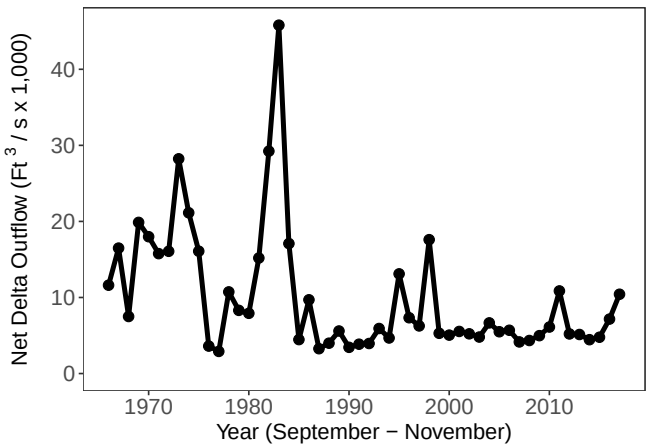
Interagency Ecological Program Status & Trends

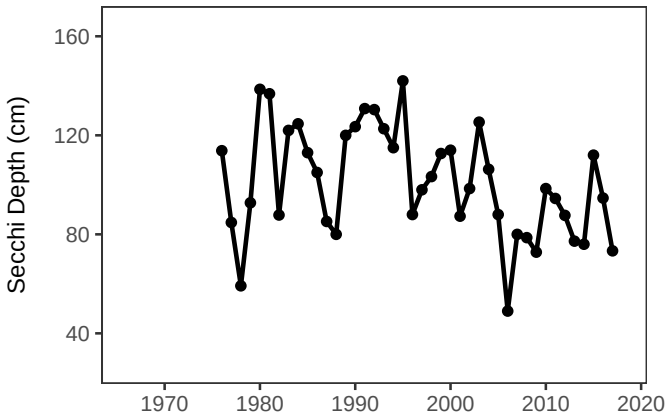
2017 Fall Season Report

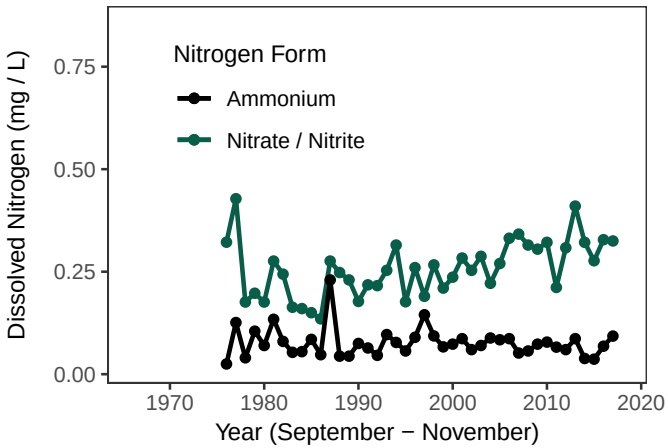
Water Quality: 1975 – 2017

- IEP has collected water quality data since 1975 as mandated by state and federal regulations.
- Delta outflow (at right) is a major ecosystem driver and depends on natural hydrological variability and water management operations, including exports from the Delta and reservoir operations.
- Organisms in this ecosystem are adapted to high turbidity conditions, and reductions in turbidity can have many negative ecological effects. Higher values for Secchi depth indicate lower turbidity.
- Dissolved inorganic nitrogen (DIN) affects primary productivity, with different forms having different effects. DIN, particularly ammonium, is predicted to decline significantly over the next five years in response to wastewater treatment plant system upgrades.

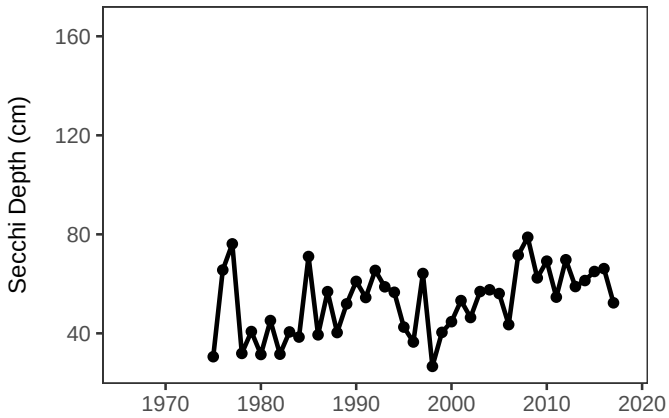


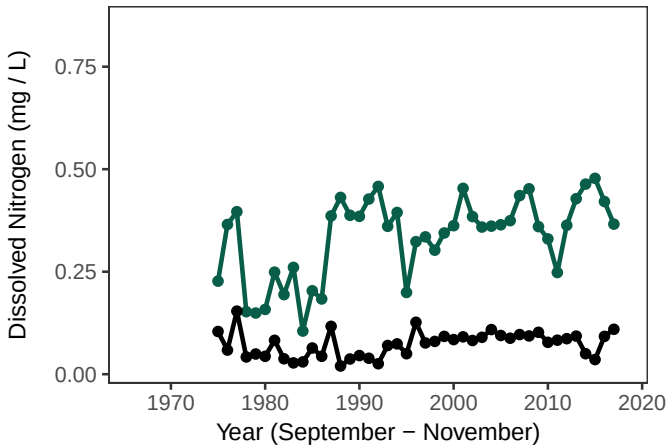
San Pablo Bay



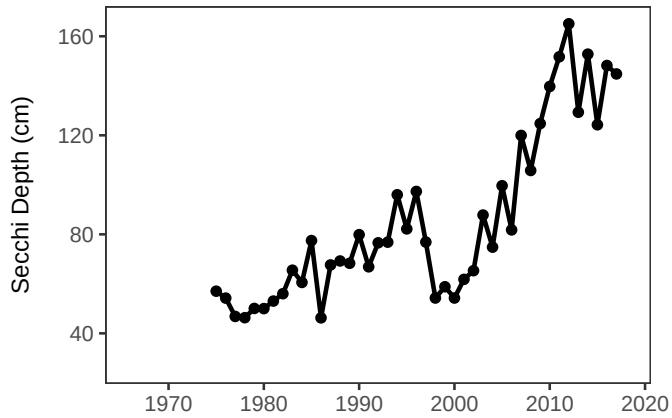


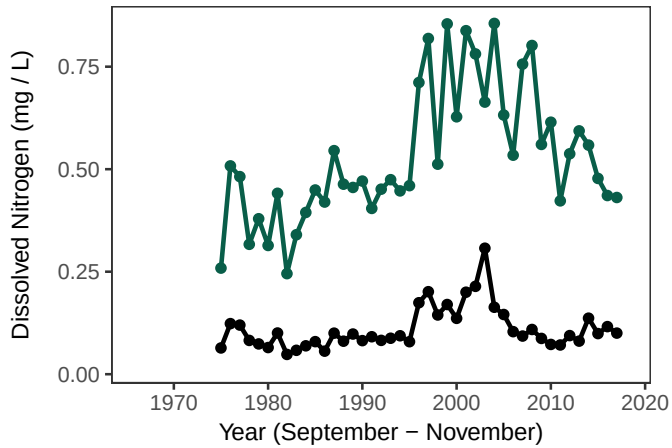
Suisun Bay





Delta





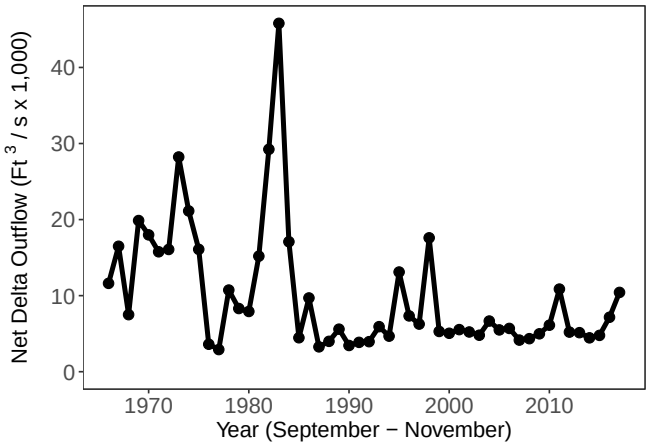
FOR MORE INFORMATION: The California Estuary Portal provides access to raw and summarized water quality data for the Sacramento-San Joaquin Delta. The California Department of Water Resources provides information and data on outflow. The IEP website provides the metadata for production of this report.

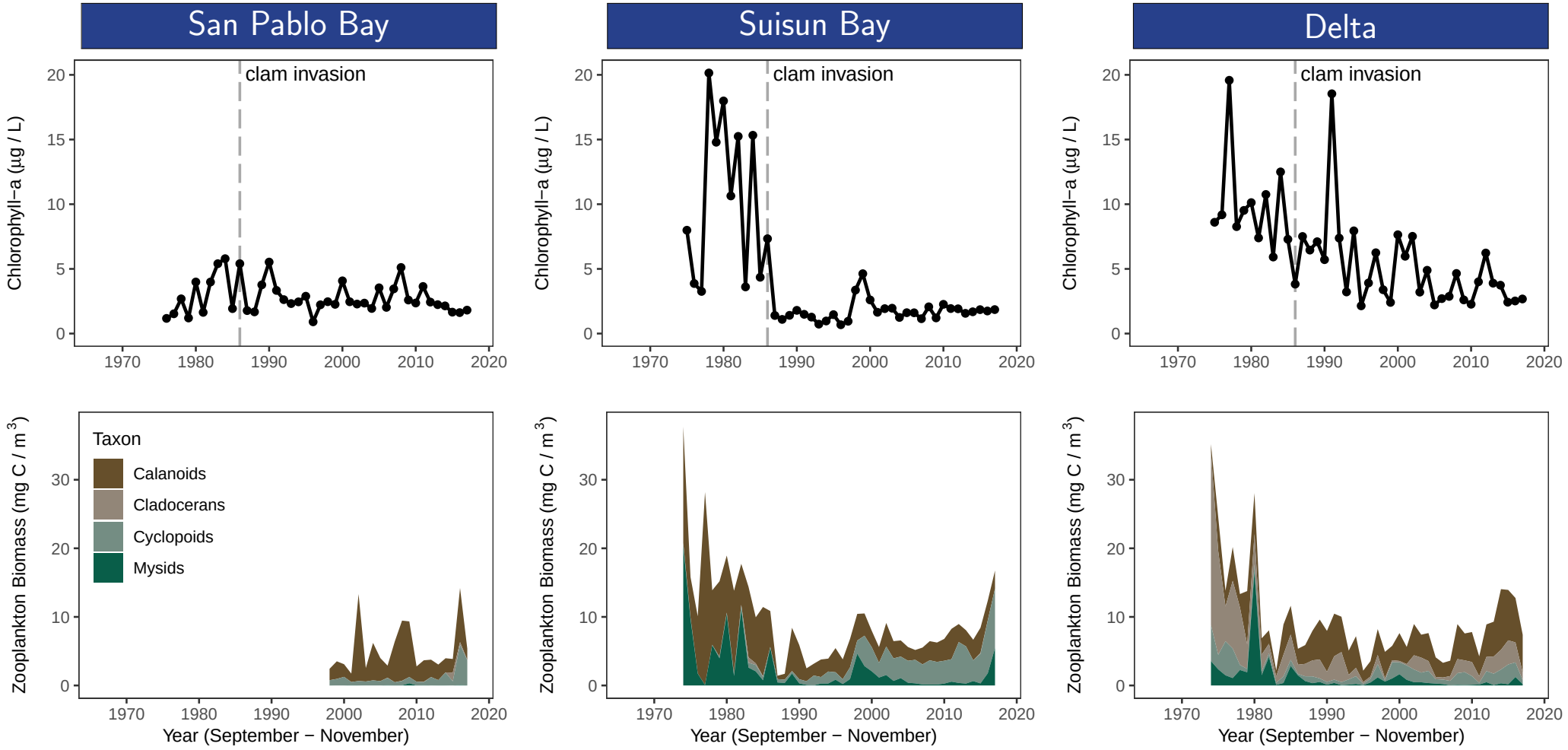
Interagency Ecological Program Status & Trends

2017 Fall Season Report

Plankton: 1975 – 2017

- Plankton densities and composition have shown large shifts since surveys began in 1975.
- The most dramatic shift occurred after invasion of the overbite clam in 1986. Filter feeding by these clams caused a substantial decline in chlorophyll-a, a proxy for phytoplankton productivity.
- Zooplankton represent an import food source for many fishes, and like phytoplankton, declined after arrival of the overbite clam. Mysids, calanoid copepods, and cladocerans are large-bodied zooplankton and generally offer a more nutritious food source compared to the relatively smaller cyclopoid copepods.





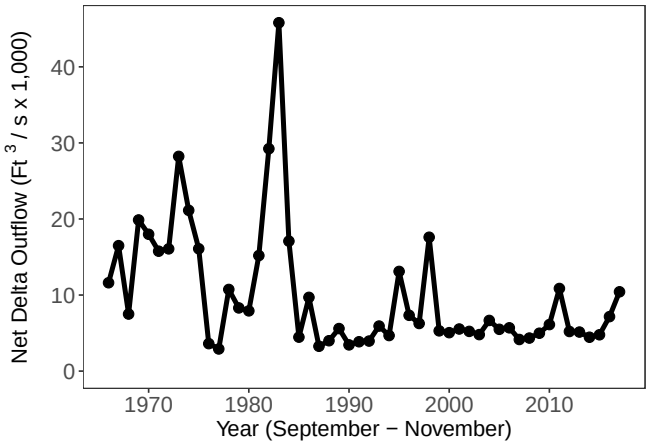
FOR MORE INFORMATION: Recent articles in the IEP Newsletter summarize status and trends of phyotoplankton and zooplankton, including a recent phyotoplankton bloom in Spring 2016. The IEP website provides the metadata for production of this report.

Interagency Ecological Program Status & Trends

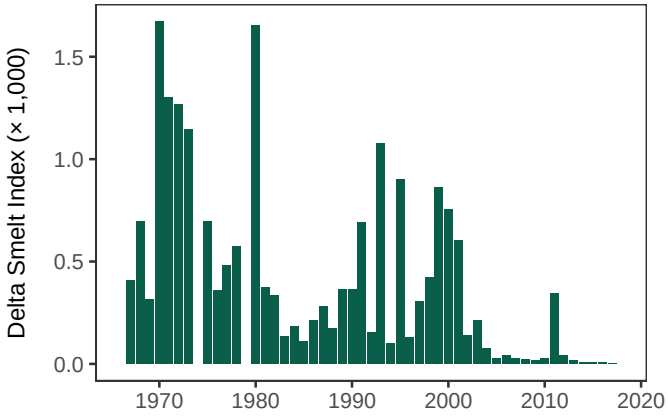
2017 Fall Season Report

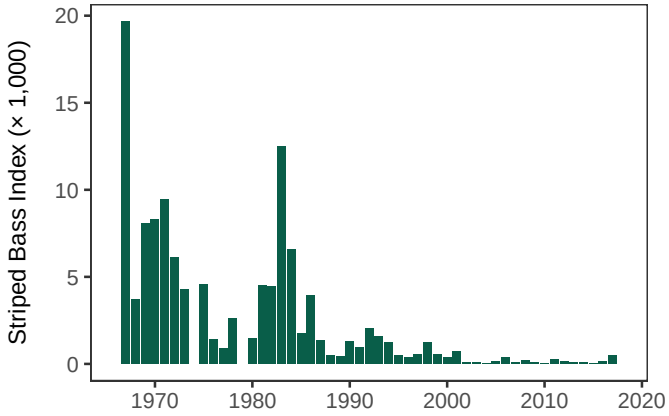
Fishes: 1967 – 2017

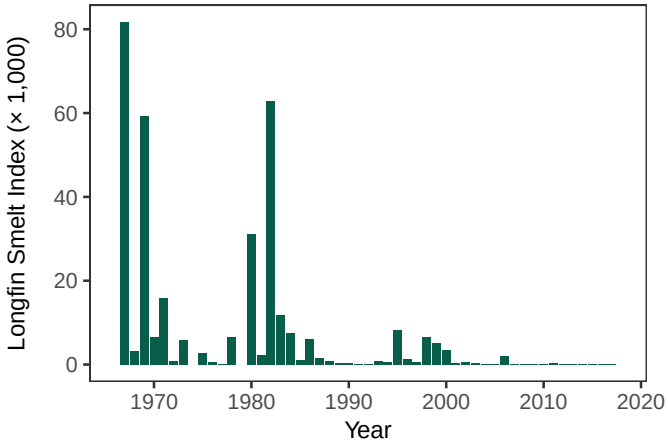
- The Fall Midwater Trawl began in 1967 and surveys the pelagic, or open water, fish community. Indices for many pelagic fishes are at record lows, including Delta and Longfin Smelt, which are protected by California and/or federal Endangered Species Acts.
- White sturgeon is a species of concern and a popular target of recreational fishing. Catch per unit effort is based on trammel net surveys.
- Fall Run Chinook Salmon, an important species for both the commercial and recreational fishery, is also a species of concern. Population dynamics are driven by hatchery production and a suite of environmental variables. Total counts of both in-river and hatchery returns are shown here.

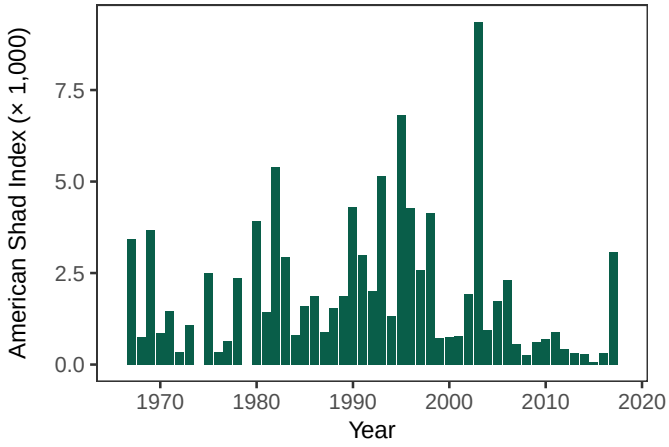


Fall Midwater Trawl

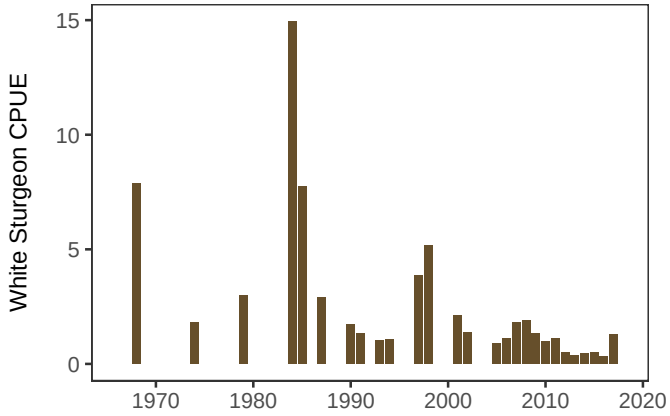


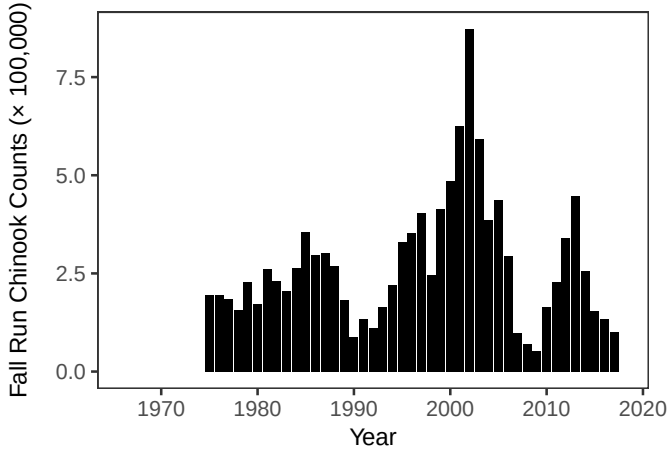






Other Surveys





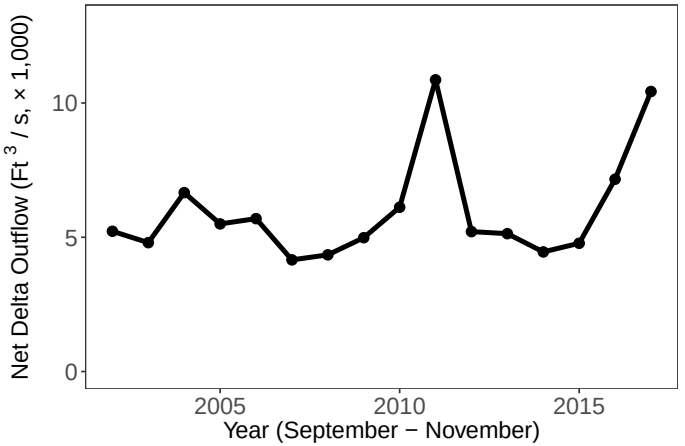
FOR MORE INFORMATION: Recent articles in the IEP Newsletter summarize trends and abundance index calculations for pelagic fishes. The IEP website provides the metadata for production of this report.

Interagency Ecological Program Status & Trends

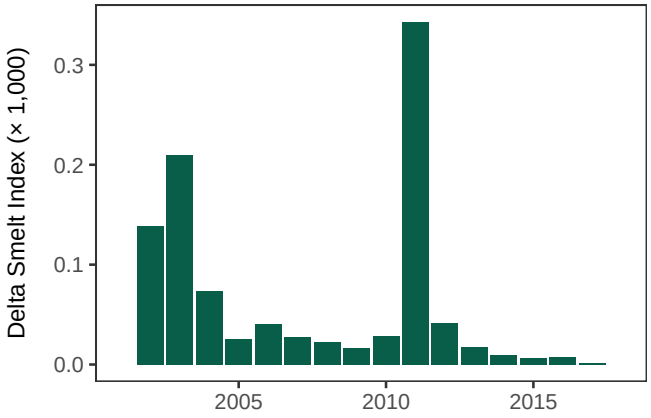
2017 Fall Season Report

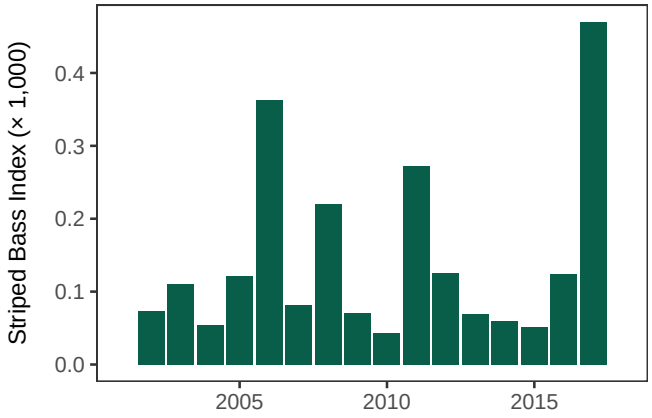
Fishes: 2002 – 2017

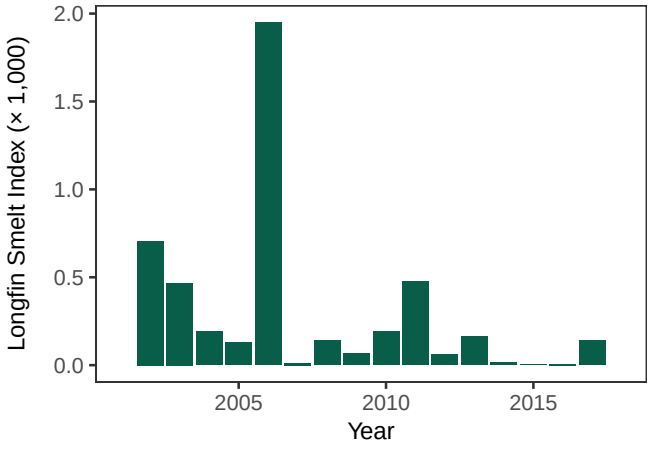
- Many pelagic fishes declined sharply around 2001 in what is known as the Pelagic Organism Decline. Some species have continued to decline over the last 15 years.
- For Delta Smelt, 2017 marked the lowest recorded index in over 50 years (Index = 2).
- Some fish species increased in 2017 relative to recent years. The Striped Bass 2017 index was the highest since 2001. The 2017 Longfin Smelt index was the highest since 2013. American Shad saw its highest index since 2003, and White Sturgeon CPUE was the highest since 2009.
- In 2017, Fall Run Chinook Salmon declined for the fourth year in a row (counts = 101,222).

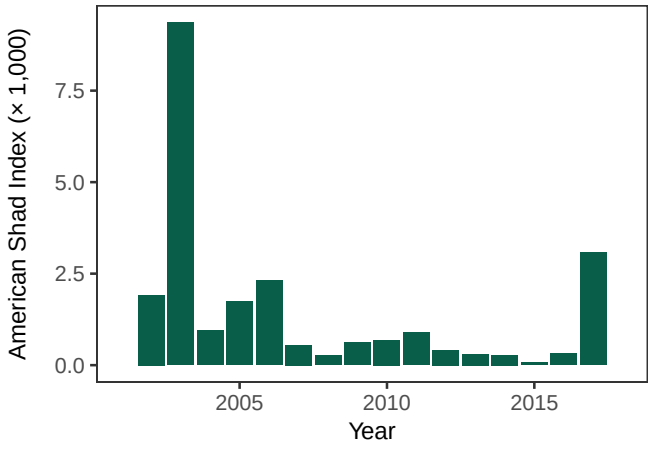


Fall Midwater Trawl

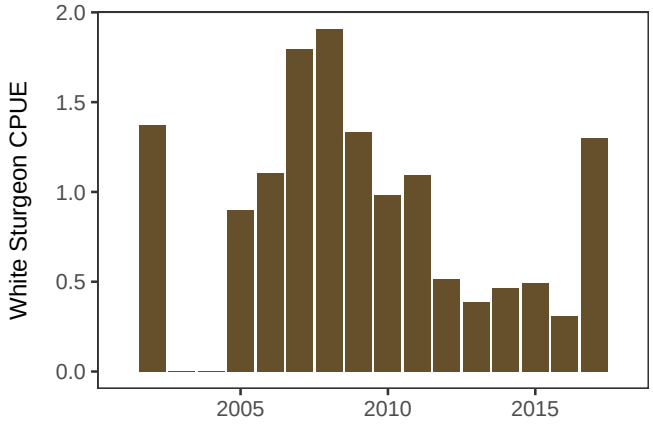


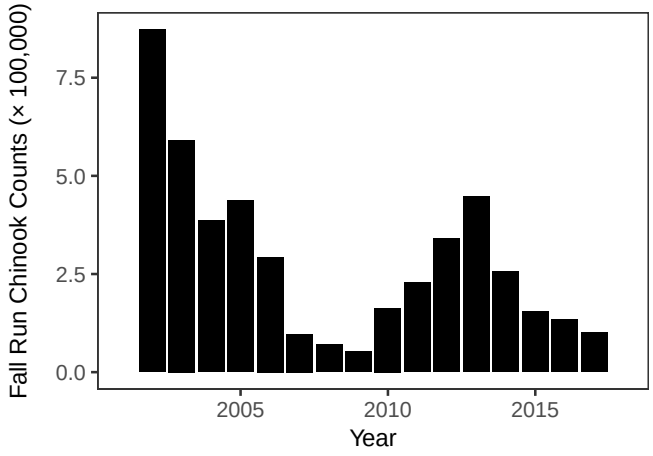






Other Surveys





FOR MORE INFORMATION: The California Department of Fish and Wildlife provides information and data for the Fall Midwater Trawl and Sturgeon study. CalFish provides Chinook Salmon data via the GrandTab database. The IEP website provides the metadata for production of this report.