Appendix G

The Economic Value of New Hampshire Lakes, Rivers, Streams, and Ponds (Summary)

The Economic Value of New Hampshire Lakes, Rivers, Streams and Ponds
A Summary of the Study
(prepared by Jacquie Colburn, Lakes Coordinator NHDES; May 17, 2010)

In 2001, the New Hampshire Lakes Association commissioned a multi-phased, multi-year study on behalf of the Lakes, Rivers, Streams and Ponds Partnership to do the following:

1) Provide estimates of the economic value from fishing, swimming, boating, public drinking water supplies, and waterfront property ownership for lakes, rivers, streams, and ponds in New Hampshire.
2) Ascertain public opinion regarding the state's surface waters.
3) Determine if conditions related to water quality worsen and users changed their behavior, meaning they would visit our waters less often, how this might financially impact New Hampshire. (Shapiro and Kroll, 2001, Shapiro and Kroll, 2003, Shapiro and Kroll, 2004, and Nordstrom, 2006).

Phase I of the study conducted in 2001 was the literature and methodological review;
Phase II of the study was conducted in 2003 and is titled "Estimates of Select Economic Values of New Hampshire Lakes, Rivers, Streams, and Ponds";
Phase III of the study was conducted in 2004 and is titled "Public Opinion Poll Results in the Study of Select Economic Values of New Hampshire Lakes, Rivers, Streams and Ponds";
Phase IV of the study was conducted in 2006 and is titled "The Economic Impact of the Potential Decline in New Hampshire Water Quality: The Link Between Visitor Perceptions, Usage and Spending."

Copies of Phases II, III, and IV of the study are available at:
http://des.nh.gov/organization/divisions/water/wmb/lakes/economic_values.htm

The Steering Committee for this economic study consisted of the following with contributions from numerous other organizations and agencies:

- New Hampshire Lakes Association
- New Hampshire Rivers Council
- New Hampshire Department of Environmental Services
- New Hampshire Department of Fish and Game
- Squam Lakes Association
- Lake Sunapee Protective Association
- Newfound Lake Region Association

Phase II of the Study
The purpose of the Phase II Study was to provide estimates of the economic value from three recreational uses: fishing, swimming, and boating, and two non-recreational uses: public drinking water supplies and waterfront property ownership for New Hampshire lakes, rivers, streams, and ponds. Although there are other significant economic values from surface waters,

the Phase I Study suggested that these five uses provide both significant value and have data available to estimate the value.

Results of Phase II are summarized below (from Shapiro and Kroll, 2003).

- The total sales generated by recreational uses (i.e., boating, fishing, swimming) of New Hampshire's freshwaters, and by public drinking water supplies, range from $1.1 billion to as much as $1.5 billion annually.
- Annually, there are approximately 14.7 million visitor days spent by both residents and nonresidents in New Hampshire boating, fishing, and swimming. These visitor days represent roughly 65 percent of the state's summer visitor days and roughly 25 percent of the state's annual visitor days.
- Days spent boating, fishing and swimming collectively generate approximately:
    - $320 million to $340 million in annual household income;
    - 9,000 to 15,000 full- and part-time jobs; and,
    - $850 million to $1.2 billion in annual total sales, which represents 8 percent to 12 percent of the total impact of visitor spending on the state's economy.
- Nearly 200,000 households and businesses rely on public drinking water from surface water supplies. This generates approximately $75 million to $150 million in annual household income, 1,900 to 2,600 full-and part-time jobs, and $276 million to $300 million in annual total sales.
- A preliminary estimate suggests that waterfront property owners on lakes, rivers, streams, and ponds pay an estimated $247 million per year in property taxes.
- The study confirms that the economic value of our fresh surface waters is significant based on these five factors. In reality the value is much higher as the study did not include:
    - Other recreational uses such as hunting waterfowl, shoreline picnics or bird watching;
    - Commercial and industrial uses of surface waters;
    - The economic benefit of business locating in NH due to access to surface waters;
    - People's willingness to pay to keep surface waters clean for themselves as well as future generations.

Phase III of the Study

In 2004, the Partnership commissioned a survey of New Hampshire residents. The purpose of Phase III of the study, conducted in 2004, was to ascertain public opinion about the relative importance of different freshwater attributes, such as overall beauty of the area, water quality, pollution, and crowding, when New Hampshire residents decide to use the state's surface waters for recreational purposes, and how residents' attitudes and behaviors would change if these freshwater attributes were altered.

Results of Phase III are summarized below (from Shapiro and Kroll, 2004).

- The most important reason that New Hampshire residents visit a specific New Hampshire freshwater body is that it offers the best fishing, boating, or swimming. Overall beauty of the area is the second most important reason to visit specific New Hampshire freshwater bodies.
- The most important reasons people stay away from specific New Hampshire freshwater bodies are pollution, overcrowding of people and boats, and poor water quality.
- The survey asked residents to rate the seriousness of a range of environmental and management issues:
    - 68 % rated invasive plants as "very serious" or "serious"
    - 68 % rated crowding as "very serious" or "serious"
    - 54 % rated algae blooms as "very serious" or "serious"
    - 52 % rated water levels or water flows as "very serious or "serious"
    - 48 % rated mercury as "very serious" or "serious"
- The survey also asked if residents would change their behavior if these issues worsened, the respondents indicated that they would indeed do so. Of swimmers, boaters, anglers, and other users:
    - 58 % would decrease use if water levels/flows worsened
    - 67 % would decrease use if invasive plants worsened
    - 70 % would decrease use if algal blooms worsened
    - 71 % would decrease use if mercury worsened
    - 75 % would decrease use if crowding worsened

The survey confirmed that our lakes and rivers are a draw for residents and out-of-state visitors. New Hampshire residents are concerned about water quality and broad environmental factors, such as crowding and development along the shorelines. Maintaining the quality of our rivers and lakes, as well as the quality of the experience people have when they go out to recreate or sight-see is a real economic issue.

Phase IV of the Study

The final phase of the study conducted in 2006, consisted of a survey of individuals swimming, boating, and fishing at 75 randomly selected access sites across the state ascertained their opinions about New Hampshire's surface water resources. This phase of the study determined if conditions worsen and these users change their behavior, meaning they would visit our waters less often, how this might financially impact New Hampshire. To review a brochure summarizing the findings of Phase IV of the study, please visit: http://www.nhlakes.org/docs/Economic-Study-Phase-IV-Brochure.pdf

The results of Phase IV are summarized below (from Nordstrom, 2006).

- The total annual visitor days made by anglers, boaters and swimmers is 14.9 million; about 29% of the 51.4 million visitor days for the entire year in New Hampshire.
- The total sales generated by anglers, boaters and swimmers combined are nearly $400 million, or 26% of summer spending in New Hampshire.
- The total household income generated from these sales is about $134 million.
- Just under 6,000 jobs (full-time and part-time) are generated by fishing, boating, and swimming visits to New Hampshire.
- A range of 79% to 94% of recreationalists report high levels of satisfaction with the water quality, clarity and purity, natural views and scenery, crowding levels, and water levels and flows.

- One-half to two-thirds of visitors would decrease or cease their visiting days to a particular site if they perceived a decline in water clarity and purity, natural views and scenery, crowding levels and water levels and flows.
- Overall, perceived degradation to water clarity and purity will result in the greatest economic loss to New Hampshire. Perceived declines in water clarity and purity would result in about $51 million of lost sales, $18 million in lost income, and more than 800 lost jobs statewide.