

STAFF SUMMARY FOR JUNE 22-23, 2016

5. WHITE SEABASS**Today's Item**Information Action

Receive DFW White Seabass Fishery Management Plan 2014-2015 Annual Review Report

Summary of Previous/Future Actions

- Adopt White Seabass Fishery Management Plan June 2002
- Receive annual reviews 2003-2015
- **Today receive 2014-15 annual review Jun 22-23, 2016; Bakersfield**

Background

FGC adopted the White Seabass Fishery Management Plan (FMP) in June 2002, which requires annual monitoring and review of the commercial and recreational fisheries. The White Seabass Scientific and Constituent Advisory Panel (WSSCAP) was established to assist DFW and FGC with reviewing the fishery assessments, management proposals and plan amendments. Annual review includes fishery-dependent and fishery-independent data, if available, documented changes within the social and economic structure of industries that utilize the white seabass resource within California, information on the harvest of white seabass in Mexican waters, and other relevant data. FGC adopted criteria ("points of concern") to help determine when to address resource management issues.

DFW met with WSSCAP in April 2016 to review fishery information and consider whether current management measures were providing adequate protection for the white seabass resource. WSSCAP reviewed the points of concern established in the FMP and found that none of the concerns were met. In addition, a criteria-based evaluation of the white seabass population was conducted to determine if an overfished condition exists and found that, while there has been a decrease in commercial and recreational landings in recent years, an overfished condition was not indicated.

Today DFW is providing a transmittal memo, the White Seabass Fishery Management Plan 2014-2015 Annual Review, and White Seabass Fishery Management Plan 2015-2015 Annual Review: Supplement (exhibits 1, 2, 3) to support DFW recommendations that no changes to the current management of the commercial and recreational white seabass fisheries be implemented.

Significant Public Comments (N/A)**Recommendation**

FGC Staff: Staff concurs with DFW review and findings, and recommends that FGC approve this item under a motion adopting the consent calendar.

DFW: DFW recommends no changes to current recreational and commercial white seabass fisheries management.

STAFF SUMMARY FOR JUNE 22-23, 2016

Exhibits

1. [DFW memo, dated May 16, 2016](#)
2. [White Seabass Fishery Management Plan 2014-2015 Annual Review, dated April 2016](#)
3. [Supplement to White Seabass Fishery Management Plan 2014-2015 Annual Review, dated April, 2016](#)

Motion/Direction

Moved by _____ and seconded by _____ that the Commission hereby adopts the Consent Calendar, items 5-6.

Memorandum

Date: May 16, 2016

To: Valerie Termini
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: Consent Calendar Item for the June 22-23, 2016 Fish and Game Commission Meeting Re: White Seabass Fishery Management Plan 2014-2015 Annual Review Report

Attached please find the reports "White Seabass Fishery Management Plan 2014-2015 Annual Review" and "White Seabass Fishery Management Plan 2014-2015 Annual Review: Supplement".

The Department of Fish and Wildlife (Department) met with the White Seabass Scientific and Constituent Advisory Panel (WSSCAP) in April 2016 to review fishery information and to consider if current management measures were providing adequate protection for the white seabass resource. The WSSCAP reviewed the Points of Concern established in the White Seabass Fishery Management Plan, including criteria-based evaluation of the white seabass population to determine if an overfished condition exists. Although there has been a substantial decrease in commercial and recreational landings in recent years, other factors such as effort, recruitment, and oceanographic conditions have affected these results. The Department has investigated these other factors in a supplemental report.

For the 2014-2015 seasons, an overfished condition did not exist and none of the other Points of Concern were met. Thus, the Department recommends no changes to the current management of the recreational and commercial white seabass fisheries.

If you have any questions or need additional information, please contact Dr. Craig Shuman, Regional Manager in the Department's Marine Region at (805) 568-1246.

Attachments

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May 16, 2016
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White Seabass Fishery Management Plan 2014-2015 Annual Review



Prepared by
Department of Fish and Wildlife
Marine Region
April 2016



White Seabass Fishery Management Plan 2014-2015 Annual Review

Executive Summary

The California Fish and Game Commission (Commission) adopted the White Seabass Fishery Management Plan (WSFMP) in June 2002. The WSFMP includes a provision for annual monitoring and assessment of the white seabass fisheries. The White Seabass Scientific and Constituent Advisory Panel (WSSCAP) were established to assist the Department of Fish and Wildlife (Department) and the Commission with the review of the fishery assessments, management proposals, and plan amendments. The annual review includes fishery-dependent data (e.g., commercial and recreational landings and length frequencies), and fishery-independent data (e.g., recruitment information) if available, as well as documented changes within the social and economic structure of the recreational and commercial industries that utilize the white seabass resource within California. The review also includes information on the harvest of white seabass from Mexican waters and other relevant data. Based on the results of the annual review, in cooperation with the WSSCAP, the Department will provide management recommendations, if needed, to the Commission.

To assist the Commission in determining if management measures need to be modified or added, the WSFMP framework includes, and the Commission adopted, points of concern criteria to help determine when management measures are needed to address resource issues. The points of concern are:

1. catch is expected to exceed the current harvest guideline or quota;
2. any adverse or significant change in the biological characteristics of white seabass (age composition, size composition, age at maturity or recruitment) is discovered;
3. an overfishing condition exists or is imminent;
4. any adverse or significant change in the availability of white seabass forage or in the status of a dependent species is discovered;
5. new information on the status of white seabass is discovered;
6. an error in data or stock assessment is detected that significantly changes estimates of impacts due to current management.

The Department and WSSCAP met on April 19, 2016 to review the 2014-2015 fishery season (September 1 to August 31), and together agreed that none of the points of concern were met. Additional social and economic information along with the catch information from Mexico support this conclusion. As a result, the Department does not recommend any changes to the management of white seabass or to the WSFMP at this time.

Background

The WSSCAP annually reviews current information to evaluate the status of the white seabass resource based on points of concern adopted to implement the WSFMP, and to consider whether current management measures provide adequate protection for the resource. If a resource conservation issue is found, based on the points of concern, the WSSCAP will provide its recommendation, rationale, and analysis to the Department, which will recommend to the Commission the appropriate management measure(s) to address the issue(s).

Results

Analysis of the points of concern (Table 1) showed that none of the criteria was met in 2014-2015.

Table 1. Analysis of the points of concern.		
Criteria	Analysis	Result
Catch is expected to exceed the current harvest guideline or quota.	2014-2015 total catch = 259,646 pounds; Optimum Yield = 1.2 million pounds; Total catch is below optimum yield.	No action necessary
Any adverse or significant change in the biological characteristics of white seabass (age composition, size composition, age at maturity or recruitment) is discovered.	Recreational and commercial fishery length-frequencies showed no significant change that would indicate a problem in the fishery. No new information on age composition, age at maturity, or age at recruitment.	No action necessary
An overfishing condition exists or is imminent.	See analysis in Table 2. No overall overfishing condition noted.	No action necessary
Any adverse or significant change in the availability of white seabass forage or in the status of a dependent species is discovered.	Forage species are stable in aggregate. Data indicate an increase in or steady availability for four of the forage species, and a decrease in availability for one of the forage species.	No action necessary
New information on the status of white seabass is discovered.	No new information.	No action necessary
An error in data or stock assessment is detected that significantly changes estimates of impacts due to current management.	No significant errors detected. Stock assessment has not been completed.	No action necessary

Point of Concern: Expectation of optimum yield being exceeded.

The Commission established a fishing season of September 1 through August 31 of the following year. The Commission also adopted an optimum yield. The optimum yield is based on a maximum sustainable yield proxy of the unfished biomass, and is currently set at 1.2 million pounds. In the 2014-2015 season, the total recreational and commercial harvest was 259,646 pounds, 22 percent of the allowable catch (Appendix A, Table 1).

Point of Concern: Changes in the biological characteristics of white seabass.

The commercial fishery continues to harvest white seabass across a wide size range (Appendix A, Figure 1). In 2014-2015, 99 percent of the fish sampled were larger than the minimum size limit of 28 inches and approximately two thirds of the fish sampled were larger than 45 inches. Based on previous age-at-length information from reading otoliths and from a previously calculated weight/length relationship, those fish larger than 45 inches are likely more than 11 years old and weigh more than 30 pounds.

Sampled length frequency data for the recreational fishery are presented in Appendix A, Figure 2. Before the start of the 2009-2010 season the Department prepared and distributed a brochure targeting recreational anglers to improve compliance with the recreational minimum size limit for white seabass. In the seasons since this brochure was distributed, less than 10 percent of the fish measured were smaller than the minimum size limit of 28 inches. This is a significant improvement from the previous seasons, in which 17-19 percent of all fish measured were less than minimum legal size. This season 58 legal-sized fish were measured from the recreational fishery. Of the legal-sized fish measured from the recreational fishery approximately one half of the fish measured were larger than 40 inches total length. Based on the previously calculated weight/length relationship, those fish larger than 40 inches are likely more than 9 years old and weigh more than 24 pounds.

Point of Concern: An overfishing condition exists or is imminent.

Three criteria (Table 2), all of which must be met to establish a point of concern, determine if an overfishing condition exists or is imminent. For the commercial fishery, there must be a 20 percent decline in landings in each of two consecutive seasons compared to the prior 5-season running average. Commercial landings of white seabass (Appendix A, Table 2) totaled 196,521 pounds in the 2014-2015 season; this is a 51 percent decrease when compared to the prior 5-season running average (401,469 pounds). In the 2013-2014 season commercial landings totaled 262,441 pounds; this is a 41 percent decrease compared to the prior 5-season running average (431,873 pounds). The WSSCAP and the Department agreed that the overfishing criterion for the commercial fishery was met. However, all three criteria must be met to establish a point of concern so no action is recommended at this time.

For the recreational fishery, the overfishing criterion is defined as a 20 percent decline in each of two consecutive seasons for both the number of fish and the average weight (Appendix A, Table 3). In the recreational fishery, the number of fish caught in the 2014-2015 season decreased 67 percent when compared to the previous season. The average weight of fish caught in the 2014-2015 season increased 18 percent when compared to the previous season. The WSSCAP and the Department agreed that the overfishing criterion for the recreational fishery was not met.

The final criterion for determining if an overfishing condition exists is a 30 percent decline in the recruitment index for juvenile white seabass compared to the prior 5-season running average of recruitment. The Ocean Resources Enhancement and Hatchery Program (OREHP) had routinely conducted standardized field studies four times a year (August, October, April, and June) for juvenile recruitment. However, reductions in funding curtailed survey effort. The Southern California Sport Fishing Enhancement Stamp fund was insufficient to cover all of the OREHP activities as well as the gill net recruitment surveys, and consequently there was no gill net sampling between 2009 and 2011.

In October 2012, gill net sampling similar to previous surveys was reinstated. The objective of the current sampling design seeks to resume the prior gill net sampling regime but in a reduced capacity with fewer locations surveyed and a reduction in the number of nets deployed at each site.

In order for this criterion to be evaluated six consecutive years of data will need to be collected. Because six years of consecutive white seabass recruitment surveys have not been completed this criterion could not be addressed in this report.

Based on the analysis of all three overfishing criteria, the WSSCAP and the Department agreed that the overall overfishing point of concern for the fishery was not met.

Table 2. Analysis to determine if the white seabass resource is overfished (Criteria taken from Section 51.01 (b), Title 14, California Code of Regulations).		
Criteria	Analysis	Result
A 20 percent decline in the total annual commercial landings of white seabass for the past two consecutive seasons compared to the prior 5-season running average of landings, based on landing receipt data.	2014-2015 196,521 pounds = 51% decrease 5-season average = 401,469 pounds 2013-2014 262,441 pounds = 39% decrease 5-season average = 431,873 pounds	Criterion was met
A 20 percent decline in both the number of fish and the average weight of white seabass caught in the recreational fishery for the same two consecutive seasons, as determined by the best available data.	2014-2015 3,136 fish = 67% decrease 27.1 pound average = 18% increase 2013-2014 9,567 fish = 10% decrease 22.9 pound average = 18% increase	Criterion not met
A 30 percent decline in recruitment indices for juvenile white seabass compared to prior 5-season running average of recruitment, as determined by the best available data.	Criterion not analyzed	N/A

Point of Concern: Any adverse or significant change in the availability of white seabass forage or in the status of a dependent species is discovered.

Prey species (northern anchovy, jack mackerel, market squid, Pacific mackerel, and Pacific sardine) are highly mobile and their distributions are affected by oceanographic conditions. A review of white seabass forage species (Appendix A, Figures 3, 4, and 5) revealed some changes in availability.

Both Pacific mackerel and Pacific sardine have stock assessments conducted by the National Marine Fisheries Service and these stock assessments include biomass estimates. Since 2008, Pacific mackerel biomass estimates have been conducted every two years. Pacific sardine biomass estimates are conducted every year. The biomass estimates for Pacific mackerel in 2014 show decreases from their last assessment. The 2014-2015 Pacific sardine fishery closed two months early in April, and is closed for the 2015-2016 season.

Since there are currently, no biomass estimates or stock assessments for northern anchovy, jack mackerel, and market squid, commercial fishery landings were used as a proxy for their availability. Northern anchovy and jack mackerel availability increased from the previous year, whereas market squid remained the same.

Based on the analysis of all of the prey species, the WSSCAP and the Department agreed that this point of concern was not met.

Other Points of Concern:

The remaining two points of concern (Table 1) consider any new information on the status of white seabass, and if any errors in data or stock assessment were found.

There is no new information on stock status and there were no significant errors found in the data.

Additional Information

The Department has used one indicator each of some basic social and economic information to characterize the commercial fishery and provided those summaries to the WSSCAP (Appendix A, Table 4). As a social information indicator, the number of commercial vessels landing white seabass has been tracked over time. In the 2014/15 seasons the number of vessels fishing for white seabass has decreased slightly. This decrease in the number of vessels occurred mostly in the hook-and-line fishery. An economic information indicator of the most frequent ex-vessel price per pound has also been tracked over time. The ex-vessel price per pound has shown a steady increase over time and is presently at \$4.00 per pound for all gears combined. No similar social or economic data are available for the recreational fleet.

Information about the take of white seabass in Mexican waters was considered by the WSSCAP. California commercial fishermen are prohibited by Mexican law to fish in the territorial seas of Mexico, and no landings of white seabass from Mexico by California commercial fishermen were reported in 2014-2015. Recreational anglers may fish in Mexico under the authority of a Mexican sport-fishing license. During the 2014-2015 season, Commercial Passenger Fishing Vessel logbook data reported 170 white seabass taken in Mexico, an increase of 10 fish from the reported 160 taken in the prior season. No additional information about either the recreational or the commercial catch of white seabass in Mexico is available.

Appendix A – Data Analyses

Season	Recreational	Commercial	Total
2005/06	199,083	391,301	590,384
2006/07	253,959	421,388	675,347
2007/08	150,988	653,264	804,252
2008/09	152,799	414,459	567,258
2009/10	215,071	502,021	717,092
2010/11	306,491	520,605	827,096
2011/12	259,028	406,746	665,774
2012/13	265,816	315,533	581,349
2013/14	219,116	262,441	481,557
2014/15	63,125	196,521	259,646

Source: California Recreational Fisheries Survey extracted from the RecFIN database at <http://www.recfin.org/forms/est2004.html>, and California Department of Fish and Wildlife Commercial Fisheries Information System (includes commercial landing receipt and CPFV logbook data).

Season	Pounds Landed	Prior 5-season average	Percent change from previous 5-season average
2005/06	391,301	339,004	15
2006/07	421,388	374,126	13
2007/08	653,264	377,896	73
2008/09	414,459	411,867	1
2009/10	502,021	433,621	16
2010/11	520,605	476,487	9
2011/12	406,746	502,347	-19
2012/13	315,533	499,419	-37
2013/14	262,441	431,873	-39
2014/15	196,521	401,469	-51

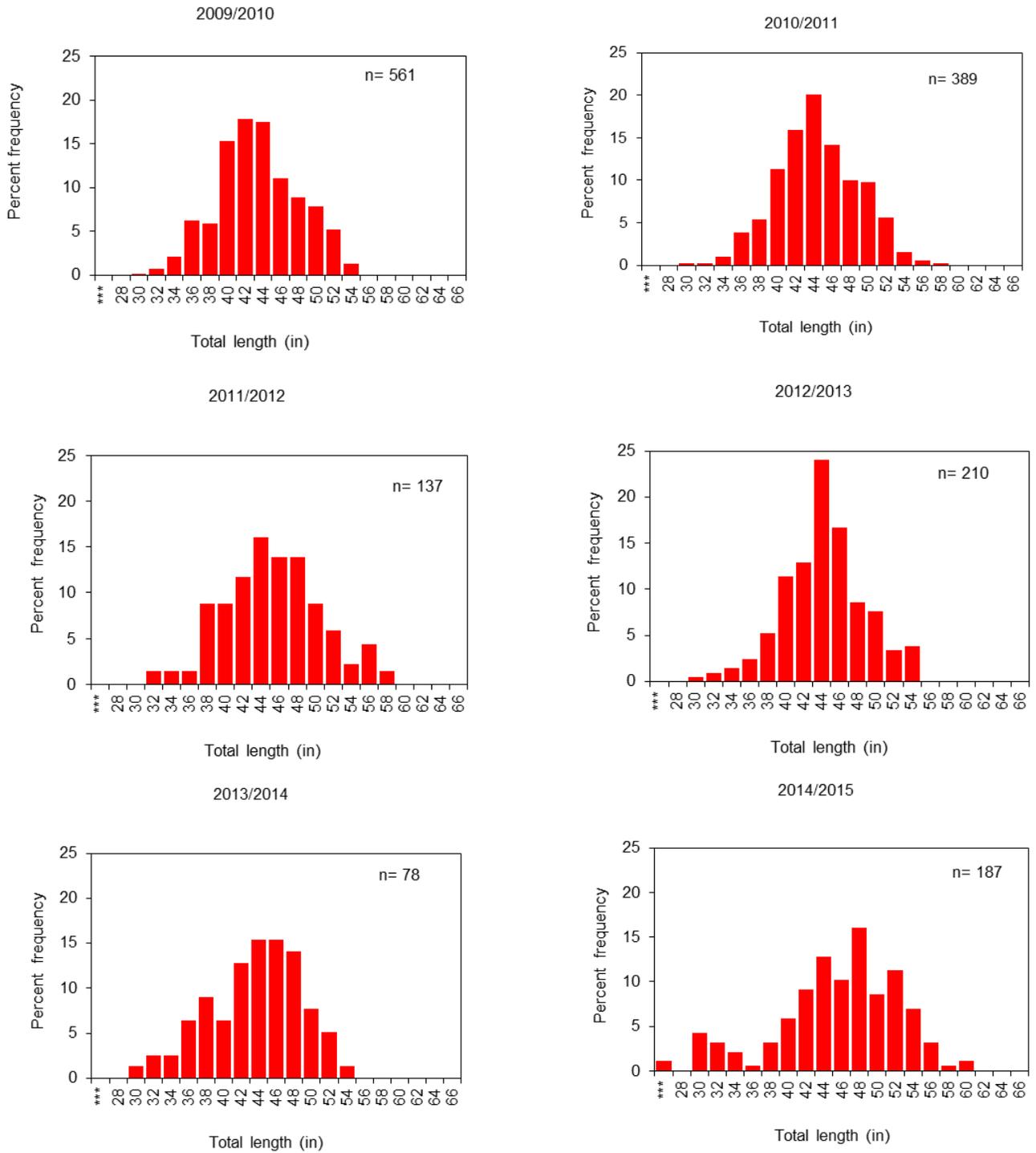
Source: California Department of Fish and Wildlife Commercial Fisheries Information System (includes commercial landing receipt data).

Season	Total number of fish caught	Percent change in number of fish from prior season	Average weight in pounds	Percent change in weight from prior season
2005/06	10,934	34	13.1	-15
2006/07	7,261	-34	18.5	41
2007/08	7,593	5	19.3	4
2008/09	6,751	-11	19.8	3
2009/10	8,788	30	24.3	23
2010/11	12,672	44	29.1	20
2011/12	9,876	-22	26.9	-8
2012/13	10,634	8	19.3	-28
2013/14	9,567	-10	22.9	19
2014/15	3,136	-67	27.1	18

Source: California Recreational Fisheries Survey extracted from the RecFIN database at <http://www.recfin.org/forms/est2004.html>, and California Department of Fish and Wildlife Commercial Fisheries Information System (includes Commercial Passenger Fishing Vessel logbook data).

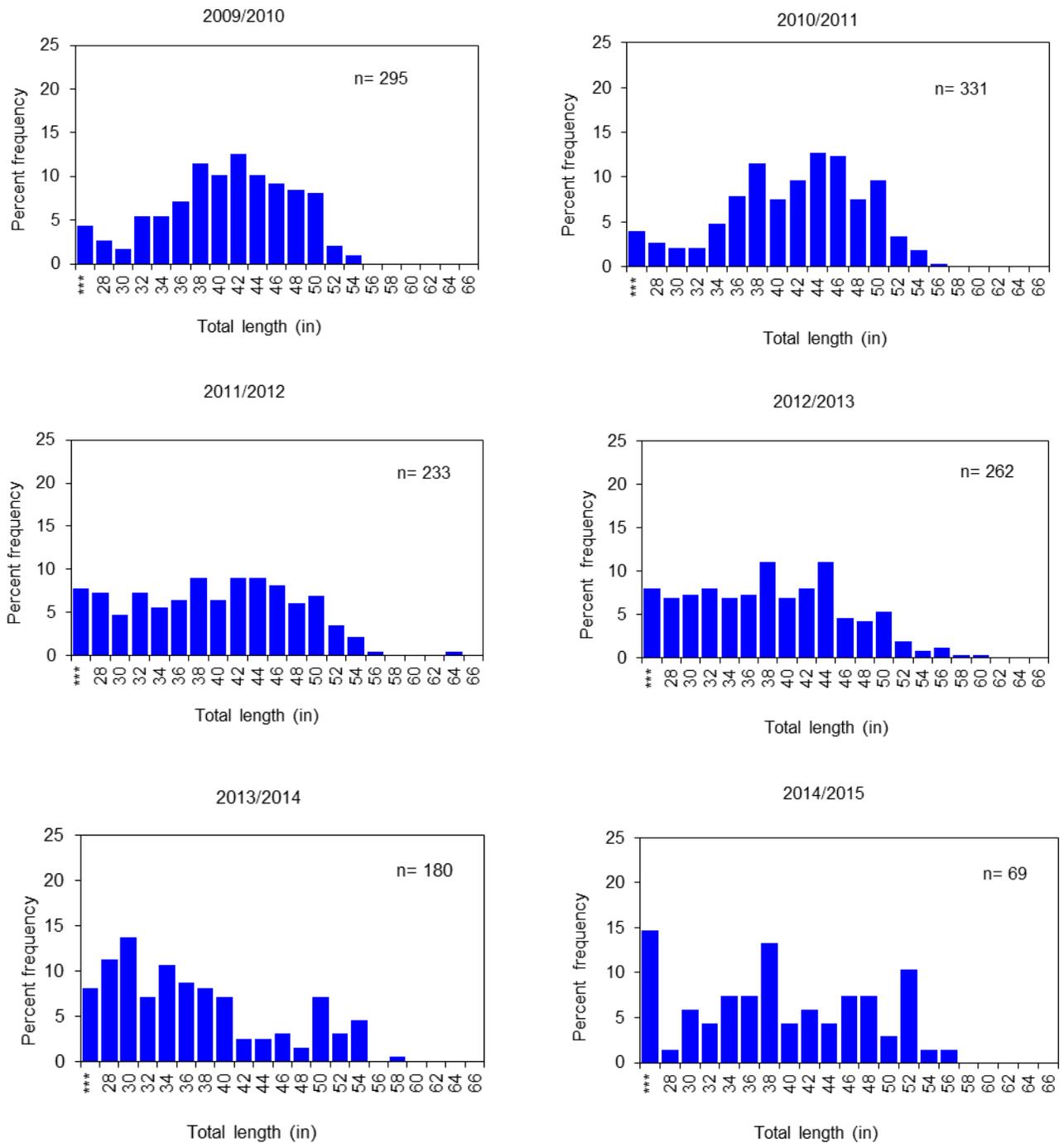
Season	Total number of vessels landing white seabass	Most common ex-vessel price per pound
2003/04	117	\$2.50
2004/05	77	\$2.50
2005/06	95	\$3.00
2006/07	97	\$3.00
2007/08	96	\$3.50
2008/09	93	\$3.50
2009/10	183	\$3.50
2010/11	254	\$4.00
2011/12	276	\$4.00
2012/13	257	\$5.00
2013/14	238	\$5.50
2014/15	177	\$4.00

Source: California Department of Fish and Wildlife Commercial Fisheries Information System (includes commercial landing receipt data).



***all sub-legal fish were grouped together
 Source: Department of Fish and Wildlife Market Sampling Program

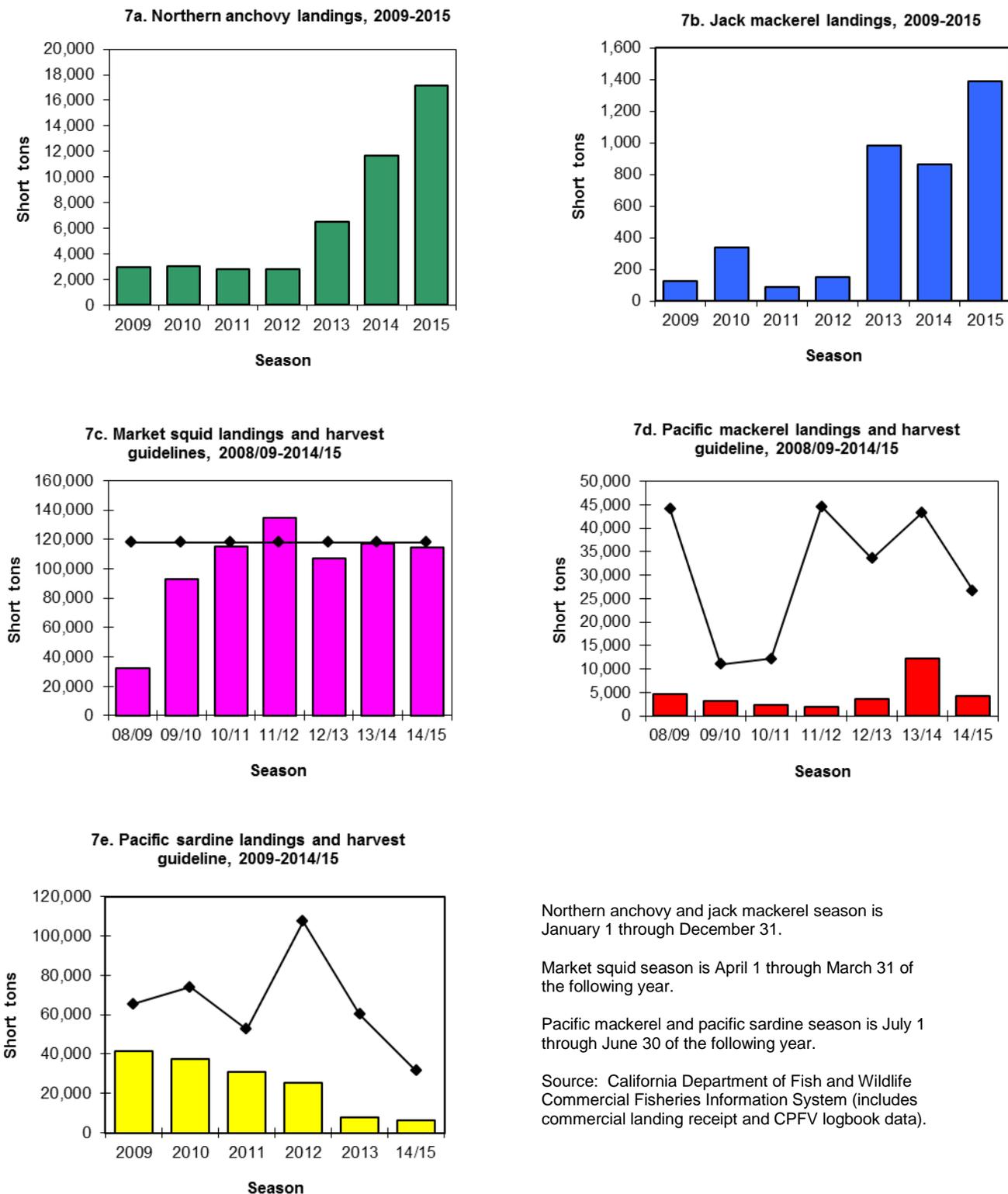
Figure 1. Commercial white seabass sampled length frequencies, 2009/10 – 2014/15.



***all sub-legal fish were grouped together

Source: Sampler examined landed catch data from California Recreational Fisheries Survey extracted from the RecFIN database at <http://www.recfin.org/forms/est2004.html>.

Figure 2. Recreational white seabass sampled length frequencies, 2009/10 – 2014/15.



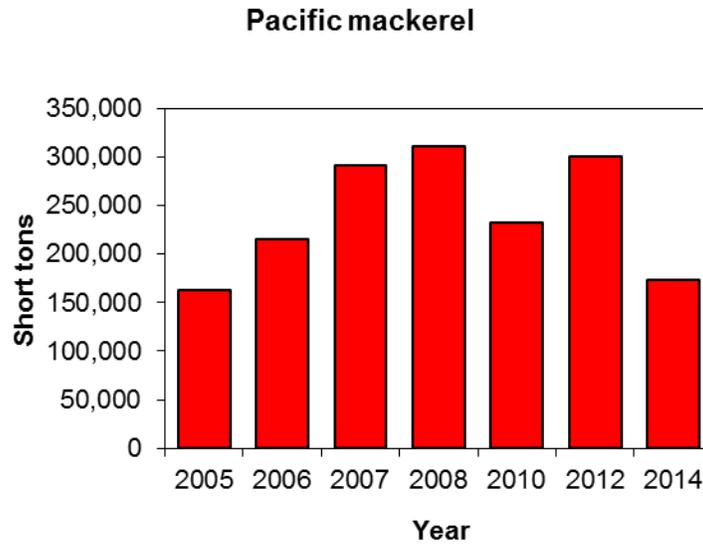
Northern anchovy and jack mackerel season is January 1 through December 31.

Market squid season is April 1 through March 31 of the following year.

Pacific mackerel and pacific sardine season is July 1 through June 30 of the following year.

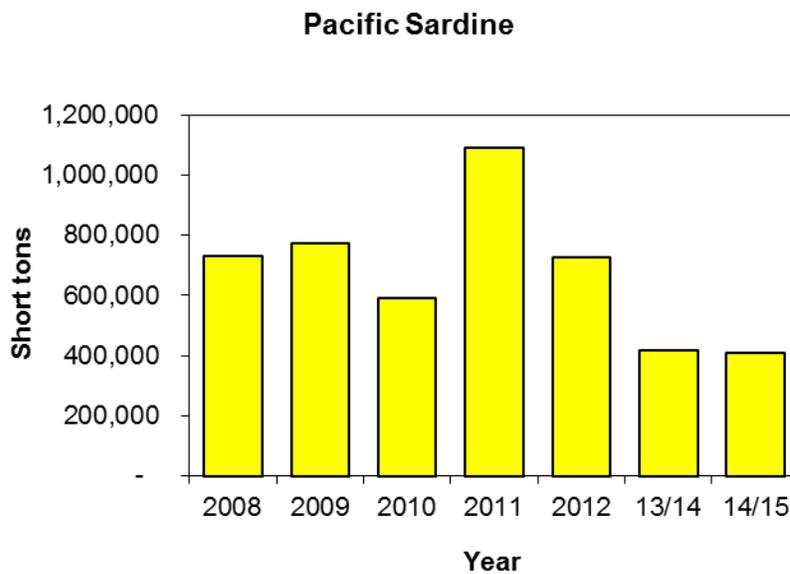
Source: California Department of Fish and Wildlife Commercial Fisheries Information System (includes commercial landing receipt and CPFV logbook data).

Figure 3. Harvest guidelines and commercial catch of white seabass forage species.



Source: Pacific Fishery Management Council. 2014 CPS SAFE document and PFMC proceedings.

Figure 4. Biomass estimates for Pacific mackerel in short tons, 2005 – 2014. Biomass estimates were biennial after 2009.



Source: Pacific Fishery Management Council. 2015 CPS SAFE document and PFMC proceedings.

Figure 5. Biomass estimates for Pacific sardine in short tons, 2008 – 2014/15 seasons. Biomass estimates were seasonal after 2013.

**White Seabass FMP Annual Review for 14/15
Supplemental Information
Marine Region**

April 2016

The declining trends in landings for the past several years, along with the commercial overfishing criteria being triggered last year and for the current 14-15 season, have prompted the Department to investigate other datasets to help explain these trends. The Department has looked into changes in effort, gill net survey data, and oceanographic conditions which are summarized below. Although not required for the annual review of the white seabass fishery management plan (WSFMP), the Department considers that analyses of these additional datasets can better describe and enhance our knowledge regarding the status of the fishery beyond what is gleaned from the amount of landings and weights of harvested fish.

Effort

The WSFMP requires the calculation of percent changes in harvested fish (numbers and weights) over time to see if an overfished condition exists; however, there is no consideration given to changes in effort. Both recreational and commercial fisheries shift effort for a number of reasons.

To calculate recreational effort, we analyzed Commercial Passenger Fishing Vessel (CPFV) data from logbooks. These data can be evaluated as catch per unit effort (CPUE) by looking at number of white seabass caught per angler. We chose only those trips that are “targeting” white seabass by including trips where at least one white seabass was caught. Although this method is not exact, it does exclude many trips that are targeting other highly desirable pelagic species (such as many tuna species) which are unlikely to catch white seabass.

All CPUE values from CPFVs during the cooler water period (1999-2013) are greater than those during the prior warmer period (1980-1998; Figure 1). Since CPFVs tend to visit the same areas year to year, and are somewhat limited on how far they travel (at least on ½–¾ day trips), these numbers indicate that white seabass have been more abundant in local nearshore and island waters during this past cooler water period. A big drop in CPUE occurred from 2014-2015; this coincided with the return of warmer than average water temperatures.

CPUE from private/rental boats showed an increasing trend from 2004 to a peak in 2010 and 2011, similar to the trend for the CPFVs (Figure 2). CPUE then declined to moderately high levels in 2012, 2013, and 2014; however, just as with CPFVs, the private/rental boat CPUE for white seabass decreased greatly in 2015 with the warmer water.

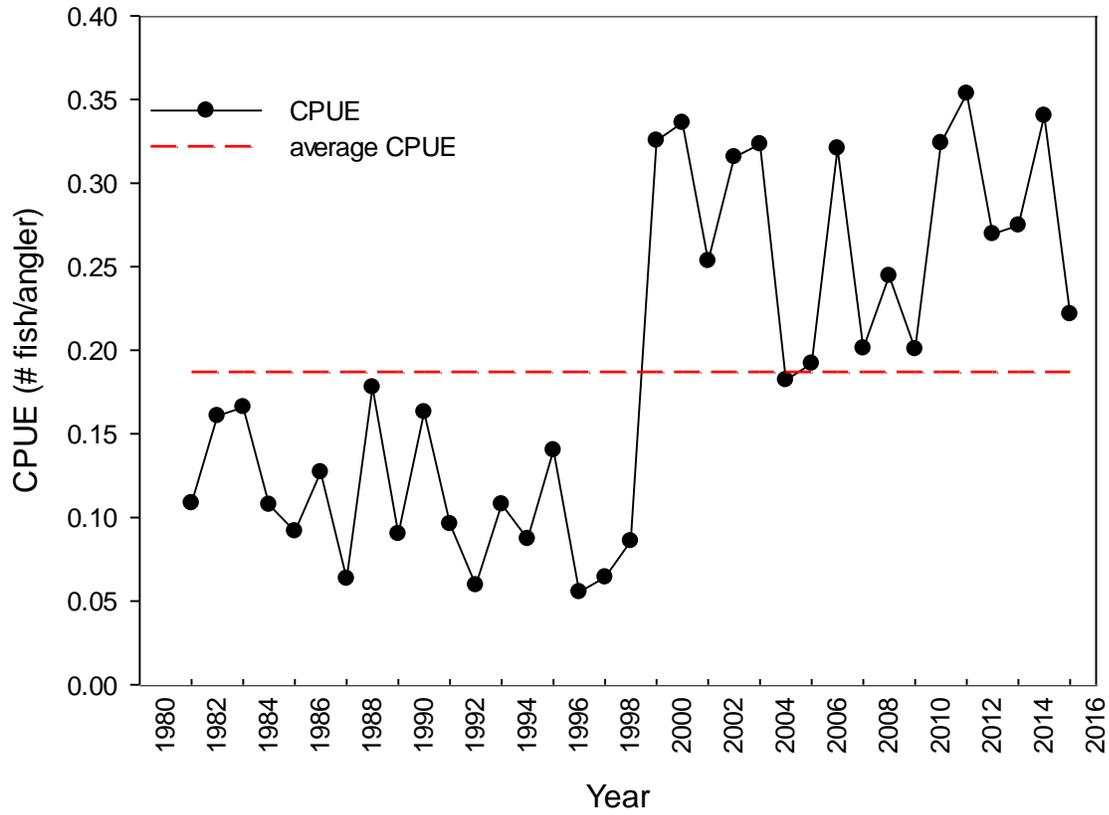


Figure 1. White seabass catch per unit effort (CPUE) from commercial passenger fishing vessels (CPFVs). Data retrieved from the California Department of Fish and Wildlife's Marine Log System (MLS).

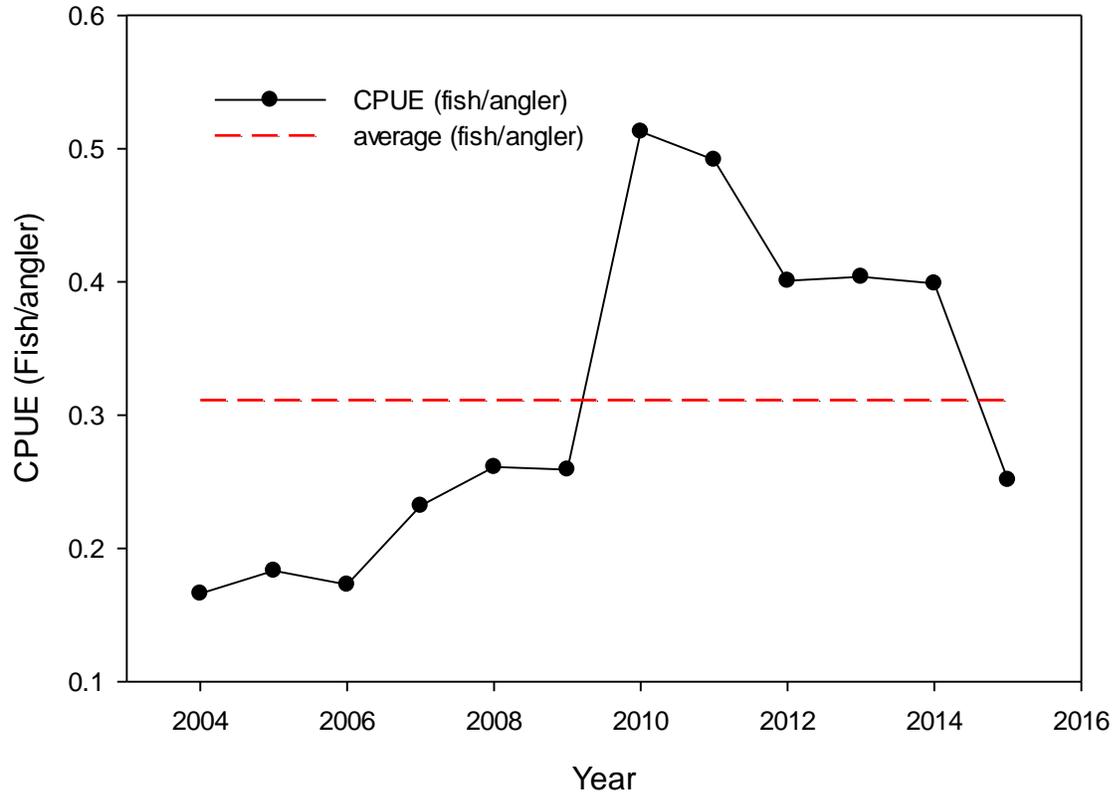


Figure 2. White seabass catch per unit effort (CPUE) for recreational private/rental fishing mode. Data accessed from RecFIN database, March 2016. Includes sampler examined harvested fish.

Commercial fishing effort for white seabass can be calculated in many different ways. There are many different gear types used in the fishery such as gill nets, hook and line, and trawls. In addition, these gear types come in different sizes and are deployed in varying amounts. We have calculated CPUE by dividing the total weight of catch landed (pounds) by the total number of trips that landed white seabass. This is a more accurate estimate of CPUE than dividing the catch by total number of vessels that landed white seabass as the number of trips taken by an individual vessel during the year is extremely variable.

The commercial CPUE was lowest for most of the '80s, increased in the 90s, and was fairly steady during this period (Figure 3). In 2002, CPUE greatly increased, peaking in 2008; however, CPUE dropped sharply in 2009 until 2013 when it started to increase again. Similar to the recreational catch from CPFVs, CPUE was generally higher during the cooler water period (1998-2013) than the warmer water period (1980-1998). Commercial CPUE also increased from 2012-2014, but unlike CPFV CPUE, it continued to increase in 2015.

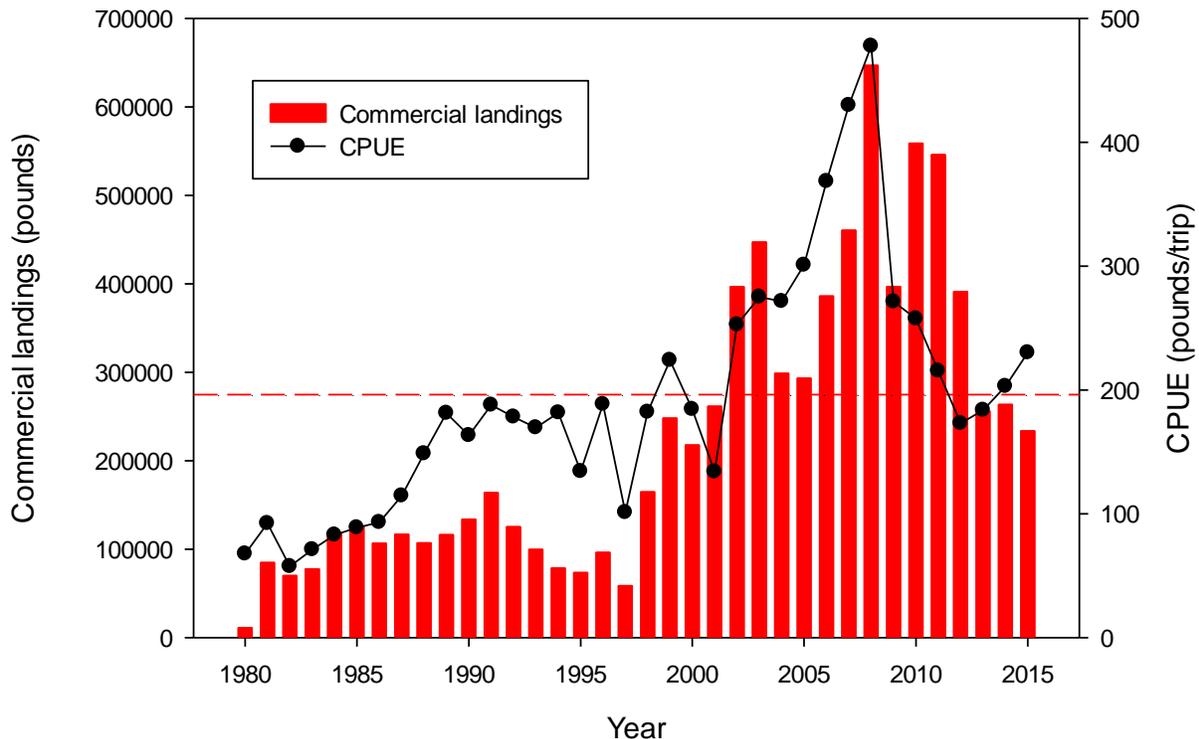


Figure 3. White seabass catch per unit effort (CPUE) from commercial landings. Data retrieved from California Fisheries Information System, March 2016. Dashed line represents the average number of pounds per trip from 1980-2015.

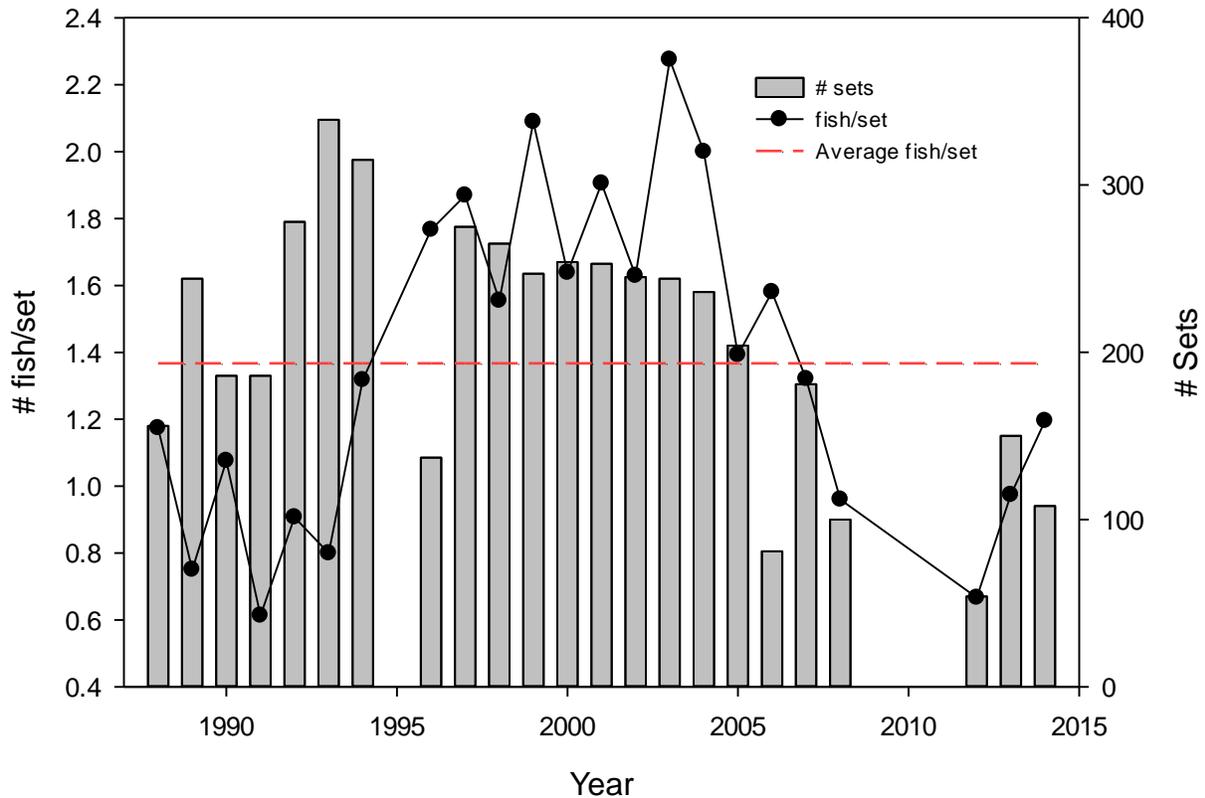


Figure 4. Recruitment data from white seabass gillnet surveys collected by Hubbs-Sea World Research Institute (HSWRI), California State University Northridge (CSUN) and San Diego State University (SDSU).

Recruitment Indices

The WSFMP requires an analysis of the best available data to determine if recruitment of juvenile white seabass declined by 30% or greater from the prior five-year average. These data are collected from gill net surveys; however, due to a lack of funding these surveys were not done from 2009-2011 and this prevents an analysis of this criterion for the 14-15 season. Nevertheless, in general, higher CPUEs occurred during the cooler water period (1999-2013; however, there were lower CPUE values for 2008, and 2012-13). Interestingly, there has been an increase in recruitment for the last two years (Figure 4).

Oceanographic conditions

For determining the effects of oceanographic conditions on catches of white seabass, we looked at periods of Pacific Decadal Oscillations (PDOs) since 1936. A PDO is a climate index based upon patterns of variation in sea surface temperature of the North Pacific. PDOs are characterized as “cool” and “warm” phases based upon deviations from average sea surface temperatures, and these phases can persist for decades.

For recreational catch of white seabass, the largest number of fish per year occurred during cooler water periods and the average number of fish caught per year was greatest in both cooler water periods compared to all three warmer water periods (Figure 5). There appears to be no correlation of white seabass catch with strong to very strong El-Niño events (e.g., '57-58, '65-66, '72-73, '82-83, '97-98, and '15-16). Squid, which are a preferred prey of white seabass, are much less abundant during these El-Niño events. Interestingly, white seabass catches are much greater at the beginning of a cool water period and then decline greatly thereafter.

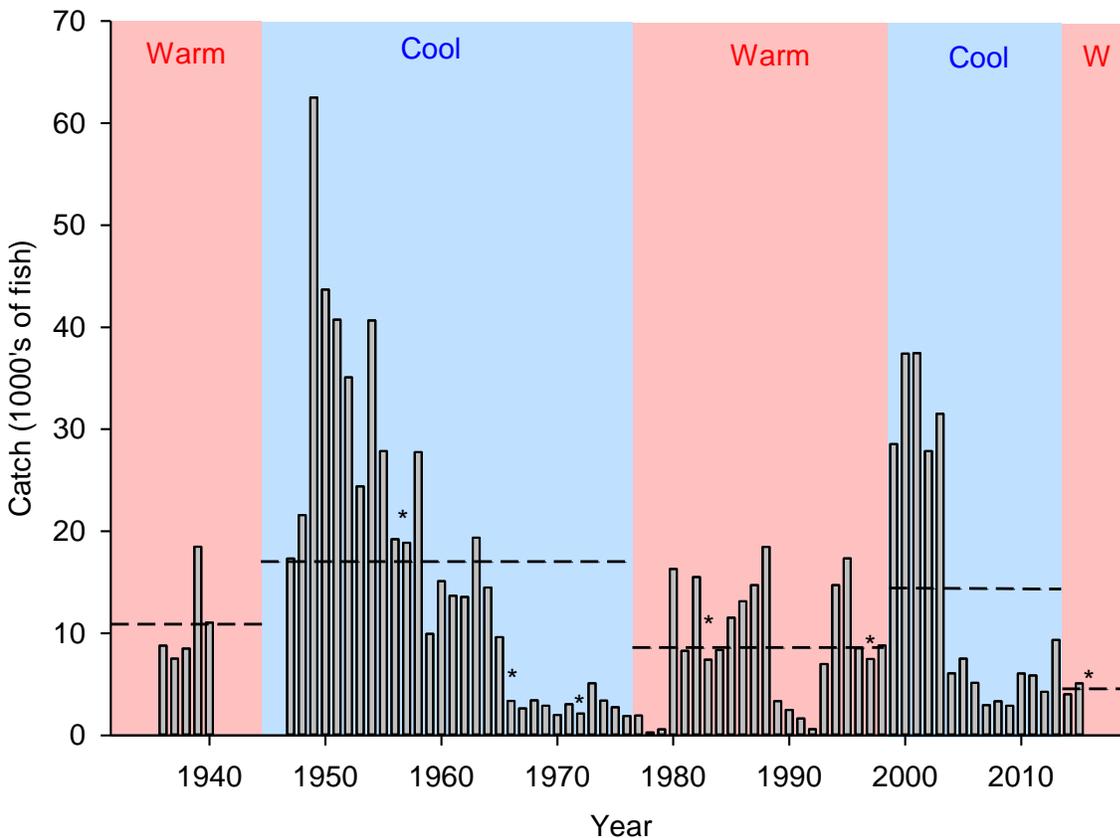


Figure 5. Historical recreational catch of white seabass with Pacific Decadal Oscillation (PDO) trends. Dashed line represents the average number of fish caught/year for that time period. Asterisks denote strong to very strong El-Niño years.

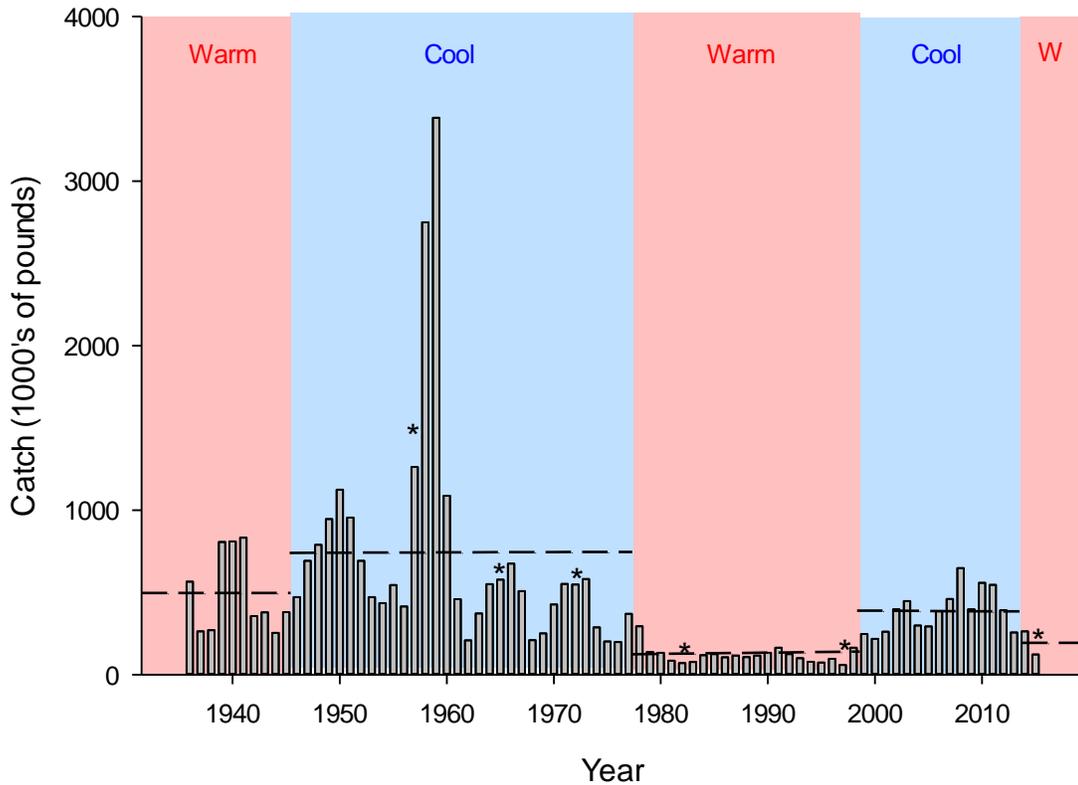


Figure 6. Historical commercial catch of white seabass with Pacific Decadal Oscillation (PDO) trends. Dashed line represents the average number of fish caught/year for that time period. Asterisks denote strong to very strong El-Niño years.

Similarly, commercial catch of white seabass in pounds was greatest during cooler water periods relative to warmer periods; however, the second cooler water period had average yearly landings just slightly lower than during the first warmer water period (Figure 6). Interestingly, every year of landings in the second cooler water period is greater than all but one year during the immediately prior warm water period. Unlike recreational catches, commercially-caught white seabass peak during the middle of the cool water periods.

These graphs support the contention by fishermen that white seabass are hard to find during warmer periods due to their migratory behavior, either looking for squid which is much less available during these conditions, and/or moving up the coast with the warmer water.