

## Memorandum

**Date:** December 21, 2017

**To:** Craig Weightman  
Acting Regional Manager  
Bay Delta Region

**From:** James White  
Environmental Scientist  
Bay Delta Region

**Subject:** Fall Midwater Trawl 2017 Annual Fish Abundance Summary

The California Department of Fish and Wildlife has conducted the Fall Midwater Trawl Survey (FMWT) to index the fall abundance of pelagic fishes nearly annually since 1967. FMWT equipment and methods have remained consistent since the survey's inception, which allows the indices to be compared across time.

The FMWT conducts monthly surveys from September through December. The annual abundance index is the sum of the September through December monthly survey indices. During each monthly survey, one 12-minute oblique midwater trawl tow is conducted at each of 100 index stations used for index calculation and at an additional 22 non-index stations that provide enhanced distribution information.

The 2017 sampling season completed on December 14. Field crews successfully conducted tows at all index and non-index stations during all four survey months.

The following summary contains the annual abundance index, monthly collections, and monthly distribution information for six pelagic fish species based on 2017 FMWT survey sampling.

### **Delta Smelt**

The 2017 abundance index (2) is the lowest in FMWT history (Figure 1). Two Delta Smelt were collected at index stations in October. One was from Suisun Bay and the other from the confluence of Sacramento and San Joaquin Rivers. No Delta Smelt were collected in September, November, or December.

### **Age-0 Striped Bass**

The 2017 abundance index (470) is the highest value since 2001 (Figure 2). Three hundred ninety-nine age-0 Striped Bass were collected at index stations.

**September:** Striped Bass were collected at index stations in Suisun Bay (n=44) and the lower Sacramento River (n=7). Two Striped Bass were collected at non-index stations in the Sacramento River Deepwater Ship Channel (SRDWSC).

**October:** Striped Bass were collected at index stations in Carquinez Strait (n=5), Suisun Bay (n=89), and the lower Sacramento River (n=15). No Striped Bass were

collected at non-index stations.

November: Striped Bass were collected at index stations in San Pablo Bay (n=1), Carquinez Strait (n=25), Suisun Bay (n=64), the lower Sacramento River (n=9), and the lower San Joaquin River (n=1). At non-index stations, Striped Bass were collected in the SRDWSC (n=1) and the Napa River (n=1).

December: Striped Bass were collected at index stations in San Pablo Bay (n=1), Carquinez Strait (n=6), Suisun Bay (n=104), the eastern Delta (n=1), the lower Sacramento River (n=8), and the lower San Joaquin River (n=19). At non-index stations, Striped Bass were collected in Napa River (n=1) and the SRDWSC (n=4).

### **Longfin Smelt**

The 2017 abundance index (141) is the highest value since 2013 (Figure 3). Seventy Longfin Smelt were collected at index stations.

September: One Longfin Smelt was collected at index stations in San Pablo Bay. No Longfin Smelt were collected at non-index stations.

October: Longfin Smelt were collected at index stations in San Pablo Bay (n=3), Carquinez Strait (n=4), Suisun Bay (n=5), and the lower San Joaquin River (n=1). No Longfin Smelt were collected at non-index stations.

November: Longfin Smelt were collected at index stations in San Pablo Bay (n=3), Carquinez Strait (n=3), Suisun Bay (n=3), and the lower Sacramento River (n=1). No Longfin Smelt were collected at non-index stations.

December: Longfin Smelt were collected at index stations in San Pablo Bay (n=7), Carquinez Strait (n=9), Suisun Bay (n=26), the lower Sacramento River (n=1), and lower San Joaquin River (n=3). No Longfin Smelt were collected at non-index stations.

### **Threadfin Shad**

The 2017 abundance index (291) is the seventh lowest in FMWT history (Figure 4). Two hundred sixty-two Threadfin Shad were collected at index stations.

September: Threadfin Shad were collected at index stations in Suisun Bay (n=9) and the lower Sacramento River (n=3). Threadfin Shad were collected at non-index stations in the SRDWSC (n=433).

October: Threadfin Shad were collected at index stations in Carquinez Strait (n=1), Suisun Bay (n=19), the lower Sacramento River (n=36), and the lower San Joaquin River (n=4). Threadfin Shad were collected at non-index stations in Cache Slough (n=1) and the SRDWSC (n=490).

November: Threadfin Shad were collected at index stations in Carquinez Strait (n=3), Suisun Bay (n=66), the lower Sacramento River (n=13), and the lower San Joaquin River (n=1). Threadfin Shad were collected at non-index stations in the Napa River (n=1) and the SRDWSC (n=366).

December: Threadfin Shad were collected at index stations in Carquinez Strait (n=8), Suisun Bay (n=42), the lower Sacramento River (n=22), and the lower San Joaquin

River (n=35). Threadfin Shad were collected at non-index stations in the SRDWSC (n=835).

### **American Shad**

The 2017 abundance index (3086) is the highest since 2003 (Figure 5). Two thousand three hundred fifty-seven American Shad were collected at index stations.

September: American Shad were collected at index stations in San Pablo Bay (n=47), Carquinez Strait (n=7), Suisun Bay (n=260), the lower Sacramento River (n=5), the lower San Joaquin River (n=2), and the southern Delta (n=1). American Shad were collected at non-index stations in Cache Slough (n=4), the SRDWSC (n=36), the Mokelumne River (n=1), Steamboat Slough (n=1), and the Sacramento River north of Isleton (n=2).

October: American Shad were collected at index stations in San Pablo Bay (n=34), Carquinez Strait (n=17), Suisun Bay (n=174), the lower Sacramento River (n=96), the lower San Joaquin River (n=23), and the southern Delta (n=3). American Shad were collected at non-index stations in the Napa River (n=1), Cache Slough (n=4), Mokelumne River (n=9), and the SRDWSC (n=11).

November: American Shad were collected at index stations in San Pablo Bay (n=23), Carquinez Strait (n=131), Suisun Bay (n=890), the lower Sacramento River (n=327), and the lower San Joaquin River (n=109). American Shad were collected at non-index stations in the Napa River (n=3), Steamboat Slough (n=5), Sacramento River north of Isleton (n=3), and the SRDWSC (n=48).

December: American Shad were collected at index stations in San Pablo Bay (n=10), Carquinez Strait (n=38), Suisun Bay (n=121), the eastern Delta (n=4), the lower Sacramento River (n=17), and the lower San Joaquin River (n=18). American Shad were collected at non-index stations in the SRDWSC (n=11).

### **Splittail**

The 2017 abundance index (1) shows a continuing trend of very little to no catch of Splittail in FMWT (Figure 6). One Splittail was collected at an index station in December from Suisun Bay. No other Splittail were collected in September, October, or November from index or non-index stations.

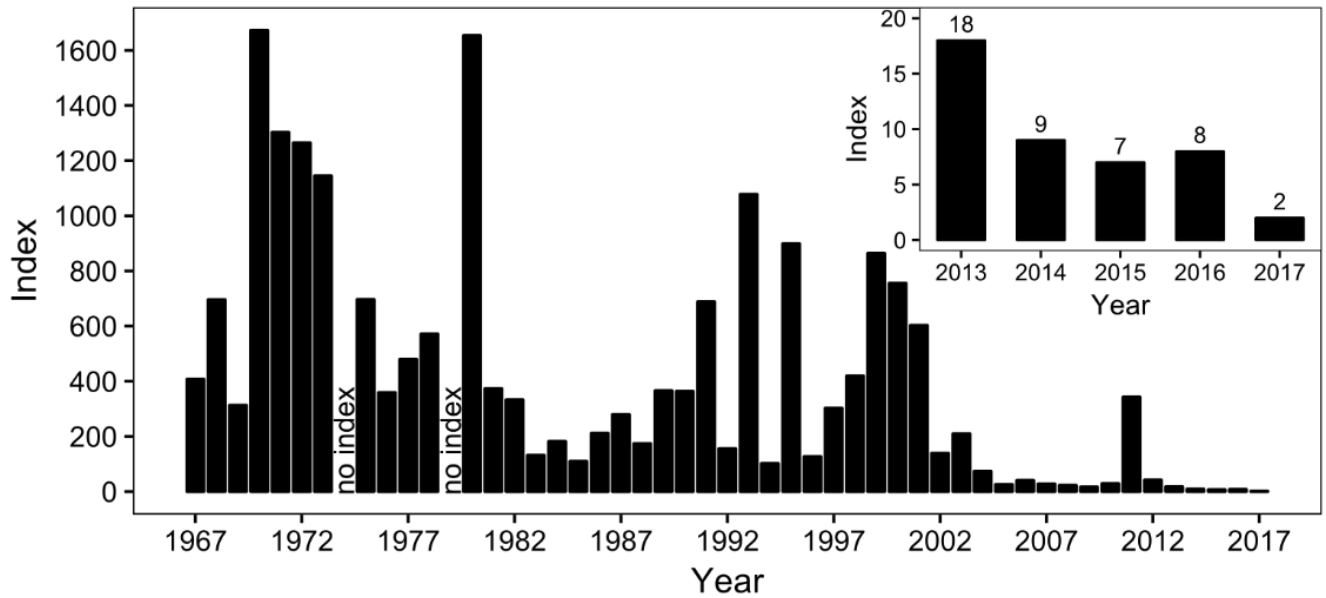


Figure 1. Fall Midwater Trawl Delta Smelt annual abundance indices (all ages), 1967-2017.

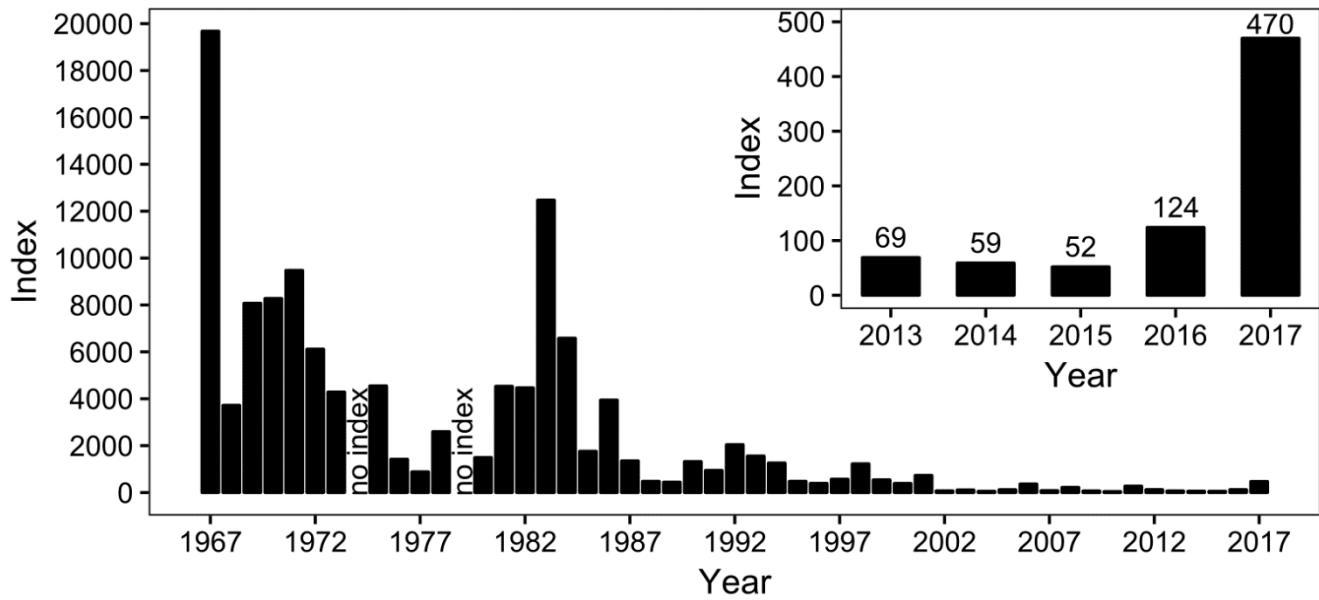


Figure 2. Fall Midwater Trawl Age-0 Striped Bass annual abundance indices, 1967-2017.

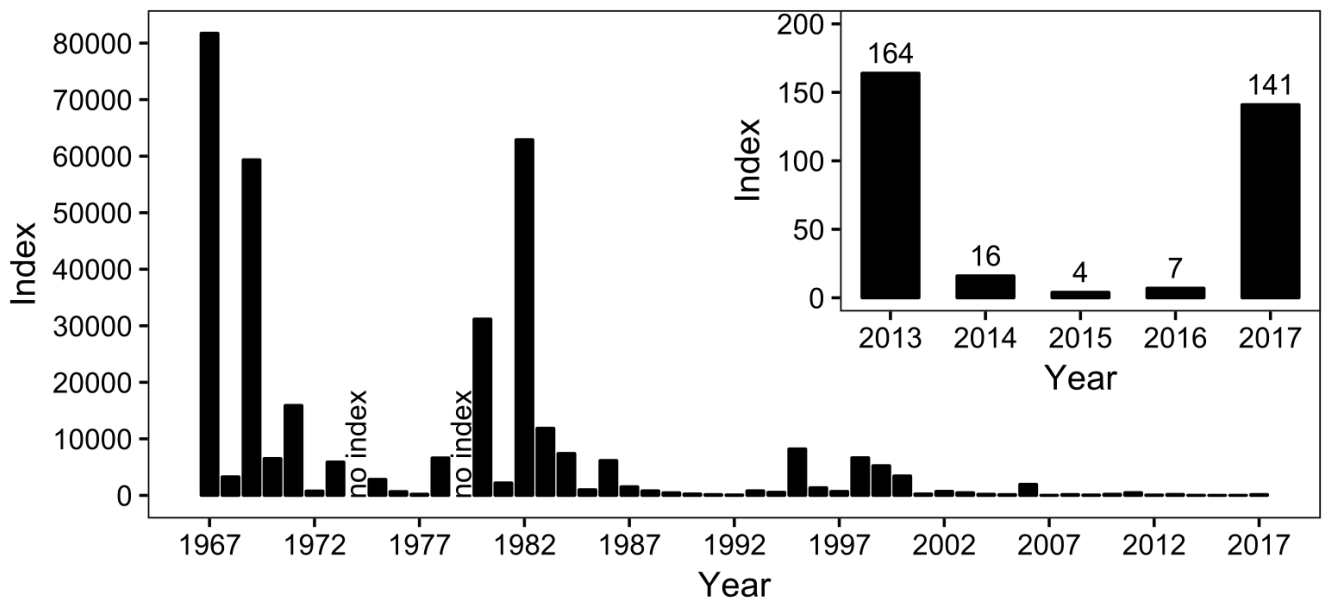


Figure 3. Fall Midwater Trawl Longfin Smelt annual abundance indices (all ages), 1967-2017.

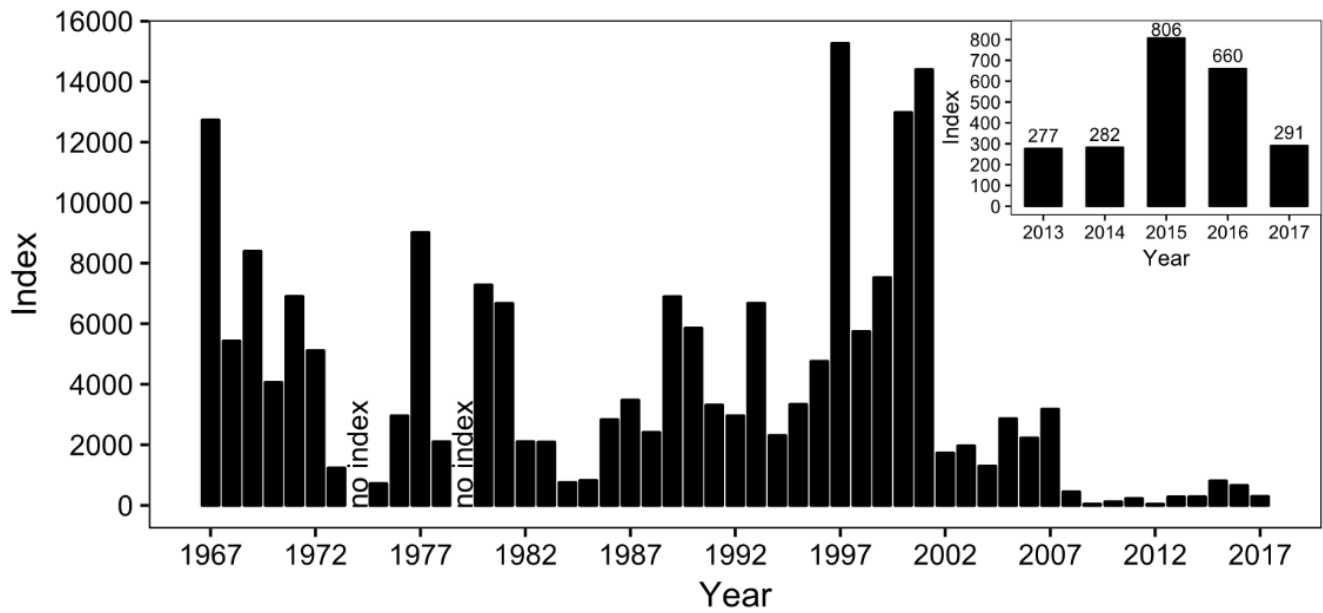


Figure 4. Fall Midwater Trawl Threadfin Shad annual abundance indices (all ages), 1967-2017.

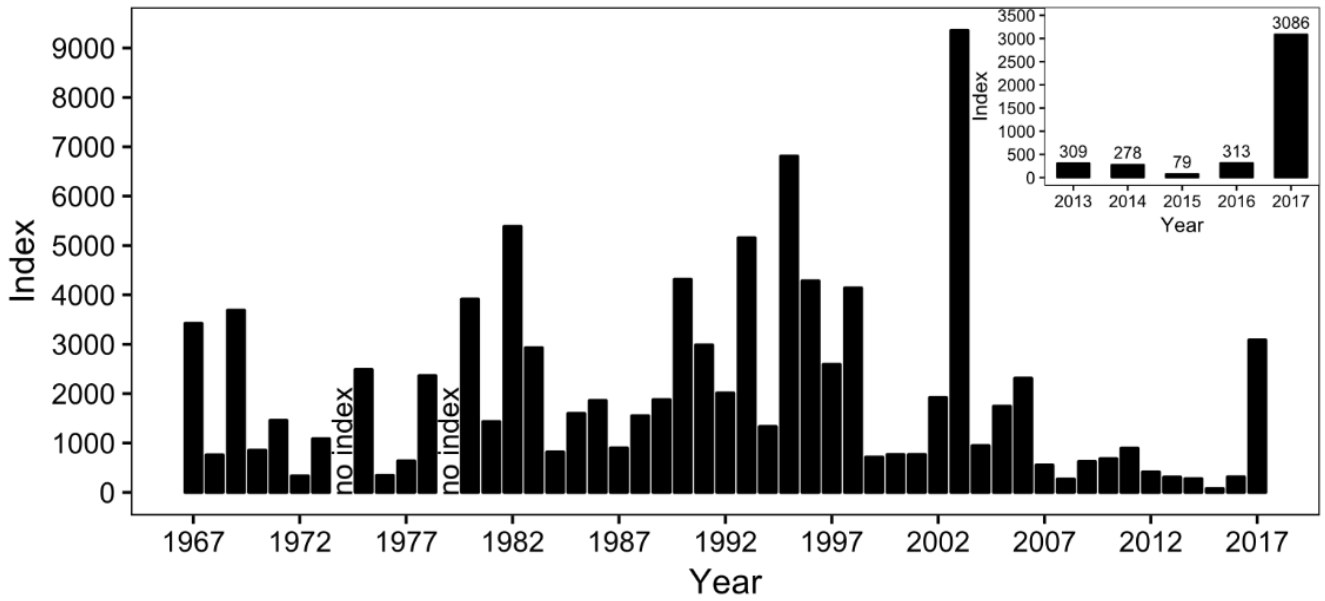


Figure 5. Fall Midwater Trawl American Shad annual abundance indices (all ages), 1967-2017.

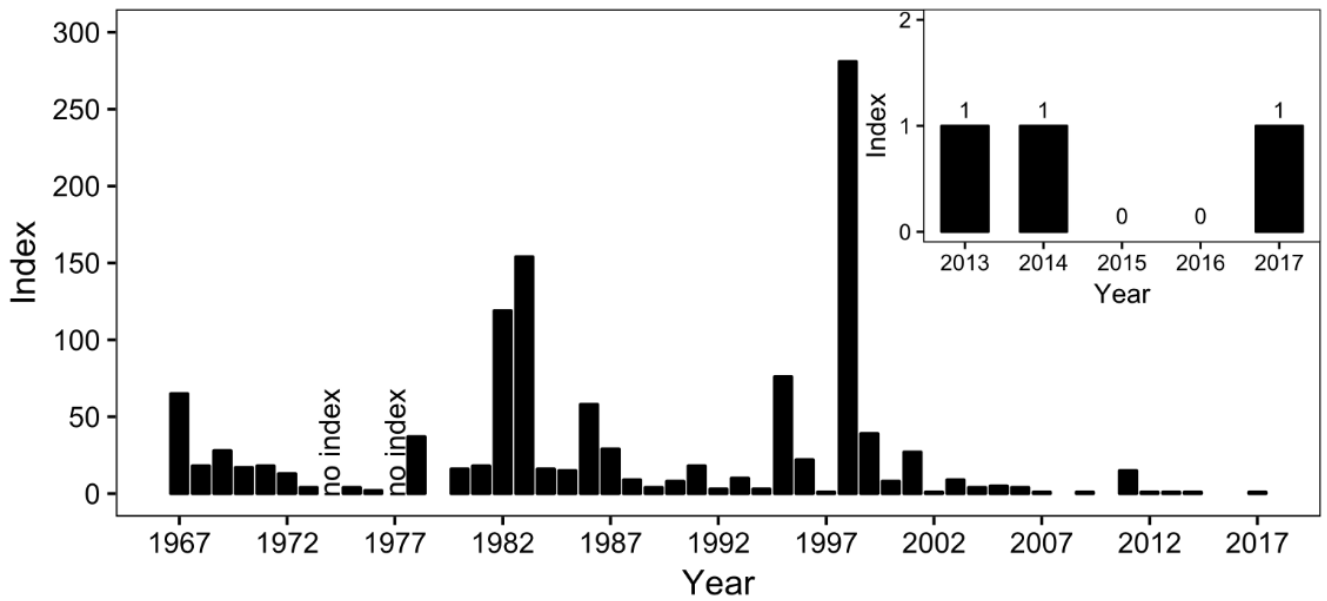


Figure 6. Fall Midwater Trawl Splittail annual abundance indices (all ages), 1967-2017.