



State of California
Department of Fish and Game

Memorandum

Date: December 22, 2011

To: Carl Wilcox
Regional Manager, Region 3
California Dept of Fish and Game

From: Dave Contreras
Environmental Scientist
California Dept of Fish and Game

Subject: Fall Midwater Trawl 2011 Summary

The California Department of Fish and Game 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 to allow abundance indices to be compared across time.

The FMWT conducts monthly surveys from September through December. The sum of the September through December monthly survey indices comprise the annual index. During each monthly survey, one oblique midwater trawl tow is made at each of the 100 'index stations' used for index calculation and at an additional 22 non-index stations that provide enhanced distribution information (Figure 1).

The 2011 sampling season was successfully completed on December 16, 2011. The following summary contains annual abundance information for five fish species based on FMWT survey sampling and describes the 2011 fall distribution of fishes.

Delta Smelt

The 2011 delta smelt index is 343 and is the highest index within the last ten years (Figure 2). Delta smelt abundance was highest in 1970 and has been consistently low since 2003.

Delta smelt (n=300) were collected at index stations from Carquinez Strait through the lower Sacramento and San Joaquin rivers. Thirty-six percent of these delta

smelt were caught from a single tow (n=109) in the lower Sacramento River in December. Delta smelt were also collected at non-index stations in the Sacramento Deep Water Ship Channel (n=25) and Cache Slough (n=5).

Age-0 Striped Bass

The 2011 age-0 striped bass index is 272 and is the highest since 2006 (Figure 3). Age-0 striped bass abundance was highest at the survey's inception in 1967.

Age-0 striped bass (n=241) were collected at index stations from San Pablo Bay into the lower Sacramento and San Joaquin rivers, with the majority (86%) of these fish collected in Suisun Bay through the confluence and Montezuma Slough. Age-0 striped bass were also collected at non-index stations in the Sacramento Deep Water Ship Channel (n=8) and Cache Slough (n=5).

Longfin Smelt

The 2011 longfin smelt index is 477, which was a large increase from last year's index and the highest index since 2006 (Figure 4). Longfin smelt abundance was highest in 1967.

Longfin smelt (n=330) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers. Sixty-five percent of the total catch occurred in December after upper estuary water temperatures cooled. Two longfin smelt were collected at non-index stations in the Sacramento Deep Water Ship Channel.

Threadfin Shad

The 2011 threadfin shad index is 228, which is the third lowest in FMWT history and the fourth in a series of very low abundance indices (Figure 5). Threadfin shad abundance was highest in 1997.

Threadfin shad (n=172) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers and the South Delta. Most threadfin shad were collected at non-index stations (occasionally 100s per tow) in the Sacramento Deep Water Ship Channel (n=2188), Cache Slough (n=610), the Mokelumne River (n=5), and the Sacramento River at Vorden (n=1).

American Shad

The 2011 American shad index is 894 and the thirteenth lowest in FMWT history (Figure 6). American shad abundance was highest in 2003.

American shad (n=637) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers and the South Delta. American shad abundance was highest in September (n=306) and decreased

each subsequent survey month. American shad were also collected at non-index sampling stations in the Napa River (n=1), Mokelumne (n=10) and Sacramento (n=10) rivers, Sacramento Deep Water Ship Channel (n=184), and Cache Slough (n=245).

cc: DFG
Marty Gingras, EPM 1
Randy Baxter, Senior Environmental Scientist
Bob Fujimura, Senior Environmental Scientist
Kathy Hieb, Senior Environmental Scientist

FMWT Station Map

- = Index stations
- ◆ = Non-index stations (began in 1990)
- ◇ = Non-index stations (began in 1991)
- ▲ = Non-index stations (began in 2009)
- ✚ = Non-index stations (began in 2010)

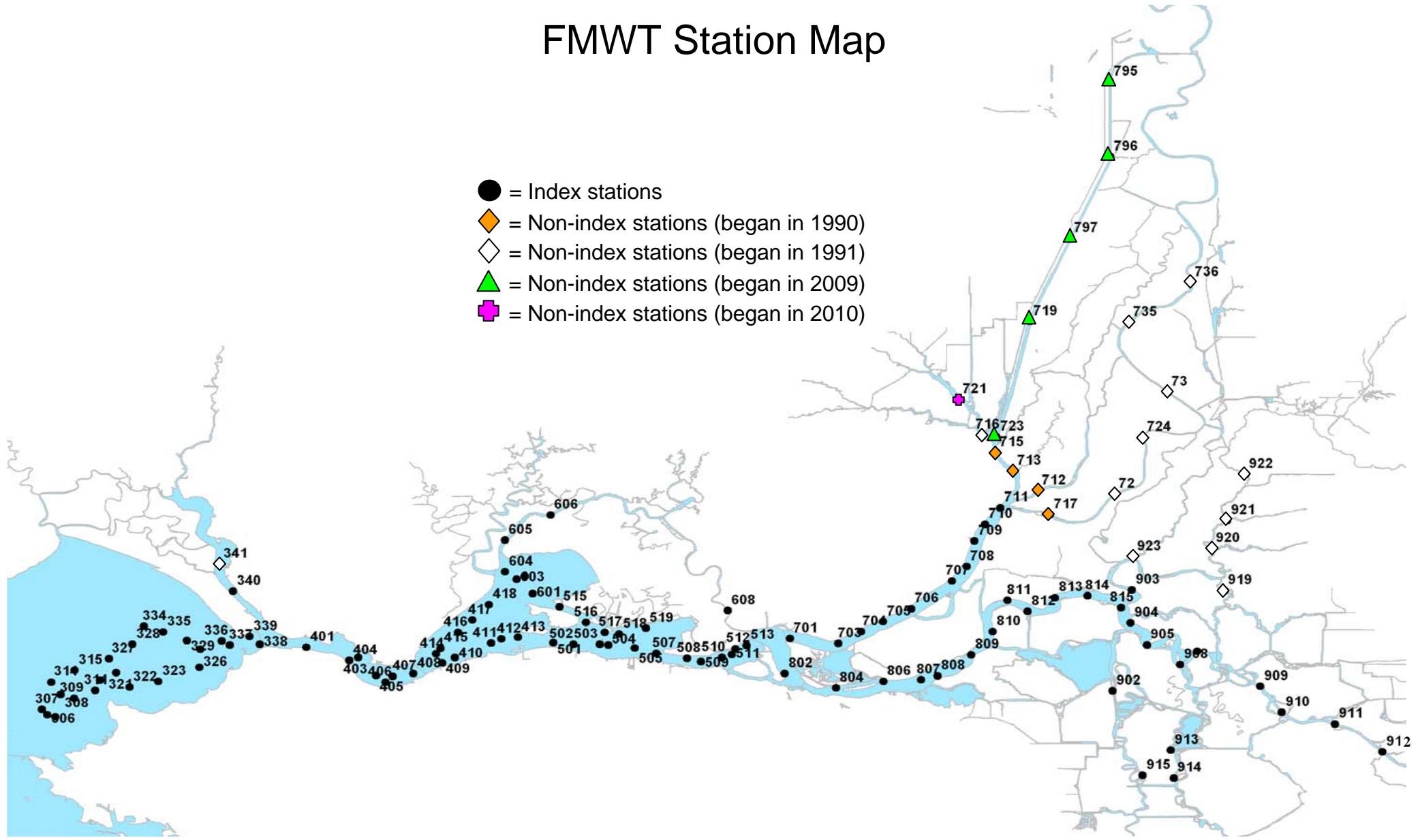


Figure 1. California Department of Fish & Game Fall Midwater Trawl Sampling Sites

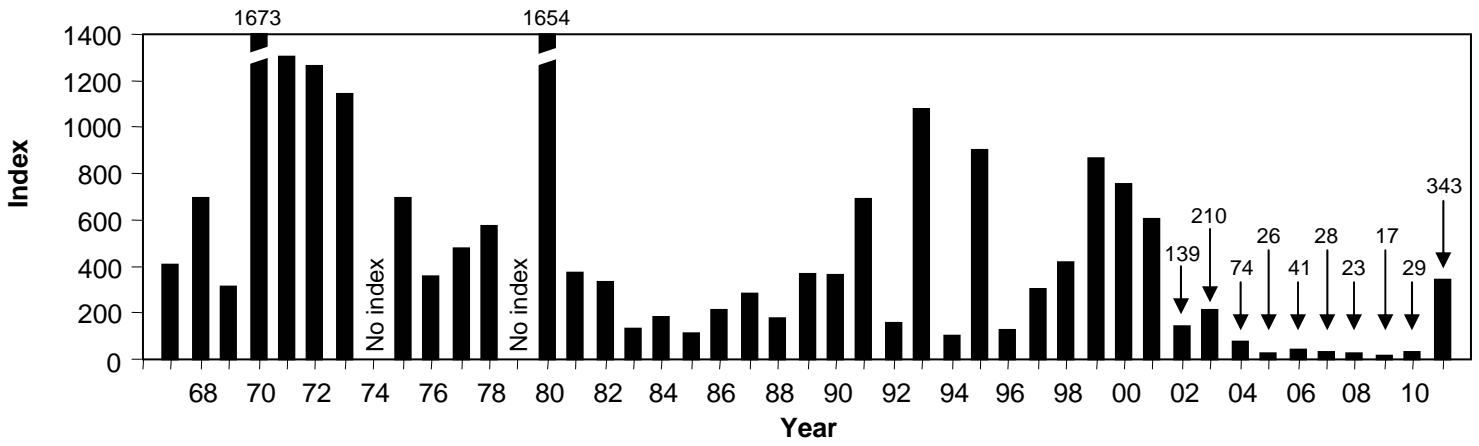


Figure 2. Delta smelt FMWT annual abundance indices, 1967-2011.

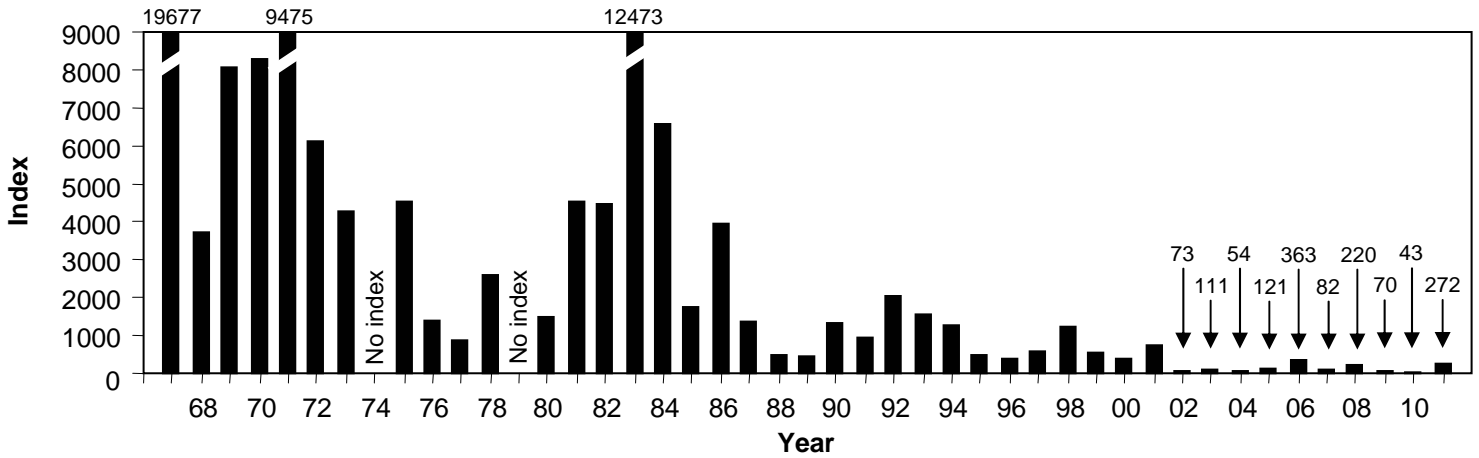


Figure 3. Age-0 striped bass FMWT annual abundance indices, 1967-2011.

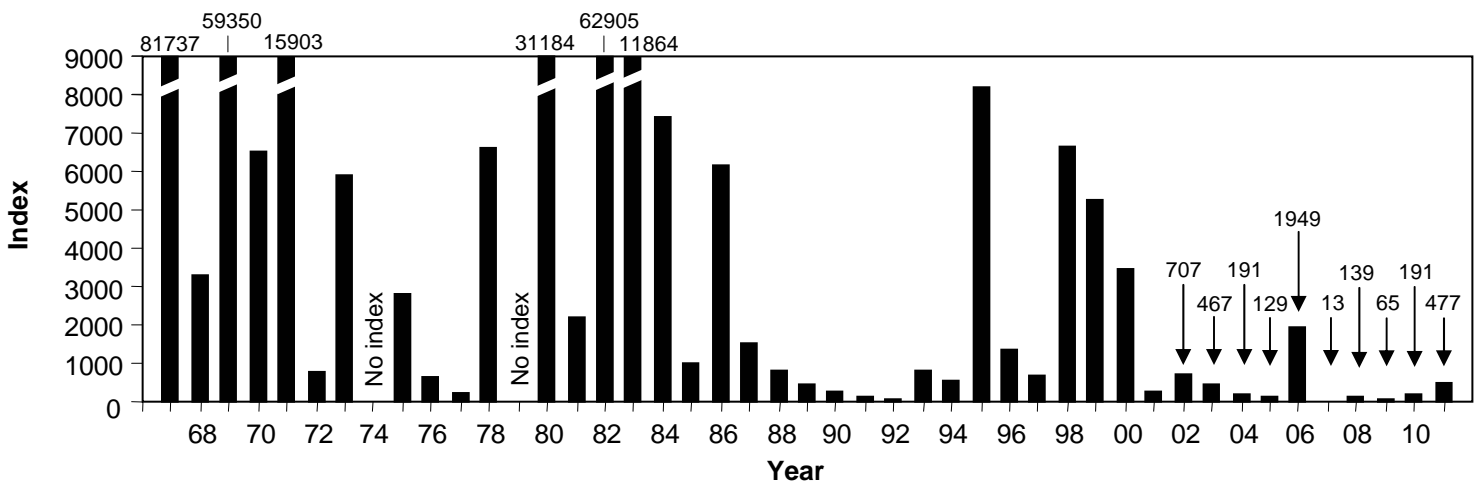


Figure 4. Longfin smelt FMWT annual abundance indices, 1967-2011.

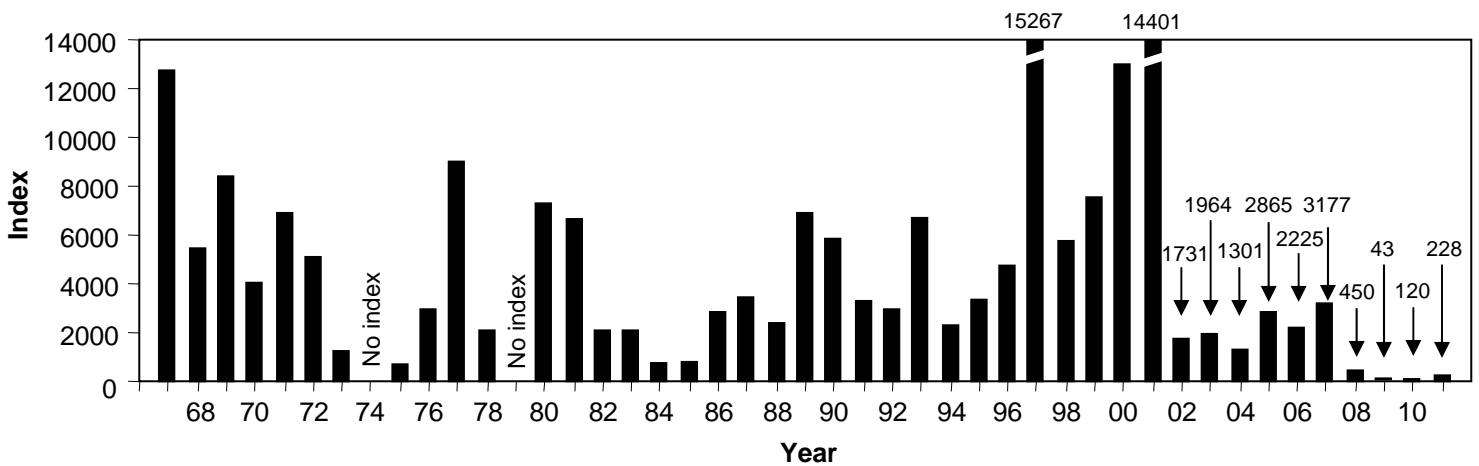


Figure 5. Threadfin shad FMWT annual abundance indices, 1967-2011.

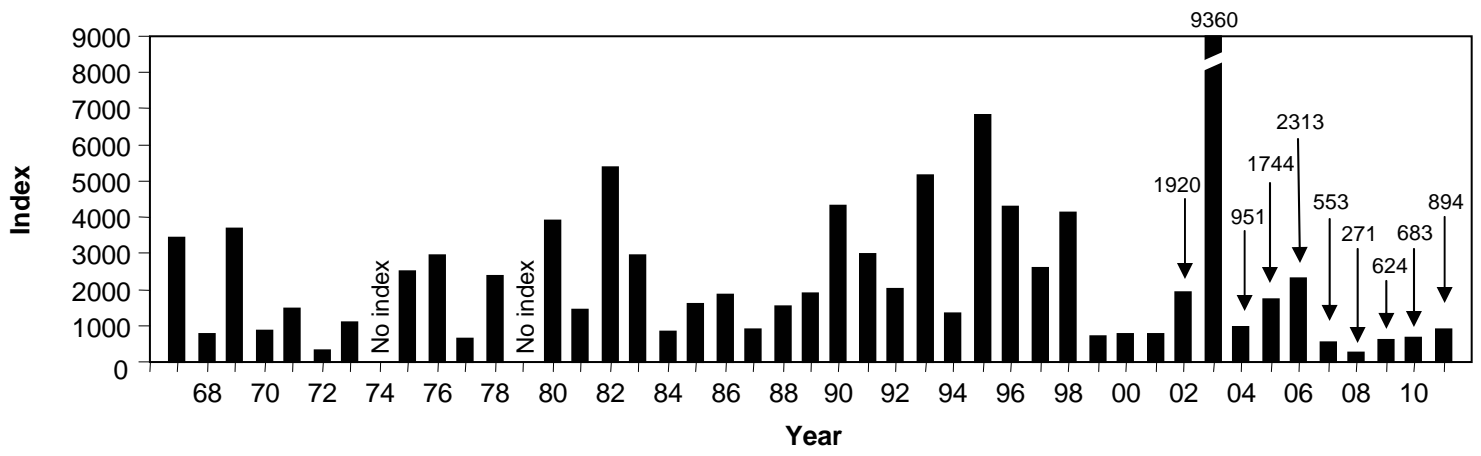


Figure 6. American shad FMWT annual abundance indices, 1967-2011.