



IEP NEWSLETTER

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Table 1 Percent of catch of the most abundant fish species captured between 07/01/07 and 09/30/07 at Sherwood Harbor mid-water trawl and Mossdale Kodiak trawl

Station	Individuals	Chinook Salmon	American Shad	Inland Silverside	Threadfin Shad
Sherwood Harbor	n	68	23	10	-
(n=116)	% of catch	58.62	19.82	8.62	-
Mossdale	n	-	-	7577	1873.00
(n=11,471)	% of catch	-	-	66.05	16.33

Beach seine

For the reporting period (07/01/07 through 09/30/07), the DJFMP collected a total of 569 beach seine samples at 52 sites (see USFWS, 2006 for site map). We conducted 91 seines on the lower Sacramento River (7 sites), 69 seines on the San Joaquin River (7 sites), 351 seines in the Delta (29 sites), and 58 seines within San Pablo and San Francisco Bays (9 sites). The Lower Sacramento, Delta, and San Joaquin sites were typically sampled once per week, and Bay sites were sampled every other week.

A total of 43,587 fish representing 52 species were captured in beach seines during the sample period: 3,815 fish from the lower Sacramento River, 26,109 fish from the Delta, 11,683 fish from the San Joaquin River, and 1,980 fish from the Bay region.

Sacramento suckers (*Catostomus occidentalis*) were the most prevalent species in the lower Sacramento River catch (n = 1,163 fish; total CPUE = 0.52 fish/m³) followed by inland silversides; (n = 821 fish; total CPUE = 0.36 fish/m³) (Table 2). In the San Joaquin seine, inland silversides; (n = 9,758; total CPUE = 4.51 fish/m³) followed by red shiners (*Cyprinella lutrensis*; n = 1,612 fish; total CPUE = 0.75 fish/m³) were the most abundant species caught. In the Delta, which comprises North Delta seine, Central Delta seine, and South Delta seine inland silversides; (n = 20,892 fish; total CPUE = 1.32 fish/m³) were the most abundant species. Threadfin shad were the next most abundant; (n=1276; total CPUE = 0.08 fish/m³). Top smelt (*Antherinops affinis*; n = 1,512 fish; total CPUE = 0.24 fish/m³), while yellowfin goby (*Acanthogobius flavimanus*; n = 105 fish; total CPUE = 0.03 fish/m³) were the most abundant fish caught in the Bay seines.

Five salmon were recovered in the beach seines during this reporting period. Two fall-run sized fish were captured in the lower Sacramento region, and three late fall-run sized salmon were caught in the Delta region.

There were no marked (adipose fin-clipped) Chinook salmon recovered in seines during this reporting period. No salmon were recovered from the San Joaquin River or Bay region seines during the reporting period.

Summary Report for Spring Kodiak Trawl 2008 Survey 1

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Survey 1 of the 2008 Spring Kodiak Trawl was conducted from 1/7 to 1/11. This delta-wide survey sampled 40 stations from the Napa River to Stockton on the San Joaquin River, and up to Walnut Grove on the Sacramento River including the Sacramento Deep Water Shipping Channel. A map of the Spring Kodiak Trawl sampling stations can be viewed at our website: (www.delta.dfg.ca.gov/data/skt).

A total of 132 adult delta smelt were collected during Survey 1 from a wide geographic distribution, with the highest concentration (n=79) of fish coming from the lower Sacramento River just downstream of Decker Island. The second highest concentration of fish (n=28) was collected in the Sacramento Deep Water Channel. Delta-wide, 76 males (57.6 % of catch) and 54 females (40.9 % of catch) were collected, and for 2 fish (1.5 % of catch) sex could not be determined. This 2008 catch of 132 delta smelt was slightly higher than the catch for Survey 1 of 2007 which was 109. Additionally, 2008 Survey 1 catch distribution shows a more easterly pattern of occurrence than that of 2007, where the highest concentration of delta smelt was in Montezuma Slough (n=38).

We examined all 2008 Survey 1 delta smelt for gonadal maturation and found no mature fish. We categorized delta smelt gonads into one of six stages; where Stage 4 represents a ripe female and Stage 5 represents a ripe male (further details of gonadal stages can be viewed at www.delta.dfg.ca.gov/data/skt). The majority of females (63 %) collected were Stage 2, while 37 % of the females were Stage 3 (pre-spawn). The vast majority (92.1 %) of males was Stage 3 and 1 male was Stage 4 (pre-spawn). With regards to both sexes, gonadal maturation and staging seem to be congruous with environmental factors, such as water temperature and seasonality.

In Survey 1 2008, general fish size and condition seemed exceptionally good compared to 2007. Females were on average 5 mm larger in 2008 (average = 67mm) than in 2007 (average = 62mm). Males on average were substantially larger in 2008 (average = 66.9mm) than in 2007 (average = 60.2 mm). Additionally, 2008 fish seem to be healthier exhibiting large fat reserves and full stomachs. Several females examined from the lower Sacramento River showed full gut tracts occupied by the amphipod *Corophium* spp. Please look for more information in later editions of this newsletter.

articles describe precipitation and surface water flows in the watershed (Figure 1), flows and diversions in the Sacramento – San Joaquin River Delta (Figure 2), meteorology, water levels, salinity, suspended sediment, temperature, and chlorophyll-a in San Francisco Bay (Figure 3), and temperature and upwelling offshore in the Pacific Ocean (Figure 3). Temporal variation and spatial distribution are described and WY2006 and WY2007 conditions are compared to historical conditions and to each other. Comparison of the two water years is instructive because WY2006 was wetter than normal and WY2007 was drier than normal (Carr, this issue). All data are available to the public from online sources. Due to the breadth of the subject matter and quantity of data available, the articles provide highlights of the hydrology of the Bay, Delta, Ocean, and watershed rather than in-depth analysis. Water managers and scientists may find that the articles are a convenient resource to access hydrologic conditions in WY2006 and WY2007. A previous set of articles described WY2005 (Schoellhamer 2007).

Hydrology of San Francisco Bay and Watershed, Water Years 2006 and 2007

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Introduction

Hydrology is the study of the properties and distribution of water. California has two distinct hydrologic seasons: a wet season from late autumn to early spring with the remainder of the year being dry. Thus, the water year, which begins on October 1 and ends on September 30, is a convenient period to study hydrology because it begins in the dry season, includes a single wet season, and ends in the dry season.

The purpose of this series of short articles is to describe the hydrology of San Francisco Bay and its watershed during water years (WY) 2006 and 2007. The

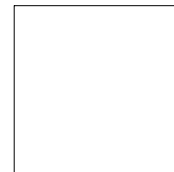


Figure 1 Central Valley watershed that drains to San Francisco Bay. Selected rivers, reservoirs, and streamflow gages are shown.

■ Interagency Ecological Program for the San Francisco Estuary ■

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For information about the Interagency Ecological Program, log on to our website at <http://www.iep.water.ca.gov>. Readers are encouraged to submit brief articles or ideas for articles. Correspondence—including submissions for publication, requests for copies, and mailing list changes—should be addressed to Patricia Cornelius, California Department of Water Resources, P.O. Box 942836, Sacramento, CA, 94236-0001. Questions and submissions can also be sent by e-mail to: pcorn@water.ca.gov.

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