ISAP Observations for MRRIC

on

Monitoring Plans and Fall Science Meeting

Kansas City, Missouri, November 27-29, 2018

Introduction:

- USACE is fulfilling its commitments towards implementing adaptive resource management
- The best available science is being considered and mobilized in early design stages of the monitoring programs for fish and birds
- Recent Fall Science Meeting (FSM) was rich with information useful in reducing uncertainties that challenge resource managers
- The program has been responsive to ISAP review and critique, noting that feedback and adjustment is an active process playing out in real time

Pallid Sturgeon:

- ISAP appreciates response on 08/31/2018, entitled "Response to ISAP Webinar on PSPAP and Effectiveness Monitoring (Aug. 20, 2018)", to our overarching comments

<u>Several ensuing comments concern the IRCs</u>:

- How does the time delay and possible depletion in IRC construction impact the power analysis (i.e., replicates needed to detect a given effect size)?
- The high flows in 2018 provide useful information for testing the effects of discharge on IRCs (results, design); suggest capitalizing on such events
- The relationships among larval interception/retention, food production, and fish foraging (gut fullness) in IRCs should be considered in IRC studies

Pallid Sturgeon (IRCs continued):

- Need to quantitatively relate results from IRC studies to pallid population viability and population demographics in lower Missouri River and Mississippi River
- If the demographic unit includes the Mississippi River, where hybridization is more common, does the function of IRCs become more critical for retarding drift into the Mississippi River? Some consideration is warranted
- Suggest modeling the effects of interception on pallid population viability (i.e., how is interception related to pallid sturgeon recruitment and functional response?)
- Address sampling sufficiency for robust statistical analysis in both rivers (i.e., spatial and temporal); example is volumetric estimates of different samplers

Pallid Sturgeon (other comments):

- What is the current status and application of the pallid sturgeon population model? Was the lack of a presentation on this at the FSM intentional?
- What is the current status of the pallid sturgeon condition issue? A treatment of this also seemed to be largely absent from the FSM
- Drift studies (simulations and field releases) appear to still be affected by assumption of passive transport of particles, whereas sturgeon larvae have behaviors that can induce settling. How are these being treated?
- Combine and collaborate among studies as appropriate, given the impression that some studies on similar topics are being conducted independently (e.g., new invertebrate studies)

Bird Monitoring Workshop – Oct 4-5

- Agenda followed structured multi-step process
- Considered relationships among current data collection, ongoing modeling, and AMP information needs
- Explored the challenge of gaining necessary information for the portion of the piping plover population that nests beyond the river and its reservoirs
- Recognized monitoring obligations in light of constrained near-term budgets
- Identified the need to describe alternative approaches to data collection in the bird monitoring plan, understanding that MRRP information needs only partially overlap with recovery plan needs
- Identified the need for additional expertise and leadership in planning for the adaptive management of the birds

Bird Monitoring:

- Plovers that nest on the river and along reservoirs are elements of a single, larger population that also nests on the adjacent alkali lakes in North Dakota.
- The plover population at this larger scale will have to be addressed at some level of detail to properly design, implement, monitor, and interpret the effects of ESH management that occurs in the river
- The Bird Team has identified uncertainties and data needs for developing revised models that address the population at the larger scale
- The forthcoming bird monitoring plan will recognize the potential need to address the plover population at the larger spatial scale and will attempt to shed some light on possible approaches

Bird Monitoring (continued):

- Need to reach a consensus decision on the proper scale for modeling, monitoring, analysis, and management of piping plovers
- Establish priorities and develop time schedules within the AMP for updating plover modeling capabilities and developing a spatially commensurate monitoring program
- Develop robust statistical designs for monitoring at the larger spatial scale; ensure that statistical designs inform monitoring plans
- Continue integration of bird monitoring, modeling, and population analysis in both designing bird monitoring plans and evaluating outcomes of management actions

Fall Science Meeting (suggestions):

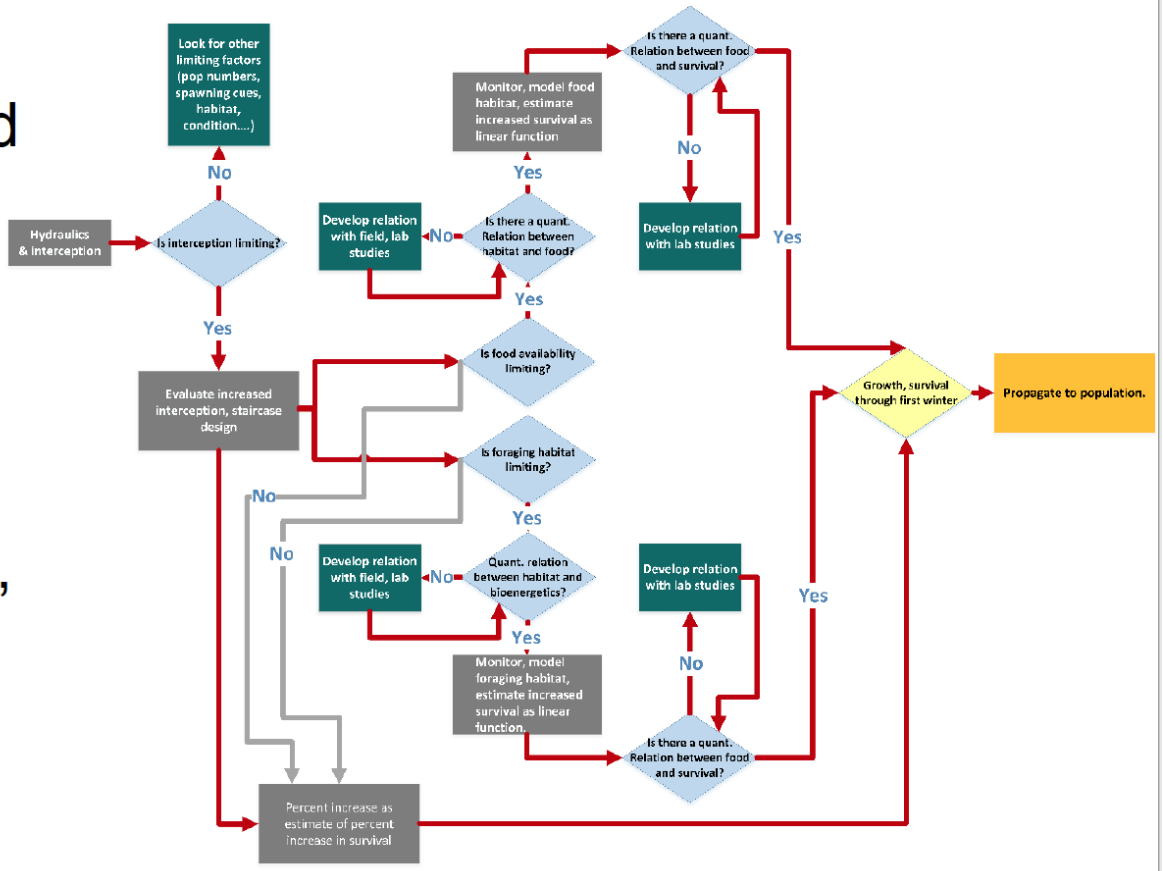
- FSM is MRRP annual state-of-the-science forum; should be face-to-face engagement that allows full discussion of presentations, including quality, limitations, and application in meeting SAMP objectives
- Prioritize presentations based on technical content and immediate application to program objectives; other work could become poster presentations
- Organization of presentations to address *Big Questions* provides a useful roadmap for listeners
- Data and analyses from research and monitoring should be presented in the context of the conceptual ecological models, mathematical models, decision trees, and program objectives

Example of decision tree:

We can map out how each source of information applies and how decisions are made based on that information.

Implicit in Appendix C.

If decisions are yes/no, can prune sections of the decision tree.



AM Process and Needs:

- The structured decision process should be foundational to adaptive management of plovers and pallid sturgeon (e.g., Long-Fischenich presentation)
- Useful to determine the corresponding “signal strength” of permissible management actions, and forecast anticipated outcomes on management objectives
- Fundamentally, is there sufficient “signal strength” and “band width” to expect measurable responses commensurate with management objectives?
- Address Information Management System (IMS) options to accommodate new information and determine how IMS can integrate disparate studies in service of AM evaluation and decision-making

Concluding Remarks:

- Information on the status and trends of the listed species from landscape areas beyond the river channel is necessary for purposes of management planning, thereby creating jurisdictional and coverage challenges for the MRRP
- Designs for fish and bird population monitoring and project-effectiveness monitoring remain under construction and will need further review and assessment
- Science advice and review to the newly established technical teams and work groups will require in-person engagements, written critique and assessment, and responses from the agencies designing and implementing adaptive management
- We believe that robust and incisive scientific advice and review can be delivered even under constrained budgets while also accommodating stakeholder involvement and oversight