

Watershed Stewardship Program
Summary of Programs and Research
2007



**Adirondack
Watershed
Institute**

Watershed Stewardship Program:
Summary of Programs and Research, 2007

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Introduction and Key Findings – 2007

**By Eric Holmlund, Director, Watershed Stewardship Program
and Associate Professor, Paul Smith's College**

Introduction

Part of Paul Smith's College's Adirondack Watershed Institute, the Watershed Stewardship Program (WSP) has served the Adirondack region in its effort to prevent the spread of invasive species to lakes in the Saranac Lake-Lake Placid region since 2000. The program has emerged as model and collaborator with conservation and advocacy groups across the region, including the Adirondack Park Invasive Plant Program, the Lake George Watershed Conference, and the Lake Champlain Basin Program.

The Watershed Stewardship Program is a cooperative, community-based effort to conserve natural resources, including water quality, wildlife and soil, through targeted educational efforts at specific locations near Paul Smith's College in New York State's Adirondack Park. The program is a true cooperative effort by members of the Paul Smith's College faculty, New York State land management agencies, including the Department of Environmental Conservation, non-governmental environmental organizations including the Nature Conservancy, the Adirondack Park Invasive Plant Program and the Adirondack Cooperative Loon Program, and shore owner organizations from the St. Regis Lakes, Rainbow Lake, Schroon Lake and Lake Placid.

The WSP's wide ranging programs include point-specific environmental interpretation, watercraft inspection, educational outreach, field-based invasive species monitoring and various data-collecting projects aimed at better understanding human pressures on waterways and local trails. The program hires college students with expertise in the natural resources to act as educators and researchers. This report is an annual effort to consolidate and report on all aspects of program activities for the summer of 2007.

Summer 2007 Highlights

The Watershed Stewardship Program provided educational services at northern Adirondack boat launches for the eighth consecutive year. This year featured the continuation of efforts to monitor and control the exotic invasive plant purple loosestrife, monitor loon pairs on the St. Regis Lakes, assess invasive plant presence on Lake Placid, and tally motor presence on Lake Placid. The WSP's Volunteer Lake Steward Program was in full sway on Rainbow Lake and Schroon Lake, with scores of volunteers inspecting boats and educating the public.

The primary thrust of this year's program was once again to educate people launching watercraft at our three launch locations - St. Regis Lake, Lake Placid, and Buck Pond/Rainbow Lake waterway - about the threat of introduced invasive species, primarily Eurasian watermilfoil (*Myriophyllum spicatum*) and how to minimize exposure of lakes to the threat. Stewards also gathered detailed information about the character of boat launch use, including such information as total boats launched, type of watercraft, and demographic information. Watershed Stewards also asked boaters if they routinely take preventative measures, such as removing vegetation, washing boat and trailer, immediately emptying bilges, etc., to avoid the risk of spreading invasive species. Stewards were ordinarily stationed at the boat launches, but had other duties, such as paddling kayaks to observe loons, monitoring and controlling purple loosestrife on waterways, educating the public on the summit of St. Regis Mountain, maintaining data bases and meeting weekly to share information.



2007 Watershed Stewards during Boater Safety Course

Program Mission

The Adirondack Watershed Institute's (AWI) Watershed Stewardship Program (WSP) at Paul Smith's College is a community-based program designed primarily to educate the public about conservation, preservation, and stewardship issues of the Lower and Upper St. Regis Lakes, Spitfire Lake, Lake Placid, the Rainbow Lake waterway and the St. Regis Mountain summit. The WSP also fulfills research and service functions. Baseline data concerning recreational use patterns and the status of natural resources gathered by the WSP aids in the development of area unit management plans by the New York State Department of Environmental Conservation. Stewards also identify and remove invasive purple loosestrife plants from the waterfronts of cooperating property owners on the St. Regis Lake chain. The WSP takes advantage of the skills and training of students of Paul Smith's College's Natural Resources, Environmental and Forestry programs with direction from the Paul Smith's College faculty, including a faculty program director.

The Watershed Stewardship Program has evolved over the years from its first year of service in 2000. In that year, the program served the St. Regis Lakes and St. Regis Mountain, both seven days per week during the summer. In 2001, the program expanded to serve Upper Saranac Lake for seven days per week, and in 2002, the WSP was welcomed on Lake Placid for four days per week. In 2004, coverage on Upper Saranac Lake shrank to weekends while coverage on Lake Placid expanded to five days per week. In 2005, coverage ceased for Upper Saranac Lake, but began on weekends at Lake Kushaqua (Rainbow Lake waterway) and Second Pond (Lower Saranac Lake waterway). In 2006, coverage ceased on Second Pond due to lack of funding, but expanded to six days per week at the Lake Placid site. In 2007, coverage was expanded to seven days per week on Lake Placid and resumed on weekends on St. Regis Mountain. In addition, the Volunteer Lake Steward Program expanded its coverage to Schroon Lake.

Staff

The program was funded to employ seven employees for the summer of 2007 in a variety of full and part-time positions. Five of the Watershed Stewards were Paul Smith's College students or recent graduates. Positions included a Director, an Assistant Director/Volunteer Lake Steward Coordinator, 4 full-time stewards and a part time steward.

Staff Training

A week of staff training sessions began on May 21, 2007. Stewards began boat launch duties on May 26, in time for Memorial Day. Staff training included program orientation, safety and risk management, interpretation principles, interpretive message development, role-playing public contact, and introduction to WSP research program data collection and entry, all by the program director. Paul Smith's College's Recreation and Intramurals Director Jim Tucker provided First Aid and CPR instruction, Marge and Ted Glowa of the Rainbow Lake Association provided Boater Safety certification, Forest Ranger Keith Bassage and forester Steve Guglielmi provided an orientation to the DEC, PSC Professor Mike DeAngelo addressed principles of limnology, Professor Craig Milewski presented on Adirondack fish morphology and Hilary Oles of the Adirondack Park Invasive Plant Program addressed invasive plants. Dr. Nina Schoch trained our loon monitor. Anne Weld and Mike Quenell provided an orientation to the St. Regis Lakes, Nicole Broderick and Johnny Rickard oriented employees to Lake Placid and Josh Wilson from the Association for the Protection of the Adirondacks presented information on the forest preserve. Dan Kelting provided a field trip to orient stewards to the Eurasian watermilfoil research and management activities on Upper Saranac Lake.

The Watershed Stewardship Program offers a comprehensive staff training and development effort in order to provide well-prepared and effective Watershed Stewards, who represent both the WSP and the Adirondack Watershed Institute in the best possible light.

Key Findings and Program Activities

Overall, Watershed Stewards tallied 4,708 members of the public launching 2,400 watercraft at the Lake Placid, Upper St. Regis, and Buck Pond (Rainbow Lake Waterway) boat launches for the summer of 2007. Numbers of watercraft and members of the public encountered were very similar to totals from 2006. However, the 2006 coverage period was two weeks shorter (13 weeks) than the 2007 season (15 weeks), which indicates that overall use might be somewhat less in 2007 compared with 2006.

Table 1: Recreation Use Data from WSP launches.

All Lakes 2007	Boat Type/Size (indicate hp for MO)											Total # of Boats	total users	Avg Time at Launch	Gender		Pets	4 stroke motor on outboard?	Visible Weeds?	Use Boatwash?
	(hp)	MO	MI	I/O	P	J	S	R	C	K	B				M	F				
LakePlacid	81	507	137	177	89	0	9	4	120	329	38	1410	3064	21	2116	948	91	293	5	n/a
St Regis	57	197	8	8	3	0	1	4	249	232	71	801	1239	15	845	394	35	50	3	272
Buck Pd wknd	49	49	2	3	4	2	0	34	48	46	1	189	405	14	259	141	17	12	10	38
totals	62	753	147	188	96	2	10	42	417	607	110	2400	4708	17	3220	1483	143	355	18	310

Notes: The values are grand totals for the 15 week 2007 season (May 26 to September 3, 2007). Key: (hp) indicates average horsepower of all observed motors. MO = outboard engine, MI = inboard engine, I/O = inboard/outboard (stern drives), P = pontoon boat, J = jet ski (personal watercraft), S = sailboat, R = rowboat, C = canoe, K = kayak, B = *barge. *Barges were recorded each time they utilized the launch area in an attempt to assess commercial/ construction use of the launch. Data for Buck Pond/Rainbow Lake were collected on weekends only after June 7.

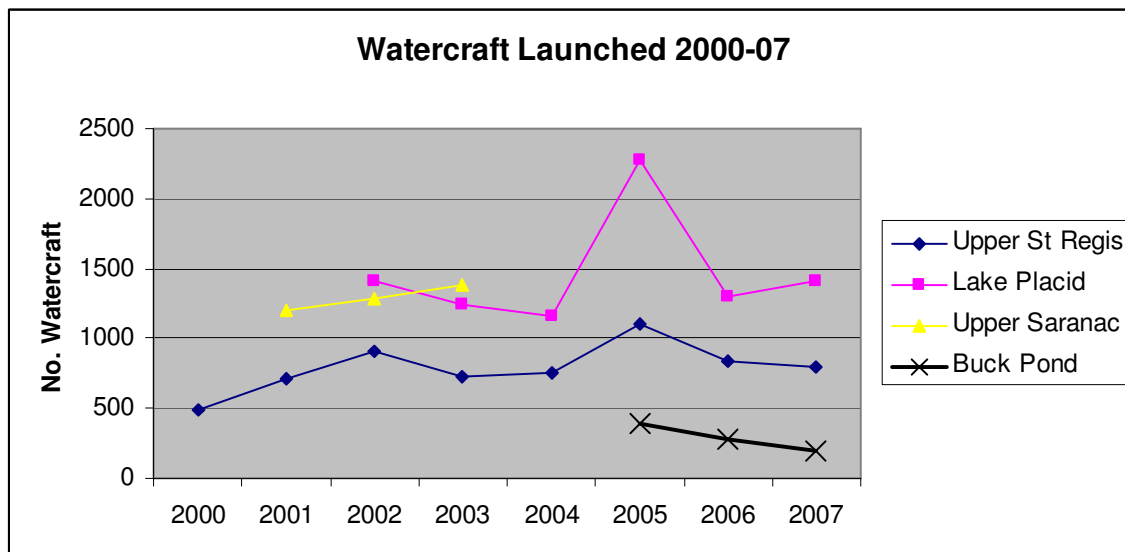


Figure 1: Multi-year trends in boat launch usage

Use trends over the years indicate some variability, with generally stable or decreasing numbers of watercraft launched over the last three years. It is important to note that the Buck Pond program did not start until after the fourth of July, which clearly reduced the total number of boats counted to some extent. As usual, Watershed Stewards compiled data on the recent use history of boats putting into program waterways. This information yielded a detailed picture of the web of interconnections between our lakes and those both within and without the Adirondack Park. Specific information from each lake may be found within this report. Lake Placid, Upper St. Regis Lake and Buck Pond/Rainbow Lake were demonstrated to be connected in terms of potential invasive species exposure with hundreds of lakes and rivers from New York State and beyond.

In total, over 4,700 people were directly given an interpretive message centering on conservation and natural resource health in the summer of 2007 while untold numbers received the message indirectly through their peers or WSP publications.

Other Programs

Our Stewards are given the opportunity to pursue their interests beyond public education in the Watershed Stewardship Program. This is what sets this program apart from similar efforts across the country. Our Stewards engage in public contact with experts from area natural resource management and advocacy agencies to solve conservation and research problems. Watershed Stewards once again teamed up with Steven Flint from the Adirondack Nature Conservancy to track down, map, count and remove as many purple loosestrife plants as possible on the St. Regis Lakes Chain. Our program has been instrumental in this struggle against the exotic invasive plant for seven years. This year's efforts removed 998 of the magenta plants from sensitive areas on the St. Regis Lakes chain and 200 plants from the single known patch on Lake Placid's Buck Island.

Once again, a steward spent one day per week monitoring the three pairs of banded loons that are residents of the St. Regis Lakes chain under the aegis of the Adirondack Cooperative Loon Program. Once again, the loons seem to be doing well.

In a collaborative effort with the Adirondack Park Invasive Plant Program (APIPP), funded by the United States Fish and Wildlife Service, the WSP Assistant Director, Brandon Moser, served as the Volunteer Lake Steward (VLS) Program Coordinator. The VLS program focused on bringing boat

inspection instruction and support to interested lake associations in the area. This year's VLS program included the participation of a large and vibrant volunteer group from the Schroon Lake Association in the central Adirondacks. Two training sessions over the summer, one at the Paul Smith's College campus and another at the Schroon Lake village launch site. Training programs were presented by Moser, WSP Director Eric Holmlund, and APIPP Director Hilary Oles. At the training sessions participants received VLS handbooks, informative brochures, stickers, data sheets and t-shirts to aid them in their volunteer efforts.

This summer saw a resumption of weekend steward coverage on the summit of St. Regis Mountain. In the past, interpretive outreach on the mountain has been a feature of the WSP, in an effort to extend the stewardship ethic and to alert hikers to leave-no-trace practices, especially surrounding fragile summit vegetation and soils. One steward reprised a project first conducted in 2000 which measured the exposed bedrock and vegetation patches. This summer, eight years later, the steward took measurements from the same transects from the original study to check for changes in vegetation and soil.

Each of the special projects described above allows the WSP to respond to current needs, both of the community around us and of the students themselves. In this way, the program becomes a vital bridging experience between academic study and the world of productive conservation work.

Finally, our stewards were joined by stewards from the Lake Champlain Basin Program during our staff training week in May. The Adirondack Watershed Institute's Watershed Stewardship Program has been developing collaborative partnerships with the Lake Champlain Basin Program and the Lake George Watershed Conference/Lake George Association. PSC is seen as a pioneer and leader in boat launch steward programs, and has been invited to join with other efforts to check the spread of invasive species through boat launch inspection and education.

Program recommendations

For the 2008 season, we look forward to:

- Continuing a 15-week season, from Memorial Day to Labor Day
- Continuing and expanding the Volunteer Lake Steward program
- Adding more special project activities for Watershed Stewards to prevent employee burnout from the repetitive nature of boat launch duty. Increase special projects from 1 day per five-day work week to 1.5 days per five-day work week.
- Resuming monitoring and education at the Second Pond/Lower Saranac Lake boat launch, pending funding.
- Increasing collaboration with the Lake Steward programs at Lake George, Blue Mountain Lake and Lake Champlain

Watershed Stewardship Program Funding

The Watershed Stewardship Program was funded for the 2007 season by the Adirondack Watershed Institute, the St. Regis Foundation, the Lake Placid Shore Owners' Association, the Rainbow Lake Association, and the U.S. Fish and Wildlife Service. We are profoundly grateful for their support and contributions to our program vision. We invite current funders to continue their support of this multifaceted and proven program and welcome new supporters to join this effort to serve Adirondack watersheds through education, research and service. The program director is eager to meet with interested parties to discuss future plans and opportunities for the Watershed Stewardship Program. We also would like to appreciate the readers of this document and the many members of the public with whom we have interacted over the past seven years in the course of our efforts raise general awareness of critical watershed issues.

Watershed Stewardship Program- Staff Biographies, Summer, 2007



Brandon Moser

Assistant Director & Volunteer Lake Steward Coordinator. Brandon is a Paul Smith's College senior, in the Fisheries and Wildlife Biology program, as well as Geographic Information Systems (GIS) and graduate from Niagara College, in Western New York with a degree in Environmental Studies. With a background in education, and interpretation, he has spent the past few years working for New York State, as a naturalist in as many as ten state parks. Brandon looks most forward to spending the summer enjoying seasonal diversity and beauty in the ADK's.



Dave Canon

Watershed Steward, Mountain Steward. Dave is a Paul Smith's student earning a degree in Environmental Science. Dave has a fairly extensive background working with for the Massachusetts Salmon restoration project, where he was an interpreter, as well as data collector for Salmon, Shad, and Sea lamprey entering the Connecticut River to spawn.



Kim Caro

Watershed Steward

Invasive Species Monitoring Specialist.

Kim is a Field Biology and Ecology / Conservation Biology major at Paul Smith's College. As a resident of Florida, Kim loves the Adirondacks and the pristine beauty here. She loves working with Lake chemistry, as well as the chance to use her skills in Geographic Information Systems.



Pete Griffiths

Watershed Steward, Mountain Steward

From Tonawanda, New York, Pete is a student at Paul Smith's College in the RATE program entering his sophomore year. A Dean's List student, as well as an Adirondack scholar, Pete is a certified lifeguard, and a lover of the outdoors, especially hunting, fishing, and camping. Pete is most excited about the prospect of meeting so many new people over the summer, and the chance to do some camping.



Tiffany O'Brien

Watershed Steward and Loon Monitor.

Originally from Massena, New York, Tiffany is a senior in the Fisheries and Wildlife Biology program, and has completed her associates in Environmental Studies. Tiffany has also been very active in supporting Paul Smith's recent efforts to use green energy on campus. Tiffany spent last summer as a kayak guide in Fort Myers Beach Florida, where she focused on interpretation and environmental education, focusing on manatee health.



Eric Holmlund

Director of the Watershed Stewardship Program, Eric is an Associate Professor at Paul Smith's College. In addition to his work as Director of the Watershed Stewardship Program, Eric teaches in Paul Smith's College's baccalaureate program in Nature and Culture. Eric is co-author of a book, *The Camper's Guide to Outdoor Pursuits*. Eric and his wife Kim have a nine-year-old daughter, Dana, and twin eight-year-old boys, Will and John. He enjoys most outdoor activities, especially lake kayaking and camping. Eric is pursuing a Ph.D. in Environmental Studies from Antioch University New England.

Robbie Bonham, Part-Time Watershed Steward

Robbie, a senior at Saranac Lake High School, joined the WSP part way through the summer as a half-time steward. Robbie was stationed at the boat launch at Buck Pond State Campground. Robbie lives in Bloomingdale and Rainbow Lake.

Recreation Use Study: Rainbow Lake Waterway-Buck Pond State Campground

Introduction:

For the third year, a watershed steward was stationed at the boat launch into the Rainbow Lake waterway in the Buck Pond State Campground on weekends. The purpose of the position was to greet users of the boat launch and impart a message about the threat of invasive species to the ecological integrity of the waterway. The steward was also responsible for checking boats for visible invasive species and for encouraging use of the nearby boat-wash station. Stewards focused on educating the public about Eurasian watermilfoil, zebra mussels and southern naiad, a “watch plant” that may be native to the area, but is growing aggressively in parts of the Rainbow Lake waterway. The steward was posted for eight weeks, from July 7 to September 2, 2007.



Family using the Buck Pond/Rainbow lake waterway boat launch

Methods:

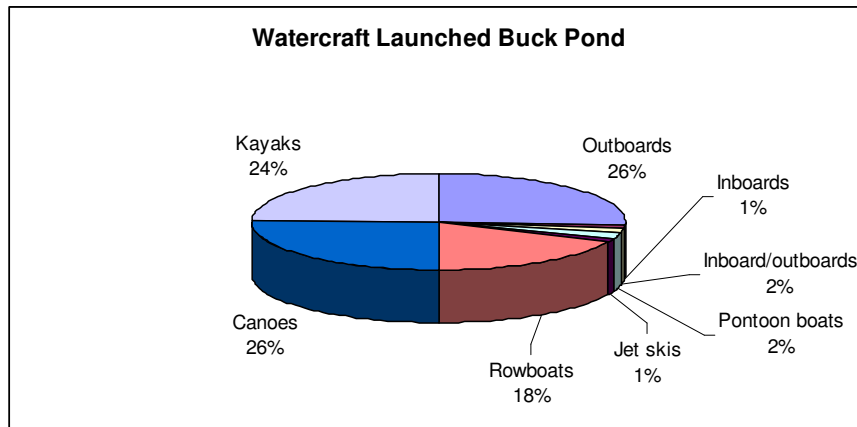
A part-time steward, this summer a senior at Saranac Lake High School, was hired and trained in early July to greet visitors on Saturdays and Sundays between 7 am and 4 pm. The uniformed steward was given a condensed version of staff training, a detailed handbook, brochures and visual aids and forms on which to record data about each party using the boat launch. The steward was instructed to record visible data about each user group, including group size, gender, boat type, horsepower, time

arrived, time departed, etc. The steward also asked visitors where their boat had been in the previous two weeks and whether they had taken any measures to prevent the spread of invasive species, such as washing their boats, draining their bilgewater, etc. The steward typically sat in a lawn chair near the access to the boat launch. Users who reported having been in infested lakes were especially advised to use the boat wash station, which entailed a short additional drive with the boat (approximately 30 yards). Data was keyed into an Excel database at Paul Smith's College and then analyzed for findings.

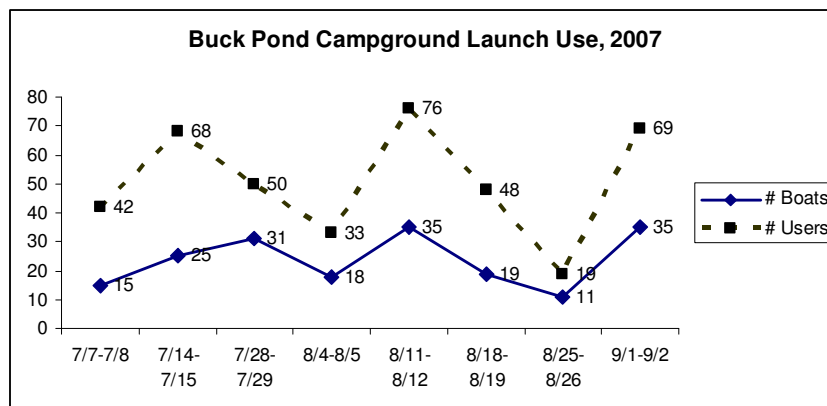
Results:

Weekend stewards encountered 405 visitors- 259 males and 141 females- who launched 189 boats of various types. Visitors spent an average of 14 minutes launching their boats. Outboards (49 boats) and canoes (48 boats) were the most frequently occurring boat type (26% each) closely followed by kayaks (46 boats, 24%) and rowboats (34 boats, 18%). Pontoon boats (4, 2%), inboard/outboards (3, 2%), inboards (2, 1%) and jet skis (2, 1%) rounded out the categories.

Visible weeds were observed by the stewards on 9 occasions, all except for one when boats were exiting the boat launch.

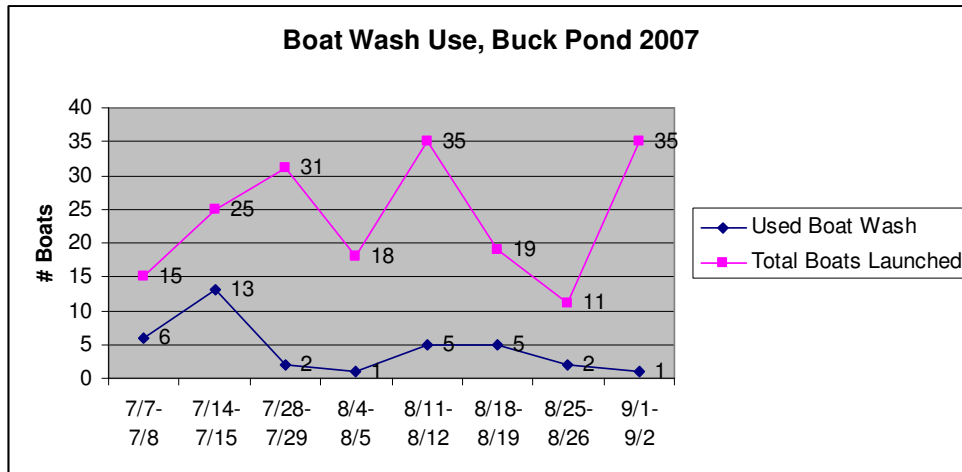


Use varied considerably by week of coverage throughout July and August. The steward was not able to work on the weekend of July 21 to 22 due to a previous engagement. The high use mark of 35 boats was reached on two weekends, August 11 and 12 and Labor Day weekend. Visitor trends tracked those of boats launched.



Boat Wash Station Use

Visitors used the boat wash station at a comparable rate compared with previous years. Of the 189 boats using the launch site during steward hours, 19% (35 boats) used the wash station. The figure for 2006 was 19% of boats using the wash station. Of the 35 boats using the station, 49% (17) were outboards, 29% (10) were rowboats, and the rest were a mixture of the remaining categories, very rarely using the wash station. Interestingly, use was high in the middle of July, but then fell rapidly, never regaining its early level of compliance.



Lakes Visited Prior to Launch

As in the past, stewards queried users of the launch as to whether and where they had used their boats in the prior two weeks, intending to gather some information about risk for invasive species spread. The 189 boats reported being used on 125 different occasions on other bodies of water in the prior two weeks. Note that some of the boats reported being on two or three waterways. Of these 125 reported prior contacts, 25 distinct waterways were mentioned, of which many are known to be host sites for invasive species. In total, there were 79 reports of prior contact on infested lakes. This represents 79 opportunities for invasives to be carried into the Rainbow Lake Waterway out of 189 possible boats, or a hazard rate of 42%. The most visited infested lakes of concern that were reported were Lake Flower (7), the Saranacs (7), Lake Champlain (6), Franklin Falls (3) and Tupper Lake (3). Refer to the table below for a full account.

Lake Visited	Infected?	Totals
Rainbow Lake	Y	41
Lake Flower	Y	7
Saranac Lakes	Y	7
Lake Champlain	Y	6
Franklin Falls	Y	3
Tupper Lake	Y	3
Lake Ontario	Y	2
Lower Saranac	Y	2
St. Lawrence River	Y	2
Canandaigua Lake	Y	1
Lake Colby	Y	1
Loon Lake	Y	1
rental	Y	1
Rollins Pond	Y	1
Saranac River	Y	1
Lake Kushaqua	U	28
Buck Pond	U	6
Cass Pond, NH	U	2
Little Tupper	U	2
Osgood Pond/ River	U	2
Upper St. Regis Lake	U	2
Chazy Lake	U	1
Indian Lake	U	1
Lower St. Regis	U	1
Mountain Pond	U	1
total lakes reported		125
total infected		79

Discussion:

Use levels were down in 2007 compared to 2006 and 2005. This was undoubtedly due to a shorter scope of coverage- there were only eight weeks of coverage in 2007, owing to a late start and funding concerns, versus 13 weeks of coverage in 2006. Compliance with the boat wash station was on par, but could likely be boosted with more determined and proactive coverage by the steward on station. The question we typically ask about prevention steps taken by the visitor was not recorded in a usable way by the steward, so this data is unreliable this year. More thorough instruction is warranted in future years. Starting a steward part way through the summer causes gaps in preparation. The impact of the program was similar, however, overall to years past, as the peak weekends of July and August were covered. Additionally, the Rainbow Lake Association supplemented coverage with volunteers on Friday afternoons. This collaboration is most welcome and will increase the program's ability to intercept invasives and to spread the word about invasive species ecology and transport to the general public.

The stewards would like to again thank the Adirondack Watershed Institute and the Rainbow Lake Association, especially Pat Willis, Joe Deignan, Ted and Marge Glowa for their support, interest and guidance. Your informed, passionate presences go a long way to shape the message the stewards are delivering and to provide encouragement. The staff at the Buck Pond State Campground again was appreciated for their good will and support.

Table 2. A complete data summary for the 2007 season at Lake Kushaqua Boat Launch. Key: MO = outboard motor; MI = inboard motor; I/O = inboard/outboard motor; P = pontoon boat; J = Jet Ski (personal watercraft); S = sailboat; R = rowboat; C = canoe; K = kayak; B = barge (construction)

Buck Pond 2007	Boat Type/HP (indicate hp for MO)											Total # boats	4 strk	Group Size	Gender		Average Time (minutes)	Pets #	Out Only	moored	Visible Weeds		Used Boat Wash	Take Prevention Steps? Didn't					# of groups	
	(hp)	MO	MI	I/O	P	J	S	R	C	K	B				M	F					In	Out		Yes	WB	IB	DB	Ask		
7/7-7/8	39	6	0	0	0	0	0	4	3	2	0	15	3	42	25	12	0:07	1	3	1	0	2	6	2	0	0	0	0	0	15
7/14-7/15	60	8	1	1	1	2	0	5	7	0	0	25	2	68	49	19	0:18	2	0	0	0	0	13	4	7	0	0	0	0	25
7/28-7/29	32	7	0	0	1	0	0	3	10	10	0	31	1	50	35	15	0:14	3	9	0	0	0	2	0	0	0	0	3	30	
8/4-8/5	65	5	1	0	1	0	0	0	6	5	0	18	1	33	20	13	0:22	4	2	1	0	0	1	0	0	0	0	0	18	
8/11-8/12	57	7	0	1	1	0	0	5	8	12	1	35	4	76	40	36	0:11	1	3	0	0	3	5	0	0	0	0	0	35	
8/18-8/19	67	8	0	0	0	0	0	6	2	3	0	19	0	48	31	17	0:11	2	4	0	1	1	5	4	2	2	2	0	19	
8/25-8/26	21	1	0	0	0	0	0	5	3	2	0	11	0	19	15	4	0:11	1	5	0	0	0	2	2	2	2	0	0	11	
9/1-9/2	50	7	0	1	0	0	0	6	9	12	0	35	1	69	44	25	0:13	4	5	0	0	2	1	2	1	2	0	0	35	
Totals	49	49	2	3	4	2	0	34	48	46	1	189	12	405	259	141	0:14	18	31	2	1	8	35	14	12	6	2	3	188	
median	40																percent of groups taking measures					19	7	6	3	1				
mean	52																													

Recreation Use Study: Lake Placid State Boat Launch, 2007

Introduction:

For the past six years the Adirondack Watershed Institute's Watershed Stewardship Program has had a Steward stationed at the state boat launch on Lake Placid. This year stewards were present seven days a week from May 26, 2007 through September 2, 2007.

The Watershed Stewards provided visitors and boaters information regarding the spread of aquatic invasive species, the implications of such spread on native ecosystems and the steps that the public can take to reduce this threat.

Methods:

Stewards served between the hours of 7:00 am to 4:00 pm each day of the week from May 26th through September 2, 2007. Stewards filled out recreation data sheets each day at the launch site by collecting data about each boater that visited the launch site, including boat size and type, the presence of four stroke motors, group size and gender, boat registration status, and the state of boat registration.



Steward at work at Lake Placid boat launch

Stewards also noted the presence of pets and the time of arrival and departure from the launching area. Total trip time for each boat was not noted due to logistical limitations. Stewards also asked the two-week history of each boat prior to launch in Lake Placid in order to estimate the potential for exposure to other lakes with invasive species. Finally, stewards asked whether or not the boater had taken steps to prevent the spreading of aquatic invasive species, such as immediately draining bilge water and live wells, and then inspecting and washing their boat.

Stewards also educated the public about maintaining healthy lake ecosystems primarily through presenting short informative messages about invasive species in the Adirondacks.

Stewards notified the public about the role

recreational boaters play in transporting invasive species between otherwise separate waterways. Visitors were urged to make a habit of washing and inspecting their boat and trailer every time it comes out of the water as a critical precautionary procedure to impede lake infection. Most visitors were interested in assisting in the prevention of transporting exotic invasive organisms. Stewards also offered to answer any question visitors might have about the Adirondack Park. Stewards encouraged each boater to take a pamphlet provided by the Shore Owners' Association titled "Boating Guide to Lake Placid Lake," which includes a Lake Placid map, lake and state land regulations, along with general information about the area and invasive species, in addition to the brochures produced by the Watershed Stewardship Program. Finally, as Stewards educated users, they visually inspected each boat for weeds, specifically looking at the propeller, hitch, rollers and axles.

Results:

Between May 26th and Labor Day there was a total of 3,064 people counted launching 1,410 watercraft of various types. The average time spent by each person at the boat launch was 21 minutes. There were two peak usage times this summer. One occurred from 6/29/2007 to 7/5/2007, where

stewards counted a total of 143 boats being used by 328 people. The other occurred from 7/27/2007 to 8/2/2007, where stewards counted 144 boats being used by 346 people.

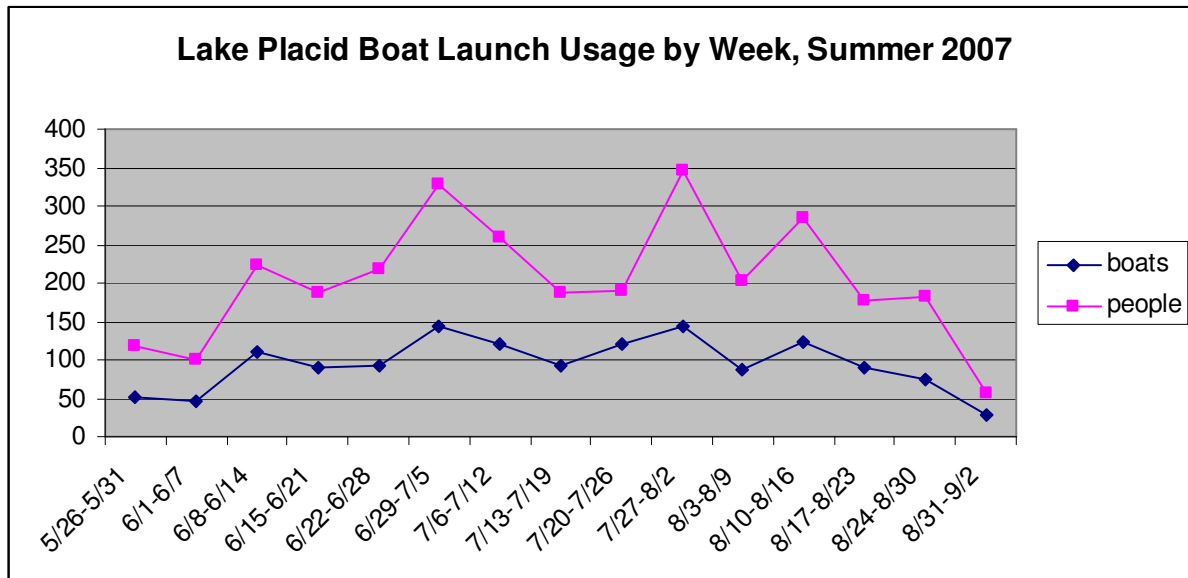


Figure 1. Weekly use levels of the New York State Boat Launch on Lake Placid during the summer of 2007 determined by number of boats observed launching and number of people counted per week.

Outboard motors were the most numerous type of watercraft launched in 2007 (507 total; 36% of total watercraft), followed by kayaks (329; 23%), inboard/outboard motors (177; 13%), inboard motor boats (137; 10%), canoes (120, 9%, Figure 2), and pontoon boats (89; 6%) There were no personal watercrafts accounted for, due to the Town of North Elba personal watercraft ban. There were a small numbers of sailboats (9) and rowboats (4). Motorized watercraft outnumbered human-powered watercraft by a total of 910 to 462. The average horsepower of motors observed was 81 which are up from 74 in 2006. 293 4-stroke motors were observed this summer which is significantly lower from 398 last summer, (2006).

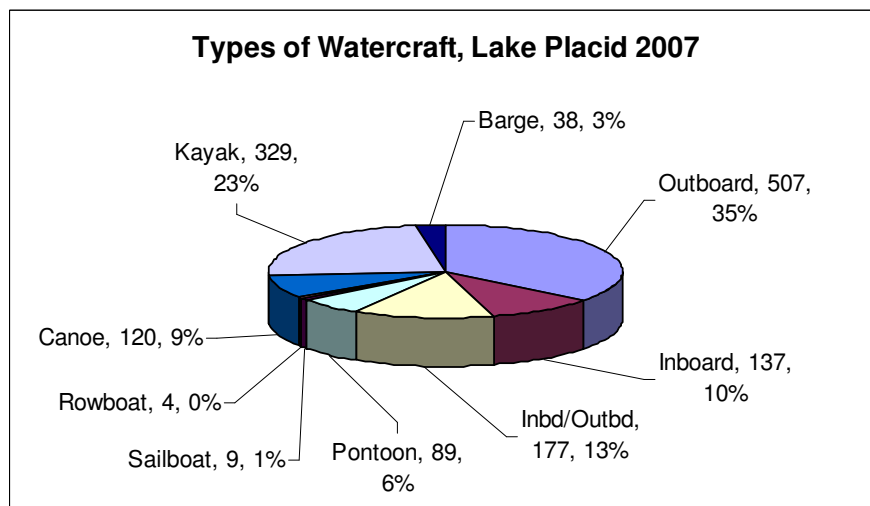


Figure 2. Percent of watercraft type launched at the New York State Boat Launch on Lake Placid during the summer of 2007.

State/Province of Origin

Most boats (799) were registered in New York, while others came from a wide range of originating states (Table 1). The second most represented state was New Jersey, with 21 boats, followed by Vermont, (9 boats). Lake Placid attracts boaters from a wide range with 12 states represented. Watershed stewards determined originating state by observing registration stickers on motorized watercraft. It is likely that some of the unregistered watercraft would have originated in states outside New York.

State of Origin	
NY	799
NJ	21
CT	6
PA	9
VT	7
FL	1
MA	1
DL	3
MO	1
WS	2
MD	5
OH	3
Total	858

Table 1. **State of origin observed from boats launched at Lake Placid.**

Party Composition

Sixty nine percent of the people launching watercraft were male and 31% were female. 91 pets were tallied; about 7% of the boats launched were accompanied by a pet. Six percent of boats (83 total) were observed as “out only” (taken out of the lake, not observed that day as launched into the lake). It should be noted that some boats might have been counted twice because of this phenomenon. In other words, a boat may have launched on a Sunday and taken out on a Wednesday, and have been counted on both occasions, since there could have been a different Steward on duty. The intent of the study is to note total traffic impacting the boat launch. Each occasion of use is an opportunity for Watershed Stewards to educate the public and inspect boats.

Use Patterns

In 2007 Watershed Stewards were stationed at Lake Placid 7 days per week. We found the peak use weeks were June 29 through July 5 (143 boats) and July 27 through August 2 (144 boats, Figure1), which shows the same trend as in 2006. The week of July 4th has shown a peak in usage the past two years. Increased boat launch use could be indicated by the very nice summer we had this year (2007). Most boats were launched on Monday (255 total, Figure 3) with an average of 20 boats per Monday. Average boats launched by day are as follows: Sunday – 15, Tuesday – 14, Wednesday - 14, Thursday – 13, and Friday – 13.

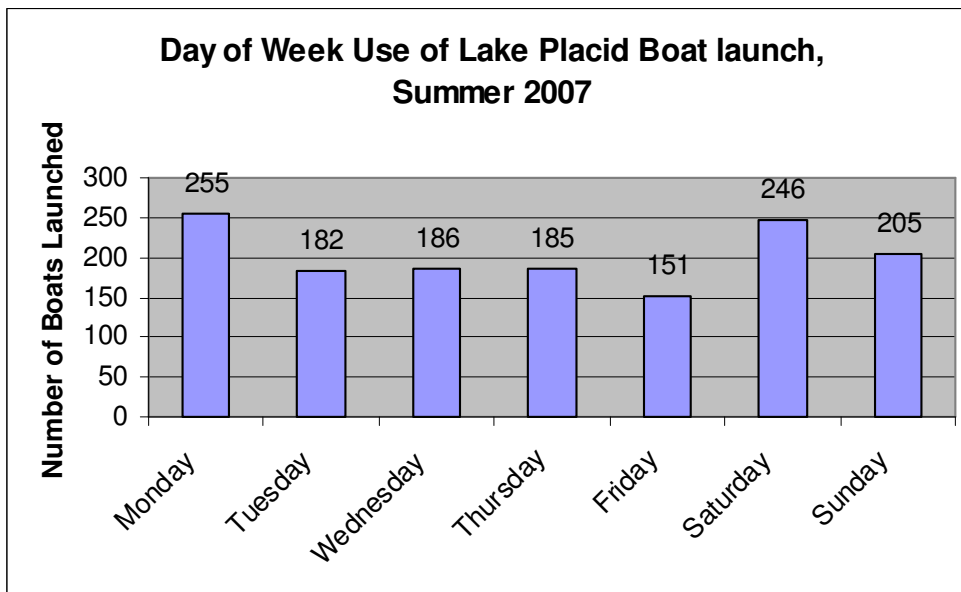


Figure 3. Total number of boats launched from the New York State Public Boat Launch on Lake Placid by day of week during the summer of 2007.

Where has your boat been?

For the third year Watershed Stewards asked all encountered boaters what other bodies of water their boats had been in the past 2 weeks before visiting Lake Placid. This gives us a scope of the likelihood the lake may be exposed to an invasive aquatic species. 368 boats were reported by their owners as having been used in other lakes in the preceding two weeks. This represents 26% of the total boats launched (1380). We expect that more boats had been used in other waterways in the preceding two weeks, but at high use periods it was difficult to ask this question of everybody. These 368 boats had visited a total of 80 lakes in the preceding two weeks. Some boat owners reported visiting more than one lake in the preceding two weeks. Of the 368 boat owners reporting prior use, 63% (233) had visited a lake with a known infestation of aquatic invasive species. Overall, then, 233 of the total 1,410 boats (17%, or 1 in 6 boats) launched at Lake Placid in 2007 present a risk of transporting invasive species to Lake Placid.

The breakdown of lakes visited prior to Lake Placid helps us to understand patterns of visitation and invasive species transport. The most reported body of water reported was the Saranac Lakes Chain, consisting of Upper, Middle and Lower Saranac Lake, Oseetah Lake and the Saranac River (total 68). The second most visited bodies of water visited were Lake Flower and Mirror Lake, each with 40 visits. The fourth most visited body of water visited was Lake Champlain (21). Lake George was fifth with 17 responses. The Saranac Lakes Chain, Lake Flower and Lake George all host Eurasian watermilfoil and Lake Champlain is known to host many aquatic invasive species including Eurasian watermilfoil, hydrilla, water chestnut, and zebra mussels. This is interesting finding considering that most would assume that invasive species are being introduced to our pristine lakes by out-of-state visitors, when in actuality the most significant potential source of invasives tends to be right in our back yard. Most out-of-state visitors responded to this question by saying that their boat had been nowhere in that past two weeks. This would lead one to believe that people on vacation in the area only use their boat on vacation and park their boat in their yard for the remainder of the year, while locals tend to boat more throughout the summer and transport their boat to numerous lakes in the immediate area.

Table 2: Boat Use History, Lake Placid

Boat Use History- Prior 2 Weeks Lake Placid, 2007	
Known Infected	Total visits
Lake Flower	40
Upper/Lower Saranac	27
Lake Champlain	21
Lake George	17
Lower Saranac	13
Upper Saranac	13
Saranac River	8
Tupper Lake	7
Hudson River	6
Fish Creek Ponds	5
Kiwassa Lake	5
Lake Colby	5
Lake Erie	5
Lake Ontario	5
Meacham Lake	5
Loon Lake	4
Middle Saranac	4
Sacandaga Lake	4
St. Lawrence	4
Cranberry Lake	3
Long Pond	3
Ocean	3
Raquette	3
Lake Michigan	2
Lincoln Pond	2
Oseetah	2
Potomac River	2
Skaneateles	2
Back Bay	1
Casanovia Lake	1
Chazy Lake	1
Franklin Falls	1
Fulton Chain Lakes	1
Lake Bonaparte	1
Long Island Sound	1
Old Forge	1
Oneida	1
Deer River Flow	1
Rideau Canal	1
Saratoga Lake	1
Taylor Pond	1
total- infected lake exposure	233

Boat Use History- Prior 2 Weeks Lake Placid, 2007	
Unknown or Uninfected	Total visits
Mirror Lake	40
Upper/Lower St. Regis	15
Ausable	10
Lake Clear	7
Moose Pond	6
Lake Everest	5
Rainbow Lake	5
Osgood Pond	4
Buck Pond	3
Church Pond	2
Clayton Lake	2
Dunmore	2
Heart Lake	2
Indian Lake	2
Lake Kushaqua	2
Oswegatchie	2
South Stony Creek	2
Spitfire	2
Upper St. Regis	2
Big Wolf Lake	1
Black River	1
Canadaigua Lake	1
Carr Lake	1
Cascade Lake	1
Cold Spring Harbor	1
Crowe River	1
Cubb	1
Echo Pond	1
Glenn Lake	1
Kinderhook Lake	1
Little Clear	1
Lower St.Regis	1
Lows Lake	1
Moss Pond	1
Paradox Lake	1
Salmon Hatchbrook Lake	1
Tay Canal	1
Turtle Pond	1
Waterbury	1
total unknown/uninfected	135

Have you taken prevention steps this year?

This year we asked the question, "What, if any, prevention steps did you take to stop the spread of aquatic invasive species?" Possible prevention steps a boater could have taken included washing or inspecting their boat, draining the bilge, and emptying live wells, and bait buckets. We found that out of the total 1,063 groups encountered, 741 (70%) took some form of prevention steps. Washing one's boat was the main prevention step reported (589 boats) followed by boat inspection (365) and bilge draining (26, Figure 5).

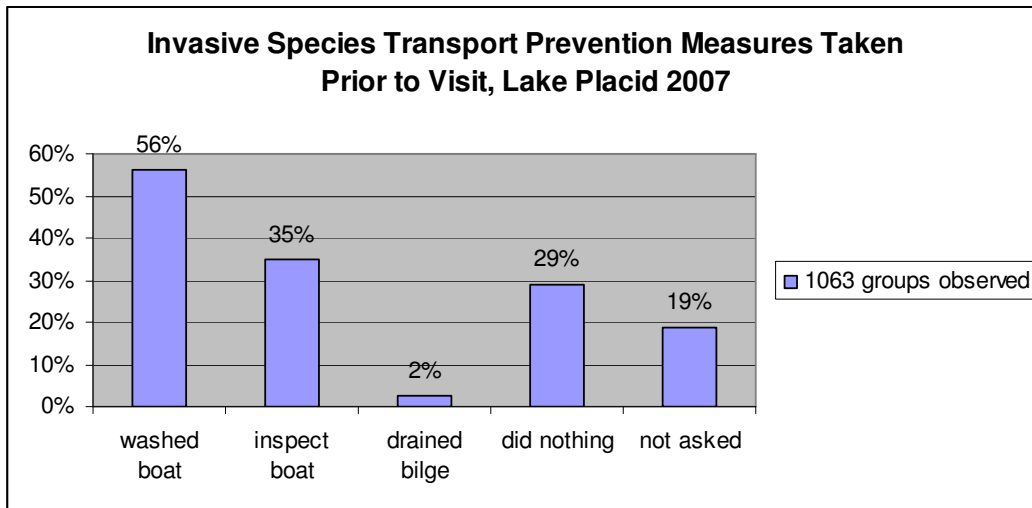


Figure 5. Prevention steps taken by boaters to remove aquatic invasive species from their boat, recorded at the New York State Public Boat Launch on Lake Placid. (Summer 2007)

Multi-Year Use Perspective

The summer of 2007 represents a small increase of launch use at Lake Placid when compared to the 2006 season (1,410 total boats compared to 1,296 in 2007) and an increase in terms of people (3,064 vs. 2,981). The 2006 season is similar to the 2002, 2003 and 2004 data (Figure 6). This year lake stewards were posted at the boat launch Memorial Day weekend, and continued through September 2, whereas the 2006 season was only 13 weeks in length. This likely increased usage numbers, but it is also hypothesized that warmer, sunnier weather, especially on Independence Day, increased use this season.

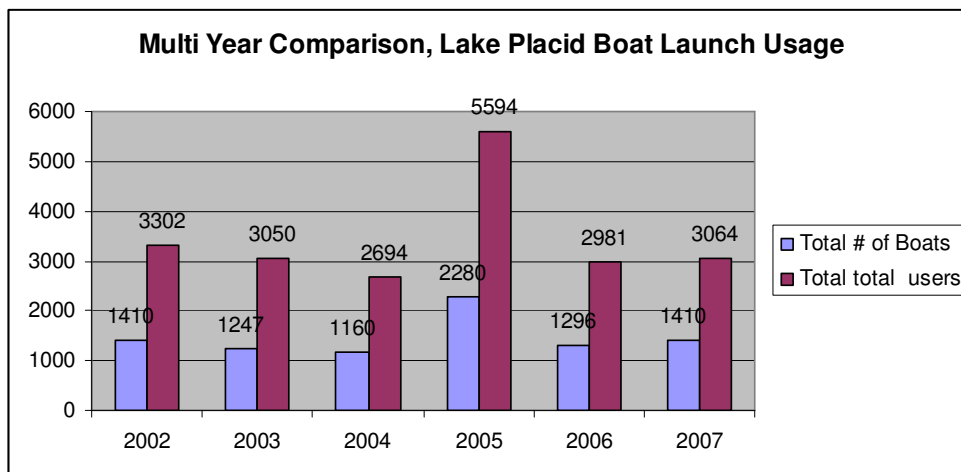


Figure 6. Five year trend use recorded from the New York State Public Boat Launch on Lake Placid.

The use of cleaner, more fuel efficient four-stroke engines decreased dramatically from 93% of outboard motors in 2006 to 58% of outboard motors this season (293 four-stroke engines out of a total of 507 outboard motors). The decrease of four-stroke engines on Lake Placid contributes to pollution control with decreased exhaust and oil/fuel spillage.

The report of visible weeds before launching into Lake Placid increased this year from only 4 instances in 2006 to 5 instances in 2007, a few of them being Eurasian watermilfoil. Some of the weeds observed at Lake Placid in the 2007 were invasive, so finding them and stopping them from entering the water is a great boost to the Steward Program. Vegetation removed from boats and trailers were collected and labeled to confirm identification.

Terrestrial Invasive Plant Sightings

Watershed Stewards continued to monitor an infestation of yellow iris (*Iris pseudacorus*) near the water's edge at the Lake Placid State boat launch. This outbreak was reported to the Adirondack Park Invasive Plant Program, which made a trip to attempt to remove the plants. Shore owners and visitors are urged to look for this plant near their property and at the boat launch. Future infestations should be reported to either the Adirondack Watershed Institute's Watershed Stewardship Program (518-327-6341) or the Adirondack Park Invasive Plant Program (518-576-2082 x 131). In July, a small team of Watershed Stewards identified and removed approximately 200 purple loosestrife plants from Camp Sunrise on Lake Placid. The owners were notified and provided encouragement, additional trash bags and refreshments. This site should be checked again each summer for regrowth. Please report any sightings of purple loosestrife (*Lythrum salicaria*) as noted above.

Aquatic Invasive Plant inspection

Three Watershed Stewards conducted an inspection of Lake Placid on August 26, 2007 to determine the presence of invasive aquatic plants. For five hours, the stewards drove at slow speeds along the entire shoreline of the lake, stopping when necessary to throw a rake in the water to retrieve plant specimens. No invasive plant material was found.

Discussion

The Watershed Stewardship Program experienced another successful summer of service overall at the Lake Placid State Boat Launch in 2007. The program educated over 3,000 users and visually inspected over 1,400 boats that otherwise would have entered the pristine waters of the lake without a second glance. Use trend has increased from 2006 to what has been observed as normal levels in the previous years. Cleaner four-stroke outboard engine use has apparently decreased which will likely impact the health and clarity of Lake Placid. Stewards reported that most people were open and receptive to both their presence and their message, with some notable exceptions. Stewards handed out brochures throughout the summer, both the one prepared by the Lake Placid Shore Owners' Association as well as Watershed Stewardship Program literature. This summer also featured an unusual event, in which a watershed steward witnessed an accidental hydraulic fluid leak from a construction barge into the waters of Lake Placid at the boat launch. The steward contacted DEC Spill Response and eventually administrative action was taken. This was a challenging event for the steward, but in the end, the integrity of the lake was protected. This shows another contribution by the WSP toward the health of the Lake Placid waterway.

Conclusion

The WSP would like to thank its primary sponsor, the Lake Placid Shore Owners' Association (LPSOA) for their continued support and encouragement in the effort to keep Lake Placid in prime

health. Property owners are a tireless source of inspiration and information during the long summer. The stewards really appreciate the visits and kind words.

Table 3: Lake Placid Boat Launch Usage, 2007

Lake Placid 2007 Date	Boat Type/HP (indicate hp for MO)											Total # boats	4 strk	Group Size	Gender		Average Time (minutes)
	avg hp	MO	MI	I/O	P	J	S	R	C	K	B				M	F	
5/26-5/31	90	25	6	3	0	0	1	0	5	10	1	51	18	119	90	29	N/A
6/1-6/7	75	27	6	3	2	0	0	0	1	2	5	46	20	101	79	22	20
6/8-6/14	76	36	14	9	7	0	0	0	19	20	4	109	32	224	161	63	15
6/15-6/21	73	40	8	13	8	0	0	0	6	11	5	91	18	188	145	43	16
6/22-6/28	83	32	6	25	5	0	1	0	4	15	5	93	26	218	167	51	15
6/29-7/5	94	57	12	20	12	0	1	0	6	32	3	143	29	328	221	107	13
7/6-7/12	72	48	8	7	7	0	1	0	11	34	4	120	24	260	187	73	15
7/13-7/19	75	37	9	9	8	0	2	0	7	18	3	93	17	188	125	63	25
7/20-7/26	79	31	22	5	8	0	0	0	9	44	2	121	14	190	121	69	23
7/27-8/2	75	48	11	27	11	0	0	1	22	23	1	144	31	346	214	132	15
8/3-8/9	73	30	11	7	7	0	0	1	5	23	2	86	14	202	131	71	15
8/10-8/16	76	34	7	24	6	0	1	0	5	43	2	122	21	285	190	95	16
8/17-8/23	69	24	5	7	3	0	1	0	6	43	1	90	13	178	116	62	69
8/24-8/30	84	27	8	14	4	0	1	1	9	10	0	74	11	181	131	50	18
8/31-9/2	59	11	4	4	1	0	0	1	5	1	0	27	5	56	38	18	14
Totals		507	137	177	89	0	9	4	120	329	38	1410	293	3064	2116	948	21
median hp	80																
mode hp	90																
avg hp	81																

Key: MO = outboard motor; MI = inboard motor; I/O = inboard/outboard motor; P = pontoon boat; J = Jet Ski (personal watercraft); S = sailboat; R = rowboat; C = canoe; K = kayak; B = barge (construction)

Table 4: Lake Placid Boat Launch Usage, 2007, Additional Usage Data

Lake Placid 2007 Date	Pets #	brochure	Out Only	moored	Visible Weeds		Take Prevention Steps?					didn't ask	# of groups
					In	Out	Y	N	WB	IB	DB		
5/26-5/31	5	2	6	3	0	0	32	12	29	11	4	0	44
6/1-6/7	5	1	6	8	0	0	25	13	22	10	2	7	45
6/8-6/14	5	2	10	11	0	0	43	20	35	17	3	29	92
6/15-6/21	9	2	11	20	0	0	61	9	61	33	1	20	90
6/22-6/28	6	3	2	10	0	0	43	28	36	21	1	17	88
6/29-7/5	7	1	12	30	1	0	71	38	61	24	6	30	139
7/6-7/12	5	1	9	18	0	0	62	21	35	34	0	16	99
7/13-7/19	3	0	7	12	0	0	55	27	43	26	1	6	88
7/20-7/26	6	1	3	7	0	0	51	26	37	25	2	14	91
7/27-8/2	13	0	8	11	1	0	75	30	61	48	2	24	129
8/3-8/9	6	0	2	6	1	0	47	23	39	23	1	9	79
8/10-8/16	6	0	6	6	1	0	79	24	65	42	0	9	112
8/17-8/23	4	0	0	2	0	0	33	15	16	18	1	7	55
8/24-8/30	10	0	0	5	1	0	49	12	40	27	2	8	69
8/31-9/2	1	0	1	2	0	0	15	6	9	6	0	3	24
Totals	91	13	83	151	5	0	741	304	589	365	26	199	1063
Percent of groups asked taking measures							71	29	56	35	7	19	

Recreation Use Study- Upper St. Regis Lake, 2007

Introduction:

The Watershed Stewardship Program, a division of the Adirondack Watershed Institute of Paul Smith's College, works to help protect the integrity of local ecosystems. A steward was stationed at the Upper St. Regis Landing to present a short interpretive message to visitors about invasive species and how to fight the spread of these species found throughout the Adirondack Park. The steward inspected all watercraft and trailers to determine that boats were free of invasive weeds. Stewards also compiled data regarding the characteristics of visitors, their watercraft and previously visited waterways. Stewards asked visitors whether they had taken any prevention steps against invasive species. Stewards manned a boat wash station and encouraged visitors to wash their boats carefully before launching into the lake. A corps of 5 stewards rotated through the position during each week.

Methods:

A steward was stationed at the Upper St. Regis Boat Launch daily from Thursday, May 31st through Monday, September 3rd for the 2007 season. From 7am to 4pm a steward was located near the boat wash station to increase compliance after advising visitors to wash their boats. As a boat approached the launch area, the steward recorded all observable data including boat type, motor size, number of users, registration state and year for each group. Stewards would then give a brief interpretive message regarding invasive species, and proceed to ask the user where the boat had been in the prior two weeks. The stewards would next offer to wash the boat for the owner to rid of any possible visible or invisible living matter. Stewards asked the user if any prevention steps against the spread of invasive plants had been taken including washing the boat, draining bilges and live wells, or inspecting the boat for plant fragments. In addition, all boats and trailers were inspected for weeds. All data collected was written on a prepared form which was later entered into a database so all information could be compiled. The database allowed for comparison of data and a chance to observe any trends from the summer. In addition to providing insight as to recreation use patterns, the database allows a better idea as to what launch users are doing to help prevent the spread of invasive species.



Results:

Demographics

Total use of the Upper St. Regis boat launch for 2007 totaled 801 boats (including 8 boats launched from the private boat launch) and 1,239 people, 845 males and 394 females. Of the boats launched, canoes were launched the most (249, 33%), followed by kayaks (232, 30%) and outboard motors (197, 25%). Barges were often moored (71, 9%) and inboard motors (8, 1%), inboard/outboard (8, 1%), rowboats (4, 1%), pontoons (3), and sailboats (1) were rarely seen at the launch.

Boats that were registered were predominantly from New York State (174). Other registered states that used the boat launch were, Arizona, Connecticut, Florida, Missouri, New Jersey, Rhode

Island, Virginia, and Vermont, each with one visit (3, Table 1). The average amount of time spent at the boat launch was 15 minutes, and 9 of the groups of boaters were reported as out only, having put in at an alternate location (presumably the other end of the St. Regis Canoe Area or at Paul Smith's College).

State of Origin	
NY	174
AZ	1
CT	1
FL	1
MS	1
NJ	2
RI	1
VA	1
VT	1
TOTAL	183

Table 1. State of origin from boats launched at the public boat launch on Upper St. Regis Lake.



Summer use patterns

The boat launch use by week is shown below in Figure 2. The peak use for the launch regarding the number of boats occurred during the week of 7/27-8/2 with 102 boats. The peak use regarding total number of people occurred during the same week of 7/27-8/2 with 162 individuals in the 102 boats launched. The smallest number of boats tallied occurred during the first week from 6/15-6/21 with only 27 boats launched, and 37 individuals in those boats.

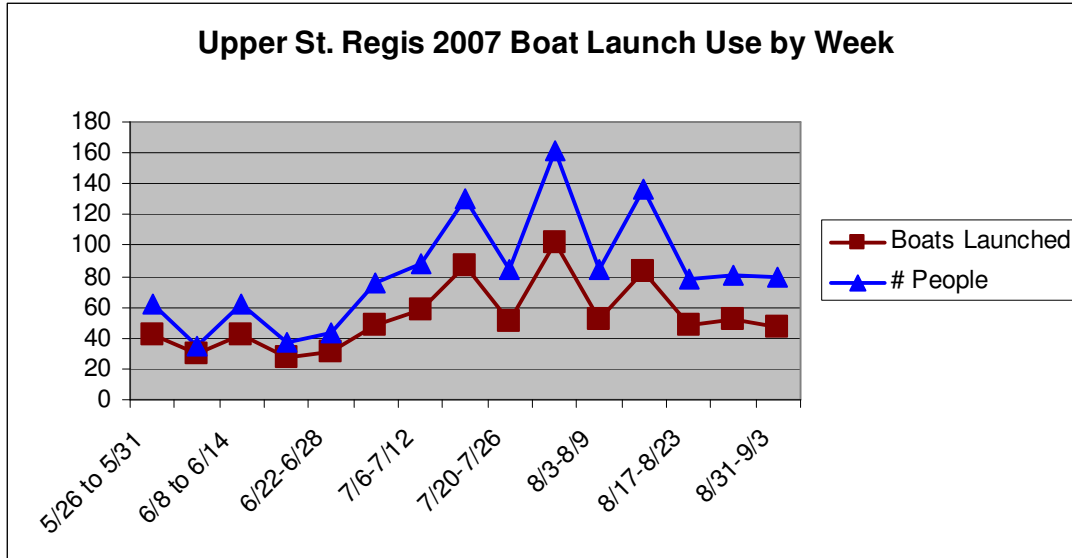


Figure 2. The number of boats and users at Upper St. Regis launch per week.

Boat wash use trends

The use of the boat wash station this year totaled 272 users, or about 34% of all boats launched, and 43% of the total number of boating groups encountered. This is an increase of 97 boats washed from 2006's total of 175 boats (a 55% increase from 2006). Of the watercraft washed at the station, 37% were outboard motor boats (99), 32% were kayaks (86) and 29% were canoes (79). Only 2% of watercraft washed were inboard motors (3) and inboard/outboard motors (4). Wash station usage levels showed the greatest use the week of 7/27-8/2 with 44 boats, or 17 % of the boats launched having used the boat wash.



Boat Wash Station at Upper St. Regis Lake

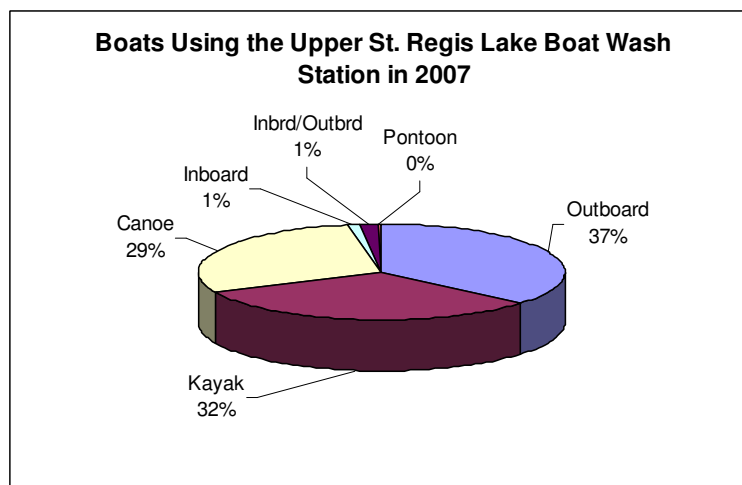


Figure 3. The types of boats that used the boat wash station at Upper St. Regis Lake in summer, 2007

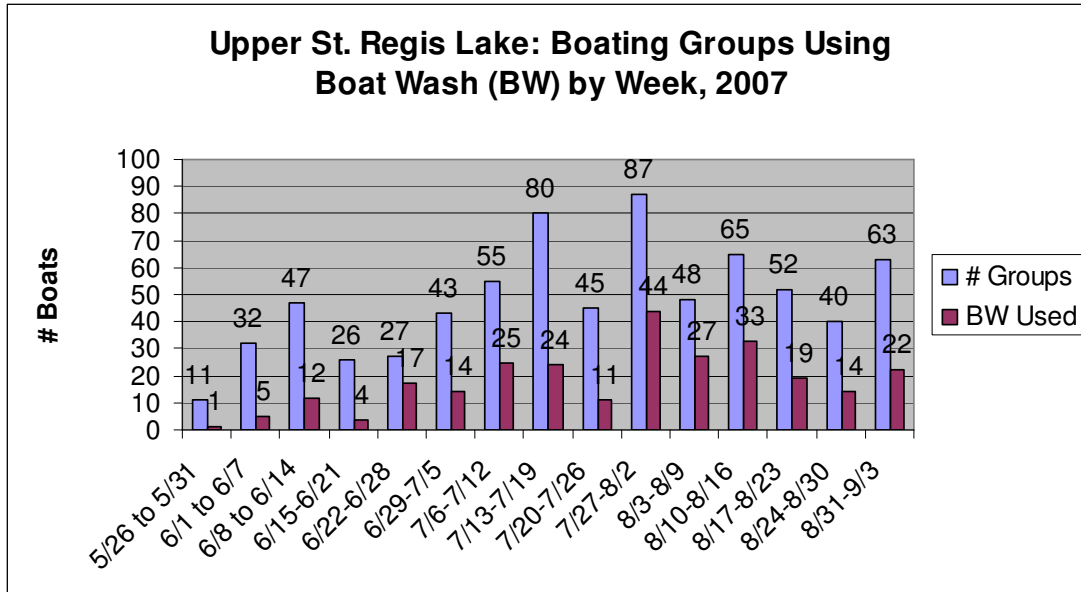


Figure 4. Groups encountered versus groups using boat wash.

Prevention of Invasive Species Transport

The question of whether or not users had taken invasive species transport prevention steps was asked as well. A total of 514 of the 631 total groups encountered (81%) reported taking prevention steps prior to launching (Figure 5). Users were then asked what prevention steps they had taken. 438 of the groups had washed their boats, 248 had inspected their boats for invasives, and 6 had drained their bilge water and live wells prior to launching. With boat wash use up for 2007 it is recommended that stewards try to spend the majority of their time at the St. Regis Boat Launch near the boat wash station, as intercepting launch users at that location has proven effective.

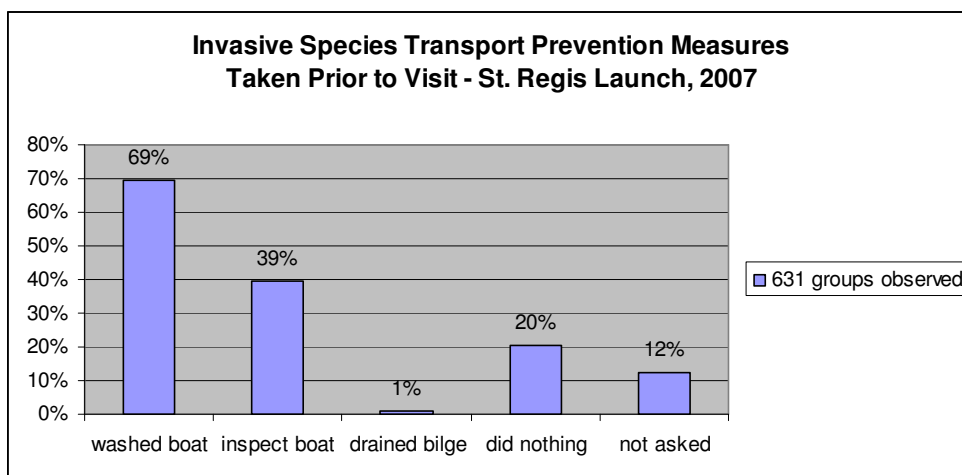


Figure 5. Prevention steps taken by visitors to avoid the transportation of aquatic invasive species

Prior waterway visitation

Boat owners were asked whether their boat had been in another water body in two weeks prior to launching it. The results varied greatly and are shown in Table 1, but overall, 327 of the 801 boats, or 41% of boats launched, had been on a different waterway within the past two weeks. Of

those 327 boats 170 had been on waterways known to be infected with an invasive species, which means 21% of all boats launched at Upper St. Regis had a risk of bringing invasive species into the lake chain. The lakes most commonly visited prior to the St. Regis Chain were the Saranac Lake Chain and Fish Creek, which both contain Eurasian Watermilfoil, along with Lake Placid and Lake Clear which are believed to be absent of invasive species.

Lake Visited	Infected?	Totals			
Upper Saranac	Y	19	Saint Almond Pond (ME)	Unknown	2
Lower Saranac	Y	13	South Colton	Unknown	2
Raquette River	Y	13	South Pond	Unknown	2
Fish Creek	Y	12	Unnamed Private Pond	Unknown	2
Lake Flower	Y	11	Black River	Unknown	1
Middle Saranac	Y	10	Bog River	Unknown	1
Lake Champlain	Y	9	Candargo Lake	Unknown	1
Star Lake	Y	9	Church Pond	Unknown	1
Floodwood	Y	8	Coles Creek	Unknown	1
Chateauguay	Y	6	Crooked Creek	Unknown	1
Follensby	Y	6	Everest	Unknown	1
Lake Colby	Y	6	Lake Titus	Unknown	1
Saranac River	Y	5	Maine (state of)	Unknown	1
Chazy Lake	Y	3	Mashapaug Lake (CT)	Unknown	1
Grass River	Y	3	Miller Pond	Unknown	1
Long Pond	Y	3	Norwood Pond	Unknown	1
Loon Lake	Y	3	Otsego Lake	Unknown	1
Cranberry Lake	Y	2	Quebec Lake	Unknown	1
Franklin Falls	Y	2	Richelieu River	Unknown	1
Indian Lake	Y	2	Susquehanna	Unknown	1
Kiawassa Lake	Y	2	St. Regis Pond	Unknown	1
Meacham Lake	Y	2	Trout Pond	Unknown	1
Mountain View Lake	Y	2	Waterbury Reservoir, VT	Unknown	1
Scroon Lake	Y	2	Lake Placid	None Observed	15
Union Falls Reservoir	Y	2	Lake Clear	None Observed	12
Hudson River	Y	2	Osgood Pond	None Observed	11
Deer River Flow	Y	1	Moose Pond	None Observed	8
Putnum Pond	Y	1	Rollins Pond	None Observed	7
Raquette Lake	Y	1	Clear Pond	None Observed	6
Saranac Lake	Y	1	Black Pond	None Observed	5
Tupper Lake	Y	1	Long Lake	None Observed	5
Cayuga	Y	1	Rainbow Lake	None Observed	5
Charles River	Y	1	Mirror Lake	None Observed	4
Chataugaua	Y	1	Star Lake	None Observed	4
Chesapeake Bay	Y	1	Bear Pond	None Observed	3
Delaware River	Y	1	Buck Pond	None Observed	3
New Hampshire	Y	1	Hoel Pond	None Observed	3
Vermont	Y	1	Bog Pond	None Observed	2
Horseshoe Pond	Y	1	Little Green Pond	None Observed	2
St. Regis Canoe Area	Unknown	13	Turtle Pond	None Observed	2
Lake Kushaqua	Unknown	4	Carry Falls Reservoir	None Observed	1
Ausable	Unknown	2	East Pine Pond	None Observed	1
Hatchbrook	Unknown	2	Lake Durant	None Observed	1
Lake Harris	Unknown	2	Lower St. Regis	None Observed	1
Little Clear Meadow	Unknown	2	Total visits other lakes:		327
North Kushaqua	Unknown	2	Total known infested:		170
Oswegatchie	Unknown	2			

Table 2. A list of the lakes visited by users two weeks prior to visiting the St. Regis Chain and the lakes status as referring to infection by invasive species.

Discussion

The summer of 2007 saw a small decrease in the number of users at the Upper St. Regis Boat Launch from the previous summer, with 801 boats versus 835 in 2006, a decline of 4%. The type of watercraft launched is similar to years past with non-motorized boats accounted for approximately 61% of all usage. Of the outboard motors making up 25% of all boats, the average horsepower is comparable to last year; in 2006 it was 54 while this year the average is 57. Median horsepower in 2007 was 40 compared with 49 in 2006. The number of four stroke engines decreased with 50 this year compared to 86 in 2006.

Use of the boat wash station has increased compared to 2006 when 175 boats were washed compared with 272 boats washed in 2007. This greater percentage of wash users is likely due to the fact that stewards were posted near the wash station to ask users to wash their boats prior to launching. While washing, the stewards will inspect the boats for visible weeds, and plant matter was found once on a boat launching in, and was removed. The plant was not invasive, however. The prevention steps taken by users indicate the effectiveness of stewards and other programs informing boat owners of the transport of invasive species.

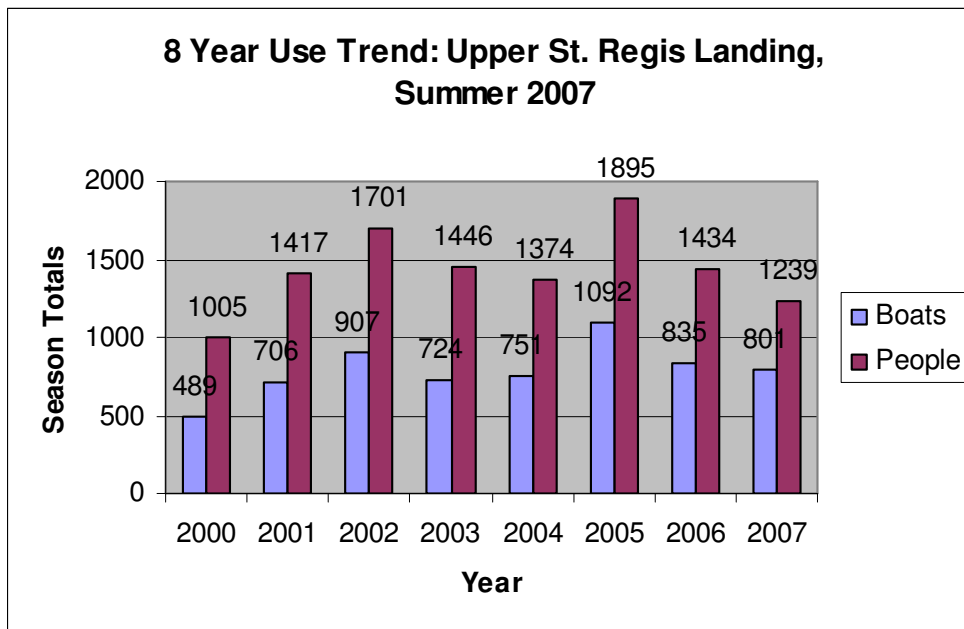


Figure 6. The eight year use trend of boats launched and the number of people using Upper St. Regis Lake, New York.

Conclusion

The summer of 2007 was a definite success for the Watershed Stewards stationed at the Upper St. Regis Boat Launch. 1,239 people in 801 boats received a message regarding invasive species and their possible transport on watercraft. All 801 boats were inspected for weeds, combined with the fact that 81% of user groups reported taking prevention steps bodes well for the health of the St. Regis lakes. However, with 21% of all boats launched having come from infected waterways within the preceding two week period, stewards, property owners and resource managers must keep vigilant regarding invasive species introduction.

2007 represented the eighth year of the Watershed Stewardship Program's efforts on the St. Regis Lake Chain. Much has been accomplished over this period. The program now serves as a model for similar efforts across the Adirondack Park as property owners and municipalities strive to find ways to keep invasive species out, or to minimize their impact once they have arrived. On St. Regis Lake, each year our primary benefactor is the St. Regis Foundation along with the guidance of the Property Owners' Association of the St. Regis Lakes. We wish to recognize the vision and support of the St. Regis community in putting forth this program, and wish to express our gratitude to the personal interest that property owners take in the program.

The stewards would like to thank all of the caretakers, employees, and residents of the lake for their encouragement throughout the summer. Thanks to Ann Weld for providing stewards with medicine, baked goodies, and conversation. Particular thanks to Andy for borrowed tools and Holly for the many days she would lend an ear and thoughtful guidance in return. And, thanks to Carry the yellow labrador for her fishing lessons and friendship.



Watershed Steward Tiffany O'Brien watching her friends at St. Regis Landing

Table 2. A complete data summary of 2007 at the Upper St. Regis Boat Launch. **Key:** MO = outboard motor; MI = inboard motor; I/O = inboard/outboard motor; P = pontoon boat; J = Jet Ski (personal watercraft); S = sailboat; R = rowboat; C = canoe; K = kayak; B = barge (construction). Out only = boats observed departing launch site, not having entered earlier. Moored = boats hitching up to the landing, not exiting. Weeds in/out indicates the direction the boat was traveling when weeds were discovered

Upper St. Regis 2007 Date	Boat Type/HP (indicate hp for MO)													Total # boats	Private side	4	Group Size	Gender		Average Time (minutes)
	avg hp	MO	MI	I/O	P	J	S	R	C	K	B	M	F							
5/26 to 5/31	135	6	1	0	0	0	0	0	23	7	5	42	0	0	62	47	15	NA		
6/1 to 6/7	57	12	0	1	0	0	0	0	7	4	6	30	0	5	35	24	11	12		
6/8 to 6/14	90	18	0	0	1	0	0	0	9	4	10	42	0	3	62	47	15	11		
6/15-6/21	37	5	0	1	0	0	0	0	12	5	6	27	0	2	37	24	13	13		
6/22-6/28	68	16	0	0	0	0	0	0	4	7	4	31	0	7	44	36	8	14		
6/29-7/5	42	13	0	0	0	0	0	1	14	19	2	48	0	4	76	50	26	15		
7/6-7/12	60	17	1	0	0	0	0	1	21	14	5	58	0	8	88	66	22	16		
7/13-7/19	64	15	3	1	0	0	0	0	35	29	4	87	2	4	130	84	46	15		
7/20-7/26	36	15	1	0	0	0	1	0	20	5	9	51	1	3	84	58	26	15		
7/27-8/2	37	19	1	0	1	0	0	0	41	35	5	102	2	2	162	111	51	19		
8/3-8/9	50	11	0	1	1	0	0	0	19	18	2	52	0	4	84	48	36	15		
8/10-8/16	45	18	1	0	0	0	0	0	28	29	7	83	1	4	136	87	49	15		
8/17-8/23	62	8	0	1	0	0	0	2	17	17	4	49	2	0	78	53	25	16		
8/24-8/30	90	10	0	3	0	0	0	0	15	23	1	52	0	0	81	53	28	17		
8/31-9/3	81	14	0	0	0	0	0	0	16	16	1	47	0	4	80	57	23	21		
Totals		197	8	8	3	0	1	4	249	232	71	801	8	50	1239	845	394	15		
median hp	40																			
average hp	57																			
mode hp	9.9																			

Table 3. Additional Data- 2007, Upper St. Regis Launch

Upper St. Regis 2007 Date	Pets #	Brochure	Sticker	Out Only	moored	Visible Weeds		Used Boat Wash	Take Prevention Steps?					didn't ask	# of groups	
						In	Out		Y	N	WB	IB	DB			
5/26 to 5/31	3	3	NA	1	6	0	0	1	5	6	4	1	0	0	11	
6/1 to 6/7	1	1	2	1	6	0	0	5	17	3	10	9	1	12	32	
6/8 to 6/14	2	0	0	0	13	0	0	12	28	6	26	19	0	13	47	
6/15-6/21	1	0	0	0	6	0	0	4	18	2	15	5	0	6	26	
6/22-6/28	2	0	0	0	3	0	0	17	22	1	17	10	0	4	27	
6/29-7/5	2	0	0	1	2	0	0	14	34	5	25	22	0	4	43	
7/6-7/12	3	1	0	2	12	0	0	25	43	6	37	18	2	6	55	
7/13-7/19	4	7	0	0	3	0	0	24	63	12	59	20	1	5	80	
7/20-7/26	2	0	0	0	9	0	0	11	30	6	26	14	0	9	45	
7/27-8/2	1	1	0	0	5	0	0	44	69	13	62	41	1	5	87	
8/3-8/9	5	4	5	0	2	1	0	27	40	8	30	24	1	0	48	
8/10-8/16	3	0	1	2	6	1	0	33	35	24	31	9	0	6	65	
8/17-8/23	6	0	0	1	2	0	0	19	45	4	44	28	0	3	52	
8/24-8/30	0	1	0	0	1	0	0	14	30	6	26	15	0	4	40	
8/31-9/3	0	0	0	1	1	1	0	22	35	27	26	13	0	1	63	
Totals	35	18	8	9	77	3	0	272	514	129	438	248	6	78	631	
percent of groups taking measures								43	80		68	39	1			

Volunteer Lake Steward Program Review

By Brandon Moser, Assistant Director WSP,
And Volunteer Lake Steward Program Coordinator

Introduction

Since early settlement in the Adirondacks, the introduction of both plants and animals to supplement the needs of an expanding nation lead to the establishment of several species not naturally found in this region. Today, only a handful of those species are still found here, and many have even become staples of the Adirondack economy (i.e. the Rainbow and Brown Trout). However, since the birth of industry and modernized mechanical transportation, the threat of non-naturally occurring flora and fauna has gone from a welcome introduction, to a full fledged war against invasive species. Today, the Adirondacks, like much of the country has seen a rise in the number of invasive species trying to take hold in places they historically were not found. Species such as Eurasian watermilfoil, Water chestnut, Purple Loosestrife, and a few others are the primary interest among those concerned about non natives in the Adirondack Park. But silently, other species, including that of Didymo (*Didymosphenia geminata*), a green algae recently found in New York's Batten kill River, are creeping in, closing the gap between us and their native ranges. A species can be labeled invasive when it is found living in an area not historically in its range, where upon introduction can quickly displace natural communities, often reproducing at an alarming rate due to a lack of natural predator species. Fortunately, today these plants are recognized, and legislation often prevents the sale or knowing spread from outside their home range. Although this invasive infestation is limited to a handful of Adirondack lakes, it is important that we take every necessary precaution in an effort prevent further spread and degradation of our waterways.

Aware of this threat are the countless Shore Owners Associations (SOA), who are willing to do what they can to protect their lakes from unwelcome introductions. Those associations found on large lakes are sometimes able to provide the funding needed to have a paid steward present. Oftentimes, smaller lake associations find the costs associated with funding a program to be beyond reach, and often exceed their means. It is with that in mind, that the Adirondack Watershed Institute's Watershed Stewardship Program (WSP) saw the need to develop a program that would provide education and monitoring through volunteer resources. The Adirondack Watershed Institute and the Watershed Stewardship Program, with the support of funding from the United States Fish and Wildlife Service, provide the Volunteer Lake Steward Program for no charge to



Volunteer Stewards at Buck Pond Boat Launch

cooperating lake associations. Since its conception in 2005, the volunteer component of the program has seen changes, including that of its name. It was agreed that the previous title of *Volunteer Boat Inspector Program* would be retired, and the program's new title would be Volunteer Lake Steward Program (VLS).

VLS Training Sessions

In all, three training sessions were held with a combined attendance of nearly seventy people, representing remarkable growth from last year's attendance. The VLS training session would make its debut on June 28, 2007, when Director Eric Holmlund and Assistant Director and VLS Coordinator, Brandon Moser traveled to Schroon Lake, where nearly fifty individuals from the Schroon Lake Association spent two hours learning how to identify invasive species, as well as how to educate the public on their threat to our aquatic resources. In addition to species identification, volunteers were familiarized with data collection processes as well as data management. Schroon Lake has hosted Eurasian watermilfoil since 1995 according to the Adirondack Park Invasive Plant Program's (APIPP) sources.

Joining the VLS again this year was Hilary Oles of the Adirondack Park Invasive Plant Program (APIPP), in attendance at the Paul Smith's training session on July 29th, who gave volunteers essential background concerning many of the park's aquatic and terrestrial invasive species.

Training Session Participants

<i>June 28th Training</i>		<i>June 29th Training</i>	<i>July 27th Training</i>
Chuck Harste	Emily Zollweg	Lynne Ballou	Angus Hamilton
Terry Goffesman	Joanne McGhie	Pat Deyle	Linnae Hamilton
Ann Durney	Bill McGhie	Karen McGee	Lim Cummings
Marilyn Buthy	Peter Oberdorf	Joe Deignan	Nancy Cummings
Janet Naudlic	Michael Murdock	Mary Deignan	Hugh Brown
Phillip L. Bishop	Charlene Kostka	Ilene Geertz	Joe Deignan
Carol Lahey	Jack Osborne	Peter Geertz	
Steve Lahey	Judy Perry	Joan Allen	
Bill Wildermuth	Danny Perry	Sally Richard	
Walt Fredericks	Jane Smith	Nancy Taylor	
Marty Korn	Chrys Matterson	David Taylor	
Bill Triboué	Barbara Colegrove	NancySteeoll	
Bill Hoff	Ron Roth	Liz Bennett	
Ann Hoff	Trevor Wescott	Betty Staebell	
Don Searles	Shirley Buicheude	Alix Damo	
Nicolette Grazycaro	Arnold Birchwale	Debbie Neill	
Robert Cabat	Anne Pieper	Chris Neill	
Janet Cabat	Phyllis Korn	Luke Neill	
Roger Friedman	Howard Warren	Robin Smith	
John Huston	Mark Whitney	Meg Modley	
		Tyler Frakes	
		Caroline Krumholz	
		Caroline Donahue	
		Karla Gratto	

Our apologies to any attendee whose name does not appear on this list or whose name was misspelled.

Session organizers Holmlund and Moser guided volunteers through the revised VLS handbook, an adaptation of the Watershed Stewardship Program's professional steward handbook. Participants learned the proper techniques of boat, personal watercraft and trailer washing and inspection of the vessel for aquatic invasive plants and zebra mussels. Holmlund and Moser described the duties of the Lake Stewards and how their objectives of recreational use data collection, boat monitoring and aquatic invasive interpretation can be adapted to fit the objectives of volunteers from each association.

Interpretation (public education), the most important aspect of volunteering at boat launches, was demonstrated by the presenters and then practiced by the participants. Along with the VLS handbook, participants received informative brochures, visual aids and VLS t-shirts to assist them at boat launches.

Of course the success of programs such as the Volunteer Lake Steward Program could not be possible if it wasn't for those who have dedicated their time and energy to saving our beautiful waterways. Without their support, the battle would certainly be more difficult.

Participating Waterways

The following reports summarize the progress of the VLS program at the five participating lake associations across the Adirondack Park. A range of experiences is noted, along with a variety of opinions from lake associations regarding individual success.

Schroon Lake

The Schroon Lake Association's dedication and persistence in the effort to educate the public was remarkable. By the end of the summer, a new site of Eurasian watermilfoil was found on the lake and efforts to eradicate the site resulted in the removal of over 100 plants. With the 2007 season being the first collaborative efforts between the Schroon Lake Association and the WSP, both successes and challenges were experienced. After the successful training session, meeting the coordination and material needs of Schroon lake's nearly 50 volunteers became a challenge, as supplies of both brochures and boat stickers ran short. The Schroon Lake Association was also concerned with the costs associated with supplying each volunteer with a t-shirt. Many suggestions for uniforms surfaced, from patches to hats and vests.

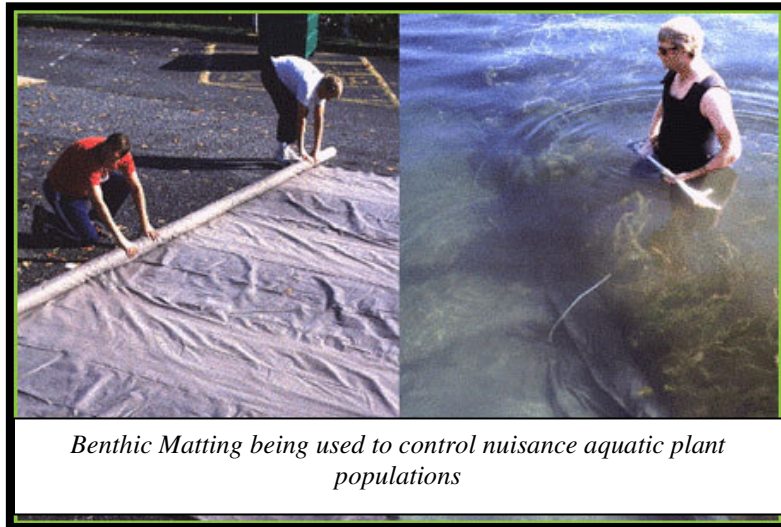
Schroon Lake Volunteer Lake Stewards were stationed at two boat launches. At the Horicon Boat launch, 327 hours of volunteer coverage amounted to 987 boats being recorded and 2,644 people making use Schroon Lake's waters. The Town of Schroon Lake Boat launch volunteers reported 511 boats and 1,100 boaters. These numbers reflect data collected by volunteers and thus only represent the number of boats and people using the lake during times of coverage. Volunteers wrote that most everyone was friendly and cooperative. They also suggested that being receptive to walkers as well is another chance to educate possible boaters. Volunteers also encouraged boaters to join the Schroon Lake Association. It was also suggested that signs be placed on shore near known milfoil beds to warn against anchoring there.

Rainbow Lake

With the decision to hire a part time paid steward for the Buck Pond boat launch, volunteers found it easier to schedule volunteer shifts and did so with great success. Volunteers, coordinated by Joe Deignan, a member of the Rainbow Lake Association, took shifts at the Buck Pond boat launch on Friday afternoons in July and August, filling out several data sheets.

Raquette Lake

Raquette Lake reported a successful season that included the help of 20 volunteers. A major focus of the association was to develop a map of the lake showing each and every known area of native variable leaf milfoil (VLM). This map will prove helpful as future eradication efforts are needed. The Raquette Lake Association has filed for a permit with the Adirondack Park Agency for the use of benthic matting, a fast and easy approach to removing large areas of VLM. Benthic mats have been used successfully elsewhere including Upper St. Regis Lake, where benthic matting sites can make quick work of decimating milfoil beds. Matting is a fairly simple process where felt, or more



Benthic Matting being used to control nuisance aquatic plant populations

often rubber sheets are staked to the lake bed over a known site. Often in one growing season an entire site can be reclaimed. One disadvantage to matting is the possibilities of removing native plants as well. However with careful application matting can and is an effective form of milfoil control. In addition, RLA reports that Bob Johnson of Cornell collected samples of VLM for monitoring and research in the Cornell growth Laboratory.

Raquette Lake is awaiting approval of a grant to fund a paid steward who will be on the Paul Smith's Watershed Stewardship Program payroll. Depending on the funding available, Raquette Lake could see anywhere from weekend to seven day a week coverage in hopes of continuing and expanding the idea that the best remedy for invasive prevention is public education.

Lake Colby

Due to a lack of volunteers a steady program at Lake Colby was not able to be formed. However shore owners were pleased to be a part of the training and found it to be educational. They are dedicated to protecting their lake and will certainly be able to utilize the knowledge acquired at the VLS training sessions to educate others.

Mt. View

Volunteers working at Mt. View and Indian Lakes reported having spent nearly 190 hours of their time educating boaters, harvesting invasive plants such as EWM and Purple Loosestrife. In order to offer the best possibility for public outreach, volunteers developed a kiosk, which allowed boaters to register and obtain important information on invasive species, regulations and other pertinent information. This was reported to be a success, especially during times when volunteer coverage was not available. The only set back according to volunteers, is the need for more "weather proof" materials. Overall the season was considered a success with general improvements needed for the coming season.

Conclusion

The Volunteer Lake Steward program was a strong success this year, with numbers doubling that of last year. Associations used the 2006 season as a time to organize and initialize the concept of having SOA members volunteer at the local public boat launch which allowed for many to be up and running by Memorial Day. Other associations found it difficult to recruit volunteers for the early part of the summer, and had to forgo certain shifts to accommodate the lack of volunteers. However for the most part, each of the associations with volunteers made an effort to be present each and every weekend from the end of May to the end of August. This alone shows the dedication some have for protecting our aquatic natural resources.

In addition to funding the program year-round, to improve coordination and communication, another need that bears serious consideration is data management. With no year-round staff, the WSP cannot provide paid support to key in all the data from each volunteer program. As a result, over one hundred sheets of raw data provided by volunteers have not been logged and analyzed. The Adirondack Watershed Institute and WSP cannot dedicate staff resources to this task. Either volunteer or paid labor is required to meet this need.

In sum, the Volunteer Lake Steward program is an idea whose time has come. The concept is attractive to lake associations across the park and in practice, across the nation. The VLS offers a framework, a curriculum and a standard procedure for coordinating and focusing disparate volunteer efforts across the Adirondacks. As a young program, the VLS has room for improvement. Together, volunteers and professionals at the Adirondack Watershed Institute will undoubtedly forge increasingly effective programmatic connections in future years, all in the name of protecting the integrity of Adirondack aquatic ecosystems, our biological heritage, and the recreational and cultural resource of our beloved lakes and ponds.



Portable kiosk- Mt. View Lake

Recreation Use Study: St. Regis Mountain

Introduction:

St. Regis Mountain rises out of the St. Regis Canoe Wilderness Area to an elevation of 2,873 feet. The mountain is well known for its relative ease of access as well as its outstanding view. As a result of the mountains popularity, heavy use has led to a chronic soil erosion problem both at the summit and along the trail. In response to a degradation of the overall area, the Adirondack Watershed Institute's Watershed Stewardship Program assists in the protection and management of this valuable resource.



This year, for the first time since 2004, a steward was stationed at the summit of St Regis Mountain on weekends in order to meet, educate and assist hikers. Along with the public education, stewards collected data relating to the number, behavior and preparedness of hikers. The goal of this study is to gauge the amount of use the area is subject to as well as the types of users that take advantage of this incredible opportunity to see the Adirondacks from a different perspective.

Methods:

The mountain use study was conducted each weekend from Memorial Day through Labor Day, 2007. Each Saturday and Sunday a steward would begin hiking at 8:00 am. Once at the summit the steward would begin the data collection and interpretive messages. Once hikers made it to the summit, the steward would record the group size, gender composition and time of arrival/departure. Data concerning the types of equipment used (sneakers, cotton clothes etc.), pets accompanying hikers, their general behavior (walking on rocks vs. on the grass, climbing the fire tower) and any additional comments were recorded. Once the data was recorded and the hikers caught their breath, stewards would approach them and introduce themselves. They would then deliver a brief interpretive message that relayed the importance of leave no trace etiquette. This meant explaining the erosion problem and suggesting that the hikers travel and rest on durable surfaces whenever possible. The steward would then offer the opportunity for more detailed information regarding the view, fire-tower, St. Regis Canoe Area, etc.

Results:

The Stewards encountered over 143 groups, and 562 people atop the summit between May 26 and September 2, 2007. The typical hiker would be a male who arrived around 12:30 pm and departed at around 1:30 pm. They would normally be outfitted with cotton clothes, sneakers and a backpack and they would most likely be walking on the hardened surfaces. They most often would not be accompanied by a pet. Males made up 56% of the overall population with females representing 44 %. The amount of hiker groups with pets was 36 which represented 25% of the overall hiker groups encountered. The heaviest use occurred on Labor Day weekend, closely followed by the weekend of August 11th and 12th (figure 1).

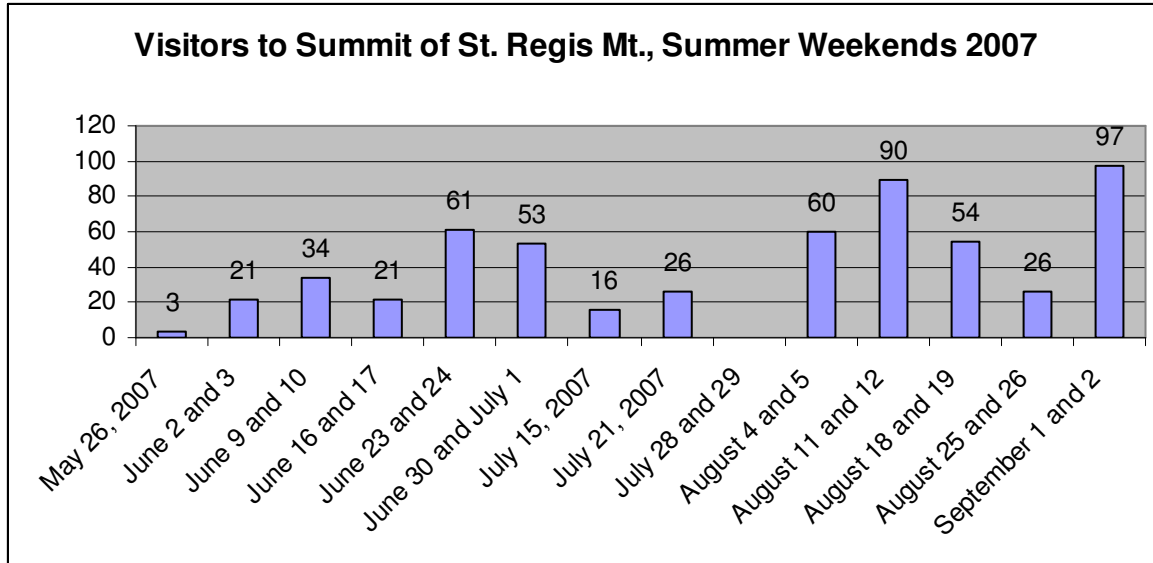


Figure 1- Chart indicates the use patterns by hikers of the St. Regis Mountain, separated into weeks. Greatest use occurred on Labor Day weekend while least use occurred weekend after Memorial Day. No stewards could be present on July 28 and 29, 2007.

The 562 hikers recorded on St. Regis Mountain traveled in 143 groups, for an average group size of 3.8 people. Stewards recorded equipment and behavior by group, not individual hikers. A minority of the groups (30%) were attired in cotton clothing. This is an increased rate of cotton clothing compared with 2004, the last full-summer program, when 10% were adorned in cotton clothing. Cotton clothing is not the recommended fabric for outdoor recreation in the Adirondacks due to the increased risk for hypothermia when the fabric becomes saturated with moisture from sweat or precipitation. Most groups were equipped with backpacks (over 87%) and hiking boots (80%). The majority of groups were observed walking and resting on exposed bedrock (79%) rather than grass/vegetation (41%). This is a useful behavior in terms of retaining soil and plant life on the heavily traveled summit of the mountain.

Number of Groups Where Individuals:	
Climbed Fire Tower	2
Walked on Grass	58
Walked on Rocks	113

Table 1 –Group behavior while on Summit of St. Regis Mountain (as observed by stewards)



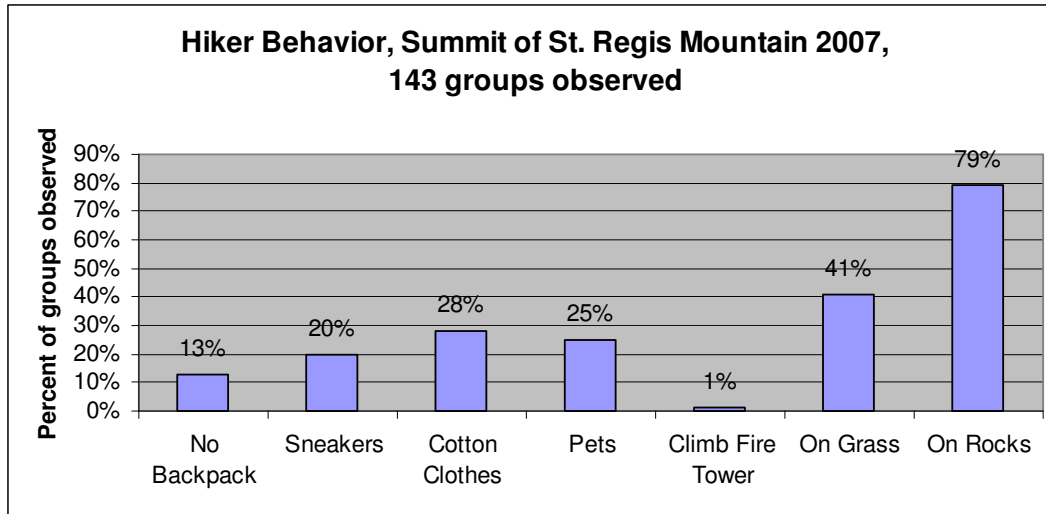


Figure 2: Hiker behavior by group

Hiker Behavior Analysis

Summit Stewards observed the equipment and behavior of visitors to the summit of St. Regis Mountain in both 2004 and 2007. Hikers were examined for the presence of cotton clothing, backpacks and sneakers. Non-cotton clothing, backpacks and hiking boots were considered equipment for the “Prepared Hiker” class, while cotton clothing, sneakers and the absence of a backpack indicated the “Unprepared Hiker” class. This designation was applied to entire groups for purposes of the study, thus if there were cotton clothes and sneakers represented in a group of hikers, that group was put in the unprepared hiker class. Thus, it is likely that the number of individuals in the “unprepared hiker” class is overestimated.

Next, hiker behavior was observed by the summit steward. If members of each hiking group stayed predominantly on exposed bedrock, this was noted. If they stayed predominantly on grass, this was also noted. If there was a roughly equal time spent on both surfaces, the group received marks in both categories (on rock and on grass). Comparisons between behavior in 2004 and 2007 are noted in the following charts.

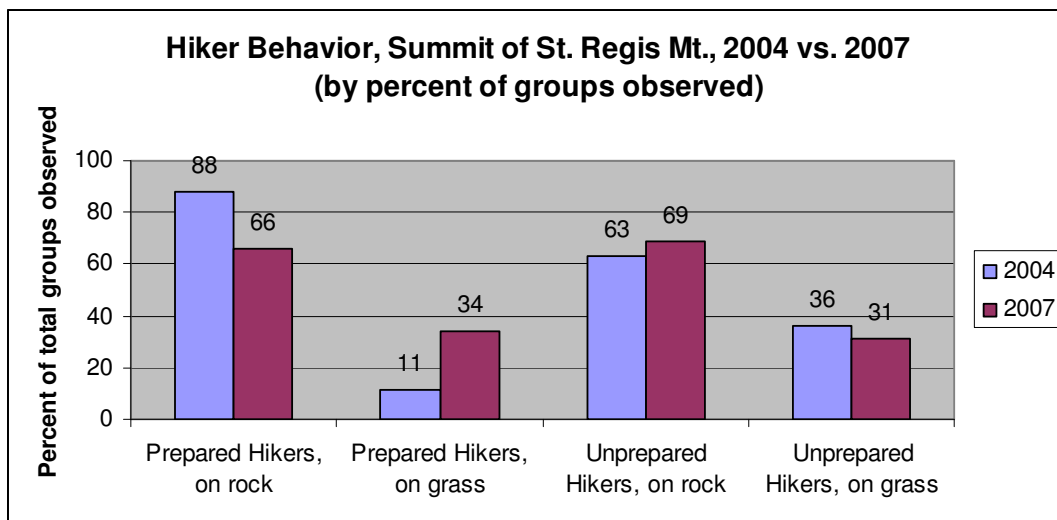


Figure 3: Hiker Behavior by percent

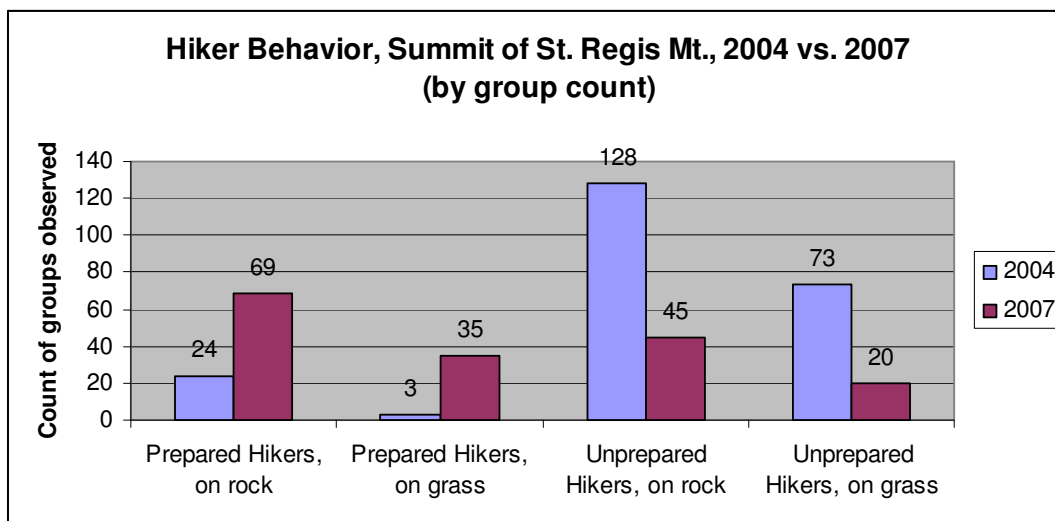


Figure 3: Hiker behavior by group count

What emerges from the comparison between 2004 and 2007 is that the prepared hikers are spending more time sitting and walking on summit grass. In 2004, only 11% of prepared hiker groups tread on the grass, while in 2007, 34% of groups did so. There were more groups classified as prepared in 2007 (104) compared with 2004 (27). On the other hand, unprepared hikers showed a slight decrease in the numbers of groups treading on summit grass. It appears from this preliminary study, which has many other possible explanatory variables yet unexamined, that prepared hikers are increasingly plentiful, but are less inclined to reduce their impacts on alpine vegetation compared with three years ago. The good news appears to be that unprepared hikers are doing a better job, compared with the same group in 2004, of staying on rock.

Total Number of Hikers-Weekends Only	
Year	# of Hikers Recorded
2001	632
2002	554
2003	689
2004	859
2007	562

Table 2 - indicates the trend in use season by season. The 2004 season represents the largest use when compared to past data.

Some possible limitations or uncontrolled variables include days of no coverage and variation in the educational method, attitude and persistence of the various summit stewards assigned to the study. It is possible that highly motivated or assertive summit stewards could shift visitor behavior by the impact and forthrightness of their message, while more relaxed or passive stewards could have less influence on visitor behavior.

Summit Substrate Study

In a reprise of a study conducted by Harmony Schutt, a Watershed Steward in 2000, this summer's stewards Dave Canon and Pete Griffiths repeated measurements of exposed bedrock, vegetation and mineral soil on several transects on the summit of St. Regis Mountain. The aim was to quantify changes over the years due to weathering and human impact. A report of raw findings follows. Digital photographs were taken each year in order to help locate each transect's starting and ending points, as well as to record the general condition of the summit. The 2007 study experienced technical difficulties with downloading and transferring images, and the stewards were not able to complete data analysis and interpretation. What follow are raw findings.

St. Regis Mountain Summit Substrate Study- 2007 measurements
2000 study – Transect A = 37.1 ft. 8.9 ft. bedrock, 16.35 ft. vegetation, 10.3 ft. mineral soil, 0 ft. moss, 1.55 ft. sand 2007 study – Transect A = 37.1 ft. 8.8 ft. bedrock, 20.8 ft. vegetation, 6.6 ft. mineral soil, 0.9 ft. moss, 0 ft. sand
2000 study – Transect B = 24.7 ft. 4.7 ft. bedrock, 12.15 ft. vegetation, 0.8 ft. mineral soil, 0 ft. moss, 7.05 ft. sand 2007 study – Transect B = 24.7 ft. 4.8 ft. bedrock, 13.9 ft. vegetation, 5.5 ft. mineral soil, 0.5 ft. moss, 0 ft. sand
2000 study – Transect C = 47.5 ft. 6.65 ft. bedrock, 37.1 ft. vegetation, 2.45 ft. mineral soil, 1.3 ft. moss, 0 ft. sand 2007 study – Transect C = 47.5 ft. 6.6 ft. bedrock, 36.5 ft. vegetation, 1.0 ft. mineral soil, 3.4 ft. moss, 0 ft. sand
2000 study – Transect D = 53.7 ft. 24.4 ft. bedrock, 14.85 ft. vegetation, 13.3 ft. mineral soil, 0 ft. moss, 1.15 ft. sand 2007 study – Transect D = 53.7 ft. 23.6 ft. bedrock, 14.7 ft. vegetation, 8.9 ft. mineral soil, 6.5 ft. moss, 0 ft. sand
2000 study – Transect E = 36.5 ft. 4.85 ft. bedrock, 29.15 ft. vegetation, 2.5 ft. mineral soil, 0 ft. moss, 0 ft. sand 2007 study – Transect E = 36.5 ft. 1.8 ft. bedrock, 25.3 ft. vegetation, 1.8 ft. mineral soil, 7.6 ft. moss, 0 ft. sand
2000 study – Transect F = ft. bedrock, ft. vegetation, ft. mineral soil, ft. moss, ft. sand 2007 study – Transect F = ft. bedrock, ft. vegetation, ft. mineral soil, ft. moss, ft. sand
2000 study – Transect G = 24.85 ft. 10.35 ft. bedrock, 13.1 ft. vegetation, 0 ft. mineral soil, 1.4 ft. moss, 0 ft. sand 2007 study – Transect G = 24.9 ft. 12.0 ft. bedrock, 10.8 ft. vegetation, 0 ft. mineral soil, 2.1 ft. moss, 0 ft. sand
2000 study – Transect H = 33.45 7.8 ft. bedrock, 21.7 ft. vegetation, 3.4 ft. mineral soil, 0.55 ft. moss, ft. sand 2007 study – Transect H = 33.6 ft. 6.8 ft. bedrock, 16.6 ft. vegetation, 7.9 ft. mineral soil, 2.3 ft. moss, 0 ft. sand
2000 study – Transect I = 45.8 ft. 24.1 ft. bedrock, 19.8 ft. vegetation, 0 ft. mineral soil, 1.9 ft. moss, 0 ft. sand 2007 study – Transect I = 45.8 ft. 22.7 ft. bedrock, 19.3 ft. vegetation, 0.6 ft. mineral soil, 3.2 ft. moss, 0 ft. sand
2000 study – Transect J = 28.8 ft. (not consistent with photograph) 7.3 ft. bedrock, 6.65 ft. vegetation, 0 ft. mineral soil, 13.45 ft. moss, 1.4 ft. sand 2007 study – Transect J = 28.0 ft. 7.3 ft. bedrock, 4.7 ft. vegetation, 1.5 ft. mineral soil, 14.5 ft. moss, 0 ft. sand

Discussion and Conclusion:

Three Watershed Stewards took turns serving as summit steward on St. Regis Mountain for 13 out of the 14 week period of service. Of the possible 28 days of service at the summit, Watershed Stewards were on duty for 22 days. The gaps in service were owing to inclement weather and staffing shortages, illnesses, etc. This summer's efforts represent a return to full-weekend coverage not provided since 2004. Summit stewards also performed light trail maintenance including trail corridor

pruning and clearing of water bars. On at least one occasion during poor weather, the steward was stationed at the bottom of the trail, presenting a shortened message regarding soil erosion, fragile summit vegetation and hiking safety. The use of the St. Regis Mountain trail and summit continues to be a popular option for visitors to the northern Adirondack region (Table 2). Stewards were able to interact with 562 hikers on the summit, spreading a message of low impact recreation and acquainting visitors with distant sights and attractions. Frequently, visitors would extend conversations to include the other elements of the Watershed Stewardship Program, especially the struggle to contain the spread of aquatic invasive species. The stewards served as ambassadors not only of the Adirondack Watershed Institute, but of the St. Regis Property Owners' Association and Paul Smith's College. The program is a valuable, high-contact, high-visibility education and conservation effort that should remain a high priority for the Watershed Stewardship Program.



Purple Loosestrife Monitoring and Control Project 2007

Prepared by: Kim Caro

Introduction:

Lythrum salicaria, commonly known as Purple Loosestrife, is a perennial, emergent aquatic plant which rapidly grows from tap roots and spreading root stocks. Originally from Eurasia, purple loosestrife appeared in North America by the early 1800's for ornamental and medical reasons. In the 1930's purple loosestrife became a crucial problem for the floodplain pastures of the St. Lawrence River. Since then, it has vastly spread disrupting wetland ecosystems by displacing native plants and animals. It now ranges in the Northeast and extends to areas in the Midwest. This plant experiences optimum growth when in areas of moist soil habitats. Purple Loosestrife is so resilient that a change in soil moisture and temperature does not affect its establishment as compared to native plants, which is why natives are driven out. Detection and early prevention are two steps which can significantly prevent the invasion of purple loosestrife. Once mature; purple loosestrife can produce up to three million seeds a year, remaining viable in water for up to twenty months. The infested ecosystem can result in a loss of food source, nesting material, and ground cover, eventually leading to the disappearance of waterfowl, birds, reptiles, amphibians, and mammals.

Purple loosestrife first blooms in late July, which is when we take action since it is easy to identify and the seeds are not yet ready to disperse. We also monitored again in August during the second bloom. Monitoring and removal from the St. Regis Chain has been ongoing for the past seven years. The Adirondack Watershed Institute's Watershed Stewardship Program is proud to be working again with the guidance and expertise of Steven Flint, The Nature Conservancy Invasive Species Project Coordinator. Removal was focused on the confirmed sixteen sites, along with a shoreline survey to observe any new infestations. The varied amount of uprooted plants from this year compared to previous years could result from weather conditions, along with the effectiveness of last years harvesting.

Although we have not eradicated this nuisance, our program has minimized the amount of infestation of what could potentially destroy the chains biodiversity.

Materials:

- Watershed Stewardship boat
- Fifty gallon garbage bags
- Clipboard
- Previous year map of infested sites
- Pruning shears
- Handheld GPS unit



Kim Caro with loosestrife.

Methods:

The removal of purple loosestrife in the St. Regis Chain was focused on sixteen sites from the previous year's data, along with a shoreline survey to monitor for new infestation sites.

On July 25th, 2007 the primary control effort was performed by Steven Flint and Watershed Stewards, Kimberly Caro, and Tiffany O' Brien. We began monitoring from the headwaters of Upper Saint Regis Lake, to Spitfire Lake, followed by Lower Saint Regis Lake. All confirmed and potential sites were visited. The number of plants found and coordinates of its location were recorded for further analysis.

On August 23, 2007 the secondary control effort was performed by Steven Flint and Kimberly Caro. Every confirmed site was visited and monitored for growth. We also performed another shoreline survey to ensure removal of all purple loosestrife.

Removal methods are consistent with those of years past. Pruning shears are used to cut as low to the ground as possible to reduce growth rate and seed dispersal for the season. Another method of removal is to uproot the entire plant, making sure the entire root systems are taken with it. This is only possible if the sediment is loose enough. All plants are counted and the number recorded. They are then disposed of in the fifty gallon garbage bags. If a new location is identified removal methods are performed along with a record of the coordinate, taken by the GPS unit.

Results:

During the primary control effort, on July 25th, 2007, two new infestation sites were found. One on Upper Saint Regis Lake yielding one plant, and the other on Spitfire Lake yielding 6 plants. Their coordinates are: N4917503 E557965 (site 2) and N4917905 E557790 (site 6) consecutively. This control effort managed to remove a total of 803 plants. During the secondary control effort one new site was found on Lower St. Regis Lake (site 19), yielding one plant. When adding plants removed from both control effort the total equates to 998 plants.

Upper Saint Regis Lake

Sites 1 through 3 are located on Upper Saint Regis Lake. Site 1 has not had any infestation in the last 5 years. Site 2 is a new site, which had one plant, and site three was the worst compared to the others. St. Regis Applejack camp yielded 380 plants for this season, increasing 366 plants as compared to the previous year.

Spitfire Lake

Spitfire Lake contains the highest amount of infestations, sites 4 through 17, equating to 14 sites. 5 of the 14 sites increased from the pervious year and 5 of the 14 decreased. Site number 11 remained the same as last year, yielding 0 plants. We do not have accurate counts within the Spitfire Slough. According to reports from the public, an unidentified person or persons removed purple loosestrife from the slough and did not report the site and number of plants removed. During the secondary control effort loosestrife was not found at these sites, except site 15 which contained 4 plants.

Lower Saint Regis Lake

Lower Saint Regis Lake includes sites 18 and 19. Site 18 has not been infested in 2 years. Site 19 is our newest site, which was found during the secondary control effort, yielding 6 plants.

2007 Purple Loosestrife Infestation Sites

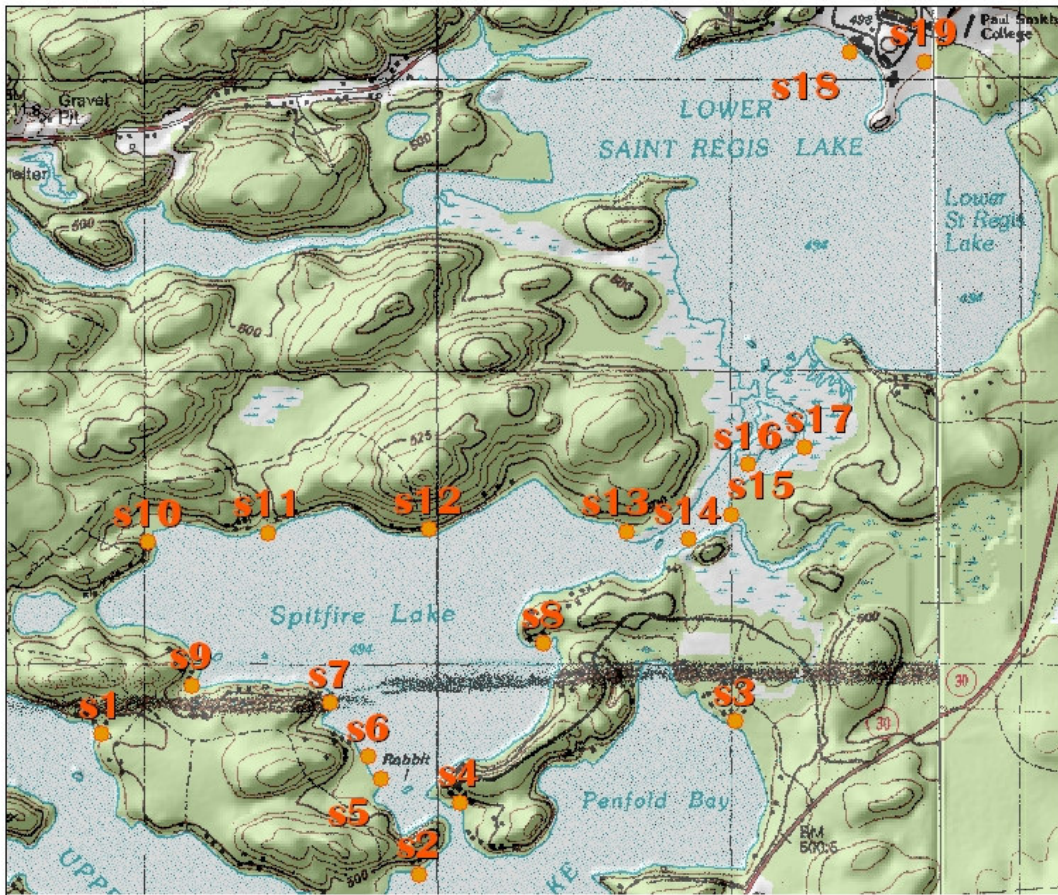
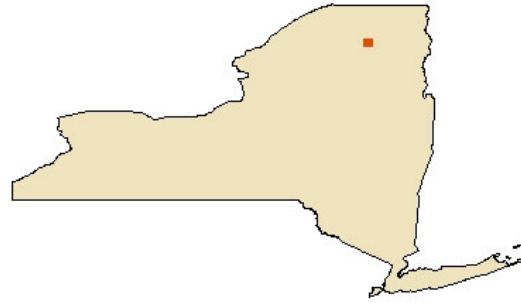


Figure 1 GIS map. This map represents all sites where infestation was monitored and removed.

Table 1, Sites and numbers per year. This table represents past years data of the number of plants removed from each site. Sites are numbered from the headwaters, starting in Upper Saint Regis to Spitfire Lake, followed by Lower Saint Regis Lake.

Site/GPS UTM	2001	2002	2003	2004	2005	2006	2007
S1 N4917982, E556881	0	14	0	0	0	0	0
S2 N4917503, 557965	0	0	0	0	0	0	1
S3 N4918026, E559045	450	1400	330	742	130	14	380
S4 N4917748, E558103	5	63	5	26	5	0	7
S5 N4917831, E557837	0	74	23	50	15	54	12
S6 N4917905, E557790	0	0	0	0	0	0	7
S7 N4918087, E557660	250	915	117	146	250	200	89
S8 N4918290, E558390	110	49	3	74	150	101	375
S9 N4918149, E557190	0	437	143	116	25	117	107
S10 N4918636, E557038	0	123	5	34	25	11	7
S11 N4918668, E557451	0	0	0	0	10	0	0
S12N4918680, E5579988	18	11	13	3	10	23	1
S13 N4918673, E558675	25	260	35	111	100	96	8
S14 N4918647, E558887	0	0	0	0	0	15	0
S15 N4918731, E559028	30	8	16	42	40	0	4
S16 N4918901, E559086	0	0	0	0	0	3	0
S17 N4918960, E559279	0	0	0	1	0	0	0
S18 N4920309, E559434	0	0	0	0	4	0	0
**S19	0	0	0	0	0	0	6
Total	888	3354	690	1345	764	634	998

This year we pulled a total of 998 plants. This number increased 364 plants as compared to last year, and is 234 plants more than the year before that.

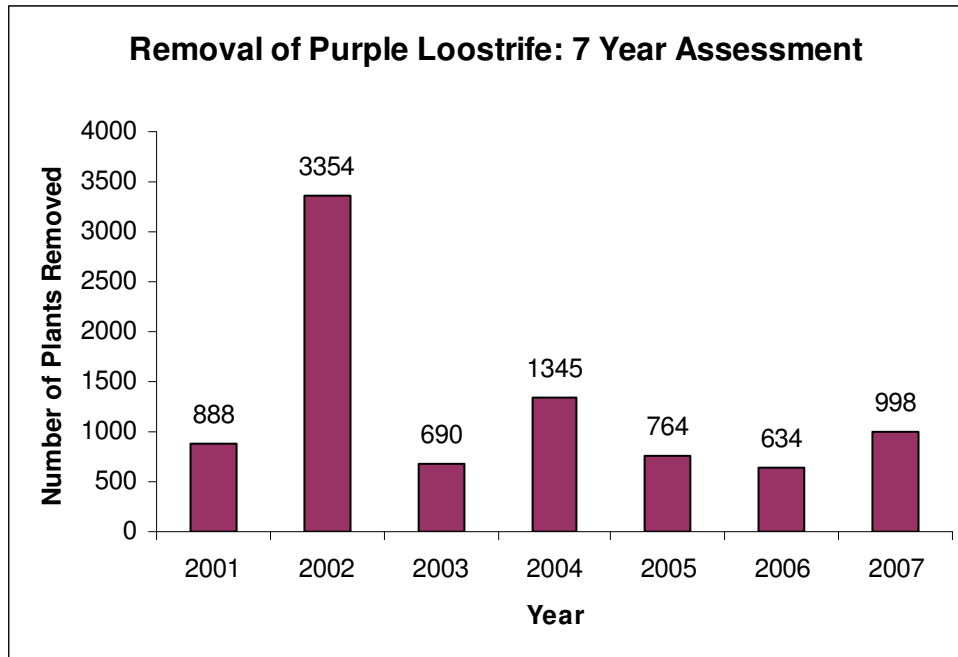


Figure 2, 7 year assessment data: Amount of plants removed over the past 7 years.

It is also noted that this year we had an increase in the amount of sites that needed loosestrife removal, which also resulted in being the highest number of sites infested since the program started. Two sites were not successful in remaining loosestrife free. Last year site 4 and 15 had zero plants while this year site they contained 7 and 4 plants consecutively.

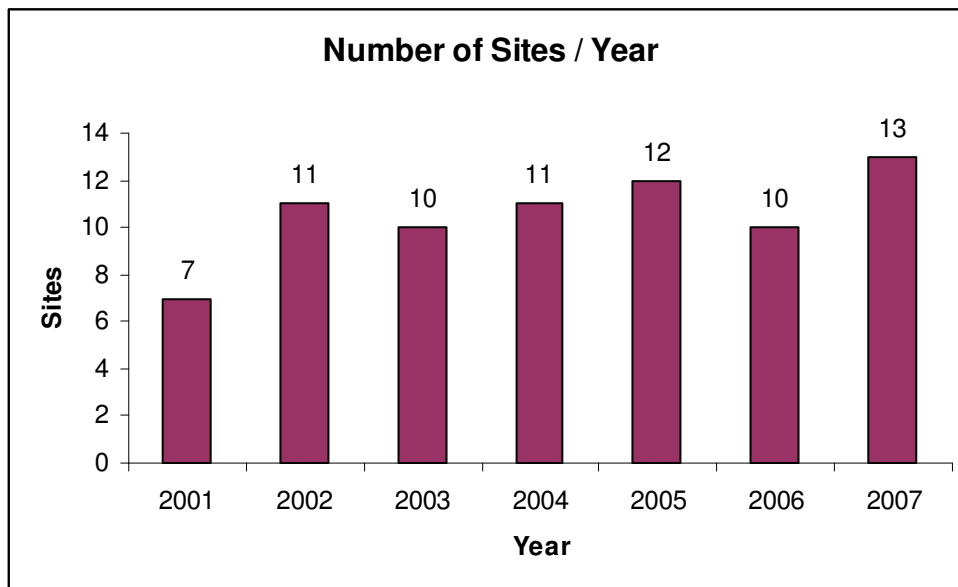


Figure 3, number of sites per year. The amount of site harvested during the year.

As of 2002 a decrease has been seen in the average amount of plants removed. This year there was a slight increase of 13.37 as compared to the previous year. This data can be viewed in figure 4.

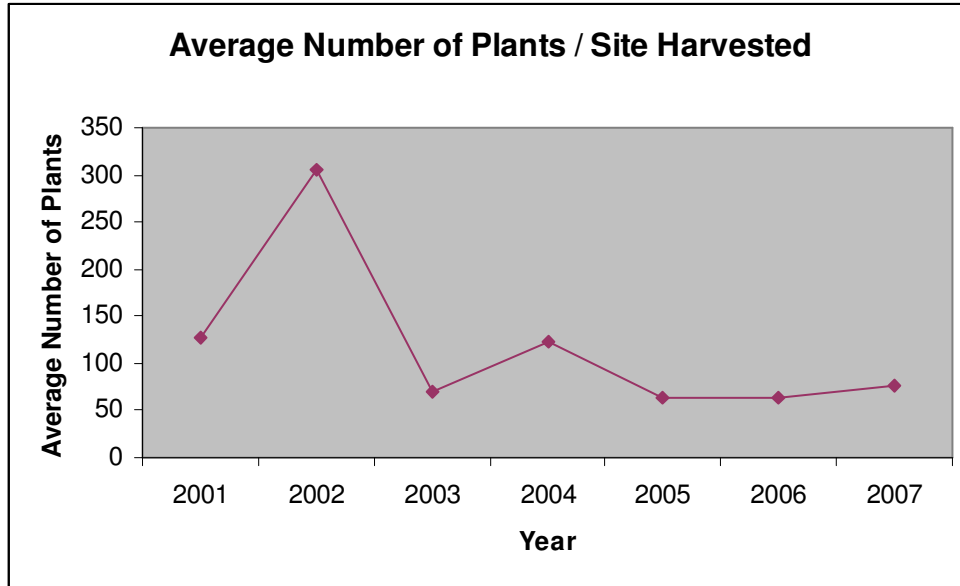


Figure 4, average number of plants per year. This figure represents the average number of plants from each site over the past 7 years.

To better understand the intensity of infestation categories were set based on the number of plants found at each site. Low is 0 to 20 plants, medium is 21 to 75 plants, and high is 76 + plants. As one can see, this year we only had either low or high infestation. During the past four years the amount of high infestation sites has remained the same, being 4 sites. There has also been an increase of low infestation sites during the past four years.

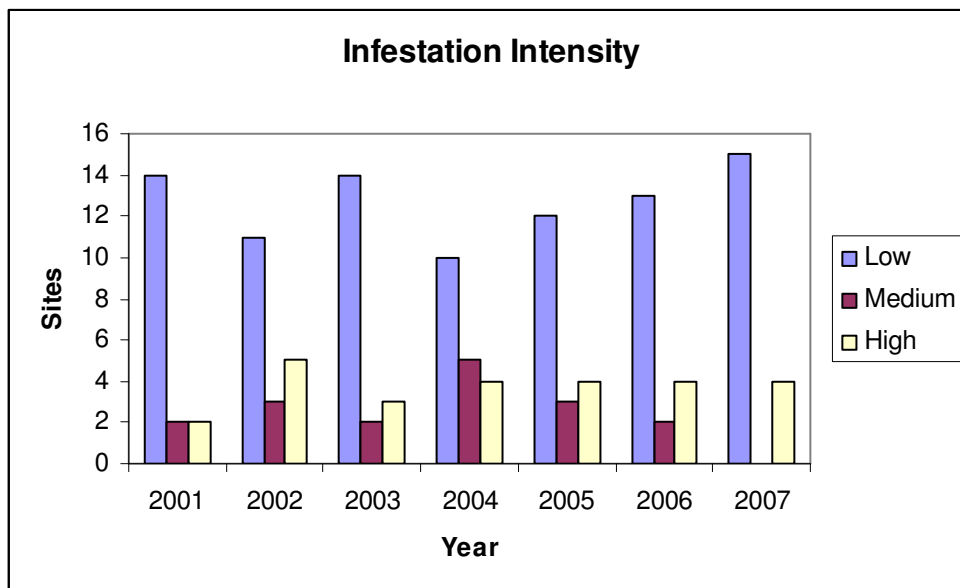


Figure 5, intensities of infestation per year. This figure shows growth intensities of Purple Loosestrife on Upper Saint Regis, Spitfire Lake, and Lower Saint Regis Lake throughout the years.

Discussion:

This year's data shows that although we have small amounts of purple loosestrife in each site, it is spreading, creating more infested sites. Upper Saint Regis Lake gained another site and had the worst single infestation site compared to the other two lakes. Spitfire Lake contains the most sites out of all the lakes. This lake also had one new infestation site. Lower Saint Regis Lake also had one new site, but it has the least amount of sites along with the least amount of plants harvested. The reason for the varied amounts of plants could be due to the effectiveness of the previous years' harvesting. It also could be due to the weather since optimum conditions might not have been reached, affecting the growth numbers.

There are three methods of controlling purple loosestrife; biological, hand pulling, and chemical. It is important to determine what the objective is, is it more feasible to eradicate or contain? Large areas are harder to eradicate so, it's easier to contain. When dealing with a smaller area, loosestrife can be eradicated; this can be done with the help of herbicides or hand pulling.

There are a few biological controls which can be used. The two species of leaf-feeding beetles are *Galerucella calmariensis* and *Galerucella pusilla*. They were first introduced to North America in 1992 to control purple loosestrife. The root-feeding weevil is *Hylobius transversovittatus*, was also released in 1992 for the same reason. These control agents are considered to be host-specific to purple loosestrife and have appeared to be successful.

Hand pulling is a great way to contain a population. It is important to uproot before the plant has set seed. The entire rootstock must be removed since these plants have high regeneration rates from fragments.

Chemical controls should not always be viewed as being negative. Glyphosphate (Roundup) is the herbicide most commonly used control for loosestrife. Spot application can ensure that the purple loosestrife is the only vegetation receiving treatment. To guarantee the chemical will affect the purple loosestrife, the flowering heads are cut off then an application of herbicide is applied. This is done by wearing protective gloves, cupping the plant stem, and applying the herbicide. It is important to follow up on control effort for the following few seasons since some plants will be missed, new seedlings sprout, and some plants might survive treatment.



Purple loosestrife's densely matted, rhizomatic root structure

Loon Observation Report for St. Regis Lakes, 2007

By Tiffany O'Brien, Watershed Steward

Introduction

The Wildlife Conservation Society's (WCS) Adirondack Loon Conservation Program (ALCP) has been researching the common loon (*Gavia immer*) since 2001 to the present. Currently, the common loon is listed as a Species of Special Concern in New York State. The Loon Program has combined education and research to better understand the common loon's natural history and the natural and human influence on the life cycles and survivorship of the loon. With disturbances to the current loon population as a constant variable, nest success is significant. Vigilant of disturbance, loons prefer to nest on islands or away from shores where there is human activity. However, even with precautions, loons' nests are still susceptible to mammalian predation, flooding, and human interruption. Mercury and lead also are leading causes of mortality, which are emitted in coal burning in trace amounts which affect the nervous system of loons. Acid rain reduces fish populations and affects egg shell health. Through ALCP's efforts, many loons within the park have been banded with unique color combinations by the Biodiversity Research Institute, to help with individual recognition and observation. The biologists also will take feather and blood samples to determine mercury levels and the current health of the individuals. Volunteers each summer are hired on to work with the ALCP to monitor reproductive success and to help the program determine where to focus its efforts. These monitors record data weekly that includes: lake/ nest site, mate choice (if applicable), brood size and success, territory behavior, and fledglings. Egg shell fragments or failed eggs are also collected by the monitor to be sent to the lab for further mercury analysis. The Adirondack Watershed Institute's Watershed Stewardship Program (WSP), provides a watershed steward one day per work week to monitor banded loons on the lakes of St. Regis and Spitfire from June until September.

Methods

Watershed steward Tiffany O'Brien was selected as the loon monitor for the summer of 2007, and was responsible for the monitoring of Upper and Lower St. Regis Lake and Spitfire Lake. A kayak was assigned to travel to nesting sites within the lakes by the WSP and was utilized every Thursday for 4to7 hours, starting around 7-8AM. Binoculars were also provided for the monitor by the NYS Department of Environmental Conservation (DEC). Following the shoreline, loons observed were noted including their band color (if any), mate status, location of nests, number of eggs, and successful hatchlings and fledglings. Any unusual activity was also noted if observed. If weather was uncooperative, another weekday was substituted for Thursday to monitor.



(Image credit: Brandon Moser)

Results

Upper St. Regis

Between the dates of 6/30-7/4, the Birch Islands pair successfully hatched two loon chicks. This was the first hatching of all the loons I observed. The mate pair contained an unbanded male, believed to be the same male from the prior year, and a banded female. The female was originally banded on Little Clear Pond in 1998, but since has inhabited Birch Island territory. The family was observed throughout the rest of the summer together, and is assumed that both chicks fledged successfully. Egg shell fragments were collected off the nest and sent to the Biodiversity Research Institute for biological analysis. Both chicks had grown substantially by the end of the summer. The family was last seen together on the week of 8/16.

Located within Averill Spring Bay, a possible nest was found, but not until 6/29 was a loon seen sitting on the nest. It was undetermined if had bands or not, and its possible mate was also undetermined to possess bands. The following week the nest was vacant, with no eggs, and a pair of loons observed by Topridge camp. Possible failure of nest is suspected of Topridge's fireworks display, and/or flooding, or predation, as no eggs were present. However, during the last two weeks of monitoring, shore owners mentioned that they observed a "newborn" chick between North Bay and Spring Bay, often seen on the adult loons back. There could have been a second nesting attempt that was unknown after the first failure with the Spring Bay pair. Unfortunately, no chick was observed anywhere during the last two weeks of monitoring. With such a late hatching, it is difficult to determine whether this chick successfully fledged if the claims were true.

Lower St. Regis Lake

Confirmation of a new territory establishment occurred due to paddlers and fishermen observations, of a banded loon that is not native to New York State. It is still being determined as to the native habitat of this loon. The loon was first observed with a mate on 8/1, with two chicks that looked to be at least a month old. It is not confirmed where the nest site is on Lower St. Regis, but this is a new territory establishment of this banded loon with its mate. Because nest site is unknown, egg shell fragments could not be collected to send out for mercury level testing. The family was seen the duration of the summer feeding and swimming within the mouth of the St. Regis River. It is assumed that both chicks fledged successfully. There is some speculation as to if there was another family on Lower, who originally had two chicks and then was last heard to have one.

Spitfire Lake

A pair comprised of one unbanded and another other unconfirmed status loon was unsuccessful, with no hatched eggs observed. Within the first week of monitoring, loons were observed fishing nearby Bare Rock Island, where a nest was found, but it was not confirmed if eggs were inside. Within the following two weeks, a shoreowner erected a pole draped with fishing line to hinder seagulls from using the island. This may have caused the loons to abandon the nest if they were using it. Over the following weeks, a new nest was established, and the pair was seen incubating for a prolonged amount of time. After at least six weeks of incubation and attempts to hatch the egg, the nest was finally abandoned on the week of 8/1. The lone egg disappointingly failed after such determined attempts to get it to hatch. The pair was not observed together again for the rest of the summer. The egg was collected and sent out to the Biodiversity Research Institute. On several occasions, fisherman and boaters were asked by the monitor to keep more distance between themselves and the nest, which may have caused the fatality of the egg.

Discussion

Throughout the summer, many banded and unbanded loons were observed. The Birch Island family and the St. Regis Lake family are both believed to have had both sets of chicks fledge. Analysis of the origin of the unknown banded loon in Lower St. Regis is continuing. Also, analysis of mercury levels found within the loon egg shells is continuing, and should be completed before the next summer season.

The success of monitoring isn't solely based on the monitor themselves. Aid from fishermen, shareowners, and recreational visitors should also be credited. However, it should also be noted that with too many "visitors" to nesting areas for too long a duration can also be credited to failure. A balance between must be met.



View from St. Regis Mountain- E. Holmlund

Conclusion

There is great testimony regarding the history of and fascination with loons by many famous authors, photographers, naturalists, and native tribes. With any encounter with common loons, it is easy to see why. With the loon's current status as a Species of Special Concern in New York State, and threatened or endangered in other Northeastern states, a variety of conservation groups have become established to aid nest success and survival. Habitat protection, education and management are continuing efforts included in conservation plans developed by these groups. It is evident that the Adirondack Loon Conservation Program has proven to be a primary contributor to ensuring the survival of this unique species, and that their dedication should not go unnoticed.

A very special thanks to Nina Schoch, whose endless knowledge and devotion keeps the ALCP going. Also, to Holly Lutz and Ann Weld for their informative updates and allowing of use of their watercraft.

Lake Placid Waterfowl Survey

By David Canon

Introduction:

The Lake Placid Shore Owners requested that the watershed stewards perform a count of the waterfowl on Lake Placid. Lake Placid Lake supply's the town with drinking water and the concern was that a large waterfowl population may be contributing substantial pollution to the town's drinking water source. Some homes on Lake Placid continue to draw water from the lake unfiltered, adding to the concern.

Methods:

On June 15th two stewards took a motorboat onto Lake Placid, one steward driving along at 10 miles per hour, and the other spotting birds along the shoreline with a pair of binoculars, the entire lake was surveyed in this manner. The observer focused exclusively on waterfowl to help keep the data simple and relevant to the question of direct effect on water quality. On June 29th (the next slated project date) the motorboat was not available so a steward went out solo in a kayak to recount the area of the lake which supports a mallard community to reinforce the numbers. These first dates were relatively uneventful so the observations continued throughout the summer to give the most complete representations of waterfowl that we could given limited time on the lake. On June 15 when this data was collected only 3 gulls were observed on the lake. During July and August the steward who performed the count noticed many gulls congregating on the roof above the boat slips to the left of the state boat launch, so on August 17th and again on the 31st separate counts of the gulls were done standing near the boat slips (to count gulls in the lake) and from the lot behind the slips (to count the gulls on the roof).

Materials:

Lake Placid map, clipboard, pen, binoculars, motorboat, kayak

Results:

Over the course of the summer, the steward observed:

9 Merganser (Sunset Strait and front of Whiteface Club)

2 Loons (Whiteface Club)

1 Great Blue Heron (Sunset Strait)

19 Mallards – 6 male, 6 female, 6 immature, and 1 white mallard believed to be domestically released (Paradox Bay)

86 gulls (front of state launch and on the roof over boat slips)

Discussion:

The number of birds that the stewards were able to observe are likely an under representation of the total populations of waterfowl on Lake Placid. On the afternoon of June 15th when the two stewards searched the entire lake for waterfowl they found birds nowhere else on Lake Placid except for in Sunset Strait and Paradox Bay. The rest of the lake was absolutely barren. The June 29th kayak outing only affirmed the number of mallards observed the previous week. On the date



of our Loosestrife removal, July 12th, we saw the Great Blue Heron. The 9 mergansers and 2 loons were spotted during the aquatic plant mapping day August 26th. In the month of June when the first data was collected only 3 gulls were observed on the lake. During July and August the steward who performed the count noticed many gulls congregating on the roof above the boat slips to the left of the state boat launch, so on August 17th and again on the 31st separate counts of the gulls were done standing near the boat slips (to count gulls in the lake) and from the lot behind the slips (to count the gulls on the roof).

Consultation with Dr. Jorie Favreau

The steward assigned to this study consulted with a Dr. Jorie Favreau, professor of Fish and Wildlife at Paul Smith's College, for advice on how to properly conduct a bird count, or an investigation of species representation on Lake Placid. What follows is an edited version of her response to this idea.

“If Lake Placid property owners want to determine if waterfowl are fouling their waters, water analysis is a good approach. Checking the literature for some population density that negatively affects water quality is another good approach. The acceptable waterfowl population size will depend on both the total volume of the lake as well as the outflow rate from the lake as well as water temperature. Lake Placid might be far enough below that population density that the minute potential for pollution doesn't warrant an actual estimate.

“Ultimately, your method really depends on your need for accuracy. That is, your methods depend on whether you can afford to have a margin of error of +/- 10% or 50%. It seems to me that you can afford a large margin of error. An ideal method is to mark or identify individuals. With marked individuals you can estimate the population based on a proportion of marked individuals in the population. However, for the WSP, marking is not an option given time and money constraints. Because you can't mark, you would need to adopt a counting method similar to what you did in 2006.

“I like the idea of categorizing birds into categories such as ducks and gulls. If you don't have experienced observers, gull ID can be difficult. Although I believe in collecting as much data as you can, the act of collecting some data may preclude accuracy for other data. Specifically,

looking for raptors is very different than looking for waterfowl. By looking for raptors, the observers are missing waterfowl. I suggest deleting raptors and loons from the observations so observers can focus on ducks and gulls. Nina Schoch knows the exact count of loons so you can get the population from her. The few raptors won't appreciably decrease water quality.

"Still, you can't count every bird. I suggest sampling and extrapolating. Your protocol mentions a temporal constraint of 1 hr and a spatial constraint of 25 m from shore. Perhaps you could do an estimate with 1 hour of data per area. A short time frame is good for unmarked individuals because you have less of a chance of double counting or missing individuals. Still, a better way to formulate your method would be a travel rate for the observers. For instance, observers might travel at 5 mph. The travel rate depends on conditions and observer skill. I interpreted the 25 m to be 25 m onto to land and into the water from the shore. Your observers are scanning a depth of 50 m, difficult to do under some conditions. Even if they could, you've ignored all the habitat greater than 25m from shore. Because the lake comprises at least 3 distinct habitats (open water, dev shore and undeveloped shore), a stratified sampling method is appropriate. If any one of these (ex., undeveloped shores) are markedly variable to waterfowl, that habitat may need to be stratified. Basically the idea is to count individuals in one habitat and extrapolate to estimate all the individuals in that kind of habitat, then sum the different habitats. Spending the same amount of time but only sampling parts of the lake should yield a more precise estimate than last year.

"Definitely note whether individuals are adults or hatch year (HY) birds. A low survivorship of HY birds means that the HY birds shouldn't be weighed as heavily as adults in calculating population size. Furthermore, population size is seasonally variable. For reasons of this study a summer pop is probably most important but a fall pop might also be important.

"Observer variability is problematic. Many studies begin by measuring the ability of their observers. For instance, two observers on a boat watch the same shoreline and silently record their observations. The two sets of observations are compared. If one observer consistently records 10% more gulls than the other, data may be adjusted accordingly. It is best if an observer never has to look at a data sheet. Ideally, they should call out the observations to a data recorder who is different than the vehicle operator (or speak into a tape recorder). You should also think about how your data will differ depending on the day of your data collection (temperature, wind, etc). I suggest doing several surveys and making sure that they agree with each other. If you are really interested, I could go in even more detail with something called distance sampling or other sampling methods. It all depends on how much confidence you want to have in your data.

"I'm really trying to keep this as simple as possible. Honestly, an assessment of a population takes some real consideration. Science done poorly can be dangerous and may be worse than no estimate at all. A count of 25 ducks after 1 hour of surveying probably has such a huge standard deviation and confidence limits that we are not left with any real idea of the population. Population numbers become entrenched in local lore and can be problematic if they are taken as gospel when the confidence limits are large.

"I suggested that stewards reconnoiter because pre-data collection work is imperative. I suggested that they determine a travel rate that is conducive to accurate counting. The best way would be to compare data from two independent observers. The travel rate may change

among habitat types. Also, they need to determine the field depth that they can accurately scan. Can they truly look 25 m onto shore and 25 m onto land while moving?"

Conclusion

Dr. Favreau's lengthy and helpful remarks indicate that an accurate and conclusive estimate of waterfowl presence on Lake Placid will likely take great time and effort. Further, she indicates that it is likely that the size and depth of Lake Placid might make the impact of waterfowl insignificant. In other words, a truly overwhelming population of waterfowl might be necessary to have negative impact on water quality. This summer's unscientific survey showed very few waterfowl indeed. We recommend for next summer that time be spent looking into the literature on waterfowl water quality contamination to see the general levels of waterfowl population that impact water quality and water body characteristics (size, outflow, temperature, chemistry, etc.) of polluted lakes to see if Lake Placid truly is at risk from this particular potential threat.

Lake Placid Motor Survey By David Canon and Eric Holmlund

Introduction:

Lake Placid is well known for its beauty, clear waters, mountain scenery, fishing and boating. 225 camps and numerous condominium units and businesses lie on its shores. On busy summer weekends, scores of motorboats cross the lake for transportation and recreation. While watershed stewards spend a great deal of time and resources counting and educating visitors to the lake using the state boat launch, little time and resources go toward assessing the use level and habits of the many boats housed at docks and in boat houses along the shorelines as property of shore owners. An initial count of boats moored on the shores and slips of Lake Placid was conducted by watershed stewards and volunteers in 2002. Now, five years later, we conducted the count once again. The purpose of the study is to assess the basis for traffic patterns and congestion on the lake, as well as to understand potential inputs of air and water pollution from boats.

Methods:

On the morning of August 10, 2007, two Watershed Stewards, Brandon Moser and Dave Canon, met Brandon, Dave met ten volunteers – Ellen and Peter McMillin, Sue Riggins, Sue Lockwood, Hillary McDonald, Mark Wilson, Beatrice Moeller, Jamie Rhoades, and Andrea and Sam Houlihan – at the state boat launch. There were a total of 6 boats each surveying an assigned section of Lake Placid. The occupants of the 6 boats drove near sections of Lake Placid's shoreline, looking at homes and docks, counting the number of inboard motor boats, electric boats, stern drive boats, and outboard motor boats (with outboards also recording whether the motor was 2 or 4 stroke, and its engine size) within their section.

Materials:

Boats, pens, data sheets.

Results:

The researchers found very comparable numbers of motorboats in the docks and boathouses of Lake Placid's shoreowners and businesses for the years 2002 and 2007. Not much has changed. There are more 4-stroke engines today as compared with 5 years ago (79 today to 13 in 2002). At the same time, two-stroke outboard motors have declined with the passage of time (99 today from 189 in the past). It's likely that residents have upgraded and purchased the fuel-efficient and low-pollution 4 stroke engines as they needed to replace their aging 2-stroke motors. In Table 1 below, note that confusion over the term "stern drive" led to a count of 0 in that category for 2007. It's likely that these boats were included in the "inboard" category, which rose in 2007 to 386 as compared with 187 in 2002.

Boat Type	2002	2007
Outboard Motorboats	202	178
2 stroke outboards	189	99
4 stroke outboards	13	79
Avg horsepower	66	60
Inboard motors	187	386
Stern Drive or Inbd/Outbd*	128	0
Electric motors	7	5
Jet Propulsion	2	0
Grand Total Boat Count	526	569

Table 1: Motorboat count results, Lake Placid shoreline, 2007
(*= confusion over term "stern drive" led to no boats being ascribed to this category in 2007)

Discussion:

The large number of volunteers helped the project gather a great deal of information. This shows a great deal of dedication and interest on the part of Lake Placid Property Owners. However, there was some confusion. Many people involved lent to additional confusion caused by different interpretations of the term 'stern drive.' We were looking for inboard / outboard motors, but some thought a stern drive to be a type of outboard motor, while others thought the term referred to wooden Chris Craft boats. The next time the motorboat survey is done this category should be renamed 'inboard / outboard.' Fewer boats of researchers could handle this task with greater simplicity and reduced confusion. One other area where inaccuracies may occur is in whether motors were 2 or 4 stroke. Some motors were unmarked, and volunteers made snap judgments. A similar issue occurred with horsepower, when motors were unmarked.

The motorboat study is a relatively simple, low effort assessment of vehicular presence and inferred pressure on Lake Placid. It can easily be conducted in five-year intervals to gain one more factor in the picture of the forces at play in terms of the health of Lake Placid's ecosystem. Results from this study show that no detectable increase in motorboat pressure exists from property owners. However, the use patterns of these boats (whether they remain idle for large periods of time, or whether they are out and running) remains unexamined.