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# ONONDAGA LAKE BASELINE MONITORING REPORT FOR 2010

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**LIST OF ACRONYMS**

CPUE	Catch (of fish) per unit of effort
DDT	Dichloro Diphenyl Trichloroethane
DO	Dissolved Oxygen
DUSR	Data Usability and Summary Report
GPS	global positioning system
ISUS	<i>in situ</i> ultraviolet spectroradiometer
mg/kg	milligrams per kilogram (or parts per million in water)
NYSDEC	New York State Department of Environmental Conservation
OCDWEP	Onondaga County Department of Water Environment Protection
PCBs	Polychlorinated Biphenyls
QA/QC	Quality Assurance / Quality Control
RI	remedial investigation
ROD	Record of Decision
SMU	Sediment Management Unit
SUNY-ESF	State University of New York College of Environmental Science and Forestry
TOC	Total Organic Carbon
TSS	Total Suspended Solids
UFI	Upstate Freshwater Institute
USEPA	United States Environmental Protection Agency

**DEFINITIONS**

Benthic	Bottom dwelling ( <i>i.e.</i> , in sediment)
Epilimnion	During summer stratification, the upper portion of the thermally-stratified water column located between the 0- and 30-ft. (0- and 9-meter) water depth in Onondaga Lake. The epilimnion is warmer than the underlying stratified layers and relatively well-mixed by wind and waves.
Hypolimnion	The lower portion of the water column during summer stratification where water temperatures are cooler than upper waters (typically in the portion of Onondaga Lake where water depths exceed 30 ft. [9 meters]). Mixing levels are diminished in the hypolimnion relative to the epilimnion.
Invertebrates	Animals without a backbone.
Littoral	Zone within a body of water adjacent to shore where waters do not thermally stratify. In Onondaga Lake, the outer extent of the littoral zone corresponds to a water depth of 30 feet (9 meters).
ng/L	Nanogram per liter or part per trillion in water.
Profundal	The profundal portion of a water body where water depths are greater than the depth to which sunlight can penetrate to support aquatic plants, in contrast with the littoral zone closer to shore. In Onondaga Lake, the profundal zone stratifies each year from May to October based on water temperature. The profundal zone of Onondaga Lake occupies 64 percent of the lake surface area based on a minimum water depth of 30 ft. (9 meters).
Seston	A collective term for all particulate matter present in the water column which consists of living, biological material (plankton) and nonliving particulate material.
Thermocline	Located within the interval of water between the epilimnion and hypolimnion corresponding to the water depth of the maximum rate of decrease in temperature with respect to depth.

## **EXECUTIVE SUMMARY**

The objectives of baseline monitoring are to document lake conditions before the remedial action begins and to provide groundwork for future evaluation of the effectiveness of the lake bottom remedy. This report presents results from the 2010 Onondaga Lake baseline monitoring efforts. These baseline monitoring efforts in Onondaga Lake were initiated during 2008. Baseline monitoring in Onondaga Lake associated with remedial construction was initiated as a separate effort late in 2010 and is being conducted and reported as part of the lake pre-design investigation efforts.

Baseline monitoring within Onondaga Lake includes sampling media for which preliminary remediation goals were established in the lake bottom Record of Decision (ROD) issued by the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA) in 2005. Baseline monitoring will continue in Onondaga Lake through 2011 because dredging of lake sediment is scheduled to begin early in 2012.

Honeywell's baseline monitoring during 2010 consisted of two distinct types of efforts (called books), each of which was conducted based on a work plan addendum approved by the NYSDEC prior to monitoring:

- Book 1 work during 2010 included collection and analysis of deep basin water samples by the Upstate Freshwater Institute (UFI). Zooplankton and sediment trap samples were also collected at South Deep and analyzed for mercury.
- Book 2 work during 2010 included collection and chemical analysis of 192 adult sport fish and 40 composited samples of smaller prey fish, fish community assessments, fish population surveys, an evaluation of fish diet, and an evaluation of walleye movements. Book 2 work during 2010 also included collection and analysis of benthic macroinvertebrate and littoral water samples as a follow up to a similar effort conducted on behalf of Honeywell in 2008. The Cornell Stable Isotope Laboratory analyzed water column particulate matter and crayfish samples collected during August-October 2010 for stable carbon and nitrogen isotopes to further assess food web interconnections within the lake.

Reports were prepared previously that document results from the 2008 and 2009 Onondaga Lake baseline monitoring efforts conducted on behalf of Honeywell.

## **SECTION 1**

### **INTRODUCTION**

Baseline monitoring in Onondaga Lake was initiated on behalf of Honeywell in 2008 to document lake conditions before starting dredging and capping. This baseline monitoring lays the groundwork for evaluating the effectiveness of the lake bottom remedy identified in the ROD issued by the NYSDEC and the USEPA (NYSDEC and USEPA, 2005) and described in the Remedial Design Work Plan for the Lake Bottom (Parsons, 2009). Baseline monitoring is being conducted on behalf of Honeywell throughout the remedial design phase until the clean up begins in 2012.

The program objectives for baseline monitoring were presented in the *Baseline Monitoring Scoping Document* (Parsons, Exponent, and Anchor QEA, 2010a) as follows:

- Establish a comprehensive description of baseline chemical conditions prior to remediation to assess remedy effectiveness and to facilitate remedy design.
- Provide additional data for future understanding of remedy effectiveness in achieving remediation goals for Onondaga Lake.
- Provide habitat-related information.

The Baseline Monitoring Scoping Document also describes program elements (i.e., activities such as lake water sampling) and data uses and provides a summary of monitoring being conducted by Honeywell and other entities such as the Onondaga County Department of Water Environment Protection (OCDWEP), UFI, the State University of New York College of Environmental Science and Forestry (SUNY-ESF), and the United States Geological Survey.

The 2010 work scopes for baseline monitoring efforts conducted in Onondaga Lake that began during 2008 are called addenda to the Book 1 and Book 2 work plans prepared for baseline monitoring work completed in Onondaga Lake in 2008 and approved by NYSDEC.

- Addendum 2 (for 2010) to the 2008 Book 1 Work Plan includes water quality, zooplankton and sediment trap monitoring in the deep basins of Onondaga Lake where water depths exceed 30 ft. (Parsons and Exponent, 2010).
- Addendum 2 (for 2010) to the 2008 Book 2 Work Plan includes fish, benthic macroinvertebrate, and littoral surface water sampling as well as sediment sampling where benthic macroinvertebrates were collected (Parsons, Exponent and Anchor QEA, 2010b).

These work plan addenda were approved by NYSDEC and are available in the public document repositories. The baseline monitoring program objectives, program elements, and data uses relevant to Books 1 and 2 are presented in Table 1. Baseline monitoring in Onondaga Lake associated with remedial construction was initiated as a separate effort in late 2010 and is being conducted again during 2011 and reported as part of the lake pre-design investigation efforts.

This third yearly report describes results from the 2010 Onondaga Lake baseline monitoring program. The report follows the same format applied in the baseline monitoring reports for 2008 and 2009 (Parsons, Exponent, and Anchor QEA, 2010a and 2010b, respectively). Section 1 is an introduction. Section 2 presents a summary of the sampling and analytical work. Section 3 is a summary of data management and data validation. Section 4 presents a brief assessment of the 2010 data. Appendices A and B, respectively, provide the 2010 Data Usability and Summary Reports (DUSR) for Books 1 and 2. The DUSRs include laboratory data verification, data validation, and data usability. Appendix C presents detailed data plots from the 2010 Book 1 work.

## **SECTION 2**

### **SAMPLING AND ANALYSIS SUMMARY FOR 2010**

Sample collection, sample management, equipment decontamination, and other baseline monitoring field procedures were conducted in accordance with work plan addenda for Book 1 and Book 2 approved in advance by NYSDEC (Parsons and Exponent, 2010 for Book 1 and Parsons, Exponent and Anchor QEA, 2010 for Book 2). Details on the sampling and analysis program are provided in the Book 1 and Book 2 work plan addenda for 2010. Table 2 summarizes the media, sampling locations, and primary activities for the Honeywell 2010 baseline monitoring work efforts.

A second type of lake monitoring effort conducted on behalf of Honeywell beginning in October 2010 has the objective of assessing lake conditions prior to in-lake dredging and capping. Results from this other lake baseline monitoring work effort are presented in a separate report.

#### **2.1 BOOK 1: DEEP BASIN WATER AND ZOOPLANKTON SAMPLING**

Book 1 baseline monitoring for 2010 consisted of deep basin water and zooplankton monitoring and sediment trap sampling. Unless indicated otherwise in this report, the completed field sampling work was consistent with the scope presented in the Book 1 Work Plan Addendum for 2010 (Parsons and Exponent, 2010). UFI collected water column samples from the South Deep location at multiple depths and times from May 3 through November 29. UFI collected vertically detailed *in situ* water quality measurements at 10 locations throughout the North and South Basins using a rapid profiling instrument *in situ* ultraviolet spectroradiometer (ISUS). UFI also collected zooplankton samples at South Deep at a frequency ranging from weekly to monthly. UFI attempted to collect samples of large *Daphnia* zooplankton (at least 1 millimeter in length), however unlike during 2009, large *Daphnia* were not found during any of these sampling events in Onondaga Lake during 2010. UFI also deployed sediment traps from April through November to collect sediment samples at South Deep at the 10-meter water depth (below the thermocline) to track short-term variations in solids and mercury deposition. The elements of the Book 1 sampling program for 2010 are summarized in Table 3.

#### **2.2 BOOK 2: FISH SAMPLING**

The 2010 baseline monitoring included adult sport fish and prey fish, benthic invertebrate, and littoral water sample collection throughout the lake (Figures 1, 2, and 3). Unless indicated otherwise, the completed field sampling work was consistent with the scope presented in the Book 2 Work Plan Addendum for 2010 (Parsons, Exponent, and Anchor QEA, 2010). Fish sampling for tissue chemical analyses, benthic invertebrate tissue and community sampling, and littoral water sampling were conducted during 2010 primarily by Anchor QEA. Fish population, fish community assessments (including lake sturgeon), fish telemetry, and fish gut content work



were conducted during 2010 primarily by SUNY-ESF under the supervision of Dr. Neil Ringler with support and oversight by Anchor QEA.

Sampling locations for fish tissue chemical analyses were the same as those sampled during 2008 and 2009, coinciding with historical tissue sampling locations occupied during the remedial investigation (RI), as well as sampling locations included as part of the Onondaga County Ambient Monitoring Program.

Adult sport fish sampling for tissue chemical analyses was conducted from June 15 through July 8, 2010, while prey fish sampling for tissue chemical analyses was conducted from August 23 through August 25, 2010. Fish samples for tissue analyses were collected and analyzed using the same methods employed during 2008 and 2009. Fish sampling methods consisted of electrofishing, gill netting, trap netting, and seining. Electrofishing was the preferred method for sampling bullhead and pumpkinseed, since both species tend to move inshore during the night and are susceptible to capture. Trap nets were a secondary source of pumpkinseed and bullhead which may be captured in these passive nets while moving along the shoreline. Walleye and smallmouth bass were primarily captured in gill nets set at the 13 to 23-ft. (4 to 7-meter) water depth also during the night time when they are more active. Occasionally walleye or smallmouth bass were captured by electroshocking. Forage fish were captured during seining events along the shoreline where they typically congregate during the day.

Four adult sport fish species including smallmouth bass (*Micropterus dolomieu*), brown bullhead (*Ameiurus nebulosus*), walleye (*Sander vitreus*), pumpkinseed sunfish (*Lepomis gibbosus*), and prey fish from the minnow and topminnow families (Cyprinidae and Fundulidae), excluding carp (*Cyprinus carpio*) and goldfish (*Carassius auratus*) were collected. Due to the limited availability of smallmouth bass, the target of 50 adult smallmouth bass was not obtained. Smallmouth bass were very difficult to collect during June due to apparent movement offshore to feed in deeper waters. As described in the Book 2 Work Plan Addendum for 2010, carp and goldfish were not included as part of prey fish collection for tissue chemical analysis due to their large size. Exact species of prey fish were determined based on availability and included the two most common species being captured in the lake which are banded killifish (*Fundulus diaphanus*) and golden shiner (*Notemigonus crysoleucas*). Small alewife also was targeted, although none were captured for chemical analysis during the seining events. Alewife were not collected during the prey fish sampling in mid-August most likely due to the fish moving to deeper waters.

The objective of the adult sport fish sampling for tissue chemical analysis was to sample 50 individual fish from each of the four adult sport fish species for a total of 200 adult sport fish with a target of six to seven individual fish from each species at each of the eight adult sport fish sampling locations. Each adult sport fish sample consisted of a single fish. The number of fish samples collected and analyzed during 2010 for tissue chemical concentrations was similar to the numbers for each adult fish species collected and analyzed on behalf of Honeywell during 2008 and 2009. Due to the availability of slightly smaller smallmouth bass in 2008 and 2009 and to help better understand mercury dynamics in this species, a subset of 21 smallmouth bass with lengths of 8 to 12 in. (200 to 302 mm) was collected during 2010 for chemical analyses.

For 2010, unlike samples collected and analyzed on behalf of Honeywell during 2008 and 2009, chemical analyses of all four adult sport fish types were conducted on fillet samples that were different from the NYSDEC standard fish fillet which includes skin on with ribs and belly flap intact except for brown bullhead. The 2010 adult sport fish samples submitted for chemical analysis were filleted with scales or skin, ribs and belly flap removed.

Scales from each adult pumpkinseed, a pectoral spine from each adult brown bullhead, and otoliths (small ear bones) from each smallmouth bass and walleye were collected during 2010 to assess ages of fish. Lengths and weights of each of these adult sport fish were recorded as well.

For prey fish, five composite samples were collected during 2010 by seining at each of the eight locations, for a total of 40 composite samples submitted for chemical analyses. Composite samples were comprised of 10 to 15 prey fish per sample, depending on weight.

As a follow up to comparable work conducted on behalf of Honeywell during 2008 and 2009, the 2010 baseline fish monitoring included sampling and analysis of fish gut contents, and an assessment of fish population and community composition. In addition to the smaller mesh gillnet used during community surveys, a larger sized gill net was used (starting in September) to better understand lake sturgeon abundance and distribution. Community sampling was conducted with 5.9-inch stretch mesh netting, and sturgeon gillnetting was conducted with an eight panel experimental gillnet with two panels each of 6, 8, 10, and 12-inch stretch mesh in sequence for two series.

Tracking of fish movements was added as part of Honeywell's 2010 Baseline Monitoring Program for Onondaga Lake. The focus for fish tracking work was on smallmouth bass and walleye, because these two sport fish have been analyzed for chemical content in tissue since 2008 and they represent top predators in the lake food web and as a result are the fish most likely to show high mercury concentrations. However, due to the difficulty capturing smallmouth bass in 2010 (only two were tagged), walleye were tracked primarily. Passive receivers were placed at the lake outlet and at the mouths of Onondaga Creek and Ninemile Creek by attaching the receiver to a cinder block using a chain and clasp and then attaching the chain to a permanent structure in each area (e.g., a pier or bridge support).

Fish gut contents were checked in the four adult sport fish species collected for tissue analysis (smallmouth bass, walleye, pumpkinseed, and brown bullhead) and also in largemouth bass, yellow perch, and white perch. Gut contents from each of the fish types were identified to the lowest taxonomic order reasonably achievable and abundance of each reported.

The density and distribution of adult sport fish were assessed monthly from May through October of 2010 at over 30 locations around the lake using gill and trap netting to determine overall community structure (Figure 2). Individual largemouth bass, pumpkinseed, and bluegill sunfish were measured for total length (mm), marked with a fin clip (for smaller fish) or uniquely numbered t-bar anchor floy tag (for larger fish), and examined for visible marks. Similar to 2008 and 2009, multiple fish population and fish community sampling efforts were completed during 2010 with each month representing one sampling period extending three to five days per month. Population estimates for largemouth bass, pumpkinseed, and bluegill

sunfish were calculated using the modified Schnabel estimator (Ricker, 1975), as described in the *Book 2 Work Plan for 2008* (Parsons, Exponent, and QEA, 2008). Sample size was not sufficient to conduct a smallmouth bass population estimate in 2010. These species were assessed based on their dominance over the years in the lake and the likelihood of obtaining enough samples to calculate a population estimate.

### **2.3 BOOK 2: BENTHIC MACROINVERTEBRATE, SEDIMENT AND LITTORAL WATER SAMPLING**

Benthic macroinvertebrates for tissue analysis and associated sediment samples were collected during August 2010 from nine locations (Figure 3). Since zebra mussel tissue samples were obtained from only five of the nine original locations, four additional locations also were sampled for zebra mussels, in accordance with the work plan. Amphipods, chironomids, and zebra mussels were separated from sediment collected at each location with a ponar sampler. Crayfish were sampled by setting five minnow traps at each of the nine locations for 24 hours. During 2010, nine amphipod samples, nine chironomid samples, six zebra mussel samples (two samples included a mix of zebra and quagga mussels due to limited mass of zebra mussels), and three crayfish samples were obtained. Water temperature, pH, conductivity, and dissolved oxygen (DO) were recorded at each sampling location prior to sampling.

Three samples of benthic macroinvertebrates for community composition and abundance were collected during August 2010 from each of the nine benthic macroinvertebrate locations. Samples were sorted and identified in a laboratory.

In conjunction with the benthic macroinvertebrate samples, a sediment sample was collected from each of the nine benthic macroinvertebrate sample locations, consisting of two sediment depth segments, 0 to 2 centimeters (cm) (0 to 1 inches) and 2 to 15 cm (1 to 6 inches) below the top of sediment.

Littoral zone (nearshore) water samples were collected at a water depth of 3 to 5 ft. (1 to 1.5 meters) at the same six fish sampling locations within the littoral zone as sampled in 2008. Four of the littoral zone water samples were collected in the southern half of the lake and two were collected in the northern half. The littoral zone surface water samples were collected on August 16, 2010 while profundal zone waters were stratified and on October 27 and November 11, 2010 following summer stratification and fall turnover of the lake's deep waters. These surface water samples were collected using clean hands techniques so low-level mercury concentrations could be quantified.

### **2.4 SAMPLE ANALYSES**

The extent of chemical analyses conducted on Book 1 and Book 2 2010 samples was consistent with the analytical scope outlined in the baseline monitoring work plan addenda for 2010.

Book 1 samples collected and analyzed during 2010 consisted of surface water, zooplankton, and sediment trap solids. Book 1 water samples collected during 2010 were analyzed for numerous water quality parameters including total mercury and methylmercury.

Selected water samples from the 2-meter and 14-meter water depths were also analyzed for filtered (i.e., dissolved) total mercury. Zooplankton samples were also analyzed for total mercury and methylmercury. Sediment trap solids (slurry) were analyzed for total suspended solids (TSS), fixed and volatile suspended solids, inorganic carbon, calcium, and total mercury. Solids from one of the sediment trap samples collected in triplicate were analyzed for total mercury while samples from the two other sediment traps collected on the same date were archived for potential future analyses.

The 2010 adult sport fish samples collected for tissue chemical analyses included 41 smallmouth bass, 50 walleye, 50 pumpkinseed, and 51 brown bullhead that were analyzed for mercury in fillets. The 2010 prey fish samples consisted of 40 composite prey fish samples that were also analyzed for mercury.

In addition to being analyzed for mercury, a subset of adult sport fish fillet samples (12 per species for a total of 48 samples) were analyzed for polychlorinated biphenyls (PCBs), dichlorodiphenyl trichloroethane (DDT) and its metabolites, hexachlorobenzene, and lipids, except that 11 instead of 12 adult pumpkinseed samples were analyzed for hexachlorobenzene. Dioxins/furans were analyzed in five fillet samples from each of the species of adult sport fish for a total of 20 samples. PCBs, DDT and its metabolites, hexachlorobenzene, and lipids were also analyzed in a subset of prey fish (10 composite samples). Samples selected for analysis of PCBs, DDT and its metabolites, hexachlorobenzene, and lipid content were representative of the various locations in the lake and were similar to samples selected in 2008 for the same chemical analyses.

The other types of Book 2 samples collected during 2010 were analyzed primarily for mercury. Benthic macroinvertebrate samples collected during 2010 were analyzed for total mercury and methylmercury. When sample mass was limited, analysis of methylmercury was prioritized over total mercury. Samples of sediment associated with each of the nine benthic macroinvertebrate sample locations were analyzed for total mercury, methylmercury, and total organic carbon. Littoral water samples were analyzed for unfiltered total mercury, unfiltered methylmercury, and TSS; two samples per event also were sampled for filtered methylmercury.

The three crayfish samples and a total of nine samples of filtered material collected by UFI from the water column at the 2-meter water depth at South Deep on five different dates from September 7 through November 1, 2010 were analyzed for stable isotopic ratios of carbon ( $^{13}\text{C}/^{12}\text{C}$ ) and nitrogen ( $^{15}\text{N}/^{14}\text{N}$ ). The filtered water column samples were collected as 20 liters of whole (unfiltered) water from a water depth of 2 meters at South Deep. These samples were filtered through a tangential flow filtration system with a pore size of 0.45 microns. The particle-rich material retained on the filter (called seston) was subsequently centrifuged to produce a final sample volume. The seston samples were sent to Cornell University's stable isotope laboratory for analysis of specific carbon and nitrogen isotopes. These analyses were conducted to improve understanding of food web patterns and contaminant bioaccumulation in aquatic systems.

## **SECTION 3**

### **DATA MANAGEMENT AND VALIDATION SUMMARY**

#### **3.1 FIELD DATABASE**

Validated samples from each of the 2010 baseline monitoring efforts have been stored and accounted for in Honeywell's Locus Focus data management system for Onondaga Lake. The data collection program implemented for the 2010 baseline monitoring efforts for Onondaga Lake is the same as was implemented for the Honeywell pre-design investigation efforts.

#### **3.2 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

Sample identification, QA/QC procedures, sample collection, data entry, and data validation for the 2010 baseline monitoring efforts work were conducted in accordance with the agency-approved work plan addenda for Books 1 and 2 for 2010 (Parsons and Exponent, 2010; and Parsons, Exponent, and QEA, 2010; respectively). Verification of sampling information and chemical data occurred at several levels during the field and laboratory work. Data verification included checking procedures for compliance with the project plan, correctness of protocols used in the field and at the laboratory, comparability of the data collection and analysis procedures, and completeness of the data set and supporting documentation.

Accutest, Brooks Rand, UFI, and SGS Laboratory conducted the 2010 baseline monitoring laboratory analyses on behalf of Honeywell. Brooks Rand conducted the analyses for low-level mercury and low-level methylmercury. SGS Laboratory conducted the analyses for dioxins and furans.

#### **3.3 DATA VALIDATION**

Chemical analytical data for the 2010 baseline monitoring efforts were generated by Accutest, Brooks Rand and UFI were reviewed and validated by Parsons for usability in accordance with data validation procedures described in the DUSRs that are presented as Appendices A and B to this report. Baseline monitoring results presented in Appendix A and Appendix B have been incorporated into the Locus Focus database.

## **SECTION 4**

### **DATA ASSESSMENT**

#### **4.1 BOOK 1 RESULTS FOR 2010**

##### **4.1.1 Deep Basin Water Quality**

The deep basin water monitoring data provide a basis to measure if surface water quality standards (one of the preliminary remediation goals identified in the ROD) have been achieved and a basis to measure success in controlling key processes (such as, mercury methylation in the hypolimnion and mercury release from profundal sediment), as indicated in Table 1. The deep basin water column sampling focuses on mercury, which undergoes a dynamic cycling process each summer in Onondaga Lake, primarily as a function of lake stratification and subsequent oxygen depletion. Mercury is of concern because methylmercury accumulates in the hypolimnion during stratification, bioaccumulates, and poses potential risks to human health and the environment if fish are consumed.

Other water quality parameters were also monitored to provide insight into lake stratification and mercury cycling. DO and nitrate are particularly important parameters because methylmercury production occurs in the absence of DO and only at low concentrations of nitrate as discussed in the Interpretive Report (Upstate Freshwater Institute and Syracuse University, 2008). The addition of oxygen and nitrate is being evaluated as a means to control methylmercury accumulation in the hypolimnion of Onondaga Lake. A three-year nitrate addition pilot test is scheduled for 2011 through 2013 based on a work plan submitted to the agencies in June 2010 (Parsons and UFI, 2010).

Figures 4 through 7 present the 2010 DO, nitrate-nitrogen, unfiltered methylmercury and unfiltered total mercury results measured at South Deep over time at depths of 2 meters (epilimnion), 12 meters (near the top of the hypolimnion), 16 meters (mid-hypolimnion), and 18 meters (bottom of the hypolimnion). Plots for these water depths are presented because they were the water depths most consistently sampled during 2010.

As a result of summer stratification, DO was entirely depleted in the lower hypolimnion and nitrate levels dropped below 1 mg/L over time which resulted in methylmercury being released from underlying sediment to lower hypolimnion waters (Figures 4 through 6). During 2010, DO concentrations declined to zero at 18-meter water depth by early July, nitrate concentrations declined to their lowest levels at the 18-meter water depth in late September to early October, and methylmercury concentrations correspondingly reached their peak (1.3 nanograms per liter or ng/L) two to three weeks prior to fall turnover, which occurred during the week of October 17, 2010. At the 2-meter water depth, a depth which likely reflects the water quality conditions to which biota are primarily exposed, methylmercury concentrations were less than 0.2 ng/L throughout the summer and fall of 2010. Total mercury concentrations at the 16-meter and 18-meter depths in the water column increased during August and September prior to fall turnover. At fall turnover, the lake mixes and the concentrations of DO, nitrate, and methylmercury are

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generally equivalent throughout the water column. These patterns can be seen in plots of DO, nitrate-nitrogen, methylmercury, and total mercury by depth for each sampling date provided in Appendix C. In addition, dissolved total mercury concentrations at the 2-meter water depth are presented in Table 4.

#### **4.1.2 Zooplankton Mercury Concentrations**

Table 5 and Figure 8 present total mercury and methylmercury concentrations measured in zooplankton collected during 2010. Figure 9 presents methylmercury as a percent of total mercury for these samples. Total mercury concentrations in zooplankton were less than 0.05 mg/kg on a wet-weight basis prior to July while the highest concentrations were observed prior to and following fall turnover. Methylmercury concentrations followed the same trend as concentrations of total mercury with relatively low concentrations throughout the season and highest concentrations during September approximately four weeks prior to fall turnover. Methylmercury as a percent of total mercury remained between 6 and 28 percent throughout the sampling period.

#### **4.1.3 Zooplankton Community Composition**

The zooplankton community during 2010 was primarily composed of cladocerans, copepods, and rotiferers. Their occurrence and biomass are presented in Figure 10. The largest biomass quantities were observed in early July. Large *Daphnia* were not observed throughout the entire sampling period.

#### **4.1.4 Sediment Trap Solids and Mercury**

Table 6 presents mercury in slurry, triplicate TSS results, and calculated mercury on slurry solids collected from the sediment traps as part of the Book 1 effort in 2010. Average suspended solids contents in these samples ranged from 559 to 20,847 mg/l. Mercury concentrations on sediment trap solids ranged from 0.30 to 1.71 mg/kg with the highest concentration observed on September 20 approximately four weeks prior to fall turnover. The arithmetic average mercury content of sediment trap solids measured during 2010 was 1.06 mg/kg. Mercury deposition rates averaged 10.8 micrograms per square meter per day.

### **4.2 BOOK 2 RESULTS FOR 2010**

#### **4.2.1 Adult Sport Fish and Prey Fish Chemical Results**

Mercury was detected in each of the 192 samples from adult sport fish fillets (0.01 to 3.70 milligram per kilogram or mg/kg [approximately the same as one part per million]), and 40 whole-body prey fish composite samples (0.05 to 0.80 mg/kg) (Table 7). One milligram per kilogram is approximately the same as one part per million. Mercury concentration versus age in adult sport fish was evaluated to assess trends with age. Mercury concentration tends to increase with age in smallmouth bass, walleye, and pumpkinseed sunfish; no trend is apparent for brown bullhead (Figures 12 and 13).

Results from analyses for fish tissue collected during 2010 presented herein included a fish filleting procedure implemented by the laboratory that was not in full conformance with the

NYSDEC procedure for fish filleting. The filleting procured implemented by the laboratory included the fish fillet but did not include the skin or scales, rib cage and belly flap.

Results from fish tissue analysis for mercury have been assessed and determined to be comparable with prior year results. Since the fillet to whole body ratio of mercury in fish was calculated at 0.7 during the Onondaga Lake Remedial Investigation (TAMS, 2002), it is likely that the 2010 fish are biased high, if anything due to the lack of dilution from the belly flap and bone. Using the 2010 fish fillet data is likely to be a conservative estimate of mercury compared to prior years, but is within the range expected based on the data from 2008-2009.

PCBs were detected in two of 12 smallmouth bass, 10 of 12 walleye, and four of 12 brown bullhead fillet samples (0.132 to 0.182 mg/kg in smallmouth bass; 0.023 to 5.77 mg/kg in walleye; 0.041 to 0.068 mg/kg in brown bullhead); PCBs were not detected in any pumpkinseed or prey fish samples (Table 7).

DDT and metabolites were detected in one of 10 prey fish sample (0.0044 mg/kg), one of 12 pumpkinseed sample (0.0055 mg/kg), two of 12 smallmouth bass samples (0.005 to 0.0085 mg/kg), and four of 12 walleye samples (0.0102 to 0.202 mg/kg); DDT and metabolites were not detected in any of the 12 brown bullhead samples analyzed (Table 7).

Hexachlorobenzene was detected in four of 10 prey fish samples (0.0028 to 0.0474 mg/kg), seven of 12 walleye samples (0.0022 to 0.0426 mg/kg), three of 12 brown bullhead samples (0.0024 to 0.0141 mg/kg), and two of 11 pumpkinseed samples (0.0035 and 0.0047 mg/kg) (Table 7). Hexachlorobenzene was not detected in any of the 12 smallmouth bass samples analyzed.

Lipid contents ranged from 0.53 to 3.9 percent in whole body prey fish, non-detect to 2.60 percent in brown bullhead fillets, non-detect to 2.50 percent in pumpkinseed fillets, 0.19 to 0.85 percent in smallmouth bass fillets, and 0.44 to 14.20 percent in walleye fillets (Table 7).

Dioxins were detected in each of the five brown bullhead, smallmouth bass, and walleye fillet samples and in two of the five pumpkinseed samples analyzed. Ranges of detected dioxin and furan concentrations are presented in Table 7. Detections of dioxins and furans are also reported as toxicity equivalents on a nanogram per kilogram basis (Table 7A). One ng/kg is approximately the same as one part per trillion or 0.000001 part per million.

#### **4.2.2 Stable Isotope Results**

Results of stable isotope analyses can be used to evaluate position of the lake's organisms within the food web as well as diet and original carbon source, both of which help to better understand local bioaccumulation pathways. A value called "δ" is calculated using the equation:

$$\delta = [(R_{\text{SAMPLE}}/R_{\text{STANDARD}} - 1)] * 1000$$

where R is the ratio of the heavy isotope to the light (and generally most abundant) isotope.

δ is reported in parts per thousand (‰), where a value of 0 ‰ means that the sample is identical to the standard. A negative δ value indicates that the sample is lighter and a positive value



indicates that the sample is heavier than the standard. In general, an increase in  $\delta^{15}\text{N}$  represents an increase in trophic level. Differences in  $\delta^{13}\text{C}$  show differences in food sources.

Patterns in  $\delta^{15}\text{N}$  values provide information on relative position in the food web. As shown in Figure 20a, relatively low  $\delta^{15}\text{N}$  values represent lower trophic level consumers.

Patterns in  $\delta^{13}\text{C}$  provide insight about diet of various lake organisms. Distinct  $\delta^{13}\text{C}$  clusters are evident in organisms from Onondaga Lake, which represent different food sources (Figure 20b). One cluster represents a benthic food source and includes amphipods, chironomids, golden shiners, and minnows sampled during 2009 as well as crayfish sampled during 2010. The other cluster represents a water column food source as presented in the Baseline Monitoring Report for 2009 (Parsons, Exponent, and Anchor QEA, 2011) which includes zebra mussels, zooplankton, smallmouth bass, and walleye.

#### **4.2.3 Fish Diet**

Fish diets, as determined by SUNY-ESF based on gut content analysis, are presented in Table 8. The majority of stomachs from fish collected for tissue analysis were empty when pumped following electroshocking; a few fish and fish parts were noted from walleye and smallmouth bass guts during processing.

The majority of white perch (total length per fish of 117 to 263 mm [4.6 to 10.3 in.]) stomachs examined contained food items (49 out of 52 examined) with 8 taxa of prey items identified (Table 8). White perch diets were dominated by amphipods, zygopterans, and chironomids. Plant material was found in 11 of the 52 white perch examined. Yellow perch (total lengths per fish were 145 to 324 mm [5.7 to 12.8 in.]) stomachs contained 10 taxa of prey items in their diet (Table 8). Amphipods were the most dominant food item in yellow perch stomachs with zygopterans, chironomids, and fish making up a smaller portion of the diet. Plant matter was found in 8 of the 74 yellow perch examined.

The majority of bass sampled to assess fish diet (41 out of 51) had empty stomachs. The only contents found in any of the bass stomachs were fish or fish parts. Ten of the 51 smallmouth bass processed to assess fish diet (total lengths were 240 to 445 mm [9.4 to 17.5 in.]) contained fish or fish parts, including alewife (in three bass), banded killifish (in one bass), and a yellow perch (in one bass); five bass contained unidentified fish parts.” The alewife were all recorded from bass greater than 400 mm (15.7 inches) total length which may indicate these larger bass are feeding more in the deep water pelagic zone than the smaller fish.

#### **4.2.4 Fish Community Assessment**

Fish representing 42 species were captured or observed in Onondaga Lake during fish community sampling at 10 locations (stations) from May through October 2010. Fish representing 37 species were captured with trapnets, 19 species with gill nets, 8 species with a boat electroshocker, and 22 species with seines (Table 9).

During trap net sampling, nets were set during an evening and checked the following morning once a month at each location. A total of 6,134 fish representing 37 species were captured during 60 nights of trap netting during 2010 (Table 10). The fish community sampled

via trap netting was dominated by alewife (21.4 percent), with more than half of these captured at the Metro site. Bluegill made up 20.7 percent of the community followed by pumpkinseed (15.8 percent), largemouth bass (7.6 percent), and golden shiners (6.3 percent). Each of eight species made up between 1 and 6 percent of the catch, and each of 24 species contributed less than 1 percent of the total catch. The number of species captured at each location using trap nets varied from 17 species at the Wastebeds 1-8 location to 26 species captured at the Metro location (see Table 10).

Sixty-two gill nets were set for approximately two hours between May 24, 2010 and October 13, 2010 at 12 different locations throughout Onondaga Lake (Table 11). A total of 568 fish and 19 species were captured during sampling. The most common fish captured were walleye (38 percent), channel catfish (18.5 percent), and gizzard shad (13 percent) (Table 12). Two lake sturgeon were captured, each of which was captured at a different gill net location. Twelve brown trout also were captured during sampling, four in May, 6 in June, one in July, and one in October. The number of species captured with gill nets per location varied between zero captured South of Ley Creek (1 net set) to 13 captured at the Causeway location (6 net sets) (see Table 12).

Seventeen sturgeon gill nets were set at the same general locations as the 12 gill net locations from September 27, 2010 through November 1, 2010. They were fished for an average of 3.9 hrs per net. Nine lake sturgeon were captured with a catch per unit of effort (CPUE) (fish per hour) of 0.14. A total of ten sturgeon were tagged (one was captured at the 690 Point location during community gill netting and is excluded from this section). Average total length was 52 in. (1332 mm with a range from 42 to 62 in. or 1055 mm to 1572 mm). Six sturgeon were weighed with an average weight of 37 pounds (16.7 kg) and a range of weights from 20 to 56 pounds (8.9 kg to 24.9 kg). Sturgeon were captured at five locations; three at the outlet (2 net sets), two at Hiawatha Point (2 net sets), two at the Wastebeds 1-8 location (2 net sets), one at the Marina location (3 net sets), and one at the Iron Bridge location (1 net set) (Table 13).

Seining was conducted during the week of August 22, 2010 (see Figure 1 for seining locations and Table 14 for location names). Seining for fish was completed at nine locations with a total of 6,974 fish within 23 species captured. Fish catch was dominated in numbers by banded killifish (84 percent). Young of the year largemouth bass (9 percent), tessellated darter (2 percent), and adult pumpkinseed (1.5 percent) also were captured. All of the other 19 species contributed less than 1 percent of total catch. The number of species captured at each location ranged from four captured at the Ninemile Creek Outlet and Marina to 11 species captured at Willow Bay (Table 14).

#### **4.2.5 Fish Population Assessment for Adult Pumpkinseed, Bluegill and Largemouth Bass**

For adult pumpkinseed fish total lengths of 100 mm (4 in.) or more, a total of 2,045 fish were captured during 2010, including five recaptures, during seven sampling events. The lakewide pumpkinseed population for 2010 was estimated at 299,247 using the Schnabel estimator (Ricker 1975); the 95 percent confidence interval could not be determined due to the low number of recaptures. This estimate is believed to be biased high and the actual population

estimate is likely lower than in 2009 since the catch CPUE in May and June 2010 (84 fish per hour) was approximately 50 percent less than the CPUE during the same two months in 2009 (176 fish per hour), based on a similar number of hours fished.

For adult bluegill (fish total lengths of 100 mm or more), a total of 382 fish were captured from May to September 2010, with two recaptures. The lakewide population of bluegill sunfish (100 mm or larger) was estimated to be 30,031. Due to the low number of recaptures, a confidence interval could not be determined. Catch per unit effort for bluegill from May to September 2010 was 9.97 fish per hour.

For adult largemouth bass (fish total lengths of 300 mm or more), a total of 187 fish were captured during seven sampling efforts with zero recaptures (average catch per unit effort was 3.67 fish/hr). The lakewide largemouth bass population for 2010 could not be estimated due to the lack of recaptures.

#### **4.2.6 Assessment of Walleye and Smallmouth Bass Movement Using Telemetry**

Telemetry data were collected beginning in 2010 to assess the amount of time individual fish are in Onondaga Lake throughout the season and to assess movements of fish within the lake. Nineteen fish (17 walleye and two smallmouth bass) were captured and tagged with sonic telemetry tags during the summer and fall of 2010 (Table 15). Fish that were tagged were captured using short gill net sets to reduce stress to the fish. Fish that were deemed suitable for tagging were held in a net pen near the marina for up to 24 hours to assess condition prior to tagging. Thirteen walleye were tagged on May 24-25, three walleye were tagged on July 19, and one walleye was tagged on October 14. In addition, two smallmouth bass were tagged on October 14; no other smallmouth bass were captured and deemed suitable prior to October 14.

Use of the lake by individual fish was assessed with manual and passive tracking techniques. Manual tracking was conducted by boat using a hydrophone lowered over the side of the boat and a receiver to locate tagged fish in real time throughout the lake. Manual tracking of fish was conducted for one to two days approximately every other week (May 24 to November 11, 2010) with 8 hour and 24 hour surveys. During the 8-hour surveys attempts were made to identify as many tagged fish as possible and record fish location at least once during this time period, while 24-hour surveys tracked the same two fish every hour for 24 hours to gather data on short-term movements. During each survey, locations and depths were recorded of each fish being tracked. During each tracking, fish location was determined and global positioning system (GPS) coordinates recorded, as well as the temperature of the fish (which can be used to estimate depth of the fish in the water column based on temperature profiles). Passive tracking was conducted by installing automated underwater receivers at the Onondaga Lake outlet, at the mouth of Ninemile Creek, and at the mouth of Onondaga Creek to assess movements of fish in and out of the lake. These receivers recorded data on fish movement into or out of the lake and can record up to 210,000 detections.

##### **4.2.6.1 Eight-Hour Fish Trackings**

Twelve eight-hour fish trackings were conducted from May 27, 2010 to November 11, 2010. All fish were located at least once after being tagged and released. Five walleye were assumed

dead due to of a lack of movement (Table 15). One walleye (ID 69) was only located during the first eight hour survey and then never located again; two walleye (ID's 66 and 63) were located during all but one of the eight hour surveys. Tags were detected a total of 98 times during the eight hour surveys. The majority of tag detections were found in sediment management unit (SMU) 8 (i.e., within the pelagic zone) (Table 16).

#### **4.2.6.2. Twenty-Four Hour Fish Trackings**

Walleye were tracked 23 times between June 3, 2010 to November 2, 2010. During these tracking events, 13 individual fish were tracked; one fish was tracked seven times, another fish was tracked three times, two other fish were tracked two times, and nine fish were each tracked once (Figure 14a-14m). Fish were tracked for 24 hours on ten dates and for 12 hours instead of 24 hours on two dates: June 16, 2010 (due to boat limitations) and November 2, 2010 (too cold for night tracking).

The sonic tags used to track fish also recorded fish temperature which provides an estimate of water temperature where the fish is located. Based on temperature, the depth of the fish may be approximated based on the lake temperature profile available from UFI's robotic buoy. Throughout the fish trackings, the maximum temperature recorded for a fish was 25.5 degrees Celsius observed in late July, while the minimum fish temperature of 11 degrees Celsius was observed during the last sampling period in early November (Table 18). This temperature range is consistent with known temperature preferences for walleye.

Walleye that were tracked stayed within the lake boundaries during each tracking event (Figure 14a-14l). The total distance travelled by a walleye being tracked over 24 hours varied between 1.16 miles (1,880 meters) on July 28, 2010 and 7.0 miles (11,300 meters) on October 4, 2010 with an average distance travelled being 3.9 miles (6,210 meters). The average speed travelled by tracked walleye over 24 hours was 0.16 miles (257 meters) per hour.

On average, walleye were observed to be suspended over water outside of the littoral zone (water depths greater than 23.3 ft. or 7 meters). During the warmer summer months (July and August) walleye were located over shallower water (water depths less than 10 meters) than they were over the early summer (June) and fall months (September, October, November) (water depths greater than 33 ft. or 10 meters) (Table 18). There was only one tracking event (July 1, 2010) in which the average and maximum water depths of 8 and 16 ft. (2.5 and 4.8 meters), respectively where the walleye were located were less than 23 ft. (7.0 meters).

One smallmouth bass (ID 132) was tracked on November 2, 2010 for 12 hours during the day (Figure 14m). The smallmouth bass moved 3,700 ft. (1,132 meters) in 12 hours with an average distance travelled of 0.09 miles (145 meters) per hour. The smallmouth, which was tagged at the outlet, stayed between Willow and Maple Bay at the north end of the lake (Figure 14m). The smallmouth bass was located at temperatures of 10.0°C and 10.5°C and was found suspended over water depths between 4 and 35 ft. (1.2 and 10.6 meters).

#### **4.2.6.3. Passive Receivers**

Passive sonic receivers were deployed at three locations during the late summer of 2010 to record movements of tagged fish in and out of the lake (slight delay in deployment due to timing on receipt of all equipment). The Onondaga Lake outlet receiver was deployed on August 10, 2010, the Onondaga Creek receiver on August 24, 2010, and the Ninemile Creek receiver on September 9, 2010. The outlet receiver had 4,071 detections from August 10, 2010 through November 24, 2010 (Table 17). None of the 19 tagged fish were detected moving in or out of Onondaga Creek or Ninemile Creek. At the outlet, 13 of the 19 walleye and both smallmouth bass were detected moving in or out of the lake. Two walleye (ID's 62 and 79) that were not detected in the outlet are presumed dead in the lake (detected over deep water in the exact same location during multiple surveys). Two other walleye (ID's 69 and 71) were not detected moving out of the lake, however, fish ID 69 was only located during the first 8-hour survey and was not subsequently documented within the lake. Fish ID 71 was routinely found within the lake and apparently has not moved past the outlet. Three of the fish detected moving past the outlet receiver (ID's 77, 97, 105) are among the fish presumed dead within the lake (Table 15); these three fish were presumed dead, because they were located numerous times in the exact same location, without any detection of movement (as indicated by the D in Table 16) and at a hypolimnion water temperature (8 to 10 degrees Celsius) that coincided with no oxygen. Two of the fish (97 and 105), although seemingly noted at the outlet receiver following their listing as "dead" are likely erroneous readings (under ideal conditions this receiver can pick up fish as much as two miles away). The fish with the highest number of detections (2,641) in the outlet was a smallmouth bass (ID 143), far greater than the next largest number of detections (444 from ID 78) (Table 17).

#### **4.2.7 Benthic Macroinvertebrate Chemical Results**

Nine samples (one composite sample from each of nine locations) were targeted from each invertebrate taxa (amphipods, chironomids, zebra mussels) in August 2010 for chemical analyses. Amphipod and chironomid samples were obtained from each of the nine locations in sufficient quantities of biomass for chemical analyses, while sufficient biomass of zebra mussels was only obtained from five of the nine original locations; four additional locations also were sampled for zebra mussels, in accordance with the work plan, with one location yielding a sufficient biomass (Figure 3). Crayfish traps were set at each of the nine locations, but crayfish were only collected at the SMU 1 and SMU 7 locations.

Amphipod total mercury concentrations ranged 0.004 to 0.256 mg/kg and methylmercury concentrations ranged 0.003 to 0.174 mg/kg, with highest concentrations in SMU 1 (Table 19 and Figure 15). Chironomids total mercury concentrations ranged from 0.004 to 0.127 mg/kg and methylmercury concentrations ranged from 0.001 to 0.036 mg/kg with highest concentrations in SMU 1 (Table 19 and Figure 15). Zebra mussel total mercury concentrations ranged from 0.015 to 0.118 mg/kg and methylmercury concentrations ranged from 0.003 to 0.076 mg/kg with highest concentrations in SMU 1 (Table 19 and Figure 16). Mercury was analyzed in three crayfish samples with total mercury concentrations ranging from 0.153 to 0.216 mg/kg and



methylmercury concentrations ranging from 0.114 to 0.44 mg/kg (Table 19 and Figure 16). All of the mercury results for macroinvertebrate samples are reported on a wet-weight basis.

#### **4.2.8 Benthic Macroinvertebrate Population and Community Results**

Onondaga Lake benthic macroinvertebrate community composition work for 2010 indicated a dominance or highest percentage of amphipods, annelids, bivalves, or gastropods depending on location (Figure 17). In total, 14 orders of benthic macroinvertebrates were identified from areas around the lake representing approximately 66 taxa (genus or species level). Dipterans were dominated by taxa within the Chironomidae family, which represented between 2 percent (OL-STA-40124) and 17 percent (OL-STA-60226) of the sample from each location. Dreissenids (zebra and quagga mussels) represented between 1 percent (OL-STA-50064) and 32 percent (OL-STA-50060) of the sample from each location.

The NYSDEC Biological Assessment Profile (BAP) was used as an assessment of water quality based on the macroinvertebrate community samples collected during 2010. Utilizing this procedure, five individual biological metrics (indexes) were calculated based on the ponar samples including species richness, Hilsenhoff Biotic Index (HBI) score, Shannon diversity, percent contribution of the three most numerous species (DOM3), and the measure of similarity to a non-impacted community termed Percent Model Affinity (PMA). Each metric was calculated and the values were converted to a common scale from 0 to 10, with 0 to 2.5 severely impacted, 2.5 to 5.0 moderately impacted, 5.0 to 7.5 slightly impacted, and 7.5 to 10.0 non-impacted. The common scale values from each metric were then averaged to obtain a score denoting overall water quality assessment (see Bode et al. 2002). The five metrics were calculated for each replicate sample, and the replicate samples from each location were averaged to obtain the mean index value for each location. These values were then converted to the common scale and the overall mean water quality assessment value was calculated.

Benthic macroinvertebrate community metrics are presented in Table 20. The benthic invertebrate community from the nine locations sampled was characterized as moderately impacted with mean water quality index values ranging from 3.11 at Location 30095). The benthic invertebrate community from the nine locations sampled was characterized in SMUs 1 through 7 as moderately impacted at eight locations with mean water quality index values ranging from 3.28 (Location 30095) to 4.67 (Location 20160) and slightly impacted at one of the three SMU 5 locations (a mean water quality index value of 5.11 at Location 50062). Overall, 63 benthic macroinvertebrate species were identified from nine locations.

#### **4.2.9 Chemical Results for Sediments Associated with Benthic Macroinvertebrates**

Sediment samples were collected from each of the benthic macroinvertebrate locations in August 2010 and analyzed for total and methylmercury from surface sediments (0 to 2 cm) and from subsurface sediments (2 to 15 cm; Figure 18). Total mercury concentrations ranged from 0.086 to 7.6 mg/kg dry weight in the surface sediments and 0.017 to 10.6 mg/kg dry weight in the subsurface sediments (Table 21 and Figure 18). Methylmercury concentrations ranged from 0.00026 to 0.00914 mg/kg dry weight in the surface sediments and 0.000032 to 0.00686 mg/kg dry weight in the subsurface sediments (Table 21 and Figure 18). There was a similar pattern

among locations for surface and subsurface samples with the locations in SMUs 1 and 7 having the highest mercury concentrations. Total organic carbon (TOC) was also measured in each of the sediment samples (Table 21). TOC concentrations in the surface sediments ranged from 9620 to 48900 mg/kg (or 0.096 to 4.8 percent) and from 4480 to 47200 mg/kg (or 0.045 to 4.7 percent) in subsurface sediments (Table 21).

#### **4.2.10 Littoral Zone Surface Water Quality Results**

Littoral water samples were collected from six locations during three 2010 sampling events: one in August when the profundal zone of the lake was thermally stratified, a second sampling event approximately one week following turnover when the profundal zone was no longer thermally stratified (on October 27, 2010) and a third sampling event three weeks post-turnover (on November 11, 2010). These littoral zone water samples were collected at the 3 to 5-ft. (1 to 1.5-meter) water depth. Total and methylmercury were analyzed in grab samples from each location (Table 22). Total mercury ranged from 2.4 to 18 ng/L in August and 2.38 to 13.3 ng/L one week post-turnover and 1.08 to 6.51 ng/L three weeks post-turnover (Figure 19). Methylmercury ranged from 0.103 to 0.237 ng/L in August, 0.086 to 0.159 ng/L one week post-turnover and 0.048 to 0.079 ng/L three weeks post-turnover (Figure 19). Total mercury and methylmercury concentrations were higher during August than they were following fall turnover (Figure 20). Filtered total mercury was analyzed in two samples from each sampling event with concentrations of 0.68 and 1.1 ng/L during August, 0.86 and 1.03 ng/L during October, and 0.30 and 0.35 ng/L during November (Figure 19).

Table 22 presents a comparison of total mercury and methylmercury water concentrations measured at the two-meter water depth at the South Deep station with littoral zone results from the same timeframes. This comparison shows some mercury concentrations in littoral surface water (at the 3 to 5-ft. or 1 to 1.5-meter water depth) are higher than mercury concentrations at the 7-ft. (2-meter) water depth at South Deep. The highest littoral zone surface water mercury concentrations were observed at SMU 1 in the area of the in-lake waste deposit.

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## TABLES

TABLE 1

**ONONDAGA LAKE BASELINE MONITORING PROGRAM OBJECTIVES,  
PROGRAM ELEMENTS, AND DATA USES RELEVANT TO BOOKS 1 AND 2 FOR 2010**

Program Objective	Program Element	Data Use (as Baseline for Remedy Effectiveness)
Establish baseline chemical and physical conditions	Sport and prey fish sampling	Provide basis to measure achievement of PRG2 (fish tissue target concentrations)
	Lake water sampling	Provide basis to measure achievement of PRG3 (surface water quality standards) Provide basis to measure success in controlling key processes (e.g., mercury methylation, sediment resuspension from the in-lake waste deposit, mercury release from profundal sediment)
Provide additional data for future understanding of remedy effectiveness in achieving PRGs	Other biota sampling <sup>a</sup>	Assess biological factors that may contribute to variability in fish mercury concentrations

Adapted from Table 1 of Baseline Monitoring Scoping Document (Parsons, Exponent, and QEA, 2010)

<sup>a</sup>Other than adult sport and prey fish (i.e zooplankton and benthic macroinvertebrates)

PRG - preliminary remediation goal

TABLE 2

SUMMARY OF ONONDAGA LAKE BASELINE MONITORING WORK COMPLETED DURING 2010  
AS BOOK 1 AND BOOK 2

WORK PLAN AND MEDIA	LOCATIONS	PRIMARY ACTIVITY (May through November)
<b>BOOK 1 Deep Basin Water and Zooplankton Monitoring</b>		
Surface Water	South Deep (3 to 5 water depths)	Collected and analyzed monthly, biweekly or weekly grab samples for multiple parameters, including total mercury and methylmercury.
	10 locations	Collected weekly rapid profiling measurements for nitrate, sulfide, and six other parameters.
Zooplankton	South Deep	Monthly to weekly sampling and analyses for total mercury and methylmercury.
Sediment Traps	South Deep	Monthly to biweekly sampling and analyses for total suspended solids, fixed and volatile suspended solids, particulate carbon, total and acidified calcium and total mercury.
<b>BOOK 2 Fish Monitoring</b>		
Adult Sport Fish	SMUs 2 through 7 (8 locations)	Collected and analyzed a total of 192 adult fish during June and early September from four fish species (51 brown bullhead, 50 walleye, 50 pumpkinseed, and 41 smallmouth bass). Assessed fish age, population, and community composition, including fish gut content.
Prey (forage) Fish	SMUs 2 through 7 (8 locations)	Collected and analyzed five composites of prey fish during August from each of the eight locations (40 composites). Assessed fish populations, fish community composition (including lake sturgeon) and fish gut content. Also tracked movements of tagged adult walleye using telemetry techniques.
<b>BOOK 2 Benthic Macroinvertebrate and Littoral Surface Water Monitoring</b>		
Benthic Macroinvertebrates	SMUs 1 through 7 (9 locations)	Collected during August and analyzed three representative types of benthic macroinvertebrates. Assessed community composition and abundance.
Sediment associated with benthic macroinvertebrates	SMUs 1 through 7 (9 locations)	Collected during August and analyzed samples from 0-2 cm and 2-15 cm depths for total mercury, methylmercury, and total organic carbon.
Littoral Zone Surface Water	Six fish sampling locations	Sampled at six fish sampling locations three times when surface water from SMU 8 was sampled. Sampling was conducted on August 16 prior to lake turnover and on October 27 and November 11, 2010 following lake turnover.

Notes:

(1) Fall turnover during 2010 occurred in Onondaga Lake during the week October 17.

(2) Additional baseline surface water monitoring work completed in Onondaga Lake during 2010 on behalf of Honeywell as part of the pre-design investigation has been reported separate from this baseline monitoring report.

**TABLE 3**  
**2010 ONONDAGA LAKE BOOK 1 SMU 8 WATER COLUMN WORK SUMMARY**

Date	Water column		Zooplankton South Deep (1)	Sediment Trap Analyses for Mercury South Deep (10- meter water depth)	Dissolved Gas Measurements
	South Deep	ISUS profiling 10 sites			
May 3	3 depths	◇	□	○ (3)	⊙
May 24	3 depths	◇	□	○	⊙
June 21	3 depths	◇	□	○	⊙
July 6	4 depths	◇	□	○	⊙
July 19	4 depths	◇	□	○	⊙ (4)
August 2	4 depths	◇	□	○	⊙
August 16	4 depths	◇	□	○	⊙
August 30	4 depths	◇	□	○	⊙
September 7	5 depths	◇	□	○	⊙
September 13	5 depths	◇	□	○	⊙
September 20	5 depths	◇	□	○	⊙
September 27	5 depths	◇	□	○	⊙
October 4	5 depths	◇	□	○	⊙
October 11	5 depths	◇	□	○	⊙
October 18	5 depths	◇	□	○	⊙
October 26	3 depths	◇	□	○	
November 11	3 depths	◇	(2)	○ (3)	⊙
November 29	3 depths	◇	□	○	

Notes:

- (1) Daphnia zooplankton were not observed at all during 2010.
- (2) Zooplankton were collected on November 11, however biomass could not be analyze due to quantity.
- (3) Sediment trap sample for mercury was collected on April 26 rather than May 3 and on November 10 rather than November 11.
- (4) Total dissolved gas was measured on July 12 rather than on July 19.

**TABLE 4**  
**2010 DISSOLVED MERCURY WATER**  
**CONCENTRATIONS: SOUTH DEEP**  
**AT 2-METER DEPTH**

Sample Date	DISSOLVED MERCURY ng/L (average of field duplicates)	Data Qualifier
5/3/2010	0.49	J
5/24/2010	0.97*	
6/21/2010	0.75*	
7/6/2010	0.90*	
7/19/2010	0.52	
8/2/2010	0.81*	
8/16/2010	0.55	
9/7/2010	1.07*	
9/13/2010	0.46	
9/20/2010	0.42	
9/27/2010	0.43	
10/4/2010	0.45	
10/11/2010	0.44	
10/18/2010	0.53	
10/26/2010	0.84*	
11/11/2010	0.62	
11/29/2010	0.37	J

\* Exceeds New York State surface water quality standard of 0.7 ng/L for class C/D waters based on human consumption of fish.

J - estimated value

TABLE 5

**MERCURY CONCENTRATIONS IN ZOOPLANKTON SAMPLES COLLECTED AT  
SOUTH DEEP DURING 2010**

Field Sample ID	Date	Total mercury (mg/kg wet weight)	Methylmercury (mg/kg wet weight)	Methylmercury (Percent of Total Mercury)
OL-1096-06	5/3/2010	0.025	0.0018	7.2%
OL-1096-07	5/3/2010	0.0307	0.0018	5.9%
OL-1100-06	5/24/2010	0.0149	0.0011	7.4%
OL-1105-06	6/21/2010	0.0412	0.0058	14%
OL-1108-07	7/6/2010	0.0422	0.0093	22%
OL-1111-07	7/19/2010	0.0696	0.0069	9.9%
OL-1111-08	7/19/2010	0.0715	0.0082	11%
OL-1114-07	8/2/2010	0.0697	0.0086	12%
OL-1117-07	8/16/2010	0.0677	0.0123	18%
OL-1120-07	8/30/2010	0.0422	0.0107	25%
OL-1122-08	9/7/2010	0.0508	0.0071	14%
OL-1124-08	9/13/2010	0.0536	0.0121	23%
OL-1128-08	9/20/2010	0.148	0.0229	15%
OL-1132-08	9/27/2010	0.0149	0.0035	23%
OL-1134-08	10/4/2010	0.0396	0.0096	24%
OL-1137-08	10/11/2010	0.0262	0.0074	28%
OL-1140-08	10/18/2010	0.0171	0.0025	15%
OL-1140-09	10/18/2010	0.0381	0.0054	14%
OL-1142-06	10/26/2010	0.094	0.0137	15%
OL-1148-06	11/29/2010	0.0324	0.0058	18%

TABLE 6

**2010 BOOK 1 SEDIMENT TRAP MERCURY AND CORRESPONDING TOTAL SUSPENDED SOLIDS (TSS) RESULTS**  
(traps set at 33 ft (10-meter) water depth)

Trap Deploy Date	Trap Recovery Date	Deployment Duration (days)	Sample Volume (mL)	Slurry Mercury Results (ng per mL)	Triplicate TSS Results (mg/L)	TSS Average (mg/L)	TSS Deposition (mg per m <sup>2</sup> per day)	Mercury Concentration (mg/kg)	Mercury Deposition (ug per m <sup>2</sup> per day)
4/19/10	4/26/10	7	142	1.7	1216 / 1056 / 1248	1160	5187	1.47	7.60
5/17/10	5/24/10	7	142	0.86	1300 / 1200 / 1248	1249	5587	0.69	3.85
6/14/10	6/21/10	7	162	0.7	1104 / 652 / 632	796	4061	0.88	3.57
6/28/10	7/6/10	8	146	2.25	3544 / 2180 / 2028	2584	10395	0.87	9.05
7/12/10	7/19/10	7	124	1.24	3048 / 3608 / 2708	3121	12188	0.40	4.84
7/26/10	8/2/10	7	146	1.36	1208 / 1008 / 892	1036	4763	1.31	6.25
8/9/10	8/16/10	7	162	0.55	460 / 588 / 628	559	2850	0.98	2.81
8/23/10	8/30/10	7	162	2.66	3752 / 4132 / 3836	3907	19930	0.68	13.57
8/30/10	9/7/10	8	142	0.88	2732 / 3148 / 3036	2972	11629	0.30	3.44
9/7/10	9/13/10	6	138	2.61	1184 / 2368 / 1728	1760	8923	1.48	13.23
9/13/10	9/20/10	7	145	2.8	1568 / 1604 / 1752	1641	7495	1.71	12.79
9/20/10	9/27/10	7	157	0.95	812 / 1044 / 860	905	4476	1.05	4.70
9/27/10	10/4/10	7	144	1.08	1608 / 1552 / 1748	1636	7419	0.66	4.90
10/4/10	10/11/10	7	132	3.69	3028 / 3428 / 3388	3281	13640	1.12	15.34
10/11/10	10/18/10	7	145	7.5	4648 / 5092 / 4200	4647	21218	1.61	34.25
10/18/10	10/26/10	8	140	5.09	3808 / 3856 / 3876	3847	14839	1.32	19.64
10/26/10	11/8/10	13	146	4.9	4932 / 4008 / 3980	4307	10662	1.14	12.13
11/8/10	11/29/10	21	145	14.7	42700 / 9680 / 10160	9920*	15099	1.48	22.37
Arithmetic Mean		-	-	-	-	-	10020	1.06	10.80

TSS is total suspended solids.

Mercury concentration = Slurry mercury result divided by TSS average times a units conversion of 1,000.

Calculations of mercury deposition include the surface area of the sediment traps (45 square centimeters).

\* The TSS result of 42,700 mg/L for November 8 has been determined to be an outlier and is not included when quantifying deposition rates.

**Table 7**  
**Summary of Book 2 2010 fish tissue chemical concentrations measured in Onondaga Lake (wet weight basis)**

Parameter	Prep	Species	Sample Size	Mean	Min	Max	Standard Deviation	Standard Error
Mercury (mg/kg)	whole body	Prey fish	40	0.26	0.050	0.80	0.17	0.026
	fillet	Brown bullhead	51	0.25	0.082	0.64	0.11	0.016
	fillet	Pumpkinseed	50	0.21	0.012	0.66	0.16	0.022
	fillet	Smallmouth bass	41	0.96	0.25	2.70	0.62	0.10
	fillet	Walleye	50	1.88	0.34	3.70	0.83	0.12
Total PCBs (mg/kg)	whole body	Prey fish	10	0.0049 U	0.0047 U	0.005 U	--	--
	fillet	Brown bullhead	12	0.034	0.005	0.068	0.026	0.0076
	fillet	Pumpkinseed	12	0.027 U	0.0048 U	0.05 U	--	--
	fillet	Smallmouth bass	12	0.030	0.0047	0.18	0.060	0.017
	fillet	Walleye	12	0.90	0.0047	5.77	1.71	0.49
Sum of DDT and metabolites (mg/kg)	whole body	Prey fish	10	0.0022	0.0019 U	0.004	0.0008	0.0001
	fillet	Brown bullhead	12	0.002 U	0.002 U	0.002 U	--	--
	fillet	Pumpkinseed	12	0.0022	0.0019 U	0.01	0.0010	0.0001
	fillet	Smallmouth bass	12	0.0027	0.0019 U	0.0085	0.0020	0.0002
	fillet	Walleye	12	0.022	0.0019 U	0.20	0.057	0.0047
Hexachlorobenzene (mg/kg)	whole body	Prey fish	10	0.0063	0.00095 U	0.048	0.015	0.0046
	fillet	Brown bullhead	12	0.0023	0.00095 U	0.014	0.0037	0.0011
	fillet	Pumpkinseed	11	0.0016	0.00095 U	0.0047	0.0013	0.0004
	fillet	Smallmouth bass	12	0.0010 U	0.00095 U	0.001 U	--	--
	fillet	Walleye	12	0.0069	0.00095 U	0.043	0.012	0.0036
Total Dioxin (ng/kg)	fillet	Brown bullhead	5	13.30	1.93	33.35	13.05	5.84
	fillet	Pumpkinseed	5	0.66	0.37 U	1.05	0.34	0.15
	fillet	Smallmouth bass	5	13.08	1.85	23.50	9.04	4.04
	fillet	Walleye	5	43.61	8.46	76.60	30.28	13.54
Total Furans (ng/kg)	fillet	Brown bullhead	5	13.00	2.11	31.25	11.30	5.06
	fillet	Pumpkinseed	5	1.29	0.47	2.84	1.04	0.46
	fillet	Smallmouth bass	5	13.31	1.01	30.07	11.71	5.24
	fillet	Walleye	5	57.05	11.68	120.43	41.21	18.43
Percent Lipid (% by weight)	whole body	Prey fish	10	1.15	0.53	3.90	0.99	0.20
	fillet	Brown bullhead	12	0.50	0.02	2.60	0.70	0.12
	fillet	Pumpkinseed	12	0.29	0.023	1.50	0.40	0.069
	fillet	Smallmouth bass	12	0.39	0.19	0.85	0.24	1.07
	fillet	Walleye	12	2.87	0.44	14.20	3.69	0.31



**TABLE 7A**  
**CALCULATED DIOXIN/FURAN HUMAN/MAMMALIAN TEQs IN 2010 BOOK 2 FISH TISSUE SAMPLES**

Location ID	Field Sample ID	Fish Type	Date Sampled	TEQ (full dl) (ng/kg)	TEQ (half dl) (ng/kg)	TEQ (ND=0) (ng/kg)
OL-STA-20158	OL-1305-01F	W	6/15/2010	5.56	3.55	1.55
OL-STA-20158	OL-1305-08F	BB	6/15/2010	3.14	1.89	0.64
OL-STA-20158	OL-1306-04F	PKSD	6/15/2010	1.31	0.72	0.14
OL-STA-20158	OL-1322-01F	SMB	7/1/2010	3.96	2.21	0.46
OL-STA-20158	OL-1322-04F	SMB	7/1/2010	4.58	2.79	0.99
OL-STA-20158	OL-1322-05F	SMB	7/1/2010	4.55	2.64	0.74
OL-STA-40212	OL-1311-08F	PKSD	6/16/2010	4.07	2.07	0.07
OL-STA-40212	OL-1311-18F	W	6/16/2010	2.93	1.80	0.67
OL-STA-50057	OL-1314-04F	BB	6/18/2010	3.21	1.64	0.06
OL-STA-50057	OL-1322-10F	SMB	7/1/2010	3.68	1.88	0.07
OL-STA-50057	OL-1322-12F	SMB	7/1/2010	3.73	1.89	0.05
OL-STA-50058	OL-1307-19F	W	6/15/2010	5.61	3.34	1.08
OL-STA-50058	OL-1312-01F	PKSD	6/16/2010	2.55	1.30	0.05
OL-STA-60225	OL-1305-19F	BB	6/15/2010	1.98	1.13	0.29
OL-STA-60225	OL-1306-09F	PKSD	6/15/2010	1.62	0.85	0.08
OL-STA-70124	OL-1306-15F	PKSD	6/15/2010	1.42	0.78	0.14
OL-STA-70124	OL-1307-01F	BB	6/15/2010	7.33	6.90	6.48
OL-STA-70124	OL-1307-02F	BB	6/15/2010	4.22	3.11	2.00
OL-STA-70124	OL-1307-13F	W	6/15/2010	1.53	0.89	0.25
OL-STA-70124	OL-1312-18F	W	6/16/2010	9.42	6.34	3.25

Notes:

dl - detection limit

TEQ - toxicity equivalent quotient calculated using human and mammalian toxic equivalency factors (TEFs) from Van den Berg et al. (2006)

Fish Types:

PKSD - pumpkinseed

BB - Brown Bullhead

SMB - Small mouth Bass

W - Walleye

TABLE 8

## SUMMARY OF FISH GUT CONTENTS IN ONONDAGA LAKE - 2010

Species/Taxa	Count			
	Largemouth bass (n=14)	Smallmouth bass (n=51)	White perch (n=52)	Yellow perch (n=74)
Amphipoda			49	56
Fish	3	10	5	7
Alewife	1	3		
Banded killifish	1	1		
Tessalated darter	1			
Yellow perch		1		
Unidentified		5		
Zygoptera			16	15
Trichoptera			4	2
Chironomidae			10	7
Lepidoptera				2
Oligochaeta				1
Plant matter			11	8
Isopoda			1	3
Zebra mussel			4	5
Gastropoda				1
Number Empty	11	41	3	17

Empty cells indicate species not found in gut contents.

N is the number of fish for which gut contents were assessed.

Count is the total number of individuals encountered in all fish samples.

TABLE 9

## SUMMARY OF SPECIES COLLECTED BY GEAR TYPE MAY - OCTOBER 2010

	Common Name	Scientific name	Trapnet	Gillnet	Electroshocker	Seining
1	Alewife	<i>Alosa pseudoharengus</i>	X	X		X
2	Banded killifish	<i>Fundulus diaphanus</i>	X			X
3	Black crappie	<i>Pomoxis nigromaculatus</i>	X			X
4	Bluegill	<i>Lepomis macrochirus</i>	X		X	X
5	Bluntnose minnow	<i>Pimephales notatus</i>	X			X
6	Bowfin	<i>Amia calva</i>	X	X		
7	Brook silverside	<i>Labidesthes sicculus</i>				X
8	Brook stickleback	<i>Culaea inconstans</i>	X			
9	Brown bullhead	<i>Ameiurus nebulosus</i>	X	X		X
10	Brown trout	<i>Salmo trutta</i>	X	X	X	X
11	Central mudminnow	<i>Umbra limi</i>				X
12	Channel catfish	<i>Ictalurus punctatus</i>	X	X		
13	Common carp	<i>Cyprinus carpio</i>	X	X		X
14	Common shiner	<i>Luxilus cornutus</i>	X			
15	Emerald shiner	<i>Notropis atherinoides</i>	X			X
16	Fathead minnow	<i>Pimephales promelas</i>	X			
17	Freshwater drum	<i>Aplodinotus grunniens</i>	X	X		
18	Gizzard shad	<i>Dorosoma cepedianum</i>	X	X		
19	Golden shiner	<i>Notemigonus crysoleucas</i>	X			X
20	Goldfish	<i>Carassius auratus</i>	X		X	
21	Green sunfish	<i>Lepomis cyanellus</i>	X		X	
22	Lake sturgeon	<i>Acipenser fulvescens</i>		X		
23	Largemouth bass	<i>Micropterus salmoides</i>	X	X	X	X
24	Longnose gar	<i>Lepisosteus osseus</i>	X	X		
25	Northern pike	<i>Esox lucius</i>	X	X		
26	Pumpkinseed	<i>Lepomis gibbosus</i>	X		X	X
27	Quillback	<i>Carpoides cyprinus</i>		X		
28	Rainbow trout	<i>Oncorhynchus mykiss</i>	X			
29	Rock bass	<i>Ambloplites rupestris</i>	X			X
30	Round goby	<i>Neogobius melanostomus</i>				X
31	Rudd	<i>Scardinius erythrophthalmus</i>	X			
32	Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	X	X		
33	Silver redhorse	<i>Moxostoma anisurum</i>	X	X		
34	Smallmouth bass	<i>Micropterus dolomieu</i>	X	X	X	X
35	Spottail shiner	<i>Notropis hudsonius</i>	X			
36	Tadpole madtom	<i>Noturus gyrinus</i>	X			X
37	Tessellated darter	<i>Etheostoma olmstedii</i>	X			X
38	Walleye	<i>Sander vitreus</i>	X	X	X	
39	White perch	<i>Morone americana</i>	X	X		X
40	White sucker	<i>Catostomus commersoni</i>	X	X		X
41	Yellow bullhead	<i>Ameiurus natalis</i>	X			
42	Yellow perch	<i>Perca flavescens</i>	X			X
Total			37	19	8	22

**TABLE 10**  
**SUMMARY OF NUMBER OF INDIVIDUALS PER SPECIES CAPTURED IN TRAP NETS MAY-OCTOBER 2010**

		Station Description (Station Identifier: OL-STA)										Total Fish Captured
Common Name	Scientific Name	Metro (70124)	Harbor Brook (70124)	Rt 690 Pt (20158)	Wastebeds (30093)	Ninemile (40212)	Permanent Habitat Module (50057)	Maple Bay (50057)	Willow Bay (50057)	Marina (50058)	Iron Bridge (50059)	
Alewife	<i>Alosa pseudoharengus</i>	721	295	33	38	6			17	105	98	1313
Banded killifish	<i>Fundulus diaphanus</i>	162	36	3	19	16	3	7	2	52	23	323
Black crappie	<i>Pomoxis nigromaculatus</i>	1	1	2		5	5	23	6	5	1	49
Bluegill	<i>Lepomis macrochirus</i>	137	151	129	14	127	152	63	143	116	239	1271
Bluegill (yoy)	<i>Lepomis macrochirus</i>							30				30
Bluntnose minnow	<i>Pimephales notatus</i>	1	2				1					4
Bowfin	<i>Amia calva</i>	7	11	5	6	9	4	3	13	2	1	61
Brook stickleback	<i>Culaea inconstans</i>	2										2
Brown bullhead	<i>Ameiurus nebulosus</i>	51	73	104	11	32	28	6	23	31	14	373
Brown trout	<i>Salmo trutta</i>									1		1
Channel catfish	<i>Ictalurus punctatus</i>	2	13		1	2	3	1		5	1	28
Common carp	<i>Cyprinus carpio</i>	5	9	13		10	4	10	8	11	4	74
Common shiner	<i>Luxilus cornutus</i>	3							1			4
Emerald shiner	<i>Notropis atherinoides</i>	5	5				1	1	1			13
Fathead minnow	<i>Pimephales promelas</i>										1	1
Freshwater drum	<i>Aplodinotus grunniens</i>		2	1	4		1	1				9
Gizzard shad	<i>Dorosoma cepedianum</i>	14	1	2	2	1	16	1	1	3	1	42
Golden shiner	<i>Notemigonus crysoleucas</i>	187	19	11	13	4	11	21	35	26	60	387
Goldfish	<i>Carassius auratus</i>		1	1								2
Green sunfish	<i>Lepomis cyanellus</i>								1	1		2
Largemouth bass	<i>Micropterus salmoides</i>	140	57	52	2	16	17	26	48	52	53	463
Longnose gar	<i>Lepisosteus osseus</i>		3			1			1			5
Northern pike	<i>Esox lucius</i>								1			1
Pumpkinseed	<i>Lepomis gibbosus</i>	107	56	124	11	68	83	71	205	136	108	969
Pumpkinseed (yoy)	<i>Lepomis gibbosus</i>			1								1
Rainbow trout	<i>Oncorhynchus mykiss</i>	1	1									2
Rockbass	<i>Ambloplites rupestris</i>	4	2	4	4	9	5	9	10	13	13	73
Rudd	<i>Scardinius erythrophthalmus</i>	12	5	3	1					1	5	27
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>		6									6
Silver redhorse	<i>Moxostoma anisurum</i>					1						1
Smallmouth bass	<i>Micropterus dolomieu</i>	1	1		2		2		3	8		17
Spottail shiner	<i>Notropis hudsonius</i>	1										1
Tadpole madtom	<i>Noturus gyrinus</i>								1			1
Tessellated darter	<i>Etheostoma olmstedii</i>					1						1
Walleye	<i>Sander vitreus</i>	1				1						2
White perch	<i>Morone americana</i>	67	18	9	21	5	1	12	19	18	37	207
White sucker	<i>Catostomus commersoni</i>	27	21	8	1	2	4	4	5	3	16	91
Yellow bullhead	<i>Ameiurus natalis</i>	1				2	7	3	10	11	3	37
Yellow perch	<i>Perca flavescens</i>	1	7	40	1	38	11	9	70	18	45	240
<b>Total Fish Captured</b>		<b>1661</b>	<b>796</b>	<b>545</b>	<b>151</b>	<b>356</b>	<b>359</b>	<b>301</b>	<b>624</b>	<b>618</b>	<b>723</b>	<b>6134</b>
<b>Species Richness</b>		<b>26</b>	<b>25</b>	<b>18</b>	<b>17</b>	<b>21</b>	<b>20</b>	<b>18</b>	<b>23</b>	<b>21</b>	<b>19</b>	<b>37</b>

**TABLE 11**  
**2010 GILL NET SAMPLING LOCATIONS IN ONONDAGA LAKE**

Location Name	Sampling Date	Set Time	End Time	Water Depth Shallow (m)	Water Depth Deep (m)	Number Times Sampled
METRO (OL-STA-70124)	6/15/2010	11:30:00 PM	1:00:00 AM	32	34	1
Harbor Brook (OL-STA-70124)	5/27/2010	8:59:00 PM	11:20:00 PM	4.4	5.1	6
	6/14/2010	12:15:00 AM	1:20:00 AM	2.8	4.5	
	7/20/2010	9:00:00 PM	10:00:00 PM	4.8	5.6	
	8/12/2010	10:44:00 PM	11:44:00 PM	4.8	6.1	
	9/28/2010	8:40:00 PM	9:40:00 PM	4.8	5.5	
	10/13/2010	10:35:00 PM	11:35:00 PM	4.8	5.3	
690 Pt (OL-STA-20158)	5/26/2010	9:07:00 PM	10:06:00 PM	2.6	6.9	6
	6/21/2010	8:22:00 PM	9:45:00 PM	7	25.4	
	7/20/2010	9:20:00 PM	10:25:00 PM	4	6.9	
	8/10/2010	8:51:00 PM	9:47:00 PM	3.6	7.3	
	9/28/2010	9:10:00 PM	10:10:00 PM	3.2	7.2	
	10/12/2010	10:35:00 PM	11:35:00 PM	3	6.6	
Causeway (OL-STA-20158)	5/27/2010	11:18:00 PM	11:18:00 PM	3.5	8	6
	6/14/2010	11:20:00 PM	12:25:00 PM	3.2	6.2	
	7/19/2010	9:43:00 PM	11:02:00 PM	3.9	8.9	
	8/12/2010	9:03:00 PM	10:16:00 PM	4.3	9	
	9/28/2010	7:45:00 PM	8:45:00 PM	4	7	
	10/13/2010	9:53:00 PM	10:53:00 PM	3.9	7.1	
Wastebeds 1-8 (OL-STA-30093)	5/26/2010	9:47:00 PM	11:07:00 PM	3	8	6
	6/14/2010	9:45:00 PM	10:45:00 AM	1.5	7.2	
	7/20/2010	10:20:00 PM	11:20:00 PM	3	7.6	
	8/12/2010	8:41:00 PM	9:41:00 PM	4	8	
	9/28/2010	9:55:00 PM	10:55:00 PM	3	8.1	
	10/12/2010	10:05:00 PM	11:05:00 PM	4.1	8	
Ninemile Creek Outlet (OL-STA-40212)	5/26/2010	8:34:00 PM	9:35:00 PM	5	8.8	6
	6/15/2010	9:30:00 PM	10:30:00 PM	4	8.4	
	7/20/2010	11:00:00 PM	12:00:00 AM	5	8.5	
	8/8/2010	10:33:00 PM	11:33:00 PM	5.8	8.5	
	9/27/2010	7:30:00 PM	8:30:00 PM	5.5	8.5	
	10/13/2010	9:10:00 PM	10:10:00 PM	4.3	8.9	
Permanent Habitat Module (PHM) (OL-STA-5--57)	5/25/2010	10:20:00 PM	11:20:00 PM	3.9	7.8	6
	6/15/2010	10:25:00 PM	11:45:00 PM	5	8.2	
	7/21/2010	8:57:00 PM	9:57:00 PM	2	8.2	
	8/8/2010	9:05:00 PM	10:06:00 PM	4	8.8	
	9/27/2010	7:55:00 PM	8:55:00 PM	4.2	8.2	
	10/13/2010	7:47:00 PM	8:47:00 PM	3.9	9	
Lake Outlet (OL-STA-50057)	5/25/2010	11:05:00 PM	12:05:00 PM			6
	6/21/2010	10:35:00 PM	11:35:00 PM	12.7	22.5	
	7/21/2010	9:22:00 PM	10:45:00 PM	4.2	6.9	
	8/8/2010	8:38:00 PM	9:38:00 PM	4	6.5	
	9/27/2010	9:57:00 PM	10:57:00 PM	3.7	6.5	
	10/13/2010	7:12:00 PM	8:12:00 PM	3.8	6.8	
Hiawatha Pt (OL-STA-50057)	5/24/2010	9:50:00 PM	11:14:00 PM	2.8	9.5	6
	6/21/2010	11:05:00 PM	12:05:00 PM	9	35.4	
	7/21/2010	10:39:00 PM	11:34:00 PM	5	10.2	
	8/8/2010	10:02:00 PM	11:03:00 PM	2.4	10.2	
	9/27/2010	9:00:00 PM	10:00:00 PM	4	10.2	
	10/13/2010	8:35:00 PM	9:35:00 PM	4	9.1	
Marina (OL-STA-50058)	5/25/2010	9:20:00 PM	10:25:00 PM	4.8	7	6
	6/14/2010	10:10:00 PM	11:25:00 PM	3.2	9.2	
	7/19/2010	9:10:00 PM	10:12:00 PM	3.2	9.5	
	8/8/2010	11:28:00 PM	12:28:00 PM	5	10.2	
	9/27/2010	10:25:00 PM	11:04:00 PM	4	10	
	10/12/2010	8:40:00 PM	9:40:00 PM	3.8	5.3	
Iron Bridge (OL-STA-50059)	5/27/2010	8:46:00 PM	9:46:00 PM	2.5	9	6
	6/21/2010	7:40:00 PM	8:40:00 PM	13	30	
	7/19/2010	10:57:00 PM	11:57:00 PM	4.9	9.5	
	8/12/2010	10:11:00 PM	11:11:00 PM	4.2	10.1	
	9/28/2010	7:20:00 PM	8:20:00 PM	3.2	9.2	
	10/12/2010	9:00:00 PM	10:01:00 PM	3.2	9.3	
Ley Creek Outlet (OL-STA-60225)	6/15/2010	12:45:00 PM	1:45:00 PM	20	24	1
Total Number of Gill Net Sets						62

Blank cells indicate data were not recorded for the sampling event.

TABLE 12  
SUMMARY OF NUMBER OF INDIVIDUALS PER SPECIES CAPTURED IN GILL NETS MAY-OCTOBER 2010

Common Name	Scientific Name	Station Description (Station Identifier: OL-STA)												Total Fish Captured
		Metro (70124)	Harbor Brook (70124)	Rt 690 Pt (20158)	Causeway (20158)	Wastebeds 1-8 (30093)	Nine Mile (40212)	Permanent Habitat Module (50057)	Outlet (50057)	Hiawatha (50057)	Marina (50058)	Iron Bridge (50059)	Ley Creek (60225)	
Alewife	<i>Alosa pseudoharengus</i>			1										1
Bowfin	<i>Amia calva</i>				1									1
Brown bullhead	<i>Ameiurus nebulosus</i>				1									1
Brown trout	<i>Salmo trutta</i>					3	4	3				1		12
Common carp	<i>Cyprinus carpio</i>			4	5	1	1	1	4	5	3			24
Channel catfish	<i>Ictalurus punctatus</i>	6	7	11	19	15	2	10	4	6	6	19		105
Freshwater drum	<i>Aplodinotus grunniens</i>		1	10	11	3		2	1	3		5		36
Gizzard shad	<i>Dorosoma cepedianum</i>	1	3	13	3	13	1	8	19	1	2	9		73
Lake sturgeon	<i>Acipenser fulvescens</i>			1		1								2
Largemouth bass	<i>Micropterus salmoides</i>				1			1	1					3
Longnose gar	<i>Lepisosteus osseus</i>						1				1			2
Northern pike	<i>Esox lucius</i>			1								1		2
Quillback	<i>Carpoides cyprinus</i>		2		1									3
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>			13	1	5	1	2	1		1	4		28
Smallmouth bass	<i>Micropterus dolomieu</i>				3	1			2			3		9
Silver redhorse	<i>Moxostoma anisurum</i>			1		1			3		2	1		8
Walleye	<i>Sander vitreus</i>	1	3	30	39	17	7	14	23	12	27	43		216
White perch	<i>Morone americana</i>			1	1						1			3
White sucker	<i>Catostomus commersoni</i>	3		2	11	6		2	2	3	2	5		36
Total Species Count		11	16	88	97	66	19	43	60	30	45	92	0	568
Species Richness		4	5	12	13	11	7	9	10	6	9	10	0	19

**TABLE 13**  
**LAKE STURGEON CATCH AND TAG INFORMATION - 2010**

Location Name	Sampling Date	Coordinates	Total Length (mm)	Weight (kg)	Carlin Tag Number	USGS tag number
690 Point	7/20/2010	430451 N 761234 W	1530			
Marina	9/27/2010	430515 N 761232 W	1340		0	
Wastebeds 1-8	9/27/2010	430515 N 761310 W	1341		1	
Wastebeds 1-8	9/28/2010	430521 N 761320 W	1383		2	1187
Iron Bridge	10/4/2010	430524 N 761139 W	1055	8.89	3	
Hiawatha Point	10/4/2010	430310 N 761259 W	1434	22.07	4	
Wastebeds	10/4/2010	430515 N 761310 W	1304	13.71	6	
Hiawatha Point	10/5/2010	430310 N 761259 W	1400	24.92	5	
Lake Outlet	10/13/2010	430651 N 761425 W	1141	10.85	7	
Lake Outlet	10/27/2010	430651 N 761425 W	1402	19.5	8	
Lake Outlet	10/28/2010	430651 N 761425 W	1572		9	

Notes: Sturgeon caught at the 690 Point location were captured during gill netting for fish community analysis and therefore were not tagged. Weights were not recorded for all sturgeon

**TABLE 14**  
**SUMMARY OF NUMBER OF INDIVIDUALS PER SPECIES CAPTURED BY SEINING - AUGUST 2010**

Common Name	Scientific Name	Metro (70124)	Rt 690 Pt (20158)	Wastebeds 1-8 (30093)	Ninemile Creek Outlet (40212)	Permanent Habitat Module (50057)	Maple Bay (50057)	Willow Bay (50057)	Marina (50058)	Iron Bridge (50059)	Total Fish Captured
Alewife	<i>Alosa pseudoharengus</i>		7								7
Banded killifish	<i>Fundulus diaphanus</i>	71	232	2581	623	41	57	143	1244	893	5885
Black crappie	<i>Pomoxis nigromaculatus</i>							1			1
Bluegill	<i>Lepomis macrochirus</i>	6				4	12	6			28
Bluegill (YOY)	<i>Lepomis macrochirus</i>						11	29			40
Bluntnose minnow	<i>Pimephales notatus</i>	5									5
Brook silverside	<i>Labidesthes sicculus</i>					4					4
Brown bullhead	<i>Ameiurus nebulosus</i>	1		1		5	2		2		11
Brown trout	<i>Salmo trutta</i>									1	1
Central mudminnow	<i>Umbra limi</i>							1			1
Common carp	<i>Cyprinus carpio</i>		3	2						1	6
Emerald shiner	<i>Notropis atherinoides</i>			1							1
Golden shiner	<i>Notemigonus crysoleucas</i>					3					3
Largemouth bass	<i>Micropterus salmoides</i>	52	45	6	46	76	32	336	50	38	681
Pumpkinseed	<i>Lepomis gibbosus</i>	20	10			43	8	21		2	104
Pumpkinseed (YOY)	<i>Lepomis gibbosus</i>							7			7
Rockbass	<i>Ambloplites rupestris</i>	2			1			3			6
Round goby	<i>Neogobius melanostomus</i>	1									1
Smallmouth bass	<i>Micropterus dolomieu</i>									1	1
Tadpole madtom	<i>Noturus gyrinus</i>	7					1	3			11
Tessellated darter	<i>Etheostoma olmstedii</i>			13	6	16	29	8	98		170
Unidentified sunfish	<i>Lepomis spp.</i>							1			1
White perch	<i>Morone americana</i>		2								2
White sucker	<i>Catostomus commersoni</i>	1						2			3
Yellow perch	<i>Perca flavescens</i>		2							8	10
<b>Total Fish Captured</b>		<b>165</b>	<b>297</b>	<b>2604</b>	<b>676</b>	<b>192</b>	<b>152</b>	<b>558</b>	<b>1394</b>	<b>936</b>	<b>6974</b>
<b>Species Richness</b>		<b>10</b>	<b>7</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>7</b>	<b>11</b>	<b>4</b>	<b>7</b>	<b>23</b>



**TABLE 15**  
**FISH TAG INFORMATION FOR SONIC TELEMTRY**

Tag Date	Fish ID	Species	Total Length (mm)	Catch location	Dead or alive (November)
5/24/2010	62	walleye	580	Hiawatha	Dead
5/24/2010	63	walleye	465	Wastebeds 1-8	
5/24/2010	64	walleye	527	Hiawatha	
5/25/2010	65	walleye	501	Iron Bridge	
5/24/2010	66	walleye	546	Wastebeds 1-8	
5/25/2010	68	walleye	507	PHM	
5/25/2010	69	walleye	644	Iron Bridge	
5/24/2010	70	walleye	534	Wastebeds 1-8	
5/25/2010	71	walleye	622	Marina	
5/25/2010	77	walleye	523	PHM	Dead
5/24/2010	78	walleye	540	Hiawatha	
5/25/2010	79	walleye	573	Marina	Dead
5/25/2010	81	walleye	556	Iron Bridge	
7/19/2010	97	walleye	520	Marina	Dead
7/19/2010	103	walleye	579	Marina	
7/19/2010	105	walleye	548	Marina	Dead
10/14/2010	119	walleye	510	:Lake Outlet	
10/14/2010	132	smallmouth bass	442	Lake Outlet	
10/14/2010	143	smallmouth bass	489	Lake Outlet	

**TABLE 16**  
**TAG DETECTIONS AND LOCATION DURING 8-H SONIC TELEMETRY SURVEYS MAY-NOVEMBER, 2010**

Fish ID	62	63	64	65	66	68	69	70	71	77	78	79	81	97	103	105	119	132	143	Total
Date/species	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	WAE	SMB	SMB	
5/27/2010		2	6	5			5	5		8		8								7
6/10/2010	8	8	8	8	8	5		8	8	8	5	8	1							12
7/9/2010	8	8	5	5	8	5		5	8	8	5	D	8							11
7/26/2010		5	8	5	8	8				8	5	D	8			8				9
8/3/2010	D	8	8	8	8	8					8	D	8	D	8	D				8
8/19/2010	D	8	4	8	8	8		8	8	8	8	D	8	D	8	D				11
9/1/2010	D	5	8	5	8			8	8	8		D		D	8	D				8
9/14/2010	D	8	8	8	8			8	8			D	8	D		D				7
10/1/2010	D	8		8	8			8	8	D		D		D		D				5
10/13/2010	D			8	8			8	8	D	8	D		D		D				5
10/26/2010	D	8	8		8			8	8	D		D	5	D		D	8			7
11/10/2010	D	8	8		8			8	8	D		D		D		D	8	8	5	8
<b>Total number of times located</b>	<b>2</b>	<b>11</b>	<b>10</b>	<b>10</b>	<b>11</b>	<b>5</b>	<b>1</b>	<b>10</b>	<b>9</b>	<b>6</b>	<b>6</b>	<b>2</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	

Number = SMU fish found in, D = dead.

WAE = Walleye; SMB = Smallmouth bass

blanks indicate fish not detected during survey

**TABLE 17**  
**NUMBER OF PASSIVE RECEIVER DETECTIONS WITHIN THE ONONDAGA LAKE OUTLET**

Date	Fish ID (see Table 15)															Total
	63	64	65	66	68	70	77	78	81	97	103	105	119	132	143	
8/24/2010					19			8								27
8/25/2010					112		1									113
8/26/2010					12							1				13
8/27/2010					4											4
8/28/2010					1											1
8/31/2010					2											2
9/12/2010								13								13
9/13/2010					8											8
9/15/2010				1												1
9/17/2010					3											3
9/19/2010					17											17
9/20/2010																0
9/22/2010				1												1
9/29/2010										1						1
9/30/2010									1							1
10/1/2010									1							1
10/2/2010	7								4							11
10/3/2010	2				8				1							11
10/4/2010	7					57			2							66
10/5/2010	12					39										51
10/6/2010	2															2
10/7/2010	4															4
10/8/2010		8														8
10/9/2010	13	22							10							45
10/14/2010	4								13							17
10/15/2010																0
10/16/2010														10	250	260
10/17/2010															211	211
10/18/2010	19		8													27
10/19/2010		13														13
10/20/2010						33										33
10/21/2010						24		13					16			53
10/22/2010		15						23					9			47
10/23/2010								41	3							44
10/24/2010								19							9	28
10/25/2010								8							37	45
10/26/2010	6							17							113	136
10/27/2010															35	35
10/28/2010								13							57	70
10/29/2010								20					12		27	59
10/30/2010		1						29					14		88	132
10/31/2010		44						21						15	9	89
11/1/2010	7	8						34	9						10	68
11/2/2010		23						25	2						14	64
11/3/2010								15							4	19
11/4/2010															5	5
11/5/2010		22						27								49
11/6/2010		35				3									7	45
11/7/2010						35									22	57
11/8/2010									7				11		34	52
11/9/2010													11		26	37
11/11/2010															33	33
11/12/2010															51	51
11/13/2010								14								14
11/14/2010													13		320	333
11/15/2010															433	433
11/16/2010															146	146
11/17/2010											15				79	94
11/18/2010											26				163	189
11/19/2010								71			19				363	453
11/20/2010								33								33
11/21/2010	28										33		16			77
11/22/2010											9				82	91
11/23/2010															13	13
11/24/2010				12												12
Number of detections	111	191	8	14	186	191	1	444	53	1	102	1	102	25	2641	4071

**TABLE 18**  
**TEMPERATURE AND DEPTH OF WATER WHERE FISH WERE LOCATED DURING 24-HOUR SONIC TELEMETRY TRACKING**

Date	Average temperature °C of fish	Maximum temperature °C of fish	Minimum temperature °C of fish	Average water depth (m) at fish location	Maximum water depth (m) at fish location	Minimum water depth (m) at fish location
6/3/2010	20.9	22.5	16.5	11.8	19.5	1.9
6/16/2010	18.7	20.5	16.5	8.8	14.4	0.8
7/1/2010	20.2	21.5	18	2.5	4.8	0.4
7/13/2010	24	26	20.5	9.1	18.9	1.5
7/28/2010	24.4	25.5	23	9.4	18.1	2.5
8/10/2010	23.5	24.5	22	9	17.3	1.5
8/24/2010	20.7	23	18	13.3	18.6	3.3
9/10/2010	18.8	19.5	18	15.8	20.1	6.5
9/22/2010	16.6	17.5	10	10.4	18.3	5.1
10/4/2010	15.5	16.5	13.5	11.7	19.2	3.5
10/18/2010	13.2	14.5	12	12.5	19.2	2.9
11/2/2010	10.4	11	10	14.3	16.3	13.4

NOTES:

1. Water depths indicate the depth of water and not the depth of the fish.
2. Walleye that were tagged were tracked for 24 continuous hours numerous times during 2010 (Figures 14a through 14l). In addition, one smallmouth bass was tracked for 12 continuous hours on November 2, 2010 (Figure 14m).

**TABLE 19**  
**BENTHIC MACROINVERTEBRATE AND CRAYFISH TISSUE MERCURY CHEMICAL CONCENTRATIONS MEASURED IN ONONDAGA LAKE - AUGUST 2010 (wet weight basis)**

Location (OL-STA-)	Amphipod		Chironomid		Zebra Mussel		Crayfish	
	Total Hg (mg/kg)	Me Hg (mg/kg)	Total Hg (mg/kg)	Me Hg (mg/kg)	Total Hg (mg/kg)	Me Hg (mg/kg)	Total Hg (mg/kg)	Me Hg (mg/kg)
OL-STA-10161	0.256	0.174	0.127	0.036	0.118	0.076	0.196 J 0.216 J	0.118 0.44* J
OL-STA-20160	0.004	0.003	0.004	0.001 J	0.011	0.003		
OL-STA-30095	0.050	0.048	0.006 J	0.002 J	0.042	0.032		
OL-STA-40124	0.014	0.009	0.042 J	0.002 J	0.028	0.016		
OL-STA-50060	0.050 J	0.051 J	0.048 J	0.003 J				
OL-STA-50062	0.034 J	0.034 J	0.014 J	0.018	0.042	0.038		
OL-STA-50063					0.015	0.004		
OL-STA-50064	0.035	0.034	0.012	0.006				
OL-STA-60226	0.009	0.005	0.009	0.001 J				
OL-STA-70125	0.044	0.028	0.048	0.002 J			0.153 J	0.114

Note: Blank cells indicate a sample was not collected from that location.

\* For one of the crayfish collected from location OL-STA-10161, the methylmercury concentration was reported to be about two times the total mercury concentration. The laboratory then checked their documentation and could not identify any basis for revising their analytical report.

**TABLE 20**  
**SUMMARY OF BENTHIC MACROINVERTEBRATE METRICS FROM ONONDAGA LAKE IN 2010**

	Mean Index Value						Mean NYSDEC Water Quality Impact Value						
Location	Total number of individuals	Spp Richness	HBI score	Shannon Diversity	DOM3	PMA	Spp Richness	HBI score	Shannon Diversity	DOM3	PMA	WQ Index Mean	Level of Impact
10161	176	9.33	8.53	1.75	71.81	50.58	2.15	3.68	1.26	5.53	4.12	3.35	Moderate
20160	300	17.00	8.53	1.91	69.00	56.67	6.27	3.68	2.05	6.00	5.33	4.67	Moderate
30095	300	12.33	8.83	1.42	76.67	50.67	3.75	2.92	0.89	4.69	4.13	3.28	Moderate
40124	300	11.00	8.41	1.91	67.33	53.00	2.98	3.98	2.03	6.28	4.60	3.97	Moderate
50060	300	12.67	8.13	1.72	75.33	43.33	3.93	4.67	1.46	4.94	2.67	3.53	Moderate
50062	276	15.67	7.82	2.16	60.30	48.02	5.76	5.45	3.29	7.45	3.60	5.11	Slight
50064	149	9.67	8.32	1.66	75.61	52.75	2.42	4.20	0.85	4.90	4.55	3.38	Moderate
60226	241	11.00	8.18	1.82	69.47	54.36	3.05	4.54	1.62	5.92	4.87	4.00	Moderate
70125	300	15.67	8.62	1.92	71.33	51.00	5.48	3.45	2.66	5.53	4.40	4.30	Moderate

Mean based on 3 replicates per station

HBI - Hilsonhoff Biotic Index

DOM3 - Percent contribution of the three most numerous species

PMA - Percent Model Affinity

**TABLE 21**  
**2010 MERCURY AND TOC CONCENTRATIONS IN LITTORAL SEDIMENT AT**  
**ONONDAGA LAKE MACROINVERTEBRATE SAMPLING LOCATIONS (dry weight basis)**

Location ID	Date Sampled	0-2 cm sediment depth			2-15 cm sediment depth		
		Total Mercury (mg/kg dry)	Methyl Mercury (mg/kg dry)	TOC (mg/kg dry)	Total Mercury (mg/kg dry)	Methyl Mercury (mg/kg dry)	TOC (mg/kg dry)
OL-STA-10161	8/2/2010	7.300	0.00914	16000 J	10.600	0.00312 J	15500 J
OL-STA-20160	8/3/2010	0.510 J	0.00313 J	30200 J	0.530 J	0.00187	19100 J
OL-STA-30095	8/4/2010	0.140	0.00097	11300 J	0.048	0.00007	4480 J
OL-STA-40124	8/4/2010	0.830 J	0.00134 J	21100 J	0.37 (0.24)	0.00007 (0.00033)	11900 (11200) J
OL-STA-50060	8/5/2010	1.600 J	0.00336	11300 J	1.000	0.00030	8490 J
OL-STA-50061	8/10/2010	0.470	0.00037 J	11900 J	0.084 (0.12)	0.00008 (0.00008)	6750 (7280) J
OL-STA-50062	8/5/2010	0.410	0.00078	13200 J	0.120	0.00017	8540 J
OL-STA-50063	8/10/2010	0.086	0.00038	8790 J	0.017 U	0.00003 J	4770 J
OL-STA-50064	8/6/2010	0.120	0.00052	9620 J	0.130	0.00013	8150 J
OL-STA-60226	8/3/2010	0.980	0.00026	24200 J	0.580	0.00020	24700 J
OL-STA-70125	8/2/2010	7.600	0.00473	48900 J	7.000	0.00686	47200 J

Field blank values provided in parentheses

TABLE 22

**2010 TOTAL MERCURY AND METHYLMERCURY  
CONCENTRATIONS IN UNFILTERED SURFACE WATER AT  
LITTORAL AND SOUTH DEEP SAMPLING LOCATIONS**

<b>2010 Date</b>	<b>Location ID</b>	<b>Total Hg ng/L</b>	<b>Methyl Hg ng/L</b>
August 16	OL-STA-10161	18	0.231
	OL-STA-20160	3.39	0.149
	OL-STA-30095	2.4	0.225
	OL-STA-40124	3.53/3.76	0.148/0.164
	OL-STA-50062	2.5	0.237
	OL-STA-60226	7.79	0.103
	South Deep (2 m)	2.71/2.88	0.129/0.183
October 27	OL-STA-10161	13.3 J	0.132
	OL-STA-20160	6.38 J	0.086
	OL-STA-30095	2.95 J	0.098
	OL-STA-40124	2.38 J	0.133
	OL-STA-50062	2.66 J	0.159
	OL-STA-60226	5.46 J	0.099
	South Deep (2 m)*	3.26/3.79	0.093/0.094
November 11	OL-STA-10161	6.51	0.079
	OL-STA-20160	1.93	0.064
	OL-STA-30095	1.57	0.048
	OL-STA-40124	1.08/1.47	0.051/0.053
	OL-STA-50062	1.49	0.056
	OL-STA-60226	3.24	0.074
	South Deep (2 m)	4.64/4.72	0.087/0.080

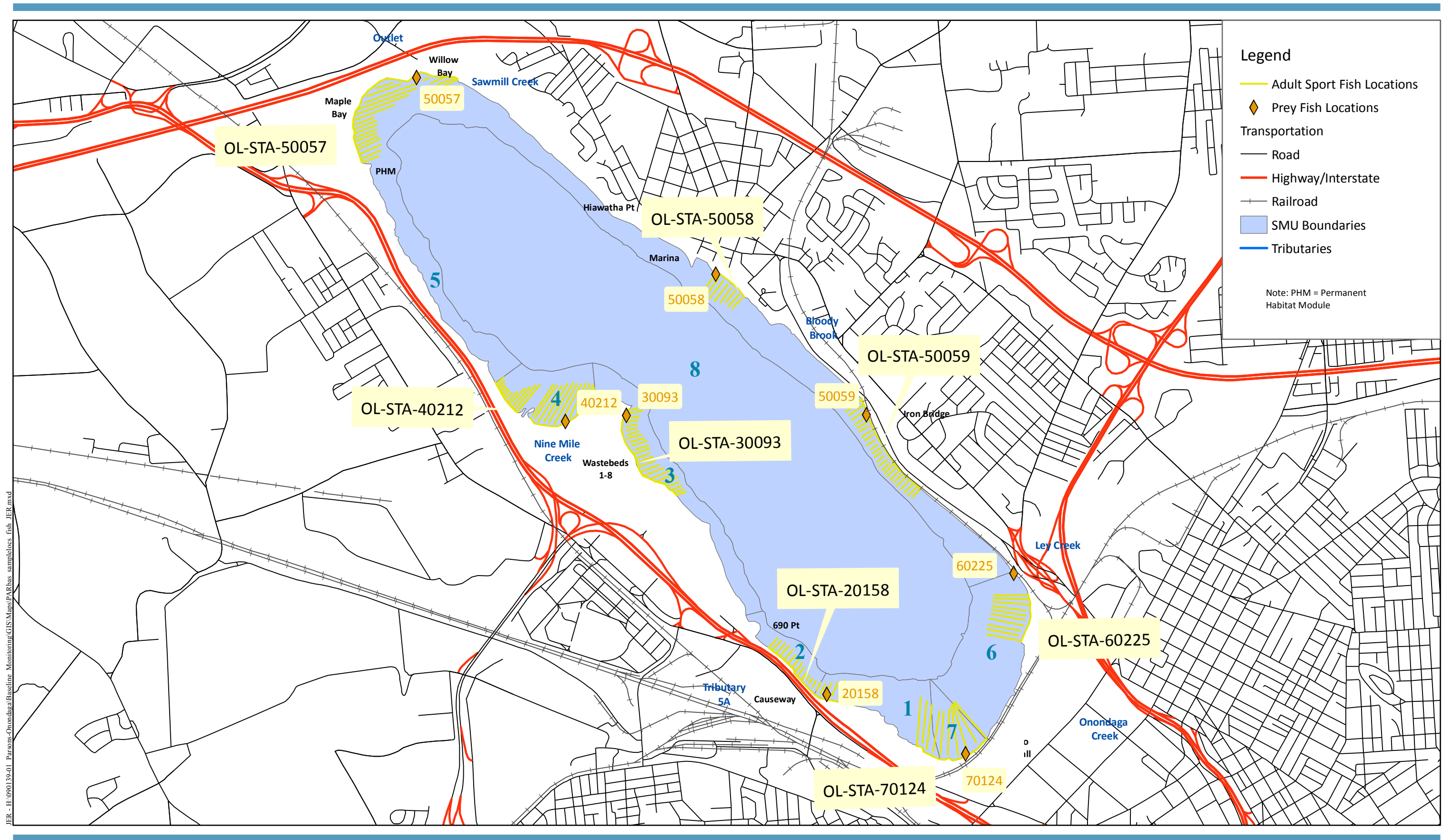
J - Estimated result

\*South Deep samples collected at the 2-meter water depth on August 16, October 26 and November 11, 2010.

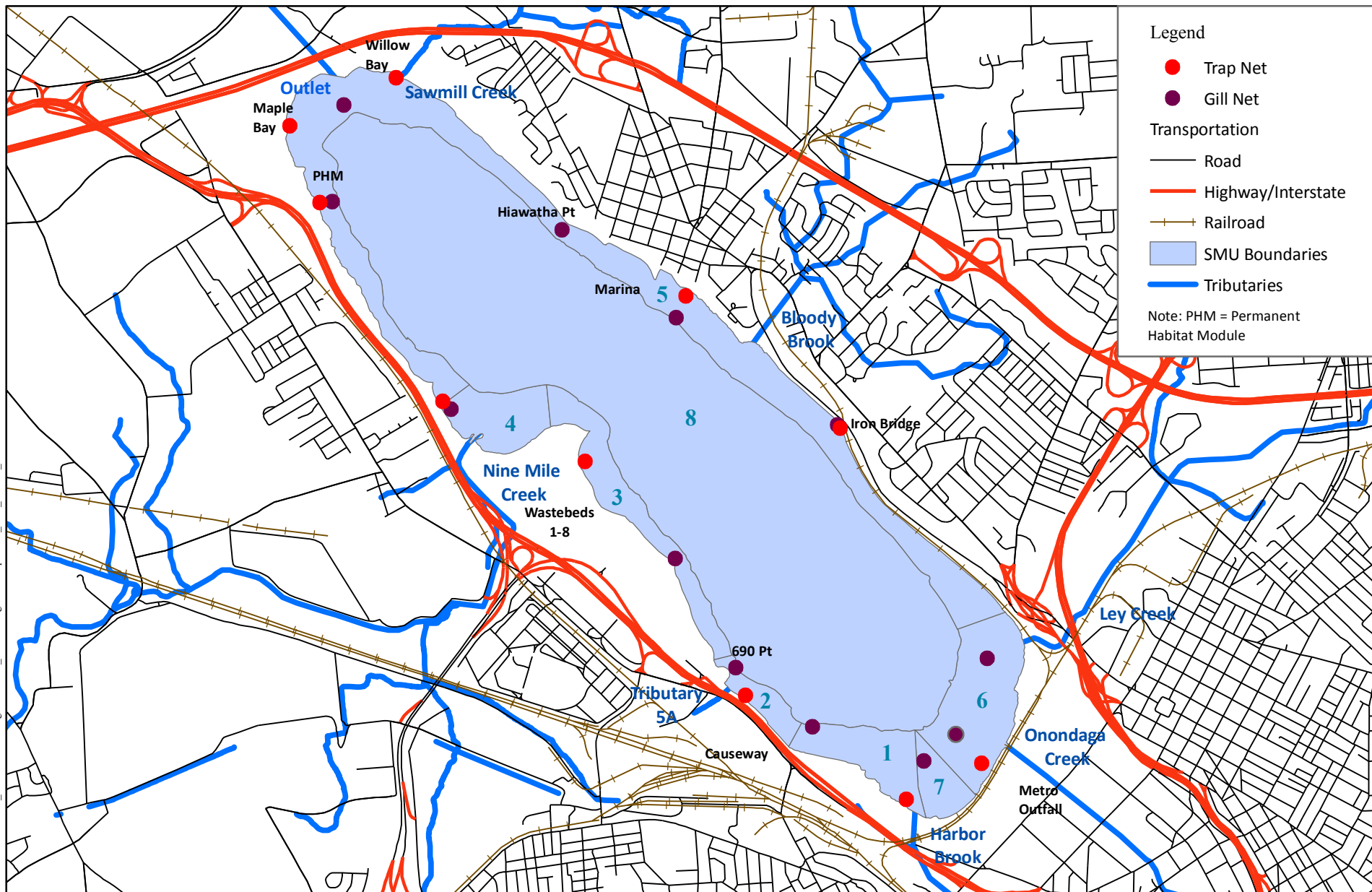
Note: Lake turnover during 2010 occurred on or about October 17.



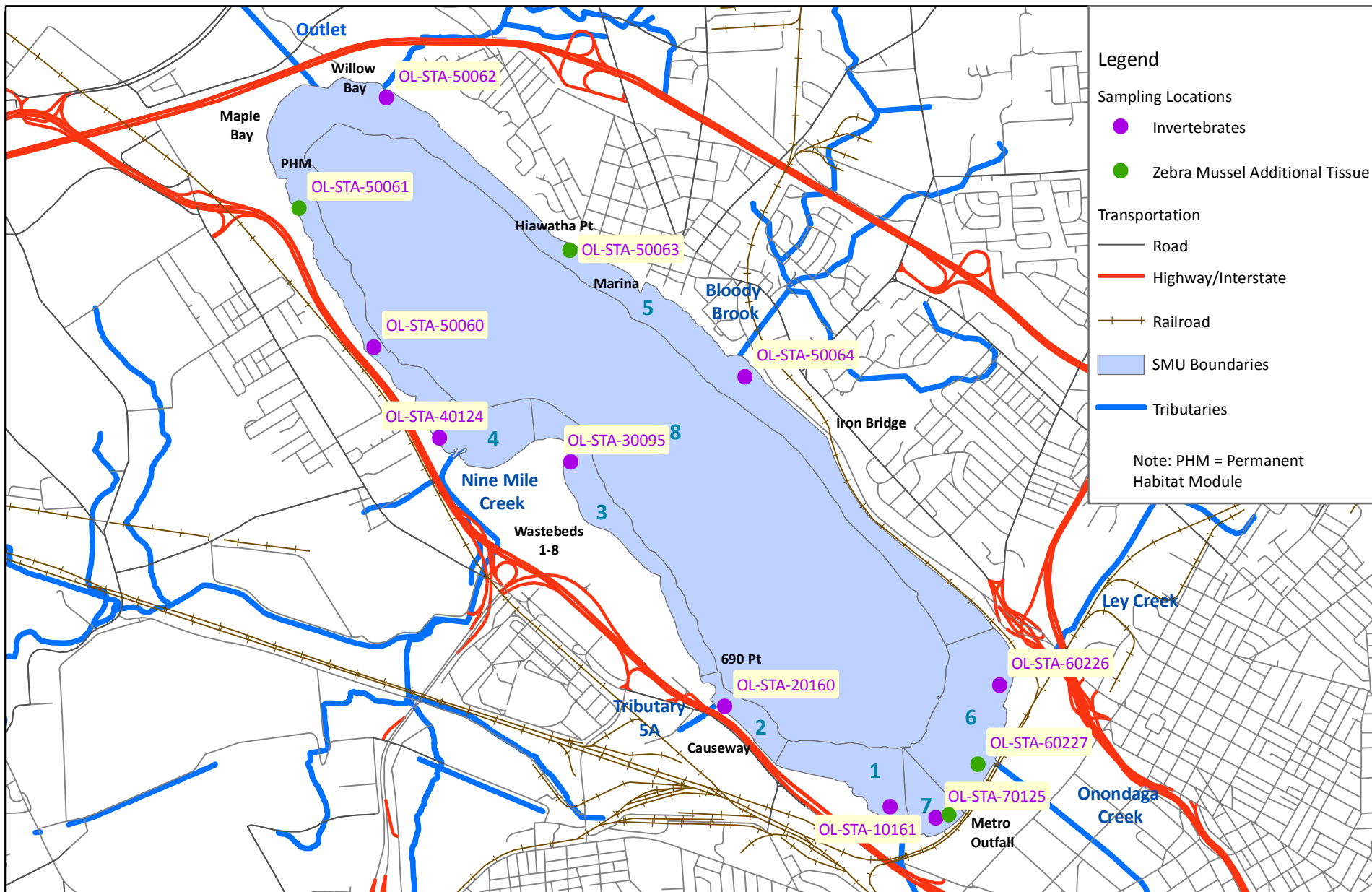
## FIGURES



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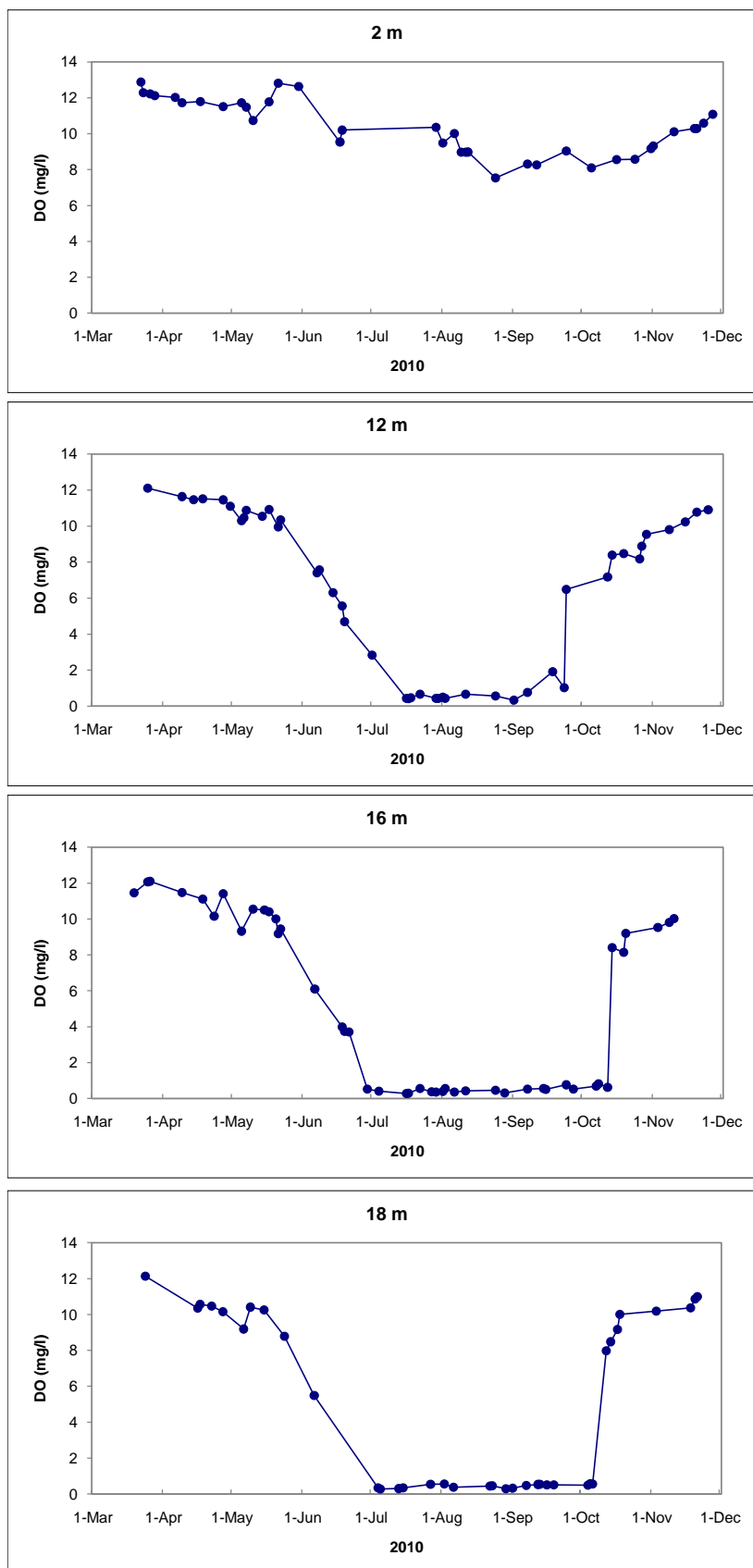


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**Figure 3**  
Baseline monitoring macroinvertebrate  
tissue and community sampling  
locations for 2010.





**Figure 4. Dissolved oxygen concentrations at 2, 12, 16 and 18 m water depth at South Deep in 2010**

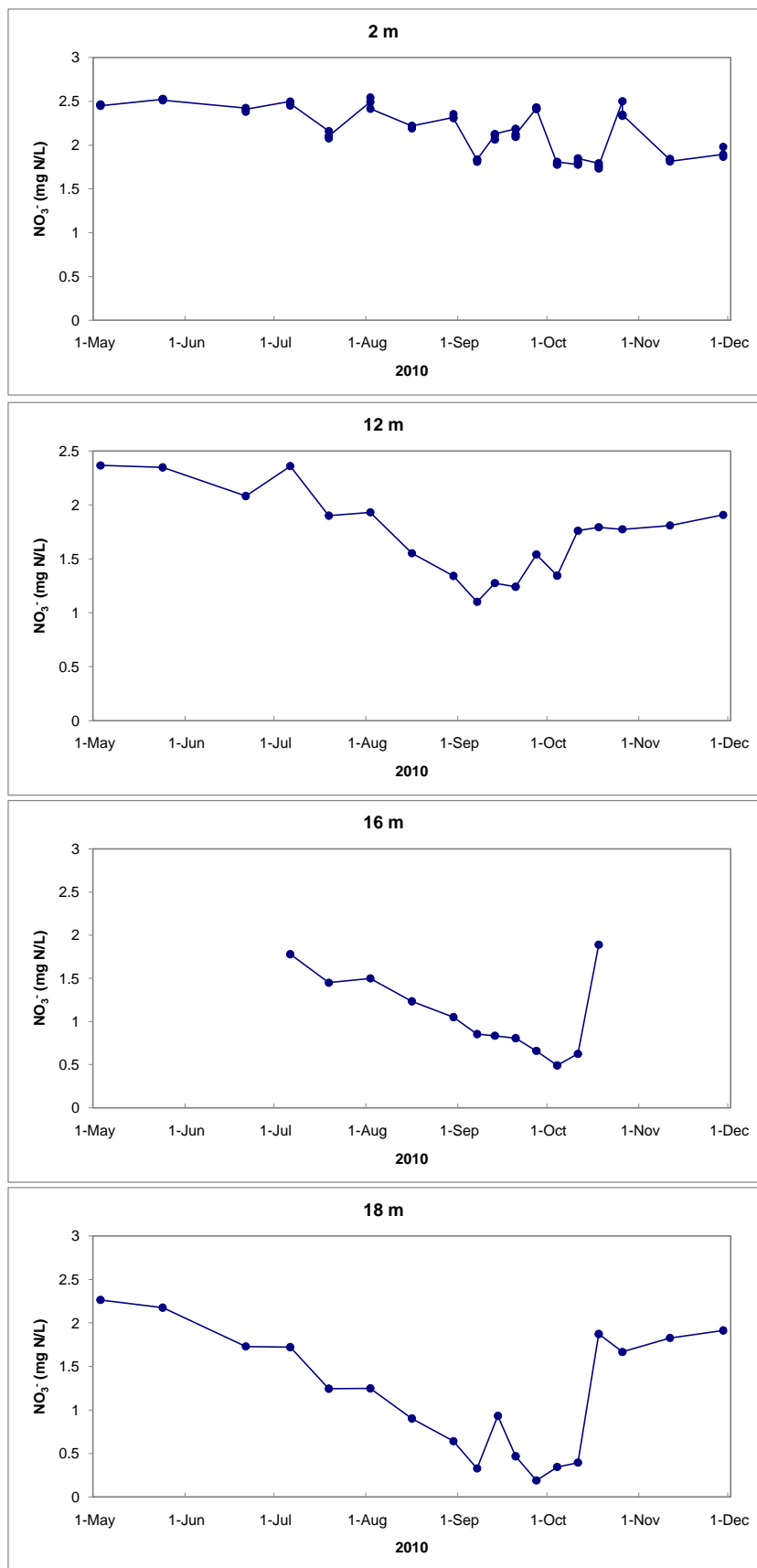
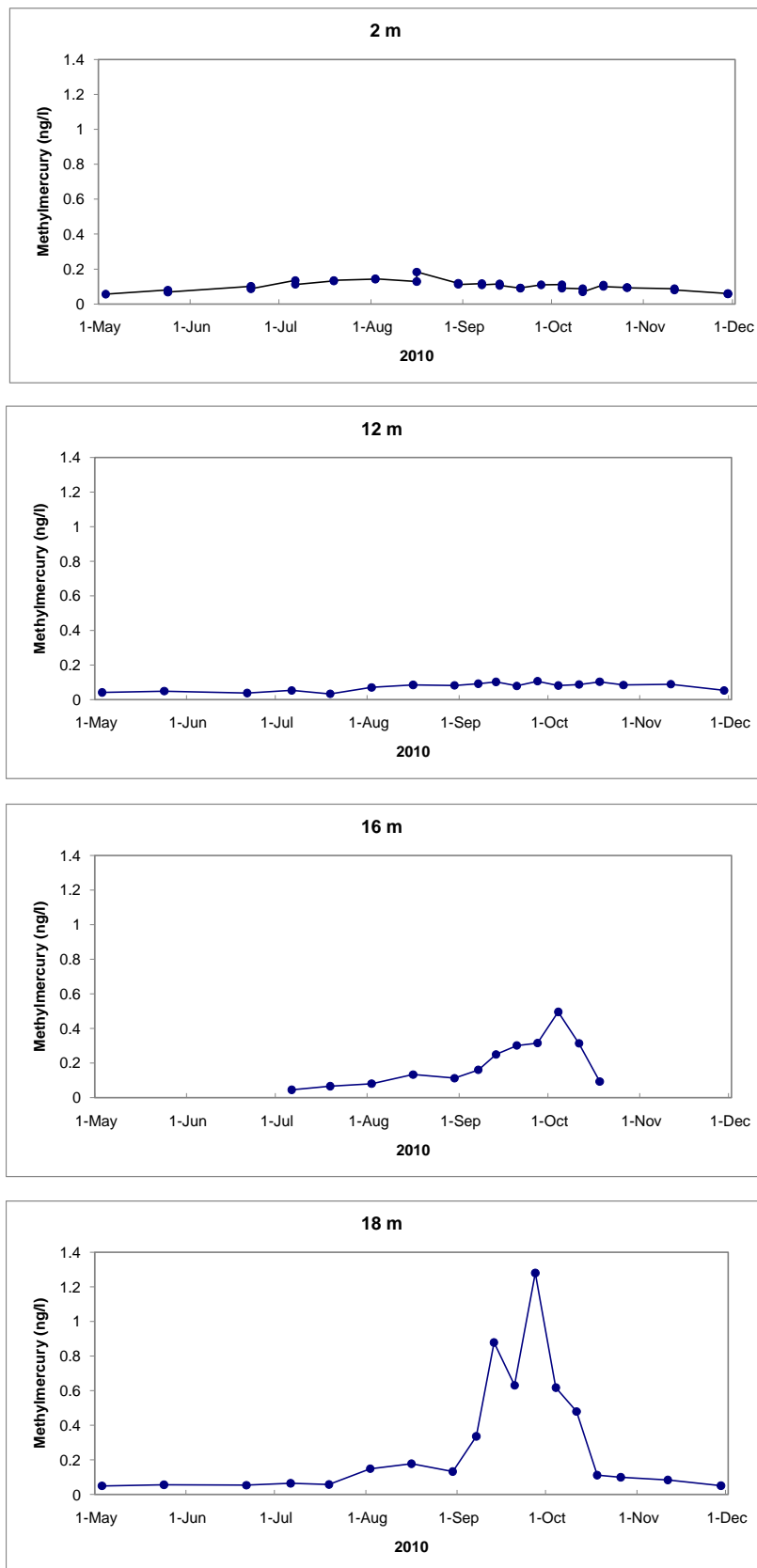
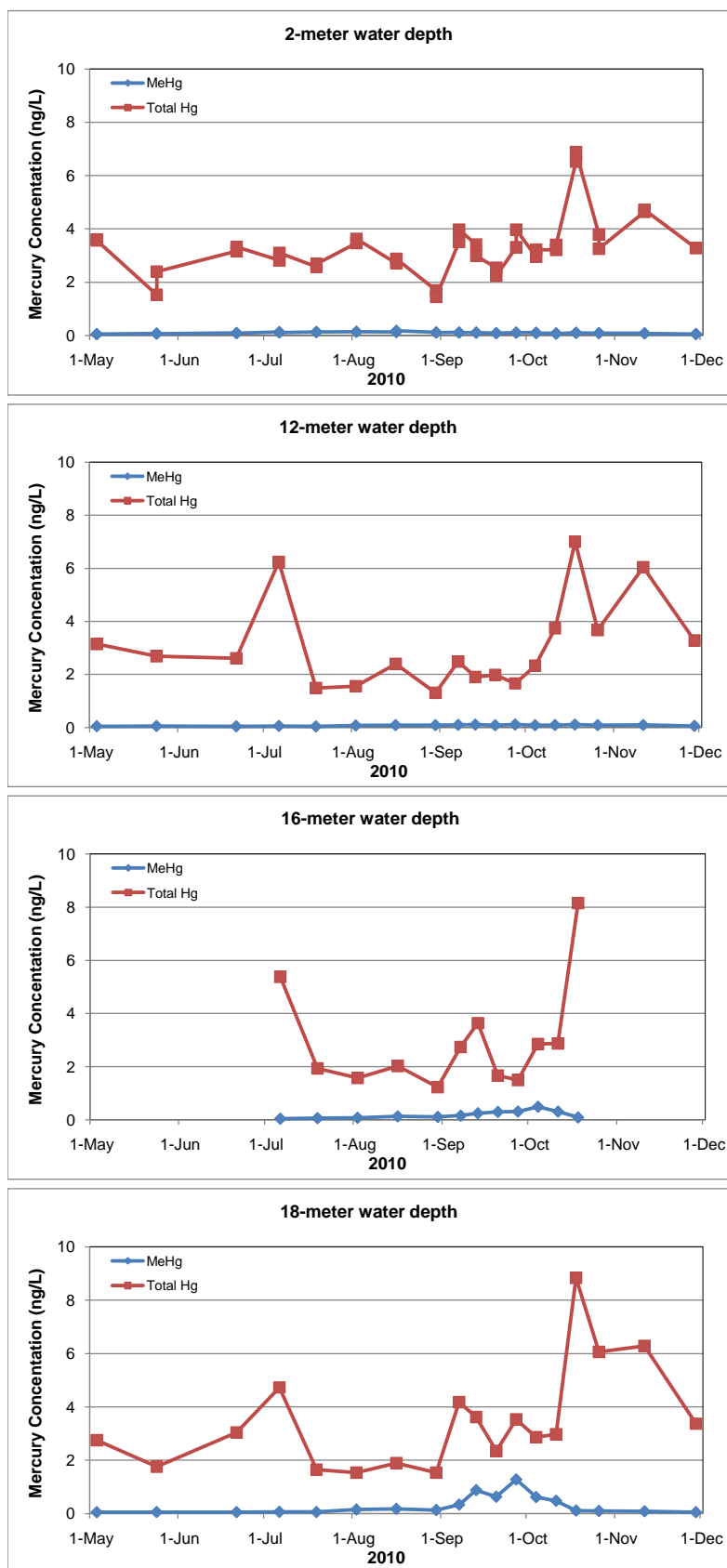


Figure 5. Nitrate concentrations at 2, 12, 16 and 18 m water depth at South Deep in 2010

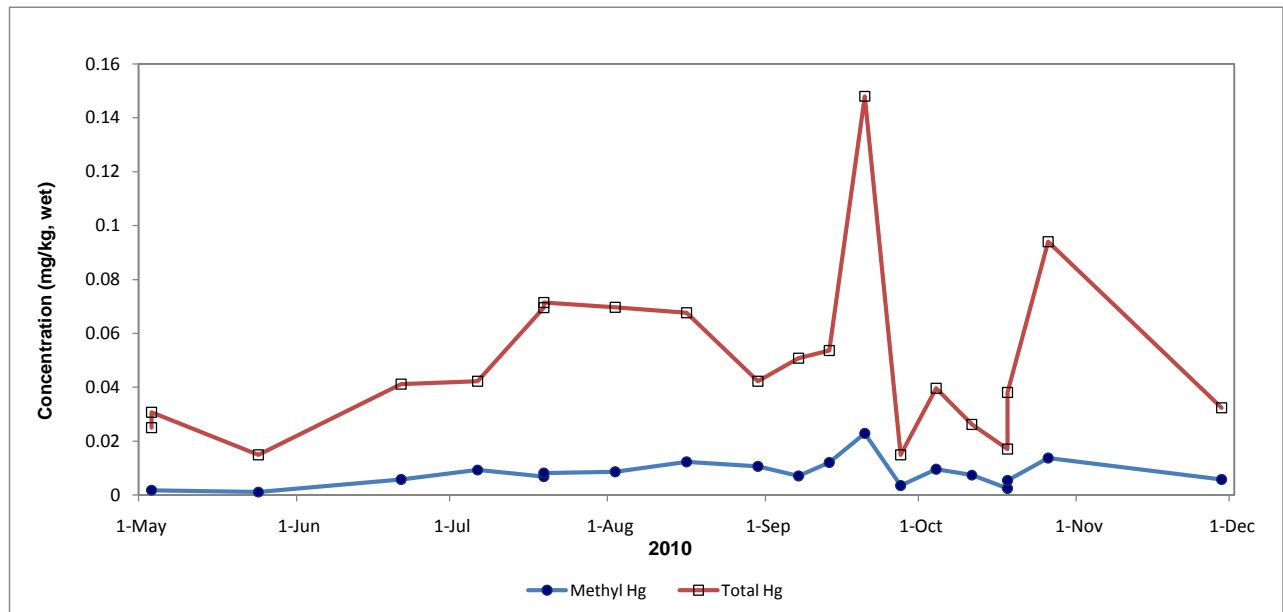


**Figure 6. Methylmercury concentrations at 2, 12, 16, and 18 m water depth at South Deep in 2010**

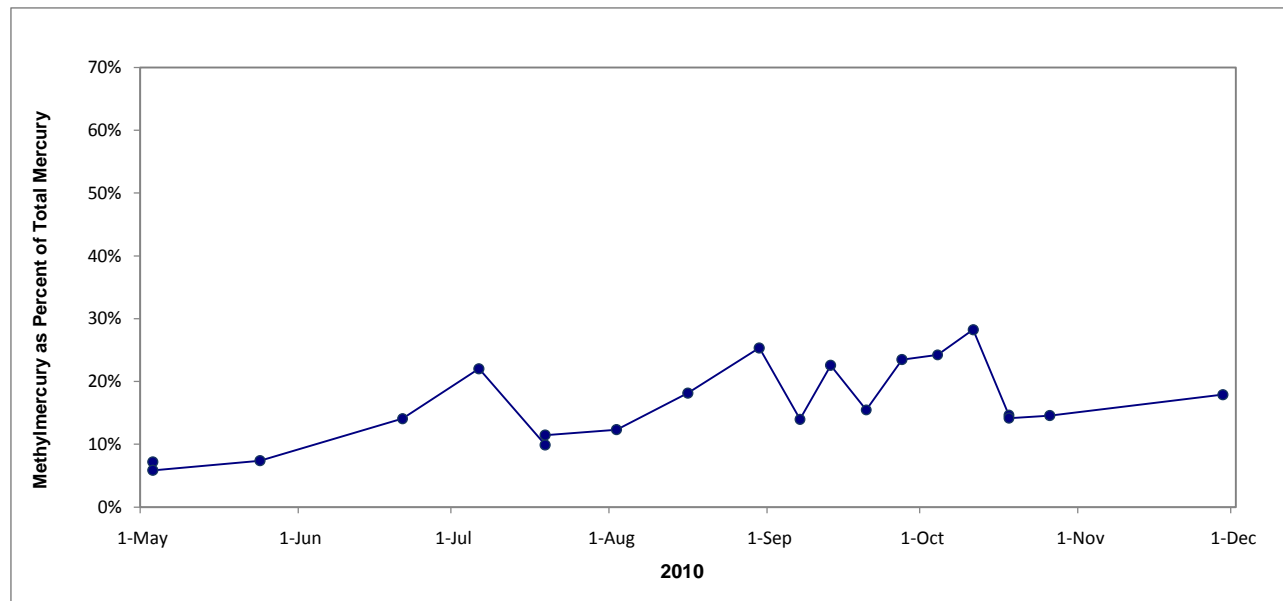


**Figure 7. Total and Methylmercury concentrations at 2, 12, 16, and 18 meter water depths at South Deep in 2010**





**Figure 8. Total Mercury and Methylmercury Concentrations in Zooplankton in 2010**

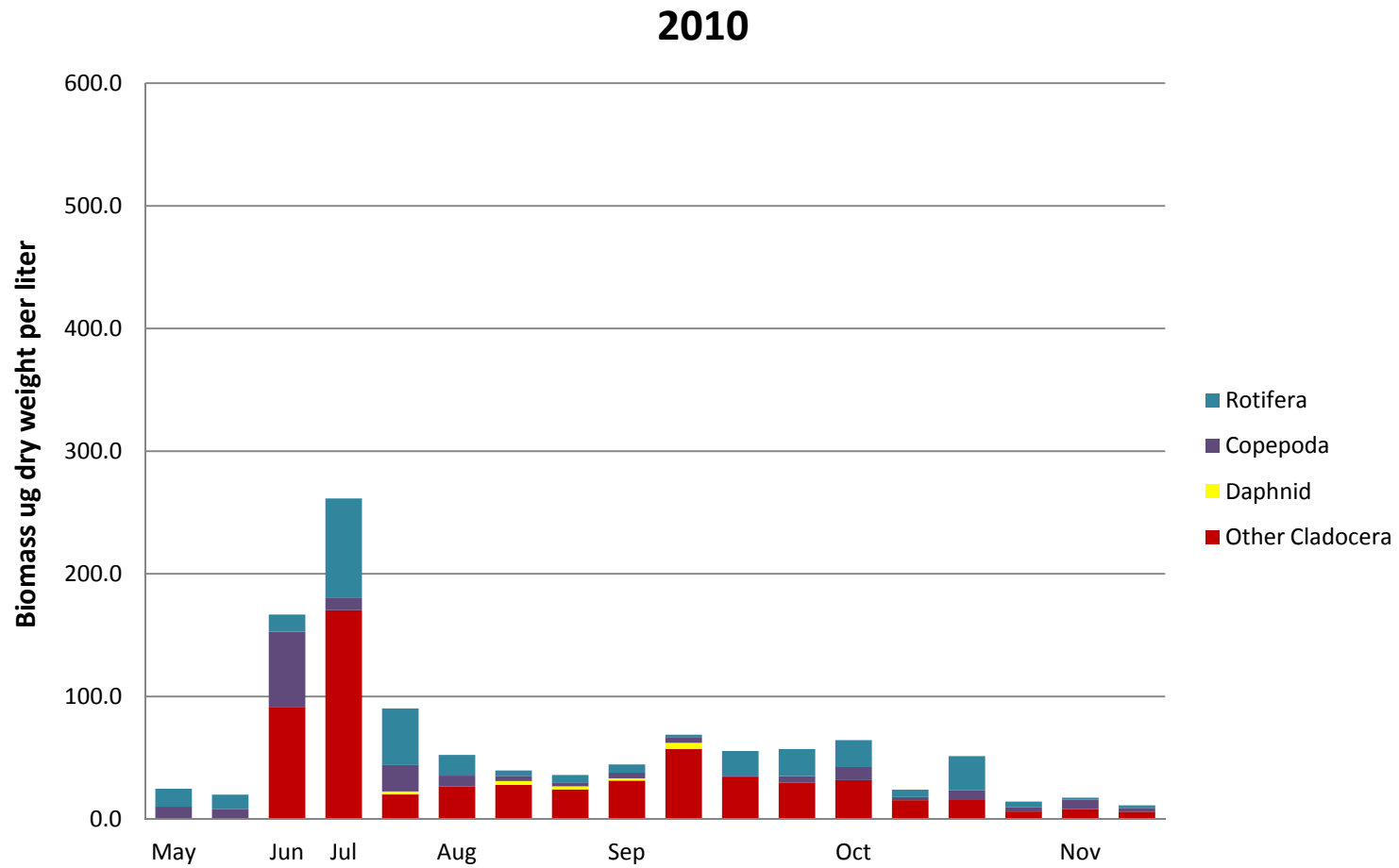


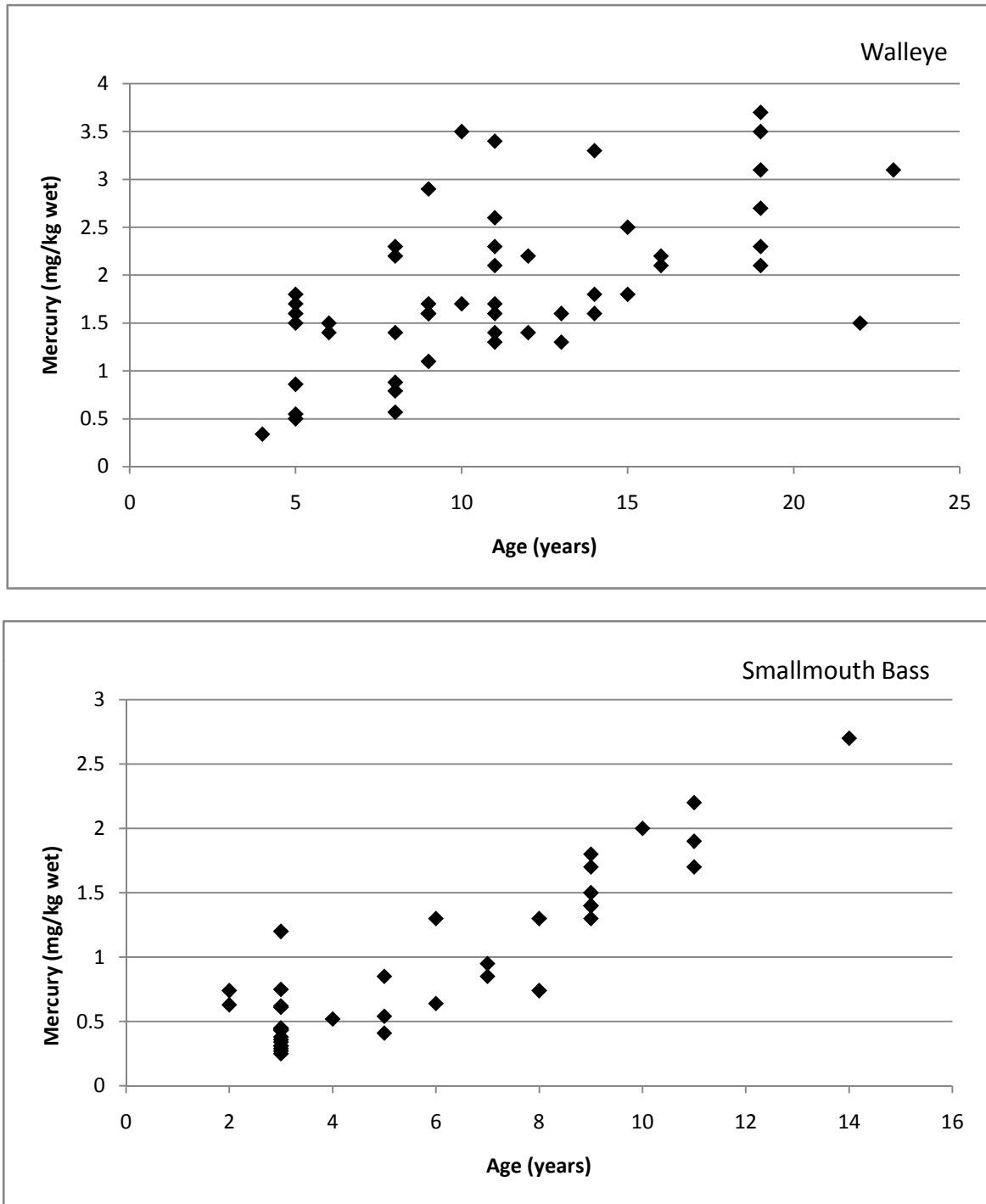
**Figure 9. Methylmercury as a Percent of Total Mercury in Zooplankton**

**Notes:**

1. These results are for zooplankton assemblages and do not include daphnia results.
2. These results are based on validated mercury data from laboratory analyses conducted by Brooks Rand.

**Figure 10. Zooplankton Community Composition in 2010**

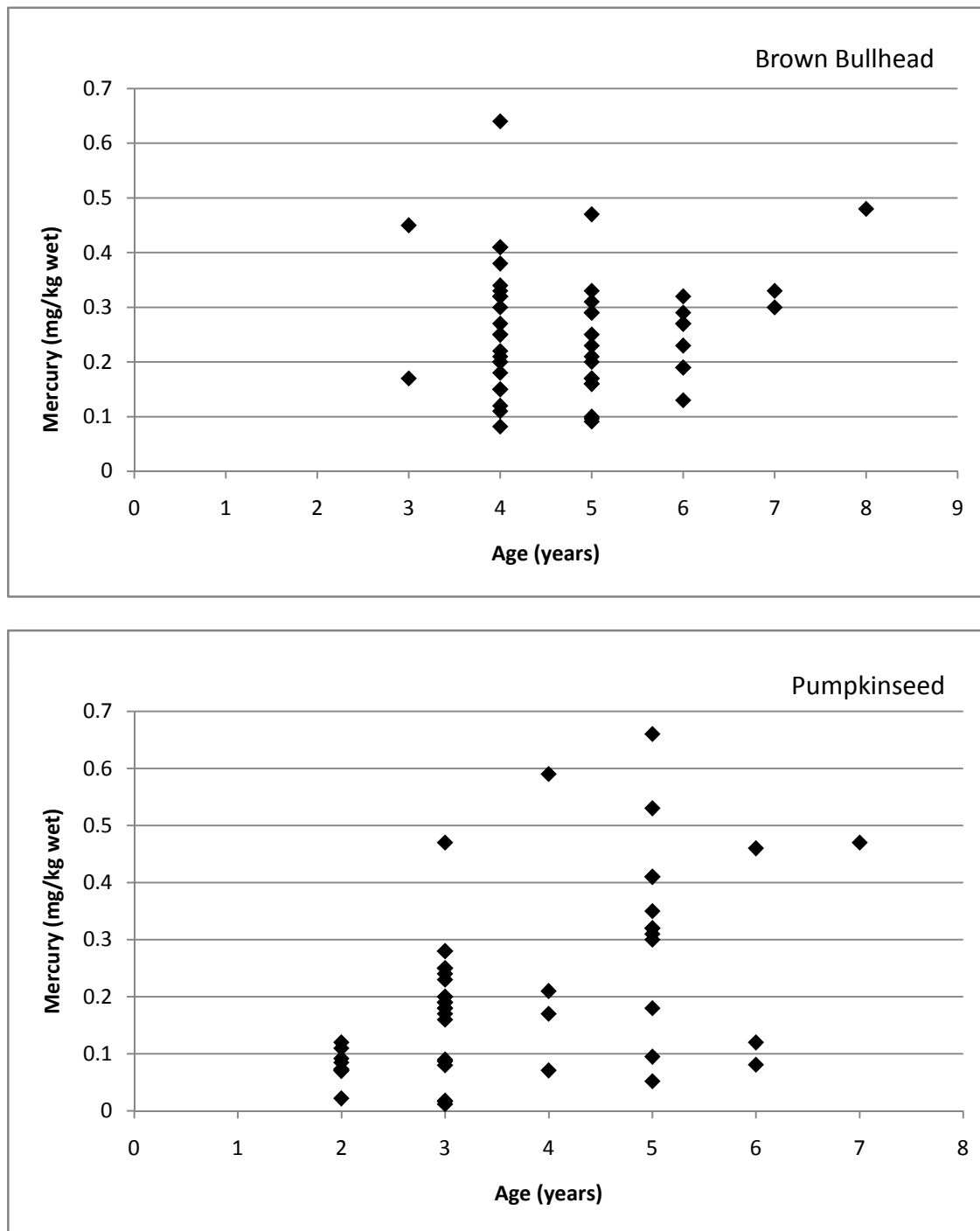




\*Ages based on otolith analysis

**Figure 12. Mercury vs age in walleye and smallmouth bass from Onondaga Lake 2010.**

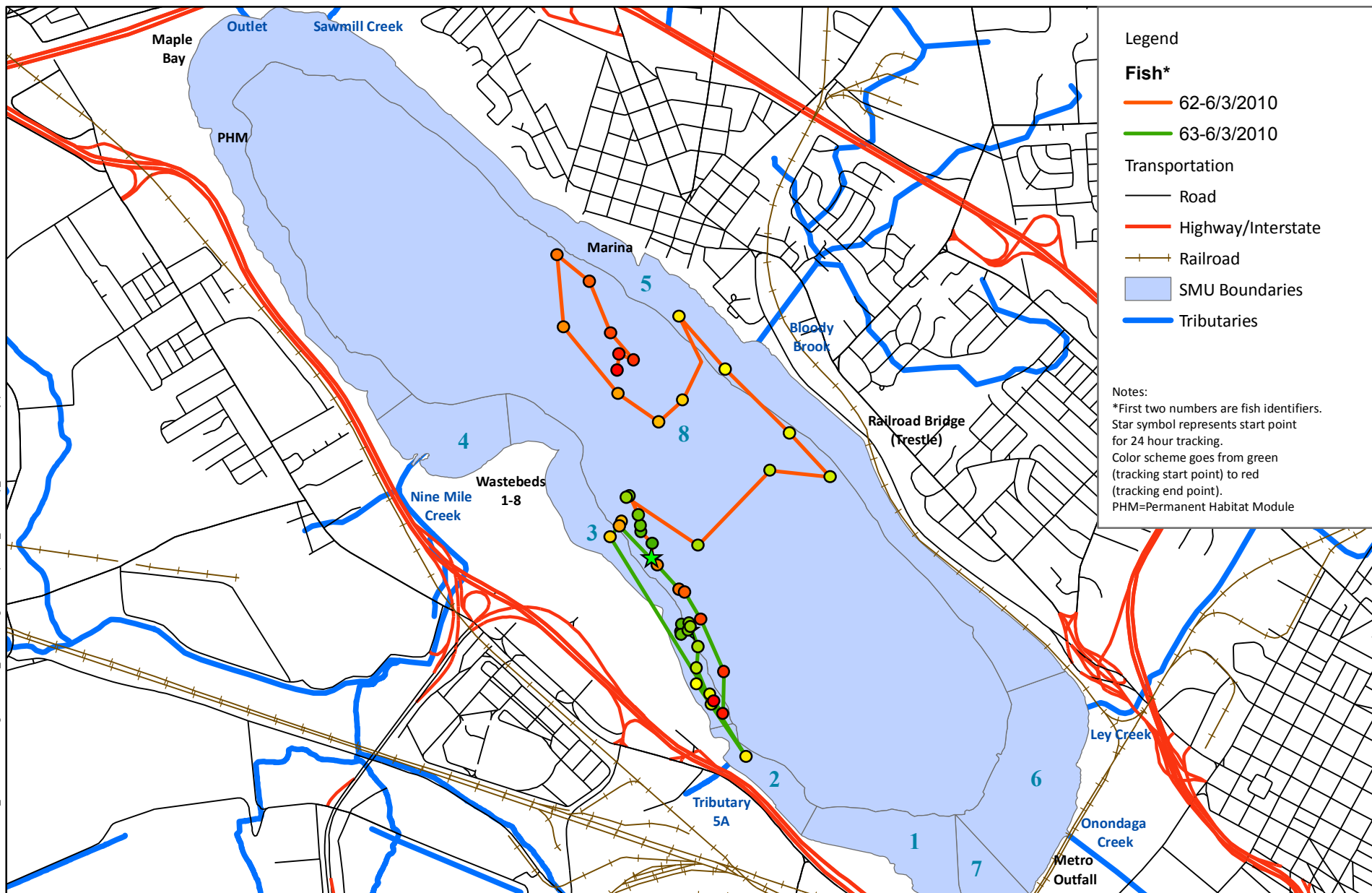
Data source: 2010 Baseline Monitoring Program (BLM), Honeywell International, Inc.



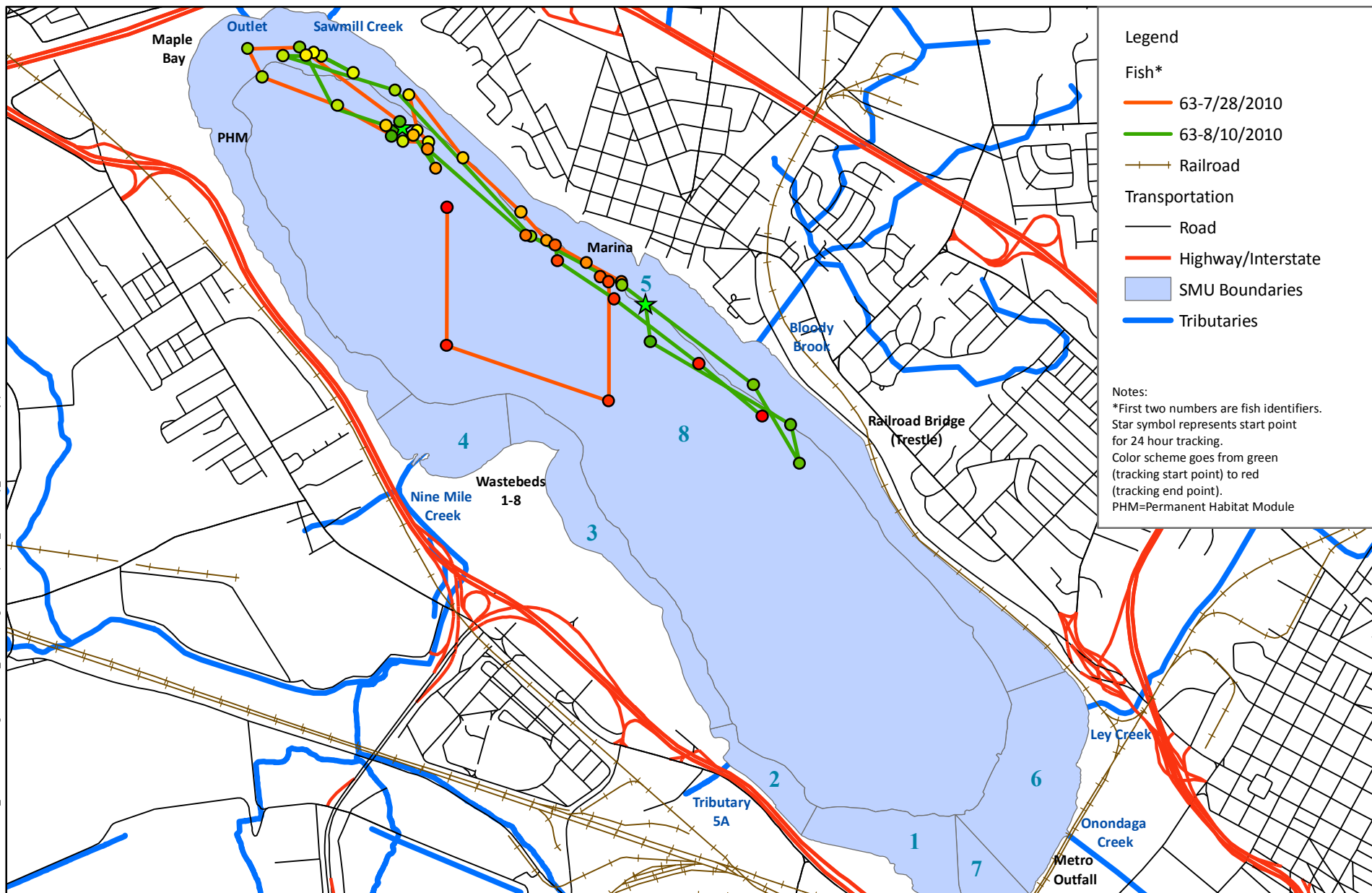
\*Ages based on spines in bullhead and scales in pumpkinseed

**Figure 13. Mercury vs age in brown bullhead and pumpkinseed from Onondaga Lake in 2010.**

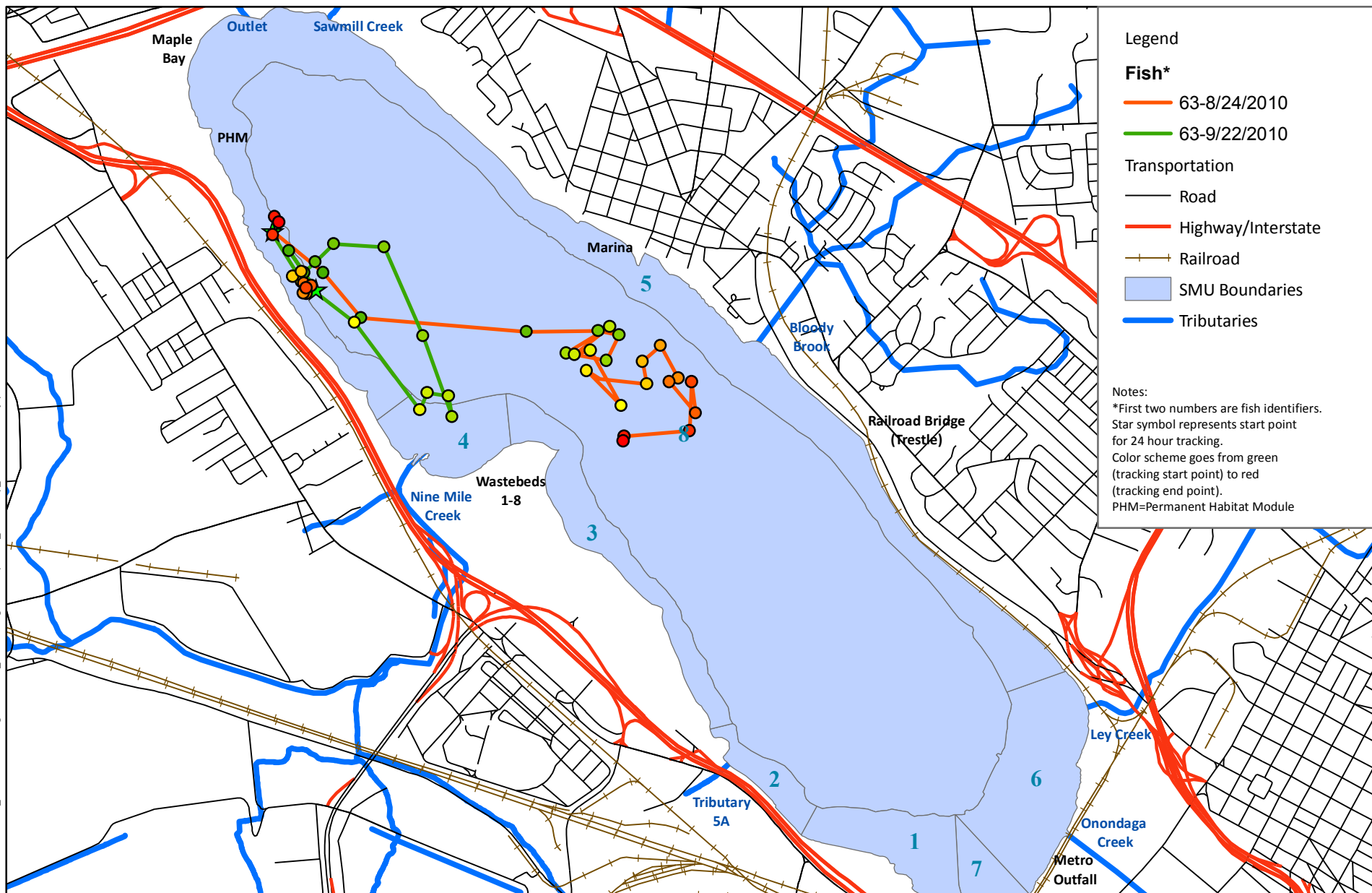
Data source: 2010 Baseline Monitoring Program (BLM), Honeywell International, Inc.



**Figure 14a**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.

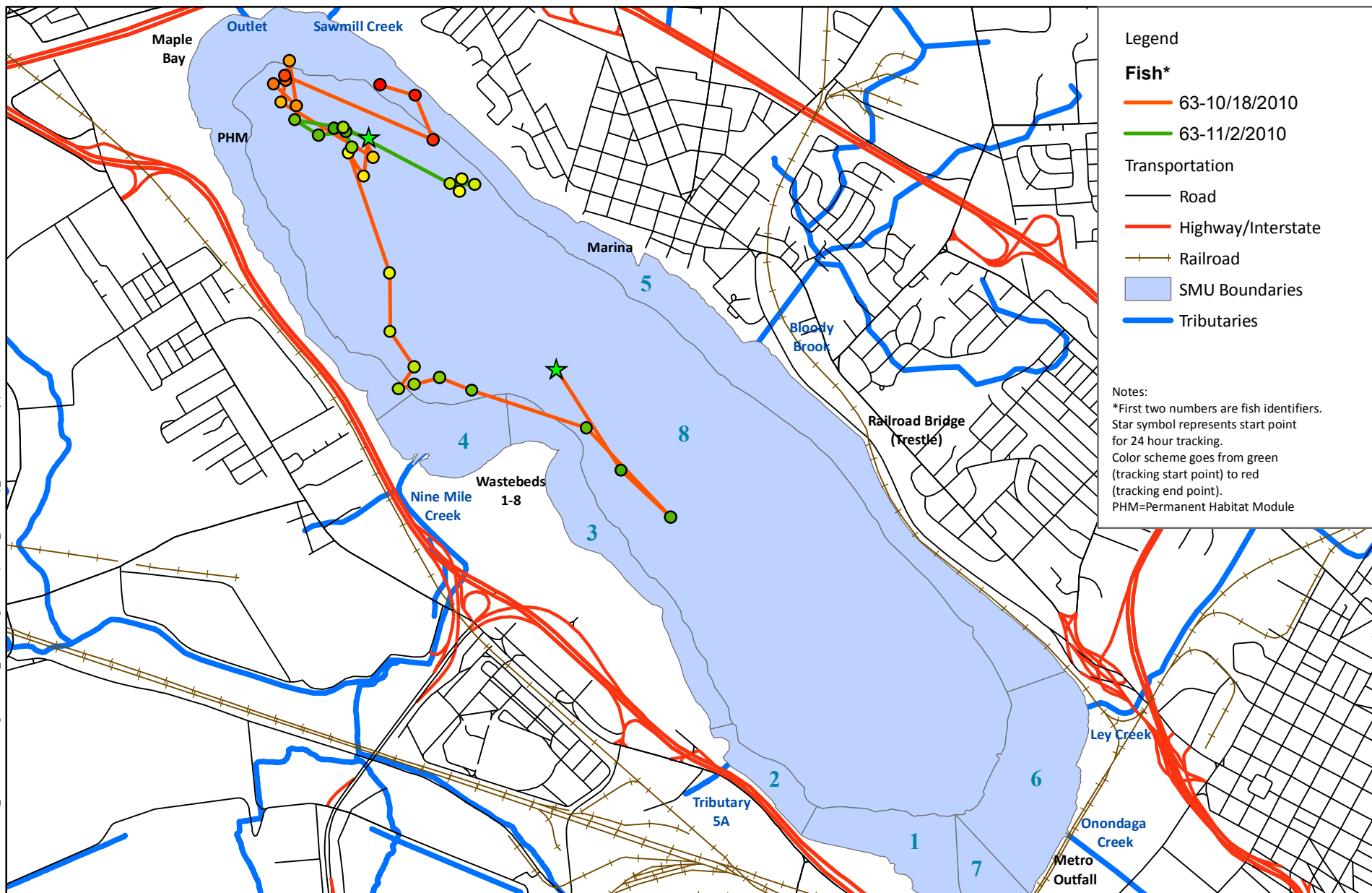


**Figure 14b**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



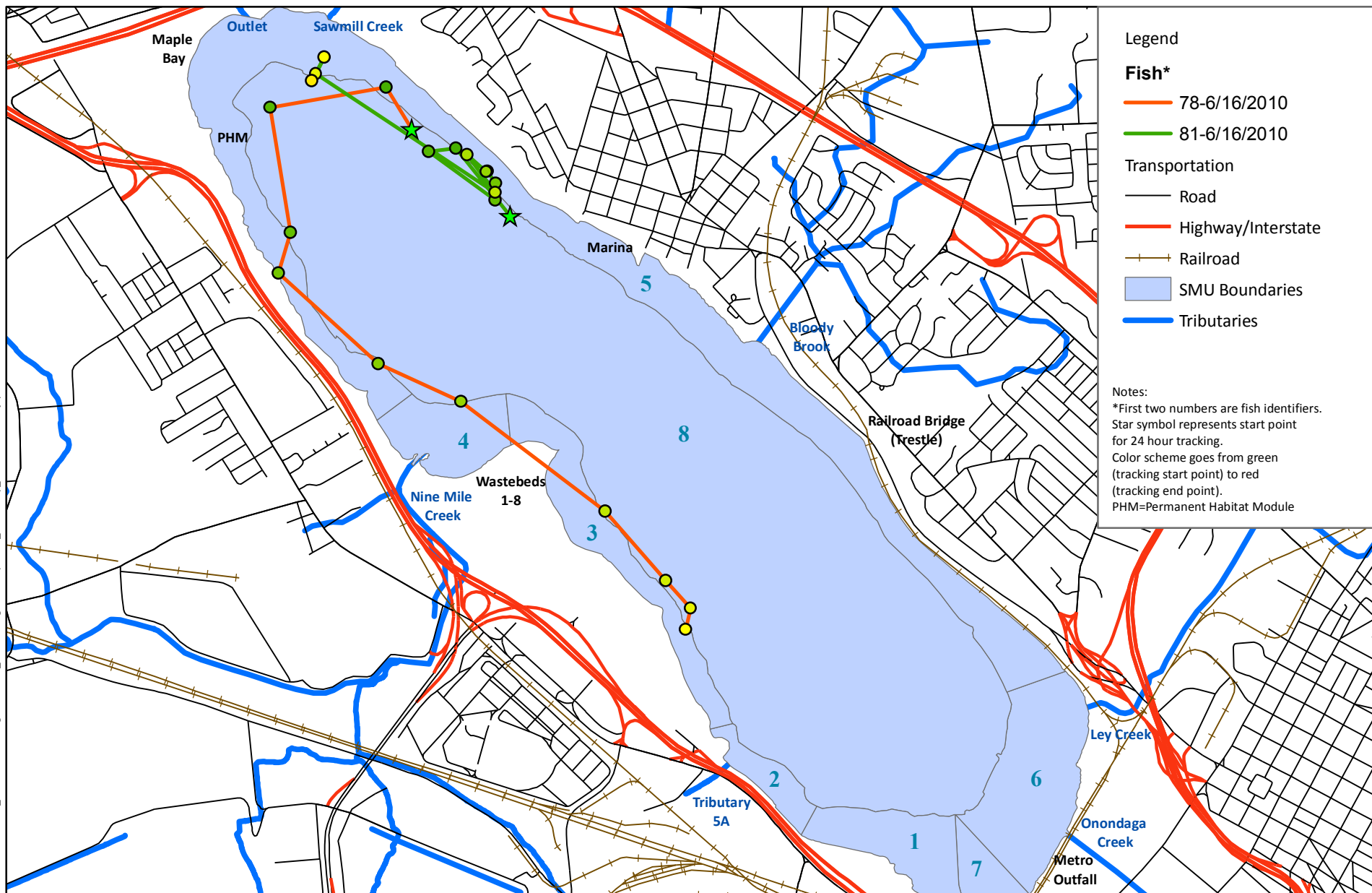
**Figure 14c**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



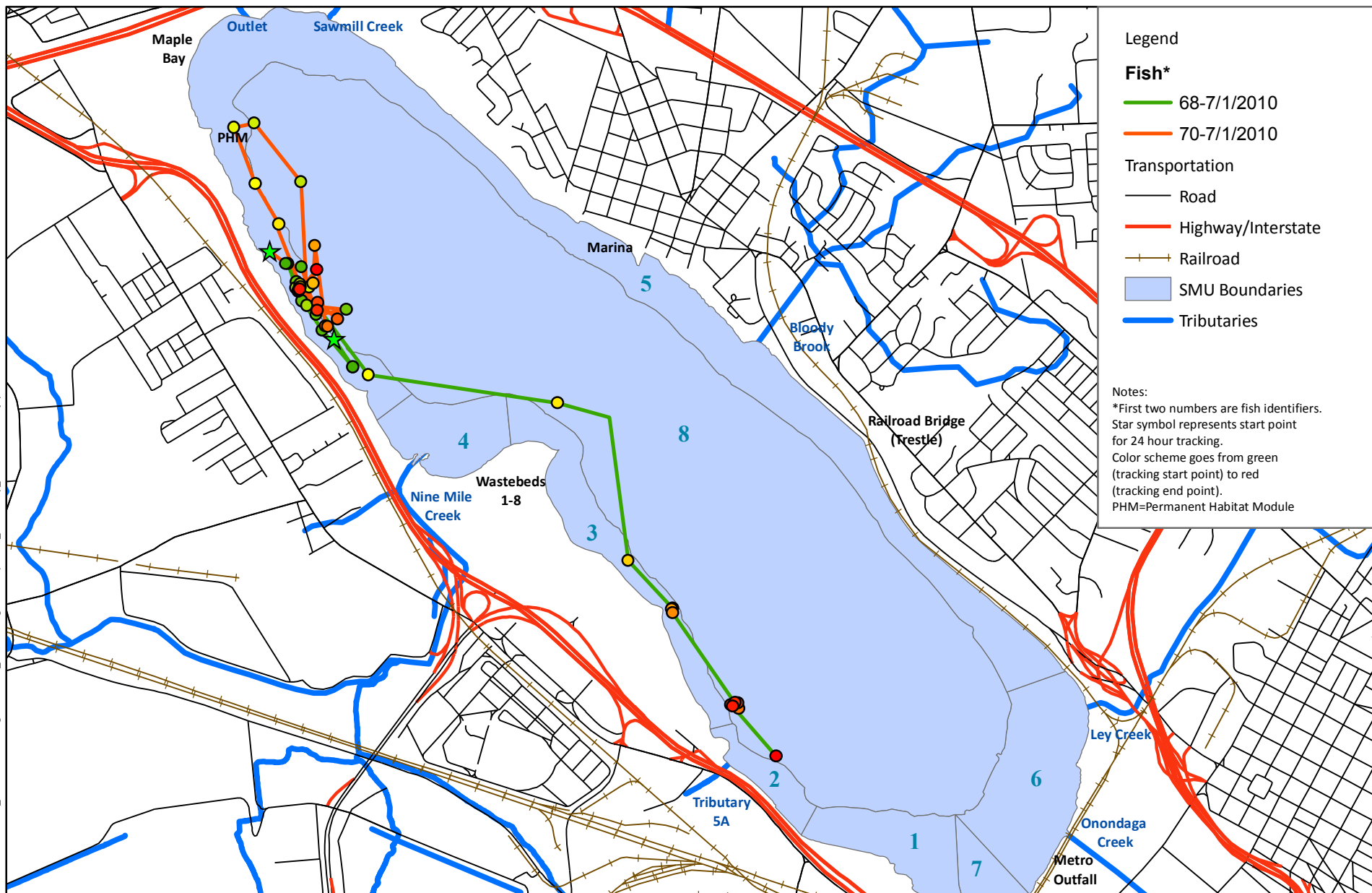


**Figure 14d**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.

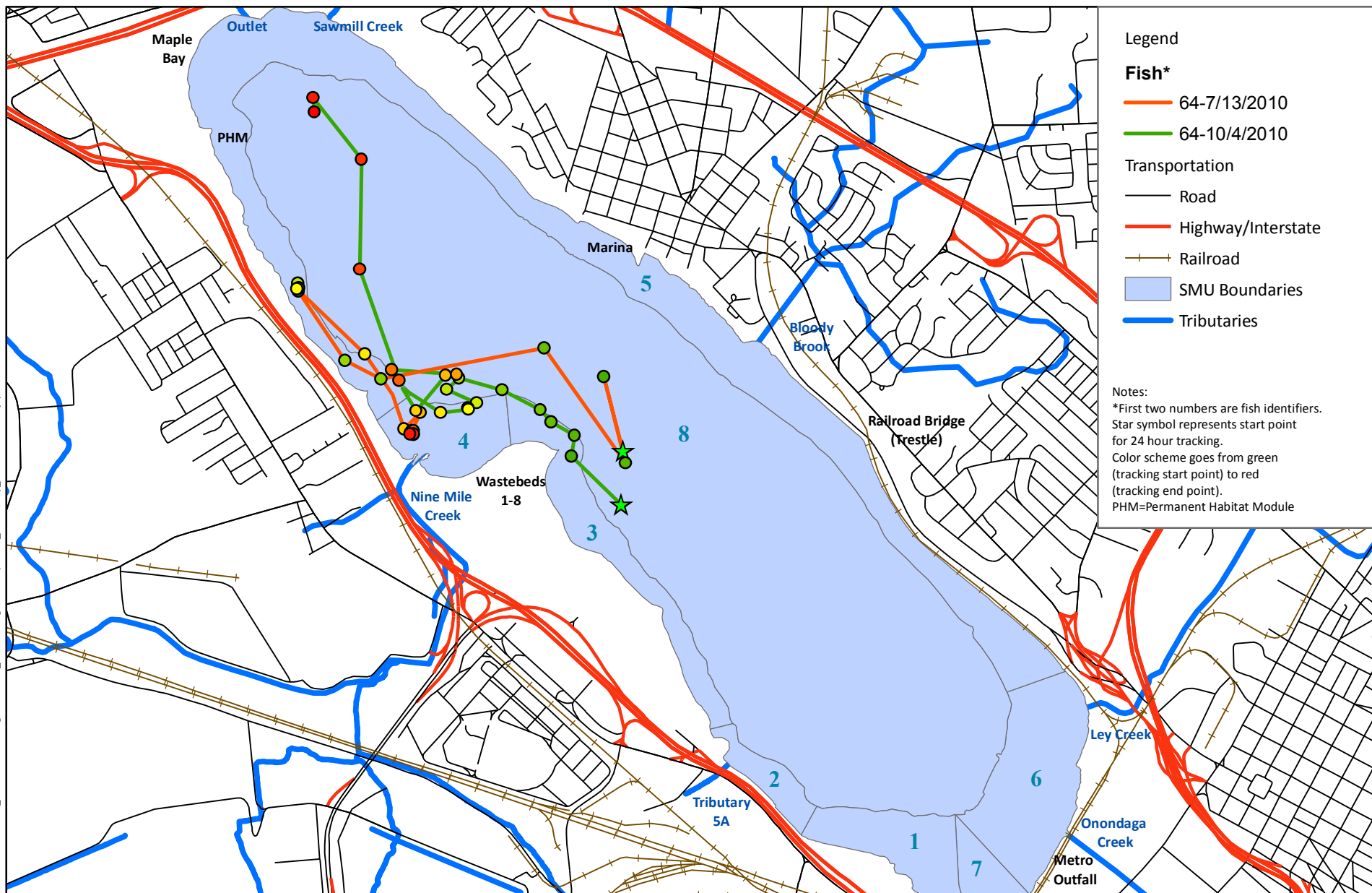




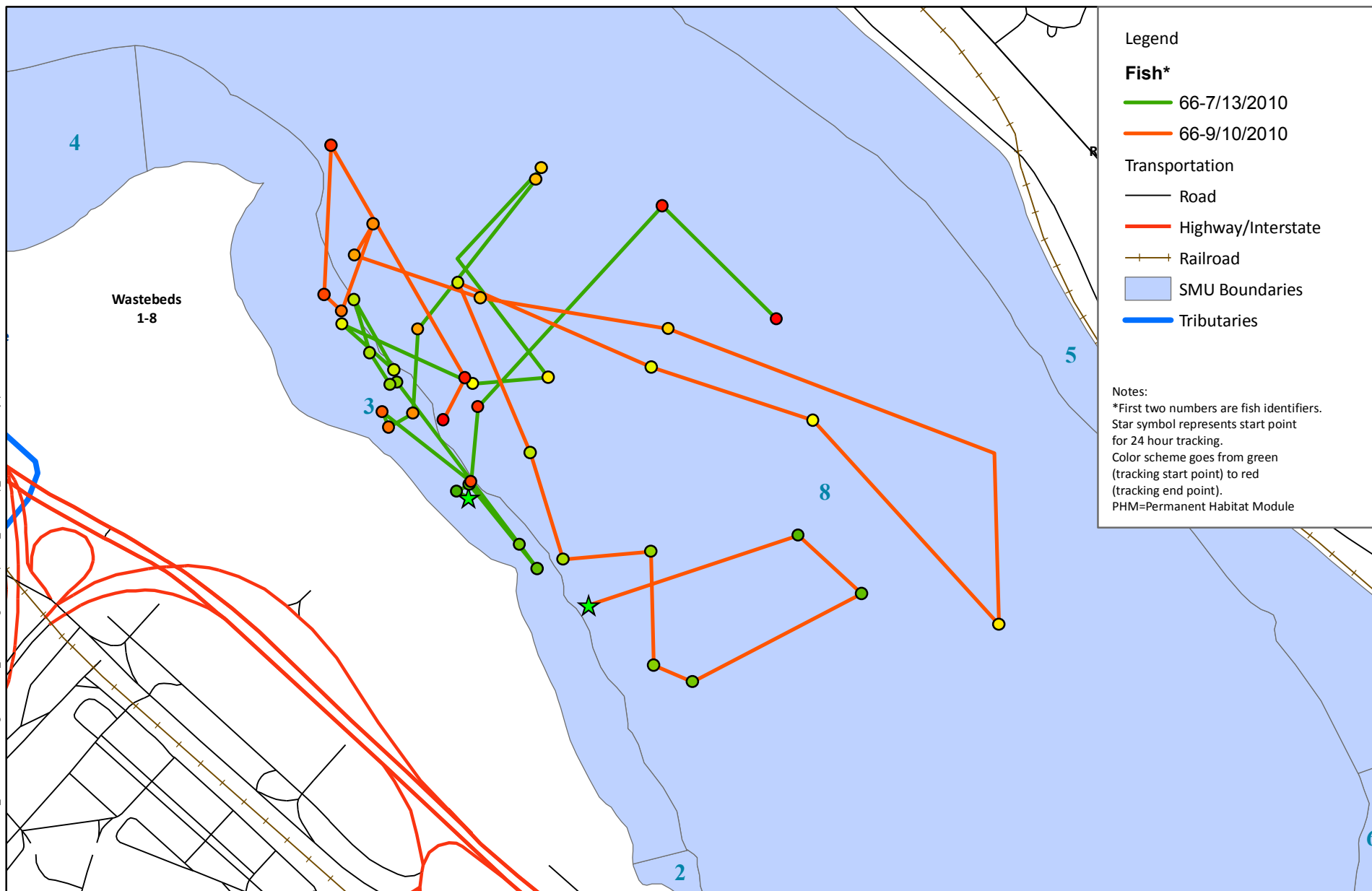
**Figure 14e**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



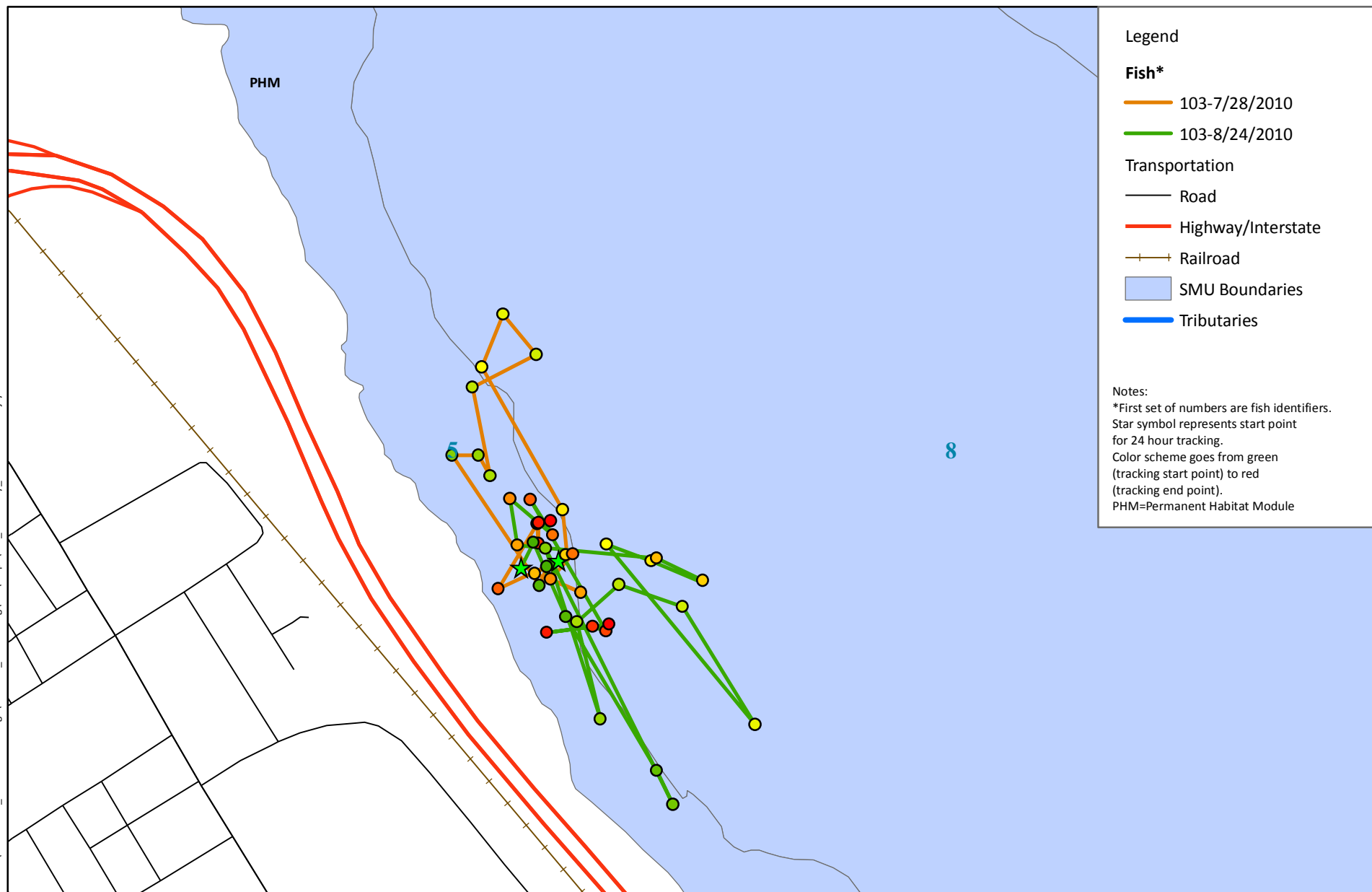
**Figure 14f**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



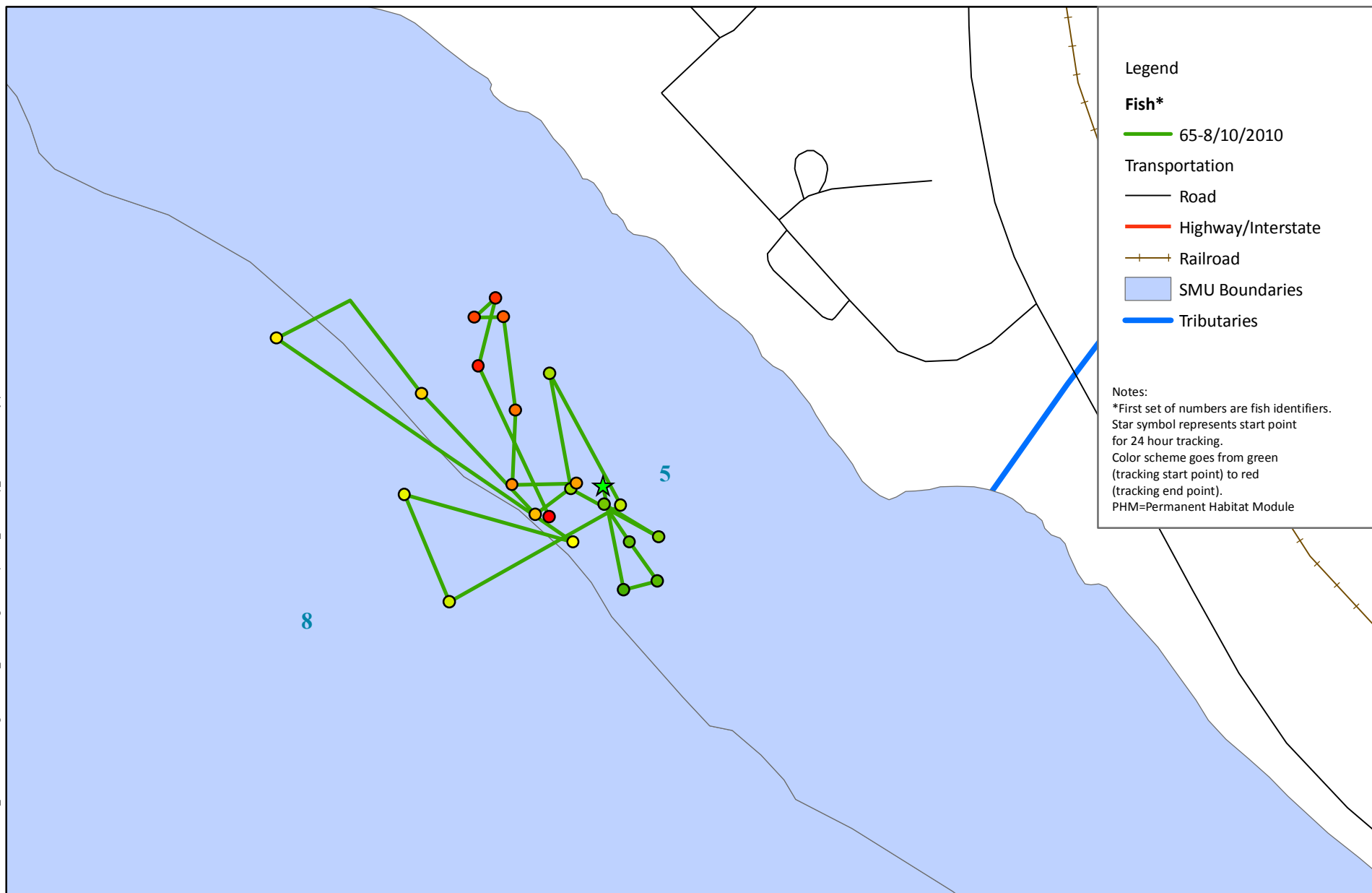
**Figure 14g**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



**Figure 14h**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.

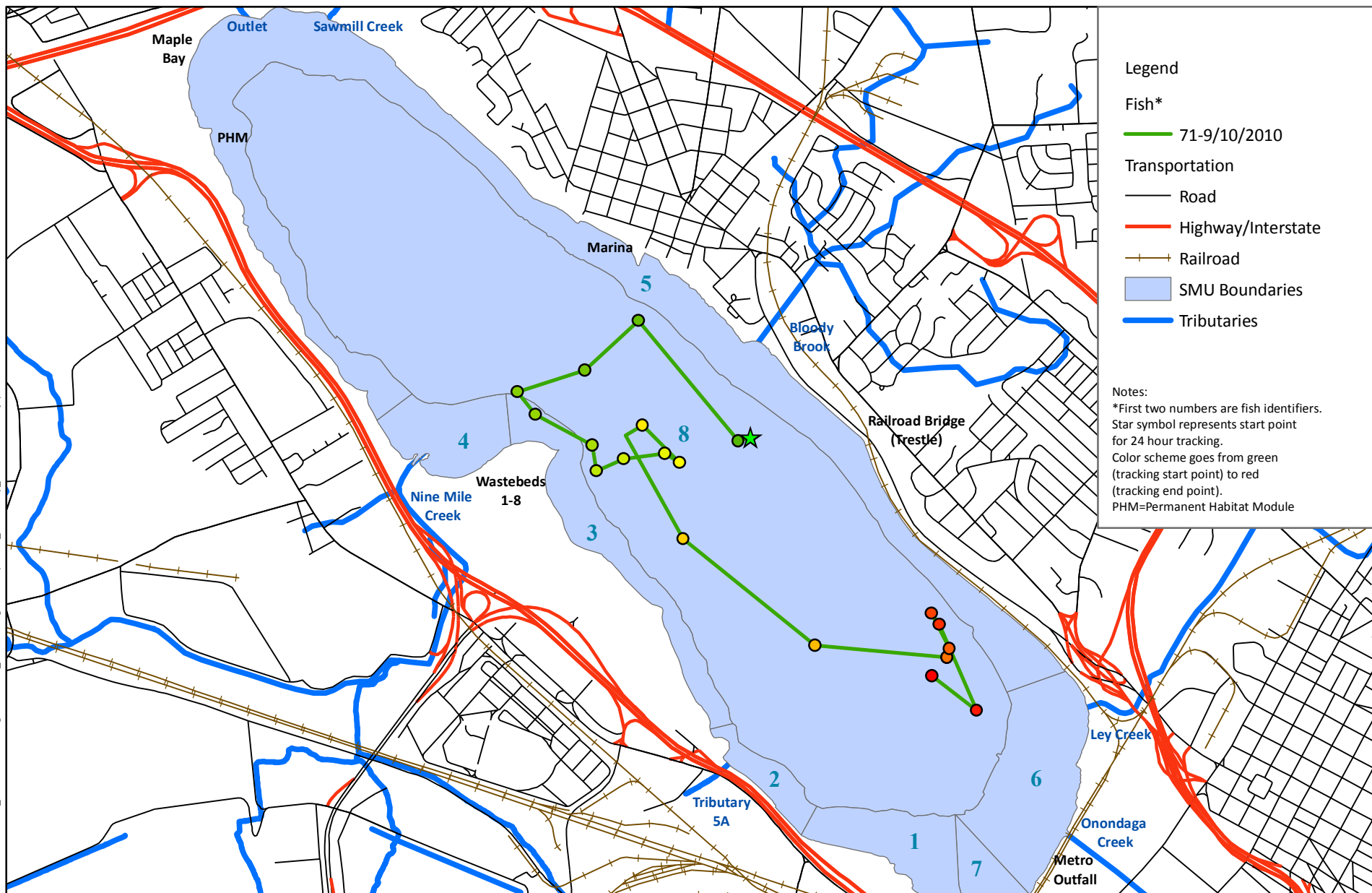


**Figure 14i**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.

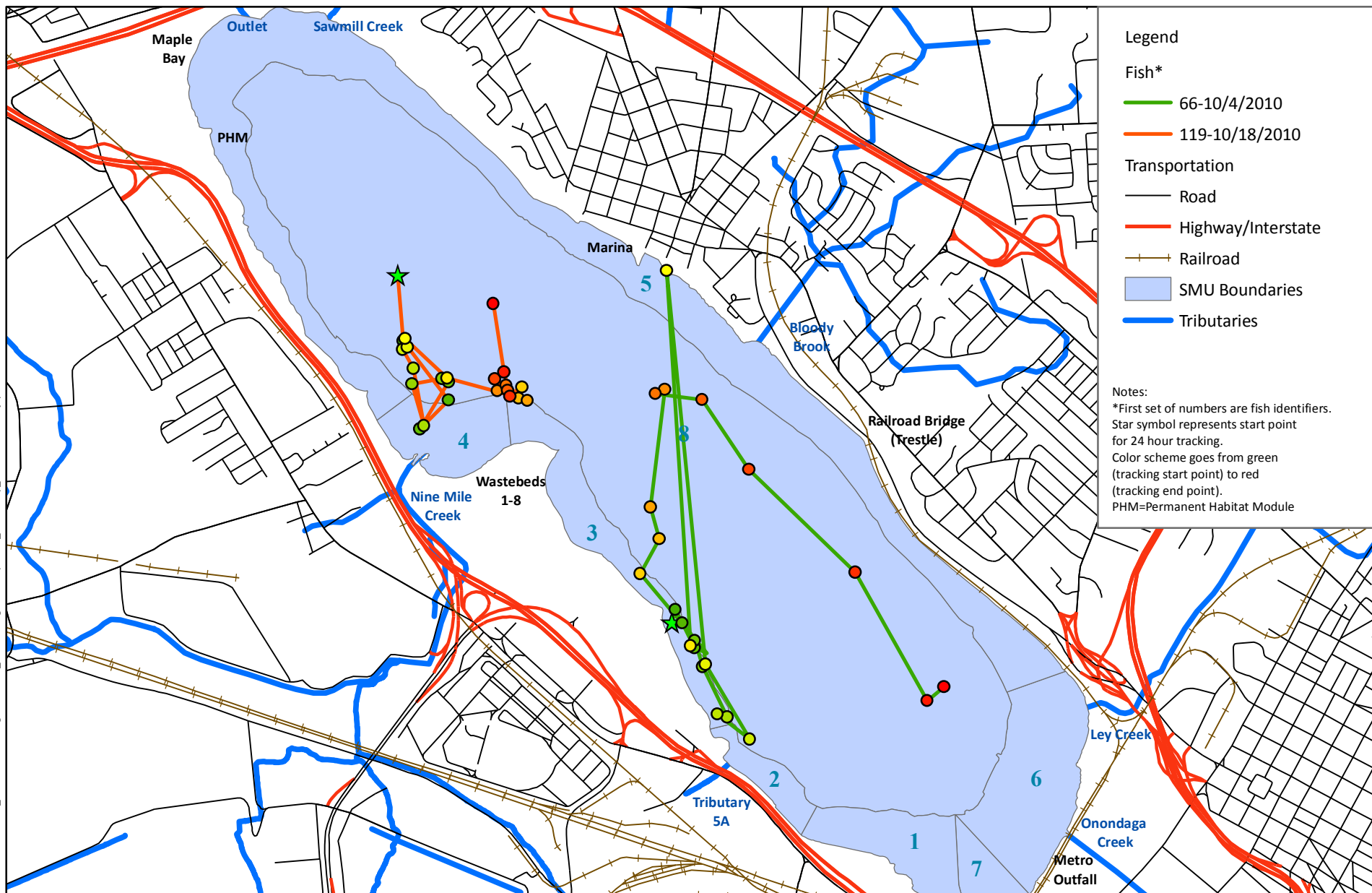


**Figure 14j**  
Walleye movement during 2010 based on hourly tracking for a 24 hour period.





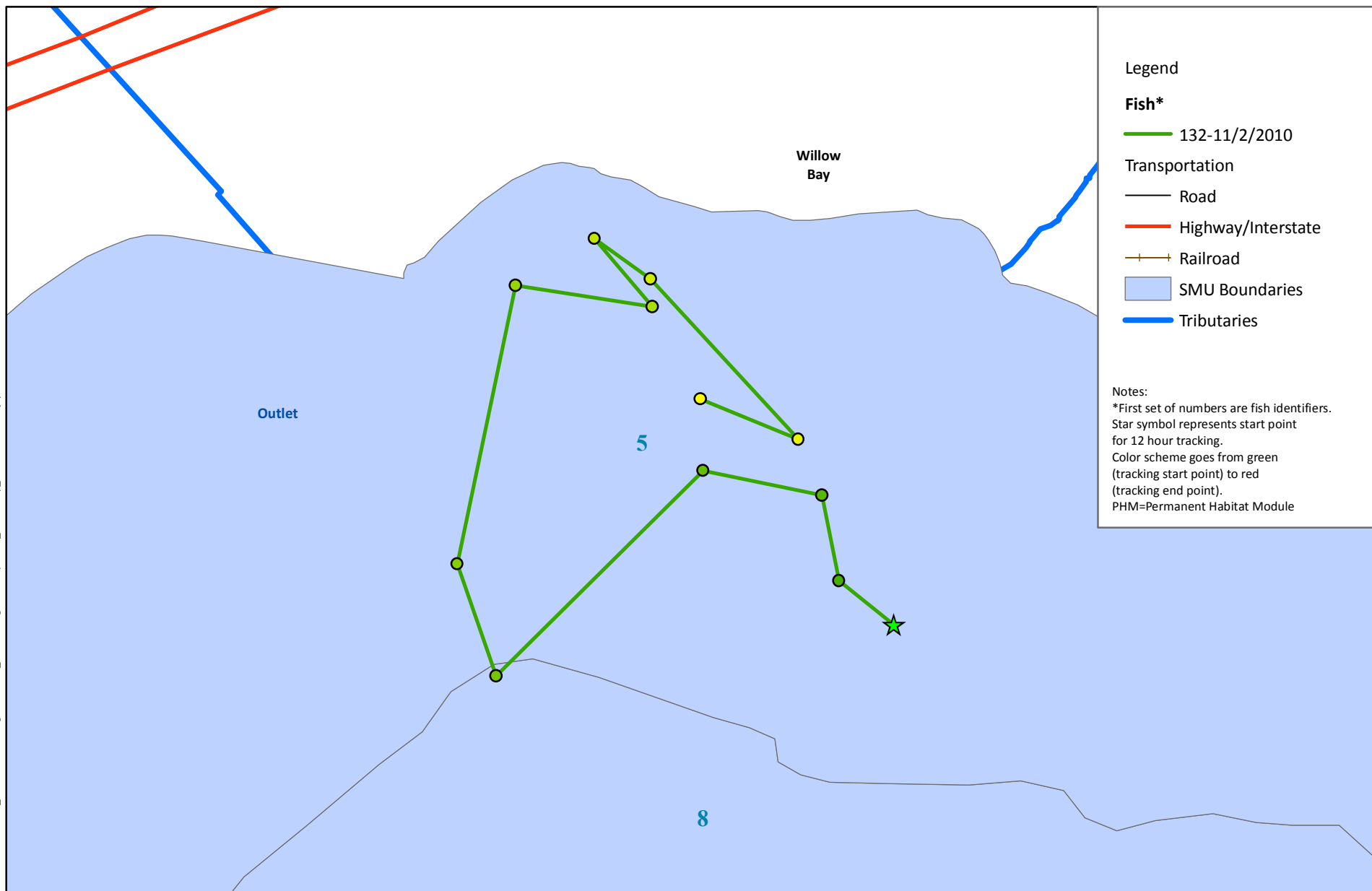
**Figure 14k**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



**Figure 14I**  
Walleye movement  
during 2010 based on  
hourly tracking for a  
24 hour period.



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**Figure 14m**  
SMB movement  
during 2010 based on  
hourly tracking for a  
12 hour period.

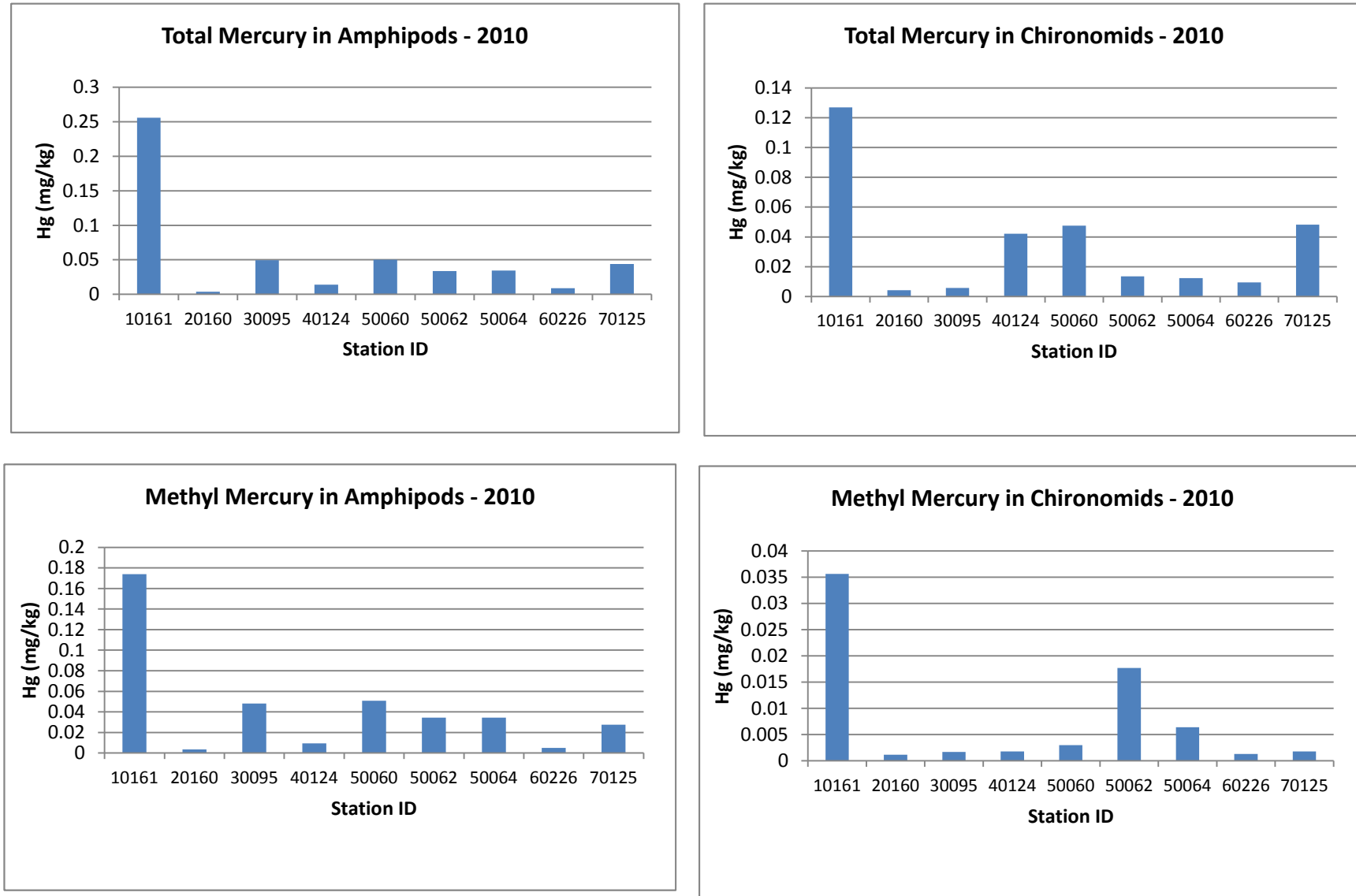


Figure 15. Mercury in Amphipods and Chironomids from Onondaga Lake - August 2010

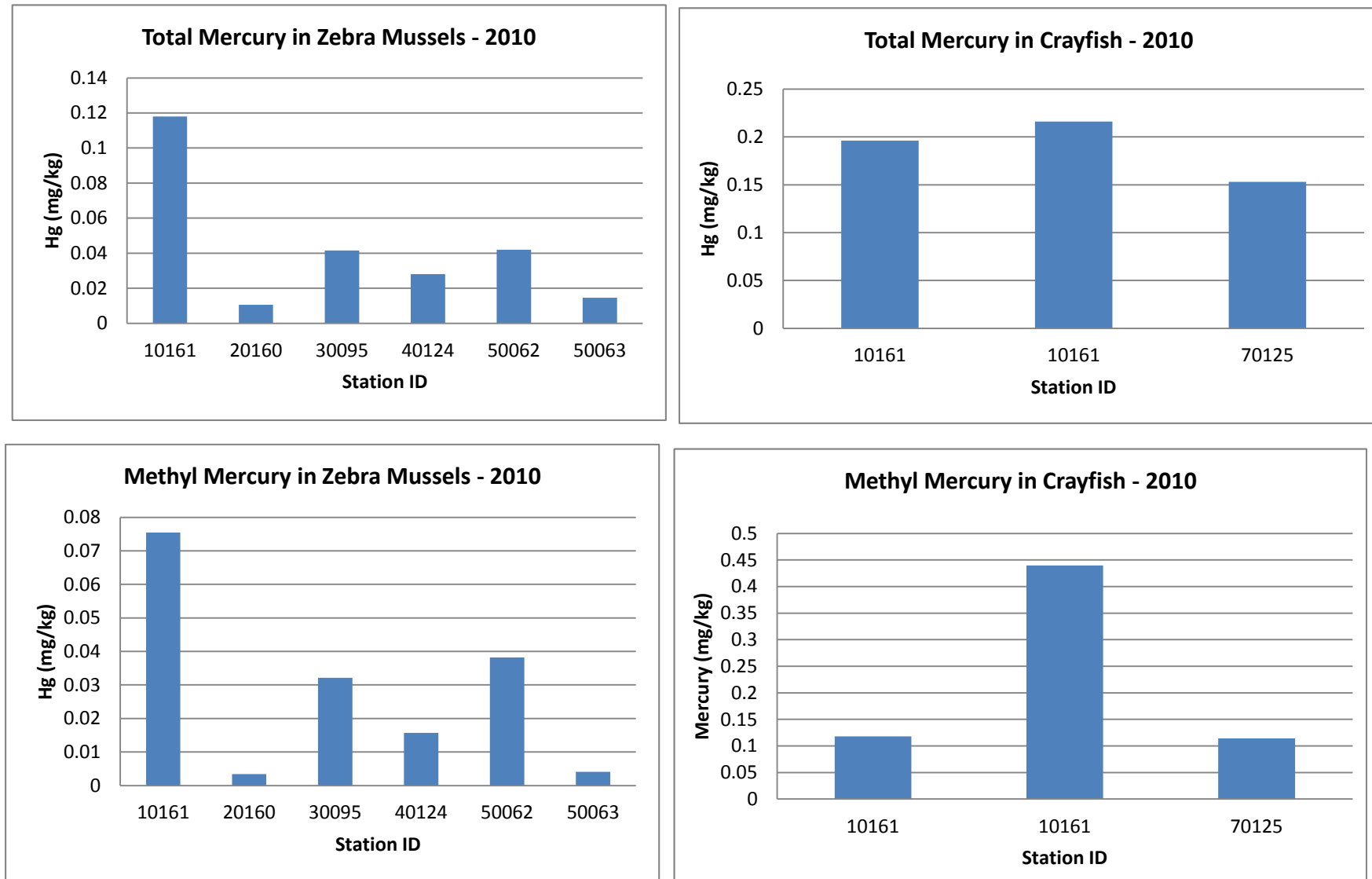
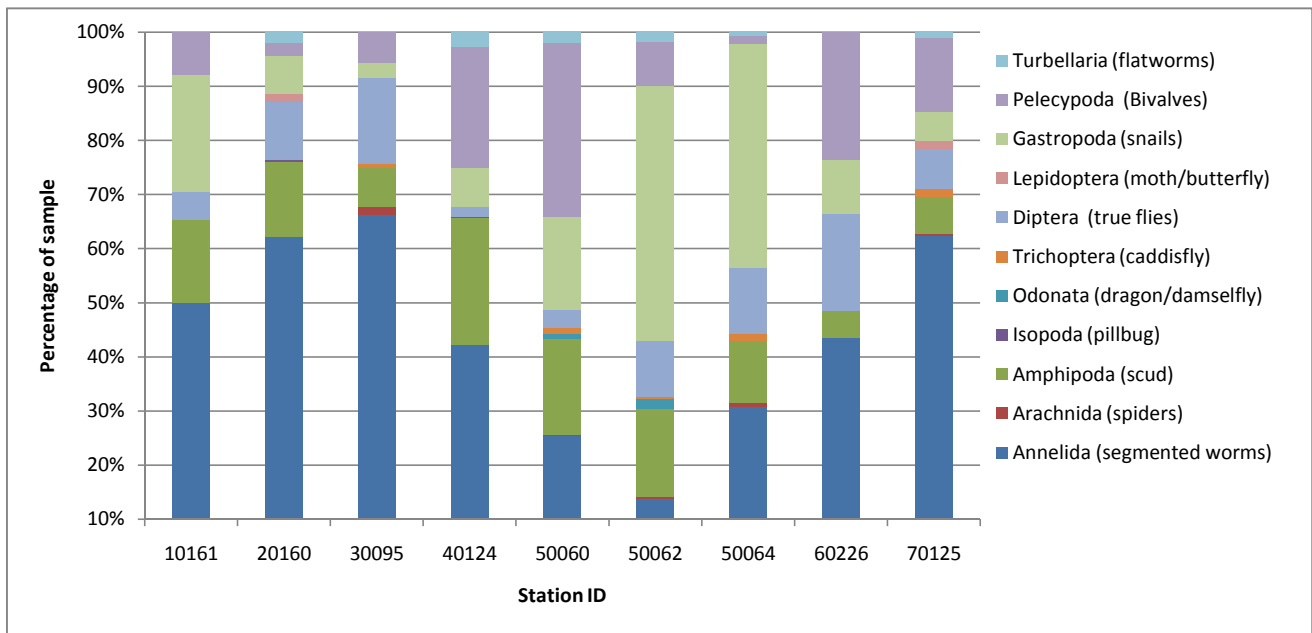


Figure 16. Mercury in Zebra Mussels and Crayfish from Onondaga Lake - August 2010



**Figure 17. Benthic macroinvertebrate community from locations in Onondaga Lake - August 2010.**

*Note: Data based on the sum of three replicates at each location; each replicate contained 100 individuals when possible.*

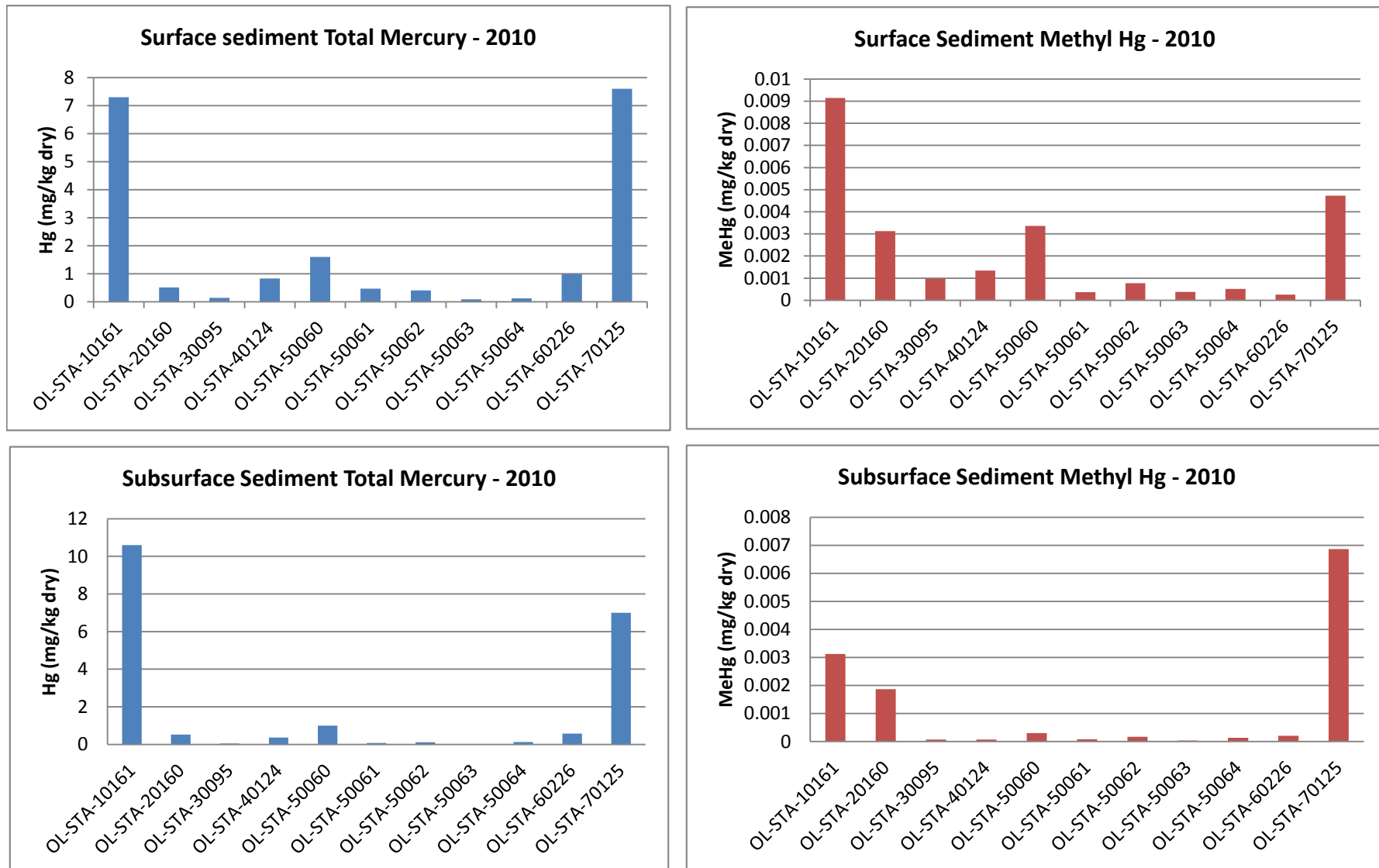
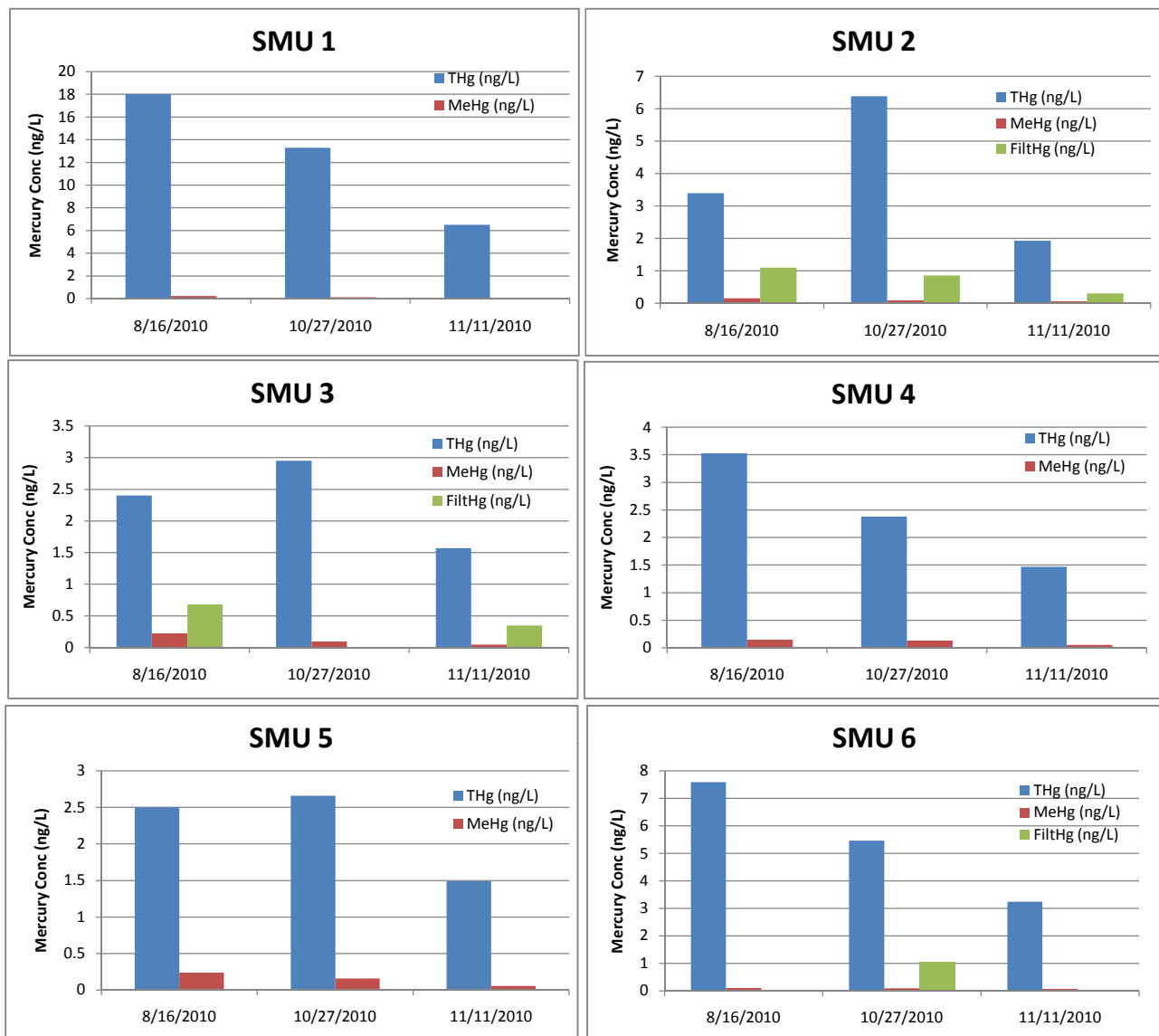


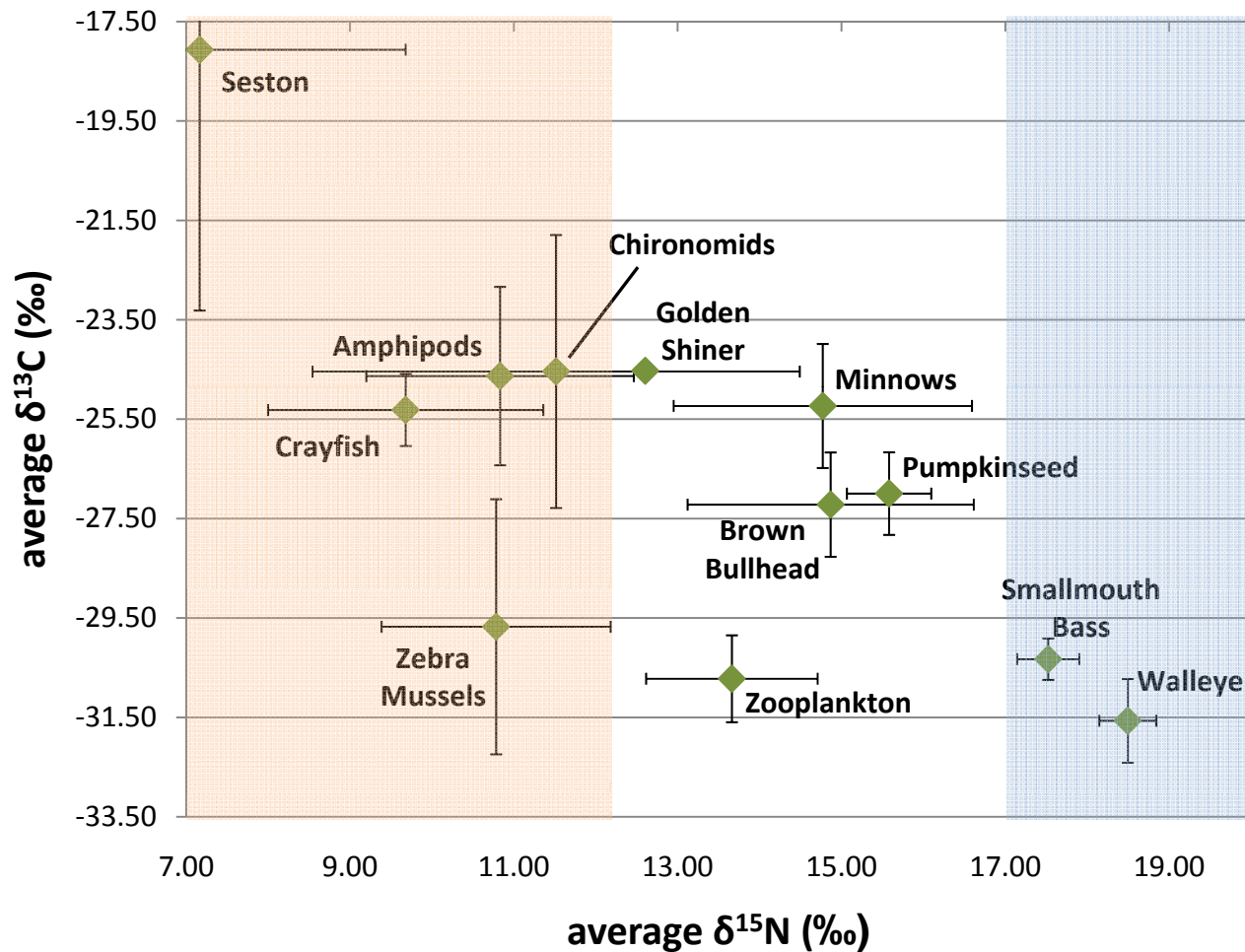
Figure 18. Mercury in Onondaga Lake surface and subsurface sediments - 2010.



Note: Lake turnover (i.e., mixing of the shallow and deep waters in the deep water zone) occurred on or about October 18, 2010.

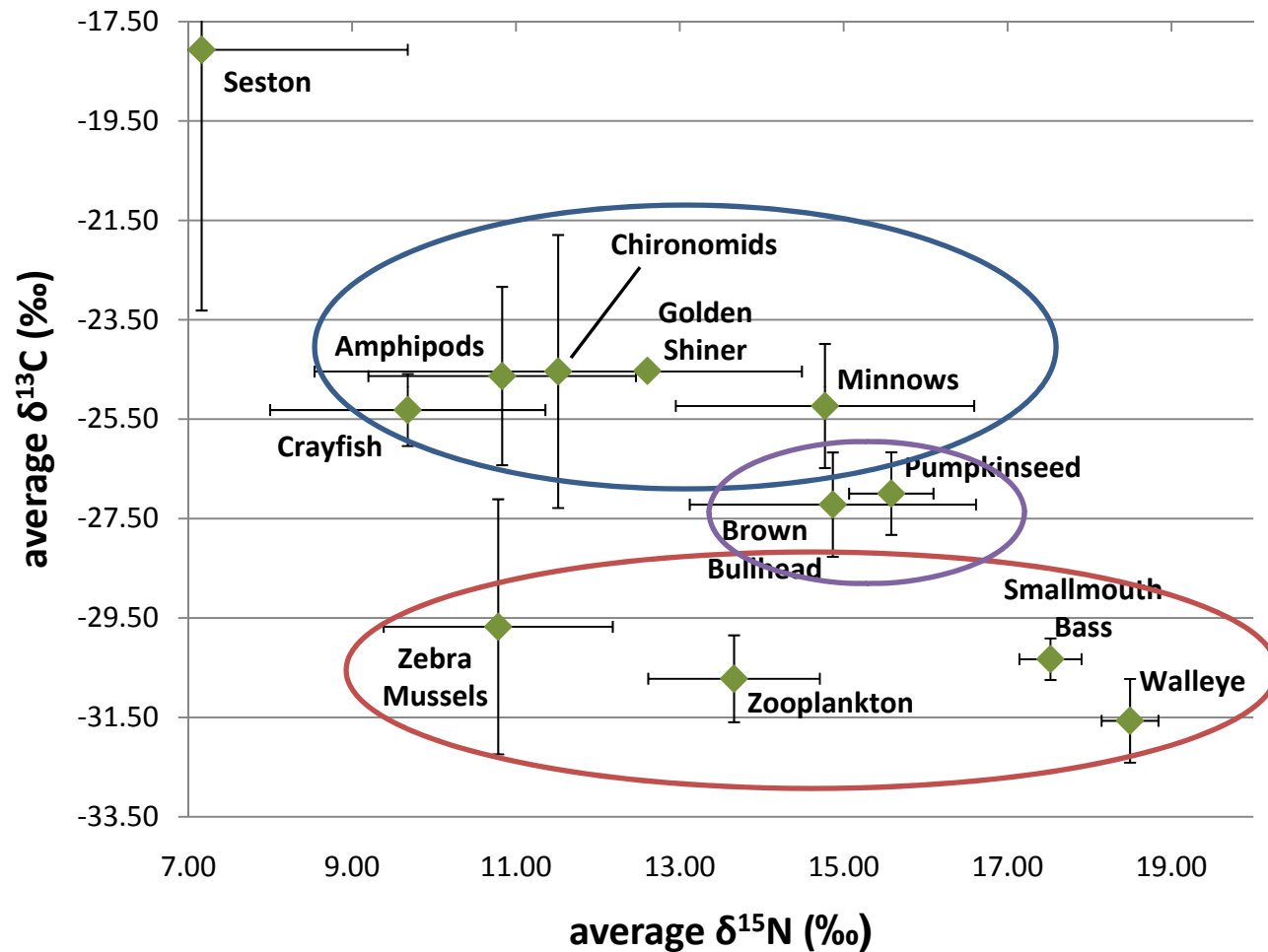
**Figure 19. Littoral water sample results from Onondaga Lake pre- and post-lake turnover 2010.**

**Figure 20a Stable Isotope Results with Consumer Levels: Ratio of  $\delta^{13}\text{C}$  to  $\delta^{15}\text{N}$**



- $\delta^{15}\text{N}$  results clearly identify upper level consumers (i.e. piscivores) and primary consumers, with more intermediate consumers in the middle

**Figure 20b Stable Isotope Results Based on Food Sources: Ratio of  $\delta^{13}\text{C}$  to  $\delta^{15}\text{N}$**



- Two distinct  $\delta^{13}\text{C}$  clusters suggest two separate food sources (benthic and pelagic)
- Intermediate cluster suggests combination of food sources (omnivory)



**APPENDIX A****DATA USABILITY AND SUMMARY REPORT, ONONDAGA LAKE  
BASELINE MONITORING BOOK 1 ADDENDUM 2 (2010): DEEP BASIN  
WATER AND ZOOPLANKTON MONITORING**

## **DATA USABILITY SUMMARY REPORT**

# **ONONDAGA LAKE BASELINE MONITORING BOOK 1 FOR 2010: DEEP BASIN WATER AND ZOOPLANKTON MONITORING**

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**DECEMBER 2011**

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## LIST OF ATTACHMENTS

### ATTACHMENT A VALIDATED LABORATORY DATA

- ATTACHMENT A-1 VALIDATED LABORATORY DATA FOR SURFACE  
WATER AND WATER COLUMN SAMPLES**
- ATTACHMENT A-2 VALIDATED LABORATORY DATA FOR ZOOPLANKTON  
SAMPLES**
- ATTACHMENT A-3 VALIDATED LABORATORY DATA FOR SEDIMENT  
TRAP SAMPLES**

**SECTION A1****DATA USABILITY SUMMARY**

Surface water, zooplankton, water column, and sediment trap samples were collected as part of the Book 1 baseline monitoring efforts for Onondaga Lake from March 29, 2010 through November 29, 2010. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Onondaga Lake Baseline Monitoring Book 1 Work Plan
- Onondaga Lake Baseline Monitoring Book 1 QAPP (Appendix B of the Work Plan)
- USEPA Region II Standard Operating Procedures (SOPs) for inorganic data review

Upstate Freshwater Institute (UFI) in Syracuse, New York collected all of the Book 1 samples during 2010.

The analytical laboratories for this project were Brooks Rand Labs (BRL) in Seattle, Washington and UFI. These laboratories are certified by the State of New York to conduct laboratory analyses for this project through the National Environmental Laboratory Accreditation Conference (NELAC).

**A1.1 LABORATORY DATA PACKAGES**

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 15 to 67 days for the samples.

The data packages received from the laboratories were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report which is summarized by sample media in Section A2.

**A1.2 SAMPLING AND CHAIN-OF-CUSTODY**

The samples were collected, shipped under a chain-of-custody (COC) record, and received at the laboratories within one day of sampling. All samples were received intact and in good condition at the laboratories.

**A1.3 LABORATORY ANALYTICAL METHODS**

The surface water samples were collected from the site and analyzed for total and dissolved low level mercury and methyl mercury. Zooplankton samples were collected from the site and

analyzed for low level mercury and methyl mercury. Weekly sediment trap samples were collected from the site and analyzed for total and dissolved calcium, total organic carbon (TOC), total carbon, total suspended solids (TSS), and total fixed solids, while sediment trap samples were analyzed for low level mercury on a monthly to weekly basis. The water column samples were collected and analyzed for low level mercury, methyl mercury, dissolved organic carbon (DOC), total inorganic carbon (TIC), chlorophyll, chloride, sulfide, methane, ferrous iron, nitrite, nitrate-nitrite, and ammonia. Summaries of deviations from the Work Plan, QAPP, or USEPA Region II SOPs concerning these laboratory analyses are presented in Subsections A1.3.1 through A1.3.4. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed for each analytical method by media in Section A2. The laboratory data were reviewed and may be qualified with the following validation flags:

- "U" - not detected at the value given
- "UJ" - estimated and not detected at the value given
- "J" - estimated at the value given
- "N" - presumptive evidence at the value given
- "R" - unusable value

The validated laboratory data were tabulated and are presented in Attachment A.

### **A1.3.1 Low Level Mercury Analysis**

Surface water, zooplankton, sediment trap, and water column samples collected from the site were analyzed by BRL for low level mercury using the USEPA 1631E analytical method. Certain reported results for the low level mercury samples were qualified as estimated based upon field duplicate precision. The reported low level mercury analytical results were considered 100% complete (i.e., usable) for the data presented by BRL. PARCC requirements were met.

### **A1.3.2 Methyl Mercury Analysis**

Surface water, zooplankton, and water column samples collected from the site were analyzed by BRL for methyl mercury using the USEPA 1630 analytical method. Certain reported results for the methyl mercury samples were qualified as estimated based upon laboratory control sample recoveries and field duplicate precision. The reported methyl mercury analytical results were considered 100% complete (i.e., usable) for the data presented by BRL. PARCC requirements were met.

### **A1.3.3 Other Sediment Trap Analyses**

Sediment trap samples collected from the site were also analyzed by UFI using analytical SOPs for total and dissolved calcium, TOC, total carbon, TSS, and total fixed solids. Certain reported results for these parameters were qualified as estimated based upon holding times,

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**PARSONS**

matrix spike recoveries, and sample triplicate precision. The reported analytical results for these parameters were considered 100% complete (i.e., usable) for the data presented by UFI. PARCC requirements were met.

#### **A1.3.4 Other Water Column Analyses**

Water column samples collected from the site were analyzed by UFI using analytical SOPs for DOC, TIC, chlorophyll, chloride, sulfide, methane, ferrous iron, nitrite, nitrate-nitrite, and ammonia. Certain reported results were qualified as estimated based upon holding times, matrix spike recoveries, laboratory control sample recoveries, laboratory duplicate precision, and instrument calibrations. The reported analytical results for these parameters were considered 100% complete (i.e., usable) for the data presented by UFI. PARCC requirements were met.

**SECTION A2****DATA VALIDATION REPORTS****A2.1 SURFACE WATER AND WATER COLUMN SAMPLES**

Data review has been completed for data packages generated by BRL and UFI containing surface water and water column samples collected from the site. The specific samples contained in these data packages, the analyses performed, and the validated laboratory data were tabulated and are presented in Attachment A-1. All of these samples were shipped under a COC record and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 "Evaluation of Metals Data for the CLP Program". This data validation and usability report is presented by analysis type.

**A2.1.1 Total and Dissolved Low Level Mercury**

The following items were reviewed for compliancy in the low level mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, laboratory preparation blank, field equipment blank contamination
- Matrix spike / matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS)
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of blank contamination as discussed below.

### Blank Contamination

The field equipment blank OL-1100-01 associated with samples collected on 5/24/10 contained total mercury above the reporting limit at a concentration of 0.76 ng/L; the field equipment blank OL-1122-01 associated with samples collected on 9/7/10 contained total mercury above the reporting limit at a concentration of 1.24 ng/L; and the field equipment blank OL-1146-01 associated with samples collected on 11/11/10 contained total mercury above the reporting limit at a concentration of 0.49 ng/L. Validation qualification of associated sample results was not required since sample results were not affected by the contamination found in these blanks.

### Usability

All total and dissolved mercury sample results were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The total and dissolved low level mercury data presented by BRL were 100% complete (i.e., usable). The validated low level mercury laboratory data are tabulated and presented in Attachment A-1.

### **A2.1.2 Methyl Mercury**

The following items were reviewed for compliancy in the methyl mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, laboratory preparation blank, and field equipment blank contamination
- Matrix spike / matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS)
- Field duplicate precision
- Sample result verification and identification



- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

### Usability

All methyl mercury sample results were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The methyl mercury data presented by BRL were 100% complete (i.e., usable). The validated methyl mercury laboratory data are tabulated and presented in Attachment A-1.

### **A2.1.3 DOC, TIC, Chlorophyll, Chloride, Sulfide, Methane, Ferrous Iron, Nitrite, Nitrate-Nitrite, and Ammonia**

All custody documentation, holding times, matrix spike recoveries, laboratory duplicate precision, laboratory control sample recoveries, laboratory method blank contamination, QC field blank contamination, initial and continuing calibration verifications, field duplicate precision, and quantitation limits were reviewed for compliance. Validation qualification of the sample results for these parameters was not required with the exception of the following:

- The ammonia results for the samples OL-1104-01, -02, and -03 were considered not detected and qualified “U” based upon similar concentrations detected in the associated laboratory blanks.
- The nitrate-nitrite results for samples OL-1110-01, -02, -03, -08, -12, and -14 were considered estimated, possibly biased low, and qualified “J” based upon exceedances of the 48-hour analytical holding time by five days.
- Positive nitrate-nitrite results for samples collected on 7/6/10 were considered estimated, possibly biased high, and qualified “J” based upon the associated matrix spike recovery exceeding the QC limit.
- The ferrous iron result for sample OL-1110-17 was considered not detected and qualified “U” based upon similar concentrations detected in the associated laboratory blanks.

- The DOC results for samples OL-1113-15 were considered estimated, possibly biased low, and qualified “J” based upon the associated continuing calibration verification recovery falling below the QC limit.
- The chlorophyll results for samples collected on 8/30/10 and 9/7/10 were considered estimated and qualified “J” based upon exceedances in laboratory duplicate precision.
- The TIC results for samples collected on 9/20/10 were considered estimated, possibly biased low, and qualified “J” based upon low LCS recoveries.
- The DOC results for samples collected on 10/18/10 and 10/26/10 were considered estimated, possibly biased low, and qualified “J” based upon low matrix spike recoveries.

It was noted that there were no sulfide results associated with samples collected on 10/4/10 due to an instrument malfunctioning at the laboratory which resulted in these samples along with all associated QC samples being compromised. Validation action was not required.

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The data for these parameters presented by UFI were 100% complete (i.e., usable). The validated laboratory data are tabulated and presented in Attachment A-1.

### A2.2 ZOOPLANKTON SAMPLES

Data review has been completed for data packages generated by BRL containing zooplankton samples collected from the site. The specific samples contained in these data packages, the analyses performed, and the validated laboratory data were tabulated and are presented in Attachment A-2. All of these samples were shipped under a COC record and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 “Evaluation of Metals Data for the CLP Program”. This data validation and usability report is presented by analysis type.

#### A2.2.1 Low Level Mercury

The following items were reviewed for compliancy in the low level mercury analysis:

- Custody documentation
- Holding times

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**PARSONS**

- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Matrix spike / matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS)
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of field duplicate precision as discussed below.

### Field Duplicate Precision

All field duplicate precision results for designated project field duplicates and their parent samples were considered acceptable with the exception of the mercury precision result (76%RPD) for the field duplicate pair OL-1140-08 and -09. The mercury results were considered estimated and qualified “J” for these samples.

### Usability

All low level mercury sample results for the zooplankton were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The low level mercury data presented by BRL were 100% complete (i.e., usable). The validated low level mercury laboratory data are tabulated and presented in Attachment A-2.

### **A2.2.2 Methyl Mercury**

The following items were reviewed for compliancy in the methyl mercury analysis:

- Custody documentation
- Holding times

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**PARSONS**

- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Matrix spike / matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS)
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of LCS recoveries and field duplicate precision as discussed below.

### LCS Recoveries

All LCS recoveries were considered acceptable and within QC limits with the exception of the low methyl mercury LCS recovery (41%R; QC limit 65-135%R) associated with zooplankton samples OL-1137-08, OL-1140-08, -09, and OL-1142-06. The methyl mercury results for these samples were considered estimated, possibly biased low, and qualified “J”.

### Field Duplicate Precision

All field duplicate precision results for designated project field duplicates and their parent samples were considered acceptable with the exception of the methyl mercury precision result (73%RPD) for the field duplicate pair OL-1140-08 and -09. The methyl mercury results were considered estimated and qualified “J” for these samples.

### Usability

All methyl mercury sample results for the zooplankton were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The methyl mercury data presented by BRL were 100% complete (i.e., usable). The validated methyl mercury laboratory data are tabulated and presented in Attachment A-2.

### **A2.3 SEDIMENT TRAP SAMPLES**

Data review has been completed for data packages generated by BRL and UFI containing sediment trap samples collected from the site. The specific samples contained in these data packages, the analyses performed, and the validated laboratory data were tabulated and are presented in Attachment A-3. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 "Evaluation of Metals Data for the CLP Program". This data validation and usability report is presented by analysis type.

#### **A2.3.1 Low Level Mercury**

The following items were reviewed for compliancy in the low level mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration, and laboratory preparation blank contamination
- Matrix spike / matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS)
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

### Usability

All low level mercury results for the sediment trap samples were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The low level mercury data presented by BRL were 100% complete (i.e., usable). The validated low level mercury laboratory data are tabulated and presented in Attachment A-3.

### **A2.3.2 Total and Dissolved Calcium, TOC, Total Carbon, TSS, and Total Fixed Solids**

All custody documentation, holding times, matrix spike recoveries, laboratory duplicate precision, laboratory control sample recoveries, laboratory method blank contamination, QC field blank contamination, initial and continuing calibration verifications, field duplicate precision, and quantitation limits were reviewed for compliance. Validation qualification of the sample results for these parameters was not required with the exception of the following:

- The positive TOC results for samples OL-1090-01, -02, -03, OL-1091-01, -02, -03, OL-1106-01, -02, -03, OL-1107-12, -13, and -14 were considered estimated, possibly biased low, and qualified “J” based upon exceedances in the 28-day analytical holding time by two to ten days.
- The positive total carbon results for samples OL-1090-01, -02, -03, OL-1091-01, -02, -03, OL-1103-01, -02, -03, OL-1104-06, -07, -08, OL-1106-01, -02, and -03 were considered estimated, possibly biased low, and qualified “J” based upon exceedances in the 28-day analytical holding time by two to 22 days.
- The positive TOC results for triplicate samples OL-1109-01/-02/-03 were considered estimated and qualified “J” based upon poor precision.
- The positive total carbon results for triplicate samples OL-1141-06/-07/-08 were considered estimated and qualified “J” based upon poor precision.
- The positive TSS and total fixed solids results for triplicate samples OL-1118-01/-02/-03 and OL-1147-06/-07/-08 were considered estimated and qualified “J” based upon poor precision.

- The calcium results for samples OL-1127-15, -16, -17, OL-1131-14, -15, -16, OL-1133-14, -15, -16, OL-1136-13, -14, -15 were considered estimated, possibly biased high, and qualified “J” based upon the associated matrix spike recovery exceeding the QC limit.

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The data for these parameters presented by UFI were 100% complete (i.e., usable). The validated laboratory data are tabulated and presented in Attachment A-3.

**ATTACHMENT A  
VALIDATED LABORATORY DATA**



**ATTACHMENT A-1**

**VALIDATED LABORATORY DATA FOR  
SURFACE WATER AND WATER COLUMN SAMPLES**

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	39.6-39.6 FT	39.6-39.6 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT
			Field Sample ID	OL-1095-04	OL-1096-04	OL-1096-05	OL-1095-01	OL-1095-02	OL-1095-03	OL-1096-02	OL-1096-02
			Sample Date	5/3/2010	5/3/2010	5/3/2010	5/3/2010	5/3/2010	5/3/2010	5/3/2010	5/3/2010
			SDG	UFICHM2010-008	1019008	1019008	UFICHM2010-008	UFICHM2010-008	UFICHM2010-008	1019008	1019008
			Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Regular sample
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L		0.000042 J	0.00005 J				0.000056	
N	E1631	MERCURY	ug/L		0.00315	0.00275				0.0036	
N	UFI SOP	CHLORIDE	mg/L	400			400	390	400		
N	UFI SOP	CHLOROPHYLL-A	ug/L	3.8			9.1	7.7	9.1		
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l	0.023			0.024	0.025	0.023		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.155			0.128	0.128	0.125		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.389			2.484	2.491	2.473		
N	UFI SOP	SULFIDE	mg/L								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	47.7			46.9	44.8	44.9		
Y	E1631	MERCURY	ug/L							0.00049 J	
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	2.8			3	2.9	2.9		
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	39.6-39.6 FT	39.6-39.6 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	
			Field Sample ID	OL-1096-03	OL-1099-04	OL-1100-04	OL-1099-05	OL-1100-05	OL-1099-01	OL-1099-02	
			Sample Date	5/3/2010	5/24/2010	5/24/2010	5/24/2010	5/24/2010	5/24/2010	5/24/2010	
			SDG	1019008	UFICHM2010-014	1022005	UFICHM2010-014	1022005	UFICHM2010-014	UFICHM2010-014	
			Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	
			Sample Purpose	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L	0.000056		0.00005	J	0.000056			
N	E1631	MERCURY	ug/L	0.00357		0.00269		0.00176			
N	UFI SOP	CHLORIDE	mg/L		400		400		390	390	
N	UFI SOP	CHLOROPHYLL-A	ug/L		14.3				12.6	11.7	
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l		0.028		0.03		0.027	0.027	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.115		0.204		0.03	0.031	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		2.376		2.206		2.551	2.555	
N	UFI SOP	SULFIDE	mg/L								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		46.1		47.3		46.2	46.2	
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		2.9		2.8		2.9	2.9	
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	39.6-39.6 FT	39.6-39.6 FT	59.4-59.4 FT	59.4-59.4 FT	
			Field Sample ID	OL-1099-03	OL-1100-02	OL-1100-03	OL-1104-04	OL-1105-04	OL-1104-05	OL-1105-05	
			Sample Date	5/24/2010	5/24/2010	5/24/2010	6/21/2010	6/21/2010	6/21/2010	6/21/2010	
			SDG	UFICHM2010-014	1022005	1022005	UFICHM2010-019	1026002	UFICHM2010-019	1026002	
			Matrix	WATER	WATER	WATER	Water	Water	Water	Water	
			Sample Purpose	Second field dup	Regular sample	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L		0.00008	0.000068		0.000039	J		0.000054
N	E1631	MERCURY	ug/L		0.00153	0.0024		0.00261			0.00304
N	UFI SOP	CHLORIDE	mg/L	390			400			400	
N	UFI SOP	CHLOROPHYLL-A	ug/L	12.7			4.3				
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l	0.027			0.046			0.201	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.027			0.195			0.35	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.541			2.128			1.931	
N	UFI SOP	SULFIDE	mg/L								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	45.3			46.4			49.7	
Y	E1631	MERCURY	ug/L		0.00097						
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	2.9			2.6			2.6	
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	39.6-39.6 FT	39.6-39.6 FT	
			Field Sample ID	OL-1104-01	OL-1104-02	OL-1104-03	OL-1105-02	OL-1105-03	OL-1107-04	OL-1108-04	
			Sample Date	6/21/2010	6/21/2010	6/21/2010	6/21/2010	6/21/2010	7/6/2010	7/6/2010	
			SDG	UFICHM2010-019	UFICHM2010-019	UFICHM2010-019	1026002	1026002	UFICHM2010-020	1028011	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L				0.000101	0.000087		0.000054	
N	E1631	MERCURY	ug/L				0.00317	0.00332		0.00624	
N	UFI SOP	CHLORIDE	mg/L	390	370	390			390		
N	UFI SOP	CHLOROPHYLL-A	ug/L	8.8	9.4	10.5			1.1		
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l	0.035	0.033	0.033			0.01	U	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.026	U	0.026	U		0.017	J	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.46	2.414	2.442			2.37	J	
N	UFI SOP	SULFIDE	mg/L								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	37.8	37.8	38.7			45.7		
Y	E1631	MERCURY	ug/L				0.00075				
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.2	3.3	3.3			2.4		
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT
			Field Sample ID	OL-1107-05	OL-1107-06	OL-1108-05	OL-1107-07	OL-1107-08	OL-1107-09	OL-1107-10	OL-1107-10
			Sample Date	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010
			SDG	UFICHM2010-020	UFICHM2010-020	1028011	UFICHM2010-020	UFICHM2010-020	UFICHM2010-020	UFICHM2010-020	UFICHM2010-020
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L			0.000046 J					
N	E1631	MERCURY	ug/L			0.00538					
N	UFI SOP	CHLORIDE	mg/L		390			390			
N	UFI SOP	CHLOROPHYLL-A	ug/L								
N	UFI SOP	FERROUS IRON (II)	ug/l		10 U				4 J	10 U	
N	UFI SOP	METHANE	ug/L		100 U				200 J	200 J	
N	UFI SOP	NITRITE	mg/l		0.286			0.328			
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.109			0.464			
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		2.065 J			2.05 J			
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U		0.068 U		0.068 U	0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		50.1			50.9			
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		2.5			2.8			
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT		
			Field Sample ID	OL-1107-11	OL-1108-06	OL-1107-01	OL-1107-02	OL-1107-03	OL-1108-02	OL-1108-03	OL-1108-03		
			Sample Date	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010	7/6/2010		
			SDG	UFICHM2010-020	1028011	UFICHM2010-020	UFICHM2010-020	UFICHM2010-020	UFICHM2010-020	1028011	1028011		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Second field dup	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate		
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water		
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L		0.000065					0.000135	0.000112		
N	E1631	MERCURY	ug/L		0.00473					0.00282	0.0031		
N	UFI SOP	CHLORIDE	mg/L			400	400	400					
N	UFI SOP	CHLOROPHYLL-A	ug/L			6.3	6	5.7					
N	UFI SOP	FERROUS IRON (II)	ug/l	3 J									
N	UFI SOP	METHANE	ug/L	200 J									
N	UFI SOP	NITRITE	mg/l			0.036	0.037	0.036					
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L			0.024 J	0.025 J	0.025 J					
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L			2.535 J	2.49 J	2.511 J					
N	UFI SOP	SULFIDE	mg/L	0.068 U									
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l			35.1	35.5	35.4					
Y	E1631	MERCURY	ug/L							0.0009			
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L			3	3.1	3.1					
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	26.4-26.4 FT	29.7-29.7 FT	33-33 FT	36.3-36.3 FT	39.6-39.6 FT	39.6-39.6 FT	42.9-42.9 FT			
			Field Sample ID	OL-1110-04	OL-1110-05	OL-1110-06	OL-1110-07	OL-1110-08	OL-1111-04	OL-1110-09			
			Sample Date	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010			
			SDG	CHM2010-022	CHM2010-022	CHM2010-022	CHM2010-022	CHM2010-022	1030011	CHM2010-022			
			Matrix	Water	Water	Water	Water	Water	Water	Water			
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample			
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water			
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L						0.000034	J			
N	E1631	MERCURY	ug/L						0.00149				
N	UFI SOP	CHLORIDE	mg/L					390					
N	UFI SOP	CHLOROPHYLL-A	ug/L					1.4					
N	UFI SOP	FERROUS IRON (II)	ug/l					10	U				
N	UFI SOP	METHANE	ug/L					500	U				
N	UFI SOP	NITRITE	mg/l					0.037					
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L					0.069					
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L					1.937	J				
N	UFI SOP	SULFIDE	mg/L	0.068	U	0.068	U	0.068	U	0.068	U	0.068	U
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l					49.5					
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L					2.5					
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										



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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT	
			Field Sample ID	OL-1110-10	OL-1110-11	OL-1110-12	OL-1111-05	OL-1110-13	OL-1110-14	OL-1110-15	
			Sample Date	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	
			SDG	CHM2010-022	CHM2010-022	CHM2010-022	1030011	CHM2010-022	CHM2010-022	CHM2010-022	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L				0.000067				
N	E1631	MERCURY	ug/L				0.00193				
N	UFI SOP	CHLORIDE	mg/L			390			390		
N	UFI SOP	CHLOROPHYLL-A	ug/L								
N	UFI SOP	FERROUS IRON (II)	ug/l			10 U				10 U	
N	UFI SOP	METHANE	ug/L			500 U				800	
N	UFI SOP	NITRITE	mg/l			0.213			0.209		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L			0.28			0.602		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L			1.663 J			1.454 J		
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U	0.068 U		0.068 U		0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l			49.7			48.8		
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L			2.6			2.7		
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT		
			Field Sample ID	OL-1110-16	OL-1110-17	OL-1111-06	OL-1110-01	OL-1110-02	OL-1110-03	OL-1111-02			
			Sample Date	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010	7/19/2010		
			SDG	CHM2010-022	CHM2010-022	1030011	CHM2010-022	CHM2010-022	CHM2010-022	CHM2010-022	1030011		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Field duplicate	Second field dup	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample			
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water			
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L			0.000058					0.000132		
N	E1631	MERCURY	ug/L			0.00165					0.00258		
N	UFI SOP	CHLORIDE	mg/L				400	400	400				
N	UFI SOP	CHLOROPHYLL-A	ug/L				13.1	12.7	13.6				
N	UFI SOP	FERROUS IRON (II)	ug/l	10 U	10 U								
N	UFI SOP	METHANE	ug/L	700	1900								
N	UFI SOP	NITRITE	mg/l				0.043	0.042	0.042				
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L				0.028	0.027	0.028				
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L				2.202 J	2.12 J	2.149 J				
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l				31.2	31.7	31.7				
Y	E1631	MERCURY	ug/L								0.00052		
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L				4.1	3.8	3.8				
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	23.1-23.1 FT	26.4-26.4 FT	29.7-29.7 FT	33-33 FT	36.3-36.3 FT	39.6-39.6 FT	
			Field Sample ID	OL-1111-03	OL-1113-04	OL-1113-05	OL-1113-06	OL-1113-07	OL-1113-08	OL-1113-09	
			Sample Date	7/19/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	
			SDG	1030011	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L	0.000135							
N	E1631	MERCURY	ug/L	0.00269							
N	UFI SOP	CHLORIDE	mg/L								400
N	UFI SOP	CHLOROPHYLL-A	ug/L								1.1
N	UFI SOP	FERROUS IRON (II)	ug/l								10 U
N	UFI SOP	METHANE	ug/L								500 U
N	UFI SOP	NITRITE	mg/l								0.112
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								0.181
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								2.043
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l								47.8
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L								2.4
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	39.6-39.6 FT	42.9-42.9 FT	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	
			Field Sample ID	OL-1114-04	OL-1113-10	OL-1113-11	OL-1113-12	OL-1113-13	OL-1114-05	OL-1113-14	
			Sample Date	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	
			SDG	1032011	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	1032011	UFICHM2010-025	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L	0.000071					0.000081		
N	E1631	MERCURY	ug/L	0.00155					0.00158		
N	UFI SOP	CHLORIDE	mg/L					400			
N	UFI SOP	CHLOROPHYLL-A	ug/L								
N	UFI SOP	FERROUS IRON (II)	ug/l					3 J			
N	UFI SOP	METHANE	ug/L					500			
N	UFI SOP	NITRITE	mg/l					0.165			
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L					0.518			
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L					1.664			
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U	0.068 U	0.068 U		0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l					49.4			
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L					2.5			
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 Ft	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	
			Field Sample ID	OL-1113-15	OL-1113-16	OL-1113-17	OL-1113-18	OL-1114-06	OL-1113-01	OL-1113-02	
			Sample Date	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	
			SDG	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	UFICHM2010-025	1032011	UFICHM2010-025	UFICHM2010-025	
			Matrix	Water	Water	Water	WATER	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Regular sample	Field duplicate	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L					0.000149			
N	E1631	MERCURY	ug/L					0.00154			
N	UFI SOP	CHLORIDE	mg/L	400					380	390	
N	UFI SOP	CHLOROPHYLL-A	ug/L						6	5.8	
N	UFI SOP	FERROUS IRON (II)	ug/l		10 U	3 J	10 U				
N	UFI SOP	METHANE	ug/L		900	1000	900				
N	UFI SOP	NITRITE	mg/l	0.114					0.049	0.032	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.806					0.048	0.065	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	1.363					2.543	2.576	
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U	0.068 U				
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	51.8					32.1	31.7	
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	2.5 J					3.5	3.5	
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	23.1-23.1 FT	26.4-26.4 FT	29.7-29.7 FT	33-33 FT	
			Field Sample ID	OL-1113-03	OL-1114-02	OL-1114-03	OL-1116-04	OL-1116-05	OL-1116-06	OL-1116-07	
			Sample Date	8/2/2010	8/2/2010	8/2/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	
			SDG	UFICHM2010-025	1032011	1032011	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Second field dup	Regular sample	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L		0.000142	0.000145					
N	E1631	MERCURY	ug/L		0.00347	0.00362					
N	UFI SOP	CHLORIDE	mg/L	390							
N	UFI SOP	CHLOROPHYLL-A	ug/L	5.8							
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l	0.05							
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.047							
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.467							
N	UFI SOP	SULFIDE	mg/L				0.068 U	0.068 U	0.068 U	0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	31.7							
Y	E1631	MERCURY	ug/L		0.00081						
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.5							
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	36.3-36.3 FT	39.6-39.6 FT	39.6-39.6 FT	42.9-42.9 FT	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	
			Field Sample ID	OL-1116-08	OL-1116-09	OL-1117-04	OL-1116-10	OL-1116-11	OL-1116-12	OL-1116-13	
			Sample Date	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	
			SDG	UFICHM2010-027	UFICHM2010-027	1034003	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L			0.000086					
N	E1631	MERCURY	ug/L			0.00239					
N	UFI SOP	CHLORIDE	mg/L		400					390	
N	UFI SOP	CHLOROPHYLL-A	ug/L		0.9						
N	UFI SOP	FERROUS IRON (II)	ug/l		10 U					10 U	
N	UFI SOP	METHANE	ug/L		300 J					900	
N	UFI SOP	NITRITE	mg/l		0.115					0.164	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.306					0.521	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		1.667					1.398	
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U		0.068 U	0.068 U	0.068 U	0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		49.4					49.7	
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		2.7					2.6	
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT		
			Field Sample ID	OL-1117-05	OL-1116-14	OL-1116-15	OL-1116-16	OL-1116-17	OL-1116-18	OL-1117-06			
			Sample Date	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010		
			SDG	1034003	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	1034003		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample			
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water			
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L	0.000134							0.000178		
N	E1631	MERCURY	ug/L	0.00202							0.00189		
N	UFI SOP	CHLORIDE	mg/L			390							
N	UFI SOP	CHLOROPHYLL-A	ug/L										
N	UFI SOP	FERROUS IRON (II)	ug/l				10 U	10 U	10 U				
N	UFI SOP	METHANE	ug/L				900	600	1100				
N	UFI SOP	NITRITE	mg/l			0.054							
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L			0.923							
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L			0.956							
N	UFI SOP	SULFIDE	mg/L		0.068 U		0.068 U	0.068 U	0.068 U				
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l			53.9							
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L			2.8							
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										



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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	29.7-29.7 FT	33-33 FT	
			Field Sample ID	OL-1116-01	OL-1116-02	OL-1116-03	OL-1117-02	OL-1117-03	OL-1119-04	OL-1119-05	
			Sample Date	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/16/2010	8/30/2010	8/30/2010	
			SDG	UFICHM2010-027	UFICHM2010-027	UFICHM2010-027	1034003	1034003	UFICHM2010-028	UFICHM2010-028	
			Matrix	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L				0.000129	0.000183			
N	E1631	MERCURY	ug/L				0.00271	0.00288			
N	UFI SOP	CHLORIDE	mg/L	400	410	400					
N	UFI SOP	CHLOROPHYLL-A	ug/L	7.8	7.4	7.3					
N	UFI SOP	FERROUS IRON (II)	ug/l								
N	UFI SOP	METHANE	ug/L								
N	UFI SOP	NITRITE	mg/l	0.055	0.058	0.057					
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.078	0.081	0.086					
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.273	2.249	2.278					
N	UFI SOP	SULFIDE	mg/L						0.068 U	0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	32.5	33.2	33.4					
Y	E1631	MERCURY	ug/L				0.00055				
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.7	3.8	3.8					
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	36.3-36.3 FT	39.6-39.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT		
			Field Sample ID	OL-1119-06	OL-1119-07	OL-1119-01	OL-1119-02	OL-1119-03	OL-1120-02	OL-1120-03	OL-1120-03		
			Sample Date	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010		
			SDG	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	1036006	1036006		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate		
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water		
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L							0.000119	0.000112		
N	E1631	MERCURY	ug/L							0.00169	0.00145		
N	UFI SOP	CHLORIDE	mg/L		397.4	357.6	357.6	357.6					
N	UFI SOP	CHLOROPHYLL-A	ug/L		1.6 J	14.5 J	15.6 J	11.6 J					
N	UFI SOP	FERROUS IRON (II)	ug/l		4 J								
N	UFI SOP	METHANE	ug/L		400 J								
N	UFI SOP	NITRITE	mg/l		0.076	0.05	0.052	0.05					
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.405	0.019 J	0.02 J	0.019 J					
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		1.418	2.368	2.405	2.359					
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		47.7	32.2	32.1	32.9					
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		2.9	4.1	4.1	4					
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S						
			Sample Depth	39.6-39.6 FT	42.9-42.9 FT	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT							
			Field Sample ID	OL-1120-04	OL-1119-08	OL-1119-09	OL-1119-10	OL-1119-11	OL-1120-05	OL-1119-12	OL-1119-13							
			Sample Date	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010	8/30/2010							
			SDG	1036006	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	1036006	UFICHM2010-028	UFICHM2010-028						
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water							
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample							
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water							
Filtered	Method	Parameter Name	Units															
N	E1630	METHYL MERCURY	ug/L	8.30E-05						1.13E-04								
N	E1631	MERCURY	ug/L	0.00131						0.00123								
N	UFI SOP	CHLORIDE	mg/L						397.4							387.5		
N	UFI SOP	CHLOROPHYLL-A	ug/L															
N	UFI SOP	FERROUS IRON (II)	ug/l						10 U									
N	UFI SOP	METHANE	ug/L						800									
N	UFI SOP	NITRITE	mg/l						0.075							0.02		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L						0.824							1.12		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L						1.126							0.662		
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U								
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l						50.3							51.7		
Y	E1631	MERCURY	ug/L															
Y	UFI SOP	CHLORIDE	mg/L															
Y	UFI SOP	CHLOROPHYLL-A	ug/L															
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L						2.9							3.1		
Y	UFI SOP	NITRITE	mg/l															
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L															
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L															
Y	UFI SOP	SULFIDE	mg/L															
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l															

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	26.4-26.4 Ft	29.7-29.7 FT	33-33 FT	36.3-36.3 FT	
			Field Sample ID	OL-1119-14	OL-1119-15	OL-1119-16	OL-1120-06	OL-1121-04	OL-1121-05	OL-1121-06	OL-1121-07	
			Sample Date	8/30/2010	8/30/2010	8/30/2010	8/30/2010	9/7/2010	9/7/2010	9/7/2010	9/7/2010	
			SDG	UFICHM2010-028	UFICHM2010-028	UFICHM2010-028	1036006	UFICHM2010-030	UFICHM2010-030	UFICHM2010-030	UFICHM2010-030	
			Matrix	Water	Water	Water	Water	WATER	Water	Water	Water	
			Sample Purpose	Regular sample	Field duplicate	Second field dup	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L				1.33E-04					
N	E1631	MERCURY	ug/L				0.00154					
N	UFI SOP	CHLORIDE	mg/L									
N	UFI SOP	CHLOROPHYLL-A	ug/L									
N	UFI SOP	FERROUS IRON (II)	ug/l	10 U	3 J	3 J						
N	UFI SOP	METHANE	ug/L	1500	1600	1300						
N	UFI SOP	NITRITE	mg/l									
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U	0.068 U		0.068 U	0.068 U	0.068 U	0.068 U	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l									
Y	E1631	MERCURY	ug/L									
Y	UFI SOP	CHLORIDE	mg/L									
Y	UFI SOP	CHLOROPHYLL-A	ug/L									
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L									
Y	UFI SOP	NITRITE	mg/l									
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
Y	UFI SOP	SULFIDE	mg/L									
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l									

## Surface Water Analytical Data

[illegible]

## Surface Water Analytical Data

[illegible]

## Surface Water Analytical Data

[illegible]

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	
			Sample Depth	46.2-46.2 FT	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT		
			Field Sample ID	OL-1123-08	OL-1124-05	OL-1123-09	OL-1123-10	OL-1124-06	OL-1123-11	OL-1123-12	OL-1123-13		
			Sample Date	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010		
			SDG	UFICHM2010-034	1038009	UFICHM2010-034	UFICHM2010-034	1038009	UFICHM2010-034	UFICHM2010-034	UFICHM2010-034		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample		
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water		
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L		1.55E-04			2.50E-04					
N	E1631	MERCURY	ug/L		0.00177			0.00364					
N	UFI SOP	CHLORIDE	mg/L	410			400						
N	UFI SOP	CHLOROPHYLL-A	ug/L										
N	UFI SOP	FERROUS IRON (II)	ug/l				10 U					5 J	
N	UFI SOP	METHANE	ug/L				1200					1800	
N	UFI SOP	NITRITE	mg/l	0.008 J			0.008 J						
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.741			1.01						
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	1.035			0.843						
N	UFI SOP	SULFIDE	mg/L	0.068 U		0.068 U	0.068 U		0.068 U		0.068 U		
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	51.6			51.9			55.2			
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L				3						
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										



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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S						
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT						
			Field Sample ID	OL-1123-14	OL-1123-15	OL-1124-07	OL-1123-01	OL-1123-02	OL-1123-03	OL-1124-02	OL-1124-03	OL-1124-03						
			Sample Date	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010	9/13/2010						
			SDG	UFICHM2010-034	UFICHM2010-034	1038009	UFICHM2010-034	UFICHM2010-034	UFICHM2010-034	UFICHM2010-034	1038009	1038009						
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water						
			Sample Purpose	Field duplicate	Second field dup	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate						
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water						
Filtered	Method	Parameter Name	Units															
N	E1630	METHYL MERCURY	ug/L			8.79E-04						1.15E-04					1.06E-04	
N	E1631	MERCURY	ug/L			0.00362						0.00341					0.00299	
N	UFI SOP	CHLORIDE	mg/L					380	390	390								
N	UFI SOP	CHLOROPHYLL-A	ug/L					5.1	6.8	7.3								
N	UFI SOP	FERROUS IRON (II)	ug/l	10 U	10 U													
N	UFI SOP	METHANE	ug/L	1700	1600													
N	UFI SOP	NITRITE	mg/l					0.051	0.052	0.052								
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L					0.123	0.123	0.125								
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L					2.163	2.116	2.18								
N	UFI SOP	SULFIDE	mg/L	0.068 U	0.068 U													
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l					35.8	34.5	35								
Y	E1631	MERCURY	ug/L									0.00046						
Y	UFI SOP	CHLORIDE	mg/L															
Y	UFI SOP	CHLOROPHYLL-A	ug/L															
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L					3.9	3.7	3.7								
Y	UFI SOP	NITRITE	mg/l															
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L															
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L															
Y	UFI SOP	SULFIDE	mg/L															
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l															

### Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	59.4-59.4 FT	36.3-36.3 FT	39.6-39.6 FT	39.6-39.6 FT	42.9-42.9 FT	46.2-46.2 FT	46.2-46.2 FT	49.5-49.5 FT
			Field Sample ID	OL-1126-01	OL-1127-04	OL-1127-05	OL-1128-04	OL-1127-06	OL-1127-07	OL-1128-05	OL-1127-08
			Sample Date	9/14/2010	9/20/2010	9/20/2010	9/20/2010	9/20/2010	9/20/2010	9/20/2010	9/20/2010
			SDG	UFICHM2010-034	UFICHM2010-035	UFICHM2010-035	1039012	UFICHM2010-035	UFICHM2010-035	1039012	UFICHM2010-035
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units								
N	E1630	METHYL MERCURY	ug/L				8.00E-05			1.69E-04	
N	E1631	MERCURY	ug/L				0.00198			0.00189	
N	UFI SOP	CHLORIDE	mg/L	400		437.1			407.3		
N	UFI SOP	CHLOROPHYLL-A	ug/L			2.9					
N	UFI SOP	FERROUS IRON (II)	ug/l			10 U					
N	UFI SOP	METHANE	ug/L			300 J					
N	UFI SOP	NITRITE	mg/l	0.005 J		0.01 U			0.01 U		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.829		0.526			0.736		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	0.937		1.251			0.953		
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U		0.068 U	0.068 U		0.068 U
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l			53 J			55.2 J		
Y	E1631	MERCURY	ug/L								
Y	UFI SOP	CHLORIDE	mg/L								
Y	UFI SOP	CHLOROPHYLL-A	ug/L								
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3		2.8					
Y	UFI SOP	NITRITE	mg/l								
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L								
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L								
Y	UFI SOP	SULFIDE	mg/L								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l								

## Surface Water Analytical Data

[illegible]

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S						
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	39.6-39.6 FT	39.6-39.6 FT	42.9-42.9 FT							
			Field Sample ID	OL-1127-01	OL-1127-02	OL-1127-03	OL-1128-02	OL-1128-03	OL-1131-04	OL-1132-04	OL-1131-05							
			Sample Date	9/20/2010	9/20/2010	9/20/2010	9/20/2010	9/20/2010	9/27/2010	9/27/2010	9/27/2010							
			SDG	UFICHM2010-035	UFICHM2010-035	UFICHM2010-035	1039012	1039012	CHM2010-036	1040020	CHM2010-036							
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water							
			Sample Purpose	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Regular sample	Regular sample	Regular sample							
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water							
Filtered	Method	Parameter Name	Units															
N	E1630	METHYL MERCURY	ug/L					9.10E-05	9.20E-05		1.07E-04							
N	E1631	MERCURY	ug/L					0.00254	0.00224		0.00166							
N	UFI SOP	CHLORIDE	mg/L	387.5	397.4	397.4				447.1								
N	UFI SOP	CHLOROPHYLL-A	ug/L	13.4	11.4	13.5				3.4								
N	UFI SOP	FERROUS IRON (II)	ug/l							5 J								
N	UFI SOP	METHANE	ug/L							500 U								
N	UFI SOP	NITRITE	mg/l	0.04	0.039	0.041				0.023								
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.076	0.075	0.076				0.4								
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	2.226	2.133	2.165				1.564								
N	UFI SOP	SULFIDE	mg/L							0.068 U						0.068 U		
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	38.5 J	37.2 J	38.5 J				47.4								
Y	E1631	MERCURY	ug/L					0.00042										
Y	UFI SOP	CHLORIDE	mg/L															
Y	UFI SOP	CHLOROPHYLL-A	ug/L															
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.5	3.6	3.5				2.8								
Y	UFI SOP	NITRITE	mg/l															
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L															
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L															
Y	UFI SOP	SULFIDE	mg/L															
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l															

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S		
			Sample Depth	46.2-46.2 FT	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT		
			Field Sample ID	OL-1131-06	OL-1132-05	OL-1131-07	OL-1131-08	OL-1132-06	OL-1131-09	OL-1131-10	OL-1131-11		
			Sample Date	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010		
			SDG	CHM2010-036	1040020	CHM2010-036	CHM2010-036	1040020	CHM2010-036	CHM2010-036	CHM2010-036		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample		
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water		
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L		1.76E-04			3.16E-04					
N	E1631	MERCURY	ug/L		0.00176			0.0015					
N	UFI SOP	CHLORIDE	mg/L	427.2			397.4			407.3			
N	UFI SOP	CHLOROPHYLL-A	ug/L										
N	UFI SOP	FERROUS IRON (II)	ug/l				10 U				7 J		
N	UFI SOP	METHANE	ug/L				1300				2200		
N	UFI SOP	NITRITE	mg/l	0.004 J			0.004 J			0.01 U			
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.696			0.965			1.581			
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	0.954			0.663			0.201			
N	UFI SOP	SULFIDE	mg/L	0.068 U		0.068 U	0.068 U		0.068 U		0.068 U		
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	51.8			54.3			57.4			
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	CHLOROPHYLL-A	ug/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	2.8			2.8			3			
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S						
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT						
			Field Sample ID	OL-1131-12	OL-1131-13	OL-1132-07	OL-1131-01	OL-1131-02	OL-1131-03	OL-1132-02	OL-1132-03	OL-1132-03						
			Sample Date	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010	9/27/2010						
			SDG	CHM2010-036	CHM2010-036	1040020	CHM2010-036	CHM2010-036	CHM2010-036	CHM2010-036	1040020	1040020						
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water						
			Sample Purpose	Field duplicate	Second field dup	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate						
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water						
Filtered	Method	Parameter Name	Units															
N	E1630	METHYL MERCURY	ug/L				1.28E-03								1.10E-04		1.10E-04	
N	E1631	MERCURY	ug/L				0.00353								0.00331		0.00397	
N	UFI SOP	CHLORIDE	mg/L					407.3	397.4	407.3								
N	UFI SOP	CHLOROPHYLL-A	ug/L					11	10.4	11.4								
N	UFI SOP	FERROUS IRON (II)	ug/l		5 J	10 U												
N	UFI SOP	METHANE	ug/L		2100	2000												
N	UFI SOP	NITRITE	mg/l					0.043	0.043	0.041								
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L					0.084	0.083	0.082								
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L					2.462	2.474	2.453								
N	UFI SOP	SULFIDE	mg/L		0.068 U	0.068 U												
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l					38.5	37.9	37.1								
Y	E1631	MERCURY	ug/L												0.00043			
Y	UFI SOP	CHLORIDE	mg/L															
Y	UFI SOP	CHLOROPHYLL-A	ug/L															
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L					3.5	3.6	3.5								
Y	UFI SOP	NITRITE	mg/l															
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L															
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L															
Y	UFI SOP	SULFIDE	mg/L															
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l															

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S						
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT						
			Field Sample ID	OL-1133-12	OL-1133-13	OL-1134-07	OL-1133-01	OL-1133-02	OL-1133-03	OL-1134-02	OL-1134-03	OL-1134-03						
			Sample Date	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010	10/4/2010						
			SDG	CHM2010-037	CHM2010-037	1041013	CHM2010-037	CHM2010-037	CHM2010-037	CHM2010-037	1041013	1041013						
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water						
			Sample Purpose	Field duplicate	Second field dup	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate						
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water						
Filtered	Method	Parameter Name	Units															
N	E1630	METHYL MERCURY	ug/L				6.18E-04						1.11E-04				9.10E-05	
N	E1631	MERCURY	ug/L				0.00286						0.00295				0.00322	
N	UFI SOP	CHLORIDE	mg/L					355.3	355.3	355.3								
N	UFI SOP	CHLOROPHYLL-A	ug/L					5.7	5.6	5.5								
N	UFI SOP	FERROUS IRON (II)	ug/l	10 U	10 U													
N	UFI SOP	METHANE	ug/L	1600	1600													
N	UFI SOP	NITRITE	mg/l					0.037	0.036	0.038								
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L					0.136	0.134	0.138								
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L					1.824	1.813	1.847								
N	UFI SOP	SULFIDE	mg/L															
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l					36.3	36.8	36.4								
Y	E1631	MERCURY	ug/L										0.00045					
Y	UFI SOP	CHLORIDE	mg/L															
Y	UFI SOP	CHLOROPHYLL-A	ug/L															
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L					3.7	3.9	3.7								
Y	UFI SOP	NITRITE	mg/l															
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L															
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L															
Y	UFI SOP	SULFIDE	mg/L															
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l															



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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	39.6-39.6 FT	39.6-39.6 FT	46.2-46.2 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT
			Field Sample ID	OL-1136-04	OL-1137-04	OL-1136-05	OL-1136-01	OL-1136-02	OL-1136-03	OL-1137-02	OL-1137-03	OL-1137-03
			Sample Date	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010
			SDG	CHM2010-042	1042010	CHM2010-042	CHM2010-042	CHM2010-042	CHM2010-042	CHM2010-042	1042010	1042010
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L		8.80E-05					8.80E-05	6.90E-05	
N	E1631	MERCURY	ug/L		0.00374					0.00321	0.0034	
N	UFI SOP	CHLORIDE	mg/L									
N	UFI SOP	CHLOROPHYLL-A	ug/L									
N	UFI SOP	FERROUS IRON (II)	ug/l									
N	UFI SOP	METHANE	ug/L									
N	UFI SOP	NITRITE	mg/l									
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
N	UFI SOP	SULFIDE	mg/L									
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l									
Y	E1631	MERCURY	ug/L							0.00044		
Y	UFI SOP	CHLORIDE	mg/L	355.3		394.8	365.2	375	365.2			
Y	UFI SOP	CHLOROPHYLL-A	ug/L	1.2			6.9	7.3	7.8			
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.7		3.2	3.5	3.6	3.7			
Y	UFI SOP	NITRITE	mg/l	0.034		0.024	0.038	0.037	0.036			
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.202		0.481	0.188	0.178	0.178			
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	1.795		1.212	1.817	1.842	1.885			
Y	UFI SOP	SULFIDE	mg/L			0.068	U					
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l	41.3		48.7	40.4	40.2	40.3			

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	46.2-46.2 FT	49.5-49.5 FT	52.8-52.8 FT	52.8-52.8 FT	56.1-56.1 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	
			Field Sample ID	OL-1137-05	OL-1136-06	OL-1136-07	OL-1137-06	OL-1136-08	OL-1136-09	OL-1136-10	OL-1136-11	
			Sample Date	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	10/11/2010	
			SDG	1042010	CHM2010-042	CHM2010-042	1042010	CHM2010-042	CHM2010-042	CHM2010-042	CHM2010-042	
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L	0.000205			0.000314					
N	E1631	MERCURY	ug/L	0.00451			0.00287					
N	UFI SOP	CHLORIDE	mg/L									
N	UFI SOP	CHLOROPHYLL-A	ug/L									
N	UFI SOP	FERROUS IRON (II)	ug/l									
N	UFI SOP	METHANE	ug/L									
N	UFI SOP	NITRITE	mg/l									
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l									
Y	E1631	MERCURY	ug/L									
Y	UFI SOP	CHLORIDE	mg/L			424.4			424.4			
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L			3			3			
Y	UFI SOP	FERROUS IRON (II)	ug/l			10	U			10	U	4 J
Y	UFI SOP	METHANE	ug/L			1000				1500		1500
Y	UFI SOP	NITRITE	mg/l			0.006	J		0.004	J		
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L			0.937			1.063			
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L			0.632			0.4			
Y	UFI SOP	SULFIDE	mg/L		0.068	U	0.068	U	0.068	U	0.068	U
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l			55.2			57			

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	39.6-39.6 FT	39.6-39.6 FT	46.2-46.2 FT	46.2-46.2 FT	52.8-52.8 FT	52.8-52.8 FT	
			Field Sample ID	OL-1136-12	OL-1137-07	OL-1139-04	OL-1140-04	OL-1139-05	OL-1140-05	OL-1139-06	OL-1140-06	
			Sample Date	10/11/2010	10/11/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	
			SDG	CHM2010-042	1042010	UFICHM2010-043	1043022	UFICHM2010-043	1043022	UFICHM2010-043	1043022	
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Second field dup	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L		0.00048		0.000104		0.000107		0.000094	
N	E1631	MERCURY	ug/L		0.00297		0.007		0.00891		0.00815	
N	UFI SOP	CHLORIDE	mg/L			355.3		355.3		355.3		
N	UFI SOP	CHLOROPHYLL-A	ug/L			6						
N	UFI SOP	FERROUS IRON (II)	ug/l									
N	UFI SOP	METHANE	ug/L									
N	UFI SOP	NITRITE	mg/l			0.041		0.041		0.043		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L			0.217		0.217		0.222		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L			1.834		1.886		1.932		
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l			41.6		42.3		43.3		
Y	E1631	MERCURY	ug/L									
Y	UFI SOP	CHLORIDE	mg/L									
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L			3.8 J		3.9 J		3.9 J		
Y	UFI SOP	FERROUS IRON (II)	ug/l	10 U								
Y	UFI SOP	METHANE	ug/L	1500								
Y	UFI SOP	NITRITE	mg/l									
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
Y	UFI SOP	SULFIDE	mg/L	0.068 U								
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l									

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			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	39.6-39.6 FT	
			Field Sample ID	OL-1139-07	OL-1140-07	OL-1139-01	OL-1139-02	OL-1139-03	OL-1140-02	OL-1140-03	OL-1141-04	
			Sample Date	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/18/2010	10/26/2010	
			SDG	UFICHM2010-043	1043022	UFICHM2010-043	UFICHM2010-043	UFICHM2010-043	1043022	1043022	UFICHM2010-044	
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Regular sample	
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L		0.000112				0.000109	0.0001		
N	E1631	MERCURY	ug/L		0.00884				0.00652	0.00688		
N	UFI SOP	CHLORIDE	mg/L	355.3		355.3	355.3	365.2			367.6	
N	UFI SOP	CHLOROPHYLL-A	ug/L			5.9	6.2	5.9			0.8	
N	UFI SOP	FERROUS IRON (II)	ug/l									
N	UFI SOP	METHANE	ug/L									
N	UFI SOP	NITRITE	mg/l	0.041		0.042	0.041	0.04			0.05	
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.213		0.221	0.216	0.217			0.321	
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	1.914		1.835	1.774	1.804			1.824	
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	41.8		41.9	42.4	41.8				
Y	E1631	MERCURY	ug/L						0.00053			
Y	UFI SOP	CHLORIDE	mg/L									
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	5.6 J		4 J	4.1 J	4.1 J			3.6 J	
Y	UFI SOP	FERROUS IRON (II)	ug/l									
Y	UFI SOP	METHANE	ug/L									
Y	UFI SOP	NITRITE	mg/l									
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
Y	UFI SOP	SULFIDE	mg/L									
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l									

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Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	39.6-39.6 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT
			Field Sample ID	OL-1142-04	OL-1141-05	OL-1142-05	OL-1141-01	OL-1141-02	OL-1141-03	OL-1142-02	OL-1142-03	OL-1142-03
			Sample Date	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010	10/26/2010
			SDG	1044027	UFICHM2010-044	1044027	UFICHM2010-044	UFICHM2010-044	UFICHM2010-044	1044027	1044027	1044027
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample	Field duplicate	Field duplicate
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units									
N	E1630	METHYL MERCURY	ug/L	0.000085		0.0001				0.000094	0.000093	
N	E1631	MERCURY	ug/L	0.00367		0.00606				0.00379	0.00326	
N	UFI SOP	CHLORIDE	mg/L		387.5		357.6	347.7	357.6			
N	UFI SOP	CHLOROPHYLL-A	ug/L				2.6	2.9	2.9			
N	UFI SOP	FERROUS IRON (II)	ug/l									
N	UFI SOP	METHANE	ug/L									
N	UFI SOP	NITRITE	mg/l		0.042		0.05	0.048	0.048			
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.288		0.38	0.358	0.361			
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		1.709		2.551	2.384	2.396			
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		51.8		46.3	42.4	42.3			
Y	E1631	MERCURY	ug/L							0.00084		
Y	UFI SOP	CHLORIDE	mg/L									
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		3.3 J		3.9 J	3.9 J	3.9 J			
Y	UFI SOP	FERROUS IRON (II)	ug/l									
Y	UFI SOP	METHANE	ug/L									
Y	UFI SOP	NITRITE	mg/l									
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L									
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L									
Y	UFI SOP	SULFIDE	mg/L									
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l									

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	
			Sample Depth	39.6-39.6 FT	39.6-39.6 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	
			Field Sample ID	OL-1145-04	OL-1146-04	OL-1145-05	OL-1146-05	OL-1145-01	OL-1145-02	OL-1145-03	OL-1146-02		
			Sample Date	11/11/2010	11/11/2010	11/11/2010	11/11/2010	11/11/2010	11/11/2010	11/11/2010	11/11/2010		
			SDG	UFICHM2010-046	1046034	UFICHM2010-046	1046034	UFICHM2010-046	UFICHM2010-046	UFICHM2010-046	1046034		
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water		
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Regular sample		
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water		
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L		0.00009		0.000084				0.000087		
N	E1631	MERCURY	ug/L		0.00604		0.00629				0.00464		
N	UFI SOP	CHLORIDE	mg/L	367.8		358.1		377.5	387.1	358.1			
N	UFI SOP	CHLOROPHYLL-A	ug/L	4.4				5.3	5.1	5.7			
N	UFI SOP	FERROUS IRON (II)	ug/l										
N	UFI SOP	METHANE	ug/L										
N	UFI SOP	NITRITE	mg/l	0.073		0.071		0.073	0.074	0.073			
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L	0.239		0.241		0.247	0.245	0.245			
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L	1.882		1.899		1.908	1.917	1.887			
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l	46.8		47.4		47.2	46.9	46.3			
Y	E1631	MERCURY	ug/L								0.00062		
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L	3.5		3.5		3.4	3.5	3.4			
Y	UFI SOP	FERROUS IRON (II)	ug/l										
Y	UFI SOP	METHANE	ug/L										
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	39.6-39.6 FT	39.6-39.6 FT	59.4-59.4 FT	59.4-59.4 FT	59.4-59.4 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT	6.6-6.6 FT
			Field Sample ID	OL-1146-03	OL-1147-04	OL-1148-04	OL-1147-05	OL-1148-05	OL-1147-01	OL-1147-02	OL-1147-03	OL-1147-03	OL-1147-03
			Sample Date	11/11/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010	11/29/2010
			SDG	1046034	UFICHM2010-047	1049016	UFICHM2010-047	1049016	UFICHM2010-047	UFICHM2010-047	UFICHM2010-047	UFICHM2010-047	UFICHM2010-047
			Matrix	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
			Sample Purpose	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Second field dup	Second field dup
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Filtered	Method	Parameter Name	Units										
N	E1630	METHYL MERCURY	ug/L	0.00008		0.000054		0.000051	J				
N	E1631	MERCURY	ug/L	0.00472		0.00328		0.00337					
N	UFI SOP	CHLORIDE	mg/L		355.3		365.2		365.2	365.2	365.2	365.2	365.2
N	UFI SOP	CHLOROPHYLL-A	ug/L		7.3				6.9	7.2	6.7	6.7	6.7
N	UFI SOP	FERROUS IRON (II)	ug/l										
N	UFI SOP	METHANE	ug/L										
N	UFI SOP	NITRITE	mg/l		0.087		0.086		0.087	0.088	0.089	0.089	0.089
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		0.148		0.147		0.145	0.145	0.152	0.152	0.152
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		1.995		2		1.981	1.955	2.07	2.07	2.07
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		45.9		45.3		46.1	46.4	46	46	46
Y	E1631	MERCURY	ug/L										
Y	UFI SOP	CHLORIDE	mg/L										
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		3.7		3.7		3.5	3.6	3.6	3.6	3.6
Y	UFI SOP	FERROUS IRON (II)	ug/l										
Y	UFI SOP	METHANE	ug/L										
Y	UFI SOP	NITRITE	mg/l										
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L										
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L										
Y	UFI SOP	SULFIDE	mg/L										
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l										

Validated Baseline Monitoring - Book 1  
Surface Water Analytical Data

			Location	DEEP_S	DEEP_S
			Sample Depth	6.6-6.6 FT	6.6-6.6 FT
			Field Sample ID	OL-1148-02	OL-1148-03
			Sample Date	11/29/2010	11/29/2010
			SDG	1049016	1049016
			Matrix	Water	Water
			Sample Purpose	Regular sample	Field duplicate
			Sample Type	Surface water	Surface water
Filtered	Method	Parameter Name	Units		
N	E1630	METHYL MERCURY	ug/L	0.00006	0.000057
N	E1631	MERCURY	ug/L	0.00328	0.00328
N	UFI SOP	CHLORIDE	mg/L		
N	UFI SOP	CHLOROPHYLL-A	ug/L		
N	UFI SOP	FERROUS IRON (II)	ug/l		
N	UFI SOP	METHANE	ug/L		
N	UFI SOP	NITRITE	mg/l		
N	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		
N	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		
N	UFI SOP	TOTAL INORGANIC CARBON	mg/l		
Y	E1631	MERCURY	ug/L	0.00037 J	
Y	UFI SOP	CHLORIDE	mg/L		
Y	UFI SOP	DISSOLVED ORGANIC CARBON	mg/L		
Y	UFI SOP	FERROUS IRON (II)	ug/l		
Y	UFI SOP	METHANE	ug/L		
Y	UFI SOP	NITRITE	mg/l		
Y	UFI SOP	NITROGEN, AMMONIA (AS N)	mg/L		
Y	UFI SOP	NITROGEN, NITRATE-NITRITE	mg/L		
Y	UFI SOP	SULFIDE	mg/L		
Y	UFI SOP	TOTAL INORGANIC CARBON	mg/l		



**ATTACHMENT A-2**

**VALIDATED LABORATORY DATA FOR ZOOPLANKTON**

Validated Baseline Monitoring - Book 1  
Zooplankton

					Parameter	MERCURY		METHYL MERCURY		SOLIDS, PERCENT		TOTAL SOLIDS	
					Units	mg/kg		ng/g		%		%	
Location ID	Field Sample ID	Sample Date	Matrix	Purpose	Samp Type								
W1	OL-1096-06	5/3/2010	TISSUE	REG	T-ZP	0.025		1.8	J	16.96			
W1	OL-1096-07	5/3/2010	TISSUE	FD	T-ZP	0.0307		1.8	J	16.4			
W1	OL-1100-06	5/24/2010	TISSUE	REG	T-ZP	0.0149		1.1	U	15.59			
W1	OL-1105-06	6/21/2010	TISSUE	REG	T-ZP	0.0412		5.8		9.01			
W1	OL-1108-07	7/6/2010	TISSUE	REG	T-ZP	0.0422		9.3		8.68			
W1	OL-1111-07	7/19/2010	TISSUE	REG	T-ZP	0.0696		6.9				9.45	
W1	OL-1111-08	7/19/2010	TISSUE	FD	T-ZP	0.0715		8.2				11.43	
W1	OL-1114-07	8/2/2010	TISSUE	REG	T-ZP	0.0697		8.6				9.57	
W1	OL-1117-07	8/16/2010	TISSUE	REG	T-ZP	0.0677		12.3				6.27	
W1	OL-1120-07	8/30/2010	TISSUE	REG	T-ZP	0.0422		10.7				12.57	
W1	OL-1122-08	9/7/2010	TISSUE	REG	T-ZP	0.0508		7.1				9.56	
W1	OL-1124-08	9/13/2010	TISSUE	REG	T-ZP	0.0536		12.1				15.87	
W1	OL-1128-08	9/20/2010	TISSUE	REG	T-ZP	0.148		22.9	J			11.89	
W1	OL-1132-08	9/27/2010	TISSUE	REG	T-ZP	0.0149		3.5				14.13	
W1	OL-1134-08	10/4/2010	TISSUE	REG	T-ZP	0.0396		9.6				12.08	
W1	OL-1137-08	10/11/2010	TISSUE	REG	T-ZP	0.0262		7.4	J			7.35	
W1	OL-1140-08	10/18/2010	TISSUE	REG	T-ZP	0.0171	J	2.5	J			4.24	
W1	OL-1140-09	10/18/2010	TISSUE	FD	T-ZP	0.0381	J	5.4	J			9.3	
W1	OL-1142-06	10/26/2010	TISSUE	REG	T-ZP	0.094		13.7	J				
W1	OL-1148-06	11/29/2010	Tissue	REG	T-ZP	0.0324		5.8				8.22	

**ATTACHMENT A-3**

**VALIDATED LABORATORY DATA  
FOR SEDIMENT TRAP SAMPLES**

Validated Baseline Monitoring - Book 1  
Sediment Traps

							Parameter	CALCIUM		MERCURY		TOTAL	TOTAL FIXED	TOTAL	Total
							Units	mg/l		ng/mL		mg/l	mg/l	mg/l	Suspended
Location ID	Sample Depth	Field Sample ID	Sample Date	Matrix	Purpose	Samp Type	Filtered							ORGANIC	Solids
														CARBON	
DEEP_S	33-33 FT	OL-1090-01	3/29/2010	WATER	REG	SLURRY	N	333				153.433	J	2052	2404
DEEP_S	33-33 FT	OL-1090-02	3/29/2010	WATER	FD	SLURRY	N	279.7				154.174	J	1952	2284
DEEP_S	33-33 FT	OL-1090-03	3/29/2010	WATER	FD2	SLURRY	N	255.7				159.449	J	1904	2212
DEEP_S	33-33 FT	OL-1091-01	4/5/2010	WATER	REG	SLURRY	N	218.4				123.188	J	1336	1568
DEEP_S	33-33 FT	OL-1091-02	4/5/2010	WATER	FD	SLURRY	N	226.4				103.023	J	1144	1376
DEEP_S	33-33 FT	OL-1091-03	4/5/2010	WATER	FD2	SLURRY	N	230.4				130.742	J	1360	1592
DEEP_S	33-33 FT	OL-1092-01	4/12/2010	WATER	REG	SLURRY	N	327.7				166.829		2132	2464
DEEP_S	33-33 FT	OL-1092-02	4/12/2010	WATER	FD	SLURRY	N	311.7				186.038		1840	2172
DEEP_S	33-33 FT	OL-1092-03	4/12/2010	WATER	FD2	SLURRY	N	302.4				157.907		1836	2148
DEEP_S	33-33 FT	OL-1093-01	4/19/2010	WATER	REG	SLURRY	N	214.3				74.012		912	1104
DEEP_S	33-33 FT	OL-1093-02	4/19/2010	WATER	FD	SLURRY	N	243				102.666		888	1100
DEEP_S	33-33 FT	OL-1093-03	4/19/2010	WATER	FD2	SLURRY	N	243				120.057		1052	1312
DEEP_S	33-33 FT	OL-1094-01	4/26/2010	WATER	REG	SLURRY	N	247.7				115.531		1036	1216
DEEP_S	33-33 FT	OL-1094-02	4/26/2010	WATER	FD	SLURRY	N	230.2				95.736		876	1056
DEEP_S	33-33 FT	OL-1094-03	4/26/2010	WATER	FD2	SLURRY	N	255.7				117.158		980	1208
DEEP_S	33-33 FT	OL-1095-06	5/3/2010	WATER	REG	SLURRY	N	655.1				277.04		3232	3724
DEEP_S	33-33 FT	OL-1095-07	5/3/2010	WATER	FD	SLURRY	N	634.5				330.024		3384	3872
DEEP_S	33-33 FT	OL-1095-08	5/3/2010	WATER	FD2	SLURRY	N	632.9				338.713		3320	3796
DEEP_S	33-33 FT	OL-1097-01	5/10/2010	WATER	REG	SLURRY	N	653.9				279.161		2728	3220
DEEP_S	33-33 FT	OL-1097-02	5/10/2010	WATER	FD	SLURRY	N	632.8				275.577		2516	2980
DEEP_S	33-33 FT	OL-1097-03	5/10/2010	WATER	FD2	SLURRY	N	631.2				266.087		2496	2916
DEEP_S	33-33 FT	OL-1098-01	5/17/2010	WATER	REG	SLURRY	N	526.6				129.673		1556	1956
DEEP_S	33-33 FT	OL-1098-02	5/17/2010	WATER	FD	SLURRY	N	467				196.485		1800	2244
DEEP_S	33-33 FT	OL-1098-03	5/17/2010	WATER	FD2	SLURRY	N	492				180.824		1132	1520
DEEP_S	33-33 FT	OL-1099-06	5/24/2010	WATER	REG	SLURRY	N	407.3				120.972		984	1300
DEEP_S	33-33 FT	OL-1099-07	5/24/2010	WATER	FD	SLURRY	N	399.6				129.365		840	1200
DEEP_S	33-33 FT	OL-1099-08	5/24/2010	WATER	FD2	SLURRY	N	345.8				129.062		1020	1248
DEEP_S	33-33 FT	OL-1101-01	6/1/2010	WATER	REG	SLURRY	N	853.6				295.514		2380	2600
DEEP_S	33-33 FT	OL-1101-02	6/1/2010	WATER	FD	SLURRY	N	786.3				254.166		2340	2608
DEEP_S	33-33 FT	OL-1101-03	6/1/2010	WATER	FD2	SLURRY	N	894				298.633		2288	2540
DEEP_S	33-33 FT	OL-1102-01	6/7/2010	WATER	REG	SLURRY	N	363.1				46.604		688	840
DEEP_S	33-33 FT	OL-1102-02	6/7/2010	WATER	FD	SLURRY	N	501.6				129		1116	1252
DEEP_S	33-33 FT	OL-1102-03	6/7/2010	WATER	FD2	SLURRY	N	482.3				165.193		1108	1248
DEEP_S	33-33 FT	OL-1103-01	6/14/2010	WATER	REG	SLURRY	N	328.5				165.114	J	1468	1772
DEEP_S	33-33 FT	OL-1103-02	6/14/2010	WATER	FD	SLURRY	N	330.4				150.262	J	1316	1572
DEEP_S	33-33 FT	OL-1103-03	6/14/2010	WATER	FD2	SLURRY	N	322.7				165.744	J	1548	1996
DEEP_S	33-33 FT	OL-1104-06	6/21/2010	WATER	REG	SLURRY	N	207.1				68.557	J	840	1104
DEEP_S	33-33 FT	OL-1104-07	6/21/2010	WATER	FD	SLURRY	N	223.3				81.949	J	476	652
DEEP_S	33-33 FT	OL-1104-08	6/21/2010	WATER	FD2	SLURRY	N	196.7				103.472	J	496	632
DEEP_S	33-33 FT	OL-1106-01	6/28/2010	WATER	REG	SLURRY	N	503.3				202.394	J	1316	1556
DEEP_S	33-33 FT	OL-1106-02	6/28/2010	WATER	FD	SLURRY	N	531				243.163	J	1324	1564
DEEP_S	33-33 FT	OL-1106-03	6/28/2010	WATER	FD2	SLURRY	N	532.2				247.14	J	1504	1840

Validated Baseline Monitoring - Book 1  
Sediment Traps

							Parameter	CALCIUM		MERCURY		TOTAL	TOTAL FIXED	TOTAL	Total
							Units	mg/l		ng/mL		CARBON	SOLIDS	ORGANIC	Suspended
Location ID	Sample Depth	Field Sample ID	Sample Date	Matrix	Purpose	Samp Type	Filtered					mg/l	mg/l	mg/l	Solids
DEEP_S	33-33 FT	OL-1107-12	7/6/2010	WATER	REG	SLURRY	N	372.5				206.986	2860	103.025 J	3544
DEEP_S	33-33 FT	OL-1107-13	7/6/2010	WATER	FD	SLURRY	N	413				222.668	1824	146.981 J	2180
DEEP_S	33-33 FT	OL-1107-14	7/6/2010	WATER	FD2	SLURRY	N	494				189.732	1684	105.745 J	2028
DEEP_S	33-33 FT	OL-1109-01	7/12/2010	WATER	REG	SLURRY	N	594.3				248.344	1208	54.178 J	1452
DEEP_S	33-33 FT	OL-1109-02	7/12/2010	WATER	FD	SLURRY	N	605.6				237.488	2036	41.726 J	2204
DEEP_S	33-33 FT	OL-1109-03	7/12/2010	WATER	FD2	SLURRY	N	602.8				285.361	2644	126.758 J	2952
DEEP_S	33-33 FT	OL-1110-18	7/19/2010	WATER	REG	SLURRY	N	1151.9				148.27	2732	122.28	3048
DEEP_S	33-33 FT	OL-1110-19	7/19/2010	WATER	FD	SLURRY	N	1273.4				499.13	3244	147.696	3608
DEEP_S	33-33 FT	OL-1110-20	7/19/2010	WATER	FD2	SLURRY	N	803.4				373.052	2452	102.328	2708
DEEP_S	33-33 FT	OL-1113-19	8/2/2010	WATER	REG	SLURRY	N	263.7				99.511	892	72.366	1208
DEEP_S	33-33 FT	OL-1113-20	8/2/2010	WATER	FD	SLURRY	N	289.2				136.401	772	85.591	1008
DEEP_S	33-33 FT	OL-1113-21	8/2/2010	WATER	FD2	SLURRY	N	253.8				126.06	636	76.963	892
DEEP_S	33-33 FT	OL-1115-01	8/9/2010	WATER	REG	SLURRY	N	614.1				272.963	1600	120.184	1888
DEEP_S	33-33 FT	OL-1115-02	8/9/2010	WATER	FD	SLURRY	N	666.4				275.964	2640	96.741	3024
DEEP_S	33-33 FT	OL-1115-03	8/9/2010	WATER	FD2	SLURRY	N	491.2				260.941	2496	88.884	2796
DEEP_S	33-33 Ft	OL-1116-19	8/16/2010	WATER	REG	SLURRY	N	181.8				66.924	316	57.143	460
DEEP_S	33-33 Ft	OL-1116-20	8/16/2010	WATER	FD	SLURRY	N	200				106.217	412	80.436	588
DEEP_S	33-33 Ft	OL-1116-21	8/16/2010	WATER	FD2	SLURRY	N	196.3				102.832	424	62.2	628
DEEP_S	33-33 Ft	OL-1118-01	8/23/2010	WATER	REG	SLURRY	N	147.9				74.38	692 J	68.404	1016 J
DEEP_S	33-33 Ft	OL-1118-02	8/23/2010	WATER	FD	SLURRY	N	161.3				104.118	396 J	73.346	612 J
DEEP_S	33-33 Ft	OL-1118-03	8/23/2010	WATER	FD2	SLURRY	N	150.4				104.896	368 J	76.144	584 J
DEEP_S	33-33 FT	OL-1119-17	8/30/2010	WATER	REG	SLURRY	N	351.2				258.394	3180	154.927	3752
DEEP_S	33-33 FT	OL-1119-18	8/30/2010	WATER	FD	SLURRY	N	380.2				307.147	3404	193.086	4132
DEEP_S	33-33 FT	OL-1119-19	8/30/2010	WATER	FD2	SLURRY	N	357.2				309.508	3180	188.689	3836
DEEP_S	33-33 Ft	OL-1121-18	9/7/2010	WATER	REG	SLURRY	N	774.6				380.672	2320	148.034	2732
DEEP_S	33-33 Ft	OL-1121-19	9/7/2010	WATER	FD	SLURRY	N	750.4				370.831	2692	136.372	3148
DEEP_S	33-33 Ft	OL-1121-20	9/7/2010	WATER	FD2	SLURRY	N	779.5				365.367	2552	138.866	3036
DEEP_S	33-33 Ft	OL-1123-16	9/13/2010	WATER	REG	SLURRY	N	458.5				188.927	868	73.388	1184
DEEP_S	33-33 Ft	OL-1123-17	9/13/2010	WATER	FD	SLURRY	N	431.5				236.118	1872	147.683	2368
DEEP_S	33-33 Ft	OL-1123-18	9/13/2010	WATER	FD2	SLURRY	N	465.3				211.776	1444	130.335	1728
DEEP_S	33-33 Ft	OL-1127-15	9/20/2010	WATER	REG	SLURRY	N	314.7 J				196.425	1212	120.333	1568
DEEP_S	33-33 Ft	OL-1127-16	9/20/2010	WATER	FD	SLURRY	N	316.4 J				184.781	1244	115.107	1604
DEEP_S	33-33 Ft	OL-1127-17	9/20/2010	WATER	FD2	SLURRY	N	324.9 J				195.048	1360	119.644	1752
DEEP_S	33-33 Ft	OL-1130-01	4/26/2010	WATER	REG	SLURRY	N			1.7					
DEEP_S	33-33 Ft	OL-1130-02	5/24/2010	WATER	REG	SLURRY	N			0.86					
DEEP_S	33-33 Ft	OL-1130-03	6/21/2010	WATER	REG	SLURRY	N			0.7					
DEEP_S	33-33 Ft	OL-1130-04	7/6/2010	WATER	REG	SLURRY	N			2.25					
DEEP_S	33-33 Ft	OL-1130-05	7/19/2010	WATER	REG	SLURRY	N			1.24					
DEEP_S	33-33 Ft	OL-1131-14	9/27/2010	WATER	REG	SLURRY	N	228.5 J				80.671	608	81.833	812
DEEP_S	33-33 Ft	OL-1131-15	9/27/2010	WATER	FD	SLURRY	N	242 J				131.195	768	92.228	1044
DEEP_S	33-33 Ft	OL-1131-16	9/27/2010	WATER	FD2	SLURRY	N	233.5 J				113.594	636	83.071	860
DEEP_S	33-33 Ft	OL-1133-14	10/4/2010	WATER	REG	SLURRY	N	226.8 J				99.809	1272	90.605	1608

Validated Baseline Monitoring - Book 1  
Sediment Traps

							Parameter	CALCIUM		MERCURY		TOTAL	TOTAL FIXED	TOTAL	Total
							Units	mg/l		ng/mL		CARBON	SOLIDS	ORGANIC	Suspended
Location ID	Sample Depth	Field Sample ID	Sample Date	Matrix	Purpose	Samp Type	Filtered					mg/l	mg/l	mg/l	Solids
DEEP_S	33-33 Ft	OL-1133-15	10/4/2010	WATER	FD	SLURRY	N	235.2	J			140.458	1236	111.176	1552
DEEP_S	33-33 Ft	OL-1133-16	10/4/2010	WATER	FD2	SLURRY	N	240.3	J			131.909	1396	100.479	1748
DEEP_S	33-33 Ft	OL-1135-01	8/2/2010	WATER	REG	SLURRY	N			1.36					
DEEP_S	33-33 Ft	OL-1135-02	8/16/2010	WATER	REG	SLURRY	N			0.55					
DEEP_S	33-33 Ft	OL-1135-03	8/30/2010	WATER	REG	SLURRY	N			2.66					
DEEP_S	33-33 Ft	OL-1135-04	9/7/2010	WATER	REG	SLURRY	N			0.88					
DEEP_S	33-33 Ft	OL-1135-05	9/13/2010	WATER	REG	SLURRY	N			2.61					
DEEP_S	33-33 Ft	OL-1135-06	9/20/2010	WATER	REG	SLURRY	N			2.8					
DEEP_S	33-33 Ft	OL-1135-07	9/27/2010	WATER	REG	SLURRY	N			0.95					
DEEP_S	33-33 Ft	OL-1136-13	10/11/2010	WATER	REG	SLURRY	Y	381.5	J			219.028	2628	127.268	3028
DEEP_S	33-33 Ft	OL-1136-14	10/11/2010	WATER	FD	SLURRY	Y	430	J			251.334	2968	166.8	3428
DEEP_S	33-33 Ft	OL-1136-15	10/11/2010	WATER	FD2	SLURRY	Y	437.5	J			244.746	2972	146.847	3388
DEEP_S	33-33 Ft	OL-1139-08	10/18/2010	WATER	REG	SLURRY	N	644.1				403.997	4048	227.187	4648
DEEP_S	33-33 Ft	OL-1139-09	10/18/2010	WATER	FD	SLURRY	N	685.2				431.964	4444	243.875	5092
DEEP_S	33-33 Ft	OL-1139-10	10/18/2010	WATER	FD2	SLURRY	N	712.5				379.348	3644	216.041	4200
DEEP_S	33-33 Ft	OL-1141-06	10/26/2010	WATER	REG	SLURRY	N	510.9				239.158	J	195.198	3808
DEEP_S	33-33 Ft	OL-1141-07	10/26/2010	WATER	FD	SLURRY	N	535.8				335.321	J	176.058	3856
DEEP_S	33-33 Ft	OL-1141-08	10/26/2010	WATER	FD2	SLURRY	N	512.1				177.979	J	190.078	3876
DEEP_S	33-33 Ft	OL-1145-06	11/8/2010	WATER	REG	SLURRY	N	621.9				394.075	4200	240.503	4932
DEEP_S	33-33 Ft	OL-1145-07	11/8/2010	WATER	FD	SLURRY	N	552.5				369.021	3432	239.659	4008
DEEP_S	33-33 Ft	OL-1145-08	11/8/2010	WATER	FD2	SLURRY	N	562.8				368.249	3360	222.645	3980
DEEP_S	33-33 Ft	OL-1147-06	11/29/2010	WATER	REG	SLURRY	N	1488				1236.495	37080	J	42700
DEEP_S	33-33 Ft	OL-1147-07	11/29/2010	WATER	FD	SLURRY	N	1703.8				807.92	J	508.765	9680
DEEP_S	33-33 Ft	OL-1147-08	11/29/2010	WATER	FD2	SLURRY	N	1655				1033.553	8820	J	10160
DEEP_S	33-33 FT	OL-1149-01	10/4/2010	Water	REG	SLURRY	N			1.08					
DEEP_S	33-33 FT	OL-1149-02	10/11/2010	Water	REG	SLURRY	N			3.69					
DEEP_S	33-33 FT	OL-1149-03	10/18/2010	Water	REG	SLURRY	N			7.5					
DEEP_S	33-33 FT	OL-1149-04	10/26/2010	Water	REG	SLURRY	N			5.09					
DEEP_S	33-33 FT	OL-1149-05	11/10/2010	Water	REG	SLURRY	N			4.9					
DEEP_S	33-33 FT	OL-1149-06	11/29/2010	Water	REG	SLURRY	N			14.7					

**APPENDIX B****DATA USABILITY AND SUMMARY REPORT, ONONDAGA LAKE  
BASELINE MONITORING BOOK 2 ADDENDUM 2 (2010): FISH,  
INVERTEBRATE, AND LITTORAL SURFACE WATER MONITORING**

APPENDIX B:

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**DATA USABILITY SUMMARY REPORT**

**ONONDAGA LAKE BASELINE MONITORING BOOK 2  
FOR 2010: FISH, INVERTEBRATE, AND LITTORAL  
WATER MONITORING**

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SAMPLES**

**SECTION B1****DATA USABILITY SUMMARY**

Fish, invertebrate, surface water, and sediment samples were collected as part of the Book 2 baseline monitoring efforts for Onondaga Lake from June 15, 2010 through November 11, 2010. Analytical results from these samples were validated and reviewed by Parsons for usability with respect to the following requirements:

- Onondaga Lake Baseline Monitoring Work Plan
- Onondaga Lake Baseline Monitoring QAPP (Appendix B of the Work Plan)
- USEPA Region II Standard Operating Procedures (SOPs) for organic and inorganic data review

The Book 2 samples were collected by Anchor QEA with some assistance from Parsons for sample processing.

The analytical laboratories for this project were Accutest Laboratories (Accutest), SGS Laboratory (SGS) for dioxins-furan analyses, and Brooks Rand Labs (BRL) for mercury analyses. These laboratories are certified by the State of New York to conduct laboratory analyses for this project through the National Environmental Laboratory Accreditation Conference (NELAC).

**B1.1 LABORATORY DATA PACKAGES**

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 21 to 85 days for the samples.

The data packages received from the laboratories were paginated, complete, and overall were of good quality. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report which is summarized in Section B2.

**B1.2 SAMPLING AND CHAIN-OF-CUSTODY**

The samples were collected, properly preserved, shipped under a COC record, and received at the laboratories within one day of sampling. All samples were received intact and in good condition at the laboratories.

## B1.3 LABORATORY ANALYTICAL METHODS

The fish samples were collected from the site and analyzed for hexachlorobenzene, 4,4'-DDT and metabolites, polychlorinated biphenyls (PCBs), dioxins and furans, and/or mercury. The invertebrate samples were collected from the site and analyzed for mercury and methyl mercury. The surface water samples were collected from the site and analyzed for mercury, methyl mercury, and total suspended solids (TSS). The sediment samples were collected from the site and analyzed for mercury, methyl mercury, and total organic carbon (TOC). Summaries of deviations from the Work Plan, QAPP, or USEPA Region II SOPs concerning these laboratory analyses are presented in Subsections B1.3.1 through B1.3.5. The data qualifications resulting from the data validation review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed for each analytical method by matrix in Section B2. The laboratory data were reviewed and may be qualified with the following validation flags:

- "U" - not detected at the value given
- "UJ" - estimated and not detected at the value given
- "J" - estimated at the value given
- "N" - presumptive evidence at the value given
- "R" - unusable value

The validated laboratory data were tabulated and are presented in Attachment A.

### B1.3.1 Mercury and Methyl Mercury Analysis

Fish and sediment samples collected from the site were analyzed by Accutest for mercury using the USEPA SW-846 7471A analytical method. Invertebrate and surface water samples collected from the site were analyzed by BRL for low level mercury using the USEPA 1631E analytical method. Invertebrate, surface water, and sediment samples collected from the site were analyzed for methyl mercury using the USEPA 1630 analytical method. Certain reported results for the mercury and methyl mercury samples were qualified as estimated based upon sample custody, holding times, matrix spike recoveries, laboratory duplicate precision, and sediment percent solids content. The reported mercury and methyl mercury analytical results were considered 100% complete (i.e., usable) for the data presented by Accutest and BRL. PARCC requirements were met.

### **B1.3.2 PCB Analysis**

Fish samples collected from the site were analyzed by Accutest for PCBs using the USEPA SW-846 8082 analytical method. Certain reported results for the PCB samples were considered estimated based upon sample result identifications. The reported PCB analytical results were considered 100% complete with all data considered usable and valid as reported by Accutest. PARCC requirements were met.

### **B1.3.3 Hexachlorobenzene, 4,4'-DDT, and Metabolites Analysis**

Fish samples collected from the site were analyzed by Accutest for hexachlorobenzene, 4,4'-DDT, and metabolites using the USEPA SW-846 8081A analytical method. Certain reported results for these samples were qualified as estimated based upon laboratory control sample recoveries and sample result identifications. The reported analytical results for these samples were considered 100% complete with all data considered usable and valid as reported by Accutest. PARCC requirements were met.

### **B1.3.4 Dioxins and Furans**

Fish samples collected from the site were analyzed by SGS for dioxins and furans using the USEPA SW-846 8290 analytical method. Certain reported results for these samples were qualified as estimated based upon clean-up standard recoveries and internal standard recoveries. The reported analytical results for these samples were considered 100% complete with all data considered usable and valid as reported by SGS. PARCC requirements were met.

### **B1.3.5 TSS and TOC Analysis**

Surface water samples collected from the site were analyzed by Accutest for TSS using the SM2540D analytical method. Sediment samples collected from the site were analyzed by Accutest for TOC using the USEPA approved Lloyd Kahn analytical method. Certain reported results for these samples were qualified as estimated based upon matrix spike recoveries, laboratory duplicate precision, and sediment percent solids content. The reported analytical results for these samples were considered 100% complete with all data considered usable and valid as reported by Accutest. PARCC requirements were met.

**SECTION B2****DATA VALIDATION REPORT****B2.1 FISH**

Data review has been completed for data packages generated by Accutest and SGS containing fish samples collected from the site. The specific samples contained in these data packages, the analyses performed, and validated laboratory data are tabulated and presented in Attachment A-1. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOPs HW-44, Revision 1 “Data Validation SOP of Organochlorine Pesticides by Gas Chromatography SW-846 Method 8081B”; HW-45, Revision 1 “Data Validation SOP of Organic Analysis of PCBs by Gas Chromatography SW-846 Method 8082A; HW-2, Revision 13 “Evaluation of Metals Data for the CLP Program”; and HW-19, Revision 1 “USEPA Region II Data Validation SOP for SW-846 Method 8290 Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) By High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS)”. This data validation and usability report is presented by analysis type.

**B2.1.1 Mercury**

The following items were reviewed for compliancy in the mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Extraction/homogenization, initial and continuing calibration, and laboratory preparation blank contamination
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS) recoveries
- Interference check sample recoveries
- Sample result verification and identification

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- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of MS/MSD recoveries as discussed below.

### MS/MSD Recoveries

All the MS/MSD accuracy results were considered acceptable and within QC limits and have concentrations less than four times the spiking concentration, with the exception of the low recoveries for mercury (71.5%R, 51.2%R, 65.8%R, 61.2%R; QC limit 75-125%R) associated with samples in sample delivery groups (SDGs) JA49132, JA49133, and JA50445; and the high mercury recovery (216.6%R; QC limit 75-125%R) associated with samples in SDG JA49263. The sample results for mercury where MS/MSD accuracy results fell below the QC limit were considered estimated, possibly biased low, with positive results qualified “J” and nondetected results qualified “UJ” for the affected samples. Positive mercury results where MS/MSD accuracy results exceeded the QC limit were considered estimated, possibly biased high, and qualified “J” for the affected samples.

### Usability

All mercury sample results for the fish were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The mercury data presented by Accutest were 100% complete (i.e., usable). The validated mercury laboratory data are tabulated and presented in Attachment A-1.

### **B2.1.2 PCBs**

The following items were reviewed for compliancy in the PCB analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries

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- Extraction/homogenization and laboratory method blank contamination
- Initial calibrations
- Verification calibrations
- Chromatogram quality
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of sample result identifications as discussed below.

### Sample Result Identifications

Positive sample results were verified and confirmed present using dual column confirmation. The percent difference (%D) between the results on the dual columns was less than 25% with the exception of PCB-1254 in samples OL-1305-01F (29%D), OL-1322-04F (75.8%D), and -05F (39.9%D); PCB-1260 in samples OL-1307-01F (33.7%D), -05F (26.3%D), OL-1316-08F (86%D), and OL-1322-05F (45.7%D); and total PCBs in samples OL-1316-08F (42.8%D), OL-1322-04F (75.8%D), and -05F (41.9%D). These results were considered estimated and qualified “J” for the affected samples.

### Usability

All PCB sample results for the fish were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The PCB data presented by Accutest were 100% complete with all data considered usable and valid. The validated data are tabulated and presented in Attachment A-1.

### **B2.1.3 Hexachlorobenzene, 4,4'-DDT, and Metabolites**

The following items were reviewed for compliancy in the hexachlorobenzene, 4,4'-DDT, and metabolites analysis:

- Custody documentation



- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Extraction/homogenization and laboratory method blank contamination
- Initial calibrations
- Verification calibrations
- 4,4'-DDT breakdown
- Chromatogram quality
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exceptions of surrogate recoveries, laboratory control sample recoveries, and sample result identifications as discussed below.

### Surrogate Recoveries

All sample surrogate recoveries were considered acceptable and within QC limits with the exception of the high tetrachloro-m-xylene (TCMX) recovery on one column in sample OL-1316-17F (180%R). Validation qualification was not required for this sample.

### Laboratory Control Sample Recoveries

All LCS recoveries were considered acceptable and within QC limits with the exception of the low LCS recovery for 4,4'-DDD (57%R; QC limit 59-151%R) associated with samples OL-1316-08F, -15F, -17F, OL-1320-01F, -02F, -04F, OL-1322-01F through -05F, and -09F through -12F. Therefore, the 4,4'-DDD results for these samples which were nondetects were considered estimated and qualified "UJ".

It was noted that no spiked QC samples (e.g., LCS, MS/MSD) were analyzed for hexachlorobenzene due to laboratory error. As a result, all hexachlorobenzene results were considered estimated with positive results qualified "J" and nondetected results qualified "UJ" for the project samples.

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### Sample Result Identifications

Positive sample results were verified and confirmed present using dual column confirmation. The percent difference (%D) between the results on the dual columns was less than 25% with the exception of hexachlorobenzene for samples OL-1306-16F (32.1%D), OL-1316-08F (31.9%D), -15 (79.5%D), OL-1347-09 (91.2%D), -11 (41.1%D), -16 (112.8%D), and OL-1348-03 (94.3%D); and 4,4'-DDD for sample OL-1307-08F (122.2%D). These results were considered estimated and qualified "J" for the affected samples. However, for those compounds where the %D was greater than 90%, the results were considered estimated, tentatively identified, and qualified "JN" for the affected samples.

### Usability

All hexachlorobenzene, 4,4'-DDT, and metabolite sample results for the fish were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The hexachlorobenzene, 4,4'-DDT, and metabolite data presented by Accutest were 100% complete with all data considered usable and valid. The validated data are tabulated and presented in Attachment A-1.

#### **A2.1.4 Dioxins and Furans**

The following items were reviewed for compliancy in the dioxins and furans analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Extraction/homogenization and laboratory method blank contamination
- Initial calibrations
- Verification calibrations
- Internal standard recoveries
- Clean-up recoveries

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- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of MS/MSD precision and accuracy, blank contamination, internal standard recoveries, and clean-up recoveries as discussed below.

### MS/MSD Precision and Accuracy

All precision (relative percent difference; RPD) and accuracy (percent recovery; %R) measurements were considered acceptable and within QC limits for all compounds of designated spiked project samples with the exception of the high MSD accuracy results for 1,2,3,4,7,8-HxCDD (135%R; QC limit 70-130%R) and 1,2,3,7,8,9-HxCDF (141%R; QC limit 70-130%R) associated with parent sample OL-1314-04F; and the high MSD accuracy result for 1,2,3,7,8,9-HxCDD (133%R; QC limit 70-130%R) associated with parent sample OL-1311-18F. Validation qualification was not required since MS accuracy results were within criteria.

### Blank Contamination

The extraction/homogenization blank associated with samples OL-1322-01F, -04F, -05F, -10F, and -12F contained OCDD at a concentration of 0.00988 ng/L. Therefore, associated sample results less than the validation action concentration were considered not detected and qualified “U” for the affected samples.

### Internal Standard Recoveries

All internal standard recoveries were considered acceptable and within the 40-135%R QC limit with the exception of the high 13C12-1,2,3,4,6,7,8-HpCDD recovery in samples OL-1305-01F (193%R), OL-1307-01F (144%R), -02F (140%R), -13F (184%R), OL-1312-01F (211%R), -18F (189%R), OL-1314-04F (154%R), OL-1322-01F (165%R), -04F (263%R), -05F (251%R), -10F (258%R), -12F (300%R), OL-1311-08F (191%R), and -18F (146%R); the high 13C12-OCDD recovery in samples OL-1305-01F (205%R), OL-1307-01F (148%R), -02F (144%R), -13F (180%R), OL-1312-01F (213%R), -18F (209%R), OL-1314-04F (155%R), OL-1322-01F (164%R), -04F (291%R), -05F (281%R), -10F (279%R), -12F (345%R), OL-1311-08F (180%R), and -18F (143%R); and the high 13C12-1,2,3,4,6,7,8-HpCDF recovery in samples OL-1305-01F (151%R), OL-1312-01F (149%R), -18F (146%R), OL-1322-04F (182%R), -05F (170%R), -10F (184%R), -12F (208%R), and OL-1311-08F (142%R). Therefore, positive results associated with

these internal standards were considered estimated, possibly biased high, and qualified “J” for the affected samples.

### Clean-Up Recoveries

All clean-up recoveries were considered acceptable and within the 70-130%R QC limit with the exception of the high 13C12-1,2,3,4,7,8,9-HpCDF recovery for samples OL-1305-01F (192%R), -08F (136%R), OL-1307-01F (159%R), -02F (142%R), -13F (167%R), OL-1312-01F (183%R), -18F (168%R), OL-1314-04F (140%R), OL-1322-01F (147%R), -04F (255%R), -05F (240%R), -10F (241%R), -12F (259%R), OL-1311-08F (211%R), and -18F (149%R); and the high 13C12-1,2,3,4,7,8-HxCDD recovery for sample OL-1307-13F (136%R). Since associated sample results were nondetects, validation qualification of these samples was not required.

### Usability

All dioxin and furan results for the fish samples were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The dioxin and furan data presented by SGS were 100% complete with all data considered usable and valid. The validated data are tabulated and presented in Attachment A-1.

## **B2.2 INVERTEBRATES**

Data review has been completed for data packages generated by BRL containing invertebrate samples collected from the site. The specific samples contained in these data packages, the analyses performed, and validated laboratory data are tabulated and presented in Attachment A-2. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 “Evaluation of Metals Data for the CLP Program”. This data validation and usability report is presented by analysis type.

### B2.2.1 Mercury and Methyl Mercury

The following items were reviewed for compliancy in the mercury and methyl mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Extraction/homogenization blank, initial and continuing calibration blank, and laboratory preparation blank contamination
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS) recoveries
- Interference check sample recoveries
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of blank contamination and laboratory duplicate precision as discussed below.

### Blank Contamination

The extraction/homogenization blank associated with samples collected on 8/5/10 and sample OL-1337-02 contained mercury above the reporting limit at a concentration of 2.66 ng/g. Since sample results for mercury were not affected by the contamination detected in this blank, validation qualification was not required.

### Laboratory Duplicate Precision

All laboratory duplicate precision results were considered acceptable and less than 30%RPD with the exception of the laboratory duplicate precision for mercury (31%RPD) associated with samples OL-1329-04, -05, and -07; and for mercury (53%RPD) associated with samples OL-1335-01, -05, OL-1333-03, and -05. Therefore, the mercury results for these samples were considered estimated and qualified “J”.

### Usability

All mercury and methyl mercury sample results for the invertebrate samples were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The mercury and methyl mercury data presented by BRL were 100% complete (i.e., usable). The validated mercury and methyl mercury laboratory data are tabulated and presented in Attachment A-2.

It was noted that the methyl mercury result for OL-1329-05 was detected at a higher concentration than mercury. Therefore, these sample results were considered estimated and qualified “J”.

## **B2.3 SURFACE WATER**

Data review has been completed for data packages generated by Accutest and BRL containing surface water samples collected from the site. The specific samples contained in these data packages, the analyses performed, and validated laboratory data are tabulated and presented in Attachment A-3. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 "Evaluation of Metals Data for the CLP Program". This data validation and usability report is presented by analysis type.

### **B2.3.1 Mercury and Methyl Mercury**

The following items were reviewed for compliancy in the mercury and methyl mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration blank, and laboratory preparation blank contamination
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS) recoveries
- Interference check sample recoveries
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of sample custody, holding times, and MS/MSD recoveries as discussed below.

#### Sample Custody

Mercury results for samples collected on 10/27/10 were considered estimated and qualified "J" because the field sampling crew inadvertently used sample containers designated from a nonproject related laboratory. Therefore, upon sample receipt at BRL, BRL sent these samples to this nonproject related laboratory which held the sample bottles for approximately one week. Since this laboratory was unable to conduct the low level mercury analysis, these samples were shipped back to BRL for analysis.

### Holding Times

Based upon the sample custody issue discussed above, the holding time requirement for the dissolved mercury samples collected on 10/27/10 was exceeded. Dissolved mercury results were considered estimated and qualified “J” for these samples.

### MS/MSD Recoveries

All the MS/MSD accuracy results were considered acceptable and within QC limits and have concentrations less than four times the spiking concentration, with the exception of the high MS recovery for mercury (129%R; QC limit 71-125%R) associated with samples in SDG 1045026. Positive mercury results were considered estimated, possibly biased high, and qualified “J” for these samples.

### Usability

All mercury and methyl mercury sample results for the surface water samples were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The mercury and methyl mercury data presented by BRL were 100% complete (i.e., usable). The validated mercury and methyl mercury laboratory data are tabulated and presented in Attachment A-3.

### **B2.3.2 TSS**

All custody documentation, holding times, matrix spike recoveries, laboratory duplicate precision, laboratory control sample recoveries, laboratory method blank contamination, QC field blank contamination, initial and continuing calibration verifications, field duplicate precision, and quantitation limits were reviewed for compliance. Validation qualification of the TSS sample results did not require qualification resulting from data validation.

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The TSS data presented by Accutest were 100% complete (i.e., usable). The validated laboratory data are tabulated and presented in Attachment A-3.



### B2.4 SEDIMENT

Data review has been completed for data packages generated by Accutest and BRL containing sediment samples collected from the site. The specific samples contained in these data packages, the analyses performed, and validated laboratory data are tabulated and presented in Attachment A-4. All of these samples were properly preserved, shipped under a COC record, and received intact by the analytical laboratory.

Data validation was performed for all samples in accordance with the project work plan and QAPP as well as the USEPA Region II SOP HW-2, Revision 13 "Evaluation of Metals Data for the CLP Program". This data validation and usability report is presented by analysis type.

#### B2.4.1 Mercury and Methyl Mercury

The following items were reviewed for compliancy in the mercury and methyl mercury analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration verifications
- Initial and continuing calibration blank, and laboratory preparation blank contamination
- Matrix spike/matrix spike duplicate (MS/MSD) recoveries
- Laboratory duplicate precision
- Laboratory control sample (LCS) recoveries
- Interference check sample recoveries
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols.

### Usability

All mercury and methyl mercury sample results for the sediment samples were considered usable following data validation.

### Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The mercury and methyl mercury data presented by Accutest and BRL were 100% complete (i.e., usable). The validated mercury and methyl mercury laboratory data are tabulated and presented in Attachment A-4.

It was noted that certain sediment samples contained less than 50% solids. The mercury and methyl mercury sample results for these samples were considered estimated with positive results qualified “J” and nondetected results qualified “UJ”.

### **B2.4.2 TOC**

All custody documentation, holding times, matrix spike recoveries, laboratory duplicate precision, laboratory control sample recoveries, laboratory method blank contamination, QC field blank contamination, initial and continuing calibration verifications, field duplicate precision, and quantitation limits were reviewed for compliance. Validation qualification of the TOC sample results were as follows:

- The TOC results for all samples were considered estimated, possibly biased low, and qualified “J” based upon low matrix spike recoveries (17.2%R, 30.3%R; QC limit 54-133%R);
- The TOC results for samples collected on 8/6/10 and 8/10/10 were considered estimated and qualified “J” based upon a poor laboratory duplicate precision (108.9%RPD; QC limit 0-54%RPD); and
- Certain TOC results were considered estimated and qualified “J” based upon less than 50% solids content.

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The TOC data presented by Accutest were 100% complete (i.e., usable). The validated laboratory data are tabulated and presented in Attachment A-4.

**ONONDAGA LAKE BASELINE MONITORING BOOK 2  
DATA USABILITY SUMMARY REPORT**

**ATTACHMENT A  
VALIDATED LABORATORY DATA**

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**PARSONS**

**ONONDAGA LAKE BASELINE MONITORING BOOK 2  
DATA USABILITY SUMMARY REPORT**

**ATTACHMENT A-1**

**VALIDATED LABORATORY DATA FOR  
FISH SAMPLES**

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**PARSONS**

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158
		Field Sample ID	OL-1305-01F	OL-1305-02F	OL-1305-03F	OL-1305-04F	OL-1305-05F	OL-1305-06F	OL-1305-07F	OL-1305-08F	OL-1305-09F	OL-1305-10F	OL-1305-11F
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010
			G383-806 JA49132							G383-806 JA49132			
		SDG	JA49132R	JA49132	JA49132	JA49132	JA49132	JA49132	JA49132	JA49132 JA49132R	JA49132R	JA49132	JA49132
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	WALL	WALL	WALL	SMB	SMB	SMB	BB	BB	BB	BB	BB
		Specimen Sex	U	U	F	M	U	F	U	U	U	U	U
		Specimen Length	598 mm	557 mm	570 mm	436 mm	466 mm	436 mm	328 mm	308 mm	316 mm	314 mm	318 mm
		Specimen Weight	2935 g	2262 g	2382 g	1303 g	1498 g	1394 g	481 g	428 g	439 g	399 g	461 g
		Specimen Age	12+ yrs	15 yrs	10+ yrs	9 yrs	14 yrs	9 yrs	4+ yrs	5+ yrs	6 yrs	4+ yrs	4+ yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%	1.5						2.6	0.46			
SW7471	MERCURY	mg/kg	2.2 J	2.5 J	1.7 J	1.5 J	2.7 J	1.7 J	0.18 J	0.25 J	0.19 J	0.3 J	0.41
SW8081	4,4'-DDD	ug/kg	3.9 U						4 U	4 U			
SW8081	4,4'-DDE	ug/kg	3.9 U						4 U	4 U			
SW8081	4,4'-DDT	ug/kg	3.9 U						4 U	4 U			
SW8081	HEXACHLOROBENZENE	ug/kg	19 J						14.1 J	2 UJ			
SW8082	AROCLOR-1016	ug/kg	98 U						100 U	100 U			
SW8082	AROCLOR-1221	ug/kg	98 U						100 U	100 U			
SW8082	AROCLOR-1232	ug/kg	98 U						100 U	100 U			
SW8082	AROCLOR-1242	ug/kg	98 U						100 U	100 U			
SW8082	AROCLOR-1248	ug/kg	1370						100 U	100 U			
SW8082	AROCLOR-1254	ug/kg	1060 J						100 U	100 U			
SW8082	AROCLOR-1260	ug/kg	317						100 U	100 U			
SW8082	AROCLOR-1268	ug/kg	98 U						100 U	100 U			
SW8082	PCBS, N.O.S.	ug/kg	2750						100 U	100 U			
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg	0.699 U							0.575 U			
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	1.29 J							0.746 J			
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg	0.959 U							0.504 U			
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	2.6 U							1 U			
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	3.01 U							1.01 U			
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	2.07 U							0.795 U			
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	2.4 U							0.81 U			
SW8290	1,2,3,7,8,9-HXCDD	ng/kg	2.48 U							0.955 U			
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	3.44 U							1.16 U			
SW8290	1,2,3,7,8-PECDD	ng/kg	2.11 U							1.41 U			
SW8290	1,2,3,7,8-PECDF	ng/kg	2.97 J							0.44 U			
SW8290	2,3,4,6,7,8-HXCDF	ng/kg	2.77 U							0.935 U			
SW8290	2,3,4,7,8-PECDF	ng/kg	3.37 J							1.86 J			
SW8290	2,3,7,8-TCDD	ng/kg								0.408 U			
SW8290	2,3,7,8-TCDF	ng/kg	6.16							0.705 J			
SW8290	OCDD	ng/kg	0.815 U							0.885 U			
SW8290	OCDF	ng/kg	0.73 U							0.702 U			
SW8290	TOTAL HPCDD	ng/kg	21.3							4.98			
SW8290	TOTAL HPCDF	ng/kg	1.29							0.746			
SW8290	TOTAL HXCDD	ng/kg	16							1.07			
SW8290	TOTAL HXCDF	ng/kg	3.44 U							1.16 U			
SW8290	TOTAL PECDD	ng/kg	15.4							1.85 U			
SW8290	TOTAL PECDF	ng/kg	23.9							4.92			
SW8290	TOTAL TCDD	ng/kg	23.9							0.494 U			
SW8290	Total TCDF	PG/G	45.1							1.3			

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158
		Field Sample ID	OL-1305-12F	OL-1305-13F	OL-1305-14F	OL-1305-20F	OL-1306-01F	OL-1306-02F	OL-1306-03F	OL-1306-04F	OL-1306-05F	OL-1306-06F	OL-1307-07F
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010
		SDG	JA49132	JA49132	JA49132	JA49132	JA49133	JA49133	JA49133	JA49133R	JA49133	JA49133	JA49134
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	BB	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD	WALL
		Specimen Sex	F	F	U	U	U	U	F	F	F	F	U
		Specimen Length	305 mm	314 mm	310 mm	171 mm	195 mm	166 mm	180 mm	152 mm	191 mm	169 mm	559 mm
		Specimen Weight	344 g	415 g	381 g	142 g	186 g	121 g	160 g	95 g	209 g	145 g	2303 g
		Specimen Age	4+ yrs	7 yrs	4+ yrs	3+ yrs	4+ yrs	3+ yrs	5+ yrs	3+ yrs	5+ yrs	5+ yrs	16+ yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%				0.023 J				0.099 U			
SW7471	MERCURY	mg/kg	J	0.27 J	0.3 J	0.41 J	0.2 J	0.59 J	0.47 J	0.41 J	0.28 J	0.31 J	0.41 J
SW8081	4,4'-DDD	ug/kg					3.8 U				3.8 U		
SW8081	4,4'-DDE	ug/kg					3.8 U				3.8 U		
SW8081	4,4'-DDT	ug/kg					3.8 U				3.8 U		
SW8081	HEXACHLOROBENZENE	ug/kg									1.9 UJ		
SW8082	AROCLOR-1016	ug/kg					96 U				94 U		
SW8082	AROCLOR-1221	ug/kg					96 U				94 U		
SW8082	AROCLOR-1232	ug/kg					96 U				94 U		
SW8082	AROCLOR-1242	ug/kg					96 U				94 U		
SW8082	AROCLOR-1248	ug/kg					96 U				94 U		
SW8082	AROCLOR-1254	ug/kg					96 U				94 U		
SW8082	AROCLOR-1260	ug/kg					96 U				94 U		
SW8082	AROCLOR-1268	ug/kg					96 U				94 U		
SW8082	PCBS, N.O.S.	ug/kg					96 U				94 U		
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg									0.547 U		
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg									0.293 U		
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg									0.404 U		
SW8290	1,2,3,4,7,8-HXCDD	ng/kg									0.616 U		
SW8290	1,2,3,4,7,8-HXCDF	ng/kg									0.789 U		
SW8290	1,2,3,6,7,8-HXCDD	ng/kg									0.49 U		
SW8290	1,2,3,6,7,8-HXCDF	ng/kg									0.63 U		
SW8290	1,2,3,7,8,9-HXCDD	ng/kg									0.589 U		
SW8290	1,2,3,7,8,9-HXCDF	ng/kg									0.901 U		
SW8290	1,2,3,7,8-PECDD	ng/kg									0.569 U		
SW8290	1,2,3,7,8-PECDF	ng/kg									0.334 U		
SW8290	2,3,4,6,7,8-HXCDF	ng/kg									0.727 U		
SW8290	2,3,4,7,8-PECDF	ng/kg									0.332 U		
SW8290	2,3,7,8-TCDD	ng/kg											
SW8290	2,3,7,8-TCDF	ng/kg									1.51		
SW8290	OCDD	ng/kg									0.787 U		
SW8290	OCDF	ng/kg									0.682 U		
SW8290	TOTAL HPCDD	ng/kg									1		
SW8290	TOTAL HPCDF	ng/kg									0.404 U		
SW8290	TOTAL HXCDD	ng/kg									0.616 U		
SW8290	TOTAL HXCDF	ng/kg									0.901 U		
SW8290	TOTAL PECDD	ng/kg									0.746 U		
SW8290	TOTAL PECDF	ng/kg									0.226		
SW8290	TOTAL TCDD	ng/kg									0.437 U		
SW8290	Total TCDF	PG/G									0.242		

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158
		Field Sample ID	OL-1307-08F	OL-1307-09F	OL-1307-10F	OL-1307-11F	OL-1307-12F	OL-1320-01F	OL-1320-02F	OL-1320-03F
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/29/2010	6/29/2010	6/29/2010
		SDG	JA49134 JA49134R	JA49134	JA49134	JA49134	JA49134	JA50230R JA50230	JA50230R JA50230	JA50230
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	WALL	WALL	WALL	WALL	WALL	SMB	SMB	SMB
		Specimen Sex	U	U	U	U	F	U	F	U
		Specimen Length	556 mm	597 mm	440 mm	606 mm	573 mm	418 mm	320 mm	219 mm
		Specimen Weight	2261 g	2977 g	1283 g	2970 g	1768 g	1279 g	600 g	147 g
		Specimen Age	19 yrs	16+ yrs	5+ yrs	14+ yrs	19 yrs	8+ yrs	5+ yrs	2+ yrs
Method	Parameter Name	Units								
Percent Lipids	%LIPIDS DETERMINATION	%	14.2					0.56	0.52	
SW7471	MERCURY	mg/kg	2.1	2.1	0.55	1.8	2.3	1.3	0.85	0.74
SW8081	4,4'-DDD	ug/kg	49.5 JN					4 UJ	3.8 UJ	
SW8081	4,4'-DDE	ug/kg	152					5	3.8 U	
SW8081	4,4'-DDT	ug/kg	3.9 U					4 U	3.8 U	
SW8081	HEXACHLOROBENZENE	ug/kg	42.6 J					2 UJ	1.9 UJ	
SW8082	AROCLOR-1016	ug/kg	9.8 U					10 U	9.6 U	
SW8082	AROCLOR-1221	ug/kg	9.8 U					10 U	9.6 U	
SW8082	AROCLOR-1232	ug/kg	9.8 U					10 U	9.6 U	
SW8082	AROCLOR-1242	ug/kg	9.8 U					10 U	9.6 U	
SW8082	AROCLOR-1248	ug/kg	3070					10 U	9.6 U	
SW8082	AROCLOR-1254	ug/kg	1970					10 U	9.6 U	
SW8082	AROCLOR-1260	ug/kg	734					10 U	9.6 U	
SW8082	AROCLOR-1268	ug/kg	9.8 U					10 U	9.6 U	
SW8082	PCBS, N.O.S.	ug/kg	5770					10 U	9.6 U	
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg								
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg								
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg								
SW8290	1,2,3,4,7,8-HXCDD	ng/kg								
SW8290	1,2,3,4,7,8-HXCDF	ng/kg								
SW8290	1,2,3,6,7,8-HXCDD	ng/kg								
SW8290	1,2,3,6,7,8-HXCDF	ng/kg								
SW8290	1,2,3,7,8,9-HXCDD	ng/kg								
SW8290	1,2,3,7,8,9-HXCDF	ng/kg								
SW8290	1,2,3,7,8-PECDD	ng/kg								
SW8290	1,2,3,7,8-PECDF	ng/kg								
SW8290	2,3,4,6,7,8-HXCDF	ng/kg								
SW8290	2,3,4,7,8-PECDF	ng/kg								
SW8290	2,3,7,8-TCDD	ng/kg								
SW8290	2,3,7,8-TCDF	ng/kg								
SW8290	OCDD	ng/kg								
SW8290	OCDF	ng/kg								
SW8290	TOTAL HPCDD	ng/kg								
SW8290	TOTAL HPCDF	ng/kg								
SW8290	TOTAL HXCDD	ng/kg								
SW8290	TOTAL HXCDF	ng/kg								
SW8290	TOTAL PECDD	ng/kg								
SW8290	TOTAL PECDF	ng/kg								
SW8290	TOTAL TCDD	ng/kg								
SW8290	Total TCDF	PG/G								

Validated Laboratory Data for  
Fish Samples

	Location	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158	OL-STA-20158
	Field Sample ID	OL-1322-01F	OL-1322-02F	OL-1322-03F	OL-1322-04F	OL-1322-05F	OL-1322-08F	OL-1322-09F	OL-1347-16	OL-1347-17	OL-1347-18	OL-1347-19	
	Sample Date	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2010	8/25/2010	8/25/2010	8/25/2010	8/25/2010	
		JA50445 JA50445R G383 812	JA50445 JA50445R	JA50445 JA50445R	JA50445 JA50445R G383 812	JA50445 JA50445R G383 812	JA50445	JA50445 JA50445R	JA54812	JA54812	JA54812	JA54812	
	SDG												
	Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	
	Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	
	Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	
	Taxon	SMB	SMB	SMB	SMB	SMB	SMB	SMB	BK	BK	BK	BK	
	Specimen Sex	F	U	F	U	F	F	U					
	Specimen Length	422 mm	408 mm	417 mm	440 mm	439 mm	266 mm	204 mm	73.73 mm	69 mm	66 mm	59.67 mm	
	Specimen Weight	1351 g	1030 g	1160 g	1241 g	1101 g	275 g	133 g	3.95 g	3.26 g	2.83 g	2.05 g	
	Specimen Age	6+ yrs	9 yrs	7+ yrs	11+ yrs	11 yrs	3+ yrs	3+ yrs					
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%	0.83 J	0.24 J	0.85 J	0.21 J	0.19 J		0.23 J	0.53			
SW7471	MERCURY	mg/kg	1.3 J	1.3 J	0.85 J	1.7 J	2.2 J	1.2 J	0.44 J	0.8	0.55	0.61	0.38
SW8081	4,4'-DDD	ug/kg	3.8 UJ	3.9 UJ	4 UJ	3.8 UJ	3.8 UJ		3.8 UJ	3.9 U			
SW8081	4,4'-DDE	ug/kg	3.8 U	3.9 U	4 U	8.5	3.8 U		3.8 U	3.9 U			
SW8081	4,4'-DDT	ug/kg	3.8 U	3.9 U	4 U	3.8 U	3.8 U		3.8 U	3.9 U			
SW8081	HEXACHLOROBENZENE	ug/kg	1.9 UJ	2 UJ	2 UJ	1.9 UJ	1.9 UJ		1.9 UJ	3.4 JN			
SW8082	AROCLOR-1016	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	AROCLOR-1221	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	AROCLOR-1232	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	AROCLOR-1242	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	AROCLOR-1248	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	AROCLOR-1254	ug/kg	9.4 U	9.8 U	10 U	182 J	87.4 J		9.6 U	9.8 U			
SW8082	AROCLOR-1260	ug/kg	9.4 U	9.8 U	10 U	9.6 U	44.6 J		9.6 U	9.8 U			
SW8082	AROCLOR-1268	ug/kg	9.4 U	9.8 U	10 U	9.6 U	9.6 U		9.6 U	9.8 U			
SW8082	PCBS, N.O.S.	ug/kg	9.4 U	9.8 U	10 U	182 J	132 J		9.6 U	9.8 U			
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg	0.524 U			0.299 U	0.371 U						
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	0.862 J			0.346 U	0.41 U						
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg	0.52 U			0.477 U	0.565 U						
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	1.55 U			0.999 U	1.32 U						
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	3.24 U			3.97 U	3.03 U						
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	1.24 U			0.794 U	1.05 U						
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	2.67 U			3.17 U	2.42 U						
SW8290	1,2,3,7,8,9-HXCDD	ng/kg	1.48 U			0.954 U	1.26 U						
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	3.82 U			4.54 U	3.46 U						
SW8290	1,2,3,7,8-PECDD	ng/kg	1.42 U			1.76 U	2.26 U						
SW8290	1,2,3,7,8-PECDF	ng/kg	0.925 J			0.841 J	0.777 J						
SW8290	2,3,4,6,7,8-HXCDF	ng/kg	3.08 U			3.66 U	2.79 U						
SW8290	2,3,4,7,8-PECDF	ng/kg	1.03 J			1.33 J	0.829 J						
SW8290	2,3,7,8-TCDD	ng/kg	0.352 U			0.466 J	0.398 J						
SW8290	2,3,7,8-TCDF	ng/kg	1.93			1.6	0.699 J						
SW8290	OCDD	ng/kg	0.653 U			9.29 UJ	8.87 UJ						
SW8290	OCDF	ng/kg	0.639 U			0.398 U	0.429 U						
SW8290	TOTAL HPCDD	ng/kg	7.81			8.55	7.02 J						
SW8290	TOTAL HPCDF	ng/kg	0.862			0.477 U	0.569 U						
SW8290	TOTAL HXCDD	ng/kg	1.55 U			2.09 J	3.32 J						
SW8290	TOTAL HXCDF	ng/kg	3.82 U			4.54 U	3.46 U						
SW8290	TOTAL PECDD	ng/kg	3.53			6.95 J	4.11 J						
SW8290	TOTAL PECDF	ng/kg	6.44 J			9.47 J	3.22 J						
SW8290	TOTAL TCDD	ng/kg	4.95			5.91	3.71						
SW8290	Total TCDF	PG/G	9.36 J			20.6	12.3						



Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-20158	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093
		Field Sample ID	OL-1347-20	OL-1308-01F	OL-1308-02F	OL-1308-03F	OL-1308-04F	OL-1308-05F	OL-1308-06F	OL-1311-01F	OL-1311-02F	OL-1311-03F	OL-1311-04F
		Sample Date	8/25/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010
		SDG	JA54812	JA49135	JA49135	JA49135	JA49135	JA49135R	JA49135R	JA49263R	JA49263	JA49263	JA49263
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BK	WALL	WALL	WALL	WALL	WALL	WALL	BB	BB	BB	BB
		Specimen Sex		U	U	U	U	U	F	U	U	F	U
		Specimen Length	61.87 mm	560 mm	526 mm	518 mm	523 mm	498 mm	612 mm	323 mm	307 mm	342 mm	330 mm
		Specimen Weight	2.35 g	2242 g	1845 g	1789 g	1866 g	1597 g	3038 g	429 g	435 g	503 g	487 g
		Specimen Age		5+ yrs	13+ yrs	5+ yrs	11+ yrs	11 yrs	10 yrs	4+ yrs	5 yrs	5+ yrs	6 yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%						1.2	1.5	0.36			
SW7471	MERCURY	mg/kg	0.53	1.6	1.3	1.8	1.7	1.3	3.5	0.15 J	0.16 J	0.096 J	0.27 J
SW8081	4,4'-DDD	ug/kg						4 U	4 U	3.9 U			
SW8081	4,4'-DDE	ug/kg						4 U	4 U	3.9 U			
SW8081	4,4'-DDT	ug/kg						4 U	4 U	3.9 U			
SW8081	HEXACHLOROBENZENE	ug/kg						2 UJ	2.3 J	2 UJ			
SW8082	AROCLOR-1016	ug/kg						10 U	10 U	9.8 U			
SW8082	AROCLOR-1221	ug/kg						10 U	10 U	9.8 U			
SW8082	AROCLOR-1232	ug/kg						10 U	10 U	9.8 U			
SW8082	AROCLOR-1242	ug/kg						10 U	10 U	9.8 U			
SW8082	AROCLOR-1248	ug/kg						10 U	106	22.8			
SW8082	AROCLOR-1254	ug/kg						10 U	69.9	17.9			
SW8082	AROCLOR-1260	ug/kg						10 U	24.2	9.8 U			
SW8082	AROCLOR-1268	ug/kg						10 U	10 U	9.8 U			
SW8082	PCBS, N.O.S.	ug/kg						10 U	200	40.7			
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg											
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8-HXCDD	ng/kg											
SW8290	1,2,3,4,7,8-HXCDF	ng/kg											
SW8290	1,2,3,6,7,8-HXCDD	ng/kg											
SW8290	1,2,3,6,7,8-HXCDF	ng/kg											
SW8290	1,2,3,7,8,9-HXCDD	ng/kg											
SW8290	1,2,3,7,8,9-HXCDF	ng/kg											
SW8290	1,2,3,7,8-PECDD	ng/kg											
SW8290	1,2,3,7,8-PECDF	ng/kg											
SW8290	2,3,4,6,7,8-HXCDF	ng/kg											
SW8290	2,3,4,7,8-PECDF	ng/kg											
SW8290	2,3,7,8-TCDD	ng/kg											
SW8290	2,3,7,8-TCDF	ng/kg											
SW8290	OCDD	ng/kg											
SW8290	OCDF	ng/kg											
SW8290	TOTAL HPCDD	ng/kg											
SW8290	TOTAL HPCDF	ng/kg											
SW8290	TOTAL HXCDD	ng/kg											
SW8290	TOTAL HXCDF	ng/kg											
SW8290	TOTAL PECDD	ng/kg											
SW8290	TOTAL PECDF	ng/kg											
SW8290	TOTAL TCDD	ng/kg											
SW8290	Total TCDF	PG/G											

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093
		Field Sample ID	OL-1311-05F	OL-1311-06F	OL-1312-07F	OL-1312-08F	OL-1312-09F	OL-1312-10F	OL-1312-11F	OL-1316-01F	OL-1316-02F	OL-1316-03F	OL-1316-04F
		Sample Date	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010
		SDG	JA49263	JA49263	JA49264	JA49264	JA49264	JA49264	JA49264	JA49705	JA49705	JA49705	JA49705
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	PKSD	PKSD	PKSD	PKSD	PKSD	WALL	WALL	WALL	WALL
		Specimen Sex	U	F	U	U	F	U	U	U	U	M	F
		Specimen Length	332 mm	296 mm	197 mm	185 mm	204 mm	185 mm	130 mm	557 mm	585 mm	580 mm	593 mm
		Specimen Weight	498 g	333 g	207 g	172 g	255 g	163 g	58 g	2156 g	2378 g	2540 g	2950 g
		Specimen Age	5+ yrs	4+ yrs	6+ yrs	5+ yrs	6+ yrs	4+ yrs	2+ yrs	14+ yrs	11+ yrs	8+ yrs	6+ yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%											
SW7471	MERCURY	mg/kg	0.17 J	0.25 J	0.081	0.095	0.12	0.071	0.022 J	3.3	2.3	2.3	1.4
SW8081	4,4'-DDD	ug/kg											
SW8081	4,4'-DDE	ug/kg											
SW8081	4,4'-DDT	ug/kg											
SW8081	HEXACHLOROBENZENE	ug/kg											
SW8082	AROCLOR-1016	ug/kg											
SW8082	AROCLOR-1221	ug/kg											
SW8082	AROCLOR-1232	ug/kg											
SW8082	AROCLOR-1242	ug/kg											
SW8082	AROCLOR-1248	ug/kg											
SW8082	AROCLOR-1254	ug/kg											
SW8082	AROCLOR-1260	ug/kg											
SW8082	AROCLOR-1268	ug/kg											
SW8082	PCBS, N.O.S.	ug/kg											
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg											
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8-HXCDD	ng/kg											
SW8290	1,2,3,4,7,8-HXCDF	ng/kg											
SW8290	1,2,3,6,7,8-HXCDD	ng/kg											
SW8290	1,2,3,6,7,8-HXCDF	ng/kg											
SW8290	1,2,3,7,8,9-HXCDD	ng/kg											
SW8290	1,2,3,7,8,9-HXCDF	ng/kg											
SW8290	1,2,3,7,8-PECDD	ng/kg											
SW8290	1,2,3,7,8-PECDF	ng/kg											
SW8290	2,3,4,6,7,8-HXCDF	ng/kg											
SW8290	2,3,4,7,8-PECDF	ng/kg											
SW8290	2,3,7,8-TCDD	ng/kg											
SW8290	2,3,7,8-TCDF	ng/kg											
SW8290	OCDD	ng/kg											
SW8290	OCDF	ng/kg											
SW8290	TOTAL HPCDD	ng/kg											
SW8290	TOTAL HPCDF	ng/kg											
SW8290	TOTAL HXCDD	ng/kg											
SW8290	TOTAL HXCDF	ng/kg											
SW8290	TOTAL PECDD	ng/kg											
SW8290	TOTAL PECDF	ng/kg											
SW8290	TOTAL TCDD	ng/kg											
SW8290	Total TCDF	PG/G											

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-30093	OL-STA-40212	OL-STA-40212
		Field Sample ID	OL-1348-01	OL-1348-02	OL-1348-03	OL-1348-04	OL-1348-05	OL-1311-07F	OL-1311-08F
		Sample Date	8/25/2010	8/25/2010	8/25/2010	8/25/2010	8/25/2010	6/16/2010	6/16/2010
		SDG	JA54813	JA54813	JA54813	JA54813	JA54813	JA49263R JA49263	G383-810 JA49263R JA49263
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BRSI	BK	BK	BK	BK	PKSD	PKSD
		Specimen Sex						U	F
		Specimen Length	56.92 mm	56.6 mm	71.4 mm	80.1 mm	77.8 mm	146 mm	137 mm
		Specimen Weight	0.87 g	1.28 g	3.62 g	4.29 g	3.73 g	94 g	70 g
		Specimen Age						2+ yrs	2+ yrs
Method	Parameter Name	Units							
Percent Lipids	%LIPIDS DETERMINATION	%			1.2			0.28	0.28
SW7471	MERCURY	mg/kg	0.05	0.074	0.078	0.11	0.3	0.073 J	0.071 J
SW8081	4,4'-DDD	ug/kg			3.9 U			3.9 U	4 U
SW8081	4,4'-DDE	ug/kg			3.9 U			3.9 U	5.5
SW8081	4,4'-DDT	ug/kg			3.9 U			3.9 U	4 U
SW8081	HEXACHLOROBENZENE	ug/kg			2.8 JN			2 UJ	3.5 J
SW8082	AROCLOR-1016	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1221	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1232	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1242	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1248	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1254	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1260	ug/kg			9.8 U			9.8 U	10 U
SW8082	AROCLOR-1268	ug/kg			9.8 U			9.8 U	10 U
SW8082	PCBS, N.O.S.	ug/kg			9.8 U			9.8 U	10 U
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg							0.564 U
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg							0.319 U
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg							0.44 U
SW8290	1,2,3,4,7,8-HXCDD	ng/kg							1.15 U
SW8290	1,2,3,4,7,8-HXCDF	ng/kg							5.04 U
SW8290	1,2,3,6,7,8-HXCDD	ng/kg							0.917 U
SW8290	1,2,3,6,7,8-HXCDF	ng/kg							4.03 U
SW8290	1,2,3,7,8,9-HXCDD	ng/kg							1.1 U
SW8290	1,2,3,7,8,9-HXCDF	ng/kg							5.76 U
SW8290	1,2,3,7,8-PECDD	ng/kg							1.62 U
SW8290	1,2,3,7,8-PECDF	ng/kg							0.303 U
SW8290	2,3,4,6,7,8-HXCDF	ng/kg							4.65 U
SW8290	2,3,4,7,8-PECDF	ng/kg							0.3 U
SW8290	2,3,7,8-TCDD	ng/kg							
SW8290	2,3,7,8-TCDF	ng/kg							0.702 J
SW8290	OCDD	ng/kg							0.98 U
SW8290	OCDF	ng/kg							0.99 U
SW8290	TOTAL HPCDD	ng/kg							1.05
SW8290	TOTAL HPCDF	ng/kg							0.44 U
SW8290	TOTAL HXCDD	ng/kg							1.15 U
SW8290	TOTAL HXCDF	ng/kg							5.76 U
SW8290	TOTAL PECDD	ng/kg							1.62 U
SW8290	TOTAL PECDF	ng/kg							0.303 U
SW8290	TOTAL TCDD	ng/kg							0.418 U
SW8290	Total TCDF	PG/G							0.702

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212
		Field Sample ID	OL-1311-09F	OL-1311-10F	OL-1311-11F	OL-1311-12F	OL-1311-13F	OL-1311-14F	OL-1311-15F	OL-1311-16F	OL-1311-17F	OL-1311-18F	OL-1314-01F
		Sample Date	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/18/2010
		SDG	JA49263	JA49263	JA49263	JA49263	JA49263	JA49263	JA49263	JA49263	JA49263	G383-810 JA49263R JA49263	JA49553
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	PKSD	PKSD	PKSD	BB	BB	BB	BB	BB	BB	WALL	BB
		Specimen Sex	F	U	U	F	F	U	F	U	U	U	F
		Specimen Length	157 mm	141 mm	129 mm	293 mm	299 mm	306 mm	290 mm	316 mm	307 mm	584 mm	343 mm
		Specimen Weight	119 g	81 g	55 g	376 g	342 g	423 g	352 g	421 g	405 g	1490 g	636 g
		Specimen Age	3+ yrs	2+ yrs	2+ yrs	5 yrs	6 yrs	5 yrs	4+ yrs	5+ yrs	4+ yrs	8+ yrs	7 yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%										1.8	
SW7471	MERCURY	mg/kg	0.24 J	0.085 J	0.07 J	0.1 J	0.13 J	0.091 J	0.2 J	0.16 J	0.15 J	0.88 J	0.33
SW8081	4,4'-DDD	ug/kg										4 U	
SW8081	4,4'-DDE	ug/kg										4 U	
SW8081	4,4'-DDT	ug/kg										4 U	
SW8081	HEXACHLOROBENZENE	ug/kg										2.6 J	
SW8082	AROCLOR-1016	ug/kg										10 U	
SW8082	AROCLOR-1221	ug/kg										10 U	
SW8082	AROCLOR-1232	ug/kg										10 U	
SW8082	AROCLOR-1242	ug/kg										10 U	
SW8082	AROCLOR-1248	ug/kg										131	
SW8082	AROCLOR-1254	ug/kg										70.9	
SW8082	AROCLOR-1260	ug/kg										25.3	
SW8082	AROCLOR-1268	ug/kg										10 U	
SW8082	PCBS, N.O.S.	ug/kg										227	
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										0.462 U	
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										0.611 J	
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										0.498 U	
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										1.32 U	
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										1.07 U	
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										1.05 U	
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										0.855 U	
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										1.26 U	
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										1.22 U	
SW8290	1,2,3,7,8-PECDD	ng/kg										1.03 U	
SW8290	1,2,3,7,8-PECDF	ng/kg										1.42 J	
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										0.987 U	
SW8290	2,3,4,7,8-PECDF	ng/kg										1.32 J	
SW8290	2,3,7,8-TCDD	ng/kg										0.44 U	
SW8290	2,3,7,8-TCDF	ng/kg										2.55	
SW8290	OCDD	ng/kg										0.585 U	
SW8290	OCDF	ng/kg										0.541 U	
SW8290	TOTAL HPCDD	ng/kg										10.5	
SW8290	TOTAL HPCDF	ng/kg										0.611	
SW8290	TOTAL HXCDD	ng/kg										5.91	
SW8290	TOTAL HXCDF	ng/kg										0.964 J	
SW8290	TOTAL PECDD	ng/kg										4.78	
SW8290	TOTAL PECDF	ng/kg										10.9 J	
SW8290	TOTAL TCDD	ng/kg										0.532 U	
SW8290	Total TCDF	PG/G										23.7 J	

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-40212	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057
		Field Sample ID	OL-1320-16F	OL-1346-01	OL-1346-02	OL-1346-03	OL-1346-04	OL-1346-05	OL-1311-19F	OL-1311-20F	OL-1314-02F	OL-1314-03F
		Sample Date	6/29/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010	6/16/2010	6/16/2010	6/18/2010	6/18/2010
		SDG	JA50230	JA54606	JA54606	JA54606	JA54606	JA54606	JA49263	JA49263	JA49553R	JA49553R
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	SMB	BK	BK	BK	BK	BK	WALL	WALL	BB	BB
		Specimen Sex	U						U	F	F	F
		Specimen Length	302 mm	62 mm	70.6 mm	70.27 mm	58.33 mm	81.9 mm	558 mm	500 mm	308 mm	305 mm
		Specimen Weight	462 g	2.98 g	3.65 g	3.55 g	2.01 g	5.6 g	2198 g	1519 g	390 g	415 g
		Specimen Age	6+ yrs						23 yrs	5+ yrs	5 yrs	3+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%				0.8		0.57			0.27	0.37
SW7471	MERCURY	mg/kg	0.64	0.28	0.4	0.24	0.23	0.27	3.1 J	0.86 J	0.31	0.45
SW8081	4,4'-DDD	ug/kg				3.9 U		3.9 U			4 U	3.8 U
SW8081	4,4'-DDE	ug/kg				3.9 U		3.9 U			4 U	3.8 U
SW8081	4,4'-DDT	ug/kg				3.9 U		3.9 U			4 U	3.8 U
SW8081	HEXACHLOROBENZENE	ug/kg				2 U		2 U			2 UJ	1.9 UJ
SW8082	AROCLOR-1016	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1221	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1232	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1242	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1248	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1254	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1260	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	AROCLOR-1268	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8082	PCBS, N.O.S.	ug/kg				9.8 U		9.8 U			10 U	9.6 U
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PCDD	ng/kg										
SW8290	1,2,3,7,8-PCDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PCDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PCDD	ng/kg										
SW8290	TOTAL PCDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057
		Field Sample ID	OL-1314-04F	OL-1314-05F	OL-1314-06F	OL-1314-07F	OL-1314-08F	OL-1314-09F	OL-1314-10F	OL-1314-11F	OL-1314-12F	OL-1314-13F
		Sample Date	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010
			G383-811 JA49553R JA49553					JA49553R JA49553			JA49553R JA49553	JA49553
		SDG		JA49553	JA49553	JA49553	JA49553	JA49553	JA49553	JA49553	JA49553	JA49553
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	BB	BB	BB	PKSD	PKSD	PKSD	PKSD	PKSD
		Specimen Sex	U	F	F	F	F	U	F	U	U	U
		Specimen Length	331 mm	317 mm	346 mm	308 mm	300 mm	133 mm	183 mm	181 mm	180 mm	194 mm
		Specimen Weight	552 g	471 g	578 g	422 g	354 g	66 g	152 g	157 g	156 g	203 g
		Specimen Age	6+ yrs	5+ yrs	4+ yrs	6 yrs	5+ yrs	2+ yrs	6+ yrs	5+ yrs	5+ yrs	5+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%	0.46					0.35			0.33	
SW7471	MERCURY	mg/kg	0.23	0.47	0.64	0.32	0.23	0.092	0.46	0.35	0.53	0.32
SW8081	4,4'-DDD	ug/kg	4 U					4 U			3.9 U	
SW8081	4,4'-DDE	ug/kg	4 U					4 U			3.9 U	
SW8081	4,4'-DDT	ug/kg	4 U					4 U			3.9 U	
SW8081	HEXACHLOROBENZENE	ug/kg	2 UJ					2 UJ			2 UJ	
SW8082	AROCLOR-1016	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1221	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1232	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1242	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1248	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1254	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1260	ug/kg	10 U					10 U			9.8 U	
SW8082	AROCLOR-1268	ug/kg	10 U					10 U			9.8 U	
SW8082	PCBS, N.O.S.	ug/kg	10 U					10 U			9.8 U	
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg	0.599 U									
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	0.688 J									
SW8290	1,2,3,4,7,8-HPCDF	ng/kg	0.496 U									
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	0.966 U									
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	2.67 U									
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	0.768 U									
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	2.13 U									
SW8290	1,2,3,7,8,9-HXCDD	ng/kg	0.923 U									
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	3.05 U									
SW8290	1,2,3,7,8-PECDD	ng/kg	1.36 U									
SW8290	1,2,3,7,8-PECDF	ng/kg	0.576 U									
SW8290	2,3,4,6,7,8-HXCDF	ng/kg	2.46 U									
SW8290	2,3,4,7,8-PECDF	ng/kg	0.572 U									
SW8290	2,3,7,8-TCDD	ng/kg	0.288 U									
SW8290	2,3,7,8-TCDF	ng/kg	0.577 J									
SW8290	OCDD	ng/kg	0.64 U									
SW8290	OCDF	ng/kg	0.754 U									
SW8290	TOTAL HPCDD	ng/kg	5.64									
SW8290	TOTAL HPCDF	ng/kg	0.688									
SW8290	TOTAL HXCDD	ng/kg	0.966 U									
SW8290	TOTAL HXCDF	ng/kg	3.05 U									
SW8290	TOTAL PECDD	ng/kg	1.78 U									
SW8290	TOTAL PECDF	ng/kg	0.576 U									
SW8290	TOTAL TCDD	ng/kg	0.349 U									
SW8290	Total TCDF	PG/G	1.42									

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057
		Field Sample ID	OL-1314-14F	OL-1314-15F	OL-1316-10F	OL-1316-11F	OL-1316-12F	OL-1316-13F	OL-1317-06F	OL-1317-07F	OL-1317-08F	OL-1317-09F	OL-1317-10F
		Sample Date	6/18/2010	6/18/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010
		SDG	JA49553	JA49553	JA49705	JA49705	JA49705	JA49705	JA49813	JA49813	JA49813	JA49813	JA49813
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	PKSD	PKSD	WALL	WALL	WALL	WALL	WALL	WALL	WALL	WALL	WALL
		Specimen Sex	U	U	U	M	F	M	M	F	F	M	M
		Specimen Length	160 mm	192 mm	498 mm	470 mm	598 mm	521 mm	521 mm	575 mm	559 mm	534 mm	432 mm
		Specimen Weight	125 g	209 g	1685 g	1393 g	2480 g	1915 g	1795 g	2856 g	2090 g	1951 g	929 g
		Specimen Age	3+ yrs	5+ yrs	9+ yrs	8+ yrs	11+ yrs	9+ yrs	8+ yrs	11+ yrs	5+ yrs	9+ yrs	4+ yrs
Method	Parameter Name	Units											
Percent Lipids	%LIPIDS DETERMINATION	%											
SW7471	MERCURY	mg/kg	0.25	0.3	1.6	1.4	2.1	2.9	2.2	2.6	1.5	1.6	0.34
SW8081	4,4'-DDD	ug/kg											
SW8081	4,4'-DDE	ug/kg											
SW8081	4,4'-DDT	ug/kg											
SW8081	HEXACHLOROBENZENE	ug/kg											
SW8082	AROCLOR-1016	ug/kg											
SW8082	AROCLOR-1221	ug/kg											
SW8082	AROCLOR-1232	ug/kg											
SW8082	AROCLOR-1242	ug/kg											
SW8082	AROCLOR-1248	ug/kg											
SW8082	AROCLOR-1254	ug/kg											
SW8082	AROCLOR-1260	ug/kg											
SW8082	AROCLOR-1268	ug/kg											
SW8082	PCBS, N.O.S.	ug/kg											
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg											
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg											
SW8290	1,2,3,4,7,8-HXCDD	ng/kg											
SW8290	1,2,3,4,7,8-HXCDF	ng/kg											
SW8290	1,2,3,6,7,8-HXCDD	ng/kg											
SW8290	1,2,3,6,7,8-HXCDF	ng/kg											
SW8290	1,2,3,7,8,9-HXCDD	ng/kg											
SW8290	1,2,3,7,8,9-HXCDF	ng/kg											
SW8290	1,2,3,7,8-PECDD	ng/kg											
SW8290	1,2,3,7,8-PECDF	ng/kg											
SW8290	2,3,4,6,7,8-HXCDF	ng/kg											
SW8290	2,3,4,7,8-PECDF	ng/kg											
SW8290	2,3,7,8-TCDD	ng/kg											
SW8290	2,3,7,8-TCDF	ng/kg											
SW8290	OCDD	ng/kg											
SW8290	OCDF	ng/kg											
SW8290	TOTAL HPCDD	ng/kg											
SW8290	TOTAL HPCDF	ng/kg											
SW8290	TOTAL HXCDD	ng/kg											
SW8290	TOTAL HXCDF	ng/kg											
SW8290	TOTAL PECDD	ng/kg											
SW8290	TOTAL PECDF	ng/kg											
SW8290	TOTAL TCDD	ng/kg											
SW8290	Total TCDF	PG/G											

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057
		Field Sample ID	OL-1317-11F	OL-1317-12F	OL-1320-04F	OL-1320-05F	OL-1320-06F	OL-1320-07F	OL-1320-08F
		Sample Date	6/23/2010	6/23/2010	6/29/2010	6/29/2010	6/29/2010	6/29/2010	6/29/2010
		SDG	JA49813	JA49813	JA50230R JA50230	JA50230	JA50230	JA50230	JA50230
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	WALL	WALL	SMB	SMB	SMB	SMB	SMB
		Specimen Sex	M	F	F	U	U	F	U
		Specimen Length	523 mm	589 mm	315 mm	243 mm	246 mm	237 mm	228 mm
		Specimen Weight	1976 g	2650 g	464 g	219 g	238 g	202 g	156 g
		Specimen Age	19+ yrs	9+ yrs	5+ yrs	3+ yrs	3+ yrs	3+ yrs	3+ yrs
Method	Parameter Name	Units							
Percent Lipids	%LIPIDS DETERMINATION	%			0.29				
SW7471	MERCURY	mg/kg	3.1	1.7	0.54	0.44	0.31	0.29	0.36
SW8081	4,4'-DDD	ug/kg			4 UJ				
SW8081	4,4'-DDE	ug/kg			4 U				
SW8081	4,4'-DDT	ug/kg			4 U				
SW8081	HEXACHLOROBENZENE	ug/kg			2 UJ				
SW8082	AROCLOR-1016	ug/kg			10 U				
SW8082	AROCLOR-1221	ug/kg			10 U				
SW8082	AROCLOR-1232	ug/kg			10 U				
SW8082	AROCLOR-1242	ug/kg			10 U				
SW8082	AROCLOR-1248	ug/kg			10 U				
SW8082	AROCLOR-1254	ug/kg			10 U				
SW8082	AROCLOR-1260	ug/kg			10 U				
SW8082	AROCLOR-1268	ug/kg			10 U				
SW8082	PCBS, N.O.S.	ug/kg			10 U				
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg							
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg							
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg							
SW8290	1,2,3,4,7,8-HXCDD	ng/kg							
SW8290	1,2,3,4,7,8-HXCDF	ng/kg							
SW8290	1,2,3,6,7,8-HXCDD	ng/kg							
SW8290	1,2,3,6,7,8-HXCDF	ng/kg							
SW8290	1,2,3,7,8,9-HXCDD	ng/kg							
SW8290	1,2,3,7,8,9-HXCDF	ng/kg							
SW8290	1,2,3,7,8-PECDD	ng/kg							
SW8290	1,2,3,7,8-PECDF	ng/kg							
SW8290	2,3,4,6,7,8-HXCDF	ng/kg							
SW8290	2,3,4,7,8-PECDF	ng/kg							
SW8290	2,3,7,8-TCDD	ng/kg							
SW8290	2,3,7,8-TCDF	ng/kg							
SW8290	OCDD	ng/kg							
SW8290	OCDF	ng/kg							
SW8290	TOTAL HPCDD	ng/kg							
SW8290	TOTAL HPCDF	ng/kg							
SW8290	TOTAL HXCDD	ng/kg							
SW8290	TOTAL HXCDF	ng/kg							
SW8290	TOTAL PECDD	ng/kg							
SW8290	TOTAL PECDF	ng/kg							
SW8290	TOTAL TCDD	ng/kg							
SW8290	Total TCDF	PG/G							



Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057
		Field Sample ID	OL-1320-09F	OL-1320-10F	OL-1320-11F	OL-1320-12F	OL-1320-13F	OL-1320-14F	OL-1320-15F	OL-1321-01F	OL-1322-06F	OL-1322-07F
		Sample Date	6/29/2010	6/29/2010	6/29/2010	6/29/2010	6/29/2010	6/29/2010	6/29/2010	6/30/2010	7/1/2010	7/1/2010
		SDG	JA50230	JA50230	JA50230	JA50230	JA50230	JA50230	JA50230	JA50346	JA50445	JA50445
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	SMB	SMB	SMB	SMB	SMB	SMB	SMB	SMB	SMB	SMB
		Specimen Sex	U	U	F	U	U	F	U	F	M	F
		Specimen Length	226 mm	298 mm	271 mm	245 mm	262 mm	243 mm	240 mm	431 mm	268 mm	262 mm
		Specimen Weight	176 g	300 g	325 g	225 g	266 g	212 g	224 g	1442 g	320 g	325 g
		Specimen Age	3+ yrs	5+ yrs	3+ yrs	3+ yrs	3+ yrs	3+ yrs	3+ yrs	11 yrs	3+ yrs	2+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%										
SW7471	MERCURY	mg/kg	0.31	0.41	0.38	0.62	0.61	0.34	0.43	1.9	0.75	0.63
SW8081	4,4'-DDD	ug/kg										
SW8081	4,4'-DDE	ug/kg										
SW8081	4,4'-DDT	ug/kg										
SW8081	HEXACHLOROBENZENE	ug/kg										
SW8082	AROCLOR-1016	ug/kg										
SW8082	AROCLOR-1221	ug/kg										
SW8082	AROCLOR-1232	ug/kg										
SW8082	AROCLOR-1242	ug/kg										
SW8082	AROCLOR-1248	ug/kg										
SW8082	AROCLOR-1254	ug/kg										
SW8082	AROCLOR-1260	ug/kg										
SW8082	AROCLOR-1268	ug/kg										
SW8082	PCBS, N.O.S.	ug/kg										
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50057	OL-STA-50058	OL-STA-50058
		Field Sample ID	OL-1322-10F	OL-1322-11F	OL-1322-12F	OL-1346-06	OL-1346-07	OL-1346-08	OL-1346-09	OL-1346-10	OL-1307-14F	OL-1307-15F
		Sample Date	7/1/2010	7/1/2010	7/1/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010	6/15/2010	6/15/2010
			JA50445 JA50445R G383-812	JA50445 JA50445R	JA50445 JA50445R G383-812							
		SDG				JA54606	JA54606	JA54606	JA54606	JA54606	JA49134	JA49134
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	SMB	SMB	SMB	BK	BK	BK	BK	BK	WALL	WALL
		Specimen Sex	U	M	F						U	U
		Specimen Length	240 mm	259 mm	205 mm	54.93 mm	56.93 mm	56.87 mm	52.53 mm	74.53 mm	537 mm	542 mm
		Specimen Weight	199 g	249 g	115 g	1.55 g	1.71 g	1.76 g	1.39 g	3.93 g	2117 g	2290 g
		Specimen Age	3+ yrs	4+ yrs	3+ yrs						14+ yrs	11+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%	0.27 J	0.21 J	0.33 J					0.68		
SW7471	MERCURY	mg/kg	0.27 J	0.52 J	0.25 J	0.14	0.13	0.11	0.13	0.19	1.6	1.4
SW8081	4,4'-DDD	ug/kg	3.8 UJ	3.8 UJ	3.9 UJ					3.9 U		
SW8081	4,4'-DDE	ug/kg	3.8 U	3.8 U	3.9 U					3.9 U		
SW8081	4,4'-DDT	ug/kg	3.8 U	3.8 U	3.9 U					3.9 U		
SW8081	HEXACHLOROBENZENE	ug/kg	1.9 UJ	1.9 UJ	2 UJ					2 U		
SW8082	AROCLOR-1016	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1221	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1232	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1242	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1248	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1254	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1260	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	AROCLOR-1268	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8082	PCBS, N.O.S.	ug/kg	9.6 U	9.6 U	9.6 U					9.8 U		
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg	0.302 U		0.317 U							
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	0.226 U		0.233 U							
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg			0.321 U							
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	0.98 U		0.789 U							
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	4.24 U		4.59 U							
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	0.779 U		0.627 U							
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	3.39 U		3.67 U							
SW8290	1,2,3,7,8,9-HXCDD	ng/kg	0.936 U		0.754 U							
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	4.85 U		5.24 U							
SW8290	1,2,3,7,8-PECDD	ng/kg	1.39 U		1.4 U							
SW8290	1,2,3,7,8-PECDF	ng/kg	0.278 J		0.283 U							
SW8290	2,3,4,6,7,8-HXCDF	ng/kg	3.91 U		4.23 U							
SW8290	2,3,4,7,8-PECDF	ng/kg	0.262 U		0.281 U							
SW8290	2,3,7,8-TCDD	ng/kg	0.222 U		0.19 U							
SW8290	2,3,7,8-TCDF	ng/kg	0.639 J		0.506 J							
SW8290	OCDD	ng/kg	0.442 U		0.411 U							
SW8290	OCDF	ng/kg	0.524 U		0.409 U							
SW8290	TOTAL HPCDD	ng/kg	2.06		1.85							
SW8290	TOTAL HPCDF	ng/kg	0.312 U		0.321 U							
SW8290	TOTAL HXCDD	ng/kg	0.98 U		0.789 U							
SW8290	TOTAL HXCDF	ng/kg	4.85 U		5.24 U							
SW8290	TOTAL PECDD	ng/kg	1.88 J		1.4 U							
SW8290	TOTAL PECDF	ng/kg	0.536 J		0.491 J							
SW8290	TOTAL TCDD	ng/kg	1.65		0.19 U							
SW8290	Total TCDF	PG/G	2.76		0.518							

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058
		Field Sample ID	OL-1307-16F	OL-1307-17F	OL-1307-18F	OL-1307-19F	OL-1307-20F	OL-1312-01F	OL-1312-02F	OL-1312-03F	OL-1312-04F	OL-1312-05F
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010
		SDG	JA49134	JA49134	JA49134	JA49134 JA49134R G383-808	JA49134 JA49134R	JA49264R G383-809 JA49264	JA49264	JA49264	JA49264R JA49264	JA49264
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	WALL	WALL	WALL	WALL	WALL	PKSD	PKSD	PKSD	PKSD	PKSD
		Specimen Sex	U	U	M	M	U	F	U	U	U	F
		Specimen Length	555 mm	545 mm	496 mm	475 mm	510 mm	201 mm	175 mm	192 mm	161 mm	174 mm
		Specimen Weight	2129 g	2005 g	1370 g	1524 g	1674 g	202 g	150 g	184 g	117 g	150 g
		Specimen Age	8+ yrs	13+ yrs	22+ yrs	9+ yrs	12+ yrs	5+ yrs	3+ yrs	5+ yrs	3+ yrs	3+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%				1.7	2.7	0.17			0.29	
SW7471	MERCURY	mg/kg	0.79	1.6	1.5	1.1	1.4	0.32	0.08	0.052	0.017 J	0.018 J
SW8081	4,4'-DDD	ug/kg				3.8 U	4 U	3.8 U			4 U	
SW8081	4,4'-DDE	ug/kg				3.8 U	4 U	3.8 U			4 U	
SW8081	4,4'-DDT	ug/kg				3.8 U	4 U	3.8 U			4 U	
SW8081	HEXACHLOROBENZENE	ug/kg				4.3 J	2 UJ	1.9 UJ			2 UJ	
SW8082	AROCLOR-1016	ug/kg				9.4 U	10 U	9.6 U			10 U	
SW8082	AROCLOR-1221	ug/kg				9.4 U	10 U	9.6 U			10 U	
SW8082	AROCLOR-1232	ug/kg				9.4 U	10 U	9.6 U			10 U	
SW8082	AROCLOR-1242	ug/kg				9.4 U	10 U	9.6 U			10 U	
SW8082	AROCLOR-1248	ug/kg				205	88.6	9.6 U			10 U	
SW8082	AROCLOR-1254	ug/kg				110	50	9.6 U			10 U	
SW8082	AROCLOR-1260	ug/kg				40.3	21.3	9.6 U			10 U	
SW8082	AROCLOR-1268	ug/kg				9.4 U	10 U	9.6 U			10 U	
SW8082	PCBS, N.O.S.	ug/kg				355	160	9.6 U			10 U	
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg				0.451 U		0.33 U				
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg				1.28 J		0.204 U				
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg				0.539 U		0.281 U				
SW8290	1,2,3,4,7,8-HXCDD	ng/kg				1.57 U		0.663 U				
SW8290	1,2,3,4,7,8-HXCDF	ng/kg				4.09 U		3.34 U				
SW8290	1,2,3,6,7,8-HXCDD	ng/kg				1.25 U		0.527 U				
SW8290	1,2,3,6,7,8-HXCDF	ng/kg				3.27 U		2.67 U				
SW8290	1,2,3,7,8,9-HXCDD	ng/kg				1.5 U						
SW8290	1,2,3,7,8,9-HXCDF	ng/kg				4.67 U		3.81 U				
SW8290	1,2,3,7,8-PECDD	ng/kg				2.1 U		1.01 U				
SW8290	1,2,3,7,8-PECDF	ng/kg				1.48 J		0.232 U				
SW8290	2,3,4,6,7,8-HXCDF	ng/kg				3.77 U		3.08 U				
SW8290	2,3,4,7,8-PECDF	ng/kg				2.2 J		0.231 U				
SW8290	2,3,7,8-TCDD	ng/kg				0.413 U						
SW8290	2,3,7,8-TCDF	ng/kg				3.6		0.502 J				
SW8290	OCDD	ng/kg				0.599 U		0.588 U				
SW8290	OCDF	ng/kg				0.721 U		0.616 U				
SW8290	TOTAL HPCDD	ng/kg				13.8		0.33 U				
SW8290	TOTAL HPCDF	ng/kg				1.28		0.281 U				
SW8290	TOTAL HXCDD	ng/kg				4.89		0.663 U				
SW8290	TOTAL HXCDF	ng/kg				4.67 U		3.81 U				
SW8290	TOTAL PECDD	ng/kg				8.1		1.01 U				
SW8290	TOTAL PECDF	ng/kg				15.3 J						
SW8290	TOTAL TCDD	ng/kg				12.7		0.171 U				
SW8290	Total TCDF	PG/G				30.1 J						

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058
		Field Sample ID	OL-1312-06F	OL-1317-01F	OL-1317-02F	OL-1317-03F	OL-1317-04F	OL-1317-05F	OL-1319-03F	OL-1319-04F	OL-1319-05F	OL-1319-06F
		Sample Date	6/16/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/23/2010	6/28/2010	6/28/2010	6/28/2010	6/28/2010
		SDG	JA49264	JA49813	JA49813	JA49813	JA49813	JA49813	JA50145	JA50145	JA50145	JA50145
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	PKSD	WALL	WALL	SMB	SMB	SMB	SMB	SMB	BB	BB
		Specimen Sex	U	M	M	F	U	U	U	F	F	U
		Specimen Length	159 mm	586 mm	532 mm	450 mm	426 mm	456 mm	221 mm	433 mm	347 mm	338 mm
		Specimen Weight	112 g	2870 g	2181 g	1610 g	1268 g	1651 g	148 g	1262 g	505 g	509 g
		Specimen Age	3+ yrs	19 yrs	11+ yrs	9 yrs	9 yrs	10 yrs	3+ yrs	9 yrs	4+ yrs	5+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%										
SW7471	MERCURY	mg/kg	0.012 J	2.7	1.6	1.8	1.4	2	0.45	1.4	0.34	0.29
SW8081	4,4'-DDD	ug/kg										
SW8081	4,4'-DDE	ug/kg										
SW8081	4,4'-DDT	ug/kg										
SW8081	HEXACHLOROBENZENE	ug/kg										
SW8082	AROCLOR-1016	ug/kg										
SW8082	AROCLOR-1221	ug/kg										
SW8082	AROCLOR-1232	ug/kg										
SW8082	AROCLOR-1242	ug/kg										
SW8082	AROCLOR-1248	ug/kg										
SW8082	AROCLOR-1254	ug/kg										
SW8082	AROCLOR-1260	ug/kg										
SW8082	AROCLOR-1268	ug/kg										
SW8082	PCBS, N.O.S.	ug/kg										
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058	OL-STA-50058
		Field Sample ID	OL-1319-07F	OL-1319-08F	OL-1319-09F	OL-1319-10F	OL-1326-01F	OL-1346-11	OL-1346-12	OL-1346-13	OL-1346-14	OL-1346-15
		Sample Date	6/28/2010	6/28/2010	6/28/2010	6/28/2010	7/8/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010	8/23/2010
		SDG	JA50145	JA50145	JA50145	JA50145	JA50954	JA54606	JA54606	JA54606	JA54606	JA54606
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	BB	BB	SMB	BK	BK	BK	BK	BK
		Specimen Sex	U	M	F	U	U					
		Specimen Length	335 mm	338 mm	315 mm	284 mm	425 mm	55.67 mm	57.27 mm	90.9 mm	92.4 mm	91 mm
		Specimen Weight	484 g	533 g	464 g	300 g	1021 g	1.55 g	1.77 g	7.54 g	8.16 g	7.78 g
		Specimen Age	6 yrs	5+ yrs	4+ yrs	3+ yrs	9+ yrs					
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%								0.78		
SW7471	MERCURY	mg/kg	0.27	0.29	0.32	0.17	1.5	0.19	0.24	0.28	0.27	0.25
SW8081	4,4'-DDD	ug/kg								3.9 U		
SW8081	4,4'-DDE	ug/kg								3.9 U		
SW8081	4,4'-DDT	ug/kg								3.9 U		
SW8081	HEXACHLOROBENZENE	ug/kg								2 U		
SW8082	AROCLOR-1016	ug/kg								9.8 U		
SW8082	AROCLOR-1221	ug/kg								9.8 U		
SW8082	AROCLOR-1232	ug/kg								9.8 U		
SW8082	AROCLOR-1242	ug/kg								9.8 U		
SW8082	AROCLOR-1248	ug/kg								9.8 U		
SW8082	AROCLOR-1254	ug/kg								9.8 U		
SW8082	AROCLOR-1260	ug/kg								9.8 U		
SW8082	AROCLOR-1268	ug/kg								9.8 U		
SW8082	PCBS, N.O.S.	ug/kg								9.8 U		
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059
		Field Sample ID	OL-1312-12F	OL-1312-13F	OL-1312-14F	OL-1312-15F	OL-1312-16F	OL-1312-17F	OL-1314-16F	OL-1314-17F	OL-1314-18F	OL-1314-19F
		Sample Date	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/16/2010	6/18/2010	6/18/2010	6/18/2010	6/18/2010
		SDG	JA49264	JA49264	JA49264	JA49264	JA49264	JA49264	JA49553	JA49553	JA49553	JA49553
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	BB	BB	BB	BB	PKSD	PKSD	PKSD	PKSD
		Specimen Sex	U	U	F	F	U	F	U	U	U	U
		Specimen Length	326 mm	306 mm	306 mm	316 mm	324 mm	313 mm	133 mm	163 mm	173 mm	134 mm
		Specimen Weight	504 g	402 g	354 g	475 g	440 g	409 g	69 g	116 g	145 g	66 g
		Specimen Age	4+ yrs	4+ yrs	5+ yrs	4+ yrs	5+ yrs	4+ yrs	2+ yrs	3+ yrs	4+ yrs	2+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%										
SW7471	MERCURY	mg/kg	0.11	0.33	0.21	0.082	0.2	0.32	0.073	0.18	0.21	0.12
SW8081	4,4'-DDD	ug/kg										
SW8081	4,4'-DDE	ug/kg										
SW8081	4,4'-DDT	ug/kg										
SW8081	HEXACHLOROBENZENE	ug/kg										
SW8082	AROCLOR-1016	ug/kg										
SW8082	AROCLOR-1221	ug/kg										
SW8082	AROCLOR-1232	ug/kg										
SW8082	AROCLOR-1242	ug/kg										
SW8082	AROCLOR-1248	ug/kg										
SW8082	AROCLOR-1254	ug/kg										
SW8082	AROCLOR-1260	ug/kg										
SW8082	AROCLOR-1268	ug/kg										
SW8082	PCBS, N.O.S.	ug/kg										
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059
		Field Sample ID	OL-1316-05F	OL-1316-06F	OL-1316-07F	OL-1316-08F	OL-1316-09F	OL-1316-14F	OL-1316-15F	OL-1316-16F	OL-1316-17F	OL-1319-01F
		Sample Date	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/22/2010	6/28/2010
		SDG	JA49705	JA49705	JA49705	JA49705R JA49705	JA49705	JA49705	JA49705R JA49705	JA49705	JA49705R JA49705	JA50145
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	WALL	WALL	WALL	WALL	SMB	SMB	WALL	SMB	WALL	PKSD
		Specimen Sex	F	F	F	M	F	U	F	U	F	U
		Specimen Length	557 mm	560 mm	573 mm	518 mm	445 mm	437 mm	497 mm	395 mm	503 mm	156 mm
		Specimen Weight	2123 g	2603 g	2562 g	1764 g	1071 g	1413 g	1442 g	970 g	1935 g	106 g
		Specimen Age	19 yrs	5+ yrs	15+ yrs	19 yrs	8 yrs	9 yrs	8+ yrs	7 yrs	6+ yrs	3+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%				1.2			0.44		3.5	
SW7471	MERCURY	mg/kg	3.5	1.7	1.8	3.7	0.74	1.4	0.57	0.95	1.5	0.2
SW8081	4,4'-DDD	ug/kg				4 UJ			3.8 UJ		3.8 UJ	
SW8081	4,4'-DDE	ug/kg				21.2			10.2		19.8	
SW8081	4,4'-DDT	ug/kg				4 U			3.8 U		3.8 U	
SW8081	HEXACHLOROBENZENE	ug/kg				5 J			2.2 J		1.9 UJ	
SW8082	AROCLOR-1016	ug/kg				10 U			9.6 U		9.4 U	
SW8082	AROCLOR-1221	ug/kg				10 U			9.6 U		9.4 U	
SW8082	AROCLOR-1232	ug/kg				10 U			9.6 U		9.4 U	
SW8082	AROCLOR-1242	ug/kg				10 U			9.6 U		9.4 U	
SW8082	AROCLOR-1248	ug/kg				234			9.6 U		9.4 U	
SW8082	AROCLOR-1254	ug/kg				290			193		9.4 U	
SW8082	AROCLOR-1260	ug/kg				195 J			9.6 U		9.4 U	
SW8082	AROCLOR-1268	ug/kg				10 U			9.6 U		9.4 U	
SW8082	PCBS, N.O.S.	ug/kg				719 J			193		9.4 U	
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-50059	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225
		Field Sample ID	OL-1319-02F	OL-1347-01	OL-1347-02	OL-1347-03	OL-1347-04	OL-1347-05	OL-1305-15F	OL-1305-16F	OL-1305-17F	OL-1305-18F
		Sample Date	6/28/2010	8/25/2010	8/25/2010	8/25/2010	8/25/2010	8/25/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010
		SDG	JA50145	JA54812	JA54812	JA54812	JA54812	JA54812	JA49132	JA49132	JA49132	JA49132 JA49132R
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	PKSD	BK	BK	BK	BK	BK	BB	BB	BB	BB
		Specimen Sex	F						F	F	F	U
		Specimen Length	145 mm	62.9 mm	79.3 mm	68.6 mm	56.13 mm	60.93 mm	319 mm	327 mm	330 mm	350 mm
		Specimen Weight	74 g	2.41 g	4.88 g	3.47 g	1.89 g	2.27 g	383 g	417 g	482 g	571 g
		Specimen Age	3+ yrs						4+ yrs	4+ yrs	6+ yrs	6 yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%			1.1							0.023 J
SW7471	MERCURY	mg/kg	0.25	0.19	0.23	0.14	0.11	0.13	0.12 J	0.2 J	0.19 J	0.29 J
SW8081	4,4'-DDD	ug/kg			3.8 U							3.9 U
SW8081	4,4'-DDE	ug/kg			3.8 U							3.9 U
SW8081	4,4'-DDT	ug/kg			3.8 U							3.9 U
SW8081	HEXACHLOROBENZENE	ug/kg			1.9 U							2 UJ
SW8082	AROCLOR-1016	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1221	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1232	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1242	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1248	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1254	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1260	ug/kg			9.4 U							9.8 U
SW8082	AROCLOR-1268	ug/kg			9.4 U							9.8 U
SW8082	PCBS, N.O.S.	ug/kg			9.4 U							9.8 U
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg										
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg										
SW8290	1,2,3,4,7,8-HXCDD	ng/kg										
SW8290	1,2,3,4,7,8-HXCDF	ng/kg										
SW8290	1,2,3,6,7,8-HXCDD	ng/kg										
SW8290	1,2,3,6,7,8-HXCDF	ng/kg										
SW8290	1,2,3,7,8,9-HXCDD	ng/kg										
SW8290	1,2,3,7,8,9-HXCDF	ng/kg										
SW8290	1,2,3,7,8-PECDD	ng/kg										
SW8290	1,2,3,7,8-PECDF	ng/kg										
SW8290	2,3,4,6,7,8-HXCDF	ng/kg										
SW8290	2,3,4,7,8-PECDF	ng/kg										
SW8290	2,3,7,8-TCDD	ng/kg										
SW8290	2,3,7,8-TCDF	ng/kg										
SW8290	OCDD	ng/kg										
SW8290	OCDF	ng/kg										
SW8290	TOTAL HPCDD	ng/kg										
SW8290	TOTAL HPCDF	ng/kg										
SW8290	TOTAL HXCDD	ng/kg										
SW8290	TOTAL HXCDF	ng/kg										
SW8290	TOTAL PECDD	ng/kg										
SW8290	TOTAL PECDF	ng/kg										
SW8290	TOTAL TCDD	ng/kg										
SW8290	Total TCDF	PG/G										



Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225
		Field Sample ID	OL-1305-19F	OL-1306-07F	OL-1306-08F	OL-1306-09F	OL-1306-10F	OL-1306-11F	OL-1306-12F	OL-1306-13F	OL-1306-14F	OL-1347-06
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	8/25/2010
			G383-806 JA49132 JA49132R	JA49133	JA49133	G383-807 JA49133 JA49133R	JA49133	JA49133 JA49133R	JA49133	JA49133	JA49133	JA54812
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD	BK
		Specimen Sex	F	U	U	F	U	F	U	F	U	
		Specimen Length	345 mm	149 mm	193 mm	158 mm	142 mm	204 mm	166 mm	180 mm	160 mm	77.1 mm
		Specimen Weight	481 g	91 g	202 g	107 g	89 g	220 g	125 g	173 g	102 g	5.23 g
		Specimen Age	8 yrs	3+ yrs	7 yrs	4+ yrs	3+ yrs	5+ yrs	3+ yrs	5+ yrs	3+ yrs	
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%	0.095 U			0.093 J		0.097 U				0.92
SW7471	MERCURY	mg/kg	0.48 J	0.17 J	0.47 J	0.17 J	0.09 J	0.66 J	0.18 J	0.18 J	0.16 J	0.19
SW8081	4,4'-DDD	ug/kg	3.9 U			3.9 U		3.8 U				3.9 U
SW8081	4,4'-DDE	ug/kg	3.9 U			3.9 U		3.8 U				3.9 U
SW8081	4,4'-DDT	ug/kg	3.9 U			3.9 U		3.8 U				3.9 U
SW8081	HEXACHLOROBENZENE	ug/kg	2 UJ			2 UJ		1.9 UJ				2 U
SW8082	AROCLOR-1016	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1221	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1232	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1242	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1248	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1254	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1260	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	AROCLOR-1268	ug/kg	98 U			98 U		94 U				9.8 U
SW8082	PCBS, N.O.S.	ug/kg	98 U			98 U		94 U				9.8 U
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg	0.606 U			0.509 U						
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	1.07 J			0.26 U						
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg	0.541 U			0.359 U						
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	0.785 U			0.494 U						
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	0.81 U			0.605 U						
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	0.625 U			0.393 U						
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	0.648 U			0.483 U						
SW8290	1,2,3,7,8,9-HXCDD	ng/kg	0.75 U			0.472 U						
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	0.926 U			0.691 U						
SW8290	1,2,3,7,8-PECDD	ng/kg	0.811 U			0.624 U						
SW8290	1,2,3,7,8-PECDF	ng/kg	0.441 J			0.319 U						
SW8290	2,3,4,6,7,8-HXCDF	ng/kg	0.748 U			0.558 U						
SW8290	2,3,4,7,8-PECDF	ng/kg	0.603 J			0.317 U						
SW8290	2,3,7,8-TCDD	ng/kg	0.345 U			0.435 U						
SW8290	2,3,7,8-TCDF	ng/kg	0.808 J			0.79 J						
SW8290	OCDD	ng/kg	0.844 U			0.693 U						
SW8290	OCDF	ng/kg	0.655 U			0.548 U						
SW8290	TOTAL HPCDD	ng/kg	0.883 U			0.742 U						
SW8290	TOTAL HPCDF	ng/kg	1.07			0.359 U						
SW8290	TOTAL HXCDD	ng/kg	1.93			0.494 U						
SW8290	TOTAL HXCDF	ng/kg	0.926 U			0.691 U						
SW8290	TOTAL PECDD	ng/kg	1.06 U			0.624 U						
SW8290	TOTAL PECDF	ng/kg	4.58			1.12 U						
SW8290	TOTAL TCDD	ng/kg	0.417 U			0.435 U						
SW8290	Total TCDF	PG/G	3.34			0.399 U						

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-60225	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124
		Field Sample ID	OL-1347-07	OL-1347-08	OL-1347-09	OL-1347-10	OL-1306-15F	OL-1306-16F	OL-1306-17F	OL-1306-18F	OL-1306-19F	OL-1306-20F
		Sample Date	8/25/2010	8/25/2010	8/25/2010	8/25/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010
		SDG	JA54812	JA54812	JA54812	JA54812	G383-807 JA49133 JA49133R	JA49133 JA49133R	JA49133	JA49133	JA49133	JA49133
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BK	BK	BK	BK	PKSD	PKSD	PKSD	PKSD	PKSD	PKSD
		Specimen Sex					U	U	F	U	U	F
		Specimen Length	62.5 mm	74.3 mm	76.3 mm	71.6 mm	165 mm	154 mm	145 mm	161 mm	162 mm	135 mm
		Specimen Weight	2.82 g	4.75 g	4.98 g	4.14 g	121 g	117 g	79 g	117 g	121 g	72 g
		Specimen Age					3+ yrs	3+ yrs	3+ yrs	3+ yrs	3+ yrs	2+ yrs
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%			1		0.023 J	1.5				
SW7471	MERCURY	mg/kg	0.082	0.13	0.14	0.13	0.19 J	0.19 J	0.087 J	0.28 J	0.23 J	0.11 J
SW8081	4,4'-DDD	ug/kg			4 U		3.9 U	4 U				
SW8081	4,4'-DDE	ug/kg			4 U		3.9 U	4 U				
SW8081	4,4'-DDT	ug/kg			4 U		3.9 U	4 U				
SW8081	HEXACHLOROBENZENE	ug/kg			3.4 JN		2 UJ	4.7 J				
SW8082	AROCLOR-1016	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1221	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1232	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1242	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1248	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1254	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1260	ug/kg			10 U		98 U	100 U				
SW8082	AROCLOR-1268	ug/kg			10 U		98 U	100 U				
SW8082	PCBS, N.O.S.	ug/kg			10 U		98 U	100 U				
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg					0.505 U					
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg					0.298 U					
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg					0.41 U					
SW8290	1,2,3,4,7,8-HXCDD	ng/kg					0.444 U					
SW8290	1,2,3,4,7,8-HXCDF	ng/kg					0.472 U					
SW8290	1,2,3,6,7,8-HXCDD	ng/kg					0.353 U					
SW8290	1,2,3,6,7,8-HXCDF	ng/kg					0.377 U					
SW8290	1,2,3,7,8,9-HXCDD	ng/kg					0.424 U					
SW8290	1,2,3,7,8,9-HXCDF	ng/kg					0.54 U					
SW8290	1,2,3,7,8-PECDD	ng/kg					0.506 U					
SW8290	1,2,3,7,8-PCDF	ng/kg					0.352 U					
SW8290	2,3,4,6,7,8-HXCDF	ng/kg					0.436 U					
SW8290	2,3,4,7,8-PECDF	ng/kg					0.35 U					
SW8290	2,3,7,8-TCDD	ng/kg					0.343 U					
SW8290	2,3,7,8-TCDF	ng/kg					1.76					
SW8290	OCDD	ng/kg					0.745 U					
SW8290	OCDF	ng/kg					0.565 U					
SW8290	TOTAL HPCDD	ng/kg					0.736 U					
SW8290	TOTAL HPCDF	ng/kg					0.41 U					
SW8290	TOTAL HXCDD	ng/kg					0.444 U					
SW8290	TOTAL HXCDF	ng/kg					0.54 U					
SW8290	TOTAL PECDD	ng/kg					0.664 U					
SW8290	TOTAL PECDF	ng/kg					0.935					
SW8290	TOTAL TCDD	ng/kg					0.343 U					
SW8290	Total TCDF	PG/G					1.9					

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124	OL-STA-70124
		Field Sample ID	OL-1307-01F	OL-1307-02F	OL-1307-03F	OL-1307-04F	OL-1307-05F	OL-1307-06F	OL-1307-13F	OL-1312-18F	OL-1347-11	OL-1347-12
		Sample Date	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/15/2010	6/16/2010	8/25/2010	8/25/2010
		SDG	JA49134 JA49134R G383- 808	JA49134 JA49134R G383- 808	JA49134	JA49134 JA49134R	JA49134 JA49134R	JA49134	JA49134 JA49134R G383- 808	JA49264R G383- 809 JA49264	JA54812	JA54812
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BB	BB	BB	BB	BB	BB	WALL	WALL	BNM	BK
		Specimen Sex	U	U	F	U	U	F	F	U		
		Specimen Length	351 mm	317 mm	301 mm	322 mm	315 mm	307 mm	527 mm	595 mm	76.2 mm	87.5 mm
		Specimen Weight	587 g	472 g	402 g	423 g	414 g	404 g	1771 g	2769 g	4.66 g	7.13 g
		Specimen Age	5+ yrs	5 yrs	4+ yrs	4+ yrs	4+ yrs	4+ yrs	5+ yrs	11+ yrs		
Method	Parameter Name	Units										
Percent Lipids	%LIPIDS DETERMINATION	%	0.22	0.86		0.14	0.18		1.2	3.5	3.9	
SW7471	MERCURY	mg/kg	0.33		0.22	0.21	0.38	0.25	0.5	3.4	0.3	0.47
SW8081	4,4'-DDD	ug/kg	4 U	3.8 U		4 U	3.8 U		3.9 U	4 U	3.9 U	
SW8081	4,4'-DDE	ug/kg	4 U	3.8 U		4 U	3.8 U		3.9 U	4 U	4.4	
SW8081	4,4'-DDT	ug/kg	4 U	3.8 U		4 U	3.8 U		3.9 U	4 U	3.9 U	
SW8081	HEXACHLOROBENZENE	ug/kg	2 UJ	2.6 J		2 UJ	2.4 J		2 UJ	2 UJ	47.7 J	
SW8082	AROCLOR-1016	ug/kg	10 U	10 U		10 U	9.4 U		9.8 U	9.8 U	9.8 U	
SW8082	AROCLOR-1221	ug/kg	10 U	10 U		10 U	9.4 U		9.8 U	9.8 U	9.8 U	
SW8082	AROCLOR-1232	ug/kg	10 U	10 U		10 U	9.4 U		9.8 U	9.8 U	9.8 U	
SW8082	AROCLOR-1242	ug/kg	10 U	10 U		10 U	9.4 U		9.8 U	9.8 U	9.8 U	
SW8082	AROCLOR-1248	ug/kg	25.9	31.5		10 U	29.6		9.8 U	226	9.8 U	
SW8082	AROCLOR-1254	ug/kg	15.8	19.1		10 U	17.1		22.8	116	9.8 U	
SW8082	AROCLOR-1260	ug/kg	15.3 J	14.1		10 U	21.1 J		9.8 U	9.8 U	9.8 U	
SW8082	AROCLOR-1268	ug/kg	10 U	10 U		10 U	9.4 U		9.8 U	9.8 U	9.8 U	
SW8082	PCBS, N.O.S.	ug/kg	57	64.7		10 U	67.8		22.8	342	9.8 U	
SW8290	1,2,3,4,6,7,8-HPCCDD	ng/kg	0.589 U	0.735 U					0.423 U	0.65 U		
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg	0.847 J	0.908 J					0.124 U	3.23 J		
SW8290	1,2,3,4,7,8,9-HPCCDD	ng/kg	0.515 U	0.714 U					0.17 U	0.901 U		
SW8290	1,2,3,4,7,8-HXCDD	ng/kg	1.46 U	1.42 U					0.547 U	2.45 U		
SW8290	1,2,3,4,7,8-HXCDF	ng/kg	1.48 U	1.92 J					0.514 J	4.4 U		
SW8290	1,2,3,6,7,8-HXCDD	ng/kg	1.16 U	1.13 U					0.435 U	1.95 U		
SW8290	1,2,3,6,7,8-HXCDF	ng/kg	1.19 U	1.02 U					0.469 J	3.51 U		
SW8290	1,2,3,7,8,9-HXCDD	ng/kg		1.36 U					0.522 U	2.34 U		
SW8290	1,2,3,7,8,9-HXCDF	ng/kg	1.7 U	1.46 U					0.677 U	5.03 U		
SW8290	1,2,3,7,8-PECDD	ng/kg	2.41 J	1.1 U					0.576 U	3.78 U		
SW8290	1,2,3,7,8-PECDF	ng/kg	2.16 J	2.67 J					0.831 J	3.18 J		
SW8290	2,3,4,6,7,8-HXCDD	ng/kg	1.37 U	1.18 U					0.546 U	4.06 U		
SW8290	2,3,4,7,8-PECDF	ng/kg	12	4.83					0.288 U	3.58 J		
SW8290	2,3,7,8-TCDD	ng/kg		0.355 U					0.337 U	1.32		
SW8290	2,3,7,8-TCDF	ng/kg	4.29	2.65					1.28	7.33		
SW8290	OCDD	ng/kg	0.734 U	0.966 U					0.432 U	0.594 U		
SW8290	OCDF	ng/kg	0.692 U	0.705 U					0.852 J	0.696 U		
SW8290	TOTAL HPCDD	ng/kg	7.41	17.3					4.38	24.2		
SW8290	TOTAL HPCDF	ng/kg	0.847	0.908					0.171 U	3.23		
SW8290	TOTAL HXCDD	ng/kg	3.12	8.26					2.41	21.6		
SW8290	TOTAL HXCDF	ng/kg	1.7 U	1.46 U					0.514	5.03 U		
SW8290	TOTAL PECDD	ng/kg	4.95	5					1.67	21.5		
SW8290	TOTAL PECDF	ng/kg	18.5 J	6.96 J					3.36	36.1 J		
SW8290	TOTAL TCDD	ng/kg	4.07	2.79					0.408 U	5.01		
SW8290	Total TCDF	PG/G	11.9 J	7.8 J					7.81	81.1 J		

Validated Laboratory Data for  
Fish Samples

		Location	OL-STA-70124	OL-STA-70124	OL-STA-70124
		Field Sample ID	OL-1347-13	OL-1347-14	OL-1347-15
		Sample Date	8/25/2010	8/25/2010	8/25/2010
		SDG	JA54812	JA54812	JA54812
		Matrix	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - fish	Tissue - fish	Tissue - fish
		Taxon	BK	BK	BK
		Specimen Sex			
		Specimen Length	64.7 mm	71.2 mm	80.4 mm
		Specimen Weight	2.71 g	3.62 g	5.2 g
		Specimen Age			
Method	Parameter Name	Units			
Percent Lipids	%LIPIDS DETERMINATION	%			
SW7471	MERCURY	mg/kg	0.36	0.44	0.35
SW8081	4,4'-DDD	ug/kg			
SW8081	4,4'-DDE	ug/kg			
SW8081	4,4'-DDT	ug/kg			
SW8081	HEXACHLOROBENZENE	ug/kg			
SW8082	AROCLOR-1016	ug/kg			
SW8082	AROCLOR-1221	ug/kg			
SW8082	AROCLOR-1232	ug/kg			
SW8082	AROCLOR-1242	ug/kg			
SW8082	AROCLOR-1248	ug/kg			
SW8082	AROCLOR-1254	ug/kg			
SW8082	AROCLOR-1260	ug/kg			
SW8082	AROCLOR-1268	ug/kg			
SW8082	PCBS, N.O.S.	ug/kg			
SW8290	1,2,3,4,6,7,8-HPCDD	ng/kg			
SW8290	1,2,3,4,6,7,8-HPCDF	ng/kg			
SW8290	1,2,3,4,7,8,9-HPCDF	ng/kg			
SW8290	1,2,3,4,7,8-HXCDD	ng/kg			
SW8290	1,2,3,4,7,8-HXCDF	ng/kg			
SW8290	1,2,3,6,7,8-HXCDD	ng/kg			
SW8290	1,2,3,6,7,8-HXCDF	ng/kg			
SW8290	1,2,3,7,8,9-HXCDD	ng/kg			
SW8290	1,2,3,7,8,9-HXCDF	ng/kg			
SW8290	1,2,3,7,8-PECDD	ng/kg			
SW8290	1,2,3,7,8-PECDF	ng/kg			
SW8290	2,3,4,6,7,8-HXCDF	ng/kg			
SW8290	2,3,4,7,8-PECDF	ng/kg			
SW8290	2,3,7,8-TCDD	ng/kg			
SW8290	2,3,7,8-TCDF	ng/kg			
SW8290	OCDD	ng/kg			
SW8290	OCDF	ng/kg			
SW8290	TOTAL HPCDD	ng/kg			
SW8290	TOTAL HPCDF	ng/kg			
SW8290	TOTAL HXCDD	ng/kg			
SW8290	TOTAL HXCDF	ng/kg			
SW8290	TOTAL PECDD	ng/kg			
SW8290	TOTAL PECDF	ng/kg			
SW8290	TOTAL TCDD	ng/kg			
SW8290	Total TCDF	PG/G			

**ATTACHMENT A-2**

**VALIDATED LABORATORY DATA FOR  
INVERTEBRATE SAMPLES**

Validated Laboratory Data for  
Invertebrate Samples

		Location	OL-STA-10161	OL-STA-10161	OL-STA-10161	OL-STA-10161	OL-STA-10161	OL-STA-20160	OL-STA-20160
		Field Sample ID	OL-1329-01	OL-1329-02	OL-1329-03	OL-1329-04	OL-1329-05	OL-1331-03	OL-1331-04
		Sample Date	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/2/2010	8/3/2010	8/3/2010
		SDG	1032022	1032022	1032022	1032022	1032022	1032019	1032019
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate
		Specimen Length			19.82 mm	NaN mm	NaN mm	16.15 mm	
		Specimen Sample Type	WH	WH	WH	WH	WH	WH	WH
		Specimen Weight	2.1 g	0.1 g	9.8 g	3.8 g	5.5 g	7.1 g	0.7 g
		Taxon	AM	CH	ZM	CF	CF	ZM	CH
Method	Parameter Name	Units							
E160.3	SOLIDS, PERCENT	%	11.42		5.3	20.2	22.48	3.57	1.39
E1630	METHYL MERCURY	ng/g	174	35.6	75.5	118	440 J	3.4	1.2 J
E1631	MERCURY	mg/kg	0.256	0.127	0.118	0.196 J	0.216 J	0.0106	0.00418

Validated Laboratory Data for  
Invertebrate Samples

		Location	OL-STA-20160	OL-STA-30095	OL-STA-30095	OL-STA-30095	OL-STA-40124	OL-STA-40124	OL-STA-40124
		Field Sample ID	OL-1331-05	OL-1333-04	OL-1333-05	OL-1333-06	OL-1333-01	OL-1333-02	OL-1333-03
		Sample Date	8/3/2010	8/4/2010	8/4/2010	8/4/2010	8/4/2010	8/4/2010	8/4/2010
		SDG	1032019	1032032	1032032	1032032	1032032	1032032	1032032
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate
		Specimen Length				19.06 mm	17.15 mm		
		Specimen Sample Type	WH	WH	WH	WH	WH	WH	WH
		Specimen Weight	0.3 g	2.1 g	0.4 g	23.7 g	7.7 g	1.6 g	0.8 g
		Taxon	AM	AM	CH	ZM	ZM	AM	CH
Method	Parameter Name	Units							
E160.3	SOLIDS, PERCENT	%	4.97	10.61		9.39	6.13	6.95	2.57
E1630	METHYL MERCURY	ng/g	3.4	48.2	1.7 J	32.1	15.7	9.3	1.8 J
E1631	MERCURY	mg/kg	0.00376	0.0495	0.00571 J	0.0416	0.028	0.0139	0.0421 J

Validated Laboratory Data for  
Invertebrate Samples

		Location	OL-STA-50060	OL-STA-50060	OL-STA-50062	OL-STA-50062	OL-STA-50062	OL-STA-50063	OL-STA-50064
		Field Sample ID	OL-1335-04	OL-1335-05	OL-1335-01	OL-1335-02	OL-1335-03	OL-1339-02	OL-1337-01
		Sample Date	8/5/2010	8/5/2010	8/5/2010	8/5/2010	8/5/2010	8/10/2010	8/6/2010
		SDG	1032038	1032038	1032038	1032038	1032038	1033017	1033002
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate
		Specimen Length					15.83 mm	20.07 mm	
		Specimen Sample Type	WH	WH	WH	WH	WH	WH	WH
		Specimen Weight	0.3 g	1.7 g	0.3 g	0.7 g	8 g	14 g	1.6 g
		Taxon	AM	CH	CH	AM	ZM	ZM	AM
Method	Parameter Name	Units							
E160.3	SOLIDS, PERCENT	%		3.43		8.87	7.93		9.38
E1630	METHYL MERCURY	ng/g	50.7	3 J	17.7	34.3	38.2	4.1 J	34.4
E1631	MERCURY	mg/kg	0.05	0.0475 J	0.0135 J	0.0338	0.042	0.0146	0.0345



Validated Laboratory Data for  
Invertebrate Samples

		Location	OL-STA-50064	OL-STA-60226	OL-STA-60226	OL-STA-70125	OL-STA-70125	OL-STA-70125
		Field Sample ID	OL-1337-02	OL-1331-01	OL-1331-02	OL-1329-06	OL-1329-07	OL-1329-08
		Sample Date	8/6/2010	8/3/2010	8/3/2010	8/2/2010	8/2/2010	8/2/2010
		SDG	1033002	1032019	1032019	1032022	1032022	1032022
		Matrix	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE	TISSUE
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate	Tissue - invertebrate
		Specimen Length					NaN mm	
		Specimen Sample Type	WH	WH	WH	WH	WH	WH
		Specimen Weight	0.8 g	0.5 g	1.1 g	0.1 g	13 g	0.7 g
		Taxon	CH	AM	CH	AM	CF	CH
Method	Parameter Name	Units						
E160.3	SOLIDS, PERCENT	%		8.02	4.08	9.72	28.33	
E1630	METHYL MERCURY	ng/g	6.4	5	1.3 J	27.5	114	1.8 J
E1631	MERCURY	mg/kg	0.0124	0.0089	0.00943	0.0439	0.153 J	0.0482

**ONONDAGA LAKE BASELINE MONITORING BOOK 2  
DATA USABILITY SUMMARY REPORT**

**ATTACHMENT A-3**

**VALIDATED LABORATORY DATA FOR  
SURFACE WATER SAMPLES**

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**PARSONS**

Validated Laboratory Data for  
Surface Water Samples

			Field Sample ID	OL-1345-06	OL-1357-05	OL-1357-06	OL-1361-06	OL-1345-05	OL-1357-04	OL-1361-05	OL-1345-04
			Location	OL-STA-10161	OL-STA-10161	OL-STA-10161	OL-STA-10161	OL-STA-20160	OL-STA-20160	OL-STA-20160	OL-STA-30095
			Sample Depth	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT
			Sample Date	8/16/2010	10/27/2010	10/27/2010	11/11/2010	8/16/2010	10/27/2010	11/11/2010	8/16/2010
			SDG	JA54095 1034005	JA59978 1045026	JA59978 1045026	1046038 JA61495	JA54095 1034005	JA59978 1045026	1046038 JA61495	JA54095 1034005
			Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Sample Purpose	Regular sample	Regular sample	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Method	Parameter Name	Units	Filtered								
E1630	METHYL MERCURY	ug/L	N	0.000231	0.000132	0.000117	0.000079	0.000149	0.000086	0.000064	0.000225
E1631	MERCURY	ug/L	N	0.018	0.0133 J	0.0133 J	0.00651	0.00339	0.00638 J	0.00193	0.0024
E1631	MERCURY	ug/L	Y					0.0011	0.00086 J	0.0003 J	0.00068
SM2540D	Total Suspended Solids	mg/L	N	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4

Validated Laboratory Data for  
Surface Water Samples

			Field Sample ID	OL-1357-03	OL-1361-04	OL-1345-02	OL-1345-03	OL-1357-02	OL-1361-02	OL-1361-03	OL-1345-01
			Location	OL-STA-30095	OL-STA-30095	OL-STA-40124	OL-STA-40124	OL-STA-40124	OL-STA-40124	OL-STA-40124	OL-STA-50062
			Sample Depth	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT
			Sample Date	10/27/2010	11/11/2010	8/16/2010	8/16/2010	10/27/2010	11/11/2010	11/11/2010	8/16/2010
			SDG	JA59978 1045026	1046038 JA61495	JA54095 1034005	JA54095 1034005	JA59978 1045026	1046038 JA61495	1046038 JA61495	JA54095 1034005
			Matrix	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Sample Purpose	Regular sample	Regular sample	Regular sample	Field duplicate	Regular sample	Regular sample	Field duplicate	Regular sample
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water	Surface water
Method	Parameter Name	Units	Filtered								
E1630	METHYL MERCURY	ug/L	N	0.000098	0.000048 J	0.000148	0.000164	0.000133	0.000053	0.000051	0.000237
E1631	MERCURY	ug/L	N	0.00295 J	0.00157	0.00353	0.00376	0.00238 J	0.00147	0.00108	0.0025
E1631	MERCURY	ug/L	Y		0.00035 J						
SM2540D	Total Suspended Solids	mg/L	N	3 J	4 U	2 J	4 U	4 U	4 U	4 U	3 J

Validated Laboratory Data for  
Surface Water Samples

			Field Sample ID	OL-1357-01	OL-1361-01	OL-1345-07	OL-1357-07	OL-1361-07
			Location	OL-STA-50062	OL-STA-50062	OL-STA-60226	OL-STA-60226	OL-STA-60226
			Sample Depth	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT	0.0-0.0 FT
			Sample Date	10/27/2010	11/11/2010	8/16/2010	10/27/2010	11/11/2010
			SDG	JA59978 1045026	1046038 JA61495	JA54095 1034005	JA59978 1045026	1046038 JA61495
			Matrix	WATER	WATER	WATER	WATER	WATER
			Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
			Sample Type	Surface water	Surface water	Surface water	Surface water	Surface water
Method	Parameter Name	Units	Filtered					
E1630	METHYL MERCURY	ug/L	N	0.000159	0.000056	0.000103	0.000099	0.000074
E1631	MERCURY	ug/L	N	0.00266 J	0.00149	0.00759	0.00546 J	0.00324
E1631	MERCURY	ug/L	Y				0.00103 J	
SM2540D	Total Suspended Solids	mg/L	N	3 J	4 U	21	10	4 U

**ONONDAGA LAKE BASELINE MONITORING BOOK 2  
DATA USABILITY SUMMARY REPORT**

**ATTACHMENT A-4**

**VALIDATED LABORATORY DATA FOR  
SEDIMENT SAMPLES**

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**PARSONS**

Validated Laboratory Data for  
Sediment Samples

		Location	OL-STA-10161	OL-STA-10161	OL-STA-20160	OL-STA-20160	OL-STA-30095	OL-STA-30095	OL-STA-40124	OL-STA-40124
		Field Sample ID	OL-1330-01	OL-1330-02	OL-1332-01	OL-1332-02	OL-1334-01	OL-1334-02	OL-1334-03	OL-1334-04
		Sample Depth	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT
		Sample Date	8/2/2010	8/2/2010	8/3/2010	8/3/2010	8/4/2010	8/4/2010	8/4/2010	8/4/2010
		SDG	JA52934 1032013	JA52934 1032013	JA53087 1032018	JA53087 1032018	JA53169 1032030	JA53169 1032030	JA53169 1032030	JA53169 1032030
		Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Method	Parameter Name	Units								
ASTM D4643-00	SOLIDS, PERCENT	%			48.9	46.3				
E160.3	SOLIDS, PERCENT	%	51.18	45.27	44.12	50.93	56.65	66.6	43.09	57.33
SM2540G	SOLIDS, PERCENT	%	53.5	52.1			51.3	66	40.4	53
E1630	METHYL MERCURY	ug/kg	9.14	3.12 J	3.13 J	1.87	0.969	0.068	1.34 J	0.068
Lloyd Kahn	TOTAL ORGANIC CARBON	mg/kg	16000 J	15500 J	30200 J	19100 J	11300 J	4480 J	21100 J	11900 J
SW7471	MERCURY	mg/kg	7.3	10.6	0.51 J	0.53 J	0.14	0.048	0.83 J	0.37

Validated Laboratory Data for  
Sediment Samples

		Location	OL-STA-40124	OL-STA-50060	OL-STA-50060	OL-STA-50061	OL-STA-50061	OL-STA-50061	OL-STA-50062	OL-STA-50062
		Field Sample ID	OL-1334-05	OL-1336-01	OL-1336-02	OL-1340-01	OL-1340-02	OL-1340-03	OL-1336-03	OL-1336-04
		Sample Depth	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT
		Sample Date	8/4/2010	8/5/2010	8/5/2010	8/10/2010	8/10/2010	8/10/2010	8/5/2010	8/5/2010
		SDG	JA53169 1032030	1032037 JA53335	1032037 JA53335	1033016 JA53665	1033016 JA53665	1033016 JA53665	1032037 JA53335	1032037 JA53335
		Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sample Purpose	Field duplicate	Regular sample	Regular sample	Regular sample	Regular sample	Field duplicate	Regular sample	Regular sample
		Sample Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Method	Parameter Name	Units								
ASTM D4643-00	SOLIDS, PERCENT	%								
E160.3	SOLIDS, PERCENT	%	56.63	51.83	56.19	43.3	53.45	54.25	50.66	56.95
SM2540G	SOLIDS, PERCENT	%	57	49.8	57.7	52.7	61.4	54.7	52	57.4
E1630	METHYL MERCURY	ug/kg	0.325	3.36	0.3	0.371 J	0.075	0.082	0.777	0.168
Lloyd Kahn	TOTAL ORGANIC CARBON	mg/kg	11200 J	11300 J	8490 J	11900 J	6750 J	7280 J	13200 J	8540 J
SW7471	MERCURY	mg/kg	0.24	1.6 J	1	0.47	0.084	0.12	0.41	0.12

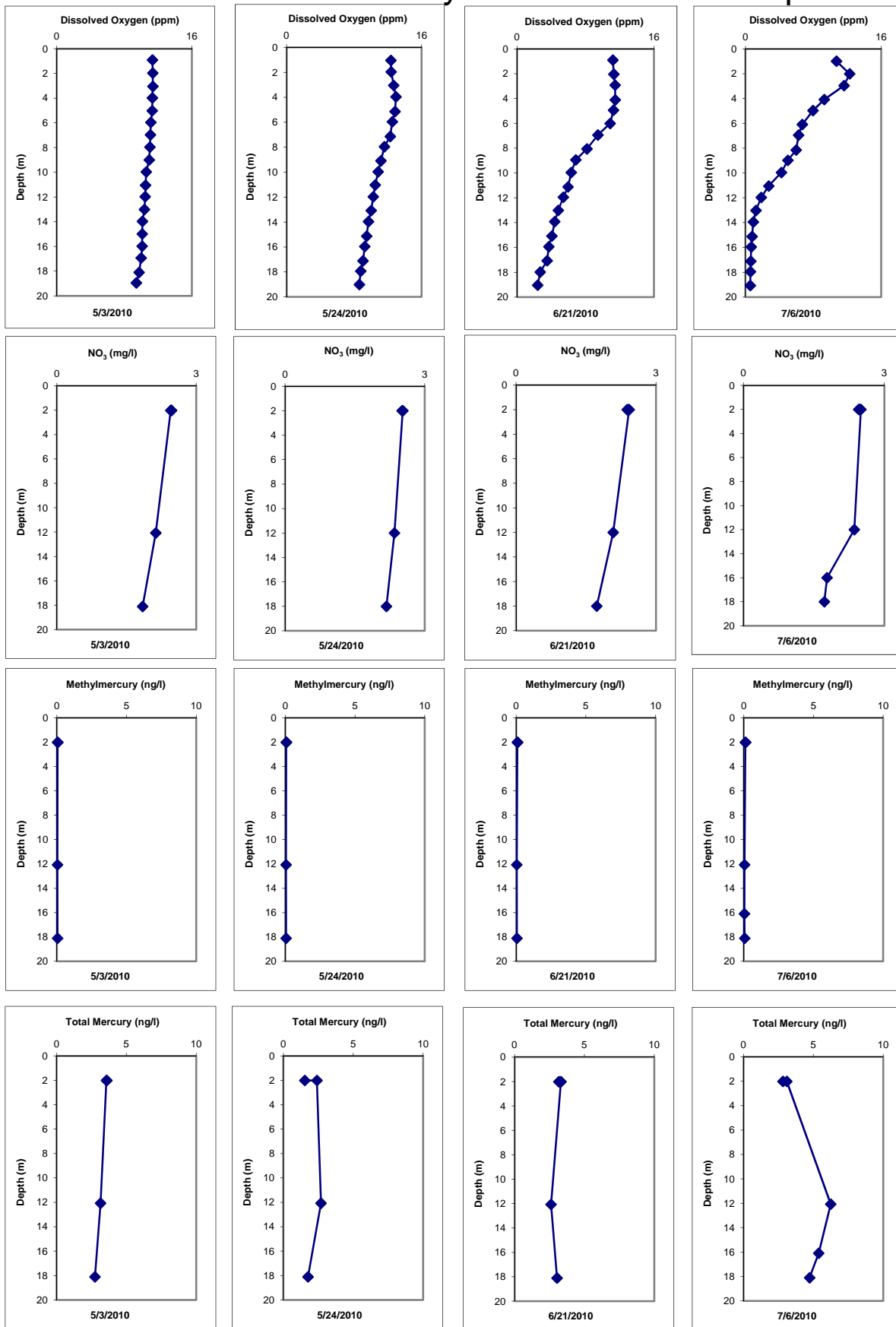


Validated Laboratory Data for  
Sediment Samples

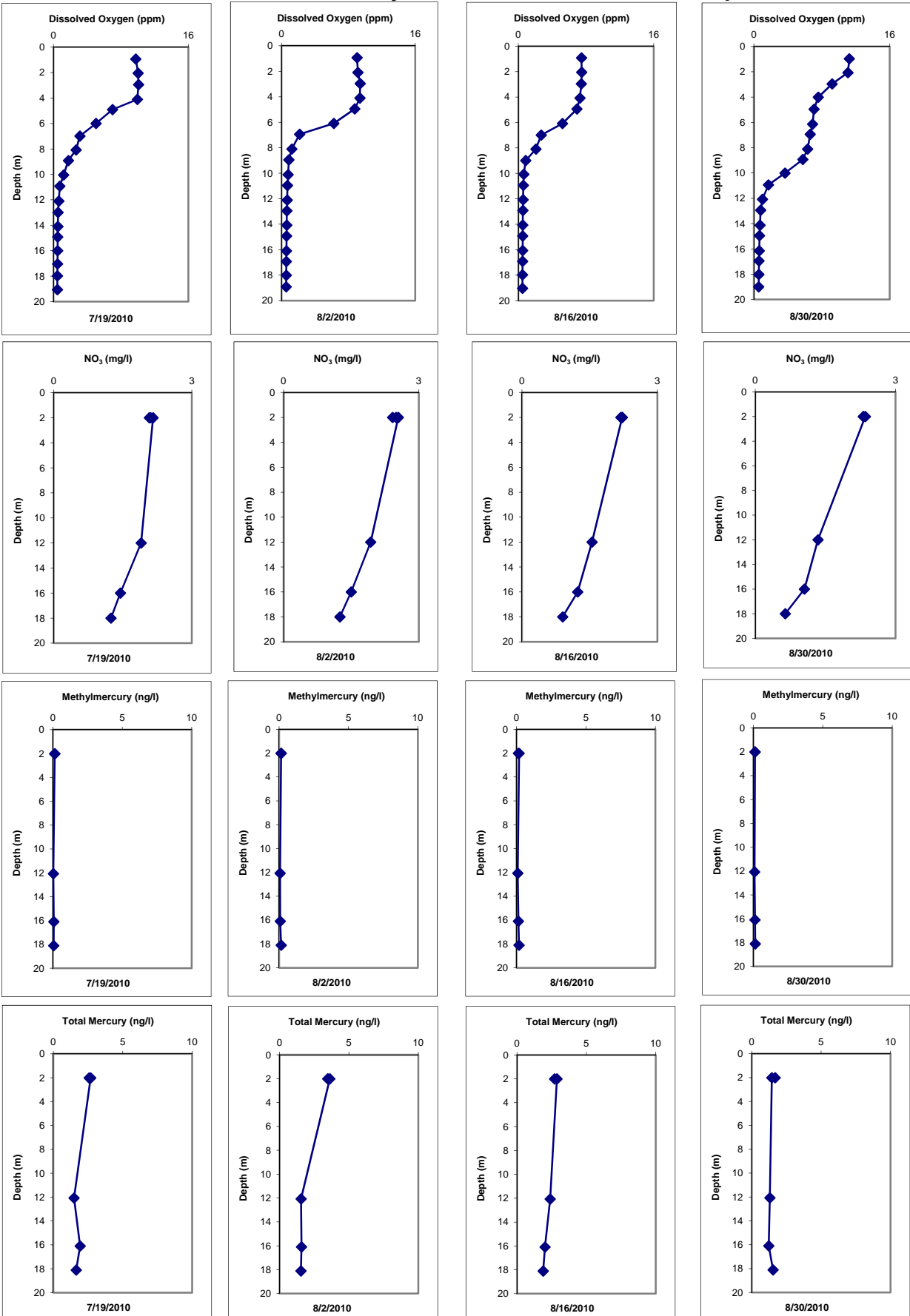
		Location	OL-STA-50063	OL-STA-50063	OL-STA-50064	OL-STA-50064	OL-STA-60226	OL-STA-60226	OL-STA-70125	OL-STA-70125
		Field Sample ID	OL-1340-04	OL-1340-05	OL-1338-01	OL-1338-02	OL-1332-03	OL-1332-04	OL-1330-03	OL-1330-04
		Sample Depth	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT	0.00-0.07 FT	0.07-0.49 FT
		Sample Date	8/10/2010	8/10/2010	8/6/2010	8/6/2010	8/3/2010	8/3/2010	8/2/2010	8/2/2010
		SDG	1033016 JA53665	1033016 JA53665	1033001 JA53471	1033001 JA53471	JA53087 1032018	JA53087 1032018	JA52934 1032013	JA52934 1032013
		Matrix	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Sample Purpose	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample	Regular sample
		Sample Type	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
Method	Parameter Name	Units								
ASTM D4643-00	SOLIDS, PERCENT	%					61.4	60.6		
E160.3	SOLIDS, PERCENT	%	57.3	56.83	57.85	65.48	55.63	57.71	62.02	60.07
SM2540G	SOLIDS, PERCENT	%	54.8	56.4	57.3	59.5			58	65.9
E1630	METHYL MERCURY	ug/kg	0.384	0.032 J	0.519	0.13	0.261	0.201	4.73	6.86
Lloyd Kahn	TOTAL ORGANIC CARBON	mg/kg	8790 J	4770 J	9620 J	8150 J	24200 J	24700 J	48900 J	47200 J
SW7471	MERCURY	mg/kg	0.086	0.017 U	0.12	0.13	0.98	0.58	7.6	7

**APPENDIX C****PLOTS OF DISSOLVED OXYGEN, NITRATE, TOTAL MERCURY AND  
METHYLMERCURY BY DEPTH AT SOUTH DEEP IN 2010**

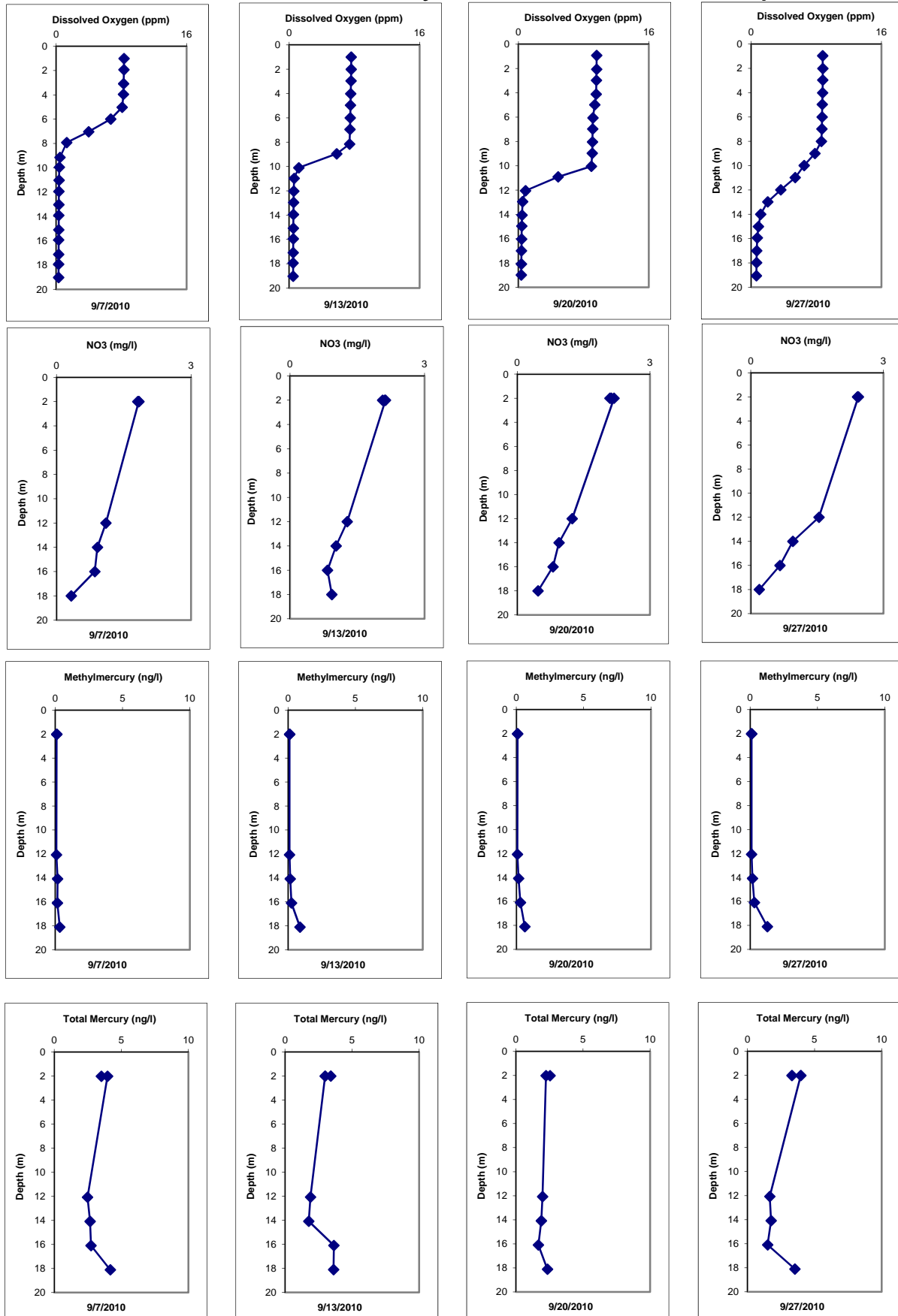
# 2010 Water Quality Results: South Deep



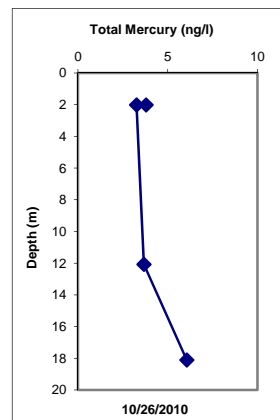
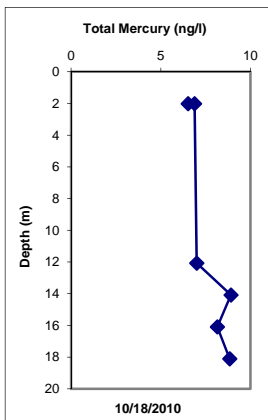
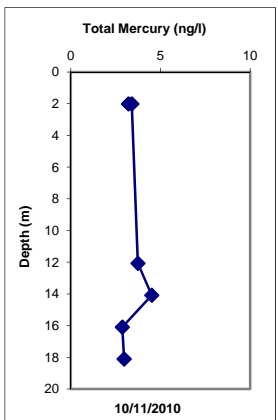
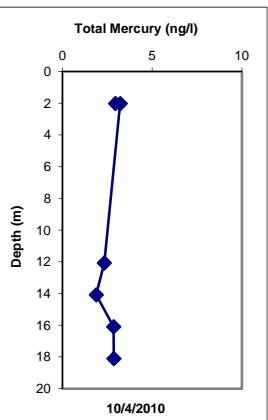
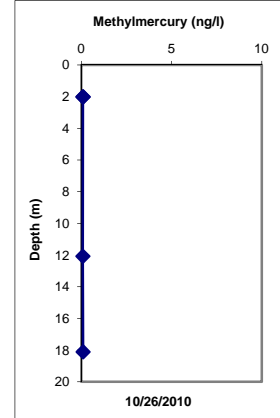
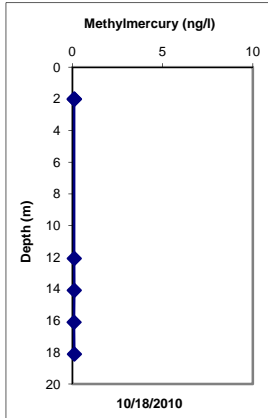
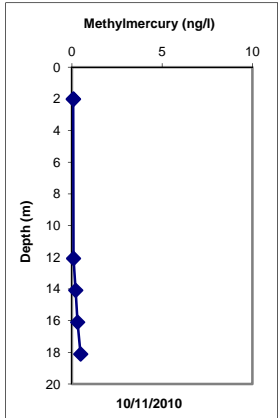
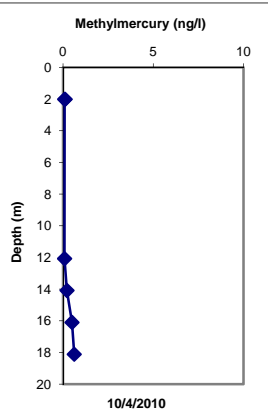
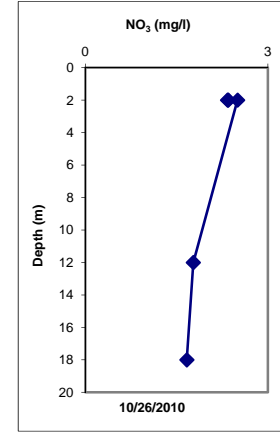
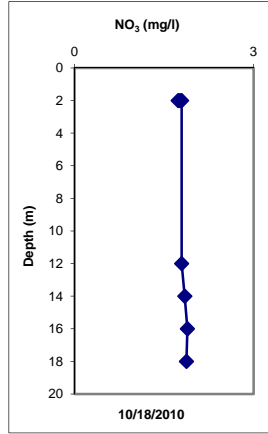
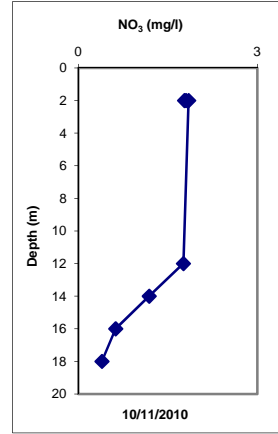
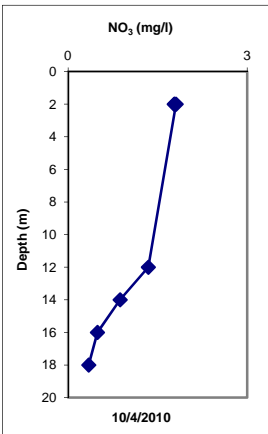
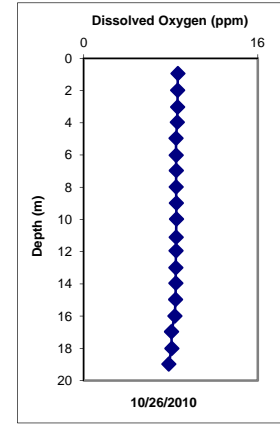
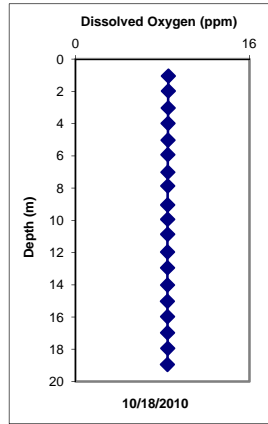
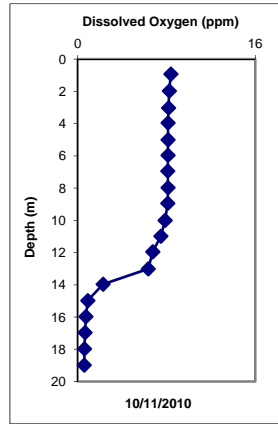
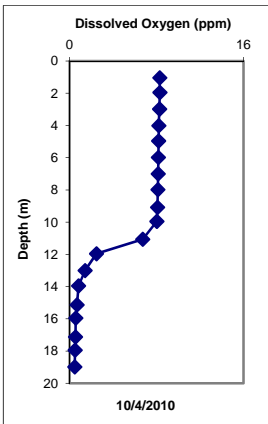
# 2010 Water Quality Results: South Deep



# 2010 Water Quality Results: South Deep



# 2010 Water Quality Results: South Deep



# 2010 Water Quality Results: South Deep

