

## **Water Quality Stewardship Program in Charlotte and Shelburne VT**

### **European Frogbit Removal - Town Farm Bay's Thorp/Kimball Cove and the Lower LaPlatte River**

#### 2014 Summary:

Contributing organizations included Charlotte Conservation Commission, Shelburne Natural Resources and Conservation Committee, Lewis Creek Association, Charlotte Land Trust, Shelburne Charlotte Rotary. More than 60 volunteers contributed more than 500 hrs. Equipment and equipment storage was provided by Lewis Creek Association and Point Bay Marina. Work site access was provided by Shelburne Bay Boat Club and Alexa Lewis. Technical support was provided by VTDEC, USFWS, TNC and private consultants. Funding support was provided by the two towns.

Frogbit removal in Charlotte TFB area occurred from June 14, 2014 to August 15, 2014.

2 tons were removed with 300 hrs of volunteer labor. End of season % cover was 5-10%.

(2013- 9.5 tons were removed resulting in <15% cover).

Frogbit removal in Shelburne lower LaPlatte area occurred from June 26, 2014 to August 8, 2014.

1.9 tons were removed with 133 hrs. End of season % cover was less than 5%.

(2013- 1.6 tons were removed resulting in <15% cover).

Frogbit presence in the TFB wetland has finally been lowered to "early detection levels." It is possible that this represents an exciting trend of diminished Frogbit presence in the Thorp/Kimball wetlands. This should be considered in the 2015 TFB work plan. We are now confident that we have identified turions, the wintering buds that serve as the primary means of reproduction for frogbit. During a site visit on September 3rd, we determined that frogbit had begun releasing turions, signaling an end our season.

Thorp/Kimball wetland plant life is both extremely diverse and prolific. With the help of professional ecologists, we have identified 29 different species of aquatic plants, both native and exotic. While the growth season started late, vegetation levels reached the point where Kimball Brook channel passage was entirely closed off by August 1. The Thorp Brook channel remained open, thanks largely to beaver activity. This excessive vegetation growth is a predictable ecological response to the high levels of nutrient loading from both Thorp and Kimball, and possibly from the lower Lake tributaries including Otter, Little Otter and Lewis Creek. The buttonbush swamp, wild rice marsh, silver maple forest, cattail marshes, lily pad areas and bulrush marshes all appeared healthy. There was much increased algae and filamentous algae at both sites. No toxic algae were observed. Some 15 water chestnuts were removed again this season from the same TFB location in zone 5 (Kimball right bank).

#### History (2007-2013):

We identified Laplatte frogbit presence in 2011 and Thorp/Kimball frogbit presence in 2007. Work programs began in 2012 and 2009 correspondingly. Since 2009, we have removed Thorp Kimball frogbit from the open water, the floating lily pad plant community, and about 4 ft into the emergent plants community except for the emergent rushes that are at the mouth of the streams, where we removed most frogbit.

While LaPlatte had low levels to maintain, the TFB wetland was about 50% covered by frogbit in 2007. We reduced TFB frogbit plant presence to 25% cover in 2 yrs with paid labor. Over the 6 work seasons, we removed 60 tons of frogbit and now seem able to keep the population at low levels with ongoing support from volunteers and the shoreline towns.

Every year brings seasonal challenges and opportunities. Due to the harsh winter and cool spring of 2013, the frogbit season start was characterized by relatively open waters and slower emergence of all vegetation. This afforded us a seasonal opportunity to work in the emergent edges early in the season when the water was high and the frogbit plants smaller, thus reducing the reed/rush/cattail community's frogbit density over time.

#### 2015 Stewardship Recommendations:

With same partnership plan, begin frogbit removal in early June and first clear lake edge and emergent vegetation borders. Conduct multiple sweeps by August before turions drop. Remove purple loosestrife, yellow iris in partnership with TNC,

the State and USFWS. Consider removal of flowering rush when possible. Investigate the merits of a WQ monitoring program to track WQ conditions of the Town Farm Bay area closer to the Thorp Kimball cove wetland complex.

**Water Quality Monitoring LaPlatte Watershed and Direct to Lake Tributaries  
McCabe’s Brook and Thorp/Kimball Brooks Baseline Study and LaPlatteRiver Trend Monitoring**

2014 Summary:

11 stations throughout the LaPlatte watershed were sampled in 2014: 6 McCabe’s stations, 3 LaPlatte stations, 1 Thorp station and 1 Kimball station. Our sampling plan design and quality assured procedures were overseen and approved by VT DEC. Dr Bill Hoadley managed this study and provided volunteer training, data management, interpretation and reporting. Trained volunteers sampled 11 stations and all QA approved data results were entered into the State database. Parameters tested included E.coli, Chloride, Total Suspended Solids, Turbidity, Total Phosphorus, Dissolved Phosphorus, Nitrogen (TN, NOX) and flow. 760 volunteer hours were involved which included field hrs and outreach meeting with the state and towns. We completed year 4 of collecting baseline information for McCabe’s and year 3 of collecting baseline information for Thorp and Kimball Brooks.

With the Lake Champlain Phosphorus TMDL and “Implementation Plan”, baseline studies coupled with long term trend monitoring at trend monitoring stations in our stream system allows us to identify hot spots and reference locations at the reach or subshed scale. Our sampling plan includes monitoring of 6 high flow events to determine phosphorus loading by acre for smaller subsheds in the LaPlatte watershed.

Hot spots continue to be: Hinesburg STP to Charlotte Town line- erosion: nutrients/sediment, Mouth to Hinesburg STP and Mud Hollow Brook- E.coli, Lime Kiln Rd to Teddy Bear- ag runoff: nutrients/sediments, Shelburne Town, Harbor Road and School Street Neighborhood- stormwater: nutrients/sediments. Thorp and Kimball Brooks need more baseline data. Basin Plans, Town and Regional Plans and the State Water Quality Improvement Plan should be informed by these data results.

Expenses include probono state lab fees, volunteer services and funding from towns. Probono and volunteer services for this program are estimated at \$50,000/year.

Stewardship Budget Plan FY 2015-16 - Town Requests For Funds			
	Shelburne	Charlotte	Total
Contract Services			
Frogbit	500	1100	1600
Water Quality	1270	630	1900
Supplies			
Frogbit	100	300	400
Water Quality	200	200	400
Equipment			
Frogbit	200	450	650
Water Quality	450	450	900
<b>Total</b>	<b>2720</b>	<b>3130</b>	<b>5850</b>