HABITAT BLUEPRINT MUSKEGON LAKE

AUGUST 6, 2014

Photo Credit: Marge Beaver

STAKEHOLDER INTERVIEWS

SUMMARY OF RESULTS

INTERVIEW PROCESS

Over the course of two months we conducted interviews with 40 individuals from 29 different organizations, agencies, and businesses. These outreach efforts encompassed stakeholders from across the Muskegon Lake and Muskegon River watersheds, as well as representatives from the private, public, and nonprofit sectors. Stakeholders were identified through consultation with NOAA staff active in the Muskegon area and local partner organizations including the West Michigan Shoreline Regional Development Commission and Grand Valley State University's Annis Water Resource Institute. [See **Appendix B** for a complete list of individuals interviewed and summary notes on their responses.]

PARTICIPATING STAKEHOLDER GROUPS

Education & Research	Nonprofit	Government	Economic Development
• Grand Valley State University • Lakeshore Museum Center • Michigan Great Lakes Stewardship Initiative • Michigan Sea Grant • Michigan State University • Muskegon Community College • Muskegon Environmental Education and Research Society • University of Michigan	• Community Foundation for Muskegon County • Great Lakes Commission • Land Conservancy of Western Michigan • Muskegon Area Sustainability Coalition • Muskegon Conservation District • Muskegon Lake Watershed Partnership • Muskegon River Watershed Alliance • Community enCompass	• Cedar Creek Township • City of Muskegon • Laketon Township • Muskegon County Sustainability Office • Muskegon Office of Planning, Zoning, and Recreation. • Michigan Department of Community Health • Michigan Department of Environmental Quality • Michigan Department of Natural Resources • City of North Muskegon	• Downtown Development NOW • Muskegon Area First • Muskegon Lakeshore Chamber of Commerce • West Michigan Shoreline Regional Development Commission

QUESTIONS

Interview questions were tailored to fit the expertise and experience of each individual stakeholder but broadly covered five major topic areas 1) the ongoing and planned projects of the stakeholder group 2) ties between economic development and habitat restoration in Muskegon and the surrounding region 3) obstacles to effective habitat restoration and conservation 4) opportunities and gaps in ongoing projects or research 5) long-term vision for Muskegon Lake and the watershed.

ANALYSIS

Detailed notes were taken for each of the interviews. We then used those notes to identify trending ideas and topics that were mentioned by multiple stakeholders in relation to a theme. The resulting analysis gives a broad view of community concerns and priorities that will inform the design and implementation of Habitat Blueprint in Muskegon Lake. [See **Appendix A** for a more detailed breakdown of trending topics and how frequently they were mentioned during stakeholder interviews.]

RESULTS

ECONOMIC DEVELOPMENT & HABITAT

- City, county, and regional leadership highlighted maintaining Muskegon's status as a deep water port as their top priority.
- Many stakeholders talked about the need to strike a balance between recreational use and public access to the lake and commercial or industrial use of the lake. However, perceptions of what that balance should look like varied widely based on the individual stakeholder.
- Some stakeholders perceived a tension between the goals of port development and effective habitat restoration and conservation efforts. The most common concern among these individuals was that further industrial growth would perpetuate Muskegon's reputation as a polluted factory city.
- It was common for stakeholders, particularly those with connections to economic development organizations or government, to emphasize strong ties between the resources of the watershed and economic vitality in Muskegon.

OBSTACLES

- Often stakeholders felt that the predominance of private property along the lakefront increases uncertainty about future use and makes cohesive large scale planning for water resources difficult.
- Several stakeholders mentioned a lack of community awareness about green spaces along the lakefront, especially residents living further inland or in east Muskegon. In some cases, stakeholders were concerned that the image of Muskegon Lake as unsafe or polluted persists among these residents.
- Many stakeholders, both within and outside of local government, felt that leadership was supportive of habitat efforts undertaken by others. However, leadership clearly prioritized jobs and development over all other issues. The quick turnover of elected officials was also mentioned as an obstacle to engaging leadership in long-term restoration and conservation efforts.
- Stakeholders from every sector discussed the absence of a clear plan for land use in the watershed. They felt that land use decisions were inconsistent and lacking in direction. However, stakeholders were also skeptical about the usefulness of developing such a plan. They feared that the process of developing a plan would stir up unnecessary tension and conflict and would not result in significant long-term changes or concrete action.

OPPORTUNITIES/GAPS

- The opening up of the Cobb and SAPPI sites either for new development or for restoration projects was mentioned by nearly every individual interviewed as a major opportunity.
- Green infrastructure was also singled out as an issue of importance.
- A few stakeholders felt that too much focus has been placed on habitat projects in Muskegon Lake and important opportunities exist for future projects in the region's smaller tributaries including Ryerson Creek, Ruddiman Creek, and Four Mile Creek.

FUTURE VISION

- Many stakeholders had a vision of the Muskegon Lake watershed that emphasized mix use with a balance of commerce and recreation. Several individuals mentioned efforts to segregate these different

uses spatially with the east side of the lake dedicated to commercial use and the west side to recreation.

- Many stakeholders emphasized the need to continue restoration efforts in future years. Some were concerned that after delisting the community would slip back into undervaluing habitat resources.
- Others expressed the idea that Muskegon has a unique opportunity to reinvent itself and stand out as an example of what successful ecological restoration efforts can accomplish.

GOALS & OBJECTIVES

HABITAT BLUEPRINT PURPOSE

The Habitat Blueprint provides a forward-looking framework for NOAA to think and act strategically across programs and with partner organizations to address the growing challenge of coastal and marine habitat loss and degradation. We will increase the effectiveness of our efforts to improve habitat conditions for fisheries, and coastal and marine life, along with other economic, cultural,
and environmental benefits our society needs and enjoys.

HABITAT BLUEPRINT VISION

Healthy habitats that sustain resilient and thriving marine and coastal resources, communities, and economies.

HABITAT BLUEPRINT OUTCOMES

- Sustainable and abundant fish populations
- Recovered threatened and endangered species
- Protected coastal and marine areas and habitats at risk
- Resilient coastal communities
- Increased coastal/marine tourism, access, and recreation

MUSKEGON LAKE HABITAT BLUEPRINT GOALS & OBJECTIVES

1. NOAA will make contributions to the measurable improvement of BUIs as specified in the area's Remedial Action Plan:
    a. loss of fish and wildlife habitat
    b. degradation of fish and wildlife populations
    c. degradation of benthos
2. NOAA will take a coordinated, cross-line office approach to the implementation of projects and the demonstration of impacts in the following areas:
    a. climate coastal resiliency technical support to implement priority actions identified by the Muskegon Lake Watershed Partnership.
    b. resilient coastal communities
    c. increased coastal tourism, access and recreation
    d. socio-economic research

APPENDIX A

Theme	Comment	Frequency
Economic Development & Habitat	Maintaining Muskegon's status as a deep water port is a major priority for city, county, and regional leadership	8
	Would like to see a balance between recreational use and commercial use in Muskegon Lake.	7
	See very close ties between habitat quality and economic growth in Muskegon.	6
	Saw there being tension between port development and effective restoration. Expressed concerns that increased commercial development would perpetuate Muskegon's reputation as a contaminated watershed.	5
	Would prefer that recreation and green space be prioritized over more development	5
	Need to attract more businesses that rely heavily on water in their production process to increase use of the wastewater treatment plant	4
	Need for more connections between the downtown and the lakefront.	4
	Socioeconomic concerns and income inequality need to be addressed more directly in both environmental efforts and economic development plans.	2
Obstacles	The predominance of private property increases uncertainty about plans for lakefront land use and makes public access to water resources a challenge.	9
	Lack of community awareness of green spaces along the lakefront especially among those residents that live further inland. A need for more education and outreach among the general public. Safety concerns are also a barrier to use. Often people still fear pollution and poor water quality and many people in the African American community don't know how to swim.	7
	Low involvement from local government in habitat related projects. They generally leave that work to community organizations that are established in the field. Leadership is supportive once restoration projects are proposed but they are primarily reactionary rather than active partners. Part of the problem is a two year term limit that results in a quick turnover in leadership. Continually the trend is to prioritize jobs and development over all else.	5
	There is no real cohesive plan or vision for land use along the waterfront. No clear direction or consistency in decisions on land use. There is a City of Muskegon plan but it is vague at best. Wider regional development plans often don't include a clear vision for the water front	5
	Large scale problems with hydrology upstream in the Muskegon River contribute to sediment concerns and erosion further downstream.	3
Opportunities/Gaps	Expressed concern about future development plans for the SAPPI and Cobb sites.	15
	Need for more work on green infrastructure. They understand the gaps and opportunities but little concrete action is being taken.	4
	Need for more restoration efforts in some of the smaller tributaries in the area such as Ryerson creek, Ruddiman Creek, 4 mile Creek.	4
	Need for more valuation of health impacts of restoration.	2
	Need for more understanding of decision making and social science research in area as well as forming linkages between natural science and social science research. Integrated view of costs and benefits in management/restoration efforts.	2
	Need for more data and focus on climate resiliency.	2
Future Vision	Balanced mixed use with industry on the east side of the lake and recreation and residential on the west side.	7
	Blue infrastructure as a community asset.	5
	Emphasis on continuing restoration work. A fear that over time especially post AOC delisitng the community will forget all of the effort invested in restoration and begin to slip back into devaluing the natural resources.	3
	Continue to develop the greenway around the lake.	3
	Muskegon has an opportunity to reinvent itself and remake its reputation. Muskegon as the "poster child" for successful ecological restoration.	2

APPENDIX B

EDUCATION & RESEARCH

Bopiah Biddanda, Aquatic Microbial Ecologist & Research Scientist at AWRI

- His research focuses primarily on carbon flows from the headwaters and land all the way into Lake Michigan. Muskegon Lake is where productivity peaks. The system acts as a carbon sink because productivity is so high. Muskegon can serve as a model for other estuary systems.
- He also leads the AWRI buoy project.
    - The buoy includes sensors to measure a multitude of parameters including temperature, oxygen, nutrients, light, pH, conductivity, algal pigments, bacterial pigments, and current speed and direction.
    - Data from the buoy is open to the public in an interactive platform that allows you not only to plot variables over time but also against other variables.
    - Data from this buoy allowed them to prove the existence of hypoxia in Lake Michigan.
    - The buoy was funded by a 3 year grant from EPA but now the money has run out. Annual costs at a minimum come to 75K.

Sarah Coleman, Science Consultant and Lead for the West Michigan Great Lakes Stewardship Initiative

- Projects you are engaged in?
    - They work with teachers and community partners to first inventory environmental problems in communities and then create a plan for students to address one of those issues. Grant money for carrying out the plans comes from NOAA Earthforce.
    - Several active schools in North Muskegon. They were also involved in the Grand Trunk project.
    - The class identifies the work but it must be curriculum based.
    - Projects with K-12 covering all subject matters.
- Gaps in habitat related education and outreach in Muskegon?
    - Socioeconomic issues are a key consideration that is often overlooked. People who live further from the lake or who struggle with financial hardship have less awareness of environmental issues in part because they have so many other pressures in their lives.
    - The method of communication used is key.
- Relationship between habitat and economic development
    - She sees all of the development and abandoned factories along the lakefront as a major obstacle to positive development. Many in the community feel that this holds back the reputation of the Muskegon.
    - Access of those living further inland and exposure to the lake is limited. They do often use the smaller tributaries.
- Ideal vision 10 years down the road?
    - I would like to see a real return to the greening of the shoreline
    - I would like to see more awareness among the public for the green spaces that exist along the shoreline.

Vincent Denef, University of Michigan, Professor in Ecology and Evolutionary Biology

- Research he has been involved with in Muskegon.
    - He works with the GLERL team studying elements of global change in the microbial food bank.
    - He also does sampling to look at DNA and RNA sequencing and how they behave at the molecular level under different conditions. The end goal is to determine a strategic process for long term sampling.

    - He will be doing more detailed sampling working with Bopiah Biddanda this year in Muskegon Lake.
- Future research interests
    - Impact of invasives on molecular community
    - They are also involved with the Cooperative Science and monitoring program and ongoing sampling in Muskegon Lake although funding for this is not secure.

Paul Isely, Professor of Economics at Grand Valley State University

- Research in Muskegon?
    - ARRA project found much higher benefit numbers than they ever expected. But it is important to keep in mind that there are very unique factors at play in Muskegon that cannot be transferred to all AOCs.
    - As water quality improved we saw visits to the lake increase drastically as recreational opportunities increased.
- What response did you see from that study in terms of community attitudes towards restoration or in actual decisions?
    - They saw a marked increase in conversations about green space.
    - Also saw more money and attention come to the issue and more land owners eager to participate in restoration projects. The study gave a lot of traction to proposals for additional funding and gained attention among higher end policy people.
    - To some degree the very high returns in Muskegon are unique and not transferable to other communities. They are a function of the fact that there was so little green space along the entire south side of the lake and that the lake is surrounded by such high population. They did factor in diminishing returns on additional green space.
    - He would predict a high payback from continued restoration. The removal of the SAPPI plant and that sort of industrial eyesore will have especially high returns in his estimation.
    - Contiguous green space has a particular high return value and he would expect to see that continue with additional restoration.
    - Their study did not include evaluation of the health benefits of projects.
- Other notable socio-economics research work in Muskegon area?
    - Not much that he knows about at all.
    - Muskegon is a very unique case which makes it hard to transfer studies from other areas over.
    - He's done some work in Spring Lake and has grant proposals out for more work in Muskegon for studies looking at remediation and how they can be extrapolated outside of the Muskegon Area.
- Transferable work in other parts of Great Lakes?
    - Eric Norton has done work on wind projects and integrated assessments.
    - Kalamazoo River and Grand River have some activist driven studies but Muskegon Lake is very unique. Bringing data from other areas even as close as White Lake doesn't work out that well.
- Research gaps in the area?
    - Including valuation of health impacts would be useful.
    - Understand the socio-economic conditions around Muskegon as a deep water port. He would argue that the waterfront property taken up by the port may be put to better uses.
    - Also looking at decreasing returns issues.

    - People see Muskegon as more viable and so there will be an increase in development as a result of that. It would be interesting to see how the demand curve has shifted now versus in the earlier study.

Gary Noble, Executive Director Muskegon River Watershed Assembly

- Ongoing and planned projects
    - They worked on the Section 319 management plan for the river along with John Koche. The plan was most recently updated in 2007 and focused in on the upstream impacts to Muskegon Lake.
    - Bear Lake and Bear Creek also have their own 319 management plans which the MWRA has been involved with.
- Not much active in Muskegon Lake right now from the MRWA. They did some restoration work with a private landowner on the Peter Sotoris property. Replacing hardened shoreline with slightly more wildlife friendly hardened shoreline.
- Big initiative in the future is the Cedar Creek Ecosystem Protection and Restoration Initiative.
    - Cedar Creek is a cold water tributary of great importance to fisheries, particularly trout.
    - This project will focus on restoring natural hydrological conditions across the Cedar Creek sub basin. Main goals are to improve habitat and reduce flash flooding events.
    - Most of the hydrologic study work is already done.
    - They want to put in regional detention and retention to divert water into basins and then have the water slowly released.
    - The Grand Rapids area has some model storm water systems Kent County. They have comparisons of those systems to what they estimate what needs to be done to protect cold water fisheries.
    - They expect improved fisheries as a result of the project
    - The first step will be to acquire the 60-80 acres of land necessary for the project. They don't yet have a willing seller or a cost estimate.
    - The Drain Commission and Road Commission are partners as well as MLWP and Rich O'Neal with DNR Fisheries.
    - They are set from an engineering and science standpoint but need the funds and the property.
    - The estimate the entire project will likely cost more than $1 million but have identified a list of funders.
    - There will also be an aspect of education and outreach with municipalities in the Cedar Creek sub basin to try to encourage them to adopt more modern methods of storm water management.
    - The goal is to have a budget ready and begin implementation 2016-2017.
    - Important because it is addressing the root cause of a lot of downstream habitat problems.

Dan O'Keefe, Michigan Sea Grant Southwest District Extension Educator

- Ongoing projects he works on
    - He has worked a lot with local organizations but hasn't been deeply involved in on the ground habitat work in the region.
    - He has organized several education workshops focused on bringing groups together and facilitating dialogue.
    - He has very close ties with the local angler groups and commercial fishers. He works a lot on fisheries issues.

    - They do have a volunteer project monitoring contributions of stock vs. wild salmon and lots of volunteers from the Muskegon area participate.
    - The commercial interests want fisherman's landing property and they are talking about moving it but there is a very big push back from the fishing community that a new site would not have the equivalent advantages of the current location.
- Future potential projects?
    - Michigan Steelheaders out of Holland. Have an interest in monitoring rocks reefs and possibly building more reefs. Muskegon Lake would be a good site. They already have a reef out in Lake Michigan near the mouth of the channel but it hasn't been the big draw to fishermen that they expected. Part of that are the extreme shifts in temperature. They think that perhaps building these structures in drowned river mouths would resolve that.
    - Look at how declining nutrient levels impact fisheries and fish spawning in the Muskegon AOC.

Rick Rideski, Senior Program Manager at AWRI

- Work you are currently engaged in?
    - He is working with Tim Davis from NOAA to acquire a grant to work on HABs in Bear Lake and Muskegon Lake. Particularly to understand how habitat restoration impacts long term HAB formation. Muskegon is slotted to be the next target area for HABs forecasting after Erie and Saginaw Bay.
    - He was part of the Mega-Model team as well.
- Restoration priorities
    - Continued restoration in Ruddiman and Ryerson Creek.
        - These waterways still have very unstable hydrology. There are also a lot of large wetlands around these smaller tributaries that go unnoticed while attention is directed to the lake.
        - There are important restoration and public access opportunities in the tributaries.
        - These tributaries are also central as fish spawning areas.
        - Most of the attention in these creeks goes to bacteria and toxics.
- He feels resiliency should be a key part of Habitat Blueprint plans.

Catherine Riseng, Michigan Sea Grant Research Program Director and Assistant Research Scientist

- Projects
    - She was part of a 7 year modeling project with a group of researchers from MSU, U of M, Purdue, and AWRI. They conducted an extremely thorough assessment of the watershed.
    - She worked principally on the river component of the model and in benthic sampling.
- Funding opportunity
    - She oversees the Michigan Sea Grant RFPs and they have new funding coming in for science based integrated assessment work. Their particular focus is on research that addresses the core goals of coastal resilient communities and coastal hazards.
    - An opportunity for Muskegon to apply for this funding under the Habitat Blueprint initiative.
    - We'll invite her to the next workshop and set up a meeting in the fall once they have a firmer understanding of the RFP details.

Alan Steinman, Director of AWRI

- Top restoration priorities in the next 5 years.
    - Bear Lake and dealing with the high nutrient levels there.
        - The celery flat restoration effort will hopefully make a difference here.
    - Ryerson Creek
        - More removal of contaminated sediments is necessary.
    - Ruddiman Creek
        - In 2005 they completed a major sediment removal effort but issues of bacterial contamination persist and they are not certain of the cause.
    - Uncertainty around what happens with the SAPPI and Cobb plant sites.
        - He is fairly confident that the public viewpoint will be taken into consideration in development of the SAPPI site. Last he heard the buyers are local and very much on board with changing the public image of Muskegon.
        - The Cobb plant is a lot more up in the air.
- How restoration fits into economic planning
    - For the most part county and city government are reactionary rather than proactive when it comes to restoration projects. They will embrace projects after the fact but they are not major drivers of change. Their number one priority is job creation and economic growth and they will support any effort tied to this.
    - Muskegon needs to do a better job of optimizing access to the waterfront. Public access from downtown to the waterfront is a major issue.
- What results would you like to see habitat blueprint produce?
    - He hopes to see some new interesting research opportunities come out of this and some really optimal habitat designs determined.
    - He would also like to see real progress on connecting the community to lake.
        - There have been **tons** of studies on connecting the lake to the city. But they never resulted in on the ground action.
        - The city was under so much financial stress for such a long time it was really all they could do to focus on survival. They have a weak mayor system and the prior city manager was principally reactive but now a younger new manager is in office.
- Examples of successful collaborative projects
    - The AWRI Long Term Monitoring program brought together community leaders in a very effective way and resulted in really productive community by in.
    - Heritage Landing is a great example of a dumping ground being transformed into a public space through a lot of combined efforts including a mix of funders from various sectors.

Jan Stevenson, Professor of Algal Ecology, Aquatic Ecology, and Environmental Science at Michigan State University

- His work in Muskegon
    - He co-led the Muskegon River Watershed Project alongside Mike Wiley which was a 6 year 6 million dollar project that assessed the condition of the watershed and evaluated vulnerabilities tied to land use change.
    - Funded principally by the Great Lakes Fisheries Trust this project focused on providing information to empower stakeholders to make more effective and informed management decisions.

    - The MRWA was the key stakeholder group they coordinated with. The data didn't really extend to other stakeholders or agency usage.
    - The website crashed and the data is no longer publicly accessible.
    - They did include management recommendations which focused principally on fisheries improvements.
    - The sampled extensively in 100 streams, 100 lakes, and 100 wetlands including detailed hydrologic modeling and analysis of stressors, land use, and land use changes.
    - In the second phase of the project they shifted from broad sampling on an annual basis to a seasonal sampling of several different habitats including Muskegon Lake.
- Research gaps
    - The most significant gap is in social science and linking social science knowledge to the natural sciences.
    - Evaluation of watershed services is also very important.
    - A more integrated view of costs and benefits of managing larger system and reducing nutrients and hydrologic interruptions.
    - They have a team working with stakeholders out of CMU that has been very successful in partnering and interacting with farmers.
- Where would you like to see Muskegon 10 years down the road?
    - More cooperation developed among stakeholders and building human capacity to manage the watershed. The MWRA is doing some of that now as is Annis.

Janet Vail, Associate Research Scientist at AWRI and Lead for the AWRI Education Program

- Ongoing education projects
    - Research and education vessels take out about 5,000 people every year grades 4 and up.
    - Vessels in Grand Haven and in Muskegon
    - Public education tours on occasion often with the help of Kathy Evans.
    - Teacher workshops
    - The have partnered with LMFS in the past to have vessels provided.
    - They had a GLRI grant that allowed them to do ports of call in other locations. At one point they had 33 ports of call but now it's a struggle just to have 3 or 4 and there is nothing in the new GLRI RFP for education.
    - Teacher professional development. State board coordinator for Project WET. Facilitators across the state training teachers.
    - They also had an education adventure group that was a combination of different organizations wanting to promote the idea of Muskegon as a place to come for an education adventure but that effort really fell apart after the catalyst person left.
- Gaps in the Education/Outreach in Muskegon
    - They are limited primarily by funding. There is very high demand and they have capacity to serve more people but often school groups can't fund the full cost of the trips and they have limited funds to subsidize trips.
    - They have a big need for short videos that kids will like 8 min or less. There is strong potential for NOAA involvement in education efforts.
    - Great Lakes Stewardship Initiative they use a lot of these materials as well. Need more flyers to hand out.
    - DNR is interested in MEECS workshop in the area maybe we could push to have it in Muskegon rather than Grand Rapids. There's a new climate change unit that is especially NOAA relevant.

    - They have a good student program but there is a need for more education and outreach targeted at the general public.

Theresa Vanveelen, Life Sciences Professor at Muskegon Community College

- Ongoing projects and work she is involved with
    - Managing 4 mile creek shoreline
        - The Muskegon Community College is located right on the banks of 4 mile creek. Since 1970 a land use subcommittee has overseen the creeks use and the use of the surrounding land.
        - They have 15 acres of natural area including trails that are part of the 4 mile creek.
        - They have also established a 15 foot buffer on mowing, fertilizer, or pesticides around the creek.
    - Dredging contaminated sediments in reservoir
        - They have a permit good through 2018 to remove contaminated sediments, restore shoreline and plant riparian native plants.
        - They need funding and technical expertise to help with identifying fish species in the reservoir.
- Future of Muskegon
    - She has been really impressed on the habitat progress in recent years and hopes that it will continue. Cobb plant will be closing and that will be another big opportunity.
- Offered up her students for volunteers in projects.

Melissa Welsh, Lakeshore Museum Center

- Their projects
    - They have a permanent exhibit focused on teaching kids about local habitats, conservation, and invasives. 5 different habitats represented. Teach about climate change and other major threats as well.
        - All of their programming is free so they get students from all over the Muskegon area and beyond.
    - White Hall historic reenactment
        - They are in the process of building a large historic reenactment area at Hilts Landing in Whitehall. This is a collaboration with Jeff Auch who will be working on restoration alongside the reenactment area with trails for hiking and skiing and interpretive signage.
- Gaps
    - She hopes to expand the natural science programs at the museum.
    - There is a need for more interactive field experience in the sciences but it's difficult to get teachers to dedicate time to that work since so much of the curriculum focus now is on teaching to exams that emphasizing math and reading.
- 10 years
    - She would like to see more public access to the lakeshore and recreation use beyond just boating and fishing.
    - She would prefer more green space rather than industrial growth.
    - Those residents that live just a little ways from the lakefront often have never seen Lake Michigan and rarely access the resources those natural spaces have to offer.

Mike Wiley, Professor of Natural Resources and Environment University of Michigan

- His involvement in Muskegon area projects
    - He was a key researcher on the Mega Model
        - They wanted to find a science package that would really help local organizations
        - Develop tools for visioning of the river that stakeholders would be excited about.
        - Not all of the management actions they suggested got implemented but he's not sure to what degree plans were eventually carried out.
    - Maple Island
        - Very unstructured with minimal funding but he's looking at restoration along South branch of the Muskegon River. Small project but very interesting.
        - With channeling issues and increased rainfall Maple Island is becoming increasingly unstable.
- Gaps in restoration or research?
    - There are a lot of channel management problems from below the dam all the way to the lake.
    - We really need major large scale hydrologic change in the watershed but that would require many more resources. It's those river channeling issues that are leading to a lot of the sediment concerns and problems downstream.

NONPROFIT

Jeff Auch, Executive Director of the Muskegon Conservation District

- Projects in Muskegon?
    - They have done a lot of restoration work and coordinating projects particularly focused on the southern shoreline.
    - They are involved with the celery flat restoration project at the Bosma property.
        - There are several little agricultural parcels that will be coming up for restoration in the next few years around that area.
        - The neighbors adjacent to the Bosma property may be another restoration opportunity.
    - The Cosway site is another big project in the works. It may be a bit more of a challenge because the property is already a park and the public tends to be more resistant to wetland restoration in that setting than in an industrial one fearing the loss of a park. Which means additional education and outreach will be necessary with this project.
    - The Conservation District has a big upland project they are engaged in at Richards Park near BC Cobb water treatment site that will involve a lot of native tree planting and restoration of prairie lands. The tree planting is already underway and prairie restoration is planned for next year. The Conservation District has a 99 year lease on the land which is owned by the city. They are working to incorporate recreation activities into the site so that it remains valued and protected in the long term.
- Post-AOC
    - They find that often the local community is excited about restoration in the first few years but then over time loses site of the value of preserving the land.
    - Long-term Muskegon has a lot of little bays and bayous created from the infill. Lots of opportunities for kayaking and fishing at these sites but he would also like to see more connections between upland recreation and the lake.
    - The challenge will be to keep those sites preserved and not turn to development immediately.

    - Once you delist many problems can re-occur because there is a mindset of not valuing habitat. This is where recreation will be a huge asset.
- Revitalization
    - Talk of utilizing the shoreline as a community asset has really grown.
    - Lots of discussion of blue infrastructure. He sees the conversation shifting around those topics and the Chamber of Commerce is pushing the idea as well.
- He hopes that we also focus Habitat Blueprint at least to some extent on sites that have the potential for future projects such as Consumers Energy site and the SAPPI site.

Heather Braun, Project Manager Great Lakes Commission

- Projects in Muskegon
    - GLC has held several revitalization workshops in the Muskegon Area.
    - The 2008 NOAA and Muskegon partnership was very much focused on the road from remediation to revitalization, how to build up these communities and look at life after delisting.
    - They are working on two major projects right now in Muskegon that are areas from the DEQ and EPA priority lists. Funding comes from NOAA to GLC. Actively developing work plans for the areas at this point in time.
        - Muskegon Lake Mill Debris removal which is in its second phase.
        - Veterans Park began as a standalone project but is an EPA priority.
        - Hydrologic reconnection project they are helping a little bit with communications and outreach on this.
- Post AOC
    - Muskegon is like a blank slate right now with all of the recent factory closures. The city has a real opportunity to rebrand itself and the community has leadership dedicated to that task. The active community groups engaged with local AOC work will hopefully contribute to future smart decisions about growth and development down the line.
    - In some ways Muskegon is the poster child for revitalization and for a good ecological restoration investment.

Chris McGuigan, President/CEO of the Community Foundation for Muskegon County & Janelle Mair Director of Grant Making for the Community Foundation for Muskegon County

- Ongoing projects
    - They are very concerned with publicizing the progress of Muskegon and actions taken towards delisting.
    - Maximizing recreational use of the lake is also a priority.
    - Tying the downtown to the waterfront is important. So much of the shoreline is private and public access is a concern.
    - Endowment funding for the Long Term Monitoring Program at AWRI
    - Some work on green infrastructure with regional storm water runoff but they got pushback from MDOT about the costs.
- Gaps/Needs
    - There needs to be more clarity for the general public on who does what work in terms of environment and restoration. What are those relationships among partners?
    - Muskegon has a lot of environmental expertise but a lack of general environmental awareness and culture in the community. In the end people prioritize saving money.

April Scholtz, Land Protection Director at the Land Conservancy of West Michigan

- Projects
    - There is some talk about putting a trail on the old power line corridor from the Cobb plant land holdings that extend upland but this depends on the future of property ownership.
    - They are also involved with the Muskegon River Watershed Alliance on a conservation easement project in the Lower Muskegon River using GLRI funding but that has been very slow going.
    - They had not had success at all working with impacted tributaries and agriculture. Crop prices right now mean that farmers are taking land out of conservation.
- Major habitat issues in the Muskegon area?
    - Major unresolved questions around the Cobb plant and SAPPI land.
    - The community wants to maintain the deep water port.
    - SAPPI plan; city wants to development but there is also a lot of push for a greenway.
    - The shoreline on the lake is in such bad shape it's all fill and very unnatural spaces. Their work is primarily in preservation and Muskegon Lake needs restoration.
    - She does see promise in a new push to capitalize on water resources rather than focus solely on industrial development.
- Future vision
    - Beyond delisting she would hope to see a more natural attractive greenway around the lake. This would tie easily into urban revitalization efforts.

Cozette Thomas, Community enCompass

- From her perspective the African American community is held back from full use of the lake resources by internal ideas about segregation and where are the neighborhoods they feel comfortable, by a lack of knowledge about restoration and public spaces, and by safety concerns.
- Safety concerns are related not to contamination in the lake but the fact that a lot of people can't swim.
- There is no public pool in the area and most kids don't have access to swimming lessons.
- They don't use the restored spaces very much or really hear a lot about the restoration work.
- There is a lot of talk within the health community about increasing recreational use of the lake and the trails to improve health.
- The industry isn't coming anymore to this area so they need to do what they can to bring in jobs.
- Mentioned the SAPPI site and concern about what becomes of that. She would rather see some commercial or industrial use that bring employment than another condo that just limits access to the few and brings little economic benefits.
- 10 years
    - She would like to see more green space and more trails.

GOVERNMENT

Kim Arter, Supervisor Laketon Township

- Issues or projects that she is active in.
    - She has been working on the issue of the oil leak in Fenner's ditch for the last six year with limited progress. They've partnered with both the DEQ and the EPA on this.
    - Celery flat restoration near Bear Creek.
- Economic connections

    - Many people come here specifically for the lakes. Some vacation here and then decide to buy homes. They want beautiful and safe beaches.
    - She sees extremely close ties between future of economic development and habitat in the area.
- Post AOC
    - I would hope that the MLWP would still be a presence.
    - So many resources have been dedicated to this effort it needs to remain clean.
    - We need to remember this effort so that future generations understand the history of the lake and all the work that went into cleaning it up and that in 50 years we do not end up where we started once again.
    - The projects may be smaller but the important thing is that the work continues and that public education continues.
    - Laketon Township conducted a large public survey and found that most residents really valued the lake as a resource and wanted to see more recreational opportunities rather than more development.

Sharon Baker, AOC Coordinator for Muskegon Lake

- Where do you see significant opportunities for NOAA collaboration in Muskegon?
    - Considering resiliency and incorporating climate change concerns into existing projects is something the GLRI is asking for moving forward. NOAA could be a big help in providing data on reliance that local managers would then have at their fingertips.
    - She can make connections from NOAA expertise and capacity to projects as the come up but it would be helpful to have more information about NOAA activities and capacity. Like an easy fact sheet to reference.
- What are your priorities for the AOC in the next 5 years?
    - Get the remaining contaminated sediments cleaned up
    - Complete the habitat projects that have already begun.
    - The oil leak at Fenner's ditch is a major issue that's not really being dealt with. Perhaps NOAA satellite capacity could help in tracking this?
- Obstacles to delisting
    - Funding is always an issue.
    - Communication across different levels of government partnerships.

Cathy Bruebaker-Clarke, Muskegon Office of Planning, Zoning, and Recreation

- The master plan for the city includes some plans for downtown waterfront development.
- The goal is that all the shoreline from the Cobb plant site over to the salt docks will have Port PUD zoning.
- The Cobb plant is expected to close in 2016.
- Terrace Pointe wants to put in a beach but the DEQ has objections.
- SAPPI
    - At this point she doesn't expect it to go industrial but rather commercial and mixed use.
    - They have potential buyers but it all hinges on the DEQ negotiations with SAPPI regarding a covenant to limit their liability in lawsuits to pay for contaminant cleanup.
- No one wants the lake to return to what it used to be. They are ready to lose the AOC label.
- Muskegon is proud of its status as the only deep water port in Eastern Lake Michigan and of being a city with industry.
- Targeted the east end of the lake for development

Sara Damm, Muskegon County Sustainability Coordinator

- What work is the county doing right now in terms of lakeshore development and usage?
    - Primarily focused right now on establishing a deep water port at the Cobb plant site.
    - Some talk about the blue economy but less action on that.
    - The consensus is that the goal is to establish some zones that are more public for tourism and recreation and others that are more industrial.
    - The central question is what industry will take Cobb's place.
    - There is a port-advisory committee but it is very focused on economics and includes no environmental representative.
    - They are trying to get the Coast Guard to lift the ban on river barge traffic in the lakes.
    - When people talk about a food hub they mean transportation of fertilizers.
    - She has tried to push for green infrastructure but there is a pattern that when budgets tighten on a project the green aspects are the very first to go.
    - The county leadership really leaves restoration to the environmental groups already engaged. They don't oppose efforts but don't get actively engaged or stick their necks out on it.
    - When it comes down to a decision between shipping/industry and tourism/habitat on land management the county always sees the dollars first.
- 10 years from now
    - I would like to see countywide ordinances to treat storm water on site, native landscaping, and more vegetative buffers along the shore rather than sand.
    - I would also like to see tourism more than industry and more connections between the lake and the downtown.
    - We have this poor reputation in the state because of the past industrial activity.

Rich O'Neal, DNR Fisheries Biologist

- Current projects?
    - He works very closely on all the projects in Muskegon in the design phase.
    - They have put in $10 to $15 million in recent years into Muskegon.
    - Two resources he uses a great deal are the watershed assessment for the Muskegon Watershed and the Michigan Conservation Guidelines.
- Major priorities for the area?
    - Dam removal is always a priority.
    - They have a few grant opportunities coming up in the Michigan area including $1 million for aquatic habitat work and $1 million for dam removal.
    - They also partner with GVSU on sturgeon studies.
    - They work with NOAA on several fisheries related initiatives including with walleye, salmon, and steelhead issues.
- Economic development and port expansion
    - There's a disparity between economics and good resource management
    - They have issues with port development. They want to maintain Cobb property as a port facility but that area is right at the mouth of the river and requires continual dredging. It also happens to be a prime breeding ground for sturgeon.
    - He would argue for not using the area as a port site and instead using the former SAPPI property but hasn't had much positive response from the county on these suggestions.
    - The fisheries in Muskegon Lake are worth a million dollars annually but that isn't something being factored into the economic picture.
- Biggest issues facing habitat

    - Dam removal always something they are working on. Lots of work with the MRWA on this.
    - Land use issue are also a big problem
    - Landfill and wetland loss
    - Removal of mill debris
    - Putting in some new good woody fish habitat.
    - Water quality is another big issue particularly low dissolved oxygen levels and this is something not likely to be resolved soon considering that it stems from upstream runoff issues.
    - Opponents to the river barge permission are concern about safety issues as well as invasives.

Dan Rinsema-Sybenga, Commissioner City of Muskegon

- Habitat and economic development
    - Muskegon Lake is absolutely a hot button topic for city government.
    - The biggest question is land use along the lakefront. How much of the shoreline should be developed and where?
    - There is a big push to both improve the port and consolidate development on the east side of the lake. However, that doesn't necessarily mean the SAPPI site will go undeveloped if someone proposes a project.
    - The city has been very supportive of habitat efforts in the past. It's all about striking the right balance. However, it's not always clear what the plan is and how that balance will be achieved.
- Obstacles
    - Predominance of private property ownership.
    - Lacking in a consistent plan. Lots of different groups are working on lake issues but there isn't much communication across those groups. The effort to create a plan may just end up getting people riled up over hypotheticals. However, it would be good to have some sense of broad consensus on the future direction.
- Opportunities
    - We have so many great resources as it is. Some people think we need more public access but he feels the current level of access is sufficient.
    - He would like to address some of the big eyesores on the lake that are no longer under productive use. For example Amaco tank farm, SAPPI, and Michigan Steele.
- 10 years from now
    - First and foremost a clean lake.
    - A good fishery
    - Good for swimming
    - Open for commercial port traffic
    - A draw for residents that is appreciated by the entire community including those not living on the waterfront.

Terry Sabo, Muskegon County Commissioner and Chair of the Muskegon Lake Port Initiative

- Your projects/work?
    - A lot is really up in the air right now until we know what happens to the large lakeshore properties Cobb and SAPPI.
    - The focus is on moving commercial to the east side of the lake but there is a challenge in that it's all private lands so to an extent it's outside of the hands of community leaders.

- Economics and habitat
    - I can see habitat restoration fitting into larger economic development plans in the city.
    - Boating is huge in the community
    - No one wants to go back to the way it was before even the private industry.
- Economic goals over next 5 years
    - Commercial development first and foremost. Also better land planning.
    - All goes back to private ownership.
    - For example the Cobb plant I don't see them selling that land for fear of legacy issues. They would rather level the plant and put in grass than taking that risk.
    - There are a lot of rumors floating around but ultimately nothing is firm until private industry decides. However, he does think there will be space for community involvement in the decision making process (at least technically).
- 10 years down the road
    - More recreation and boating use in the west and commercial use in the east.
- Obstacles
    - Mostly private property owners.
    - Cobb plant closure means loss of tonnage but he thinks they can overcome that. Some talk of national legislation to change that tonnage requirement.
- Everyone on the port authority committee knows and understands that environmental issues are important. It is possible to have that kind of mixed use. They have accomplished it in other areas.

Victoria Webster-Luthy, Environmental Projects Supervisor with Public Health Muskegon County

- Projects she has ongoing
    - Much of the early work from public health focused on groundwater contamination back in the days when there were drums in the lake and you could set Ruddiman Creek on fire.
    - Even back in 2006 when they broke ground for a planned cruise ship port PCBs came pouring out into the lake.
    - They deal with all of the concerns about human exposure in the community and limit the areas open to development along the lakeshore that have contaminant concerns associated with them.
    - Because of this long history of contamination people are very concerned about exposure. They often assume pollution is worse than it is and it falls on public health officials to address the community concerns.
    - They also aid with early stages of brownfield redevelopment because the Health Department can access the records of contamination and see what types and quantities of chemicals were dumped there. This goes a long way towards reducing the time and cost of testing.
- Beyond AOC
    - The past 50 years in the county there has been a lot of sprawl and abandonment of old neighborhoods and homes. I would like to see those communities rebound.
- Economic development
    - High obesity and related illnesses in a community can detract from Muskegon's appeal for employers. She would like to see a more physically active population to combat community health problems. A lot of restoration projects include opportunities for recreation like the lakefront trail. She hopes that people will take advantage of these opportunities and that health indicators will improve as a result.

    - White Lake is a good example of a community where improvements in health followed restoration work.
    - There is still a perception among many of the residents in Muskegon that the lake is not safe and that they shouldn't be spending time on the lake front. But that's slowly changing. People are starting to use the trails more.
    - "We want our community to be proud of what they have instead of being afraid of it."
- Obstacles
    - There doesn't really seem to be a clear plan or vision of how changes to the lakeshore properties will take place. Do we want to be a high end residential area or industrial? There isn't a lot of direction or consistency in the decisions being made on the part of leadership or developers.
    - She's really excited about all of the blueway development projects. The more the lakeshore is used the more it cuts down on pollution because people are around to spot dumping and inappropriate use.

Chris Witham, Mayor North Muskegon

- Ongoing projects
    - 95% of lakefront in his community is private property
    - Some interest in opportunities for property owners at a smaller scale to make improvements to their shoreline.
- North Muskegon is 98% residential so from a development standpoint major change will be unlikely. From the county level perspective he would like to see mixed use, both commercial and residential.

ECONOMIC DEVELOPMENT

Ed Garner, President of Muskegon Area First

- Economic connection
    - Port development is the biggest issue by far.
    - The effort is to find the balance between recreation and port development
    - They want to concentrate commercial use to the east side of the lake. However, he seemed to imply that the SAPPI site and Michigan Steele will likely be developed as well.
    - He thinks there is room for both uses on the lake.
    - When he refers to the blue economy he is talking about businesses that are heavily water dependent in their production process.
    - They are working to attract those types of businesses to Muskegon and to change zoning language along the port to say it is primarily for businesses that need the water resources not just those that want to be along the lake.
- What degree of communication is there between port and environmental groups?
    - There are a few individuals like Kathy Evans that are very active in both spheres but not a concerted effort to unite the groups. The environmental groups are likely more aware of what is happening with the port development issues than vice versa.
- Obstacles to this mixed use vision
    - Muskegon's history has so much environmental damage that residents are very protective of the lake and wary of going back to the state it was in before.
    - For the most part people are open to more development as long as it doesn't hurt the lake and brings in more jobs.

    - Most of the property is privately owned which necessitates working with landowners and takes some control away from the city.
- 10 years
    - A vibrant lake with a mix of recreational and commercial use.
    - An open and dredged channel
    - Some barge traffic and maybe more yacht traffic.

Erin Kuhn (President) and Kathy Evans (Program Manager), West Michigan Shoreline Regional Development Commission

- Projects you are involved with?
    - Port commercial development has been a major focus over the last year. The Cobb plant and concerns over tonnage is really fueling that.
        - The Regional Prosperity Initiative which includes 13 counties across Western Michigan have agreed that port development is one of the top priorities.
        - The proposal for the port will be completed by September and includes habitat considerations.
        - There is also talk of making Muskegon a food hub.
            - Michigan Agri-Business has petitioned the coast guard to lift restrictions on river barges traveling up to Muskegon from Chicago. A similar ban lift was approved for Milwaukee.
        - This fall they are planning a study of Muskegon as a logistics hub.
    - Some public access issues in developing the shoreline.
    - SAPPI site
        - They are hoping to do habitat work on the SAPPI site but it depends on who ends up purchasing the property.
    - Lake Michigan water trail project.
        - The first phase will be completed in July.
        - They have a small grant they are using to bring access points into the harbors and up the river.
    - Tourism is big with the bike paths. They want to connect the path up to the Hart-Montague trail and are in the very last stages of acquiring property access to make this connection.
    - Muskegon County wastewater facility is way under capacity.
        - The paper mill was a huge part of their service and now they are having a hard time maintaining the facility and covering costs after that loss.
        - Much of the finances for the facility are covered by crops grown with grey water and with less grey water they are pulling in less money.
    - Alternative energy is another area of interest. They have a buoy out in the lake testing wind speeds and there has been some activity in recent years shipping wind turbine parts out of the port.
- A major question is how to develop the port but also keep Muskegon green
    - Finding a balance between industry and shipping and all of these recreational uses.
    - The push to get that tonnage fast is scaring a lot of people and potentially leading to a rush into poor decisions. Some talk about moving the Padnos scrap mill up from Holland to Muskegon.
- There is no centralized plan for the entire waterfront but frankly it might not even be that helpful because so often plans are made but then not followed.
    - Constant education efforts needed for the political leadership as there is new turnover.

    - Muskegon the City does have a waterfront plan but it is fairly vague.
- Continued development of the downtown area is another concern. There is a need to tie the downtown more to the waterfront and to the port.
- Green infrastructure work
    - They have done some inventory of issues and projects and mapping but not development of new projects more laying the groundwork for someone to easily identify issues and needs when the time comes.

Cindy Larsen, President of the Muskegon Lakeshore Chamber of Commerce

- Projects
    - Major concerns right now include the sale of the SAPPI property and what happens after the Cobb Plant is closed.
    - Revitalization of the downtown area is also key.
    - Manufacturing will always be a central part of the Muskegon economy.
    - There is an increasing focus on the importance of place making

Jonathan Seyferth, Executive Director of Downtown Development NOW

- What does public access from downtown to the lake look like right now?
    - Four main points of access.
        - Heritage Landing
        - 3rd St Pier
        - Fisherman's landing
        - Harbor 31 Pier
    - There is in many cases a lack of education about access to these points among general public
    - The highway really cuts downtown off from the lakefront.
- Vision for future access
    - He would like to see easier access at the 3rd St. crossing.
    - Work with MDOT to ease the flow of traffic and make crossing more appealing.
    - At this point in time filling in downtown and the gaps on Western with new construction is their top priority. Waterfront access is not something formalized in the development plan.
    - They would like to connect the bike trail with downtown area.
    - The city master plan shows from Heritage Landing east towards the Cobb plant would all be for industry and shipping use. From the YMCA and all the way to Lake Michigan would be more mixed use, residential, and have more public access to the shoreline.
    - Water access isn't in the downtown development plan.
    - They do want to connect the bike trail to downtown.
    - City Master plan shows that from Heritage Landing and east towards the Cobb plant would be for industry and shipping use.
    - How restoration plays into public access is not something they are really focused on right now.
    - Fisherman's landing might be moved in order to open up that area to shipping. Has really good highway and train access.
    - Manufacturing community is very much aware of the importance of the lake and its resources.

Is the lake a major draw in bringing new development downtown?

- For residential development yes. People are attracted by the views and the recreation access. The bike trail is also a big sell.
- For commercial use no although they do stress the excess capacity of the water filtration plant and the green technologies employed there.