

Squash Lake Association's Early Detection and Response Grant 2010 Grant Activities Report

Prepared by Stephanie Boismenu
Feb 2011

Getting to the Root of the Problem

By Stephanie Boismenu, Volunteer Aquatic Invasive Species Coordinator of Squash Lake Association.

OBJECTIVE

Hand-harvesting of Eurasian water milfoil (EWM) via paid and volunteer scuba divers and snorkelers,
Organization and training of Monitor Captains
Aquatic Invasive Species (AIS) prevention, monitoring and education.
Yearly EWM survey completed by Onterra, LLC
EWM mapping by Onterra and divers

STRATEGY

The Squash Lake Association (SLA) hired three divers to hand-harvest the EWM plant's during the 2010 open water season. These dedicated divers are familiar with the area lakes and lakes environment, are very familiar with AIS, and has had experience harvesting EWM from area lakes. They worked from May 10th, 2010 through August 2, 2010 and their combined hours totaled 716.50. They were not able to work past August 2nd due to: inclement weather; colds/sinus congestion (which may or may not have been a direct result of so much diving time); other commitments; and returning to college.

During the summer, they made incredible progress at eliminating the milfoil - so much so that at one point, they were only harvesting a few pounds every day (please see the daily log of harvesting activity at the end of report). As daily harvesting totals became less, their time was spent thoroughly search the entire lake for EWM, which resulted in circumnavigating the lake 2 ½ times.

SLA's lead scuba diver, Nick Strupp, on the first day of harvesting- May 10, 2010



I have received nothing but positive comments from Squash Lake residents about our divers. Residents were impressed by the commitment that the divers had made to Squash Lake and how much harvesting progress they made during the summer. The residents were also impressed by the vast amount of AIS knowledge that our head diver, Nick Strupp, has - especially the finer details of EWM. Lastly, residents were thankful that the divers were very approachable and enthusiastic to educate about EWM's lifecycle, plant identification, prevention, reactive measures, and the harvesting process.

I would like to add that there were a few folks around the lake who were pro 2 4-D and dead-set against the hand-harvesting method. But, the majority of these residents had the opportunity to observe, firsthand, the progress that the divers were making, had positive interactions with the divers and gained knowledge of EWM. I'm now happy to report that because of this, these residents are now advocates of SLA's hand-harvesting efforts and, in fact, have donated to the cause.

To locate the EWM plants, the SLA provided the divers with laminated copies of Onterra's September 2009 EWM Survey Map, a small and large Aqua View Scope, and SLA volunteers assisted by guiding them around the lake. In addition, the divers responded to all EWM sightings as reported from SLA residents.

To make certain that all EWM plants were harvested, I communicated to Squash Lake residents, via SLA group email, newsletter announcements, and word of mouth to please report all possible EWM sightings to either the divers or to me. They were asked to make a report regardless if it was a questionable EWM plant or positively identified EWM plant. If a report was received, a description of the plant's location and GPS (if possible) were obtained. The person making the report was asked to mark the plant's location with either a weighted milk jug or floating marker and write "SLA-EWM" on it. If the person making the report was not able to mark the location (such as an elderly person), a volunteer milfoil monitor in that area was contacted and asked to assist with marking the plant's location. The EWM location was provided to the divers, who would then investigate the area either that same day or the next day that they worked.

The divers circumnavigated (dove) the entire lake 2 ½ times during the summer in search of EWM plants. As visual sightings were found, they marked the plant's location on their map and proceed to harvest.

The diver's transportation around the lake was via my fishing boat that I lent them. The ideal boat for the divers would be an old stripped-down pontoon boat - nothing fancy about it. Though the fishing boat is doable and they were happy to utilize it all summer, it has its drawbacks:

1. Because of the boats lack of stability and space, they couldn't descend into deep water and easily work out of the boat
2. The boat had to be pulled ashore, rather than anchored, which made it difficult to cover a large territory at once. Having it pulled ashore required frequent backtracking down the shore to retrieve supplies and/or to move the boat to a new work area.
3. The lack of space was cumbersome and inadequate. The divers had barely enough space in the boat to hold a half days worth of gear (tanks) and trash bags full of harvested milfoil. Because of that, they had to return to their cars in the middle of the day to unload/reload.

EWM HAND-HARVESTING METHOD AND SUPPLIES USED

The divers method of harvesting was to grasp as much of the plant's root ball as possible and carefully pull the plant out. They took great care to try to remove as much root as possible and not break any part of the plant in the process. The plant was then very carefully placed in a mesh laundry bag and a visual check for fragments was performed. When the laundry bag was full, the diver brought it to shore and transferred the plants into a trash bag.

The trash bags were placed away from the shore and a tiny pin hole was placed at the bottom of each bag to allow the water to drain. Also, allowing the black trash bags to sit in the hot sun while the divers continued to dive, allowed for the plant's to dry up and "bake". After the water was adequately drained, the trash bags were then weighed.

At the end of each workday, the divers transported the trash bags to one of two places: my compost pile located over 1,000 feet from the lake or the head diver took it home to his compost bin.

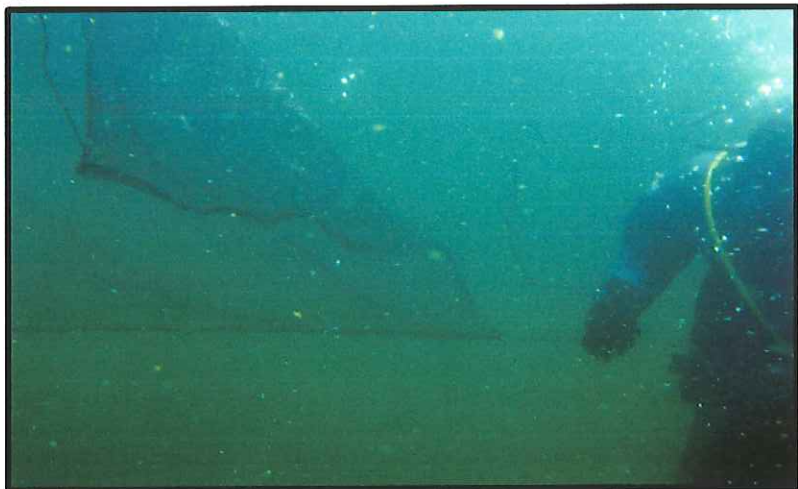
The mesh laundry bags used have less than 1/4 inch spacing and are perfect for placing the harvested plants in. The small spacing allows the water to drain while retaining the plant pieces. However, it was found to be cumbersome trying to keep the opening of the bag open under water while placing the plant in it. To solve that problem, we straightened out wire hangers, placed them inside the top hem of the laundry bags and shaped it into a circle. This stabilized the opening so it would no longer collapse as the plant was being placed inside the bag. To keep the bag closed, they simply grasped the bag under the opening.

Divers & volunteers utilized the following items to catch floating fragments:

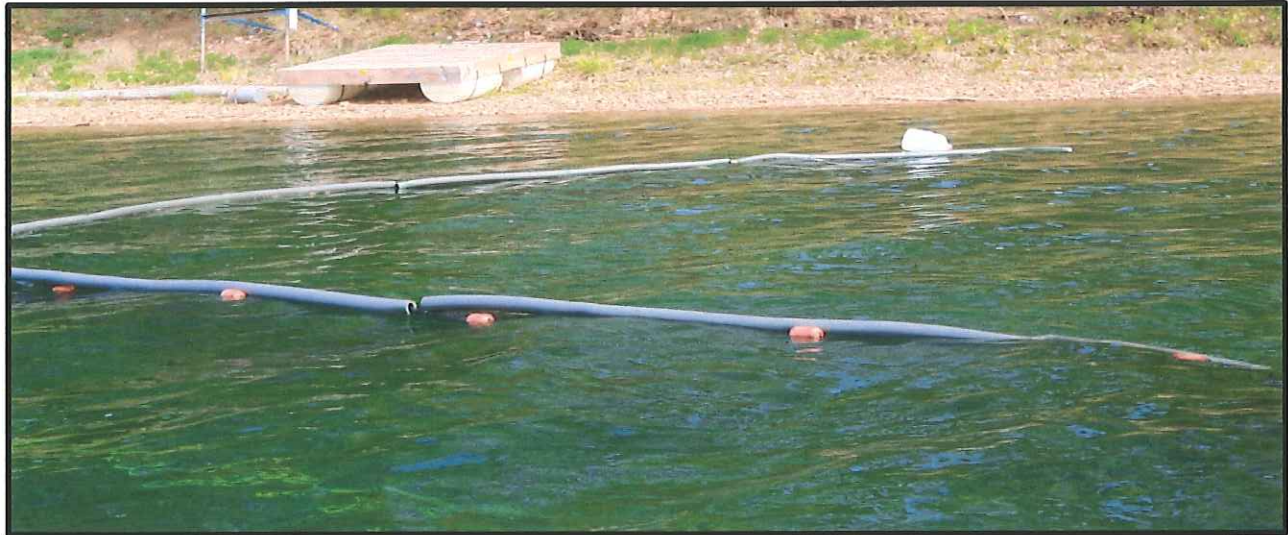
1. A Frabill folding kayak net that features 1/4 inch spacing, 14" deep net, and a quick latch telescoping extended handles that extends from 20" to 40". This was a useful tool to have in hand while in a boat or canoe, inspecting around pier sections and boat lifts, and walking in the shallow waters.
2. A barrier/fragment net to catch fragments while harvesting in the "mother-load areas". This netting is placed down-wind from the work area and are only in place while the divers are working. The following supplies were used to create the barrier/fragment net:
 - Seine Nets - two 4'x20' Frabill Seine nets lashed (zip tied) together at the sides to create a 4'x40' fragment net. Each seine net features 1/4"spaced-lightweight polyethylene fiber mesh netting, evenly spaced heavy duty floats at the top and weights at the bottom.
 - Pipe insulation - split down the center and added to the top of the seine nets to provide additional floatation.
 - Zip ties - for fastening the pipe insulation onto the top of the seine nets and for connecting the two seine nets together - side by side to create on long net.
 - Ropes - tied to bottom corners of the seine nets and attached to bricks (with holes in the center) to provide anchorage for the seine nets.

**Nick installing the
EWM barrier net
May 2010.**

**Both the folding kayak net and the
barrier/fragment netting proved to
be indispensable tools**



EWM fragment net in place and working beautifully!



VOLUNTEER HARVESTING EVENT

On May 22nd and 23rd, 2010 Squash Lake Association hosted the first annual Trash and Treasure Dive. The "Trash" was harvesting milfoil. The owner of a local diving company and two of his diving companions, volunteered to scuba diver and harvest EWM on both days. This was an incredible opportunity for the SLA and a successful harvesting weekend with a total of 19 volunteers (10 on Saturday and 9 on Sunday) totaling 72 hours. However, this does not include the many volunteers around the lake who provided snacks and beverages and does not include the time spent organizing and preparing for the event.

These divers requested that the SLA provide the following support and supplies:

- ◆ Pontoon boats - one boat per scuba diver to be used as a station for each diver
- ◆ Two volunteer's per boat - the 1st volunteer was the boat owner (captain) and the only person driving their boat. The 2nd volunteer was the scuba divers assistant
- ◆ The 2nd volunteer needed to be a person who was strong and agile - able to lift the heavy bags of milfoil out of the water and assist the divers as they were coming on deck of the pontoon boats, help remove the divers tanks, gear, etc. ,
- ◆ Each boat had to have a front and back anchor, trash bags, buckets, nets, etc.
- ◆ SLA was to provide snacks, refreshments.

**SLA's Trash & Treasure Dive
Volunteer EWM Harvesters
May 23rd, 2010**



SQUASH LAKE VOLUNTEER MONITORS

On August 13, 2010, thirteen Squash Lake Volunteer Milfoil Monitor Captain's attended AIS identification and monitoring training session. The training was carried out by Laurence Eslinger, AIS Coordinator of Oneida County and Sandra Wickman, AIS Citizen Monitor Coordinator of the WDNR. This hands on education provided us with the knowledge, tools, and confidence needed to become better Monitor Captains and recruit and educate other Squash Lake monitors within our designated monitoring areas.

We learned native and non native plant identification, how to obtain samples, use an Aqua View Scope, use a throw rake, and how to log our monitoring activities. They provided us with resources, printed materials, two Aqua View Scopes (on loan), and a throw rake (on loan). The scopes, rake, and books are available for the monitors and are being stored in the shed at the boat landing - also known as SLA's classroom.

Squash Lake Association's Volunteer Milfoil Monitor Captain's



Pictured L to R: Front Row: Marj Mehring, Jeannine Smith, Lawrence Eslinger, Greg Nevinski & Karen Isebrands-Brown. Back Row: Dale Smith, Roger Degris, Janet Appling, Debra Durchslag, Craig Zarley, Mark Falk, Steph Boismenu, Dale Kramer, and Carole Mustacci. Photo taken by Sandra Wickman.

The AIS identification and monitor training was held at the Squash Lake boat landing and lasted two hours (26 hours in volunteer time). Armed with new knowledge, this dedicated group of Monitor Captains continued to monitor the lake throughout the summer and recruit new volunteers.

OTHER HARVESTING ACTIVITIES

As mentioned earlier, our scuba divers were not able to harvest after August 2nd. On September 5th, I received calls from two SLA Milfoil Monitor Captain's reporting sightings of EWM. One Captain found a few scattered individual plants and the other found a small grouping of EWM. The following week the two monitors, my husband and I, spent a few hours together evaluating these areas and searching the lake for other EWM areas, via boat and walking the shoreline.

Our search revealed that the small group of EWM was a previously harvested area. This is a difficult area to harvest because the lake bottom is a soft muck that stirs easily - if you stick a canoe paddle in the lake bottom the entire paddle gets swallowed-up. Trying to get the plant's harvested from this area, in late fall, was going to be impossible without scuba gear. Unfortunately, it will have to wait till spring.

The area containing the few scattered individual plants was where the biggest concentration of EWM had always been and was also the same area where our divers continuously returned to harvest. This area is a sand/gravel bottom and lots of dense native vegetation. My heart sank when I found EWM plant's growing directly under the prop of a boat (which was on a boat lift). I knew that as soon as that boat owner lowered his boat and turned on the motor, there were going to be fragments everywhere! Luckily, the owner of the boat was away for a few weeks. In the mean time, something needed to be done.

I contacted our regular divers and a few other divers I knew, but they were not able to help at that time.

On September 18th, my husband and I bundled up in our wetsuits and were able to harvest some of the single plants. The plants under the boat were the first to be removed. The air and water grew cold and we did what we could under the circumstances. We were not able to get the plants in the deeper water - those too would have to wait until spring. A few days later I learned that Onterra had been to Squash Lake on September 13, 2010 to complete their EWM assessment.

THE END RESULT

Hand-harvesting EWM from Squash Lake has significantly reduced the volume of EWM from the lake and it was **done without a single chemical!** Though EWM remains in the lake, our scuba divers, snorkelers, and volunteers will continue to pull together and remain at the root of the problem - keeping EWM at a minimum. The Squash Lake Association looks forward to working with the divers again for the 2011 season.

Our greatest learning curve has been the importance of having divers through the end of August and hopefully into the first part of September! This will not happen again!

The following pages contain:

- 1. Report from Onterra's September 13th, 2010 EWM Survey Report**
- 2. Maps from Onterra's 2009 and 2010 survey**
- 3. Map from SLA's lead diver, Nick Strupp, showing the areas where the divers harvested.**
- 4. Photo journal of various SLA grant related activities**

ONTERRA'S 2010 EWM SURVEY REPORT

Hi Stephanie,

We visited Squash Lake on September 13, 2010 to inventory the EWM population of the lake. It was a perfect day for surveying; full sun with little wind.

Attached are a couple of items that attempt to display the results of our mapping survey. The PDF map shows the results of the 2010 survey and the PowerPoint file really is a useful tool to see how the EWM within the lake has changed over the past year. The PowerPoint also has named sections of the lake so you know which areas are being described. If you do not have the PowerPoint program, you can download a free viewer from: [Windows OS or Mac OS](#). If you view this as a slideshow (hit F5) and use the arrow keys (up/down) to go back and forth – you can focus on particular areas and see how the EWM population has changed between the two surveys.

Please note that some areas once represented by a single GPS point on the 2009 EWM occurrence have expanded to levels that are better represented using area-based (polygon) mapping techniques.

Overall, I believe our survey revealed mixed results; some areas that contained EWM last year did not contain any this year, while other areas that had a single or few plants last year expanded into small plant colonies this year. However, there were no new areas of EWM discovered during our survey.

North Bay: It appears that the density of EWM within the northernmost part this area has been greatly reduced. We were only able to locate 5 single EWM plants, all of which were growing in shallow water. We were able to manually remove all 5 of these plants using a rake.

The clump of EWM that was marked last year in the western bay of this area was still present, and appears to have expanded slightly. A few single plants were also observed growing just around this clump. This clump may be difficult for divers to hand-remove during the summer as it is surrounded by relatively dense native vegetation. However, spring may prove to be a better time to remove the EWM before the native plants are up and growing.

Northwest Shore: Overall, the majority of this area looked very good with the density of EWM being greatly reduced. However, the EWM in the bay located in the northernmost part of this area (west of the island) seems to have expanded from a few plants to a small colony of 'dominant' EWM. This was one of the areas that was now large enough to draw a polygon around with the boat/GPS.

The only other EWM observed in this area was at the extreme western end, consisting of an area with 'scattered' and 'highly scattered' EWM, which is a slight expansion of EWM from last year in this particular area. Again, this area was now large enough to draw a polygon around.

West Shore: Last year, the EWM in this area was comprised of single plants scattered along the shoreline. This year, it was observed that there were still single EWM plants scattered along the shoreline but some of these areas expanded into colonies that were large enough to put polygons around. These polygons consisted of 'scattered' and 'highly scattered' EWM.

South Bay: The EWM in on the southeastern portion of this section expanded from a few plants last year to a 'highly scattered' colony this year. The single plant that was present on the northern shore last year was not observed this year.

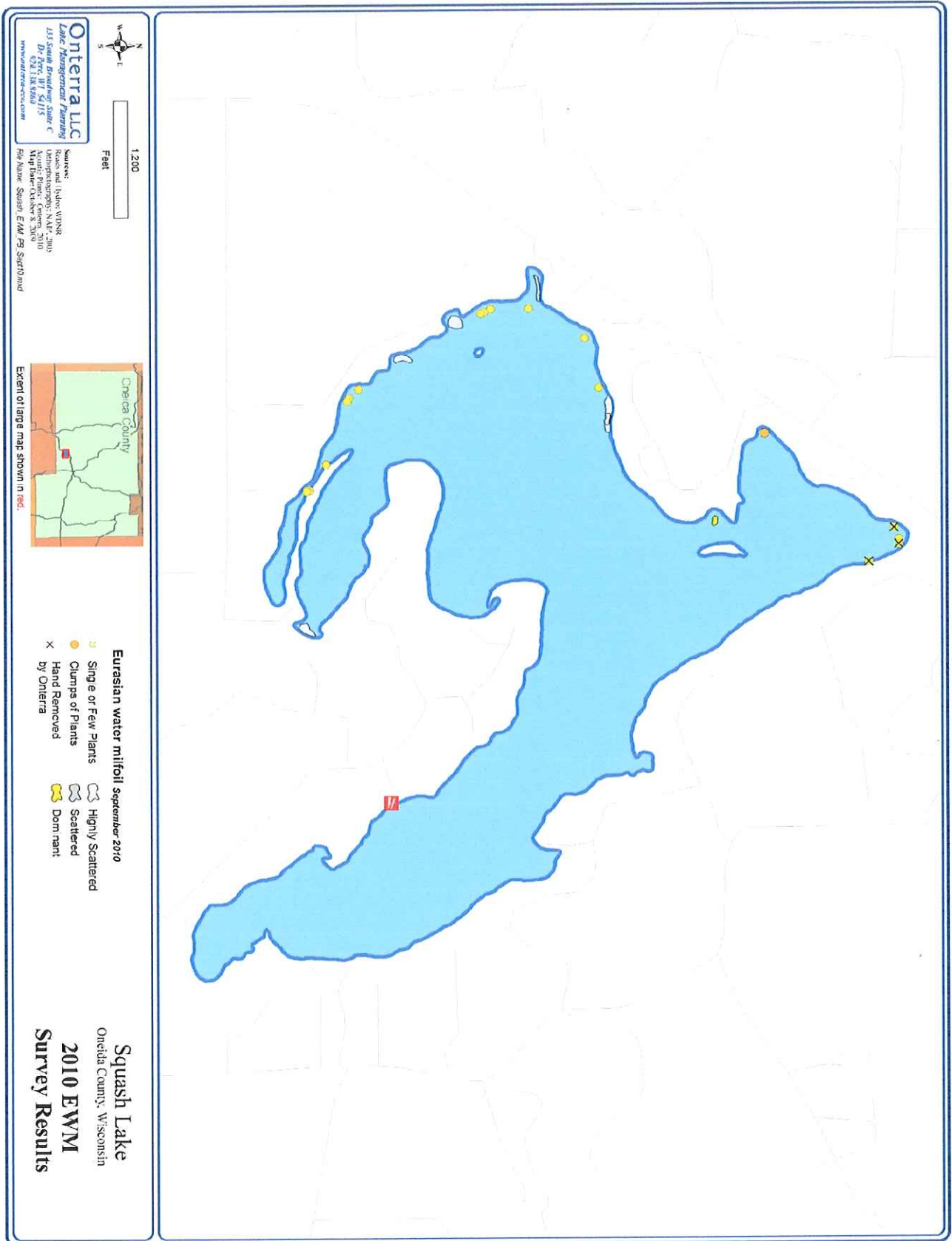
While there were some areas of the lake that saw a reduction in EWM density, overall it appears that the EWM within Squash Lake has increased in occurrence from 2009 to 2010. After speaking with Tim, he asked if it would possible if you could mark on one of the maps I have attached (or a map that you possess) the areas on Squash Lake where hand-removal took place this past summer. That way, we will be able to overlay the hand-removal areas on the map.

If you have any questions or concerns, please do not hesitate to contact myself or Tim.

Thanks,

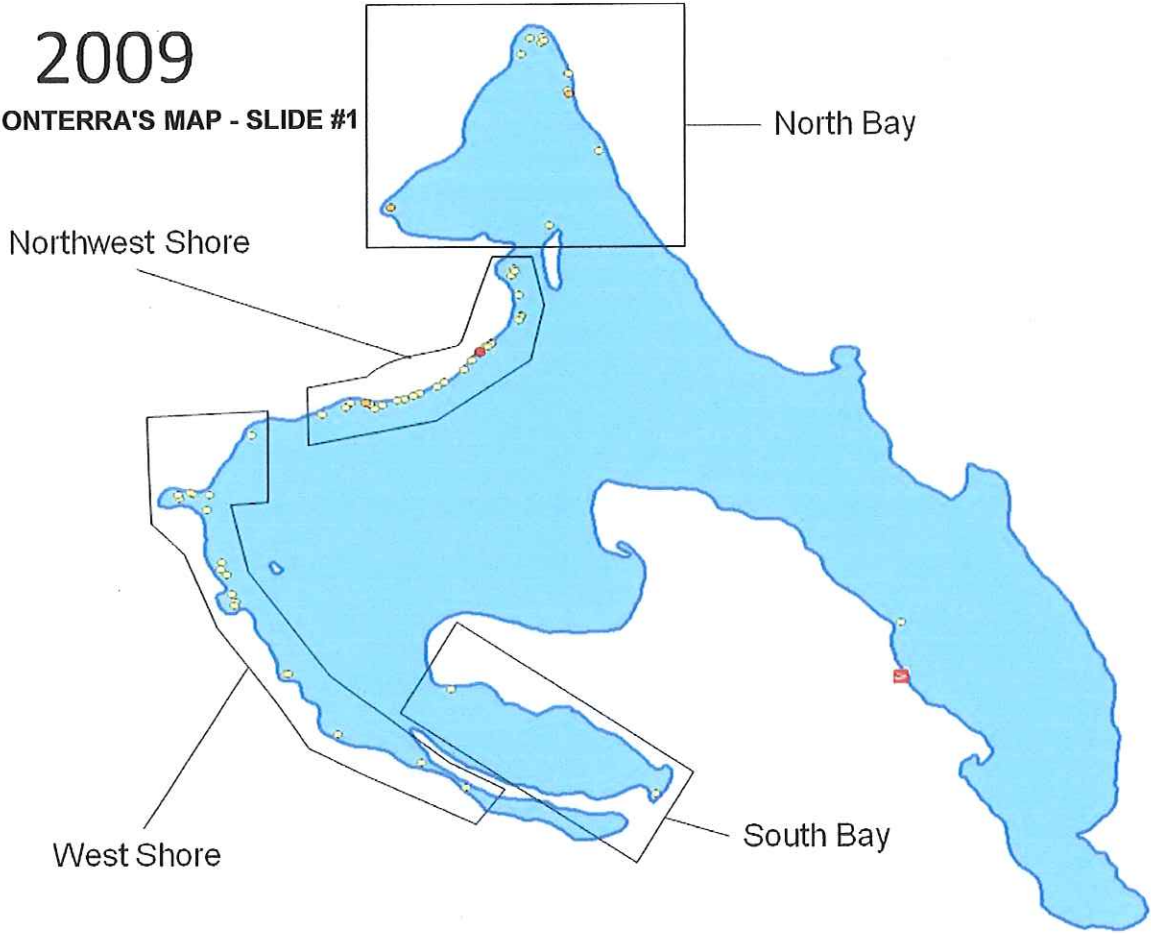
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ONTERRA'S 2010 EWM SURVEY RESULTS MAP



2009

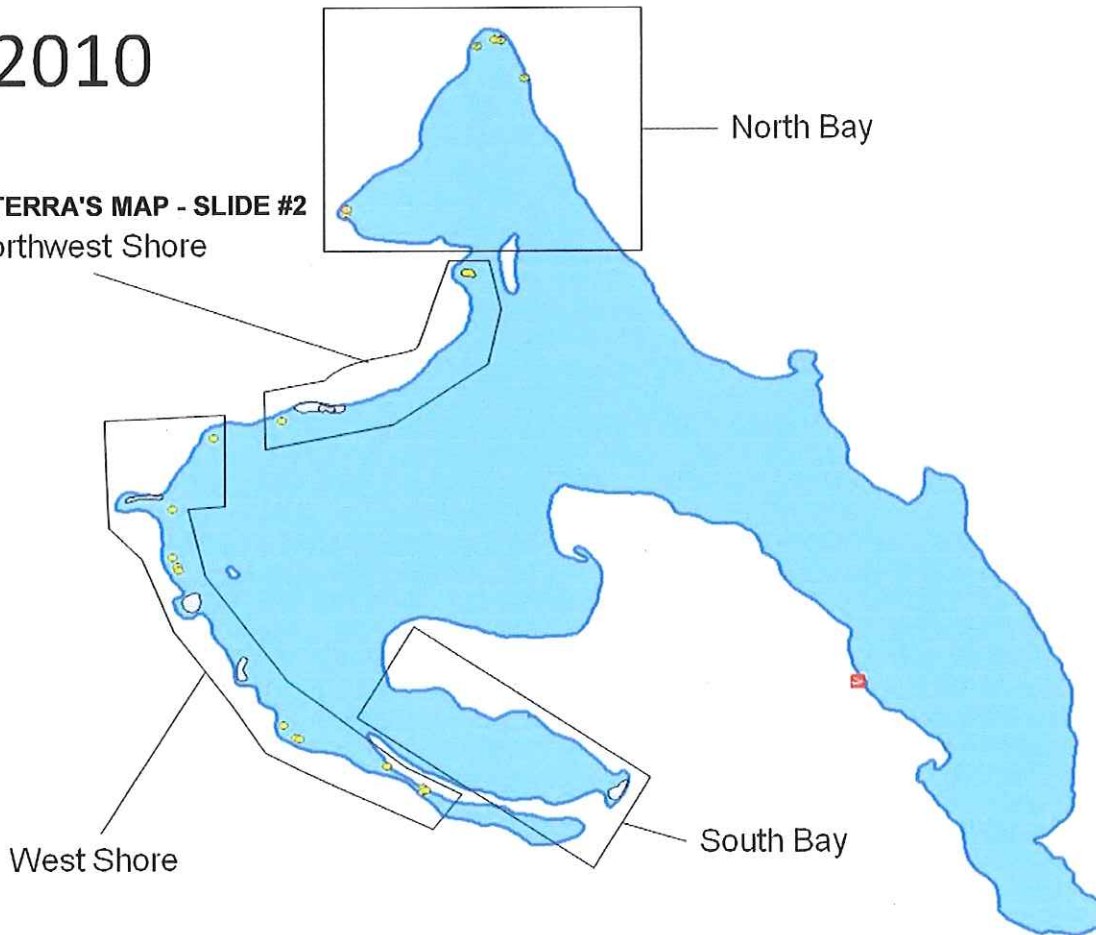
ONTERRA'S MAP - SLIDE #1



2010

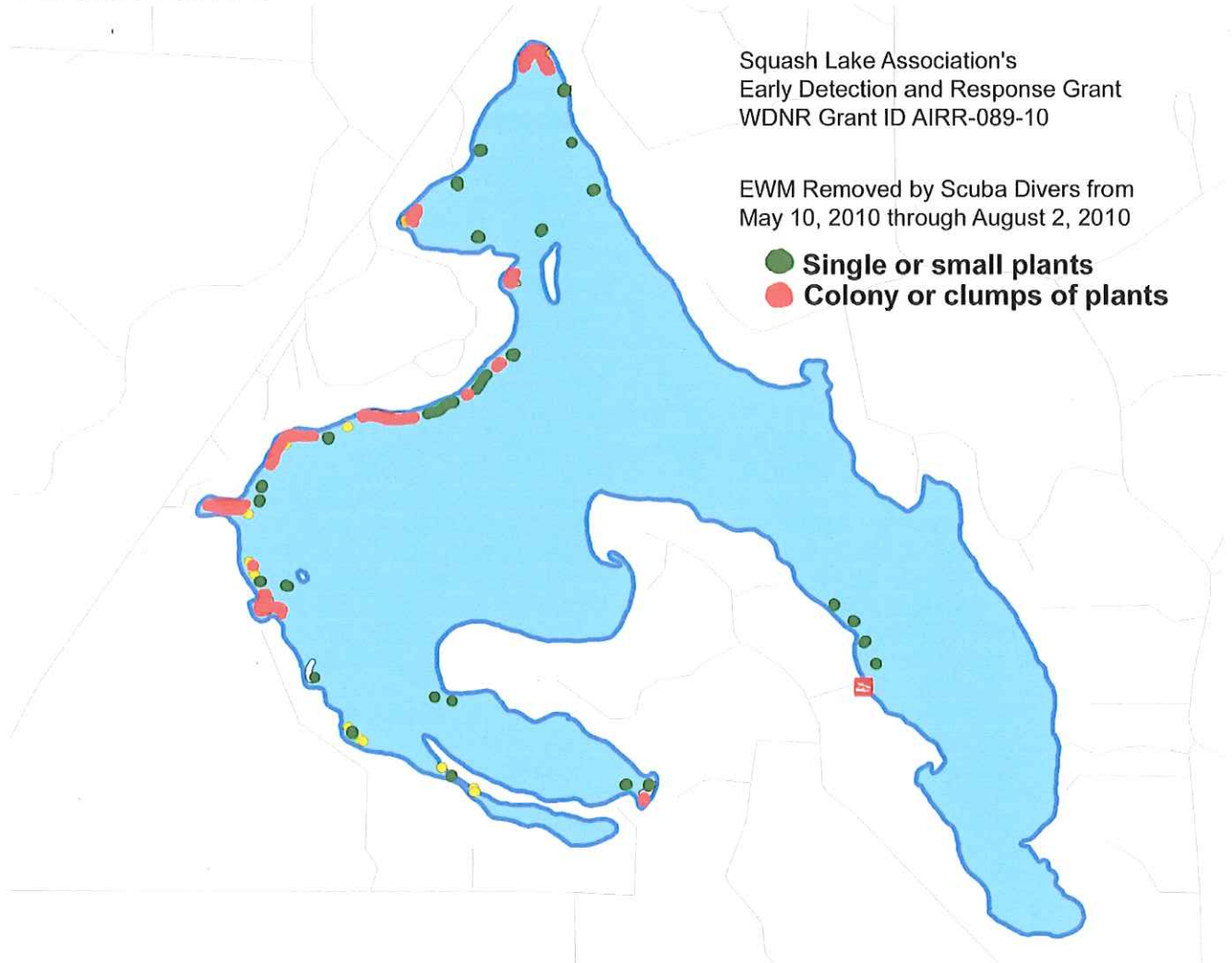
ONTERRA'S MAP - SLIDE #2

Northwest Shore



EWM Removed by Scuba Divers from
May 10, 2010 through August 2, 2010

- Single or small plants
- Colony or clumps of plants



**Squash Lake Association's
2010 EWM Harvesting
Accumulative Report**

Pounds of EWM Harvested by Paid Divers 468
Pounds of EWM Harvested by Volunteers 300
Total EWM Harvested from Squash Lake 768

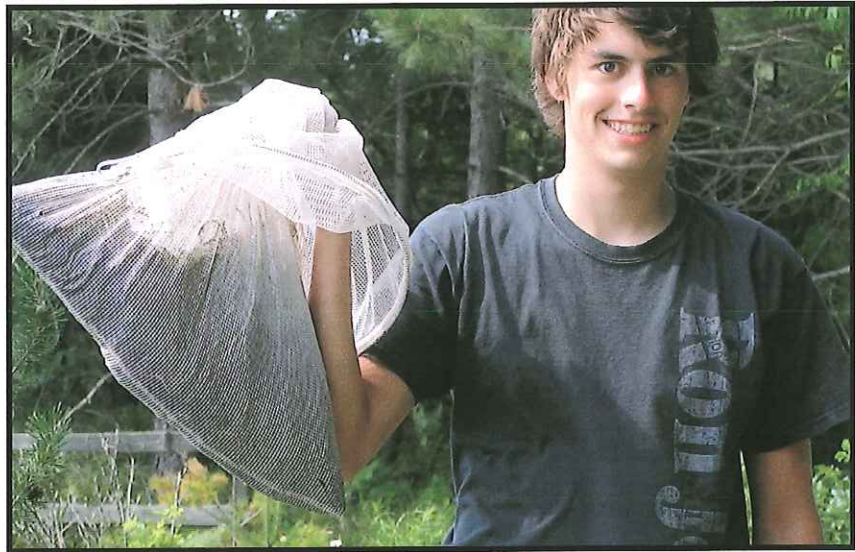
Amount of EWM Harvested Each Day by SLA's Paid Divers			
Harvesting Statistical Information	Pounds of Ewm Harvested	Water Temp (F)	Air Temp (F)
Monday, May 10, 2010	80	52	61
Monday, May 17, 2010	60	55	74
Tuesday, May 18, 2010	80	56	76
Wednesday, May 19, 2010	70	57	76
Monday, May 24, 2010	10	70	87
Tuesday, May 25, 2010	12	68	84
Friday, May 28, 2010	10	66	73
Tuesday, June 01, 2010	5	68	82
Thursday, June 03, 2010	4	67	72
Monday, June 07, 2010	3	65	67
Wednesday, June 09, 2010	10	67	70
Thursday, June 10, 2010	5	67	68
Monday, June 14, 2010	2	72	67
Tuesday, June 15, 2010	1	70	63
Wednesday, June 16, 2010	2	68	68
Thursday, June 17, 2010	2	67	79
Friday, June 18, 2010	5	70	84
Tuesday, June 22, 2010	2	78	86
Wednesday, June 23, 2010	1	76	79
Thursday, June 24, 2010	2	75	75
Friday, June 25, 2010	2	75	77
Monday, June 28, 2010	2	76	74
Tuesday, June 29, 2010	2	77	83
Wednesday, June 30, 2010	3	76	76
Subtotal	375		

Amount of EWM Harvested Each Day by SLA's Paid Divers			
Harvesting Statistical Information	Pounds of Ewm Harvested	Water Temp (F)	Air Temp (F)
Continued	375		
Thursday, July 01, 2010	1	75	72
Friday, July 02, 2010	1	75	75
Tuesday, July 06, 2010	1	76	86
Wednesday, July 07, 2010	1	76	79
Thursday, July 08, 2010	1	75	75
Friday, July 09, 2010	1	75	77
Monday, July 12, 2010	0	76	76
Tuesday, July 13, 2010	0	77	80
Wednesday, July 14, 2010	0	0	0
Thursday, July 15, 2010	0	77	79
Friday, July 16, 2010	0	78	84
Monday, July 19, 2010	2	78	80
Tuesday, July 20, 2010	2	77	77
Wednesday, July 21, 2010	20	77	80
Thursday, July 22, 2010	25	76	70
Friday, July 23, 2010	15	77	81
Monday, July 26, 2010	10	77	82
Tuesday, July 27, 2010	0	0	0
Wednesday, July 28, 2010	5	77	77
Thursday, July 29, 2010	7	77	80
Friday, July 30, 2010	1	76	78
Total	468		

PHOTO JOURNAL - SQUASH LAKE ASSOCIATION'S VARIOUS GRANT RELATED ACTIVITES

photos taken by Steph Boismenu

SLA Scuba Diver, Justin Polic,
holding a bag of harvested EWM
July 2010



AIS floating classroom in progress.

SLA's divers Morgan (in water) and
Nick (in boat) talking with Squash
Lake residents Randy & Wes about
EWM.
August 2, 2010.



Examining EWM
Native Milfoil vs.
Non-Native Milfoil.



AIS Identification and
Monitoring Training
August 13, 2010



The last day of volunteer hand-harvesting during the 2010 open water season - September 18, 2010.

Note: I'm happy because I was able to harvest more EWM at the end of the season. My dog Nala is not happy because I wouldn't let her come with.....WHY?

My dogs love the water! However, if allowed to romp in the harvesting areas, they will create fragments and/or spread fragments around! Sorry.



Future Squash Lake Scuba Diver

Why Should We Care?

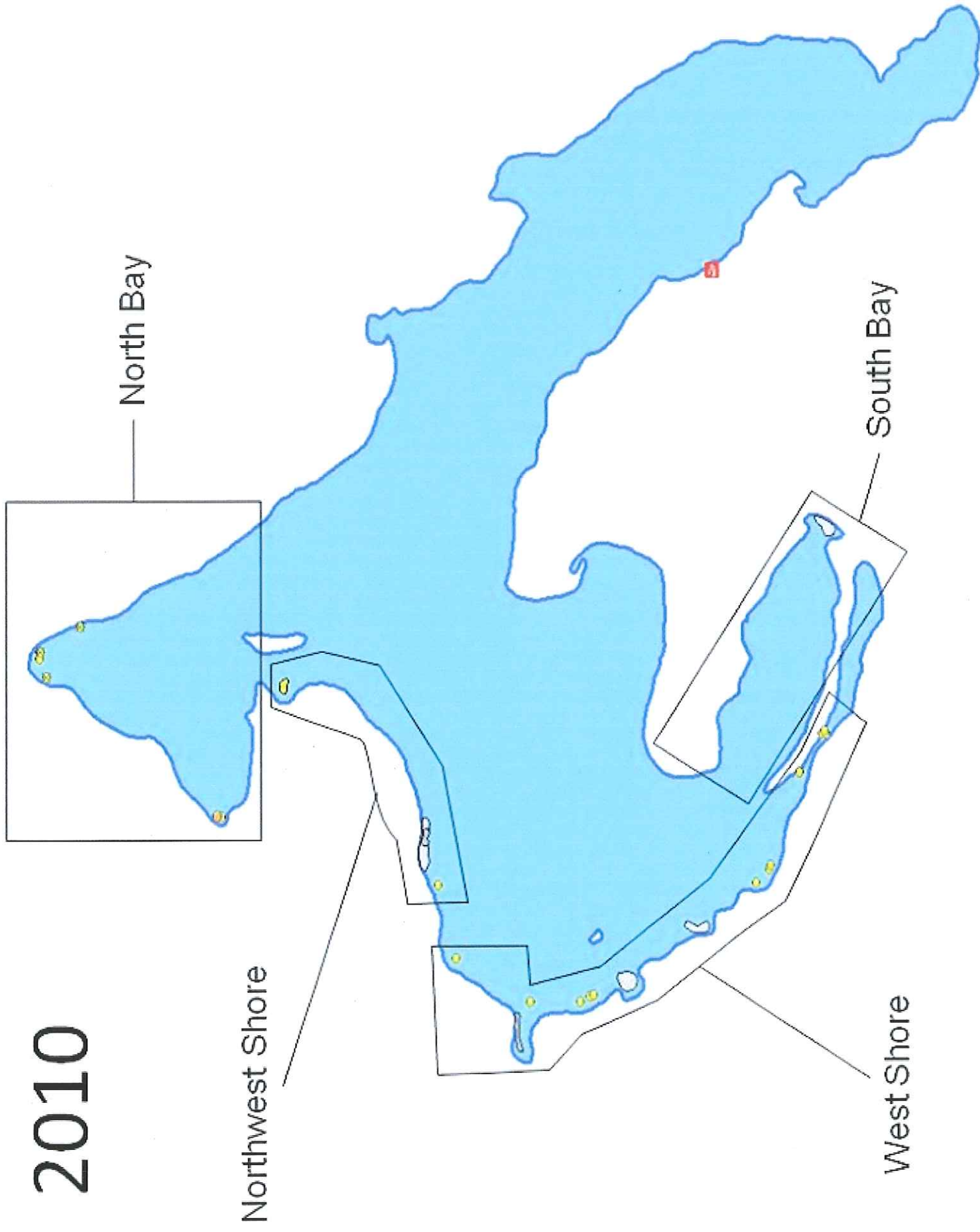
Becasue between now and the next 100 years, I want her to know Squash Lake as it is now- prestine, beautiful, and untouched by 2 4-D or other such poisonus herbacide!

How she enjoys the lake in the years to come, is in the mercy of our hands - now.

Fiona Fewtrell (Boismenu) of Peterborough England and future Squash Lake Scuba diver. Besides England, Squash Lake is her American home!



2010



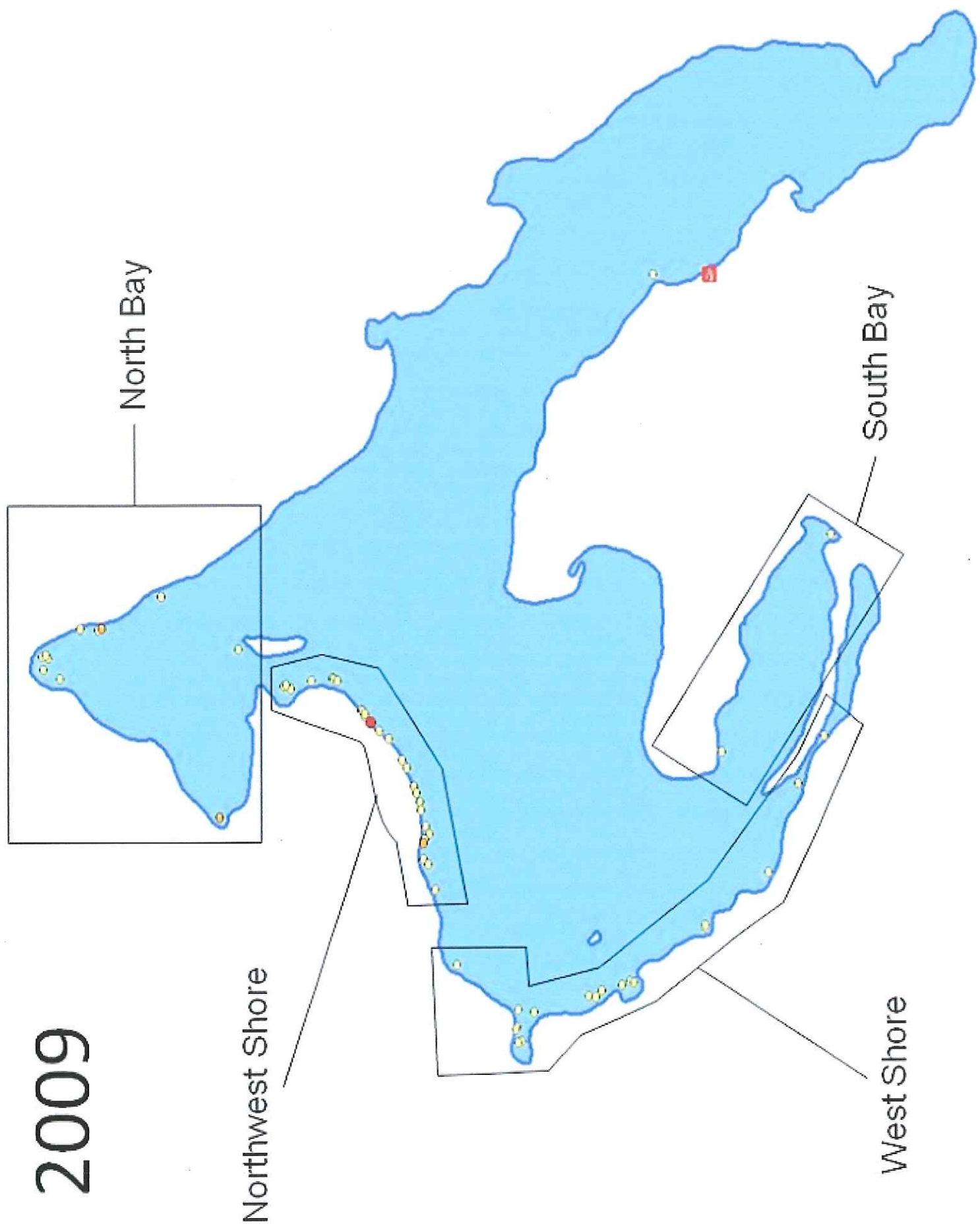
North Bay

South Bay

Northwest Shore

West Shore

2009



North Bay

Northwest Shore

West Shore

South Bay

Squash Lake Association's
Early Detection and Response Grant
WDNR Grant ID AIRR-089-10

EWM Removed by Scuba Divers from
May 10, 2010 through August 2, 2010

- Single or small plants
- Colony or clumps of plants

