# Chinook Salmon (Snake River fall–run)

***Oncorhynchus tshawytscha***

Actinopterygii — Salmoniformes — Salmonidae

## CONSERVATION STATUS / CLASSIFICATION

| | |
|---|---|
| Rangewide: | Critically imperiled run (G5T1) |
| Statewide: | Critically imperiled (S1) |
| ESA: | Threatened |
| USFS: | Region 1: No status; Region 4: Threatened |
| BLM: | Threatened, Endangered, Proposed, and Candidate (Type 1) |
| IDFG: | Game fish; Threatened |

## BASIS FOR INCLUSION

Threatened under the U.S. Endangered Species Act; declining population trend and loss of habitat.

## TAXONOMY

Chinook salmon were originally described by Walbaum in 1792 (Nelson et al. 2004, Scott and Crossman 1973). This species has a variable life history and based on when they return to their home stream to spawn, are classified as spring, summer, or fall races (runs) in the northwest (Wydoski and Whitney 2003).

## DISTRIBUTION AND ABUNDANCE

Snake River fall Chinook salmon historically were found spawning in the Snake River upriver to the Hagerman Valley and in lower portions of the Salmon and Clearwater Rivers. Populations using the river above Hells Canyon Dam were eliminated with the construction of Hells Canyon complex from 1955 to 1967 and earlier upriver dams. The Idaho portion of the Snake River fall–run Chinook salmon Evolutionarily Significant Unit (ESU) consists of all of the Clearwater River drainage up to Lolo Creek except for the North Fork above Dworshak Dam, the Salmon River drainage upstream to the Little Salmon River and the Snake River drainage upstream to Hells Canyon Dam.

## POPULATION TREND

Irving and Bjornn (1981) estimated that the mean number of fall Chinook salmon returning to the Snake River declined from 72,000 in the period 1938–1949 to 29,000 during the 1950s. Following construction of the dams on the middle and lower Snake river (1958–1975), counts over Lower Granite Dam below Lewiston had dropped to less than 1000 fish/yr., including some hatchery fish that began returning in the early 1980s (Busack 1991). The average number of fall Chinook salmon passing over Lower Granite Dam for the 1995–2004 period during the fall Chinook salmon period is 6079 fish (Columbia River Data Access in Real Time [DART] program). This includes both hatchery and wild fish. This ESU was listed at threatened under ESA in 1992 (Federal Register Vol 57, No 78, p 14653).

## HABITAT AND ECOLOGY

Chinook salmon are the largest salmon species, with adults often exceeding 18–27 kg (40–60 lbs) after 3–5 years in the ocean. Fall Chinook salmon use the mainstem of larger rivers to spawn compared to spring/summers which spawn in smaller, higher tributary systems. Adult fall Chinook enter the Snake River from late August through November. Fall Chinook normally spawn in late September– October using gravel/cobble bars in main river channels. As with most salmon, adults die after spawning providing a large nutrient source for juvenile fish. Fry emerge in March and juvenile fall Chinook salmon typically differ from spring/summers in that they begin a slow downstream migration as subyearlings soon after emerging from the gravel, feeding on their way to the ocean. The downriver migration peaks in April and lasts through June. Most complete the journey in the first year. Optimal water temperatures range from 16–18 C (59–64 F) with temperatures exceeding 23 C (73 F) being lethal (Wydoski and Whitney 2003). Juvenile Chinook salmon feed on small aquatic invertebrates in both fresh and salt water, primarily insects in freshwater and crustaceans in marine environments. As they grow in saltwater, they quickly change to a fish diet.

## ISSUES

The construction of hydroelectric dams on the main stem Snake and Columbia rivers has blocked access to historic spawning habitat in Idaho and reduced survival of juveniles and adults migrating to and from the ocean. Additional effects from hydroelectric dams and upriver water storage projects have resulted in altered hydrographs and water temperature regimes affecting run timing of juveniles and adults. Hatchery programs designed to mitigate for lost habitat and reduced survival of fish have introduced genetic concerns about effects to wild stocks. Water quality and quantity issues are a concern especially during the summer migration period for juveniles. The presence of predatory native and non–native fish can adversely impact juvenile fish during their outmigration period.

## RECOMMENDED ACTIONS

Continue to work with Federal and State agencies, Tribes, and hydropower managers in developing recovery plans and actions to mitigate passage, habitat loss, hatchery and harvest issues, and altered hydrographs. Management of non–native species needs to consider effects to fall Chinook salmon.

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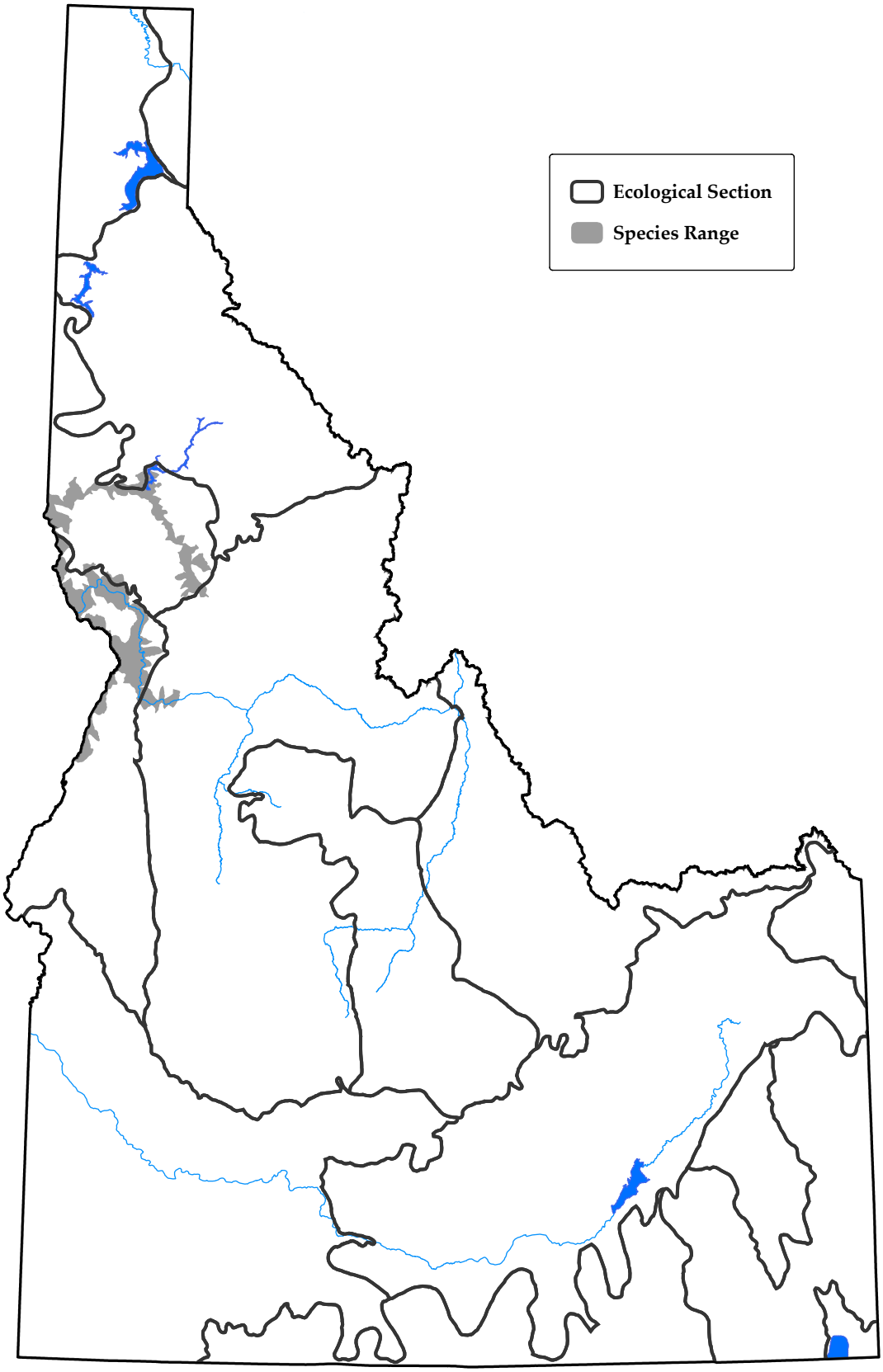


10 August 2005
Fish information is from Idaho Fish and Wildlife Information System, Idaho Deptartment of Fish and Game and displayed at the 6th code hydrologic unit.

0 20 40 80 Kilometers

0 20 40 80 Miles