MICHIGAN STATE UNIVERSITY

Quantitative Fisheries Center (QFC) Completed Project Briefing

Using Structured Decision Making to Evaluate the Tradeoffs of Selective Fish Passage

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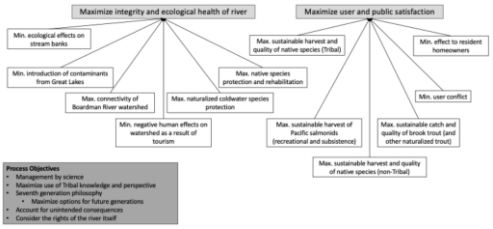


Caption: Objectives hierarchy of stakeholder values for the FishPass project in Traverse City, MI.

Goal: Use structured decision making (SDM) to evaluate tradeoffs of fish passage at dams, balancing ecological, social, and economic outcomes while considering stakeholder priorities.

Objectives:

1. Identify and incorporate stakeholder values for fish passage decisions.
2. Quantify ecological consequences for native and invasive fishes.
3. Assess social and economic outcomes, including recreation, flood control, and infrastructure impacts.
4. Evaluate and compare alternatives using a multi-attribute tradeoff framework.
5. Explore how different stakeholder priorities influence the preferred management option.

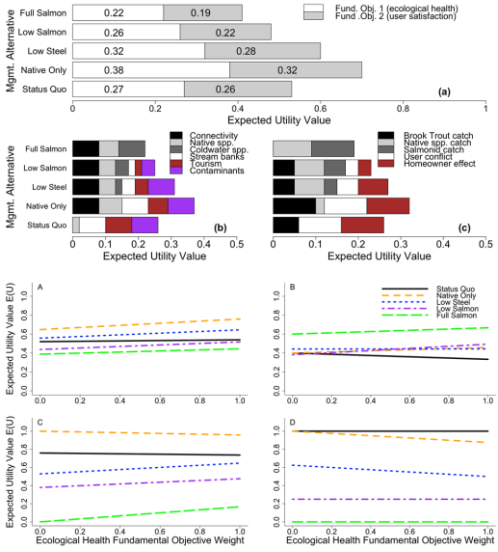
Management Implications: The framework supports transparent, informed decisions for fish passage, helping managers balance ecological benefits, social values, and economic costs while explicitly showing tradeoffs.

Methods:

- Applied an SDM framework.
- Conducted stakeholder engagement to identify and weight values and objectives.
- Modeled ecological, social, and economic outcomes for each passage scenario.
- Tested sensitivity of outcomes under different weighting scenarios.

Key Findings:

- Native-fish-only passage consistently scored highest across stakeholder objectives, balancing ecological, social, and economic values.
- Stakeholder values drive tradeoffs — the preferred management option changes depending on whether ecological, social, or economic values are emphasized.
- Multi-attribute tradeoff analysis reveals clear costs and benefits, making complex decisions transparent and easier to communicate.



Caption: Ranking fish passage alternatives and multi-attribute tradeoff methods for evaluating the optimal fish passage alternatives to achieve stakeholder objectives.

Deliverables: Flinn, S., A.M. Muir, and K. Robinson. 2026. Using structured decision making to evaluate the tradeoffs of selective fish passage. Conservation Science and Practice. e70234. Download here

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