

**TO:** MRRIC SPA Task Group

**FROM:** Independent Science Advisory Panel (ISAP)

**RE:** ISAP observations regarding the draft “Effects Analysis Proposal Request,” second version dated 7 June 2013

**DATE:** 24 June 2013

The ISAP offers here several observations on the second draft “Effects Analysis Proposal Request” dated and received 7 June 2013, a previous version of which the panel commented on in a memo dated 14 May 2013. This second draft incorporates much feedback and has evolved into a description of the broader effects analysis task, including work to be performed by the Corps and Service in addition to assistance from outside experts, on the path to implementing adaptive management under the Missouri River Recovery Program. The ISAP thinks that this second draft document is substantially more informative than the previous one, and much better reflects the intent of the proposed effects analysis effort and details of its constituent elements. While we believe that the document is on the right track, we note that the organization, purpose, and intended uses of the new draft document need clarification. Several additional ISAP suggestions are described in the following.

### **Confronting<sup>1</sup> (evaluating) management action alternatives with available data**

An unreferenced appendix accompanies the second draft proposal request; it includes a list of “hypotheses linking actions to desired species responses as described in BiOp and SWH and ESH AM plans.” With those hypotheses, the appendix is consistent with an essential element in a rigorous effects analysis. The task of “predicting and comparing species performance in response to different management scenarios/actions” (page two of the draft document) depends on quantification of ecological cause-effect relationships, and of their associated uncertainties.

Accordingly, management actions that are proposed to be implemented in an adaptive framework must be confronted with (evaluated using) available data in sequential hypothesis-testing to establish by inference their likely risks and benefits to the resources targeted by the actions. Such hypotheses are structured, for example, to differentiate between environmental stressors that appear to be causative agents affecting the status and trends of target species, and those that may simply be correlated with demographic changes. Hypotheses need to be designed to rigorously consider hierarchies of environmental stressor effects, mechanistic pathways linking management actions and expected environmental outcomes, variable specification, and spatial and temporal aspects of the costs and benefits of alternative actions. A management action that is not rejected through hypothesis-testing – that is, may be viewed as “supported” by available data – can be considered to be a reasonable candidate management action for

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<sup>1</sup> We use this term intentionally. The Corps will build confidence with its stakeholders – supporters and critics – if it aggressively addresses, or confronts, the effects of all of its actions, ongoing and proposed. The effects analysis and subsequent adaptive management plan can help instill such confidence.

implementation in the MRRP adaptive management framework yet to be developed. The appendix might indicate that hypothesis-testing for “shallow-water habitat” and “emergent sandbar habitat” has begun or might even be completed.

The process of confronting (evaluating) management actions with available data might be treated as a discrete step in the development of programmatic quantitative models, and can be described under “4” on page 5 of the draft document, or as a separate (numbered) step in the sequence of activities listed on pages 4 through 6 in the document. Either way, establishing the effectiveness and efficacy of candidate management actions using the best available science should be part of the expert-informed process described in the draft “request” document.

### **The expert process and its participants**

The draft document describes a planned-for “written proposal” for presentation to the MRRP leadership and the ISAP, and states that “team expertise” and “roles and responsibility” will be addressed therein. To that essential consideration in the implementation of the MRRP, the panel wishes to point out that the effects analysis in support of adaptive management is something of a continuing and evolving product. Its models, model products, and the analyses that support them will likely be revisited as required or desired as the MRRP learns more about the Missouri River system’s behavior and as adaptive management becomes fully implemented. The quantitative models will become more complete, might be recalibrated, might shift to more or different indicators and indicator values, and will be consulted in implementing monitoring programs. Presumably that process of revisiting and reconsidering the effects analysis will be carried out by MRRP, with lesser contributions from outside experts than is anticipated in these development stages. Thus it is important that the current effects analysis task – building models, validating them, and running them to evaluate alternative conservation and operations scenarios in preparation for carrying out actions on the ground – include participation of outside expertise *and* of the program staff that will be performing adaptive management on the Missouri River. The time to build in-house ownership of the effects analysis and the expertise necessary to drive the adaptive management vehicle that is now under construction, is at the outset of the effects analysis process. The description of participating entities on page 3 (under “effects analysis strategy”) may actually respond to the need to meet this program-staffing obligation; but that is not perfectly clear to the panel. Perhaps a more explicit description of the composition of the “multidisciplinary team of experts,” the adaptive management “process lead,” and the Adaptive Management Integration Team, as well as an indication of the Corps and FWS staffing across these entities, and identification of who in those agencies will receive the effects analysis products will be a valuable addition to the current document.