

Species feeling the effects of climate change



# **Longfin Smelt**

Spirinchus thaleichthys

### **ABOUT THIS SPECIES**

Silvery in color and named for the unusual length of their front-most pair of fins, longfin smelt reach up to four inches in size and live for two to three years. They are found in estuaries and lakes along the West Coast and north to Alaska. The population that lives in the San Francisco Bay-Delta is a candidate for protection under the Endangered Species Act, but its listing to date has been precluded by higher priorities. Longfin smelt can tolerate a wide range of water salinities, from freshwater to ocean water. Most spawn in freshwater streams with sandy bottoms, and the young fish live in slightly salty coastal marshes and estuaries for their first year, then move to shallow ocean waters along the coast. The fish feed on small invertebrates.

## **DESCRIPTION OF IMPACT**

It has been recognized since the 1980s that drought has a significant effect on longfin smelt populations. In the past, populations have rebounded with the return of wet years; however, **with the region in severe drought for much of the past decade, the species numbers have remained far below historical levels.** Drought reduces flows of fresh water into the San Joaquin and Sacramento rivers, an effect that is compounded by diversions of water for agriculture and urban use. Since the rivers' estuary is so close to the Pacific Ocean, the reduction of river flow into the San Francisco Bay-Delta allows sea water to encroach upstream, increasing water salinity. Though mature smelt can tolerate a wide range of salinities, the species' eggs and very young fish need fresh water. Saltwater encroachment thus reduces the area of the river system that is suitable as breeding habitat. The rivers are also getting warmer, and the longfin smelt prefer water temperatures below 71 degrees and even cooler waters for spawning. Furthermore, because the fish appear to rely on sediment carried in the water to hide from predators, lower flows and clearer water may expose them to higher levels of predation.

# References

California Department of Fish and Wildlife. 2016. Monthly Abundance Indices. <u>http://www.dfg.</u> <u>ca.gov/delta/data/fmwt/indices.asp</u>

U.S. Fish and Wildlife Service. 2014. Species Assessment and Listing Priority Assignment Form: Longfin smelt, San Francisco Bay Delta Population *(Spirinchus thaleichthys)*. <u>http://ecos.fws.gov/docs/</u> <u>candidate/assessments/2014/r8/E088\_V01.pdf</u>

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## **Region:** West Coast

#### Area affected:

Sacramento-San Joaquin River Delta

### Climatic change:

Drought and increased temperature

# Impact:

Habitat loss



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