2011 Aquatic Plant Management Plan End of Year Summary

Rice Lake Aquatic Plant Management Plan Implementation

Rice Lake, Barron County

DNR No. ACEI-095-11
SEH No. RICLI 120323

April 26, 2012

2011 Aquatic Plant Management Plan End of Year Summary

Rice Lake Aquatic Plant Management Plan Implementation
Rice Lake, Barron County

Prepared for:
Rice Lake Protection and Rehabilitation District
Rice Lake, WI

Prepared by:
Short Elliott Hendrickson Inc.
1701 West Knapp Street, Suite B
Rice Lake, WI 54868-1350
715.236.4000

Lake Scientist Date

Distribution List

No. of Copies	Sent to
2	Doug Pitts, Chair Rice Lake Protection and Rehabilitation District 2083 22-1/2 Avenue Rice Lake, WI 54868
2	Pamela Toshner Wisconsin Department of Natural Resources 810 W. Maple Street Spooner, WI 54801

Table of Contents

List of Figures

List of Appendices

2011 Aquatic Plant Management Plan End of Year Summary

Rice Lake Aquatic Plant Management Plan Implementation

Prepared for Rice Lake Protection and Rehabilitation District

1.0 Introduction

The Rice Lake Protection and Rehabilitation District (RLPRD) was awarded a three year (2011-13) Aquatic Invasive Species Established Population Control grant in February of 2011 to continue implementation of their 2009 Aquatic Plant Management (APM) Plan. The project includes curly-leaf pondweed treatment with herbicides and harvesting; native plant removal; watercraft inspection; aquatic invasive species monitoring; plant density monitoring; surface water quality sampling, and purchase of two hand held GPS units to support management activities. The following document is a summary of the activities completed during the 2011 season, and should be considered a final document for year one (2011) of WDNR Project ACEI-095-11, and a final document for SEH/RLPRD agreement for 2011 services (RICLI 116510). This document should accompany the next reimbursement summary to be submitted by the RLPRD to the WDNR.

2.0 Curly-leaf Pondweed (CLP) Control Work

As recommended in the 2009 APM Plan, the RLPRD concentrated its 2011 early season efforts on removing as much as 80% of the annual growth of CLP (a non-native aquatic invasive species) from the lake using a combined approach of chemical herbicides in strategic areas, and large-scale aquatic plant harvesting. The RLPRD currently owns and operates three large weed harvesters and all three were used to remove approximately 139 tons of CLP from approximately 110 acres of the lake in 2011. Harvesting began on May 31, 2011 and continued through July 5th.

Aquatic herbicides are used to treat CLP along Lakeshore Drive (Appendix A, Map 1) in the main basin and at two locations in the south basin. South basin herbicide use allows the RLPRD to keep all three harvesters on the main basin of the lake during the active CLP harvesting period. Three harvesters allow for faster removal, better clean up of fragments, and less wear and tear on all three machines. Herbicide use along Lakeshore Drive improves the aesthetics of the lake shore area for visitors and during the mid June Aquafest Events.

Based on 2010 post treatment survey work and historic areas of CLP growth, SEH proposed an 2011 early season CLP chemical treatment of 58.55 acres along lake shore drive in the main basin of the lake and in two smaller beds in the south basin of the lake (Appendix A, Map 2). Pre-treatment survey work completed by Steve Schieffer of Ecological Integrity Service, LLC (EIS) in early May 2011, reduced the proposed treatment area to 41.56 acres (Appendix A, Map 3). The purpose of a pre treatment aquatic plant survey is to determine if

the target plant (CLP) in present in enough quantity to warrant treatment. EIS evaluated 252 points within and near the proposed treatment area (Appendix A, Map 4).

Aquathol Super K, a granular formulation of the active ingredient endothall was applied by licensed pesticide applicators from Midwest Aquacare on May 19th, 2011. The herbicide was applied at 0.75 ppm in shallow water less than 5-ft deep, and at 1.0 ppm in deeper water. All pre treatment survey points and final herbicide application plans were completed by SEH. The total CLP removed from Rice Lake in 2011 was approximately 180 acres.

Post treatment survey work was completed by EIS approximately 4 wks later in late June. Survey results indicated a statistically significant reduction in CLP from pre treatment levels when all treatment areas are considered. However, only a couple of the beds had statistically significant changes when considered individually (Figure 1). Overall, the treatments were less effective in 2011 than in 2010 in several areas near Lakeshore Drive and additional CLP growth was documented outside of the 2011 treatment areas, in essence having been missed by the application.

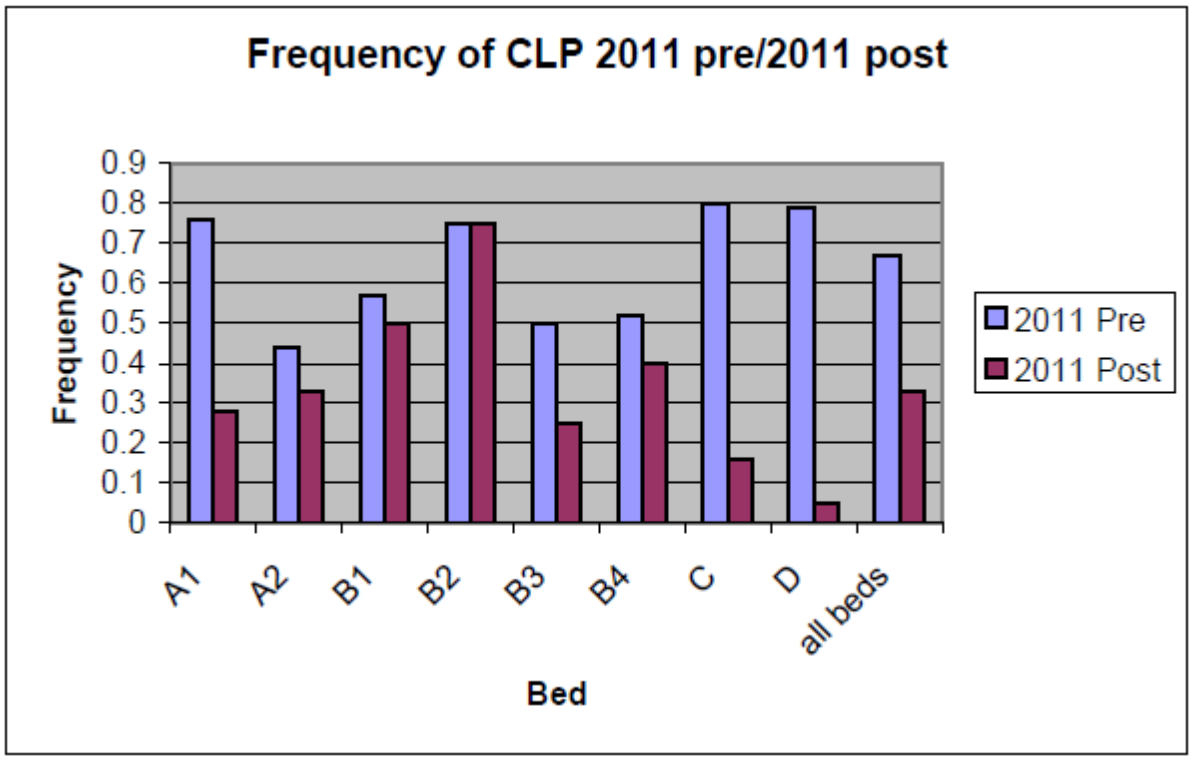


Figure 1 – Pre Post CLP Reduction in the 2011 Chemical Treatment (EIS)

Native plants did not appear to suffer greatly in 2011 as compared to the 2010 treatment. The frequency of occurrence was significantly lower from pre to post treatment for four species forked duckweed (*Lemna triscula)*, wild celery (*Vallisneria Americana)*, white water crowfoot (*Ranunculus aquatilis),* and Robbin's pondweed (*Potamogeton robbinsii)*. This reduction could have been due to seasonal variations (plants still dormant) or sampling variation from one year to the next. It is unlikely due to herbicides (although could be) because the target species was not reduced very much in many areas. There was a significant increase in two species clasping pondweed (*Potamogeton richardsonii)* (clasping pondweed) and small pondweed (*Potamogeton pusillus*).

The concentrations used in 2011(0.75 and 1.0) were much lower than the concentration used in the 2010 treatment (1.50 ppm). It appears that the lower concentration in 2011 was less effective at killing CLP than in 2010. However, native plants in the treatment areas faired a bit better than they did in 2010. Recommended concentrations in the 2012 proposed treatment plan were modified accordingly (Appendix A, Map 5).

2.1 Landowner Removal of CLP

Several private landowners contributed a lot of time to physically remove CLP fragments washed ashore during the harvesting period.

2.2 CLP Turion Density Monitoring

Turion density sampling was completed by EIS in late July at 54 randomly generated points within the 41.5 acres chemically treated. Sediment samples were taken with a Ponar grab sampler. Turion densities were reduced in Bed C, remained essentially the same in Bed A, and increased slightly in Beds B and D (Figure 2). This is another indicator that the concentration used in 2011 was not high enough to provide the desired longer term reduction that is the goal of this project.

Bed	Turion/m^2 2010	Turions/m^2 2011
B (A1-A2 for 2011))	40.0	77.6
A (B1-B4 for 2011)	14.6	15.9
C (same)	140.0	80.0
D (same)	41.7	69.0

Figure 2 – 2011 Turion Density Results (EIS)

The EIS furnished report on the pre and post aquatic plant surveying that was done in support of this project, and results from the CLP turion monitoring are included in Appendix B.

3.0 Native Plant Management

A native plant/late season harvesting plan was completed by SEH for Rice Lake. It allowed nearly 65 acres of navigation channels varying in width from 20 to 160 ft. The total area harvested for navigation and nuisance relief was substantially less than what was planned for 2011. Several areas were not harvested including the west shore north of Lake Shore Drive,

the two narrower channels alongside the wider navigational channel again marked with buoys in 2011, and in Hanson's Bay in the south basin.

Due to excess growth of common waterweed (*Elodea Canadensis*) in the area between Fireworks Island and the west shore along Lakeshore Drive, an additional channel was established through that area midway through the season.

RLPRD employees and the AIS Coordinator monitored particularly dense areas of vegetation and tried to address land owner concerns. 287 hours were spent cleaning up shorelines and harvesting approximately 60 acre of navigational channels. Nearly 326 tons of aquatic plants were harvested from July 6th through September 15th, 2011. Wild celery, coontail, and elodea were the most frequently removed aquatic plants. Modifications were made to the 2012 native plant harvesting plan and can be seen in Appendix A on Map 5.

The final CLP and native plant harvesting report assembled by the RLPRD is included in Appendix C.

4.0 Purchase of two Handheld Garmin 76csx GPS Units

In order to support both harvesting and monitoring efforts, two handheld GPS units were purchased by the RLPRD in 2011. With the addition of these two devices, each harvester can now track it progress on the lake. In addition, the units are used to install and position the Channel Marking Buoys that mark the preferred route for high speed north-south traffic on the main body of the lake, and to track areas of dense aquatic plant growth or locations of plant samples taken from the lake.

5.0 AIS Education and Public Information

Several AIS education and information events were held by the RLPRD and attended by SEH. During Aquafest SEH participated in a panel discussion to answer question about the lake and its management. This discussion was scheduled as a part of a Lake Fair held at the Rice Lake City Park Band Shell off Lakeshore Drive. The Aquafest Parade was missed, but the Chetek Liberty Fest Parade was put in place of it. SEH participated in this parade along with the AIS Coordinator hired by the RLPRD. In 2011, the RLPRD was not allowed to be in the Rice Lake High School Homecoming Parade. SEH also participated in a radio interview with Sally B to support the 2011 Annual Meeting.

SEH was present at six RLPRD meetings in 2011, including the annual meeting. SEH was also present representing the RLPRD during a public meeting to discuss the newly formed City Stormwater Utility. Although not a part of this grant funded project, SEH also prepared two separate grant applications on behalf of the RLPRD in 2011, both were funded by the WDNR.

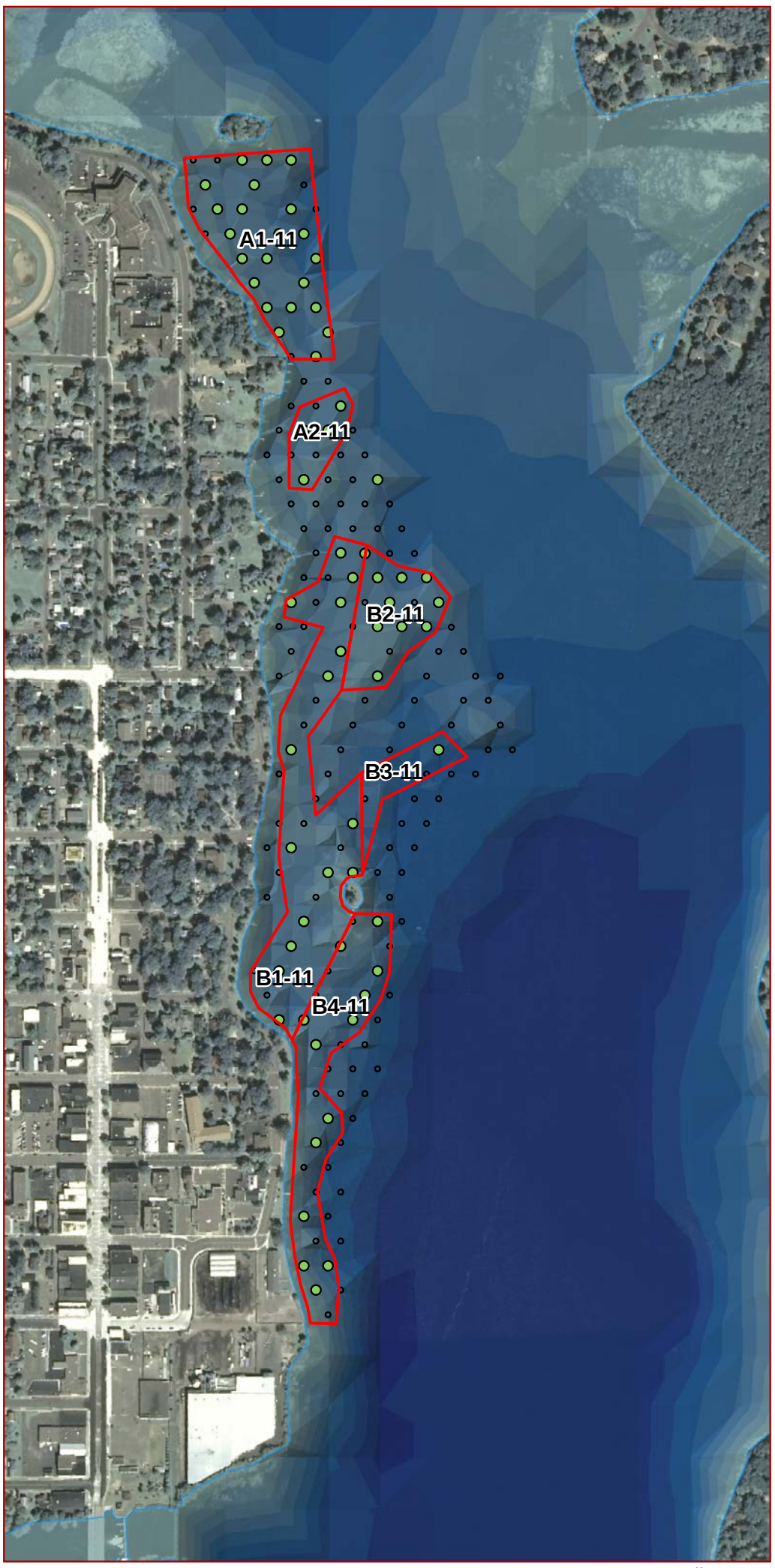
6.0 Final Notes

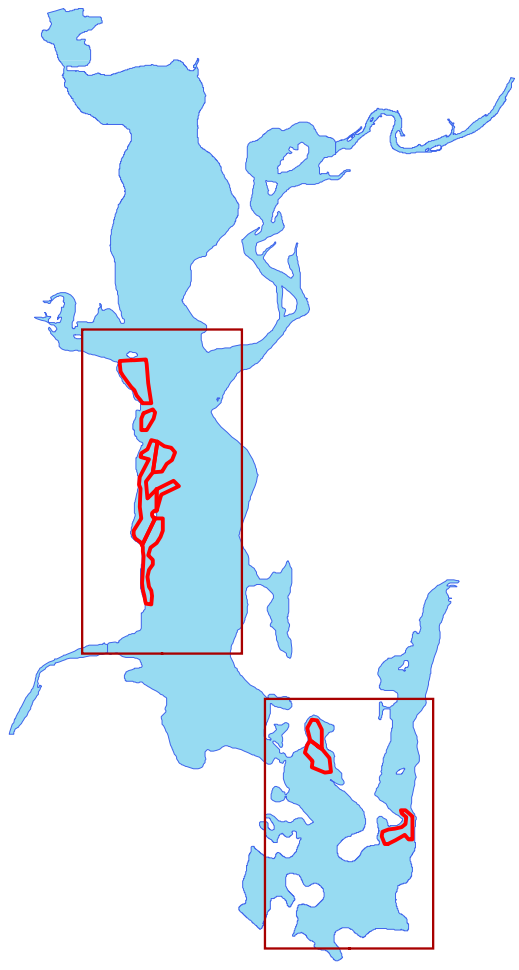
The role of SEH in this project is limited to providing the necessary aquatic plant chemical treatment and harvesting planning and recommendations to the RLPRD and assisting the RLPRD when they have questions and concerns. These services are complete for the 2011 season, but SEH will continue to provide these services in 2012.

DLB

Appendix A

Maps





EXPLANATION

2011 Spring Treatment Area

2011 Spring Pre-treatment Survey

- Absent
- Present

Curly-Leaf Pondweed

Bed	Acreage	Mean Depth (ft)	Substrate	Treatment Rate[a] (lbs/acre)	Density
A1-11	7.52	5.2	Rock, sand	17	High
A2-11	1.59	4.4	Sand	15	High
B1-11	10.08	4.5	Rock and muck	15	Moderate
B2-11	3.47	4.8	Muck, rock	16	High
B3-11[a]	1.60	9.0	Muck, rock	40	Moderate
B4-11	6.49	5.4	Muck, rock	18	High
C1-11	2.56	3.7	Muck	12	High
C2-11	4.18	7.1	Muck	23	High
D-11[a]	4.07	8.1	Muck	36	High
TOTAL	**41.56**				

[a] Treated at 1.0 parts per million (ppm), all others at 0.75 ppm

Map Document: P:\PT\RICLI\Common\ArcGIS\ArcMaps\2011 CLP Treatment Areas
5/9/2011 -- 11:28 AM

SEH
1701 WEST KNAPP STREET, SUITE B
RICE LAKE, WI 54868
PHONE: 715.236.4000
FAX: 715.234.4069
WATTS: 800.903.6970
www.sehinc.com

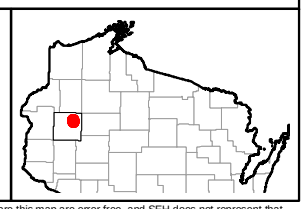
Project: RICLI
Print Date: 5/9/2011

Map by: JAM
Projection: NAD 83 Wisconsin TM
Source: WDNR, S. Schieffer

Rice Lake

2011 Curly-Leaf Pondweed Treatment Areas

Barron County, Wisconsin



Appendix B

Ecological Integrity Services 2011 Pre Post and CLP Turion Monitoring Report

Rice Lake, Barron County Wisconsin
WBIC: 2103900

Herbicide Treatment Analysis
Potamogeton crispus-(Curly-leaf pondweed)

2011

Prepared by: Ecological Integrity Service, LLC
Amery, Wisconsin

Abstract

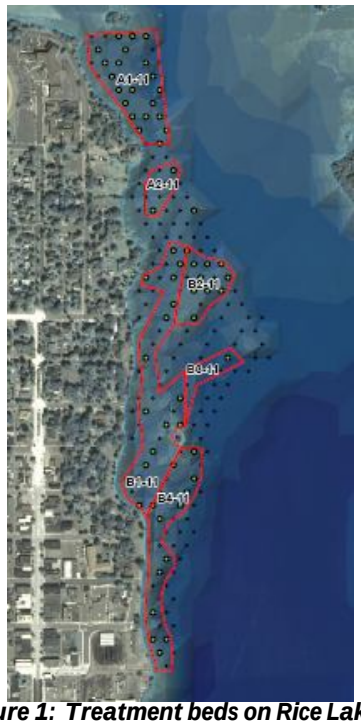
On May 17, 2011 an herbicide application targeting Potamogeton crispus (CLP) was completed on 41.56 acres on Rice Lake, Barron County Wisconsin. The dosage ranged from 0.75 ppm to 1.0 ppm. The effectiveness was mixed. A frequency and density increase occurred in all beds when compared to 2010, which had a highly effective treatment in 2010. A frequency reduction occurred in each bed when comparing the pre-treatment 2011 frequency to the post treatment 2011 frequency. Only two of the beds had a statistically significant reduction, but all bed frequencies combined also had a statistically significant reduction. A turion analysis showed an increase in turion density in 3 of 4 beds. Also, four species of native plants had a frequency reduction from 2010 to 2011.

Introduction

On May 17, 2011 eight beds of *Potamogeton crispus*-curly leaf pondweed (CLP) totaling 41.56 acres were treated with herbicide (endothall) (see figure 1). Prior to treatment, a pre-treatment survey was conducted at 252 predetermined sample points. The presence of CLP was recorded at each sample point, along with depth.

Approximately 4 weeks after treatment took place, a post-treatment survey was conducted. Each of the sample points used in the pre-treatment survey was used. The CLP density was recorded as well as the density of each native plant species found. Also, a turion analysis was completed at 52 random points within the eight beds (Beds A1-A2 and Beds B1-B4 were combined into two beds). A sediment sampler was used with one sample obtained at each sample point and screened for CLP turions. The turion density was then calculated on a per square meter basis.

To examine the effectiveness of an herbicide treatment, data collected one year prior to the treatment (post treatment of previous year) is compared to the post treatment survey of the treatment year. Because the treatment was very successful in 2010, the frequency and density of the CLP beds was minimal. Turions still remained in the treatment areas and after they germinate, the CLP can fill back into the treatment sites that the 2010 post treatment survey would not reflect. However, if the pre-treatment presence is compared to the post-treatment presence, effectiveness of treatment on that new growth can be evaluated. This is based on the premise that if the CLP frequency is high early in the season, this frequency should at the very least stay the same, or could possibly increase by post treatment survey time (with no treatment). If the frequency decreases or the CLP is gone from that sample point, we could deem the herbicide successful at that point. As a result, the CLP survey results from the post treatment survey in 2011 will be compared both to the 2010 post treatment survey and the 2011 pre-treatment survey.



Bed	Acreage	Mean Depth (ft)	Substrate	Treatment Rate[a] (lbs/acre)	Density
A1-11	7.52	5.2	Rock, sand	17	High
A2-11	1.59	4.4	Sand	15	High
B1-11	10.08	4.5	Rock and muck	15	Moderate
B2-11	3.47	4.8	Muck, rock	16	High
B3-11[a]	1.60	9.0	Muck, rock	40	Moderate
B4-11	6.49	5.4	Muck, rock	18	High
C1-11	2.56	3.7	Muck	12	High
C2-11	4.18	7.1	Muck	23	High
D-11[a]	4.07	8.1	Muck	36	High
TOTAL	41.56				

Figure 1: Treatment beds on Rice Lake for 2011 (created by Jake Macholl,SEH, Inc)

Pre-treatment survey

The pretreatement survey results are shown in figure 2. The green polygons are the treatment areas that were initially proposed. The survey resulted in many sample points where no CLP was found. As a result, the treatment areas were adjusted based upon this lack of CLP growth.

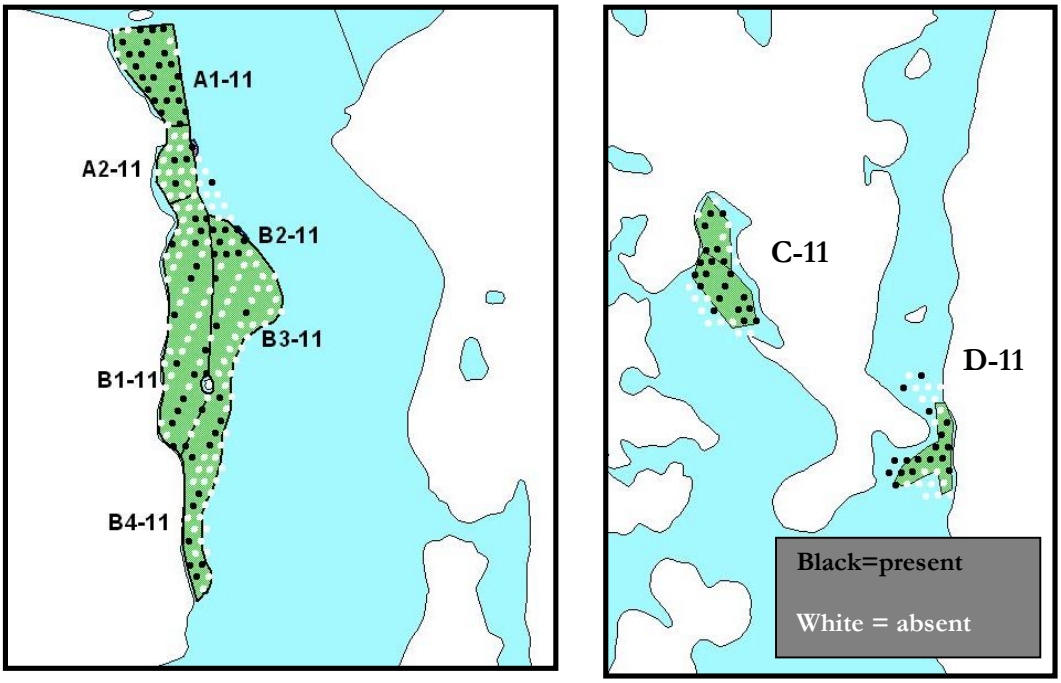


Figure 2: Maps with pre-treatment absence/presence data-initial proposed treatment.

Figure 3 shows the adjusted treatment areas with the pretreatment survey results included. This map shows the justification of the treatment adjustments.

Due to the adjustments, many sample points were now out of the treatment areas. The points inside of the treatment areas were the only ones used for the CLP treatment analysis. The points outside of the treatment areas can be used to help determine treatment areas in 2012, especially since many ended up having CLP growth in them.

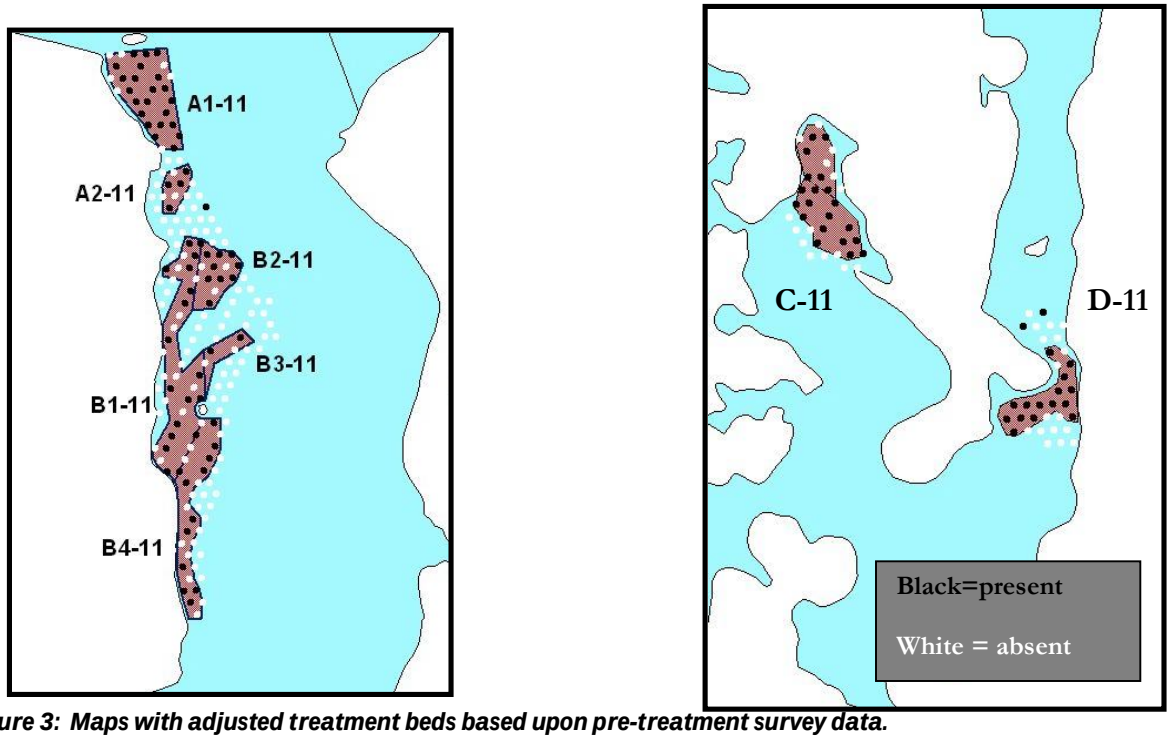


Figure 3: Maps with adjusted treatment beds based upon pre-treatment survey data.

Post treament survey

The post treatment survey shows an increase in CLP growth in beds A1, A2 and B1 thru B4 as compared to 2010. Beds C and D showed minor increases compared to 2010. However, there was frequency decreases in all beds when comparing the presence of CLP in the pre-treatment survey of 2011 to the post treatment survey of 2011.

An interesting observation is that there are a number of sample points outside of the adjusted treatment beds that had growth of CLP in the post treatment survey, that had no CLP present in the pre-treatment survey. There was a concern that the CLP may be missed in the pre-treatment survey, resulting in not treating areas that should be treated. However, based upon the water temperature of 52.7 to 53.7 degrees F as well as the size of the CLP sampled, the CLP that was going to grow should have been out of dormancy. However, it is obvious that the CLP appeared later even though it wasn't sampled. It is possible that the rake sample missed possible CLP. To reduce this chance an underwater camera is used in the pretreatment survey, but apparently this method missed the CLP also. Suggestions for avoiding this in the future are addressed in the discussion section.

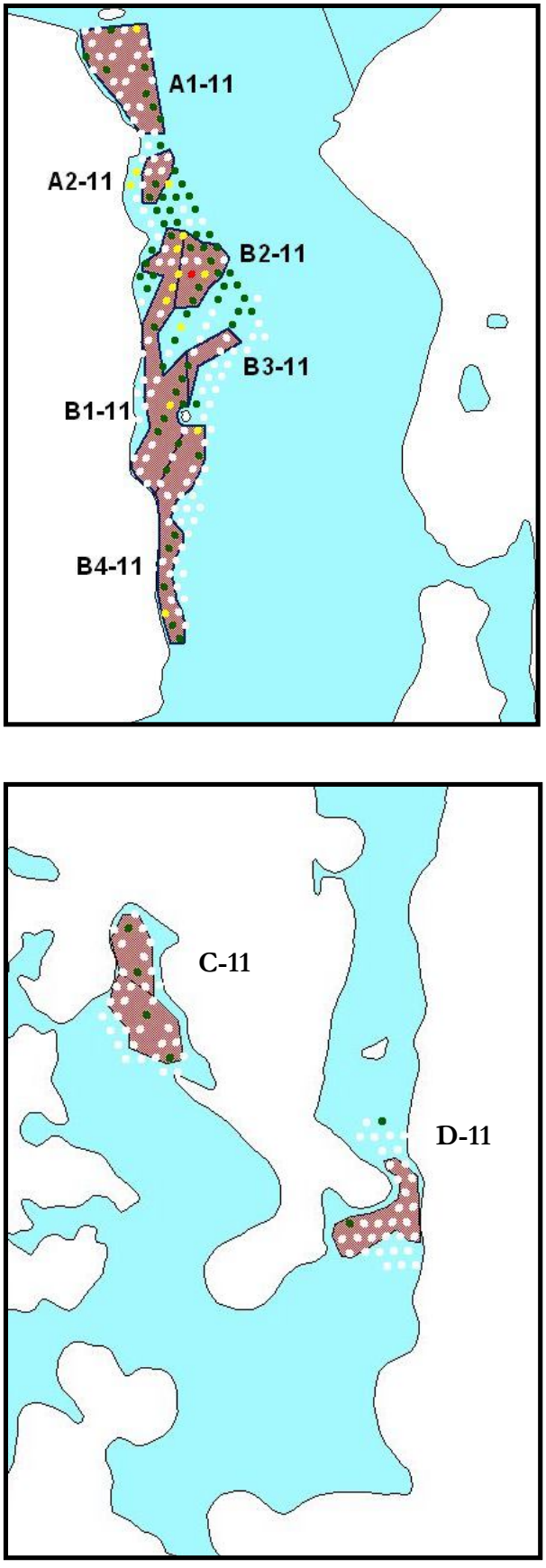


Figure 4: Map of post treatment survey with CLP density at each sample point.

Bed	2010 Freq	2011 Freq*	Change
A	0.02	0.49	increase
B	0.03	0.29	increase
C	0	0.16	increase
D	0	0.05	increase

*Bed A and Bed B for 2011 include points in Beds A1-A2 and B1-B4.

Table 1: Frequency data comparing beds in 2010 to 2011.

As can be seen in table 1, the frequency increase in each bed from 2010 to 2011. However, since the frequency was so low following the 2010 treatment, the frequency couldn't really decrease much if at all.

Bed	2011 Pre	2011 Post	Change	*Significant?
A1	0.76	0.28	decrease	yes
A2	0.44	0.33	decrease	no
B1	0.57	0.5	decrease	no
B2	0.75	0.75	no change	n/a
B3	0.5	0.25	decrease	no
B4	0.52	0.4	decrease	no
C	0.8	0.16	decrease	yes
D	0.79	0.05	decrease	yes
all beds	0.67	0.33	decrease	yes

*Significance based upon chi-square analysis (yes indicates $p<0.05$)

Table 2: Frequency data comparing pre-treatment frequency from 2011 to the post treatment survey 2011.

Table 2 shows that there was a reduction in frequency between the before treatment survey (pre) and the post treatment survey in 2011. Only Beds A1, C and D had statistically significant reductions. However, all beds together showed a statistically significant reduction, showing some effectiveness of the treatment. Figure 5 shows the difference graphically.

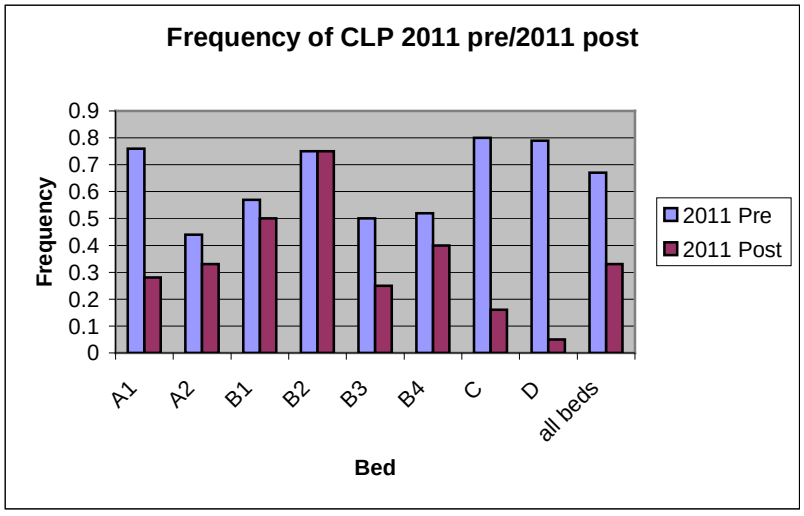


Figure 5: Graph showing frequency data comparison of pre and post treatment surveys 2011.

It is safe to assume that the density was higher in 2011 than in 2010, since the frequency was higher. Figure 6 shows this difference. The density is not recorded in the pre-treatment survey since the plants are so small and is not a valid comparison to when the CLP is at peak growth, thus potentially indicating invalid changes.

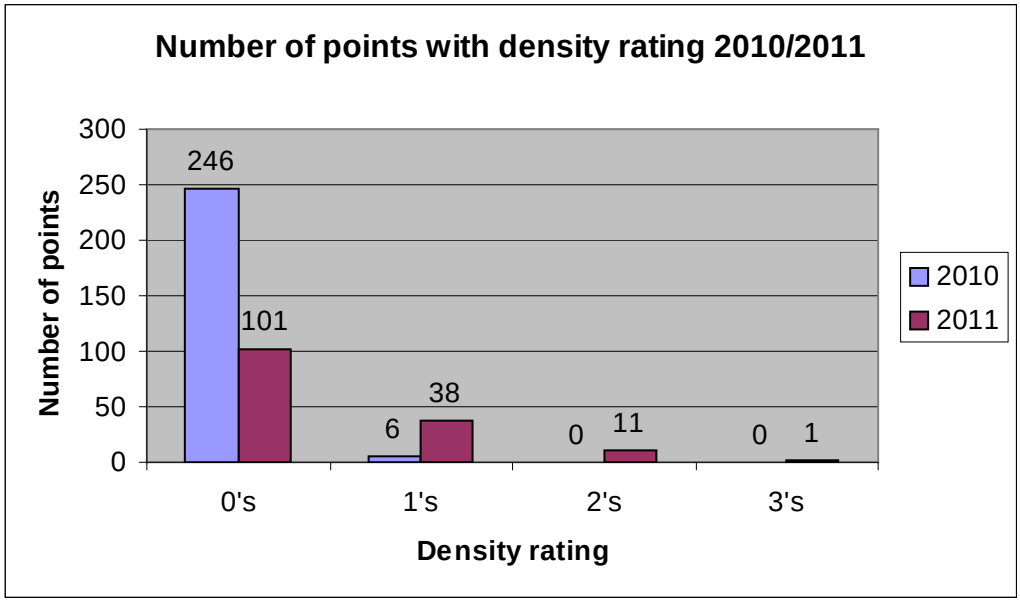


Figure 6: Graph showing the number of points with particular density rating 2010 and 2011.

Native species	Number 2010	Number 2011	P value	Significant?	Change
Forked duckweed-*Lemna triscula*	44	6	1.5×10^{-8}	yes	-
Elodea-*Elodea canadensis*	118	132	0.21	no	+
white-stem pondweed-*Potamogeton praelongus*	0	3	0.08	no	+
water marigold-*Bidens beckii*	1	5	0.10	no	+
Coontail-*Ceratophyllum demersum*	106	96	0.36	no	-
Northern milfoil-*Myriophyllum sibiricum*	18	13	0.35	no	-
Clasping pondweed-*Potamogeton richardsonii*	2	12	0.007	yes	+
Wild celery-*Vallesneria americana*	64	31	0.0002	yes	-
filamentous algae	53	33	0.017	yes	-
flat stem pondweed—*Potamogeton zosteriformis*	2	5	0.25	no	+
white water crowfoot-*Ranunculus aquatilis*	14	3	0.007	yes	-
Robbin's pondweed-*Potamogeton robbinsii*	19	5	0.003	yes	-
Nitella sp.	1	2	0.56	no	+
water stargrass-*Heteranthera dubia*	2	1	0.56	no	-
White water lily-*Nymphaea odorata*	1	3	0.32	no	+
Chara sp.	0	2	0.16	no	+
Slender elodea-*Elodea nutalli*	0	3	0.08	no	+
small pondweed-*Potamogeton pusillus*	0	4	0.04	yes	+
large leaf pondweed-*Potamogeton amplifolius*	0	1	0.32	no	+
Sago pondweed-*Stuckenia pectinatus*	0	1	0.32	no	+
Spatterdock-*Nuphar variegata*	0	3	0.08	no	+

Table 3: Frequency comparison and statistical analysis on native species 2010 and 2011.

Table 3 shows that there was a reduction in frequency (that was statistically significant) in four native species from 2010 to 2011. These species were *Lemna triscula* (forked duckweed), *Vallisneria Americana* (wild celery), *Ranunculus aquatilis* (white water crowfoot), and *Potamogeton robbinsii* (Robbin's pondweed) (we will not consider filamentous algae). This reduction could be due to seasonal variations (plants still dormant) or sampling variation from one year to the next. It is unlikely due to herbicides (although could be) because the target species was not reduced very much in many areas.

There was an increase in two species that was statistically significant. These were *Potamogeton richardsonii* (clasping pondweed) and *Potamogeton pusillus* (small pondweed).

Turion analysis

The turion analysis reveals that there was a reduction in turion density in Bed C . In Beds A, B and D there was actually an increase in turion density (only very slight in Bed A, which remained almost the same). A reduction in Bed C is a good sign of after two years of treatment. Bed A remains relatively the same after the third year of treatment. An increase in turions reinforces that treatment did not stop turion production in this year in these beds.

Bed	*Turion/m^2 2010*	*Turions/m^2 2011*
B (A1-A2 for 2011))	40.0	77.6
A (B1-B4 for 2011)	14.6	15.9
C (same)	140.0	80.0
D (same)	41.7	69.0

Table 4: Turion density for 2010 and 2011 by bed.

Discussion

The 2011 CLP treatment analysis shows the effectiveness of the herbicide treatment was mixed. When comparing the post treatment frequency in 2010 to the post treatment frequency in 2011, there was a substantial increase. Since the frequency in 2010 was so low in each bed, it would be invalid to expect a reduction in 2011. However if the treatment were more effective, the frequency in 2011 would be closer to 2010. The pre-treatment survey 2011 did show that the CLP growth returned, since the frequency of CLP increased from the summer of 2010. This is common since turions germinate from the previous years plants. When comparing the post treatment 2011 to the pre-treatment of the same year, there was a reduction in all beds, with only three beds showing a statistically significant reduction. The reduction was also statistically significant when considering all beds, largely due to beds C and D substantial CLP reduction.

Another observation not shown in the data tables provided is the fact that numerous sample points (approximately 30) outside of the treatment area had no CLP present in the pre-treatment survey, only to be present in the post treatment survey. To avoid this happening in the future, the post treatment map from 2011 should be used in conjunction with the pre-treatment map in 2012 to determine treatment area. It is probably safe to assume that if a sample point has CLP after treatment, that it will return in the vicinity in the spring of 2012.

Turion analysis shows a slight increase in turions in Bed A, a larger increase in Bed D and and larger increase in Bed D. Bed C was the only bed that showed a decrease in turion density. A reduction in turions should reduce new CLP growth the following year. An increase in turion density would predict an increase in CLP growth the next year. Since the CLP reduction was less substantial in 2011, it would be consistent to see turion density to also increase since more plants survived and were able to produce new turions. This result is a setback in CLP treatment since there could now be more CLP to kill in the future. There appears to be a correlation between treatment effectiveness and turion density, with a long-term goal of reducing turion density to near zero.

The native plant community did have four species with a significantly lower frequency in 2011 than in 2010. Since the treatment was only somewhat effective on the target species, it is more likely that this is the result of seasonal variation and/or sample location differences. A whole lake PI survey may be a better indicator of any native plant changes in the future.

Rice Lake CLP 2011

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
1	45.48893800	-91.71027300	14.3	0	0																		
2	45.48894400	-91.70988300	14.4	0	0																		
3	45.48895000	-91.70949300	10.5	0	0																		
4	45.48919800	-91.71125600	9.9	1	0																1		
5	45.48920400	-91.71086600	12	0	0																		
6	45.48921000	-91.71047600	13.3	0	0																		
7	45.48921500	-91.71008600	13.1	0	0		1																
8	45.48922100	-91.70969600	8.7	0	0					1													
9	45.48946900	-91.71145900	5.1	1	0		1						1	1									
10	45.48947500	-91.71106900	8	1	0																		
11	45.48948100	-91.71067900	7	1	0		2									1							
12	45.48948700	-91.71028900	10.2	0	0																		
13	45.48949200	-91.70989900	10.6	0	0		1	1									1						
14	45.48949800	-91.70951000	8.2	1	0			1															
15	45.48974600	-91.71127200	5.5	1	1		2																
16	45.48975200	-91.71088200	6.7	1	0		1								1								
17	45.48975800	-91.71049300	6.6	1	0		2																
18	45.48976400	-91.71010300	8	1	0		2			1													
19	45.48977000	-91.70971300	7.8	1	0		1	1		1													
20	45.49004100	-91.70991600	8.1	1	0		2			1						1							
21	45.49004700	-91.70952600	7.6	1	0		1			1													
22	45.49031800	-91.70972900	7.7	1	0		1																
23	45.49058900	-91.70993300	6.8	0	0		1																
24	45.49059500	-91.70954300	6.2	1	0			1									1				1		
25	45.49086100	-91.71013600	7.3	1	0			1															
26	45.49086700	-91.70974600	5.3	0	0		1	1	1														
27	45.49113200	-91.71033900	4.9	0	0		1	1															
28	45.49113800	-91.70994900	5.6	0	0		2																
29	45.49139800	-91.71093200	3.4	1	0	1		1					1				1	1					
30	45.49140300	-91.71054200	3.7	0	0		1	2														1	
31	45.49140900	-91.71015200	5.3	0	0			1															
32	45.49141500	-91.70976300	5	0	0		1	1															
33	45.49167500	-91.71074600	3.3	0	0		2				1					1							
34	45.49168100	-91.71035600	3.8	1	1	1	1	1								1							
	45.49269000	-91.71623800		0																			
	45.49269600	-91.71584800		0																			
37	45.49294900	-91.71722100	13.1	0	0																		
38	45.49295500	-91.71683100	6.3	0	0																		
39	45.49296100	-91.71644100	6	0	0		3																
40	45.49296700	-91.71605100	5.7	1	1		1	1											1				

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
41	45.49297300	-91.71566100	5.7	1	0		1	1	1					1									
42	45.49322100	-91.71742400	12.3	0	0																		
43	45.49322600	-91.71703400	5.4	1	0		1		1								1						
44	45.49323800	-91.71625400	4.5	1	0		3																
45	45.49324400	-91.71586400	3.5	1	0		3								1								
46	45.49349200	-91.71762700	11.6	0	0																		
47	45.49349800	-91.71723700	10.5	0	0					1													
48	45.49350400	-91.71684700	5.8	1	0		3	1							1								
49	45.49351500	-91.71606800	3.8	1	0		1																
50	45.49376300	-91.71783100	9.9	0	0			1															
51	45.49376900	-91.71744100	9.1	1	0		1																
52	45.49378100	-91.71666100	8	1	1		1																
53	45.49404000	-91.71764400	6.8	1	0		2		1														
54	45.49404600	-91.71725400	7.7	1	0		1	1															
55	45.49405800	-91.71647400	3.3	1	0		3	1															
56	45.49431800	-91.71745700	6.5	1	0		1			1													
57	45.49432300	-91.71706700	7.6	1	0		1			1													
58	45.49432900	-91.71667800	5.5	1	0		1																
59	45.49433500	-91.71628800	2.5	0	0			1	1		1												
60	45.49459500	-91.71727100	5	1	0		2																
61	45.49460100	-91.71688100	4.8	1	1		1				1												
62	45.49460600	-91.71649100	2.4	0	0		1	1			1												
63	45.49487800	-91.71669400	2.3	0	0		3																
64	45.49514300	-91.71728700	3.2	1	0		2	1								1							
65	45.49515500	-91.71650800	1.9	0	0			1				1					1	1	1				
66	45.49541400	-91.71749100	2.1	0	0		1	1	1											1			
67	45.49542000	-91.71710100	2.4	1	1		1	1	1									1					
68	45.49542600	-91.71671100	2.2	1	0		1	1	1										1				
69	45.49569700	-91.71691400	2.5	0	0			1	1								1						
70	45.50181300	-91.72978000	3.7	0	1		2		1														
71	45.50208500	-91.72998300	4.3	1	1	1	1				1	1											
72	45.50209100	-91.72959300	9.2	0	0																		
73	45.50235600	-91.73018700	2.6	1	2	1	1																
74	45.50236200	-91.72979700	7.9	1	0		1	1															
75	45.50263300	-91.73000000	7.9	0	0																		
76	45.50263900	-91.72961000	10.7	0	0																		
77	45.50290500	-91.73020400	3	1	1		1		1		1												
78	45.50291000	-91.72981400	10	0	0		1																
79	45.50318200	-91.73001700	8.6	0	0		1																
80	45.50318800	-91.72962700	10.7	0	0																		

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
81	45.50345300	-91.73022000	2.4	0	0				1			1											
82	45.50345900	-91.72983000	10	0	0																		
83	45.50373000	-91.73003400	1.9	1	1		1		1														
84	45.50373600	-91.72964400	10.8	0	0																		
85	45.50400700	-91.72984700	5.3	1	1				1														
86	45.50401300	-91.72945700	9.6	0	0			1															
87	45.50427900	-91.73005100	4.7	0	0	1	1																
88	45.50428500	-91.72966100	6.9	0	0																		
89	45.50429000	-91.72927100	10.2	0	0																		
90	45.50455600	-91.72986400	6.5	0	0																		
91	45.50456200	-91.72947400	7.3	0	0																		
92	45.50456800	-91.72908400	11	0	0																		
93	45.50482700	-91.73006700	4.2	1	0	1	1	1															
94	45.50483300	-91.72967700	6.9	0	0		1	1															
95	45.50483900	-91.72928700	7.3	0	0		1	1															
96	45.50509200	-91.73066100	2.6	1	0		3																
97	45.50509800	-91.73027100	3.6	1	0		3																
98	45.50511000	-91.72949100	6.9	1	0		1																
99	45.50511600	-91.72910100	9	0	0																		
100	45.50536400	-91.73086400	3.6	0	0		3																
101	45.50537600	-91.73008400	4.6	0	1																		
102	45.50538700	-91.72930400	7.3	1	0																		
103	45.50539300	-91.72891400	10	0	0			1															
104	45.50563500	-91.73106800	3.7	0	0		3																
105	45.50564100	-91.73067800	5.1	1	0		2			1													
106	45.50565300	-91.72989800	3.9	0	0		2	1															
107	45.50566500	-91.72911800	6.8	1	1																		
108	45.50591800	-91.73049100	4.4	1	0		3																
109	45.50593000	-91.72971100	2.8	1	1				1		1												
110	45.50594200	-91.72893100	8.6	0	0		1	1															
111	45.50619500	-91.73030400	3.7	1	1		1		1														
112	45.50620700	-91.72952400	2.1	0	0						1											1	
113	45.50621300	-91.72913400	4.4	1	2			1															
114	45.50621900	-91.72874400	10.8	0	0																		
115	45.50646100	-91.73089800	2.3	0	0		2																
116	45.50647200	-91.73011800	2.5	0	1		1		1														
117	45.50649000	-91.72894800	9.3	0	0		1																
118	45.50673800	-91.73071100	2.3	0	0		2		1	1													
119	45.50675000	-91.72993100	2.5	1	2		2																
120	45.50675600	-91.72954100	2.4	1	1		1		1														

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
121	45.50676100	-91.72915100	8	0	1																		
122	45.50676700	-91.72876100	10.2	0	0		1																
123	45.50700900	-91.73091500	3	0	0		1																
124	45.50701500	-91.73052500	2.3	1	0		3																
125	45.50702700	-91.72974500	2.5	0	1	1	1		1														
126	45.50703900	-91.72896500	9.7	0	0																		
127	45.50704500	-91.72857500	10.4	0	0																		
128	45.50728600	-91.73072800	3.2	0	0		2																
129	45.50729200	-91.73033800	2.6	0	0		3	1															
130	45.50730400	-91.72955800	6.4	1	1		1	1															
131	45.50731600	-91.72877800	9.7	0	0																		
132	45.50732200	-91.72838800	10.6	0	0																		
133	45.50756900	-91.73015100	3.3	0	1		3	1															
134	45.50758100	-91.72937100	6.9	0	1		1	1															
135	45.50759300	-91.72859100	9.8	0	0																		
136	45.50759900	-91.72820100	10.6	0	0																		
137	45.50783500	-91.73074500	3.3	0	0		3																
138	45.50784700	-91.72996500	5.1	0	0		1	1															
139	45.50785800	-91.72918500	7.1	1	0																		
140	45.50787000	-91.72840500	9.9	0	0																		
141	45.50787600	-91.72801500	9.8	0	0																		
142	45.50788200	-91.72762500	10.6	0	0																		
143	45.50811200	-91.73055800	2.1	1	0		3	1															
144	45.50812400	-91.72977800	5.8	0	1		1	1															
145	45.50813600	-91.72899800	7.4	0	0			1															
146	45.50814700	-91.72821800	8.9	1	0		1																
147	45.50815900	-91.72743800	10.4	0	0																		
148	45.50816500	-91.72704800	10.9	0	0																		
149	45.50838900	-91.73037200	3.1	0	1		2																
150	45.50840100	-91.72959200	4.5	0	2																		
151	45.50841300	-91.72881200	7.9	0	0																		
152	45.50842500	-91.72803200	7	0	1		1																
153	45.50843600	-91.72725200	10.8	0	0																		
154	45.50866600	-91.73018500	4.3	0	0	1	2																
155	45.50867800	-91.72940500	3.5	0	1		1	2															
156	45.50869000	-91.72862500	7.7	0	0		1	1															
157	45.50870200	-91.72784500	6.2	0	1		1																
158	45.50870800	-91.72745500	8.5	0	1		1	1															
159	45.50893200	-91.73077800	2.2	0	0		1	3															
160	45.50894300	-91.72999800	3.4	1	2			2															

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
161	45.50895500	-91.72921800	3	1	1				1														
162	45.50896700	-91.72843800	7.1	0	1			1															
163	45.50897900	-91.72765800	7.5	0	1																		
164	45.50898500	-91.72726800	10.1	0	0																		
165	45.50920900	-91.73059200	3.2	0	1			2															
166	45.50922100	-91.72981200	2.9	1	2			1															
167	45.50923200	-91.72903200	2.3	0	1		1				1												
168	45.50924400	-91.72825200	7	0	1		1																
169	45.50925000	-91.72786200	6.7	0	1		1																
170	45.50948000	-91.73079500	2.6	0	1	1	1				1												
171	45.50948600	-91.73040500	3.2	0	1			2															
172	45.50949800	-91.72962500	3	0	2			1															
173	45.50950400	-91.72923500	2.9	1	3																		
174	45.50951000	-91.72884500	3.8	1	2			2	1														
175	45.50951600	-91.72845500	5.8	1	1			1															
176	45.50952100	-91.72806500	6.6	0	1																		
177	45.50975700	-91.73060900	2.6	1	1			1															
178	45.50976300	-91.73021900	4.2	0	0					1													
179	45.50976900	-91.72982900	4	1	0		1	2															
180	45.50977500	-91.72943900	4.8	0	0			2															
181	45.50978100	-91.72904900	3.9	1	0																		
182	45.50978700	-91.72865900	3.8	0	1		1	1															
183	45.50979300	-91.72826900	4.8	1	0	1	1		1														
184	45.51003400	-91.73042200	3.3	0	1		1	1		1													
185	45.51004000	-91.73003200	4.1	0	0		1	1		2													
186	45.51004600	-91.72964200	3.1	1	2																		
187	45.51005200	-91.72925200	6	1	1			2															
188	45.51005800	-91.72886200	3.2	1	1		1																
189	45.51006400	-91.72847200	4.5	1	1		1	2															
190	45.51031200	-91.73023500	3.6	0	0																		
191	45.51031800	-91.72984500	3.6	1	1	2	1																
192	45.51032300	-91.72945500	4.6	1	2			1															
193	45.51032900	-91.72906500	8.3	0	1			1															
194	45.51033500	-91.72867500	8	0	1		1	1															
195	45.51058300	-91.73043900	4	0	0					1													
196	45.51058900	-91.73004900	3.5	0	1					1													
197	45.51059500	-91.72965900	2.8	0	1	1		2															
198	45.51060100	-91.72926900	4.7	0	0			3															
199	45.51060700	-91.72887900	8.8	0	0																		
200	45.51085400	-91.73064200	2.2	0	0			1		1													

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
201	45.51086000	-91.73025200	2.7	0	1		1		1														
202	45.51086600	-91.72986200	4.5	0	1			2															
203	45.51087200	-91.72947200	2.9	0	0			3															
204	45.51087800	-91.72908200	8.4	0	1																		
205	45.51112500	-91.73084600	2	0	0					1													
206	45.51113100	-91.73045600	3.2	1	1					1													
207	45.51113700	-91.73006600	2.3	0	1		1		1														1
208	45.51114300	-91.72967600	3.5	0	1			1															
209	45.51114900	-91.72928600	4.8	1	1			3	1														
210	45.51139700	-91.73104900	2	0	2		1				1												
211	45.51140300	-91.73065900	3.8	0	0					1													
212	45.51140900	-91.73026900	3	0	1					1													
213	45.51141400	-91.72987900	2.6	0	2			1															
214	45.51142000	-91.72948900	5.1	0	1			1															
215	45.51167400	-91.73086300	2.9	0	2					1													
216	45.51168000	-91.73047200	4.2	1	0			1		1													
217	45.51168600	-91.73008200	2.8	1	0																		
218	45.51169200	-91.72969200	5	0	1																		
219	45.51195100	-91.73067600	4	0	0		1			2													
220	45.51195700	-91.73028600	4.6	0	0					1													
221	45.51196300	-91.72989600	4.8	1	0			1															
222	45.51222800	-91.73048900	4.7	0	0					1													
223	45.51223400	-91.73009900	4.8	0	1																		
224	45.51250000	-91.73069300	4.4	0	0			1		2													
225	45.51250500	-91.73030300	5	1	0		1			1													
226	45.51277100	-91.73089600	3.3	1	0		1			1													
227	45.51278300	-91.73011600	3	1	1			1	1														
228	45.51304200	-91.73110000	3.9	1	0		1			1													
229	45.51304800	-91.73071000	4.6	1	0		2	1															
230	45.51305400	-91.73032000	3.4	1	1	1	1	1															
231	45.51331300	-91.73130300	3.3	1	0		1			1													
232	45.51332500	-91.73052300	4.3	1	1			1	1														
233	45.51358500	-91.73150600	3.6	1	0		1	1															
234	45.51359100	-91.73111600	3.6	1	0			1	1														
235	45.51360200	-91.73033600	7.9	1	0																		
236	45.51385000	-91.73210000	2.8	0	0		3																
237	45.51385600	-91.73171000	3.5	1	1		1	2															
238	45.51386800	-91.73093000	3.8	1	0			1															
239	45.51387400	-91.73054000	5.6	1	1		1	1															
240	45.51412100	-91.73230300	2.5	0	1		2				1												

Rice Lake CLP 2011

Pt	Lat	Long	Depth	CLP Pre	CLP Post	*Myriophyllum sibiricum*	*Elodea canadensis*	*Ceratophyllum demersum*	*Vallesnaria americana*	*Filamentous algae*	*Potamogeton richardsonii*	*Ranunculus aquatilis*	*Nitella sp.*	*Chara sp.*	*Elodea nutalli*	*Potamogeton robbinsii*	*Lemna triscula*	*Nuphar variegata*	*Nymphaea odorata*	*Heteranthera dubia*	*Potamogeton pusillus*	*Potamogeton amplifolius*	*Stuckenia pectinatus*
241	45.51412700	-91.73191300	3.5	1	0		1			1													
242	45.51413300	-91.73152300	3	1	0		1	3															
243	45.51414500	-91.73074300	5.1	1	0		2	1															
244	45.51415100	-91.73035300	8.8	0	0			1	1														
245	45.51439800	-91.73211700	3.3	1	0		2	1		1													
246	45.51441000	-91.73133700	3.2	1	0		2																
247	45.51442200	-91.73055700	7.3	0	0			1															
248	45.51467000	-91.73232000	3.3	0	0		1	1		1													
249	45.51467600	-91.73193000	3	0	0		1	1															
250	45.51468200	-91.73154000	3.5	1	1		2	1															
251	45.51468700	-91.73115000	3.7	1	0		2																
252	45.51469300	-91.73076000	2.5	1	2		1	1	1												1		
			Number	104	83	13	132	96	31	33	12	3	2	2	3	5	6	3	3	1	4	1	1
			Freq.	0.41	0.33	0.05	0.53	0.38	0.12	0.13	0.05	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.02	0.00	0.00

Beds B1-B4				Bed C				Bed D			
Pt	Number	Density/m2		Pt	Number	Density/m2		Pt	Number	Density/m2	
1	0	0		1	4	172		1	0	0	
2	0	0		2	0	0		2	4	172	
3	0	0		3	2	86		3	0	0	
4	0	0		4	3	129		4	3	129	
5	0	0		5	2	86		5	1	43	
6	0	0		6	1	43			**Mean**	**69**	
7	0	0		7	1	43					
8	0	0			**Mean**	**80**					
9	0	0									
10	0	0									
11	0	0									
12	0	0									
13	0	0									
14	0	0									
15	0	0									
16	0	0									
17	0	0									
18	2	86									
19	1	43									
20	1	43									
21	0	0									
22	1	43									
23	1	43									
24	1	43									
25	0	0									
26	1	43									
27	2	86									
	Mean	**15.93**									
Beds A1-A2											
1	1	43									
2	1	43									
3	0	0									
4	4	172									
5	3	129									
6	1	43									
7	1	43									
8	5	215									
9	3	129									
10	2	86									
11	1	43									
12	1	43									
13	2	86									
14	1	43									
15	1	43									
	Mean	**77.4**									

Appendix C

Rice Lake Protection and Rehabilitation District 2011 Harvesting Report

October 18, 2011

Mark Sundeen
Water Resources Specialist
State of Wisconsin
Department Natural Resources

Subject: Aquatic Plant Harvesting Report 2011

Dear Mr. Sundeen

Curly-leaf Pondweed season ended on Rice Lake in early July. Approximately Two Hundred One (201) hours were spent harvesting. Forty Seven (47) harvester loads equating to approximately One Hundred Thirty Nine (139) tons of Curly-leaf Pondweed harvested from May 31st to July 5th . Harvesting covered a total area of approximately One Hundred Five (110) acres.

Aquatic plant harvesting of navigational channels and cleanup of shorelines ended in September. Approximately Two Hundred Eighty Seven (287) hours were spent cleaning up shorelines and harvesting approximately Sixty (60) acres of navigational channels. One Hundred Fourteen (114) harvester loads equating to approximately Three Hundred Twenty Six (326) tons of aquatic plants harvested from July 6th to September 15th.

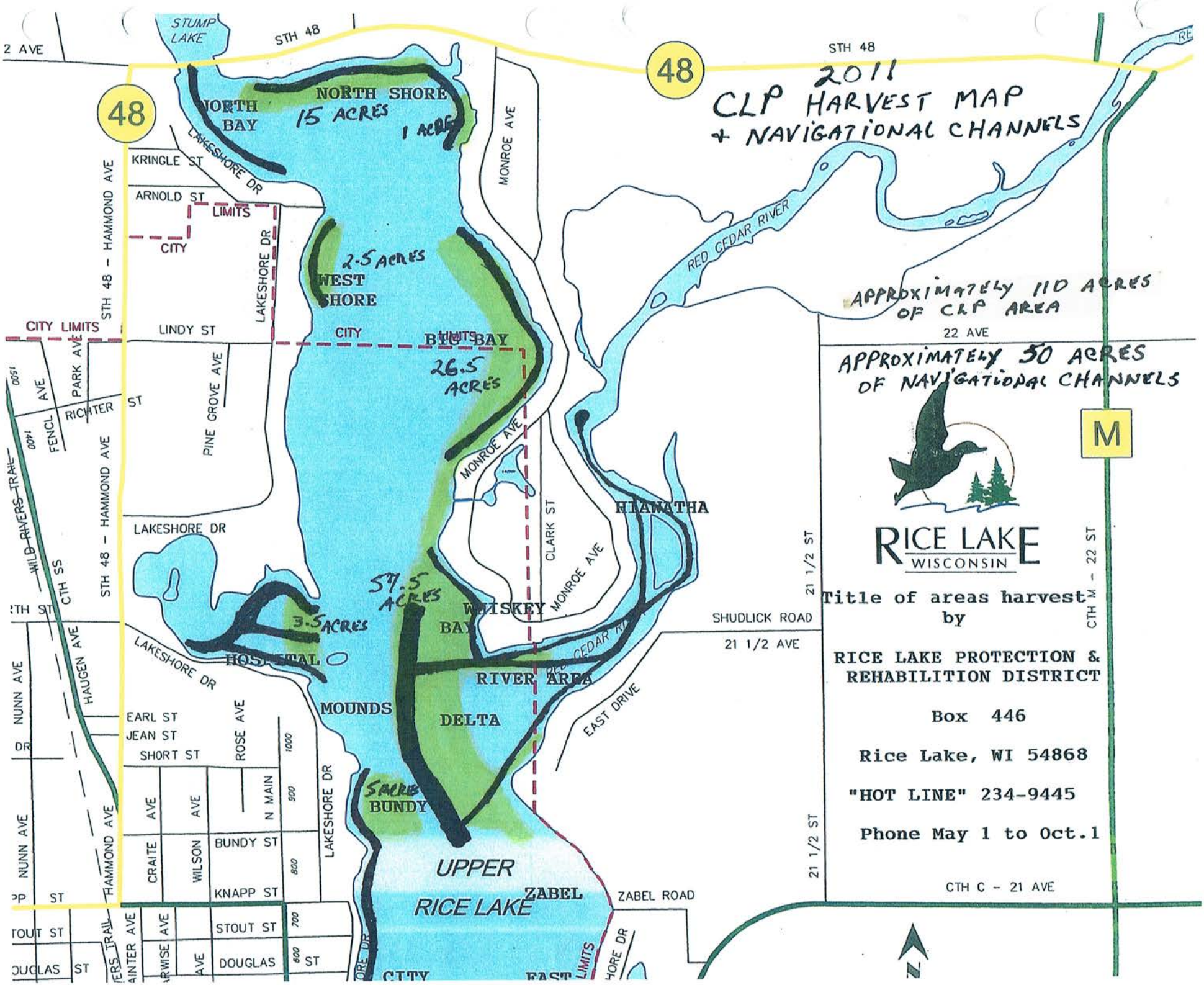
Totals for the year including Curly-leaf Pondweed season, Navigational Channels and Shoreline cleanup are as follows.

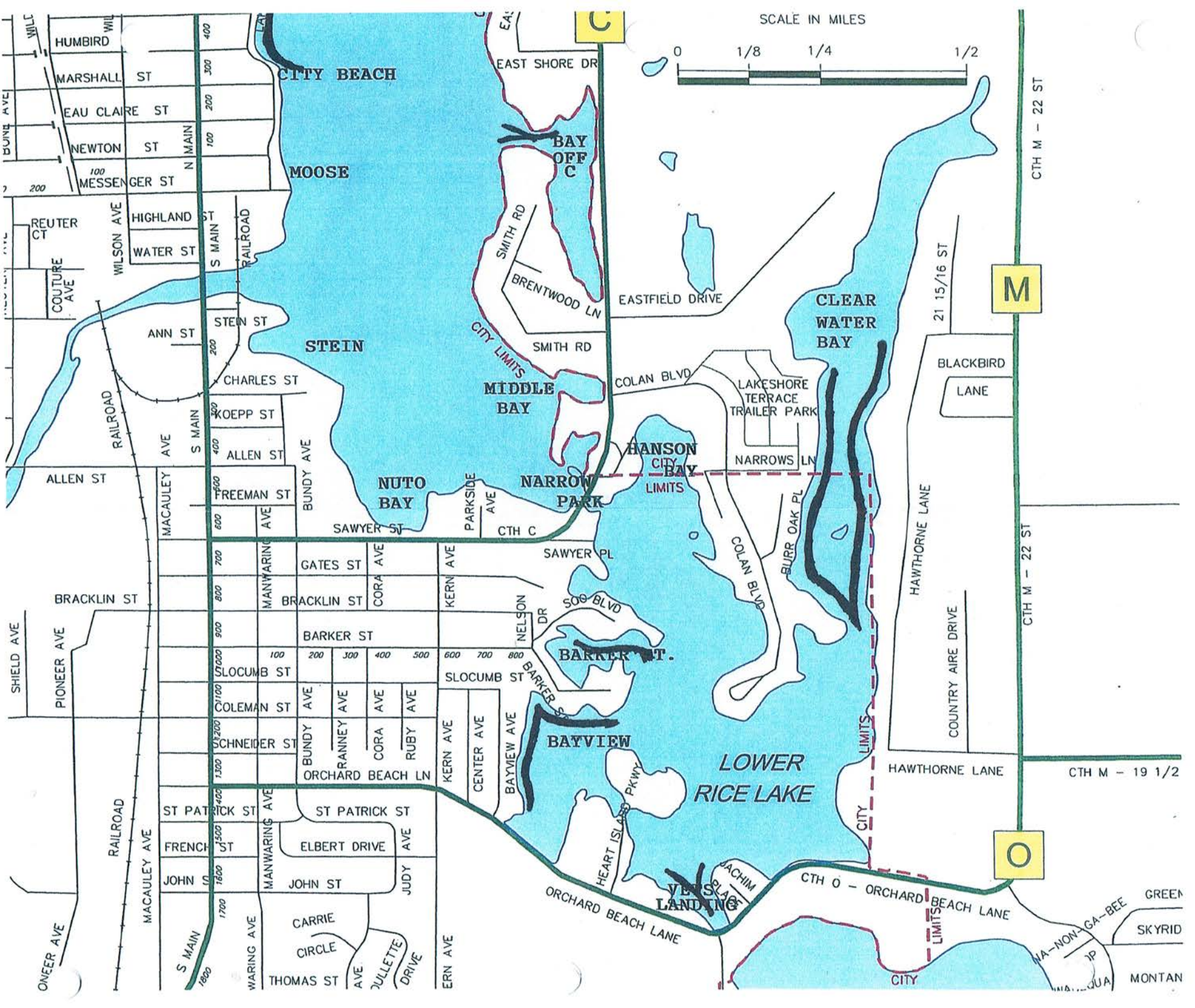
489 hours 161 harvester loads 465 tons of aquatic plants harvested.

(See attached Harvesting Log and Navigational Channel Map.)

Sincerely
Dennis R. Trigg

Dennis Trigg,
Operations Manager
Rice Lake Protection and Rehabilitation District
PO Box 446
Rice Lake, WI 54868


2011
CLP HARVEST MAP
+ NAVIGATIONAL CHANNELS
STUMP LAKE
STH 48
48
NORTH BAY
NORTH SHORE
15 ACRES
1 ACRE
KRINGLE ST
ARNOLD ST
LIMITS
CITY
LAKESHORE DR
MONROE AVE
RED CEDAR RIVER
APPROXIMATELY 110 ACRES
OF CLP AREA
22 AVE
APPROXIMATELY 50 ACRES
OF NAVIGATIONAL CHANNELS
STH 48 - HAMMOND AVE
2.5 ACRES
WEST SHORE
CITY LIMITS
LINDY ST
BIG BAY
26.5 ACRES
PARK AVE
RICHTER ST
FENCL AVE
PINE GROVE AVE
WILD RIVERS TRAIL
CTH SS
HIAWATHA
CLARK ST
LAKESHORE DR
57.5 ACRES
3.5 ACRES
WHISKEY BAY
HOSPITAL
MOUNDS
DELTA
RIVER AREA
SHUDLICK ROAD
21 1/2 AVE
21 1/2 ST
EAST DRIVE
HAUGEN AVE
NUNN AVE
EARL ST
JEAN ST
SHORT ST
ROSE AVE
5 ACRES
BUNDY
N MAIN
BUNDY ST
KNAPP ST
CRAITE AVE
WILSON AVE
UPPER RICE LAKE
ZABEL
ZABEL ROAD
STOUT ST
DOUGLAS ST
CITY
EAST
CTH M - 22 ST
CTH C - 21 AVE
M
RICE LAKE
WISCONSIN
Title of areas harvest
by
RICE LAKE PROTECTION &
REHABILITION DISTRICT
Box 446
Rice Lake, WI 54868
"HOT LINE" 234-9445
Phone May 1 to Oct.1


SCALE IN MILES
0 1/8 1/4 1/2
CITY BEACH
MOOSE
BAY OFF C
STEIN
MIDDLE BAY
NUTO BAY
NARROW PARK
HANSON BAY
CLEAR WATER BAY
LOWER RICE LAKE
BAYVIEW
BARKER ST.
VETS LANDING
HUMBIRD
MARSHALL ST
EAU CLAIRE ST
NEWTON ST
MESSENGER ST
EAST SHORE DR
SMITH RD
BRENTWOOD LN
EASTFIELD DRIVE
CITY LIMITS
REUTER CT
COUTURE AVE
WILSON AVE
HIGHLAND ST
WATER ST
S MAIN
RAILROAD
ANN ST
STEIN ST
CHARLES ST
KOEPP ST
ALLEN ST
FREEMAN ST
MACAULEY AVE
BUNDY AVE
PARKSIDE AVE
SAWYER ST
CTH C
COLAN BLVD
LAKESHORE TERRACE TRAILER PARK
NARROWS LN
SAWYER PL
SOO BLVD
NELSON DR
BURR OAK PL
BLACKBIRD LANE
HAWTHORNE LANE
COUNTRY AIRE DRIVE
CTH M - 22 ST
CTH M - 19 1/2
CTH O - ORCHARD BEACH LANE
BRACKLIN ST
GATES ST
BARKER ST
SLOCUMB ST
COLEMAN ST
SCHNEIDER ST
ORCHARD BEACH LN
MANWARING AVE
CORA AVE
KERN AVE
RANNEY AVE
RUBY AVE
CENTER AVE
BAYVIEW AVE
BARKER ST
HEART ISLAND PKWY
ST PATRICK ST
ELBERT DRIVE
JUDY AVE
FRENCH ST
JOHN ST
CARRIE CIRCLE
THOMAS ST
SHIELD AVE
PIONEER AVE
ORCHARD BEACH LANE
CITY LIMITS
M
O

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
5/31	10 hrs	Bay behind Hospital Russ		1	3 Ton	coon tail + curly leaf 50% 50%
6/1	6 hrs	Bay behind Hosp. Russ		1	3 Ton	coon tail + curly leaf 50% 50%
6/1	6 hr	whiskey bay Jeff		2	6 ton	curly leaf + coontail 50% 50%
6/2	5 hr	whiskey bay Russ		1	3 Ton	curly leaf + coontail 50% 50%
6/2	5 hrs	Delta Crew		1	3 Ton	curly leaf only
6/3	5 hrs	whiskey bay Dempsey		1	4 Ton	curly leaf + coontail 50% 50%
6/3	5 hrs	Jeff Just N. of whiskey bay		1	3 Ton	curly leaf + coontail 50% 50%
	42			8	25	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
6/6	7	Delta & channel Jeff		4	1 Ton 10	curly leaf & coontail 50% 50%
6/6	5	North bay Whiskey bay Denny		2	6 ton	curly leaf & coontail 50% 50%
6/7	8	Big Bay Denny North Bay		2	6 Ton	curly leaf & coontail 50% 50%
6/7	8	Delta area		3	9 ton	curly leaf & coontail 50% 50%
6/8	7	Denny Delta		1	3 ton	curly leaf & coontail 50% 50%
6/8	7	Jeff Delta		1	3 Ton	curly leaf & coontail 50% 50%
6/9	4	Delta Jeff + & mounds Jarrod		1	2 Ton	curly leaf & coontail 70% 30%

46 14 39

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
6/13	7	Big Bay Denny & Whiskey Bay		1	3 Ton	curly leaf & coontail 70% 30%
6/13	7	Delta Jeff South River channel		2	6 Ton	curly leaf & elodia coontail
6/14	7	Big Bay gerald		1	3 Ton	curly leaf
6/14	7	whiskey bay		2	6 Ton	curly leaf & coontail elodia 50% 50%
6/15	7	Delta area Gerald		1	3 Ton	curly leaf & coontail 50% 50%
6/15	7	Jeff Smith Morrords Park		1	3 Ton	curly leaf & coontail 70% 30%
6/20	7 1/2	out from Bentley in Middle Jeff		2	6 ton	elodia, curly leaf & coontail 30% 50% 20%
	49.5			10	30	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
6/22	6	Middle. out from Bayly Jeff		1	3 Ton	curly leaf & coontail 50% 50%
6/21	6	Big Bay Donny		1	3 Ton	curly leaf & coontail 70% 30%
6/22	7	Big Bay Donny		1	3 Ton	curly leaf & coontail 70% 30%
6/22	7	out from city Jeff		1 1/2	4 Ton	curly leaf & elodia, coontail & Milfoil
6/27	3	North shore Jeff		1	3 Ton	curlyleaf coontail 70% 30%
6/27	4	out from Knapp Jeff		1	3 Ton	curly leaf & elodia coontail, Milfoil
6/28	7	out from Knapp Jeff		2	6 Ton	elodia, coontail, curly-leaf milfoil
	40			8.5	25	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
6/29	4	out from city park Gerald		1	3 Ton	elodia, curly leaf, coontail 50% 10% 40%
6/29	4	out from city park Jeff		1	3 Ton	elodia, curly leaf, coontail 50% 10% 40%
7/5	8	out from city Danny		2	6 Ton	elodia & coontail - curly leaf 40% 40% 20%
7/5	8 201.5	Mounds Behind Hospital Jeff		3 47.5	8 Ton 139.	elodia & coontail & curly leaf 40% 40% 20%
7/6	8	whiskey Bay Jeff		2	6 Ton	elodia & coontail 50% 50%
7/7	3	Mounds Jeff & Hospital		1	3 Ton	elodia & coontail 50% 50%
7/11	8	east shore & Hospital area Jeff		2	5 Ton	coontail & elodia 50% 50%
	43			12	34 139	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
7/12	7	Clearwater bay Jeff		2	5 Ton	coontail & elodia 50% 50%
7/13	8	South side of the river Jeff		4	10 TON	coontail & elodia 50% 50%
7/14	7	South side of the river & Whiskey Bay Jeff		2	6 TON	coontail & elodia 50% 50%
7/18	7	North shore North Bay Jeff		2	6 TON	coontail & elodia 50% 25% Duck weed 25%
7/19	7	Mounds & City		3	8 TON	coontail, elodia 40% 40% Duck weed 20%
7/20	7	Big Bay whiskey Bay		3	8 TON	elodia, coontail 50% 50%
7/25	7	out from city Denny		7	20 TON	elodia & celery 70% 30%
	50			23	63	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
7/26	7	Whiskey Boy J.ff		2	6 Ton	coontail & elodia celery & Milfoil
7/26	7	out from city DENNIS		5	13 TON	elodia & celery 70% 30%
7/27	7	OUT FROM CITY & MOONS PARK		2	6 TON	ELODIA & CELERY SOME MILFOIL & COONTAIL
7/27	7	W Hiskey Bay & Hosp. Bay J.ff		2	6 Ton	coontail & elodia 50% 50%
8/1	7	Clearwater Bay J.ff		5	12 Ton	coontail, elodia, celery 50% 40% 10%
8/2	7	clearwater bay J.ff		3	8 Ton	coontail & elodia, celery 40% 40% 20%
8/4	7	North side of river, w hiskeyboy		4	12 Ton	coontail, Duckweed 50% 10% Celery 40%
	49			23	63	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
8/5	7	North Bay & city park HH		3	9 Ton	Duck weed & elodia celery, coontail
8/8	7	City Park Moose, Bundy		3	9 Ton	celery; coontail elodia;
8/9	7	Hospital Bay mounds		3	9 Ton	coontail; celery elodia
8/10	8	North Bay North Shore		3	9 Ton	coontail, elodia celery
8/15	7	clearwater bay Veto Landing		3	9 Ton	celery; elodia coontail
8/16	7	clearwater bay		3	9 Ton	celery, coontail elodia
	43			18	54	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
8/17	7	clearwater Bay		2	5 TON	coontail, elodia 50 45 celery 5
8/18	12	Bayview		4	12 TON	celery + elodia 10 40 coontail 50
8/22	8	whiskey bay		4	12 TON	celery, coontail 30 70
8/29	6	Mounds park		2	6 TON	celery, elodia, coontail 20 40 40
8/30	8	DENNIS MOUNDS PARK HOSPITAL ISLAND.		2	6 TON	CELERY, COONTAIL 50% 50%
8/30	8	JEFF MEMORIAL PARK		3	8 TON	CELREY, COONTAIL, ELODIA 30 30 40
8/31	8.5	DENNIS 1 PASS WHISKEY BAY MEMORIAL PARK SOUTH END.		2	6 TON	CELRY, COONTAIL, ELODIA 30 60 10
	57.5			19	55	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
8/31	6	Bayviews		2	5 Ton	Packing up celery, and Duckweeds
9/6	9	Moose to Hospital		2	6 Ton	Celery, elodia 50 50
9/7	9	North & South channel of river		4	12 Ton	celery, elodia, coontail 40 30 30
9/8	9	South Side of the river		4	6 Ton	Celery, duckweed, coontail 40 30 30
9/9	9	whiskey Bay Bob		4	12 Ton	celery, coontail. 30 70
9/9	9	Delta V. H.		3	9 Ton	celery, coontail, elodia 20 40 40
9/12	~~9~~	Bayviews J. H		1	3 Ton	celery coontail 50 50
	55			18	53	

Date	Hours	Locations of Harvesting	Total acres	# of loads	Estimated Weight	Types of plant harvested % of plants
9/12	3	Clearwater Bay Jeff		2	6 TON	celery, coontail, elodia 30 40 40
9/13	5	Hospital Bay Mounds Park Jeff		2	6 ton	celery, coontail 50 50
9/15	6	Delta Jeff		4	12 TON	celery elodia 30 30 coontail 40
	14 28~~7.5~~	NAVIGATIONAL CHANNELS & CLEAN UP		8 ~~7~~14	24 ~~32~~6	
	201.5	CLP TOTALS		47.5	139	
	489	TOTALS. 2011		161	465 TONS.	