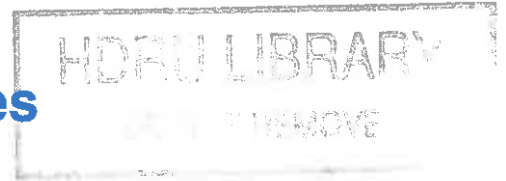

**Impacts of Water Level Changes
on Recreational Boating Use**

Within the Mohawk Territory of Akwesasne



October 2004

HDRU Series No. 04-7

Prepared by:

Nancy A. Connelly, Julie T. Weber, and Tommy L. Brown
Human Dimensions Research Unit
Department of Natural Resources
Cornell University
Ithaca, NY 14853-3001

HUMAN DIMENSIONS RESEARCH UNIT PUBLICATIONS SERIES

This publication is part of a series of reports resulting from investigations dealing with public issues in the management of wildlife, fish, and other natural resources. The Human Dimensions Research Unit (HDRU) in the Department of Natural Resources at Cornell University is a nationally-recognized leader in the study of the economic and social values of wildlife, fish, and other natural resources and the application of such information in management planning and policy. A list of HDRU publications may be obtained by writing to the Human Dimensions Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853, or by accessing our World Wide Web site at: <http://www.dnr.cornell.edu/hdru>.

**IMPACTS OF WATER LEVEL CHANGES
ON RECREATIONAL BOATING USE
WITHIN THE MOHAWK TERRITORY OF AKWESASNE**

By

Nancy A. Connelly, Julie T. Weber, and Tommy L. Brown

**Human Dimensions Research Unit
Department of Natural Resources
Cornell University
Ithaca, New York 14853-3001**

HDRU Series No. 04-7

October 2004

ACKNOWLEDGEMENTS

This research was sponsored by the International Joint Commission (IJC). It was administered by the U.S. Army Corps of Engineers, Buffalo District Office, with Jonathan Brown serving as the contact person.

Jim Snyder of the St. Regis Mohawk Tribe Environment Division served as our contact person in the study area. He provided background information and a review of our survey instrument and final report. Lornie Swamp, also with the Environment Division, provided logistical support for survey implementation. Maxine Cole, who was studying similar issues in the area, provided feedback on our survey instrument. The report she and others prepared for the IJC was an excellent reference and foil for this study.

INTRODUCTION

The International Joint Commission (IJC) oversees the management of water levels on the Great Lakes for the United States and Canada. In 2000, the IJC established the International Lake Ontario – St. Lawrence River Study Board and commissioned them to undertake a comprehensive five-year study to assess and evaluate the current criteria used to regulate outflows from Lake Ontario through the St. Lawrence River. The study board was asked to examine the effects of water level and flow variations on all users and interest groups and determine if better regulation were possible than the criteria set by the IJC in 1956. The study board set up technical working groups (TWGs) representing each of the major interests, including recreational boating. The recreational boating and tourism TWG sponsored a number of research projects throughout the study area, including the one reported herein, to examine the effects of water level fluctuations on recreational boating.

The area downstream of the Moses Saunders Power Dam on the St. Lawrence River is unique compared to other areas within the larger Lake Ontario-St. Lawrence River area because of the water level fluctuations caused by the International St. Lawrence Power Project. The water level below the dam fluctuates on a daily basis (called peaking) due to hydroelectric power needs. Typically, the water level rises in the afternoon and evening hours when energy demands are high, and falls overnight as energy demands decrease. The water level also fluctuates over the course of a week (called ponding) when water is held back on weekend days and released during week days. Because of these unique conditions, a separate study was undertaken to examine the impacts of changing water levels on recreational boating use below the dam.

The people living below the dam are primarily members of the St. Regis Mohawk Tribe. The tribe formed the audience for this study. Through a larger study conducted by the

Akwesasne Task Force on the Environment (2004), members of the tribe identified additional recreational boating issues beyond those of peaking and ponding that we felt should be included in our study. These included impacts by large boats, primarily commercial vessels traveling on the St. Lawrence River, and traditional uses of the river by boaters. Seasonal fluctuations in water levels, typically seen in other areas of the study, may be less pronounced in this area but our contacts within the tribe suggested they were nevertheless worth examining.

The purpose of this study was to describe the impacts of water level changes on recreational boaters on the St. Lawrence River below the Moses Saunders Power Dam as far downstream as Snye Marsh. Information from this study will help the Study Board and the IJC better understand the problems boaters face in this unique section of the River.

METHODS

A written questionnaire was developed and sent to all members of the tribe via the Spring 2004 Issue of the Iroquois Environmental Newsletter. Using the newsletter was seen as a convenient and inexpensive way to reach all tribe members living in the area. It also protected the privacy of individuals because the mailing list was not given to the researchers and the questionnaire was truly anonymous when returned. On the other hand, because typical follow-up methods using several reminder letters could not be used to encourage response the likelihood of low participation was increased.

The questionnaire asked about recreational boating use on the St. Lawrence River below the dam and possible impacts on that use from fluctuating water levels and large vessels. Respondents were asked to describe impacts using open-ended responses and estimate the number of days their boating was impacted. They were prompted to comment on seasonal

fluctuations and those caused by peaking and ponding as well as impacts by large vessels. They were also given the opportunity to identify other impacts. Respondents were asked to describe adaptations they made to deal with any of the impacts.

The questionnaire was sent out in late May to 2,435 recipients of the Iroquois Environmental Newsletter. This included all US tribe members living in the area and most members living on the Canadian side, as they also have a US Post Office box. A reminder notice was placed in the local paper and announced on local radio approximately one week after the newsletter was mailed.

Responses were returned via business-reply mail to Cornell University. The data were summarized by the authors and the results are reported below.

RESULTS AND DISCUSSION

Response Rate

Of the questionnaires sent out, 20 were returned to us. This low response to the survey severely limits our ability to characterize impacts of changing water levels. However, we will describe the returns we did receive and endeavor to place them in context with other research done in the area. We cannot say anything about the extent of a given impact but rather can describe the impacts experienced by people in this section of the St. Lawrence River.

The majority of respondents (72% [or 13 of 18 who answered this question]) indicated they had boated on the St. Lawrence River between the Moses Saunders Power Dam and Snye Marsh in 2003 or 2004. The remainder did not boat in this area in 2003 or 2004 and therefore were not asked about impacts to recreational boating. They are not discussed further in this report.

Boaters and Boating Activity

In 2003, respondents spent the most time on the water in July and August, with respective averages of 11 and 12 boating days per month. June (8 days per person) and September (7 days per person) were the next most popular months. January and February were the only months in 2003 for which no boating days were reported by any of the respondents. In 2004, except for February, respondents spent some time boating in every month through May (when the survey was implemented). May had the highest average boating days, at 3 days per person.

On average, respondents who boated between the Power Dam and Snye Marsh in 2003 or 2004 owned and used 1.6 boats. Of these boats, nearly all were motorized (95%) – only one respondent reported owning or using a non-motorized boat.

Respondents did a variety of activities while boating. Most respondents (70%) fished, while slightly smaller numbers socialized and went sightseeing. Picnicking and swimming followed, then gathering plants and transportation. Hunting was the least popular activity; with 15% of respondents indicating they hunted while boating. A few respondents also indicated that they used their boats for other activities, including camping, work activities and cooling off.

Problems with Water Levels

Prior to conducting the survey, we thought the primary concern with water levels would be the fluctuating water levels over the course of the day (i.e., peaking). However, we found that most respondents (70%) did not have a problem with water levels fluctuating over the course of a day. For those who did, about 6% of their total boating days were affected by this problem in 2003. This averaged out to approximately 9 days per person.

One respondent depicted fluctuating water levels as problematic because his/her dock was under water when the level was high, and when the level dropped, the dock broke as a result

of tension in the rope securing the boat to the dock. However, most problems occurred only when the water level was low: boats were stuck on the river bottom, exposed shoals made boating dangerous, navigation into boathouses and docks was difficult, damage to boat motors was feasible, and it was impossible to set minnow traps.

Some of the people who described problems with fluctuating water levels did something to adapt to or deal with the problem, such as pulling their boats from the water when necessary and lifting their motors higher to avoid getting stuck. In regards to exposed shoals, one person who commented did nothing to deal with the problem; another respondent explained there was nothing that could be done, since water levels were controlled upstream.

The vast majority of respondents (85%) had no problems as a result of the water level being higher than usual for a number of consecutive days (seasonal highs). Those who did have this problem were affected for an average of 1.5 days per person in 2003 (about 2% of their boating days). Between January and May 2004, no respondents reported having this problem.

People who had problems when the water was too high experienced things like docks being submerged under the water and being unable to gather [medicinal] plants at the shoreline. To deal with a submerged dock, one respondent pulled his boat completely out of the water, while the person who was unable to gather plants simply questioned, "What can I do?" indicating his/her lack of control as to how to adapt to the situation.

Slightly more people (27%) had problems when the water level was lower than usual for a number of consecutive days than when the water level was higher than usual (15%). For respondents who had problems in 2003, an average of 8 days per person, or just over 7% of boating days were affected by this type of problem.

Respondents who had problems with low water almost exclusively described problems in which their boats had been grounded. Even while tied to a dock, boats were reported to be found “lying on the ground” at times. Also, one respondent was unable to launch his/her boat when the water was too low. Another respondent indicated the water would often be too shallow “for a long distance from shore.”

To deal with these problems, most respondents simply moved their boats into deeper water, possibly further out on their docks. One person adapted by not going boating on days the boat could not be launched.

Problems with Larger Boats

The majority of respondents (70%) were not impacted by larger vessels (primarily commercial boats) using this portion of the St. Lawrence River. However of those who were, nearly 70% of their total boating days were impacted in 2003. These people were affected an average of 56.5 days in 2003. This compares with only 6-7% of days being affected by low or fluctuating water levels. Thus, the percent of people affected was similar but the extent of the impact on the boating experience was much more severe. There were a variety of complaints relating to large boats. Some respondents felt the wakes caused by these boats were too big – they said these waves eroded the shoreline, damaged personal property, and made it difficult to navigate or keep small boats from capsizing. Other people said these boats moved too fast without any enforcement of the speed limit, and still others commented that they polluted the water.

In general, respondents did not make adaptations to deal with this problem. Aside from stopping in the water, people did not seem to know what to do regarding the problems they faced

because of large vessels. However, one respondent commented that there really was no problem so long as people used small channels to avoid the larger vessels.

Other Problems

Few people reported any other type of water-related problem while boating in this area. Those mentioned included issues with boat repair, and respondents said they adapted by planning ahead.

Additional Comments

Several respondents added comments about other problems they faced or their opinions of issues that need to be addressed in this stretch of the river. Many reiterated their qualms about large private and commercial vessels going too fast and generating waves, and some suggested that speed regulations should be enacted and enforced. Other people felt that jet skis and speed boats caused safety hazards and suggested restrictions should be placed on their use. Another area of concern was the local fishery. Respondents reported decreases in fish harvests in the past few years; and one linked the lack of fish available to eat to a rise in chronic illnesses such as diabetes and high blood pressure. Additionally, one person recalled a decrease in the number of muskrats in the area and another remarked on the difficulty in getting minnows by trapping. Some people blamed the decrease in the amount of fish on the Seaway itself, while others attributed it to cormorants.

CONCLUSIONS

From our limited results, it appears that most people within the Mohawk Territory of Akwesasne are not impacted by changing water levels as they relate to recreational boating. One-third or less indicated impacts from a specific type of water level fluctuation. Also, the low

response rate, while certainly due to a variety of factors, may indicate a lack of interest/concern with this specific topic. Other research has shown that those who do not respond are less involved, active or interested in the topic (Brown and Wilkins 1978, Loker et al. 1999). Furthermore, the study conducted by the Akwesasne Task Force on the Environment (2004) also inquired about impacts to recreational boating, among other topics, and reported few impacts to recreational boating from fluctuating levels. That study identified impacts to the environment (fish, mammals, medicinal plants) in its executive summary as of particular concern. For recreational boating, that study indicated that most people use pontoon boats or personal watercraft, both of which have shallow drafts, making them more useable in low water conditions. Recreational boating issues related to changing water levels, which were raised in that study, did include usability of docks as water levels changed and potential economic impacts to local marinas. However, the recommendations from the report related to recreational boating focused on safety issues of marking submerged shoals and enforcement of speed limits for large commercial vessels (and development of speed limits for large recreational boats).

Our results suggest that while peaking and ponding is definitely an issue for some, perhaps the most persistent/dominating impact to recreational boating in this stretch of the St. Lawrence River is the impact of large commercial vessels. About one-third of our respondents indicated that large boats were a problem, but more importantly, they were impacted almost every day that they went boating.

RECOMMENDATIONS

This study did not specifically look at how the current situation could be improved with water level regulation; instead we were able to describe a variety of impacts to recreational

boating. These impacts should be taken into consideration by the Study Board, IJC, and others when any water regulation plans are discussed for the area.

To quantify, rather than just describe, the impacts discussed in this report a different methodology will be needed. We would have felt comfortable quantifying the results if we had obtained at least 300-350 responses using this methodology. Future research might focus on different methodological approaches to address this need.

LITERATURE CITED

- Akwesasne Task Force on the Environment. 2004. An assessment of the environment, shoreline erosion, and recreational boating within the Mohawk Territory of Akwesasne: A review of literature supplemented by empirical data from Mohawk Elders, gatherers, and key informants. Report prepared for the International Joint Commission, Mohawk Territory of Akwesasne, 124pp.
- Brown, T. L., and B. T. Wilkins. 1978. *Clues to reasons for nonresponse, and its effect on variable estimates*. Journal of Leisure Research, 10:226-231.
- Loker, C. L., D. J. Decker, and S. J. Schwager. 1999. *Social acceptability of wildlife management actions in suburban areas: three cases from New York*. Wildlife Society Bulletin, 27:152-159.