

Department of Fish and Game

Current Issues

Fall 2010

Salmon Population Status

Many groups of California's salmon populations are severely depleted, and most salmon population groups are listed under the state and/or federal endangered species acts, resulting in a closed ocean fishery and extremely restricted river fisheries. Decisions made by the Pacific Fisheries Management Council (PFMC), which determines the level of take in ocean fisheries for California, Oregon and Washington, are affected by population concerns. Consequently, there is intense interest in gaining a more accurate estimate of the actual number of salmon and the specific status of each population.

The Department of Fish and Game (DFG), manages river salmon fisheries. DFG and the National Marine Fisheries Service (NMFS) participate with the PFMC in establishing ocean fisheries provisions. DFG uses two current methods for tracking population levels. Mass marking requires marking 100 percent of the fish in a hatchery stock prior to release into the wild. Genetic Stock Identification (GSI) consists of using DNA from live ocean salmon to identify whether the fish was naturally spawning or hatchery-produced, and from what region/watershed it originated. Both methods have benefits and drawbacks related to cost, feasibility, relative contribution to understanding population status and the applicability to interstate decisions made by the PFMC.

Various organizations agree that there are different means of marking fish, but disagree on what percentage of hatchery salmon have to be marked to accurately understand the status of the fishery and make decisions on hatchery management, salmon recovery and ocean and river fishing opportunities. Supporters of mass marking believe it would both improve hatchery management and increase fishing options because it would be clear whether or not a fish was of natural- or hatchery-origin. Supporters of GSI believe that method would allow for the immediate identification of stocks of salmon in the ocean or river, allowing for more informed decisions and adjustments about fishing seasons. Critics of fish marking believe external marking alone cannot identify what hatchery a fish came from, the state does not have the resources to mark all fish, and marking all hatchery fish does not benefit naturally spawning fish. Some believe the technology behind GSI is not thoroughly tested, making its use actually research rather than management. Additionally, DFG and NMFS do not have the resources to sample fish and develop the information fast enough to contribute to real time decisions on fishing seasons.

Currently, agencies that manage salmon hatcheries mark 25 to 100 percent of their fish, depending on the stock, and use either external fin-clips or coded wire tags. As policymaking participants in the 2010 congressionally mandated salmon hatchery reform project, DFG is partnered with NMFS in investigating the need to mass mark hatchery fish, the usefulness of GSI sampling in ocean fisheries and in deliberating on levels of river fisheries.