# Reducing the Impact of NPS Pollution through the Establishment of Floating Wetlands in Eucha Lake

**December 10, 2013**

# FINAL REPORT

**FY 11 §319(h) Non-Point Source Special Projects Program**

**EPA Grant CA# C9-00F313-01 – Project 2**

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## EXECUTIVE SUMMARY:

In 2010 the OWRB received special FY11 319(h) funding via the Office of the Secretary of Environment, from Region VI EPA for the project "Reducing the Impact of NPS Pollution through the Establishment of Floating Wetlands in Eucha Lake" with the intent to implement an innovative means to mitigate the impact of nonpoint source (NPS) pollution on a receiving water. The State of Oklahoma has designated the Oklahoma Conservation Commission (OCC) as the state's technical lead agency for the 319 Program. The City of Tulsa provided the bulk of the requisite 40% cost share while other state environmental agencies; OWRB, GRDA, ODWC and City of Oklahoma City also provided valuable cost share.

All outputs and outcomes for the project were accomplished:

- Output – All floating wetland units, 6,400 $ft^2$, were installed in the upper end of Eucha Lake with the help and assistance of City of Tulsa employees and equipment, the Grand River Dam Authority (GRDA) aquatic plant nursery, and Oklahoma Department of Wildlife Conservation (ODWC) aquatic plant nursery.
- Habitat Outcome – Habitat provided by the floating wetlands were determined using Habitat Evaluation Procedures (HEP) models. Fish species reliant on cover for reproductive success derived the greatest benefit while all modeled species benefitted from additional food and cover. Flathead catfish, river otters, and great blue herons also benefitted.
- Water Quality Outcome 1 – Total phosphorus (TP) was determined to be reduced as a result of the floating wetlands. Removal measured via sedimentation traps and plant biomass was estimated at some 19.6 kg TP per year or 3.1 g TP per $ft^2$ of wetland per year.
- Water Quality Outcome 2 – The estimated removal rate for the floating wetlands did not make a significant difference to water quality. Coverage would need to be increased one hundred times to yield a 4.5% reduction of the annual phosphorus load.

Although the phosphorus removal rate was low, these wetlands may provide a cost effective, multi-use solution for systems providing both public water supply and recreational opportunities to a community. Cost comparisons against alternative means of providing benefits highlight this conclusion (Table 1). The cost disparity between nutrient removals indicate preventing nutrient entry into a waterway is best, while floating wetlands in reservoir systems may be relegated to a secondary role. The unique capability of these wetlands to provide habitat for diverse biota under conditions of high water level fluctuation should be particularly appealing for communities strongly influenced by lake recreation.

**Table 1 Tabular summary comparing cost per unit of floating wetlands verses alternative method of providing benefit.**

| **Method** | Cost for Benefit | | | |
|---|---|---|---|---|
| **Floating Wetland** | ***$150,000*** for<br>400' breakwater | ***$150,000*** for<br>0.15 acre habitat | ***$150,000*** for<br>294 kg TP removed over 15 yr. | |
| **Alternative/ Benefit** | ***$62,400***<br>400' of Floating Tire Breakwater | ***$148,084***<br>0.15 acre aquatic plant founder colony maintained for 15 years | ***$1,003***<br>Watershed removal of 610 kg TP as litter and applied to soil out of basin | ***$15,940***<br>295 kg TP retained in hypolimnetic sediment via hypolimnetic oxidation |

# INTRODUCTION:

Eucha Lake, in northeastern Oklahoma, is a water supply reservoir that, with its sister reservoir, Lake Spavinaw, provides for a combined population of nearly 1 million people. The Spavinaw Creek watershed, covering 229,760 acres, spans the Oklahoma-Arkansas border, with approximately 60% located in Oklahoma (in Delaware and Mayes Counties) and the remainder in Arkansas (in Benton County). The major tributaries to Lake Eucha include Spavinaw Creek, Beaty Creek, Brush Creek, Rattlesnake Creek, and Dry Creek. Lake Eucha is one of three "Category I" watersheds in Oklahoma that were recognized in 1997 as significantly impaired and in need of immediate federal and state funding to target restoration activities. The excessive nutrient loading in the watershed, particularly phosphorus, and the resulting eutrophication of the lakes has impacted municipalities, including the cities of Tulsa, Spavinaw, and Jay in Oklahoma, which depend on the lake to supply their populations with drinking water and recreation. Additionally, the City of Tulsa supplies drinking water to 10 other municipalities and 11 Rural Water Districts. Significant taste and odor problems have been linked to eutrophication in the lakes, and complaints from water users have led to increased treatment costs and increased water quality monitoring. Additionally, both lakes are impaired for low dissolved oxygen while both major tributary streams in the watershed are impaired by bacteria for primary body contact.

According to the Oklahoma Department of Environmental Quality (ODEQ) 2008 Integrated Report, Eucha Lake is listed on Oklahoma's 2008 303(d) list as impaired because of chlorophyll-*a*, total phosphorus (TP) and dissolved oxygen (DO). Eucha Lake is currently not supporting its Public and Private Water Supply, Fish and Wildlife Propagation (Warm Water Aquatic Community) and Aesthetics designated uses. The impairment of the Public and Private Water Supplies beneficial use is due to excessive algae levels, and has prompted the funding of extensive data collection and analysis of Lake Eucha by the City of Tulsa. The eutrophication process in Lake Eucha is primarily attributed to excess nutrient inputs from both point and nonpoint sources, with phosphorus generally being the limiting nutrient. Review of water quality data collected indicates peak algal growth is during summer periods.

Eutrophication of Eucha Lake can be attributed, in varying degrees, to elevated phosphorus concentrations in the lake. To address the excess phosphorus, the State of Oklahoma has adopted numeric criteria specific for Eucha Lake. Oklahoma Water Quality Standards list specific numerical criteria for phosphorus (0.0168 mg/L) in Eucha Lake to address the impaired Public and Private Water Supply beneficial use. The City of Tulsa has an intensive, on-going (1998-present) water quality monitoring program at Lake Eucha. All of the lake values for total phosphorus exceeded the standard with values ranging from 0.029 to 0.11 mg/L with an average of 0.062 mg/L during the 2011 sampling period. Similarly, in 2012, values ranged from 0.028 to 0.08 mg/L with an average of 0.043 mg/L during the sampling period. The most recent long-term average TP concentrations in the lake are consistently in violation of the criteria. As a result of the high chlorophyll values, taste and odor complaints from compounds such as geosmin and 2-methyl isoborneol (MIB) are also commonly reported from the Lake Eucha and Spavinaw system. The lake is also classified as a Sensitive Water Supply (SWS) and must meet the Water

Quality Standards (WQS) of 10.0 µg/L for chlorophyll-a. The relatively high water clarity and influx of phosphorus contributes to the excessive algae growth in Eucha Lake. Site 3, adjacent to the floating wetlands, reported chlorophyll-a medians of 17, 22 and 25 µg/L for the winter, summer and fall of 2011, respectively. The high phosphorus content in the lake is a result of the high external loading. The United States Geological Survey (USGS) estimated that the mean annual load of phosphorus to Eucha Lake from the basin is 99,900 lbs (43,314 kg). Median total phosphorus at Site 3, the upper end of Eucha Lake, was 0.06 mg/L during the summer of 2011. As such, significant work has been done in the watershed to reduce the source of the nutrients with over $3,000,000 spent in the Beaty and Spavinaw Creek watershed to reduce nutrient loading.

Wetlands comprise diverse and complex systems of plants and animals interacting to remove contaminants from the water column via mechanical filtration and biochemical conversion. Constructing wetlands can be a large feat, and in reservoirs, where water levels can fluctuate substantially throughout the year, they can be extremely difficult to establish. Floating wetland islands can bring the benefits of wetlands to the more unstable environment of a reservoir. Establishment of floating wetlands in Eucha Lake target impact on nonpoint source runoff via the sequestering of nutrients and other contaminants through plant uptake and the extensive microbial activity established in the floating wetland on its dense root mass within the riverine zone of the reservoir. Sequestering of dissolved nutrients into the riverine zone sediments spares the transition and lacustrine zones from incorporation of nutrients into chlorophyll-a. This project treats the Nonpoint Source (NPS) pollution of nutrients, having already reached the receiving waters, as an in-place contaminant. Floating wetland systems represent an innovative approach to reduce and minimize the impact of nutrients to an aquatic system.

A traditional approach to wetland removal of influent nutrients is via establishment of upstream systems. Uptake and storage by these sediment-rooted littoral systems had short-term uptake rates of 5 – 10 g/m$^2$/yr with a longer term upper limit of 1 g/m$^2$/yr (Richardson et. al. 1997). Floating wetlands with exposed roots systems would be expected to have a greater impact on nutrient reduction. Floating wetland nutrient removal from the water column is through the roots as well as the associated periphyton and bacteria Aufwuchs. While general water chemistry transformation of nutrients has been characterized within natural floating wetlands systems, no rates of uptake have been established (Mallison et.al. 2001). Some reduction numbers have been estimated for artificial floating wetlands. More recent work has focused on water quality benefits as the primary purpose (Nakamura and Mueller 2008, Headley and Tanner 2006 and Boutwell 2003). Reddy (1983) measured removal rates of high nutrient content flood water using floating wetland plants (pennywort and water hyacinth) ranging from 8.8 to 17.5 g/m$^2$/yr of phosphorus. Using wastewater in a floating wetland island system, a rate of about 157 g/m$^2$/yr was estimated (Stewart et. al. 2008). These estimates however did not use water quality commensurate to the upper end of Eucha Lake. Based on the literature reviewed, it was estimated in the Quality Assurance Project Plan (QAPP) that the phosphorus removal rate would range between 5 to 150 g/m$^2$/yr.

While the use of artificial floating wetlands for water quality improvements has been fairly recent, the wildlife benefits of floating wetlands has been long established (Fager & York, 1975). With the introduction of the islands, it was expected that additional cover and food sources will be created for a variety of fish, macroinvertebrate and wildlife species. While literature supported the position that floating wetlands provide fish and wildlife benefits, little data was found to quantify the benefits.

When the City of Tulsa was approached with the idea to install floating wetlands as a means to ameliorate the impact of nutrients reaching Eucha Lake they pledged support in terms of property use, manpower and services. The two broadest goals of this project were:

1. *Establish floating islands in Eucha Lake as a method of reducing phosphorus loads*
2. *Provide habitat for aquatic organisms and other wildlife in Eucha Lake*

With an active partner on board the OWRB proposed a project that was selected December 9, 2010 by Region VI EPA as "FY 11 §319(h) Non-Point Source Special Projects Program EPA Grant CA# C9-00F313-01 – Project 2" and funded through what is now known as the Oklahoma Secretary of Energy and Environment (2013) December 9, 2010. EPA approved the project March 21, 2011. The first project goal required installing and then planting the floating wetlands followed by monitoring, to document changes in nutrient chemistry. The primary measure to quantify phosphorous loss from the water column is as units of phosphorus mass per unit (wetland) area over time. This standardized measure allows for a determination of these floating wetlands to impact influent NPS pollution. Four methods were outlined within the Workplan and QAPP to enable this determination; localized lake water quality, sediment trap sets, plant biomass and mesocosm runs. Measurement of net plant uptake in above ground biomass and loss in sediments can be estimated fairly directly. However, actual loss to the water column is harder to detect as the size of the lake dwarfs the area of the floating wetlands. This ratio was skewed to the floating wetland advantage by use of mesocosms. Mesocosm experiments directly measure change in water column nutrient concentration in an attempt to substantiate the measures of sedimentation and plant uptake. One output and three outcomes were given in the QAPP and are elaborated in this report:

Output – Installation of the floating wetland units.

Habitat Outcome – Habitat units provided as a result of the installed floating wetlands

Water Quality Outcome 1 – Estimate of nutrient loss from the water column per unit area

Water Quality Outcome 2 – Comparison of nutrient loss rate to baseline ambient water quality data to assess ability to mitigate nutrient inflow on riverine water quality

Cost-benefit evaluation was also provided comparing floating wetlands use to more traditional means of providing habitat, breakwaters and nutrient reduction.

# METHODS:

## INSTALLATION OF FLOATING WETLANDS

Half of the floating wetlands media were installed in the early summer of 2011 and the last half of the islands in late spring of 2012. A front end loader was used by City of Tulsa staff to off load from the semi trailer and a forklift used to stack and store on site until installation (Figure 1). By the end of 2011, half of the islands had been shackled together, planted and anchored in the upper end of Eucha Lake (Figure 2 and Figure 3). Throughout the winter, cables that strung these islands together occasionally broke and portions of the floating wetland would float free. By March 2012 the manufacturer agreed to meet OWRB staff at the lake and "restring" the currently installed floating wetlands and "string" the rest of the floating wetlands for deployment. An unusually warm spring allowed for the restringing, replanting of the first half and full deployment of the second half of the floating wetlands by the end of May. The wetland media chosen for the project came from FloatingIslandInternational®. Other media were considered but this product assured a durable product providing long term cohesiveness and buoyancy.

**Figure 1 Offloading floating wetland media.**

The floating islands are a highly porous (nonwoven fiber) mattress of polyester strands spun from recycled plastic bottles. This mattress had also been injected with marine foam to lend buoyancy. The floating wetland mattress units measure 10'x8' and have a PVC-pipe infrastructure allowing them to be cabled together to form an island of any size. The floating wetland matrix creates a porous medium that easily wicks water to the plants and allows natural spread of roots, rhizomes and daughter plants. Unadorned, the floating wetlands set about 2" above and extend about 6" under the waterline.


**Figure 2 Anchoring the first 100' chain.**

Approximately 10,500 plants were used on this project. The GRDA aquatic plant nursery at the Duck Creek Wetlands area furnished some 38% (approximately 4,000) of the plants. About 25% (almost 2,600) of the plants came from the City of Tulsa property surrounding the staging site. Sedge, water willow and lizards tail were the primary plants sprigged from City of

Tulsa property. Some 9½% (about 1000) of the plants were transplanted from Lake Stanley Draper (City of Oklahoma City) onto the floating islands. Juncus spp. (rush) were the primary species transplanted from Oklahoma City property. Approximately 7½ % of the plants were furnished by the Oklahoma Department of Wildlife Conservation (ODWC) aquatic plant nursery in Porter, OK. Softstem bulrush, squarestem bulrush and pickerelweed were the primary species from the ODWC. Finally about 20% (2120) of the plants were purchased commercially from a local nursery. Nine species of native aquatic plant species were purchased and planted on the floating wetlands from this source. In general, potted plants or plugs were obtained from the GRDA, ODWC and commercial nurseries while semi-bare root transplants were from City of Oklahoma City grounds, and sprigs and bare root transplants were taken on site from City of Tulsa grounds. Plant species with a high transplant sprigging success rate were Water willow (Justicia americana), Soft rush (Juncus effusus), Lizard's-tail (Saururus cernuus) and Porcupine sedge (Carex hystericina). Plant species used that did not grow well either due to herbivory or to other factors included, arrowhead species (Sagittaria latifolia and graminea), Creeping Burhead (Echinodorus cordifolius) and Horsetail (Equisetum sp.).

**Figure 3 Islands installed during the summer of 2011. (Photo July 31, 2012).**

The City of Tulsa Eucha Lake office also provided substantial support in terms of equipment and manpower for the project. Tulsa City staff operated front end loaders and forklifts to unload the floating wetland units, store units and then move to the assembly site. The Eucha office also provided the materials of anchors, potting soil**,** pontoon and sampling boats, as well as labor. This project could not have been completed without the aid and assistance of the City of Tulsa and its employees.

## PLANT ASSESSMENT

The OWRB used a Modified Daubenmire Method for assessment of plant assemblage and cover. Results of the 2012 Daubenmire survey showed that there were 5 plant species/types that dominated the island communities: water willow, rush, pennywort, unidentified grasses, and dodder. Frequency was reported as the percent of islands with the plant present and percent cover as aerial area of the plant versus the other plants present. The Modified Daubenmire assigns species to 7 different cover classes (<1%, 1-5%, 5-25%, 25-50%, 50-75%, 75-95%, 95-100%). While Daubenmire surveys generally consist of random sampling over a given area, the

OWRB conducted the survey across 100% of the floating wetlands considering the area was limited to 6,400 $ft^2$.

## NUTRIENT REMOVAL

The OWRB installed sediment traps during the 2012 growing season. Sediment traps were used to measure the amount of detrital accretion as a result of the floating islands. Sediment trap racks consisted of PVC frame which held 4 tubes for sediment collection (Figure 4). Each tube measured approximately 2.5 inches in diameter (inside diameter) and 18 inches in length. This size was chosen based on papers describing the optimal design as cylindrical, between 6 to 10 cm in diameter and with an aspect ratio of 7, to prevent sediment resuspension from wave action or motion (Zajazcowski 2002 and Honjo et.al. 1992). Each tube had a funnel affixed to the bottom with a piece of flexible tubing attached to the end and a crimp in place. A total of 6 racks of 4 traps each were installed with 4 racks placed under the floating islands and 2 racks placed in open water. The sediment traps were suspended 1.27 meters below the floating wetlands on a retrievable stainless steel cable. Initially, the traps were set at different depths ranging from 1.27 m to 2.08 m. This depth was standardized on July 9, 2012. The open water traps were suspended under buoys with 1 buoy placed upstream of the islands and 1 placed downstream. Sediment trap collections occurred every 3 weeks with the sediment from each tube decanted into a 500 ml sample preservation bottle. Samples were placed on ice and transported to the lab for analysis. The difference between the open water traps and floating wetland traps provided a net measure of sediment and nutrient lost from the water column.

Figure 4 Sediment trap collection device.

Nutrient removal was also estimated from the sampling of the above ground biomass. Random quadrats were sampled using the Daubenmire method. Four 16” x 16” quadrats were sampled from each floating island string for a total of 16 samples. From each quadrat, species were separated into individual bags for analysis.

## MESOCOSM

Mesocosms were used as an alternative means of measuring nutrient depletion from the water column induced by planted floating wetlands. The advantage of a mesocosm is the ability to skew the ratio of wetland surface area to water volume much higher than that in the upper end of the lake. Mesocosm set up consisted of 3 water basins filled with ambient lake water adjacent to Eucha Lake Site 3. Floating wetland media was cut into approximately 20” x 30” pieces to snugly fit into each tub and planted. In 2011, 12 potted plants from the GRDA nursery were used for each mesocosm set up while in 2012, 12 sets of sprigs and bareroot transplants were used per mesocosm. Initial plant species were 6 pennywort and 6 flatstem spikerush in Mesocosm 1, 6 bulltongue and 6 water willow in Mesocosm 2, and 6 squarestem spikerush and 6 creeping burrhead in Mesocosm 3 (Figure 5).

Figure 5 Mesocosm 3 on April 26, 2012.

All 3 of the mesocosm media were set in an adjacent City of Tulsa pond for onsite overwintering until the 2012 season. All but Mesocosm 1 media was recovered the next spring as it lacked buoyancy and was not attached to its tether. An additional 20" x 30" floating wetland media was cut from a unit donated by GRDA and removed from Grand Lake. Water volume and tub size, was increased between the 2011 and 2012 seasons as the mesocosm plants seemed weak and spindly compared to the same species on the Eucha Lake floating wetlands. In 2011, water volume was approximately 25 gallons, while in 2012 the volume increased from 25 to 65 gallons. Additional changes were to vigorously rinse out all possible dirt and potted soil using a high pressure water hose and placing the reconstituted mesocosms in full sun. Finally, water change frequency was increased to every three weeks to help avoid nutrient limitation and allow vigorous plant growth. Weekly water samples were taken for nutrient analysis concurrent with field multiprobe measures of temperature, specific conductance, dissolved oxygen, percent saturation of dissolved oxygen and pH.

## HABITAT ASSESSMENT

The United States Fish and Wildlife Service (USFWS) published quantifiable procedures in 1980 for assessing impacts of proposed water and land resource developments on fish and wildlife habitats (USFWS 1980). These procedures are collectively referred to as Habitat Evaluation Procedures (HEP). HEP uses a habitat-based approach to ecological assessment and provides a mechanism for predicting changes in habitat quality and quantity over time under alternative scenarios. The HEP modeling process quantifies overall habitat suitability as a dimensionless value ranging from 0 to 1, known as the Habitat Suitability Index (H.S.I.). The H.S.I. represents the capacity of a given habitat to support or produce a target species. The H.S.I. can then be used to compute habitat gains and losses directly attributable to a project, by combining the results with the affected acreage (acres*H.S.I. = Habitat Units). This method has been widely used and accepted by natural resource managers and decision makers since its conception in the 1980's (VanHorne and Wiens 1991). In the following section, we have applied the HEP method to the Eucha floating wetland work to investigate the impact of the floating wetlands on fish species known to occupy the lake.

Fish species known to reside in Eucha Lake and that had an available HEP model already developed were chosen for modeling. Because the fish species have life requisites besides vegetation cover, data was compiled from various sources. In the HEP modeling process, it was assumed that the floating wetlands were only providing vegetative cover. Floating wetlands effect on water quality values could affect H.S.I. scores for a given fish species but were assumed negligible. Water quality data used to support HEP development was collected by the City of Tulsa (CoT) in the 2012 calendar year. Morphometric data and calculations were based on bathymetric survey data collected in 2002 by the OWRB (OWRB 2002). Climatic data was collected off of the Oklahoma Mesonet Jay station.

### FISH ASSESSMENT

The OWRB conducted electro-fishing on August 21st, 2012 at Eucha Lake. OWRB crews traveled down each side of the 200 feet wetland string fishing a total length of 400 feet of equivalent shoreline. Each 200 feet wetland was fished separately for a total of 1600 feet of total fishing distance. Fishing intervals were as follows:

| | |
|---|---|
| South Floating Wetland | 406 Seconds |
| South +1 Floating Wetland | 429 Seconds |
| North -1 Floating Wetland | 529 Seconds |
| North Floating Wetland | 481 Seconds |

Collected fishes were identified and released at a separate location. Voucher samples of each species were also taken and later identified and verified at the OWRB Lab.

## RESULTS:

### PLANT ASSESSMENT

The OWRB planted 22 species of native aquatic plants on the 6,400 $ft^2$ floating wetlands. In addition to the native plants, several terrestrial plant taxa were found to be colonizing the wetlands. A complete list of plants found on the island can be found in Appendix A. Of the northern chains, half of the floating islands (3,200 $ft^2$) were installed and planted during the spring of 2011, (Figure 6). The remaining islands, the southern chains, were planted and installed in the spring of 2012, At the end of the 2012 growing season, the islands installed in 2011 showed significant growth with plants growing up to 3 feet high and extending from the edge of the island material up to 18 inches horizontally (Figure 7). The islands installed in the summer of 2012 did show growth, but had not filled in as completely as the 2011 islands.

Figure 6 Islands installed during the summer of 2011. (Photo from July 31, 2012)

Figure 7 May 5, 2012 picture showing water willow extending well past confines of media.

The OWRB used a Modified Daubenmire Method (Figure 8) for assessment of plant assemblage and cover. Results of the 2012 Daubenmire survey showed that there were 5 plant taxa that dominated the island communities: water willow, rush, pennywort, unidentified grasses, and dodder. Fowl mannagrass and horsetail, though intentionally planted on the islands, were not found during the 2012 Daubenmire survey. Several plants had a significant presence on the wetlands, but had low area coverages. These include: lizard tail, alligator flag, pickerelweed, cardinal flower, and smartweed. Table 2 also shows that "other sedges" had a very high frequency and is actually a combination of primarily two species, lake sedge and yellow nutsedge. The lake sedge growth was difficult to determine at the time of the survey, but a comparison to other known lake sedges indicated that many of the "other sedges" were in fact, lake sedge.

The presence of the planting holes and associated sediment did not hinder the growth of the plants or their ability to spread.  During the first growing season after initial planting, the plants showed significant growth but, in general, remained in the original planting holes.

**Figure 8  Fall 2011 plant assessment of floating wetland unit 28 quadrat 72.  Water willow (Justicia americana) grew very well. Lobelia, Eleocharis and Carex spp. are also featured in this picture.**

**Table 2 Results of the modified Daubenmire survey conducted on September 22, 2012.**

| | Water Willow | Lizard Tail | Softstem | Squarestem | Creeping Burhead | Obedient | Pink Butterfly Weed |
|---|---|---|---|---|---|---|---|
| % Canopy Cover | 16.44 | 1.88 | 1.70 | 1.75 | 0.81 | 0.00 | 0.44 |
| Frequency | 100.00 | 40.00 | 40.00 | 27.50 | 22.50 | 0.00 | 3.75 |
| | Porcupine Sedge | Thalia | Pennywort | Flatstem | Sweet Flag | Arrowhead | Bulltongue |
| % Canopy Cover | 2.99 | 1.26 | 7.49 | 3.64 | 0.83 | 0.72 | 0.73 |
| Frequency | 31.25 | 47.50 | 53.75 | 30.00 | 13.75 | 3.75 | 20.00 |
| | Rush | Pickerel weed | Smartweed | Mud plantain | Rosemallow | Other weed | Lobelia |
| % Canopy Cover | 8.04 | 2.13 | 0.51 | 0.58 | 0.17 | 4.90 | 1.33 |
| Frequency | 41.25 | 36.25 | 38.75 | 2.50 | 3.75 | 68.75 | 32.50 |
| | Unidentified grasses | Three Square | Water Primrose | Dodder | Bacopa | Other Sedge | Cottonwood |
| % Canopy Cover | 11.57 | 4.59 | 0.17 | 16.44 | 0.17 | 5.42 | 0.17 |
| Frequency | 96.25 | 13.75 | 1.25 | 45.00 | 1.25 | 83.75 | 5.00 |

As the plants grew, seeds, rhizomes, and daughter plants moved across the islands and began to fill in the space between the planting holes (Figure 9). This was easily evident during the 2012 Daubenmire survey. The southern wetland chains had only been planted that year, and many of the plants were still in and near the planting hole with bare island media in between whereas the northern chains had filled in completely and the only bare spots could be attributed to wildlife use or the dying out dodder.



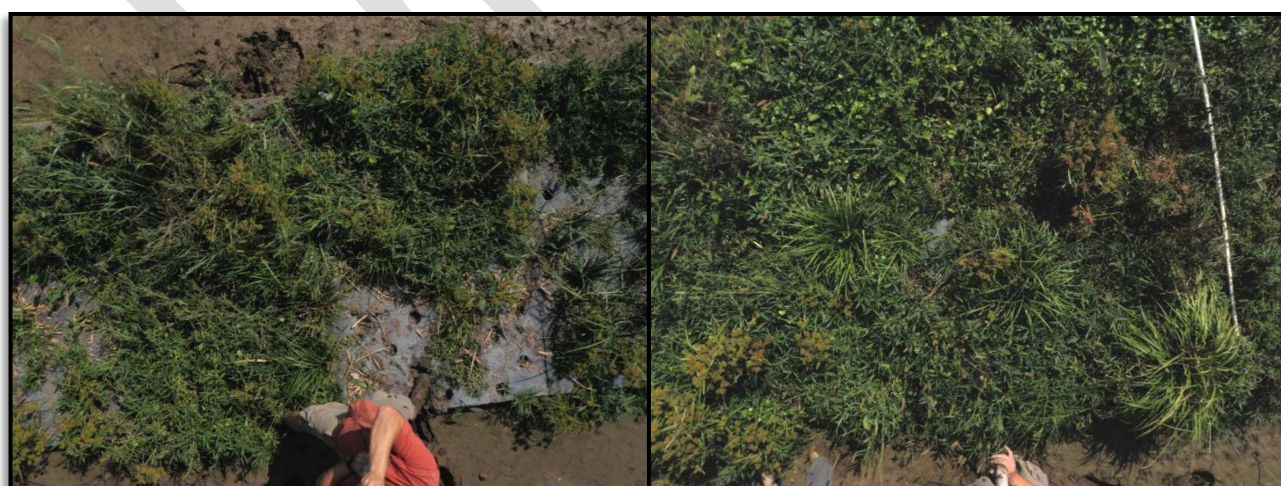


**Figure 9 Open media areas comparing recently planted (on the left) to that in its second season of growing (to the right).**

## NUTRIENT REMOVAL

The OWRB installed sediment traps during the 2012 growing season. Sediment traps were used to measure the amount of detrital accretion as a result of the floating islands (Figure 10).

Results from the open water sediment traps were subtracted from the under island traps to account for the normal deposition of an open water, pelagic system. A total of four complete collection events occurred during the summer of 2012 (Figure 11). An average of 776.98 mg/m$^2$/day of phosphorus was collected from under the floating islands. Accretion totals from open water traps averaged 529.73 mg/m$^2$/day. The difference of 247.25 mg/m$^2$/day can be attributed to the floating islands. This translates into 53.76 kg/yr of phosphorus removal from the wetlands. Accretion of sediment, and the subsequent phosphorus, seemed to show an exponential curve as the summer progressed compared to the apparent linear trend shown by the open water accretion rate (Figure 12). An exponential increase in phosphorus accumulation from under the floating islands is not unexpected as the aquatic plants showed significant growth over summer, particularly root mass growth which would directly affect sediment creation/accumulation. Increased root mass with accompanying Aufwuchs would trap/create and entrain more material allowing for an increasing precipitation from the water column.

**Figure 10 Sediment trap retrieved from under the floating wetlands.**

**Figure 11 Transferring collected sediment from the trap into the sample bottle.**

Nutrient removal was also estimated from the above ground biomass. Phosphorus content varied by species and even within species with values ranging from 0.10 to 0.55 percent phosphorus per gram of plant biomass.

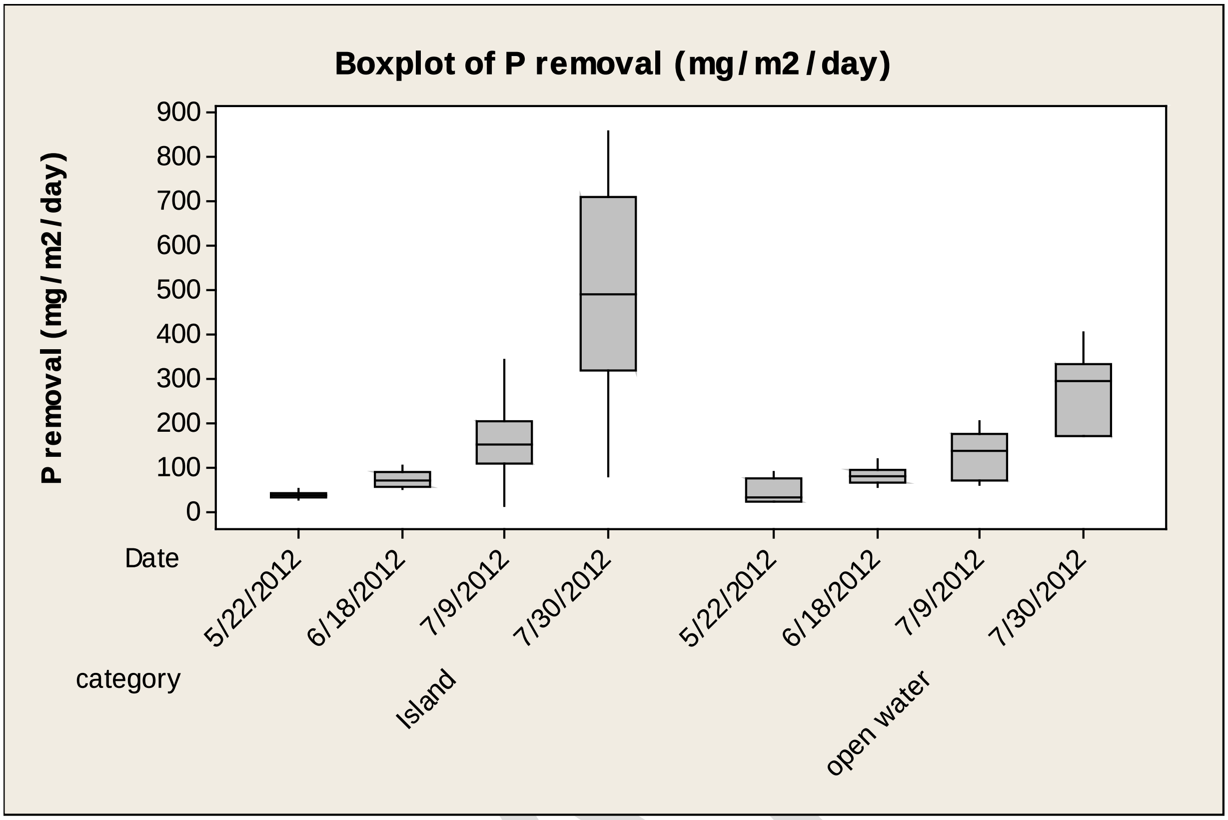



Figure 12 Box and Whisker plot summarizing sediment trap phosphorus removal results by sample date.

Phosphorus content from each sample was averaged and determined to be 0.18 grams/ft$^2$ for the southern chains and 0.26 grams/ft$^2$ for the northern chains. The combined removal of phosphorus from all the floating wetlands via biomass totaled 1.38 kg/yr. Nitrogen removal from above ground biomass was also calculated. Average nitrogen removal from the southern chains was 1.97 grams/ft$^2$ and 3.21 grams/ft$^2$ for the northern chains. This results in a removal of 16.59 kg/yr of nitrogen from the system. The higher value for the northern chains represents greater biomass with over a full year of growth (northern chains) versus a partial season of growth (southern chains). Of all plants sampled, the water willow removed the most nutrients from the water column with almost twice the amount from the older, northern chain versus the newer, southern chain. The greater nutrient removal was largely due to the robust growth and spread noted by water willow relative to any other species. The second year of water willow growth was also more robust than the first year (north vs. south chains).

Mesocosms were used as an alternative means of measuring nutrient depletion from the water column induced by planted floating wetlands. Phosphorus removal rates as mg/m$^2$/day were calculated for each mesocosm during each sample interval uninterrupted by a lake water refill. Results were disappointing as no significant trend of phosphorus removal was evident for either season (Figure 13). Positive rates were noted at the beginning of the 2011 season after which rates seemed to fluctuate around zero. A statistical summary of rates for all mesocosms over both seasons yielded a median rate of -0.03 with the middle fifty percentile varying from -1.03 to 0.05. Again, 2012 did not show appreciable rates different from zero with the exception of Mesocosm 1 which largely had negative rates. Water quality parameters were plotted and examined to help understand why mesocosm data was in such contrast to the other measures.

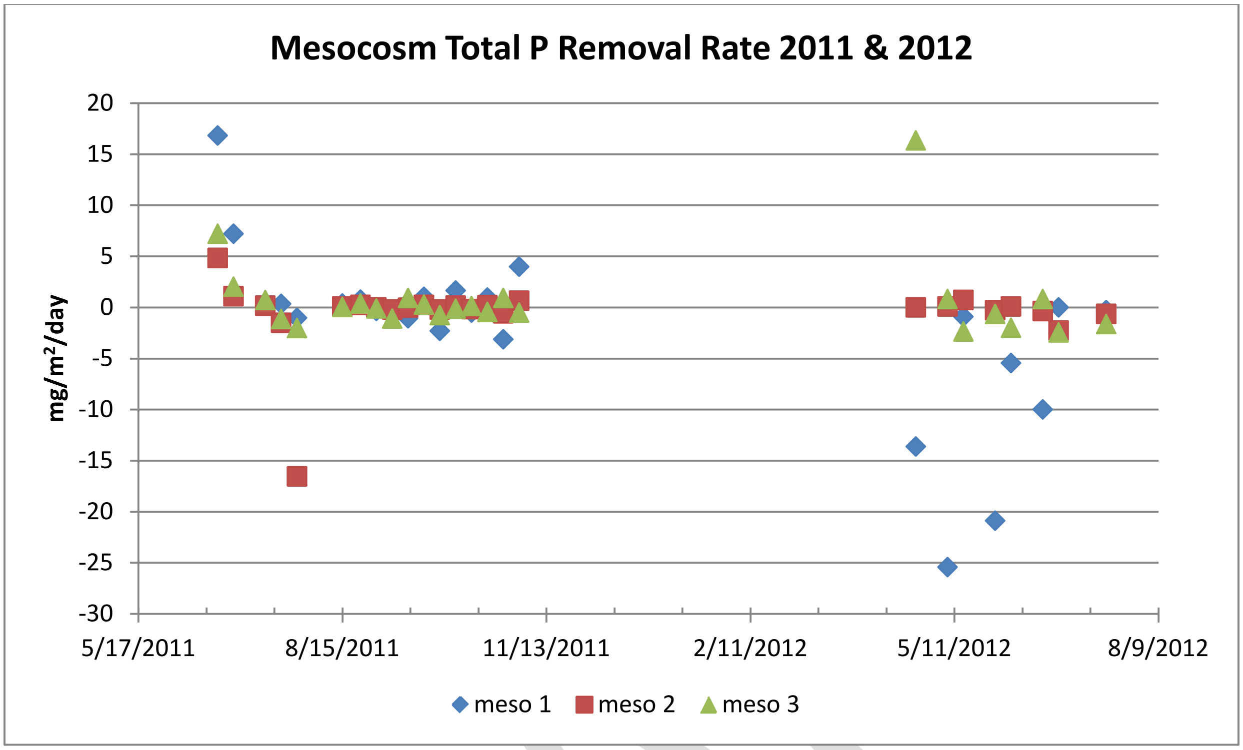



Figure 13 Total phosphorus removal rate (mg/m2/day) calculated from change in mesocosm water chemistry 2011 – 2012.

One item of note was nutrient content in the mesocosms, which was higher than the ambient lake water used to fill them. This was noted at the beginning of the 2011 season for all mesocosms and most notable for Mesocosm 1 in 2012 (Figure 14 and Figure 15). Other mesocosms dipped above the lake level several times for each season. The relatively consistent oscillation of TP from week to week seemed to preclude the ability to receive a clear signal of nutrient removal from the water column. Plotting DO for the mesocosms and ambient lake water provided the most likely explanation for removal rates that varied between positive and negative values. Mesocosms oxygen content was consistently lower than ambient lake water with extensive periods of anoxia for over both seasons (Figure 16). Dissolved oxygen (mg/L) and TP (mg/L) are reported as surface values (approximately 0.50 meter depth) only. Dissolved oxygen ranged from between 2 mg/L and 14 mg/L at the in-lake site during both monitoring periods. Dissolved oxygen was quite low during 2012 in all of the mesocosms. The DO was never above 4 mg/L and in several instances was below 2 mg/L. Dissolved oxygen values below 2 mg/L are considered anoxic and not supporting to aquatic life and often lead to reducing conditions that promote the release of bound phosphorus to the overlying water column. Solubilization of phosphorus bound in the sediment during these anoxic conditions is one explanation for fluctuating phosphorus levels. Appendix D and E summarizes all data collected regarding the mesocosm portion of the project.

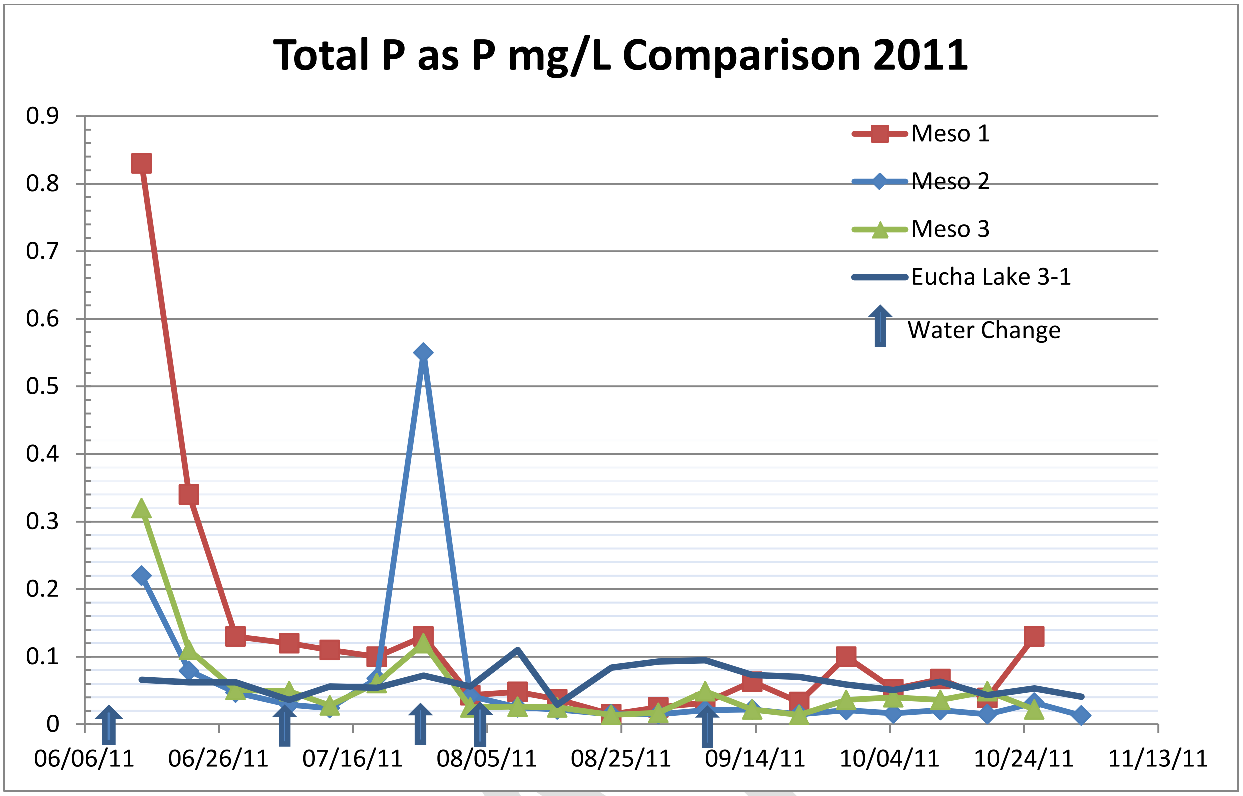



Figure 14  Plot of total phosphorus (mg/L) vs. time for the mesocosms and ambient Eucha Lake water in 2011.  Arrows denote mesocosm water changes.

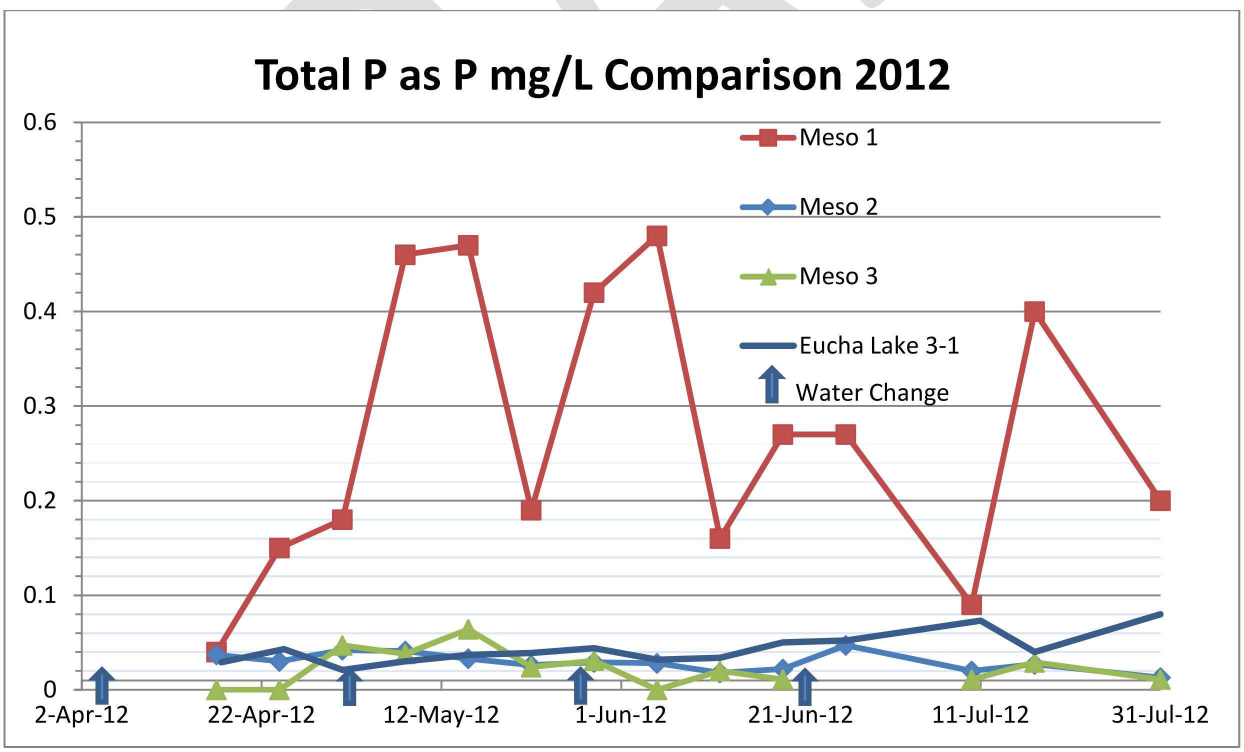



Figure 15  Plot of total phosphorus (mg/L) vs. time for the mesocosms and ambient Eucha Lake water 2012.  Arrows denote mesocosm water changes.

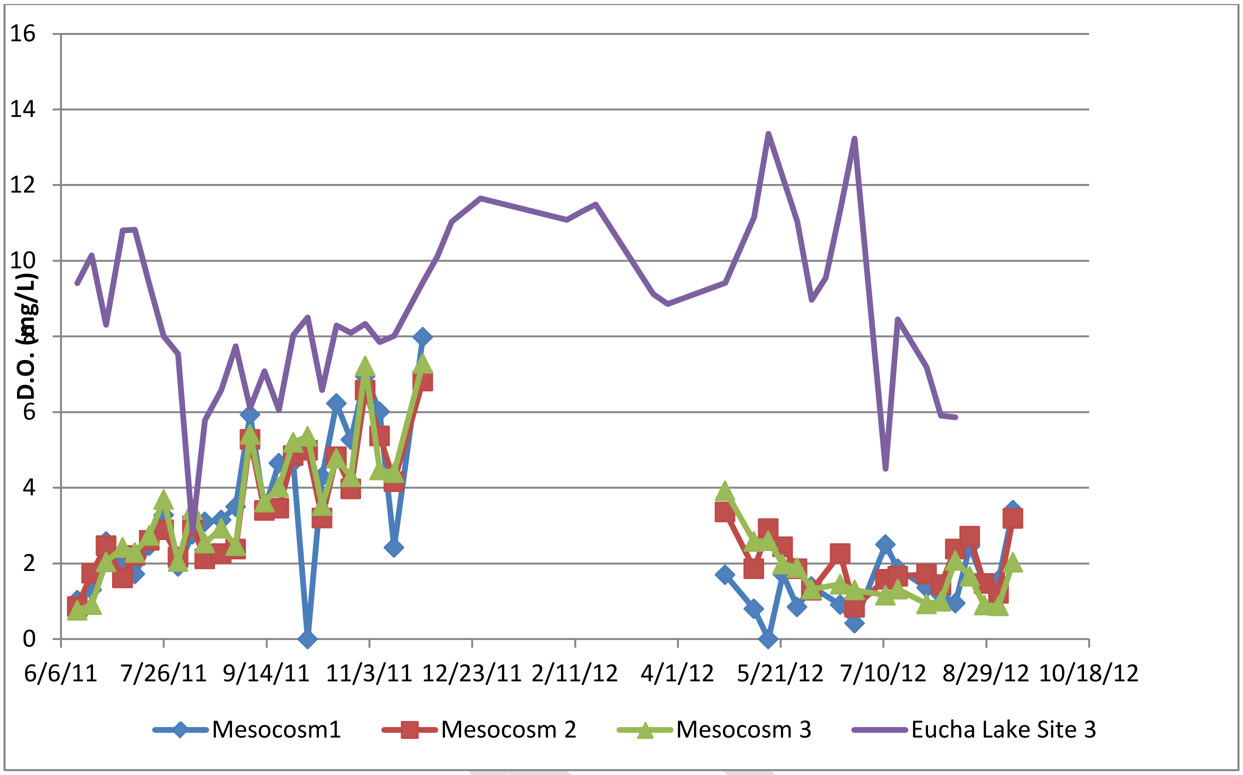



**Figure 16 Plot of dissolved oxygen (mg/L) vs. time for the mesocosms and ambient lake water 2011 through 2012.**

Mesocosm runs in 2011 and 2012 did not provide any appreciable data for estimating nutrient removal or sequestering from the water column. Poor plant growth indicated some sort of limitation (likely nitrogen based on early yellowing of most mesocosm plants) while low DO likely fluxed sediment bound phosphorus back up into the water column. Although the water quality data does little to support the idea of sequestering or removal of phosphorus from the water column, sediment was observed to accumulate on the bottom of all mesocosms for both years. Unfortunately, the sediment or nutrient content was not quantifiable.

The consistently high phosphorus content of Mesocosm 1 throughout 2012 led to an important possibility of the floating wetland media: its ability to absorb and leach phosphorus. In 2012, Mesocosm 1 has TP about one order of magnitude greater than the ambient lake water used to refill (Figure 15). We concluded the source of nutrients was from the mesocosm media itself as it had spent several years in Grand Lake before being sectioned into mesocosm sized pieces. Average TP of Grand Lake in the vicinity of the floating wetlands was 0.28 mg/L. That phosphorus spiked at or above 0.4 mg/L for Mesocosm 1 in 2012 suggests this specific floating wetland media had not only absorbed phosphorus above ambient Grand Lake concentration but also leached these nutrients back into the water column when placed in water of significantly lower concentration. As Grand Lake is a known suspected zebra mussels reservoir and the floating wetlands in Hudson Lake (directly downstream of Grand Lake) showed extensive colonization by zebra mussels, the afore mentioned nutrient storage and release may be the result of zebra mussels; accumulation while alive and release when dead.

## HABITAT ASSESSMENT

The goal of the HEP modeling within this project was to determine what effect if any, that the floating wetlands would have by affording habitat to modeled species. Therefore the HEP model is run under multiple scenarios which give differing views on the floating wetlands impact on Eucha Lake's upper end area. The HEP model was first run under a current or "no-impact" scenario at conservation pool where the lakes upper end is looked at with no floating wetlands present. The model was then operated under the impact created by the floating wetlands that currently exist in the lake. The same scenarios were then altered to reflect lowered pool elevations that regularly occur at the reservoir in the mid to late summer through fall. This scenario was conceived after it was observed that Eucha Lake's pool elevation regularly drops, leaving all of the littoral vegetation cover that is present under normal pool conditions unavailable for fish species. During lower pool elevations the floating wetlands serve as the primary source of vegetation cover in the upper end of Lake Eucha (Figure 17). The no effect and floating wetland scenarios were run under this condition as well.

Results of the HEP model show under normal pool elevations (288 acre area) the floating wetlands improve the habitat suitability index for all of the fish species modeled (Table 3). The impact of the floating wetlands on the upper end of Eucha Lake is relatively small on certain fish species like largemouth bass and white crappie. Other species which are more reliant on vegetation cover to meet life requisites see fairly large improvements in the habitat suitability index. As explained earlier, H.S.I. is multiplied by the area modeled resulting in habitat units for a given species. Habitat units give a more simplistic representation of the floating wetlands impact on the suitability of Eucha Lake's upper end habitat.

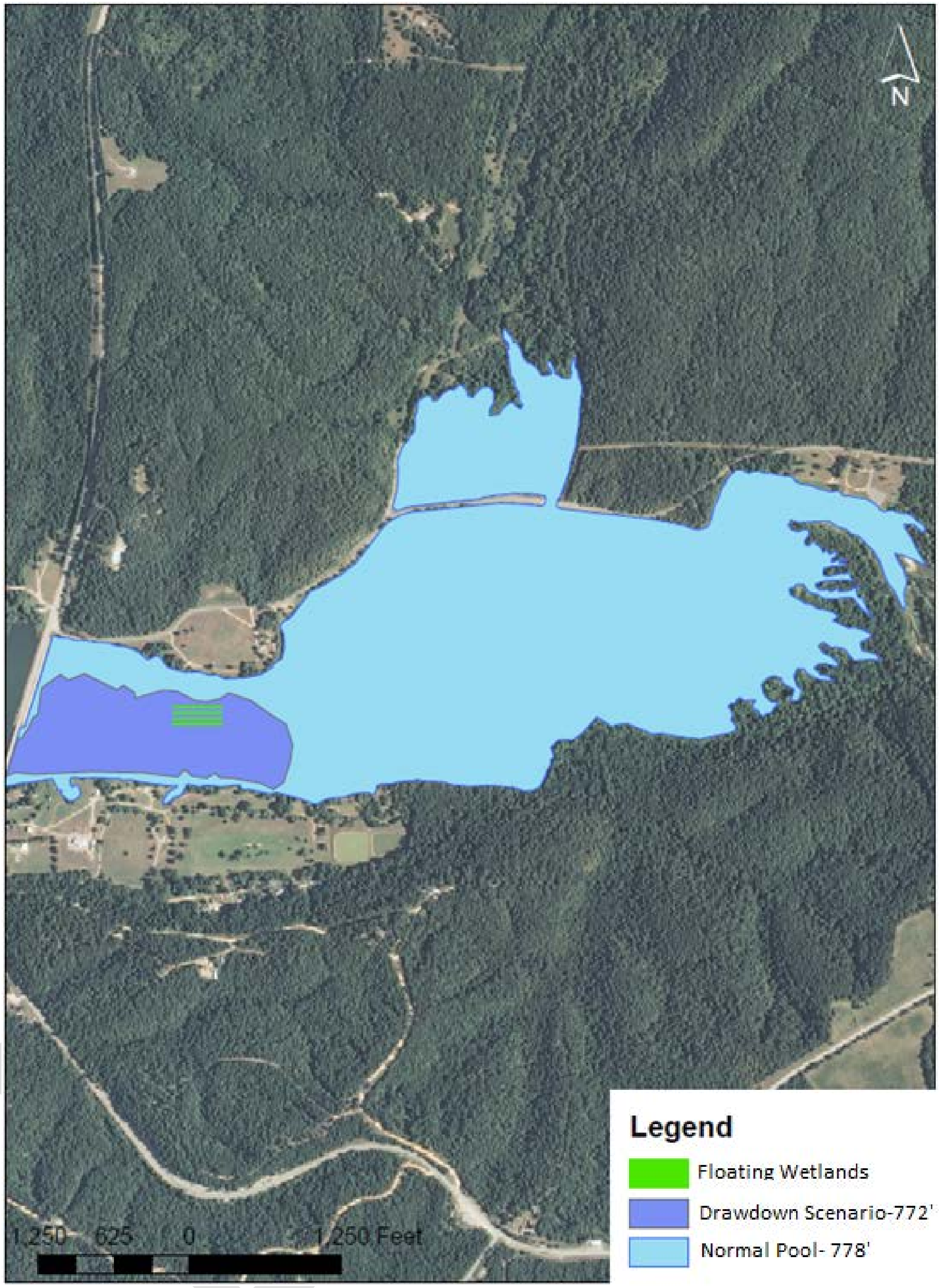



**Figure 17 HEP map showing the lake boundary at normal pool elevation, at drawdown elevation and location of floating wetlands.**

Table 3  Eucha HEP model outputs.

| H.S.I | | | | |
|---|---|---|---|---|
| Common Name | Control | Control Drawdown | FW Current | FW Current Drawdown |
| Black Crappie | 0.9058 | 0.8900 | 0.9062 | 0.8943 |
| Bluegill | 0.7443 | 0.7125 | 0.7448 | 0.7188 |
| Large Mouth Bass | 0.8843 | 0.8758 | 0.8845 | 0.8780 |
| Red Ear Sunfish | 0.4547 | 0.4294 | 0.4558 | 0.4386 |
| White Crappie | 0.7452 | 0.7365 | 0.7454 | 0.7389 |
| Gizzard Shad | 0.7442 | 0.6667 | 0.7457 | 0.6797 |
| Channel Catfish | 0.6669 | 0.6515 | 0.6673 | 0.6556 |
| Green Sunfish | 0.7086 | 0.6943 | 0.7090 | 0.6981 |
| Spotted Bass | 0.4547 | 0.4294 | 0.4558 | 0.4386 |
| **Habitat Units (acres)** | | | | |
| Black Crappie | 260.871 | 30.261 | 260.994 | 30.407 |
| Bluegill | 214.367 | 24.225 | 214.506 | 24.439 |
| Large Mouth Bass | 254.677 | 29.776 | 254.746 | 29.853 |
| Red Ear Sunfish | 130.960 | 14.600 | 131.273 | 14.912 |
| White Crappie | 214.613 | 25.041 | 214.681 | 25.122 |
| Gizzard Shad | 214.328 | 22.667 | 214.772 | 23.110 |
| Channel Catfish | 192.063 | 22.153 | 192.188 | 22.290 |
| Green Sunfish | 204.080 | 23.605 | 204.195 | 23.736 |
| Spotted Bass | 130.960 | 14.600 | 131.273 | 14.912 |
| **Habitat Units Created (acres)** | | | | |
| Black Crappie | 0.000 | 0.000 | 0.124 | 0.146 |
| Bluegill | 0.000 | 0.000 | 0.139 | 0.214 |
| Large Mouth Bass | 0.000 | 0.000 | 0.068 | 0.078 |
| Red Ear Sunfish | 0.000 | 0.000 | 0.313 | 0.313 |
| White Crappie | 0.000 | 0.000 | 0.068 | 0.081 |
| Gizzard Shad | 0.000 | 0.000 | 0.443 | 0.444 |
| Channel Catfish | 0.000 | 0.000 | 0.125 | 0.138 |
| Green Sunfish | 0.000 | 0.000 | 0.115 | 0.130 |
| Spotted Bass | 0.000 | 0.000 | 0.313 | 0.313 |

## FISH ASSESSMENT

A total of 651 fish were enumerated from around the floating wetlands (Table 4). Fish collections were dominated by *Micropterus salmoides* (largemouth bass) and *Lepomis macrochirus* (bluegill). All collected fish greater than 40 mm in length were enumerated and measured. Largemouth bass were divided into 20mm size classes and bluegill sunfish were divided into 10 mm size classes (Figure 18). Due to the low number of the other species captured, they were not put into size classes. A total of 12 species were collected from around and under the floating wetlands. An electro-fishing survey conducted in May of 1995 by the

Oklahoma Department of Wildlife Conservation (ODWC) collected a total of 17 species from all available habitats in the lake (OCC, 1997). A comparison of species collected in Eucha Lake is shown in Table 5. Flathead catfish were not collected in either fishing survey, but are present in the lake and were inadvertently caught by staff as a part of the project; several young-of-the-year flathead catfish were brought up in the sediment traps located under the floating wetlands.

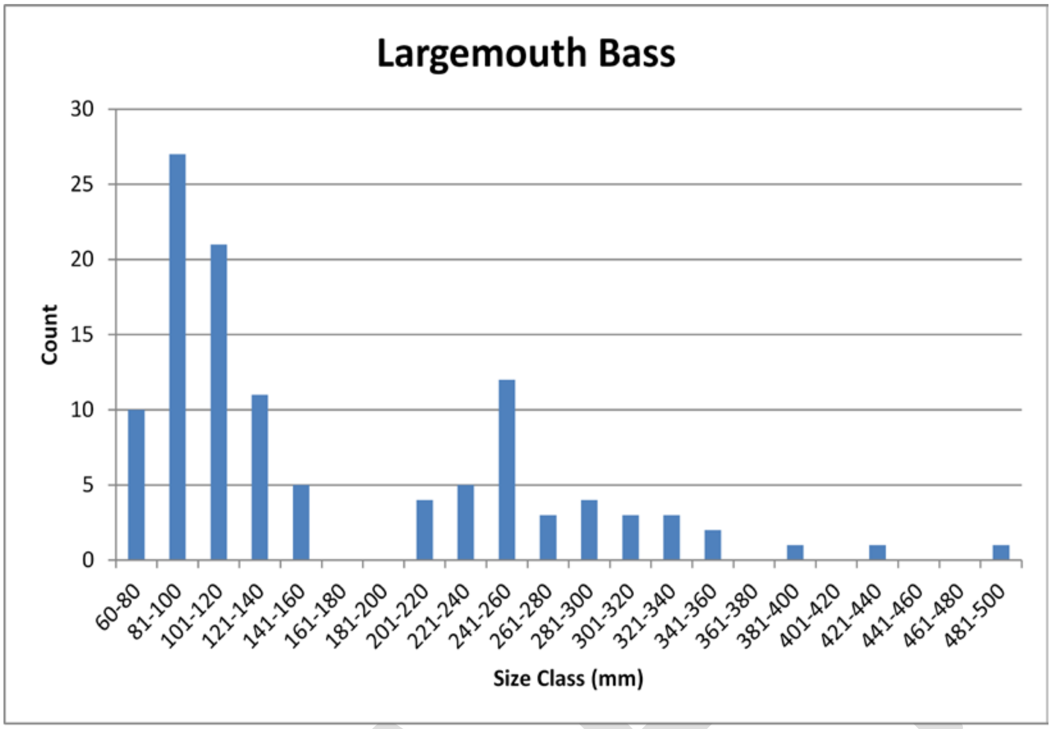
**Table 4 Number of fish and species collected from around each floating wetland chain.**

| | | Floating Wetlands | | | | |
|---|---|---|---|---|---|---|
| Common Name | Scientific Name | South | South +1 | North -1 | North | **Total** |
| Largemouth Bass | *Micropterus salmoides* | 17 | 17 | 42 | 37 | **113** |
| Bluegill | *Lepomis macrochirus* | 10 | 89 | 200 | 98 | **397** |
| Gizzard Shad | *Dorosoma cepedianum* | 5 | 4 | 1 | 10 | **20** |
| Green Sunfish | *Lepomis cyanellus* | 2 | 1 | | 4 | **7** |
| Spotted Sucker | *Minytrema melanops* | 1 | 4 | 2 | | **7** |
| Golden Shiner | *Notemigonus crysoleucas* | 1 | 2 | 3 | 12 | **18** |
| White Bass | *Morone chrysops* | 1 | | | | **1** |
| Redear Sunfish | *Lepomis microlophus* | | 1 | | 1 | **2** |
| Threadfin Shad | *Dorosoma petenense* | | 75 | | 2 | **77** |
| Brook Silverside | *Labidesthes sicculus* | | 1 | | | **1** |
| Warmouth | *Lepomis gulosus* | | | 3 | 4 | **7** |
| Blackstrip Topminnow | *Fundulus notatus* | | | | 1 | **1** |
| | | **37** | **194** | **251** | **169** | **651** |

Note: Hundreds of Bluegill less than 40mm in length were collected from all 4 floating wetlands but were not enumerated.

**Table 5 Fish species collected by ODWC in 1995 and OWRB in 2012. Table is showing only presence/absence from electro-fishing survey.**

| | ODWC | OWRB | | ODWC | OWRB |
|---|---|---|---|---|---|
| Carp | X | | Brook silverside | X | X |
| Green sunfish | X | X | Channel catfish | X | |
| Golden shiner | X | X | Spotted bass | X | |
| Largemouth bass | X | X | White sucker | X | |
| Black crappie | X | | Spotted sucker | X | X |
| Bluegill sunfish | X | X | Black redhorse | X | |
| Longear sunfish | X | | Golden redhorse | X | |
| Redear sunfish | X | X | White Bass | | X |
| Warmouth sunfish | X | X | Threadfin Shad | | X |
| Gizzard shad | X | X | Blackstrip Topminnow | | X |
| Flathead Catfish | | | | | |



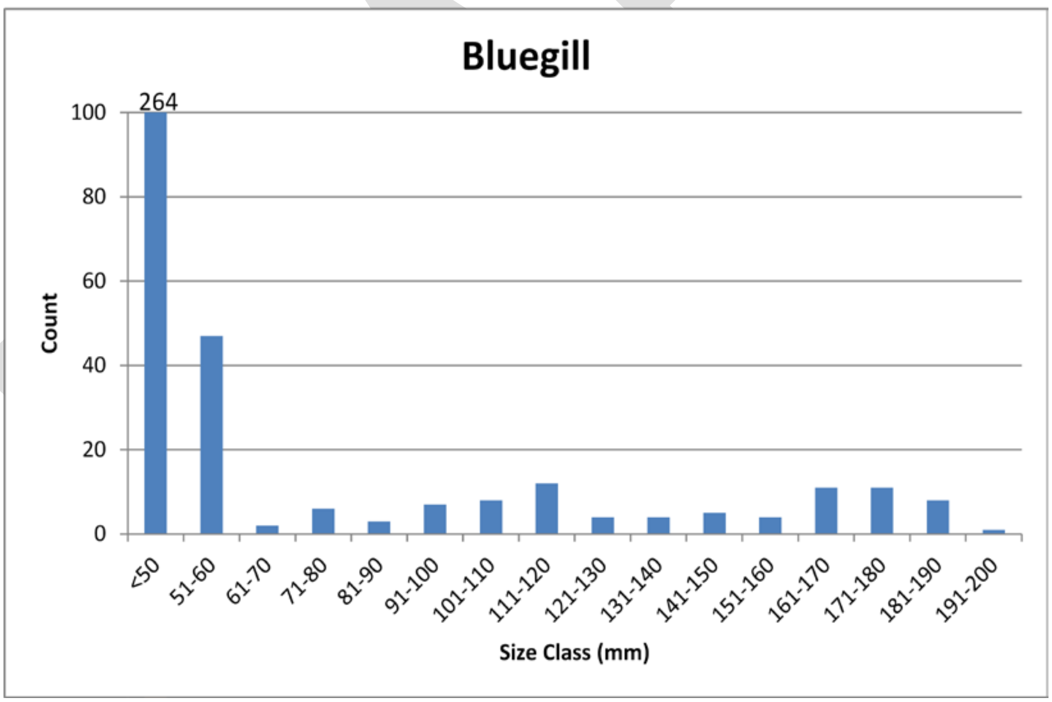




**Figure 18 Size class distribution of the two dominant fish species collected from Eucha Lake on August 21, 2012.**

# DISCUSSION:

## PROBLEMS ENCOUNTERED

Figure 19 Carp skeleton and fish scales as presumable leftovers from a river otter's meal.

Some damage to the islands was noted as a result of wildlife. In some instances, the recycled plastic material was damaged or torn off in small pieces. The damage was a result of river otters using the islands as fishing and feeding areas (Figure 19 and Figure 20). River otters frequent the area often and historically use the boathouse and dock areas as feeding zones. This was confirmed by finding carp skeletons and scat on the floating wetlands. While noticeable, tearing of the media fabric turned out to be nominal, not affecting function and unnoticeable after plant growth covered the affected area. Additionally, Canada geese were problematic on the islands. While the geese did not affect the integrity of the islands or physically damage them, they did at times damage the plants on the wetlands. After the initial plantings and before the plant could completely cover the island material, geese were often present on the islands.

Figure 20 Area assumed to be damage by river otter activity.

Figure 21 Loose sections of floating islands January 19, 2012.

The geese preferentially fed on certain plants such as the sedges and bulltongue. In many cases, the plants were just grazed down and able to recover without intervention, but the geese grazing did slow initial plant growth for some species. Once the plants were established and barren areas of the island filled in, little goose activity was noted on the islands, suggesting the plants had reached a critical height that deterred the geese.

The original design of the floating wetlands placed 2 of the 5’x 8’ mats (a total of 10’x 8’) together with stainless steel cable and then shackled together to the next 10'x 8' section until 100 linear feet was reached. Due to a manufactured defect and the increased movement and articulation by shackling the units together, the wetlands experienced several breakage events that required multiple visits to repair and maintain the chain of wetlands (Figure 21). The OWRB contacted the manufacturer and discussed the problem. A solution was decided upon and the manufacturer assisted with repairs and supplied all needed parts with the repairs made during March of 2012. Repairs consisted of using a larger 5/16" stainless steel cable and running the single, continuous cable through 100 linear feet of floating wetlands. This reduced articulation and prevented movement, allowing the wetlands to actually grow together from root masses, and fixed the original defect (Figure 22). As a result, the OWRB saw no breakage or signs of wear that were encountered previously. This fix provided great confidence in wetland chain stability.

Figure 22 Refurbished floating wetlands April 26, 2012. Note: no gaps between island units. 100' chains are in the staging cove; planted and ready for deployment.

Oklahoma also experienced a severe to exceptional drought for the past 2 years, 2011-2012. The drought combined with consumptive water use lowered lake levels during the fall of 2012 to below the area of inundation of the wetlands (Figure 23 and Figure 24). As such, the wetlands remained on the dry lake bottom over the winter of 2012 and water did not return to the area until February of 2013. Because of the low lake levels sediment trap sampling had to be discontinued earlier than planned and root masses (additional bound nutrients to itemize) under the wetlands could not be assessed. Low water in Eucha Lake is not uncommon as it serves as "make up" water for Spavinaw Lake to preserve a low energy gravity feed of raw water toward the City of Tulsa water works. Placement of floating wetlands should account for pool level variation and target the maximum depth possible while still keeping the floating wetlands in the littoral zone. In the case of Eucha Lake placing the wetlands in 13' of water would have gained another month or so of effective nutrient removal.

Figure 23 South+1 chain of floating wetlands on lake bed due to drought and draw down September 20, 2012. Note: anchor on left side of photo.

Due to drawdown and the prolonged drought, the wetlands came to rest on the lake bed during October of 2012. While it would have been possible to move the wetland chains to deeper water, it was decided to leave them in place and allow them to respond to the dry conditions as this was a likely event, not every year, but occasionally. We wanted the islands to be as low maintenance as possible and chasing the pool elevation with the floating wetlands would be a labor intensive endeavor. Fortunately, some late winter/early spring precipitation allowed the water levels to return in February of 2013 and the islands began to float again. It was noticed that while the southern islands were in deeper water, they were "more stuck" to the lake bed than the northern islands. Within a few weeks the sediment seemed to have loosened up and all chains were floating again. OWRB staff postulates that it may be because of the smaller root system under those islands. The northern islands had significant root growth which may have acted as a buffer between the island media and the lake bed which prevented it from attaching firmly or sinking into the bottom. On the other hand, the southern chains did not have as extensive a root mass allowing the porous media to sink into the relatively unconsolidated lake bottom.

Figure 24 South +1 Chain of floating islands September 20, 2012. Plant coverage represents 5 months of plant growth.

Figure 25 Aftermath of 23,000cfs flood event; one set of 200' chains in place (far right background) with two sets caught on old SH59 bridge posts(in foreground) and one 200' chain was washed downstream past the SH 59 bridge.

On April 18 2013, over 23,000cfs of flow came through the area with the installed floating wetlands. All but one of the 200' chains moved (Figure 25). One went under the State Highway 59 bridge and came to rest about a ¼ mile down lake. The other two chains became wrapped around the old State Highway 59 markers adjacent to the installation. All chains were retrieved. Upon retrieval it was noted that the approximately 300 lb. cement anchors were still attached and the force of the flood waters was great enough to carry the entire chain; anchors and all. It was evident that the current anchoring system was not sufficient to hold the floating islands in place. The manufacturer recommended use of winged soil anchors driven as deep as possible but thought that 300 pound cement anchors would be sufficient for the application. Hindsight says use of winged soil anchors should have been a given as the movement of these floating wetlands during extreme flow conditions prompted the City of Tulsa to request removal of the installed floating wetlands.

## PLANT ASSESSMENT

The species selected for planting on the islands did well with the exception of Fowl Mannagrass and Horsetail. These species were not found on the islands during the plant assessment; however, only a very limited amount was planted. Water willow was largely planted from shoreline sprigging and did very well on the wetlands. As noted before, water willow was found on 100% of the wetlands and in many cases extended up to 18 inches laterally away from the wetlands. Of the selected planted species, rush and pennywort also did well with a high frequency of distribution and high canopy cover. While the lake was down and the islands were on the bottom, pennywort was seen extending across the lake bed in several areas, suggesting it may provide a significant founder colony for other shoreline areas. Grasses, annual sedges and dodder also had significant coverage on the islands. The most likely source of these advantageous annuals is from the shore and shoreline as they are common in the epilittoral and littoral zone of Eucha Lake. Dodder, a structural parasite, had significant coverage over some areas, especially on the older, northern chains of islands (Figure 26). Although terrestrial species were found on the islands, many of the grasses and weeds still put down large root systems and contributed to the phosphorus removal activities of the islands. The plant, Dodder, is the exception. Dodder will use other plants for their structural and support and pierce the host plant to siphon off necessary nutrients. This prevents them from forming complex root systems and they rely solely on the host species for physical support and nutrients. The dodder growth can be so much that it shades out the host target species, killing above ground biomass via shading as well as drawing off nutrients.

**Figure 26 North and north+1 floating island chains August 21, 2012. Light yellow color on islands is dodder parasitizing established plants, most water willow.**

## MESOCOSM ASSESSMENT

The mesocosms established to measure the water column reduction of phosphorus did not provide the information as anticipated. The mesocosms were concluded to be too small in size as the systems frequently were anoxic. Anoxia promotes the release of phosphorus from bound sediments resulting in negative removal rates. The water quality underneath the installed floating wetlands did not have anoxia so the mesocosm data was not used for evaluative purposes.

Mesocosm 1 experienced significant variations of total phosphorus during 2012. Variation of total phosphorus (TP) was between 0.04 and 0.48 mg L while ambient lake water varied between 0.02 and 0.04 mg/L. The distinctive aspect of Mesocosm 1 for 2012 is that although it is constructed of identical material it came from a similar project started on Grand Lake the summer of 2010. The material had been previously removed from the lake and had been allowed to desiccate for several weeks to ensure no live zebra mussels could possibly be introduced into the Spavinaw Creek watershed via this project. Even before putting the material in the mesocosm, the material was thoroughly washed with treated, chlorinated water to flush out as much of the existing material as possible before being planted with local plant sprigs (water willow and lizard’s tail). However, despite the preparation, the media continuously leached nutrients into the mesocosm. As the mesocosms were refilled with lake water, it seemingly promoted the increased leaching of nutrients causing the cyclical pattern of phosphorus seen in the graph. Although the mesocosms did not act as we expected the high values from Mesocosm 1 indicated a capacity to adsorb and retain nutrients. It is likely the organic content of the 2-year old seasoned media was the nutrient source. The most likely source of organic matter associated with Aufwuchs for Mesocosm media 1 could be the presence of extirpated zebra mussels. Whatever the source, the ability to retain nutrients and elevate phosphorus an order of magnitude greater than ambient levels is notable.

## NUTRIENT ASSESSMENT

The OWRB anticipated that phosphorus removal from the wetlands via sedimentation would be between 3 kg/yr and 90 kg/yr (OWRB 2012). Average measured removal via sedimentation was 18.2 kg/yr, within the anticipated range. This reconciles with Data Quality Objectives stated in the QAPP. The average net amount of sequestered phosphorus (including above ground biomass) totaled some 19.6 kg/yr. The apparent exponential curve noted in Figure 7 suggests that root mass has further growth potential and subsequent higher removal potential as the floating wetlands continued to fill in and mature. While the two southern chains did have significant growth, there still was room for above ground growth notwithstanding root expansion. This above-ground growth will continue to remove phosphorus, but the larger impact will be seen from the increased root growth under the islands. Increased root growth will continue to entrain suspended material from the water column and slow the movement of water. This will allow material to physically flock out and become part of the sediment layer while biotic action of the Aufwuchs produces largely organic solids that also fall to the bottom and become a part of the sediment layer. The highest removal rate measured was from the July 9 – 30 2012 sample event with 231 mg $TP/m^2/day$ or 50.6 kg TP per year; more than 2 ¾ times greater than the averaged rate; representative of greater shoot and root growth, may better represent removal rates of a more mature system.

Additional phosphorus removal not quantified by the project occurred from the plant root growth. Root growth in some instances extended to 2-3 feet below the floating wetlands. Phosphorus content of the root mass was not analyzed as they could not be accessed at the end of the growing season due to being trapped between the floating wetlands and the sediment after the lake level dropped too low for the wetlands to float.

It is important to note that although the wetlands are discussed in terms of amount of phosphorus removal, the phosphorus is still remaining in the reservoir. The phosphorus is being shunted away from the epilimnion and deposited in the sediment layer. While it may seem that the phosphorus is not actually being removed, the phosphorus is being removed from the photic zone during periods of algal growth. Here phosphorus is biologically and abiotically incorporated into detritus and falls to the sediment layer, where a significant portion of the TP is retained. Sediment phosphorus retention below the littoraly placed floating wetlands is largely because here water is oxic; removed from the anoxic hypo and metalimnion of the eutrophied

Eucha Lake. While it is true that the increased detrital load from the floating wetlands will impose a dissolved oxygen load, convective forces (wind and waves) should provide enough oxygen to satisfy the load without anoxia. Field data collected by the City of Tulsa staff showed that during both 2011 and 2012 growing seasons only on the August 9, 2011 was dissolved oxygen anoxia close to potentially redirect phosphorus precipitated by the floating wetlands (Figure 27). All other monitoring events showed dissolved oxygen above 2 mg/L at 10' depth and above.

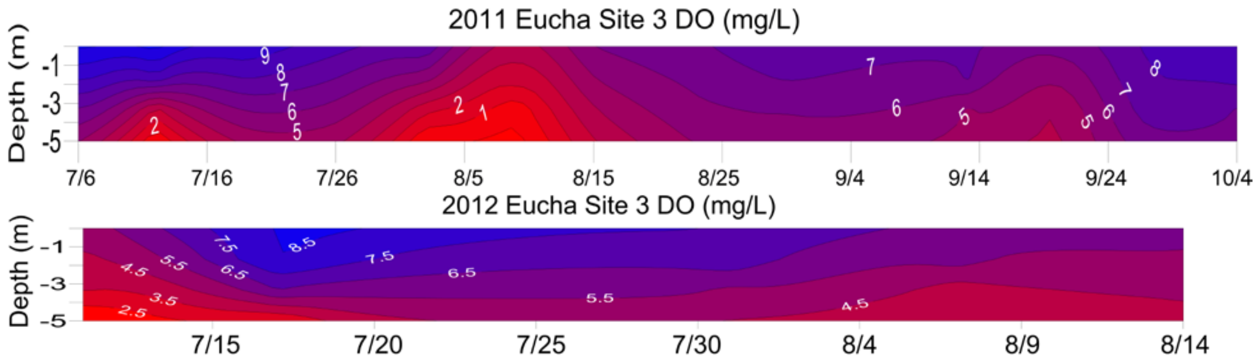



Figure 27 Dissolved Oxygen Plot for Eucha Lake 2011 and 2012 growing seasons at site 3, City of Tulsa.

As previous studies on the Eucha/Spavinaw basin have concluded (OWRB 2002), in-lake or sediment mediated load (7%) does occur in Eucha Lake, but the highest phosphorus content comes from the watershed (93%). Current load estimates suggest that 43,314 kg of phosphorus enter the lake each year from the watershed (USGS 2012). The currently installed floating wetlands represent perhaps one half of one tenth percent, 0.04%, reduction of the annual load. For example for floating wetlands to negate the sediment mediated (in-lake) load the floating wetland area would need to be increased some 160 times its current size. On a cost per unit basis, the floating wetlands show the potential to remove phosphorus from the water column at about $7,653/kg TP ($150,000 for 19.6 kg TP removed) as a onetime cost for the first year. Operation and maintenance (O&M) costs in following years are nominal for a cost of $383/kg TP extended over a 20 year time span. While significantly less than the first year outlay, this estimate still compares unfavorably, about 10 times more, to a cost estimate of approximately $3.40/kg TP per year to transport litter into another basin and put to agronomic beneficial use. This watershed based effort of chicken litter transport was estimated using $46.45 per ton cost and content of 30 pounds phosphorus per ton litter (Young, et.al. 2005 and Sharpley et.al. 2009). It is evident that even with floating wetland costs spread over an extended time span it is most cost effective to move the nutrients out of the basin as opposed to intercepting it in the receiving water.

An alternative cost comparison for floating wetlands nutrient removal was made using data collected from the hypominletic oxidation system operating in Lake Thunderbird, OK (OWRB 2013). Costs for this system is similar to the floating wetlands with a large initial capital cost but with regular O&M costs for supplies (liquid oxygen). Costs to run this Super-saturated Dissolved Oxygen (SDOX) system was about $657,000 for the first year with estimated annual costs of approximately $40,000 per year. Over the three year operation of the

SDOX average total phosphorus reduction, via increased sedimentation and reduced release, was 1,496 kg/year. Over a twelve year period the annualized cost for phosphorus removal via SDOX system would be approximately $61.10/kg TP. Extrapolated to a twenty year time period costs reduce to $47.30/kg TP; still an order of magnitude greater than watershed based removal of phosphorus.

Given the results from this project, the cost of a durable floating wetland system would need to be reduced about two orders of magnitude for this to approach to be considered a cost effective treatment for phosphorus removal.

## HABITAT AND FISH ASSESSMENT

The floating wetlands have the ability to provide significant habitat for aquatic species, according to the ExHEP model. Under drawdown conditions (34 acres), the impact of the floating wetlands is magnified for species heavily reliant on cover. This is due to the fact that there is no longer submersed littoral vegetation present to provide natural habitat. Under draw down conditions the floating wetlands become the major source of habitat in the upper end of Eucha and the sole source of vegetation cover. For species like spotted bass, or gizzard shad, that are heavily reliant on cover to ensure reproductive success, the impact of the floating wetlands is double that of its footprint area.

Thirteen fish species have been found to use the floating wetland islands as some form of habitat. This is over half of the fish species which have been collected from the lake from previous electro-fishing surveys. Additionally, the wetlands show a high recruitment of young-of-the-year fish. Small bluegill sunfish and also small largemouth bass represent a large

Figure 28 Typical sweep from fish shocking. Note: young of the year bluegill are too numerous to count.

proportion of the fish collected (Figure 28). Larger fish, such as the largemouth bass, will also use the wetlands for feeding due to the numerous small fish available.

While no statistical difference was detected (due to small sample size), the two most north islands seemed to have a higher number of total fish. The exception to this is the large number of threadfin shad found around island South +1. These two northern floating islands were slightly shallower than the other two, but had also been planted the previous year. This allowed the wetlands to have higher and thicker growth with plants extending up to a foot out from the edge of the wetland. This extended growth increased shade and provided additional refugia for invertebrates and small fish. As plants continue to grow, they will spread out from the original island edge and also develop larger root systems which small fish find suitable for habitat.

Fish are not the only species that have been found to use the wetlands. Evidence of river otters (feeding and bedding areas and scat) were found on the wetlands. Trails through the aquatic plant growth on the wetlands may have been due to beaver as well. Numerous species of birds have been seen on the wetlands including songbirds and herons. Canada geese have also nested on the islands and adults and young have been seen on and around the islands.

Cost effectiveness of floating wetlands as habitat could be compared against the cost of providing habitat of the same function. For Eucha Lake at conservation pool, sufficient littoral cover is available largely due to the extensive water willow aquatic plant community so this lake has little need for additional habitat. Cost effectiveness for Eucha Lake during drawdown varied between \$7.75/ft$^2$ to \$23/ft$^2$ depending on which fish species were chosen to benefit from the created habitat. While expensive, this cost is a onetime layout with nominal operation and maintenance costs. Work by the OWRB for the Grand River Dam Authority (GRDA) in Grand and Hudson Lakes to establish aquatic plant founder colonies with the intent for these plant species to spread beyond the confines of their caged protection was the most comparable method identified (OWRB 2007). An important aspect of this work was the requirement of annual maintenance of the cages (herbivore exclosures) and maintenance of a native aquatic plant nursery for annual replanting of rootstock. Using the cost to establish and maintain these founder colonies over a 6 year period an annualized cost of \$67,204 was estimated to produce 1 acre of on the lake bottom habitat. The driving cost feature of the founder colonies at Grand Lake was the annual need to replant and maintain herbivore exclosures. This leads to this method accruing cost over time. Table 6 highlights the difference between the accrued costs of founder colony approach for habitat verses a more amortized approach for floating wetlands with a large initial capital expense. Actual project expenses were used to develop these cost estimates without discounting the value of (fish) habitat benefits (assuming habitat benefits are equal for comparative purposes). The contrast in cost structure suggests that floating wetlands should become more cost effective than founder colony maintenance by the sixteenth year. It is also important to note that while fluctuating pool elevation will alternately inundate or dry out littoral aquatic plants growing in established founder colonies neither hydraulic scenario detracts from the ability of under hanging plant roots in floating wetlands to provide aquatic habitat.

Additionally, the floating wetlands likely provide habitat for a greater diversity of biota than a natural littoral aquatic plant community by virtue of the root system hanging. This argues that the value of floating wetlands per unit area may be greater than that of a natural system in regards to delivering habitat in flood control reservoir. The most likely scenario for this type of floating wetland system to be cost effective as habitat would be in the case of a regulatory provision for systems where the elevation fluctuates sufficiently to exclude natural aquatic plant growth.

**Table 6 Tabular cost summary to provide one acre of habitat over time contrasting the accrued cost of the founder colony method versus the amortizable (one-time) cost of floating wetlands.**

| YEAR | 1 | 5 | 10 | 15 | 20 |
|---|---|---|---|---|---|
| Founder Colony | $67,204 | $336,020 | $672,040 | $1,008,060 | $1,344,080 |
| Floating Wetland | $1,020,938 | $1,020,938 | $1,020,938 | $1,020,938 | $1,020,938 |

### FLOATING WETLANDS AS A BREAKWATER

A final use for floating wetlands could be as a breakwater. It became evident during the project that, in addition to their capabilities for the removal of nutrients and provision of habitat, the floating wetlands could provide a useful function in acting as breakwaters. A floating wetland system 16' wide with fully mature Rush, *Juncus spp.*, would provide effective wave attenuation perhaps comparable to a floating tire breakwater (FTB). Cost of construction and installation of a FTB in Lake Wister was estimated at $111.87/ft in 1998 dollars (OWRB 2001). Adjusting for inflation estimates a 2013 cost at some $156/ft. It is estimated at $150,000 to configure the floating wetland media into four 16' x 100' strings. This makes the cost for a floating wetland breakwater at approximately $375/ft; a little more than twice that of a FTB. It is also important to consider that it would take several years for the new floating wetland breakwater to reach the critical mass needed for most effective breakwater function.

## CONCLUSIONS:

All outputs and outcomes for the project were accomplished:

- Output – All floating wetland units were installed in the upper end of Eucha Lake with the help and assistance of City of Tulsa employees and equipment, the GRDA aquatic plant nursery, ODWC aquatic plant nursery.
- Habitat Outcome – Habitat units provided as a result of the installed floating wetlands were determined. Using the HEP models, fish reliant on cover for reproductive success derived the greatest benefit from the floating wetlands, while all modeled species benefited from the cover and food sources present with the floating wetlands. During the drawdown period, the floating wetlands and bridge rip-rap were the sole habitat for fish in the area. Fish and wildlife noted to utilize the floating wetlands as habitat but not quantified were river otters, flathead catfish and great blue heron.

- Water Quality Outcome 1 – Total phosphorus (TP) was determined to be reduced as a result of the floating wetlands. Removal measured via sedimentation traps and plant biomass was estimated at some 19.6 kg TP per year. The large majority (some 90%) of phosphorus removed was due to the physical and biological presence of the floating wetland root mass relegating plant assimilation to a minor, secondary role.
- Water Quality Outcome 2 – The estimated removal rate for the floating wetlands was not large enough to make a significant different in influent water quality. A hundred fold increase in coverage (to 14.7 acres) to yield a 4.5% reduction of the annual phosphorus load estimated for 2011. For this ecosystem removal of nutrients within the watershed is a much more cost effective method of nutrient control than in the receiving water.

Although the low phosphorus removal rate relative to the influent loading was disappointing, these wetlands do effectively shunt nutrients and may provide a cost effective, multi-use solution worth consideration for systems providing both public water supply and recreational opportunities to a community. The unique capability of the wetlands to provide habitat for diverse biota under conditions of high water level fluctuation could be particularly appealing for communities with an economy strongly influenced by lake recreation. Systems requiring the long term creation of fish habitat in reservoirs experiencing fluctuating pool elevations present the most likely scenario for floating wetlands applications. Cost comparison against alternative means of providing a benefit extended over a 12 year period highlight this conclusion (Table 7). The large disparity in cost between physical nutrient removals (from the basin) versus floating wetland process removals underscores the fact that keeping the nutrient out of waterways should always be the first option. It also implies that nutrient removal via floating wetlands in reservoir systems may be relegated to a secondary role. When applied over a 15 year time frame, habitat creation via the floating wetland system becomes cost effect compared against founder colony use. Finally, it would take a 12 year time frame for floating wetlands to become cost effective when intended to provide multiple benefits, and then, only in the case when the reservoir system is in need of habitat and breakwaters.



**Table 7 Tabular summary comparing cost per unit of floating wetlands verses alternative method.**

| **Method** | Cost for Benefit | | | |
|---|---|---|---|---|
| **Floating Wetland** | ***$150,000*** for 400’ breakwater | ***$150,000*** for 0.15 acre habitat | ***$150,000*** for 294 kg TP removed over 15 yr. | |
| **Alternative/ Benefit** | ***$62,400*** 400’ of Floating Tire Breakwater | ***$148,084*** 0.15 acre aquatic plant founder colony maintained for 15 years | ***$1,003*** Watershed removal of 610 kg TP as litter and applied to soil out of basin | ***$15,940*** 295 kg TP retained in hypolimnetic sediment via hypolimnetic oxidation |

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## APPENDIX A: List of Plant Species Planted or Found on the Floating Wetlands.

**Species Planted**

| | |
|---|---|
| 1 | Water Willow (*Justicia americana*) |
| 2 | Lizard Tail (*Saururus cernuus*) |
| 3 | Horse Tail (*Equisetum hyemale*) |
| 4 | Softstem Bulrush (*Schoenoplectus tabernaemontani*) |
| 5 | Squarestem Spikerush (*Eleocharis quadrangulata*) |
| 6 | Creeping Burhead (*Echinodorus cordifolius*) |
| 7 | Obedient Plant (*Physostegia virginiana*) |
| 8 | Cardinal Flower (*Lobelia cardinalis*) |
| 9 | Great Blue Lobelia (*Lobelia siphilitica*) |
| 10 | Porcupine Sedge (*Carex hystericina*) |
| 11 | Pennywort (*Hydrocotyle verticillata*) |
| 12 | Flatstem Spikerush (*Eleocharis spp.*) |
| 13 | Sweet Flag (*Acorus calamus*) |
| 14 | Alligator Flag (*Thalia dealbata*) |
| 15 | Arrowhead (*Sagittaria latifolia*) |
| 16 | Bulltongue (*Sagittaria graminea*) |
| 17 | Softstem Rush (*Juncus effusus*) |
| 18 | Fowl Mannagrass (*Glyceria striata*) |
| 19 | Lake Sedge (*Carex lurida*) |
| 20 | Wild Celery (*Valisneria spp.*) |
| 21 | Mudplantain(*Heteranthera dubia*) |
| 22 | Pickerelweed (*Pontederia cordata L.*) |

**Other Species Found**

| | |
|---|---|
| 1 | Unidentified Grasses (monocotyledonous) |
| 2 | Other weed (dicotyledonous) |
| 3 | Dodder (*Cuscuta sp.*) |
| 4 | Cottonwood (*Populus deltoides*) |

## APPENDIX B:  Additional Photographs

The two northern floating wetland islands.  These were planted in the summer of 2011.
Left to right: North, North -1. Photograph from July 9, 2012.

The two southern floating wetland islands.  These were planted in the spring of 2012.  Left to right: South +1, South.  Photograph from July 9, 2012.

Photograph of a 485 mm largemouth bass collected from Lake Eucha on August 21, 2012.

Photograph of a bluegill sunfish collected from Lake Eucha on August 21, 2012.


A young-of-the-year flathead catfish inside a sediment trap collected from Eucha Lake on July 9, 2012.

## APPENDIX C: Weekly Multiprobe Data Collected and Provided by the City of Tulsa 2011 through 2012.

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 6/14/2011 | MESOCOSM 1 | 6:22:56 | 0.3 | 24.23 | 12.3 | 1.03 | 7.49 | 356 | 146 | 8.5 |
| 6/14/2011 | MESOCOSM 2 | 6:25:19 | 0.3 | 24.46 | 10.3 | 0.86 | 7.34 | 273 | 128 | 4.7 |
| 6/14/2011 | MESOCOSM 3 | 6:27:52 | 0.3 | 24.66 | 9.1 | 0.76 | 7.42 | 284 | 122 | 3.8 |
| 6/14/2011 | EUC03-1 | 7:06:55 | 1 | 27.46 | 119.1 | 9.41 | 8.63 | 166 | 218 | 12.9 |
| 6/14/2011 | EUC03-3 | 7:06:55 | 1 | 27.46 | 119.1 | 9.41 | 8.63 | 166 | 218 | 12.9 |

WEEKLY WETLAND ROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 6/21/2011 | MESOCOSM 1 | 6:49:01 | 0.3 | 23.78 | 15.4 | 1.3 | 7.35 | 310 | 196 | 8 |
| 6/21/2011 | MESOCOSM 2 | 6:50:52 | 0.3 | 24.17 | 20.8 | 1.74 | 7.17 | 238 | 206 | 3.4 |
| 6/21/2011 | MESOCOSM 3 | 6:52:41 | 0.3 | 24.35 | 10.9 | 0.91 | 7.31 | 271 | 197 | 5.4 |
| | | | | | | | | | | |
| 6/21/2011 | EUC03-1 | 7:39:34 | 0.5 | 27.13 | 127.6 | 10.14 | 8.71 | 153 | 141 | 24.5 |
| 6/21/2011 | EUC03-2 | 7:41:18 | 5.5 | 19.54 | 37.3 | 3.42 | 7.71 | 195 | 56 | 18 |
| 6/21/2011 | EUC03-3 | 7:39:34 | 0.5 | 27.13 | 127.6 | 10.14 | 8.71 | 153 | 141 | 24.5 |

WEEKLY WETLAND PROFILES

Gambusia minnows added to each Mesocosm

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 6/28/2011 | MESOCOSM 1 | 6:27:49 | 0.4 | 25.88 | 31.7 | 2.58 | 7.44 | 162 | 274 | 8.1 |
| 6/28/2011 | MESOCOSM 2 | 6:29:11 | 0.4 | 26.09 | 30.5 | 2.47 | 7.24 | 236 | 274 | 5.1 |
| 6/28/2011 | MESOCOSM 3 | 6:30:08 | 0.4 | 25.92 | 25.1 | 2.04 | 7.3 | 146 | 260 | 4.2 |
| | | | | | | | | | | |
| 6/28/2011 | EUC03-1 | 7:07:55 | 0.5 | 28.51 | 107.1 | 8.31 | 8.44 | 155 | 127 | 17.1 |
| 6/28/2011 | EUC03-2 | 7:11:09 | 5.5 | 21.94 | -0.2 | -0.02 | 7.43 | 195 | 92 | 11.5 |
| 6/28/2011 | EUC03-3 | 7:07:55 | 0.5 | 28.51 | 107.1 | 8.31 | 8.44 | 155 | 127 | 17.1 |

WEEKLY WETLAND PROFILES

REFILLED A FEW DAYS EARLIER

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/6/2011 | MESOCOSM 1 | 6:29:48 | 0.4 | 24.91 | 23.6 | 1.95 | 7.24 | 263 | 187 | 8.6 |
| 7/6/2011 | MESOCOSM 2 | 6:31:21 | 0.4 | 25.2 | 19.7 | 1.62 | 7.18 | 239 | 188 | 3.8 |
| 7/6/2011 | MESOCOSM 3 | 12:17:40 | 0.4 | 26.47 | 30.1 | 2.42 | 7.33 | 279 | 212 | 4.5 |
| | | | | | | | | | | |
| 7/6/2011 | EUC03-1 | 7:25:16 | 0.5 | 29.8 | 142.5 | 10.8 | 8.85 | 145 | 87 | 11.3 |
| 7/6/2011 | EUC03-2 | 7:26:56 | 5 | 26.4 | 62.7 | 5.05 | 7.65 | 221 | 79 | 21.4 |
| 7/6/2011 | EUC03-3 | 7:25:16 | 0.5 | 29.8 | 142.5 | 10.8 | 8.85 | 145 | 87 | 11.3 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/6/2011 | MESOCOSM 1 | 6:29:48 | 0.4 | 24.91 | 23.6 | 1.95 | 7.24 | 263 | 187 | 8.6 |
| 7/6/2011 | MESOCOSM 2 | 6:31:21 | 0.4 | 25.2 | 19.7 | 1.62 | 7.18 | 239 | 188 | 3.8 |
| 7/6/2011 | MESOCOSM 3 | 12:17:40 | 0.4 | 26.47 | 30.1 | 2.42 | 7.33 | 279 | 212 | 4.5 |
| | | | | | | | | | | |
| 7/6/2011 | EUC03-1 | 7:25:16 | 0.5 | 29.8 | 142.5 | 10.8 | 8.85 | 145 | 87 | 11.3 |
| 7/6/2011 | EUC03-2 | 7:26:56 | 5 | 26.4 | 62.7 | 5.05 | 7.65 | 221 | 79 | 21.4 |
| 7/6/2011 | EUC03-3 | 7:25:16 | 0.5 | 29.8 | 142.5 | 10.8 | 8.85 | 145 | 87 | 11.3 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/12/2011 | MESOCOSM 1 | 8:49:53 | 0.4 | 26.56 | 21.4 | 1.72 | 7.27 | 272 | 58 | 20.6 |
| 7/12/2011 | MESOCOSM 2 | 8:51:03 | 0.4 | 26.47 | 27.4 | 2.21 | 7.17 | 241 | 82 | 5.1 |
| 7/12/2011 | MESOCOSM 3 | 8:51:52 | 0.4 | 26.47 | 28.5 | 2.29 | 7.23 | 266 | 84 | 3.2 |
| | | | | | | | | | | |
| 7/12/2011 | EUC03-1 | 8:33:43 | 0.5 | 31.04 | 145.7 | 10.82 | 8.66 | 142 | 65 | 20.1 |
| 7/12/2011 | EUC03 | 8:34:10 | 1 | 31 | 137.9 | 10.25 | 8.51 | 145 | 67 | 18.3 |
| 7/12/2011 | EUC03 | 8:34:47 | 2 | 30.53 | 104.8 | 7.84 | 8.15 | 154 | 75 | 15.3 |
| 7/12/2011 | EUC03 | 8:35:41 | 3 | 29.38 | 42.1 | 3.21 | 7.65 | 175 | 86 | 13.2 |
| 7/12/2011 | EUC03 | 8:36:48 | 4 | 27.75 | 25.9 | 2.04 | 7.4 | 204 | 91 | 12.4 |
| 7/12/2011 | EUC03-2 | 8:39:23 | 5 | 25.5 | -0.2 | -0.02 | 7.29 | 208 | -32 | 21.5 |
| 7/12/2011 | EUC03-3 | 8:33:43 | 0.5 | 31.04 | 145.7 | 10.82 | 8.66 | 142 | 65 | 20.1 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/19/2011 | MESOCOSM 1 | 6:19:15 | 0.4 | 26.16 | 30.5 | 2.47 | 7.22 | 3 | 144 | 9.6 |
| 7/19/2011 | MESOCOSM 2 | 6:21:02 | 0.4 | 24.72 | 31.5 | 2.61 | 7.27 | 3 | 135 | 2.8 |
| 7/19/2011 | MESOCOSM 3 | 6:22:29 | 0.4 | 25.69 | 33.5 | 2.74 | 7.26 | 264 | 135 | 6.4 |
| | | | | | | | | | | |
| 7/19/2011 | EUC03-1 | 7:31:56 | 0.5 | 30.34 | 124.9 | 9.38 | 8.59 | 134 | 34 | 11.4 |
| 7/19/2011 | EUC03-2 | 7:33:23 | 5 | 27.82 | 54.2 | 4.26 | 7.64 | 210 | 36 | 19.8 |
| 7/19/2011 | EUC03-3 | 7:31:56 | 0.5 | 30.34 | 124.9 | 9.38 | 8.59 | 134 | 34 | 11.4 |

WEEKLY WETLAND PROFILES

Gambusia minnows no longer in Mesocosm #2

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/26/2011 | MESOCOSM 1 | 6:26:14 | 0.3 | 25.82 | 40.3 | 3.28 | 7.31 | 275 | 150 | 11.9 |
| 7/26/2011 | MESOCOSM 2 | 6:27:24 | 0.3 | 25.98 | 35.6 | 2.89 | 7.29 | 215 | 152 | 7.6 |
| 7/26/2011 | MESOCOSM 3 | 6:28:45 | 0.3 | 25.9 | 45.5 | 3.69 | 7.32 | 261 | 148 | 4 |
| | | | | | | | | | | |
| 7/26/2011 | EUC03-1 | 7:24:44 | 0.5 | 31.07 | 107.8 | 8 | 8.51 | 123 | 15 | 12.6 |
| 7/26/2011 | EUC03-2 | 7:26:46 | 5.5 | 28.74 | 49.7 | 3.83 | 7.46 | 192 | 34 | 14.8 |
| 7/26/2011 | EUC03-3 | 7:24:44 | 0.5 | 31.07 | 107.8 | 8 | 8.51 | 123 | 15 | 12.6 |

NOTE: Westernmost mesocosm seems to receive more (afternoon) sunlight than the other two mesocosms.

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/2/2011 | MESOCOSM 1 | 6:20:50 | 0.4 | 28.05 | 24.5 | 1.92 | 7.29 | 271 | 166 | 9.4 |
| 8/2/2011 | MESOCOSM 2 | 6:21:58 | 0.4 | 28.43 | 28 | 2.17 | 7.2 | 220 | 164 | 4.4 |
| 8/2/2011 | MESOCOSM 3 | 6:22:52 | 0.4 | 28.49 | 26.4 | 2.05 | 7.23 | 250 | 157 | 1.9 |
| | | | | | | | | | | |
| 8/2/2011 | EUC03-1 | 7:06:05 | 0.5 | 32.57 | 104.2 | 7.54 | 8.68 | 121 | 19 | 13 |
| 8/2/2011 | EUC03-2 | 7:08:03 | 4.5 | 29.79 | 3.5 | 0.26 | 7.45 | 192 | 3 | 19.5 |
| 8/2/2011 | EUC03-3 | 7:06:05 | 0.5 | 32.57 | 104.2 | 7.54 | 8.68 | 121 | 19 | 13 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 8/9/2011 | MESOCOSM 1 | 6:39:14 | 0.3 | 24.15 | 33 | 2.77 | 7.29 | 298 | 136 | 6.8 |
| 8/9/2011 | MESOCOSM 2 | 6:40:40 | 0.3 | 24.43 | 35.8 | 2.99 | 7.21 | 235 | 141 | 2.4 |
| 8/9/2011 | MESOCOSM 3 | 6:41:55 | 0.3 | 23.57 | 40.3 | 3.42 | 7.23 | 266 | 139 | 1.8 |
| | | | | | | | | | | |
| 8/9/2011 | EUC03-1 | 8:32:56 | 0.5 | 27.92 | 36.5 | 2.86 | 7.59 | 170 | 16 | 11.2 |
| 8/9/2011 | EUC03 | 8:34:39 | 1 | 27.92 | 34.3 | 2.69 | 7.57 | 170 | 17 | 10.8 |
| 8/9/2011 | EUC03 | 8:36:12 | 2 | 27.91 | 32.9 | 2.58 | 7.55 | 170 | 17 | 10.9 |
| 8/9/2011 | EUC03 | 8:37:19 | 3 | 27.3 | 6.4 | 0.51 | 7.42 | 176 | -12 | 37.9 |
| 8/9/2011 | EUC03 | 8:38:44 | 4 | 25.44 | -1.1 | -0.09 | 7.33 | 194 | -144 | 121.5 |
| 8/9/2011 | EUC03-2 | 8:39:14 | 4.5 | 25.02 | -1.3 | -0.11 | 7.32 | 196 | -153 | 124.9 |
| 8/9/2011 | EUC03-3 | 8:32:56 | 0.5 | 27.92 | 36.5 | 2.86 | 7.59 | 170 | 16 | 11.2 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 8/15/2011 | MESOCOSM 1 | 6:11:31 | 0.4 | 20.9 | 34.8 | 3.1 | 7.16 | 260 | 182 | 5.7 |
| 8/15/2011 | MESOCOSM 2 | 6:13:40 | 0.4 | 22.22 | 24.3 | 2.12 | 7.05 | 216 | 169 | 4.2 |
| 8/15/2011 | MESOCOSM 3 | 6:14:43 | 0.4 | 21.43 | 28.8 | 2.54 | 7.07 | 238 | 164 | 3.6 |
| | | | | | | | | | | |
| 8/15/2011 | EUC03-1 | 6:58:26 | 0.5 | 27.22 | 72.9 | 5.79 | 7.86 | 162 | 33 | 7.1 |
| 8/15/2011 | EUC03-2 | 6:59:49 | 4.5 | 26.3 | 39.5 | 3.19 | 7.57 | 213 | 31 | 11.6 |
| 8/15/2011 | EUC03-3 | 6:58:26 | 0.5 | 27.22 | 72.9 | 5.79 | 7.86 | 162 | 33 | 7.1 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 8/23/2011 | MESOCOSM 1 | 6:11:56 | 0.3 | 24.13 | 37.5 | 3.15 | 6.96 | 310 | 181 | 8.5 |
| 8/23/2011 | MESOCOSM 2 | 6:13:24 | 0.4 | 24.67 | 27.2 | 2.26 | 7.03 | 238 | 177 | 2.3 |
| 8/23/2011 | MESOCOSM 3 | 6:15:23 | 0.3 | 23.99 | 34.8 | 2.93 | 7.12 | 266 | 171 | 1.7 |
| | | | | | | | | | | |
| 8/23/2011 | EUC03-1 | 6:54:03 | 0.5 | 29.06 | 85.6 | 6.58 | 7.87 | 168 | 66 | 8.5 |
| 8/23/2011 | EUC03-2 | 6:55:16 | 4 | 26.37 | 69.2 | 5.58 | 7.57 | 231 | 63 | 12.2 |
| 8/23/2011 | EUC03-3 | 6:54:03 | 0.5 | 29.06 | 85.6 | 6.58 | 7.87 | 168 | 66 | 8.5 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/30/2011 | MESOCOSM 1 | 6:05:12 | 0.2 | 25.49 | 42.8 | 3.5 | 6.86 | 319 | 202 | 5 |
| 8/30/2011 | MESOCOSM 2 | 6:07:15 | 0.2 | 26.21 | 29.5 | 2.38 | 6.99 | 243 | 186 | 3.2 |
| 8/30/2011 | MESOCOSM 3 | 6:08:24 | 0.2 | 25.79 | 30.4 | 2.47 | 7.05 | 280 | 181 | 3.3 |
| | | | | | | | | | | |
| 8/30/2011 | EUC03-1 | 7:13:33 | 0.5 | 29.2 | 101 | 7.74 | 8.04 | 168 | 41 | 11.9 |
| 8/30/2011 | EUC03-2 | 7:14:46 | 4 | 27.74 | 72.9 | 5.73 | 7.57 | 232 | 50 | 13.1 |
| 8/30/2011 | EUC03-3 | 7:13:33 | 0.5 | 29.2 | 101 | 7.74 | 8.04 | 168 | 41 | 11.9 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/6/2011 | MESOCOSM 1 | 6:14:24 | 0.3 | 16.31 | 60.6 | 5.93 | 7.38 | 323 | 164 | 6.4 |
| 9/6/2011 | MESOCOSM 2 | 6:15:42 | 0.3 | 17.12 | 54.8 | 5.28 | 7.31 | 236 | 172 | 5.5 |
| 9/6/2011 | MESOCOSM 3 | 6:16:55 | 0.3 | 15.02 | 53.7 | 5.41 | 7.26 | 281 | 174 | 8.9 |
| | | | | | | | | | | |
| 9/6/2011 | EUC3-1 | 7:08:40 | 0.5 | 24.51 | 73.3 | 6.11 | 7.81 | 186 | 27 | 9.9 |
| 9/6/2011 | EUC3-2 | 7:09:39 | 3.5 | 23.12 | 62.8 | 5.37 | 7.71 | 208 | 39 | 14.6 |
| 9/6/2011 | EUC3-3 | 7:08:40 | 0.5 | 24.51 | 73.3 | 6.11 | 7.81 | 186 | 27 | 9.9 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/13/2011 | MESOCOSM 1 | 6:11:14 | 0.3 | 21.33 | 38.7 | 3.43 | 7.01 | 328 | 187 | 23.5 |
| 9/13/2011 | MESOCOSM 2 | 6:12:21 | 0.3 | 21.47 | 38.5 | 3.4 | 7.07 | 262 | 185 | 3.2 |
| 9/13/2011 | MESOCOSM 3 | 6:13:27 | 0.3 | 20.69 | 40.4 | 3.62 | 7.1 | 283 | 184 | 2.6 |
| | | | | | | | | | | |
| 9/13/2011 | EUC03-1 | 8:23:44 | 0.5 | 24.94 | 85.6 | 7.08 | 8.06 | 181 | 34 | 11.2 |
| 9/13/2011 | EUC03 | 8:24:36 | 1 | 24.94 | 85.3 | 7.06 | 8.07 | 181 | 39 | 11.7 |
| 9/13/2011 | EUC03 | 8:25:15 | 2 | 24.94 | 86.3 | 7.14 | 8.08 | 181 | 41 | 11.4 |
| 9/13/2011 | EUC03 | 8:27:47 | 3 | 24.47 | 54.6 | 4.55 | 7.69 | 196 | 47 | 11.7 |
| 9/13/2011 | EUC03-2 | 8:29:03 | 3.5 | 24.63 | 61.9 | 5.15 | 7.7 | 193 | 48 | 13.3 |
| 9/13/2011 | EUC03-3 | 8:23:44 | 0.5 | 24.94 | 85.6 | 7.08 | 8.06 | 181 | 34 | 11.2 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 9/20/2011 | MESOCOSM 1 | 6:02:08 | 0.3 | 17.3 | 48.5 | 4.65 | 7.07 | 338 | 188 | 6.3 |
| 9/20/2011 | MESOCOSM 2 | 6:03:38 | 0.3 | 17.76 | 36.4 | 3.46 | 7.03 | 264 | 191 | 3.4 |
| 9/20/2011 | MESOCOSM 3 | 6:04:23 | 0.3 | 16.62 | 41.3 | 4.02 | 7.05 | 301 | 188 | 3.5 |
| 9/20/2011 | EUC03-1 | 7:00:19 | 0.5 | 20.91 | 67.9 | 6.06 | 7.68 | 223 | 101 | 7 |
| 9/20/2011 | EUC03 | 7:01:01 | 1 | 20.97 | 61.8 | 5.51 | 7.65 | 221 | 105 | 6.5 |
| 9/20/2011 | EUC03 | 7:01:31 | 2 | 20.92 | 58.6 | 5.23 | 7.65 | 212 | 107 | 8.1 |
| 9/20/2011 | EUC03-2 | 7:02:45 | 3 | 20.83 | 44.3 | 3.96 | 7.57 | 214 | 71 | 10.7 |
| 9/20/2011 | EUC03-3 | 7:00:19 | 0.5 | 20.91 | 67.9 | 6.06 | 7.68 | 223 | 101 | 7 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 9/27/2011 | MESOCOSM 1 | 6:00:30 | 0.3 | 15.9 | 47.2 | 4.67 | 6.93 | 328 | 191 | 15.2 |
| 9/27/2011 | MESOCOSM 2 | 6:01:37 | 0.3 | 15.74 | 48.9 | 4.85 | 6.93 | 246 | 197 | 3 |
| 9/27/2011 | MESOCOSM 3 | 6:02:56 | 0.3 | 14.95 | 51.5 | 5.2 | 6.94 | 292 | 196 | 2.1 |
| 9/27/2011 | EUC03-1 | 7:15:19 | 0.5 | 20.42 | 89.2 | 8.04 | 7.9 | 236 | 138 | 5.3 |
| 9/27/2011 | EUC03-2 | 7:16:33 | 3 | 20.03 | 84 | 7.63 | 7.8 | 246 | 123 | 7.8 |
| 9/27/2011 | EUC03-3 | 7:15:19 | 0.5 | 20.42 | 89.2 | 8.04 | 7.9 | 236 | 138 | 5.3 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 10/4/2011 | MESOCOSM 1 | 6:04:48 | 0.4 | 16.76 | 0 | 0 | 6.71 | 339 | 216 | 10.1 |
| 10/4/2011 | MESOCOSM 2 | 6:05:48 | 0.4 | 16.36 | 50.9 | 4.99 | 6.77 | 257 | 217 | 2.9 |
| 10/4/2011 | MESOCOSM 3 | 6:06:31 | 0.4 | 15.06 | 53.2 | 5.36 | 6.78 | 308 | 217 | 3 |
| 10/4/2011 | EUC03-1 | 8:27:57 | 0.5 | 19.74 | 93 | 8.5 | 7.82 | 239 | 66 | 5 |
| 10/4/2011 | EUC03 | 8:28:21 | 1 | 19.74 | 90.8 | 8.3 | 7.79 | 241 | 68 | 5.6 |
| 10/4/2011 | EUC03 | 8:28:44 | 2 | 19.75 | 90.8 | 8.29 | 7.79 | 239 | 69 | 4.6 |
| 10/4/2011 | EUC03-2 | 8:30:22 | 3 | 19.34 | 76.3 | 7.03 | 7.65 | 247 | 73 | 13.8 |
| 10/4/2011 | EUC03-3 | 8:27:57 | 0.5 | 19.74 | 93 | 8.5 | 7.82 | 239 | 66 | 5 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/11/2011 | MESOCOSM 1 | 6:03:40 | 0.3 | 18.49 | 45.8 | 4.29 | 6.8 | 192 | 222 | 555.3 |
| 10/11/2011 | MESOCOSM 2 | 6:04:51 | 0.3 | 18.21 | 34 | 3.2 | 6.89 | 268 | 218 | 5.3 |
| 10/11/2011 | MESOCOSM 3 | 6:05:36 | 0.3 | 17.46 | 36.9 | 3.53 | 6.9 | 324 | 217 | 3.7 |
| | | | | | | | | | | |
| 10/11/2011 | EUC03-1 | 7:34:25 | 0.5 | 20.06 | 72.5 | 6.58 | 7.58 | 252 | 118 | 2 |
| 10/11/2011 | EUC03-2 | 7:35:07 | 3 | 19.88 | 71.4 | 6.51 | 7.56 | 256 | 116 | 5.7 |
| 10/11/2011 | EUC03-3 | 7:34:25 | 0.5 | 20.06 | 72.5 | 6.58 | 7.58 | 252 | 118 | 2 |

WEELKY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/18/2011 | MESOCOSM 1 | 6:06:37 | 0.3 | 13.06 | 59.2 | 6.23 | 7.21 | 187 | 258 | 14.8 |
| 10/18/2011 | MESOCOSM 2 | 6:07:44 | 0.3 | 12.73 | 45.5 | 4.82 | 7.05 | 268 | 261 | 3.7 |
| 10/18/2011 | MESOCOSM 3 | 6:08:30 | 0.3 | 11.55 | 44 | 4.78 | 6.99 | 312 | 261 | 4.6 |
| | | | | | | | | | | |
| 10/18/2011 | EUC03-1 | 7:37:00 | 0.5 | 18.46 | 88.4 | 8.29 | 7.84 | 241 | 151 | 3 |
| 10/18/2011 | EUC03 | 7:37:29 | 1 | 18.38 | 87.4 | 8.2 | 7.83 | 242 | 151 | 3.7 |
| 10/18/2011 | EUC03 | 7:37:56 | 2 | 17.77 | 84.1 | 7.99 | 7.8 | 245 | 153 | 4 |
| 10/18/2011 | EUC03-2 | 7:38:30 | 3 | 17.34 | 80.2 | 7.69 | 7.73 | 246 | 149 | 12.2 |
| 10/18/2011 | EUC03-3 | 7:37:00 | 0.5 | 18.46 | 88.4 | 8.29 | 7.84 | 241 | 151 | 3 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/25/2011 | MESOCOSM 1 | 5:55:25 | 0.3 | 17.02 | 54.6 | 5.27 | 6.71 | 3 | 221 | 8.4 |
| 10/25/2011 | MESOCOSM 2 | 5:56:28 | 0.3 | 16.65 | 40.8 | 3.97 | 6.76 | 282 | 223 | 3.3 |
| 10/25/2011 | MESOCOSM 3 | 5:57:26 | 0.3 | 16.39 | 43.9 | 4.29 | 6.75 | 5 | 230 | 2.1 |
| | | | | | | | | | | |
| 10/25/2011 | EUC03-1 | 7:37:47 | 0.5 | 18.76 | 87 | 8.1 | 7.6 | 253 | 167 | 0.4 |
| 10/25/2011 | EUC03-2 | 7:38:56 | 2.5 | 18.02 | 68.1 | 6.44 | 7.54 | 260 | 161 | 2.6 |
| 10/25/2011 | EUC03-3 | 7:37:47 | 0.5 | 18.76 | 87 | 8.1 | 7.6 | 253 | 167 | 0.4 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/1/2011 | MESOCOSM 1 | 12:51:27 | 0.3 | 16.07 | 70.6 | 6.95 | 7.48 | 292 | 186 | 3.1 |
| 11/1/2011 | MESOCOSM 2 | 12:53:59 | 0.3 | 18.04 | 69.6 | 6.58 | 7.45 | 345 | 184 | 8.7 |
| 11/1/2011 | MESOCOSM 3 | 12:56:39 | 0.3 | 18.61 | 77.3 | 7.22 | 7.53 | 210 | 182 | 7.2 |
| | | | | | | | | | | |
| 11/1/2011 | EUC03-1 | 8:36:51 | 0.5 | 15.41 | 83.4 | 8.33 | 7.66 | 254 | 114 | 3.9 |
| 11/1/2011 | EUC03 | 8:37:35 | 1 | 15.41 | 82.8 | 8.27 | 7.63 | 254 | 115 | 3.4 |
| 11/1/2011 | EUC03 | 8:37:58 | 2 | 15.38 | 83.4 | 8.34 | 7.63 | 254 | 115 | 4.7 |
| 11/1/2011 | EUC03-2 | 8:38:36 | 2.5 | 14.83 | 78.2 | 7.91 | 7.59 | 261 | 106 | 6.8 |
| 11/1/2011 | EUC03-3 | 8:36:51 | 0.5 | 15.41 | 83.4 | 8.33 | 7.66 | 254 | 114 | 3.9 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/8/2011 | MESOCOSM 1 | 13:30:35 | 0.2 | 15.41 | 60.1 | 6.01 | 7.5 | 160 | 222 | 6.9 |
| 11/8/2011 | MESOCOSM 2 | 13:33:11 | 0.3 | 15.39 | 53.7 | 5.37 | 7.31 | 195 | 226 | 4.9 |
| 11/8/2011 | MESOCOSM 3 | 13:34:54 | 0.2 | 15.31 | 44.7 | 4.47 | 7.29 | 215 | 222 | 6.5 |
| | | | | | | | | | | |
| 11/8/2011 | EUC03-1 | 8:07:09 | 0.5 | 16.87 | 81.1 | 7.85 | 7.56 | 240 | 178 | 2.8 |
| 11/8/2011 | EUC03-2 | 8:07:56 | 2.5 | 15.08 | 78.2 | 7.86 | 7.68 | 209 | 150 | 19.6 |
| 11/8/2011 | EUC03-3 | 8:07:09 | 0.5 | 16.87 | 81.1 | 7.85 | 7.56 | 240 | 178 | 2.8 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 11/15/2011 | MESOCOSM 1 | 12:14:20 | 0.2 | 15.87 | 24.5 | 2.42 | 7.35 | 328 | 223 | 6.9 |
| 11/15/2011 | MESOCOSM 2 | 12:15:26 | 0.2 | 15.47 | 41.7 | 4.16 | 7.27 | 244 | 224 | 3.6 |
| 11/15/2011 | MESOCOSM 3 | 12:16:20 | 0.2 | 15.67 | 44.3 | 4.4 | 7.21 | 295 | 224 | 3.5 |
| | | | | | | | | | | |
| 11/15/2011 | EUC03-1 | 7:04:18 | 0.5 | 15.72 | 80.7 | 8.01 | 7.67 | 250 | 154 | 2.8 |
| 11/15/2011 | EUC03-2 | 7:05:48 | 3 | 14.74 | 88.4 | 8.96 | 7.92 | 227 | 146 | 16.8 |
| 11/15/2011 | EUC03-3 | 7:04:18 | 0.5 | 15.72 | 80.7 | 8.01 | 7.67 | 250 | 154 | 2.8 |

| WEEKLY WETLAND PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 11/29/2011 | MESOCOSM 1 | 7:27:15 | 0.4 | 2.72 | 58.9 | 7.98 | 7.35 | 320 | 221 | 5.3 |
| 11/29/2011 | MESOCOSM 2 | 7:28:12 | 0.4 | 4.06 | 52.2 | 6.82 | 7.24 | 231 | 224 | 2.9 |
| 11/29/2011 | MESOCOSM 3 | 7:28:55 | 0.3 | 3.14 | 54.4 | 7.29 | 7.16 | 270 | 226 | 3.2 |
| | | | | | | | | | | |
| 11/29/2011 | EUC03-1 | 7:17:00 | 0.5 | 11.09 | 85.7 | 9.43 | 7.6 | 244 | 219 | 0.6 |
| 11/29/2011 | EUC03-2 | 7:17:41 | 4 | 10.83 | 86.5 | 9.57 | 7.66 | 246 | 213 | 1.4 |
| 11/29/2011 | EUC03-3 | 7:17:00 | 0.5 | 11.09 | 85.7 | 9.43 | 7.6 | 244 | 219 | 0.6 |

| WEEKLY EUCHA AND SPAVINAW PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 12/6/2011 | EUC03-1 | 7:00:27 | 0.5 | 9.04 | 87.6 | 10.11 | 7.82 | 243 | 166 | 0.4 |
| 12/6/2011 | EUC03-2 | 7:03:17 | 4 | 8.63 | 86.9 | 10.13 | 7.78 | 241 | 165 | 6.7 |
| 12/6/2011 | EUC03-3 | 7:00:27 | 0.5 | 9.04 | 87.6 | 10.11 | 7.82 | 243 | 166 | 0.4 |

| MONTHLY EUCHA PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 12/13/2011 | EUC03-1 | 8:22:14 | 0.5 | 9.1 | 95.7 | 11.03 | 7.93 | 253 | 150 | 2.5 |
| 12/13/2011 | EUC03-2 | 8:25:26 | 5 | 7.86 | 93.7 | 11.13 | 8.11 | 238 | 148 | 16.1 |

| WEEKLY EUCHA AND SPAVINAW PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
| 12/27/2011 | EUC03-1 | 7:27:30 | 0.5 | 8.36 | 99.3 | 11.65 | 8.1 | 243 | 231 | 0.3 |
| 12/27/2011 | EUC03-2 | 7:29:05 | 5 | 8.19 | 99.5 | 11.72 | 8.04 | 241 | 231 | 4.9 |

WEEKLY EUCHA AND SPAVINAW PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 2/7/2012 | EUC03-1 | 7:35:17 | 0.5 | 8.68 | 95.2 | 11.08 | 8.01 | 252 | 182 | 5.7 |
| 2/7/2012 | EUC03-2 | 7:38:04 | 5.5 | 8.37 | 86.6 | 10.15 | 7.91 | 246 | 180 | 11.7 |

MONTHLY EUCHA PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 2/14/2012 | EUC03-1 | 8:15:09 | 0.5 | 5.91 | 90.5 | 11.29 | 7.93 | 241 | 176 | 1.5 |
| 2/14/2012 | EUC03-2 | 8:17:56 | 5.5 | 5.79 | 91.2 | 11.4 | 7.89 | 241 | 171 | 4.4 |

WEEKLY SPAVINAW AND EUCHA PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 2/21/2012 | EUC03-1 | 6:51:54 | 0.5 | 8.55 | 98.4 | 11.49 | 8.07 | 230 | 154 | 13 |
| 2/21/2012 | EUC03-2 | 6:54:54 | 5.5 | 8.56 | 98.9 | 11.54 | 8.11 | 230 | 150 | 16.8 |

WEEKLY EUCHA AND SPAVINAW PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/20/2012 | EUC03-1 | 6:38:55 | 0.5 | 13.89 | 88.3 | 9.12 | 7.94 | 165 | 158 | 8.8 |
| 3/20/2012 | EUC03-2 | 6:41:26 | 5.5 | 13.7 | 85.2 | 8.83 | 7.6 | 121 | 138 | 17.3 |

WEEKLY EUCHA AND SPAVINAW PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/27/2012 | EUC03-1 | 7:26:58 | 0.5 | 16.44 | 90.7 | 8.86 | 7.52 | 211 | 165 | 1.7 |
| 3/27/2012 | EUC03-2 | 7:31:37 | 5.5 | 14 | 73.9 | 7.62 | 7.47 | 213 | 169 | -0.1 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 4/24/2012 | Mesocosm 1 | 6:19:16 | 0.5 | 12.88 | 16.1 | 1.7 | 7.14 | 235 | 184 | 4.5 |
| 4/24/2012 | Mesocosm 2 | 6:20:17 | 0.5 | 13.61 | 32.3 | 3.36 | 7.1 | 183 | 190 | 28.9 |
| 4/24/2012 | Mesocosm 3 | 6:21:32 | 0.5 | 13.75 | 37.9 | 3.92 | 7.04 | 172 | 192 | 2.6 |
| | | | | | | | | | | |
| 4/24/2012 | EUC03-1 | 6:55:33 | 0.5 | 18.42 | 100.4 | 9.42 | 8.11 | 211 | 126 | 5.7 |
| 4/24/2012 | EUC03 | 6:56:41 | 1 | 18.46 | 100.5 | 9.42 | 8.2 | 211 | 126 | 5.4 |
| 4/24/2012 | EUC03 | 6:56:50 | 2 | 18.47 | 100.5 | 9.42 | 8.19 | 211 | 126 | 4.8 |
| 4/24/2012 | EUC03 | 6:57:10 | 3 | 18.46 | 100.6 | 9.43 | 8.21 | 211 | 126 | 5.5 |
| 4/24/2012 | EUC03 | 6:57:33 | 4 | 18.44 | 101 | 9.47 | 8.22 | 212 | 126 | 5.5 |
| 4/24/2012 | EUC03 | 6:58:01 | 5 | 17.49 | 87.9 | 8.4 | 8.04 | 232 | 138 | 5 |
| 4/24/2012 | EUC03-2 | 6:58:12 | 5 | 17.42 | 85.1 | 8.15 | 7.96 | 232 | 138 | 8.1 |
| 4/24/2012 | EUC03-3 | 6:55:33 | 0.5 | 18.42 | 100.4 | 9.42 | 8.11 | 211 | 126 | 5.7 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/8/2012 | MESOCOSM 1 | 6:20:23 | 0.4 | 21.2 | 9 | 0.8 | 7.22 | 260 | -8 | 9.7 |
| 5/8/2012 | MESOCOSM 2 | 6:23:51 | 0.5 | 21.4 | 21 | 1.86 | 7.09 | 167 | 48 | 34.1 |
| 5/8/2012 | MESOCOSM 3 | 6:25:09 | 0.5 | 21.44 | 29.2 | 2.58 | 7.1 | 145 | 60 | 4.5 |
| | | | | | | | | | | |
| 5/8/2012 | EUC03-1 | 8:32:52 | 1 | 23.24 | 130.6 | 11.15 | 8.5 | 194 | 62 | 12.9 |
| 5/8/2012 | EUC03 | 8:33:35 | 2 | 23.27 | 124 | 10.58 | 8.56 | 196 | 62 | 14.2 |
| 5/8/2012 | EUC03 | 8:34:39 | 3 | 23.15 | 112.3 | 9.61 | 8.51 | 201 | 65 | 15.1 |
| 5/8/2012 | EUC03 | 8:35:26 | 4 | 22.38 | 73 | 6.34 | 8.24 | 216 | 75 | 11 |
| 5/8/2012 | EUC03-2 | 8:36:33 | 5 | 20.78 | 61.6 | 5.52 | 7.97 | 240 | 82 | 7.8 |
| 5/8/2012 | EUC03-3 | 8:32:52 | 1 | 23.24 | 130.6 | 11.15 | 8.5 | 194 | 62 | 12.9 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/15/2012 | Mesocosm 1 | 6:12:24 | 0.5 | 18.86 | 0 | 0 | 7.42 | 263 | 162 | 1.9 |
| 5/15/2012 | Mesocosm 2 | 6:13:39 | 0.5 | 19.62 | 31.9 | 2.92 | 7.37 | 166 | 158 | 15.6 |
| 5/15/2012 | Mesocosm 3 | 6:14:28 | 0.5 | 19.72 | 28.4 | 2.6 | 7.31 | 141 | 160 | 10.9 |
| | | | | | | | | | | |
| 5/15/2012 | EUC03-1 | 7:09:19 | 0.5 | 23.24 | 156.6 | 13.36 | 8.23 | 160 | 54 | 21.7 |
| 5/15/2012 | EUC03 | 7:10:20 | 1 | 23.32 | 165.8 | 14.13 | 8.47 | 160 | 57 | 21.7 |
| 5/15/2012 | EUC03 | 7:11:06 | 2 | 23.34 | 160.5 | 13.67 | 8.55 | 161 | 60 | 22.9 |
| 5/15/2012 | EUC03 | 7:11:50 | 3 | 23.33 | 158.9 | 13.54 | 8.59 | 162 | 63 | 21 |
| 5/15/2012 | EUC03 | 7:12:20 | 4 | 22.91 | 141 | 12.11 | 8.47 | 185 | 71 | 16.2 |
| 5/15/2012 | EUC03-2 | 7:12:54 | 5 | 21.03 | 94 | 8.37 | 8.21 | 229 | 86 | 18.8 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/22/2012 | MESOCOSM1 | 7:08:56 | 0.316 | 17.13 | 17.9 | 1.72 | 7.81 | 222 | 135 | 6.2 |
| 5/22/2012 | MESOCOSM2 | 7:09:49 | 0.52 | 18.06 | 25.9 | 2.44 | 7.7 | 191 | 139 | 3.1 |
| 5/22/2012 | MESOCOSM3 | 7:10:41 | 0.51 | 18.18 | 21 | 1.98 | 7.6 | 173 | 143 | 4 |
| | | | | | | | | | | |
| 5/22/2012 | EUC03 | 6:58:04 | 0.505 | 23.66 | 117.2 | 9.92 | 8.08 | 181 | 109 | 11 |
| 5/22/2012 | EUC03 | 6:58:48 | 1.002 | 23.67 | 118.4 | 10.03 | 8.33 | 181 | 97 | 10.9 |
| 5/22/2012 | EUC03 | 6:59:17 | 2.009 | 23.67 | 117.9 | 9.98 | 8.37 | 181 | 97 | 10.9 |
| 5/22/2012 | EUC03 | 6:59:58 | 3.02 | 23.68 | 117.8 | 9.97 | 8.41 | 182 | 96 | 10.8 |
| 5/22/2012 | EUC03 | 7:00:15 | 3.993 | 23.51 | 105.5 | 8.96 | 8.3 | 191 | 105 | 12.6 |
| 5/22/2012 | EUC03 | 7:00:41 | 5.061 | 21.63 | 73.7 | 6.48 | 8.09 | 240 | 119 | 15 |
| 5/22/2012 | EUC03 | 7:00:53 | 5.298 | 21.32 | 73.3 | 6.49 | 7.99 | 246 | 121 | 17.6 |

WEEKLY WETLAND PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/29/2012 | Mesocosm 1 | 6:12:10 | 0.3 | 25.34 | 10.3 | 0.85 | 7 | 258 | 46 | 10 |
| 5/29/2012 | Mesocosm 2 | 6:13:11 | 0.4 | 26.13 | 23 | 1.86 | 7.06 | 194 | 58 | 1.9 |
| 5/29/2012 | Mesocosm 3 | 6:14:50 | 0.4 | 25.99 | 23.3 | 1.89 | 7.04 | 171 | 77 | 4.2 |
| | | | | | | | | | | |
| 5/29/2012 | EUC03-1 | 6:48:31 | 0.5 | 26.65 | 137.8 | 11.04 | 8.24 | 162 | 72 | 17.7 |
| 5/29/2012 | EUC03 | 6:49:46 | 1 | 26.65 | 139.4 | 11.18 | 8.31 | 162 | 75 | 18.2 |
| 5/29/2012 | EUC03 | 6:50:20 | 2 | 26.4 | 123.3 | 9.93 | 8.31 | 164 | 78 | 22.8 |
| 5/29/2012 | EUC03 | 6:50:42 | 3 | 25.94 | 104.2 | 8.46 | 8.2 | 173 | 85 | 25.1 |
| 5/29/2012 | EUC03 | 6:51:09 | 4 | 25.79 | 84.4 | 6.87 | 8.02 | 182 | 95 | 25.7 |
| 5/29/2012 | EUC03 | 6:51:34 | 5 | 24.15 | 64 | 5.37 | 7.85 | 221 | 102 | 35.1 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 6/5/2012 | MESOCOSM 1 | 6:21:51 | 0.3 | 23.93 | 16.5 | 1.39 | 6.95 | 255 | 34 | 20.5 |
| 6/5/2012 | MESOCOSM 2 | 6:22:49 | 0.4 | 24.56 | 15.5 | 1.29 | 6.96 | 200 | 49 | 2.5 |
| 6/5/2012 | MESOCOSM 3 | 6:23:49 | 0.4 | 25.11 | 16 | 1.32 | 6.98 | 163 | 68 | 6.7 |
| | | | | | | | | | | |
| 6/5/2012 | EUC03-1 | 7:12:51 | 0.5 | 26.37 | 111.3 | 8.97 | 8.16 | 170 | 65 | 5.1 |
| 6/5/2012 | EUC03 | 7:13:58 | 1 | 26.4 | 112.1 | 9.03 | 8.3 | 170 | 69 | 5.3 |
| 6/5/2012 | EUC03 | 7:14:44 | 2 | 26.34 | 113.6 | 9.16 | 8.36 | 172 | 71 | 6.2 |
| 6/5/2012 | EUC03 | 7:15:00 | 3 | 26.26 | 113 | 9.12 | 8.34 | 174 | 73 | 7 |
| 6/5/2012 | EUC03 | 7:15:24 | 4 | 25.06 | 84.3 | 6.95 | 8.15 | 199 | 83 | 8.8 |
| 6/5/2012 | EUC03 | 7:15:44 | 5 | 23.7 | 67.4 | 5.7 | 7.99 | 220 | 88 | 9.1 |
| 6/5/2012 | EUC03-2 | 7:15:57 | 5 | 23.64 | 63 | 5.34 | 7.88 | 220 | 80 | 14.4 |
| | | | | | | | | | | |
| 6/12/2012 | EUC03-1 | 8:05:48 | 0.5 | 25.99 | 117.7 | 9.55 | 8.41 | 175 | 34 | 16.4 |
| 6/12/2012 | EUC03 | 8:06:23 | 1 | 26 | 117.2 | 9.51 | 8.44 | 175 | 38 | 16.1 |
| 6/12/2012 | EUC03 | 8:06:57 | 2 | 25.99 | 115.7 | 9.38 | 8.45 | 175 | 42 | 15.1 |
| 6/12/2012 | EUC03 | 8:07:08 | 3 | 25.86 | 104.2 | 8.48 | 8.41 | 174 | 45 | 12.4 |
| 6/12/2012 | EUC03 | 8:07:39 | 4 | 25.08 | 63.6 | 5.24 | 8.19 | 202 | 51 | 8.8 |
| 6/12/2012 | EUC03-2 | 8:08:10 | 5 | 23.6 | 68 | 5.76 | 8.01 | 232 | 54 | 9.1 |
| 6/12/2012 | EUC03-3 | 8:05:48 | 0.5 | 25.99 | 117.7 | 9.55 | 8.41 | 175 | 34 | 16.4 |

| WEEKLY WETLANDS PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Site | Time | Depth | Temp | ODO% | ODO Conc | pH | SpCond | ORP | Chlorophyll |
| M/D/Y | | hh:mm:ss | m | C | % | mg/L | | uS/cm | mV | ug/L |
| 6/19/2012 | MESOCOSM 1 | 6:07:10 | 0.3 | 26.56 | 11.3 | 0.91 | 6.79 | 240 | 48 | 10.6 |
| 6/19/2012 | MESOCOSM 2 | 6:08:50 | 0.4 | 27.48 | 28.6 | 2.26 | 6.86 | 179 | 53 | 4.5 |
| 6/19/2012 | MESOCOSM 3 | 6:09:52 | 0.4 | 27.7 | 18.5 | 1.45 | 6.87 | 172 | 69 | 4.4 |
| | | | | | | | | | | |
| 6/19/2012 | EUC03-1 | 6:58:32 | 0.5 | 28.27 | 145.4 | 11.33 | 8.17 | 146 | 27 | 11.8 |
| 6/19/2012 | EUC03 | 6:59:01 | 1 | 28.29 | 145.8 | 11.35 | 8.23 | 147 | 32 | 11.8 |
| 6/19/2012 | EUC03 | 6:59:53 | 2 | 28.19 | 130.9 | 10.21 | 8.19 | 148 | 37 | 13.5 |
| 6/19/2012 | EUC03 | 7:00:21 | 3 | 25.89 | 24.5 | 1.99 | 7.9 | 198 | 44 | 11.1 |
| 6/19/2012 | EUC03 | 7:00:49 | 4 | 25.02 | 5.4 | 0.45 | 7.68 | 211 | 24 | 13.8 |
| 6/19/2012 | EUC03-2 | 7:00:59 | 5 | 24.88 | 3.8 | 0.31 | 7.61 | 210 | 10 | 19.6 |
| 6/19/2012 | EUC03-3 | 6:58:32 | 0.5 | 28.27 | 145.4 | 11.33 | 8.17 | 146 | 27 | 11.8 |

| WEEKLY WETLANDS PROFILES | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date | Site | Time | Depth | Temp | ODO% | ODO Conc | pH | SpCond | ORP | Chlorophyll |
| M/D/Y | | hh:mm:ss | m | C | % | mg/L | | uS/cm | mV | ug/L |
| 6/26/2012 | Mesocosm 3 | 6:04:28 | 0.4 | 28.65 | 16.8 | 1.3 | 6.74 | 177 | 191 | 3 |
| 6/26/2012 | Mesocosm 2 | 6:05:24 | 0.4 | 27.41 | 10.6 | 0.84 | 6.79 | 199 | 180 | 2.9 |
| 6/26/2012 | Mesocosm 1 | 6:07:16 | 0.2 | 28.02 | 5.4 | 0.42 | 6.71 | 267 | 29 | 14.4 |
| | | | | | | | | | | |
| 6/26/2012 | EUC03-1 | 6:46:32 | 0.5 | 30.37 | 176.1 | 13.23 | 8.44 | 134 | 48 | 8.4 |
| 6/26/2012 | EUC03 | 6:47:30 | 1 | 30.37 | 177.4 | 13.32 | 8.47 | 133 | 56 | 8.7 |
| 6/26/2012 | EUC03 | 6:48:06 | 2 | 29.06 | 160.6 | 12.34 | 8.5 | 141 | 61 | 10.8 |
| 6/26/2012 | EUC03 | 6:48:37 | 3 | 28.6 | 121.7 | 9.42 | 8.29 | 156 | 66 | 14.3 |
| 6/26/2012 | EUC03 | 6:49:00 | 4 | 27.61 | 82.6 | 6.51 | 8.06 | 182 | 68 | 15.3 |
| 6/26/2012 | EUC03-2 | 6:49:47 | 4.5 | 27.04 | 43.7 | 3.48 | 7.71 | 206 | 42 | 25.8 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/11/2012 | MESOCOSM 1 | 7:45:20 | 0.3 | 26.62 | 31.2 | 2.5 | 7.29 | 303 | 34 | 9.4 |
| 7/11/2012 | MESOCOSM 2 | 7:46:46 | 0.4 | 25.6 | 19.4 | 1.58 | 7.18 | 250 | 37 | 2.9 |
| 7/11/2012 | MESOCOSM 3 | 7:47:30 | 0.4 | 26.6 | 14.4 | 1.16 | 7.16 | 234 | 37 | 3.5 |
| | | | | | | | | | | |
| 7/11/2012 | EUC03-1 | 7:31:45 | 0.5 | 28.36 | 57.9 | 4.5 | 7.75 | 172 | 0 | 16.2 |
| 7/11/2012 | EUC03 | 7:32:55 | 1 | 28.39 | 54.6 | 4.25 | 7.79 | 172 | -7 | 16.5 |
| 7/11/2012 | EUC03 | 7:33:59 | 2 | 28.38 | 55.5 | 4.31 | 7.76 | 172 | -4 | 16.6 |
| 7/11/2012 | EUC03 | 7:34:15 | 3 | 28.39 | 55.6 | 4.32 | 7.75 | 174 | -4 | 17.4 |
| 7/11/2012 | EUC03-2 | 7:34:54 | 4 | 27.72 | 24.4 | 1.92 | 7.65 | 199 | -2 | 18.4 |
| 7/11/2012 | EUC03-3 | 7:31:45 | 0.5 | 28.36 | 57.9 | 4.5 | 7.75 | 172 | 0 | 16.2 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/17/2012 | Mesocosm 1 | 6:17:25 | 0.3 | 28.31 | 23.9 | 1.86 | 7.03 | 327 | 126 | 5.2 |
| 7/17/2012 | Mesocosm 2 | 6:14:56 | 0.3 | 28.02 | 21.2 | 1.66 | 7.5 | 262 | 134 | 2.1 |
| 7/17/2012 | Mesocosm 3 | 6:16:02 | 0.3 | 28.59 | 17.1 | 1.32 | 7.22 | 248 | 127 | 3 |
| | | | | | | | | | | |
| 7/17/2012 | EUC03-1 | 6:51:34 | 0.5 | 29.67 | 111.2 | 8.45 | 8.28 | 156 | 36 | 11.7 |
| 7/17/2012 | EUC03 | 6:52:16 | 1 | 29.67 | 111.3 | 8.46 | 8.33 | 156 | 39 | 11.2 |
| 7/17/2012 | EUC03 | 6:52:49 | 2 | 29.67 | 111.3 | 8.45 | 8.34 | 156 | 42 | 12 |
| 7/17/2012 | EUC03 | 6:53:37 | 3 | 29.66 | 106.1 | 8.06 | 8.33 | 158 | 44 | 14.3 |
| 7/17/2012 | EUC03 | 6:54:19 | 4 | 28.51 | 51.1 | 3.96 | 7.98 | 206 | 49 | 21.4 |
| 7/17/2012 | EUC03-2 | 6:54:42 | 4 | 28.38 | 41.1 | 3.19 | 7.81 | 215 | -14 | 28.9 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 7/31/2012 | Mesocosm 1 | 7:11:18 | 0.3 | 28.92 | 17.6 | 1.36 | 7.42 | 276 | 48 | 9.9 |
| 7/31/2012 | Mesocosm 2 | 7:12:23 | 0.4 | 29.89 | 22.7 | 1.72 | 7.43 | 183 | 48 | 3.4 |
| 7/31/2012 | Mesocosm 3 | 7:13:49 | 0.4 | 30.23 | 12.3 | 0.93 | 7.29 | 178 | 48 | 2 |
| | | | | | | | | | | |
| 7/31/2012 | EUC03-1 | 6:57:09 | 0.5 | 31 | 96.8 | 7.19 | 8 | 144 | 4 | 11.9 |
| 7/31/2012 | EUC03 | 6:59:51 | 1 | 30.99 | 97.3 | 7.23 | 8.17 | 145 | 30 | 12.4 |
| 7/31/2012 | EUC03 | 7:00:20 | 2 | 30.99 | 96.6 | 7.18 | 8.2 | 146 | 32 | 12.9 |
| 7/31/2012 | EUC03 | 7:00:52 | 3 | 30.2 | 71.6 | 5.39 | 8.01 | 177 | 37 | 17.6 |
| 7/31/2012 | EUC03-2 | 7:01:01 | 3.5 | 30.09 | 70.1 | 5.29 | 7.96 | 175 | 34 | 20.6 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/7/2012 | Mesocosm 1 | 6:20:26 | 0.3 | 25.55 | 14.3 | 1.17 | 7.02 | 233 | 161 | 3.4 |
| 8/7/2012 | Mesocosm 2 | 6:21:33 | 0.5 | 26.57 | 18 | 1.44 | 7 | 170 | 160 | 1.6 |
| 8/7/2012 | Mesocosm 3 | 6:22:28 | 0.5 | 27.04 | 12.5 | 1 | 6.98 | 165 | 159 | 1.2 |
| | | | | | | | | | | |
| 8/7/2012 | EUC03-1 | 6:55:27 | 0.5 | 29.21 | 77.1 | 5.91 | 7.83 | 151 | 4 | 13.6 |
| 8/7/2012 | EUC03 | 6:55:58 | 1 | 29.23 | 76.1 | 5.82 | 7.83 | 151 | 9 | 13.7 |
| 8/7/2012 | EUC03 | 6:56:42 | 2 | 29.22 | 78.7 | 6.03 | 7.81 | 154 | 15 | 14.9 |
| 8/7/2012 | EUC03-2 | 6:57:54 | 3 | 28.95 | 52.9 | 4.07 | 7.65 | 176 | 11 | 20.9 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/14/2012 | MESOCOSM 1 | 8:57:28 | 0.5 | 22.9 | 11.1 | 0.95 | 7.26 | 253 | 49 | 3.6 |
| 8/14/2012 | MESOCOSM 2 | 8:58:41 | 0.5 | 23.13 | 27.8 | 2.38 | 7.27 | 184 | 52 | 29.6 |
| 8/14/2012 | MESOCOSM 3 | 8:59:30 | 0.4 | 23.75 | 24.6 | 2.08 | 7.25 | 170 | 56 | 4.7 |
| | | | | | | | | | | |
| 8/14/2012 | EUC03-1 | 8:15:29 | 0.5 | 27.01 | 73.6 | 5.86 | 7.91 | 159 | 17 | 14.4 |
| 8/14/2012 | EUC03 | 8:17:19 | 1 | 27.01 | 73.7 | 5.87 | 7.88 | 160 | 25 | 14.6 |
| 8/14/2012 | EUC03 | 8:18:16 | 2 | 26.87 | 62.3 | 4.97 | 7.78 | 166 | 31 | 14.9 |
| 8/14/2012 | EUC03-2 | 8:18:30 | 3 | 26.11 | 59.9 | 4.85 | 7.74 | 194 | 33 | 16.2 |
| 8/14/2012 | EUC03-3 | 8:15:29 | 0.5 | 27.01 | 73.6 | 5.86 | 7.91 | 159 | 17 | 14.4 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/21/2012 | MESOCOSM 1 | 7:22:10 | 0.4 | 20.66 | 27.3 | 2.45 | 7.48 | 277 | 54 | 8.2 |
| 8/21/2012 | MESOCOSM 2 | 7:23:07 | 0.4 | 21.2 | 30.7 | 2.72 | 7.47 | 191 | 53 | 1.9 |
| 8/21/2012 | MESOCOSM 3 | 7:23:56 | 0.4 | 21.6 | 18.9 | 1.66 | 7.38 | 174 | 54 | 474.6 |
| | | | | | | | | | | |
| 8/21/2012 | EUC03-1 | 6:52:27 | 0.5 | 25.16 | 87.2 | 7.19 | 7.6 | 153 | 114 | 11.8 |
| 8/21/2012 | EUC03 | 6:53:46 | 1 | 25.17 | 85.7 | 7.06 | 7.68 | 154 | 111 | 12.9 |
| 8/21/2012 | EUC03-2 | 6:54:28 | 2 | 24.78 | 70.2 | 5.83 | 7.59 | 168 | 118 | 21.5 |
| 8/21/2012 | EUC03-3 | 6:52:27 | 0.5 | 25.16 | 87.2 | 7.19 | 7.6 | 153 | 114 | 11.8 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | 8/28/2012 Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/28/2012 | Mesocosm 1 | 6:11:05 | 0.4 | 22.73 | 17.2 | 1.48 | 7.14 | 204 | 152 | 2.3 |
| 8/28/2012 | Mesocosm 2 | 6:11:52 | 0.6 | 23.42 | 17.3 | 1.47 | 7.08 | 168 | 148 | 3.8 |
| 8/28/2012 | Mesocosm 3 | 6:12:40 | 0.6 | 23.77 | 10.7 | 0.9 | 7.06 | 152 | 146 | 30.4 |
| | | | | | | | | | | |
| 8/28/2012 | EUC03-1 | 6:39:02 | 0.5 | 24.66 | 43.2 | 3.59 | 7.27 | 172 | 127 | 9.6 |
| 8/28/2012 | EUC03 | 6:39:53 | 1 | 24.67 | 42.2 | 3.51 | 7.3 | 171 | 126 | 8.4 |
| 8/28/2012 | EUC03 | 6:40:27 | 2 | 23.81 | 39.1 | 3.3 | 7.26 | 202 | 129 | 12 |
| 8/28/2012 | EUC03-2 | 6:40:50 | 2.5 | 23.32 | 38.4 | 3.27 | 7.22 | 215 | 108 | 14.2 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/4/2012 | MESOCOSM 1 | 7:14:33 | 0.3 | 26.35 | 19.4 | 1.56 | 7.33 | 242 | 57 | 3.6 |
| 9/4/2012 | MESOCOSM 2 | 7:15:43 | 0.5 | 27.35 | 15.3 | 1.21 | 7.28 | 185 | 54 | 3 |
| 9/4/2012 | MESOCOSM 3 | 7:16:34 | 0.5 | 27.83 | 11.2 | 0.88 | 7.23 | 165 | 51 | 159.8 |
| | | | | | | | | | | |
| 9/4/2012 | EUC03-1 | 6:44:38 | 0.5 | 28.66 | 110.2 | 8.52 | 7.24 | 173 | 147 | 11 |
| 9/4/2012 | EUC03 | 6:45:28 | 1 | 28.67 | 108.2 | 8.37 | 7.25 | 174 | 141 | 11.7 |
| 9/4/2012 | EUC03-2 | 6:46:29 | 2 | 24.91 | 56.5 | 4.67 | 7.12 | 216 | 149 | 23 |
| 9/4/2012 | EUC03-3 | 6:44:38 | 0.5 | 28.66 | 110.2 | 8.52 | 7.24 | 173 | 147 | 11 |

WEEKLY WETLANDS PROFILES

| Date M/D/Y | Site | Time hh:mm:ss | Depth m | Temp C | ODO% % | ODO Conc mg/L | pH | SpCond uS/cm | ORP mV | Chlorophyll ug/L |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/11/2012 | MESOCOSM 1 | 8:09:40 | 0.3 | 18.96 | 36.8 | 3.41 | 7.42 | 300 | 59 | 14.4 |
| 9/11/2012 | MESOCOSM 2 | 8:10:37 | 0.5 | 19.13 | 34.5 | 3.19 | 7.4 | 221 | 47 | 70.9 |
| 9/11/2012 | MESOCOSM 3 | 8:11:35 | 0.5 | 19.76 | 22.2 | 2.03 | 7.35 | 199 | 41 | 71.3 |
| | | | | | | | | | | |
| 9/11/2012 | EUC03-1 | 7:53:54 | 0.5 | 23.43 | 101.2 | 8.61 | 7.6 | 225 | 34 | 18.4 |
| 9/11/2012 | EUC03 | 7:54:57 | 1 | 23.39 | 95.6 | 8.13 | 7.59 | 230 | 36 | 24.1 |
| 9/11/2012 | EUC03-2 | 7:55:11 | 2 | 21.33 | 86.5 | 7.65 | 7.55 | 256 | 39 | 29.6 |
| 9/11/2012 | EUC03-3 | 7:53:54 | 0.5 | 23.43 | 101.2 | 8.61 | 7.6 | 225 | 34 | 18.4 |

# APPENDIX D: Laboratory Data Collected and Provided by City of Tulsa.

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Alkalinity, Total | 96 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Alkalinity, Total | 92 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Alkalinity, Total | 81 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Alkalinity, Total | 75 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Chlorophyll a | 21 | mg/m3 |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Chlorophyll a | 18 | mg/m3 |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Chlorophyll a | 45 | mg/m3 |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Chlorophyll a | 41 | mg/m3 |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Conductance | 220 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Conductance | 220 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Conductance | 220 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Conductance | 210 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Conductance | 210 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Conductance | 190 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Conductance | 160 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Conductance | 160 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Conductance | 150 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Conductance | 130 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Conductance | 160 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Conductance | 140 | µmho/cm |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Depth | 0.5 | M |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Hardness, Total | 120 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Hardness, Total | 98 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Hardness, Total | 91 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Hardness, Total | 76 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water | EUC03-1 | 5/1/2012 | 07:15 | Nitrogen, | BDL( 0.10) | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Ammonia | | |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Nitrogen, Ammonia | 0.1 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Nitrogen, Ammonia | 0.11 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Nitrogen, Kjeldahl, Total | 0.54 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Nitrogen, Kjeldahl, Total | 0.51 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Nitrogen, Kjeldahl, Total | | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Nitrogen, Kjeldahl, Total | BDL(0.50) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Nitrogen, Kjeldahl, Total | 0.6 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Nitrogen, Kjeldahl, Total | 0.63 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Nitrogen, Kjeldahl, Total | 0.7 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Nitrogen, Kjeldahl, Total | 0.78 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Nitrogen, Kjeldahl, Total | 0.84 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Nitrogen, Kjeldahl, Total | 0.93 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Nitrogen, Nitrate-Nitrite | 3.4 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Nitrogen, Nitrate-Nitrite | 2.8 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Nitrogen, Nitrate-Nitrite | 2.7 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Nitrogen, Nitrate-Nitrite | 2.1 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Nitrogen, Nitrate-Nitrite | 1.8 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Nitrogen, Nitrate-Nitrite | 1.5 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Nitrogen, Nitrate-Nitrite | 1.2 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Nitrogen, Nitrate-Nitrite | 1.1 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Nitrogen, Nitrate-Nitrite | 0.69 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Nitrogen, Nitrate-Nitrite | 0.75 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Nitrogen, Nitrate-Nitrite | 0.81 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Nitrogen, Nitrate-Nitrite | 0.42 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Oxidation Reduction Potential | 16 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Oxidation Reduction Potential | 110 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Oxidation Reduction Potential | 94 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Oxidation Reduction Potential | 62 | mV |
| Raw Water | EUC03-1 | 5/15/2012 | 07:10 | Oxidation | 54 | mV |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Reduction Potential | | |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Oxidation Reduction Potential | 110 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Oxidation Reduction Potential | 72 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Oxidation Reduction Potential | 65 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Oxidation Reduction Potential | 34 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Oxidation Reduction Potential | 27 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Oxidation Reduction Potential | 48 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Oxidation Reduction Potential | 0 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Oxidation Reduction Potential | 36 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Oxidation Reduction Potential | 4 | mV |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Oxygen Saturation | 120 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Oxygen Saturation | 130 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Oxygen Saturation | 120 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Oxygen Saturation | 58 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Oxygen Saturation | 110 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Oxygen Saturation | 97 | % |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Oxygen, Dissolved | 11 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Oxygen, Dissolved | 11 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Oxygen, Dissolved | 13 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Oxygen, Dissolved | 9.9 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Oxygen, Dissolved | 11 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Oxygen, Dissolved | 9 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Oxygen, Dissolved | 9.6 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Oxygen, Dissolved | 11 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Oxygen, Dissolved | 13 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Oxygen, Dissolved | 4.5 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Oxygen, Dissolved | 8.5 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Oxygen, Dissolved | 7.2 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | pH | 8 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | pH | 8.4 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | pH | 8.1 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | pH | 8.1 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | pH | 8.2 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | pH | 8.5 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | pH | 8.2 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | pH | 8.1 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | pH | 8.2 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | pH | 8.2 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | pH | 8.4 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | pH | 8.2 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | pH | 8.4 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | pH | 7.8 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | pH | 8.3 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | pH | 8 | S.U. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Phosphorus, Total | 0.056 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Phosphorus, Total | 0.028 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Phosphorus, Total | 0.029 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Phosphorus, Total | 0.043 | mg/L |
| Raw Water | EUC03-1 | 5/1/2012 | 07:15 | Phosphorus, | 0.021 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Total | | |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Phosphorus, Total | 0.03 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Phosphorus, Total | 0.037 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Phosphorus, Total | 0.039 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Phosphorus, Total | 0.044 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Phosphorus, Total | 0.032 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Phosphorus, Total | 0.034 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Phosphorus, Total | 0.05 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Phosphorus, Total | 0.052 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Phosphorus, Total | 0.073 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Phosphorus, Total | 0.04 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Phosphorus, Total | 0.08 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Phosphorus-ortho, Dissolved | 0.012 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Silicon, Dissolved | 1.8 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Silicon, Dissolved | 1.1 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Silicon, Dissolved | 2.2 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Silicon, Dissolved | 3.8 | mg/L |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Temperature, Air | 6.9 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Temperature, Air | 6.5 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Temperature, Air | 7 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Temperature, Air | 22 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/22/2012 | 06:57 | Temperature, Air | 9.3 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Temperature, Air | 20 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Temperature, Air | 24 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Temperature, Air | 22 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Temperature, Air | 24 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Temperature, Air | 23 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Temperature, Air | 22 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Temperature, Air | 25 | Deg. C. |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Temperature, Water | 21 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Temperature, Water | 19 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 4/17/2012 | 07:14 | Temperature, Water | 18 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 4/24/2012 | 06:55 | Temperature, Water | 18 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 5/1/2012 | 07:15 | Temperature, Water | 22 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Temperature, Water | 23 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 5/15/2012 | 07:10 | Temperature, Water | 23 | DEG C |
| Raw Water | EUC03-1 | 5/22/2012 | 06:57 | Temperature, | 24 | DEG C |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Water | | |
| Raw Water (Lake Eucha) | EUC03-1 | 5/29/2012 | 06:48 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 6/5/2012 | 07:11 | Temperature, Water | 26 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Temperature, Water | 26 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 6/19/2012 | 06:57 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 6/26/2012 | 06:45 | Temperature, Water | 30 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 7/17/2012 | 06:50 | Temperature, Water | 30 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 7/31/2012 | 06:56 | Temperature, Water | 31 | DEG C |
| Raw Water (Lake Eucha) | EUC03-1 | 4/3/2012 | 07:25 | Turbidity | No Data | NTU |
| Raw Water (Lake Eucha) | EUC03-1 | 4/10/2012 | 08:45 | Turbidity | 3.7 | NTU |
| Raw Water (Lake Eucha) | EUC03-1 | 5/8/2012 | 08:32 | Turbidity | 2.8 | NTU |
| Raw Water (Lake Eucha) | EUC03-1 | 6/12/2012 | 08:04 | Turbidity | 4.9 | NTU |
| Raw Water (Lake Eucha) | EUC03-1 | 7/11/2012 | 07:31 | Turbidity | 11 | NTU |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Conductance | 270 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Conductance | 240 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Conductance | 220 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Conductance | No Data | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Conductance | 260 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Conductance | 220 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Conductance | 260 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Conductance | 260 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Conductance | 210 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Conductance | 240 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Conductance | 270 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Conductance | 300 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Conductance | 330 | µmho/cm |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Conductance | 280 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Depth | 0.6 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Depth | 0.32 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Depth | 0.2 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Nitrogen, Ammonia | 2.2 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Nitrogen, Ammonia | 0.15 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water | Mesocosm 1 | 7/11/2012 | 07:13 | Nitrogen, | BDL( 0.10) | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Ammonia | | |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Nitrogen, Kjeldahl, Total | 2.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Nitrogen, Kjeldahl, Total | 1.6 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Nitrogen, Kjeldahl, Total | 3.2 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Nitrogen, Kjeldahl, Total | 2.7 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Nitrogen, Kjeldahl, Total | 0.98 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Nitrogen, Kjeldahl, Total | | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Nitrogen, Kjeldahl, Total | 2.6 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Nitrogen, Kjeldahl, Total | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Nitrogen, Kjeldahl, Total | 3.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Nitrogen, Kjeldahl, Total | 1.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Nitrogen, Kjeldahl, Total | 1.6 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Nitrogen, Kjeldahl, Total | 3.5 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Nitrogen, Kjeldahl, Total | 3.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Nitrogen, Nitrate-Nitrite | 0.35 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Oxidation Reduction Potential | 180 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Oxidation Reduction Potential | 98 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Oxidation Reduction Potential | No Data | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Oxidation Reduction Potential | 160 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Oxidation Reduction Potential | 46 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Oxidation Reduction Potential | 34 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Oxidation Reduction Potential | 150 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Oxidation Reduction Potential | 48 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Oxidation Reduction Potential | 29 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Oxidation Reduction Potential | 34 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Oxidation Reduction Potential | 48 | mV |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Oxygen Saturation | 13 | % |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Oxygen Saturation | 31 | % |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Oxygen Saturation | 24 | % |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Oxygen Saturation | 18 | % |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Oxygen, Dissolved | 1.7 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Oxygen, Dissolved | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Oxygen, Dissolved | 1.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Oxygen, Dissolved | 2.5 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Oxygen, Dissolved | 1.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Oxygen, Dissolved | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | pH | 7.3 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | pH | 7.1 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | pH | 7.8 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | pH | No Data | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | pH | 7.4 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | pH | 7.8 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | pH | 7.2 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | pH | 6.8 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | pH | 6.7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | pH | 7.3 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | pH | 7.4 | S.U. |
| Raw Water | Mesocosm 1 | 4/17/2012 | 06:45 | Phosphorus, | 0.04 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Total | | |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Phosphorus, Total | 0.15 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Phosphorus, Total | 0.18 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Phosphorus, Total | 0.46 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Phosphorus, Total | 0.47 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Phosphorus, Total | 0.19 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Phosphorus, Total | 0.42 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Phosphorus, Total | 0.48 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Phosphorus, Total | 0.16 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Phosphorus, Total | 0.27 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Phosphorus, Total | 0.27 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Phosphorus, Total | 0.09 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Phosphorus, Total | 0.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Phosphorus, Total | 0.2 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Phosphorus-ortho, Dissolved | 0.17 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Phosphorus-ortho, Dissolved | 0.083 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Phosphorus-ortho, Dissolved | 0.11 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Phosphorus-ortho, Dissolved | 0.13 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Phosphorus-ortho, Dissolved | 0.072 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Phosphorus-ortho, Dissolved | 0.044 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Phosphorus-ortho, Dissolved | 0.052 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Phosphorus-ortho, Dissolved | 0.04 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Phosphorus-ortho, Dissolved | 0.026 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Phosphorus-ortho, Dissolved | 0.03 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Phosphorus-ortho, Dissolved | 0.019 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Phosphorus-ortho, Dissolved | 0.009 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Phosphorus-ortho, Dissolved | 0.012 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Phosphorus-ortho, Dissolved | 0.012 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Temperature, Air | No data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Temperature, Air | 14 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Temperature, Air | 1.9 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/17/2012 | 06:45 | Temperature, Water | 13 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 4/24/2012 | 06:18 | Temperature, Water | 13 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/1/2012 | 06:45 | Temperature, Water | 20 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/8/2012 | 06:20 | Temperature, Water | No Data | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/15/2012 | 06:20 | Temperature, Water | 19 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/22/2012 | 07:10 | Temperature, Water | 17 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 5/29/2012 | 06:15 | Temperature, Water | 25 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/5/2012 | 07:38 | Temperature, Water | 24 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/12/2012 | 06:20 | Temperature, Water | 24 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/19/2012 | 06:11 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 6/26/2012 | 06:17 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/11/2012 | 07:13 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/17/2012 | 06:25 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 1 | 7/31/2012 | 06:50 | Temperature, Water | 29 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Conductance | 200 | µmho/cm |
| Raw Water | Mesocosm 2 | 4/24/2012 | 06:20 | Conductance | 180 | µmho/cm |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | | | |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Conductance | No Data | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Conductance | 190 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Conductance | 190 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Conductance | 200 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Conductance | 200 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Conductance | 250 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Conductance | 260 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Depth | 0.6 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Depth | 0.52 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Depth | 0.4 | M |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Nitrogen, Ammonia | 0.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Nitrogen, Kjeldahl, Total | 0.51 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Nitrogen, Kjeldahl, Total | 2.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Nitrogen, Kjeldahl, Total | 0.89 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Nitrogen, Kjeldahl, Total | 0.71 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Nitrogen, Kjeldahl, Total | | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Nitrogen, Kjeldahl, Total | 0.98 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Nitrogen, Kjeldahl, Total | 0.91 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Nitrogen, Kjeldahl, Total | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Nitrogen, Kjeldahl, Total | 1.2 | mg/L |
| Raw Water | Mesocosm 2 | 7/17/2012 | 06:27 | Nitrogen, | 1.5 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Kjeldahl, Total | | |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Nitrogen, Kjeldahl, Total | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Nitrogen, Nitrate-Nitrite | 1.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Oxidation Reduction Potential | 190 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Oxidation Reduction Potential | 100 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Oxidation Reduction Potential | No Data | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Oxidation Reduction Potential | 160 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Oxidation Reduction Potential | 58 | mV |
| Raw Water | Mesocosm 2 | 6/5/2012 | 06:40 | Oxidation | 49 | mV |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Reduction Potential | | |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Oxidation Reduction Potential | 53 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Oxidation Reduction Potential | 180 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Oxidation Reduction Potential | 37 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Oxidation Reduction Potential | 48 | mV |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Oxygen Saturation | 28 | % |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Oxygen Saturation | 19 | % |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Oxygen Saturation | 21 | % |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Oxygen Saturation | 23 | % |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Oxygen, Dissolved | 2.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Oxygen, Dissolved | 2.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Oxygen, Dissolved | 1.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Oxygen, Dissolved | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Oxygen, Dissolved | 2.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Oxygen, Dissolved | 2.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Oxygen, Dissolved | 1.6 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Oxygen, Dissolved | 1.7 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Oxygen, Dissolved | 1.7 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | pH | 7.2 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | pH | 7.1 | S.U. |
| Raw Water | Mesocosm 2 | 5/1/2012 | 06:47 | pH | 7.6 | S.U. |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | | | |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | pH | No Data | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | pH | 7.4 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | pH | 7.7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | pH | 7.1 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | pH | 7.1 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | pH | 6.9 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | pH | 6.8 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | pH | 7.2 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | pH | 7.5 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | pH | 7.4 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Phosphorus, Total | 0.037 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Phosphorus, Total | 0.03 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Phosphorus, Total | 0.042 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Phosphorus, Total | 0.041 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Phosphorus, Total | 0.033 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Phosphorus, Total | 0.026 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Phosphorus, Total | 0.029 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Phosphorus, Total | 0.028 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Phosphorus, Total | 0.018 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Phosphorus, Total | 0.022 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Phosphorus, Total | 0.047 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Phosphorus, Total | 0.02 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Phosphorus, Total | 0.027 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Phosphorus, Total | 0.013 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Phosphorus-ortho, Dissolved | 0.026 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Phosphorus-ortho, Dissolved | 0.015 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Phosphorus-ortho, Dissolved | 0.016 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Phosphorus-ortho, Dissolved | 0.008 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Phosphorus-ortho, Dissolved | 0.008 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Phosphorus-ortho, Dissolved | 0.011 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Phosphorus-ortho, Dissolved | 0.009 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Phosphorus-ortho, Dissolved | 0.007 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Phosphorus-ortho, Dissolved | 0.006 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Phosphorus-ortho, Dissolved | 0.007 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Temperature, Air | No data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/8/2012 | 06:22 | Temperature, Air | 14 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Temperature, Air | 16 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/17/2012 | 06:47 | Temperature, Water | 14 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 4/24/2012 | 06:20 | Temperature, Water | 14 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/1/2012 | 06:47 | Temperature, Water | 21 | DEG C |
| Raw Water | Mesocosm 2 | 5/8/2012 | 06:22 | Temperature, | No Data | DEG C |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Water | | |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/15/2012 | 06:22 | Temperature, Water | 20 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/22/2012 | 07:10 | Temperature, Water | 18 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 5/29/2012 | 06:17 | Temperature, Water | 26 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/5/2012 | 06:40 | Temperature, Water | 25 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/12/2012 | 06:22 | Temperature, Water | 24 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/19/2012 | 06:13 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 6/26/2012 | 06:19 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/11/2012 | 07:15 | Temperature, Water | 26 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/17/2012 | 06:27 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 2 | 7/31/2012 | 06:52 | Temperature, Water | 30 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Conductance | 190 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Conductance | 150 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Conductance | No Data | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Conductance | 140 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Conductance | 160 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Conductance | 170 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Conductance | 230 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Conductance | 250 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Conductance | 180 | µmho/cm |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Depth | 0.6 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Depth | 0.5 | M |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Depth | 0.51 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Depth | 0.5 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Depth | 0.3 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Depth | 0.4 | M |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Nitrogen, Ammonia | BDL( 0.10) | mg/L |
| Raw Water | Mesocosm 3 | 4/17/2012 | 06:49 | Nitrogen, | 3.2 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Kjeldahl, Total | | |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Nitrogen, Kjeldahl, Total | 0.55 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Nitrogen, Kjeldahl, Total | 0.64 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Nitrogen, Kjeldahl, Total | 0.71 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Nitrogen, Kjeldahl, Total | 0.53 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Nitrogen, Kjeldahl, Total | | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Nitrogen, Kjeldahl, Total | 1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Nitrogen, Kjeldahl, Total | BDL( 0.50) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Nitrogen, Kjeldahl, Total | 0.67 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Nitrogen, Kjeldahl, Total | 1.1 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Nitrogen, Kjeldahl, Total | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Nitrogen, Kjeldahl, Total | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Nitrogen, Kjeldahl, Total | 1.5 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Nitrogen, Nitrate-Nitrite | 0.51 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Nitrogen, Nitrate-Nitrite | BDL(0.20) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Nitrogen, Nitrate-Nitrite | BDL(0.2) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Oxidation Reduction Potential | 190 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Oxidation Reduction Potential | 100 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Oxidation Reduction Potential | No Data | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Oxidation Reduction Potential | 160 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Oxidation Reduction Potential | 77 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Oxidation Reduction Potential | 68 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Oxidation Reduction Potential | 140 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Oxidation Reduction Potential | 69 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Oxidation Reduction Potential | 190 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Oxidation Reduction Potential | 37 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Oxidation Reduction Potential | 130 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Oxidation Reduction Potential | 48 | mV |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Oxygen Saturation | 16 | % |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Oxygen Saturation | 14 | % |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Oxygen Saturation | 17 | % |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Oxygen Saturation | 12 | % |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Oxygen, Dissolved | 2.6 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Oxygen, Dissolved | 2 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Oxygen, Dissolved | 1.9 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Oxygen, Dissolved | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Oxygen, Dissolved | 1.4 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Oxygen, Dissolved | 1.5 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Oxygen, Dissolved | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Oxygen, Dissolved | 1.2 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Oxygen, Dissolved | 1.3 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Oxygen, Dissolved | BDL(1.0) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | pH | 7.1 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | pH | 7.5 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | pH | No Data | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | pH | 7.3 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | pH | 7.6 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | pH | 7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | pH | 6.9 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | pH | 6.7 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | pH | 7.2 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | pH | 7.2 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | pH | 7.3 | S.U. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Phosphorus, Total | 0.24 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Phosphorus, Total | 0.06 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Phosphorus, Total | 0.047 | mg/L |
| Raw Water | Mesocosm 3 | 5/8/2012 | 06:24 | Phosphorus, | 0.038 | mg/L |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| (Lake Eucha) | | | | Total | | |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Phosphorus, Total | 0.064 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Phosphorus, Total | 0.024 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Phosphorus, Total | 0.031 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Phosphorus, Total | 0.053 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Phosphorus, Total | 0.02 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Phosphorus, Total | 0.011 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Phosphorus, Total | 0.038 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Phosphorus, Total | 0.011 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Phosphorus, Total | 0.029 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Phosphorus, Total | 0.011 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Phosphorus-ortho, Dissolved | 0.025 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Phosphorus-ortho, Dissolved | 0.014 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Phosphorus-ortho, Dissolved | 0.016 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Phosphorus-ortho, Dissolved | 0.006 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Phosphorus-ortho, Dissolved | 0.006 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Phosphorus-ortho, Dissolved | 0.006 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Phosphorus-ortho, Dissolved | 0.01 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Phosphorus-ortho, Dissolved | 0.007 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Phosphorus-ortho, Dissolved | 0.01 | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Phosphorus-ortho, Dissolved | BDL(0.0050) | mg/L |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Temperature, Air | No Data | Deg. C. |

| Plant | Sample ID | Sample Date | Time | Analyte | Result | Units |
|---|---|---|---|---|---|---|
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Temperature, Air | 17 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Temperature, Air | 14 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Temperature, Air | 11 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Temperature, Air | 0 | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Temperature, Air | No Data | Deg. C. |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/17/2012 | 06:49 | Temperature, Water | 15 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 4/24/2012 | 06:22 | Temperature, Water | 14 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/1/2012 | 06:49 | Temperature, Water | 21 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/8/2012 | 06:24 | Temperature, Water | No Data | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/15/2012 | 06:24 | Temperature, Water | 20 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/22/2012 | 07:10 | Temperature, Water | 18 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 5/29/2012 | 06:19 | Temperature, Water | 26 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/5/2012 | 06:42 | Temperature, Water | 25 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/12/2012 | 06:24 | Temperature, Water | 25 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/19/2012 | 06:15 | Temperature, Water | 28 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 6/26/2012 | 06:21 | Temperature, Water | 29 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/11/2012 | 07:17 | Temperature, Water | 27 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/17/2012 | 06:29 | Temperature, Water | 29 | DEG C |
| Raw Water (Lake Eucha) | Mesocosm 3 | 7/31/2012 | 06:54 | Temperature, Water | 30 | DEG C |