

## **Summary: Key Messages from the PS Task Group to the GC**

The knowledge summaries developed by the Task Group consolidate and synthesize the state of knowledge of pallid sturgeon in the Lower Platte river. Based on these summaries, the Task Group has identified the following key messages for the GC.

### **Key messages about pallid sturgeon use of the Lower Platte River**

- There is increasing evidence of pallid sturgeon use of the Lower Platte River, particularly in the section below the Elkhorn confluence.
  - Sturgeon use a variety of habitat, but are often found in the deepest available water habitat.
  - Sturgeon occurrence is highest in the spring and fall.
  - There is some (but inconclusive) evidence that sturgeon use of the Lower Platte varies with discharge (more use with higher discharge).
  - There is some (but inconclusive) evidence that spawning occurs in the Lower Platte, and there is no evidence that spawning is successful.

### **Key messages about what would constitute an effect**

- Changes in flow in the Lower Platte can affect pallid sturgeon through three main mechanisms: a) more water increases channel connectivity and therefore mobility for pallid sturgeon, b) more water may increase availability of important habitats and their overall capacity, and c) more water may minimize low flows related to fish kill events.
  - However, there is incomplete understanding of the connection between hydrology and pallid sturgeon use of the Lower Platte.

### **Key messages about Program's ability to cause an effect on pallid, positive or adverse**

- There is limited ability for the Program to affect the hydrology of the Lower Platte River via withdrawals or additions in the Central Platte due to the magnitude of influence from the Loup and Elkhorn Rivers.
  - Due to limitations in storage capacity, the downstream effects of withdrawals are smaller (more limited) than the effects of releases from upstream storage, though both effects are proportionally small even under the most extreme water management scenarios.
  - Daily hydrocycling in the Loup complicates the ability to quantify the hydrologic contribution of the Central Platte.
  - Existing flow monitoring is sufficient to guide Program operations in the limited situations when hydrologic impacts from the Central Platte are more likely.
- One positive Program effect is the protection of Service target flows in the central Platte through the State and Federal new depletions plans which limits degradation of Lower Platte River flows.

## Key messages about outstanding uncertainties and/or areas of disagreement

- There is uncertainty about the combined effects of water management actions upstream of the Central Platte on hydrology in the Lower Platte, including Program water management actions – some of which may provide benefits, and some of which may have negative impacts – and non-Program actions.
  - For example, the combined effects of flow contributions from Tamarack 1 and depletions in excess to Service target flows, authorized under the new depletions plans, are not well understood.
- There is considerable uncertainty about the way that Program water management actions affect the hydrology of the Lower Platte, how changes in hydrology affect pallid sturgeon habitat, and ultimately how changes in habitat affect pallid sturgeon use of the Lower Platte.
  - Relationships between hydrology and the suitability of food resources, the suitability of spawning habitat, spawning cues, success of spawning, or larval survival are all unknown in the Lower Platte.

The following Knowledge Summaries provide greater detail and additional context for the messages provided in this document. In compiling this information, the Task Group organized their understanding by the weight of supporting evidence: “strong”, “weak or conflicting”, or “uncertain”.

- **"Strong evidence"**: Items in this list are by no means certain, and they may not be true. However, the Task Group agrees that the weight of evidence is roughly pointing in the same direction, even if some uncertainty remains.
- **"Weak or conflicting evidence"**: Items in this list either (a) have little weight of evidence (perhaps because the evidence that does exist is contradictory), OR (b) there is disagreement among Task Group members and/or the larger scientific community about where the weight of evidence lies or how strong it is. This includes disagreement about how certain to be about these items.
- **"Uncertain"**: The Task Group agrees that there is little or no evidence for these items.
- **"Our predictive ability..."**: This is a non-exhaustive list of ways of addressing some of the major uncertainties, with no judgment implied about their relative utility to the Program.