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Final Paper

Seneca Lake Watershed Management Plan: Recreational Boating

Seneca Lake, which is located in Geneva, New York, is the largest of eleven Finger Lakes with a total surface area of 66.3 square miles.¹ The goal of the Seneca Lake Watershed Management Plan is to protect the lake and its productivity through monitoring its water quality within the watershed. Previous planning processes have looked at characteristics of land use and other management practices. In attempts to strengthen the watershed management plan for Seneca Lake, recreational boating must be further managed to minimize its environmental impacts to the water quality. Most specifically, the impacts of recreational boating that need to be addressed are: the overland dispersal of invasive species, the improper disposal of discharge water and the damage to submerged aquatic vegetation. Together these impacts disrupt the quality of Seneca Lake and should be addressed further.

Recreational boating in New York State is a big business and if managed correctly can promote investment and awareness to coastal communities. In 2003, New York State recreational boaters spent nearly \$2.4 billion, which contributed to 19,000 jobs and nearly \$728 million to labor income.² With regards to Seneca Lake, there are a total of twelve listed marinas, ten of those are public, and of those ten

¹ Seneca Lake Watershed Management Plan, p. 8

² Source 2 Brown, T

public marinas there are eight marinas with launch ramps.³ On page 6 there is a list of the Marina's in table 1, showing the diversity of size and available services that each Marina provides. The ramps are the first area of risk that recreational boaters potentially pose to the quality of Seneca Lake. The public ramps allow recreational boaters to enter the watershed and the lake, and pose the threat of overland dispersal of invasive species. A research study on Lake St. Clair in Michigan inspected public boat ramps, in order to assess the potential risk of invasive bivalve dispersal as a result of recreational boating. The study found that boats and trailers were transporting bivalves by 'piggybacking' on macrophytes entangled on trailers and engines. This shows that it must be controlled in order to limit the transportation of invasive, and that this issue is not just present within the Finger Lakes region. The introduction and transportation of invasive species into the Seneca watershed as well as other Finger Lakes may change the dynamics and composition of each ecosystem.

One of the prescriptions for the risk of overland dispersal and impacts of recreational boating is the use of ramp wash down systems. Seneca lake has a total of eight public ramps, which makes management, and monitoring of each ramp difficult and costly. In figure 1 on page 7, there is a map showing the public boat launch sites. They are not concentrated towards the northern or southern end of the lake but surround the entire perimeter. The risk of cross contaminating between Finger Lakes is high when using public boat ramps. Seneca lake has current populations of invasive bivalves and the use of ramp wash down systems may

³ Source 3 jpg.

decrease the probability of increasing populations.⁴ In a case study for the Rotorua Lakes in New Zealand, a group looked at the operation and costs regarding ramp wash down systems. The methods that are applicable to Seneca Lake are high-pressure water blasting, low-pressure water/ chemical application and high-temperature steam cleaning.⁵ Each system has different operational costs as well as effectiveness. Regardless of what system is installed there is still potential risk as they are not 100% effective. In better managing Seneca Lake, there is a need for more awareness from the public and greater amounts of participation. Ramp wash down systems can be in the thousands of dollars, and since Seneca Lake is connected to the New York Canal System limiting the transport of invasive species is difficult. Designing and displaying signs along ramps entering the lake may give information to the public, which may decrease the risk of transporting invasive species. This management practice will secure the quality of Seneca Lake, while informing the public and making Seneca Lake a better place to live.

Another area of risk that is a result of recreational boating is the discharge of water and other chemicals into the lake. In 2008 congress passed the Clean Boating Act (CBA) that was an amendment to the Clean Water Act. "The CBA requires EPA to identify discharges incidental to the normal operation of recreational vessels for which management practices are reasonable and practicable to develop."⁶ The CBA is applied to recreational vessels in all 'waters of the United States', making

⁴ Class 4/6/2012, Bart Flynn

⁵ Miller, N p. 10-15

⁶ Environmental Protection Agency, Clean Boat Act

operators reliable for the discharges from their vessels.⁷ In applying this to Seneca Lake, the marinas provide a total of seven 'pump-out' stations that allow vessels to empty their holding tanks. In 2010 the EPA and the DEC released a new law making the entire New York State Canal System a "no discharge zone". This means that boats are banned from discharging sewage into the canals. The discharge can contain harmful levels of pathogens and chemicals that have a negative impact on the water quality.⁸ Of the total twelve marinas, seven have pump out stations, which must provide service to every vessel on the lake. In the months that Seneca Lake is active to recreational boaters the lake is at high risk of vessels discharging. Without the proper enforcement and management Seneca Lake is at risk. In better managing Seneca Lake and its watershed, Seneca Lake boaters should all be aware of the discharge regulations and the repercussions for disobeying the law.

The final area of risk that is a result of recreational boating is the potential destruction of submerged aquatic vegetation (SAV). SAV is vital to the aquatic ecosystem and the organisms that are dependent on it for survival. Sea grass exists exclusively in shallow-water areas where they are highly vulnerable to impacts of recreational boating. The SAV is only able to grow in shallow-water areas because this is where light is able to penetrate and reach the lake floor. In addressing a better management plan, the annual average secchi depths have been decreasing in depth.⁹ With this decrease in depth, SAV and the possible areas where it can grow is decreasing. Seneca Lake is at risk from its recreational boaters and their potential

⁷ Environmental Protection Agency, Clean Boat Act

⁸ Senn, J

⁹ Seneca Lake Watershed Management Plan, p. 20

impacts to submerged aquatic vegetation. The erosion from vessel-induced waves, as well as the destruction from propeller scaring along the lake floor are examples of these impacts. If the turbidity of the water quality continues to increase, the SAV may become more susceptible to these risks.

In addressing this issue and proposing a management plan, marking the shallow coastal areas, and keeping recreational boaters away from shallow areas will increase the productivity of the ecosystems that inhabit them. However, the costs associated with deploying markers around the entire coast of Seneca Lake will be too costly. Again, just like the solution to limiting the dispersal of invasive species, knowledge, awareness, and self-policing is a far cheaper solution.

In conclusion, as far as recreational boating goes, Seneca Lake for the months that the water and climate are tolerable, is a surprisingly active lake. There are however several areas of management that might want to be enforced or further studied. First there is the growing demand and incorporation of ramp wash down systems that prevents the cross-contamination of invasive species. A management plan of constructing ramps with attendants to monitor activity and supply information to the public will increase the quality of Seneca Lake. There is also the issue of water discharge from vessels that needs greater enforcement and monitoring during active summer months. Lastly the need to address the issue of submerged aquatic vegetation, and the potential for environmental impacts from recreational vessels. By implementing the management practices above, Seneca Lake and its water quality will extend to further generations making the environment and Geneva a better place to live.

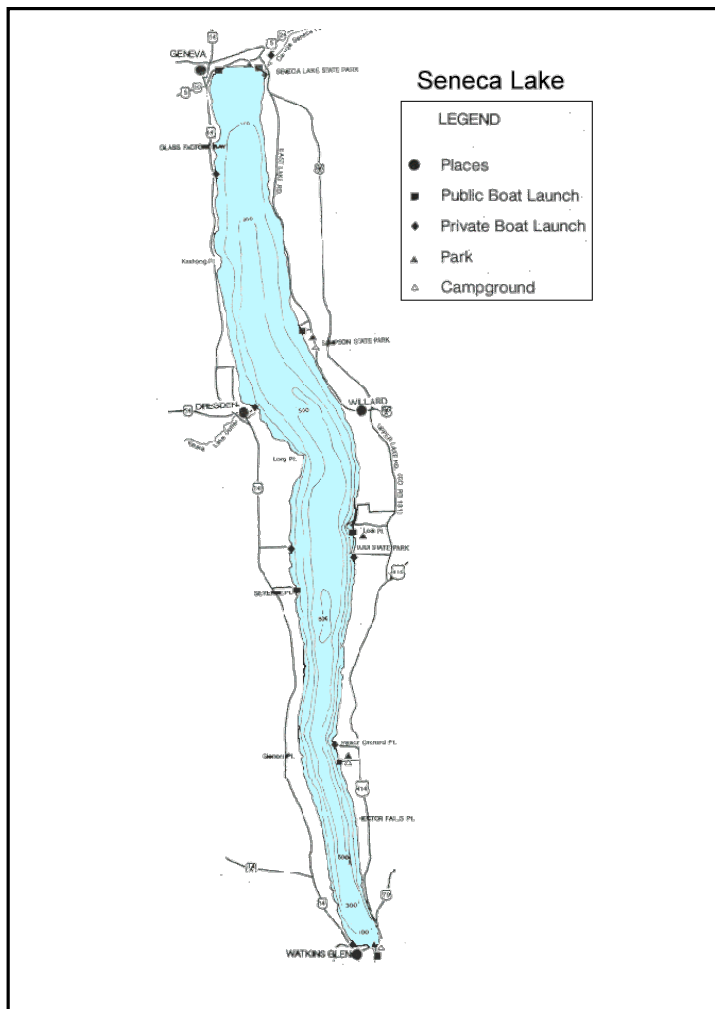
(Table 1)

Seneca Lake	PR/P*	Slips	Ramps	Haul Out	Repair	Pump Out
Anchor Inn & Marina	PR	10				
Ervays Marina	P	84	X	X	X	X
Glen Harbor Marina	P	73	X	X	X	X
Lembeck's Marina	P	28	X	X	X	X
Lodi Point State Park	P	20	2			
Mark's Marine	P					
Montour Falls	P	190	2	X		X
Roy's Marina	P	75	X	X	X	
Sampson State Park	P	103	4			X
Seneca Lake State Park	P	190	X			X
Village Marina	P	100	X	X		X
Watkins Glen Yacht Club	PR	54				

(*PR=Private P= Public, slip= place where boat is kept

<http://www.ilovethefingerlakes.com/recreation/boating-marinas-seneca.htm>)

(Figure 1)



(<http://www.dec.ny.gov/outdoor/25659.html>)

Work Cited

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