
Kokanee

Oncorhynchus nerka

Actinopterygii — Salmoniformes — Salmonidae

CONSERVATION STATUS / CLASSIFICATION

Rangewide: Secure (G5)
Statewide: Imperiled (S2)
ESA: No status
USFS: Region 1: No status; Region 4: No status
BLM: No status
IDFG: Game fish

BASIS FOR INCLUSION

Limited distribution of native populations and low populations of Kootenai River stocks in Idaho.

TAXONOMY

Kokanee are the resident life history form of the anadromous sockeye salmon. Sockeye salmon were originally described by Walbaum in 1792 (Nelson et al., 2004, Scott and Crossman 1973). Sockeye salmon and kokanee belong to genus *Oncorhynchus* in the family Salmonidae. Taxonomically, the kokanee and sockeye salmon do not differ.

DISTRIBUTION AND ABUNDANCE

Native kokanee in Idaho are currently found in lakes accessible to sockeye salmon in the Stanley Basin in the upper Salmon River drainage (Redfish, Alturas, Pettit, Stanley) and Warm Lake in the South Fork Salmon River (Winans et al. 1996), additionally there is a geologic isolated stock in the Kootenai River drainage. Kokanee are also widely introduced into other lakes and reservoirs throughout Idaho and the West, however these populations are not included in the native species analysis. Population estimates, which include juvenile sockeye salmon, in the Redfish, Alturas, and Pettit lakes were estimated to be 81,000; 46,000; and 12,000 fish of all age classes, respectively, in 2003 (Willard et al. In press). No estimates are available for Warm Lake. Kokanee in the Kootenai River are spawning stocks from Kootenay Lake in British Columbia. Current counts are not available but are extremely low (Horner, IDFG, pers. comm.).

POPULATION TREND

Kokanee populations tend to be highly cyclic with strong and weak year classes. In Redfish Lake, numbers (81,000) in 2003 were the highest since counts began in 1990, however in Alturas Lake, the 41,000 fish is a third of what was there in 1990 (range 6000 to 126,000) (Willard et al., in press). In Pettit Lake, populations have cycled from 3000 to 59,000 fish. In the Kootenai River, the run from the stock in the South Arm of Kootenay Lake has decreased to such low numbers, that it is being supplemented with hatchery stocks from the North Arm (Horner, IDFG, pers. comm.)

HABITAT AND ECOLOGY

Kokanee naturally inhabit lakes along with sockeye salmon or where sockeye salmon once ranged. They rear in lakes but for the most part, spawn in tributary streams. Native stocks of kokanee are classified as early spawners and spawn in August–September. They prefer water temperatures near 10 C (50 F) in summer time and will congregate at the thermocline below warmer surface waters (Wydoski and Whitney 2003). Growth depends on productivity of the lake, with maturity at age 3–4 years and size ranging from 13–30 cm (5–12 in). Where introduced into productive waters, resident kokanee can attain lengths >50 cm (>20 in) in 3 years. Kokanee, like all salmon species, die after spawning at age 3 or 4 years.

ISSUES

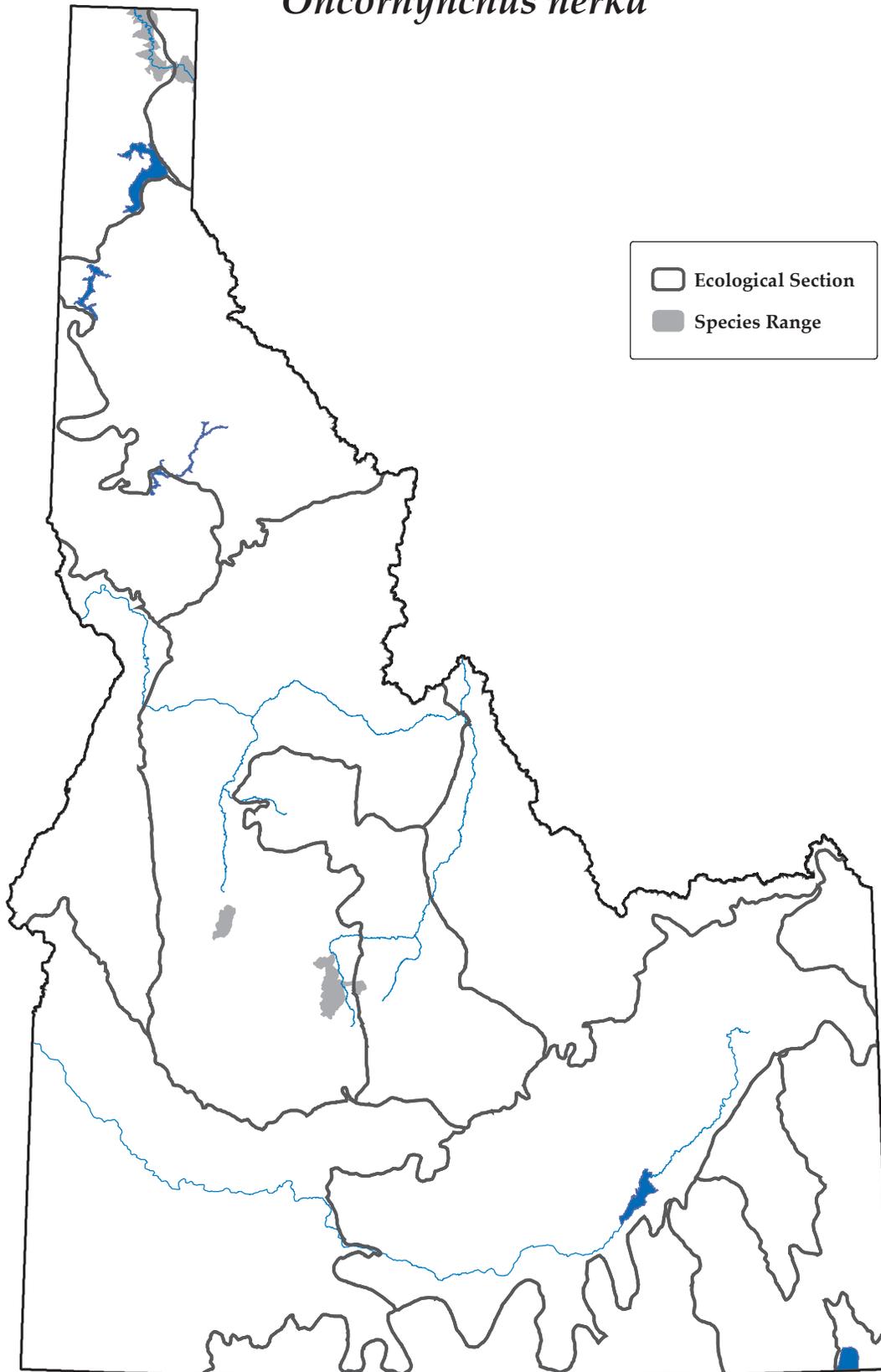
Stock interactions, harvest fisheries and competition with the listed sockeye salmon in the Stanley basin lakes present management challenges. Low nutrient levels from upstream reservoirs in the Kootenai River have impacted kokanee in this drainage by lowering the productivity of Kootenay Lake. Channelized stream habitats have reduce the size and the quality of spawning areas for kokanee in the Kootenai drainage. Non–native fish species introductions have caused competition and predation.

RECOMMENDED ACTIONS

Actions taken to protect and recover sockeye salmon in the Stanley basin lakes will benefit native kokanee in these waters. Nutrient enrichment programs in Kootenai drainage should help regain productivity in these waters. Adverse effects to native kokanee will need to be considered when managing non–native species.

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

