

Memorandum

Date: July 23, 2020

To: Gregg Erickson
Regional Manager
Bay Delta Region

From: Dr. Timothy D Malinich
Environmental Scientist
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Subject: 2020 Summer Townet Survey Delta Smelt Abundance Index

The 2020 Summer Townet Survey annual abundance index for young-of-year Delta Smelt was 0.0. This is the fifth year in which the number of young-of-year Delta Smelt collected during the first two Summer Townet surveys was low enough to result in an index equal to zero. The previous zero indices occurred in 2015, 2016, 2018, and 2019 (Figure 1).

Summer Townet conducts six Delta wide surveys in which 31 index and nine supplemental stations are sampled (Figure 2). The annual index is the average of the first two survey indices. Survey indices are calculated by multiplying young-of-year Delta Smelt catch at each index station by a station-specific weighting factor. We sum these weighted catches for the 31 index stations and divide this sum by 1000. Catch from nine supplemental stations in the Napa River, Cache Slough, and Sacramento Deep Water Ship Channel (SDWSC) are not included in the index. In addition, we were unable to sample at 1 non-index station, station 721, this year due to a significant amount of invasive aquatic vegetation which impeded our ability to safely sample the area.

The first two surveys of 2020 were conducted during June 15-19 and June 29-July 3. During the first and second survey, no Delta Smelt were collected at index or non-index stations.

This is the first time that $n=0$ Delta Smelt have been caught by the Summer Townet Survey in the first two surveys (Table 1). Delta Smelt have been low or absent at index stations but still observed in non-index stations (continuously sampled starting in 2011) in the North Delta. More recently, even non-index stations have yielded low catches of the State and federally listed species. Within the geographic range of the Summer Townet Survey, the remaining Delta Smelt population may be in numbers below our detection ability. This pattern is consistent with other concurrent surveys in the Delta. The 20-mm Survey also reported $n=0$ Delta Smelt during their June-July surveys. In

addition, the U.S. Fish and Wildlife Service (USFWS) Enhanced Delta Smelt Monitoring Program reported catching n=0 Delta Smelt over 160 tows during their larval sampling (phase 2) for the period June 15-25 and n=3 Delta Smelt over 146 tows during their juvenile sampling (phase 3) for the period June 29 – July 2. Fish catch occurred with 2 in Suisun Bay and 1 in the Sacramento Deep Water Ship Channel. USFWS data available at: [Delta Juvenile Fish Monitoring Program](#).

Cc: Jim Hobbs
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Table 1. Delta Smelt catch by survey from the CDFW Summer Towner Survey for years 2011-2020. Sampling in 2020 is ongoing at the time of writing this memo (NS= not sampled).

Year	Index stations (n=31) Survey						Non-index stations (n=9) Survey						Total
	1	2	3	4	5	6	1	2	3	4	5	6	
2011	86	58	156	119	40	27	117	90	20	26	3	43	785
2012	19	30	37	16	4	5	50	39	21	12	7	9	249
2013	35	18	18	37	2	9	29	7	2	7	1	5	170
2014	5	21	3	7	7	8	20	3	1	2	0	1	78
2015	1	0	2	0	0	0	5	4	10	0	0	1	23
2016	2	0	0	0	1	0	3	0	0	0	0	0	6
2017	1	5	6	3	0	15	0	1	2	0	0	0	33
2018	0	1	0	1	0	0	1	0	0	0	0	0	3
2019	0	0	0	0	0	0	0	1	0	0	0	0	1
2020	0	0	NS	NS	NS	NS	0	0	NS	NS	NS	NS	0
Total	149	133	222	183	54	64	225	145	56	47	11	59	1348

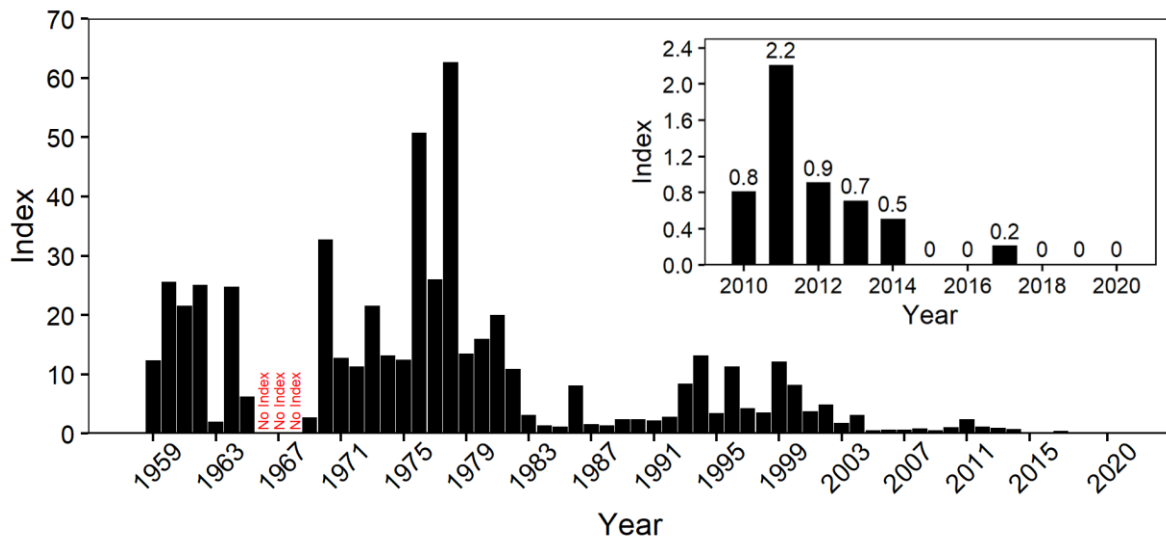


Figure 1. Summer Towner Survey Delta Smelt annual abundance indices 1959-2020 with inset showing indices from 2010 to 2020.

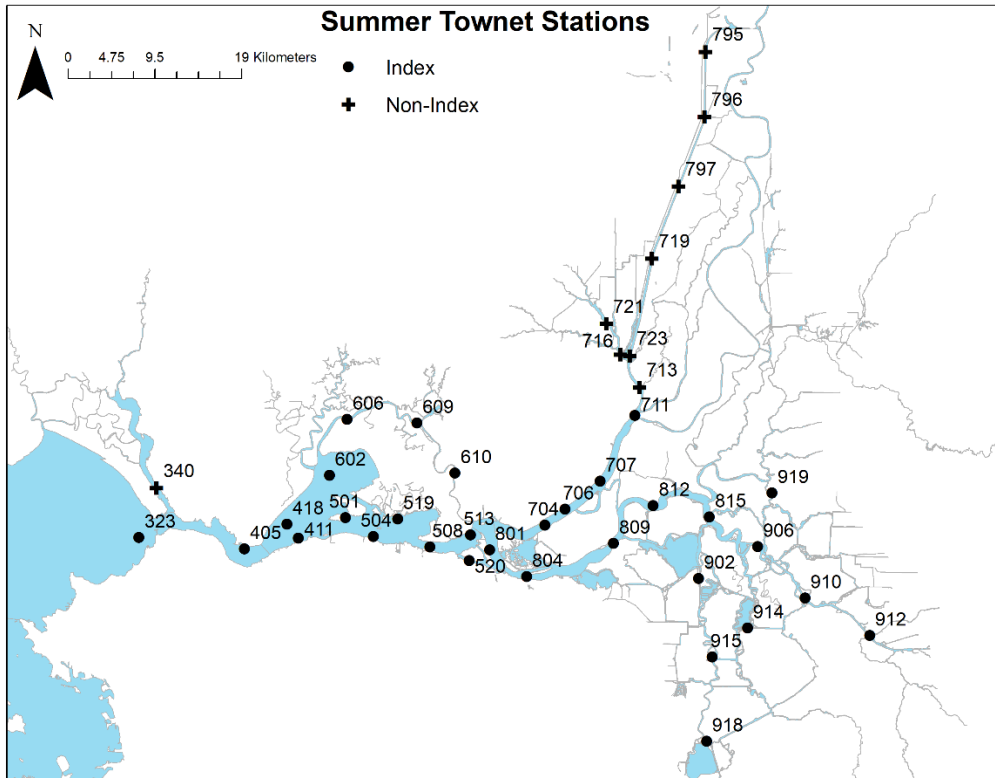


Figure 2. Map of the San Francisco Bay-Delta region and the distribution of Summer Townet Survey index and non-index stations.