

A Needs Assessment for Education and Outreach in the St. Louis River Area of Concern

Caitie McCoy and Emily Anderson
University of Illinois



Courtesy of University of Wisconsin Sea Grant/Water Resources


Sea Grant
ILLINOIS - INDIANA

IISG-13-80

Needs Assessment for Education and Outreach in the St. Louis River Area of Concern

Caitie McCoy and Emily Anderson

Illinois-Indiana Sea Grant, University of Illinois

This research was supported by a grant from the U.S. Environmental Protection Agency, Great Lakes Restoration Initiative (No. NA11OAR4170052). Correspondence concerning this article should be addressed to Caitie McCoy, Great Lakes National Program Office, 77 W Jackson Blvd (G-17J), Chicago, IL 60604. Contact: cmccoy2@illinois.edu

SUMMARY

A needs assessment was conducted to bring to light stakeholder perceptions and understandings of contaminated sediment remediation. Interviews were conducted with 25 residents of the St. Louis River Area of Concern (AOC). Qualitative content analysis was run on the interview transcripts to extract overarching themes of interviewee responses. The analysis revealed the following five findings and outreach implications: 1) The St. Louis River is a tremendous resource that has a distinct identity as both an industrial working port and a hub for nature and outdoor recreation – outreach should acknowledge this dual identity; 2) Since the 1970s, the St. Louis River has become progressively cleaner, but many threats still face the river – outreach should be clear about the strengths and limitations of the AOC remediation and restoration; 3) As hotspots and degradation are addressed, improvements on the river will largely be localized – outreach must be vigilant when discussing the health of the river as messages may sometimes seem contradictory; 4) Because the St. Louis River is large and complex, collaboration is an essential aspect of the AOC program, including the Spirit Lake project – outreach should contain simple messaging, be collaborative, and clarify how the Spirit Lake remediation fits into the larger delisting effort; 5) Spirit Lake is an important site locally for the Fond du Lac Band, the Morgan Park neighborhood, and community leaders – outreach must recognize that Spirit Lake and the larger St. Louis River are important to stakeholder identity. Findings will be used to inform outreach of the Spirit Lake Outreach Team on the Spirit Lake estuary sediment Great Lakes Legacy Act site and are available for wider AOC outreach efforts.

ACKNOWLEDGMENTS

We would like to extend a special thank you to the following people for making this report possible. Thanks to Drs. John Braden, Courtney Flint, and Ming Kuo for their guidance in helping design the methodology for the original study site in Sheboygan, which greatly influenced this effort. We are also thankful to the Spirit Lake Outreach Team, especially Susan Johnson, Julene Boe, and Nancy Schuldt, for help developing our sample. Finally we would like to thank all interviewees for sharing their stories, providing river and street tours, taking us fishing in the bay, and reviewing the first draft of the findings.

INTRODUCTION

The industrial past of the Great Lakes has left behind a legacy of contamination. Though the amount of contamination has decreased over recent decades, much still remains within the sediment of the Great Lakes and its connecting waterways. In response to this contamination and other environmental degradation, the International Joint Commission established a list of the most contaminated areas around the Great Lakes, designated Areas of Concern (AOC). The U.S. Environmental Protection Agency administers remediation and restoration activities to remove AOCs from the list in partnership with federal and state agencies, private entities, and local groups.

The St. Louis River AOC is located at the northern Minnesota-Wisconsin border and encompasses numerous contaminated areas along 39 miles of the river. The upper river is relatively undeveloped, but becomes urbanized as the river flows toward Lake Superior. Environmental progress has been made since the AOC's first Remedial Action Plan was created in 1991. Recent successes include the return of lake sturgeon to the river, habitat restoration at Grassy Point and Clough Island, and the completion of the Hog Island Great Lakes Legacy Act (GLLA) sediment remediation project in 2005 (EPA, 2013). The St. Louis River and Lake Superior are a large part of the local identity. The local Chippewa tribe, the Fond du Lac Band, has occupied the area for hundreds of years.

Under the GLLA, a feasibility study is being conducted for the Spirit Lake estuary sediment adjacent to the US Steel Superfund site. The GLLA provides funding for the planning and implementation of sediment remediation projects, but requires at least 35 percent of project funds be provided by one or more voluntary non-federal sponsor (EPA, 2009). U.S. Steel is the non-federal sponsor for the Spirit Lake remediation, with oversight from the Minnesota Pollution Control Agency. If all goes as planned, a sediment remediation project may take place as early as 2015.

Previous Research

Limited research has been done on attitudes toward and benefits of sediment remediation,

partially because concerns about contaminated sediment have only recently become prominent (Deweese & Schaefer, 2001). Previous research provides some understanding on economic and social benefits of sediment remediation (Braden, Patunru, Chattopadhyay, & Mays, 2004; Hushak & Lichtkoppler, 2007; Isely, Isely, & Hause, 2011; McMillen, 2003; NE-MWI, 2001b), but we were unable to find a qualitative study of stakeholder attitudes toward sediment remediation in the Great Lakes that provided implications for outreach.

Purpose

This paper reports on phase one of a two-part study to understand stakeholder perceptions of contaminated sediment remediation in the St. Louis River AOC. The qualitative assessment was conducted to understand: 1) knowledge regarding contaminated sediment in the river; 2) perspectives on the effects of contamination and the benefits of remediation; and 3) perspectives on the effectiveness of past and current outreach strategies. The findings will inform outreach for the GLLA project at Spirit Lake and the broader AOC.

METHODS

Procedure

The methods of this study draw from a scoping exercise conducted with stakeholders of the Sheboygan River AOC in Wisconsin (McCoy & Morgan, 2012). We conducted our study with stakeholders in the St. Louis River AOC. We formed the study sample from recommendations of the Spirit Lake Outreach Team, and stratified the sample to include stakeholders that the team is targeting for outreach: community leaders, the Fond du Lac Band, Morgan Park residents, and river users. We performed qualitative interviews in the summer of 2013 with a sample of 25 in order to provide a rich understanding of the variety of stakeholder opinions; this study is not meant to be generalizable to the entire St. Louis River community.

The interviews were semi-structured with 12 open-ended questions about the river (see appendix). Questions were designed with insight from past studies (Braden et al., 2004; McCoy & Morgan, 2012). Interviews lasted approximately 30 minutes to an hour and were audio recorded with permission. Notes were taken during interviews, and interviews were transcribed shortly after.

Data Analysis

We conducted a content analysis of the transcripts. Our coding technique was guided by findings from past research (McCoy & Morgan, 2012), but allowed new codes to be derived from the data as appropriate (Hsieh & Shannon, 2005). Each researcher thoroughly read, highlighted, and made notes on the transcripts. The transcripts were then coded and codes of similar content were combined into major themes. The coders compared themes and found that the separate analyses produced similar findings.

FINDINGS AND IMPLICATIONS

Finding # 1: The St. Louis River is a tremendous resource that has a distinct identity as both an industrial working port and a hub for nature and outdoor recreation.

The St. Louis River is a main driver of the Duluth-Superior economy, referred to by many interviewees as a “working port.” Some even call it the busiest port on the Great Lakes. Commerce and shipping have a large influence on the community’s identity. Over the past few decades however, an appreciation for the natural, aesthetic, and recreational value of the river has greatly increased, offering the community an additional way to capitalize on the river’s assets. Tourism is growing, and in 2013, Outside Magazine named Duluth the “Best Adventure Hub Runner-Up” in the world (Pearson & Neville, 2013). In some cities, this type of shared use could create competition and polarization. Interviewees mentioned there are slight tensions, but that ultimately there is a good sense of collaboration. Committees that have a diverse representation of several interests, such as the Harbor Technical Advisory Committee, contribute to this cooperative culture. While recreational opportunities

grow, the working port culture holds strong and embraces new tourism possibilities, such as the Tall Ships Festival. This creates a unique dual identity for the river and its citizens. (I = Interviewee quote)

I₁: Oh, I think that as you go up the river, it is quite amazing how wild it becomes... Yet we have all the dynamics of a working harbor here... I think they fit quite well together.

I₂: Some people look at it as a port and industry use and other people look at it as kind of a natural resource that should be preserved and used and valued by the community and in reality it's probably some of both.

I₃: The fact that it's surrounded by cities on both sides and yet is still this large and wild recreation and natural setting...

Outreach Implications

- Because of the duality of the St. Louis River as an industrial and recreational resource, outreach on remediation and restoration should appeal to both aspects. The community does not see the environment and economy at odds with one another; rather, they work together in tandem.
- Outreach should highlight aspects of the AOC program that illustrate the merits of remediation and restoration in helping preserve the dual identity of the St. Louis River.

Finding # 2: Since the 1970s, the St. Louis River has become progressively cleaner. Nevertheless, many threats still face the river.

In the absence of environmental regulation, by the 1960s, the St Louis River had become an aesthetically displeasing place, described as “foamy” and “smelly,” a place that citizens had turned their back on. When sanitary districts, such as the Western Lake Superior Sanitary District (WLSSD), came online in the late 1970s, however, the river seemed to change instantaneously. Almost all interviewees shared this sentiment.

I₄: The single greatest thing that was done for the river was to have WLSSD come online in 1978. That really cleared the water column up. So then plants started to grow, so then fish had more nesting and rearing places.

I₅: Various projections we had it would take at least a year maybe a couple years to come back and to our surprise we again started operations late 78 and by March of 79 we had everybody hooked up and that summer already dissolved oxygen started to spike and we started to see the fish return and it's just been a success story ever since.

Now, the river is generally viewed, at a landscape level, as clean and beautiful. The community has a

very positive relationship with the river. However, many threats to the river remain. Almost all interviewees described habitat degradation and legacy pollution from historic industry, such as chemical sediment contamination and wood chips, as remaining issues in hotspots along the river. This limits river uses like swimming and boating and causes habitat degradation. While many residents still enjoy fishing, fish consumption throughout the river is perceived as unsafe.

I₆: I think the contamination from years and years ago is still a threat to this river. I mean, like I said, I wouldn't eat the fish out of it myself. So I think pollution is still a threat to the river.

I₇: Even if the fish are there they are not safe for consumption. That really doesn't solve the problem, so we want fish to be safe to consume.

Legacy issues are largely being addressed by remediation and restoration projects in the AOC program. Emerging threats identified included aquatic invasive species, climate change, mining, steel corrosion in the harbor, and land use. Interviewees were uncertain whether AOC remediation and restoration could address these threats.

I₈: I think that climate change is going to be a real challenge for it and continued land-use pressure in the watershed, not just the mines, but the development. You know, right now, a lot of the St. Louis, especially the upper part, is pretty undeveloped, but there's a lot of watershed up there and you start developing that out and you put climate change on top of that and that's going to be really pressure on this river system.

Outreach Implications

- Outreach should be clear about the strengths and limitations of AOC remediation and restoration. A lot of work has been accomplished by the AOC program. However, it is not a panacea for the area's environmental problems. Threats that the community perceives could become real problems that require a new type of solution.

Finding # 3: As hotspots of contamination and degradation are addressed, improvements to the river will largely be localized.

Because the St. Louis River is largely viewed as a clean, beautiful resource, improvements made at the landscape level, as the result of remediation and restoration projects, are projected to be

slight. Quality of life, aesthetics, property values, and recreation are all aspects of the river reported as already high or sufficient. Interviewees noted that these aspects will improve much more for hotspots than for the broader St. Louis River community. The one large improvement identified fairly unanimously for the landscape level was fishing and fish consumption.

I₉: But for the overall estuary, I just don't think that the toxics and other things are having that much of an effect overall...just because things have cleaned up so well and we don't have kill zones. It's not obvious, except in a few areas that things are really impacted.

I₁₀: I think we've had our most dramatic changes already. Individual sites will dramatically change as we remediate and restore them so the habitats going to be improved. And we'll have more habitat available. So yeah, it's primarily individual sites that you see the big changes on, but as a whole the river's getting healthier all the time.

I₁₁: Yeah, I don't think we are going to see from now until when we delist, a big change, because in most areas other than a few of the active Superfund sites and maybe a few other hotspots, we don't tend to have issues...

This broad perception of satisfaction concerned some of the interviewees, especially those directly involved in the AOC program. While increased use and appreciation of the river is good, people need to recreate safely. They should not swim in contaminated areas, and they should follow fish advisories. In addition, remediation and restoration projects can be very expensive, and future funding sources like the Great Lakes Restoration Initiative are not secure. Because the river is viewed as clean and beautiful, those interviewees worried that the larger community would not understand the importance of the remediation and restoration projects on the St. Louis River, not to mention maintaining restored sites. They described the difficulty to communicate these ideas to the public.

I₁₂: It's hard to communicate what it looks like. Even though you can't see it, it could be much better. The fishery is a long way from what it could be, or should be. If they knew what it looked like historically versus now... in some places you have beautiful blue water covering a desert of wood chips... that would be hard for the public to understand.

Outreach Implications

- Outreach on river cleanliness and use will require careful deliberation by an outreach team. It can be difficult to craft a message that promotes appropriate use, while communicating the need for additional,

expensive remedial work in certain areas like hotspots. Verbal analogies and visual aids can help communicate that there are many ways we can measure the health or “cleanliness” of the river, which will explain why messages sometimes seem contradictory.

Finding # 4: Because the St. Louis River is large and complex, collaboration is an essential aspect of the AOC program, including the Spirit Lake project.

Geographically, the St. Louis River is the largest AOC. It has a diverse array of past, current, and potential remediation and restoration projects, which will all lead to AOC delisting. Because of this, interviewees perceived the AOC program as complex. Even those interviewees directly involved in the AOC program admitted that they had a difficult time keeping up with all the projects. They presumed that the general public has an extremely limited knowledge of the major delisting effort, who is involved, and how each project plays a role.

I₁₄: I have to tell you the number of partnerships involved is staggering, which is why it's complex.

I₁₅: I guess it's a challenge sometimes to keep track of all of the things going on down there.

I₁₆: And because so much time goes by between these things people don't make the connections. And so it's isolated things that don't give you the perception that these are related and it's going toward some type of end.

The Spirit Lake Great Lakes Legacy Act sediment remediation project is just one piece of the larger effort to delist. When asked to describe the remediation and restoration work, most community leaders described a number of projects before Spirit Lake. Some did not mention the site until prompted.

Nevertheless, when describing the various projects including Spirit Lake, many respondents talked about the importance of collaboration in helping lead a large, complex AOC program to success. Many of the projects affect one another. The beneficial reuse of sediment from both habitat restoration and navigational dredging was cited as a successful example of collaboration.

I₁₇: We're hoping that there's discussion on using a lot of the dredge materials that help keep the port functioning to help create this habitat so we actually end up with a double benefit, that we have improved habitat and we have a way to better manage our dredge material.

A few respondents felt that the Spirit Lake project team had not reached out to or collaborated much

with community leaders. They stated that it was important to frame Spirit Lake into the larger delisting effort and to view it as an opportunity to restore habitat, not just remediate sediment. They felt that any opportunity for involvement was sprung upon them; the timeline felt rushed. They urged the team to partner with the larger planning community and consider future uses of the site in the project design.

I₁₈: It kind of missed the entire point of all the other planning, the remedial action planning and the habitat plan and all the other required planning that we've done over the entire AOC... It was a real scramble for all the local resource people to kind of say, hey, hold it! Slow down here we've got some good ideas here and it kind of fits into a whole picture.

I₁₉: This is my observation from sort of the sideline. And frankly, I don't think we should be on the sideline... So if there's no master planning going on that involves the responsible party with the community...

I₂₀: We've had some situations where it didn't work that way, you got the first R, they removed the contaminated material, and then it just sat there, and it's like, you know you're not necessarily gonna have good habitat after removing all that material.

Outreach Implications

- Even though the AOC program is complex, outreach must communicate about river projects in a simple way. The community does not need to know the organizational structure of the program, the number of habitat restoration projects, or the names of all the organizations working on a project. People want to know how the project will affect their interests.
- Spirit Lake sediment remediation is a small part of a larger program, so outreach should be clear on how remediation done at Spirit Lake supports the larger process of delisting the St. Louis River AOC.

Collaboration with local organizations and inclusion of input is essential to gaining trust. To garner support for the program, the remediation design should consider the future use of the site and habitat plans of local agencies.

Finding # 5: Spirit Lake is an important site locally for the Fond du Lac Band, the Morgan Park neighborhood, and community leaders.

Community leaders may not have had Spirit Lake in the forefront of their minds, but they

described it as an important site for delisting, for the Morgan Park neighborhood, and for the Fond du Lac Band. Interviews with the Morgan Park neighborhood and Fond du Lac Band confirmed this. Many Morgan Park neighbors stated that they had been actively following the U.S. Steel site, which includes Spirit Lake, since its inception as a Superfund site. They were concerned that the timeline was slow; that it seemed like not much had been accomplished. Some of the Fond du Lac Band echoed this sentiment.

I₂₁: I think people become cynical because we could have been talking about this 20 years ago, we'll probably be talking about it in another 20 years... at a lot of meetings you hear people, what's the point, why get involved, why try to make a difference.

I₂₂: They've been working on the U.S. Steel site for 40 years now, so I have little faith that they will be able to clean it up.

I₂₃: They're coming up for another 5 year review, U.S. Steel is. They contacted me also about trying to do a community meeting for a 5 year review. I was the person that was at the meeting I noticed that the slides all looked the same every 5 years so I spoke up a little bit a couple times.

Spirit Lake is a culturally and spiritually significant place for the Fond du Lac Band. Pollution and degradation of habitat is a major concern, along with creating or maintaining suitable habitat for wild rice. Spirit Island is a strong part of the Fond du Lac identity. Because Spirit Lake is adjacent to the island, the lake is valuable.

I₂₄: From what I was told by my elders was supposed to start there at Spirit Island and then go all the way up to the Western points of the original 1854 treaty line. So as a young person I heard a lot of elders talking about the lower St. Louis and where the reservation was originally, according to our people, what we were told was supposed to start and it would have been down there at Spirit Lake.

I₂₅: I have a lot of memories of our families fishing and hunting down by the river. And then in the lower St. Louis River I can still remember when I was a young man, where wild rice used to grow down there and our families would harvest wild rice

I₂₆: The whole river, its, just cause the river starts here doesn't mean that we don't think of the, and plus that bay is our original living area. So we've got, we've got lots of ancestors that are still down there, along the shores of the Lower St.

Louis. Old graveyards, old village sites, camp sites.

Morgan Park neighbors and Fond du Lac members were glad to hear that progress was being made on Spirit Lake under the Great Lakes Legacy Act. However, many exclaimed that they would not be comfortable with a capping remedy. They would rather have the contamination completely removed, instead of worrying about the uncertainty of the river and cap stability. They cited the recent 500-year flood as an example of how the river could compromise cap stability.

I₂₇: That whole area is very important to the band and so if they were to cap the whole area for example that wouldn't go over too well.

I₂₈: I'd suggest removing it. Removing it all. The EPA should stand by its name, Environmental Protection Agency...

Outreach Implications

- Outreach must recognize that Spirit Lake, Spirit Island, and the larger St. Louis River are important parts of the identity and culture of the Fond du Lac Band and other local people. Special attention should be given to groups with a high stake in remediation.
- If the remedy that is chosen at Spirit Lake by the technical team includes a capping component, the outreach team should help bridge a connection between concerned citizens and the technical team. The outreach team can help translate interests and concerns of the citizens. They can also help develop messaging about capping that is easy to understand and appeals to those interests and concerns.

CONCLUSION

The findings of this report will be used to help the Spirit Lake Outreach Team design outreach and messaging for the Spirit Lake estuary sediment GLLA project. The findings may also be applied to larger AOC outreach efforts because we framed questions to pertain both to Spirit Lake and the entire AOC. Further research will include a second phase of follow-up interviews after major remediation and restoration efforts are complete to allow for comparison, as recommended by NE-MWI (2001a). Similarly, interviews will be performed at other AOCs for comparison.

BIBLIOGRAPHY

- Braden, J. B., Patunru, A. A., Chattopadhyay, S., & Mays, N. (2004). Contaminant cleanup in the Waukegan Harbor Area of Concern: Homeowner attitudes and economic benefits. *Journal of Great Lakes Restoration*, 30(4): 474-491.
- Deweese, D. N., & Schaefer, K. A. (2001). Identifying and assessing the economic benefits of contaminated aquatic sediment cleanup. *Water Quality Research Journal of Canada*, 36(3): 413-433.
- Hsieh, H., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9): 1277-1288.
- Hushak, L. J., & Lichtkoppler, F. R. (2007). Final report: Ex post benefits of the Ashtabula River dredging project: Preliminary data collection. Retrieved from Ohio Sea Grant website: http://ohioseagrant.osu.edu/_documents/publications/TB/TB-097%20Final%20Report%20Ex%20Post%20Benefits%20of%20the%20Ashtabula%20River%20Dredging%20project%20Preliminary%20Data%20Collection.pdf
- Isely, P., Isely, E. S., & Hause, C. (2011). Muskegon Lake Area of Concern habitat restoration project: Socio-economic assessment. Retrieved from Grand Valley State University website: ftp://geoportal.wri.gvsu.edu/awri_website/final%20socio%20economic%202.pdf
- McCoy, C., & Morgan, A. (2012). A scoping exercise to understand community perceptions of contaminated sediment remediation in the Sheboygan River Area of Concern. Retrieved from Illinois-Indiana Sea Grant website: http://www.iisgcp.org/catalog/downloads_09/Sheboygan%20Case%20Study%20FINAL%20w%20cover.pdf
- McMillen, D. P. (2003). Economic benefits of the Grand Calumet River dredging plan: Evidence from the Gary housing market. Report to the Delta Institute, Chicago.

Northeast-Midwest Institute. (2001a). Economic valuation of environmental benefits. Washington, D.C.: Cangelosi, A.

Northeast-Midwest Institute. (2001b). Final Report: Scoping the economic benefits of contaminated sediment remediation. Washington, D.C.: Taverna, J., Lupi, F., & Cangelosi, A.

Pearson, S., & Neville, T. (2013, April). Best adventure hub runner-up: Duluth, Minnesota. *Outside Magazine*. Retrieved from <http://www.outsideonline.com/>

United States Environmental Protection Agency. (2009). Great Lakes Legacy Act success stories: Legacy Act projects tackle Great Lakes pollution. Retrieved from EPA website: <http://epa.gov/glla/glla-factsheet-200901.pdf>

United States Environmental Protection Agency. (2013). St Louis River and Bay Area of Concern. Retrieved from <http://www.epa.gov/greatlakes/aoc/stlouis/index.html>

APPENDIX. INTERVIEW QUESTIONS

1. Tell me about the St Louis River?
2. What do you use the river for? How often?
3. What do you value the most about the river?
4. What are the biggest problems/threats currently facing the river?
5. Tell me what you know about the remediation and restoration.
6. What will change the most as a result of the remediation and restoration?
7. Now I'm going to name some aspects of the river. Think of these aspects in their current state and how they might be affected by the remediation and restoration.
 - a. Aesthetics (or beauty) of river
 - b. River's effect on quality of life
 - c. River's effect on property values
 - d. A place for fish and wildlife to live and grow
 - e. Water depth
 - f. River's effect on the local economy and likeliness of new development

Outreach

8. Have you received any information regarding remediation and restoration activities on the river? Where did you receive the information? Was it easy to understand?
9. What is the best way for the community to be informed about remediation and restoration activities?

Final Qs

10. Any suggestions on whom else I should talk to?
11. Is there anything else you'd like to say about the river or the local remediation and restoration?
12. Is there anything else you'd like to know about the sediment remediation projects going on in Spirit Lake or the GLLA?