

FishPass Angler Workshop Outcomes

FishPass is an innovative project to provide up- and down-stream passage of desirable fishes while simultaneously blocking and/or removing undesirable fishes on the Boardman (Ottaway) River, Michigan. Solutions identified through FishPass will address one of the greatest fishery management challenges of our time and could have broad applications throughout the Great Lakes and globally. Success of FishPass relies on support and involvement of communities surrounding the Boardman River. The FishPass team engaged the Boardman River angling community through a two-night workshop on May 30-31, 2018. The first night, which was open to the public, generated an exhaustive list of angler concerns and issues regarding Boardman River fisheries. The items were synthesized and organized into ten categories by the FishPass team and discussed with angler organizations’ leadership (i.e., Focus Group) on the second night of the workshop. This document summarizes all discussion from the open forum and the focus group and provides FishPass team responses to issues identified, and action items related to each issue. Due to time constraints only issues the FishPass team had not yet addressed through the engineering design, research plan, assessment plan, or education and outreach plan were discussed during the second night as indicated in the issue header.

Site Selection

Issue 1: The public is largely unaware of the rigor applied during selection of the Boardman River as the best site for FishPass	Focus Group Discuss: YES
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Workshop Input: None

Focus Group Notes:

- Lesson from Pere Marquette electrical barrier was that there is nothing wrong with experimenting, but it is important to choose a site that is less of a pressure cooker. Need more space to make mistakes.
- The Little Manistee could have been a good site and more room to make mistakes. (*Response – head and gradient in the Little Manistee were deemed inappropriate*)
- Overall, the focus group found it helpful to hear about selection process and criteria and how each criterion was considered in site selection.

FishPass Response:

Decision analysis to identify a project site began in April 2016. The decision analysis was conducted on 11 May 2016 by eight fish passage and behavioral scientists and two U.S. Fish and Wildlife Biologists responsible for lamprey control and barriers. Twelve sites were evaluated using a red/yellow/green system to evaluate 17 criteria and then the river systems were ranked by tallying scores (3 pts for green, 2 points for yellow, and 1 point for red). Site visits to the top 6 ranked sites (Cheboygan, Ocqueoc, Thunder Bay, Boardman, Little Manistee, and the Grand) from the decision analysis were done on 21-22 July 2016. The Boardman River came out as the top ranked river and after site visits the team determined that the Boardman River Union Street Dam location was indeed the best site for the project. The FishPass team then met with members of the Boardman River Implementation Team (IT), who were excited to partner. It was not until September 06, 2016 that the project was presented to the City of Traverse City and the Commission unanimously voted to partner on the project.

Action Items:

1. Add message on site selection and decision analysis to FishPass Communication Plan.
2. Add message on broader Boardman River Restoration Project dam removals and rationale to the FishPass Communications Plan.

Issue 2: The Union Street Dam site does not allow passage of fishes as far upstream as the Keystone site would permit	Focus Group Discuss: YES
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Workshop Input:

- Need to describe alternative analyses that were employed for site selection within the Boardman River.
- More information and communication needed.

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- Is selection of another site possible?
 - If an additional upstream barrier is needed, now is the time to plan for it.

Focus Group Notes:

- Trout Unlimited (TU) stakeholder discussion about alternative sites suggested choosing a barrier site upstream would give Great Lakes fish of all types access to high quality, high gradient habitat after dam removal. Not necessarily focused on Keystone site, but somewhere upstream.
- Lack of funding should not limit ideas; initial response from government is always "no funds available" but if the project has the support of all of the angling communities, the funds will follow. It would be ideal to have a completely controlled environment. These groups are very good at raising money!
- Should consider additional segmentation of river and additional fish passage facilities or another set of channels with appropriate gradient. (*Response - currently in a dam removal process, doesn't make sense to add barriers and reduce connectivity.*)
- Boardman River Restoration plan did not originally open the river to Lake Michigan. Why not locate FishPass further upstream and allow a diverse fishery downstream while protecting the unique fishery upstream? Fish pass at the Union Street Dam automatically takes Coho and Chinook salmon off the table and other species we choose to pass have unlimited access to the entire river. The idea of a dichotomous river stems from the desire to take advantage of as many opportunities as possible. Moving FishPass upstream could add sea lamprey treatment costs, but maybe we could do a rock ramp or other type of barrier at Union Street Dam to block them. When the DNR initially asked angler groups for support for the Boardman River Restoration Project, they said they were not initially making decisions about fish passage, then FishPass popped up, and the state/city supported the FishPass project. Doing so constrains our decisions regarding which species to pass and surprised us and we were not part of agency decision analysis. Even though the DNR is planning to solicit input before deciding which species to pass, the discussion is limited due to FishPass.
- All or nothing at Union Street Dam is putting anglers that typically don't have an issue with each other at odds with one another.
- Potential concept to build a rock ramp at Union St. that passes everything and do FishPass further upstream. (*Response - potential of a rock ramp at Union Street was investigated and resulting increase in flood elevations would have been unacceptable. Additionally, a rock ramp would have extended too far downstream.*)
- Union Street location was considered for FishPass (rather than an upstream location) because it is the de facto terminal barrier.
- The original intent of DNR and Boardman River Restoration Project was always to reconnect the river to the lake. We do not want to over-engineer the river.
- Baseline assumption that FishPass will be perfectly effective and selective. We have check structures on the Little Manistee and other places that do not substantially change the river. The original Boardman River Restoration Project proposal to remove dams did not include removing the Union Street Dam, so it may be necessary to consider adding a small barrier/dam upstream of FishPass to achieve ultimate objective(s) for the river.
- Supportive of barrier upstream of Union Street Dam site not just for angling but to maintain the scientific opportunity; putting an additional barrier upstream of FishPass would create a fully controllable area between two "choke" points.
- City infrastructure (wastewater treatment facility) and need to maintain elevation of Boardman Lake requires a dam at Union Street so there will always be something there.
- Potential compromise of moving trap-and-transfer weir upstream of FishPass? (*Response - idea of re-fragmenting system that has seen millions spent to un-fragment does not make sense. There are no funds to build a second weir or sorting system. The infrastructure for dealing with carcasses from the trap-and-transfer facility are in town. Logistics would be challenging.*)
- Important to remember that we can choose not to pass anything; major issue seems to be three non-native species: Coho, Chinook, and steelhead.
- Fundamental objective of "what is the upstream community going to look like and how do we want it to look" has not been resolved. The concept of additional barriers are simply means objectives.
- GLFC criteria for selective fish passage is to block sea lamprey, other decisions are for the DNR after consultation with project partners and the public.

FishPass Response:

Moving FishPass upstream would require building another dam because a dam is required at Union Street to prevent sea lamprey from moving into the system and to maintain water levels in Boardman Lake. It would be cost-prohibitive and illogical to build a second FishPass structure as all sorting will be done at the Union Street site. Additionally, the site characteristics, including hydraulic head required for FishPass do not exist upstream. Allowing passage of all fishes to a site upstream would incur additional repeated costs to treat for sea lamprey in any newly accessible river habitat upstream of Union Street. Note that allowing sea lamprey above Union Street would increase available spawning habitat, thereby increasing sea lamprey production in Lake Michigan, and potentially impacting lake wide fisheries. Any proposal to increase additional sea lamprey habitat is counter to the GLFC treaty and mandate and would necessarily have to involve the Council of Lake Committees, the Consent Decree Tribes, Commercial fisheries, etc. Such a proposal would not likely gain traction. Finally, building a new barrier in the middle of dam removal sites would be counter to the intent of the IT and the Boardman River restoration project.

Action Items: None

Stakeholder Input

Issue 3: Determination of which species will pass may be the purview of the DNR, but public discourse is strongly desired	Focus Group Discuss: NO
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Workshop Input:

- There are local anglers and lake anglers, both types do not need to be catered to in the river. The Traverse City fishery, inclusive of the river and lake, is diverse and good for the economy.
- Steelhead in the river provide a fishery for anglers otherwise economically excluded from the lake steelhead fishery.
- Trust in the DNR is not consistent among user groups.
- Details of anadromous fish passage (what, how many, and when) needs to be worked out and communicated if pursued.
- The “ecological portfolio” of the river upstream of FishPass includes many facets, all of which must be considered both now and what could be (e.g., grayling, lake sturgeon)
- Some desire a 10-yr moratorium on passage predicated on determination of pre-passage baseline conditions.
- The Boardman River is a designated natural river: water comes first, maintaining its natural status is a priority.
- Project plan should include an evaluation of an extended fishing season that may accompany steelhead passage.

Focus Group Notes: None

FishPass Response:

The process is ongoing, but GLFC has no management authority. Decisions on what species to pass will be determined by the DNR after consultation with project partners, the Grand Traverse Band, and the public. One advantage of FishPass over other fish passageways is that it can function as a complete barrier to all species or provide controlled connectivity for desired species. A monitoring and assessment plan is in place which provisions the collection of data to provide for adaptive operation of FishPass. That means that the composition (i.e., species and numbers of each species) passed can be adjusted to minimize any unintended consequences of passage or detrimental effects on fish populations upstream of the project site.

Action Items:

1. FishPass team to help MIDNR with the species selection process (Pending MIDNR approval)

Issue 4: Locals object to outsiders deciding what is best for the river	Focus Group Discuss: NO
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Workshop Input:

- The river is a special place to locals who are focused on stewardship.

Focus Group Notes: None

FishPass Response:

Sea lamprey control is mandated to the GLFC by the 1955 Convention on Great Lakes Fisheries. FishPass is in direct response to needs identified by the local community and leadership like the Boardman River IT. Blocking

sea lamprey and restoring connectivity for native fishes has always been the plan of the IT, a plan that predates FishPass, and the IT plan was indeed developed locally. Many local residents and stakeholders are participating in FishPass and in ample stakeholder input sessions like this angler workshop.

Action Items: None

Issue 5: Membership on the Advisory Board lacks broad local interest representation inclusive of user groups and upstream communities

Focus Group Discuss:
YES

Workshop Input:

- Non-sport, commercial fish ecologists need to be included in discussions about what species to pass.
- Involve the Grand Traverse County Road Commission.

Focus Group Notes:

- The Boardman River IT is deeply involved in FishPass and is comprised almost entirely of local residents.
- Other government entities could be impacted (e.g., Grand Traverse County as a whole, Kalkaska county, non-anglers); the IT is fairly Traverse City-centric right now.
- Desire to make the Road Commission aware that the opportunity to incorporate additional upstream barriers is now because of the East-West Corridor Study; also the road commission has several projects in the pipeline that may merit their involvement in FishPass.
- Boardman River Prosperity Plan engaged nearly every community along the river during the development phase (4-5 years ago). This effort can continue.
- FishPass team recently briefed the Grand Traverse County Commissioners and received full support for the project. There have already been over 65 meetings related to FishPass, and the team is open to meet with any additional entities that are interested.

FishPass Response:

The FishPass team encourages public input and will pursue options for additional public engagement. Locals could convene a “public interest advisory group” that would interact with FishPass Advisory Board on a regular basis. The Boardman River IT comprises local stakeholders including key members from Trout Unlimited, Steelheaders, and other organizations. IT meetings are open to the public and the agenda is open for items. Both IT co-chairs are on the FishPass Advisory Board. The FishPass team has a communications/outreach group focused on incorporating public input into the design and implementation.

Action Items:

1. Boardman River IT will reach out to townships impacted by Boardman River restoration project and bring them up to date on the restoration project and ask for additional concerns. Agenda item on upcoming IT meeting.
2. FishPass team will integrate FishPass communications plan with IT communications.

Protecting existing species

Issue 6: Effect of passage of fish on brook trout populations is unknown

Focus Group Discuss:
YES

Workshop Input:

- Successful cohabitation of brown trout, brook trout, and steelhead has not been scientifically examined/proven to be possible.
- Examples in other rivers such as the Two-hearted and Platte Rivers in Michigan where brook trout populations diminished subsequent to steelhead introduction. These examples should be examined for lessons.

Focus Group Notes:

- Baseline monitoring has been using data collected by stakeholders.
- Genetic samples (e.g., fin clips) of brook trout have been provided to Dr. Larson (UW-Stevens Point). Genetic analysis of Boardman River brook trout showed fish originated from New York and New Hampshire (called “Wisconsin domestics”). (*Response – mosaic of origins of brook trout throughout the Midwest. On small spatial scales there are native and non-native pops. Dr. Larson has built a baseline for many brook trout populations. Using the baseline, Boardman brook trout would be expected to look similar to North Shore*

Lake Superior fish if native. However, the analysis revealed Boardman brook trout resembled Wisconsin domestic strains that have origins from hatchery lines created decades ago in New England.)

- Agencies like the USFWS use non-native stock all the time (e.g., lake trout). Genetic stock is not the premise (generally or by the USFWS definition) for determining nativeness; genetic variation in brook trout is not the same as talking about letting non-native Coho, Chinook, or steelhead upstream. Genetic variation happens because of stocking, migration, etc.
- Records are conflicted about brook trout being native to the Boardman River. If they were native in the Upper Peninsula of Michigan, we have to assume they could get to the Boardman River if habitat were suitable. Are we drawing a line that something has to be original genetic stock to be worthy of conservation? Trout Unlimited feels the brown and brook trout fishery in the Boardman River are worth conserving and has value because of its uniqueness (self-sustaining) more so than its nativeness.
- Decisions about preferred species are value decisions.
- Self-sustaining nature has value.
- There are pollution issues in Kids Creek.
- We need to accept the data for what they are. Here, and for the project in general, it is important to not dismiss data just because it does not support a specific position.
- Need to remember/communicate that objective data are being collected and will be evaluated objectively.
- The good news is that we have self-sustaining populations of brown and brook trout; brown trout are likely naturalized but that is also good news as it means the objective of stocking is being (was) met.
- Successful brook trout, brown trout, and steelhead cohabitation plays out differently in different systems. We do not fully understand why, nor is it yet proven to be possible, so we need to examine this (i.e., analysis and literature review).

FishPass Response:

The intent of FishPass is to have no negative effects on upstream fish populations. FishPass is an adaptive management experiment; therefore, if negative effects on fish populations are detected, the operation of FishPass can be altered to mitigate those effects. The FishPass team has, in part, accounted for this concern in the Assessment Plan. Dr. Wes Larson, University of Wisconsin, Stevens Point has been engaged to begin a long-term genetic population monitoring study. The objectives of the proposed study are to: (1) collect baseline genetic data on five fish species above and below the Union Street Dam to determine if these populations are significantly differentiated and/or show differences in diversity and (2) collect eDNA samples from existing monitoring sites and pair these data with traditional surveys to determine the utility of eDNA for investigating species diversity and distribution patterns. The FishPass team has also collaborated with Dr. Brandon Gerig, Northern Michigan University, to lead an EPA funded pre- and post- FishPass contaminant study. The objectives of the study are: 1) assess the contaminant burden of Great Lakes spawners to inform future fish passage decisions; 2) evaluate the background contaminant burdens of resident fish prior to dam removal; 3) measure background contaminant levels of water within the Boardman River watershed; and 4) couple empirically collected diet data to a lifetime bioenergetics-bioaccumulation model to determine the impact of various fish passage scenarios on resident fish growth and bioaccumulation to inform consumption advisories. Additionally, Developing a communication strategy between the DNR, GTB, and angling community to participate in monitoring efforts is possible.

Action Items:

1. In conjunction with the DNR, GTB, TU, and any other interested parties, conduct a systematic review of the impacts of competition on brook trout for background information. Note, there is no guarantee that the trends seen in other systems will hold true in the Boardman River. The results of the DNR status and trends sampling sites will indicate if there are consistent trends in the Boardman River. Trout Unlimited had previously contacted Professor Emeritus Kurt Fausch (a brook trout expert at Colorado State University) to provide an evaluation of the Boardman River brook trout. A. Muir recently discussed the project with Dr. Fausch and he agreed to work with a panel of experts on the review. A. Muir will work with Dr. Fausch and collaborators to develop a scope of work for the systematic review.
 2. Conduct a formalized risk assessment for brook trout on the Boardman River to determine the impacts of introducing steelhead.
 3. FishPass team will share a draft copy of the FishPass Assessment Plan with group.
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<p>Issue 7: Nutrients are either adequate for brook and brown trout or believed to be limiting in the river system to the detriment of the brook and brown trout populations</p>	<p>Focus Group Discuss: YES</p>
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Workshop Input:

- Contribution of steelhead eggs or carcass biomass to nutrient dynamics in the river is unknown regarding impacts on brook and brown trout populations.
- Native species passed should meet upstream nutrient loading requirements.

Focus Group Notes:

- Nutrients not just carcasses and eggs, but also fry subsidy at a critical point in the season (late summer – early fall).
- Nutrient subsidies from the lake could be beneficial or detrimental. The issue is not clear cut and issue is further complicated because it can be system-specific.
- The Boardman River may not even be nutrient limited.
- Cascading ecosystem effects can result from minor shifts in nutrient levels.
- New Zealand mudsnail are present, but impacts are unknown.
- Some nutrient data are available on the Boardman River (20-year report was recently released by USGS).

FishPass Response:

Improved connectivity between the river and Lake Michigan could lead to net changes in nutrient loading via fish biomass. Uncertainties remain on availability of nutrients and net movement. The FishPass Assessment Plan will examine nutrient transfer by (1) studying the movement of adults and larvae in and out of the system, (2) longitudinal abundance sampling, and (3) energy transfer via a contaminant study. Part of the Assessment Plan is that we can modify FishPass according to what we learn along the way. How quickly changes can be detected remains to be seen, but will only improve with increased collaboration. By re-establishing controlled connectivity, we will be re-establishing historical nutrient cycles that once sustained the Boardman River. If Brook trout were native to the Boardman, they would have historically had access to Grand Traverse Bay and nutrient delivery from the bay that we are trying to restore.

Action Items:

1. MIDNR to provide Boardman River nutrient data from DEQ study.
2. FishPass team will share a draft copy of the Assessment Plan with group.

Construction and ownership

<p>Issue 8: The actual project budget has not been finalized and the sources of funds remain uncommitted</p>	<p>Focus Group Discuss: NO</p>
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Workshop Input:

- Federal funds often have native species benefits tied to them and proposals including passage of non-native species face opposition.

Focus Group Notes: None

FishPass Response:

The GLFC has received approximately \$2.2 million from the Great Lakes Restoration Initiative (GLRI) for the engineering design of FishPass and three baseline monitoring studies. A 30% engineering design of FishPass was completed in February 2018, and has an estimated construction cost (including construction observation, contingencies, and potential value engineering savings) of \$18-23 million. The GLRI has committed to support the construction at a level of \$12 million over 2 years (2019-2020) (contingent upon federal budget). We seek to close the gap of \$4-6 million by securing funding from state and federal funding and other grants.

Action Items: None

<p>Issue 9: A completed FishPass design does not guarantee construction – source(s) of capitol and operational project funding remain a work in process</p>	<p>Focus Group Discuss: NO</p>
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Workshop Input:

- Measurable targets/benchmarks need to be identified/clarified, including a retreat strategy in the event of project failure during any phase on the project.

Focus Group Notes: None

FishPass Response:

The GLRI has committed to support the construction at a level of \$12 million over 2 years (2019-2020) (contingent upon federal budget). We seek to close the gap of \$4-6 million by securing funding from state and federal funds and other grants. If FishPass fails at achieving desired levels of selectivity, it will still function as a full barrier with safer hydraulics and better hydraulic control capacity than the existing infrastructure. Moreover, the full barrier will stop sea lampreys for decades.

Action Items:

1. The FishPass team will continue efforts to meet with stakeholders as more details on project funding are developed.

Issue 10: FishPass facility ownership includes long-term maintenance, operational, fiscal, and legal responsibilities for structure and green space/educational components which have not been clearly articulated

Focus Group Discuss:
NO

Workshop Input:

- Need to build in a funding plan that can compensate for withdrawal of a partner.
- In the event of failure and harm to the river, responsibility rests with the City of Traverse City.

Focus Group Notes: None

FishPass Response:

The FishPass design is currently at the 30% level and it is normal at such a stage of a project for some funding to be outstanding. The associated risk here is no different from any other major building/site construction. The contingency plan developed by the Boardman River IT is that if funds are not secured (or a partner leaves) the IT will go back to the design identified by the USACE Feasibility Study to modify Union Street Dam and implement a trap-and-transfer operation.

Action Items: None

Research

Issue 11: Technical details of the research plan have not been clearly described to the public, or are not easily understood

Focus Group Discuss:
NO

Workshop Input:

- Fail-safe strategy has not been developed to prevent accidental upstream infestation if FishPass fails during the research phase.

Focus Group Notes: None

FishPass Response:

The FishPass team has a long track record of meeting with stakeholders and discussing each step of the project. Our current research plan comprises a basic, applied, and extension phase focused on three primary questions: 1) What are the sortable attributes of fishes at FishPass and how can they be used to promote passage of desirable fish and block and/or remove undesirable fishes in the Boardman River; 2) How can technologies that exploit or overcome sortable attributes be improved or used synergistically to direct, sort, assess, and manage (pass or remove) fishes moving in a river; and 3) How can selective fish passage improve watershed connectivity and improve fishery management? The research plan is currently in the initial state of development and will be completed by 2020. The FishPass team will make the research plan available at the appropriate time.

Action Items:

1. The FishPass team will continue efforts to meet with stakeholders as more details on the plan of research is developed.

Issue 12: The details of experiments that will be undertaken are not available

Focus Group Discuss:
NO

Workshop Input:

- Specifics of technologies for sorting and passage of desirable species that will be tested have not been communicated.
- Phased details of blockage during construction have not been explained.

Focus Group Notes: None

FishPass Response:

The FishPass team is currently working to identify specific technologies that will be considered. It is also expected that new technologies not yet anticipated will emerge and become a part of FishPass. Application of the research plan will follow the three phases listed in Issue 11 and be modified each year once annual assessment data have been analyzed. Research will align with adaptive management principles, an approach that recognizes uncertainties, multiple problem-solving strategies, and allows for adjustments to be made each season or until the sorting capacities are fully optimized. Loosely, experimental designs will borrow from and integrate technologies developed for fish passage and sea lamprey control (<http://www.glf.org/control.php>). The research plan is currently in the initial state of development and will be completed by 2020. The FishPass team will make the research plan available at the appropriate time.

Action Items:

1. The FishPass team will continue efforts to meet with stakeholders as more details on the specific technologies to be tested are developed.
2. The FishPass team will attempt to develop a formal arrangement with Northern Michigan College for fabrication and development of technologies to support FishPass.

Success/Failure

Issue 13: The definition of project success has not been clearly articulated

Focus Group Discuss:
NO

Workshop Input:

- Biological expectations, science based, passage % targets, permanent fail-safe in the event of escapement needs to be planned.
- Problems that FishPass intends to resolve beyond sea lamprey blockage need to be defined and communicated.
- The definition of success must be based on the balance of economic and ecological benefits.

Focus Group Notes: None

FishPass Response:

The overarching goal of FishPass is to provide up- and down-stream passage of desirable species while simultaneously blocking and/or removing undesirable species. To achieve this goal, FishPass has three scientific objectives: 1) develop and implement selective bi-directional fish guidance, sorting, and passage techniques and technologies; 2) determine protocols for implementing selective passage solutions within the Boardman River and throughout the Great Lakes Basin; and 3) set solutions in a global context so the approach can be exported. Additionally, the FishPass team extensively consulted with Traverse City planners, local residents and businesses, scientists, and the community at large, to articulate project goals to reflect the values of the community and serve as guiding principles for the design, construction, and operation of FishPass. The project goals are organized according to core aesthetic, biological, economic, recreational, and social elements of the project. The goals refer to broad statements of anticipated project results and if desirable, specific measurable metrics for goal achievement can be generated to support project evaluation. In the event that FishPass is unable to achieve selective, bidirectional fish passage, the project would not fail the Boardman River because a new barrier will be in place to block the movement of sea lamprey upstream.

Action Items:

1. The FishPass team will prepare documents detailing each project element and goals for gauging project success, and make them publically available on the FishPass webpage (<http://www.glf.org/fishpass.php>).

Education and Outreach

Issue 14: The FishPass project site should be optimized to create an educational curriculum to increase young angler exposure and improve angler recruitment - efforts should include interactive technology based tools - improve understanding of the whole ecosystem

Focus Group Discuss:
NO

Workshop Input:

- A fish viewing window should be incorporated into the project.
- Consultation with the GTB and incorporation of “water keeper” values need to be built into the curriculum.
- GTB involvement in the Boardman River Restoration dam removal decisions should be shared with tribes and first nations as a symbol of hope for appreciation of water as the life blood of the earth.

Focus Group Notes: None

FishPass Response: The FishPass project at the Union Street Dam is to be a “living laboratory,” as technologies for fish passage and invasive species control are demonstrated and evaluated. The site is close to downtown and is part of both paddling and walking routes. The site provides unique opportunities for first-hand outreach and education features. It is anticipated that FishPass will appeal to all ages of residents, visitors, students, and teachers. The site also offers opportunities for extended outreach, such as through the internet. The following items are being considered for inclusion to FishPass:

1. Parking for visitors
2. Public restrooms
3. Underwater cameras, connected to the internet
4. Space to explain the FishPass project:
 - a. A video monitor(s) showing underwater footage
 - b. A scale model of FishPass and technologies being tested
 - c. Signage
 - d. Display(s)
5. River access and kayak/canoe/boat docking for visitors who come by water
6. Dock for anglers and visitors
7. Portage for paddlers
8. A paved, accessible-for-all viewing area to allow visitors close access to the technology being demonstrated
9. A walking path along the length of any fish passage device (so long as it does not interfere with the technology)
10. “Classroom” space to accommodate kids and adult visitors
11. Signage to explain such things as:
 - a. Boardman River geography / geology
 - b. AIS and the harms they cause
 - c. Sea lamprey and the destruction they cause
 - d. Flora and fauna of the river
 - e. Hydrology
 - f. Fisheries
 - g. The history of the Union Street Dam
 - h. The technology being demonstrated

Action Items:

1. The FishPass team will engage GTB to develop educational materials and language to be added to the Communications and Outreach Plan.

Issue 15: Improve positive marketing is necessary now to explain the potential benefits of FishPass on socioeconomic, ecological, commercial, and tourism scales

Focus Group Discuss:
NO

Workshop Input:

- Assessment of economic benefit must be made through fishing type, species, location, and sector benefitted.
- Include the concept of the Boardman River as a “differentiator” for the community stemming from its unique designation as a natural river and its unique fisheries.

Focus Group Notes: None

FishPass Response: An economic evaluation is beyond the scope of the FishPass project. Certainly, the team feels that the project will have a net positive influence on the community and on the ecosystem. The Trap and Transfer Facility, just downstream of the Union Street Dam site receives more than 10,000 visitors per year.

FishPass will benefit Traverse City and is consistent with objectives of the Traverse City Master Plan.

- On January 3, 2018, the FishPass Project was evaluated by the City Planning Commission and was found to be consistent, by unanimous vote (9-0), with the City Master Plan in terms of location, extent and character. This decision was communicated to the City Commission several days after the vote. FishPass recognizes this site will likely become a destination. As such, every effort to accommodate an increase in all forms of transportation has been taken:
 - There are plans for connecting walks to adjacent parks and properties along with other features. Formal pathways will allow people to walk and or bike east and west and north and south.
 - A kayak rail will ease the portage around the labyrinth weir located at the upstream end of the nature-like channel.
 - FishPass is located in the TC-5 Downtown Neighborhood. The master plan states that in this area of the community, efforts to integrate the Boardman River and Grand Traverse Bay into the fabric of the neighborhood should be taken. FishPass meets the standards for this high-intensity neighborhood, particularly as it relates to accommodating or supporting pedestrian-focused land uses. FishPass is expected to: increase movement of individuals between the site and local businesses; increase the amount of time the public spends in the area; increase traffic to local businesses; serve as a regional education tool; improve stewardship of the Boardman River; and, serve as a local gathering place for residents and tourists alike, fulfilling many of the core principles of the TC-5 Downtown Neighborhood.
 - A healthy river means a healthy and vibrant city!

Action Items: None

Larger Project

Issue 16: FishPass as a destination will result in increased foot/angler/boater traffic throughout the system resulting in the increased need for boating and angling regulations/enforcement (e.g. catch-and-release, artificial bait, watercraft permitting, no-trespass areas, increased shoreline stabilization)

Focus Group Discuss:
NO

Workshop Input: None

Focus Group Notes: None

FishPass Response:

The Boardman River has long been the subject of a broad, comprehensive “natural river plan” that envisions dam removal, fishery improvements, better land use, and incorporation of the river into the city’s goals for downtown development and livability. Starting several years prior to the initiation of FishPass, the plan has been a priority for a wide range of partners including the State of Michigan, GTB, and city of Traverse City. FishPass is now positioned to be the capstone project to the entire river restoration. We anticipate FishPass will be a destination for researchers, tourists, and the community. FishPass will create opportunities to educate students, visitors, school children, and college students about river ecology, connectivity, fishery management, invasive species, and fish passage technologies. As a result, these activities are likely to alter usage of the river and surrounding lands throughout the watershed, not just at FishPass. As the restoration of the river required partnerships throughout the watershed, so too will management of the increased use of the river. The GLFC will continue to work with all organizations, communities, and agencies already partnered in the river restoration to achieve the best management approach for the system.

Action Items: None

<p>Issue 17: Integration of the FishPass, Boardman River Restoration and the East/West Corridor Study projects need to be consciously pursued</p>	<p>Focus Group Discuss: NO</p>
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Workshop Input:

- Assess all impacts of FishPass on surrounding infrastructure (access, roads, shoreline stability, sediment loading).
- The Boardman River should be renamed to reflect its rebirth and to eliminate all reference to its previous abuse.

Focus Group Notes: None

FishPass Response:

The FishPass team has ensured FishPass is integrated into the Boardman River Restoration Project. The GLFC has received support from the Boardman River IT, provides project updates at the monthly IT meetings, and hosts several IT members on the FishPass advisory Board. On January 3, 2018, the FishPass Project was evaluated by the City Planning Commission and was found to be consistent, by unanimous vote (9-0), with the City Master Plan in terms of location, extent and character. The Grand Traverse County Board of Commissioners has also been briefed on FishPass and signed a statement of support on April 26, 2018.

Action Items:

1. FishPass team will seek results from the east/west corridor study and discuss how the projects could integrate.

Other

<p>Issue 18: Downstream transport of sediment and its impact on stream habitat and infrastructure need to be considered, including a sediment management budget for FishPass</p>	<p>Focus Group Discuss: NO</p>
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Workshop Input: None

Focus Group Notes: None

FishPass Response:

AECOM and the USACE have done extensive sediment transport modelling for the entire Boardman River System. Models have shown that Boardman Lake will settle out the majority of sediment load that will move down. In the unlikely situation that sediment loading does become an issue at FishPass, the bottom mounted headworks gates are capable clearing sediment collecting at the structure.

Action Items:

1. Final engineering design will evaluate sediment transport at the FishPass facility.

<p>Issue 19: Drift boat passage needs to be incorporated along with the currently planned kayak passage</p>	<p>Focus Group Discuss: YES</p>
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Workshop Input: None

Focus Group Notes:

- Potential new opportunities using existing boat launch on Boardman Lake. May provide access to new section of river the people do not currently float.
- Drift boats are pram-style (e.g., Mackenzie boats) that weight ~300 lbs. Two able-bodied people could portage it using the proposed slide.
- Handicap accessible vessels should also be able to use the kayak slide.

FishPass Response:

The current kayak portage design is consistent with recommendations of the Boardman River Water Trail Plan.

Action Items:

1. Mike Sipkowski will provide details on potential boat sizes to FishPass team.
2. Final engineering design of portage will investigate the possibility of providing access to drift boats.