

NEAEB Café Table 18 – Littoral Habitat and Adjacent Land Use

Participants:

Sandy Hyde
Dave Halliwell
Tara Trinko
Anne Monnelly
Travis Godkin
Eric Howe
Josh Gorman
Dari Sassan
Bjorn Lake
Jim Kellogg

Moderator: Susan Warren

Topic:

Lake shoreland development can significantly alter the adjacent littoral habitat through removal of woody debris, increased light, sedimentation, removal of shoreland vegetation, etc. How much is too much? Is this an increasing threat to lakes? Is there a minimum percent of undeveloped shore needed on any given lake to maintain ecological health? Should we spend more effort monitoring littoral habitat in addition to mid-lake water quality?

Is this an increasing threat to lakes?

Participants thought there is definitely an increasing threat given the persistent desirability of lake property, the trend toward year-round living on the lakes, and the trend toward “suburbanization” of the shore (bigger houses, bigger lawns etc). In addition, it was noted that this is an issue even in states with state-wide shoreland zoning (e.g. Maine and Wisconsin) due to often inadequate enforcement of existing laws.

A study in Wisconsin estimated that the impact of “redevelopment” of the lake shores (i.e. tearing down old camps and replacing them with much larger structures) can have a bigger impact on the lake in terms of sedimentation than the initial land clearing by the early European settlers. In Vermont, a small shallow pond (Cole Pond in Jamaica) experienced a significant increase in alkalinity when the shores were intensively developed in the last 25 years, presumably due to significant sediment runoff into the pond.

Littoral habitat studies in Wisconsin, Maine and Vermont show a significant difference in littoral habitat measures such as woody debris, embeddedness and aquatic plant abundance between areas off shore of developed vs. undeveloped sites. This is due in part to removal of shoreline trees and replacement with lawns, increased sunlight penetration to the shallow water, and manual removal of fallen trees, branches and leaves by shoreland owners.

How much developed shore is too much? Is there a minimum percent of undeveloped shore needed on each lake to maintain ecological health?

It is not known what percent developed shore might result in a significant affect on littoral and overall lake ecological health. Probably it varies depending on individual lake characteristics such as trophic status. Participants also wondered whether the undisturbed shore and littoral areas needed to be contiguous or if patchy approach was as good for maintaining habitat quality.

A participant pointed out a Wisconsin study that showed a near-failure of the perch population when all the downed trees were removed from the lake. Dave Halliwell (Maine DEP) noted that in his studies of native fish populations, he has seen a significant difference in minnow populations in lakes with developed vs. undeveloped shores. It was suggested to Dave that he could perhaps look at minnow population health in terms of a gradient of shoreline development and see if that might yield some idea of a “threshold” of significant impact.

Should we spend more effort monitoring littoral habitat? What else is needed to address this issue?

Participants generally felt more monitoring of littoral health was needed, in part to better understand the threat and in part because impacts to lake health are more likely to show up in near shore areas before center lake sampling stations.

The participants discussed various aspects on how to address littoral habitat health and the impacts of shoreland development. It was agreed that more education is needed. For instance many have encountered the public perception that removing fallen trees from the water is good for the lake. Also, if additional monitoring and research can yield better information on a threshold of impact this could be very useful for education and for prioritizing lakes for protection. Education programs that tie littoral health to popular wildlife species might have an impact. Social science research has also shown that people are most motivated by things that impact them directly, i.e. a shoreland owner may be more interested in the fact that clearing trees from the shoreline will increase the attached algae growth in their swimming area rather than a more obscure (to them) affect on minnow populations.

The participants agreed, however, that education by itself will not adequately solve the problem as only a certain minority of people has been shown to change their behavior based on receiving information.

State regulations in New England vary considerably from state to state. Vermont has no state regulations on shoreland development; towns may have some but the majority do not have regulations that provide any lake protection. A participant from NH stated that it seemed that some larger builders/shoreowners think of the fine they’ll receive for cutting trees on the shore as merely part of the “landscaping costs.” NH has recently completed an evaluation of their 15 year old shoreland protection act and recommendations have been made to make it more effective. Maine has good state regulation, but participants

report that enforcement is often not adequate. Towns also participate in the enforcement of these regulations, but in reality that varies a great deal from town to town.

A participant pointed out that on Lake Michigan a certain distance inshore from the water's edge is considered public and can thus be regulated by the state. It was suggested since in most states the lake itself is held in public trust, that this can be used to bolster support for state regulations or better enforcement since it can be shown that the way shoreland is developed has a significant affect on the adjacent aquatic habitat.

In general it was felt by participants that education alone can't do the job of lake protection, and that state or municipal regulations must be adequately and consistently enforced for them to be effective. Keeping such regulations relatively simple will help with towns being able to take part in enforcement.