

**ISAP Response to SPA Clarification Questions Sent 3/22/2012  
4/9/2012**

(Responding directly to action items/questions as posed in 3/22 letter)

1. An effects analysis should be developed that incorporates new knowledge that has accrued since the 2003 Amended Biological Opinion. As part of this analysis:
  - The effects of the Missouri and Kansas River Operations on the listed species should be reviewed and analyzed in the context of other stressors on the listed species;
  - The quantitative effects of potential management actions on the listed species should be documented to the extent possible; and
  - These potential management actions should be incorporated into the CEMs.

*ISSUE RAISED: Consider adding the Platte and other important tributaries where agencies already have management actions ongoing*

*SPA Task Group UNDERSTANDING: the effects analysis (while much is to be defined) is intended to assess the effects of the Corps' river operations on the listed species; the efforts of other agencies and management actions related to tributaries can be addressed in the CEM process*

**ISAP RESPONSE: The effects analysis is intended to assess the effects of the Corps' river operations on the listed species. But more specifically, the effects analysis is intended to help identify, assess, and compare potential management actions that could contribute to creating and sustaining the habitat features necessary to support those species. To that end, an effects analysis should be based on one or more models that in combination describe the extent to which a listed species' performance may be quantitatively affected by specified management actions. The SPA is correct in noting that many of the details of these models have yet to be defined, and there are alternative forms that a CEM (modeling) framework ultimately might take. But, ideally it should focus on predicting the effects of potential management actions on some surrogate of population viability for the targeted species.**

**The application of data, analysis, and synthesis drawn from additional reaches on the Missouri River and its tributaries, especially those for which information is readily available (and management for the listed species is ongoing) can only better inform the effects analysis. The ISAP believes that it is appropriate to do so for two reasons. First, metapopulations of the species occur beyond the lower Missouri River, including other tributaries in the system; effective management plans should take into account that larger spatial context. Second, within that larger spatial context, hydrodynamics frequently are not synchronous between the Missouri River main-stem and its many tributaries. Accordingly, the most effective management opportunities during a given year or season might well occur on a specific tributary**

**and not the mainstem, or vice versa. An effective adaptive management strategy targeting the three listed species will consider both where and when opportune conditions occur throughout the Missouri river system.**

2. Conceptual ecological models should be developed for each of the three listed species and these models should articulate the effects of stressors (including but not limited to flow management, habitat restoration actions, and artificial propagation) on species performance.

*ISSUE RAISED: Why is it limited to the three listed species as opposed to all native species of concern?*

*SPA Task Group UNDERSTANDING: the CEMs will, by definition, capture any competitor, potential prey species, and any species that interact with the listed species; further, the focus of this effort is to avoid jeopardy regarding the three species and as such the Corps' and Service's efforts on species performance should be focused on those three species*

**ISAP RESPONSE: Development of conceptual ecological models for additional species could, of course, increase the efficiency and efficacy of management planning on the Missouri River. At this stage in planning, however, the priority should be placed on completing the planning efforts for the three listed species. Once this has been accomplished, then additional resources could be devoted to expanding the scope of planning to other species or communities.**

**It will never be feasible to incorporate all native species, however, and some future decisions will have to be made about which additional species are most important for purposes of planning. Future modeling efforts might target candidate species that are subject to future listings, species viewed as potential indicators of the ecological health or integrity of the system, umbrella species, or Species of Special Concern that have been identified by resource agencies within the region. Another approach to expanding the ecological scope of management planning is by developing “community” models, which describe the health of an entire ecosystem. Such models already exist, and could be adapted, for example, for the forest ecosystems along the Missouri River. Ultimately, management planning will benefit from well-developed CEMs that are focused on an array of species (or ecological communities) that inhabit the Missouri River system and are supported by the system’s diverse ecological processes.**

**Please note that the term “stressors” in the wording of action 2 above was not in our report recommendation, which was “Conceptual ecological models should be developed for each of the three listed species and these models should articulate the pathways from management actions to species performance.” Although stressors should be included in the CEMs, mitigative management actions hopefully will not appear on the stressors**

**list. Perhaps the sentence could be revised to state “...effects of stressors and mitigative actions (including...”**

3. Other managed flow programs and adaptive management plans should be evaluated as guidance in development of the CEMs and AM strategy for the Missouri River Recovery Program.

*NO ISSUES RAISED*

4. An overarching adaptive management strategy should be developed that anticipates implementation of combined management actions and mechanical habitat construction, and this strategy should be used to guide future management actions, monitoring, research, and assessment activities within the context of regulatory and legal constraints.

*ISSUE RAISED: “mechanical habitat construction” may presuppose an outcome; does that present a problem?*

*SPA Task Group UNDERSTANDING: the ISAP indicated, in multiple places, they believe that mechanical habitat construction would be necessary in order to avoid jeopardy because flow management alone will not suffice*

*ISSUE RAISED: in the original recommendation from the Final Report you included “flow management actions and mechanical habitat construction” and then in your December 9 letter the word “flow” did not precede “management actions and mechanical habitat construction” – was there a particular reason it was not included in the letter?*

*SPA Task Group UNDERSTANDING: our sense is that the word flow was mistakenly removed in the letter; if that is the case, we believe MRRIC will want to reinsert the word ‘flow’ in the proposed action*

**ISAP RESPONSE: The RPA in the 2003 biological opinion prescribes spring pulse releases from Gavins Point Dam to ameliorate the effects of the damped hydrograph below the dam caused by normal dam operations. The prescribed releases presupposed the desired outcomes of habitat creation and persistence, among others. After nearly a decade of intermittent releases, few signs exist that implementation of spring pulses as prescribed and implemented will serve to meet the intent of the RPA. It is reasonable to believe that flow management including spring pulse releases might have a greater likelihood of generating the intended outcome of providing habitat for the listed species if supplemented by additional directed construction actions.**

**The word “flow” preceding “management actions” should have been included in the December 9 letter.**

**Please note that potential management actions for the three species should not be limited or restricted to flow management and mechanical construction as currently practiced – the effects analysis, modeling exercises, and adaptive management planning should be structured to turn up other creative or innovative management approaches that currently may not be evident.**

5. Monitoring programs along the Missouri River should be designed so as to determine if hypothesized outcomes are occurring and the extent to which they are attributable to specific management actions.

*NO ISSUES RAISED*

6. The agencies should identify decision criteria (trigger points) that will lead to continuing a management action or selecting a different management action. A formal process should be designed and implemented to regularly compare incoming monitoring results with the decision criteria.

*ISSUE RAISED: What does “formal” mean?*

*SPA Task Group UNDERSTANDING: it would be helpful to confirm what the ISAP intended when they used the term ‘formal’ in their recommendation? Did they mean formal consultation such as is defined in the ESA or something such as a documented process?*

**ISAP RESPONSE: “Formal” was, perhaps, not the appropriate adjective to use in the reference to an essential step in the adaptive management process. The ISAP did not intend to invoke the term formal as is associated with consultation or rule making as required by process directives under the federal Endangered Species Act. Instead, to “regularly compare incoming monitoring results with... decision criteria” the panel strongly encourages the implementation of a clearly articulated, structured, step-down process by which monitoring data (and associated findings, and other data and findings pertinent to assessing the effectiveness of prescribed management actions) are synthesized, interpreted, and transferred to a body (bodies) that is empowered to identify next management actions, adjust data collection efforts, amend CEMs, or otherwise complete the loop of information transfer and management action under adaptive management. The ISAP used the term formal to mean explicitly described, structured, and repeatable.**

7. Baseflow restoration should be evaluated as a potential management action.

In reviewing the report and developing a set of proposed actions for moving forward on fulfillment of the ISAP Final Report recommendations, we have determined there would be significant value in getting a better understanding of the ISAP’s inclusion of this

recommendation. To that end, please consider the questions below and share your thoughts with us (and the full MRRIC) at your convenience.

- a. Please define baseflow and baseflow restoration for the Missouri River in the context of your report.
- b. Does your recommendation: "*Baseflow restoration should be evaluated as a potential management action.*" (pg 40) and the seven bulleted justifications (pg 39) only refer to the time period reflected in the statement on pg 39: "*the current minimum flows during the late summer and autumn are substantially greater than the maximum flows experienced during the same months prior to flow regulation*", or is it baseflow considering the entire calendar year? i.e., "*Evaluation of potential baseflow management actions would acknowledge that the entire hydrograph is ecologically important, and could broaden the consideration of ecological effects of flow management beyond a short temporal window in the spring*" (pg 40). Does your recommendation generally entail one or both of these intervals, or is it for some other period?

Background: Galat and Lipkin (Hydrobiologia 2000, 422-423, pg. 39) reported that Missouri River pre-impoundment *annual* daily discharge minima occurred between mid-December and early January, but that timing of lowest daily flows between May and October (growing season) occurred between 10 Aug and 9 Oct.

- c. Please comment on whether it is actual base flow (discharge, cfs or cms) or the analogous ecological benefits associated with navigation flows plus mechanical constructions that you are recommending be evaluated as a management action – or if you consider them inseparable?
- d. In your response to questions we raised in December you indicated this recommendation was part of a 'third sequence' following the first two 'sequences' of recommendations; while you indicated "it is important to note that in reality, all of the recommendations are bundled together and must done simultaneously" please expand on the intent of separating it out in the letter?

**ISAP RESPONSE: Three management tools potentially available for meeting the intent of the RPAs in the 2003 biological opinion to mitigate for losses of habitat for the three listed species on the Missouri River below Gavins Point Dam that are associated with normal river operations include 1) spring pulse releases, which have constituted the de rigueur action over the past decade, 2) mechanical construction of habitat, which could supplement flow management in meeting the intent of the RPAs, and 3) management for base flows, periodically and episodically realized flow minima, that served historically as distinct hydrological phenomena that generated unique ecological conditions. We make no assertions regarding the value of realized base flows in meeting the intentions of the RPAs in the 2003 biological opinion. However, the ISAP notes that there is no known scientific justification for excluding management for base flows as a conservation-planning tool. Considering base flow**

**encourages a more holistic view of the hydrograph and how the entire hydrograph influences the three listed species (the current focus is on how a 3-4 month segment of the hydrograph influences the listed species). At the same time, the ISAP fully recognizes that base flows may be excluded by decision makers from the palette of conservation-planning options for economic, social, or other reasons.**

**The ISAP suggested the inclusion of base-flow restoration as part of the effects analysis, during which many different management options might be considered. (This could include construction of habitat that provides ecological conditions analogous to base flow during navigation flows.) Articulating the range of options serves the useful role of assessing management benefits to habitat that might be achievable, and also can clarify why some management options may not be viable. During such a consideration of restoration of base-flow (and other alternative management actions), the potential benefits of different timing scenarios (December-January or August-October) can be addressed, along with the constraints associated with either timing window.**

### **Context/Possible Preamble Language**

In preparing for the MRRIC meeting, the SAM Work Group identified the following paragraph in the ISAP Final Report as being useful to provide context for the introduction of the proposed actions.

*“The ISAP views our role as providing interpretations of available science and preparing scientific findings to inform the decision-making process of the MRRIC. Further, we identify gaps in information that, if filled, could enhance the knowledge upon which river management decisions can be made. We expect MRRIC to use the ISAP findings and interpretations to assess what actions are actually feasible, possible, and/or practicable given other constraints, including social constraints and existing Authorized Purposes, on the system.”*

*ISSUE RAISED: the Introduction of the Final Report included the above paragraph which was considered to be useful context for MRRIC as they reviewed the report; in the course of the conversation about the language, a question was raised about what the ISAP meant by “social constraints” in this context and whether that would include social, cultural, and economic (SCE) constraints or impacts?*

*SPA Task Group UNDERSTANDING: we believe the term “social constraints” likely refers to SCE impacts, but it would be useful to confirm what the ISAP intended*

**ISAP RESPONSE: The panel referred to “social constraints,” but would better have noted that “non-scientific” factors can contribute to the choice of management actions in implementation of the federal Endangered Species Act. Certain well-considered, scientifically defensible actions targeting the three listed species may be obviated by social, cultural, economic, legal or other considerations.**