

Use of the Lower Platte River by Spawning Adult, Egg, and Larval Pallid Sturgeon Life Stages

There is not enough known about how these life stages use the Lower Platte River to amount to “strong evidence”.

There is some (or conflicting) evidence that:

- Pallid sturgeon presumably spawn in the Lower Platte River.
 - USGS and NGPC reported eight presumed spawning events in the Lower Platte (2011-2014) by four different females. Spawning events in the Lower Platte were supported by recapture and reproductive assessment of tagged pallid sturgeon prior to entry into the Platte River (with oocytes) and following their return into the Missouri River in non-reproductive condition. However, spawning in the Lower Platte was not observed directly.²
 - 4 females used the Lower Platte during consecutive spawning cycles across varying temperature and flow conditions.² However, spawning in the Lower Platte was not observed directly.²
 - *Scaphirhynchus* larvae have been captured suggesting spawning habitat is present in the Platte River basin.^{1,3} However, these larvae were not identified to species, and could have been shovelnose sturgeon.

Remaining uncertainties include:

- Limitations in sampling methodologies and/or analyses could affect aforementioned flow/species relationships. Factors not related to flow could also affect our understanding of flow/species relationships.
- It is not known if pallids successfully reproduce in the Lower Platte – i.e., do they spawn and do eggs successfully hatch?
- If spawning occurs in the Lower Platte River, it is not known where.
- If spawning occurs and eggs hatch, it is not known if pallid sturgeon free-embryos or larvae⁴ remain in the Lower Platte or if some or all of them drift into the Missouri River.

Our predictive ability would be enhanced if:

- Collaboration with pallid sturgeon experts identified key limitations in sampling methodologies or analyses, and through this collaboration, developed a plan to address key limitations in future research/monitoring/analyses.
- We could improve our understanding of pallid movements and spawning habitat in the Lower Platte during the spawning period.
- We could improve our understanding of the presence/absence of free-embryos and larval pallid sturgeon in the Lower Platte River.

References

1. Peters, E. J., and J. E. Parham. 2008. Ecology and management of sturgeon in the lower Platte River, Nebraska. Nebraska Game and Parks Commission, Nebraska Technical Series No. 18, Lincoln, Nebraska.
2. Ruskamp, R.L., J.D. Haas, D. Adams, A.J. DeLonay, K.A. Chojnacki, and G. Mestl. 2017. Migration and Spawning of Pallid Sturgeon in the Platte River, Nebraska. Presented at the 2017 MRRIC Annual Forum.
3. DeLonay, A.J., 5/23/2017. Personal communication with David Galat.
4. Wildhaber, M. L., A. J. DeLonay, D. M. Papoulias, D. L. Galat, R. B. Jacobson, D. G. Simpkins, P. J. Braaten, C. E. Korschgen, and M. J. Mac. 2011. Identifying structural elements needed for development of a predictive life-history model for pallid and shovelnose sturgeons. *Journal of Applied Ichthyology* 27:462-469.