

Lake Campbell and Lake Erie 2014 Aquatic Plant Control Program

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Project Overview

This will be Northwest Aquatic Ecosystems fifth consecutive year providing services to the Lake Erie and Campbell waterways. Components of the prior year reports have been incorporated into the 2014 report. Some of the past historical data is necessary in providing the reviewer adequate baseline historical references. Our 2014 contract encompassed many of the same objectives and components as the earlier agreements. Management objectives have always focused on noxious weed activities as such species have been managed to reduce their appearance lake-wide. Native plants have begun to pose similar recreational hazards as the noxious macrophytes. Although not prevalent yet within Lake Campbell, native species have expanded throughout Lake Erie and now require management in order to provide a safe recreational environment to abutting property owners and the local community. As both lakes continue to reestablish native plant growth, management objectives will be required to consider the benefit of such species while also recognizing the potential danger unchecked growth may pose to lake users. Prior to the onset of 2014, Lake Erie retained small problematic patches of milfoil that have historically been identified to reside within specific lake areas. Lake Campbell however, during 2014, showed a marked increase in milfoil occurrences specifically in those areas supporting dense concentrations of Nuphar.

Survey Protocol

Survey techniques for 2014 were similar to those utilized during 2013. Macrophyte data was collected utilizing specific transducers and bottom scanning equipment. Once collected, the SD card was uploaded via cloud based technology and the processing of the data was finalized. During the survey when milfoil plants were identified, their locations were noted along the transect line and their GPS coordinates were recorded. Each milfoil

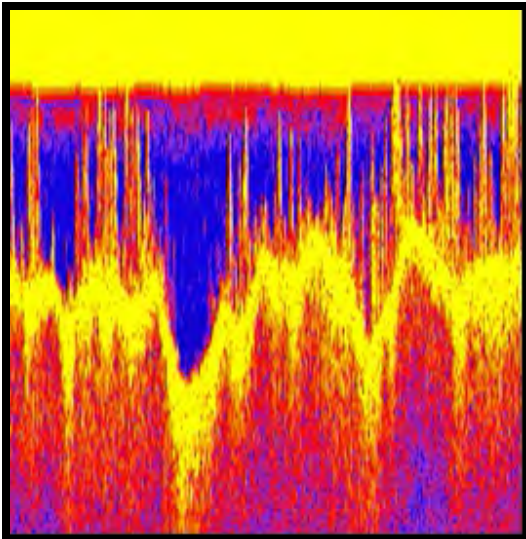
data point was identified by a red dot. The resulting processed map produced is a color coded map of the lake bottom identifying weed growth areas, plant densities and milfoil locations. Not only is a well-defined map produced, but a sonar log of the survey is saved allowing a complete review and evaluation of the survey to occur in-house. The sonar log affords you the ability to view all plant growth along the boat's survey track. This new protocol avoids the possibility of missing plants between bottom surveying data points.

Data is collected by a survey vehicle transecting the lake along the littoral zone. Boat tracks are designed to be approximately 100 feet apart. To ensure the efficacy of the survey, a bottom sampling rake was thrown from the boat at various locations lake-wide. The rake was then drawn across the lake bottom, brought to the surface and into the boat. Plants attached to the rake were identified and confirmed as being the same species as noted through the structure scan or visually through the water column. The system automatically calculates, maps and stores the position of every data point.

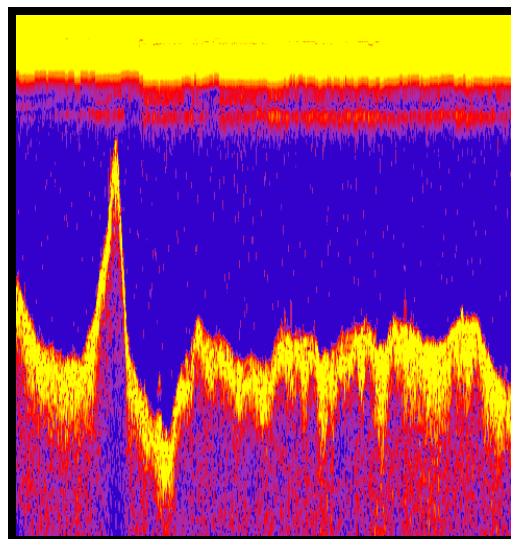
Lake Campbell Pre Treatment Survey Results

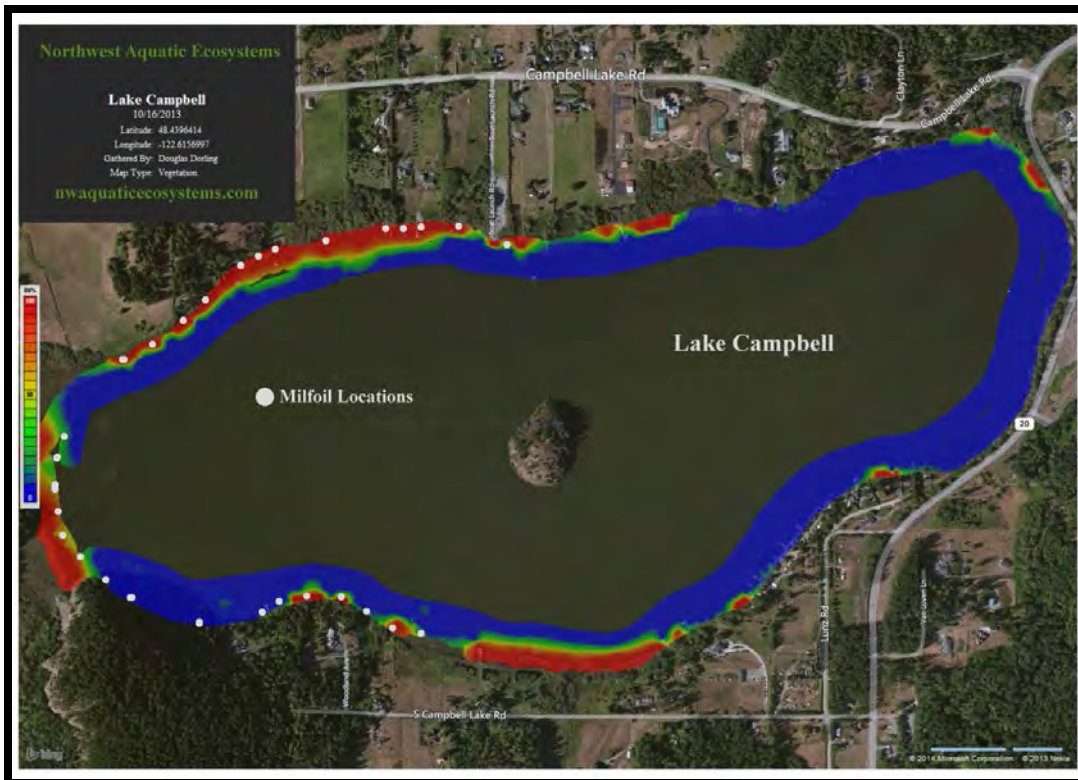
Lake Campbell was surveyed on June 11, 2014. At the time of the survey, Lake Campbell was experiencing an algae bloom. There was no shoreline scum noted at the time of the survey. Results of the spring survey were similar to those noted during the fall 2013 survey. Milfoil growth was documented within much of the spadderdock perimeter along the western, northwest and southwest shorelines. The lake area infested with native spadderdock is a difficult one to survey because of the dense spadderdock growth. Milfoil plants and/or fragments can remain undetected beneath the pads and then surface later in the season as the pads begin to die back. Similar to 2013 limited native submersed macrophytes were noted.

Bottom Weed Growth



No Bottom Weed Growth



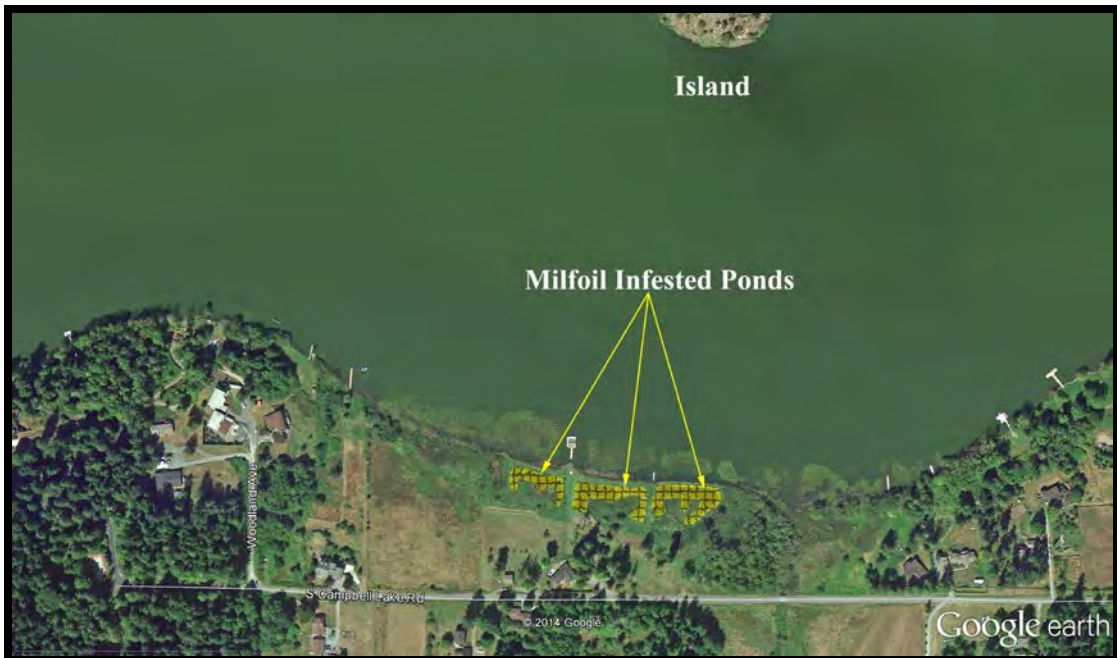


Lake Campbell Milfoil Locations October 2013



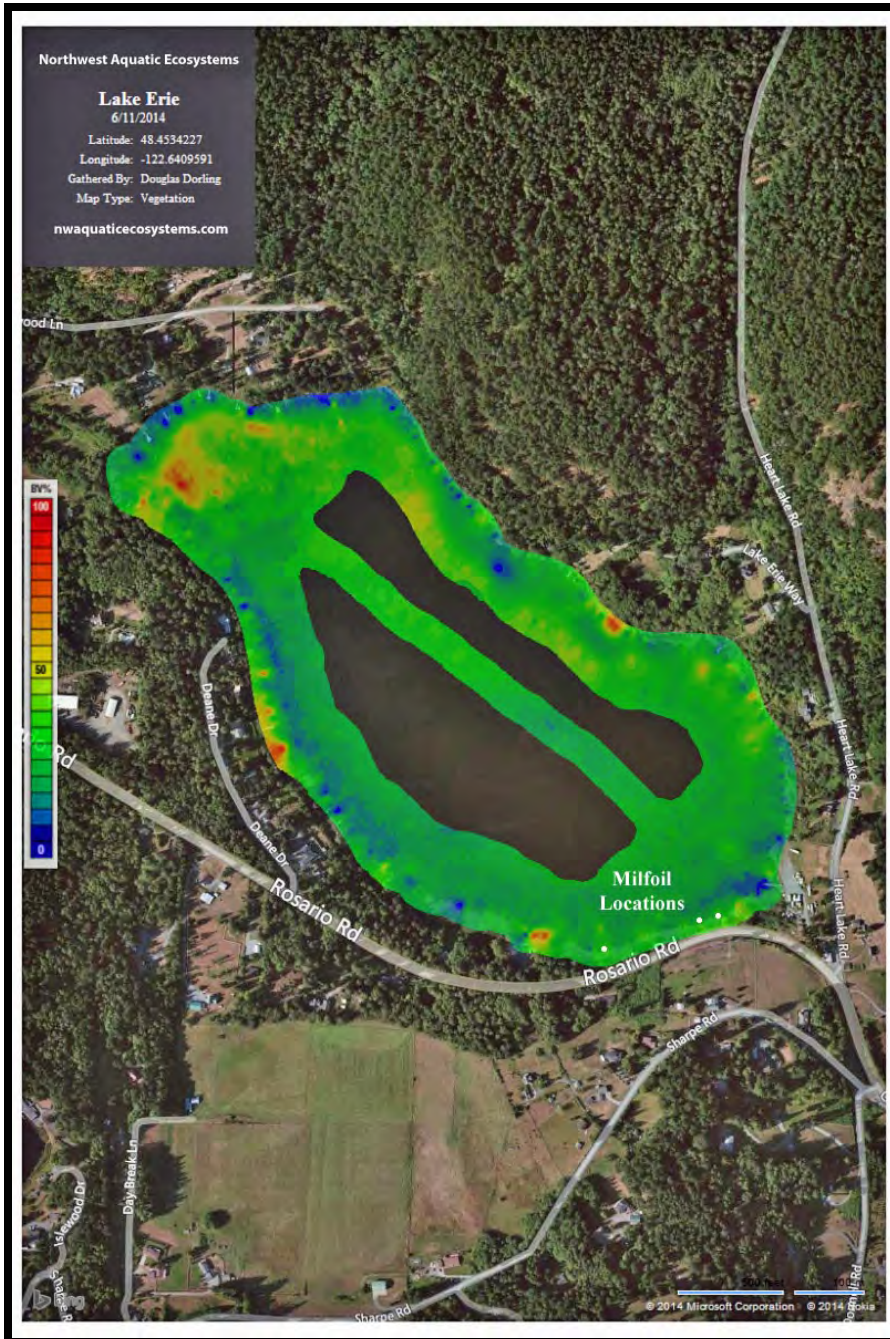
Lake Campbell Milfoil Locations June 2014

During the survey of the lake, milfoil was observed infesting three small ponds located on an adjacent parcel to Lake Campbell. All three ponds were 100% infested with milfoil located only a few feet from the main lake. These ponds appear to be man-made with no direct connection to the main lake. All three ponds provide easy access of milfoil plants to the main lake by waterfowl and other animals.

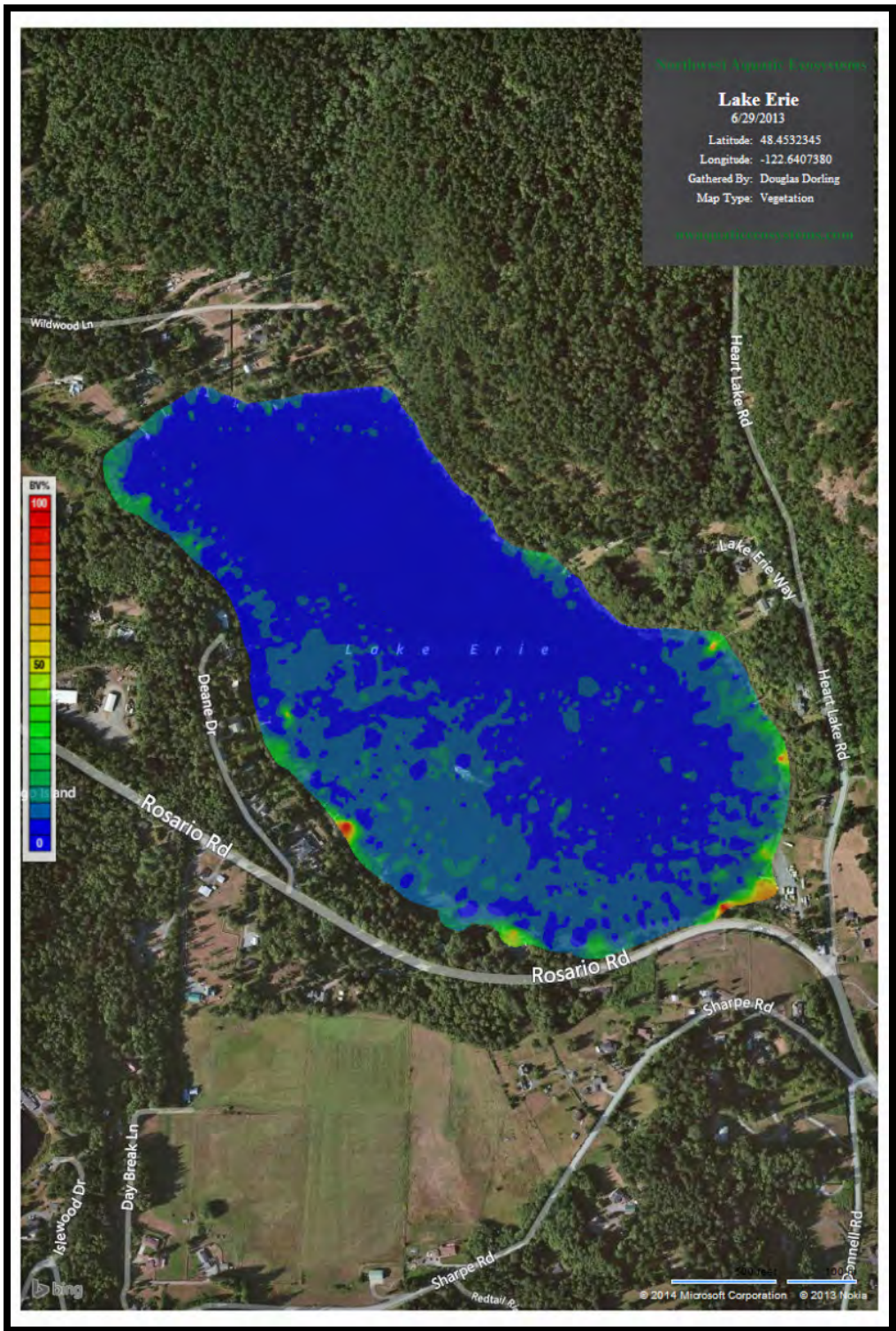


Lake Erie

Lake Erie was surveyed on June 11, 2014. Water clarity was good with the ability to observe the lake bottom over most of the lakes littoral zone. Once again, sporadic single milfoil plants were noted along the southeastern shoreline. Native weed growth density had increased considerably lake-wide in comparison to 2013 densities. Growth was impacting the immediate shoreline residential homes. Najas was the dominant species throughout the system. Numerous pondweeds were also noted. None of the native species had reached the water's surface; some however were within six to twelve inches of the lake surface.



Lake Erie Milfoil and Native Plant Locations Spring 2014



Lake Erie Native Weed Species Locations 2013

Treatment

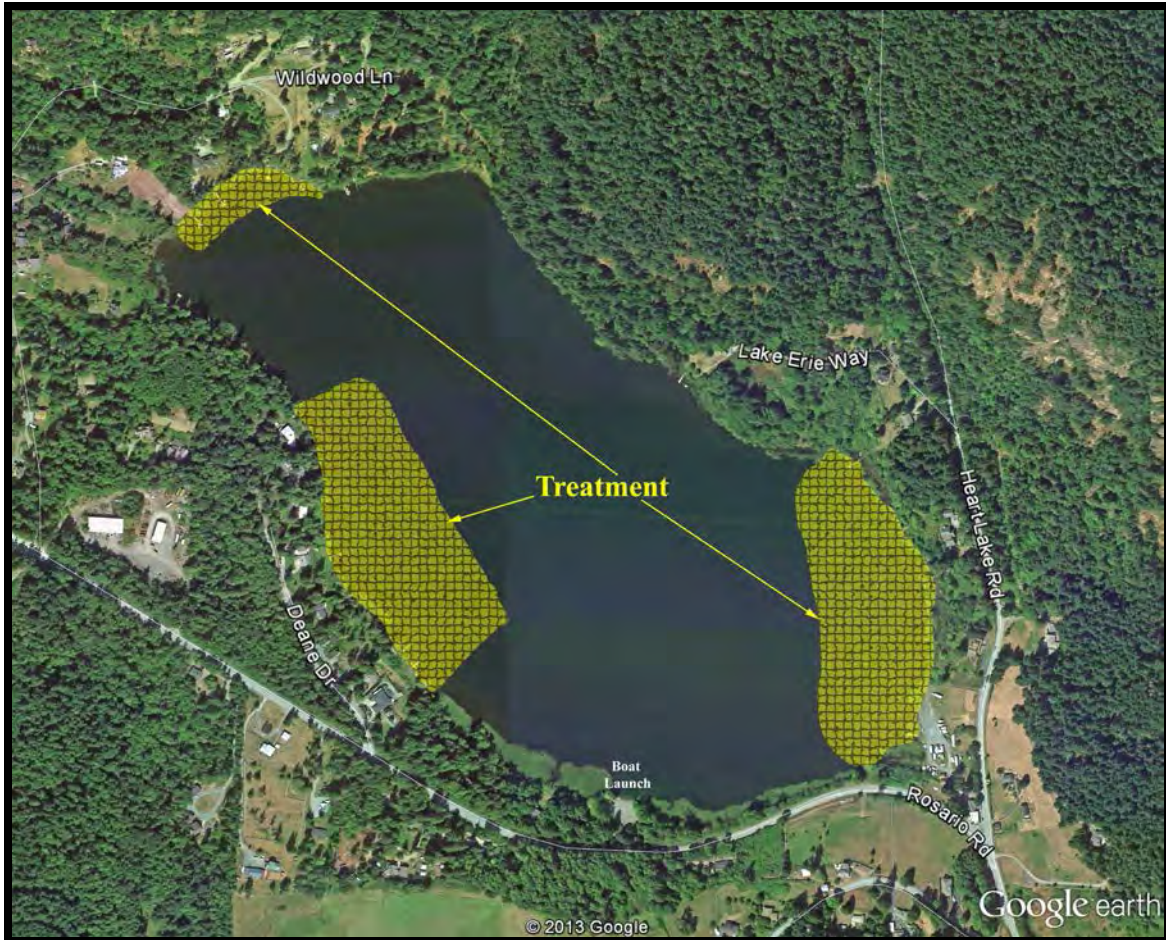
Lake Campbell and Erie were treated on July 22, 2014. The increase in milfoil plants noted within Lake Campbell required a reduction in past treatment levels of native plant communities at Lake Erie and an increase in the milfoil treatment at Lake Campbell.

July Macrophyte Control

Lake Erie July 9, 2014

Lake Erie shoreline was posted prior to the spraying event on July 9. Shoreline postings were placed on the immediate docks or near shore trees. Two large two foot by three foot signs were placed along the access road leading to the launch site and one sign was placed adjacent to the boat launch. These larger signs identified where the materials were applied and what materials were used.

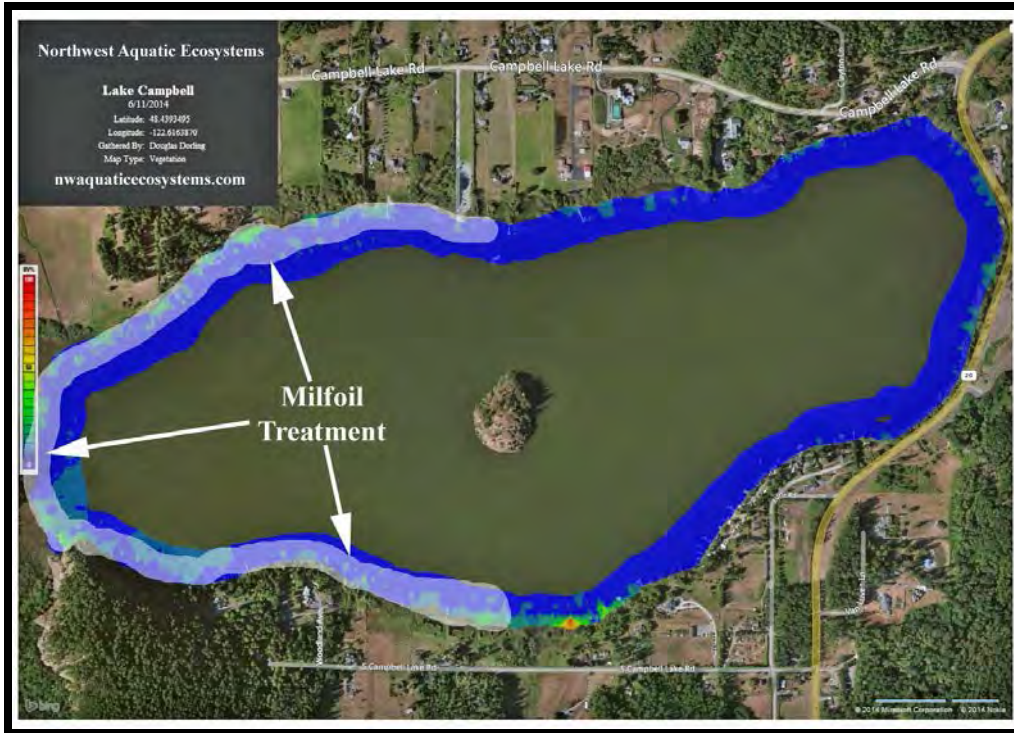
Twenty-five acres of the lake were treated with the contact herbicide Tribune (diquat). No shoreline emergent or floating plants were targeted. Staging area was located at the public boat launch. Material was stored in a locked pickup truck and transferred from the truck to the application boat as needed. Once material transfer occurred and the boat's tanks were full, the licensed applicator preceded to the targeted treatment sites and dispersed the material.



Native and Non-Native Species Application Sites 2014

Lake Campbell July 22, 2014

A brief inspection was made of the proposed milfoil treatment sites, noted during the spring survey. No apparent changes to the earlier survey were noted. Twenty acres were treated with the a liquid 2,4-D diquat mixture. Both materials were tank mixed on board the application boat and then injected directly over the targeted weed beds. The boom system, as designed, dispersed the mixture vertically throughout the macrophyte column. The treatment boat was equipped with a GPS system that ensured the application vehicle remained within the boundaries of the treatment zone.



August 22 Treatment

Shoreline emergent plants, lily pads and Nuphar were treated on August 22. A majority of the treatment was directed toward purple loosestrife and yellow flag iris control. A tank mixture of 1% glyphosate was sprayed directly onto the targeted sites. Upon location of an infestation, the treatment boat anchored along the shoreline and either walked the shoreline or moved from one shoreline location to another.

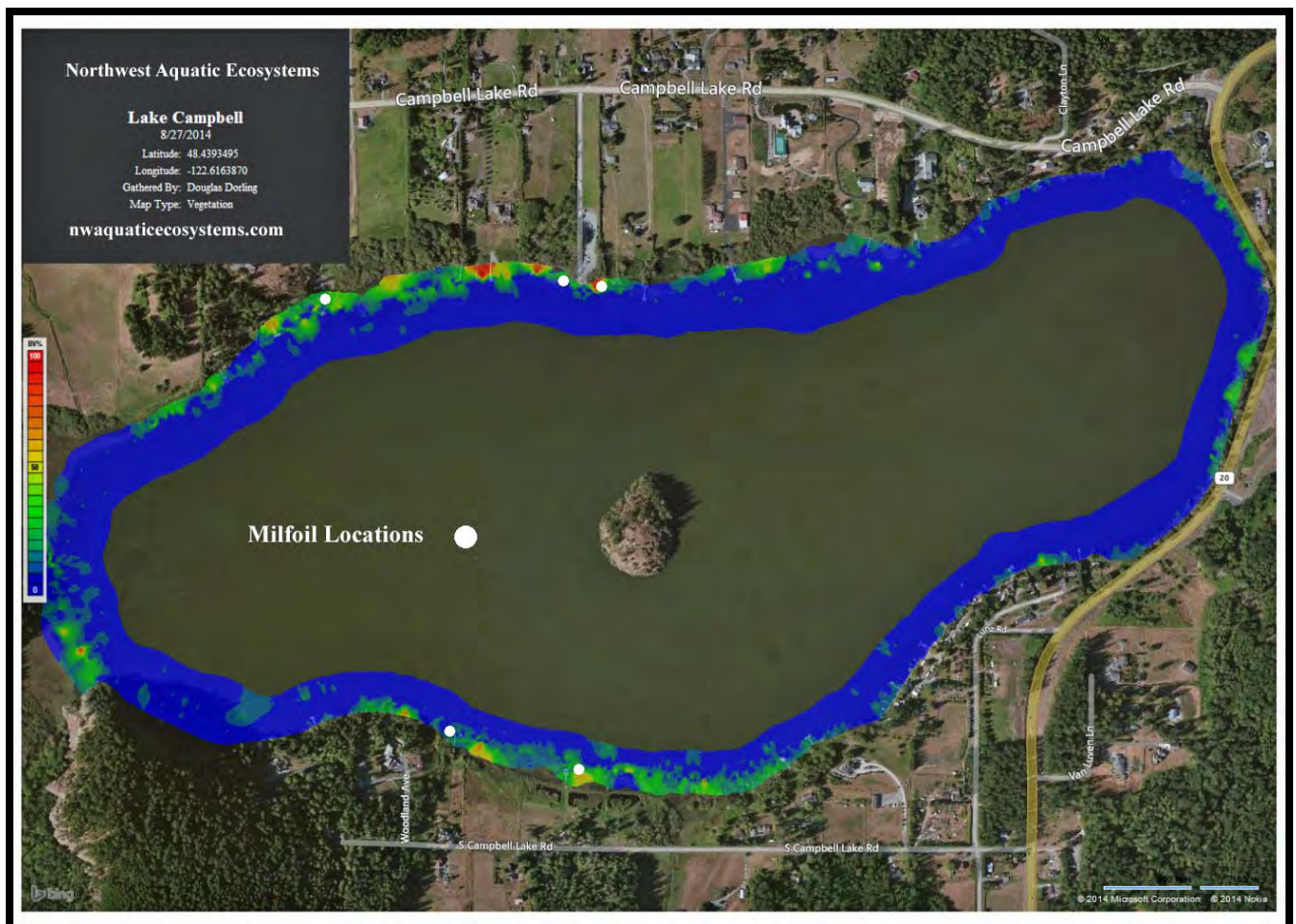


Targeted Site 8-27-2014

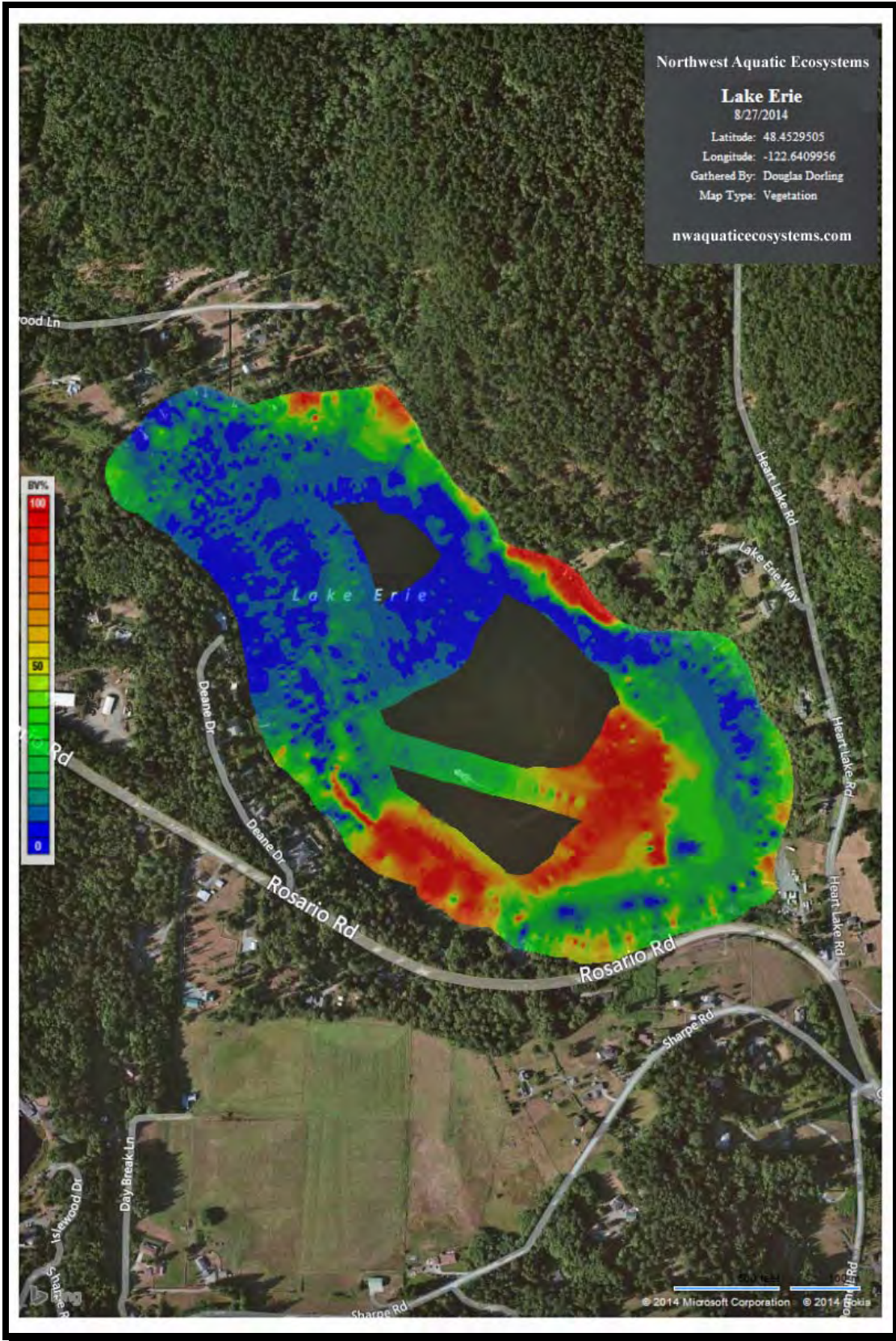
August/September Surveys

Lake Erie and Campbell were both surveyed on August 27, 2014 and again on September 17, 2014. The September 17, 2014 survey was necessary to fill in data gaps noted during the review of the sonar logs from both prior surveys.

Both Lake Campbell and Erie were experiencing algal blooms at the time of the survey. Although the blooms were dense in nature, no windrowing or scum formation was noted along the shorelines. Only a few isolated single milfoil plants were documented on Lake Campbell while no milfoil plants were found in Lake Erie. Native plant growth had been reduced from those levels noted during the earlier spring survey. This reduction was likely the result of the herbicide treatment. Both lakes had bottom growth of filamentous algae. It is likely that native plant control will again be a problem on Erie during 2015 and milfoil control will be required on Campbell.



Campbell Survey 8-27-2014



Lake Erie Survey 8-27-2014

Recommendations For 2014

Milfoil growth within Lake Campbell increased during 2013 and the late season growth noted during 2013 presented itself during 2014. As a result of the increased growth, native weed control activities were reduced within Lake Erie in order to address the elevated noxious growth occurring at Lake Campbell. Native weed species are still problematic at Lake Erie while native species are beginning to increase their range on Lake Campbell. Once again for Lake Erie during 2015, a few problematic milfoil plants will likely reside within the lake basin in conjunction with light to heavy native plant growth. The area treated for problem milfoil growth at Lake Campbell during 2014 will likely require a second application during 2015. While only a few sporadic plants were noted during the fall Lake Campbell survey, it is difficult to evaluate milfoil growth within the large Nuphar infestation.

Northwest Aquatic Eco-Systems recommendations for the 2015 season are as follows:

1. Control of approximately 20 acres of single stemmed milfoil plants within Lake Campbell as noted on the survey map. This infestation has increased in range along the perimeter of the shoreline. Current infestation needs to be addressed again during 2015 in order to halt further expansion lake wide.
2. Contact the property owner with the milfoil infested ponds (approximately .5 acres) and request some type of action be taken to eliminate those potential milfoil sources. This area does not appear to be an extension of Lake Campbell. It is unclear if control is the responsibility of the LMD or property owner. What is clear is the fact these infestations pose a long term threat to Campbell Lake.
3. Extend the Lake Campbell surveys to include these three small ponds located on private property.
4. Continue control of the noxious species yellow iris and purple loosestrife at both lake sites as financial resources permit.
5. Targeted control of spatterdock at both lake sites to manage the encroachment of this species into the main basin and along residential shorelines. Control of the noxious species fragrant waterlily should continue lake wide.
6. Treatment of problematic Lake Erie native weed species when such species are hindering lake use. These treatments are typically cyclical in nature necessary one year and not the next. NWAEC anticipated limited native weed control during 2014 at Lake Erie. The current 2014 fall survey revealed an increase in native weed growth. Increased densities will probably result in an increased treatment zone during 2015.
7. Lake Campbell management continues to focus solely on milfoil growth while Lake Erie requires the ability to manage both noxious and troublesome species in an effort at keeping the best interest of the property owners and the lake systems health in perspective. Milfoil treatments should be designed to control the targeted species while resulting in the least negative effect to the Nuphar.
8. There are no salmonid or endangered species noted within either Lake Campbell or Erie. Treatments should occur when needed, probably during June. No timing restrictions associated with salmonid species will allow lake treatments to occur earlier in the season if water levels and growth support such action.

9. Continued use of the new survey technology. This technology and mapping can easily be understood by all lake users while also providing good baseline data for future review in evaluating the program's success.

Private Pond Milfoil Location Lake Campbell

