State of California
Department of Fish and Wildlife

M e m o r a n d u m

Date: January 7, 2015

To: Scott Wilson
Regional Manager, Region 3
California Department of Fish and Wildlife

From**:** Steven Slater
Environmental Scientist, Region 3
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Subject: Fall Midwater Trawl 2014 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 (Figure 1).

The 2014 sampling season was completed on December 17, 2014. Field crews successfully conducted trawl tows at all index stations during all four survey months. Logistical difficulties and poor weather conditions precluded sampling at three non-index stations in the Mokelumne River during the December survey, but all other non-index stations were sampled.

The following summary contains 2014 annual abundance information for five pelagic fish species based on FMWT survey sampling and describes the 2014 fall distributions of these fishes.

Delta Smelt
The 2014 Delta Smelt index is 9, making it the lowest index in FMWT history (Figure 2). Delta Smelt abundance was highest in 1970 and has been consistently low since 2003, except in 2011.

Delta Smelt (n=8) were collected at index stations in Suisun Bay upstream through the lower Sacramento River. In September, they were collected in Suisun Bay (n=1) and the lower Sacramento River (n=3). In October, they were collected in the lower Sacramento River (n=3). In November, none were collected. In

December, just one was collected and it was in the Confluence (n=1).

Delta Smelt were also collected at non-index stations in Cache Slough (n=1) during December and in the Sacramento River Deep Water Ship Channel (SRDWSC) (n=2) during September and December.

Age-0 Striped Bass

The 2014 age-0 Striped Bass index is 59, making it the third lowest index in FMWT history (Figure 3). Age-0 Striped Bass abundance was highest at the survey's inception in 1967.

Age-0 Striped Bass (n=47) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers and the south Delta. In September, they were collected in Carquinez Strait (n=1) and Suisun Bay (n=6). In October, just one was collected and it was in Carquinez Strait. In November, they were collected in the Confluence (n=1) and south Delta (n=2). In December, they were collected from San Pablo Bay upstream through the lower San Joaquin River (n=10) and in the lower Sacramento River (n=26).

Age-0 Striped Bass were also collected at non-index stations in the SRDWSC during October (n=1) and December (n=4), and in Cache Slough during December (n=44).

Longfin Smelt

The 2014 Longfin Smelt index is 16, making it the second lowest index in FMWT history (Figure 4). Longfin Smelt abundance was highest in 1967.

Longfin Smelt (n=11) were collected at index stations from San Pablo Bay through the lower Sacramento River. In September, they were collected in Carquinez Strait (n=1), Suisun Bay (n=1), the Confluence (n=1), and the lower Sacramento River (n=1). In November, they were collected in San Pablo Bay (n=1) and the lower Sacramento River (n=1). In November, collections contracted to San Pablo Bay (n=1) and Suisun Bay (n=3). In December, just one was collected and it was in San Pablo Bay.

Longfin Smelt were not collected at non-index stations.

Threadfin Shad

The 2014 Threadfin Shad index is 282, which is the sixth lowest in FMWT history and the seventh in a series of very low abundance indices (Figure 5). Threadfin Shad abundance was highest in 1997.

Threadfin Shad (n=227) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers and the south Delta. Collections in the lower Sacramento River peaked in November (n=125) while collections in the lower San Joaquin River peaked in December (n=29).

Similar to recent years, annual Threadfin Shad collections from non-index stations in Cache Slough (n=69) and SRDWSC (n=865) outnumbered collections from most index stations in other regions.

American Shad

The 2014 American Shad index is 278, which is the second lowest in FMWT history and only slightly higher than the 2008 index of 271 (Figure 6). American Shad abundance was highest in 2003.

American Shad (n=233) were collected at index stations from San Pablo Bay through the lower Sacramento and San Joaquin rivers and the south Delta. In September, they were collected in San Pablo Bay through the Confluence and lower San Joaquin River and south Delta (n=39). In October, they were collected in Carquinez Strait through the lower Sacramento River (n=16). In November, they were collected in the same regions as September as well as at stations in the lower San Joaquin River and south Delta (n=61). In December, they were collected throughout the upper estuary (n=117).

American Shad were also collected at non-index stations in the Sacramento River above Isleton (n=1), Cache Slough (n=5), SRDWSC (n=65), and lower San Joaquin River (n=4).

cc: Marty Gingras, Randy Baxter, Bob Fujimura, and Kathy Hieb

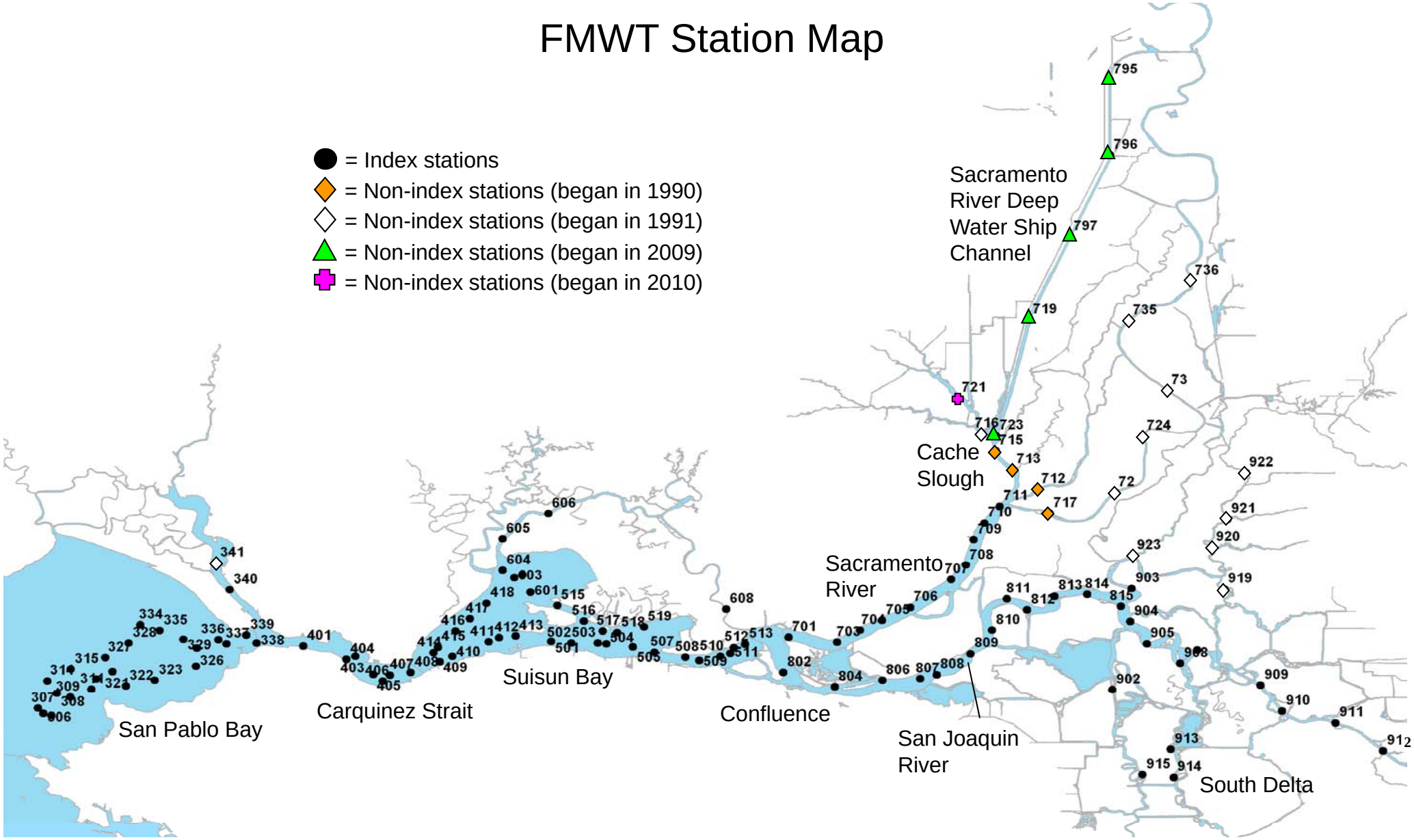

Figure 1. Fall Midwater Trawl sampling stations during 2014.

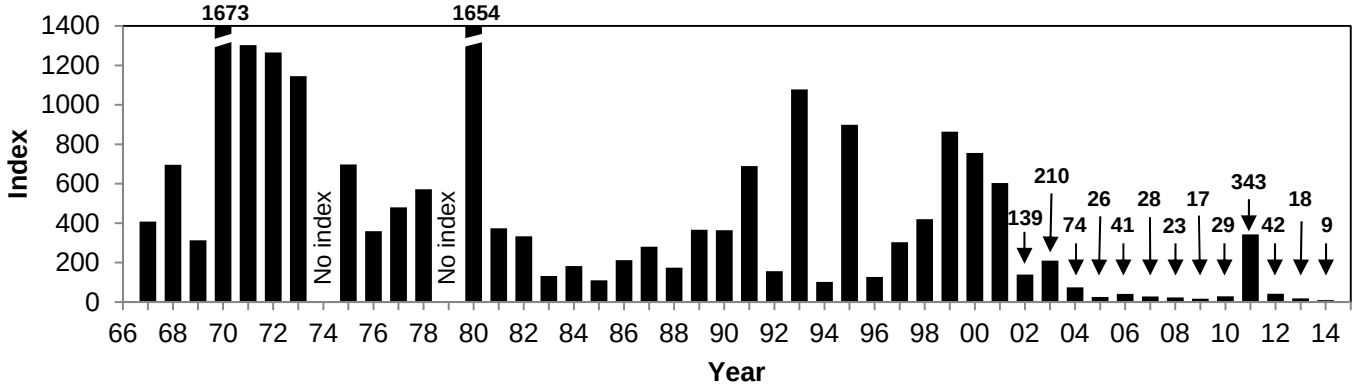

Figure 2. FMWT Delta Smelt annual abundance indices, 1967-2014.

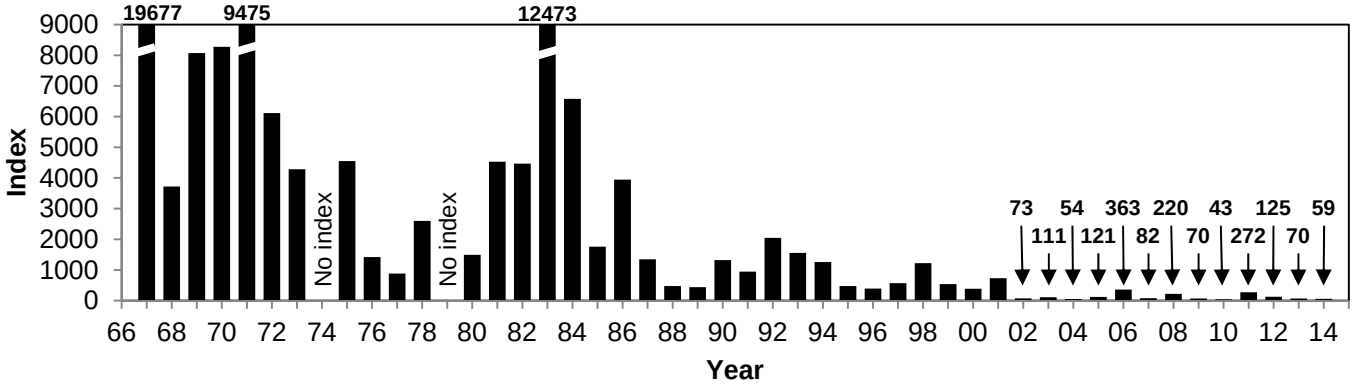

Figure 3. FMWT Age-0 Striped Bass annual abundance indices, 1967-2014.

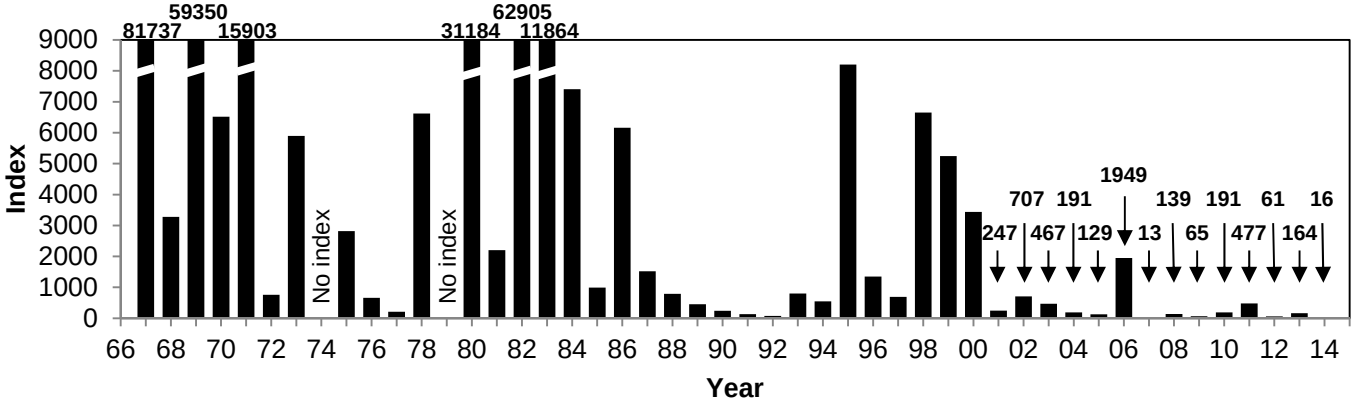

Figure 4. FMWT Longfin Smelt annual abundance indices, 1967-2014.

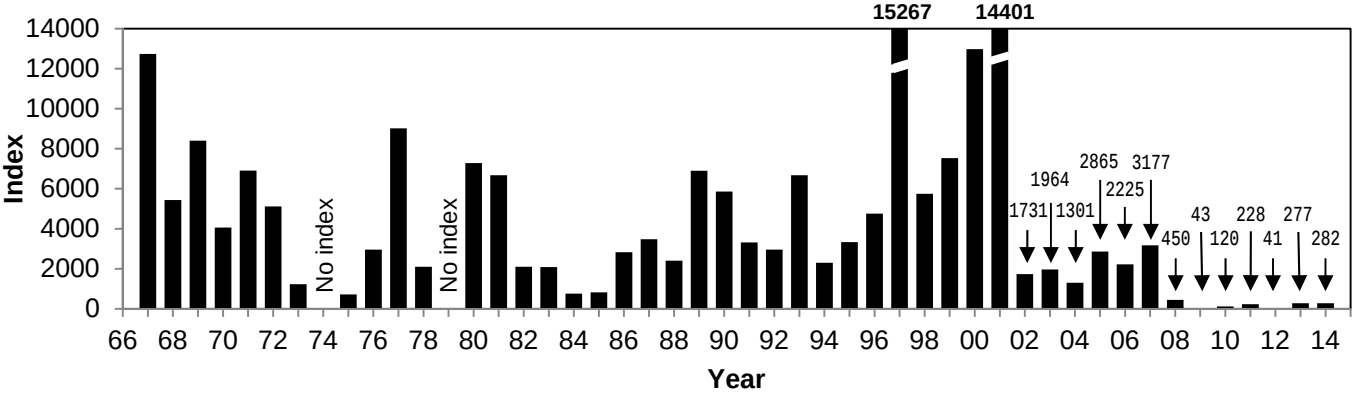

Figure 5. FMWT Threadfin Shad annual abundance indices, 1967-2014.

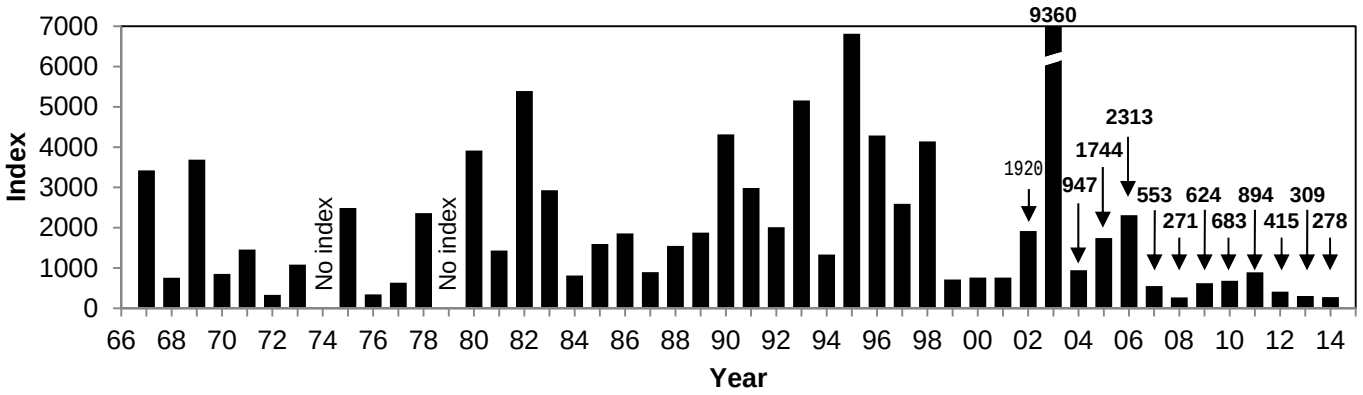

Figure 6. FMWT American Shad annual abundance indices, 1967-2014.