

# Draft Lower Missouri River Pallid Alternative and Implementation Framework

## ISAP Preliminary Evaluation Response

Builds on ISAP presentation to SPA  
Task Group/ISAP Call, April 29, 2015;  
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discussion May 18 at MRRIC meeting,  
Sioux Falls

# Pallid Draft Framework ISAP Response Outline

- General Observations and Comments
- Specific Comments
  - Food Limitation
  - Spawning Cues
  - Spawning Habitat
  - Interception Rearing Complexes
- Pallid Sturgeon Framework and Bird AM Examples
- Pallid Framework ISAP Response – The Road Ahead

## General Observations and Comments

- Initial positive response based on ISAP review to date
- Draft document appears consistent with its stated purpose
  - Describes the organizing and implementing actions to address hypotheses concerning factors limiting pallid reproduction and recruitment
  - Forms a basis for developing a management alternative for the MP-EIS
- Further describes the structured decision-making process and the levels of implementation previously presented to MRRIC
- Recognized as a step forward but a “work in progress”

## General Observations and Comments

- Hypotheses might better be addressed as degrees of limitation, rather than binary decisions (i.e., Figure 1)
- Limitations need to be defined in context of overall species objectives and the previously developed conceptual model for pallid population dynamics
- Interrelationships among limiting factors should be explicitly addressed in the decision making process (i.e., Figure 2) and design of management alternatives
- Need to consider implementation of multiple management actions and ability to subsequently evaluate importance of individual alternative hypotheses to pallid responses

# General Observations and Comments

- Presentation of evidence needed in support of success anticipated or claimed for individual management actions by adding the underlying science (e.g., EA results)
- Need to better justify the degrees of uncertainty assigned to individual management actions
- How were the various timelines derived for individual actions? What are the implications for AM implementation and reporting?

## General Observations and Comments

- Definition of a management alternative consisting of separate management actions, while common USACE terminology, might suggest a set of independent actions implemented with insufficient consideration of the overall pallid conceptual model or well-defined species objectives
- Are other management alternatives being developed?
- Emphasize research, monitoring, and assessment for Levels 3 and 4 in terms of meeting species objectives instead of reducing uncertainty
- For the scorecard, identify opportunities for updates at other times (real time) in addition to the AM reporting cycle

## Specific Comments – Food Limitation

- Food items to include plant material and detritus
- Why is FO-4 answered “yes” when the kind of food needed seems not yet resolved (i.e., FO-1)
- Not clear why high productivity in older age classes would provide information in relation to food limitation of age-0 fish
- FO-3, has SWH been demonstrated to provide food for age-0 pallids?
- FO-4, have high flows been demonstrated to produce food for age-0 pallids? Should answer be “not yet”?

## Specific Comments – Food Limitation

- Is it possible to stock larvae with any reasonable hope of learning anything through monitoring of older fish?  
Justification of expected results as “Medium to High”?
- Figure 6 suggests an age-0 target survival of 0.00011; is it feasible to determine survival to this degree of precision from field monitoring (i.e., statistical power, sampling, and cost)?
- Might increased food produced by management actions simply shunt to competitors or predators of age-0 pallids?
- Are timelines of 5-10 years relevant or practical for evaluations of management actions within the context of AM?



## Specific Comments – Spawning Cues

- Questions SC-1, SC-2, and SC-4 are answered “Not sure yet”, so what is the justification for a “Yes” answer to SC-3?
- Affirmative answer to SC-3 seems to hinge upon the phrase “in theory”
- Report recognizes the previous ISAP assessment of the efficacy of releases from Gavins Point (SC-4 discussion), but continues to support such releases as influencing spawning.
- The discussion of SC-5 further questions the answer of “Yes” to SC-3

## Specific Comments – Spawning Cues

- Regarding SC-1a discussion, what is the efficacy of a field monitoring approach in estimating spawning success and relating spawning to variable flow conditions?
- Potential for confounding effects between small numbers of reproductive adults and spawning success influenced by flow conditions
- Need to evaluate likely range of flow conditions in 5-10 year periods from historical data
- Implications of 5-10 year study on implementation of pallid population dynamics model?

## Specific Comments – Spawning Cues

- Regarding SC-2 discussion, might other factors (e.g., substrate type, turbidity) influence spawning in addition to flows?
- How will laboratory studies be performed with adult pallid sturgeon? Recognition of limited laboratory facilities as a constraint.
- Another 5-10 year timeline, possibly longer. Realistic?
- Implications of 5-10 year study on implementation of pallid population dynamics model?

## Specific Comments – Spawning Cues

- Regarding SC-3 discussion, seems to ignore previous ISAP evaluation of possible and permissible spring releases (e.g., Gavins Point operations manual)
- Regarding SC-4a, again assumes that managed flows from Gavins Point can be used to influence spawning success, which has been questioned in previous ISAP review of this management action.
- Recognized critical uncertainty in assumed relationship between flows and spawning, yet likelihood of clear results defined as “Medium”
- Unclear why 3-year study deemed sufficient

## Specific Comments – Spawning Cues

- How does Level 3 implementation differ from the Level-1 and 2 activities needed to understand and justify Level-3 decision?
- What is the basis for the detailed development of flow scenarios described for Level 3? How do they relate to flow scenarios implied by SC-1 through SC-5?
- Efficacy of Level-3 implementation given large uncertainties, likelihood of unclear results, and potential stakeholder impacts
- Justification of adaptive actions (start low, incrementally increase pulse) if required “signal strength” unknown or poorly understood.

## Specific Comments – Spawning Habitat

- Questions SP-1 and SP-4 are answered “Not sure yet”, with SP-2 perhaps partially understood. Therefore, what is the justification for a “Yes” answer to SP-3?
- Critical question concerns transferability of UMR spawning habitat results to LMR for SP-1a
- Justification of “medium” likelihood of clear results for SP-1a, given the lack of understanding and high uncertainties?

## Specific Comments – Spawning Habitat

- Given the supporting discussion of SP-1b, how is it justified to claim “medium to high” likelihood of clear results?
- It is not clear how the modeling efforts will address the substrate aspects of functional spawning habitat as described in the SP-4 description.
- Not sure it is possible to determine sufficient amount of LMR spawning habitat independent from solid quantitative understanding of pallid population dynamics.
- Not convinced that Level 4 implementation is possible given the discussion of SP-1 through SP-4.

## Specific Comments – Interception Rearing Complexes

- Need for more explicit integration of food producing, foraging, and interception habitats in the document
- Aggregate presentation of these hypotheses in the report to emphasize their interrelationships on pallids
- Provide a separate discussion of larval drift as a hypothesis distinct from IRC; emphasize larval drift as influenced by a variety of factors (e.g., flows, channel morphology, substrate type, upriver migration)



## Specific Comments – Interception Rearing Complexes

- Unimpeded drift into Mississippi River does not remove drift from potentially limiting factors
- Drift should be considered in relation to the amount and location of interception and foraging habitat
- Justify designation of YES or NO responses on checklist of IRC hypotheses in relation to current science
- Consider effectiveness of SWH on enhancing pallid larval survival and growth
- Consider potential for SWH to create resources for competitors or predators of pallids

# Pallid Sturgeon Framework and Bird AM Examples

- The recently distributed shorebird “examples” provide worthy targets for the six “paths to implementation” that are described for the sturgeon hypotheses
- The pallid framework document might present an example description -- using the bird example format -- of the steps from the level-2 research investigations (the incremental approach) to level-3 management actions to full AM implementation for one or more of the pallid sturgeon habitat-based management hypotheses

## Pallid Framework ISAP Response – The Road Ahead

- Collaborate with MRRIC and agencies in developing focal points and questions to help facilitate the review (e.g., email from agencies concerning Type I and II errors, acceptable uncertainty in relation to management actions)
- Continue the internal ISAP review process of framework (and/or AM cycle write-ups as they are produced)
- ISAP presentation of review progress at May, August MRRIC meetings
- Provide written review (i.e., draft, final) at appropriate times