
White Sturgeon (Snake River system)

Acipenser transmontanus

Actinopterygii — Acipenseriformes — Acipenseridae

CONSERVATION STATUS / CLASSIFICATION

Rangewide: Apparently secure (G4)
Statewide: Critically imperiled (S1)
ESA: No status
USFS: Region 1: No status; Region 4: No status
BLM: Rangewide/Globally imperiled (Type 2)
IDFG: Game fish

BASIS FOR INCLUSION

Habitat degradation and low populations.

TAXONOMY

The white sturgeon was described in 1836 by Richardson (Nelson et al. 2004).

DISTRIBUTION AND ABUNDANCE

The white sturgeon occurs in the large rivers of the Pacific Northwest from central California to southwest Alaska (Wydoski and Whitney 2003). The Snake River population in Idaho is found in the Snake and Salmon rivers. In the Snake River, individuals range upstream to Shoshone Falls and have been introduced below American Falls dam. Although there are no barriers on the Salmon River, the white sturgeon is rarely seen above the North Fork Salmon River. In Idaho, the 2 viable populations are located between Bliss and C. J. Strike dams and from Hells Canyon Dam downstream to Lower Granite Dam in Washington (IDFG in preparation). Recent estimates of numbers of fish over 0.6 m (2 ft.) in the 2 reaches are 2700 and 3600, respectively. Populations in other reaches of the Snake River are small.

POPULATION TREND

White sturgeon populations have declined since the 1880s. Early declines were the result of over-harvest for caviar and meat. This over-exploitation led to restrictive rules being placed on sturgeon fishing in Idaho. Commercial harvest was eliminated during 1943, and sport harvest was eliminated during 1970 (Cochner et al. 1985) with the implementation of catch and release fishing. The population structure improved in some river reaches with adequate habitat after harvest restrictions. However, loss of habitat and population fragmentation was caused by 8 hydroelectric dams constructed on the Snake River during the early to mid 1900s. These impoundments resulted in a loss of 37% of the free flowing river habitat and isolated white sturgeons between dams. Declines in water quality and altered flows have also negatively affected white sturgeon populations in some river reaches. Populations in Hells Canyon and the Lower Salmon Falls to C. J. Strike Reservoir are continuing to improve as a result of natural

recruitment since implementing catch and release fishing rules in 1972 (IDFG, unpublished report, 2003).

HABITAT AND ECOLOGY

Large adults generally occur in the larger, deeper pools of main river channels (Wydoski and Whitney 2003). Juveniles and subadults seasonally occupy sloughs off the main channel. In the Columbia River, young-of-the-year fish occur in 12–27 m (39–88 ft) of water. This species is a broadcast spawner and normally uses areas with fast current, such as rapids or areas with hard substrates.

The white sturgeon is the largest freshwater fish in North America. The largest verified record was a 630 kg (1387 lb) fish caught during 1897. Other unverified records approach 900 kg (2000 lbs) and 6 m (20 ft) in length. Individuals reach sexual maturity at ages 9–16 yrs, corresponding to lengths of about 1.2 m (4 ft) for males and 1.8 m (6 ft) for females. Females do not spawn annually but repeat spawning at intervals of 3–11 years, depending on food availability. Spawning occurs during the spring at water temperatures of 8–19 C (48–63 F). The white sturgeon is primarily a benthic feeder; juveniles feed opportunistically on amphipods, clams, insects, and fish eggs. Larger individuals also eat fish, crayfish, and other larger items.

ISSUES

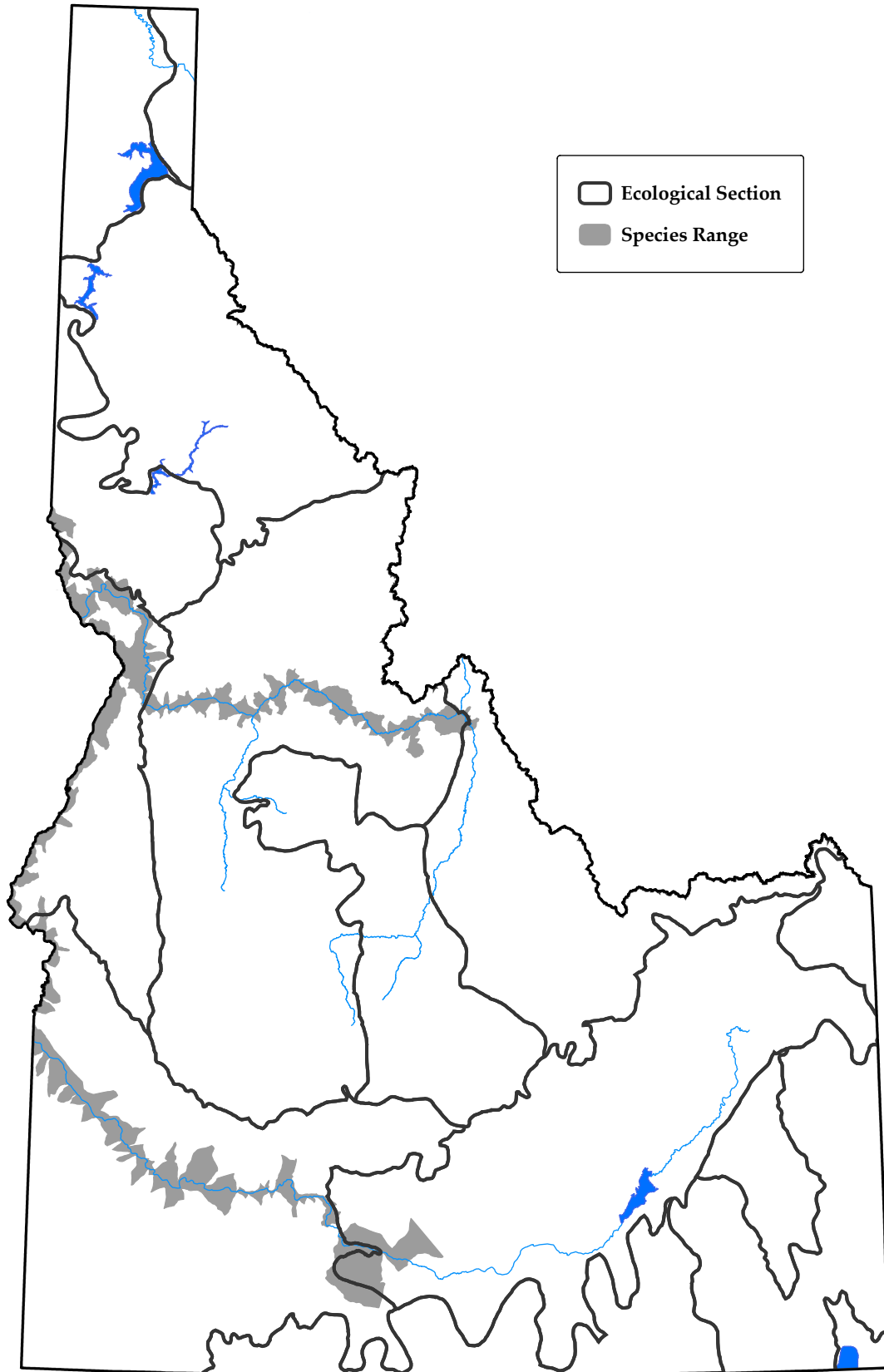
Population fragmentation has been caused by hydroelectric dams, which can isolate fish from spawning, rearing, and feeding habitats and can affect genetic composition (IPC, in preparation). Altered flow patterns from upstream irrigation storage dams and flow regulation for power generation have impacted spawning and rearing success. Water quality degradation from municipal and agricultural return systems, impoundments, and reduced flows have resulted in white sturgeon mortality and can affect food availability. Catch-and-release rules have resulted in the increased abundance and improved size-structure of viable populations. As angler use increases population-level effects of hooking mortality will need to be monitored.

RECOMMENDED ACTIONS

With the assistance of state and federal agencies and Indian Tribes, Idaho Power Company developed and submitted a Snake River White Sturgeon Conservation Plan to the Federal Energy Regulatory Commission which includes recommended conservation measures for white sturgeon in the Snake River. Idaho Department of Environmental Quality has initiated the TMDL development process for several river reaches designed to return the Snake River to state standards. IDFG and Idaho Power Company will jointly conduct studies on population effects of catch-and-release angling on white sturgeon in the C.J. Strike Reach of the Snake River. IDFG has a draft Snake River White Sturgeon Recovery plan that includes coordination with adjacent states (IDFG, unpublished report, 2003)

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10 August 2005

Fish information is from Idaho Fish and Wildlife Information System, Idaho Department of Fish and Game and displayed at the 6th code hydrologic unit.

