.20	1.40	1.60	2.00	2.90
TOTN	mg/L	CAL	C-43	299	1.40	0.28	1.38	0.50	1.20	1.40	1.50	2.80
TOTN	mg/L	CAL	L-41/L-42	102	1.61	0.35	1.58	1.00	1.40	1.50	1.80	3.00
TOTN	mg/L	EAA	C-21	155	1.87	0.60	1.78	0.25	1.50	1.70	2.10	3.80
TOTN	mg/L	EAA	Industrial	172	2.14	0.84	2.00	1.00	1.50	1.90	2.50	5.20
TOTN	mg/L	EAA	L-10	779	2.25	1.63	2.02	1.00	1.60	1.90	2.40	30.90
TOTN	mg/L	EAA	L-12	654	3.09	1.40	2.79	1.00	1.90	2.90	4.00	9.40
TOTN	mg/L	EAA	L-14/L-20	253	3.84	2.09	3.32	0.90	2.10	3.60	5.00	13.80
TOTN	mg/L	EAA	L-15	582	3.05	1.09	2.86	1.10	2.30	2.90	3.70	7.80
TOTN	mg/L	EAA	L-1e	339	1.64	0.45	1.60	0.10	1.40	1.60	1.80	7.30
TOTN	mg/L	EAA	L-2	961	1.52	0.39	1.48	0.90	1.30	1.50	1.70	6.60
TOTN	mg/L	EAA	L-23	244	2.55	1.28	2.28	1.00	1.50	2.10	3.35	6.90
TOTN	mg/L	EAA	L-25	217	2.95	1.60	2.62	0.90	1.80	2.60	3.83	10.90
TOTN	mg/L	EAA	L-3	323	1.56	0.27	1.54	1.00	1.40	1.50	1.70	2.90
TOTN	mg/L	EAA	L-5	659	2.05	0.78	1.94	0.80	1.60	1.90	2.30	6.40
TOTN	mg/L	EAA	L-6	387	2.19	0.72	2.09	0.70	1.80	2.00	2.40	5.60
TOTN	mg/L	EAA	L-7	190	2.76	1.22	2.53	1.10	1.80	2.40	3.70	7.30
TOTN	mg/L	EAA	L-8	908	2.05	0.91	1.91	0.90	1.50	1.80	2.30	7.00
TOTN	mg/L	KIS	C-38	1294	1.24	0.28	1.21	0.25	1.10	1.20	1.40	3.70
TOTN	mg/L	KIS	C-40	1122	1.92	0.57	1.85	0.70	1.50	1.80	2.20	6.00
TOTN	mg/L	KIS	C-41	1328	2.26	1.04	2.15	0.10	1.80	2.10	2.50	25.20
TOTN	mg/L	KIS	C-41A	235	1.39	0.53	1.33	0.60	1.10	1.30	1.50	6.80
TOTN	mg/L	KIS	L-48	120	1.99	0.33	1.96	1.20	1.80	1.90	2.20	3.20
TOTN	mg/L	KIS	L-49	123	1.59	0.23	1.57	1.20	1.40	1.60	1.70	2.70
TOTN	mg/L	KIS	L-50	256	1.72	0.54	1.66	1.00	1.40	1.60	1.80	4.40
TOTN	mg/L	KIS	L-59	236	2.08	0.76	1.96	0.80	1.50	1.90	2.40	5.10
TOTN	mg/L	KIS	L-60W	96	1.90	0.52	1.84	1.20	1.50	1.80	2.10	3.70
TOTN	mg/L	KIS	L-61	123	2.10	0.63	2.01	1.00	1.70	2.00	2.40	4.40
TOTN	mg/L	LEC	C-11	518	1.49	0.16	1.48	0.70	1.40	1.50	1.60	1.90
TOTN	mg/L	LEC	C-111	1084	0.71	0.30	0.66	0.25	0.60	0.60	0.80	5.70
TOTN	mg/L	LEC	C-111e	131	0.94	0.55	0.82	0.25	0.60	0.80	1.08	3.50
TOTN	mg/L	LEC	C-15	120	1.17	0.46	1.11	0.70	0.90	1.00	1.30	4.20
TOTN	mg/L	LEC	C-16	122	1.16	0.50	1.10	0.60	0.90	1.10	1.30	5.50
TOTN	mg/L	LEC	C-17	122	1.03	0.19	1.01	0.60	0.90	1.00	1.20	1.50
TOTN	mg/L	LEC	C-18	109	0.87	0.20	0.85	0.50	0.70	0.80	1.00	1.90
TOTN	mg/L	LEC	C-51	123	1.27	0.42	1.22	0.70	1.00	1.20	1.48	3.90
TOTN	mg/L	LEC	L-31n	1107	1.04	0.32	0.99	0.25	0.80	1.00	1.20	2.70
TOTN	mg/L	LWC	Airport Road	71	0.86	0.35	0.78	0.05	0.70	0.80	1.00	2.50
TOTN	mg/L	LWC	Cocohatchee	117	0.75	0.33	0.70	0.10	0.60	0.70	0.90	2.90
TOTN	mg/L	LWC	Corkscrew	70	1.32	0.48	1.21	0.10	1.00	1.20	1.60	2.60
TOTN	mg/L	LWC	Cr-951	130	0.83	0.30	0.79	0.10	0.70	0.80	0.90	2.10
TOTN	mg/L	LWC	Faka Union	272	0.58	0.32	0.52	0.05	0.40	0.50	0.70	3.40
TOTN	mg/L	LWC	Golden Gate	69	0.75	0.30	0.68	0.05	0.60	0.70	0.90	1.90
TOTN	mg/L	LWC	Golden Gate Main	67	0.78	0.37	0.70	0.10	0.60	0.70	0.90	2.70
TOTN	mg/L	LWC	Henderson	71	0.69	0.27	0.63	0.05	0.50	0.60	0.80	2.00
TOTN	mg/L	LWC	Merritt	138	0.57	0.30	0.50	0.05	0.40	0.50	0.60	1.80
TOTN	mg/L	LWC	Miller	65	0.62	0.27	0.58	0.20	0.50	0.60	0.70	1.80
TOTN	mg/L	UEC	C-23	408	1.44	0.43	1.37	0.25	1.10	1.50	1.70	3.80
TOTN	mg/L	UEC	C-24	373	1.40	0.42	1.35	0.70	1.10	1.40	1.60	5.80
TOTN	mg/L	UEC	C-25	406	1.30	0.42	1.23	0.25	1.00	1.30	1.60	2.70
TOTN	mg/L	UEC	C-44	695	1.64	0.59	1.56	0.80	1.30	1.50	1.80	5.40
TOTN	mg/L	UEC	C-59	234	1.64	0.46	1.58	0.90	1.30	1.60	2.00	2.90
TOTN	mg/L	UEC	L-47	128	1.54	0.29	1.52	1.10	1.40	1.50	1.60	3.70
TOTN	mg/L	UEC	L-62	222	1.62	0.42	1.58	0.80	1.30	1.50	1.80	3.60
TOTN	mg/L	UEC	L-63n	289	2.50	7.69	1.44	0.20	0.90	1.30	2.00	89.60
TOTN	mg/L	UEC	L-63s	62	2.58	2.95	2.02	0.70	1.60	1.88	2.10	21.90
TOTN	mg/L	UEC	Ld-4	127	1.63	0.29	1.61	1.10	1.40	1.60	1.80	2.50
TOTN	mg/L	UEC	Taylor Creek	454	1.84	0.90	1.68	0.10	1.30	1.70	2.20	11.15
TOTN	mg/L	WCA	C-123	156	1.57	0.31	1.55	1.00	1.40	1.60	1.70	4.00
TOTN	mg/L	WCA	C-304	104	1.37	0.25	1.35	1.00	1.20	1.30	1.50	2.00
TOTN	mg/L	WCA	C-51	135	1.77	0.64	1.68	1.00	1.40	1.60	1.90	5.00
TOTN	mg/L	WCA	L-23/C-123	153	1.51	0.35	1.48	1.00	1.30	1.50	1.70	3.30
TOTN	mg/L	WCA	L-28	357	1.20	0.34	1.17	0.25	1.02	1.20	1.30	6.10

Table F-2 . Summary Water Quality Statistics By Canal												
Test_ Code	**Units**	**Regi on**	**Canal**	**01_ N**	**02_ Mean**	**03_ StdDev**	**04_ GeoMean**	**05_ Min**	**06_ P25**	**07_ Median**	08_ P75	09_ Max
TOTN	mg/L	WCA	L-28 Interceptor	154	1.11	0.14	1.10	0.70	1.00	1.10	1.20	1.60
TOTN	mg/L	WCA	L-29	3522	1.23	0.39	1.18	0.25	1.00	1.20	1.50	11.10
TOTN	mg/L	WCA	L-30	20	1.33	0.22	1.31	0.90	1.15	1.35	1.45	1.70
TOTN	mg/L	WCA	L-31W	26	0.76	0.25	0.73	0.48	0.56	0.67	1.00	1.20
TOTN	mg/L	WCA	L-35	120	1.68	0.37	1.65	0.80	1.50	1.60	1.80	3.70
TOTN	mg/L	WCA	L-35b	337	1.63	0.43	1.57	0.25	1.30	1.60	1.90	3.10
TOTN	mg/L	WCA	L-38e	573	1.80	0.51	1.74	0.70	1.50	1.70	2.00	4.40
TOTN	mg/L	WCA	L-39	710	2.26	1.11	2.04	0.75	1.50	1.90	2.70	6.40
TOTN	mg/L	WCA	L-40	143	1.77	0.75	1.65	0.80	1.30	1.60	2.00	5.50
TOTN	mg/L	WCA	L-7	207	2.34	1.04	2.16	0.94	1.62	2.00	2.70	7.70
TOTN	mg/L	WCA	West Feeder	220	1.16	0.20	1.14	0.70	1.00	1.10	1.30	1.90
TPO4	mg/L	CAL	C-19	60	0.213	0.193	0.164	0.045	0.099	0.144	0.252	1.136
TPO4	mg/L	CAL	C-43	292	0.132	0.062	0.119	0.020	0.095	0.120	0.158	0.561
TPO4	mg/L	CAL	L-41/L-42	106	0.144	0.074	0.128	0.052	0.089	0.120	0.171	0.450
TPO4	mg/L	EAA	C-21	157	0.117	0.059	0.104	0.039	0.075	0.098	0.145	0.362
TPO4	mg/L	EAA	Industrial	172	0.130	0.079	0.114	0.039	0.080	0.111	0.154	0.535
TPO4	mg/L	EAA	L-1	213	0.059	0.024	0.055	0.025	0.041	0.052	0.071	0.161
TPO4	mg/L	EAA	L-10	887	0.218	0.146	0.193	0.023	0.140	0.183	0.251	2.568
TPO4	mg/L	EAA	L-12	959	0.138	0.077	0.120	0.016	0.084	0.121	0.169	0.822
TPO4	mg/L	EAA	L-13	246	0.124	0.080	0.105	0.030	0.072	0.105	0.145	0.558
TPO4	mg/L	EAA	L-14	3	0.145	0.007	0.145	0.137	0.140	0.147	0.150	0.151
TPO4	mg/L	EAA	L-14/L-20	256	0.155	0.161	0.124	0.033	0.084	0.119	0.185	1.653
TPO4	mg/L	EAA	L-15	937	0.075	0.061	0.058	0.013	0.032	0.060	0.100	0.799
TPO4	mg/L	EAA	L-18	210	0.042	0.024	0.036	0.008	0.026	0.040	0.053	0.138
TPO4	mg/L	EAA	L-1e	618	0.094	0.109	0.067	0.015	0.038	0.057	0.104	1.440
TPO4	mg/L	EAA	L-2	3762	0.150	0.150	0.117	0.024	0.071	0.107	0.180	3.944
TPO4	mg/L	EAA	L-23	1862	0.054	0.043	0.043	0.007	0.027	0.042	0.067	0.591
TPO4	mg/L	EAA	L-25	224	0.099	0.074	0.083	0.027	0.055	0.081	0.115	0.589
TPO4	mg/L	EAA	L-2w	205	0.070	0.049	0.061	0.027	0.043	0.056	0.080	0.566
TPO4	mg/L	EAA	L-3	1234	0.084	0.081	0.062	0.008	0.039	0.055	0.093	0.791
TPO4	mg/L	EAA	L-3w	321	0.110	0.118	0.077	0.016	0.044	0.067	0.122	0.915
TPO4	mg/L	EAA	L-5	1205	0.041	0.050	0.031	0.007	0.018	0.027	0.049	1.286
TPO4	mg/L	EAA	L-6	633	0.033	0.028	0.026	0.007	0.015	0.024	0.039	0.319
TPO4	mg/L	EAA	L-7	621	0.147	0.084	0.124	0.018	0.089	0.137	0.192	0.706
TPO4	mg/L	EAA	L-8	1332	0.140	0.094	0.116	0.016	0.078	0.119	0.177	0.723
TPO4	mg/L	KIS	C-38	5069	0.085	0.055	0.074	0.002	0.054	0.070	0.097	1.137
TPO4	mg/L	KIS	C-40	1416	0.205	0.132	0.176	0.021	0.121	0.166	0.251	1.380
TPO4	mg/L	KIS	C-41	1728	0.200	0.366	0.154	0.002	0.097	0.140	0.234	10.000
TPO4	mg/L	KIS	C-41A	295	0.081	0.060	0.068	0.025	0.049	0.066	0.089	0.491
TPO4	mg/L	KIS	Istokpoga	87	0.064	0.029	0.060	0.030	0.049	0.058	0.070	0.242
TPO4	mg/L	KIS	L-48	123	0.144	0.110	0.115	0.033	0.065	0.108	0.193	0.673
TPO4	mg/L	KIS	L-49	130	0.076	0.038	0.068	0.028	0.045	0.069	0.097	0.199
TPO4	mg/L	KIS	L-50	263	0.106	0.052	0.096	0.034	0.069	0.101	0.130	0.434
TPO4	mg/L	KIS	L-59	245	0.192	0.180	0.152	0.034	0.099	0.135	0.228	1.926
TPO4	mg/L	KIS	L-60W	98	0.139	0.089	0.120	0.052	0.079	0.118	0.165	0.524
TPO4	mg/L	KIS	L-61	127	0.172	0.121	0.141	0.035	0.084	0.137	0.206	0.686
TPO4	mg/L	LEC	C-11	1366	0.015	0.008	0.014	0.004	0.011	0.013	0.017	0.140
TPO4	mg/L	LEC	C-111	1439	0.007	0.006	0.006	0.001	0.005	0.006	0.008	0.126
TPO4	mg/L	LEC	C-111e	224	0.042	0.039	0.031	0.006	0.019	0.030	0.048	0.286
TPO4	mg/L	LEC	C-15	122	0.167	0.107	0.142	0.029	0.098	0.127	0.204	0.702
TPO4	mg/L	LEC	C-16	123	0.112	0.099	0.092	0.027	0.060	0.088	0.125	0.925
TPO4	mg/L	LEC	C-17	124	0.056	0.021	0.052	0.017	0.042	0.051	0.065	0.130
TPO4	mg/L	LEC	C-18	112	0.028	0.019	0.023	0.009	0.015	0.022	0.037	0.112
TPO4	mg/L	LEC	C-51	165	0.076	0.040	0.067	0.024	0.049	0.067	0.093	0.279
TPO4	mg/L	LEC	L-31n	1521	0.008	0.004	0.007	0.003	0.006	0.007	0.009	0.051
TPO4	mg/L	LWC	Airport Road	80	0.047	0.026	0.041	0.012	0.027	0.040	0.062	0.130
TPO4	mg/L	LWC	Cocohatchee	138	0.028	0.028	0.022	0.002	0.016	0.020	0.031	0.256
TPO4	mg/L	LWC	Corkscrew	77	0.037	0.034	0.029	0.005	0.021	0.027	0.037	0.260
TPO4	mg/L	LWC	Cr-951	150	0.024	0.023	0.019	0.002	0.012	0.018	0.028	0.165
TPO4	mg/L	LWC	Faka Union	316	0.023	0.029	0.017	0.002	0.010	0.017	0.029	0.435
TPO4	mg/L	LWC	Golden Gate	78	0.026	0.041	0.020	0.005	0.016	0.020	0.024	0.315
TPO4	mg/L	LWC	Golden Gate Main	75	0.031	0.015	0.027	0.005	0.020	0.028	0.038	0.070
TPO4	mg/L	LWC	Henderson	78	0.020	0.013	0.018	0.007	0.012	0.019	0.023	0.105

Table F-2 . Summary Water Quality Statistics By Canal

Test_ Code	Units	Region	Canal	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TPO4	mg/L	LWC	Merritt	158	0.018	0.012	0.016	0.002	0.010	0.016	0.023	0.072
TPO4	mg/L	LWC	Miller	81	0.013	0.006	0.012	0.005	0.009	0.012	0.015	0.036
TPO4	mg/L	UEC	C-23	427	0.365	0.190	0.313	0.066	0.219	0.341	0.473	1.100
TPO4	mg/L	UEC	C-24	386	0.280	0.167	0.232	0.038	0.147	0.262	0.363	1.020
TPO4	mg/L	UEC	C-25	437	0.205	0.166	0.148	0.017	0.079	0.156	0.292	0.895
TPO4	mg/L	UEC	C-44	714	0.198	0.106	0.177	0.050	0.125	0.170	0.241	0.908
TPO4	mg/L	UEC	C-59	991	0.432	0.225	0.380	0.085	0.254	0.366	0.562	1.242
TPO4	mg/L	UEC	L-47	133	0.106	0.063	0.091	0.028	0.063	0.086	0.129	0.342
TPO4	mg/L	UEC	L-62	1047	0.361	0.337	0.255	0.027	0.137	0.230	0.462	2.003
TPO4	mg/L	UEC	L-63n	342	0.293	0.256	0.207	0.006	0.130	0.225	0.344	1.520
TPO4	mg/L	UEC	L-63s	71	0.342	0.257	0.227	0.010	0.110	0.301	0.488	1.100
TPO4	mg/L	UEC	Ld-4	131	0.196	0.132	0.165	0.050	0.109	0.145	0.225	0.688
TPO4	mg/L	UEC	Taylor Creek	615	0.412	0.219	0.363	0.071	0.264	0.357	0.484	1.370
TPO4	mg/L	UKB	C-29a	21	0.033	0.007	0.032	0.020	0.030	0.032	0.038	0.050
TPO4	mg/L	UKB	C-29b	28	0.041	0.012	0.039	0.023	0.033	0.038	0.048	0.069
TPO4	mg/L	UKB	C-30	13	0.021	0.005	0.020	0.014	0.017	0.019	0.026	0.029
TPO4	mg/L	UKB	C-32g	23	0.025	0.014	0.023	0.012	0.016	0.020	0.026	0.071
TPO4	mg/L	UKB	C-33	8	0.029	0.008	0.028	0.017	0.024	0.027	0.033	0.044
TPO4	mg/L	UKB	C-34	46	0.235	0.248	0.122	0.018	0.033	0.135	0.379	1.024
TPO4	mg/L	WCA	C-123	161	0.019	0.011	0.016	0.006	0.011	0.015	0.021	0.072
TPO4	mg/L	WCA	C-304	105	0.016	0.018	0.013	0.006	0.010	0.012	0.015	0.171
TPO4	mg/L	WCA	C-51	140	0.115	0.065	0.100	0.029	0.068	0.103	0.142	0.409
TPO4	mg/L	WCA	L-23/C-123	158	0.033	0.022	0.028	0.010	0.018	0.027	0.041	0.136
TPO4	mg/L	WCA	L-28	923	0.044	0.036	0.038	0.009	0.029	0.037	0.049	0.783
TPO4	mg/L	WCA	L-28 Interceptor	532	0.060	0.050	0.047	0.001	0.029	0.040	0.080	0.368
TPO4	mg/L	WCA	L-29	6229	0.016	0.109	0.013	0.001	0.009	0.012	0.017	8.540
TPO4	mg/L	WCA	L-30	38	0.010	0.017	0.008	0.004	0.006	0.007	0.010	0.110
TPO4	mg/L	WCA	L-31W	27	0.007	0.003	0.006	0.002	0.005	0.007	0.008	0.015
TPO4	mg/L	WCA	L-35	512	0.018	0.010	0.017	0.007	0.012	0.016	0.021	0.108
TPO4	mg/L	WCA	L-35b	337	0.017	0.017	0.013	0.002	0.008	0.011	0.019	0.222
TPO4	mg/L	WCA	L-38e	587	0.023	0.020	0.018	0.006	0.012	0.017	0.026	0.199
TPO4	mg/L	WCA	L-39	782	0.049	0.037	0.039	0.004	0.024	0.039	0.063	0.306
TPO4	mg/L	WCA	L-40	168	0.069	0.081	0.050	0.011	0.028	0.047	0.078	0.653
TPO4	mg/L	WCA	L-7	428	0.109	0.073	0.086	0.004	0.050	0.092	0.152	0.541
TPO4	mg/L	WCA	West Feeder	867	0.044	0.025	0.038	0.012	0.027	0.037	0.052	0.235

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
ALK	mg/L	3AE0	63	191	37	187	113	166	201	217	267
ALK	mg/L	3AW0	91	187	37	183	97	163	190	213	270
ALK	mg/L	BC10	31	209	66	195	68	161	232	255	308
ALK	mg/L	BC11	30	197	52	189	102	142	215	241	272
ALK	mg/L	BC14	30	185	32	182	132	164	187	218	246
ALK	mg/L	BC15	30	193	42	189	120	166	186	221	308
ALK	mg/L	BC22	32	211	50	204	90	187	212	258	280
ALK	mg/L	BC23	32	228	35	225	148	202	238	250	310
ALK	mg/L	BC26	26	184	34	181	118	165	186	206	268
ALK	mg/L	BC7	32	228	49	221	104	200	236	268	288
ALK	mg/L	BC8	32	212	37	209	140	178	214	239	276
ALK	mg/L	BC9	31	258	41	253	78	247	264	278	307
ALK	mg/L	C123SR84	132	208	42	204	125	178	204	231	352
ALK	mg/L	C15S40	125	147	17	146	32	139	149	155	207
ALK	mg/L	C16S41	125	144	15	144	100	135	145	150	210
ALK	mg/L	C17S44	125	159	19	158	101	145	164	174	192
ALK	mg/L	C18S46	112	144	48	134	45	98	151	186	228
ALK	mg/L	C23S48	130	160	41	154	74	131	165	194	231
ALK	mg/L	C24S49	130	143	36	137	12	122	150	167	238
ALK	mg/L	C25S50	130	170	32	166	90	150	179	197	214
ALK	mg/L	C44S80	130	150	37	146	80	117	149	185	225
ALK	mg/L	C51S155	125	163	23	161	96	148	161	178	228
ALK	mg/L	COC@LAKE	19	203	37	199	144	174	201	230	278
ALK	mg/L	CORK@846	31	189	76	174	94	115	180	262	304
ALK	mg/L	CR-04.8T	61	141	45	133	61	105	143	166	227
ALK	mg/L	CULV10A	229	134	55	126	30	102	121	148	451
ALK	mg/L	CULV5A	107	101	49	90	26	63	92	126	241
ALK	mg/L	E0	119	262	74	249	61	204	262	320	401
ALK	mg/L	F0	118	277	74	265	72	228	284	332	444
ALK	mg/L	FAKA	32	211	51	188	3	193	225	248	276
ALK	mg/L	FAKA858	28	199	34	196	120	177	196	225	279
ALK	mg/L	FROGCITY	40	184	34	181	126	159	187	206	246
ALK	mg/L	G123	105	247	46	243	130	213	247	286	334
ALK	mg/L	G136	152	189	36	185	88	173	198	213	266
ALK	mg/L	G300	97	201	58	194	110	156	193	231	350
ALK	mg/L	G301	98	217	66	207	102	163	218	263	369
ALK	mg/L	G302	241	221	75	209	92	159	214	285	382
ALK	mg/L	G311	92	199	62	190	109	155	187	228	381
ALK	mg/L	G342A	248	190	46	184	72	158	205	224	309
ALK	mg/L	G342B	247	195	44	189	79	171	206	229	266
ALK	mg/L	G342C	245	201	43	195	80	182	211	232	276
ALK	mg/L	G342D	245	206	43	201	81	182	213	239	277
ALK	mg/L	G342E	10	219	32	217	154	198	229	245	253
ALK	mg/L	G342F	10	214	27	213	156	199	224	231	246
ALK	mg/L	G353A	15	174	21	172	129	161	178	190	203
ALK	mg/L	G353B	35	185	18	185	130	174	192	198	211
ALK	mg/L	G353C	15	172	17	171	141	159	172	186	197
ALK	mg/L	G372	134	213	67	202	94	140	231	260	353
ALK	mg/L	G94B	113	151	53	142	46	123	148	182	307
ALK	mg/L	GGC@858	31	202	11	202	175	198	204	210	224
ALK	mg/L	GGCAT31	31	227	23	226	168	213	228	246	265
ALK	mg/L	INDUSCAN	172	179	66	168	86	119	163	231	411
ALK	mg/L	L3BRS	248	207	44	202	94	172	214	242	287
ALK	mg/L	L59E	124	95	41	85	17	66	90	124	210
ALK	mg/L	L59W	120	71	31	64	11	44	65	93	142
ALK	mg/L	L60W	98	65	26	60	23	42	65	84	130
ALK	mg/L	L61E	126	51	23	46	15	31	48	65	146
ALK	mg/L	L61W	128	79	41	68	7	51	72	97	196
ALK	mg/L	LOXA104	23	232	41	229	161	197	232	263	315
ALK	mg/L	LOXA135	24	191	46	186	126	158	190	214	298
ALK	mg/L	S10A	61	141	50	132	54	109	141	173	304
ALK	mg/L	S10C	63	162	75	144	44	102	160	214	340
ALK	mg/L	S10D	138	201	69	189	57	149	204	245	397
ALK	mg/L	S11A	136	206	46	201	109	171	202	240	333

Table F-3 . Summary Water Quality Statistics By Station											
Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
ALK	mg/L	S11B	105	202	41	197	114	171	197	229	329
ALK	mg/L	S11C	159	227	45	222	107	194	233	254	344
ALK	mg/L	S127	122	150	25	148	74	135	152	169	192
ALK	mg/L	S129	130	155	30	153	78	133	154	178	221
ALK	mg/L	S12A	131	123	30	119	72	100	116	137	214
ALK	mg/L	S12B	139	125	28	122	70	105	120	136	213
ALK	mg/L	S12C	146	137	27	135	64	118	136	157	203
ALK	mg/L	S12D	184	165	34	161	88	134	172	190	243
ALK	mg/L	S131	135	138	25	135	47	121	138	157	201
ALK	mg/L	S133	131	133	20	131	80	120	134	146	193
ALK	mg/L	S135	133	164	23	163	100	150	166	182	215
ALK	mg/L	S140	155	186	36	182	87	155	187	216	249
ALK	mg/L	S145	145	184	39	180	70	159	184	211	274
ALK	mg/L	S150	142	233	56	226	106	196	242	270	375
ALK	mg/L	S151	136	223	35	220	124	201	221	246	320
ALK	mg/L	S154	230	50	16	48	29	40	48	56	190
ALK	mg/L	S169	157	145	43	140	90	113	128	172	271
ALK	mg/L	S177	177	203	16	202	117	196	200	207	265
ALK	mg/L	S178	108	133	42	125	51	103	131	171	208
ALK	mg/L	S18C	169	199	9	199	174	194	199	204	246
ALK	mg/L	S190	130	208	45	203	107	184	213	243	307
ALK	mg/L	S191	239	77	22	73	29	60	81	95	152
ALK	mg/L	S197	22	184	15	183	142	177	187	195	201
ALK	mg/L	S2	164	246	105	221	102	127	267	332	471
ALK	mg/L	S3	162	192	70	180	81	123	195	255	341
ALK	mg/L	S308C	230	121	29	118	63	101	116	136	228
ALK	mg/L	S31	87	229	28	227	133	207	230	249	288
ALK	mg/L	S331	1	209		209	209				209
ALK	mg/L	S332B	10	219	18	218	196	207	222	226	258
ALK	mg/L	S332C	10	217	18	216	198	203	214	226	256
ALK	mg/L	S333	174	173	30	170	98	150	173	192	246
ALK	mg/L	S334	92	184	25	183	126	169	185	204	240
ALK	mg/L	S34	146	222	40	219	122	196	220	248	338
ALK	mg/L	S344	28	112	30	108	53	89	107	141	165
ALK	mg/L	S352	254	130	52	124	72	103	117	135	448
ALK	mg/L	S38	151	174	39	169	84	143	172	200	286
ALK	mg/L	S39	136	156	57	146	49	117	153	182	378
ALK	mg/L	S390	71	117	32	112	36	100	121	138	186
ALK	mg/L	S5A	260	225	84	209	98	144	216	300	447
ALK	mg/L	S5AE	137	131	45	125	47	103	120	149	284
ALK	mg/L	S5AS	105	197	70	185	94	133	192	238	354
ALK	mg/L	S5AW	57	155	57	145	48	110	140	194	307
ALK	mg/L	S6	243	295	70	284	119	268	315	338	424
ALK	mg/L	S65	258	29	9	28	8	22	28	36	49
ALK	mg/L	S65A	257	31	12	29	9	22	29	39	66
ALK	mg/L	S65C	259	39	16	36	2	26	35	50	78
ALK	mg/L	S65D	260	38	13	36	13	27	36	47	69
ALK	mg/L	S65E	300	39	12	37	14	28	37	47	68
ALK	mg/L	S7	183	249	63	240	104	208	252	291	398
ALK	mg/L	S71	239	42	22	37	13	27	35	51	126
ALK	mg/L	S72	156	59	31	53	11	38	48	69	154
ALK	mg/L	S78	60	134	33	130	76	104	131	161	200
ALK	mg/L	S79	58	141	29	138	83	117	141	162	193
ALK	mg/L	S8	176	212	47	206	105	184	219	247	312
ALK	mg/L	S84	244	35	18	30	6	22	29	44	89
ALK	mg/L	S9	135	253	22	252	176	239	254	270	294
ALK	mg/L	S9A	20	260	16	259	212	248	264	272	281
ALK	mg/L	T0E	13	205	11	204	176	200	205	213	216
ALK	mg/L	T0W	14	204	15	204	168	199	204	215	228
ALK	mg/L	TAMBR6	53	185	30	183	127	164	190	208	236
ALK	mg/L	US41-25	166	158	43	152	77	114	159	199	258
ALK	mg/L	X0	124	210	56	202	73	174	210	254	313
ALK	mg/L	Z0	119	210	59	201	73	165	210	253	387
CHLA	mg/M3	BC10	1	3.7		3.7	3.7				3.7

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
CHLA	mg/M3	BC11	1	5.9		5.9	5.9				5.9
CHLA	mg/M3	BC14	1	1.5		1.5	1.5				1.5
CHLA	mg/M3	BC15	1	20.8		20.8	20.8				20.8
CHLA	mg/M3	BC22	1	3.7		3.7	3.7				3.7
CHLA	mg/M3	BC23	1	3.2		3.2	3.2				3.2
CHLA	mg/M3	BC26	1	3.7		3.7	3.7				3.7
CHLA	mg/M3	BC7	1	3.2		3.2	3.2				3.2
CHLA	mg/M3	BC8	1	9.1		9.1	9.1				9.1
CHLA	mg/M3	BC9	1	1.5		1.5	1.5				1.5
CHLA	mg/M3	C44S80	7	8.6	6.2	6.5	2.0	3.3	7.0	13.5	18.0
CHLA	mg/M3	C51S155	11	17.9	15.1	12.1	1.0	6.3	18.0	21.3	57.0
CHLA	mg/M3	CES01	126	12.1	39.7	6.2	0.5	3.2	5.7	11.4	445.0
CHLA	mg/M3	COC@LAKE	1	56.5		56.5	56.5				56.5
CHLA	mg/M3	CORK@846	1	9.6		9.6	9.6				9.6
CHLA	mg/M3	CULV10A	6	1.9	1.6	1.5	0.5	1.0	1.5	2.0	5.0
CHLA	mg/M3	FAKA	1	6.9		6.9	6.9				6.9
CHLA	mg/M3	FAKA858	1	5.3		5.3	5.3				5.3
CHLA	mg/M3	GGC@858	1	5.3		5.3	5.3				5.3
CHLA	mg/M3	GGCAT31	1	8.0		8.0	8.0				8.0
CHLA	mg/M3	S12A	125	8.1	12.1	3.8	0.5	1.9	2.6	9.0	74.3
CHLA	mg/M3	S12B	133	5.3	6.9	2.8	0.5	1.3	2.0	6.2	33.0
CHLA	mg/M3	S12C	139	4.1	5.5	2.2	0.5	1.0	2.0	4.4	31.8
CHLA	mg/M3	S12D	166	3.6	5.6	2.0	0.5	1.0	2.0	3.4	52.0
CHLA	mg/M3	S177	165	5.8	46.3	1.2	0.5	0.5	1.0	2.0	594.0
CHLA	mg/M3	S178	101	13.1	28.8	6.4	0.5	3.1	6.0	12.0	239.0
CHLA	mg/M3	S18C	156	2.4	3.9	1.5	0.5	0.5	1.8	2.5	35.0
CHLA	mg/M3	S2	28	26.4	43.9	13.1	3.1	6.0	11.3	19.6	187.0
CHLA	mg/M3	S3	30	17.8	11.7	14.4	4.8	8.2	12.8	26.0	46.9
CHLA	mg/M3	S308C	49	14.3	11.0	10.2	0.5	6.0	12.0	17.3	51.0
CHLA	mg/M3	S333	162	3.8	5.3	2.2	0.5	1.1	2.0	4.0	35.8
CHLA	mg/M3	S352	17	25.8	27.2	14.0	0.5	6.0	21.0	31.6	106.5
CHLA	mg/M3	S5A	137	17.4	34.3	10.2	1.8	6.0	9.1	14.1	269.7
CHLA	mg/M3	S5AE	11	10.6	9.6	8.0	3.0	4.0	8.0	13.3	36.0
CHLA	mg/M3	S65	248	24.9	11.6	22.2	1.0	16.1	22.9	31.9	83.5
CHLA	mg/M3	S65A	244	21.8	22.4	16.8	0.5	12.7	19.2	26.3	291.4
CHLA	mg/M3	S65C	249	11.9	10.1	8.3	0.5	5.0	9.2	17.7	96.3
CHLA	mg/M3	S65D	252	10.6	15.9	7.0	0.5	4.0	8.0	13.0	223.6
CHLA	mg/M3	S65E	252	8.5	7.9	5.8	0.5	3.6	6.6	11.3	69.3
CHLA	mg/M3	S78	16	7.6	7.9	4.9	1.0	2.5	4.5	9.5	31.0
CHLA	mg/M3	SW2	2	8.5	3.5	8.1	6.0	6.0	8.5	11.0	11.0
CHLA	mg/M3	SW6IN	3	12.3	7.8	10.8	6.0	7.0	10.0	18.3	21.0
CHLA	mg/M3	US41-25	154	8.5	11.0	4.6	0.5	2.0	3.0	10.0	52.0
CHLA2	mg/M3	BC10	97	3.8	3.7	2.8	1.5	1.5	1.5	4.8	22.4
CHLA2	mg/M3	BC11	93	4.5	5.8	2.9	1.5	1.5	1.5	5.3	41.1
CHLA2	mg/M3	BC14	92	2.8	2.3	2.2	1.5	1.5	1.5	3.7	11.2
CHLA2	mg/M3	BC15	95	6.5	11.9	3.7	1.5	1.5	3.7	5.8	99.9
CHLA2	mg/M3	BC22	96	4.6	4.7	3.1	1.5	1.5	1.5	5.3	22.4
CHLA2	mg/M3	BC23	98	4.0	4.9	2.7	1.5	1.5	1.5	4.3	33.6
CHLA2	mg/M3	BC26	85	3.4	5.7	2.4	1.5	1.5	1.5	3.9	51.6
CHLA2	mg/M3	BC7	93	2.8	2.8	2.2	1.5	1.5	1.5	3.2	16.6
CHLA2	mg/M3	BC8	93	2.1	1.6	1.8	1.5	1.5	1.5	1.5	9.1
CHLA2	mg/M3	BC9	97	2.6	2.1	2.1	1.5	1.5	1.5	3.2	10.7
CHLA2	mg/M3	C44S80	7	5.9	4.1	4.5	2.0	2.0	5.0	9.8	11.0
CHLA2	mg/M3	C51S155	11	13.9	11.8	10.3	2.0	5.8	12.0	15.0	45.0
CHLA2	mg/M3	CES01	123	8.9	12.2	5.1	0.3	2.7	4.8	9.6	73.8
CHLA2	mg/M3	COC@LAKE	56	3.4	3.5	2.5	1.5	1.5	1.5	3.7	16.6
CHLA2	mg/M3	CORK@846	95	6.2	8.4	3.9	1.5	1.5	3.7	8.5	71.0
CHLA2	mg/M3	CULV10A	6	2.4	1.9	1.9	0.5	2.0	2.0	2.0	6.0
CHLA2	mg/M3	E0	9	25.3	20.2	15.0	1.0	5.7	23.0	42.0	58.0
CHLA2	mg/M3	F0	9	26.6	21.5	14.6	0.5	8.0	18.0	49.0	52.7
CHLA2	mg/M3	FAKA	95	2.4	2.2	1.9	1.5	1.5	1.5	1.5	12.8
CHLA2	mg/M3	FAKA858	93	5.0	5.2	3.5	1.5	1.5	3.2	6.4	34.7
CHLA2	mg/M3	GGC@858	94	6.2	6.9	4.3	1.5	1.5	4.3	7.5	51.3
CHLA2	mg/M3	GGCAT31	97	2.8	3.8	2.1	1.5	1.5	1.5	3.2	33.6

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
CHLA2	mg/M3	S12A	125	6.8	9.5	3.5	0.5	1.9	2.4	8.1	60.3
CHLA2	mg/M3	S12B	133	4.6	5.4	2.6	0.5	1.2	2.0	5.2	25.1
CHLA2	mg/M3	S12C	138	3.5	4.4	2.1	0.5	1.0	2.0	3.6	25.6
CHLA2	mg/M3	S12D	165	3.1	4.6	1.8	0.5	1.0	1.9	3.0	45.0
CHLA2	mg/M3	S177	164	5.0	37.7	1.3	0.5	0.5	1.2	2.0	482.0
CHLA2	mg/M3	S178	101	10.8	24.7	5.3	0.5	2.8	5.0	9.3	210.0
CHLA2	mg/M3	S18C	155	2.3	3.5	1.5	0.5	1.0	1.7	2.5	34.0
CHLA2	mg/M3	S2	28	22.0	42.4	9.2	2.1	4.6	6.7	15.2	179.9
CHLA2	mg/M3	S3	30	13.6	9.9	10.6	3.3	5.9	9.5	22.9	39.1
CHLA2	mg/M3	S308C	49	10.5	7.4	7.6	0.5	5.0	9.0	15.0	34.0
CHLA2	mg/M3	S333	161	3.3	4.3	2.1	0.5	1.1	2.0	3.3	31.4
CHLA2	mg/M3	S352	15	15.4	14.2	9.4	0.5	5.3	14.6	20.6	48.7
CHLA2	mg/M3	S5A	137	13.5	29.1	7.4	0.5	4.2	6.8	10.2	232.3
CHLA2	mg/M3	S5AE	11	8.9	9.0	6.5	2.0	4.0	6.0	10.3	34.0
CHLA2	mg/M3	S65	248	20.9	10.2	18.4	0.5	14.1	19.0	26.3	72.1
CHLA2	mg/M3	S65A	243	18.0	19.7	13.7	0.5	10.0	15.7	22.0	247.0
CHLA2	mg/M3	S65C	248	9.6	8.7	6.6	0.5	4.0	8.0	14.2	88.4
CHLA2	mg/M3	S65D	251	8.9	14.9	5.7	0.5	4.0	6.0	11.0	210.7
CHLA2	mg/M3	S65E	252	6.9	6.9	4.6	0.5	2.5	5.0	8.9	60.7
CHLA2	mg/M3	S78	14	5.4	6.3	3.7	1.0	2.0	3.5	7.0	26.0
CHLA2	mg/M3	SW2	2	7.0	2.8	6.7	5.0	5.0	7.0	9.0	9.0
CHLA2	mg/M3	SW6IN	3	11.3	6.1	10.3	6.0	7.0	10.0	16.0	18.0
CHLA2	mg/M3	US41-25	154	6.9	8.7	3.9	0.5	2.0	3.0	7.8	41.0
CHLA2	mg/M3	X0	12	19.3	28.1	7.4	0.4	3.0	8.8	25.2	101.0
CHLA2	mg/M3	Z0	12	14.2	12.1	9.1	0.4	5.4	11.5	20.0	43.0
CL	mg/L	3AE0	65	29	7	28	15	25	29	33	47
CL	mg/L	3AW0	93	29	6	29	15	26	30	33	46
CL	mg/L	BC10	31	19	8	13	1	18	21	23	30
CL	mg/L	BC11	30	21	9	14	1	20	23	26	32
CL	mg/L	BC14	31	117	226	43	1	27	68	101	1174
CL	mg/L	BC15	33	69	63	38	1	49	68	74	372
CL	mg/L	BC22	32	358	817	104	1	68	129	246	4500
CL	mg/L	BC23	33	48	32	25	1	26	53	63	132
CL	mg/L	BC26	25	16	8	11	1	16	19	20	26
CL	mg/L	BC7	33	39	34	23	1	29	34	45	200
CL	mg/L	BC8	32	49	112	19	1	20	33	39	655
CL	mg/L	BC9	31	18	8	13	1	15	20	24	34
CL	mg/L	C123SR84	139	60	14	59	29	49	60	71	99
CL	mg/L	C15S40	115	43	12	42	22	37	41	47	116
CL	mg/L	C16S41	116	49	24	45	18	34	41	57	162
CL	mg/L	C17S44	116	37	5	36	20	34	38	40	47
CL	mg/L	C18S46	104	51	50	39	10	23	42	57	332
CL	mg/L	C23S48	132	104	53	94	32	75	89	123	361
CL	mg/L	C24S49	132	235	91	213	33	169	233	296	449
CL	mg/L	C25S50	132	180	60	169	43	140	182	216	305
CL	mg/L	C25S99	3	403	42	401	371	375	386	435	451
CL	mg/L	C44S80	132	97	60	83	26	57	77	126	348
CL	mg/L	C51S155	117	66	25	62	17	46	62	83	164
CL	mg/L	CES01	7	153	42	149	118	123	131	190	221
CL	mg/L	COC@LAKE	21	85	46	71	18	44	89	109	184
CL	mg/L	CORK@846	30	21	12	14	1	15	22	27	61
CL	mg/L	CR-04.8T	60	51	15	49	26	40	51	62	86
CL	mg/L	CULV10A	230	73	62	62	12	48	56	76	699
CL	mg/L	CULV5A	107	44	15	42	7	35	44	55	85
CL	mg/L	E0	120	121	33	116	28	99	123	145	230
CL	mg/L	F0	120	124	30	119	34	100	130	145	190
CL	mg/L	FAKA	32	190	600	40	1	31	35	58	3365
CL	mg/L	FAKA858	28	13	6	9	1	11	14	16	21
CL	mg/L	FROGCITY	40	42	14	40	22	29	41	54	68
CL	mg/L	G123	109	95	21	92	46	79	95	107	151
CL	mg/L	G136	152	45	18	41	12	33	45	54	153
CL	mg/L	G300	97	101	31	96	43	76	98	121	219
CL	mg/L	G301	98	107	35	101	39	83	103	127	198
CL	mg/L	G302	241	117	43	109	39	83	109	150	238

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
CL	mg/L	G311	79	95	31	90	39	73	90	117	199
CL	mg/L	G342A	247	59	20	55	13	42	62	71	119
CL	mg/L	G342B	248	55	16	53	16	45	56	66	114
CL	mg/L	G342C	244	54	16	51	17	41	54	66	105
CL	mg/L	G342D	244	50	15	48	16	39	50	60	84
CL	mg/L	G342E	10	36	8	35	25	32	36	41	50
CL	mg/L	G342F	10	36	7	35	25	32	36	42	46
CL	mg/L	G353A	15	31	8	31	20	26	29	33	49
CL	mg/L	G353B	35	44	13	42	21	30	49	51	70
CL	mg/L	G353C	15	32	9	31	24	26	29	33	56
CL	mg/L	G372	134	84	28	79	34	60	84	106	151
CL	mg/L	G94B	113	74	29	68	19	52	68	97	162
CL	mg/L	GGC@858	28	14	6	9	1	11	16	18	23
CL	mg/L	GGCAT31	32	59	34	32	1	39	63	77	113
CL	mg/L	INDUSCAN	171	64	18	62	21	51	63	77	129
CL	mg/L	L3BRS	248	64	27	58	19	45	62	84	149
CL	mg/L	L59E	122	487	480	273	14	111	329	697	2011
CL	mg/L	L59W	119	47	25	42	12	31	40	58	161
CL	mg/L	L60W	98	45	17	42	21	32	42	53	100
CL	mg/L	L61E	125	39	15	36	15	25	37	48	76
CL	mg/L	L61W	127	41	21	36	9	26	35	54	123
CL	mg/L	LOXA104	23	130	28	127	80	117	132	150	182
CL	mg/L	LOXA135	24	106	30	101	48	87	111	125	162
CL	mg/L	S10A	61	79	32	72	27	51	73	106	156
CL	mg/L	S10C	63	88	38	79	22	56	87	124	156
CL	mg/L	S10D	138	109	37	100	17	86	118	136	184
CL	mg/L	S11A	143	106	31	102	46	83	104	126	210
CL	mg/L	S11B	105	103	31	99	46	81	98	122	212
CL	mg/L	S11C	160	111	33	106	46	88	104	128	209
CL	mg/L	S127	122	162	60	151	26	129	154	187	354
CL	mg/L	S129	129	80	31	75	29	64	70	82	175
CL	mg/L	S12A	163	22	17	18	5	12	16	23	99
CL	mg/L	S12B	169	26	15	23	3	17	22	30	86
CL	mg/L	S12C	176	37	18	33	10	22	33	50	95
CL	mg/L	S12D	182	48	23	41	0	24	54	66	103
CL	mg/L	S131	134	62	17	60	25	50	59	77	99
CL	mg/L	S133	131	77	27	70	0	62	73	86	180
CL	mg/L	S135	133	88	16	86	49	78	89	101	126
CL	mg/L	S140	153	48	31	40	9	25	38	65	197
CL	mg/L	S145	152	102	32	97	33	78	99	121	193
CL	mg/L	S150	145	95	40	88	35	68	88	111	293
CL	mg/L	S151	143	80	17	78	29	69	78	91	122
CL	mg/L	S154	230	206	151	163	21	102	185	265	1195
CL	mg/L	S169	157	62	15	60	27	50	63	74	98
CL	mg/L	S177	241	43	12	42	20	36	40	49	97
CL	mg/L	S178	149	41	34	38	22	33	37	43	446
CL	mg/L	S18C	221	42	32	39	29	34	38	43	484
CL	mg/L	S190	147	36	12	34	13	28	36	44	71
CL	mg/L	S191	239	153	104	121	17	72	121	201	502
CL	mg/L	S197	31	68	92	47	24	32	40	47	464
CL	mg/L	S2	165	102	45	93	34	63	100	120	247
CL	mg/L	S3	162	91	42	83	33	60	82	111	260
CL	mg/L	S308C	275	55	17	52	27	41	51	68	111
CL	mg/L	S31	94	73	15	72	45	64	70	79	122
CL	mg/L	S331	1	34		34	34				34
CL	mg/L	S332B	123	48	13	46	32	38	44	53	102
CL	mg/L	S332C	118	46	13	44	8	38	42	51	104
CL	mg/L	S332DX	65	56	18	53	26	43	51	62	108
CL	mg/L	S333	246	59	23	54	15	40	60	75	121
CL	mg/L	S334	110	50	17	45	0	38	48	60	93
CL	mg/L	S335	37	66	19	63	29	53	67	74	114
CL	mg/L	S34	153	99	30	95	44	75	96	121	170
CL	mg/L	S344	28	14	7	13	4	9	13	21	29
CL	mg/L	S352	255	68	53	60	29	47	55	75	458

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
CL	mg/L	S356	22	55	19	52	27	35	59	68	93
CL	mg/L	S38	158	94	31	89	31	71	94	111	175
CL	mg/L	S39	145	85	33	77	18	57	89	106	175
CL	mg/L	S390	47	88	40	79	12	63	83	105	201
CL	mg/L	S5A	259	129	55	118	44	83	123	167	306
CL	mg/L	S5AE	136	79	45	68	14	49	68	102	275
CL	mg/L	S5AS	104	103	42	95	39	70	91	128	252
CL	mg/L	S5AW	56	80	40	68	1	54	74	103	202
CL	mg/L	S6	240	143	39	133	0	122	149	170	275
CL	mg/L	S65	256	21	5	20	12	17	20	25	34
CL	mg/L	S65A	255	20	6	19	8	16	19	24	40
CL	mg/L	S65C	256	20	6	19	9	15	19	24	47
CL	mg/L	S65D	259	20	5	19	11	16	19	23	35
CL	mg/L	S65E	300	23	7	22	11	18	21	26	63
CL	mg/L	S7	181	113	79	103	46	81	104	133	1045
CL	mg/L	S71	239	38	15	34	2	25	37	45	77
CL	mg/L	S72	155	40	19	37	15	28	37	47	150
CL	mg/L	S78	59	53	18	50	27	40	50	62	133
CL	mg/L	S79	58	87	79	68	25	42	57	101	451
CL	mg/L	S8	174	75	23	71	24	61	71	90	142
CL	mg/L	S84	243	64	164	39	16	22	29	54	2457
CL	mg/L	S9	142	73	9	72	41	67	73	78	91
CL	mg/L	S9A	27	78	9	77	57	73	77	84	90
CL	mg/L	SW1B	70	54	24	49	19	35	49	70	130
CL	mg/L	SW2	235	61	38	53	13	40	47	62	212
CL	mg/L	SW6IN	155	126	106	90	14	42	85	182	527
CL	mg/L	T0E	13	34	9	33	24	26	32	41	52
CL	mg/L	T0W	14	35	9	34	24	27	33	42	55
CL	mg/L	TAMBR6	53	42	14	40	21	30	40	55	87
CL	mg/L	TCNS 201	103	54	31	47	14	32	48	66	169
CL	mg/L	TCNS 213	218	63	72	56	19	48	59	69	1097
CL	mg/L	TCNS 217	220	29	27	27	9	24	27	29	403
CL	mg/L	US41-25	189	17	7	16	4	12	17	21	60
CL	mg/L	X0	125	117	40	109	25	93	120	140	220
CL	mg/L	Z0	122	113	40	106	25	88	110	140	240
COLOR	PCU	BC10	96	43	27	37	5	25	40	50	150
COLOR	PCU	BC11	93	59	39	50	10	34	50	80	200
COLOR	PCU	BC14	93	65	35	58	20	40	50	80	200
COLOR	PCU	BC15	96	51	17	48	20	40	50	60	120
COLOR	PCU	BC22	95	61	41	52	20	36	45	78	240
COLOR	PCU	BC23	97	99	84	84	30	60	80	120	800
COLOR	PCU	BC26	86	78	44	69	30	50	60	100	300
COLOR	PCU	BC7	95	42	19	37	3	30	40	50	100
COLOR	PCU	BC8	95	39	21	34	10	20	30	50	100
COLOR	PCU	BC9	95	69	29	64	30	50	60	90	180
COLOR	PCU	C123SR84	131	72	25	68	31	52	67	87	168
COLOR	PCU	C15S40	123	50	9	49	32	43	48	54	81
COLOR	PCU	C16S41	124	43	7	43	32	39	42	46	69
COLOR	PCU	C17S44	124	40	8	40	28	36	38	43	94
COLOR	PCU	C18S46	112	65	36	57	24	38	50	86	177
COLOR	PCU	C23S48	130	121	79	98	12	56	92	177	360
COLOR	PCU	C24S49	130	125	87	99	28	52	94	180	400
COLOR	PCU	C25S50	130	82	60	65	27	37	51	108	295
COLOR	PCU	C44S80	131	60	38	52	26	34	44	76	221
COLOR	PCU	C51S155	125	51	21	48	29	37	44	56	140
COLOR	PCU	CES01	101	95	54	82	35	59	74	114	255
COLOR	PCU	COC@LAKE	57	62	26	57	30	45	60	70	150
COLOR	PCU	CORK@846	94	169	77	154	60	120	150	200	400
COLOR	PCU	CR-04.8T	60	110	78	94	37	64	88	133	443
COLOR	PCU	CULV10A	228	79	69	59	21	32	43	107	373
COLOR	PCU	CULV5A	107	117	106	90	28	55	77	126	522
COLOR	PCU	FAKA	95	39	19	34	5	30	40	50	100
COLOR	PCU	FAKA858	93	105	41	97	40	69	100	120	240
COLOR	PCU	FROGCITY	38	44	13	42	27	34	41	49	78

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
COLOR	PCU	G123	105	67	17	64	36	55	64	76	110
COLOR	PCU	G136	152	116	66	102	36	68	90	148	361
COLOR	PCU	G342A	1	159		159	159				159
COLOR	PCU	G342B	1	127		127	127				127
COLOR	PCU	G342C	1	114		114	114				114
COLOR	PCU	G342D	2	100	20	99	86	86	100	114	114
COLOR	PCU	G94B	113	94	30	90	45	76	86	108	172
COLOR	PCU	GGC@858	93	114	37	109	60	90	120	121	240
COLOR	PCU	GGCAT31	96	79	81	66	20	48	60	100	800
COLOR	PCU	INDUSCAN	170	65	41	58	28	38	60	85	486
COLOR	PCU	L3BRS	247	85	39	78	32	60	72	97	247
COLOR	PCU	L59E	123	157	117	130	37	85	114	173	808
COLOR	PCU	L59W	119	167	110	139	42	94	136	202	580
COLOR	PCU	L60W	97	135	68	121	50	87	117	168	404
COLOR	PCU	L61E	126	153	84	134	49	90	133	200	500
COLOR	PCU	L61W	126	237	180	186	60	111	166	293	875
COLOR	PCU	LOXA104	18	130	46	122	73	89	125	168	218
COLOR	PCU	LOXA135	19	121	42	114	48	86	113	157	194
COLOR	PCU	S10A	61	81	26	77	45	63	75	95	159
COLOR	PCU	S10C	63	84	30	80	45	62	76	101	158
COLOR	PCU	S10D	138	99	36	93	45	73	87	118	223
COLOR	PCU	S11A	134	83	21	81	32	70	81	93	161
COLOR	PCU	S11B	104	84	19	81	41	71	82	97	143
COLOR	PCU	S11C	160	89	21	87	30	74	89	104	141
COLOR	PCU	S127	122	140	83	119	39	72	121	179	368
COLOR	PCU	S129	130	97	43	88	37	65	88	120	242
COLOR	PCU	S12A	130	24	6	23	12	20	24	26	55
COLOR	PCU	S12B	138	28	10	27	13	21	26	32	69
COLOR	PCU	S12C	145	37	16	34	12	24	32	48	97
COLOR	PCU	S12D	183	47	21	43	17	29	47	63	125
COLOR	PCU	S131	135	129	77	112	34	80	108	139	417
COLOR	PCU	S133	129	76	53	63	20	40	56	97	339
COLOR	PCU	S135	131	59	24	54	28	38	52	75	143
COLOR	PCU	S140	151	77	24	73	33	61	74	91	147
COLOR	PCU	S145	145	81	18	79	34	71	79	94	121
COLOR	PCU	S150	144	87	24	83	32	74	89	105	133
COLOR	PCU	S151	134	64	19	60	1	51	61	76	109
COLOR	PCU	S154	230	184	112	156	52	107	147	237	616
COLOR	PCU	S169	156	60	49	51	21	36	46	69	403
COLOR	PCU	S177	179	19	9	17	5	12	14	24	62
COLOR	PCU	S178	109	18	6	17	5	15	18	21	39
COLOR	PCU	S18C	169	13	5	12	5	10	12	14	34
COLOR	PCU	S190	131	70	32	64	30	44	57	90	169
COLOR	PCU	S191	238	196	116	163	40	94	167	290	533
COLOR	PCU	S197	21	14	4	13	9	11	13	15	22
COLOR	PCU	S2	168	93	51	78	21	39	104	133	221
COLOR	PCU	S3	166	74	42	64	18	38	67	99	190
COLOR	PCU	S308C	279	49	36	42	10	31	36	50	250
COLOR	PCU	S31	85	57	16	55	34	46	52	61	107
COLOR	PCU	S331	22	36	10	33	3	35	39	42	47
COLOR	PCU	S333	173	49	18	46	19	34	47	61	103
COLOR	PCU	S334	110	45	13	43	23	35	45	52	74
COLOR	PCU	S34	145	72	19	69	35	57	71	88	118
COLOR	PCU	S344	28	42	20	38	21	30	35	50	116
COLOR	PCU	S352	253	42	31	37	20	28	32	42	239
COLOR	PCU	S38	151	81	17	79	33	71	79	91	130
COLOR	PCU	S39	133	84	27	80	43	65	77	97	196
COLOR	PCU	S5A	222	102	53	88	29	53	95	146	232
COLOR	PCU	S5AE	138	80	48	69	30	46	66	98	229
COLOR	PCU	S5AS	108	92	48	81	30	50	83	133	218
COLOR	PCU	S5AW	61	80	45	69	32	42	64	111	188
COLOR	PCU	S6	176	111	38	104	34	88	110	141	243
COLOR	PCU	S65	254	72	47	59	19	35	55	99	197
COLOR	PCU	S65A	255	102	73	82	26	49	79	132	389

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
COLOR	PCU	S65C	257	128	79	109	31	72	112	160	441
COLOR	PCU	S65D	258	139	83	117	34	78	120	171	466
COLOR	PCU	S65E	299	145	86	123	35	82	128	179	467
COLOR	PCU	S7	179	92	27	87	29	76	94	109	164
COLOR	PCU	S71	239	145	80	127	48	83	128	187	496
COLOR	PCU	S72	155	165	89	142	40	102	147	215	429
COLOR	PCU	S78	63	93	85	76	34	49	69	103	644
COLOR	PCU	S79	57	88	55	75	34	51	70	102	268
COLOR	PCU	S8	174	93	31	87	29	73	92	112	194
COLOR	PCU	S84	244	109	54	98	39	69	103	134	403
COLOR	PCU	S9	133	47	7	47	28	42	46	52	71
COLOR	PCU	SW1B	2	101	14	101	91	91	101	111	111
COLOR	PCU	SW2	2	138	5	137	134	134	138	141	141
COLOR	PCU	SW6IN	2	124	26	122	105	105	124	142	142
COLOR	PCU	TAMBR6	50	44	15	42	19	35	40	50	93
COLOR	PCU	US41-25	167	27	11	25	15	20	24	29	89
DO	mg/L	02273230	198	6.27	2.26	5.64	0.12	4.75	6.41	8.09	10.71
DO	mg/L	02274325	158	4.65	1.87	4.02	0.02	3.49	4.55	5.83	9.57
DO	mg/L	02274505	224	3.09	2.43	1.86	0.06	0.90	2.85	4.47	10.18
DO	mg/L	02275631	191	4.57	2.34	3.87	0.33	2.81	4.18	6.32	13.21
DO	mg/L	3AE0	61	6.82	2.31	6.31	1.37	5.32	7.41	8.42	13.03
DO	mg/L	3AW0	90	6.73	2.14	6.29	1.29	5.30	7.04	8.42	12.77
DO	mg/L	BC10	163	6.43	2.52	5.76	0.30	4.83	6.67	8.26	13.61
DO	mg/L	BC11	146	3.87	2.04	3.36	0.35	2.44	3.31	4.92	10.26
DO	mg/L	BC14	158	6.14	2.31	5.66	2.06	4.09	6.31	8.13	10.68
DO	mg/L	BC15	167	5.11	2.04	4.58	0.18	3.36	5.17	6.67	10.66
DO	mg/L	BC22	124	5.98	2.30	5.47	1.78	4.29	6.12	7.54	11.42
DO	mg/L	BC23	122	5.79	2.00	5.41	1.75	4.47	5.56	7.24	10.98
DO	mg/L	BC26	89	5.41	2.42	4.82	0.90	3.64	4.77	7.05	10.98
DO	mg/L	BC7	96	7.21	2.36	6.71	1.61	5.79	7.53	8.74	12.17
DO	mg/L	BC8	96	6.91	2.90	6.19	1.38	4.51	7.44	9.40	12.33
DO	mg/L	BC9	131	5.00	2.25	4.50	1.06	3.34	4.45	6.99	12.66
DO	mg/L	C123SR84	157	4.35	2.17	3.75	0.64	2.46	4.15	5.91	9.12
DO	mg/L	C15S40	117	6.75	1.81	6.50	2.34	5.35	6.61	7.92	12.41
DO	mg/L	C16S41	117	6.38	1.71	6.14	2.65	5.09	6.28	7.66	10.90
DO	mg/L	C17S44	117	6.58	2.18	6.16	0.68	4.81	6.66	8.08	12.90
DO	mg/L	C18S46	104	6.12	2.04	5.73	1.56	4.70	6.23	7.64	11.12
DO	mg/L	C23S48	145	6.13	1.96	5.72	0.45	4.91	6.20	7.29	11.18
DO	mg/L	C24S49	153	5.23	2.48	4.36	0.29	3.32	5.47	7.07	10.70
DO	mg/L	C25S50	135	5.77	2.62	4.81	0.32	3.60	6.47	7.83	10.40
DO	mg/L	C25S99	3	5.15	1.69	4.98	3.94	4.06	4.43	6.42	7.08
DO	mg/L	C44S80	177	6.21	1.82	5.85	0.60	5.19	6.34	7.34	10.72
DO	mg/L	C51S155	125	5.54	1.76	5.25	1.83	4.04	5.57	6.74	9.75
DO	mg/L	CES01	194	5.85	1.88	5.50	1.20	4.24	6.05	7.49	10.70
DO	mg/L	COC@LAKE	97	5.32	2.32	4.63	0.39	3.17	5.85	7.13	9.34
DO	mg/L	COOPERTN	158	3.96	1.55	3.56	0.29	2.88	4.05	5.00	8.20
DO	mg/L	CORK@846	103	4.15	1.62	3.81	1.06	3.04	4.22	5.25	9.50
DO	mg/L	CR-04.8T	58	5.33	2.35	4.74	1.05	3.48	5.30	7.22	9.83
DO	mg/L	CULV10A	231	6.14	2.60	5.36	0.51	4.10	6.55	8.19	12.91
DO	mg/L	CULV5A	107	5.02	2.46	4.22	0.39	2.85	5.25	7.23	11.04
DO	mg/L	DF02.1TW	28	5.22	2.18	4.61	1.29	3.66	5.77	6.87	8.15
DO	mg/L	E0	114	3.41	1.67	2.93	0.22	2.06	3.25	4.47	7.81
DO	mg/L	F0	116	2.75	1.82	2.09	0.12	1.50	2.40	3.75	7.80
DO	mg/L	FAKA	98	6.69	2.22	6.13	0.22	5.19	6.94	8.28	11.07
DO	mg/L	FAKA858	108	5.03	1.60	4.76	1.73	3.68	5.23	6.18	9.20
DO	mg/L	FROGCITY	95	3.12	1.61	2.56	0.27	1.77	3.14	4.35	7.06
DO	mg/L	G123	336	3.74	1.84	3.22	0.29	2.36	3.68	4.89	10.69
DO	mg/L	G136	332	5.71	2.35	5.02	0.35	4.02	6.01	7.51	11.00
DO	mg/L	G150	28	5.53	2.31	4.82	1.05	4.45	6.22	6.95	9.11
DO	mg/L	G151	1	2.80		2.80	2.80				2.80
DO	mg/L	G200	120	5.44	2.39	4.72	0.31	3.52	5.69	7.25	13.00
DO	mg/L	G300	301	4.59	2.09	3.98	0.15	2.80	4.69	6.27	10.10
DO	mg/L	G301	308	4.58	2.13	4.02	0.69	2.83	4.56	6.12	11.60
DO	mg/L	G302	372	4.53	2.20	3.93	0.57	2.50	4.40	6.24	11.50

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
DO	mg/L	G311	198	5.02	2.04	4.55	0.89	3.32	5.09	6.46	12.10
DO	mg/L	G341	15	3.58	1.81	3.16	1.37	1.83	4.02	4.37	7.73
DO	mg/L	G342A	490	4.91	2.45	3.99	0.12	2.82	5.37	6.79	11.60
DO	mg/L	G342B	511	4.81	2.43	3.86	0.08	2.77	5.21	6.56	12.00
DO	mg/L	G342C	483	4.83	2.38	3.93	0.11	2.85	5.29	6.57	10.89
DO	mg/L	G342D	504	5.04	2.39	4.16	0.09	3.19	5.33	6.85	11.30
DO	mg/L	G342E	24	4.96	2.16	4.36	1.36	2.89	5.38	6.73	7.54
DO	mg/L	G342F	24	4.97	2.13	4.44	1.60	3.03	5.25	6.64	8.45
DO	mg/L	G353A	37	4.73	2.14	4.13	0.75	2.69	5.22	6.41	8.91
DO	mg/L	G353B	67	5.41	2.12	4.83	0.81	3.66	6.01	6.86	8.95
DO	mg/L	G353C	37	5.18	2.10	4.68	1.08	3.68	5.06	7.04	9.04
DO	mg/L	G357	270	5.40	2.00	4.94	0.61	4.00	5.59	6.99	10.40
DO	mg/L	G371	11	8.12	1.27	8.03	6.19	7.56	7.91	8.71	11.10
DO	mg/L	G372	271	5.62	2.13	5.17	1.30	3.71	5.80	7.29	11.00
DO	mg/L	G373	12	7.14	1.11	7.06	4.88	6.45	7.08	8.09	8.68
DO	mg/L	G404	304	5.54	2.04	5.07	0.29	4.11	5.70	7.06	11.20
DO	mg/L	G406	290	4.91	2.35	4.19	0.36	2.84	5.19	6.75	10.60
DO	mg/L	G407	62	5.07	2.38	4.21	0.33	3.17	5.37	6.83	9.28
DO	mg/L	G409	349	5.85	1.91	5.45	0.21	4.62	6.18	7.29	11.31
DO	mg/L	G94B	124	3.71	1.82	3.13	0.30	2.30	3.64	4.96	7.53
DO	mg/L	GGC@858	103	5.64	1.62	5.36	1.17	4.58	5.86	6.70	9.19
DO	mg/L	GGCAT31	158	5.91	1.88	5.60	1.61	4.60	5.79	7.02	12.80
DO	mg/L	GLADER	147	3.89	1.48	3.50	0.26	2.99	3.97	4.99	8.11
DO	mg/L	HC05.7	1	1.94		1.94	1.94				1.94
DO	mg/L	HC12.8	1	1.98		1.98	1.98				1.98
DO	mg/L	HC14.4	1	1.78		1.78	1.78				1.78
DO	mg/L	HC15.3	1	2.15		2.15	2.15				2.15
DO	mg/L	HC18.2	1	1.67		1.67	1.67				1.67
DO	mg/L	HC19.3	1	1.69		1.69	1.69				1.69
DO	mg/L	INDUSCAN	158	5.45	2.24	4.91	0.65	3.67	5.44	7.08	11.10
DO	mg/L	L3BRS	253	5.72	2.14	5.13	0.55	4.43	6.22	7.30	10.25
DO	mg/L	L59E	123	4.95	3.06	3.55	0.15	2.40	4.72	7.26	12.30
DO	mg/L	L59W	120	5.37	2.48	4.50	0.25	3.34	5.81	7.24	10.90
DO	mg/L	L60W	97	4.90	2.37	4.03	0.35	3.42	4.78	6.65	9.51
DO	mg/L	L61E	128	5.24	2.33	4.59	0.69	3.36	5.50	7.06	10.00
DO	mg/L	L61W	128	4.29	2.27	3.44	0.26	2.44	4.69	6.32	9.22
DO	mg/L	L8MZBN	4	5.12	1.60	4.93	3.61	3.74	5.14	6.50	6.59
DO	mg/L	L8MZBS	4	5.82	1.45	5.68	4.18	4.62	5.92	7.03	7.28
DO	mg/L	LOXA104	35	4.89	2.03	4.26	0.31	3.28	4.86	6.36	8.80
DO	mg/L	LOXA135	35	4.72	2.48	3.73	0.13	3.15	5.15	6.16	12.00
DO	mg/L	S10A	66	5.58	2.29	4.98	1.04	4.10	5.55	7.31	10.26
DO	mg/L	S10C	68	5.47	1.90	5.06	0.61	4.17	5.32	7.06	9.88
DO	mg/L	S10D	141	4.71	2.12	4.17	0.61	3.00	4.51	6.25	10.40
DO	mg/L	S11A	156	5.69	1.80	5.36	1.50	4.36	5.80	6.96	9.68
DO	mg/L	S11B	102	4.63	1.70	4.29	1.39	3.41	4.53	6.02	9.19
DO	mg/L	S11C	155	4.00	1.90	3.53	0.61	2.36	3.68	5.43	9.30
DO	mg/L	S127	124	4.56	2.24	3.73	0.23	2.64	4.90	6.45	8.83
DO	mg/L	S129	130	5.71	2.12	5.24	1.24	4.00	5.95	7.27	11.43
DO	mg/L	S12A	285	4.19	1.48	3.89	0.10	3.14	4.03	5.21	9.31
DO	mg/L	S12B	231	4.08	1.56	3.73	0.17	2.87	3.92	5.19	8.85
DO	mg/L	S12C	289	3.70	1.60	3.32	0.29	2.42	3.61	4.77	9.32
DO	mg/L	S12D	266	3.47	1.44	3.14	0.33	2.39	3.26	4.56	8.22
DO	mg/L	S131	137	5.62	2.03	5.17	0.91	3.85	5.96	7.19	10.04
DO	mg/L	S133	127	4.69	1.95	4.15	0.25	3.23	4.66	6.39	8.41
DO	mg/L	S135	127	6.35	2.01	5.93	0.57	5.11	6.33	7.63	11.40
DO	mg/L	S140	392	4.84	2.41	4.14	0.60	2.62	4.99	6.81	11.60
DO	mg/L	S145	168	4.59	1.60	4.29	1.33	3.49	4.47	5.64	9.43
DO	mg/L	S150	324	4.79	1.98	4.36	0.91	3.16	4.68	6.47	9.66
DO	mg/L	S151	164	3.68	1.71	3.27	0.61	2.39	3.53	4.85	11.61
DO	mg/L	S154	225	5.58	2.46	4.74	0.20	3.85	5.85	7.57	11.30
DO	mg/L	S169	145	6.35	1.89	6.02	1.88	5.17	6.54	7.63	12.76
DO	mg/L	S177	297	3.96	2.41	3.08	0.14	1.69	3.74	5.99	10.40
DO	mg/L	S178	225	4.51	2.28	3.79	0.31	2.79	4.41	5.98	10.80
DO	mg/L	S18C	422	5.41	2.53	4.69	0.20	3.06	5.53	7.54	12.20

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
DO	mg/L	S190	280	6.10	2.31	5.55	0.85	4.27	6.48	7.93	10.90
DO	mg/L	S191	225	5.52	2.41	4.66	0.19	3.52	6.08	7.32	10.17
DO	mg/L	S197	31	6.15	2.23	5.66	2.03	4.84	6.47	7.79	10.90
DO	mg/L	S2	170	4.87	2.52	4.05	0.57	2.61	4.82	6.98	10.58
DO	mg/L	S3	164	5.89	2.25	5.38	0.96	3.94	6.31	7.74	12.12
DO	mg/L	S308C	285	7.11	1.82	6.78	0.33	6.03	7.37	8.36	10.36
DO	mg/L	S31	107	3.36	1.79	2.87	0.51	1.96	2.90	4.52	8.96
DO	mg/L	S331	40	1.94	1.11	1.63	0.34	1.08	1.94	2.60	5.50
DO	mg/L	S332B	255	2.87	1.83	2.20	0.19	1.19	2.70	4.06	7.24
DO	mg/L	S332C	263	3.07	1.95	2.32	0.09	1.29	3.02	4.58	9.71
DO	mg/L	S332DX	81	4.25	2.18	3.56	0.51	2.41	4.42	5.87	10.10
DO	mg/L	S333	352	3.76	1.39	3.48	0.33	2.74	3.75	4.75	8.06
DO	mg/L	S334	142	4.58	2.05	3.88	0.19	3.29	4.79	6.19	8.94
DO	mg/L	S335	38	4.53	1.55	4.22	1.02	3.66	4.45	5.17	8.01
DO	mg/L	S34	167	4.68	1.87	4.18	0.70	3.33	4.86	6.20	8.94
DO	mg/L	S344	38	3.75	1.67	3.39	1.27	2.29	3.71	5.03	8.44
DO	mg/L	S352	266	6.75	2.14	6.27	0.54	5.22	7.28	8.35	11.80
DO	mg/L	S356	63	3.89	2.09	3.35	0.88	2.15	3.47	5.43	11.30
DO	mg/L	S38	170	3.76	1.86	3.34	1.11	2.33	3.27	4.73	10.31
DO	mg/L	S39	163	5.74	2.07	5.25	0.83	4.29	5.87	7.43	9.73
DO	mg/L	S390	72	5.11	1.69	4.68	0.20	3.93	5.38	6.23	9.10
DO	mg/L	S5A	545	4.42	2.26	3.72	0.16	2.33	4.58	6.18	11.10
DO	mg/L	S5AE	149	5.37	2.02	4.90	0.71	4.08	5.38	7.03	10.01
DO	mg/L	S5AS	107	4.87	2.20	4.17	0.29	3.12	5.03	6.63	8.74
DO	mg/L	S5AW	61	5.47	2.36	4.79	0.54	3.95	5.42	7.47	10.41
DO	mg/L	S6	573	3.78	1.99	3.24	0.10	2.19	3.46	5.20	11.60
DO	mg/L	S65	241	7.43	1.59	7.22	1.32	6.48	7.48	8.55	10.62
DO	mg/L	S65A	241	6.17	2.18	5.63	0.29	4.74	6.40	7.63	12.30
DO	mg/L	S65C	241	4.81	2.41	3.79	0.08	2.94	5.20	6.68	10.10
DO	mg/L	S65D	241	5.15	2.35	4.25	0.08	3.19	5.61	6.94	10.27
DO	mg/L	S65E	282	5.17	2.27	4.32	0.06	3.52	5.43	6.98	10.03
DO	mg/L	S7	396	4.60	2.04	4.09	0.33	2.94	4.46	6.11	9.51
DO	mg/L	S71	236	5.34	2.39	4.62	0.24	3.51	5.67	7.16	11.90
DO	mg/L	S72	156	4.89	2.47	4.07	0.35	2.80	4.80	7.19	9.56
DO	mg/L	S78	77	6.23	1.91	5.85	1.46	4.92	6.56	7.81	9.28
DO	mg/L	S79	52	6.68	1.98	6.35	2.75	5.57	6.89	7.68	12.20
DO	mg/L	S8	524	5.21	2.17	4.64	0.18	3.53	5.26	6.83	11.94
DO	mg/L	S84	238	6.66	2.09	6.23	0.84	5.35	6.97	8.22	10.90
DO	mg/L	S9	523	2.53	1.44	2.07	0.12	1.35	2.44	3.50	8.45
DO	mg/L	S9A	328	2.47	1.43	2.02	0.27	1.28	2.43	3.35	9.80
DO	mg/L	SAFARI	218	3.37	1.57	2.96	0.17	1.98	3.22	4.58	8.22
DO	mg/L	SW1B	64	5.92	1.88	5.60	2.64	4.24	5.76	7.60	9.16
DO	mg/L	SW2	232	5.48	1.25	5.30	0.60	5.14	5.33	5.56	9.98
DO	mg/L	SW6IN	179	5.55	1.66	5.24	1.28	4.41	6.05	6.29	9.69
DO	mg/L	T0E	12	5.28	0.95	5.19	3.17	4.84	5.24	5.85	6.96
DO	mg/L	T0W	12	5.12	1.21	4.96	2.30	4.59	5.35	5.74	6.92
DO	mg/L	TAMBR1	237	4.21	1.99	3.57	0.23	2.63	4.35	5.55	9.34
DO	mg/L	TAMBR2	232	4.12	1.86	3.58	0.28	2.75	4.20	5.34	9.23
DO	mg/L	TAMBR3	208	4.06	1.76	3.54	0.29	2.84	4.25	5.08	8.77
DO	mg/L	TAMBR4	180	3.87	1.67	3.37	0.24	2.61	4.16	4.95	8.22
DO	mg/L	TAMBR5	146	3.67	1.53	3.26	0.29	2.56	3.70	4.69	8.20
DO	mg/L	TAMBR6	162	3.69	1.55	3.24	0.29	2.62	3.72	4.74	7.61
DO	mg/L	TCNS 201	91	3.54	1.99	2.88	0.21	2.07	3.28	4.49	8.53
DO	mg/L	TCNS 213	211	5.14	2.08	4.58	0.15	3.77	5.15	6.58	11.05
DO	mg/L	TCNS 217	210	3.68	2.16	2.90	0.28	1.84	3.74	5.03	11.80
DO	mg/L	US41-25	253	2.98	1.05	2.77	0.11	2.43	2.85	3.44	8.23
DO	mg/L	WPB-26.1	21	2.95	1.62	2.60	1.01	1.78	2.48	3.64	7.69
DO	mg/L	WPB-28.2	21	3.25	1.85	2.77	0.81	1.77	3.11	3.86	7.14
DO	mg/L	WPB-31.2	21	2.96	1.66	2.50	0.57	1.60	2.62	3.97	6.38
DO	mg/L	WPB-33.5	21	3.35	1.91	2.87	1.09	1.78	2.82	4.93	7.17
DO	mg/L	WPB-35.4	21	2.83	1.45	2.50	0.87	1.65	2.46	3.97	5.72
DO	mg/L	WPB-37.2	21	2.58	1.63	2.16	0.69	1.54	2.10	3.21	6.43
DO	mg/L	WPB-38.0	21	3.61	2.02	3.08	0.90	1.86	3.86	4.82	9.30
DO	mg/L	WWEIR	526	3.57	2.00	2.83	0.08	1.88	3.37	5.17	8.96

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
DO	mg/L	X0	114	4.31	1.76	3.86	0.86	2.76	4.34	5.60	8.17
DO	mg/L	Z0	115	4.32	1.87	3.82	0.73	2.80	4.24	5.76	8.51
NH4	mg/L	02273230	8	0.299	0.389	0.162	0.027	0.083	0.159	0.340	1.200
NH4	mg/L	02274325	5	0.176	0.084	0.158	0.068	0.122	0.160	0.238	0.290
NH4	mg/L	02274505	7	0.048	0.014	0.046	0.032	0.037	0.047	0.062	0.066
NH4	mg/L	02275631	6	0.196	0.112	0.159	0.040	0.100	0.213	0.300	0.310
NH4	mg/L	3AE0	64	0.029	0.029	0.020	0.005	0.013	0.016	0.035	0.150
NH4	mg/L	3AW0	89	0.026	0.026	0.017	0.003	0.011	0.016	0.028	0.130
NH4	mg/L	BC10	28	0.025	0.021	0.017	0.004	0.005	0.020	0.037	0.070
NH4	mg/L	BC11	27	0.030	0.033	0.020	0.004	0.013	0.030	0.040	0.180
NH4	mg/L	BC14	24	0.079	0.051	0.054	0.004	0.045	0.080	0.110	0.220
NH4	mg/L	BC15	25	0.148	0.088	0.107	0.004	0.105	0.130	0.185	0.390
NH4	mg/L	BC22	28	0.020	0.023	0.012	0.004	0.005	0.011	0.020	0.100
NH4	mg/L	BC23	26	0.039	0.025	0.029	0.004	0.020	0.040	0.060	0.080
NH4	mg/L	BC26	21	0.037	0.032	0.022	0.004	0.009	0.020	0.063	0.100
NH4	mg/L	BC7	26	0.010	0.007	0.008	0.004	0.005	0.005	0.020	0.020
NH4	mg/L	BC8	24	0.015	0.012	0.011	0.004	0.005	0.010	0.020	0.047
NH4	mg/L	BC9	27	0.037	0.035	0.023	0.004	0.012	0.020	0.060	0.120
NH4	mg/L	C123SR84	133	0.039	0.046	0.026	0.003	0.015	0.027	0.043	0.375
NH4	mg/L	C15S40	119	0.035	0.057	0.015	0.003	0.005	0.013	0.035	0.352
NH4	mg/L	C16S41	120	0.039	0.048	0.021	0.003	0.009	0.025	0.050	0.303
NH4	mg/L	C17S44	121	0.054	0.063	0.029	0.003	0.011	0.030	0.076	0.352
NH4	mg/L	C18S46	109	0.030	0.034	0.018	0.003	0.005	0.023	0.040	0.251
NH4	mg/L	C23S48	305	0.115	0.106	0.059	0.003	0.023	0.068	0.198	0.518
NH4	mg/L	C24S49	308	0.106	0.094	0.060	0.003	0.030	0.074	0.168	0.401
NH4	mg/L	C25S50	295	0.086	0.078	0.048	0.003	0.021	0.067	0.124	0.505
NH4	mg/L	C44S80	323	0.058	0.063	0.037	0.003	0.023	0.040	0.067	0.437
NH4	mg/L	C51S155	121	0.072	0.067	0.039	0.003	0.010	0.059	0.108	0.353
NH4	mg/L	CES01	95	0.053	0.047	0.035	0.003	0.018	0.035	0.072	0.210
NH4	mg/L	COC@LAKE	5	0.058	0.038	0.038	0.004	0.035	0.063	0.076	0.110
NH4	mg/L	CORK@846	20	0.028	0.019	0.020	0.004	0.010	0.024	0.047	0.060
NH4	mg/L	CR-04.8T	60	0.230	0.240	0.110	0.005	0.045	0.114	0.406	0.870
NH4	mg/L	CULV10A	242	0.128	0.246	0.040	0.003	0.010	0.044	0.145	2.221
NH4	mg/L	CULV5A	107	0.095	0.126	0.049	0.005	0.020	0.053	0.122	0.938
NH4	mg/L	E0	117	0.695	0.740	0.313	0.012	0.097	0.390	1.200	2.987
NH4	mg/L	F0	118	0.891	0.891	0.417	0.016	0.180	0.550	1.300	3.505
NH4	mg/L	FAKA	24	0.009	0.007	0.007	0.004	0.005	0.005	0.010	0.030
NH4	mg/L	FAKA858	20	0.023	0.020	0.014	0.004	0.004	0.020	0.035	0.070
NH4	mg/L	FROGCITY	40	0.136	0.148	0.082	0.016	0.037	0.080	0.145	0.520
NH4	mg/L	G123	106	0.213	0.186	0.131	0.009	0.049	0.136	0.364	0.682
NH4	mg/L	G136	282	0.068	0.097	0.040	0.005	0.023	0.050	0.098	1.400
NH4	mg/L	G200	95	0.087	0.079	0.055	0.005	0.025	0.065	0.127	0.345
NH4	mg/L	G300	91	0.129	0.154	0.066	0.003	0.032	0.063	0.181	0.656
NH4	mg/L	G301	91	0.196	0.321	0.072	0.003	0.026	0.059	0.149	1.479
NH4	mg/L	G302	162	0.242	0.358	0.083	0.003	0.029	0.050	0.338	1.660
NH4	mg/L	G311	74	0.180	0.282	0.075	0.003	0.035	0.063	0.179	1.720
NH4	mg/L	G342A	246	0.065	0.068	0.033	0.003	0.011	0.040	0.102	0.337
NH4	mg/L	G342B	247	0.062	0.062	0.033	0.003	0.013	0.042	0.103	0.313
NH4	mg/L	G342C	244	0.062	0.058	0.034	0.003	0.012	0.042	0.104	0.270
NH4	mg/L	G342D	243	0.059	0.064	0.031	0.003	0.013	0.034	0.090	0.374
NH4	mg/L	G342E	10	0.085	0.052	0.072	0.028	0.046	0.065	0.115	0.196
NH4	mg/L	G342F	10	0.081	0.055	0.067	0.032	0.035	0.069	0.098	0.188
NH4	mg/L	G353A	15	0.050	0.037	0.039	0.012	0.021	0.035	0.073	0.131
NH4	mg/L	G353B	33	0.035	0.023	0.029	0.005	0.018	0.032	0.046	0.103
NH4	mg/L	G353C	15	0.044	0.027	0.037	0.015	0.024	0.039	0.057	0.097
NH4	mg/L	G372	132	0.076	0.074	0.047	0.003	0.024	0.049	0.104	0.364
NH4	mg/L	G94B	113	0.049	0.103	0.019	0.003	0.009	0.017	0.038	0.667
NH4	mg/L	GGC@858	22	0.073	0.057	0.041	0.004	0.019	0.065	0.130	0.170
NH4	mg/L	GGCAT31	25	0.044	0.025	0.034	0.004	0.028	0.040	0.056	0.090
NH4	mg/L	INDUSCAN	171	0.180	0.211	0.099	0.005	0.052	0.104	0.240	1.490
NH4	mg/L	L3BRS	246	0.050	0.046	0.029	0.005	0.011	0.037	0.079	0.259
NH4	mg/L	L59E	124	0.120	0.158	0.049	0.005	0.015	0.037	0.171	0.846
NH4	mg/L	L59W	120	0.066	0.074	0.035	0.003	0.015	0.032	0.088	0.349
NH4	mg/L	L60W	98	0.053	0.053	0.031	0.003	0.014	0.036	0.074	0.256

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
NH4	mg/L	L61E	126	0.101	0.140	0.050	0.005	0.022	0.047	0.121	0.834
NH4	mg/L	L61W	127	0.102	0.095	0.062	0.005	0.034	0.071	0.137	0.413
NH4	mg/L	LOXA104	17	0.121	0.171	0.064	0.010	0.028	0.063	0.122	0.704
NH4	mg/L	LOXA135	19	0.122	0.211	0.055	0.005	0.025	0.050	0.121	0.938
NH4	mg/L	S10A	60	0.027	0.040	0.016	0.003	0.010	0.015	0.026	0.251
NH4	mg/L	S10C	62	0.056	0.137	0.022	0.003	0.012	0.017	0.028	1.001
NH4	mg/L	S10D	138	0.091	0.262	0.029	0.003	0.014	0.024	0.045	2.259
NH4	mg/L	S11A	133	0.035	0.041	0.023	0.003	0.013	0.022	0.040	0.344
NH4	mg/L	S11B	102	0.033	0.026	0.025	0.003	0.017	0.026	0.039	0.151
NH4	mg/L	S11C	156	0.040	0.056	0.025	0.003	0.017	0.026	0.040	0.562
NH4	mg/L	S127	123	0.095	0.119	0.043	0.003	0.014	0.046	0.133	0.749
NH4	mg/L	S129	130	0.035	0.038	0.021	0.005	0.010	0.020	0.047	0.189
NH4	mg/L	S12A	133	0.043	0.068	0.024	0.003	0.015	0.023	0.038	0.417
NH4	mg/L	S12B	139	0.039	0.048	0.025	0.003	0.015	0.024	0.041	0.317
NH4	mg/L	S12C	211	0.045	0.048	0.031	0.003	0.019	0.029	0.050	0.275
NH4	mg/L	S12D	184	0.046	0.043	0.035	0.005	0.023	0.036	0.051	0.267
NH4	mg/L	S131	135	0.040	0.051	0.024	0.005	0.012	0.023	0.045	0.330
NH4	mg/L	S133	130	0.101	0.106	0.055	0.005	0.024	0.077	0.127	0.549
NH4	mg/L	S135	132	0.038	0.059	0.019	0.003	0.008	0.018	0.038	0.421
NH4	mg/L	S140	154	0.061	0.042	0.040	0.003	0.022	0.061	0.093	0.192
NH4	mg/L	S145	140	0.035	0.055	0.021	0.003	0.012	0.020	0.034	0.538
NH4	mg/L	S150	218	0.087	0.072	0.062	0.003	0.038	0.071	0.113	0.438
NH4	mg/L	S151	133	0.104	0.079	0.079	0.003	0.048	0.080	0.129	0.398
NH4	mg/L	S154	228	0.081	0.119	0.042	0.005	0.018	0.044	0.112	1.383
NH4	mg/L	S169	157	0.131	0.146	0.076	0.005	0.040	0.087	0.135	0.856
NH4	mg/L	S177	229	0.095	0.109	0.066	0.005	0.044	0.071	0.113	1.186
NH4	mg/L	S178	110	0.036	0.035	0.025	0.005	0.017	0.026	0.045	0.263
NH4	mg/L	S18C	172	0.058	0.043	0.039	0.005	0.018	0.055	0.082	0.205
NH4	mg/L	S190	139	0.028	0.033	0.015	0.003	0.005	0.011	0.047	0.146
NH4	mg/L	S191	239	0.099	0.118	0.048	0.003	0.020	0.051	0.123	0.638
NH4	mg/L	S197	22	0.050	0.038	0.034	0.005	0.016	0.050	0.073	0.130
NH4	mg/L	S2	229	0.322	0.414	0.144	0.005	0.050	0.134	0.463	2.133
NH4	mg/L	S3	204	0.174	0.225	0.085	0.005	0.035	0.081	0.216	1.254
NH4	mg/L	S308C	287	0.054	0.085	0.020	0.003	0.005	0.016	0.043	0.497
NH4	mg/L	S31	86	0.103	0.065	0.082	0.005	0.054	0.092	0.132	0.349
NH4	mg/L	S331	40	0.268	0.057	0.262	0.159	0.230	0.263	0.301	0.401
NH4	mg/L	S332B	74	0.188	0.090	0.156	0.005	0.132	0.187	0.244	0.380
NH4	mg/L	S332C	76	0.176	0.080	0.148	0.005	0.142	0.173	0.217	0.388
NH4	mg/L	S333	239	0.051	0.041	0.039	0.005	0.025	0.037	0.062	0.261
NH4	mg/L	S334	109	0.136	0.157	0.076	0.002	0.031	0.083	0.180	0.909
NH4	mg/L	S34	144	0.080	0.104	0.046	0.005	0.024	0.047	0.085	0.663
NH4	mg/L	S344	28	0.031	0.029	0.021	0.005	0.011	0.021	0.038	0.123
NH4	mg/L	S352	393	0.110	0.303	0.030	0.003	0.010	0.025	0.072	2.678
NH4	mg/L	S38	147	0.040	0.059	0.021	0.005	0.010	0.017	0.042	0.350
NH4	mg/L	S39	142	0.025	0.033	0.015	0.003	0.009	0.015	0.023	0.212
NH4	mg/L	S390	47	0.082	0.090	0.044	0.003	0.016	0.054	0.113	0.486
NH4	mg/L	S5A	526	0.244	0.329	0.098	0.005	0.034	0.098	0.337	2.305
NH4	mg/L	S5AE	135	0.089	0.110	0.050	0.005	0.027	0.049	0.108	0.573
NH4	mg/L	S5AS	103	0.149	0.211	0.066	0.005	0.029	0.050	0.158	0.948
NH4	mg/L	S5AW	57	0.092	0.114	0.049	0.005	0.022	0.047	0.108	0.513
NH4	mg/L	S6	431	0.251	0.193	0.180	0.005	0.103	0.205	0.340	0.955
NH4	mg/L	S65	253	0.015	0.017	0.010	0.003	0.005	0.010	0.016	0.133
NH4	mg/L	S65A	250	0.035	0.048	0.018	0.003	0.006	0.017	0.044	0.288
NH4	mg/L	S65C	256	0.048	0.054	0.029	0.003	0.013	0.032	0.058	0.336
NH4	mg/L	S65D	257	0.046	0.058	0.028	0.005	0.015	0.029	0.049	0.489
NH4	mg/L	S65E	298	0.049	0.062	0.031	0.005	0.018	0.032	0.055	0.541
NH4	mg/L	S7	298	0.074	0.077	0.046	0.005	0.023	0.046	0.098	0.461
NH4	mg/L	S71	238	0.130	0.167	0.066	0.005	0.026	0.070	0.161	1.135
NH4	mg/L	S72	155	0.147	0.174	0.075	0.003	0.029	0.087	0.179	0.996
NH4	mg/L	S78	58	0.062	0.060	0.039	0.005	0.020	0.042	0.085	0.278
NH4	mg/L	S79	56	0.047	0.041	0.033	0.003	0.020	0.035	0.059	0.238
NH4	mg/L	S8	307	0.071	0.061	0.048	0.005	0.025	0.054	0.102	0.471
NH4	mg/L	S84	242	0.062	0.089	0.027	0.005	0.010	0.028	0.079	0.563
NH4	mg/L	S9	334	0.339	0.114	0.320	0.070	0.254	0.319	0.411	0.724

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
NH4	mg/L	S9A	79	0.421	0.146	0.392	0.075	0.324	0.400	0.553	0.744
NH4	mg/L	T0E	13	0.160	0.094	0.119	0.017	0.091	0.160	0.230	0.300
NH4	mg/L	T0W	13	0.151	0.089	0.112	0.012	0.096	0.160	0.223	0.280
NH4	mg/L	TAMBR6	53	0.172	0.198	0.097	0.010	0.045	0.083	0.239	0.784
NH4	mg/L	TCNS 201	105	0.074	0.065	0.049	0.005	0.028	0.055	0.091	0.316
NH4	mg/L	TCNS 213	218	0.131	0.273	0.058	0.003	0.033	0.058	0.125	2.987
NH4	mg/L	TCNS 217	222	0.601	3.146	0.038	0.003	0.012	0.028	0.081	29.719
NH4	mg/L	US41-25	166	0.068	0.061	0.048	0.005	0.026	0.053	0.091	0.490
NH4	mg/L	WWEIR	217	0.050	0.028	0.044	0.011	0.029	0.046	0.060	0.174
NH4	mg/L	X0	120	0.061	0.089	0.039	0.003	0.023	0.035	0.067	0.610
NH4	mg/L	Z0	117	0.071	0.121	0.040	0.003	0.023	0.036	0.066	0.880
NOX	mg/L	02273230	99	0.187	0.215	0.093	0.002	0.043	0.100	0.280	1.200
NOX	mg/L	02274325	84	0.329	0.269	0.147	0.002	0.082	0.332	0.530	0.945
NOX	mg/L	02274505	91	0.136	0.149	0.053	0.001	0.017	0.063	0.210	0.556
NOX	mg/L	02275631	80	0.122	0.138	0.062	0.001	0.030	0.080	0.180	0.900
NOX	mg/L	3AE0	62	0.013	0.020	0.005	0.002	0.002	0.002	0.017	0.110
NOX	mg/L	3AW0	90	0.015	0.023	0.006	0.002	0.002	0.003	0.019	0.118
NOX	mg/L	BC10	82	0.010	0.011	0.007	0.001	0.005	0.005	0.010	0.060
NOX	mg/L	BC11	79	0.015	0.018	0.009	0.001	0.005	0.005	0.020	0.090
NOX	mg/L	BC14	82	0.060	0.068	0.026	0.001	0.005	0.032	0.097	0.258
NOX	mg/L	BC15	82	0.071	0.069	0.037	0.003	0.013	0.055	0.110	0.370
NOX	mg/L	BC22	81	0.021	0.031	0.009	0.001	0.005	0.005	0.020	0.150
NOX	mg/L	BC23	78	0.046	0.037	0.026	0.001	0.005	0.040	0.080	0.134
NOX	mg/L	BC26	76	0.025	0.028	0.014	0.001	0.005	0.010	0.040	0.120
NOX	mg/L	BC7	82	0.016	0.018	0.009	0.001	0.005	0.005	0.023	0.080
NOX	mg/L	BC8	85	0.010	0.010	0.007	0.001	0.005	0.005	0.010	0.050
NOX	mg/L	BC9	79	0.027	0.030	0.014	0.001	0.005	0.010	0.044	0.140
NOX	mg/L	C123SR84	154	0.072	0.164	0.023	0.002	0.008	0.022	0.069	1.240
NOX	mg/L	C15S40	122	0.087	0.132	0.018	0.002	0.003	0.012	0.132	0.549
NOX	mg/L	C16S41	124	0.104	0.132	0.034	0.002	0.007	0.043	0.171	0.908
NOX	mg/L	C17S44	123	0.108	0.116	0.043	0.002	0.011	0.054	0.191	0.442
NOX	mg/L	C18S46	109	0.033	0.039	0.015	0.002	0.005	0.014	0.048	0.244
NOX	mg/L	C23S48	408	0.124	0.121	0.062	0.002	0.029	0.085	0.185	0.575
NOX	mg/L	C24S49	373	0.080	0.091	0.037	0.002	0.013	0.052	0.109	0.518
NOX	mg/L	C25S50	409	0.076	0.082	0.036	0.002	0.012	0.056	0.113	0.617
NOX	mg/L	C40VMB	625	0.157	0.213	0.075	0.002	0.037	0.091	0.192	1.864
NOX	mg/L	C41VMB	633	0.745	0.642	0.426	0.002	0.252	0.536	1.100	2.921
NOX	mg/L	C44S80	408	0.277	0.187	0.182	0.002	0.136	0.258	0.388	0.858
NOX	mg/L	C51S155	123	0.200	0.189	0.078	0.002	0.020	0.164	0.308	0.923
NOX	mg/L	CES01	180	0.272	0.158	0.197	0.002	0.155	0.244	0.395	0.640
NOX	mg/L	COC@LAKE	59	0.069	0.059	0.040	0.005	0.018	0.068	0.101	0.220
NOX	mg/L	CORK@846	82	0.019	0.027	0.012	0.003	0.005	0.010	0.020	0.220
NOX	mg/L	CR-04.8T	53	0.142	0.174	0.062	0.002	0.023	0.098	0.182	0.849
NOX	mg/L	CULV10A	241	0.342	0.329	0.211	0.002	0.105	0.286	0.463	2.366
NOX	mg/L	CULV5A	102	0.100	0.115	0.044	0.002	0.018	0.050	0.166	0.596
NOX	mg/L	E0	103	0.126	0.215	0.054	0.002	0.029	0.077	0.160	1.700
NOX	mg/L	F0	109	0.109	0.305	0.029	0.002	0.008	0.031	0.120	2.700
NOX	mg/L	FAKA	83	0.012	0.011	0.008	0.001	0.005	0.005	0.020	0.049
NOX	mg/L	FAKA858	77	0.029	0.039	0.012	0.001	0.005	0.005	0.050	0.160
NOX	mg/L	FROGCITY	39	0.032	0.025	0.024	0.002	0.016	0.024	0.036	0.110
NOX	mg/L	G123	120	0.074	0.200	0.022	0.002	0.009	0.020	0.049	1.570
NOX	mg/L	G136	343	0.061	0.090	0.029	0.002	0.010	0.033	0.079	0.798
NOX	mg/L	G200	110	0.585	0.832	0.190	0.002	0.062	0.197	0.730	4.362
NOX	mg/L	G300	87	0.273	0.526	0.091	0.003	0.029	0.116	0.341	4.402
NOX	mg/L	G301	98	0.309	0.410	0.110	0.003	0.030	0.163	0.433	2.680
NOX	mg/L	G302	170	0.459	0.469	0.216	0.003	0.109	0.368	0.691	2.920
NOX	mg/L	G311	92	0.392	0.645	0.126	0.003	0.040	0.122	0.466	4.337
NOX	mg/L	G342A	243	0.070	0.103	0.028	0.002	0.008	0.038	0.099	0.943
NOX	mg/L	G342B	243	0.056	0.081	0.024	0.002	0.008	0.029	0.074	0.618
NOX	mg/L	G342C	240	0.057	0.083	0.025	0.002	0.009	0.031	0.079	0.727
NOX	mg/L	G342D	237	0.053	0.094	0.022	0.002	0.008	0.026	0.065	0.976
NOX	mg/L	G342E	9	0.048	0.029	0.039	0.014	0.020	0.047	0.071	0.089
NOX	mg/L	G342F	9	0.048	0.029	0.039	0.013	0.020	0.049	0.070	0.092
NOX	mg/L	G353A	15	0.037	0.053	0.021	0.003	0.012	0.020	0.037	0.220

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
NOX	mg/L	G353B	32	0.031	0.027	0.019	0.003	0.009	0.022	0.058	0.083
NOX	mg/L	G353C	15	0.023	0.025	0.014	0.003	0.007	0.013	0.033	0.078
NOX	mg/L	G372	134	0.752	0.877	0.325	0.002	0.132	0.492	0.958	4.170
NOX	mg/L	G94B	123	0.082	0.282	0.012	0.002	0.003	0.008	0.037	2.240
NOX	mg/L	GGC@858	80	0.042	0.033	0.024	0.001	0.009	0.040	0.069	0.143
NOX	mg/L	GGCAT31	77	0.080	0.105	0.037	0.001	0.008	0.080	0.110	0.820
NOX	mg/L	INDUSCAN	172	0.425	0.510	0.214	0.004	0.092	0.249	0.528	2.780
NOX	mg/L	L3BRS	243	0.057	0.093	0.022	0.002	0.007	0.022	0.075	0.890
NOX	mg/L	L59E	119	0.029	0.044	0.013	0.002	0.005	0.013	0.035	0.230
NOX	mg/L	L59W	117	0.112	0.224	0.033	0.002	0.011	0.030	0.132	2.018
NOX	mg/L	L60W	96	0.403	0.542	0.114	0.002	0.026	0.135	0.627	2.341
NOX	mg/L	L61E	123	0.520	0.545	0.196	0.002	0.074	0.363	0.751	2.295
NOX	mg/L	L61W	126	0.058	0.099	0.026	0.002	0.012	0.026	0.058	0.635
NOX	mg/L	LOXA104	22	0.236	0.316	0.092	0.003	0.031	0.096	0.309	1.320
NOX	mg/L	LOXA135	22	0.161	0.281	0.065	0.004	0.019	0.081	0.123	1.260
NOX	mg/L	S10A	55	0.063	0.140	0.019	0.002	0.008	0.014	0.065	0.820
NOX	mg/L	S10C	57	0.116	0.209	0.030	0.002	0.010	0.022	0.080	0.841
NOX	mg/L	S10D	132	0.182	0.371	0.038	0.002	0.010	0.027	0.138	2.055
NOX	mg/L	S11A	159	0.098	0.311	0.019	0.002	0.006	0.014	0.050	2.360
NOX	mg/L	S11B	98	0.079	0.291	0.021	0.002	0.008	0.020	0.044	2.358
NOX	mg/L	S11C	149	0.140	0.350	0.034	0.002	0.012	0.026	0.075	2.264
NOX	mg/L	S127	120	0.059	0.101	0.018	0.002	0.006	0.014	0.053	0.466
NOX	mg/L	S129	123	0.055	0.100	0.014	0.002	0.003	0.012	0.035	0.458
NOX	mg/L	S12A	628	0.016	0.025	0.009	0.002	0.005	0.008	0.015	0.256
NOX	mg/L	S12B	133	0.027	0.040	0.016	0.002	0.009	0.015	0.028	0.301
NOX	mg/L	S12C	649	0.030	0.036	0.021	0.002	0.012	0.019	0.034	0.549
NOX	mg/L	S12D	168	0.051	0.071	0.032	0.002	0.016	0.037	0.061	0.690
NOX	mg/L	S131	131	0.094	0.144	0.023	0.002	0.005	0.014	0.133	0.662
NOX	mg/L	S133	127	0.083	0.100	0.037	0.002	0.015	0.045	0.111	0.567
NOX	mg/L	S135	128	0.037	0.065	0.012	0.002	0.003	0.012	0.033	0.372
NOX	mg/L	S140	176	0.043	0.037	0.026	0.002	0.016	0.033	0.063	0.201
NOX	mg/L	S145	164	0.043	0.130	0.014	0.002	0.006	0.012	0.032	1.145
NOX	mg/L	S150	271	0.141	0.250	0.061	0.002	0.024	0.054	0.151	2.354
NOX	mg/L	S151	156	0.078	0.101	0.053	0.007	0.028	0.055	0.090	1.029
NOX	mg/L	S154	222	0.036	0.052	0.018	0.002	0.007	0.019	0.044	0.367
NOX	mg/L	S169	155	0.264	0.327	0.121	0.002	0.057	0.113	0.331	1.612
NOX	mg/L	S177	771	0.060	0.054	0.038	0.002	0.020	0.045	0.084	0.297
NOX	mg/L	S178	133	0.175	0.326	0.041	0.002	0.011	0.025	0.177	2.260
NOX	mg/L	S18C	288	0.099	0.067	0.072	0.002	0.050	0.085	0.139	0.422
NOX	mg/L	S190	154	0.016	0.019	0.009	0.002	0.003	0.010	0.023	0.121
NOX	mg/L	S191	235	0.189	0.191	0.068	0.002	0.014	0.143	0.321	0.979
NOX	mg/L	S197	30	0.099	0.126	0.052	0.002	0.027	0.068	0.135	0.684
NOX	mg/L	S2	253	0.878	0.998	0.414	0.007	0.148	0.535	1.213	6.302
NOX	mg/L	S3	218	0.764	1.062	0.315	0.002	0.113	0.416	1.050	7.583
NOX	mg/L	S308C	289	0.341	0.231	0.230	0.002	0.158	0.310	0.483	0.963
NOX	mg/L	S31	104	0.041	0.054	0.022	0.002	0.012	0.026	0.052	0.342
NOX	mg/L	S331	38	0.037	0.034	0.029	0.009	0.020	0.029	0.038	0.184
NOX	mg/L	S332B	252	0.042	0.031	0.034	0.003	0.023	0.034	0.052	0.294
NOX	mg/L	S332C	266	0.044	0.035	0.034	0.003	0.021	0.034	0.058	0.303
NOX	mg/L	S332DX	556	0.065	0.050	0.044	0.003	0.018	0.056	0.097	0.332
NOX	mg/L	S333	1250	0.043	0.043	0.030	0.002	0.017	0.033	0.059	0.747
NOX	mg/L	S334	116	0.040	0.027	0.030	0.002	0.021	0.038	0.052	0.122
NOX	mg/L	S335	20	0.045	0.039	0.031	0.007	0.014	0.037	0.065	0.158
NOX	mg/L	S34	167	0.067	0.167	0.026	0.002	0.012	0.026	0.060	1.540
NOX	mg/L	S344	38	0.011	0.008	0.008	0.002	0.004	0.010	0.015	0.034
NOX	mg/L	S352	782	0.331	0.313	0.214	0.002	0.144	0.292	0.454	6.193
NOX	mg/L	S356	359	0.036	0.037	0.026	0.005	0.015	0.025	0.039	0.262
NOX	mg/L	S38	173	0.030	0.065	0.012	0.002	0.005	0.011	0.027	0.525
NOX	mg/L	S39	158	0.048	0.127	0.014	0.002	0.006	0.011	0.027	0.875
NOX	mg/L	S390	70	0.182	0.245	0.052	0.003	0.011	0.084	0.284	1.133
NOX	mg/L	S5A	661	0.553	0.466	0.334	0.002	0.222	0.459	0.754	3.400
NOX	mg/L	S5AE	135	0.291	0.289	0.162	0.002	0.083	0.214	0.403	2.127
NOX	mg/L	S5AS	101	0.372	0.421	0.157	0.002	0.056	0.295	0.516	2.717
NOX	mg/L	S5AW	56	0.230	0.205	0.124	0.002	0.055	0.182	0.345	0.784

Table F-3 . Summary Water Quality Statistics By Station

Test_Code	Units	Station	01_N	02_Mean	03_StdDev	04_GeoMean	05_Min	06_P25	07_Median	08_P75	09_Max
NOX	mg/L	S6	586	0.557	0.586	0.367	0.003	0.221	0.372	0.673	4.090
NOX	mg/L	S65	252	0.032	0.069	0.008	0.002	0.003	0.004	0.018	0.424
NOX	mg/L	S65A	249	0.059	0.099	0.015	0.002	0.003	0.010	0.067	0.498
NOX	mg/L	S65C	251	0.074	0.097	0.031	0.002	0.010	0.040	0.093	0.536
NOX	mg/L	S65D	255	0.092	0.111	0.036	0.002	0.011	0.044	0.133	0.485
NOX	mg/L	S65E	291	0.117	0.137	0.046	0.002	0.014	0.053	0.161	0.593
NOX	mg/L	S7	395	0.253	0.450	0.077	0.002	0.023	0.073	0.251	3.246
NOX	mg/L	S71	617	0.553	0.513	0.298	0.002	0.201	0.402	0.747	2.748
NOX	mg/L	S72	503	0.193	0.300	0.080	0.002	0.029	0.090	0.253	2.710
NOX	mg/L	S78	64	0.155	0.129	0.084	0.002	0.039	0.134	0.248	0.454
NOX	mg/L	S79	56	0.302	0.201	0.169	0.002	0.136	0.290	0.441	0.843
NOX	mg/L	S8	393	0.332	0.559	0.111	0.002	0.039	0.113	0.307	3.674
NOX	mg/L	S84	235	0.117	0.205	0.029	0.002	0.006	0.028	0.112	0.993
NOX	mg/L	S9	415	0.082	0.063	0.058	0.002	0.034	0.071	0.118	0.682
NOX	mg/L	S9A	106	0.039	0.044	0.023	0.002	0.011	0.024	0.046	0.244
NOX	mg/L	SW1B	69	0.318	0.233	0.200	0.015	0.075	0.326	0.556	0.729
NOX	mg/L	SW2	149	0.363	0.285	0.201	0.003	0.082	0.299	0.610	1.340
NOX	mg/L	SW6IN	117	0.267	0.238	0.141	0.003	0.059	0.186	0.456	1.179
NOX	mg/L	T0E	13	0.038	0.027	0.031	0.011	0.019	0.028	0.050	0.110
NOX	mg/L	T0W	13	0.032	0.025	0.025	0.009	0.012	0.028	0.045	0.100
NOX	mg/L	TAMBR6	52	0.037	0.031	0.026	0.002	0.015	0.027	0.052	0.169
NOX	mg/L	TCNS 201	104	0.075	0.072	0.044	0.002	0.019	0.053	0.105	0.336
NOX	mg/L	TCNS 213	219	0.460	0.499	0.161	0.002	0.054	0.298	0.699	2.958
NOX	mg/L	TCNS 217	216	1.047	5.901	0.039	0.002	0.006	0.022	0.230	61.548
NOX	mg/L	US41-25	149	0.028	0.020	0.022	0.002	0.014	0.025	0.037	0.107
NOX	mg/L	WWEIR	222	0.015	0.012	0.011	0.002	0.007	0.012	0.021	0.074
NOX	mg/L	X0	114	0.152	0.491	0.026	0.002	0.007	0.024	0.110	4.200
NOX	mg/L	Z0	112	0.135	0.378	0.024	0.002	0.007	0.025	0.096	2.700
OPO4	mg/L	02273230	7	0.121	0.109	0.078	0.017	0.032	0.100	0.198	0.310
OPO4	mg/L	02274325	7	0.291	0.067	0.285	0.200	0.240	0.290	0.328	0.400
OPO4	mg/L	02274505	6	0.142	0.039	0.136	0.072	0.130	0.150	0.170	0.180
OPO4	mg/L	02275631	8	0.346	0.119	0.329	0.200	0.255	0.310	0.465	0.510
OPO4	mg/L	3AE0	62	0.016	0.030	0.006	0.002	0.002	0.002	0.022	0.170
OPO4	mg/L	3AW0	88	0.013	0.027	0.004	0.001	0.002	0.002	0.011	0.170
OPO4	mg/L	BC10	82	0.007	0.007	0.005	0.002	0.002	0.005	0.008	0.043
OPO4	mg/L	BC11	81	0.008	0.007	0.006	0.002	0.002	0.006	0.010	0.051
OPO4	mg/L	BC14	82	0.007	0.006	0.005	0.002	0.002	0.005	0.011	0.028
OPO4	mg/L	BC15	81	0.015	0.014	0.010	0.002	0.005	0.010	0.026	0.058
OPO4	mg/L	BC22	86	0.005	0.009	0.004	0.002	0.002	0.002	0.005	0.078
OPO4	mg/L	BC23	85	0.007	0.009	0.005	0.002	0.002	0.005	0.007	0.076
OPO4	mg/L	BC26	74	0.009	0.012	0.005	0.002	0.002	0.005	0.010	0.062
OPO4	mg/L	BC7	81	0.004	0.003	0.003	0.002	0.002	0.002	0.005	0.015
OPO4	mg/L	BC8	83	0.004	0.003	0.003	0.002	0.002	0.002	0.005	0.016
OPO4	mg/L	BC9	83	0.004	0.003	0.003	0.002	0.002	0.002	0.005	0.014
OPO4	mg/L	C123SR84	154	0.009	0.010	0.005	0.001	0.002	0.006	0.010	0.057
OPO4	mg/L	C139S2	132	0.030	0.037	0.018	0.001	0.009	0.015	0.034	0.186
OPO4	mg/L	C139S3	128	0.010	0.014	0.005	0.001	0.002	0.004	0.010	0.108
OPO4	mg/L	C139S4	79	0.010	0.011	0.006	0.001	0.002	0.006	0.013	0.052
OPO4	mg/L	C15S40	123	0.099	0.074	0.071	0.002	0.049	0.081	0.128	0.344
OPO4	mg/L	C16S41	123	0.048	0.049	0.030	0.001	0.017	0.037	0.062	0.235
OPO4	mg/L	C17S44	119	0.011	0.013	0.007	0.001	0.004	0.006	0.014	0.075
OPO4	mg/L	C18S46	109	0.010	0.015	0.005	0.001	0.002	0.004	0.012	0.087
OPO4	mg/L	C23S48	143	0.232	0.168	0.177	0.034	0.096	0.192	0.339	0.879
OPO4	mg/L	C24S49	145	0.181	0.147	0.126	0.005	0.075	0.147	0.254	0.801
OPO4	mg/L	C25S50	130	0.102	0.133	0.042	0.001	0.015	0.045	0.141	0.698
OPO4	mg/L	C44S80	170	0.090	0.077	0.068	0.006	0.043	0.064	0.103	0.401
OPO4	mg/L	C51S155	123	0.037	0.030	0.023	0.001	0.012	0.035	0.050	0.158
OPO4	mg/L	CES01	92	0.087	0.051	0.068	0.002	0.051	0.077	0.116	0.235
OPO4	mg/L	COC@LAKE	55	0.006	0.006	0.004	0.002	0.002	0.004	0.010	0.025
OPO4	mg/L	CORK@846	80	0.010	0.012	0.006	0.002	0.004	0.007	0.011	0.064
OPO4	mg/L	CR-04.8T	60	0.147	0.170	0.085	0.002	0.044	0.087	0.181	0.830
OPO4	mg/L	CULV10A	228	0.057	0.025	0.050	0.006	0.038	0.054	0.074	0.135
OPO4	mg/L	CULV5A	105	0.068	0.062	0.046	0.003	0.029	0.050	0.082	0.324
OPO4	mg/L	DF02.1TW	143	0.056	0.069	0.026	0.001	0.011	0.035	0.069	0.336

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
OPO4	mg/L	DF05.0TW	27	0.121	0.099	0.082	0.003	0.060	0.086	0.155	0.370
OPO4	mg/L	E0	108	0.011	0.019	0.005	0.001	0.002	0.003	0.009	0.110
OPO4	mg/L	F0	111	0.013	0.024	0.005	0.001	0.002	0.003	0.011	0.140
OPO4	mg/L	FAKA	85	0.004	0.003	0.003	0.002	0.002	0.002	0.005	0.014
OPO4	mg/L	FAKA858	78	0.013	0.019	0.008	0.002	0.005	0.008	0.013	0.116
OPO4	mg/L	FROGCITY	39	0.004	0.004	0.003	0.002	0.002	0.002	0.005	0.017
OPO4	mg/L	G123	123	0.004	0.004	0.003	0.001	0.002	0.004	0.005	0.029
OPO4	mg/L	G136	216	0.044	0.088	0.011	0.001	0.003	0.007	0.036	0.572
OPO4	mg/L	G150	150	0.008	0.011	0.004	0.001	0.002	0.003	0.009	0.072
OPO4	mg/L	G151	50	0.006	0.008	0.004	0.001	0.002	0.003	0.006	0.038
OPO4	mg/L	G200	28	0.027	0.031	0.015	0.002	0.006	0.015	0.037	0.132
OPO4	mg/L	G300	172	0.056	0.055	0.031	0.001	0.014	0.041	0.080	0.271
OPO4	mg/L	G301	173	0.061	0.059	0.031	0.001	0.013	0.045	0.090	0.253
OPO4	mg/L	G302	341	0.073	0.059	0.046	0.001	0.021	0.060	0.108	0.406
OPO4	mg/L	G311	154	0.057	0.059	0.029	0.001	0.011	0.036	0.081	0.277
OPO4	mg/L	G341	23	0.109	0.086	0.083	0.010	0.066	0.088	0.132	0.399
OPO4	mg/L	G342A	409	0.043	0.044	0.026	0.001	0.013	0.027	0.054	0.301
OPO4	mg/L	G342B	408	0.060	0.060	0.038	0.002	0.020	0.042	0.083	0.549
OPO4	mg/L	G342C	402	0.074	0.087	0.042	0.001	0.021	0.044	0.094	0.699
OPO4	mg/L	G342D	405	0.082	0.097	0.054	0.005	0.030	0.050	0.094	0.826
OPO4	mg/L	G342E	19	0.059	0.033	0.045	0.001	0.040	0.048	0.074	0.123
OPO4	mg/L	G342F	17	0.062	0.035	0.053	0.025	0.033	0.043	0.084	0.130
OPO4	mg/L	G353A	30	0.075	0.080	0.034	0.001	0.016	0.041	0.121	0.336
OPO4	mg/L	G353B	64	0.034	0.049	0.011	0.001	0.003	0.012	0.047	0.236
OPO4	mg/L	G353C	29	0.052	0.045	0.027	0.001	0.018	0.044	0.078	0.157
OPO4	mg/L	G372	232	0.030	0.029	0.015	0.001	0.005	0.023	0.050	0.182
OPO4	mg/L	G406	17	0.077	0.055	0.063	0.023	0.036	0.055	0.098	0.216
OPO4	mg/L	G407	44	0.042	0.047	0.015	0.001	0.003	0.018	0.071	0.183
OPO4	mg/L	G94B	113	0.030	0.061	0.011	0.001	0.005	0.010	0.023	0.461
OPO4	mg/L	GGC@858	82	0.007	0.027	0.004	0.002	0.002	0.005	0.005	0.244
OPO4	mg/L	GGCAT31	83	0.012	0.009	0.009	0.002	0.004	0.011	0.018	0.048
OPO4	mg/L	HC05.7	1	0.176		0.176	0.176				0.176
OPO4	mg/L	HC12.8	1	0.169		0.169	0.169				0.169
OPO4	mg/L	HC14.4	1	0.128		0.128	0.128				0.128
OPO4	mg/L	HC15.3	1	0.117		0.117	0.117				0.117
OPO4	mg/L	HC18.2	1	0.119		0.119	0.119				0.119
OPO4	mg/L	HC19.3	1	0.114		0.114	0.114				0.114
OPO4	mg/L	INDUSCAN	169	0.068	0.071	0.045	0.004	0.025	0.055	0.078	0.451
OPO4	mg/L	L3BRS	240	0.037	0.070	0.010	0.001	0.004	0.007	0.027	0.431
OPO4	mg/L	L59E	120	0.048	0.064	0.020	0.001	0.007	0.023	0.070	0.420
OPO4	mg/L	L59W	120	0.121	0.135	0.074	0.007	0.039	0.070	0.152	0.868
OPO4	mg/L	L60W	94	0.077	0.081	0.046	0.002	0.023	0.049	0.106	0.404
OPO4	mg/L	L61E	126	0.102	0.104	0.062	0.001	0.028	0.064	0.135	0.614
OPO4	mg/L	L61W	126	0.051	0.045	0.036	0.004	0.019	0.036	0.069	0.257
OPO4	mg/L	LOXA104	17	0.071	0.066	0.044	0.008	0.020	0.046	0.108	0.224
OPO4	mg/L	LOXA135	19	0.064	0.128	0.018	0.002	0.005	0.014	0.058	0.544
OPO4	mg/L	S10A	61	0.014	0.022	0.006	0.001	0.002	0.005	0.014	0.109
OPO4	mg/L	S10C	63	0.014	0.021	0.006	0.001	0.002	0.005	0.016	0.084
OPO4	mg/L	S10D	138	0.025	0.036	0.010	0.001	0.003	0.009	0.029	0.217
OPO4	mg/L	S11A	160	0.008	0.018	0.004	0.001	0.002	0.004	0.008	0.153
OPO4	mg/L	S11B	104	0.007	0.015	0.004	0.001	0.002	0.004	0.007	0.139
OPO4	mg/L	S11C	160	0.011	0.015	0.006	0.001	0.002	0.006	0.012	0.122
OPO4	mg/L	S127	121	0.090	0.104	0.039	0.001	0.010	0.053	0.126	0.519
OPO4	mg/L	S129	125	0.030	0.034	0.014	0.001	0.005	0.012	0.053	0.172
OPO4	mg/L	S12A	160	0.002	0.002	0.002	0.001	0.002	0.002	0.002	0.010
OPO4	mg/L	S12B	164	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.007
OPO4	mg/L	S12C	171	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.008
OPO4	mg/L	S12D	181	0.003	0.002	0.003	0.001	0.002	0.002	0.004	0.010
OPO4	mg/L	S131	134	0.060	0.046	0.036	0.001	0.015	0.057	0.094	0.219
OPO4	mg/L	S133	129	0.121	0.129	0.066	0.002	0.033	0.082	0.130	0.614
OPO4	mg/L	S135	125	0.042	0.049	0.019	0.001	0.007	0.021	0.060	0.241
OPO4	mg/L	S140	178	0.019	0.031	0.011	0.001	0.006	0.012	0.020	0.265
OPO4	mg/L	S145	168	0.005	0.005	0.003	0.001	0.002	0.004	0.006	0.031
OPO4	mg/L	S150	142	0.009	0.012	0.005	0.001	0.002	0.005	0.009	0.083

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
OPO4	mg/L	S151	162	0.004	0.004	0.003	0.001	0.002	0.002	0.005	0.034
OPO4	mg/L	S154	229	0.197	0.278	0.077	0.004	0.025	0.077	0.271	1.604
OPO4	mg/L	S169	154	0.053	0.050	0.033	0.002	0.017	0.041	0.071	0.280
OPO4	mg/L	S177	233	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.021
OPO4	mg/L	S178	145	0.009	0.017	0.004	0.001	0.002	0.004	0.007	0.094
OPO4	mg/L	S18C	217	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.009
OPO4	mg/L	S190	161	0.024	0.036	0.009	0.001	0.002	0.006	0.031	0.217
OPO4	mg/L	S191	239	0.355	0.214	0.296	0.032	0.196	0.299	0.455	1.148
OPO4	mg/L	S197	31	0.004	0.012	0.002	0.001	0.001	0.002	0.002	0.070
OPO4	mg/L	S2	167	0.062	0.048	0.043	0.003	0.022	0.051	0.087	0.227
OPO4	mg/L	S3	162	0.037	0.031	0.022	0.001	0.008	0.027	0.064	0.110
OPO4	mg/L	S308C	281	0.082	0.070	0.067	0.005	0.051	0.068	0.087	0.579
OPO4	mg/L	S31	106	0.003	0.002	0.002	0.001	0.002	0.002	0.004	0.008
OPO4	mg/L	S331	37	0.004	0.002	0.004	0.002	0.002	0.004	0.006	0.009
OPO4	mg/L	S332B	120	0.002	0.001	0.002	0.001	0.001	0.002	0.002	0.004
OPO4	mg/L	S332C	117	0.002	0.001	0.002	0.001	0.002	0.002	0.002	0.010
OPO4	mg/L	S332DX	57	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005
OPO4	mg/L	S333	234	0.003	0.002	0.002	0.001	0.002	0.002	0.004	0.015
OPO4	mg/L	S334	109	0.003	0.001	0.003	0.001	0.002	0.002	0.004	0.007
OPO4	mg/L	S335	36	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.002
OPO4	mg/L	S34	170	0.005	0.005	0.003	0.001	0.002	0.004	0.006	0.028
OPO4	mg/L	S344	28	0.004	0.003	0.003	0.002	0.002	0.002	0.004	0.018
OPO4	mg/L	S352	275	0.070	0.038	0.062	0.005	0.048	0.063	0.082	0.313
OPO4	mg/L	S356	22	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.003
OPO4	mg/L	S38	174	0.005	0.005	0.003	0.001	0.002	0.004	0.006	0.037
OPO4	mg/L	S39	163	0.011	0.016	0.006	0.001	0.002	0.005	0.011	0.128
OPO4	mg/L	S390	47	0.351	0.203	0.303	0.077	0.216	0.302	0.403	0.942
OPO4	mg/L	S5A	428	0.079	0.056	0.058	0.001	0.039	0.067	0.102	0.406
OPO4	mg/L	S5AE	138	0.048	0.028	0.041	0.005	0.028	0.045	0.062	0.186
OPO4	mg/L	S5AS	109	0.057	0.044	0.040	0.002	0.025	0.051	0.077	0.271
OPO4	mg/L	S5AW	61	0.047	0.029	0.036	0.004	0.022	0.048	0.066	0.149
OPO4	mg/L	S6	404	0.040	0.044	0.019	0.001	0.008	0.023	0.058	0.251
OPO4	mg/L	S65	250	0.012	0.029	0.006	0.001	0.002	0.006	0.011	0.374
OPO4	mg/L	S65A	248	0.018	0.022	0.009	0.001	0.004	0.008	0.025	0.114
OPO4	mg/L	S65C	250	0.032	0.029	0.021	0.001	0.011	0.025	0.043	0.198
OPO4	mg/L	S65D	254	0.044	0.041	0.029	0.001	0.018	0.031	0.062	0.301
OPO4	mg/L	S65E	297	0.059	0.050	0.041	0.001	0.024	0.040	0.081	0.322
OPO4	mg/L	S7	178	0.016	0.023	0.007	0.001	0.002	0.007	0.018	0.183
OPO4	mg/L	S71	238	0.110	0.119	0.065	0.002	0.031	0.068	0.138	0.632
OPO4	mg/L	S72	155	0.118	0.102	0.085	0.006	0.045	0.086	0.167	0.641
OPO4	mg/L	S78	58	0.086	0.067	0.070	0.008	0.051	0.067	0.108	0.468
OPO4	mg/L	S79	57	0.105	0.051	0.092	0.007	0.066	0.090	0.134	0.262
OPO4	mg/L	S8	186	0.018	0.021	0.010	0.001	0.004	0.010	0.021	0.111
OPO4	mg/L	S84	237	0.029	0.044	0.015	0.001	0.008	0.013	0.030	0.291
OPO4	mg/L	S9	151	0.004	0.004	0.003	0.001	0.002	0.003	0.005	0.047
OPO4	mg/L	S9A	110	0.002	0.002	0.002	0.001	0.001	0.002	0.002	0.014
OPO4	mg/L	SW1B	68	0.049	0.031	0.035	0.002	0.018	0.051	0.079	0.104
OPO4	mg/L	SW2	147	0.061	0.050	0.047	0.002	0.036	0.057	0.079	0.426
OPO4	mg/L	SW6IN	84	0.053	0.040	0.039	0.002	0.022	0.051	0.073	0.273
OPO4	mg/L	T0E	13	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.005
OPO4	mg/L	T0W	14	0.002	0.001	0.002	0.002	0.002	0.002	0.002	0.004
OPO4	mg/L	TAMBR6	52	0.005	0.006	0.003	0.002	0.002	0.003	0.005	0.042
OPO4	mg/L	TCNS 201	102	0.384	0.217	0.327	0.091	0.226	0.345	0.490	1.085
OPO4	mg/L	TCNS 213	215	0.327	0.232	0.254	0.021	0.173	0.269	0.383	1.075
OPO4	mg/L	TCNS 217	219	0.225	0.253	0.129	0.004	0.067	0.141	0.283	1.610
OPO4	mg/L	US41-25	185	0.003	0.002	0.002	0.001	0.002	0.002	0.002	0.020
OPO4	mg/L	WPB-26.1	21	0.131	0.082	0.106	0.020	0.059	0.121	0.185	0.305
OPO4	mg/L	WPB-28.2	20	0.122	0.091	0.077	0.001	0.051	0.096	0.188	0.289
OPO4	mg/L	WPB-31.2	21	0.118	0.077	0.091	0.009	0.059	0.096	0.187	0.289
OPO4	mg/L	WPB-33.5	21	0.143	0.075	0.120	0.026	0.084	0.137	0.199	0.278
OPO4	mg/L	WPB-35.4	21	0.168	0.107	0.130	0.023	0.083	0.139	0.264	0.372
OPO4	mg/L	WPB-37.2	21	0.174	0.124	0.134	0.028	0.076	0.120	0.259	0.510
OPO4	mg/L	WPB-38.0	21	0.194	0.156	0.134	0.015	0.077	0.148	0.295	0.639
OPO4	mg/L	WWEIR	12	0.005	0.004	0.004	0.001	0.003	0.005	0.007	0.014

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
OPO4	mg/L	X0	114	0.020	0.027	0.009	0.001	0.003	0.008	0.028	0.140
OPO4	mg/L	Z0	108	0.020	0.026	0.009	0.001	0.002	0.008	0.027	0.130
SCOND	µS/cm	02273230	204	299	178	258	107	165	235	396	925
SCOND	µS/cm	02274325	159	493	203	448	92	406	515	572	1503
SCOND	µS/cm	02274505	224	198	50	189	53	185	218	231	318
SCOND	µS/cm	02275631	194	454	196	410	101	318	426	570	937
SCOND	µS/cm	3AE0	61	454	81	447	277	398	468	507	636
SCOND	µS/cm	3AW0	89	449	81	442	279	382	460	501	647
SCOND	µS/cm	BC10	164	500	113	484	193	449	538	585	645
SCOND	µS/cm	BC11	151	452	89	442	178	391	479	521	598
SCOND	µS/cm	BC14	156	666	149	649	330	561	663	752	1057
SCOND	µS/cm	BC15	169	670	104	661	397	586	687	753	853
SCOND	µS/cm	BC22	127	1293	1483	1006	232	852	992	1099	11100
SCOND	µS/cm	BC23	124	641	121	629	387	539	637	703	970
SCOND	µS/cm	BC26	83	479	81	473	313	427	479	528	819
SCOND	µS/cm	BC7	95	804	1092	658	324	568	622	663	9496
SCOND	µS/cm	BC8	95	575	397	534	336	473	534	568	3793
SCOND	µS/cm	BC9	134	599	82	592	225	577	606	645	746
SCOND	µS/cm	C123SR84	160	633	131	618	106	540	627	709	1160
SCOND	µS/cm	C15S40	124	478	53	475	325	446	476	503	787
SCOND	µS/cm	C16S41	123	486	100	478	289	434	459	511	946
SCOND	µS/cm	C17S44	124	456	49	453	281	436	460	490	540
SCOND	µS/cm	C18S46	111	458	232	412	101	292	446	564	1588
SCOND	µS/cm	C23S48	143	721	226	688	292	588	684	833	1707
SCOND	µS/cm	C24S49	151	1132	398	1045	249	854	1166	1443	1940
SCOND	µS/cm	C25S50	137	1025	276	981	377	815	1073	1219	1561
SCOND	µS/cm	C25S99	3	1823	130	1820	1736	1742	1760	1920	1973
SCOND	µS/cm	C44S80	171	656	281	609	298	467	553	827	2002
SCOND	µS/cm	C51S155	132	572	119	547	5	499	550	632	981
SCOND	µS/cm	CES01	183	590	320	534	249	403	475	660	2574
SCOND	µS/cm	COC@LAKE	93	705	152	686	332	570	767	823	930
SCOND	µS/cm	COOPERTN	159	593	559	543	52	481	553	627	7452
SCOND	µS/cm	CORK@846	99	437	151	411	184	295	424	582	697
SCOND	µS/cm	CR-04.8T	60	493	121	478	250	411	489	592	740
SCOND	µS/cm	CULV10A	239	553	314	505	104	408	473	589	3390
SCOND	µS/cm	CULV5A	107	403	134	378	146	305	403	493	684
SCOND	µS/cm	DF02.1TW	27	545	139	477	8	473	585	620	708
SCOND	µS/cm	E0	116	934	236	895	213	792	981	1110	1486
SCOND	µS/cm	F0	119	957	226	921	248	833	1006	1114	1375
SCOND	µS/cm	FAKA	93	1354	2243	834	410	553	601	754	16063
SCOND	µS/cm	FAKA858	103	433	79	425	240	371	425	496	620
SCOND	µS/cm	FROGCITY	96	602	685	539	338	471	546	604	7183
SCOND	µS/cm	G123	344	865	118	856	432	797	885	934	1198
SCOND	µS/cm	G136	333	541	100	530	219	490	562	601	739
SCOND	µS/cm	G150	27	575	162	550	312	471	642	708	826
SCOND	µS/cm	G151	1	433		433	433				433
SCOND	µS/cm	G200	125	715	181	691	369	554	737	839	1127
SCOND	µS/cm	G300	308	811	255	772	277	608	765	992	1564
SCOND	µS/cm	G301	311	892	297	842	348	649	822	1101	1612
SCOND	µS/cm	G302	376	904	316	849	318	651	838	1146	2221
SCOND	µS/cm	G311	203	800	243	767	409	638	738	956	1745
SCOND	µS/cm	G341	14	1295	414	1193	384	1268	1357	1499	1712
SCOND	µS/cm	G342A	496	570	147	547	189	474	614	670	934
SCOND	µS/cm	G342B	516	569	122	553	208	516	608	653	877
SCOND	µS/cm	G342C	491	575	121	559	208	504	610	659	877
SCOND	µS/cm	G342D	512	573	111	560	210	510	597	646	903
SCOND	µS/cm	G342E	24	505	94	495	278	451	521	585	619
SCOND	µS/cm	G342F	24	499	88	490	277	454	523	573	593
SCOND	µS/cm	G353A	39	472	80	466	291	427	450	558	613
SCOND	µS/cm	G353B	70	515	76	509	314	451	545	565	622
SCOND	µS/cm	G353C	39	472	73	467	323	431	460	540	611
SCOND	µS/cm	G357	276	710	174	686	320	604	730	833	1101
SCOND	µS/cm	G371	12	1051	185	1034	627	969	1045	1185	1287
SCOND	µS/cm	G372	283	762	214	730	333	556	781	919	1195

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
SCOND	µS/cm	G373	12	788	213	760	473	626	774	963	1098
SCOND	µS/cm	G404	309	722	171	699	330	627	736	847	1098
SCOND	µS/cm	G406	297	561	110	549	282	480	588	643	795
SCOND	µS/cm	G407	65	519	90	512	367	457	535	568	813
SCOND	µS/cm	G409	355	647	160	626	273	542	647	768	1023
SCOND	µS/cm	G94B	125	569	214	526	178	425	563	703	1140
SCOND	µS/cm	GGC@858	98	443	38	441	247	433	447	460	570
SCOND	µS/cm	GGCAT31	161	702	95	695	438	624	722	767	922
SCOND	µS/cm	GLADER	147	598	556	550	310	472	562	636	7147
SCOND	µS/cm	HC05.7	1	1384		1384	1384				1384
SCOND	µS/cm	HC12.8	1	1421		1421	1421				1421
SCOND	µS/cm	HC14.4	1	1504		1504	1504				1504
SCOND	µS/cm	HC15.3	1	1463		1463	1463				1463
SCOND	µS/cm	HC18.2	1	1475		1475	1475				1475
SCOND	µS/cm	HC19.3	1	1601		1601	1601				1601
SCOND	µS/cm	INDUSCAN	167	652	186	625	274	499	637	790	1296
SCOND	µS/cm	L3BRS	254	631	160	610	288	523	629	740	1018
SCOND	µS/cm	L59E	121	2074	1731	1393	121	685	1550	3007	7415
SCOND	µS/cm	L59W	120	409	148	382	133	298	392	496	862
SCOND	µS/cm	L60W	98	388	116	371	181	294	384	474	709
SCOND	µS/cm	L61E	128	343	120	322	136	251	331	417	726
SCOND	µS/cm	L61W	128	330	137	299	87	242	319	397	674
SCOND	µS/cm	L8MZBN	65	1093	632	917	272	498	883	1695	2112
SCOND	µS/cm	L8MZBS	66	1094	589	952	417	580	872	1632	2105
SCOND	µS/cm	LOXA104	39	836	234	800	303	715	838	1022	1354
SCOND	µS/cm	LOXA135	39	753	176	734	455	617	740	860	1161
SCOND	µS/cm	S10A	66	620	218	577	212	455	629	802	1083
SCOND	µS/cm	S10C	68	687	289	616	142	454	687	933	1242
SCOND	µS/cm	S10D	141	838	257	789	220	674	867	1032	1288
SCOND	µS/cm	S11A	160	815	182	794	460	681	810	939	1317
SCOND	µS/cm	S11B	105	808	173	790	472	675	793	924	1275
SCOND	µS/cm	S11C	159	883	185	863	465	722	889	1018	1261
SCOND	µS/cm	S127	124	946	245	910	246	842	934	1062	1726
SCOND	µS/cm	S129	130	674	166	656	334	577	635	721	1128
SCOND	µS/cm	S12A	285	343	135	323	148	257	304	372	874
SCOND	µS/cm	S12B	230	337	105	323	107	266	320	367	743
SCOND	µS/cm	S12C	288	391	112	376	154	315	366	458	781
SCOND	µS/cm	S12D	266	502	153	477	214	355	536	619	835
SCOND	µS/cm	S131	137	552	108	541	300	485	555	641	756
SCOND	µS/cm	S133	131	608	127	595	354	542	595	669	1000
SCOND	µS/cm	S135	132	657	97	649	335	602	671	716	864
SCOND	µS/cm	S140	402	620	180	592	219	463	628	755	1172
SCOND	µS/cm	S145	173	746	190	720	273	600	758	898	1176
SCOND	µS/cm	S150	331	828	218	797	344	667	844	988	1558
SCOND	µS/cm	S151	168	733	110	725	374	661	736	807	1008
SCOND	µS/cm	S154	224	910	542	771	154	529	858	1151	5007
SCOND	µS/cm	S169	152	575	130	560	294	470	581	660	939
SCOND	µS/cm	S177	289	540	62	537	301	506	524	561	797
SCOND	µS/cm	S178	214	468	82	461	279	417	472	527	747
SCOND	µS/cm	S18C	413	532	55	529	184	505	521	543	952
SCOND	µS/cm	S190	280	519	91	510	252	469	523	576	845
SCOND	µS/cm	S191	234	762	429	649	139	425	651	1007	2200
SCOND	µS/cm	S197	31	574	222	547	389	474	492	561	1472
SCOND	µS/cm	S2	180	944	392	861	359	564	987	1179	2079
SCOND	µS/cm	S3	168	793	303	738	346	536	740	969	1622
SCOND	µS/cm	S308C	294	471	212	450	262	375	428	533	3500
SCOND	µS/cm	S31	110	717	89	712	487	665	715	754	979
SCOND	µS/cm	S331	40	516	31	516	430	500	521	540	570
SCOND	µS/cm	S332B	257	579	82	567	8	534	558	608	857
SCOND	µS/cm	S332C	264	580	77	575	403	529	557	607	859
SCOND	µS/cm	S332DX	83	622	95	616	504	545	593	698	873
SCOND	µS/cm	S333	354	529	142	508	213	405	540	627	858
SCOND	µS/cm	S334	143	530	92	522	328	462	533	584	772
SCOND	µS/cm	S335	39	686	88	680	502	630	695	739	874

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
SCOND	µS/cm	S34	170	794	168	776	413	670	786	915	1218
SCOND	µS/cm	S344	38	287	76	277	133	222	294	347	410
SCOND	µS/cm	S352	277	583	329	534	287	421	494	618	2560
SCOND	µS/cm	S356	63	610	97	603	429	538	615	667	795
SCOND	µS/cm	S38	175	689	194	650	7	550	684	833	1227
SCOND	µS/cm	S39	163	613	235	564	160	430	609	783	1344
SCOND	µS/cm	S390	73	667	244	624	133	517	627	756	1458
SCOND	µS/cm	S5A	550	969	351	902	357	669	950	1252	1998
SCOND	µS/cm	S5AE	178	729	439	628	147	437	600	835	2085
SCOND	µS/cm	S5AS	109	782	296	729	221	547	727	932	1566
SCOND	µS/cm	S5AW	61	628	247	582	183	446	596	749	1405
SCOND	µS/cm	S6	579	1093	251	1058	427	983	1156	1268	1931
SCOND	µS/cm	S65	246	156	40	151	75	126	151	187	325
SCOND	µS/cm	S65A	246	157	47	150	58	122	147	189	328
SCOND	µS/cm	S65C	246	178	63	168	86	129	163	213	385
SCOND	µS/cm	S65D	247	175	48	168	90	135	169	210	353
SCOND	µS/cm	S65E	286	188	58	180	94	143	178	222	423
SCOND	µS/cm	S7	404	896	198	873	443	758	904	1029	1466
SCOND	µS/cm	S71	236	332	113	313	147	237	324	394	596
SCOND	µS/cm	S72	156	378	135	356	135	276	355	447	922
SCOND	µS/cm	S78	74	490	93	481	285	425	467	564	713
SCOND	µS/cm	S79	56	620	265	575	292	433	530	751	1504
SCOND	µS/cm	S8	524	720	150	703	351	631	718	833	1108
SCOND	µS/cm	S84	238	350	280	281	122	181	230	387	1286
SCOND	µS/cm	S9	533	753	59	751	448	720	763	800	939
SCOND	µS/cm	S9A	336	766	52	765	596	736	780	807	861
SCOND	µS/cm	SAFARI	216	535	496	492	258	389	498	603	7534
SCOND	µS/cm	SW1B	70	484	171	456	172	344	429	608	957
SCOND	µS/cm	SW2	260	648	433	550	156	379	483	737	2105
SCOND	µS/cm	SW6IN	204	950	572	789	168	479	755	1350	2518
SCOND	µS/cm	T0E	12	484	51	481	396	449	490	520	562
SCOND	µS/cm	T0W	12	487	53	484	398	450	490	528	562
SCOND	µS/cm	TAMBR1	236	576	464	544	282	482	542	615	7503
SCOND	µS/cm	TAMBR2	232	580	497	545	287	479	543	617	7962
SCOND	µS/cm	TAMBR3	208	584	526	545	293	480	544	617	7995
SCOND	µS/cm	TAMBR4	179	589	542	548	302	485	543	617	7682
SCOND	µS/cm	TAMBR5	145	596	602	548	307	485	547	615	7700
SCOND	µS/cm	TAMBR6	160	586	567	542	279	485	540	607	7607
SCOND	µS/cm	TCNS 201	92	343	147	313	104	238	322	403	785
SCOND	µS/cm	TCNS 213	213	439	128	420	152	359	445	511	1006
SCOND	µS/cm	TCNS 217	213	229	94	216	73	196	218	238	983
SCOND	µS/cm	US41-25	250	374	98	353	1	300	387	453	568
SCOND	µS/cm	WPB-21.2	28	1518	200	1506	1206	1323	1554	1691	1939
SCOND	µS/cm	WPB-26.1	21	1120	313	1074	585	938	1160	1365	1557
SCOND	µS/cm	WPB-28.2	21	1129	348	1070	542	898	1211	1363	1653
SCOND	µS/cm	WPB-31.2	21	1192	387	1123	507	1013	1238	1422	1882
SCOND	µS/cm	WPB-33.5	21	1302	481	1208	511	1026	1398	1575	2534
SCOND	µS/cm	WPB-35.4	21	1410	503	1302	535	1037	1450	1788	2149
SCOND	µS/cm	WPB-37.2	21	1455	600	1321	522	1089	1310	2028	2337
SCOND	µS/cm	WPB-38.0	21	1597	701	1428	569	1099	1453	2306	2662
SCOND	µS/cm	WWEIR	528	644	151	620	129	572	685	742	902
SCOND	µS/cm	X0	120	852	250	808	213	688	852	1015	1432
SCOND	µS/cm	Z0	120	842	261	791	108	678	835	1028	1505
TEMP	°C	02273230	203	25.6	4.7	25.1	13.8	22.2	27.3	29.6	33.9
TEMP	°C	02274325	160	24.9	4.1	24.6	14.3	21.5	25.6	28.4	34.2
TEMP	°C	02274505	224	23.3	4.8	22.8	11.6	19.9	24.2	27.4	31.6
TEMP	°C	02275631	192	25.8	4.1	25.4	15.8	22.3	26.9	29.1	34.0
TEMP	°C	BC10	172	24.9	3.6	24.7	15.7	22.7	25.4	27.5	31.4
TEMP	°C	BC11	158	23.6	3.3	23.4	14.7	21.4	23.7	26.4	29.7
TEMP	°C	BC14	165	25.9	3.4	25.7	17.7	23.5	26.9	28.3	31.5
TEMP	°C	BC15	177	25.0	3.9	24.7	13.9	22.3	26.3	28.1	31.7
TEMP	°C	BC22	134	25.1	4.2	24.7	15.5	22.2	25.8	28.4	32.3
TEMP	°C	BC23	131	25.5	3.4	25.2	17.5	23.3	26.2	28.1	31.8
TEMP	°C	BC26	92	24.7	3.8	24.4	15.4	21.5	24.4	28.2	32.5

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TEMP	°C	BC7	102	24.9	3.7	24.6	17.1	21.8	26.0	27.6	31.8
TEMP	°C	BC8	102	24.5	3.5	24.2	15.8	21.9	25.4	26.9	31.8
TEMP	°C	BC9	141	24.9	3.3	24.7	15.5	23.1	25.5	27.2	32.0
TEMP	°C	C123SR84	162	25.1	4.1	24.8	13.3	22.0	26.0	28.6	32.4
TEMP	°C	C15S40	125	25.7	3.9	25.4	16.5	22.6	26.1	29.4	32.3
TEMP	°C	C16S41	124	25.7	4.0	25.4	15.7	23.1	26.0	29.3	32.6
TEMP	°C	C17S44	125	25.6	4.1	25.3	15.7	22.4	26.0	29.2	32.1
TEMP	°C	C18S46	111	25.3	3.9	25.0	16.9	22.5	25.0	28.7	32.6
TEMP	°C	C23S48	145	25.2	3.8	24.9	16.0	22.0	25.7	28.5	32.8
TEMP	°C	C24S49	154	25.3	3.9	25.0	15.3	21.8	26.2	28.8	30.9
TEMP	°C	C25S50	138	25.2	3.8	24.9	16.4	22.1	25.6	28.7	31.8
TEMP	°C	C25S99	3	25.6	1.8	25.6	23.7	24.3	26.2	26.8	27.0
TEMP	°C	C44S80	179	25.6	3.6	25.3	14.8	22.5	25.9	29.0	31.2
TEMP	°C	C51S155	133	25.6	3.9	25.3	16.3	22.6	25.9	29.1	31.7
TEMP	°C	CES01	218	25.1	4.2	24.8	14.4	21.3	25.5	29.2	32.9
TEMP	°C	COC@LAKE	100	25.1	3.2	24.9	18.2	22.6	25.8	27.6	30.8
TEMP	°C	COOPERTN	163	25.2	3.9	24.9	14.4	22.3	25.1	28.8	32.0
TEMP	°C	CORK@846	108	24.1	3.6	23.9	16.6	21.1	24.7	27.1	31.0
TEMP	°C	CR-04.8T	60	24.5	4.4	24.0	13.1	21.4	24.6	28.5	31.2
TEMP	°C	CULV10A	240	24.4	4.6	23.9	12.5	20.6	25.1	28.4	31.7
TEMP	°C	CULV5A	108	24.3	4.4	23.9	12.9	21.2	24.9	28.3	31.7
TEMP	°C	DF02.1TW	28	27.5	4.2	27.1	18.1	23.9	28.6	31.5	32.4
TEMP	°C	FAKA	103	25.3	3.6	25.1	17.6	22.6	26.2	27.8	32.5
TEMP	°C	FAKA858	111	24.6	3.7	24.3	15.0	21.3	24.6	28.0	30.3
TEMP	°C	FROGCITY	96	24.8	3.8	24.5	14.3	22.4	25.0	28.1	32.0
TEMP	°C	G123	345	24.9	3.8	24.6	14.2	22.4	25.0	28.2	32.5
TEMP	°C	G136	335	24.9	4.4	24.5	13.0	21.5	25.9	28.9	32.7
TEMP	°C	G150	28	26.7	4.1	26.4	17.7	23.1	28.3	30.0	32.6
TEMP	°C	G151	1	27.5		27.5	27.5				27.5
TEMP	°C	G200	125	24.5	4.3	24.1	15.9	20.7	24.8	28.5	31.5
TEMP	°C	G300	309	24.8	4.2	24.5	13.3	21.6	25.1	28.7	33.0
TEMP	°C	G301	313	25.0	4.2	24.6	13.2	21.6	25.5	28.9	35.0
TEMP	°C	G302	379	25.1	4.2	24.7	13.3	21.7	25.9	28.8	34.0
TEMP	°C	G311	204	24.9	4.2	24.5	13.2	21.3	25.2	28.8	32.8
TEMP	°C	G341	15	28.2	1.1	28.2	25.9	27.4	28.3	28.9	29.8
TEMP	°C	G342A	496	25.5	4.3	25.1	13.6	22.2	26.2	29.0	36.5
TEMP	°C	G342B	516	25.1	4.2	24.8	13.5	21.9	25.9	28.8	32.5
TEMP	°C	G342C	491	25.1	4.3	24.7	13.7	21.7	25.8	28.8	32.9
TEMP	°C	G342D	512	24.8	4.1	24.5	13.7	21.7	25.4	28.4	31.7
TEMP	°C	G342E	24	24.2	4.2	23.8	18.3	20.4	23.1	28.2	30.0
TEMP	°C	G342F	24	24.2	4.2	23.9	18.6	20.4	23.4	28.3	30.4
TEMP	°C	G353A	39	25.4	4.3	25.0	15.0	21.8	26.7	29.4	31.9
TEMP	°C	G353B	70	25.1	3.9	24.8	15.4	22.1	24.9	28.8	31.6
TEMP	°C	G353C	39	25.6	4.3	25.2	15.4	22.0	27.4	29.4	31.5
TEMP	°C	G357	278	24.8	4.0	24.5	15.8	21.5	25.5	28.6	31.2
TEMP	°C	G371	12	21.2	3.0	21.0	17.1	19.3	20.4	22.4	26.9
TEMP	°C	G372	284	24.9	4.2	24.5	15.7	21.5	25.0	28.6	36.1
TEMP	°C	G373	12	21.5	2.5	21.4	17.4	19.4	21.7	22.6	25.6
TEMP	°C	G404	311	24.9	3.9	24.5	15.9	21.8	25.3	28.5	31.8
TEMP	°C	G406	298	25.0	4.3	24.6	8.4	22.1	26.1	28.4	31.5
TEMP	°C	G407	66	25.0	3.6	24.8	17.9	21.7	25.4	27.9	30.7
TEMP	°C	G409	357	24.6	4.3	24.2	3.2	21.5	25.0	28.4	31.7
TEMP	°C	G94B	127	24.9	4.1	24.5	15.4	22.0	25.3	28.5	32.3
TEMP	°C	GGC@858	106	25.1	3.3	24.9	17.5	21.9	25.6	28.0	30.6
TEMP	°C	GGCAT31	170	25.1	3.4	24.8	18.1	22.7	25.5	28.0	31.2
TEMP	°C	GLADER	150	24.8	3.8	24.5	14.3	22.1	24.3	28.5	31.8
TEMP	°C	HC05.7	1	27.8		27.8	27.8				27.8
TEMP	°C	HC12.8	1	27.9		27.9	27.9				27.9
TEMP	°C	HC14.4	1	28.0		28.0	28.0				28.0
TEMP	°C	HC15.3	1	28.1		28.1	28.1				28.1
TEMP	°C	HC18.2	1	28.0		28.0	28.0				28.0
TEMP	°C	HC19.3	1	28.3		28.3	28.3				28.3
TEMP	°C	INDUSCAN	168	25.8	4.3	25.4	13.6	22.9	26.9	29.1	32.5
TEMP	°C	L3BRS	256	25.2	4.2	24.8	14.8	22.0	26.2	28.8	31.6

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TEMP	°C	L59E	122	25.2	4.8	24.7	13.9	21.4	25.9	29.1	33.3
TEMP	°C	L59W	118	25.2	4.4	24.8	15.5	21.9	26.0	29.0	33.0
TEMP	°C	L60W	98	24.6	4.5	24.1	14.7	21.3	25.5	28.3	33.7
TEMP	°C	L61E	127	24.6	4.6	24.1	11.0	21.0	25.2	28.6	36.4
TEMP	°C	L61W	128	24.7	4.4	24.3	13.7	21.5	25.3	28.7	32.3
TEMP	°C	L8MZBN	5	23.9	3.1	23.7	19.8	21.5	24.0	26.5	27.6
TEMP	°C	L8MZBS	5	24.3	2.6	24.2	21.6	22.1	24.0	26.6	27.5
TEMP	°C	LOXA104	39	24.4	4.4	24.0	15.8	20.5	24.8	28.1	32.7
TEMP	°C	LOXA135	40	24.4	4.5	24.0	15.1	20.6	24.2	28.6	30.5
TEMP	°C	S10A	66	25.5	4.0	25.2	15.0	23.0	26.7	28.9	30.9
TEMP	°C	S10C	68	25.7	3.8	25.4	14.7	23.3	26.3	29.0	31.4
TEMP	°C	S10D	142	25.2	4.2	24.8	13.5	22.4	26.2	28.9	30.7
TEMP	°C	S11A	162	25.6	4.2	25.2	13.4	22.8	26.4	29.0	33.0
TEMP	°C	S11B	106	25.9	4.1	25.5	13.2	23.3	26.9	29.1	32.2
TEMP	°C	S11C	161	25.0	4.3	24.6	13.0	21.7	26.3	28.6	31.6
TEMP	°C	S127	122	25.0	4.4	24.6	14.4	21.4	25.5	29.0	32.0
TEMP	°C	S129	130	24.9	4.3	24.5	15.2	21.2	25.4	29.0	32.2
TEMP	°C	S12A	287	25.3	4.0	25.0	14.6	22.4	25.6	28.8	32.6
TEMP	°C	S12B	235	25.7	3.9	25.4	14.8	23.1	26.3	29.0	32.6
TEMP	°C	S12C	296	25.6	3.9	25.3	14.4	22.7	26.2	28.9	32.0
TEMP	°C	S12D	270	25.5	3.9	25.2	14.3	22.7	26.4	28.8	32.3
TEMP	°C	S131	136	25.3	4.3	24.9	15.1	21.5	26.4	29.2	31.6
TEMP	°C	S133	131	24.6	4.5	24.1	11.1	21.1	24.8	28.7	30.9
TEMP	°C	S135	132	24.9	4.4	24.5	15.8	21.4	24.9	29.1	32.7
TEMP	°C	S140	403	24.9	3.6	24.6	15.4	21.8	25.5	28.2	30.6
TEMP	°C	S145	174	25.1	4.2	24.7	13.4	22.3	26.0	28.4	32.0
TEMP	°C	S150	332	24.8	4.2	24.4	14.3	21.6	25.5	28.6	32.3
TEMP	°C	S151	168	25.4	3.7	25.1	14.5	22.6	26.0	28.5	31.7
TEMP	°C	S154	224	25.2	4.5	24.8	14.4	22.3	25.7	29.1	33.5
TEMP	°C	S169	153	25.7	4.4	25.3	13.7	22.7	26.4	29.2	32.9
TEMP	°C	S177	301	25.3	2.0	25.2	19.1	24.1	25.7	26.5	31.2
TEMP	°C	S178	228	24.5	3.6	24.2	15.3	21.9	24.8	27.5	30.9
TEMP	°C	S18C	429	25.3	2.7	25.1	16.8	23.7	25.8	27.2	31.2
TEMP	°C	S190	281	26.0	4.0	25.6	15.9	22.6	27.0	29.1	34.6
TEMP	°C	S191	235	24.5	4.3	24.1	13.7	21.1	24.8	28.4	39.8
TEMP	°C	S197	32	25.7	2.9	25.5	18.3	23.1	26.1	27.7	31.1
TEMP	°C	S2	180	25.5	4.2	25.1	13.0	22.4	26.4	28.8	32.1
TEMP	°C	S3	168	25.8	4.5	25.4	12.6	22.4	26.7	29.3	34.3
TEMP	°C	S308C	295	24.3	4.6	23.8	12.3	20.9	24.9	28.3	32.4
TEMP	°C	S31	110	24.9	3.3	24.7	16.9	22.6	25.0	27.4	32.1
TEMP	°C	S331	40	26.2	1.4	26.2	23.0	25.4	26.2	27.0	30.5
TEMP	°C	S332B	265	25.1	2.3	24.9	19.2	23.4	25.3	26.8	30.2
TEMP	°C	S332C	273	25.2	2.2	25.1	19.4	23.6	25.4	26.6	30.3
TEMP	°C	S332DX	83	24.8	2.3	24.7	18.9	23.4	25.2	26.3	29.5
TEMP	°C	S333	360	25.0	4.0	24.6	14.3	21.9	25.4	28.6	32.5
TEMP	°C	S334	147	25.6	3.6	25.3	14.9	23.0	25.8	28.4	33.9
TEMP	°C	S335	40	24.6	2.9	24.4	18.9	22.3	24.5	27.5	29.1
TEMP	°C	S34	171	24.5	4.2	24.1	14.0	21.2	24.7	28.5	32.2
TEMP	°C	S344	39	25.1	4.2	24.7	17.1	21.4	26.0	28.7	32.2
TEMP	°C	S352	278	24.6	4.6	24.1	13.1	20.8	25.4	28.5	32.2
TEMP	°C	S356	63	25.7	2.7	25.6	18.5	23.7	26.1	27.8	30.6
TEMP	°C	S38	176	24.8	4.2	24.4	13.4	21.7	24.9	28.3	33.6
TEMP	°C	S39	165	25.1	4.3	24.7	13.7	22.2	25.3	29.0	31.5
TEMP	°C	S390	73	23.1	4.0	22.8	15.4	20.1	22.5	26.6	30.8
TEMP	°C	S5A	553	24.8	4.2	24.4	13.8	21.3	25.3	28.5	33.3
TEMP	°C	S5AE	151	24.6	4.1	24.2	13.9	21.1	24.9	28.6	31.0
TEMP	°C	S5AS	109	23.7	4.0	23.3	14.0	20.9	23.2	27.5	30.2
TEMP	°C	S5AW	61	23.9	4.3	23.4	13.8	20.8	24.4	27.9	31.2
TEMP	°C	S6	581	24.8	3.8	24.5	14.1	21.8	25.3	28.1	35.3
TEMP	°C	S65	247	24.1	5.2	23.5	11.8	20.0	24.4	29.0	33.1
TEMP	°C	S65A	246	24.4	5.0	23.8	12.0	20.2	24.3	28.7	34.7
TEMP	°C	S65C	247	24.5	4.6	24.0	13.4	20.8	25.0	28.7	32.5
TEMP	°C	S65D	248	24.5	4.6	24.0	12.8	20.8	25.0	28.8	32.3
TEMP	°C	S65E	288	24.5	4.6	24.0	11.4	20.6	25.0	28.7	32.1

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TEMP	°C	S7	404	24.6	4.1	24.2	14.2	21.4	25.2	28.3	31.4
TEMP	°C	S71	236	24.8	4.3	24.4	14.5	21.4	25.2	28.8	33.5
TEMP	°C	S72	155	25.5	4.4	25.1	15.7	22.2	26.6	29.3	32.3
TEMP	°C	S78	82	24.6	4.3	24.3	15.1	21.4	24.2	29.0	31.4
TEMP	°C	S79	56	25.5	4.3	25.1	15.8	22.1	25.3	29.8	33.1
TEMP	°C	S8	532	24.9	3.8	24.6	15.9	21.8	25.3	28.3	32.3
TEMP	°C	S84	238	25.1	4.4	24.7	15.0	21.5	25.5	29.1	33.6
TEMP	°C	S9	534	25.6	2.4	25.5	19.5	23.7	25.5	27.5	31.9
TEMP	°C	S9A	336	25.5	2.3	25.4	20.3	23.6	25.4	27.4	30.6
TEMP	°C	SAFARI	222	24.5	3.9	24.2	14.2	21.9	24.7	27.8	31.7
TEMP	°C	SW1B	70	24.6	4.3	24.2	15.5	21.2	25.1	28.7	31.2
TEMP	°C	SW2	237	26.4	4.2	26.0	15.9	23.1	27.1	29.8	34.3
TEMP	°C	SW6IN	186	26.2	3.8	25.9	13.6	23.5	27.1	28.9	33.2
TEMP	°C	TAMBR1	242	25.2	3.7	24.9	14.4	22.3	25.8	28.6	31.7
TEMP	°C	TAMBR2	237	25.4	3.8	25.1	14.4	22.3	26.1	28.8	31.1
TEMP	°C	TAMBR3	213	25.4	3.8	25.1	14.4	22.4	25.7	28.7	32.8
TEMP	°C	TAMBR4	184	25.3	3.8	25.0	14.4	22.4	25.4	28.8	32.0
TEMP	°C	TAMBR5	150	25.3	3.7	25.0	14.5	22.5	25.4	28.8	31.7
TEMP	°C	TAMBR6	166	25.3	3.8	25.0	14.4	22.6	25.1	28.8	32.1
TEMP	°C	TCNS 201	94	22.6	4.2	22.1	11.7	19.6	23.3	26.3	28.2
TEMP	°C	TCNS 213	212	23.2	4.5	22.7	10.8	20.0	24.0	27.0	31.6
TEMP	°C	TCNS 217	212	22.8	4.5	22.3	10.3	19.3	23.6	26.6	30.8
TEMP	°C	US41-25	255	25.2	3.7	24.9	15.7	22.6	25.5	28.6	31.4
TEMP	°C	WPB-26.1	21	28.6	1.3	28.6	24.8	28.0	29.1	29.4	30.1
TEMP	°C	WPB-28.2	21	28.6	1.4	28.5	24.7	27.6	29.2	29.5	30.2
TEMP	°C	WPB-31.2	21	28.5	1.5	28.5	24.8	27.7	28.7	29.3	31.3
TEMP	°C	WPB-33.5	21	28.8	1.6	28.8	24.7	27.7	29.3	29.7	31.6
TEMP	°C	WPB-35.4	21	28.8	1.5	28.7	24.8	27.6	29.2	29.9	30.7
TEMP	°C	WPB-37.2	21	28.5	1.5	28.4	25.0	27.5	28.3	29.5	31.0
TEMP	°C	WPB-38.0	21	28.8	1.6	28.8	25.0	27.9	29.2	29.8	31.0
TEMP	°C	WWEIR	535	24.4	4.1	24.0	13.6	21.4	24.8	27.7	33.3
TKN	mg/L	02273230	90	2.26	3.17	1.74	0.13	1.30	1.70	2.20	24.00
TKN	mg/L	02274325	74	1.63	1.48	1.36	0.13	1.15	1.30	1.60	11.15
TKN	mg/L	02274505	82	1.35	0.58	1.24	0.23	0.96	1.26	1.65	4.40
TKN	mg/L	02275631	67	2.39	2.78	1.86	0.55	1.46	1.63	2.00	21.00
TKN	mg/L	3AE0	61	1.15	0.19	1.13	0.79	1.00	1.10	1.20	1.90
TKN	mg/L	3AW0	87	1.13	0.22	1.11	0.73	0.99	1.07	1.20	1.80
TKN	mg/L	BC10	79	0.48	0.26	0.40	0.02	0.34	0.46	0.59	1.57
TKN	mg/L	BC11	76	0.62	0.31	0.53	0.02	0.45	0.56	0.73	1.66
TKN	mg/L	BC14	73	0.70	0.30	0.66	0.18	0.58	0.69	0.77	2.87
TKN	mg/L	BC15	74	0.78	0.35	0.67	0.02	0.65	0.81	0.94	2.46
TKN	mg/L	BC22	74	0.68	0.27	0.62	0.04	0.53	0.63	0.76	1.98
TKN	mg/L	BC23	77	0.79	0.28	0.74	0.11	0.63	0.74	0.86	2.01
TKN	mg/L	BC26	61	0.81	0.31	0.76	0.30	0.61	0.75	0.94	2.10
TKN	mg/L	BC7	74	0.48	0.40	0.37	0.02	0.32	0.46	0.53	3.43
TKN	mg/L	BC8	73	0.46	0.25	0.41	0.05	0.36	0.43	0.53	1.62
TKN	mg/L	BC9	75	0.56	0.28	0.46	0.02	0.43	0.52	0.64	1.70
TKN	mg/L	C123SR84	156	1.43	0.27	1.41	0.93	1.25	1.40	1.58	2.97
TKN	mg/L	C15S40	123	1.08	0.41	1.03	0.65	0.86	0.96	1.18	4.18
TKN	mg/L	C16S41	123	1.05	0.50	0.99	0.60	0.80	0.94	1.13	5.45
TKN	mg/L	C17S44	124	0.92	0.14	0.91	0.62	0.82	0.91	0.99	1.33
TKN	mg/L	C18S46	112	0.84	0.19	0.82	0.54	0.71	0.79	0.96	1.87
TKN	mg/L	C23S48	424	1.31	0.43	1.24	0.25	0.98	1.31	1.58	3.73
TKN	mg/L	C24S49	385	1.33	0.42	1.28	0.65	1.03	1.28	1.54	5.77
TKN	mg/L	C25S50	435	1.23	0.42	1.16	0.25	0.90	1.18	1.47	3.52
TKN	mg/L	C40VMB	636	1.71	0.41	1.66	0.62	1.41	1.63	1.95	3.39
TKN	mg/L	C41VMB	637	1.55	0.46	1.49	0.83	1.23	1.45	1.78	4.49
TKN	mg/L	C44S80	412	1.16	0.27	1.14	0.73	0.99	1.12	1.28	2.75
TKN	mg/L	C51S155	125	1.07	0.36	1.03	0.65	0.86	1.03	1.17	3.87
TKN	mg/L	CES01	184	1.10	0.28	1.05	0.03	0.92	1.09	1.23	2.31
TKN	mg/L	COC@LAKE	48	0.69	0.35	0.61	0.04	0.52	0.67	0.75	2.35
TKN	mg/L	CORK@846	72	1.29	0.47	1.18	0.10	0.99	1.20	1.54	2.58
TKN	mg/L	CR-04.8T	60	1.67	0.41	1.63	1.05	1.36	1.61	1.87	2.74
TKN	mg/L	CULV10A	244	1.81	0.82	1.68	0.87	1.32	1.57	2.01	6.38

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TKN	mg/L	CULV5A	107	1.53	0.34	1.49	0.92	1.28	1.46	1.71	3.03
TKN	mg/L	E0	115	2.89	1.08	2.69	0.82	2.10	2.70	3.68	6.10
TKN	mg/L	F0	115	3.26	1.24	3.01	0.74	2.40	3.10	4.14	6.40
TKN	mg/L	FAKA	81	0.51	0.29	0.43	0.02	0.37	0.48	0.60	1.94
TKN	mg/L	FAKA858	67	0.74	0.27	0.67	0.02	0.60	0.72	0.82	1.88
TKN	mg/L	FROGCITY	42	1.11	0.21	1.09	0.69	0.95	1.10	1.24	1.59
TKN	mg/L	G123	127	1.62	0.27	1.59	0.78	1.46	1.61	1.78	2.40
TKN	mg/L	G136	350	1.60	0.46	1.55	0.03	1.36	1.51	1.76	6.74
TKN	mg/L	G200	121	1.95	0.63	1.85	0.93	1.43	1.81	2.33	3.90
TKN	mg/L	G300	96	2.01	0.68	1.91	1.14	1.44	1.84	2.38	3.97
TKN	mg/L	G301	98	2.15	0.85	2.01	1.10	1.48	1.81	2.79	5.44
TKN	mg/L	G302	170	2.32	0.95	2.15	1.10	1.55	2.00	3.00	4.69
TKN	mg/L	G311	93	1.93	0.82	1.79	0.97	1.32	1.66	2.37	5.51
TKN	mg/L	G342A	247	1.49	0.33	1.46	0.99	1.28	1.43	1.63	3.62
TKN	mg/L	G342B	246	1.46	0.33	1.43	0.87	1.25	1.41	1.61	3.76
TKN	mg/L	G342C	244	1.48	0.37	1.45	0.87	1.26	1.40	1.62	4.28
TKN	mg/L	G342D	244	1.42	0.48	1.37	0.80	1.18	1.33	1.58	6.60
TKN	mg/L	G342E	10	1.38	0.10	1.38	1.26	1.33	1.36	1.37	1.57
TKN	mg/L	G342F	10	1.38	0.11	1.38	1.26	1.31	1.34	1.41	1.59
TKN	mg/L	G353A	15	1.42	0.15	1.42	1.27	1.28	1.37	1.53	1.72
TKN	mg/L	G353B	35	1.39	0.12	1.38	1.20	1.31	1.35	1.46	1.72
TKN	mg/L	G353C	15	1.38	0.14	1.38	1.22	1.27	1.32	1.51	1.63
TKN	mg/L	G372	134	1.83	0.58	1.74	0.95	1.30	1.87	2.29	4.43
TKN	mg/L	G94B	125	1.57	0.50	1.50	0.81	1.25	1.48	1.80	3.30
TKN	mg/L	GGC@858	71	0.70	0.29	0.62	0.02	0.58	0.67	0.81	1.84
TKN	mg/L	GGCAT31	71	0.68	0.32	0.61	0.02	0.51	0.62	0.80	2.65
TKN	mg/L	INDUSCAN	172	1.71	0.49	1.65	0.94	1.37	1.57	1.96	4.14
TKN	mg/L	L3BRS	247	1.54	0.27	1.52	1.01	1.37	1.52	1.69	2.78
TKN	mg/L	L59E	124	2.27	0.79	2.13	0.79	1.68	2.14	2.73	4.41
TKN	mg/L	L59W	121	1.75	0.62	1.67	0.94	1.34	1.58	1.98	4.70
TKN	mg/L	L60W	98	1.50	0.33	1.47	0.87	1.27	1.49	1.69	2.60
TKN	mg/L	L61E	127	1.58	0.50	1.52	0.92	1.21	1.47	1.82	3.35
TKN	mg/L	L61W	128	1.84	0.70	1.74	0.96	1.38	1.69	2.00	4.41
TKN	mg/L	LOXA104	22	2.30	0.43	2.26	1.55	2.12	2.26	2.49	3.41
TKN	mg/L	LOXA135	24	2.17	0.55	2.11	1.49	1.76	2.09	2.39	3.96
TKN	mg/L	S10A	60	1.45	0.40	1.40	0.78	1.18	1.36	1.67	3.14
TKN	mg/L	S10C	63	1.63	0.57	1.53	0.80	1.14	1.59	1.96	3.77
TKN	mg/L	S10D	138	2.00	0.73	1.89	0.75	1.50	1.88	2.33	4.49
TKN	mg/L	S11A	161	1.70	0.36	1.66	0.93	1.46	1.66	1.95	2.75
TKN	mg/L	S11B	104	1.71	0.37	1.67	0.94	1.43	1.66	1.96	2.73
TKN	mg/L	S11C	159	1.83	0.37	1.79	0.93	1.57	1.87	2.03	2.95
TKN	mg/L	S127	123	1.93	0.31	1.90	1.18	1.72	1.86	2.13	3.15
TKN	mg/L	S129	131	1.54	0.24	1.52	1.16	1.37	1.49	1.70	2.69
TKN	mg/L	S12A	708	1.10	0.49	1.04	0.25	0.84	1.00	1.25	11.09
TKN	mg/L	S12B	173	0.96	0.26	0.93	0.25	0.79	0.91	1.09	2.16
TKN	mg/L	S12C	794	1.11	0.27	1.08	0.03	0.92	1.09	1.27	4.29
TKN	mg/L	S12D	185	1.13	0.24	1.11	0.68	0.94	1.11	1.30	1.90
TKN	mg/L	S131	135	1.48	0.22	1.46	1.11	1.35	1.44	1.53	2.32
TKN	mg/L	S133	131	1.56	0.31	1.53	1.05	1.33	1.51	1.74	2.50
TKN	mg/L	S135	133	1.50	0.28	1.48	1.06	1.35	1.46	1.58	3.65
TKN	mg/L	S140	185	1.23	0.39	1.20	0.70	1.13	1.21	1.30	6.08
TKN	mg/L	S145	169	1.64	0.41	1.59	0.77	1.35	1.61	1.92	3.02
TKN	mg/L	S150	277	1.72	0.38	1.67	0.56	1.41	1.76	1.99	2.88
TKN	mg/L	S151	162	1.50	0.29	1.48	0.85	1.33	1.49	1.61	3.91
TKN	mg/L	S154	541	1.61	0.41	1.56	0.52	1.35	1.57	1.80	4.20
TKN	mg/L	S169	157	1.60	0.42	1.55	0.25	1.32	1.50	1.79	3.54
TKN	mg/L	S177	847	0.68	0.29	0.64	0.03	0.53	0.58	0.74	5.44
TKN	mg/L	S178	147	0.76	0.46	0.67	0.25	0.46	0.69	0.91	3.49
TKN	mg/L	S18C	303	0.55	0.22	0.52	0.25	0.44	0.52	0.61	2.37
TKN	mg/L	S190	167	1.09	0.14	1.08	0.72	0.99	1.07	1.19	1.58
TKN	mg/L	S191	558	1.52	0.56	1.45	0.40	1.19	1.42	1.80	10.00
TKN	mg/L	S197	32	0.46	0.17	0.43	0.25	0.25	0.52	0.60	0.72
TKN	mg/L	S2	255	2.97	1.52	2.66	0.93	1.89	2.88	3.55	12.81
TKN	mg/L	S3	222	2.19	0.83	2.05	0.93	1.49	2.11	2.70	5.97

Table F-3 . Summary Water Quality Statistics By Station

Test_Code	Units	Station	01_N	02_Mean	03_StdDev	04_GeoMean	05_Min	06_P25	07_Median	08_P75	09_Max
TKN	mg/L	S308C	292	1.60	0.60	1.52	0.71	1.24	1.46	1.73	4.57
TKN	mg/L	S31	109	1.33	0.23	1.32	0.98	1.16	1.28	1.45	1.99
TKN	mg/L	S331	40	0.76	0.16	0.74	0.25	0.70	0.76	0.84	1.06
TKN	mg/L	S332B	309	0.93	0.27	0.90	0.51	0.72	0.92	1.06	2.67
TKN	mg/L	S332C	332	0.91	0.26	0.88	0.34	0.69	0.87	1.07	2.17
TKN	mg/L	S332DX	623	1.03	0.30	0.99	0.55	0.81	0.99	1.21	1.93
TKN	mg/L	S333	1413	1.27	0.36	1.23	0.69	1.02	1.24	1.49	7.04
TKN	mg/L	S334	136	1.18	0.19	1.16	0.83	1.05	1.15	1.28	1.79
TKN	mg/L	S335	37	1.28	0.21	1.27	0.87	1.12	1.33	1.41	1.73
TKN	mg/L	S34	171	1.61	0.36	1.57	0.73	1.34	1.59	1.81	2.57
TKN	mg/L	S344	40	1.09	0.37	1.02	0.25	0.79	1.05	1.42	1.85
TKN	mg/L	S352	784	1.92	1.55	1.70	0.83	1.30	1.55	2.02	30.52
TKN	mg/L	S356	407	1.42	0.17	1.41	0.98	1.30	1.41	1.54	2.23
TKN	mg/L	S38	176	1.54	0.40	1.48	0.25	1.28	1.47	1.79	2.88
TKN	mg/L	S39	162	1.48	0.38	1.43	0.77	1.18	1.44	1.67	2.88
TKN	mg/L	S390	71	1.47	0.43	1.42	0.96	1.21	1.33	1.60	2.87
TKN	mg/L	S5A	671	2.52	1.15	2.27	0.89	1.53	2.32	3.32	8.46
TKN	mg/L	S5AE	137	1.47	0.47	1.41	0.83	1.14	1.33	1.60	3.44
TKN	mg/L	S5AS	105	1.97	0.76	1.84	1.00	1.37	1.72	2.45	3.85
TKN	mg/L	S5AW	57	1.54	0.50	1.48	0.92	1.19	1.36	1.83	2.90
TKN	mg/L	S6	603	2.50	0.76	2.39	0.99	1.96	2.48	2.99	6.59
TKN	mg/L	S65	452	1.36	0.32	1.33	0.63	1.13	1.31	1.57	2.46
TKN	mg/L	S65A	584	1.19	0.34	1.15	0.20	1.04	1.17	1.31	4.20
TKN	mg/L	S65C	582	1.08	0.31	1.03	0.20	0.90	1.03	1.23	2.46
TKN	mg/L	S65D	604	1.03	0.31	0.98	0.10	0.84	1.01	1.17	3.03
TKN	mg/L	S65E	640	1.15	0.31	1.10	0.20	0.94	1.10	1.34	2.39
TKN	mg/L	S7	408	1.94	0.44	1.89	0.25	1.74	1.96	2.16	3.81
TKN	mg/L	S71	622	1.63	0.48	1.57	0.87	1.29	1.54	1.87	5.07
TKN	mg/L	S72	515	1.81	0.52	1.74	0.87	1.43	1.74	2.12	4.61
TKN	mg/L	S78	66	1.29	0.30	1.26	0.88	1.09	1.27	1.39	2.72
TKN	mg/L	S79	57	1.20	0.25	1.18	0.84	1.02	1.14	1.30	2.00
TKN	mg/L	S8	406	1.86	0.52	1.79	0.98	1.51	1.76	2.15	4.18
TKN	mg/L	S84	245	1.27	0.49	1.23	0.60	1.05	1.19	1.35	6.83
TKN	mg/L	S9	430	1.38	0.17	1.37	0.56	1.27	1.37	1.47	1.92
TKN	mg/L	S9A	114	1.53	0.17	1.52	1.22	1.41	1.51	1.65	1.93
TKN	mg/L	SW1B	69	1.50	0.44	1.45	0.88	1.25	1.36	1.62	3.67
TKN	mg/L	SW2	149	1.54	0.50	1.47	0.89	1.18	1.40	1.74	4.24
TKN	mg/L	SW6IN	118	1.46	0.63	1.38	0.88	1.17	1.33	1.51	6.43
TKN	mg/L	T0E	13	0.74	0.23	0.70	0.47	0.54	0.65	0.92	1.10
TKN	mg/L	T0W	14	0.78	0.30	0.73	0.47	0.56	0.64	0.94	1.40
TKN	mg/L	TAMBR6	54	1.12	0.17	1.11	0.83	0.97	1.11	1.23	1.53
TKN	mg/L	TCNS 201	101	1.46	0.57	1.35	0.51	0.95	1.44	1.91	2.74
TKN	mg/L	TCNS 213	221	1.53	0.59	1.45	0.78	1.21	1.37	1.68	5.35
TKN	mg/L	TCNS 217	223	1.78	3.12	1.25	0.40	0.81	1.09	1.67	29.56
TKN	mg/L	US41-25	198	0.82	0.20	0.80	0.25	0.69	0.83	0.94	1.56
TKN	mg/L	WWEIR	224	1.15	0.21	1.13	0.72	1.01	1.10	1.25	2.06
TKN	mg/L	X0	119	2.10	0.62	2.01	0.92	1.67	2.10	2.58	3.50
TKN	mg/L	Z0	116	2.09	0.64	1.99	0.86	1.65	2.00	2.50	4.80
TOTN	mg/L	02273230	84	2.50	3.37	1.91	0.10	1.40	1.90	2.50	25.20
TOTN	mg/L	02274325	67	2.02	1.57	1.70	0.10	1.36	1.80	2.20	11.15
TOTN	mg/L	02274505	73	1.51	0.63	1.38	0.20	1.00	1.50	1.90	4.40
TOTN	mg/L	02275631	62	2.58	2.95	2.02	0.70	1.60	1.88	2.10	21.90
TOTN	mg/L	3AE0	59	1.15	0.19	1.14	0.83	1.04	1.10	1.20	1.90
TOTN	mg/L	3AW0	85	1.14	0.22	1.12	0.73	1.00	1.08	1.26	1.80
TOTN	mg/L	BC10	71	0.51	0.25	0.45	0.05	0.40	0.50	0.60	1.60
TOTN	mg/L	BC11	67	0.66	0.33	0.59	0.10	0.50	0.60	0.78	1.80
TOTN	mg/L	BC14	71	0.75	0.31	0.71	0.30	0.60	0.70	0.90	2.90
TOTN	mg/L	BC15	71	0.86	0.35	0.78	0.05	0.70	0.80	1.00	2.50
TOTN	mg/L	BC22	71	0.69	0.27	0.63	0.05	0.50	0.60	0.80	2.00
TOTN	mg/L	BC23	71	0.83	0.29	0.78	0.10	0.70	0.80	0.90	2.10
TOTN	mg/L	BC26	59	0.85	0.31	0.80	0.40	0.60	0.80	1.00	2.10
TOTN	mg/L	BC7	66	0.53	0.41	0.46	0.10	0.40	0.50	0.60	3.40
TOTN	mg/L	BC8	71	0.48	0.25	0.43	0.05	0.40	0.40	0.58	1.60
TOTN	mg/L	BC9	65	0.62	0.27	0.58	0.20	0.50	0.60	0.70	1.80

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TOTN	mg/L	C123SR84	153	1.51	0.35	1.48	1.00	1.30	1.50	1.70	3.30
TOTN	mg/L	C15S40	120	1.17	0.46	1.11	0.70	0.90	1.00	1.30	4.20
TOTN	mg/L	C16S41	122	1.16	0.50	1.10	0.60	0.90	1.10	1.30	5.50
TOTN	mg/L	C17S44	122	1.03	0.19	1.01	0.60	0.90	1.00	1.20	1.50
TOTN	mg/L	C18S46	109	0.87	0.20	0.85	0.50	0.70	0.80	1.00	1.90
TOTN	mg/L	C23S48	408	1.44	0.43	1.37	0.25	1.10	1.50	1.70	3.80
TOTN	mg/L	C24S49	373	1.40	0.42	1.35	0.70	1.10	1.40	1.60	5.80
TOTN	mg/L	C25S50	406	1.30	0.42	1.23	0.25	1.00	1.30	1.60	2.70
TOTN	mg/L	C40VMB	619	1.86	0.49	1.81	0.70	1.50	1.80	2.10	4.30
TOTN	mg/L	C41VMB	628	2.30	0.61	2.22	0.90	1.90	2.20	2.60	4.90
TOTN	mg/L	C44S80	406	1.43	0.38	1.39	0.80	1.20	1.40	1.60	3.50
TOTN	mg/L	C51S155	123	1.27	0.42	1.22	0.70	1.00	1.20	1.48	3.90
TOTN	mg/L	CES01	179	1.37	0.28	1.34	0.50	1.20	1.40	1.50	2.40
TOTN	mg/L	COC@LAKE	46	0.75	0.36	0.68	0.10	0.50	0.70	0.80	2.40
TOTN	mg/L	CORK@846	70	1.32	0.48	1.21	0.10	1.00	1.20	1.60	2.60
TOTN	mg/L	CR-04.8T	53	1.76	0.42	1.72	1.20	1.40	1.60	2.00	2.90
TOTN	mg/L	CULV10A	240	2.13	0.94	1.98	1.00	1.60	1.80	2.30	6.90
TOTN	mg/L	CULV5A	102	1.61	0.35	1.58	1.00	1.40	1.50	1.80	3.00
TOTN	mg/L	E0	99	2.98	1.12	2.77	0.84	2.10	2.90	3.80	6.10
TOTN	mg/L	F0	105	3.39	1.30	3.12	0.75	2.40	3.20	4.43	6.40
TOTN	mg/L	FAKA	74	0.55	0.29	0.49	0.05	0.40	0.50	0.60	1.90
TOTN	mg/L	FAKA858	61	0.76	0.24	0.73	0.20	0.60	0.80	0.90	1.90
TOTN	mg/L	FROGCITY	39	1.14	0.23	1.12	0.70	1.00	1.20	1.30	1.70
TOTN	mg/L	G123	120	1.68	0.37	1.65	0.80	1.50	1.60	1.80	3.70
TOTN	mg/L	G136	339	1.64	0.45	1.60	0.10	1.40	1.60	1.80	7.30
TOTN	mg/L	G200	110	2.49	1.28	2.22	1.00	1.50	2.00	3.30	6.60
TOTN	mg/L	G300	86	2.25	1.00	2.08	1.20	1.50	1.90	2.70	6.60
TOTN	mg/L	G301	98	2.45	1.14	2.24	1.10	1.60	2.00	3.20	6.80
TOTN	mg/L	G302	169	2.79	1.27	2.54	1.10	1.80	2.40	3.80	7.30
TOTN	mg/L	G311	92	2.33	1.27	2.08	1.10	1.50	1.85	2.85	7.00
TOTN	mg/L	G342A	242	1.56	0.35	1.52	1.00	1.30	1.50	1.70	3.80
TOTN	mg/L	G342B	242	1.52	0.35	1.48	0.90	1.30	1.50	1.70	3.90
TOTN	mg/L	G342C	240	1.54	0.37	1.50	0.90	1.30	1.50	1.70	4.30
TOTN	mg/L	G342D	237	1.47	0.49	1.42	0.90	1.20	1.40	1.60	6.60
TOTN	mg/L	G342E	9	1.44	0.10	1.44	1.30	1.40	1.40	1.53	1.60
TOTN	mg/L	G342F	9	1.43	0.11	1.43	1.30	1.38	1.40	1.53	1.60
TOTN	mg/L	G353A	15	1.45	0.16	1.45	1.30	1.30	1.40	1.58	1.70
TOTN	mg/L	G353B	32	1.43	0.12	1.42	1.20	1.30	1.40	1.50	1.70
TOTN	mg/L	G353C	15	1.39	0.13	1.39	1.20	1.30	1.30	1.50	1.60
TOTN	mg/L	G372	134	2.59	1.29	2.32	1.00	1.60	2.10	3.40	6.90
TOTN	mg/L	G94B	121	1.67	0.70	1.57	0.80	1.30	1.50	1.80	5.50
TOTN	mg/L	GGC@858	69	0.75	0.30	0.68	0.05	0.60	0.70	0.90	1.90
TOTN	mg/L	GGCAT31	67	0.78	0.37	0.70	0.10	0.60	0.70	0.90	2.70
TOTN	mg/L	INDUSCAN	172	2.14	0.84	2.00	1.00	1.50	1.90	2.50	5.20
TOTN	mg/L	L3BRS	243	1.60	0.29	1.58	1.00	1.40	1.60	1.78	2.90
TOTN	mg/L	L59E	119	2.31	0.78	2.18	0.80	1.70	2.10	2.80	4.40
TOTN	mg/L	L59W	117	1.84	0.66	1.75	1.00	1.40	1.70	2.03	5.10
TOTN	mg/L	L60W	96	1.90	0.52	1.84	1.20	1.50	1.80	2.10	3.70
TOTN	mg/L	L61E	123	2.10	0.63	2.01	1.00	1.70	2.00	2.40	4.40
TOTN	mg/L	L61W	126	1.90	0.70	1.80	1.00	1.40	1.70	2.10	4.40
TOTN	mg/L	LOXA104	21	2.56	0.64	2.49	1.90	2.20	2.30	2.83	4.30
TOTN	mg/L	LOXA135	22	2.32	0.80	2.23	1.50	1.80	2.20	2.50	5.20
TOTN	mg/L	S10A	55	1.52	0.48	1.45	0.80	1.20	1.40	1.70	3.20
TOTN	mg/L	S10C	57	1.80	0.69	1.69	0.90	1.28	1.70	2.13	3.90
TOTN	mg/L	S10D	132	2.22	0.96	2.05	1.00	1.60	2.00	2.50	6.30
TOTN	mg/L	S11A	159	1.80	0.54	1.74	0.90	1.50	1.70	2.00	4.30
TOTN	mg/L	S11B	98	1.77	0.49	1.72	0.90	1.50	1.70	1.90	4.20
TOTN	mg/L	S11C	149	1.95	0.55	1.89	1.10	1.60	1.90	2.10	4.40
TOTN	mg/L	S127	120	1.99	0.33	1.96	1.20	1.80	1.90	2.20	3.20
TOTN	mg/L	S129	123	1.59	0.23	1.57	1.20	1.40	1.60	1.70	2.70
TOTN	mg/L	S12A	627	1.13	0.52	1.07	0.25	0.90	1.00	1.30	11.10
TOTN	mg/L	S12B	133	1.01	0.27	0.97	0.25	0.80	0.90	1.20	1.70
TOTN	mg/L	S12C	642	1.16	0.29	1.13	0.50	1.00	1.20	1.30	4.30
TOTN	mg/L	S12D	166	1.17	0.26	1.14	0.70	1.00	1.20	1.30	2.00

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TOTN	mg/L	S131	130	1.55	0.23	1.53	1.10	1.40	1.50	1.60	2.50
TOTN	mg/L	S133	127	1.63	0.29	1.61	1.10	1.40	1.60	1.80	2.50
TOTN	mg/L	S135	128	1.54	0.29	1.52	1.10	1.40	1.50	1.60	3.70
TOTN	mg/L	S140	175	1.28	0.40	1.25	0.70	1.20	1.30	1.40	6.10
TOTN	mg/L	S145	164	1.68	0.44	1.62	0.80	1.40	1.60	1.90	3.10
TOTN	mg/L	S150	267	1.85	0.49	1.80	0.80	1.50	1.90	2.10	5.00
TOTN	mg/L	S151	156	1.57	0.31	1.55	1.00	1.40	1.60	1.70	4.00
TOTN	mg/L	S154	222	1.62	0.42	1.58	0.80	1.30	1.50	1.80	3.60
TOTN	mg/L	S169	155	1.87	0.60	1.78	0.25	1.50	1.70	2.10	3.80
TOTN	mg/L	S177	766	0.74	0.32	0.70	0.25	0.60	0.60	0.80	5.70
TOTN	mg/L	S178	131	0.94	0.55	0.82	0.25	0.60	0.80	1.08	3.50
TOTN	mg/L	S18C	288	0.64	0.24	0.60	0.25	0.50	0.60	0.80	2.40
TOTN	mg/L	S190	154	1.11	0.14	1.10	0.70	1.00	1.10	1.20	1.60
TOTN	mg/L	S191	234	1.64	0.46	1.58	0.90	1.30	1.60	2.00	2.90
TOTN	mg/L	S197	30	0.52	0.24	0.47	0.25	0.25	0.60	0.70	1.20
TOTN	mg/L	S2	253	3.84	2.09	3.32	0.90	2.10	3.60	5.00	13.80
TOTN	mg/L	S3	217	2.95	1.60	2.62	0.90	1.80	2.60	3.83	10.90
TOTN	mg/L	S308C	289	1.94	0.70	1.84	1.00	1.50	1.80	2.20	5.40
TOTN	mg/L	S31	104	1.37	0.25	1.35	1.00	1.20	1.30	1.50	2.00
TOTN	mg/L	S331	38	0.79	0.17	0.76	0.25	0.70	0.80	0.90	1.10
TOTN	mg/L	S332B	248	0.98	0.29	0.94	0.50	0.80	0.95	1.10	2.70
TOTN	mg/L	S332C	265	0.97	0.27	0.93	0.35	0.70	0.90	1.20	1.60
TOTN	mg/L	S332DX	556	1.11	0.34	1.06	0.60	0.80	1.10	1.30	2.10
TOTN	mg/L	S333	1242	1.33	0.39	1.29	0.70	1.10	1.30	1.60	7.10
TOTN	mg/L	S334	114	1.21	0.19	1.19	0.80	1.10	1.20	1.30	1.80
TOTN	mg/L	S335	20	1.33	0.22	1.31	0.90	1.15	1.35	1.45	1.70
TOTN	mg/L	S34	167	1.67	0.43	1.62	0.70	1.40	1.60	1.90	3.90
TOTN	mg/L	S344	38	1.08	0.36	1.01	0.25	0.80	1.05	1.40	1.80
TOTN	mg/L	S352	779	2.25	1.63	2.02	1.00	1.60	1.90	2.40	30.90
TOTN	mg/L	S356	359	1.45	0.19	1.44	1.00	1.30	1.50	1.60	2.20
TOTN	mg/L	S38	173	1.57	0.42	1.51	0.25	1.30	1.50	1.80	3.00
TOTN	mg/L	S39	156	1.54	0.46	1.48	0.80	1.20	1.50	1.70	3.60
TOTN	mg/L	S390	70	1.65	0.55	1.57	1.00	1.20	1.40	1.90	3.20
TOTN	mg/L	S5A	654	3.09	1.40	2.79	1.00	1.90	2.90	4.00	9.40
TOTN	mg/L	S5AE	135	1.77	0.64	1.68	1.00	1.40	1.60	1.90	5.00
TOTN	mg/L	S5AS	101	2.35	1.07	2.15	1.10	1.50	2.00	2.80	6.10
TOTN	mg/L	S5AW	56	1.78	0.58	1.70	1.00	1.40	1.70	2.00	3.40
TOTN	mg/L	S6	582	3.05	1.09	2.86	1.10	2.30	2.90	3.70	7.80
TOTN	mg/L	S65	250	1.28	0.21	1.26	0.80	1.10	1.30	1.40	2.30
TOTN	mg/L	S65A	247	1.24	0.27	1.22	0.60	1.10	1.20	1.30	3.70
TOTN	mg/L	S65C	251	1.22	0.28	1.19	0.70	1.10	1.20	1.30	2.50
TOTN	mg/L	S65D	255	1.23	0.31	1.19	0.25	1.00	1.20	1.40	3.10
TOTN	mg/L	S65E	291	1.24	0.30	1.21	0.60	1.00	1.20	1.40	2.20
TOTN	mg/L	S7	387	2.19	0.72	2.09	0.70	1.80	2.00	2.40	5.60
TOTN	mg/L	S71	616	2.19	0.62	2.11	1.00	1.80	2.10	2.50	5.30
TOTN	mg/L	S72	503	2.00	0.65	1.91	0.90	1.60	1.90	2.30	6.00
TOTN	mg/L	S78	64	1.43	0.28	1.41	1.00	1.30	1.40	1.60	2.80
TOTN	mg/L	S79	56	1.48	0.25	1.46	1.00	1.30	1.45	1.60	2.20
TOTN	mg/L	S8	392	2.19	0.90	2.05	1.00	1.60	1.90	2.40	6.40
TOTN	mg/L	S84	235	1.39	0.53	1.33	0.60	1.10	1.30	1.50	6.80
TOTN	mg/L	S9	413	1.47	0.15	1.46	0.70	1.40	1.50	1.50	1.90
TOTN	mg/L	S9A	105	1.57	0.16	1.56	1.30	1.40	1.60	1.70	1.90
TOTN	mg/L	SW1B	69	1.82	0.50	1.77	1.00	1.50	1.70	2.00	4.30
TOTN	mg/L	SW2	149	1.90	0.62	1.82	1.00	1.50	1.70	2.13	4.80
TOTN	mg/L	SW6IN	115	1.73	0.72	1.63	0.90	1.33	1.60	1.90	7.00
TOTN	mg/L	T0E	13	0.78	0.24	0.74	0.49	0.56	0.70	1.01	1.20
TOTN	mg/L	T0W	13	0.75	0.26	0.71	0.48	0.55	0.63	1.00	1.20
TOTN	mg/L	TAMBR6	52	1.16	0.19	1.14	0.80	1.00	1.20	1.30	1.60
TOTN	mg/L	TCNS 201	99	1.53	0.60	1.41	0.50	1.00	1.50	2.00	2.80
TOTN	mg/L	TCNS 213	218	2.00	0.78	1.86	0.80	1.40	1.80	2.60	5.80
TOTN	mg/L	TCNS 217	216	2.84	8.86	1.46	0.40	0.85	1.30	2.00	89.60
TOTN	mg/L	US41-25	148	0.84	0.22	0.81	0.25	0.70	0.80	1.00	1.60
TOTN	mg/L	WWEIR	220	1.16	0.20	1.14	0.70	1.00	1.10	1.30	1.90
TOTN	mg/L	X0	109	2.25	0.94	2.10	0.94	1.65	2.10	2.60	7.70

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TOTN	mg/L	Z0	106	2.20	0.84	2.08	0.87	1.70	2.10	2.60	6.30
TPO4	mg/L	02273230	90	0.404	1.455	0.154	0.002	0.088	0.145	0.245	10.000
TPO4	mg/L	02274325	79	0.326	0.142	0.294	0.086	0.223	0.320	0.400	0.740
TPO4	mg/L	02274505	87	0.179	0.111	0.135	0.006	0.068	0.186	0.250	0.520
TPO4	mg/L	02275631	71	0.342	0.257	0.227	0.010	0.110	0.301	0.488	1.100
TPO4	mg/L	3AE0	60	0.063	0.038	0.055	0.013	0.042	0.055	0.074	0.240
TPO4	mg/L	3AW0	89	0.049	0.026	0.044	0.017	0.031	0.042	0.058	0.140
TPO4	mg/L	AJ28243124	21	0.033	0.007	0.032	0.020	0.030	0.032	0.038	0.050
TPO4	mg/L	AL11263113	23	0.025	0.014	0.023	0.012	0.016	0.020	0.026	0.071
TPO4	mg/L	BC10	81	0.023	0.014	0.019	0.005	0.013	0.019	0.027	0.072
TPO4	mg/L	BC11	77	0.023	0.013	0.020	0.006	0.013	0.021	0.027	0.072
TPO4	mg/L	BC14	82	0.025	0.017	0.021	0.002	0.015	0.020	0.030	0.124
TPO4	mg/L	BC15	80	0.047	0.026	0.041	0.012	0.027	0.040	0.062	0.130
TPO4	mg/L	BC22	78	0.020	0.013	0.018	0.007	0.012	0.019	0.023	0.105
TPO4	mg/L	BC23	78	0.020	0.014	0.017	0.002	0.012	0.017	0.022	0.099
TPO4	mg/L	BC26	72	0.029	0.029	0.021	0.005	0.013	0.019	0.032	0.165
TPO4	mg/L	BC7	80	0.014	0.011	0.012	0.002	0.009	0.011	0.016	0.090
TPO4	mg/L	BC8	81	0.015	0.009	0.012	0.002	0.010	0.012	0.018	0.072
TPO4	mg/L	BC9	81	0.013	0.006	0.012	0.005	0.009	0.012	0.015	0.036
TPO4	mg/L	C123SR84	158	0.033	0.022	0.028	0.010	0.018	0.027	0.041	0.136
TPO4	mg/L	C139S2	250	0.133	0.265	0.097	0.035	0.061	0.089	0.128	3.944
TPO4	mg/L	C139S3	245	0.132	0.296	0.075	0.028	0.048	0.065	0.092	2.860
TPO4	mg/L	C139S4	149	0.066	0.052	0.057	0.027	0.041	0.053	0.073	0.566
TPO4	mg/L	C15S40	122	0.167	0.107	0.142	0.029	0.098	0.127	0.204	0.702
TPO4	mg/L	C16S41	123	0.112	0.099	0.092	0.027	0.060	0.088	0.125	0.925
TPO4	mg/L	C17S44	124	0.056	0.021	0.052	0.017	0.042	0.051	0.065	0.130
TPO4	mg/L	C18S46	112	0.028	0.019	0.023	0.009	0.015	0.022	0.037	0.112
TPO4	mg/L	C23S48	427	0.365	0.190	0.313	0.066	0.219	0.341	0.473	1.100
TPO4	mg/L	C24S49	386	0.280	0.167	0.232	0.038	0.147	0.262	0.363	1.020
TPO4	mg/L	C25S50	437	0.205	0.166	0.148	0.017	0.079	0.156	0.292	0.895
TPO4	mg/L	C40VMB	640	0.204	0.122	0.180	0.037	0.128	0.167	0.237	1.150
TPO4	mg/L	C41VMB	638	0.190	0.141	0.158	0.057	0.099	0.142	0.238	1.209
TPO4	mg/L	C44S80	413	0.175	0.084	0.159	0.050	0.116	0.155	0.213	0.604
TPO4	mg/L	C51S155	125	0.086	0.041	0.078	0.025	0.058	0.077	0.100	0.279
TPO4	mg/L	CES01	169	0.127	0.056	0.114	0.020	0.089	0.117	0.154	0.290
TPO4	mg/L	CL06283121	35	0.301	0.251	0.198	0.029	0.077	0.259	0.426	1.024
TPO4	mg/L	CL19273113	11	0.027	0.008	0.026	0.018	0.022	0.026	0.029	0.046
TPO4	mg/L	COC@LAKE	56	0.032	0.039	0.024	0.010	0.016	0.020	0.034	0.256
TPO4	mg/L	COOPERTN	163	0.012	0.005	0.012	0.005	0.009	0.011	0.014	0.041
TPO4	mg/L	CORK@846	77	0.037	0.034	0.029	0.005	0.021	0.027	0.037	0.260
TPO4	mg/L	CR-04.8T	60	0.213	0.193	0.164	0.045	0.099	0.144	0.252	1.136
TPO4	mg/L	CULV10A	257	0.175	0.115	0.147	0.035	0.099	0.150	0.204	0.723
TPO4	mg/L	CULV5A	106	0.144	0.074	0.128	0.052	0.089	0.120	0.171	0.450
TPO4	mg/L	DF02.1TW	294	0.104	0.116	0.073	0.016	0.042	0.064	0.110	0.915
TPO4	mg/L	DF05.0TW	27	0.175	0.126	0.132	0.019	0.085	0.131	0.256	0.456
TPO4	mg/L	E0	117	0.056	0.028	0.048	0.004	0.036	0.052	0.067	0.160
TPO4	mg/L	ET05253114	28	0.041	0.012	0.039	0.023	0.033	0.038	0.048	0.069
TPO4	mg/L	F0	116	0.066	0.035	0.057	0.007	0.044	0.061	0.079	0.210
TPO4	mg/L	FAKA	79	0.019	0.048	0.013	0.002	0.009	0.012	0.016	0.435
TPO4	mg/L	FAKA858	76	0.037	0.021	0.033	0.010	0.023	0.033	0.043	0.161
TPO4	mg/L	FROGCITY	95	0.018	0.013	0.015	0.006	0.010	0.014	0.020	0.071
TPO4	mg/L	G123	512	0.018	0.010	0.017	0.007	0.012	0.016	0.021	0.108
TPO4	mg/L	G136	618	0.094	0.109	0.067	0.015	0.038	0.057	0.104	1.440
TPO4	mg/L	G150	213	0.059	0.024	0.055	0.025	0.041	0.052	0.071	0.161
TPO4	mg/L	G151	56	0.079	0.037	0.072	0.033	0.053	0.066	0.101	0.178
TPO4	mg/L	G200	217	0.067	0.040	0.057	0.018	0.040	0.053	0.088	0.280
TPO4	mg/L	G300	309	0.123	0.070	0.105	0.024	0.076	0.110	0.158	0.503
TPO4	mg/L	G301	311	0.130	0.073	0.110	0.024	0.072	0.119	0.171	0.541
TPO4	mg/L	G302	580	0.153	0.083	0.132	0.018	0.096	0.142	0.195	0.706
TPO4	mg/L	G311	260	0.140	0.084	0.117	0.026	0.073	0.120	0.191	0.477
TPO4	mg/L	G341	246	0.124	0.080	0.105	0.030	0.072	0.105	0.145	0.558
TPO4	mg/L	G342A	702	0.123	0.089	0.101	0.027	0.064	0.095	0.147	0.585
TPO4	mg/L	G342B	749	0.139	0.095	0.117	0.032	0.075	0.113	0.172	1.005
TPO4	mg/L	G342C	697	0.166	0.123	0.134	0.030	0.082	0.128	0.211	0.956

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TPO4	mg/L	G342D	728	0.169	0.146	0.132	0.024	0.079	0.124	0.207	1.298
TPO4	mg/L	G342E	31	0.177	0.118	0.148	0.074	0.084	0.137	0.243	0.549
TPO4	mg/L	G342F	30	0.163	0.099	0.138	0.063	0.081	0.118	0.254	0.363
TPO4	mg/L	G353A	51	0.135	0.106	0.103	0.039	0.050	0.091	0.204	0.482
TPO4	mg/L	G353B	91	0.091	0.064	0.074	0.032	0.044	0.061	0.113	0.326
TPO4	mg/L	G353C	53	0.099	0.056	0.084	0.036	0.048	0.084	0.133	0.233
TPO4	mg/L	G357	455	0.040	0.029	0.034	0.010	0.022	0.032	0.046	0.239
TPO4	mg/L	G371	210	0.042	0.024	0.036	0.008	0.026	0.040	0.053	0.138
TPO4	mg/L	G372	465	0.073	0.050	0.061	0.015	0.042	0.062	0.090	0.591
TPO4	mg/L	G373	213	0.066	0.052	0.054	0.014	0.035	0.055	0.082	0.526
TPO4	mg/L	G404	512	0.039	0.031	0.032	0.007	0.021	0.030	0.045	0.247
TPO4	mg/L	G406	391	0.181	0.130	0.142	0.031	0.081	0.139	0.246	0.882
TPO4	mg/L	G407	72	0.081	0.057	0.069	0.035	0.046	0.057	0.096	0.317
TPO4	mg/L	G409	649	0.071	0.075	0.053	0.011	0.034	0.049	0.075	0.791
TPO4	mg/L	G94B	126	0.066	0.073	0.048	0.015	0.027	0.042	0.074	0.515
TPO4	mg/L	GGC@858	78	0.026	0.041	0.020	0.005	0.016	0.020	0.024	0.315
TPO4	mg/L	GGCAT31	75	0.031	0.015	0.027	0.005	0.020	0.028	0.038	0.070
TPO4	mg/L	GLADER	148	0.013	0.005	0.012	0.007	0.009	0.011	0.015	0.042
TPO4	mg/L	HC05.7	1	0.206		0.206	0.206				0.206
TPO4	mg/L	HC12.8	1	0.210		0.210	0.210				0.210
TPO4	mg/L	HC14.4	1	0.164		0.164	0.164				0.164
TPO4	mg/L	HC15.3	1	0.151		0.151	0.151				0.151
TPO4	mg/L	HC18.2	1	0.147		0.147	0.147				0.147
TPO4	mg/L	HC19.3	1	0.137		0.137	0.137				0.137
TPO4	mg/L	HP06393232	112	0.207	0.311	0.147	0.053	0.092	0.117	0.211	2.960
TPO4	mg/L	HP06393242	45	0.211	0.218	0.152	0.052	0.089	0.119	0.238	1.128
TPO4	mg/L	HP10373114	110	0.117	0.092	0.098	0.011	0.072	0.088	0.118	0.638
TPO4	mg/L	HP11373132	50	0.055	0.024	0.051	0.025	0.040	0.047	0.067	0.168
TPO4	mg/L	HP22393211	114	0.161	0.112	0.136	0.054	0.089	0.122	0.197	0.683
TPO4	mg/L	IN13373531	31	0.363	0.154	0.334	0.160	0.261	0.318	0.479	0.744
TPO4	mg/L	INDUSCAN	172	0.130	0.079	0.114	0.039	0.080	0.111	0.154	0.535
TPO4	mg/L	IP09383242	57	0.172	0.110	0.151	0.074	0.111	0.139	0.175	0.639
TPO4	mg/L	IP14383214	95	0.213	0.226	0.137	0.021	0.073	0.118	0.265	0.897
TPO4	mg/L	IP29383313	115	0.192	0.151	0.163	0.043	0.114	0.143	0.227	1.380
TPO4	mg/L	KR17373513	107	0.265	0.221	0.198	0.027	0.109	0.179	0.340	1.028
TPO4	mg/L	KR30353214	87	0.064	0.029	0.060	0.030	0.049	0.058	0.070	0.242
TPO4	mg/L	L3BRS	257	0.084	0.080	0.061	0.008	0.036	0.057	0.088	0.468
TPO4	mg/L	L59E	124	0.167	0.106	0.142	0.034	0.096	0.135	0.196	0.625
TPO4	mg/L	L59W	121	0.217	0.231	0.163	0.061	0.103	0.133	0.252	1.926
TPO4	mg/L	L60W	98	0.139	0.089	0.120	0.052	0.079	0.118	0.165	0.524
TPO4	mg/L	L61E	127	0.172	0.121	0.141	0.035	0.084	0.137	0.206	0.686
TPO4	mg/L	L61W	128	0.106	0.059	0.095	0.037	0.068	0.095	0.120	0.434
TPO4	mg/L	LG32263114	8	0.029	0.008	0.028	0.017	0.024	0.027	0.033	0.044
TPO4	mg/L	LOXA104	41	0.069	0.055	0.054	0.020	0.031	0.051	0.092	0.237
TPO4	mg/L	LOXA135	42	0.080	0.103	0.055	0.011	0.031	0.061	0.084	0.653
TPO4	mg/L	MJ01253113	13	0.021	0.005	0.020	0.014	0.017	0.019	0.026	0.029
TPO4	mg/L	S10A	64	0.035	0.030	0.028	0.010	0.018	0.026	0.039	0.166
TPO4	mg/L	S10C	67	0.037	0.029	0.029	0.010	0.015	0.029	0.042	0.130
TPO4	mg/L	S10D	141	0.059	0.053	0.044	0.009	0.028	0.041	0.067	0.306
TPO4	mg/L	S11A	157	0.022	0.023	0.017	0.006	0.010	0.015	0.024	0.179
TPO4	mg/L	S11B	104	0.020	0.019	0.016	0.006	0.010	0.015	0.023	0.163
TPO4	mg/L	S11C	158	0.029	0.026	0.022	0.008	0.013	0.020	0.035	0.199
TPO4	mg/L	S127	123	0.144	0.110	0.115	0.033	0.065	0.108	0.193	0.673
TPO4	mg/L	S129	130	0.076	0.038	0.068	0.028	0.045	0.069	0.097	0.199
TPO4	mg/L	S12A	810	0.028	0.300	0.015	0.004	0.009	0.014	0.020	8.540
TPO4	mg/L	S12B	231	0.014	0.010	0.011	0.004	0.007	0.010	0.017	0.052
TPO4	mg/L	S12C	822	0.015	0.008	0.013	0.001	0.009	0.013	0.019	0.058
TPO4	mg/L	S12D	263	0.013	0.007	0.012	0.005	0.009	0.011	0.016	0.068
TPO4	mg/L	S131	135	0.106	0.044	0.098	0.034	0.072	0.104	0.135	0.333
TPO4	mg/L	S133	131	0.196	0.132	0.165	0.050	0.109	0.145	0.225	0.688
TPO4	mg/L	S135	133	0.106	0.063	0.091	0.028	0.063	0.086	0.129	0.342
TPO4	mg/L	S140	735	0.042	0.036	0.038	0.015	0.029	0.036	0.045	0.783
TPO4	mg/L	S145	169	0.016	0.020	0.012	0.002	0.007	0.010	0.018	0.222
TPO4	mg/L	S150	467	0.026	0.019	0.022	0.008	0.015	0.020	0.030	0.150

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TPO4	mg/L	S151	161	0.019	0.011	0.016	0.006	0.011	0.015	0.021	0.072
TPO4	mg/L	S154	940	0.372	0.346	0.262	0.037	0.142	0.234	0.479	2.003
TPO4	mg/L	S155A	40	0.044	0.012	0.042	0.024	0.034	0.042	0.051	0.078
TPO4	mg/L	S169	157	0.117	0.059	0.104	0.039	0.075	0.098	0.145	0.362
TPO4	mg/L	S177	830	0.007	0.005	0.006	0.001	0.005	0.006	0.008	0.126
TPO4	mg/L	S178	224	0.042	0.039	0.031	0.006	0.019	0.030	0.048	0.286
TPO4	mg/L	S18C	578	0.007	0.006	0.006	0.002	0.004	0.005	0.007	0.097
TPO4	mg/L	S190	532	0.060	0.050	0.047	0.001	0.029	0.040	0.080	0.368
TPO4	mg/L	S191	991	0.432	0.225	0.380	0.085	0.254	0.366	0.562	1.242
TPO4	mg/L	S197	31	0.010	0.020	0.007	0.003	0.005	0.006	0.008	0.116
TPO4	mg/L	S2	256	0.155	0.161	0.124	0.033	0.084	0.119	0.185	1.653
TPO4	mg/L	S3	224	0.099	0.074	0.083	0.027	0.055	0.081	0.115	0.589
TPO4	mg/L	S308C	301	0.228	0.125	0.204	0.072	0.145	0.192	0.280	0.908
TPO4	mg/L	S31	105	0.016	0.018	0.013	0.006	0.010	0.012	0.015	0.171
TPO4	mg/L	S331	75	0.008	0.003	0.008	0.004	0.007	0.008	0.009	0.016
TPO4	mg/L	S332B	388	0.008	0.004	0.007	0.003	0.006	0.007	0.008	0.045
TPO4	mg/L	S332C	418	0.008	0.004	0.007	0.004	0.006	0.007	0.008	0.043
TPO4	mg/L	S332DX	640	0.008	0.004	0.008	0.004	0.006	0.007	0.009	0.051
TPO4	mg/L	S333	1446	0.015	0.017	0.013	0.005	0.009	0.012	0.017	0.390
TPO4	mg/L	S334	144	0.014	0.005	0.013	0.006	0.010	0.013	0.015	0.038
TPO4	mg/L	S335	38	0.010	0.017	0.008	0.004	0.006	0.007	0.010	0.110
TPO4	mg/L	S34	168	0.019	0.010	0.018	0.006	0.013	0.017	0.022	0.060
TPO4	mg/L	S344	39	0.032	0.024	0.024	0.009	0.012	0.019	0.051	0.088
TPO4	mg/L	S352	804	0.214	0.146	0.190	0.023	0.139	0.180	0.244	2.568
TPO4	mg/L	S356	446	0.010	0.002	0.010	0.006	0.009	0.010	0.011	0.034
TPO4	mg/L	S38	168	0.017	0.013	0.013	0.004	0.008	0.011	0.021	0.070
TPO4	mg/L	S39	161	0.031	0.021	0.027	0.008	0.018	0.026	0.036	0.148
TPO4	mg/L	S390	179	0.413	0.191	0.377	0.147	0.287	0.381	0.462	1.119
TPO4	mg/L	S5A	897	0.135	0.075	0.118	0.023	0.083	0.120	0.163	0.822
TPO4	mg/L	S5AE	140	0.115	0.065	0.100	0.029	0.068	0.103	0.142	0.409
TPO4	mg/L	S5AS	109	0.117	0.061	0.100	0.026	0.063	0.112	0.154	0.314
TPO4	mg/L	S5AW	61	0.110	0.065	0.094	0.027	0.065	0.102	0.123	0.370
TPO4	mg/L	S6	934	0.075	0.061	0.058	0.013	0.032	0.060	0.100	0.799
TPO4	mg/L	S65	880	0.089	0.061	0.076	0.007	0.056	0.074	0.097	0.515
TPO4	mg/L	S65A	1020	0.070	0.047	0.063	0.002	0.050	0.064	0.079	1.137
TPO4	mg/L	S65C	1018	0.079	0.044	0.070	0.013	0.051	0.064	0.092	0.412
TPO4	mg/L	S65D	1043	0.079	0.045	0.070	0.022	0.050	0.066	0.094	0.398
TPO4	mg/L	S65E	1108	0.108	0.064	0.094	0.028	0.065	0.086	0.133	0.467
TPO4	mg/L	S7	633	0.033	0.028	0.026	0.007	0.015	0.024	0.039	0.319
TPO4	mg/L	S71	619	0.201	0.133	0.168	0.034	0.109	0.161	0.253	0.829
TPO4	mg/L	S72	509	0.213	0.119	0.185	0.048	0.125	0.187	0.273	0.768
TPO4	mg/L	S78	66	0.129	0.073	0.117	0.065	0.086	0.108	0.144	0.561
TPO4	mg/L	S79	57	0.150	0.060	0.140	0.065	0.106	0.131	0.178	0.287
TPO4	mg/L	S8	738	0.049	0.060	0.038	0.007	0.023	0.036	0.060	1.286
TPO4	mg/L	S84	245	0.086	0.063	0.073	0.026	0.052	0.069	0.094	0.491
TPO4	mg/L	S9	791	0.016	0.009	0.014	0.004	0.011	0.014	0.018	0.140
TPO4	mg/L	S9A	575	0.013	0.006	0.012	0.007	0.010	0.012	0.014	0.058
TPO4	mg/L	SAFARI	220	0.015	0.008	0.013	0.006	0.010	0.013	0.017	0.069
TPO4	mg/L	SW1B	69	0.141	0.099	0.114	0.032	0.073	0.104	0.188	0.599
TPO4	mg/L	SW2	149	0.161	0.115	0.133	0.020	0.095	0.134	0.182	0.712
TPO4	mg/L	SW6IN	118	0.119	0.091	0.093	0.016	0.054	0.106	0.154	0.720
TPO4	mg/L	T0E	13	0.006	0.002	0.006	0.004	0.005	0.005	0.007	0.012
TPO4	mg/L	T0W	14	0.008	0.004	0.007	0.002	0.006	0.007	0.009	0.015
TPO4	mg/L	TAMBR1	242	0.013	0.004	0.012	0.007	0.010	0.012	0.015	0.043
TPO4	mg/L	TAMBR2	236	0.013	0.004	0.012	0.007	0.010	0.012	0.015	0.040
TPO4	mg/L	TAMBR3	213	0.012	0.004	0.012	0.007	0.009	0.011	0.014	0.042
TPO4	mg/L	TAMBR4	183	0.012	0.004	0.011	0.007	0.009	0.011	0.014	0.036
TPO4	mg/L	TAMBR5	150	0.012	0.005	0.011	0.007	0.009	0.011	0.013	0.047
TPO4	mg/L	TAMBR6	166	0.015	0.013	0.013	0.006	0.010	0.012	0.016	0.145
TPO4	mg/L	TC03373511	31	0.307	0.132	0.285	0.150	0.215	0.269	0.353	0.685
TPO4	mg/L	TCNS 201	106	0.469	0.247	0.411	0.142	0.280	0.433	0.580	1.370
TPO4	mg/L	TCNS 213	220	0.428	0.245	0.370	0.071	0.268	0.364	0.492	1.296
TPO4	mg/L	TCNS 217	224	0.327	0.292	0.229	0.023	0.133	0.225	0.426	1.520
TPO4	mg/L	US41-25	251	0.023	0.018	0.018	0.005	0.011	0.016	0.028	0.124

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TPO4	mg/L	WPB-26.1	21	0.189	0.092	0.168	0.070	0.111	0.168	0.249	0.366
TPO4	mg/L	WPB-28.2	20	0.183	0.102	0.150	0.016	0.113	0.165	0.248	0.385
TPO4	mg/L	WPB-31.2	21	0.193	0.085	0.173	0.046	0.132	0.191	0.258	0.390
TPO4	mg/L	WPB-33.5	21	0.229	0.108	0.203	0.069	0.169	0.218	0.300	0.495
TPO4	mg/L	WPB-35.4	21	0.250	0.125	0.219	0.066	0.165	0.192	0.347	0.500
TPO4	mg/L	WPB-37.2	21	0.254	0.144	0.218	0.075	0.143	0.211	0.339	0.619
TPO4	mg/L	WPB-38.0	20	0.288	0.165	0.242	0.066	0.165	0.261	0.378	0.720
TPO4	mg/L	WWEIR	867	0.044	0.025	0.038	0.012	0.027	0.037	0.052	0.235
TPO4	mg/L	X0	117	0.054	0.037	0.045	0.004	0.032	0.044	0.062	0.230
TPO4	mg/L	Z0	116	0.055	0.038	0.045	0.004	0.030	0.045	0.070	0.290
TURB	NTU	02273230	34	11.1	12.7	6.7	0.8	2.9	6.7	15.3	57.6
TURB	NTU	02274325	27	2.5	1.8	1.9	0.1	1.3	2.2	2.8	8.3
TURB	NTU	02274505	38	22.6	62.3	5.8	0.1	3.0	5.7	7.0	357.7
TURB	NTU	02275631	22	1.7	1.4	1.1	0.1	0.7	1.1	2.7	4.8
TURB	NTU	BC10	102	1.2	0.5	1.1	0.1	0.9	1.1	1.5	3.2
TURB	NTU	BC11	99	0.9	0.6	0.7	0.3	0.5	0.7	1.0	4.4
TURB	NTU	BC14	99	1.8	1.9	1.4	0.4	0.9	1.4	2.0	17.0
TURB	NTU	BC15	103	1.7	1.4	1.4	0.5	1.0	1.4	2.0	12.5
TURB	NTU	BC22	99	1.3	1.2	1.0	0.1	0.6	0.8	1.5	8.3
TURB	NTU	BC23	102	2.2	1.1	2.0	0.6	1.5	2.1	2.5	9.1
TURB	NTU	BC26	89	2.8	2.4	2.2	0.3	1.5	2.3	3.1	17.4
TURB	NTU	BC7	102	1.1	0.6	0.9	0.1	0.6	1.0	1.5	3.1
TURB	NTU	BC8	102	0.9	0.8	0.8	0.2	0.6	0.8	1.1	6.9
TURB	NTU	BC9	102	2.7	1.6	2.2	0.5	1.4	2.6	3.7	7.0
TURB	NTU	C123SR84	154	3.6	4.3	2.5	0.6	1.3	2.4	4.1	32.5
TURB	NTU	C15S40	125	3.2	2.1	2.8	0.8	1.9	2.8	3.9	17.3
TURB	NTU	C16S41	125	3.2	2.8	2.7	0.6	1.8	2.7	4.0	26.9
TURB	NTU	C17S44	124	3.3	1.9	3.0	0.7	2.3	3.1	3.9	18.1
TURB	NTU	C18S46	112	1.8	2.5	1.4	0.7	1.0	1.2	1.9	24.7
TURB	NTU	C23S48	130	4.7	3.6	3.9	1.0	2.6	3.7	5.6	25.1
TURB	NTU	C24S49	130	3.4	2.2	2.9	1.0	2.2	2.8	4.0	17.0
TURB	NTU	C25S50	130	3.2	2.4	2.8	1.0	2.0	2.8	3.5	19.8
TURB	NTU	C44S80	131	15.9	17.7	10.4	2.1	5.2	9.4	18.0	90.3
TURB	NTU	C51S155	125	7.5	8.8	5.5	1.7	3.3	4.8	8.5	59.4
TURB	NTU	CES01	101	4.3	4.4	3.1	0.4	1.9	2.8	4.3	32.5
TURB	NTU	COC@LAKE	63	2.9	1.3	2.7	1.2	2.0	2.6	3.8	9.2
TURB	NTU	CORK@846	100	4.8	7.1	3.2	0.8	1.6	2.8	5.3	53.2
TURB	NTU	CR-04.8T	60	4.7	3.3	4.0	1.6	2.6	3.7	5.5	20.6
TURB	NTU	CULV10A	226	49.7	56.5	28.1	1.4	13.7	31.4	63.0	306.0
TURB	NTU	CULV5A	107	11.0	10.0	7.8	1.6	4.1	7.5	14.5	56.8
TURB	NTU	FAKA	100	1.1	0.6	1.0	0.4	0.7	1.0	1.2	3.2
TURB	NTU	FAKA858	100	2.4	1.3	2.2	0.3	1.6	2.1	2.7	7.1
TURB	NTU	FROGCITY	39	2.3	1.7	1.8	0.5	1.1	1.7	3.0	7.9
TURB	NTU	G123	124	1.7	1.0	1.5	0.5	1.1	1.5	2.1	7.0
TURB	NTU	G136	152	2.9	1.9	2.5	1.0	2.0	2.4	3.0	13.7
TURB	NTU	G300	5	10.5	4.5	9.8	7.1	7.5	7.9	13.7	17.5
TURB	NTU	G342A	224	3.9	2.6	3.4	1.2	2.3	3.1	4.4	15.9
TURB	NTU	G342B	223	3.9	3.3	3.2	0.8	2.1	2.8	4.4	26.7
TURB	NTU	G342C	212	4.0	4.0	3.2	1.1	2.1	2.9	4.0	38.5
TURB	NTU	G342D	212	4.2	4.6	2.9	0.6	1.7	2.7	4.2	30.6
TURB	NTU	G353B	4	3.3	0.8	3.2	2.3	2.7	3.2	3.9	4.3
TURB	NTU	G372	133	7.7	10.4	4.9	1.0	2.7	3.8	8.1	71.0
TURB	NTU	G94B	125	3.1	3.0	2.4	0.6	1.4	2.4	3.7	20.6
TURB	NTU	GGC@858	100	3.6	1.4	3.4	1.7	2.9	3.4	4.2	11.2
TURB	NTU	GGCAT31	101	1.8	1.0	1.6	0.4	1.1	1.5	2.1	6.6
TURB	NTU	HC14.4	1	12.3		12.3	12.3				12.3
TURB	NTU	HC18.2	1	2.9		2.9	2.9				2.9
TURB	NTU	HC19.3	1	2.7		2.7	2.7				2.7
TURB	NTU	INDUSCAN	171	11.2	13.5	7.0	1.2	3.4	6.2	13.0	91.8
TURB	NTU	L3BRS	248	4.5	5.0	3.5	0.8	2.3	3.3	4.9	60.4
TURB	NTU	L59E	123	8.1	7.6	6.1	1.1	3.8	5.4	9.5	52.0
TURB	NTU	L59W	119	5.0	2.8	4.4	1.1	3.3	4.3	6.1	17.5
TURB	NTU	L60W	96	4.5	2.7	3.9	1.4	2.6	3.6	5.6	15.5
TURB	NTU	L61E	125	5.1	4.8	4.2	0.9	2.9	4.2	5.5	44.4

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TURB	NTU	L61W	126	3.9	2.6	3.2	1.2	2.2	3.0	4.6	14.8
TURB	NTU	LOXA104	23	5.2	3.7	4.2	1.5	2.3	4.3	7.1	14.7
TURB	NTU	LOXA135	24	8.3	4.7	7.0	1.8	4.3	7.5	12.3	19.0
TURB	NTU	S10A	61	2.6	3.1	1.8	0.7	1.0	1.6	2.6	18.1
TURB	NTU	S10C	63	2.9	3.2	1.9	0.6	1.0	1.5	3.9	15.5
TURB	NTU	S10D	138	6.3	7.6	4.0	0.7	2.0	3.8	7.2	55.8
TURB	NTU	S11A	161	2.1	2.0	1.6	0.2	1.0	1.4	2.6	17.3
TURB	NTU	S11B	104	2.3	2.2	1.6	0.5	0.9	1.2	2.8	15.9
TURB	NTU	S11C	160	2.8	2.8	2.1	0.5	1.2	2.0	3.4	17.3
TURB	NTU	S127	120	3.3	1.8	2.9	0.9	2.2	2.8	3.9	10.4
TURB	NTU	S129	128	3.4	2.0	3.0	1.1	2.2	2.9	4.1	18.7
TURB	NTU	S12A	138	1.4	1.4	1.0	0.4	0.6	0.9	1.3	9.3
TURB	NTU	S12B	139	1.2	0.9	0.9	0.4	0.6	0.8	1.2	4.8
TURB	NTU	S12C	146	1.2	0.8	1.0	0.3	0.7	0.9	1.3	5.1
TURB	NTU	S12D	185	1.5	1.3	1.2	0.3	0.8	1.1	2.0	12.8
TURB	NTU	S131	133	2.8	1.6	2.5	1.0	2.0	2.6	3.0	15.0
TURB	NTU	S133	126	8.9	8.8	6.6	1.7	3.9	6.0	10.5	72.2
TURB	NTU	S135	128	6.2	6.8	4.9	1.6	3.5	4.5	5.8	52.6
TURB	NTU	S140	181	2.2	1.3	1.9	0.6	1.3	1.9	2.8	10.5
TURB	NTU	S145	171	1.6	2.1	1.1	0.4	0.6	1.0	1.8	23.2
TURB	NTU	S150	143	2.8	2.7	2.2	0.6	1.5	2.1	3.3	20.2
TURB	NTU	S151	161	2.2	1.5	1.8	0.4	1.2	1.7	2.9	7.7
TURB	NTU	S154	230	9.4	9.5	6.6	1.0	3.4	6.1	12.1	91.5
TURB	NTU	S169	156	12.3	9.8	9.4	2.6	5.3	9.6	15.1	61.6
TURB	NTU	S177	186	2.0	1.8	1.7	0.5	1.1	1.7	2.5	20.5
TURB	NTU	S178	115	6.4	12.9	2.8	0.4	1.1	2.4	6.1	110.0
TURB	NTU	S18C	176	1.8	1.5	1.5	0.5	1.1	1.4	2.1	15.7
TURB	NTU	S190	164	2.1	1.0	1.9	0.6	1.4	1.9	2.5	6.5
TURB	NTU	S191	234	3.0	1.8	2.6	1.0	1.8	2.6	3.5	12.1
TURB	NTU	S197	30	1.9	3.0	1.2	0.2	0.7	1.1	2.0	17.4
TURB	NTU	S2	165	13.4	13.5	9.2	1.4	4.7	8.0	15.3	68.6
TURB	NTU	S3	165	11.3	14.0	7.3	1.8	3.8	6.5	11.4	84.6
TURB	NTU	S308C	280	62.1	57.6	41.1	2.5	20.1	47.5	85.1	386.0
TURB	NTU	S31	108	1.8	1.2	1.5	0.4	1.0	1.4	2.3	7.8
TURB	NTU	S331	39	2.8	1.1	2.6	0.8	2.1	2.5	3.3	5.5
TURB	NTU	S332B	87	1.9	0.8	1.7	0.6	1.3	1.8	2.3	4.4
TURB	NTU	S332C	89	1.7	0.6	1.6	0.3	1.2	1.7	2.1	3.1
TURB	NTU	S332DX	7	2.4	1.3	2.1	1.0	1.4	2.2	3.2	4.5
TURB	NTU	S333	182	1.6	1.3	1.3	0.3	0.8	1.2	2.0	8.0
TURB	NTU	S334	139	2.1	1.7	1.7	0.6	1.1	1.5	2.6	13.0
TURB	NTU	S34	171	1.9	1.5	1.6	0.3	1.0	1.5	2.6	12.8
TURB	NTU	S344	40	2.0	1.8	1.3	0.3	0.6	1.1	3.8	7.5
TURB	NTU	S352	268	57.6	60.5	36.8	4.3	20.0	36.4	70.7	366.0
TURB	NTU	S356	5	1.8	0.7	1.7	1.1	1.3	1.7	2.4	2.8
TURB	NTU	S38	177	1.3	1.0	1.0	0.1	0.6	0.9	1.6	5.9
TURB	NTU	S39	164	2.2	1.7	1.8	0.6	1.1	1.7	2.7	11.1
TURB	NTU	S390	69	5.5	2.7	4.9	1.2	4.0	4.6	5.7	13.3
TURB	NTU	S5A	260	13.5	17.1	8.7	1.3	4.3	8.2	15.5	136.5
TURB	NTU	S5AE	140	24.1	31.9	13.4	1.9	5.8	13.4	28.3	243.0
TURB	NTU	S5AS	109	17.3	20.4	10.9	1.3	5.8	10.5	18.6	110.0
TURB	NTU	S5AW	61	22.5	35.9	11.0	1.0	5.3	8.7	18.4	208.0
TURB	NTU	S6	242	6.8	9.4	3.9	0.6	1.9	3.4	7.9	80.2
TURB	NTU	S65	257	6.0	2.9	5.5	1.9	4.2	5.4	7.4	26.7
TURB	NTU	S65A	257	4.6	3.2	4.0	1.3	2.8	4.0	5.6	37.9
TURB	NTU	S65C	259	4.9	4.7	3.9	1.1	2.6	3.8	5.6	45.0
TURB	NTU	S65D	259	3.8	2.8	3.2	0.9	2.3	3.0	4.3	23.2
TURB	NTU	S65E	298	3.4	1.9	3.0	0.1	2.2	2.9	4.1	13.7
TURB	NTU	S7	180	3.9	3.8	2.9	0.6	1.7	2.7	4.2	27.4
TURB	NTU	S71	238	5.5	3.6	4.6	1.1	3.1	4.4	6.8	23.6
TURB	NTU	S72	155	5.7	3.2	5.0	1.6	3.6	4.9	7.2	21.2
TURB	NTU	S78	59	5.5	5.2	4.2	1.1	2.5	3.6	6.3	24.9
TURB	NTU	S79	58	4.3	3.2	3.5	0.8	2.1	3.3	5.1	17.7
TURB	NTU	S8	176	4.3	3.8	3.3	0.8	2.1	3.1	5.0	26.2
TURB	NTU	S84	243	6.2	5.8	5.0	1.5	3.4	4.6	7.5	46.2

Table F-3 . Summary Water Quality Statistics By Station

Test_ Code	Units	Station	01_ N	02_ Mean	03_ StdDev	04_ GeoMean	05_ Min	06_ P25	07_ Median	08_ P75	09_ Max
TURB	NTU	S9	152	3.7	2.6	3.1	0.3	2.4	3.3	4.4	21.8
TURB	NTU	S9A	110	3.0	1.7	2.7	0.2	2.3	2.9	3.4	15.5
TURB	NTU	SW1B	69	34.5	42.0	17.9	2.4	6.7	15.2	50.0	214.0
TURB	NTU	SW2	146	39.1	50.5	19.5	1.1	7.6	17.1	49.8	289.0
TURB	NTU	SW6IN	87	27.3	39.7	14.3	2.0	5.3	13.1	36.7	310.0
TURB	NTU	TAMBR6	52	2.1	1.1	1.9	0.6	1.3	2.0	2.8	4.3
TURB	NTU	US41-25	173	1.5	1.2	1.1	0.4	0.6	1.0	1.8	6.4
TURB	NTU	WPB-35.4	21	13.0	9.7	10.9	4.9	7.5	9.3	15.7	49.4
TURB	NTU	WPB-38.0	21	11.4	11.8	8.9	5.3	5.8	7.3	10.9	55.8

Canals in South Florida: A Technical Support Document

Appendix G

Sediment Studies

Canal Project – Report Summary

Sediment Sourcing Study of Lake Worth Lagoon and C-51 Basin

John Maxted

Trefry, J.H., R. P. Trocine and H. Bennett. 2009. Sediment sourcing study of Lake Worth Lagoon and C-51 Basin, Palm Beach County. Draft Final Report to Palm Beach County and the South Florida Water Management District, Contract R2008-0985. October 2009. 80 pp.

Trefry et al. (2009) provide one of the only detailed studies of the chemistry of canal sediments in South Florida. Bottom sediments in the West Palm Beach (C-51) canal were analyzed in 33 locations. The average depth of sediments was about 50 cm with 5 of 33 samples in the canal having sediment depths greater than 1 meter. Water depths at these locations averaged 4.3 m with shallower depths being seen upstream. No upstream – downstream pattern was evident in sediment depth. Using a suite of chemical ratios for sediments from the C-51 canal and from Lake Worth Lagoon, they provided substantial evidence that downstream sediments in the lagoon within 2 km of the canal terminus are derived largely from canal sediments and that canal sediments in turn, are sourced primarily from the western, agricultural portion of the canal. Terrestrial inputs upstream are an important source of organic matter in the canal and downstream in the lagoon. This observation is important as it suggests that the canal is subsidized heavily from external particulate inputs, as opposed to generating organic matter primarily within the canal food web.

Canal Project – Report Summary

Sediment Sourcing Study of Lake Worth Lagoon and C-51 Basin

Orlando Diaz

Sediment Inventory and Phosphorus Fractions from Water Conservation Area Canals

Sediment Inventory

Site Description and Sampling

This study was undertaken to evaluate the potential impact of existing sediment material in the Water Conservation Area (WCA) canals on low-phosphorus water discharged from the Stormwater Treatment Areas (STAs). Detailed methodology and results related to this study are presented in Daroub et al. (2003) and Diaz et al. (2006). The canal reaches selected for this study characterized approximately 196 km of canals in the WCAs (**Figure G-1**). Canals were grouped by location into eastern (L7, L39, and L40), central (L5, L6, and L38), and western (Miami Canal North [MCN] and Miami Canal South [MCS]) to evaluate general trends across the WCAs. The bathymetry of each canal cross-section was surveyed at a spacing of 1.6 km down from the upstream end of each canal reach. At each sampling location, sediment samples were collected using an Ogeechee sediment core sampler at the canal centerline and at locations 25 percent of the canal width from each bank. Sediment cores were transported to the University of Florida Everglades Research and Education Center in Belle Glade for description, sectioning, and analysis. Sediment surface elevation and sediment depth at each transect were measured with a calibrated submersible footpad and a calibrated steel rod. Sediment depth readings were taken at 1.5–m increments across all transects. Sediment material in the inventory is defined as particles of different size, shape, and chemical composition that have been deposited through time on top of the bedrock at the bottom of the canals.

Intact sediment cores were transported to the laboratory and extruded using a piston and sectioned at depth increments of 0 to 2 cm, 5 to 7 cm, and 10 to 12 cm. All sediment samples were analyzed for moisture content, bulk density, organic matter, and total phosphorus (TP). A sample from each sediment depth was weighed and dried to determine bulk density and moisture content. Organic matter content was determined by igniting an oven-dried sediment sample at 550oC for 4 h in a muffle furnace, with weight loss (LOI) considered as the amount of organic matter in the sample, with the remaining ash dissolved in 6 M HCl (Andersen, 1976). The digestate was analyzed for TP using the automated ascorbic acid method (Method 365.4, U.S. Environmental Protection Agency, 1983).

Sediment Phosphorus Forms

Sampling and Analysis

Twenty transects from seven major canal systems in the WCAs were selected and sampled in the summer of 2001 (**Figure G-1**). Transects used for the phosphorus (P) fractionation analysis were different from transects used for the sediment inventory to avoid any disturbance of the surface sediment layer caused during depth measurements. At each transect location, triplicate intact sediment cores were collected within the middle two-thirds of the canal cross-sectional area. However, due to differences in water depths, bathymetry of the bottom, and variation in sediment thickness, core collection was often skewed toward one bank or another. Sediment cores were collected using a piston core sampler (Fisher et al., 1992). Core samples for P fractionation were sectioned on site into 0- to 10 and 10- to 30-cm increments, stored in polyethylene bags on ice, and transported to the University of Florida Wetland Biogeochemistry Laboratory in Gainesville for further analysis. Data from the 0- to 10-cm depth of the P fractionation study is presented in this summary report.

Phosphorus Fractionation

The P fractionation procedure was a modification of the procedure described by Hieltjes and Lijklema (1980), and adopted for wetland soils (Reddy et al., 1998). Field-wet subsamples (0.5 g dry weight equivalent) were sequentially extracted with 1 M KCl (labile P), 0.1 M NaOH (Fe and Al-bound P, and alkali extractable organic phosphorus [Po]), and 0.5 M HCl (Ca and Mg-bound P). The residue from the above extraction was combusted at 550oC for 4 h and the ash dissolved in 6 M HCl and analyzed for TP. Total phosphorus from the ash procedure is assumed to be residual Po. The NaOH extracts were analyzed for both TP (Method 4500-P, APHA, 1998) and inorganic phosphorus (Pi) after a 0.45-µm filtration (Method 365.1, U.S. Environmental Protection Agency, 1983). These fractions are referred to as NaOH-TP and NaOH-Pi, respectively, with NaOH-Pi representing the iron- and aluminum-bound P. The difference between NaOH-TP and NaOH-Pi was assumed to be Po (NaOH-Po) associated with humic and fulvic acid (Qualls and Richardson, 1995; Reddy et al., 1998).

Results Summary

Sediment Physicochemical Properties

Canal sediments showed a wide range in selected physicochemical properties throughout the WCA canals (**Table G-1**). In general, bulk density values increased with depth at all locations, with the least values observed in the sediments of the L7N and L40N canals. Low bulk densities in surface sediments in these two canals were probably the contribution of detrital matter from aquatic vegetation. In contrast, the greatest bulk density values were observed in sediments from the MCN that were characterized by lower organic matter content and higher mineral matter. Overall, organic matter and TP decreased with depth at all locations. Average TP concentrations from surface sediments ranged from 258 mg/kg in sediment samples from the L6 canal to 1700 mg/kg in samples from the MCS.

Sediment Depth and Volume in Main Canals

Sediment depth were highly variable, both across a given transect and longitudinally down any given canal. Canal midpoint sediment depths varied from less than 5 cm for several transects in the L38 canal to more than 3 m at L7N canal (**Figure G-2**). Canal average sediment depth ranged from 0.54 m in the L6 canal to 2.45 m in the L7N canal totaling 1.5 million m^3 (**Table G-2**). The total sediment volume calculated for the entire 196 km of canal reaches was about 6.8 million m^3, with 71 percent stored in the canals from the eastern side (L7, L39, and L40) of the WCAs (**Figure G-1**).

Low sediment accumulation in some canals sections, such as south of structure S7 on L38 and south of S8 on the Miami Canal (**Figure G-2**), are probably the result of higher flow velocities due to the canals' small cross-sectional areas, increasing the likelihood of sediment resuspension and transport during strong drainage events. In contrast, the deep sediments in the L7N canal are probably influenced by its location north of STA-1W outlet, and therefore not being exposed to most of the drainage flow coming out of the S-5A structure. Few drainage events, together with high productivity of aquatic vegetation in the L7N canal reduced the potential of sediment transport and increased the amount of detrital material being deposited to become part of the sediment inventory of this canal.

Higher sediment accumulation in the eastern canals is probably the result of a combination of factors such as flow, canal size, and nutrient loading from drainage waters coming from the Everglades Agricultural Area and adjacent urban areas (Walker, 1999). Historical data shows that TP concentrations of inflow water coming into the Everglades Protection Areas generally shows a decreasing north to south gradient, with the highest concentrations measured in the inflow to canals around WCA-1 (Noe et al., 2001). Higher TP loads increase the productivity of these canals resulting in higher amounts of particulate P that is being deposited through mechanisms such as biological uptake, sorption, and precipitation (Stuck et al., 2001).

Sediment depth and accumulation in main WCA canals also showed variability from north to south (**Figure G-2**). Sediment accumulation in the eastern canals was considerable larger in the northern sections (L7N and L40N), where cross-sectional area of these canals was larger and exposed to few drainage events during the year (**Table G-2**, **Figures G-2A** and **G-2B**). Total sediment accumulation and physical and chemical properties from the Miami Canal were notably different form north to south. The Miami Canal section north of structure S-8 was deepened in the late 1950s to provide better flow conveyance from the EAA to what is now WCA-3 (Light and Dinnen, 1994). This section of the Miami Canal has a larger cross-sectional area than the southern section, allowing longer flow residence time and increasing sediment deposition (**Table G-2**). Sediments from this section were high in TP and mineral matter as reflected in the higher bulk densities and TP storage when compared with the rest of the canals. In contrast, sediment accumulation in the MCS was less variable along the entire canal. The cross-sectional area of the MCS is considerably smaller than the north section, reducing the probability of sediment accumulation, especially for the first 9 km south of structure S-8 (**Figure G-2D**). Sediment accumulation was considerably higher north of structure S-339 and south of structure S-340, which are two gate-sheetpile barrier dams constructed to hold water in the adjacent marshes during low flow periods (U.S. Army Corps of Engineers, 1992).

Sediments in main WCA canals play an important role in P storage from agricultural drainage waters introduced into the Everglades Protection Area. Estimates from this study shows that the surface 12-cm sediment layer of all canal reaches downstream of functioning STAs store a TP mass of approximately 217 megagrams (Mg) (**Table G-2**). Canal reaches upstream of the STAs have an additional 18 Mg of P. The total P mass calculated for the entire sediment profile of all canal reaches in the WCAs was estimated to be in excess of 1800 Mg P.

Inorganic Phosphorus Fractions

Phosphorus stored in the labile pool is of concern because it represents the readily available pool of P. However, the KCl-Pi fraction represented less than 1 percent of the TP in surface sediments at all locations (**Table G-3**). Low P recovery in KCl extraction was probably due to some precipitation of P as Ca-P compounds during the equilibration period (Reddy et al., 1998). The NaOH-Pi fraction represents P associated with amorphous oxyhydroxide surfaces and crystalline iron and aluminum oxides and may constitute a potential source of P to the water column under certain conditions. Inorganic P extracted with NaOH ranged from 0.9 to 13 percent of the TP in all canal sediments (**Table G-3**). The L40 canal contained the greatest concentration of this P fraction, which equaled to 6189 kg iron- and aluminum- bound P in the surface 10 cm (**Table G-4**). This P fraction was considerable higher in the organic sediments of canals located in the eastern side of the WCAs (L7, L39, and L40). The NaOH-Pi fraction along the eastern canals increased with distance from the inflow structures accounting for 8 percent of TP in the northern part of the L40 canal (C22), and up to 27 percent of the TP in sediments midway down on L40 (C24) (**Figure G-3A**). In contrast, sediments from the Miami Canal were more variable with NaOH-Pi values ranging from less than 2 percent of TP in sediments north of structure S-8 (C28), to 9 percent of TP in sediments north of structure S-339 (C2) (**Figure G-3C**). The significance of the NaOH-Pi fraction in the eastern canals is its susceptibility to changes with redox potential that can result in possible long-term P release to the water column.

Phosphorus bound to calcium and magnesium minerals (HCl-Pi) was the dominant P fraction in all canal sediments. The HCl-Pi fraction from all locations accounted for 41 to 64 percent of the TP, with the greatest concentrations measured in sediments from the MCN and the least concentrations in sediments from the L40 canal (**Table G-3**). This P fraction accounted for 105 Mg of the calculated TP from all surface sediments (**Table G-4**). Under most natural conditions the calcium- and magnesium-bound P is relatively stable and unavailable for biological assimilation (Sonzogni et al., 1982). The HCl-Pi fraction along the eastern canals decreased with distance to the inflow structures from EAA (**Figure G-3A** and **G-3B**). Similarly, the Miami Canal showed the greatest concentration of this P fraction around the inflow structure (S-8) from the Everglades Agricultural Area (**Figure G-1** and **G-3C**). Drainage concentrations from the EAA are generally high in calcium and magnesium concentrations (Diaz et al., 1994) and play a major role in P precipitation and storage in sediments (Newman and Pietro, 2001). Several studies have shown that HCL-extractable P from soils and sediments from the WCAs are significantly correlated with extractable calcium and magnesium (Richardson and Vaithiyanathan, 1995; Reddy et al., 1998), with calcium playing a significant role for the long- and short-term storage for P within the STAs (Newman and Pietro, 2001).

Organic Phosphorus Fractions

Organic P extracted with NaOH is associated with humic and fulvic acid, which is biologically reactive and can be hydrolyzed to bioavailable forms (Bowman and Cole, 1978; Ivanoff et al., 1998). The NaOH-Po fraction represented 1 to 17 percent of TP in canal sediments, with the greatest concentrations measured in the L40 canal and the least concentrations observed in the sediments from the MCN (**Table G-3**). This P fraction accounted for 22,532 kg of the calculated TP mass from all surface sediments (**Table G-4**). The NaOH-Po fraction along the eastern canals gradually increased with distance from the inflow structures, with the greatest increases observed in the L7/L39 canal (**Figure G-3B**). This P fraction accounted for 7 percent of TP in sediments around the inflow structure G-310, gradually increasing up to 19 percent in sediments from the southern section of L39. In contrast, sediments from the Miami Canal were more variable with NaOH-Po values ranging from less than 1 percent of TP in sediments collected north of structure S-8, to 14 percent of TP in sediments in the southern section of the canal (**Figure G-3C**). These results show that a considerable portion of the TP in WCA sediments is stored in the NaOH-Po pool, especially in the eastern canals on the WCAs, particular in the L40 canal sediments. Some studies in the Everglades have suggested that Po storage in the impacted areas of WCA-2A appears to be through vegetative uptake and subsequent accumulation via detrital tissue deposition (Qualls and Richardson, 1995; Reddy et al., 1998). However, the relative stability of this P fraction is unknown and dependent on environmental condition regulating the rate of Po mineralization.

Residual Po at all locations represented between 21 and 35 percent of TP, with the greatest concentrations observed in sediments from the MCN (**Table G-3**). This P fraction accounted for 54,491 kg of calculated TP mass of all surface sediments (**Table G-4**). Residual Po is considered to be highly resistant and biologically unavailable (Hieltjes and Lijklema, 1980). In the eastern canals, residual Po represented up 30 percent of TP in the L40 canal (**Figure G-3A**). In the Miami Canal, residual Po represented more than half of the TP in sediments north of structure S-8, and an average of 23 percent of TP in the southern section (**Figure G-3C**). Phosphorus stored in this pool fraction represents a stable and long-term storage pool in this ecosystem. The residual Po fraction was the second largest storage pool in these canal sediments after the Ca-P pool. These results indicate that more than 80 percent of the TP mass in the surface 10-cm sediment layer of all canals in the WCAs is fairly stable. However, there is still a considerable P fraction, especially in sediments stored in canals bordering the Loxahatchee National Wildlife Refuge that are more susceptible to be released with changes in redox potential and can become a source of P to the overlying water column.

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Table G-1. Selected physical and chemical properties of surface sediments from major canals in the Water Conservation Areas.

Canal Designation†	Depth	Bulk Density	Organic Matter	Total P
	cm	g cm^{-3}	g kg^{-1}	mg kg^{-1}
L7N (n=63)	0-2	0.111 (0.017)	452 (45)	1370 (227)
	5-7	0.142 (0.022)	503 (68)	1222 (245)
	10-12	0.158 (0.024)	489 (79)	1254 (308)
L7S (n=80)	0-2	0.048 (0.061)	403 (111)	980 (275)
	5-7	0.218 (0.171)	398 (114)	1080 (486)
	10-12	0.218 (0.132)	421 (141)	956 (447)
L39 (n=107)	0-2	0.229 (0.185)	363 (156)	958 (585)
	5-7	0.331 (0.265)	340 (180)	697 (469)
	10-12	0.363 (0.273)	347 (224)	629 (611)
L40N (n=36)	0-2	0.109 (0.027)	408 (59)	1220 (190)
	5-7	0.141 (0.026)	408 (80)	1167 (136)
	10-12	0.154 (0.017)	439 (95)	1117 (245)
L40S (n=201)	0-2	0.161 (0.227)	440 (182)	1301 (542)
	5-7	0.338 (0.414)	336 (191)	1113 (662)
	10-12	0.572 (0.511)	250 (208)	827 (680)
L6 (n=69)	0-2	0.388 (0.210)	246 (168)	320 (188)
	5-7	0.589 (0.375)	215 (178)	258 (178)
	10-12	0.599 (0.391)	232 (220)	276 (217)
L5 (n=54)	0-2	0.192 (0.157)	373 (152)	844 (382)
	5-7	0.330 (0.226)	287 (123)	556 (332)
	10-12	0.458 (0.285)	234 (140)	413 (279)
L38 (n=75)	0-2	0.340 (0.358)	311 (144)	1306 (591)
	5-7	0.450 (0.355)	275 (170)	1113 (598)
	10-12	0.396 (0.280)	269 (172)	936 (529)
MCN (n=99)	0-2	0.507 (0.268)	122 (61)	1409 (403)
	5-7	0.493 (0.206)	176 (89)	1265 (434)
	10-12	0.571 (0.262)	161 (111)	1312 (543)
MCS (n=217)	0-2	0.250 (0.241)	320 (141)	1700 (778)
	5-7	0.396 (0.333)	262 (151)	1488 (753)
	10-12	0.498 (0.374)	224 (155)	1291 (887)

†L7S = Canal 7 South; L40S = Canal 40 South; MCN = Miami Canal North; MCS = Miami Canal South; L7N = Canal 7 North; L40N = Canal 40 North.
‡Mean value with standard deviation in parentheses.

Table G-2. Sediment and P inventories from the entire profile and surface 12-cm depth in major canals of the Water Conservations Areas.

Canal Designation†	Transect Numbers	Average Sediment Depth	Average Canal Width	Canal Length	Canal Bed Area	Total Sediment Volume	Total Sediment P Mass	Sediment Volume in Top 12- cm	Total P Mass in Top 12-cm
		-----------	(m)	-----------	(m^2)	(m^3)	(Mg)	(m^3)	(Mg)
L7S	L7-01 to L7-09	1.07	55.2	14 725	812 887	869 784	138.8	97 546	15.6
L39	L39-01 to L39-12	0.91	42.8	20 921	895 418	813 709	138.3	107 450	18.3
L40S	L40-01 to L40-24	0.76	37.4	40 073	1 498 269	1 133 683	236.7	179 792	37.5
L6	L6-01 to L6-08	0.54	41.5	11 265	467 412	252 947	30.3	56 089	6.7
L5	L5-01 to L5-05	0.82	19.5	8 851	172 666	141 967	18.6	20 720	2.7
L38	L38-01 to L38-13	0.64	25.0	20 921	523 393	334 848	113.3	62 807	21.3
MCN	MCN-01 to MCN-11	0.97	31.2	17 220	537 271	521 092	387.0	64 473	47.9
MCS	MCS-01 to MCS-28	0.72	21.7	44 901	976 575	707 161	403.8	117 189	66.9
Totals				178 869	5 883 891	4 775 189	1 466.9	706 067	216.9
L7N	L7-10 to L7-16	2.45	56.6	10 863	614 912	1 506 362	264.8	74 336	13.1
L40N	L40-25 to L40-28	1.78	43.8	6 276	275 002	488 370	76.1	33 000	5.1
Totals				17 140	889 914	1 994 733	340.8	107 336	18.3

†Eastern Canals = L7, L39, and L40; Central Canals = L5, L6, and L38; Western Canals = MCN and MCS.

Table G-3. Labile and non-labile pools of phosphorus from the 0 to 10-cm in canal sediments from the Water Conservation Areas.

Canal	P Forms							
Designation†	KCl-Pi	NaOH-Pi	HCl-Pi	Total Pi	NaOH-Po	Residual P	Total Po	Total TP
	----------	----------	----------	μg cm^{-3}	----------	----------	----------	----------
L40 (n=9)	0.16 (0.23)‡	9.3 (13.4)	28.5 (41.2)	38.0 (54.8)	11.9 (17.2)	19.4 (28.0)	31.3 (45.2)	69.3
L7 (n=9)	0.19 (0.15)	6.4 (4.9)	74.0 (57.4)	80.5 (62.5)	12.3 (9.6)	36.0 (27.9)	48.3 (37.5)	128.9
L39 (n=6)	0.57 (0.77)	5.4 (7.3)	34.8 (47.0)	40.8 (55.1)	10.7 (14.5)	22.5 (30.4)	33.2 (44.9)	74.0
L6 (n=6)	0.26 (0.42)	2.0 (3.2)	36.9 (61.5)	39.2 (65.2)	4.9 (8.2)	16.0 (26.7)	20.9 (34.8)	60.1
L38 (n=6)	0.25 (0.15)	5.8 (3.5)	105.6 (64.3)	111.7 (68.0)	18.0 (10.9)	34.5 (21.0)	52.5 (32.0)	164.2
L5 (n=6)	0.22 (0.25)	4.4 (4.9)	48.0 (54.1)	52.5 (59.3)	11.6 (13.1)	24.5 (27.6)	36.1 (40.7)	88.6
MCN (n=9)	0.30 (0.05)	6.0 (0.9)	423.0 (63.2)	429.4 (64.1)	5.3 (0.8)	234.8 (35.1)	240.1 (35.9)	669.4
MCS (n=9)	0.15 (0.11)	8.2 (6.0)	79.0 (57.7)	87.3 (63.9)	18.4 (13.4)	31.0 (22.7)	49.4 (36.1)	136.8

†L7 = Canal 7; L40 = Canal 40; MCN = Miami Canal North; MCS = Miami Canal South; L39 = Canal 39; L5 = Canal 5; L6 Canal 6.
‡ Mean value with % TP in parenthesis.

Table G-4. Estimates of total P mass of different pools in the 0- to 10-cm-sediment depth of major canals in the Water Conservation Areas

Canal Designation	Labile P (KCl)	Fe/Al Bound P	Ca/Mg Bound P	Total Pi	Humic Organic Bound P	Residual Po	Total Po	Total Sediment P Mass
	----------	----------	----------	(kg)	----------	----------	----------	Mg
L7	35	1 241	13 313	14 590	2 434	6 824	9 257	23.8
L39	116	1 263	6 482	7 861	2 541	4 823	7 365	15.2
L40	89	6 189	13 197	19 475	6 473	9 604	16 078	35.6
L6	26	207	3 185	3 418	499	1 694	2 193	5.6
L5	6	120	1 160	1 286	326	653	979	2.3
L38	27	797	10 183	11 006	2 426	4 286	6 712	17.7
MCN	24	399	25 098	25 521	359	14 005	14 364	39.9
MCS	61	3 346	32 289	35 696	7 473	12 603	20 076	55.8
Totals	384	13 562	104 907	118 854	22 532	54 491	77 024	195.9

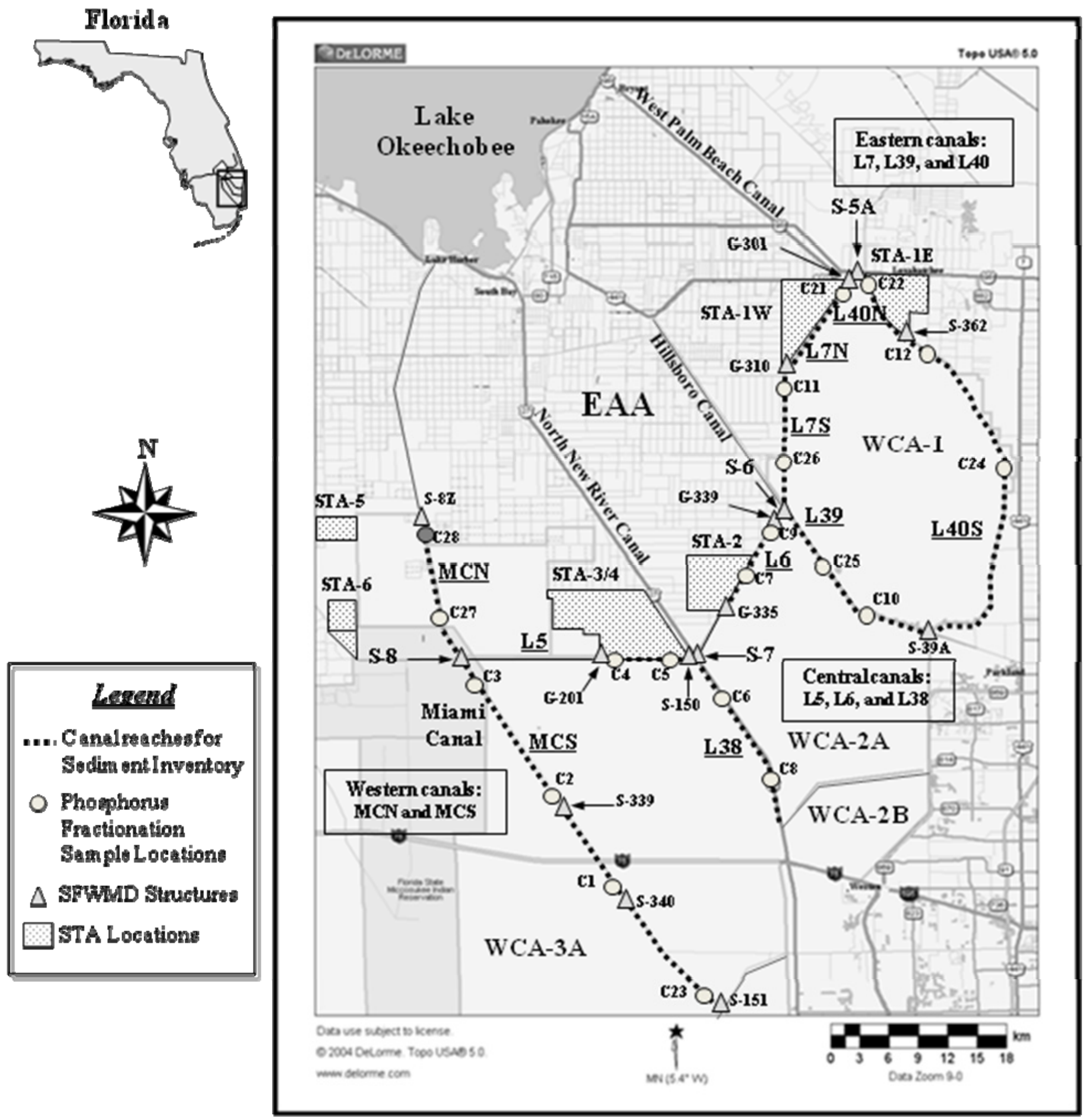

Figure G-1. Canal reaches and sampling locations in the Water Conservation Areas.

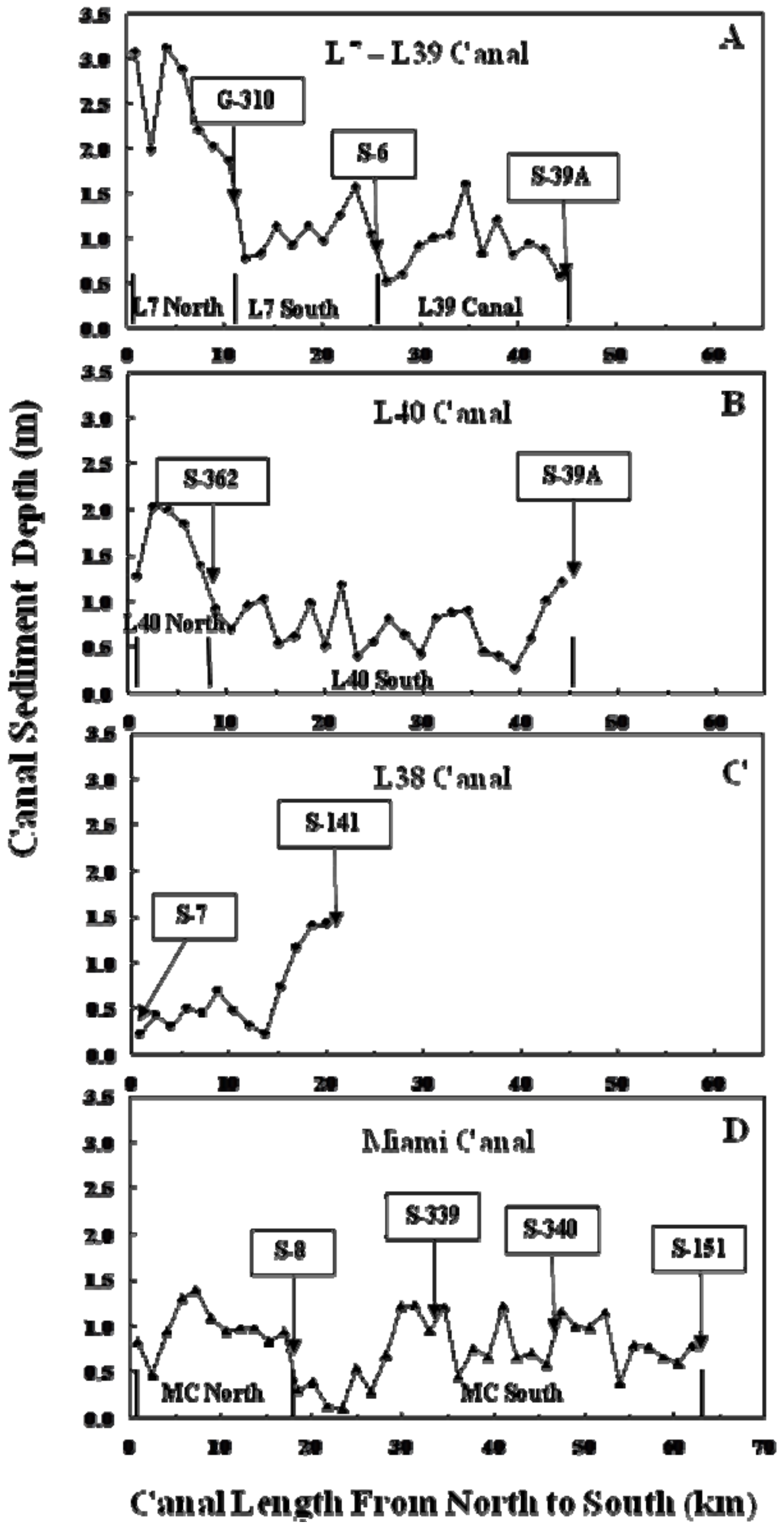

Figure G-2. Sediment depth profiles of main canals in the Water Conservation Areas.

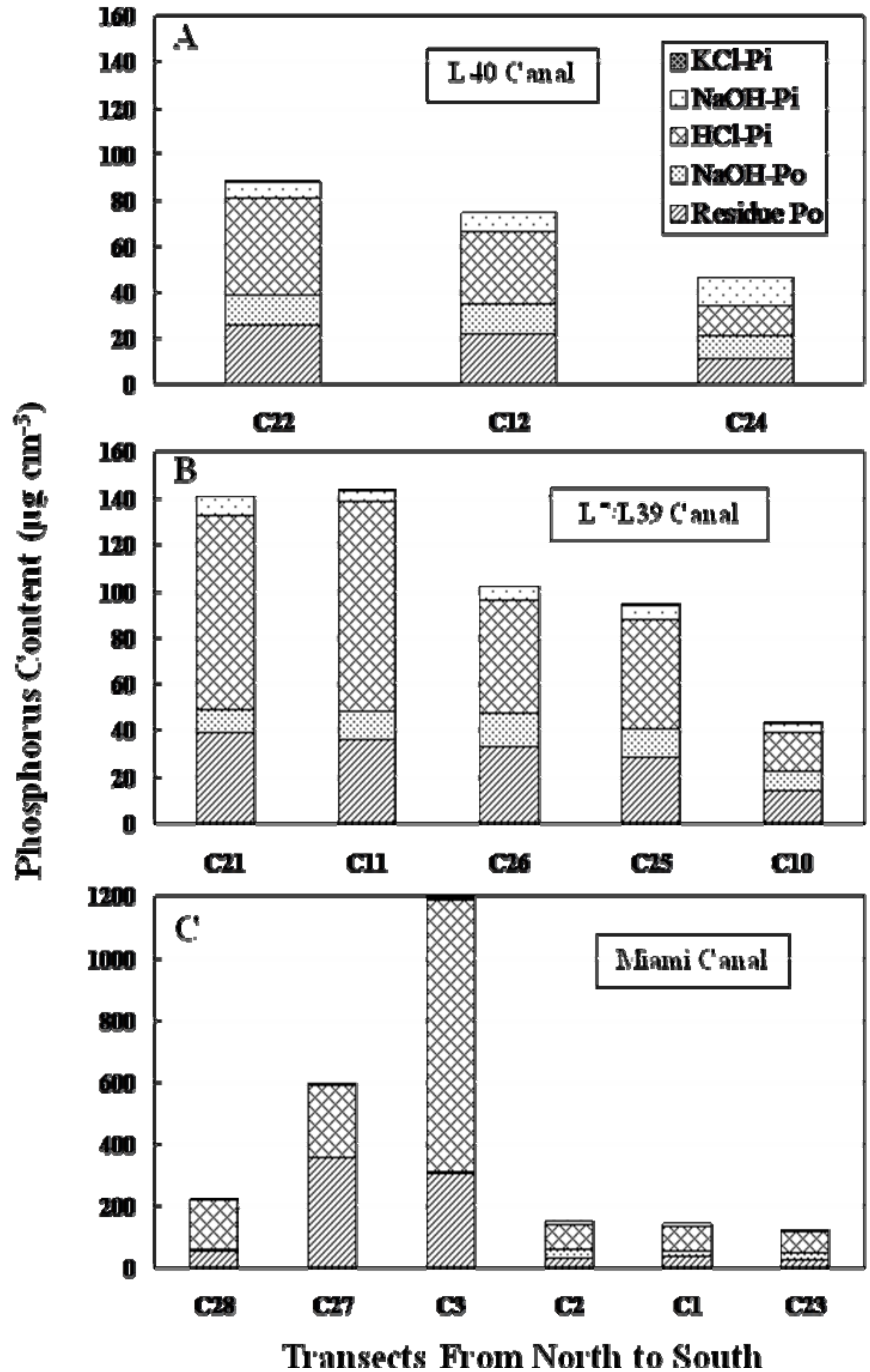

Figure G-3. Distribution of sediment P fractions at selected transects in main WCA canals.