

The Effect of Water Quality in Lake Champlain on Tourism and Recreation

Arelis Enid Girona Dávila | Yu-shiou Tsai, Steve Scheinert, Dr. Christopher Koliba, Dr. Richard Kujawa and Dr. Asim Zia

Introduction

Lake Champlain is the host of many recreational activities. However, there have been cyanobacteria blooms in the lake that threaten human health. As individuals avoid recreational sites subject to these blooms, there may be a decrease in the recreational and touristic activities in or near the Lake. This research will look for the relationship between the attendance of visitors to Vermont State Parks, the meal and room tax and the levels of Phosphorus and Nitrogen during summer. It will show how recreation and tourism in the parks has fluctuated due to variation in water quality, which is due to the algal blooms, while controlling for fluctuations across space, time and other influences.

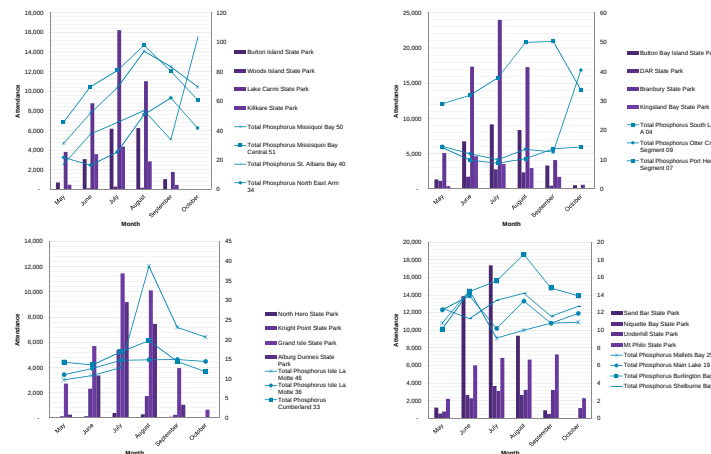
Considering this, I will investigate three relationships among recreational activities. The first relationship will be the attendance of visitors to Vermont State Parks between May and October. The second relationship will be the levels of Total Phosphorus and Nitrogen in Lake Champlain between May and October. The third relationship will be room and meal tax receipts of Vermont. It is expected that the recreational and touristic activities in the state parks of the counties next to the Lake Champlain decrease with a raise in the Phosphorus and Nitrogen levels and also with a decrease in room and meal tax receipts.

Methods

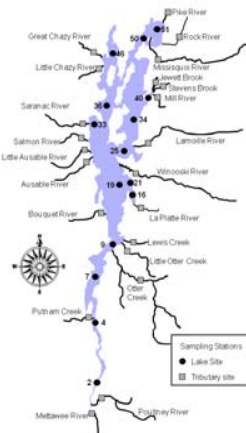
- The comparison will be made using data from Lake Champlain Long-term Water Quality and Biological Monitoring Project, the Department of Forests, Parks and Recreation of Vermont and the Vermont Department of Taxes. The state parks will be the ones that are in the counties next to the Lake Champlain. The attendance of the parks that are in Franklin, Chittenden, Addison and Grand Isle will be compared within the county to see if there is any difference because of the interaction with Lake Champlain. The levels of Phosphorus and Nitrogen will be given by 14 lake stations located at the lake. Lake stations are visited regularly from late April through October each year. The chosen data was from May through October on 2012.
- With each of the chosen counties, their meal and room tax receipts were used to identify the tourist visits and compare them with the attendance to the parks and see if there is any connection. These relations could give us the relationship between the water quality in the lake compared to tourism and the recreational use to it.

Results

For every county there was, a chart was made describing the attendance of each park, the room and meal tax receipt and the levels of phosphorus and nitrogen from May through October 2012. For each county there are four state parks. The room and meal tax receipt was made with the 2012 data.



These charts show the state park attendance for the counties of Franklin, Addison, Grand Isle and Chittenden between May and October 2012 and the level of phosphorus in microgram per liter (ug/L) for the lakes stations near each county.



The map shows the lake sites where the water quality samples were done. This sampling was made by the Lake Champlain Long-Term Water Quality and Biological Monitoring Program to detect long-term environmental changes in the lake and the sampling program focused on those analyses determined to be the most meaningful for assessing the long-term effects of management actions and other changes in the environment.

Conclusion

- Recreational activities can adversely affect water quality and the shoreline. Assessing and improving free time activities will help preserve water quality for fish and wildlife habitat as well as for our own recreational purposes and the health of their visitors. Poor water quality can affect recreation on the water, degrade fish and wildlife habitat, pose a health risk for water-contact recreation, and threaten the safety of your drinking water supply.
- In terms of how the issue of water quality could be solved may be by achieving some Best Management Practices (BMPs) that may reduce the impact on the environment, essentially in agriculture, forest management, and construction. Also having a wastewater treatment plant upgrades, stabilization of stream banks and stream channels, and better storm-water management and erosion control on developed land and roadways.
- In terms of the State Parks, the amenities are the main criteria to choosing were to visit. The attendance is influenced by this. The levels of nutrients can affect in a way the use of recreational sites but it is not definitive.
- I conclude that this study needs to continue further to see if there is a relationship within a several years to find out if the affiliation between water quality and recreation exist in every scenario. A regional plan can be made with the general purpose of the development of this relationship promoting the health and welfare of the residents and visitors and the ecosystem.

Works Cited

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