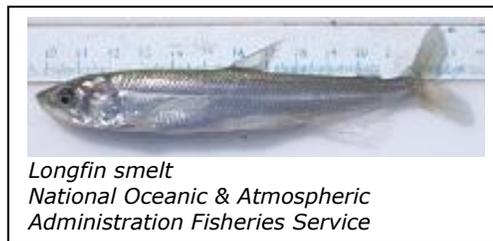


U.S. Fish & Wildlife Service  
Bay Delta Fish & Wildlife Office  
Species Account  
LONGFIN SMELT  
*Spirinchus thaleichthys*



CLASSIFICATION: Candidate

Federal Register 77:19756; April 2, 2012

[12-Month Finding on a Petition to List the San Francisco Bay-Delta Population of the Longfin Smelt as Endangered or Threatened](#) (PDF 889 KB)

The Service found that listing the longfin smelt is warranted only for the Bay-Delta, not range-wide.

[Species and Listing Priority Form June 27, 2016](#)

CRITICAL HABITAT: NOT DESIGNATED

RECOVERY PLAN: FINAL

Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes, November 26, 1996

[http://ecos.fws.gov/docs/recovery\\_plan/961126.pdf](http://ecos.fws.gov/docs/recovery_plan/961126.pdf).

Note: Some information is out of date.

5-YEAR STATUS REVIEW: NONE

#### DESCRIPTION

The longfin smelt is a pelagic (lives in open water) estuarine fish that typically measures 3.5 to 4.3 inches standard length, although third-year females may grow to almost 6 inches. Longfin smelt can be distinguished from other smelts mainly by their long pectoral fins. The sides and lining of the gut cavity appear translucent silver, the back has an olive to iridescent pinkish hue, and mature males are usually darker in color than females. Longfin smelt can be distinguished from other smelts by their long pectoral fins.

The longfin smelt belongs to the true smelt family Osmeridae and is one of three species in the *Spirinchus* genus; the night smelt (*Spirinchus starksi*) also occurs in California, and the hishamo (*Spirinchus lanceolatus*) occurs in northern Japan.

Longfin smelt generally spawn in freshwater and then move downstream to brackish water to rear. The life cycle of most longfin smelt generally requires estuarine conditions. They usually live for 2 years, spawn, and then die, although some individuals may spawn as 1- or 3-year-old fish before dying. Longfin smelt in the Bay-Delta may spawn as early as November and as late as June, although spawning typically occurs from January to April. Longfin smelt have been observed in their winter and spring spawning period as far upstream as Isleton in the Sacramento River, Santa Clara shoal in the San Joaquin system, Hog Slough off the South-Fork Mokelumne River, and in Old River south of Indian Slough.

#### DISTRIBUTION

The known range of the longfin smelt extends from the San Francisco Bay-Delta in California northward to the Cook Inlet in Alaska. Only the Bay-Delta population was advanced to

candidate status.

The southernmost known population of longfin smelt is the Bay-Delta estuary, and longfin smelt occupy different habitats of the estuary at various stages in their life cycle.

In the Bay-Delta, most longfin smelt spend their first year in Suisun Bay and Marsh, although surveys conducted by the City of San Francisco collected some first-year longfin in coastal waters. The remainder of their life is spent in the San Francisco Bay or the Gulf of Farallones.

## THREATS

The primary threat to the longfin smelt DPS is from reduced freshwater flows. Upstream dams and water storage exacerbated by water diversions, especially from the SWP and CVP water export facilities, result in reduced freshwater flows within the estuary, and these reductions in freshwater flows result in reduced habitat suitability for longfin smelt. Freshwater flows, especially winter-spring flows, are significantly correlated with longfin smelt abundance—longfin smelt abundance is lower when winter-spring flows are lower.

In addition to the threat caused by reduced freshwater flow into the Bay-Delta, and alteration of natural flow regimes resulting from water storage and diversion, there appear to be other factors contributing to the Pelagic Organism Decline. Models indicate a steady linear decline in abundance of longfin smelt since about the time of the invasion of the nonnative overbite clam in 1987 in the Bay-Delta. However, not all aspects of the longfin smelt decline can be attributed to the overbite clam invasion, as a decline in abundance of pre-spawning adults in Suisun Marsh occurred before the invasion of the clam, and a partial rebound in longfin smelt abundance occurred in the early 2000s. The long-term decline in abundance of longfin smelt in the Bay-Delta has been partially attributed to reductions in food availability and disruptions of the Bay-Delta food web caused by establishment of the nonnative overbite clam in 1987 and ammonium concentrations. Impacts of the overbite clam and ammonium on the Bay-Delta food web have been long-lasting and are ongoing. We conclude that ongoing disruptions of the food web caused by the overbite clam are a threat to the continued existence of the Bay-Delta DPS of longfin smelt. We also conclude that high ammonium concentrations in the Bay-Delta may constitute a threat to the continued existence of the overbite clam.

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