



Foreword

The subject of this workshop is an excellent example of a type of environmental challenge we face around the world. Many decisions about management of important natural resources must be made in an atmosphere of high uncertainty and high stakes. Pallid sturgeon in the Missouri River basin are threatened with extirpation due to many factors. Those cited most often include habitat degradation and habitat loss, changes in hydrology and in water quality as a result of human activities such as dam operation and river channelization. How do we reverse that threat? Can we reverse the threat while preserving benefits society derives from managing the river for commercial purposes? Effective management of ecosystems is at the heart of finding solutions to such problems, but effective management requires more scientific understanding than we typically have at hand.

The Pallid Sturgeon Research Workshop was an important step toward some answers to these questions. Experience in other situations (e.g., the CALFED Bay-Delta Program in California) shows the value of open discussions that identify technical issues, clarify the state of knowledge, and provide direction about what needs to be learned. Scientific workshops happen all the time but most have little direct impact on management and policy. This pallid sturgeon workshop holds promise for shaping policy and management, and the ingredients of the workshop suggest broad lessons about how science can constructively contribute to policy solutions.

Simple solutions were not evident. The workshop happened at a time when few were satisfied with the state of the policy and management debate. In light of the complexity of the issues, the time seemed right to bring a breadth of scientific expertise to the table.

Participants. Just because several agencies and stakeholders are involved in an issue does not mean they have a common view of the technical problems. Affected agencies worked together to identify key issues and posed several questions for consideration at the workshop. Agency experts participated in, but did not dominate, the technical discussions.



Outside experts. Pallid sturgeon experts from the Missouri River basin worked with sturgeon experts from outside the basin to characterize the state of knowledge, identify uncertainties, and identify the greatest needs for new knowledge. The outside expertise added a new element of creativity and credibility to the discussions.

Uncertainty. Participants agreed that one major goal was to identify and characterize uncertainties about the status of the problem and how to manage it, rather than arguing about values (what the policy should be) or whose interpretation of existing conditions was correct. On the other hand, it was recognized that policy and management will move forward, whatever the state of knowledge. The dialogue was constructive, future oriented, and focused on the link between knowledge and what to do next in terms of both science and policy.

Transparency. It was critical that the workshop was open to all interested parties. At times, the science discussion was messy but it was obvious that those involved were serious about finding constructive solutions for the species.

Iteration. It was recognized that repeated multi-party science forums are an essential part of future management, with review and participation by outside experts. Managing adaptively is clearly essential and repeated discussion of technical issues is the critical ingredient in feeding back new knowledge to policy and management.

Effectiveness. Participants generally felt that this format was an effective way of fostering an exchange of ideas that will contribute to improved recovery efforts for the species.

The research needs laid out by the workshop participants will help guide a productive path forward, whatever the future policy decisions. The constructive dialogue, scientific discourse, and widespread feeling of common ownership that resulted may be as valuable as the material accomplishments.

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