

Identifying Nature's Benefits: Sense of Place and Ecosystem Services Among Stakeholders in the Lower Fox-Green Bay Region

A report to the Lower Fox River-Green Bay Watersheds Conservation Blueprint
Workgroup



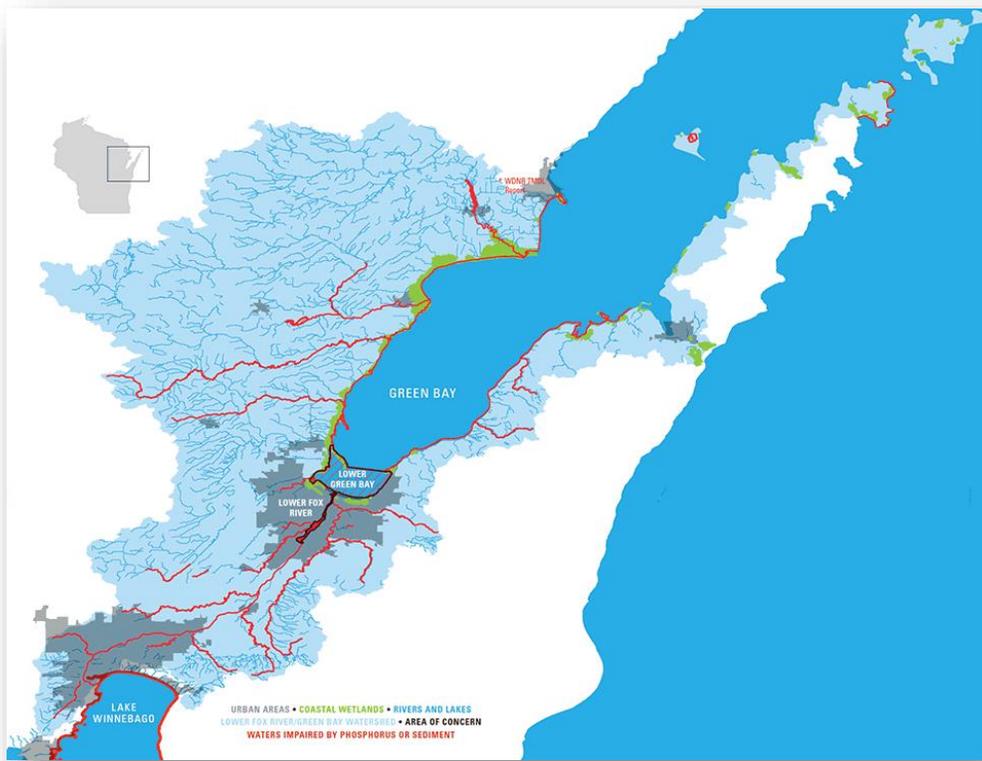
Fox River Trail. Green Bay, Wisconsin

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January 2018

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*Green Bay Conservation Blueprint
Project Geography*

EXECUTIVE SUMMARY



Door County Wisconsin

Introduction:

The Green Bay-Fox River region adopts a holistic approach to conservation, known as the Landscape Conservation Design (LCD) Blueprint. Landscape-based conservation, as opposed to site-based conservation, encompasses wide ranges of land beyond individual ownership or single land use. Founded on the principle that effective management needs to be ecologically and socially sustainable, an important part of the LCD process is the inclusion of stakeholders outside the typical conservation arena.

To help inform the Blueprint LCD, this report presents the results of research on **ecosystem services** and **sense of place** among stakeholders in the Lower Fox River-Green Bay region. The input of key actors involved in agriculture, fishing, government, hunting, industry, rural landowners, wastewater treatment plants, tourism, and water-based recreation were sought through interviews and a focus group. In July 2017, twenty individual interviews were conducted and in November 2017 a focus group with nine participants was held. Results were analyzed for the relationship people saw between themselves, local places, and the environment.

Key Findings:

- **Sense of Place in the region could best be described as a small-town feel.** This sense of place was used by stakeholders to frame landscape changes and growth scenarios as desirable or undesirable, and to delineate what counts as an ecosystem service.
- **Conservation planning can help maintain the regional sense of place in the Fox River-Green Bay geography since both are concerned with quality of growth and sustainability.** This report provides examples of where conservation can align its work with the local community's values, through considerations of sense of place and its relation to changes in rural areas, outdoor recreation, and water-based industries.
- **Cultural ecosystem services provided by the region were related to the small-town feel and included connection to nature, family-oriented activities, shared experiences, and opportunities for solitude.** This study also looked at ecosystem service salience, meaning the services people are most aware of, identifying which services are most noticeable to community members and therefore may garner the most community support.

Future Work:

While this research has contributed to understandings about the links between the local community and environmental health, more work is needed to ensure conservation planning and community interests are aligned. Future work should be directed towards long term-engagement of agriculture representatives in the working group, broader community input across the project geography, and an economic assessment which builds on ecosystem services work.

SECTION 1: METHODS

1.1 STAKEHOLDER INTERVIEWS

Twenty semi-structured interviews were conducted. Interviews lasted between 34 and 72 minutes and included discussions about sense of place, how the region was changing, and the links people saw between themselves and the environment. See appendix A for interview protocol. Individuals represented the following stakeholder groups:

- **Agriculture** (*Dairy & Crop*)
- **Fishing** (*Charter & Commercial*)
- **Government**
- **Hunting** (*Waterfowl & Trapping*)
- **Industry** (*Chamber of Commerce*)
- **Rural landowners**
- **Sewerage**
- **Tourism**
- **Water-based recreation** (*Marina & Yacht Club*)

Both convenience and opportunistic sampling were used. To identify participants, this research began with an initial list of stakeholders developed by the Blueprint Ecosystem Services expert panel in March 2017 and identified important actors through conversations with Blueprint workgroup members. Analysis of groups most impacted by changes to environmental health, and ones with the highest ability to impact change led to the final interview list. Additional interviewees were added along the way as new information arose. While the paper industry was seen as important, the researcher was unable to secure interviews with representatives.

1.2 INTERVIEW ANALYSIS

Transcripts were analyzed through a process of inductive and deductive analysis, and member checks. During deductive focused coding, transcripts were analyzed for themes related to human-environment interactions, sense of place, personal place meanings, and perceived threats. Inductive analysis was used to identify narratives emerging from interviews and look for new themes. From the coding, themes were identified related to ecosystem services and sense of place. For member checks, each interview was condensed into a one-page summary which was shared with interviewees for corrections. Findings from interviews were also checked with members during a focus group (described below).

1.3 FOCUS GROUP

The second phase consisted of a two-hour focus group with nine participants. Seven participants had also been part of the interview process, and two participants were new to the research. During the focus group, findings from the interviews were reflected back to the group for their feedback, and the group engaged in discussions about future growth scenarios and indicators of conservation success.

1.4 FOCUS GROUP ANALYSIS

The focus group was used primarily to validate and nuance findings from the interviews. Analysis consisted of deductive analysis, looking at ecosystem services and sense of place. Lists developed by participants during the focus group were analyzed for the development of socio-cultural indicators for the Blueprint.

SECTION 2: SENSE OF PLACE IN THE LOWER FOX-GREEN BAY WATERSHEDS

Sense of place is best described as the feel and characteristic of a place that makes it unique and fosters attachment. The first half of the interview was focused on understanding sense of place. Through asking participants to engage in descriptions of the region, discussions of recent changes, and hopes for the future, place characteristics emerged. In particular, discussions of change revealed the most valued characteristics of place.

2.1 SMALL-TOWN FEEL

"It still has some small-town values. I think a lot of people are proud, and just caring in how they treat each other around here."
 ~Government representative

This research identified that sense of place at the landscape-scale could best be described as a **small-town feel**. People referred to "small-town values", "home-town feel", "friendliness", and "midwestern hospitality" when talking about the region. Though there were many senses of place, from the smallest to the regional level, this sense of place encapsulated the cities, towns, and rural countryside. This small-town feel was not dependent on the size of the community itself, rather on many ideas associated with

what a small town should feel like, and so what is here labelled as a small-town feel is actually a complex association of ideas that relate to the feel of the place. Through the interviews and focus group, participants were probed to for the relationship between place and values (See figure 2.1).

Values associated with the small-town feel of the Fox River-Green Bay region			
Collaborative	Conservative	Hard-working	Stewardship & pride in land
Compassionate	Easy to affect political change	Outdoor focused industry & recreation	Water-focused industry & recreation
Connected to community	Family-Oriented	Shared values	
Connected to history	Friendly	Slower pace of life	

Figure 2.1: Values associated with the small-town feel of the Fox River-Green Bay region

"It is a general friendliness...you can go out to a Kwik Trip just buying gas and pretty soon you are just talking to people about different things...People are really friendly here and they want to get to know their neighbor. And then that rallying that happens. A few years ago, we had a bunch of tornadoes in the county, and a lot of damage in the county, and neighbor helping neighbor to get the damage cleaned up. The communities rallied to help a person that they might not know. Again, it is just that small-town feel, if you will." ~Industry representative

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Image 2.1: "Wisconsin's Favorite Small city":
 Marinette County Tourism Department Homepage

2.2 PLACE-BASED CONSERVATION PLANNING

To the extent possible, conservation planning should strive to maintain the regional sense of place by considering how these place-based values are related to changes in the landscape. Several examples of where conservation planning can align with sense of place are highlighted below. Please note, this section is not meant to be direct recommendations for the Blueprint, but rather examples of linking conservation planning and sense of place. While some of these actions are underway in the region, to a greater or lesser extent, a consideration of place-based values may help further align conservation planning and community.

AGRICULTURE

*"I like the country, the rural of it all. It is probably the closeness and knowing all your neighbors."
~Farming representative*

Image 2: Alice in Dairyland Exhibit at the Neville Museum in Green Bay, WI (From Neville website)



Agricultural landscapes and livelihoods were closely related to regional sense of place. Participants were particularly concerned about **encroaching suburbanization**, primarily how suburbanization impacts rural aesthetics and neighborly relations. Farmers themselves were concerned about being a good neighbor, and how suburbanization made it more difficult. Participants were also concerned about **growing farm sizes** and **intensive farming**.

Some believed large farms might not value neighborly relations and would contribute increased

smell and noise in the rural countryside. However, others pointed out that **large farms in the region are still family-owned**, local farmers having pooled their land together to stay in business. These individuals pointed out that large farms in the region are run by local people who have a commitment to the place and community. Interestingly, framing farms as being either factory or family-owned emphasizes the importance of the small-town feel to all people in the community.

These issues are well-aligned with conservation planning. For example, intensive and industrial farming may put more pressure on local resources. Similarly, conversion of farmland to residential development tends to lead to more harmful runoff as less land is available to spread manure and more impervious surfaces are created. Conservation planning could consider how local policies related to agricultural density and residential development can be created that maintain regional sense of place and help achieve goals related to water quality. **Regional planning for land use** and **smart growth policies** may help achieve place and conservation values simultaneously. Because these policies are also in the interest of rural community preservation, useful collaborations could occur.

"I spend a lot of time thinking about or talking to people about how things look. Dairy farming is certainly iconic in terms of how things look to people, and that is what I talk about, when I think about small town. I like being able to feel like you've left town and now you're driving out in the country, that there is actual literal demarcation between that and sprawl." ~Government representative

OUTDOOR RECREATION

“But really just about everybody I know is some kind of fisherman, and it breaks the ice to say, ‘I have a boat let's go.’”
~Trapping representative

“Sturgeon Around the Bay”
Door County, Wisconsin



People closely linked the small-town sense of place to the abundance of natural areas and outdoor recreation opportunities in the region. Recreation brought communities together through shared interests, and also provided individuals the opportunity for solitude, both markers of the small-town feel. Participants discussed recent changes as being marked by increases in the use of recreational resources mostly due to improved local access, waterfowl numbers, and walleye and musky populations. While some saw the increase in recreational use entirely as a positive, others expressed concerns related to **over-extraction** and **loss of solitude** through crowding

“Unfortunately, along with social media came a huge influx of interest and hunters, open water hunters on southern Green Bay, so the old days when Bob could go on the east shore and I could go on the west shore and we would be the only people out, that is long gone.”
~Hunting representative

This is another example where conservation and local community issues can be aligned. A **regional recreation opportunity spectrum** can identify places for low and high-density recreation, ensuring places for solitude remain and simultaneously limiting over-use of the region's most ecologically sensitive areas. The Wisconsin Department of Natural Resources has similar recreational opportunity analyses underway. Adding considerations of place-based values to the analysis may help ensure residents are able to have recreational experiences that align with their sense of place.

Interestingly, participants often attributed the **locally invasive zebra mussel** for improving water quality and increasing waterfowl, while also expressing awareness that zebra mussels are considered an unwanted invader. This complex local understanding of the ecological interactions of this invasive species suggests that efforts at invasive eradication may not always been seen as the obvious answer by local community members who are most directly impacted by changes to those species. Efforts at invasive eradication should consider ways to **replace services lost** by those invasive species.

WATER-BASED INDUSTRIES

"The Fox River was the lifeblood of transporting paper products and goods and logs and everything else, and so has been the lifeblood of our community." ~Industry representative

Many interviewees discussed the importance of water-based industries to regional sense of place. This type of work was closely associated with being a hardworking community and having a connection to nature. People generally agreed that current **employment diversification** should continue, but were concerned about a loss of **high paying jobs** and **connection to water**. In some areas, tourism replaced manufacturing, but wage disparity exists between these two industries, and tourism employment does not often offer the same benefits and career opportunities.

Some concerns were related to a lack of knowledge regarding ecological interactions in the Bay. For example, some were concerned about **predator-prey species dynamics and fluctuations of the dead zone** but felt there was not enough information available. **Assessments of the Bay's predator-prey fish populations and dead zone dynamics** can provide information that benefits commercial and sport fishers as well as conservation planners. While conservation should continue to **foster a connection to water** through recreational offerings and volunteer opportunities which allow people to connect to water, it should also focus on sustainable commercial use of the local waterways. **Advising services for industries to meet sustainability goals** can help balance the needs of recreation and employment. For example, the Fox-Wolf Watershed Alliance advises wastewater treatment plants in the region on how to meet Total Maximum Daily Load requirements.



Fox River Art, Green Bay, Wisconsin

2.3 Recap: Examples of conservation actions compatible with sense of place

Agriculture

- Smart suburban growth policies can limit sprawl and minimize impervious surfaces in rural areas
- Regional planning for cattle, manure, and cropland can help farmers stay in business and even grow their businesses while maintaining the rural countryside and reducing runoff

Recreation

- Inclusion of place-based values in a regional recreational opportunity spectrum can ensure residents are able to have recreational experiences that align with their sense of place
- Improved communication of the complex interactions of locally invasive species and efforts to replace lost services can improve support for conservation action

Water-based Industry

- Programs that guide industries seeking to meet sustainability goals can improve efficiency and lower risk associated with new practices
- Baseline assessments of the Bay's predator-prey fish populations and dynamics can provide information that benefits commercial and sport fishers as well as conservation planners.

SECTION 3: ECOSYSTEM SERVICES IN THE LOWER FOX-GREEN BAY WATERSHEDS

Ecosystem services are typically understood as benefits provided by nature. The following section displays those ecosystem services identified by stakeholders in the geography related to agriculture, outdoor recreation, and water-based industry. Cultural ecosystem services provided by the region were related to the small-town feel and included **connection to nature, family-oriented activities, shared experiences, and opportunities for solitude.**

This study also looked at **ecosystem service salience**, meaning the services people are most aware of. While these lists may not include all ecosystem services, the depth of the research and repetition between many interviewees, suggests that it captures many of the salient services to stakeholders in the region. These may be the services that garner the most support for conservation action.

3.1 AGRICULTURAL ECOSYSTEM SERVICES

"...if I want to get on my bike, I can ride to the country, that is what I usually do, and I go 25, 30 miles out in the country and I am surrounded by dairy farms, farm fields, which is what I grew up in. I have lived other places that never felt like home. This feels like home to me." ~Government representative

Depends on:
Climate
Open land
Pollinators
Soil retention
Soil structure
Water availability

Table 3.1.1: Local agriculture depends on a range of societal and landscape factors

Provides:
Aesthetics
Alfalfa
Apples
Cereal Grains
Cherries
Corn
Dairy
Food Diversity
Identity
Livestock
Soybean
Winter Rye
Winter Wheat

Table 3.1.2: Local agriculture provides a variety of goods and services



Winter Scene
Brown County Website

NOTE: To further the applicability of the findings, services have been broken by the researcher into those an activity is dependent on, and those an activity provides, a key assumption being that many of the **provided services can be accounted for by focusing on the **depended upon** services.**

3.2 OUTDOOR RECREATION & TOURISM ECOSYSTEM SERVICES

"I think people are getting more back-to-nature. You see such an increase in young families spending times outdoors...People do not have that sedentary lifestyle that they used to, and there is a lot of ways we can get more people out. ~Tourism Representative



*"Playtime for all ages"
Fox Cities Convention and Visitors Bureau*

Depends on:
Access
Aesthetics
Biodiversity
Recreational diversity
Water levels
Water quality

Provides:
Connection to nature
Employment diversification
Exercise
Family-oriented activities
Quality of Life
Shared experiences
Solitude

Table 3.2.1: Outdoor Tourism depends on a range of societal and landscape factors

Table 3.2.2: Outdoor Tourism provides a variety of goods and services

3.3 FISHING ECOSYSTEM SERVICES

Depends on:
Access
Bait population
Fish habitat (rocks and reefs)
Quotas
Stocking programs
Water quality

Provides:
Bass
Brown trout
Connection to Nature
Musky
Shared experiences
Perch
Quality of life
Recreation
Solitude
Walleye
Whitefish

Table 3.3.1: Fishing depends on a range of societal and landscape factors

Table 3.3.2: Fishing provides a variety of goods and services

3.4 HUNTING AND TRAPPING ECOSYSTEM SERVICES

Depends on:
Access
Breeding grounds
Grassy habitat
Near-shore habitats
Water level
Water quality
Wetland habitat

Table 3.4.1: Hunting depends on a range of societal and landscape factors

Provides:
Connection to nature
Decreased wildlife disease
Deer
Exercise
Managed populations
Muskrat
Quality of life
Recreation
Shared experiences
Solitude
Waterfowl

Table 3.4.2: Hunting provides a variety of goods and services

3.5 WATER-BASED INDUSTRY ECOSYSTEM SERVICES



"Start your Business Here"
Oconto County Website

"The Fox River was the lifeblood of transporting paper products and goods and logs and everything else, and so has been the lifeblood of our community." ~Industry representative

Depends on:
Water access
Water connectivity
Water quality

Table 3.5.1: Industry depends on a range of societal and landscape factors

Provides:
Boats and Ships
Micro-Breweries
Connection to Water
Manufacturing Jobs
Paper Products
Product Transport

Table 3.5.2: Industry provides a variety of goods and services

SECTION 4: INDICATORS IN THE LOWER FOX-GREEN BAY WATERSHEDS

During the focus group, participants were asked to brainstorm and discuss what conservation success would look like to them. The group ranked and shared their top ideas. Below is a table of what conservation success would look like according to this subset of the community.

“But I think that the quality of life follows from a healthy ecosystem and without the ecosystem you won’t have the quality of life that you really want.” ~Fishing representative

Baseline assessment of fishery health	Fox River not brown after heavy rain
Better storm-water management	Good water quality: drinking, recreation, habitat
Decreased phosphorous and nitrogen levels	Improved urban planning
Decreased runoff	Increased number of acres land conserved
Diverse natural resource-based economy	Local and state laws that limit sprawl
Edible fish from Fox River	Number of fishing tournaments
Equal access to waterways	Self-sustaining fish community: Balanced predator-prey populations
Fewer harmful algae blooms	Smaller dead zone
Fewer impaired waterways	Swimming beach at Bay Beach

Table 4.0: Indicators of Conservation Success Identified by Focus Group Participants

SECTION 5: RECOMMENDATIONS FOR FUTURE WORK

This study has revealed place values and ecosystem services associated with the Lower Fox-Green Bay region. Further work applying these findings to the Blueprint should focus on developing a manageable number of concrete and measurable indicators for ecosystem services that are not already encompassed within the ecological indicators.

Further community involvement is needed. First, due to the important role of agriculture for regional conservation, adding agricultural representatives to the workgroup could strengthen conservation outcomes. Second, while this research has engaged a subset of the community through the idea of stakeholders, a more broad-ranging public input could be sought through the implementation of focus groups or surveys throughout the project region. This would ensure that findings are relevant to the general public of the Lower Fox River-Green Bay region, promoting stronger buy-in and support, while decreasing the likelihood of litigation.

Further research should include an economic assessment. The present study can strengthen an economic analysis by providing a place-based lens through which to understand desirable and undesirable growth in the region.

APPENDIX A: INTERVIEW PROTOCOL

Introduction

- *Consent form and confidentiality agreement*
- *Project description*
- *Overview of interview*
- *A reminder that this is an exploration and there are no right or wrong answers*

Orienting and Sense of Place Questions

First lines indicate main questions. Indented lines indicate possible follow up questions.

- What is your occupation?
 - What does your work day look like?
 - How long have you worked in Z?
 - Have you had other Z-related jobs?
 - How did you come to work here?
- Do you live in the Green Bay region?
 - How long have you lived here?
 - What do you like about living here?
 - What do you dislike about living here?
- How would you describe the Green Bay region to someone who has never been here before?
 - Are there things that make this region unique? If so, what are they?
- Have you noticed changes to the Green Bay region over the last five years? What are they?
- If you were to leave the region and come back ten years later, what would be some things you would hope would have stayed the same?

Ecosystem Service Questions

- What does the phrase or idea of “a healthy ecosystem” mean to you? What first comes to mind when you hear that phrase?
 - When you think of a “healthy ecosystem” are there parts of that system that come to mind in particular? What are they?
 - How do you know if an ecosystem is healthy or not? What indicates health to you?
 - What kind of information do you rely on to know if an ecosystem is healthy? These could be your own observations, information from others, scientific surveys and studies or other types of information.
 - Can you describe any changes in ecosystem health that you have noticed over time?
 - Let's talk first about changes for the better.
 - What about changes for the worse?
- Does ecosystem health impact your livelihood?
 - How?
- Let's think about the same question but in reference to healthy human communities instead of environmental ones. What does the term a “healthy human community” mean to you?
 - What kinds of things tell you or indicate to you that a community is healthy? Feel free to think about 'health' in the broadest sense of the word including any type or dimension of health you want to consider.
- Do you think we need to improve or change how we manage the environment here in Green Bay?
 - Are there specific things you think we should be doing? What are they and why do they matter? Feel free to recommend or think out loud about anything that's important that way.

Closing Questions

- Is there anything else that we should talk about that was not brought up?

APPENDIX B: UNPACKING THE RELATIONSHIP BETWEEN PEOPLE AND WATER IN THE LOWER FOX-GREEN BAY

Impacts of Changes to Water **Access:**

- Number of businesses moving to the area
- Number of people choosing to move into the region
- Number of tourists choosing to visit the area
- Regional Identity
- Quality of life

Impacts of Changes to Water **Extraction:**

- Increased costs for agriculture
- Increased costs for food and beverage manufacturing

Impacts of Changes to Water **Height:**

- Boat docking
- Shoreline wildlife habitat (waterfowl and muskrat)

Impacts of Changes to Water **Quality:**

- Duck populations
- Feelings of safety
- Fish populations
- Human health
- Number of beaches
- Number of beach closure days
- Number of boat purchases
- Number of businesses moving to the area
- Number of people moving to the area
- Number of people fishing
- Number of tourists
- Waterfront business patronage