

Snake River Fall Chinook Salmon Productivity

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Snake River fall Chinook salmon abundance and productivity have been and continue to be influenced by construction and operation of hydroelectric dams and hatcheries, among other natural and management factors. We summarize here four areas related to productivity; (1) adult abundance, (2) hatchery programs, (3) management actions, and (4) remaining critical uncertainties.

Historical abundance of fall Chinook salmon in the Snake River Basin was 70,000-100,000 fish annually. However, from the mid 70's to late 90's return levels have averaged less than 1,000 and were as low as 100 natural-origin fish. Much of this decline was directly attributable to blocked access or inundation of spawning habitat. Hatchery programs were developed in the past 20 years to mitigate for some of this lost productivity. Hatchery programs were modified and expanded in the mid 90's to incorporate supplementation objectives (release of hatchery juveniles in natural production areas) as a result of litigation by the Columbia River treaty tribes. Recent returns, including hatchery origin fish, have been 10,000 to 15,000 (2,500 natural origin adults). Distribution of spawners within the accessible habitat has started to re-colonize areas in the Salmon River, Imnaha River, Grande Ronde subbasin, and South Fork Clearwater River, but much of the historic habitat remains block or unutilized.

Harvest of Snake River fall Chinook salmon still occurs in ocean and mainstem Columbia River fisheries; however, substantial reductions in state and tribal fisheries were implemented in 1993 and continue today. Several critical uncertainties still exist relative to the short-term and long-term productivity of Snake River fall Chinook, including: relative reproductive success of supplementation and natural origin adults; long-term persistence of an ESU with a single extant population spatial structure and diversity; estimates of juvenile abundance/production; factors influencing and magnitude of carrying capacity.