



U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office



CAMP
Comprehensive Assessment & Monitoring Program

Developing Production Estimates of Anadromous Fish

For the purposes of the CAMP, monitoring of each run of Chinook salmon in each watershed can be separated into three components: (1) in-river run, (2) downstream angler harvest, and (3) ocean harvest.

When added together, these three components provide a production estimate, by watershed, for each run of Chinook salmon. The figure on the next page illustrates how the three components are combined to provide an estimate of the number of Chinook salmon in each run in each watershed.

In-river run is estimated by summing in-river spawner abundance (estimated by carcass surveys, ladder counts, snorkel surveys, and aerial redd counts) plus the number of naturally produced fish entering hatcheries (estimated by hatchery returns) plus in-river angler harvest.

Monitoring activities that track the magnitude of in-river angler harvest have not been conducted in many rivers and streams. Similarly, this monitoring has not been conducted on a yearly basis where it has been only intermittently conducted in some rivers and streams. Therefore, professional judgment has been used to develop an approximation of the amount of in-river angler harvest that exists in each river.

Data on the number of Chinook salmon caught by anglers downstream of rivers where fish spawn (i.e., downstream angler harvest data) have not been collected on an annual basis. Instead, professional judgement has been used to estimate the amount of downstream angler harvest.

Ocean harvest data that are used to develop fish production estimates in CAMP annual reports are based on values reported by the Pacific Fisheries Management Council (PFMC). The CAMP only relies on PFMC ocean harvest data that reflect commercial and recreational catches from boats that are based in the Monterey and San Francisco Bay areas.

Sacramento Fish and Wildlife Office
[Comprehensive Assessment & Monitoring Program](#)
2800 Cottage Way, Room W-2605
Sacramento, California 95825
Phone (916) 414-6600
FAX (916) 414-6713

Last updated: September 12, 2007

This chart shows elements that should be used to calculate the production of Chinook salmon in each stream or river. Calculations are completed for each run of Chinook salmon in each watershed where an AFRP production target was quantified.

