



AquaTechnex

*"Advancing the Science
of Lake Management"*

Erie Campbel Lake Lake Management District

2002 Year End Report

Introduction

The residents of Lakes Erie and Campbell have been faced with major aquatic weed and algae problems for a number of years. In recent years, invasive aquatic weeds have also been introduced to these two lake systems. The residents have formed a Lake Management District to facilitate the implementation of an Integrated Aquatic Vegetation Management Plan. Aquatechnex has been retained to help implement these efforts.

The contract provided to Aquatechnex was for work performed in 2001-2002. A federal appeals court decision did however impact the work scheduled for 2001. The resolution of the *Headwaters vs. Talent Irrigation District* lawsuit in the US Ninth Circuit Court of Appeals requires that a National Pollution Discharge Elimination System (NPDES) permit be in place to apply aquatic herbicides to waters of the United States. Ecology further directed that grant recipients not expend funds from those grants for herbicide treatments until all necessary permits were in place. As such, not much was accomplished during the first year of this contract because the permits to move forward with the plan were not available.

This report summarizes work done under this contract during the 2002 season.

Task One, Secure Aquatic Pest Management Permits

The Talent decision caused states in the US Ninth Circuit Court District (including Washington) to develop an NPDES permit for the use of aquatic herbicides. DOE spent the summer and winter of 2001-2002 working on that process and issued two NPDES permits in early summer of 2002.

The first of these was for the management of aquatic and wetland weeds found on the state noxious weed list. This permit was issued on May 15th and became operational on June 15th when the comment period closed.

Aquatechnex biologists secured permit coverage for both of these lakes under that permit in this time frame. With the permit in hand, treatment operations could move forward in 2002 as summarized below.

Task Two, Secure Documentation and Permits Pertaining to the Planting of Triploid Grass Carp

The long term strategy selected by the LMD for the management of aquatic weed growth was the stocking of Triploid Grass Carp. This weed eating fish provides long term biological control of aquatic plants.

There is a stocking permit required from the Washington Department of Fish and Wildlife. This permit was applied for and received in late 2001. While this permit was secured as required, it has a one year window where it can be used, then it expires. There is additional discussion on this presented below.

There is a second permit that is often necessary to place these fish in a natural water body. There is a requirement to contain the fish, necessitating a fish screen at the outlets of both lakes. The Washington Department of Fish and Wildlife permits the installation of these structures with a Hydraulic Project Approval Permit. This permit was applied for by Aquatechnex in February of 2002. The Department worked with this permit application and our engineering drawings until May of this year. At that point, they expressed a few concerns. Specifically, they wanted to widen the screen size and allow for upstream fish passage at the Lake Campbell site. We made these changes and submitted new drawings to the Department in May. The HPA permit was finally issued in mid August of 2002. There is additional discussion on this matter found below.

Task Three, Pre treatment diver survey

Aquatechnex biologists mobilized a diver team and mapping vessel to both of these lakes in June of 2002. The team reviewed the littoral areas of both lakes and mapped the conditions found. This information is presented in the two maps attached to this report.

Our team noted that there was a dramatic expansion of Eurasian Milfoil in Erie Lake between the summer of 2001 and 2002. This map and information were presented to the Steering Committee in June and treatment protocols using Sonar aquatic herbicide were selected. This work was implemented during the remaining summer as mentioned below.

Campbell Lake again had an algae bloom and Eurasian Milfoil colonies were primarily in the shallows on the west end of the lake. There were bands found along additional shorelines and one new patch offshore and west of the public access. This map was also discussed with the Steering Committee and treatment areas selected and approved.

Task Four, Public Notification

There are a number of public notification procedures that are required by the NPDES permit for the control of noxious aquatic weeds using herbicides.

The first of these is to provide a 10 day written notice to dwellings adjacent to the treatment area. This type of notification is generally not effectively performed using a mailing list. When we have tried this, we receive a high rate of returned mail or we see the notice going to the

property owner when there may be another party renting the dwelling. We delivered the required handbills personally at least 10 days prior to the treatments. Each handbill was delivered to the dwelling and secured in an obvious location where the resident should see it. A GPS point was collected at each site to record the location of the delivery.

The second of these are the signs that are required on the day of treatment. Large signs were posted at the boat ramps at each lake on the day of treatment that included a map of the treatment area and the restrictions in place. Smaller 8 by 11 inch signs were posted on each property prior to treatment.

The AquaKleen treatment performed on Campbell was a one time event. In addition to the posting of properties, we communicated directly with a few concerned citizens including a nursery growth that irrigates from the lake.

The Sonar treatment involved a number of applications made to the lake at two week intervals. Signs posted at each dwelling were different colors each time to help the resident notice that an additional treatment had been made.

Task Five, Herbicide Treatments

Sonar was selected by the steering committee and applied to Lake Erie to manage Eurasian Milfoil. The key to using Sonar effectively is to maintain a lethal concentration in the lake over an extended period of time. This is accomplished by making an initial application at a rate higher than the target level and using sampling with additional treatments at two week intervals to maintain the levels. This treatment was highly effective in the lake this year.

The first Sonar treatment was performed the last week of June. The lake wide target of this treatment was 20 parts per billion for the herbicide in the water column. A FastEST was collected one day after this treatment and sent to SePRO for processing, that report indicated a Sonar level of 19 ppb. A second FastEST was taken on July 2nd and shipped to SePRO. That sample indicated a level of 17.3 ppb. Sonar can degrade over time. Sunlight and dilution contribute to the degradation of this product. As such, a number of additional treatments were made to the lake to maintain the concentrations. Additional treatments were made on 7/8 and 7/23 to maintain concentrations in the lake. In August additional treatments were performed on 8/20 to complete the operations.

AquaKleen was the material applied to Campbell Lake. This granular 2,4-D herbicide is applied areas mapped as problematic. This material is a systemic herbicide, it will translocate and kill the roots as well as the plants in the water. Sixty acres were treated in Campbell Lake based on the milfoil found in the survey on July 1st. This treatment was also highly effective in the treatment areas.

Task Six, Removal of Water Lily Mats

There was no need to perform work of this nature during either summer of this contract.

Task Seven, Education and Public Involvement

Aquatechnex biologists attended a number of meetings in the spring of 2002. These involved presenting information to the Steering Committee to help update the committee on various lake management issues. There has been no request since the spring to conduct a public involvement or public meeting on the lakes operations. Perhaps it would be a good idea to update the public on progress to this point.

Task Eight, Post Treatment Diver Survey

Because of the Sonar treatment, County Lake Management Staff did not feel a post treatment diver survey at Lake Erie would be beneficial. Sonar is a very effective herbicide that provides lake wide control of Eurasian Milfoil under the treatment protocols used here. It was felt that this survey would yield better data in the spring of 2003.

A post treatment diver survey for Lake Campbell was commissioned by the County Lake Management Staff. Aquatechnex biologists performed this work in September and those maps are included here. The dive team noted excellent control of Eurasian Milfoil in the treatment areas. We also noted some additional areas that exhibited Eurasian Milfoil growth that were not evident during the first survey. These areas are shown on the map.

Task Nine, Stock Lakes Erie and Campbell with Triploid Grass Carp in 2002

There have been two permit issues that have complicated this process. The first of these was the late issuance of the HPA permit required to install the grass carp screens at the lake outlets. This permit was received in mid August with a window for operations that closed on October 15th. This window is designed to protect migrating fish. On receipt of this permit, we felt that we could move forward with the procurement of the screens. As the design had been altered, we didn't feel we could invest funds in the fabrication of these systems until the final permit confirmed that no further changes were necessary. The preferred supplier recommended by our engineer was contacted to start the process of construction. Their sales representative in Spokane, Washington worked with our drawings and provided little feed back until early September despite repeated requests for a quote and time line for delivery. When they finally did commit, they quoted a 120 day or longer delivery window. As such, we were forced to look elsewhere for fabricators. After some investigation, we settled on Haskill Corporation in Bellingham, Washington. They also had to order the

stainless steel necessary and quoted delivery between October 15th and the end of October.

Haskill delivered the screens in mid November. Our team discussed a permit extension with the Washington DFW and one was granted through the end of November.

The screen at Lake Erie was installed first during the week of November 18th. This screen was designed to fit with a sleeve inside the culver pipe at the lake outlet. It was placed near the Erie Lake Store adjacent to the highway right of way. The area was prepared by hand excavation and the screen was installed and secured at this location. Preparation work was also performed at the Lake Campbell outlet area during this week. On Saturday, November 23rd, piles were driven to anchor this screen system. The fish screen for Lake Campbell was installed on November 25th, 26th and 27th. This included erosion control measures. The lakes are now ready for grass carp stocking.

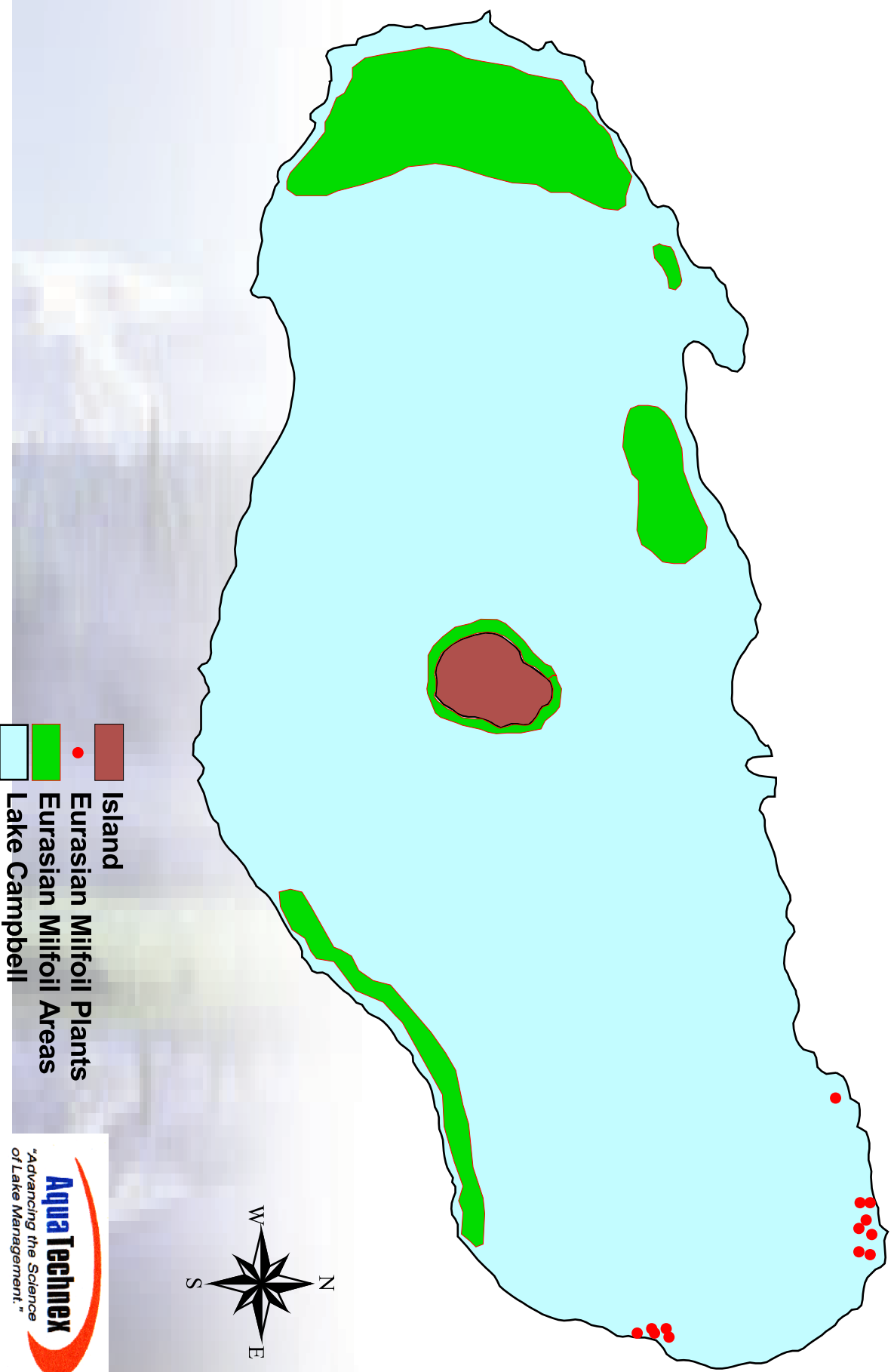
There is one additional effort to be undertaken at Lake Erie. The DFW wanted to have a fish trap installed at this location in front of the screen. The fish box would be used to determine if grass carp were getting to this screen location. The DFW commented that if no grass carp were found to be attempting to leave the lake at this location for a few years, they would consider allowing the removal of this screen. This box will be placed just prior to grass carp stocking. We did not want to have this box in place until then to minimize the need to maintain it by the LMD members or expose it to potential vandalism.

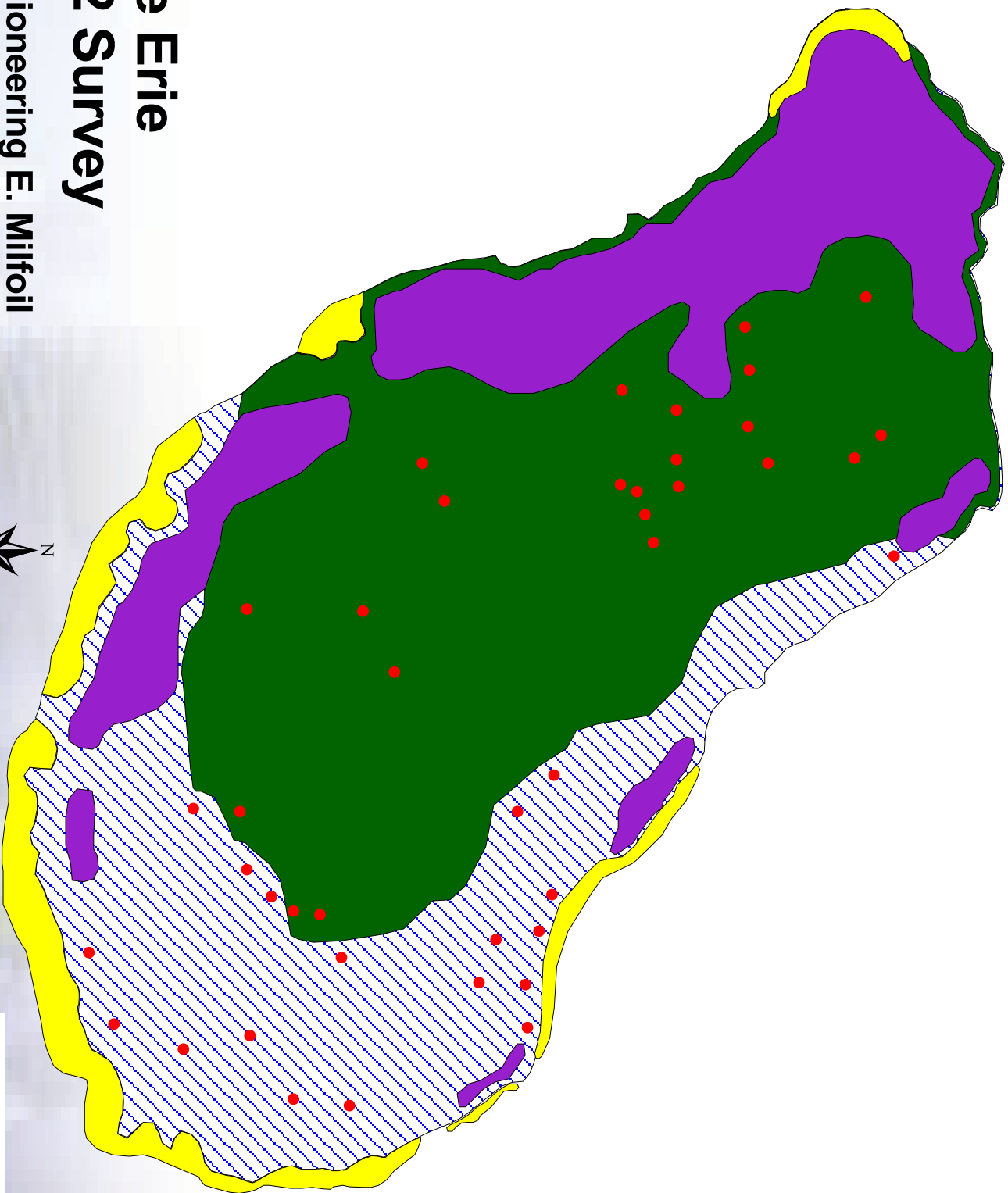
The second permit issue involves the grass carp themselves. We did receive a grass carp stocking permit in 2001 with a requirement to obtain the HPA for screen installation. The DFW's delay in the issuance of the screen permit resulted in the stocking permit expiring before the screens were in place. We hand delivered a letter to DFW staff at their LaConner office on October 25th asking them to extend that permit. We have followed up on this letter a number of times and have not be able to obtain a response from the biologist that issued the original permit. Since we have had no response in this regard, we have re-submitted the permit applications to the Department. This submittal included a cover letter explaining that the permit and Determination of Non Significance had been issued once and expired. We will remain in contact with Department Staff to expedite this permit for use in 2003

Task Ten, Written Reports

This preliminary report was submitted to provide an update to the Steering Committee on the work performed this summer and ongoing issues such as the grass carp stocking. This is the final report for work performed during 2002.

Lake Campbell 2002 Survey



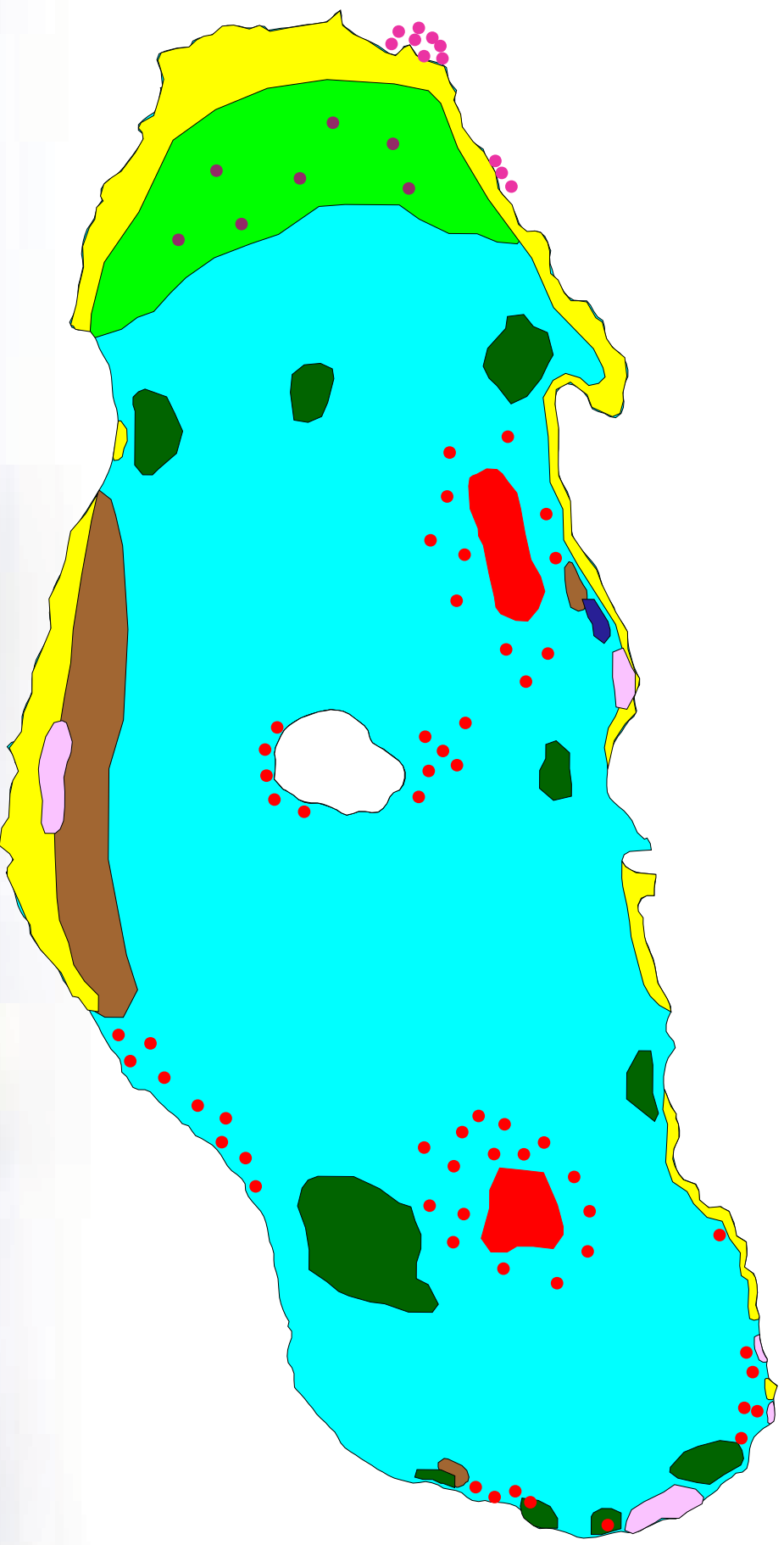


Lake Erie 2002 Survey

- Pioneerling E. Milfoil
- Nuphar
- Established E. Milfoil
- Moderate to dense Coontail
- Mixed Coontail/N. Milfoil/elodea/pondweed spp.



Lake Campbell Post-treatment SCUBA survey August 30, 2002



Legend

- Sparse Eurasian Watermilfoil
- Eurasian Watermilfoil Plant
- Northern Milfoil
- Elodea
- Coontail mixed with Chara
- Pondweed spp. mixed with Chara
- Sparse to Moderate mix of Coontail, Chara and Widgeongrass
- Bladderwort
- White Water Lily
- Nuphar
- Purple loosestrife

