



## **2011 Eurasian Water-Milfoil Management Report**

### **Upper Saranac Lake, NY**

Submitted By:

Aquatic Invasive Management, LLC

6047 Sentinel Rd.

Lake Placid, NY 12946

[www.milfoilremoval.com](http://www.milfoilremoval.com)

## Introduction

2011 marked the first year that we would attempt to manage the entirety of Upper Saranac Lake with just a two diver crew. We implemented the strategy in 2010 in a smaller dosage as a way to see if it could work. We were concerned that by reducing the crew size so much we would be incapable of covering large areas. As a result we would be “bogged down” on large areas while milfoil continued to grow in other locations un-harassed. On the other side of the argument we were hopeful that by reducing our crew size we would be able to keep them on the lake for longer periods of time. A smaller crew is less costly, meaning it could stay on the lake for more consecutive weeks and, in theory, suppress more milfoil in more locations than a large crew for only one week. We also saw how effective Guy Middleton’s surface spotting was and how his findings could guide a small crew to specific problem locations. On top of it all we knew the lake, our divers knew the lake and everyone could look at a piece of shoreline and know where to expect to find milfoil and how to go about swimming for it.

So with the approval of the Upper Saranac Lake Foundation (USLF) we laid out a plan to operate a small crew for 20 consecutive weeks. Our hope was to see a reduction in overall milfoil growth and an increase in swim coverage of key areas.

## Methods

With a small crew capable of moving quickly from location to location we knew they could be very flexible, meaning they could switch from one objective to another easily. We decided to prioritize their work in order of importance.

1. Rapid response calls verified as milfoil by Guy Middleton
2. Buoys dropped by Guy Middleton
3. Key areas known to produce consistent milfoil growth

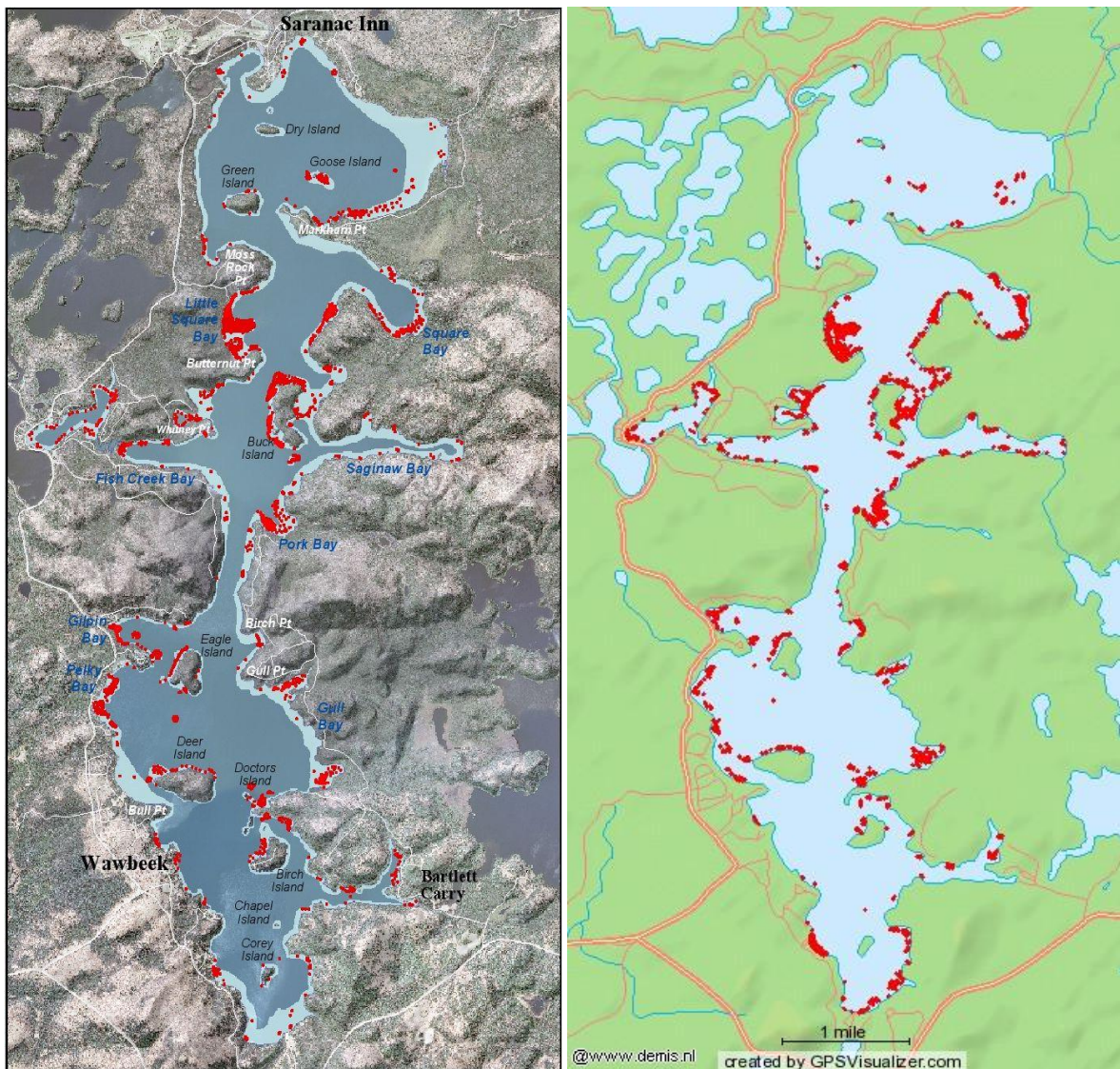
By prioritizing this way we knew that rapid response calls would get the necessary “rapid” response. We also knew that any growth easily seen from the surface is therefore a concern for fragmentation and for the possibility of much more low lying growth in its vicinity. Therefore Guy’s surface spots received the next level of importance to ensure that nothing was getting ahead of us. Finally, we always know where to find the milfoil and once all other priorities were met, the crew could commit to coverage swimming key areas.

As our crew found milfoil the surface tender would collect GPS waypoints that would characterize the overall spread of the growth and its density. In other words, a dense area of growth would receive a dense cluster of GPS waypoints and a sparse area would receive sparse waypoints over the exact locations where plants were being picked.

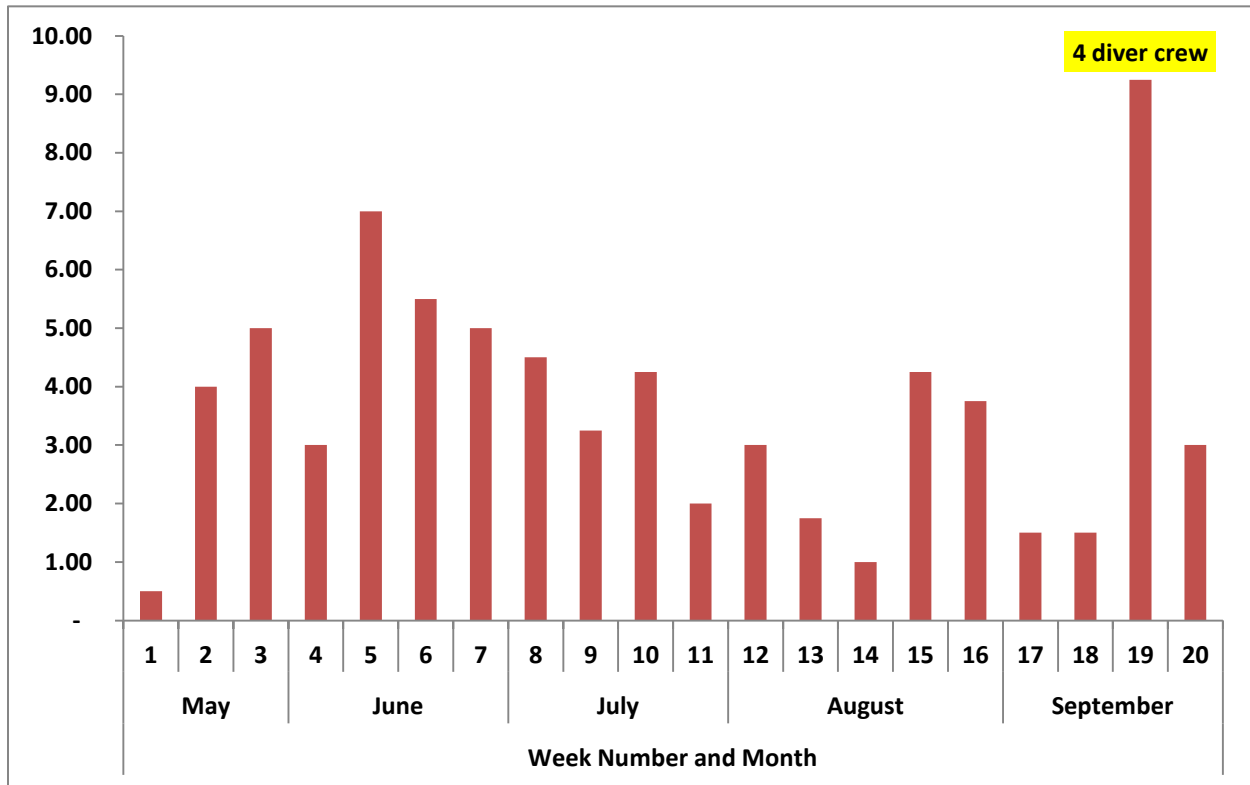
This data was then converted into maps that could both represent the work completed by our crew and provide us with real time data on where the most growth was occurring and recurring.

## Results

Fig I: Total GPS harvest points from 2010 (map on left) and 2011 (map on right). Maps include all collected points over the entirety of each year.



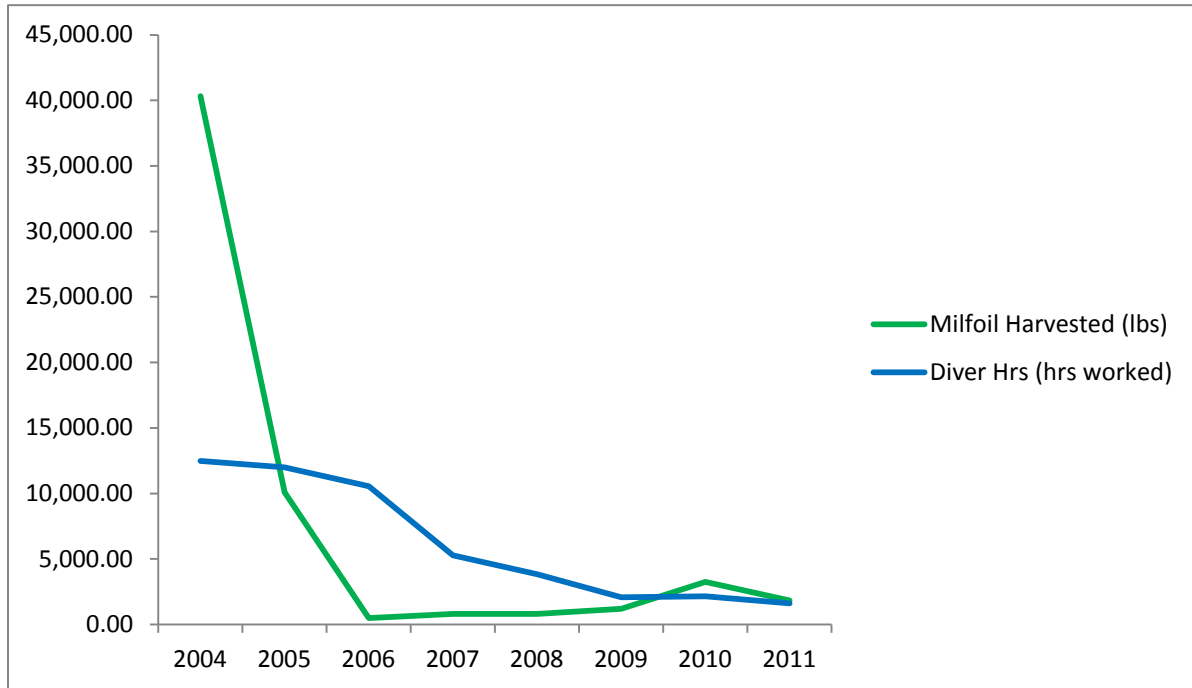
**Fig II: Total bag harvests by week (weeks 1-20) and month for 2011. Week 19 was a four diver crew and focused on large areas with known consistent growth such as Little Square Bay and Pork Bay.**



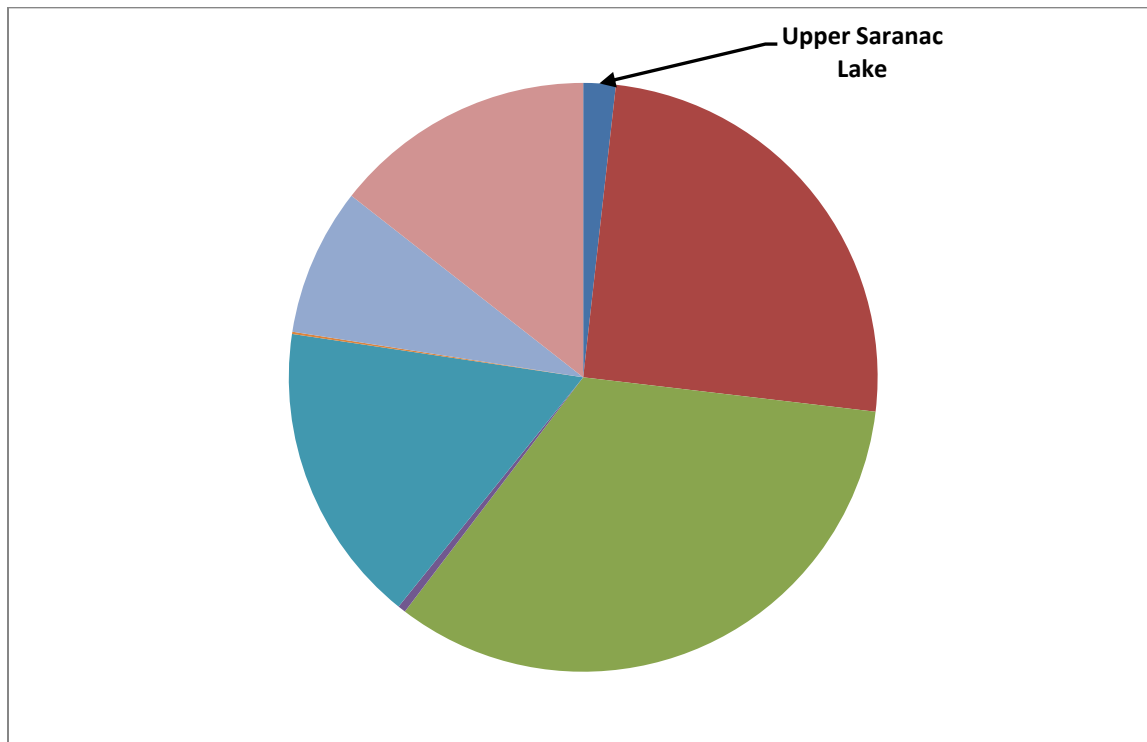
**Fig III: Bag and pound totals for 2010 and 2011**

	Bags Harvested	Weight in lbs
2010	152	3,800
2011	73	1,825

**Fig IV: Milfoil harvested in pounds versus diver hours worked from 2004 to 2011**



**Fig V: Total bags harvested by AIM in 2011 (4,111 bags) by client**



## Discussion of Trends

In Fig I the comparison is shown between 2010 and 2011 in total GPS points collected and mapped. Each year shows the same key dense areas such as Little Square Bay, Pork Bay, Square Bay, East side of Buck Island, etc. In addition, some areas from 2010 do not appear on the 2011 map and vice versa. In many cases more points show on the 2011 map which is likely characteristic of the fact that more time was spent on the lake in 2011 and therefore, more points collected and more repeat harvests of certain areas.

In Fig II the bag count trend is shown over the course of the 20 week season. If the bag count from the four diver crew during week 19 is disregarded the trend is fairly consistently downward, ie: less bags harvested over time. The week with four divers involved a concentrated effort in Little Square Bay and Pork Bay to meticulously remove large areas of persistent milfoil growth.

Fig III shows the bag and pound totals for 2010 and 2011. The 2011 totals are less than half of those in 2010 despite more diver presence on the lake and better overall coverage. In other words, this shows a significant reduction in milfoil levels since last year and further demonstrates the success of our new methods.

Fig IV shows our milfoil harvested versus diver hours worked graph from 2004 to 2011 on Upper Saranac Lake. In 2010 we saw the diver hours trend continue downward yet saw an increase in milfoil harvested. The immediate concern was the possibility that milfoil growth was increasing with our reduction in diver time. While it may have appeared this way on the graph we felt strongly that in 2010 we were simply picking more milfoil in more areas because our new methods allowed us to. In other words the diver time was being invested more on harvesting than searching. In addition, we felt that in 2010 we were catching up on growth that had not been completely controlled in previous years when we were trying to develop an ideal lake-wide management strategy for the maintenance phase.

Now, the 2011 data, when added to the long term graph shows a trend in the right direction. In addition to the continued downward trend in diver time, the milfoil harvested trend dips significantly. We feel this is further proof of the effectiveness of our new methods. Additionally it is now our goal to continue to move both the diver time and milfoil harvested trends downward as we go forward.

Fig V shows how little milfoil is being found on Upper Saranac Lake compared with our other clients.

## **Future Plans**

Our plan is to continue to push the trends on Fig IV down. Less diver time (ie: less cost to the Upper Saranac Lake Foundation) and less milfoil harvested are our goals. The methods debuted and proven in 2011 will continue to be our approach and as always we will continue to seek out ways to improve them. Upper Saranac is and has been the blueprint for large-scale, lake-wide milfoil management. As we go forward we hope to evolve the methods and improve the results.

## **Thanks**

We would like to thank the Upper Saranac Lake Foundation for working with us since 2008 and allowing us the leeway to make changes as needed. Thanks to you we have a business born from the successes of early milfoil work on the lake. Thanks to you we have been able to hone in on the best ways to manage a maintenance phase milfoil problem.

We would like to thank Guy Middleton for being a huge asset in the hunt for milfoil lake-wide. He kept a constant flow of buoys and maps coming to our dive leaders and made it possible for us to suppress growth all over the lake without losing track of any problem areas. Without his diligence, many areas would not have received the attention they needed when they needed it.