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Estimating the spatial extent of Pallid Sturgeon (Scaphirhynchus albus) foraging in large rivers: matching fish movement with macroinvertebrate resource availability

Large-river fish continue to decline around the world due to anthropogenic activities. In order to successfully restore these fish, management approaches need to understand how much available food exists to sustain population levels. Many imperiled fish in large rivers move considerable distances, requiring estimates of food availability at corresponding spatial extents, yet few studies have attempted to "match" these two scales. The objective of my study was to compile and analyze movement data of a federally endangered fish that are native to large rivers in Montana, the Pallid Sturgeon (Scaphirhynchus albus). Ultimately, these movement estimates will be used in a larger study that combines habitat quantification, macroinvertebrate structure and production estimates, and Pallid Sturgeon movement distributions to quantify food availability to hatchery-raised juvenile Pallid Sturgeon. To determine the spatial extent of Pallid Sturgeon foraging, I conducted an online literature review and compile papers of Pallid Sturgeon movement from a variety of North American Rivers. Following the literature review, I obtained unpublished data of Pallid Sturgeon movement from the upper Missouri and lower Yellowstone Rivers from state (Montana Fish Wildlife and Parks) and federal (United States Geological Survey, United States Fish and Wildlife Service) agencies. Matching Pallid Sturgeon movement with the extent of their resource base provides insight into whether large river ecosystems in Montana can support current restoration activities designed to bolster declining populations.

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