

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

Date: 08/08/2022

To: Erin Chappell  
Regional Manager  
Bay Delta Region

From: Vanessa Mora  
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Subject: 2022 Spring Kodiak Trawl Delta Smelt Index

*2022 Survey Results*

The 2022 Spring Kodiak Trawl (SKT) Delta Smelt index of relative abundance was 1.7 (Figure 1). This is an expected increase from the 2021 SKT index (0) due to the experimental release of 55,733 tagged Delta Smelt from December 2021 to February 2022.

SKT samples 40 stations delta-wide monthly from January to May each year to track the distribution, abundance, and spawning timing of adult Delta Smelt. The 2022 index represents fifteen individuals caught at three stations from February to April (Figure 2). All fish were tagged, indicating they originated from the experimental releases. Four index stations were not sampled in January due to staffing constraints (Table 1). Three additional tagged individuals were caught at the Sacramento Deep Water Ship Channel station. As a non-index station, those fish are not included in the SKT index calculation (see 'Index Methods' section below).

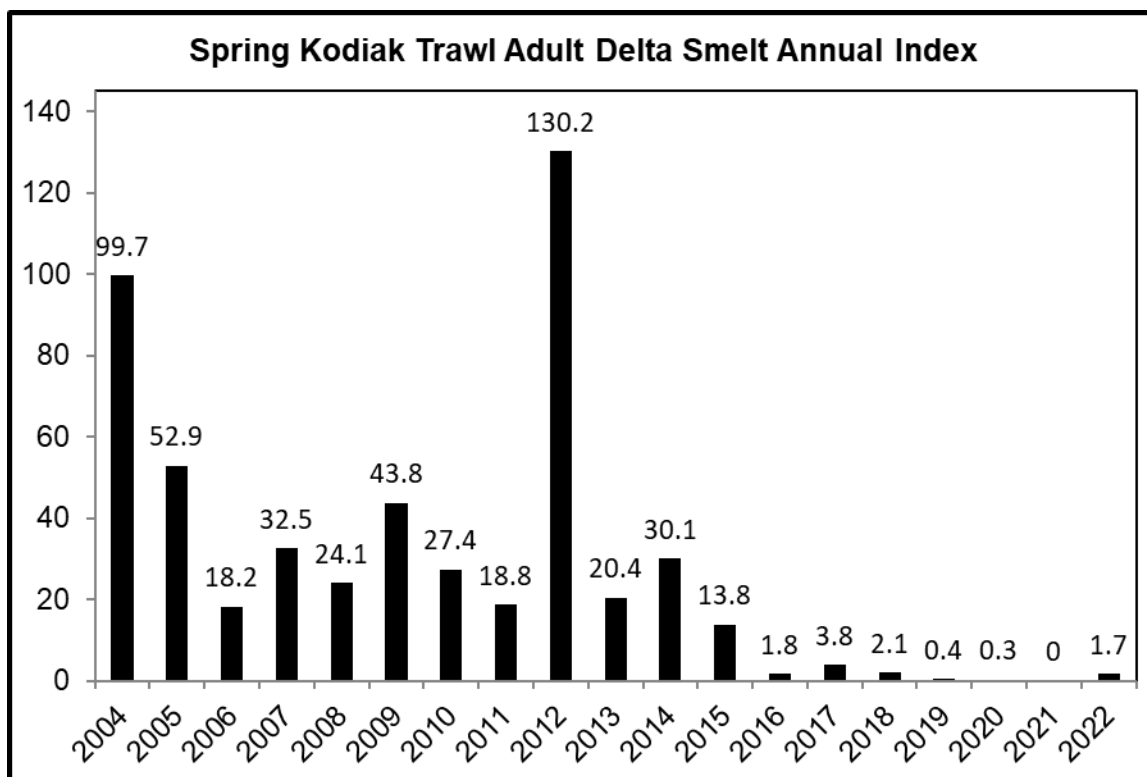
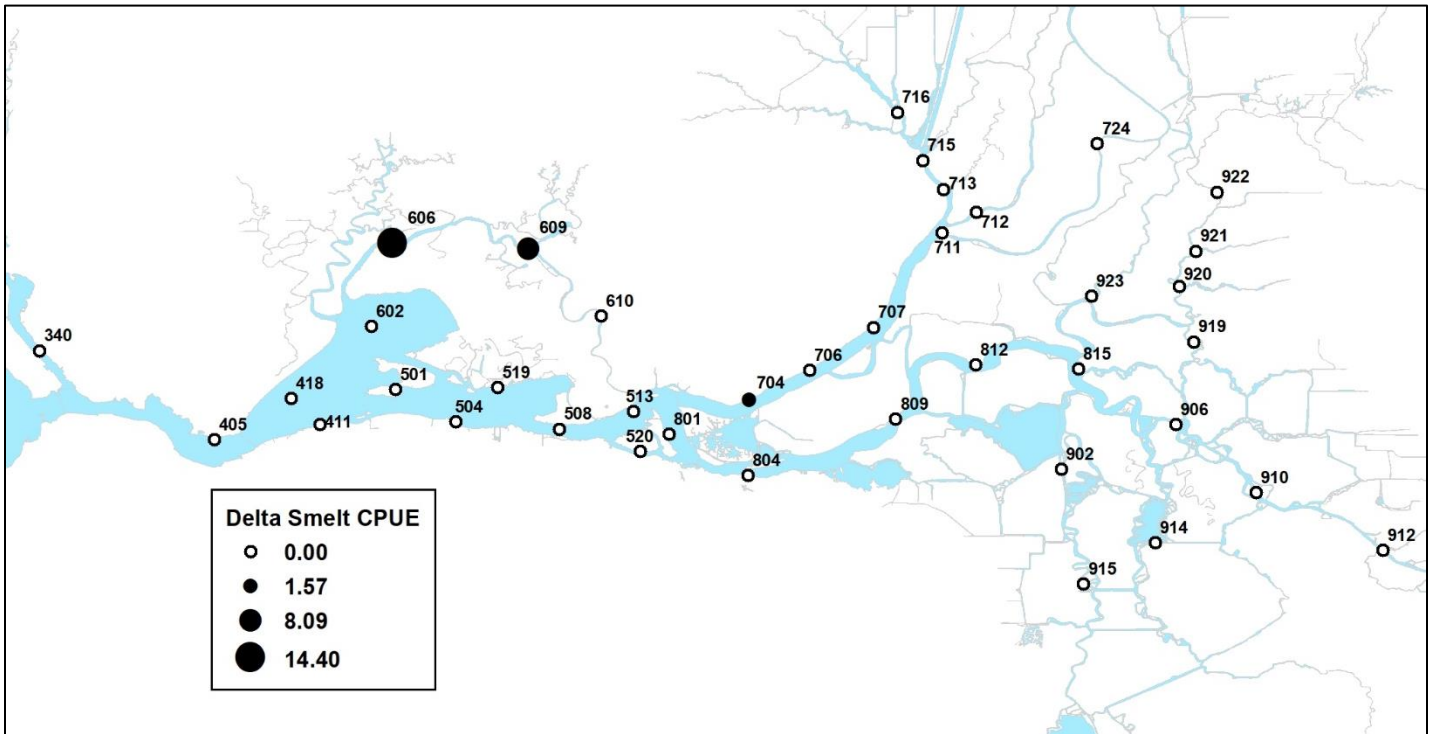


Figure 1. The CDFW's Spring Kodiak Trawl Delta Smelt index, 2004-2022.



**Figure 2. Map of the upper San Francisco Estuary showing the CDFW Spring Kodiak Trawl index stations and associated adult Delta Smelt catch per unit effort (10,000 m<sup>3</sup>) for all index surveys.**

*Index Methods*

SKT operates annually to track the distribution, relative abundance, and spawning condition of adult Delta Smelt throughout its historic range in the upper San Francisco Estuary. The SKT is conducted monthly from January to May and was initiated in 2002. The methods were standardized in 2004 and a Delta Smelt index was first developed in 2012.

The SKT Delta Smelt index is calculated using only index surveys and the 39 index stations (Figure 2). Station 719 (Sacramento Deep Water Channel) was added in 2005 to increase Delta Smelt coverage and is excluded as an index station because it has not been routinely sampled since the survey’s inception. Logistical issues sometimes prevent stations from being sampled (Table 1). To calculate the index, stations are grouped into three spatial regions and a mean catch per 10,000 cubic meters of water (i.e., CPUE) is calculated. The regional means are then summed to create an index for each survey, and survey indices are summed to calculate the SKT index. The SKT index allows for comparison across years to reflect trends in the population, but it is not an abundance estimate of the overall population.

**Table 1. Index stations not sampled during CDFW’s Spring Kodiak Trawl.**

Survey	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	724	724				922				724		711 724		724 922 923			501	340	610 609 606 602
2	724 919 920 921 922			340	340								923	724		724			920 921 922 923
3	724								724 610 609 606 602 519 504		724			724			704	920 921 922 923	
4	724	724															All Stations		