

Stop Aquatic Hitchhikers! Implications for a Watercraft Steward Program in New York's Kettle Lakes

Emily Artruc*, Anna Deats

*SUNY College of Environmental Science and Forestry, Department of Environmental and Forest Biology, 1 Forestry Dr, Syracuse NY, 13210



Introduction

- Aquatic invasive species (AIS) are a major threat to the ecology of lakes. They are spread mainly by anthropogenic means: attaching to boats and fishing gear, thus traveling from lake to lake. By inspecting and cleaning their boats, fishermen and recreational boaters can help prevent the spread of AIS. However, without education and enforcement, boaters are much less likely to do so. **By employing watercraft stewards, lake communities can help prevent AIS from entering their lake.** Conesus Lake is the westernmost Finger Lake and has had a watercraft steward program for two summers. The success of the program should set an example for other lakes without one. The communities around the Cortland county kettle lakes, Song, Tully, and Little York, are concerned about AIS entering their lakes. By employing the same program as Conesus Lake, these kettle lakes will be better protected from the threat of AIS.
- Some of the AIS that could be introduced into local lakes include Eurasian water milfoil, *Hydrilla*, zebra mussels, round goby, and spiny water flea. By starting a watercraft steward program, the communities around these lakes can better control what goes in and comes out of their lakes. **I predict that after one summer of the watercraft steward program, there will be a decrease in contaminated boats that would potentially have invasive species. After consecutive summers, the number of contaminated boats will be significantly lower.**



Photo credit: Gene Bolster

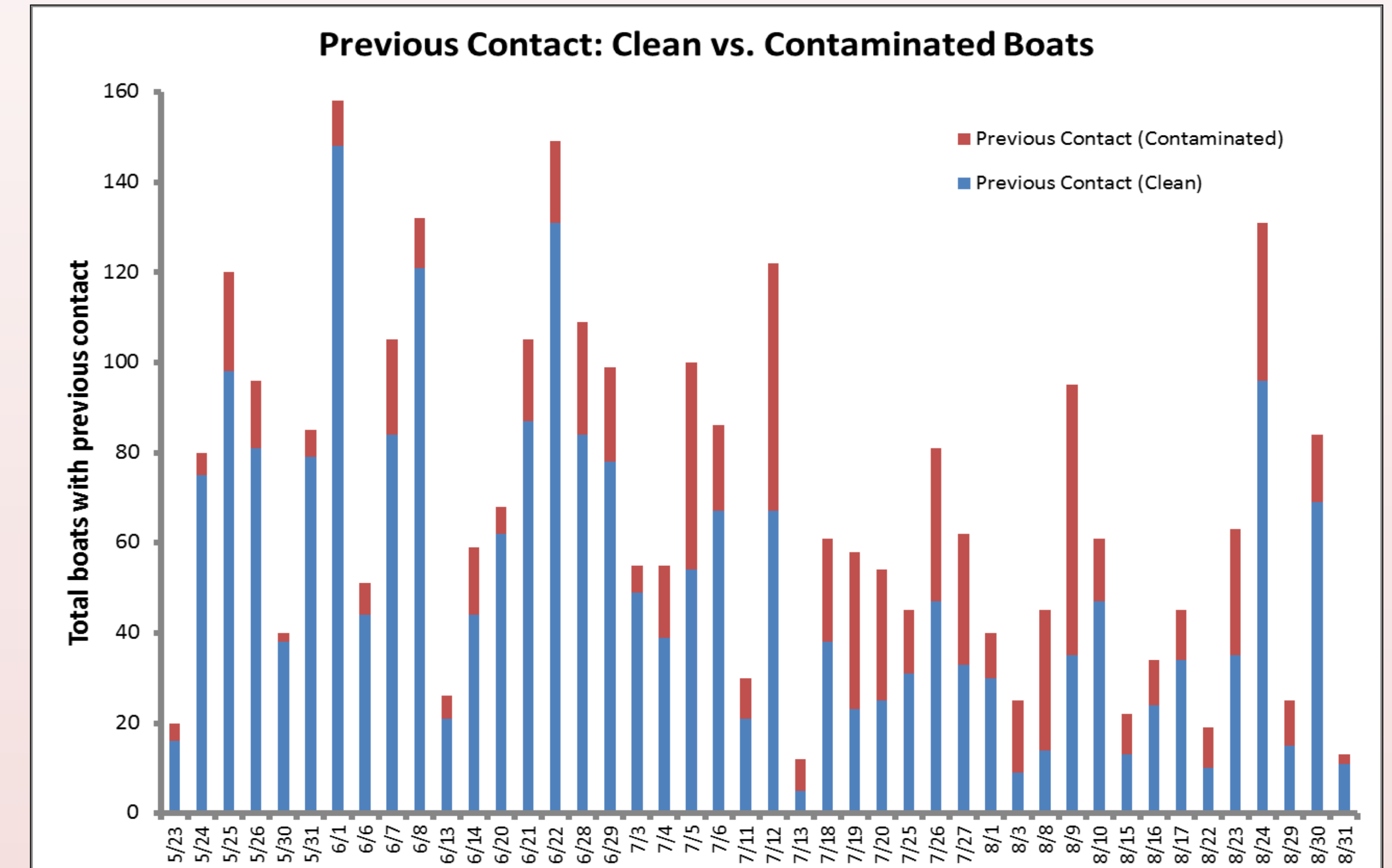
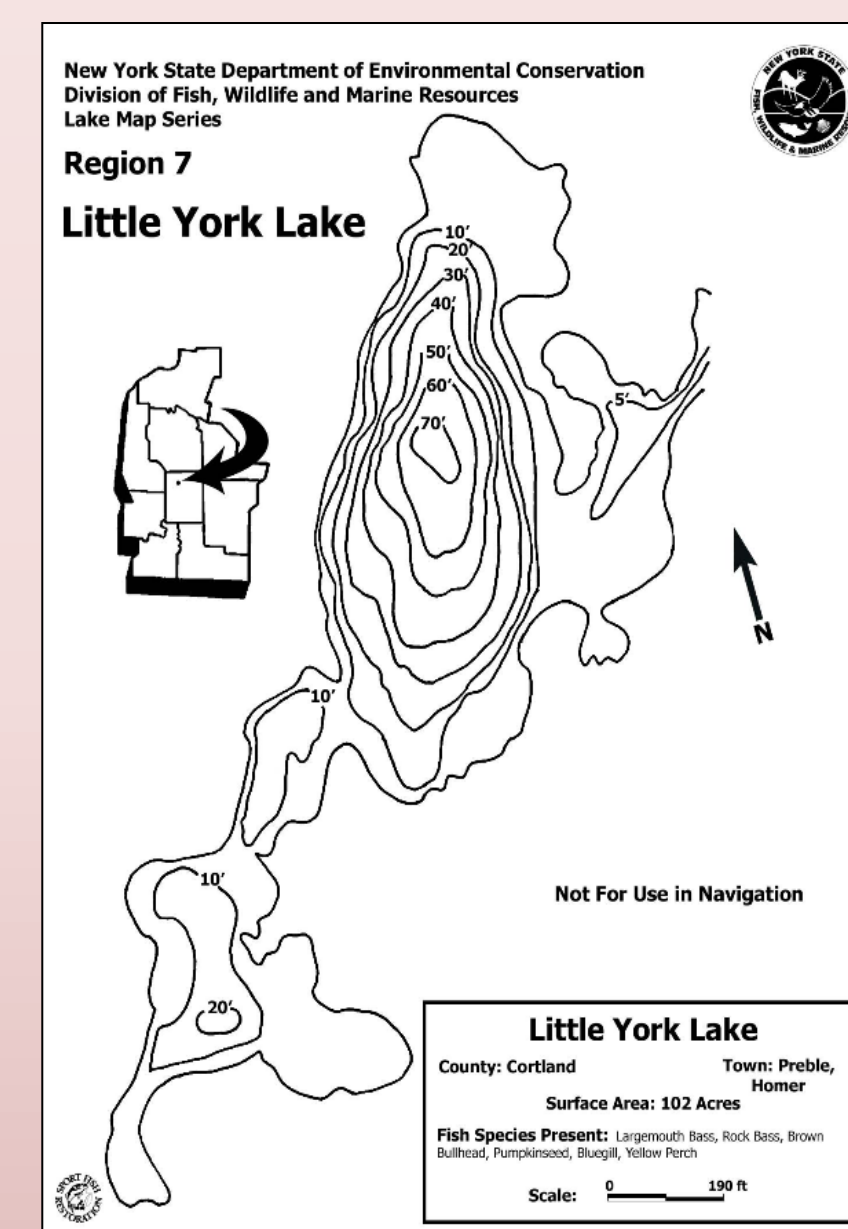
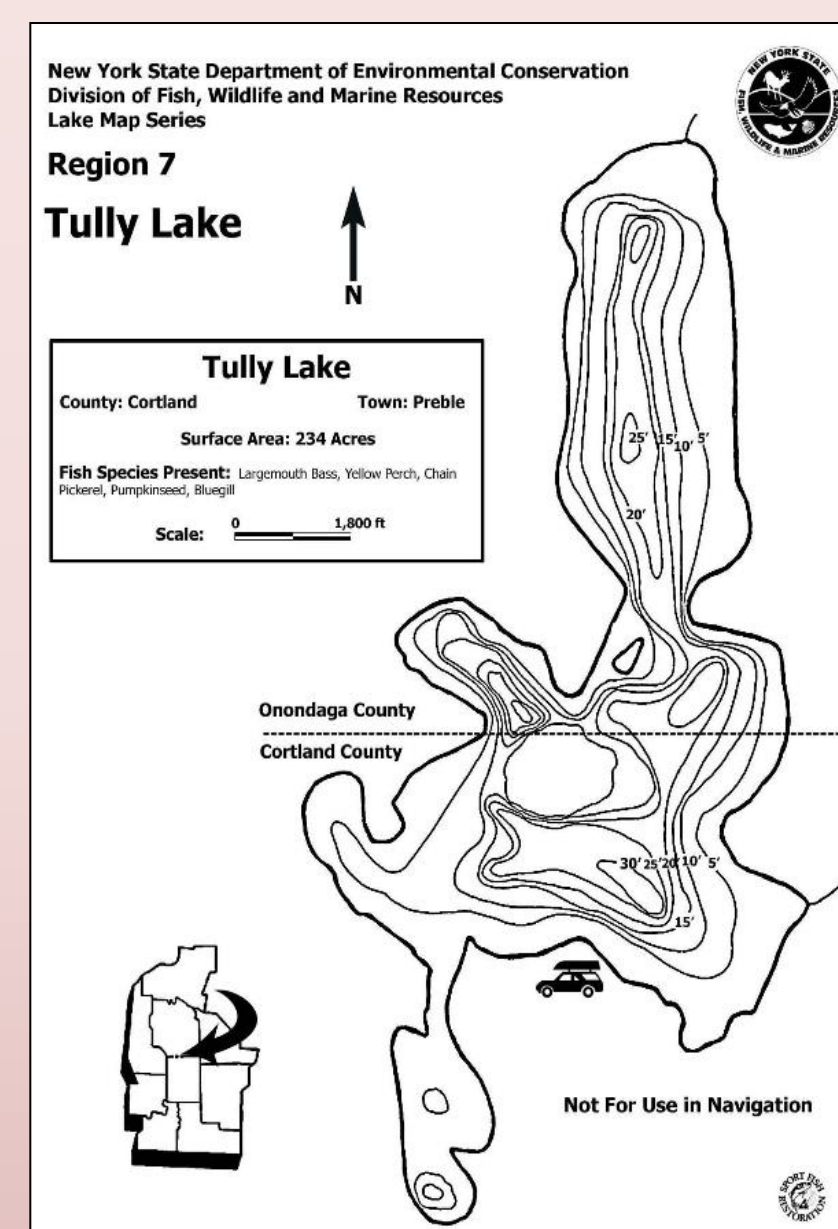
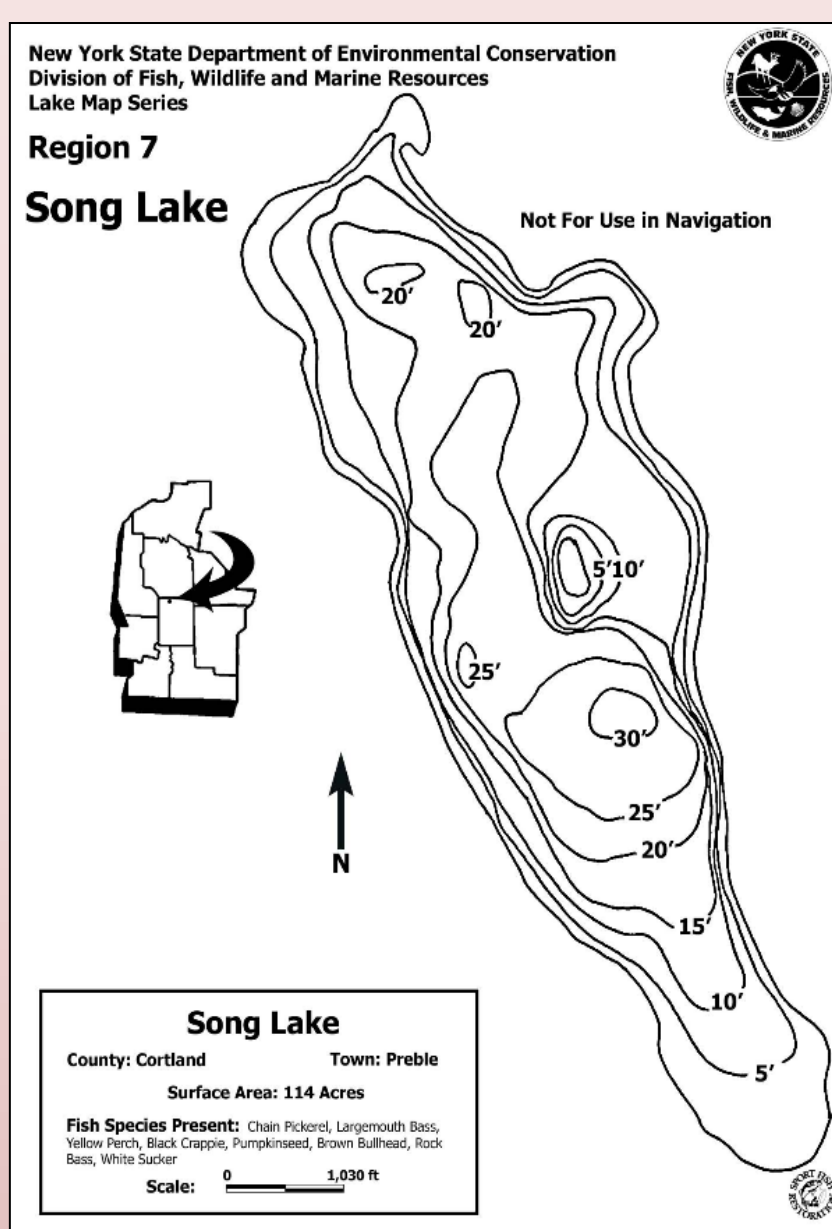


Figure 4: **Most boats with previous contact are clean.** In early summer, the number of clean boats was greater than the number of contaminated boats. This is because the macrophyte growth is very low in early summer. **Mid summer had high macrophyte growth,** which is why the number of contaminated boats was closer to or exceeding the number of clean boats. **In late summer, the number of contaminated boats decreases** to levels similar to early summer. This may be because more people know about the program and know to clean their boats.



Interpretation of Data from Conesus Lake

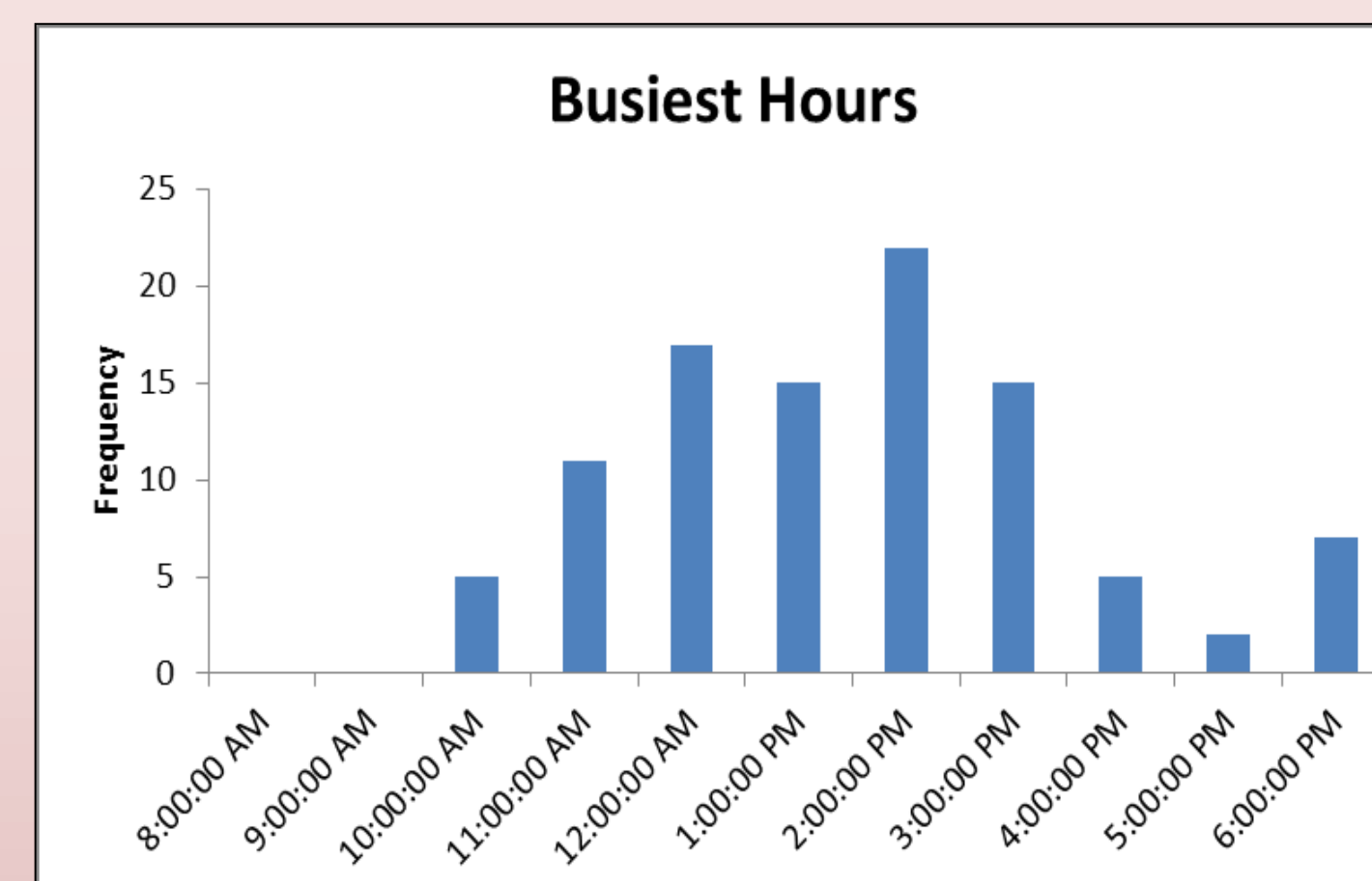


Figure 1: The frequency is the number of times the X hour was the busiest of the day over the entire summer. **Noon and early afternoon were the busiest, and early morning and evening were the quietest.** This represents an average day at the boat launch, and should be helpful in creating programs for other lakes.



Hydrilla (*Hydrilla verticillata*) (left) is an exotic, highly invasive macrophyte that forms dense mats on the surface of lakes, impeding boating and swimming. Millions of dollars are spent each year to control this species. **Zebra mussels** (*Dreissena polymorpha*) (right) are invasive invertebrates that attach to hard substrates such as rocks, pipelines, docks, and breakwalls. They disrupt the aquatic food web, outcompete native mussels, and can injure swimmers with their sharp shells ("Harmful Aquatic Hitchhikers").

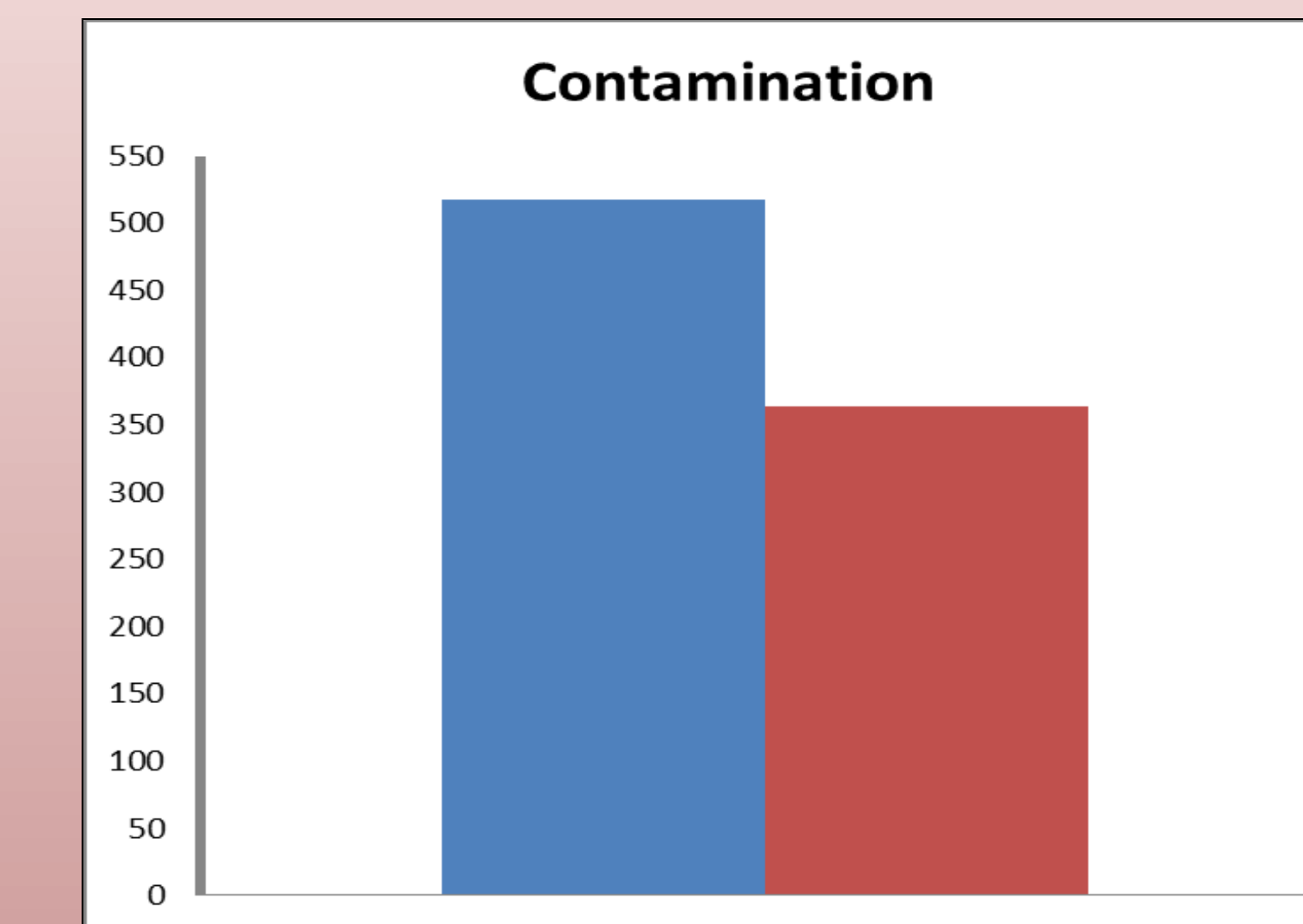
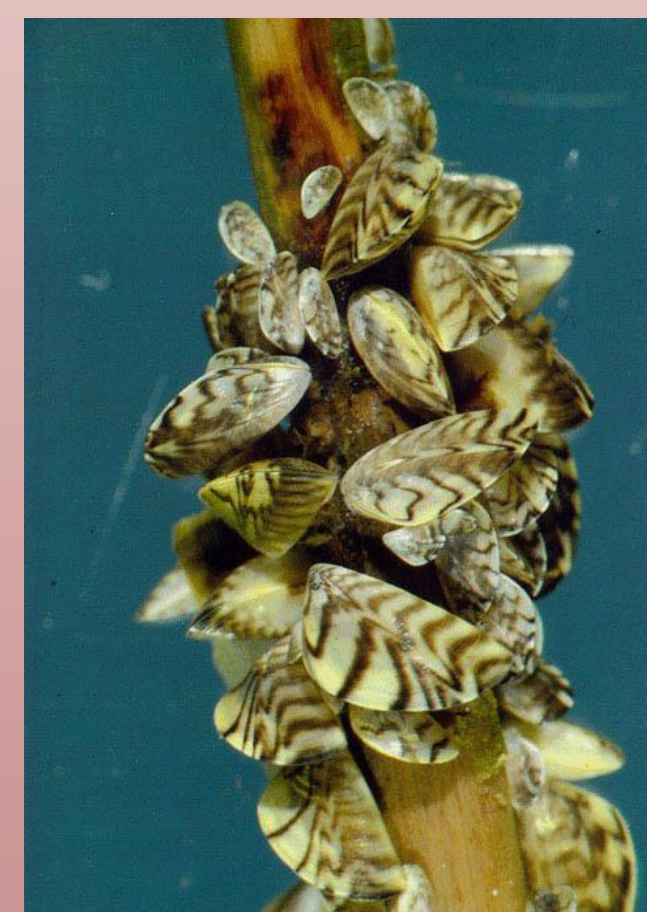


Figure 5: Fishing boats (blue) had more contamination than recreational boats (red). This means **programs should reach out more to fishermen** than recreational boaters and should inspect fishing boats more closely than recreational boats.

Methods

- Data were collected every Friday, Saturday, and Sunday from 8:00 AM to 7:00 PM from Memorial Day weekend to Labor Day. One steward would be at the launch from 8:00 AM to 3:30 PM, and the other from 11:30 AM to 7:00 PM. At Conesus Lake, both stewards would be at the launch from 3:00 PM to 7:00 PM for the weekly fishing tournament. When a boat pulled into the launch on a trailer, one of the stewards would approach the vehicle after it came to a complete stop, and address one or all of the associated people. The steward would introduce herself and ask the boaters if they were familiar with the program. If the boaters had previous contact with a watercraft steward, we reminded them to **Clean, Drain, and Dry** their boats, then asked to inspect their boat for any invasive species. If the boaters had no previous contact, we clearly explained what AIS are, what their effect is on the lake and on the people who utilize them, and gave them outreach material. We then asked to inspect their boat, and show them where to look on their boat and trailer so they know how to inspect their own boats, emphasizing Clean, Drain, Dry. Then we thanked them for their cooperation. The same methods are applied to boats that are coming out of the lake. Information from each inspection was recorded. At the end of the day, the data were entered to Microsoft Excel. All 52 days of collected data were analyzed.
- To inspect a boat for AIS, first the steward would need permission from the boater, and make sure that the vehicle towing the boat is parked. The steward would check the trailer winch, hitch, wheels, bumpers, boat motor, and propeller. It is important to check the boats thoroughly, but efficiently. If invasive species are found, the stewards inform the boater, and remind them to check and clean their boat every time they use it.

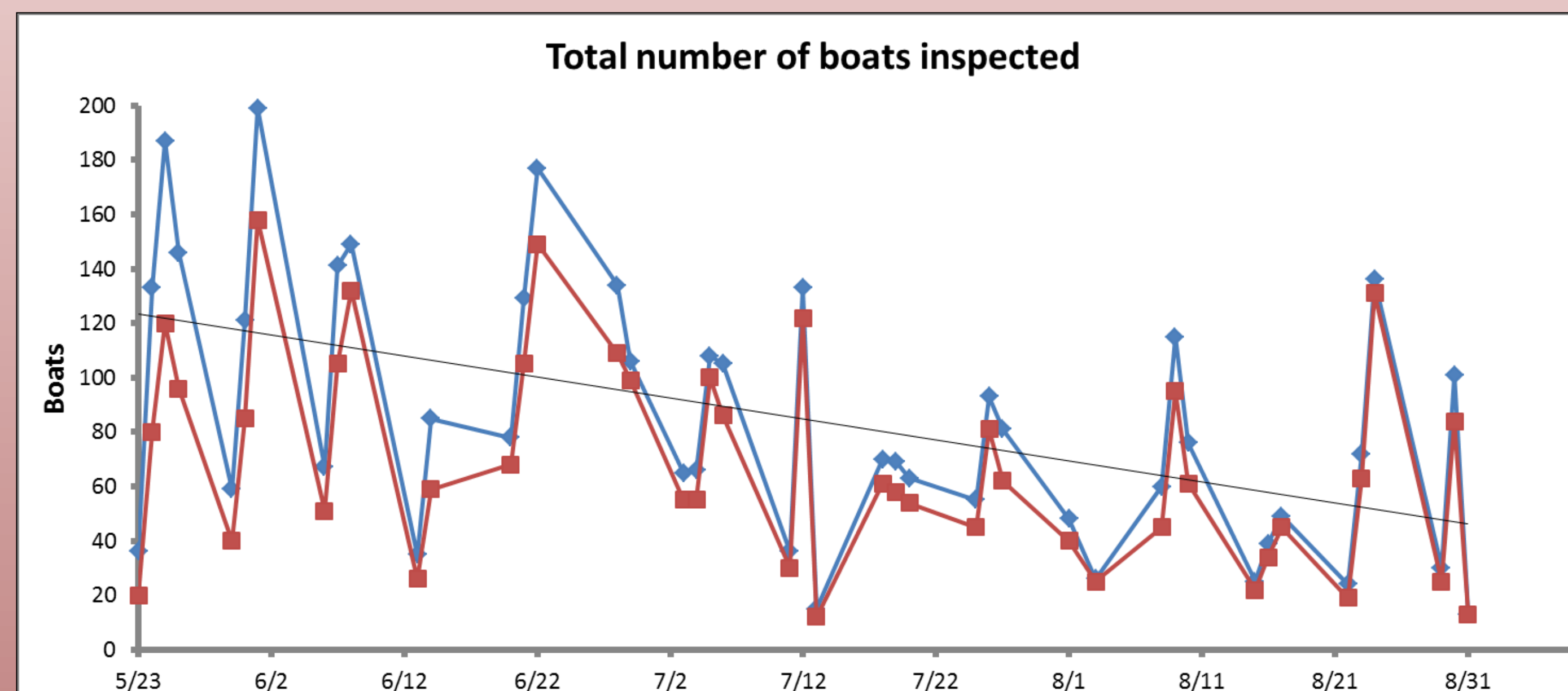


Figure 2: number of boats (blue) fluctuates per day. This is because the amount of boaters typically **depends on the weather**. Previous contact (red) gets closer to 100% over time. As the summer goes on, the number of previous contacts almost equals the total number of boats. This is because more people are exposed to the program and they are returning to the lake multiple times. The only people who have not had previous contact are boaters who come from far away to Conesus Lake.

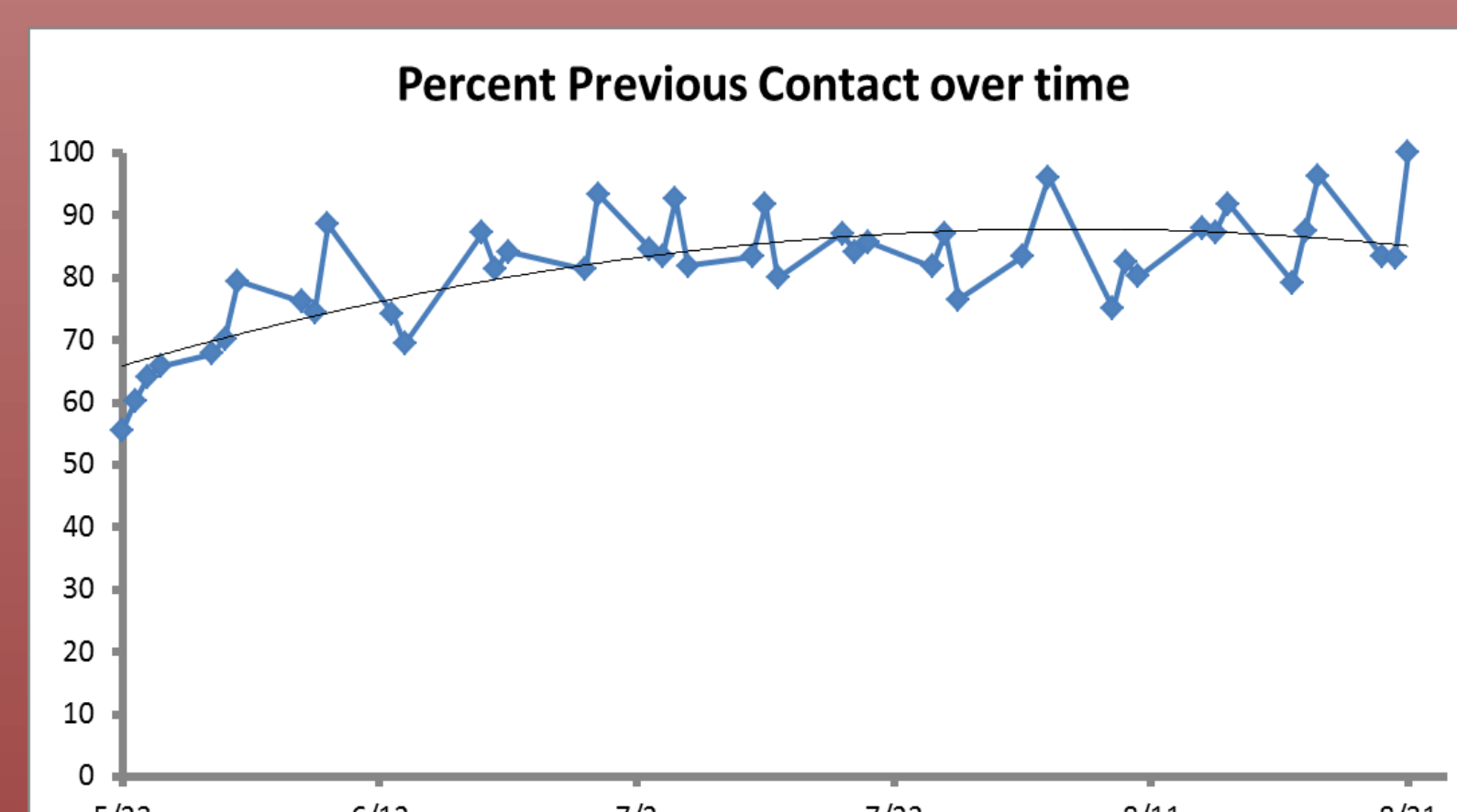


Figure 3: There is an **overall increase in previous contact from May to August.** This means more people are learning about the program, even in its second year.



Conclusions

The application of the watercraft stewardship program on Conesus Lake has prevented new invasive species from entering the lake. The community around Conesus Lake is better informed about the presence and consequences of AIS, and are now equipped to help stop the spread of AIS between lakes. Over the course of the summer, the percent of people who knew about the program increased. In my own personal observations I noticed more people inspecting their own boats after pulling them out of the lake in late summer. The program had such an impact on the county, that NYS Senator Catherine Young is actively pursuing a grant for a "boat decontamination station" (an onsite location where boaters can Clean, Drain, and Dry their boat), a monetary feat we had thought impossible. The station will provide more incentive to decontaminate boats and further aid the prevention of AIS spread.

The key to a successful prevention movement is widespread awareness. The more communities that employ the program, the better chance they have against AIS. It is our hope that this presentation of the success of Conesus Lake will incite other lake communities to take big steps to preserving their lakes.

Acknowledgments

Maggie Hanafin, Scott Proctor, Gene Bolster and the Conesus Lake Association, Mark Whittmyer and Cornell Cooperative Extension of Livingston County, Sea Grant, Andrew Brainard and Kim Schulz.

References

- "Harmful Aquatic Hitchhikers." Protect Your Waters. ANS Task Force. Web. <<http://www.protectyourwaters.net/hitchhikers/>>.
- "Little York Lake." Department of Environmental Conservation. NYSDEC. Web. <<http://www.dec.ny.gov/outdoor/60205.html>>.
- "Song Lake." I Love the Finger Lakes. Ronda Roaring. Web. <<http://www.ilovethefingerlakes.com/lakes/Song.htm>>.
- "Tully Lake (Cortland and Onondaga)." Department of Environmental Conservation. NYSDEC. Web. <<http://www.dec.ny.gov/outdoor/60199.html>>.