

## Lake Washington Sockeye Salmon Study

Corps biologists cost-shared with King County METRO (with assistance from the Washington Department of Fish & Wildlife and the Muckleshoot Indian Tribe) a study on sockeye salmon in Lake Washington. This study was conducted in 1994 and 1995 and was focussed on the early life history of sockeye salmon (their first six months of life). The study looked at the distribution and abundance of sockeye salmon fry in both deepwater (limnetic) and nearshore (littoral) areas. It was the first time that sockeye fry had been studied in the nearshore environment in Lake Washington. This study was part of a wider proposal by the State Dept. of Fish & Wildlife to conduct five years of studies on sockeye salmon to help pinpoint the causes for the dramatic recent decline in the Lake Washington basin population. This study found that the majority of sockeye fry migrate into deep water in Lake Washington after emerging from the streams where they were spawned (this study focussed on southern Lake Washington only). However, some fry do remain in the nearshore area for up to one month after emerging. Over the spring and early summer the sockeye distribute northward in the lake, but are found at much deeper depths than had been found previously in Lake Washington or in other lakes. This change in behavior could be related to an increase in predators or competitors in shallower water or may be related to a physical factor such as the depth to which light penetrates in the clear waters of Lake Washington. An interesting discovery made while conducting the sockeye fry study was the presence of year-old sockeye "presmolts" in the nearshore areas for an extended period of time prior to their migration out the ship canal to Puget Sound. Smolts of other salmon species such as chinook and coho were also found in the nearshore areas throughout the spring. Results from this study will be combined with the results of other studies ongoing in the lake, including a study of predator fish in the lower Cedar River and southern Lake Washington. The U.S. Fish & Wildlife Service also contracted to the Corps to conduct the predator study which began in 1995. This study was designed to determine which species of fish prey on sockeye salmon fry and what is their relative consumption rate of fry.

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