Feature oded-Wire Tags Help to Document Increases in Salmon Escapements by Scott Barrow, Associate Marine Biologist

Central Valley chinook salmon make up the majority of the salmon caught in California's commercial and recreational ocean fisheries, and help sustain ocean fisheries along the coastline from California to Canada. As such, these fish are crucial to our commercial and recreational ocean fisheries.

Central Valley chinook salmon

originate from the Sacramento and San Joaquin rivers and their tributaries. The annual Central Valley chinook salmon escapement (fish returning to spawn) has been on the rise in recent years. The natural and hatchery escapement averaged 507,000 adult fish for the past five years (from 1998-2002) with a high of 864,000 adult fish in 2002. The previous 10 years (from 1983-1997) had an annual average escapement of 212,000 adult fish with the 1997 high point of 356,000 adult fish. The recent escapement increases are the result of favorable ocean survival conditions likely coupled with improvements in juvenile out-migrant survival. Other factors responsible for increased Central Valley Chinook salmon escapements include ocean salmon harvest restrictions due to state and federal Endangered Species Act constraints on listed Central Valley chinook stocks, and a northern shift of the salmon populations off California to areas with restricted fishing.

Some of the young salmon released from Central Valley hatcheries are tagged with coded-wire tags, known as CWTs. These tiny tags, pieces of stainless steel wire 0.5 to 1 mm long, are injected into the snouts of salmon. Each CWT has a unique marking that provides specific information about the recovered fish such as brood year, release date, and whether the fish is wild or came from a hatchery. The adipose fin (the small fin behind the dorsal fin) is removed to indicate the presence of a CWT in the snout. Department of Fish and Game (DFG) samplers remove and collect the heads of adipose-clipped adult salmon during dockside sampling of commercial and recreational ocean salmon fisheries. The heads are processed at the Ocean Salmon Project's Santa Rosa laboratory, where information from the CWTs is entered into a CWT recovery database. The ocean CWT recovery data are combined with Klamath Basin and Central

CWTs implanted in juvenile salmon

hatchery
fish for the past igh of 864,000 adult
(from 1983-1997)
of 212,000 adult

Valley river CWT recovery data, and crossverified with the respective catch and sample data. The CWT recovery databases and the associated catch/sample databases are then uploaded to the Pacific State Marine Fisheries' Regional Mark Information System for distribution via the Internet (<u>www.rmis.org</u>).

During recent years, the number of Central Valley ocean CWT recoveries has risen as the hatchery's CWT tagging rates increased. The Central Valley ocean CWT recoveries off Oregon dramatically increased in 2001, and remains high due to the northern shift of salmon stocks off California. Occasionally CWT recoveries of Central Valley chinook salmon are reported in the "Salmon" continued on next page

Due to State budget restraints, the Marine Managemenent News will only be published electronically until further notice. Our sincere apologies for this inconvenience. Copies are available for viewing or printing on the Marine Region Web site, at www.dfg.ca.gov/mrd/index_newsletter.html. Subscribe now for automatic notification when new issues are posted.

"Salmon" continued from previous page
Bering Sea groundfish fisheries off
western Alaska. These recoveries are
very sporadic, partially due to the
sampling rate in Alaska. In addition,
preliminary results from a 2003 Canadian
salmon fishery genetic study indicate
that 15-17 percent of the salmon caught
off Canada are from Central Valley
salmon stocks.

Ocean and river CWT recovery data are combined with other data covering fishing effort, catch, and natural and hatchery escapements to determine the ages of recovered salmon and the composition of ocean salmon stocks. This information is used by the Pacific Fishery Management Council in various ocean salmon harvest models. Harvest management measures and escapement estimation methods for Central Valley chinook salmon stocks are currently under review. This review will allow the Pacific Fishery Management Council and DFG to refine existing ocean salmon harvest models that forecast ocean salmon abundance and harvest impacts on ocean fisheries.

Sea Urchin Fishery Advisory Committee Funds Projects

by Kristine Barsky, Senior Marine Biologist Specialist

n March, the Sea Urchin Fishery Advisory Committee (SUFAC) funded a proposal by Ray Hilborn of the University of Washington and Jeremy Prince of Murdoch University in Western Australia to develop a method for urchin divers to collect sea urchin size frequency and abundance data in conjunction with their fishing activities. The proposal also deals with data management and sampling protocols. Prince spent most of May and the beginning of June accompanying urchin divers coastwide on their fishing trips. Both Prince and Hilborn also had informal meetings with scientists, fishery managers, and industry members to develop potential fishery management models. The culmination of their investigation was a June 10 workshop where they presented examples of what has worked in fisheries from other parts of the world and a summary of potential methods for the California urchin fishery. Agency observers were asked to provide feedback on these ideas in light of existing regulations and data collection methods. Prince and Hilborn will present a final report in August.

SUFAC will be funding a referendum to decide on an industry marketing commission in October. A marketing commission would enable the urchin

"Sea Urchin" continued on next page

UPDATE:

Market Squid Fishery Management Plan by DFG Staff

The Department of Fish and Game (DFG) presented the Fish and Game Commission with its draft Market Squid Fishery Management Plan (MSFMP) at the Commission's Aug. 1 meeting in Long Beach. The public review and commenting process will last until Dec. 4-5 when the Commission will consider adoption of the plan during its meeting in Sacramento.

The MSFMP will establish a management program for California's market squid resource, including procedures by which DFG will manage the fishery. There are several options for fishery management based on four management components: fishery control rules, harvest replenishment areas, restricted access, and ecological concerns. Within each option, a range of alternatives has been provided for the Commission to consider. The Commission may select any of these alternatives, modify the alternatives, or request new alternatives.

A table of the proposed options with alternatives is posted on the DFG Web page at www.dfg.ca.gov/mrd/marketsquid/options.html. The entire draft MSFMP, which also includes a summary of potential environmental and socioeconomic impacts related to the options and their alternatives, is posted at www.dfg.ca.gov/mrd/msfmp/index.html. To comply with California's Paper Reduction Act, only one hardcopy of the MSFMP, with appendices, will be available at each DFG office. Copies are also available on CD-ROM, in Braille, in large print, and on audio cassette. Contact Mary Ellsworth for copies of the MSFMP at (858) 467-4214, or e-mail mellsworth@dfg.ca.gov.

For additional information on the MSFMP, contact Mr. Dale Sweetnam, Senior Biologist with the Department of Fish and Game, 8604 La Jolla Shores, La Jolla, California 92037, at (858) 546-7170.

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