



# Fish Populations

Olympic

## I & M RESOURCE BRIEF

### Importance

The free-flowing and unregulated rivers that originate in Olympic (OLYM), Mount Rainier, (MORA) and North Cascades (NOCA) national parks are among the most protected corridors in the lower 48 states, and represent some of the largest tracts of contiguous, undisturbed aquatic habitat for several key fish species. Fish populations that inhabit OLYM are being monitored annually in ten park rivers. Olympic National Park contains 31 native and five non-native freshwater fish species throughout 12 major watersheds. The park also protects nine Pacific salmonid species, 70 unique populations, and five federally threatened species.

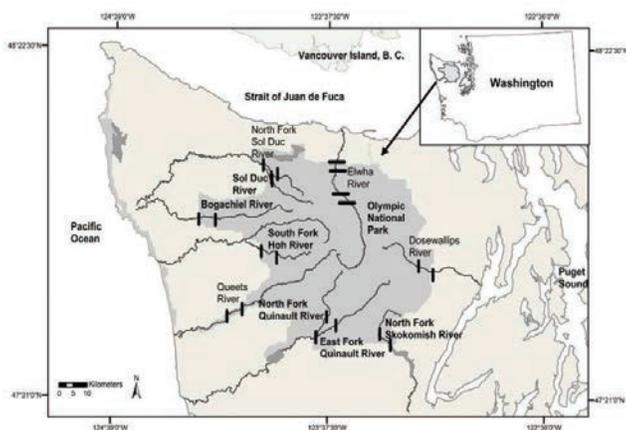
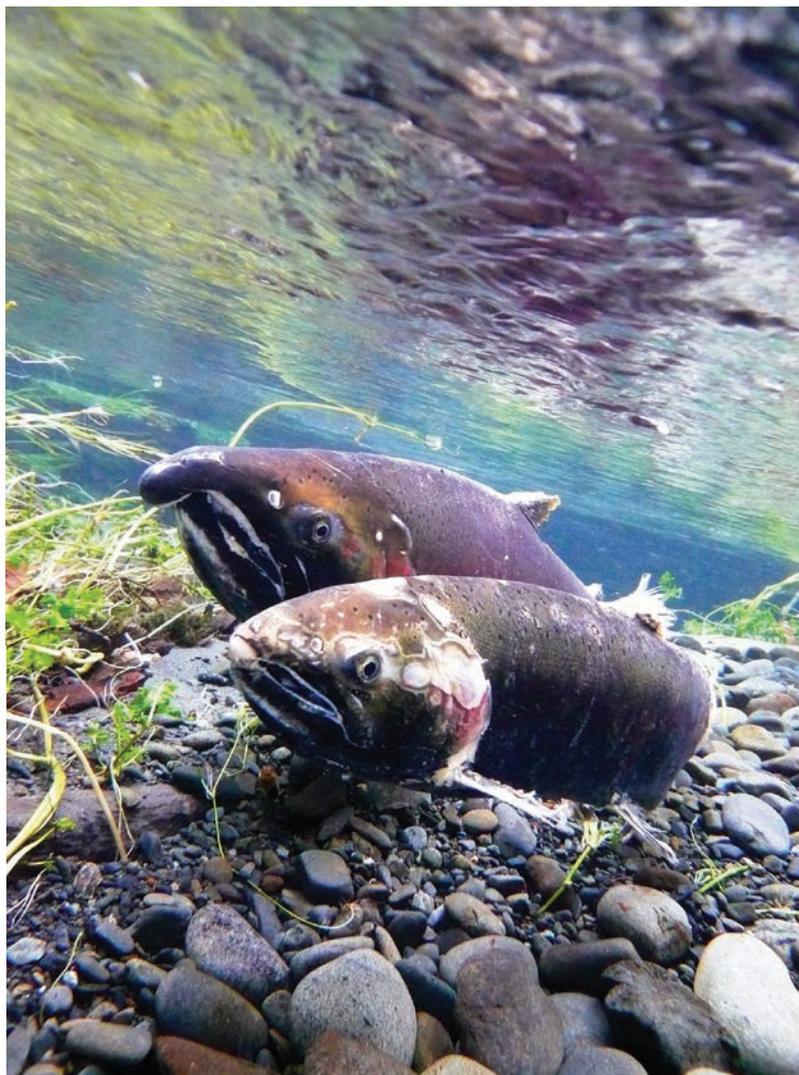
Salmon are anadromous and link freshwater, marine, and terrestrial ecosystems. Studies have shown that Pacific salmonids provide food for over 130 species of aquatic and terrestrial wildlife species and that 20 to 40% of the phosphorus, nitrogen, and carbon in freshwater systems derive from their carcasses.

Salmon and steelhead are ecologically, economically, and culturally important to the Pacific Northwest and they contribute significantly to recreational, commercial, and tribal fisheries in rivers that drain from OLYM. Native fish face several in-river threats including overharvest, habitat degradation, and competition from hatchery and non-native fish. Despite the vital importance of native anadromous and resident fish populations, there has been no integrated monitoring program for these populations in the North Coast and Cascades Network.

### Status and Trends

The use of snorkeling allows biologists to determine seasonal and annual trends in: 1) fish species composition, 2) relative abundance, 3) migration timing; and 4) extent of non-native and hatchery fish invasions within and among the ten rivers.

From 2005 to 2010, park biologists completed 350 snorkel surveys in ten rivers from June to September each year. These surveys covered over 1,400 river kilometers where biologists observed 129,500 individual fish. Adult summer steelhead and Chinook salmon were found to be at critically low levels of abundance in all rivers during those years. Snorkelers also detected stray hatchery summer steelhead, coho and Chinook salmon in park rivers. In the South Fork Hoh River, there were surprisingly high levels of hatchery fish, particularly since that river does not receive plantings.



**Opposite** Winter steelhead at Sol Duc Cascades, Olympic National Park. NOAA Fisheries/McMillan

**Above Left** Fish population monitoring sites at Olympic National Park

**Above Right** Coho pair spawning in Taft Creek, Olympic National Park. OLYM/Preston

## Discussion

The addition of this monitoring program designed by the National Park Service has allowed fisheries managers to detect trends in high priority management species. The scientific information obtained through this protocol has multiple applications for management, research, education, and promoting a better understanding of park fishery resources.

Park managers can now evaluate the number of fish species increasing and decreasing in abundance. Biologists can also determine trends in federally threatened fish such as the bull trout. The protocol also provides information on magnitude of abundance of each fish species and timing of migration of adult fishes. Additionally, the detection of non-native and hatchery fish provides an early warning signal for alien fish invasions in park waters.

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