

**State of California
Department of Fish and Wildlife**

M e m o r a n d u m

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Subject: 2017 Spring Kodiak Trawl High Outflow Exploratory Sampling

In January 2017 an exploratory sampling effort was conducted by the California Department of Fish and Wildlife's (CDFW) Spring Kodiak Trawl Survey (SKT). The SKT routinely monitors adult Delta Smelt distribution, abundance, and reproductive status prior to and during their spawning season (January-May). The survey samples 40 stations once per month throughout the upper San Francisco Estuary (Figure 1) to inform resource managers of the risk of entrainment to Delta Smelt due to water exports in the Delta. Each survey takes four to five days to complete. Historically, routine "supplemental" sampling occurred to intensively sample areas of high Delta Smelt concentration in order to determine when and where spawning was likely occurring. Beginning in 2008, the routine "supplemental" surveys were discontinued to minimize take of spawning adults, but additional sampling is sometimes conducted. CDFW was requested to sample additional stations in the Napa River (n=5) and San Pablo Bay (n=6) during our routine January survey in order to collect distribution and abundance data during a high outflow event ($X2 < 56$ km). The request for additional sampling came from CDFW and USFWS management to assist distribution data collected by the USFWS Enhanced Delta Smelt Monitoring Program. The plan was also discussed by the Smelt Working Group.

The sampling design was exploratory in nature, as these western locations had not been previously sampled by SKT. Station locations were taken from the 20-mm Survey, which samples larval and juvenile Delta Smelt bi-weekly from March to July. The 20-mm Survey routinely samples stations 342, 343, 344, 345, and 346 in the Napa River and station 323 in San Pablo Bay; the remaining stations in San Pablo Bay (328, 329, 334, 335,

and 336) are only sampled during high-outflow events (Figure 1).

On January 13th, 2017, SKT sampled eight of the 11 requested stations (Survey 11): two in the Napa River (342, 343) and all six in San Pablo Bay (Figure 1). A lack of visibility due to fog caused a delay, so San Pablo Bay was prioritized over the three additional stations (344, 345, 346) upstream in the Napa River. There were also safety concerns about sampling further upstream in the Napa River, as the river becomes increasingly narrow with blind curves, which can make towing large nets with two boats risky due to vessel traffic. All stations were sampled on a flood tide. These additional stations added one full boat day (11 hours) to our normal sampling schedule, and required four crew members. We encountered no other issues sampling any of the eight additional stations with the SKT gear, but debris was heavy due to the high-outflow conditions. No Delta Smelt were collected at any of these stations. We collected a total of 169 organisms representing 18 taxa, including three Longfin Smelt (San Pablo Bay only), six fall-run Chinook Salmon, and no other salmonids (Table 1).

More information on the Spring Kodiak Trawl, including data, metadata, and interactive maps is available on our webpage: <https://www.wildlife.ca.gov/Conservation/Delta/Spring-Kodiak-Trawl>

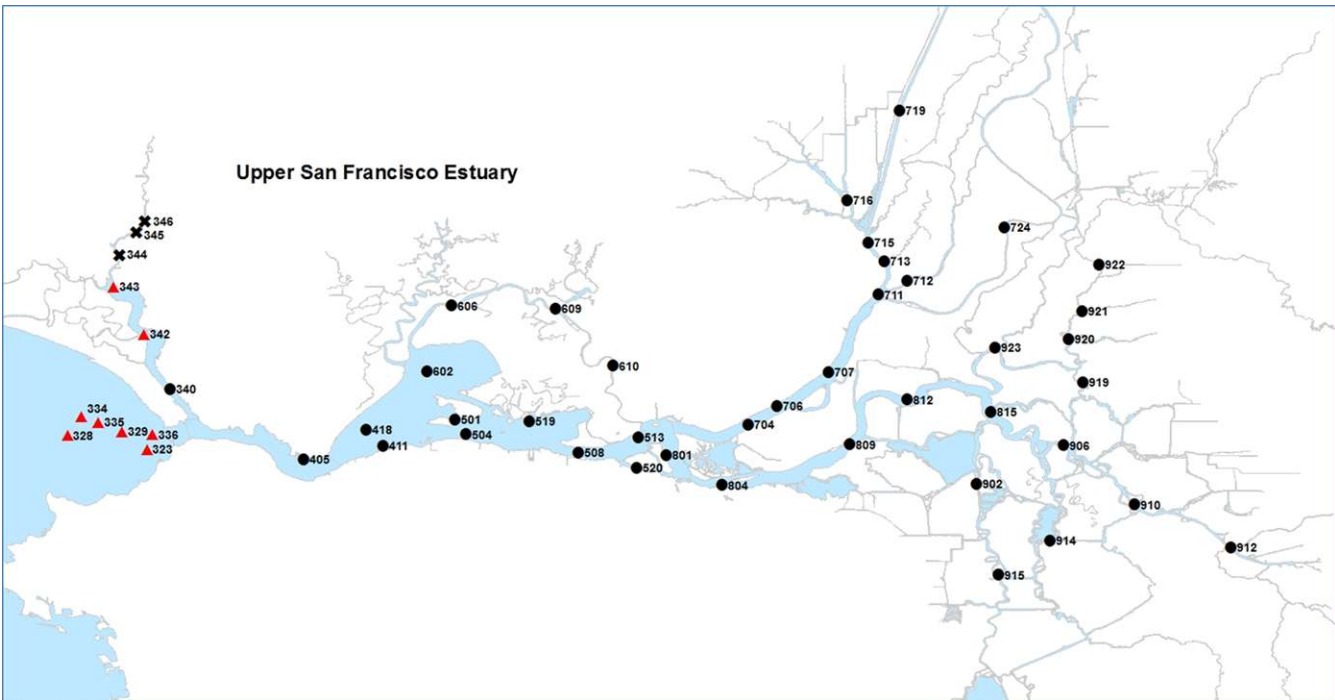


Figure 1. CDFW's Spring Kodiak Trawl Survey station locations, January 2017. Black circles denote routine stations, red triangles denote additional stations that were sampled, and black X's denote requested additional stations that were not sampled.

Table 1. Total species catch by region for the additional January 2017 CDFW Spring Kodiak Trawl sampling.

| Common Name | Catch |
|-----------------------|-------|
| Napa River | |
| Bluegill | 1 |
| Inland Silverside | 2 |
| Pacific Herring | 2 |
| Palaemon Shrimp | 15 |
| Rainwater Killifish | 1 |
| Siberian Prawn | 7 |
| Striped Bass | 1 |
| Threadfin Shad | 1 |
| San Pablo Bay | |
| American shad | 17 |
| Bluegill | 11 |
| Chinook Salmon | 6 |
| Largemouth Bass | 1 |
| Longfin Smelt | 3 |
| Pacific Herring | 2 |
| Pacific Lamprey | 2 |
| Palaemon Shrimp | 42 |
| Sacramento Pikeminnow | 1 |
| Shimofuri Goby | 2 |
| Shokihaze Goby | 2 |
| Siberian Prawn | 39 |
| Splittail | 2 |
| Striped Bass | 4 |
| Threadfin Shad | 3 |
| Yellowfin Goby | 2 |