The Effect of Macro-Scale Habitat Features on Post-Stocking Dispersal of Hatchery-Reared Juvenile Pallid Sturgeon

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Although there is evidence that pallid sturgeon (*Scaphirhynchus albus*) may successfully spawn in the Yellowstone River below Intake Diversion (river kilometer 115), long downstream drift times following hatching preclude recruitment; larval pallid sturgeon likely drift into Sakakawea Reservoir and die. Therefore, establishing spawning populations far

upstream of reservoirs is necessary if natural recruitment is to occur. However, no stocking has occurred above Intake Diversion partly because these habitats were considered unsuitable; pallid sturgeon are thought to prefer habitats with more complex channel patterns, lower gradients, and sand substrates. To assess suitability of the Yellowstone River above Intake Diversion, post-stocking dispersal patterns of telemetered juvenile hatchery-reared pallid sturgeon released below Cartersville Diversion (rkm 379) were compared to those of fish released below Intake Diversion. Cartersville Diversion fish dispersed further downstream (229 km) than Intake Diversion fish (38 km), although half of the Cartersville Diversion fish remained above Intake Diversion. Most fish dispersed to reaches in river breaks ecoregions that had complex (anabranching or meandering/islands) channel patterns. Fish were evenly distributed between higher gradient (0.000551) cobble-gravel reaches and lower gradient (0.000189) fines-sand reaches. Initial results suggest that parts of the Yellowstone River upstream of Intake Diversion are suitable for pallid sturgeon stocking.