PACIFIC COAST SALMON PLAN AMENDMENT PROPOSAL
MANAGEMENT OBJECTIVES FOR LISTED CENTRAL VALLEY CHINOOK

I. PROPOSED ACTION

NMFS is proposing revision of the Pacific Coast Salmon Plan to specify in the FMP recovery and long term conservation objectives for Sacramento River winter chinook and Central Valley spring chinook. Both are listed under the federal and state endangered species acts. Although their potential as commercially exploitable stocks may be limited, they represent important components of salmon diversity in California, and ocean salmon fisheries should be managed to ensure recovery and delisting of the populations and to prevent re-listing. Management of winter and spring chinook stocks could continue through the process of NMFS' section 7 consultations. However, NMFS prefers that the Council assume an active role in developing conservation objectives for these populations, with full public involvement in the development and evaluation of alternatives.

The development of management objectives would be accomplished through an FMP plan amendment, with accompanying regulatory impact review, regulatory flexibility analysis and environmental analysis to the extent warranted.

II. MANAGEMENT BACKGROUND

Current FMP Conservation Objectives Sacramento River winter chinook and Central Valley spring chinook are among the stocks that were introduced into the Salmon FMP under Amendments 12 and 14 as a result of being listed under the ESA. Amendment 12 added "species listed under the ESA" to the list of stocks covered by the plan and identified the escapement goal to be "consistent with NMFS jeopardy standards or recovery plans to meet immediate conservation needs and long-tern recovery of the species". Amendment 14 specifically identified both stocks in Table 3-1 and their objectives remained NMFS jeopardy standards or recovery plan:

Sacramento River Spring Chinook: NMFS jeopardy standard/recovery plan (not established). No defined objective of ocean management prior to listing.

Sacramento River Winter Chinook: NMFS jeopardy standard/recovery plan. Since 1996, an annual preseason objective of a 31% increase in the adult spawner replacement rate (equivalent to a 1.77 replacement rate) relative to the observed 1989 - 1993 mean rate of 1.35. Objective undefined prior to listing.

Status of the Populations Since 1994, the winter chinook population has demonstrated a positive adult replacement rate; that is, the number of adult winter chinook spawners has increased relative to the number 3 years before. The estimates of the 2001 run size based on the carcass survey are 12,120 (Petersen) and 7,572 (Jolly-Seber). The six available years of carcass survey data yield three estimated replacement rates: 2.7, 3.4, and 1.9. The current ESA target rate is 1.77.

Spawning populations of spring chinook have also increased in the Sacramento River Basin since 1994, particularly the Butte Creek run, which in 2001 returned in numbers comparable to those of winter chinook population. The mean replacement rates since 1994 are 1.7, 1.7 and 2.7 for the Mill, Deer, and Butte Creek populations respectively.

III. POTENTIAL MANAGEMENT ACTIONS

Sacramento River Winter Chinook

A. Alternative I (Status Quo) - Population Growth

The management objective would specify an increase in the spawning population, expressed as an adult 3 year replacement rate. The 1996/97 biological opinion requires constraints on ocean harvest sufficient to produce a 31% increase in the winter chinook adult replacement rate relative to a base period of 1989 - 1993. The goal has been implemented by the Council and NMFS using a harvest model (WCOHM), which relies on recoveries of marked wild fish during the 1970s. The implementation of the ESA objective assumes that either 1) all non-fishing factors that influence adult replacement rates remain unchanged between the base period and the present, or 2) the model used to implement the objective is able to compensate for variations in non-fishing factors in predicting the effects of fishing seasons on adult replacement rates. The limited available data suggests that the WCOHM reasonably reflects the distribution of winter chinook CWT recoveries through time and between sectors. Different replacement rate goals could be specified, depending on the size of the spawning population. The range of populations would include the delisting goal.

Implementation of the objective could be accomplished through:

1. A harvest rate model, such as the WCOHM, possibly revised with CWT data.
2. Ad hoc seasonal constraints applied to recreational and commercial fisheries.
3. Feedback control relating harvest model output to recent adult replacement rates.

B. Alternative II - Spawning Escapement Objective

The management objective would be expressed as an adult escapement goal (or range) associated with certain population sizes (listed and recovered). This alternative could be combined with alternative I and applied to a delisted population.

Implementation (as in Alternative I)

1. Harvest rate model
2. Ad hoc seasonal approach
3. A preseason prediction of ocean abundance and escapement may not be possible due to the relationship of run timing and fishing seasons

C. Alternative III - Harvest Rate

The management bjective would be specified as a range of harvest rates (or indicators) associated with various population levels (listed to recovered).

Implementation of a harvest rate goal would minimally require a cohort reconstruction of the Livingston-Stone Hatchery population, which would allow a post season estimate of the harvest rate on the hatchery population. A harvest rate estimate on the entire population would additionally require age composition analysis of naturally spawning fish. It would also be possible to develop a harvest model based on recent CWT data and effort. Other indicators of harvest rate on winter chinook could be considered.

Central Valley Spring Chinook

A. Alternative I (Status Quo) - Use of other stock management objectives

This alternative would rely on the revision of management objectives for other stocks, such as Sacramento River winter chinook, Klamath River fall chinook, or Central Valley fall chinook, to provide adequate harvest management for Central Valley spring chinook. This is the approach taken by NMFS' 2000 biological opinion on Central Valley spring and California Coastal chinook: a limit on the exploitation rate of Klamath River fall chinook is used as a management objective for California coastal chinook, and the winter chinook

requirements are considered sufficient to protect spring chinook. Implementation of the objective should identify a feedback mechanism for adjusting the management objective to specific recovery objectives or milestones.

B. Alternative II - Spawning Escapement Objective

There are at least three populations (Deer, Mill, and Butte Creek) of spring run that should be considered, either individually or as an aggregate. The difficulties associated with the lack of a preseason abundance estimate for winter chinook may also apply to spring run.

Implementation could be accomplished through use of a harvest model or through ad hoc seasonal approaches.

C. Alternative III - Harvest Rate Objective

The Feather River Hatchery spring chinook stock is a potential surrogate for naturally spawning Central Valley spring chinook, although concerns exist regarding introgression with the hatchery fall chinook stock. As with the Livingston-Stone winter chinook population, the Feather River Hatchery spring chinook stock has the potential for providing the necessary data to allow a cohort reconstruction and a post-season harvest rate estimate. The CDFG is tagging relatively large numbers of naturally produced Butte Creek spring chinook which should provide information on the catch distribution of that population relative to the hatchery spring-run stock, as well as age composition data for the natural run.

Implementation of the objective would require additional monitoring and differentiation of the untagged components of the fall and spring run in the Feather River and, if possible, in Butte Creek.

IV. Amendment Schedule

A. March 2002
1. Council decision to proceed with amendment
2. Formation of a plan development team
CDFG - two members (OSP and WRTT)
ODFW - one member (spring chinook management measures could potentially affect Oregon seasons)
NMFS - two members (one from the Region and one from the Science Center)
USFWS - one member
STT - one member
Council Staff
NMFS Central Valley Technical Recovery Team
Academia

B. November 2002
1. Working draft amendment to Council
2. Comments from Council

C. March/April/June 2003
A revised draft amendment would be resubmitted in early 2003 followed by public review.

D. September/November 2003 Final Adoption