# Longfin Smelt 12-Month Finding
# Questions and Answers

**Q: What action is U.S. Fish and Wildlife Service taking?**

The U.S. Fish and Wildlife Service (Service) is announcing the San Francisco Bay-Delta Distinct Population Segment (DPS) of longfin smelt warrants protection under the Endangered Species Act (ESA). However, the Service is precluded at this time from drafting a formal listing rule by the need to address other higher priority listing actions. The finding, which was made after a comprehensive review of the best available scientific information concerning the species and the threats it faces, means the longfin smelt DPS will be added to the list of candidates for ESA protection, where its status will be reviewed annually.

**Q: How was the longfin smelt DPS determination made?**

A: The Service considers two principles when making a determination of a DPS: Discreteness and Significance.

1) **Discreteness** – The limited swimming capabilities of the longfin smelt, existing ocean current patterns, and the great distances between the Bay-Delta and other known breeding populations, make it unlikely that regular interchange occurs between the Bay-Delta and other longfin smelt breeding populations. Individuals attempting to travel to the Bay-Delta from estuaries to the north are likely to be pushed out to sea by southward offshore currents making it unlikely that these fish would be able to return to the Bay-Delta. Therefore, the Service determined that the San Francisco Bay-Delta longfin smelt population is markedly separate from other longfin smelt populations.
2) **Significance** – The Service determined that the population meets the criterion of significance because it resides in a unique environment and the loss of the population would result in a significant gap in the range of the species. The temperature and geography associated with the San Francisco Bay-Delta are unique to estuaries where the longfin smelt resides. The loss of the San Francisco Bay-Delta longfin smelt would result in a loss of the southern- most population of the species.

**Q: Why should people care about such a small fish species? Who cares if they go extinct?**

A: Longfin smelt are a forage fish species that can play a key role in the San Francisco Estuary food web. The disappearance of key species in aquatic food webs can cause unpredictable changes that affect species both higher and lower in the food chain. Species are also indicators of overall environmental quality. The longfin smelt decline is one of the numerous indicators of environmental problems in the estuary that should be considered when choices about resource use are made. When a plant or animal goes extinct, it is like losing a page out of a book. We can never get that page back.

**Q: How does this finding impact state and federal pumping operations?**

A: This finding only recommends listing of the longfin smelt and as such, does not provide regulatory protections for longfin smelt under the ESA. It will likely take several years before longfin smelt, now

a candidate species, could be listed. To date, there have been no impacts to water management in the estuary due to the longfin smelt.

**Q: Once listed, how will ESA protections impact state and federal pumping operations?**

A: Once longfin smelt are listed, the Service will consult on a project-specific basis when determining effects on projects within the San Francisco Bay-Delta. It would be premature to speculate how protections would impact the state and federal pumping operations. The finding does not consider entrainment to be one of the major threats to the species.

**Q: How do water operations impact longfin smelt?**

A: Monitoring survey data show there is a direct correlation between the abundance of longfin smelt and the timing and amount of seasonal freshwater flows in the upper estuary. In years of high freshwater outflow, longfin abundance is also high. This means the abundance of longfin smelt is influenced by natural cycles of wet and dry weather. However, seasonal water storage in upstream reservoirs and export out of the Delta can decrease the amount of freshwater flowing into and through the estuary.

**Q: Why is the Service only proposing listing the San Francisco Bay-Delta population if the species is found all the way up to Alaska?**

A: The only population group of longfin smelt found to be in decline is the San Francisco Bay-Delta population. There is no evidence at this time that any other populations are in decline due to ongoing threats. Given the small size of the fish and the long distances between estuaries, the San Francisco Bay-Delta population was determined to be markedly separated and therefore discrete from other populations along the west coast. Evidence was found that the San Francisco Bay-Delta population of longfin smelt is significant because it persists in an unusual or unique ecological setting and the loss of this population would result in a significant gap in the range of the species. Based on the evidence that the discrete population segment differed markedly from other populations and is significant, the Service concluded that the San Francisco Bay-Delta population of longfin smelt met the criteria for determination of a distinct population segment under the ESA.

**Q: Do longfin smelt benefit from current environmental regulations?**

A: Yes. Longfin smelt benefit from limiting reverse flows in the south Delta prescribed in biological opinions for delta smelt and salmonid fishes, and from Delta outflow standards mandated by the State Water Resources Control Board.

**Q: How does the Service know that the longfin smelt population has declined?**

A: The best indicator of longfin's abundance in the San Francisco Bay-Delta is the Fall Midwater Trawl survey, which has been conducted almost every year since 1967. Data from the survey is used to calculate an index of abundance. From 1967 until 1986, abundance was highly variable, but showed a steadily declining trend. Since 1987, when the overbite clam was introduced into the SF Bay-Delta, the median abundance has been less than one-tenth the median abundance of the "pre-clam" period. Since

the onset of the pelagic organism decline beginning in about 2002, the cause of which is still under investigation, median abundance has declined further. The maximum value of the index during the last 10 years is only about 2 percent of the maximum value from the pre-clam years.

**Q: Will this finding impact completion of the Bay-Delta Conservation Plan?**

A: The finding has no impact on completion of the BDCP. The longfin smelt was already a covered species in the BDCP.

**Q: What has changed with this finding with regards to past findings?**

A: New information prompted the Service to reconsider whether longfin smelt could freely move back and forth between estuaries along the Pacific coast. The Service reviewed additional information on ocean circulation in near shore waters over the continental shelf from approximately Monterey Bay north to the Klamath River. This additional information indicates a that ocean circulation patterns create a physical obstacle between San Francisco Bay-Delta populations and populations in other estuaries making the Bay-Delta population markedly separate from other populations and therefore discreet. Because the Service determined the San Francisco Bay-Delta population of longfin smelt is a DPS, and that it has declined substantially due to ongoing threats, this finding proposes ESA protections for the DPS.

**Q: What protections are currently in place for longfin smelt?**

A: Longfin smelt was listed as a threatened species under California law in May 2009. Longfin smelt also benefit from Old and Middle river flow requirements in the south Delta prescribed in biological opinions for delta smelt and salmonid fishes, and from Delta outflow standards mandated by the State Water Resources Control Board. The restoration of Liberty Island may have benefitted longfin smelt by increasing spawning habitat during low flow winters such as the one we are currently experiencing.

In addition, the state's CALFED program (now Delta Stewardship Council) has identified 54 specific species enhancement conservation measures for longfin smelt of which more than half have been completed to date. Key accomplishments of the CALFED plan include investments in fish screens, temperature control, fish passage and habitat protection and restoration.

**Q: What are the major threats to longfin smelt?**

A: The primary threat to longfin smelt is the long-term decrease in freshwater flow in the San Francisco Estuary. In addition, changes to the San Francisco estuary have altered the food web that supports longfin smelt. The overbite clam and ammonium in the estuary, mostly coming from the Sacramento Regional Waste water Treatment Plant have both been shown to negatively impact the food web that supports longfin smelt.

**Q: Why is the overbite clam considered a threat to the longfin smelt?**

A: The overbite clam, also known as Amur River clam, thrives in the brackish waters of the estuary. The introduction of the overbite clam coincided with the decline of the longfin smelt population.

Native to Asia, it is believed to have arrived in 1986, possibly after being dumped out with a ship's ballast water. The overbite clam consumes large amounts of plankton, a major food source for critical fish species – including the delta and longfin smelt – and other aquatic organisms, by sucking in and filtering plankton from the water. Since, the overbite clam invasion of the San Francisco Bay-Delta, the reproductive success and abundance of longfin smelt has decreased.

**Q: Is longfin smelt a listed species with the State of California?**

A: Yes. The longfin smelt was listed as a threatened species under California law in May 2009.

**Q: Since the State of California already listed the longfin smelt, why does it need to be federally listed? What does the federal listing do for the smelt?**

A: As a state law, CESA differs in key aspects compared to the federal Endangered Species Act (ESA). The CESA prohibits unpermitted possession, purchase, sale, or take of listed species. However, the CESA definition of take does not include harm, which under the federal ESA can include destruction of habitat that actually kills or injures wildlife by significantly impairing essential behavioral patterns. Furthermore, a federal listing will specifically require federal agencies to consult with the Service in addition to consultation with the state when proposing projects within the range of the San Francisco Bay-Delta longfin smelt. The federal listing of the SF Bay-Delta longfin smelt DPS will also result in the designation of critical habitat for the smelt.

**Q: What's the difference/similarity between longfin smelt and delta smelt?**

A: Longfin smelt can be distinguished from other smelts mainly by their long pectoral fins. The low salinity zone is important for both delta smelt and longfin smelt. Although habitat for longfin smelt and delta smelt largely overlaps, adult longfin smelt eventually become more tolerant of marine waters. Therefore, their habitat includes areas further to the west including the coastal ocean. Longfin smelt generally also spawn earlier in the season than delta smelt. Longfin smelt usually live two years before dying while delta smelt usually only live one year.

**Q: What does warranted, but precluded, mean?**

A: "Warranted, but precluded" is a term used within the Service when, after a thorough scientific review, the Service determines federal ESA protections for a species are warranted, but immediate action to list the species is precluded by the need to complete listings for species with a higher listing priority. Longfin smelt has been given a listing priority number of 3 out of a possible 12. This means that the ongoing threats acting on the San Francisco Bay-Delta DPS are of a high magnitude and considered of imminent immediacy. A LPN of 3 is the highest LPN ranking allowable for a warranted but precluded Distinct Population Segment.

**Q: What is a candidate species?**

A: Candidate species are those species for which the Service has on file sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened

species under the Endangered Species Act, but for which development of a proposed listing action is precluded by higher priorities. Candidate species have no statutory protections under the ESA.

**Q: What's the value of placing a species on the list of candidate species**?

A: Conservation of imperiled species requires a means of addressing species that have not yet been listed but that face immediate, identifiable threats. Addressing the needs of species before the regulatory requirements associated with listed species come into play often allows greater management flexibility to stabilize or restore these species and their habitats. In addition, as threats are reduced and populations are increased or stabilized, priority for listing can be shifted to those species in greatest need of the ESA's protective measures. Ideally, threats can be sufficiently reduced to eliminate the need for listing. Learn more about candidate conservation here: http://www.fws.gov/endangered/what-we-do/index.html.

**Q: Where can more information be found?**

A: A copy of the finding and other information about longfin smelt is available on the Internet at http://www.fws.gov/sfbaydelta/.