

# Research Summary



## Background

Lakes are a defining feature of Wisconsin's landscape. They are part of our identity. They offer recreation and add to our economy. Most Wisconsinites agree we have a responsibility to protect our lakes, and to make sure they are available for future generations to enjoy.

Many human activities can affect lake quality. One of them is shoreline development. Shoreline habitat is important for many of the animals and plants that make Wisconsin's lakes unique. When shoreline vegetation is removed, it can decrease that habitat. Decreased habitat can reduce the size, abundance, and variety of wildlife like game fish, turtles, and other species.

This report summarizes a series of studies conducted in 2013 and 2014 that investigated how property owners make decisions about shoreline vegetation. Sandy lakes that naturally do not have shoreline vegetation were excluded from the studies. Many other factors across an entire watershed can affect a lake, such as how much water is pumped out of the ground, surrounding agricultural land, the amount of nutrients carried by runoff, or the spread of aquatic invasive species, to name just a few. Those other factors are serious issues that deserve attention, but they were not the focus of the research reported here.

## Research Questions

In most places, lake property owners decide how to maintain their property's shoreline. Many owners choose to grow natural vegetation on part of their shoreline, and to mow, groom, or build on other parts. Choices are not always actively made; inertia to continue what has been done in the past may also be considered a choice. These studies investigated the question:

***What determines property owners' choices about shoreline vegetation?***

## Methodology

Paper surveys were mailed to a random sample of 1,000 shoreline property owners in Portage, Marathon, and Waushara counties. All participants were asked to respond to a set of questions about 1) their goals for shoreline maintenance, 2) beliefs predicted to be related to shoreline decisions, and 3) willingness increase the vegetation on their shoreline. Some participants received a map showing the amount of shoreline vegetation around their lake, some received a worksheet with information about how shoreline vegetation affects lake health, some received both, and some received neither.

In addition, the amount of shoreline vegetation on each property parcel was obtained from publicly available data that had previously been collected by County Conservation and

UW-Extension professionals. Measures of the physical environment, such as shoreline slope, parcel size, and the amount of vegetation on neighbors' properties, were similarly obtained.

## Results

Surveys were returned by 533 participants. Statistical analysis tested which factors were most strongly related to the amount of vegetation on each participant's shoreline.

By a large margin, the factor most strongly related to the amount of shoreline vegetation on each property was the amount of vegetation on the immediate neighbors' properties. That finding is consistent with previous research, which often finds that social norms can exert a powerful influence over behavior. Sometimes that influence is due to the social pressure we feel to fit in; other times the influence is due to our use of others' actions as a source of information about what we should do.

Compared to the large statistical effect of neighbors' vegetation, individual differences in participants' responses to the survey questions about their goals for shoreline maintenance and related beliefs had much weaker relationships with past behavior. However, some reliable effects were still observed. Property owners' goals for shoreline maintenance were significantly related to the amount of vegetation on their shoreline. Participants who reported that personal benefit goals, such as *"presenting a neatly groomed landscape that does not look messy"* and *"how much I will like the visual look of an option I am considering"* were important to them when considering changes to their shoreline tended to have less vegetation, compared to participants who reported that those goals were less important.

Participants who had strong stewardship beliefs, measured with survey items like *"property owners have a responsibility to protect lake health for future generations"* and *"taking good care of my shoreline is important to me,"* did not differ from other participants in the amount of vegetation on their shorelines. However, participants with strong stewardship beliefs indicated greater willingness to increase their shoreline vegetation, compared to other participants.

Participants reported slightly greater willingness to increase their shoreline vegetation if they received the map, the worksheet, or both, compared to participants who received neither.

## Implications

These results suggest several key points that should be considered by lake association members, conservation professionals, policy makers, and researchers in efforts to protect the health and ecological distinctiveness of Wisconsin's lakes.

- 1) **Social norms are extremely important.** The amount of vegetation on a participant's shoreline was much more strongly related to the amount of vegetation on neighbors' shorelines, than it was to their property management goals or stewardship beliefs. The importance of social norms for shoreline maintenance cannot be overstated.

- **Recommendation:** Focus efforts. Initiatives to restore shorelines are most likely to succeed in areas where supportive norms already exist.
  - **Recommendation:** Develop programs to highlight positive norms. Use public lands as examples. Shine a spotlight on good stewards and restored shorelands in lake association meetings, newsletters, local media, and other venues.
- 2) **Shoreline vegetation is seen by some property owners as incompatible with personal goals for shoreline management.** Although less important than social norms, different goals for property management were also associated with shoreline vegetation.
- **Recommendation:** Present restoration solutions that are compatible with personal use and a neat, tidy appearance. Emphasize access corridors and aesthetically pleasing native plants.
- 3) **On average, stewardship beliefs were related to intentions to increase vegetation in the future, but were not related to the amount of vegetation currently on an individuals' shoreline.** While exceptions surely exist, for most participants stewardship beliefs had little relationship with actual behavior. It is notable, however, that many participants indicated a willingness to increase their shoreline vegetation when asked.
- **Recommendation:** Messaging that connects stewardship beliefs with shoreline vegetation may temporarily increase intentions to change. Messaging alone is unlikely to affect behavior, but if paired with other strategies such as messaging could improve the odds of success. One possible strategy could include obtaining commitment. Future research should empirically test that strategy and others.
- 4) **A small but vocal minority of property owners were put-off by this effort to encourage shoreline restoration.** That observation will not surprise professionals and conservationists who have worked on this issue for years. Reactance Theory suggests that one factor may be a perceived threat to autonomy. When individuals feel they are pressured to act in a certain way, they often are motivated to act counter to it. Reactance is greatest when the pressure comes from an authoritative source (e.g. government), and when the source is believed to be dishonest about their true aims.
- **Recommendation:** Regulations and enforcement should be used carefully. While they are powerful tools, they also risk increasing reactance. Communication encouraging restoration will evoke the least reactance when it comes from sources that do not have authority over property owners, such as neighbors or volunteers who are not connected to governmental bodies.

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