Central Valley Chinook Salmon and Steelhead

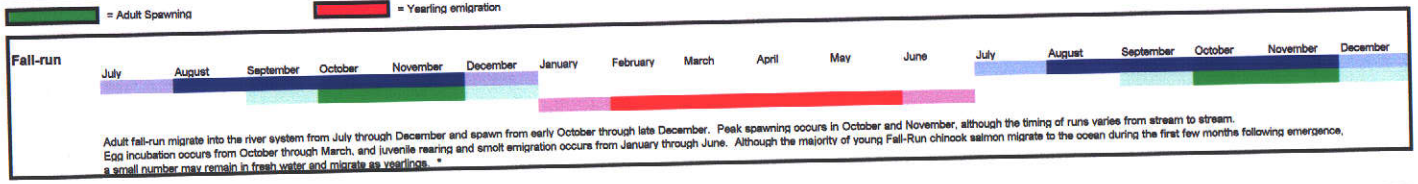
Sacramento - San Joaquin River Systems

= Adult Migration

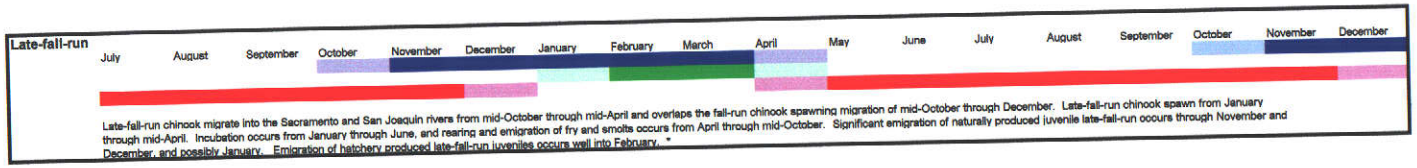
= Adult Spawning

=Young of the Year Emigration

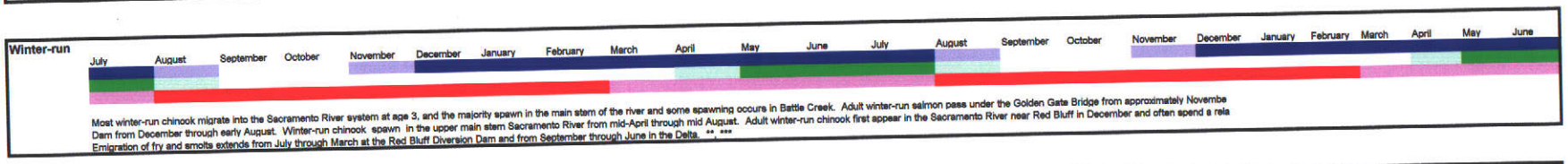
= Yearling emigration



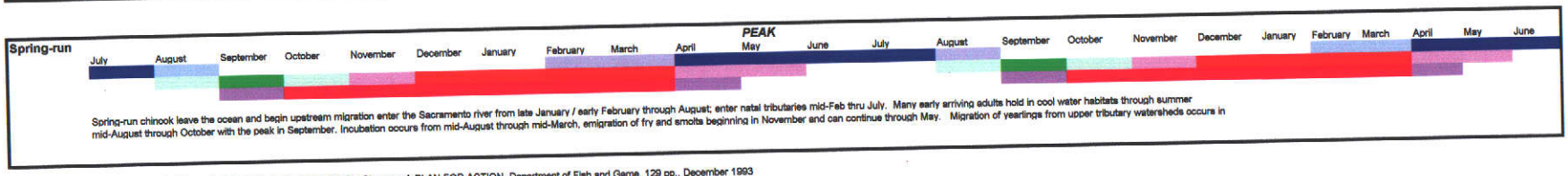
Adult fall-run migrate into the river system from July through December and spawn from early October through late December. Peak spawning occurs in October and November, although the timing of runs varies from stream to stream. Egg incubation occurs from October through March, and juvenile rearing and smolt emigration occurs from January through June. Although the majority of young Fall-Run chinook salmon migrate to the ocean during the first few months following emergence, a small number may remain in fresh water and migrate as yearlings. *



Late-fall-run chinook migrate into the Sacramento and San Joaquin rivers from mid-October through mid-April and overlaps the fall-run chinook spawning migration of mid-October through December. Late-fall-run chinook spawn from January through mid-April. Incubation occurs from January through June, and rearing and emigration of fry and smolts occurs from April through mid-October. Significant emigration of naturally produced juvenile late-fall-run occurs through November and December, and possibly January. Emigration of hatchery produced late-fall-run juveniles occurs well into February. *



Most winter-run chinook migrate into the Sacramento River system at age 3, and the majority spawn in the main stem of the river and some spawning occurs in Battle Creek. Adult winter-run salmon pass under the Golden Gate Bridge from approximately Novembe Dam from December through early August. Winter-run chinook spawn in the upper main stem Sacramento River from mid-April through mid August. Adult winter-run chinook first appear in the Sacramento River near Red Bluff in December and often spend a rela Emigration of fry and smolts extends from July through March at the Red Bluff Diversion Dam and from September through June in the Delta. ** ***



Spring-run chinook leave the ocean and begin upstream migration enter the Sacramento river from late January / early February through August; enter natal tributaries mid-Feb thru July. Many early arriving adults hold in cool water habitats through summer mid-August through October with the peak in September. Incubation occurs from mid-August through mid-March, emigration of fry and smolts beginning in November and can continue through May. Migration of yearlings from upper tributary watersheds occurs in

* Information from: Restoring Central Valley Streams: A PLAN FOR ACTION, Department of Fish and Game, 129 pp., December 1993
** Information from: Guidelines for Recommended Time Periods for In-Channel Activities for Winter-run Chinook Salmon
*** National Marine Fisheries Service proposed Recovery Plan for The Sacramento River Winter-run Chinook Salmon, August 1997
**** Report to The Fish and Game Commission: A Status Review of The Spring Run Chinook Salmon (Oncorhynchus tshawtscha) in the Sacramento River Drainage. Candidate Species Status Report 98-01, June 1998, CDFG

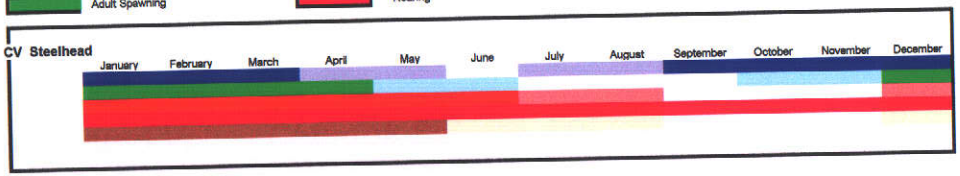
Adult Migration

Adult Spawning

Incubation & Emergence

Rearing

Juvenile Emigration



McEwan, D.R. Central Valley steelhead. In Proceedings of the Central Valley Salmonid Symposium, 1997. R. Brown, ed., Calif. Dept. of Fish and Game Fish Bull. accepted for publication.

Graphics provided by Ron Camacho, CDFG