

# Interagency Ecological Program Status and Trends

## Metadata for Fall 2017 Report

**Version:** 1.0

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### Overview

Long-term ecological surveys have been a core function of the Interagency Ecological Program (IEP) since the program's inception in the 1970s. The IEP Status and Trends Seasonal Report presents the full time series for selected water quality, plankton, and fisheries surveys conducted by IEP in a single graphical report. While the report is not a comprehensive view of all the data collected by IEP, it is intended to provide a general overview of the longevity and breadth of IEP survey work. A major goal of this report is to illustrate the scope of IEP surveys and emerging trends in the San Francisco Bay-Delta ecosystem to the public, potential science collaborators, and IEP and other resource agency managers and directors. The report is generated on a quarterly basis, with different set of ecosystem variables and surveys highlighted in each season. The report is developed by IEP scientists (including leads for monitoring surveys and the IEP Lead Scientist) and is reviewed by the IEP Science Management Team and Coordinators before online publication.

### General Information

#### Season Definitions

This report covers a suite of key IEP data sets relevant to the fall season, which we defined as the months of September, October, and November. For data sets collected throughout the year, such as water temperature, we only used data from this three-month period to generate graphs. Data from other times of year will be featured in the corresponding future seasonal reports (i.e., winter, spring, summer). For surveys that are season specific, we used the data from the entire date range of the survey rather than truncating the date range to conform to our definition of the season. For example, the Fall Midwater Trawl has typically taken place September – December rather than September-November, and data from all the months of the Fall Midwater Trawl are included in the graphs from that survey included in this report. The other seasons (for future reports) are defined as follows: Winter = December to February, Spring = March to May, Summer = June to August.

#### Geographic Region Definitions

Many of the data sets in the report are represented by a panel of three plots, one for each of three geographic regions: San Pablo Bay, Suisun Bay, and the Sacramento-San Joaquin Delta. This subdivision of data sets is designed to facilitate comparison among major regions that differ in a variety of characteristics. San Pablo Bay includes data collected east of Point San Pablo and west of the Carquinez

Straight. Suisun Bay includes data collected east of the Carquinez Straight and west of the town of Collinsville. The Delta includes data east of Collinsville. Data sets are represented as a single graph when the data are only collected within a single region (e.g., Net Delta Outflow) and for wide-ranging organisms that frequent multiple regions (e.g., Striped Bass).

### Year Ranges

All graphs in the report have an x-axis range from 1967 to 2017. This start year was selected because it is the year of initiation for the Fall Midwater Trawl survey, one of the longest-running surveys. Standardizing the year range on the x-axis facilitates visual comparison across data sets. The entire time series for nearly all data sets fits within this time range. The data set for Net Delta Outflow, which was initiated in 1929, represents the sole exception and is truncated in this report to only data since 1967, for purposes of consistency within the report.

### Calculations for Data Points

The points plotted on the graphs represent mean values. Means are generated by averaging data over the three months of the fall season for a given year (September-November) and across sites within a given region where relevant (e.g., water quality and plankton data sets).

## Data Sets

### Flow

**Data Source:** Department of Water Resources, Environmental Planning and Information Branch

**Metric Used:** Net Delta Outflow Index, which is estimated using a summation of river inflows, precipitation, agricultural consumptive demand, and project exports.

**Year Range:** 1967-2017. The entire data set includes 1929-2017 but was truncated to conform to the year range of the rest of the data sets in the report.

**Additional Information:** <https://www.water.ca.gov/Programs/Environmental-Services/Compliance-Monitoring-And-Assessment/Dayflow-Data>

Water Quality: Secchi depth, Ammonium, Nitrate/Nitrite, Chlorophyll-a

**Data Source:** Department of Water Resources, Environmental Monitoring Program

**Metric Used:** Monthly discrete water quality data

**Year Range:** 1975 – 2017

### Stations by Region

**San Pablo:** Stations = 4, years: 1976-2017

**Suisun:** Stations = 11, years: 1975-2017

**Delta:** Stations = 29, years: 1975-2017

**Additional Information:** <https://water.ca.gov/Programs/Environmental-Services/Water-Quality-Monitoring-And-Assessment>

Zooplankton: Biomass of Calanoids, Cyclopoids, Cladocerans, and Mysids

**Data Source:** California Department of Fish and Wildlife, Zooplankton Study

**Metric Used:** Biomass of zooplankton (milligrams of carbon per cubic meter) based on monthly surveys

**Year Range:** 1974 – 2017

**Stations by Region**

**San Pablo:** Stations = 2, years: 1998-2017. Note: One station sampled consistently since 1998 and the other one since 2003.

**Suisun:** Stations = 6, years: 1974-2017

**Delta:** Stations = 8, years: 1974-2017

**Additional Information:** <https://www.wildlife.ca.gov/Conservation/Delta/Zooplankton-Study>

Fall Midwater Trawl: Delta Smelt, Striped Bass, Longfin Smelt, American Shad

**Data Source:** California Department of Fish and Wildlife

**Metric Used:** Annual abundance indices are the sum of the four (September-December) monthly indices, which are calculated by averaging catch per tow for index stations in each regional area, multiplying these means by their respective weighting factors (i.e., a scalar based on water volume) for each area and summing these products for all 17 areas.

**Year Range:** 1967 – 2017. Note: No sampling in 1974 or 1979. Also, the month range of this survey deviates from the standard September -November definition of fall in this report. It typically takes place September – December. In some years past, however, it started as early as July and/or ended as late as March.

**Stations:** 100 (out of 122 stations sampled)

**Additional Information:** <http://www.dfg.ca.gov/delta/projects.asp?ProjectID=FMWT>

White Sturgeon

**Data Source:** California Department of Fish and Wildlife, Sturgeon Study

**Metric Used:** Catch per unit effort based on standardized trammel net surveys

**Year Range:** 1967-2017. Survey conducted intermittently 1967-2004 and annually since 2005. Note: Fall season for this study is August-October.

**Additional Information:** <https://www.wildlife.ca.gov/Conservation/Delta/Sturgeon-Study>

### Fall-run Chinook

**Data Source:** California Department of Fish and Wildlife, Fisheries Branch Anadromous Resource Assessment Unit

**Metric Used:** Estimates based on counts of fish entering hatcheries and migrating past dams, carcass surveys, live fish counts, and ground and aerial redd counts.

**Year Range:** 1975-2017

**Additional Information:** <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=84381&inline>