

## Facts about Sockeye

### Description

Of the Pacific salmonids, sockeye (*Oncorhynchus nerka*) show the greatest variety in life history types, with genetically distinct sea-run, riverine, and lake forms.

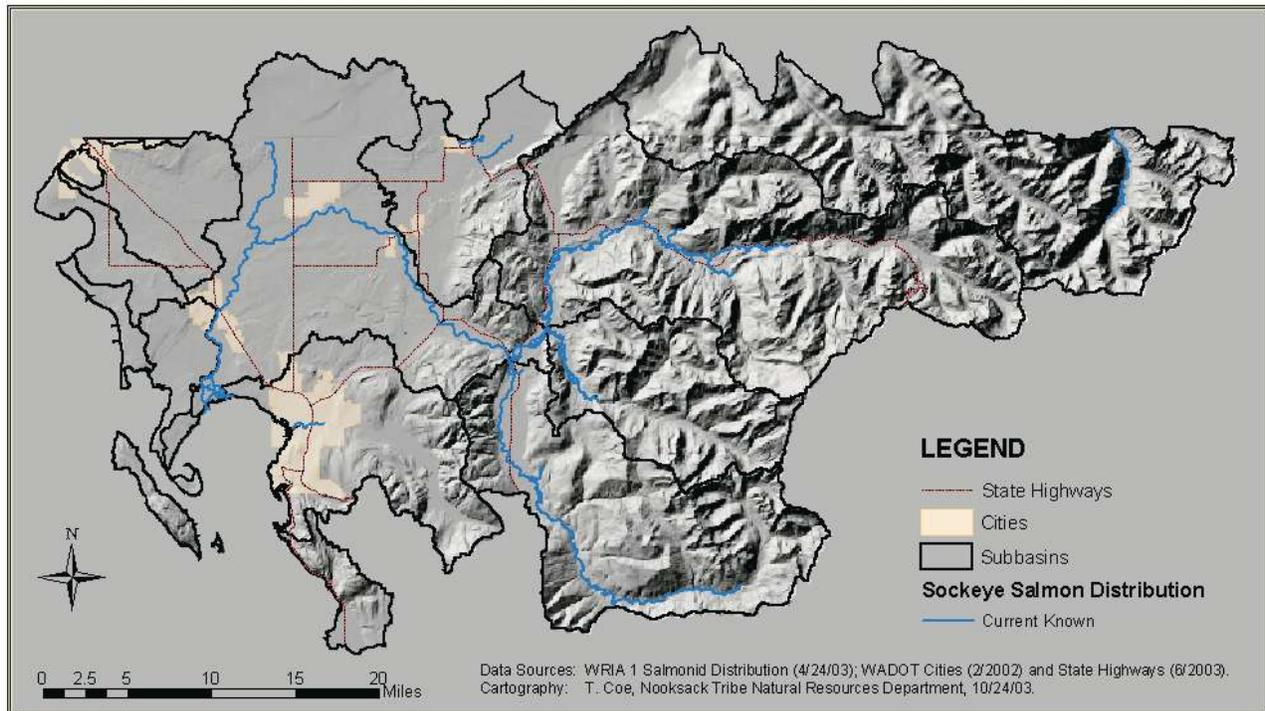
While in the ocean, sockeye have dark blue backs, silver sides, and few spots. Upon re-entering fresh water, the males become laterally compressed and turn bright to dark red on the back and sides, and pale to olive green on the head with a white jaw and hooked snout. The females' coloring changes as well, though not as dramatically. Adult sockeye average 25 inches in length and eight to 11 pounds in weight.



A male and female sockeye pair (photo: Manu Esteve)

Juvenile sockeye have oval parr marks (spots) along the body, a clear, unpigmented adipose fin, and no spots on the tail or fins.

### Distribution



In WRIA 1, native sockeye are present in all forks of the Nooksack, predominantly in the North and South, as well as Whatcom Creek.

Significant spawning populations of sockeye salmon are currently found from the Snake River north to the Bering Sea in Alaska.



### **Life Cycle and Reproduction**

After spending between one and four years in marine environment, mature sockeye migrate upstream and hold starting as early as April, with spawning in the upper Nooksack River and its tributaries beginning in late August. Spawning is complete by early November.

Spawning begins when the female selects an area, digs a redd (nest) and deposits her eggs in the downstream portion as one or more males fertilize them. After covering up the red, she repeats this process until all of her eggs, between 2,000 and 5,200 depending on her size, have been deposited and fertilized. The adult sockeye die within a few days of spawning.

The alevins (the lifestage between the egg and fry) develop in the gravel and remain there until the yolk sac has been consumed.

Although primarily a lake-rearing species, Nooksack River sockeye juveniles spend between one and two years growing within low velocity areas such as side channels and off-channel habitats before outmigrating to the sea as smolts.

### **Habitat Needs**

Compared to the other Pacific salmonids, sockeye exhibit the greatest diversity in habitat requirements, since they have three different forms (sea-run, riverine and lake resident) with varying dependence on freshwater habitat.

However, since all juvenile sockeye spend such a long time rearing in freshwater and estuaries, they are particularly susceptible to human impacts on water quality. They are vulnerable to abnormally high or low temperatures, siltation, and pollution- all of which affect egg development and survival, incubation time, and fry emergence.

Like most salmon species, sockeye are opportunistic carnivores, eating zooplankton, benthic amphipods, and insects while in freshwater, and crustacean larva, small adult fish such as sand lance, and squid while in the ocean.

### **Economic Value**

Sockeye makes up the largest percentage of Whatcom County commercial fishers' catch, but the sockeye being caught and sold most likely originate in the Fraser River.

### **Current Status**

Small numbers of native, wild riverine sockeye have been documented in the Nooksack. Genetic analysis indicates that these fish are unique to the Nooksack. The status of the stock is unknown.

### **Sources**

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