

Memorandum

Date: July 6, 2017

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Regional Manager
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Subject: The 2017 20-mm Survey Delta Smelt Index

The 2017 20-mm Survey Delta Smelt index is 1.5. This is an increase from last year and is the highest index since 2013 (Figure 1).

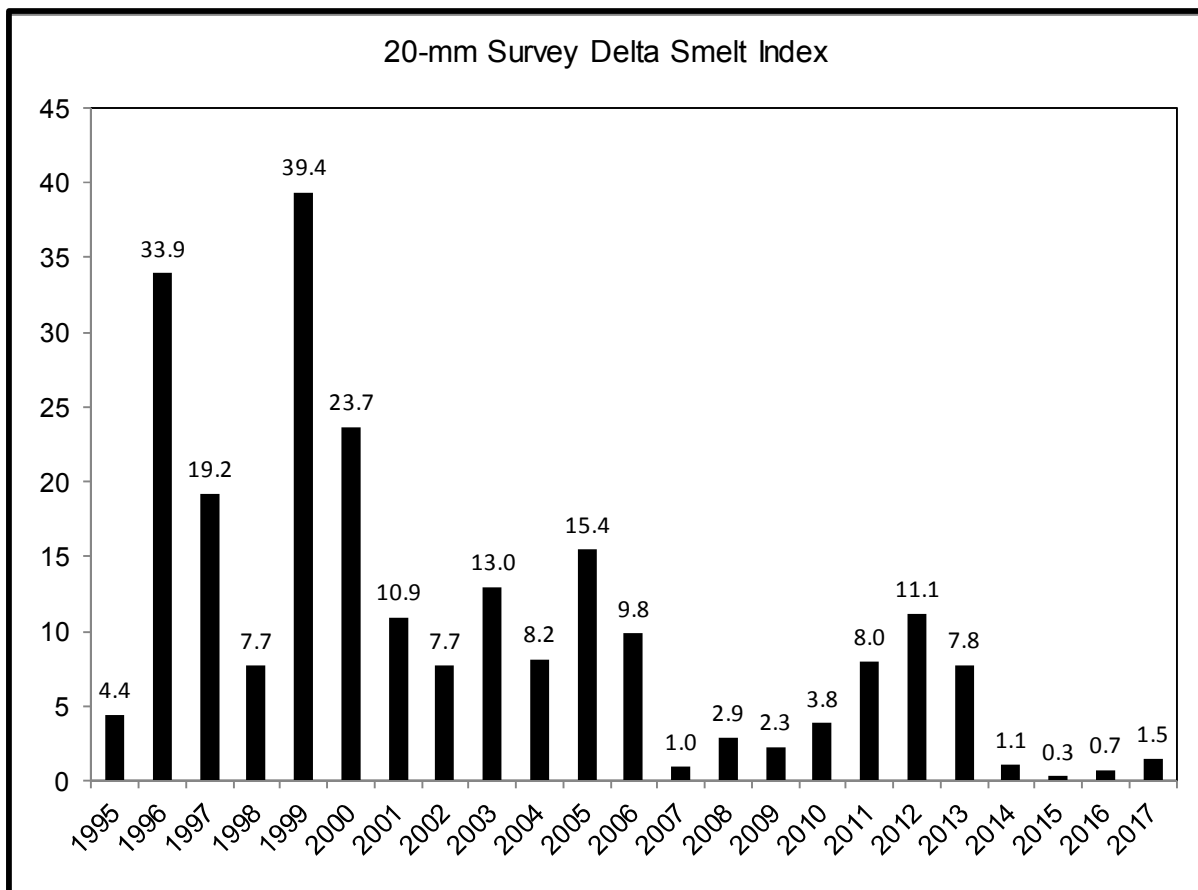


Figure 1. Delta Smelt index of abundance from CDFW's 20-mm Survey, 1995-2017.

The annual 20-mm Survey monitors the distribution and relative abundance of post-larval and juvenile Delta Smelt throughout their historical range. Nine week-long surveys are routinely conducted every other week from mid-March through early July. During each survey, three replicate tows are conducted at 41 index stations (Figure 2).

To calculate the index, Delta Smelt catch at each station is standardized to a volume of 10,000 cubic meters (i.e., CPUE). The mean station CPUE is used to calculate the geometric mean of the four index surveys, which are summed to produce the annual index.

The index surveys are comprised of the two surveys directly before and the two surveys directly after Delta Smelt mean fork length reaches 20 mm¹. Since the index is calculated using a geometric mean, both abundance and distribution can affect the magnitude of the index.

The 2017 index was calculated using Surveys 3 through 6, which occurred April 10th to May 25th. All index stations were sampled during those surveys, except Station 901 during Survey 3 and one replicate tow at Station 804 during Survey 4².

We defined 'index catch' as the number of Delta Smelt caught at index stations during index surveys. Index catch was 79, which was higher than the index catch in 2016 (n=25) but drastically less than the historical max (~2000) and mean (~600) index catch. This year, index catch was concentrated in the Napa River (Figure 2).

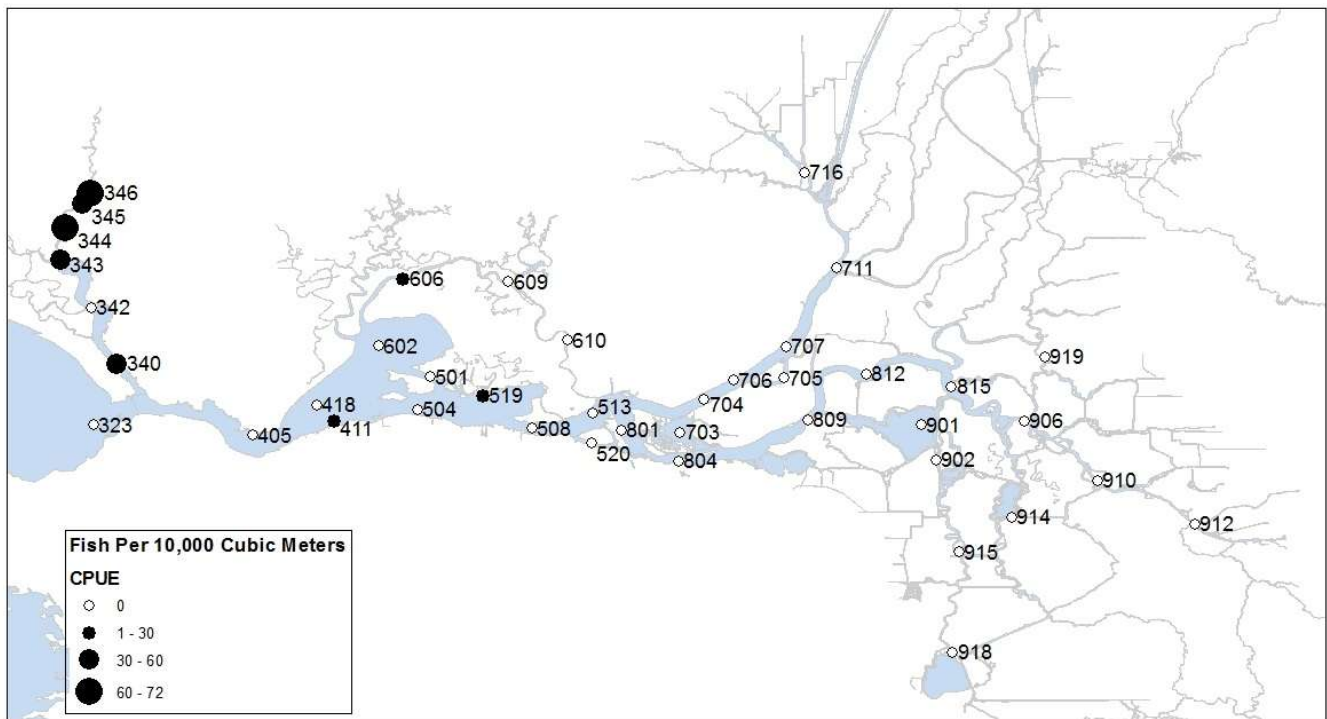


Figure 2. Map of the upper San Francisco Estuary showing the 2017 CDFW 20-mm Survey index stations and associated Delta Smelt catch per unit effort (10,000 m³) for all index surveys.

More information on prior year indices, methods, protocols, and 20-mm Survey data can be found on our webpage: <https://www.wildlife.ca.gov/Conservation/Delta/20mm-Survey>.

¹ For a detailed description on calculating the annual index, see *Memorandum: 2013 Index of Delta Smelt Relative Abundance from the 20-mm Survey* here: <http://www.dfg.ca.gov/delta/data/20mm/bibliography.asp>

² For a complete list of index stations that were not sampled throughout 20-mm Survey history, see *Memorandum: 2015 Index of Delta Smelt Abundance from the 20-mm Survey* here: <http://www.dfg.ca.gov/delta/data/20mm/bibliography.asp>