

2012 CALIFORNIA LEGISLATIVE FISHERIES FORUM

Department of Fish and Game Annual Marine Fisheries Report



Herring are being caught in McCovey Cove next to AT&T Park in SF Bay



Prepared by
Department of Fish and Game
Marine Region
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FISHERIES FORUM

Department of Fish and Game

Marine Fisheries Report

Executive Summary

Management policy for living marine resources during the past decade has been guided by the Marine Life Management Act (MLMA) and focuses on sustainable use, conservation (including ecosystem protection), restoring depleted stocks, and promoting science-based management decisions while considering the long-term interests of California's fishing communities. Virtually all of California's important marine fisheries are actively managed, with jurisdiction carefully coordinated among the various lead regulatory entities such as the State Legislature, the Fish and Game Commission (Commission), the Department of Fish and Game (Department), and the Federal Government. Fishery management plans (FMPs) are a primary mechanism for implementing these policies, and eight FMPs have been adopted by the federal and state governments, with one more in progress, which in combination encompass well over 100 different species. However, some of our significant fisheries are still managed without an FMP, and in those cases the same standards of sustainability, conservation, and science-based information are applied by the managing authorities. This management policy has helped to ensure that few of California's marine fisheries are considered overfished, and for these few that have been found to be depleted, recovery is the overriding management objective.

The Department periodically reviews fishing regulations to ascertain their continued effectiveness. Regulatory changes are made, often on an annual basis, in response to new information and changing conditions. Management considerations include the life history and biology of the species being harvested, the timing and location of the fishery, the size of the fishery, the gear used in the fishery, and the health of the stock, and impacts to the fishing communities. Typical management measures employed include season closures, size limits, fishing area restrictions, gear restrictions, permit limits, and specific catch limits. Regulations are crafted using different combinations of these and other tools in order to provide conservation safeguards and reduce the risk of overexploitation, while at the same time not overly limiting access for anglers and commercial fishermen, or overburdening them with regulations that are more complex than is necessary to be effective.

Notable successes in fishery management during the past 12 months include Dungeness crab and market squid. Other important fisheries where management appears to be effective include nearshore finfish, Chinook salmon,

and spiny lobster, all of which show evidence of sustainability under present management. For example, the return of 27,500 Sacramento River Fall Chinook jack salmon (two year olds) in 2010 resulted in an ocean abundance forecast that allowed for substantial commercial and recreational salmon fisheries in 2011.

During the past 12 months, peer-reviewed stock assessments were completed for the both the California spiny lobster and the California halibut over their entire ranges within the state, for the first time. In the case of lobster, Department staff collaborated with researchers from Baja California where a high proportion of the shared trans-boundary stock is found.

The Dungeness crab industry was finally successful in their long and challenging effort to get a crab trap limit bill passed in the Legislature in 2011. The bill was signed by Governor Brown and the Department has been tasked with implementing the bill in time for the 2013-14 crab season. This effort will require cooperation among multiple functions within the Department as well as assistance from the Ocean Protection Council (OPC) and collaboration with the Dungeness crab task force to ensure a smooth transition to this complex management system. This effort comes on the heels of a record breaking season in terms of landings and value as over 27 million pounds of Dungeness crab valued at over \$56 million was landed at California ports.

The market squid fishery in 2011 was once again the largest in California, both in terms of volume and value. Statewide, over 255 million pounds of market squid were landed in the calendar year, with an ex-vessel value of \$61.6 million. In 2010, the fishery landed over 267 million pounds during the calendar year, and was valued at \$70 million.

Some overfished species have responded well in recent years to recovery efforts, such as lingcod which have fully recovered as a result of a multi-year rebuilding plan. Others, such as white abalone, black abalone, yelloweye rockfish, and cowcod rockfish are still recovering. Because these species have not yet rebuilt, fishing restrictions by necessity are quite severe, and recovery is dependent in large part upon factors beyond the control of managers, such as environmental conditions and the basic biological life histories of each species.

As of early 2012, planning has been completed for four of five Marine Protected Area (MPA) planning regions, with regulations adopted and implemented for three of the regions. The Department continues to face complex challenges following MPA implementation, such as conducting scientific monitoring and sequential assessment to inform MPA efficacy, ensuring adequate enforcement, engaging in public outreach, and managing scientific collecting permits within MPAs. Utilizing existing public-private partnerships and developing new partnerships remains a key to successful long-term management.

Fisheries Reports

Pacific Salmon

The Pacific Fishery Management Council's (Council) Salmon Fishery Management Plan (FMP) was developed in 1977 and was the first FMP implemented by the Council. Each year, the Council develops management measures that establish fishing areas, season dates, harvest quotas, legal fishing gear, minimum size lengths, and possession and landing restrictions for salmon fisheries in federal waters off California, Oregon, and Washington. These measures must meet the goals of the FMP that address spawning escapement needs, allow for freshwater fisheries, allow for Federally- recognized Tribal fishery rights, and meet the needs of salmon species listed under the federal Endangered Species Act (ESA). Of the five species of Pacific salmon found on the West Coast, Chinook and coho are most frequently encountered off California; however, the retention of coho salmon has been prohibited in all California fisheries since 1995.

Reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act and new federal guidelines on Annual Catch Limits and Accountability Measures required changes to the Salmon FMP in 2011. An ad hoc committee consisting of Federal, State and Tribal representatives was established to develop Amendment 16 to the Salmon FMP. The amendment features an updated science-based conservation objective for Klamath River fall Chinook (KRFC), guidelines for establishing ocean fisheries during periods of very low salmon abundance, and clear definitions of reference points to be used by the Council to determine the status (e.g., overfished, rebuilt) of specific salmon stocks. The new requirements of the FMP will be implemented during the 2012 ocean salmon fishing season.

The ESA requires that the National Marine Fisheries Service (NMFS) assess the impact of ocean fisheries on listed salmon populations and develop standards that avoid the likelihood of jeopardizing the continued existence of those populations. Consequently, the Commission, the Council, and the NMFS have implemented various protective regulations to reduce fishery impacts on populations of Sacramento River Winter Chinook (SRWC), Central Valley spring Chinook, California coastal Chinook, and all stocks of coho salmon. These stocks are listed under both Federal and State ESAs.

Since 1994, California ocean salmon fisheries have been constrained to reduce impacts on ESA-listed SRWC. Endangered SRWC are incidentally harvested in ocean salmon fisheries, primarily by sport anglers fishing south of Point Arena (Mendocino County) that are targeting more abundant Central Valley stocks. In April 2010, the NMFS issued an updated Biological Opinion (BO) with the conclusion that ocean salmon fisheries continue to jeopardize the continued existence of this depressed stock in spite of fishing area closures and size limit restrictions established in their 2004 BO. A new requirement of the 2010 BO was to develop methods to quantify impacts of fisheries on SRWC and assess potential impacts of proposed fisheries. As a result, new analytical tools were

developed and approved by the Council for use in 2012 fishery management; however, the available data suggests that downward trends in SRWC cannot be readily explained by ocean harvest, especially since California fisheries were completely closed in 2008 and 2009. NMFS is expected to announce an ocean fishery impact limit on SRWC to further protect the stock and this will most likely constrain ocean salmon fisheries south of Point Arena during 2012.

- **In 2010, approximately 125,400 Sacramento River Fall Chinook (SRFC) adults (ages three, four, and five) returned to spawn in the Sacramento River Basin. SRFC met the lower range of the FMP conservation objective of 122,000-180,000 hatchery and natural adult spawners required by the Council's Salmon FMP for the first time since 2006.**
- **The jack (two year old fish) return of 27,500 SRFC resulted in an ocean abundance forecast that allowed for substantial commercial and recreational salmon fisheries in 2011. For the 2011 season, the NMFS recommended season structures that targeted the upper end of the SRFC conservation objective of 180,000 adult spawners.**

In 2011, commercial salmon fisheries were allowed from May through October, with variable open dates within management areas to meet the NMFS guidance and FMP conservation objectives. The seasons were designed to offer concurrent opportunity in all management areas when possible, and the California portion of the Klamath Management Zone (Oregon border to Humboldt south jetty) featured two small quota fisheries intended to encourage local salmon fishermen to participate in the fishery.

- **Statewide commercial landings (number of Chinook) and total fishing effort (days fished) increased in 2011 compared to 2010. The commercial fleet landed 494 tons of dressed Chinook (69,800 fish) during 6,900 boat-days fished in 2011 compared to 114 tons of dressed Chinook (15,100 fish) during 2,000 boat-days fished in 2010. Ex-vessel prices for dressed salmon averaged \$5.17 per pound and the nominal ex-vessel value of the commercial salmon fishery was over \$5.1 million.**

The 2011 recreational season also had more fishing opportunity than in 2010 while still satisfying NMFS ESA consultation standards and guidance, FMP conservation objectives, and all other management objectives for relevant Chinook stocks. Recreational fishing restrictions to protect ESA-listed Sacramento River winter Chinook included a requirement that the season between Point Arena and the U.S./Mexico Border open no earlier than the first Saturday in April and have a minimum size limit of 24 inches total length during the entire season.

In 2011, the number of Chinook landed and fishing effort (angler-trips) in the California recreational fishery increased compared to 2010. Recreational anglers

landed approximately 49,000 Chinook during 91,100 angler-trips compared to 14,800 Chinook landed during 48,700 angler-trips in 2010.

The Council's Fishery Economic Assessment Model (FEAM) estimated that California coastal community and State personal income impacts for the 2011 ocean salmon fishery exceeded \$15 million, with \$8.6 million from the commercial fishery and \$7.2 million from the recreational fishery. This is an increase from the 2010 FEAM estimate of \$5 million, with \$2.1 million from the commercial fishery and \$3.6 million from the recreational fishery.

For more information on the upcoming 2012 ocean salmon season, go to the Department's Marine Region and PPMC websites:

<http://www.dfg.ca.gov/marine/oceansalmon.asp>

<http://www.pcouncil.org/>

California Spiny Lobster

Commercial spiny lobster fishermen in southern California use baited traps that are individually buoyed and deployed along the mainland coast from Pt. Conception to the Mexican border and at all the offshore islands. There is also a large recreational fishery in the same area, involving skin and scuba divers, and fishermen using hoop nets. Commercial lobster season opens the first Wednesday in October and closes the first Wednesday after the 15th of March, while the recreational season opens the weekend before the commercial opener.

- **The 2010-11 commercial lobster season landings totaled 693,000 pounds, with an ex-vessel value of \$11.5 million.**

Commercial landings were split in roughly even amounts between ports in San Diego County (34 percent), Los Angeles/Orange counties (29 percent), and Santa Barbara/Ventura counties (37 percent), similar to the previous season. The mid-season total for 2011-12 commercial landings is 430,000 pounds. By season end the total landings weight is expected to approximate other recent seasons. The 10-year average catch for the commercial fishery is 734,000 pounds. Lobster is a high value product, with a notable increase of about five dollars in price paid per pound beginning with the 2010-11 season. This season fishermen are receiving \$17.00-\$20.00 a pound for their lobster, making it one of the highest valued fishery commodities.

The commercial lobster catch is primarily exported to Asian markets, with prices dependent on market demand. In recent years, fishermen have been trying to develop local markets. They have had limited success because of the widespread availability of less expensive American (Maine) lobsters and cheaper imported spiny lobster tails.

Management of the lobster fishery is based on a minimum size limit; a closed season to protect breeding and molting animals; escape ports in traps to prevent the take of undersized lobster in the commercial fishery; daily bag and possession limits; and a limit on the number of hoop nets for the recreational fishery. In addition, there is a restricted access program for the commercial fishery (currently 197 permits) and a requirement that recreational fishermen record their catch and effort by date, location and gear type on a lobster report card. Department projections indicate that the total recreational catch ranges from 30 percent to 60 percent of the commercial catch and is based on returned report cards.

The Department completed a 1.5 year-long lobster stock assessment effort and submitted the results to a panel of stock assessment experts in summer, 2011. The review panel concurred with the Department's conclusion that the fishery is relatively stable, and there is a low risk of overexploitation in the near future. The increasing use of hoop nets in the recreational fishery, and increased commercial fishing effort through permit transfers could pose a challenge to the future management of the resource. However, sufficient time is available to improve data collection and assessment methods and make any management changes that might be required.

The Department was provided nearly \$1 million from the Ocean Protection Council to assist with the development of an FMP for California spiny lobster as required by the Marine Life Management Act. The Department is using the FMP grant to contract for services, such as facilitation and an economic profile of the recreational and commercial fisheries, to assist DFG staff with the production of the plan and the associated public scoping and review process. The FMP process is comprehensive and will explore the best available science, alternatives for management, public participation and input, ecosystem function, and economic considerations. An FMP document that has undergone public and scientific review and is ready for adoption by the Commission is expected in 2015.

For more information on the California spiny lobster, go to the Department's Marine Region lobster website: www.dfg.ca.gov/marine/invertebrate/lobster.asp
To follow the FMP process and to view the stock assessment, go to the Department's lobster fishery management plan website:
www.dfg.ca.gov/marine/lobsterfmp/

Dungeness crab

Dungeness crab is primarily fished from Morro Bay to Crescent City with the majority of the catch occurring in the northern California management area, the region north of the Sonoma/Mendocino county line. However, this past season of 2010-11 was not only a record breaking season for total landings statewide, 27.5 million pounds, but central California landings totaled 19.0 million pounds, which were more than twice of those in the north, 8.4 million pounds, and three

times higher than the 10-season moving average for the area, of 5.7 million pounds.

- **2010-11 was a record season for the nearly 100 years of documented commercial Dungeness crab landings in California, totaling 27.5 million pounds with an ex-vessel value of \$56.7 million.**

Both the commercial and recreational fishing seasons employ relatively simple management techniques and despite large fluctuations in catches, the resource appears to be sustainable over the long-term, with four of the top five seasons occurring in the past decade. The time-series of commercial landings records dates back to 1916 while the recreational catch record has just been recently established starting with the 2009-10 season as part of the California Recreational Fisheries Survey program.

Historically, rough estimates put the sport catch at about one percent of commercial catch. An estimated 301,182 crabs were landed by all modes of the recreational fishery during the 2010-11 season, equating to about 451,773 pounds or about 1.6 percent of the combined commercial and sport catch.

Despite the fluctuating catches, ex-vessel value during the past 10 seasons has averaged \$30.4 million - maintaining Dungeness crab as one of the most valuable fisheries in California. While the 2010-11 catch was worth \$56.7 million the average ex-vessel price per pound was only \$2.06, well down from the high of \$2.75 paid to fishermen during the 2007-08 season when the crab resource was scarcer.

For the current season of 2011-12, crab industry estimates place crab landings for the first two months in the San Francisco-Bodega Bay region at about six-to-seven million pounds. Although this is not nearly as high as what was landed in the same time period during last year's record breaking season, it could prove to be another better than average season for central California crab fisherman. The northern California region was delayed a full six weeks this season to allow crab time to 'fatten up' to meet the industry marketing standard, and as a result did not open until January 15. However, the season delay is paying off for fishermen in that they are receiving record season-opening prices for their catches in northern California.

Management

The Dungeness crab fishery is one of the last major commercial fisheries in California managed by the State Legislature rather than the Fish and Game Commission. Management is based on the "3-S principles" – sex, season, and size. Only male crabs over six and one quarter inches wide may be retained in the commercial fishery. The fishery also utilizes open and closed seasons intended to avoid fishing during molting and mating times. The central California season opens November 15 and continues through June 30, whereas the

northern California season opens conditionally December 1 and continues through July 15. The earlier opening in the central area lures many northern boats south and can lead to intense fishing pressure and crowded fishing grounds.

California, Oregon and Washington share many management concerns and coordinate on interstate issues through the Tri-State Dungeness Crab Committee. Commencing with the 1995-96 season the state legislature authorized an industry-funded pre-season crab quality test to ensure crab are ready for harvest on the target opening date. The test is conducted in concert with tests in Washington and Oregon. The states then mutually agree, through the Tri-state Crab Committee, on whether to delay the opening of the season in order to let the crabs accumulate more body meat weight. The recent 2011-12 season in the northern management area, by mutual agreement of fishermen and processors, was the first time the season was delayed as late as January 15: the delay cannot go beyond this date. Central California coast crab, typically molt earlier than northern crab, and the area is not included in the testing procedure or subject to opening delays. In case of a northern season delay, 'fair start' statutes mandate that anyone fishing in the central area must wait 30-days after the delayed northern season opener to fish in those northern waters.

Legislation restricted access to commercial Dungeness crab fishing permits beginning in 1995. A limited entry permit system was then enacted by the legislature with the provision that most permits are transferable. Currently, there are less than 600 permits, with only about 395 active during this past season. However, there is concern among some fishermen that an increase in the use of the latent permits could cause over-fishing and worsen overcrowding on crab fishing grounds.

In 2008, Dungeness crab fishermen began working on a cooperative approach to managing their fishery. Their effort resulted in SB1690 (Wiggins), which added section 8276.4 to the Fish and Game Code and mandated the Ocean Protection Council to facilitate a limited-term Dungeness Crab Task Force (task force) from 2009-2011. The task force objective was to make recommendations on management measures such as trap limits, fleet size reduction and season opening date changes, among others, to the Joint Committee on Fisheries and Aquaculture, the Department, and the Commission by January 2010.

Through the efforts of the task force, new legislation was passed in 2011, SB369 (Evans), which amends section 8276.4 to the Fish and Game Code to re-establish the task force and adds section 8276.5 imposing trap limits on fisherman by the 2013-14 season. This trap tier program will rank fisherman into one of seven tiers based on their total catch from a prescribed, consecutive five-season period. The highest tier is set at a maximum of 500 traps while the lowest tier is set at 175 traps. Fisherman will also be required to purchase a biennial trap limit permit along with Department-issued trap tags for each trap in their tier.

If they fail to do so their commercial permit will no longer be valid, potentially removing those latent permits from the fishery.

The Department is currently working with the Ocean Protection Council to hire a consultant who will facilitate future task force meetings. The first undertaking of the task force will be to review a proposed trap limit program submitted by the Department. The task force, this time around, will generate recommendations based on the need for a permanent task force; the economic impact of the trap program; the cost of the program to the Department, including enforcement costs; relocating the 'fair start' line; refining commercial and sport Dungeness crab management; and the need for statutory changes to accomplish task force objectives. These initial recommendations will then be reported to the Joint Committee on Fisheries and Aquaculture by January 2015.

For more information, go to the Department's Marine Region website:

www.dfg.ca.gov/mrd/dungeness_crab.html

California Halibut

California halibut is an important flatfish species to commercial and recreational fisheries in central and southern California. Halibut are typically targeted over shallow, sandy substrate. Individual fish may grow to five feet in total length and weigh as much as 72 pounds. For the commercial fishery, California Fish and Game Code, Section 8392, establishes a minimum size of 22 inches total length for retention. This simple but effective statute was established in 1979. From 2004 to 2010, total annual commercial landings ranged from a high of 1.01 million pounds in 2004 to a low of 391,666 pounds in 2007 and averaged 672,832 pounds. During this same period, annual ex-vessel value ranged from a high of \$3.14 million in 2004 to a low of \$1.85 million in 2007. The average value of this fishery for this period was \$2.57 million per year.

- **Preliminary 2011 commercial landings (for all gear types) totaled approximately 428,010 pounds with an ex-vessel value of \$2.1 million.**

The top two port complexes, by pounds landed for all gear types combined, were San Francisco (49 percent) and Santa Barbara (31 percent). Hook-and-line and trawl gear are used to take halibut in central and southern California; gill nets are also used in southern California.

From 2004 to 2010, annual estimated recreational California halibut landings ranged from a high of 1.29 million pounds in 2005 to a low of 679,800 pounds in 2007, and averaged 975,857 pounds annually; this exceeded the average annual landings of the commercial fishery during the same period. The 2011 recreational fishery harvest estimate is not available. Similar to the commercial fishery, a recreational fishing regulation established in 1971 requires a minimum size of 22 inches total length for retention. Angler hook-and-line and diver spear are the primary methods used to take halibut recreationally.

- **A new recreational angling record was set in 2011 with the landing of a 67-lb halibut taken from Santa Rosa Island. This fish was aged at 23 years by Department staff using a thin section from an otolith (ear bone).**

The Department, through the use of a private contractor, completed its first-ever statewide stock assessments of California halibut in 2011. Separate assessments were conducted for north and south of Pt Conception. The assessments were peer-reviewed and underwent an internal analysis by Department staff before being made available to the public. The population estimate and status north of Pt. Conception was considered good with a relatively high biomass associated with several recent recruitment events. Favorable environmental conditions appear to be driving northern recruitment events and fishing was not considered to be a significant factor in controlling abundance.

South of Pt. Conception, the halibut population was estimated to be depleted to 14 percent of an unfished level, although the current fishery is considered to be sustainable. The stock was considered depleted at the start of the assessment period (1980) due to historical exploitation. The depletion level in 1980 was estimated to be 16 percent, and poor recruitment during the last decade was cited as the primary reason for the continuing trend of relatively low abundance. In 2011, Department staff also made a presentation to the Commission's Marine Resources Committee (MRC) regarding both assessment results. During the presentation, it was noted that the southern California Marine Protected Areas, including many which were subsequently implemented on January 1, 2012, now account for approximately 14 percent of soft bottom habitat within the depth range of halibut in southern California. The MRC agreed that this additional habitat protection was sufficient, along with existing fishery regulations, to provide a sustainable halibut fishery and an opportunity for recovery when conditions become favorable for recruitment. As a result, for the time being, the Department will not be proposing any regulatory changes. The stock assessment peer review group recommended another assessment in five years.

The Department continues to collect information on halibut age and length composition from sampling the commercial and recreational fisheries, and uses additional data collected by the California Recreational Fisheries Survey. From 2008 to 2011 more than 700 halibut have been aged by Department staff using otolith thin sections.

For more information on California halibut, go to the State Finfish Management Project website:

www.dfg.ca.gov/marine/sfmp/halibut-assessment.asp

Groundfish

Approximately 92 species of bottom-dwelling marine fishes are included in the federal Groundfish Fisheries Management Plan (GFMP) implemented by the Pacific Fishery Management Council (Council) in 1982. Since then, these species have been managed under the joint jurisdiction of the state and federal government. Species and species groups managed under the GFMP include all rockfishes (about 60 species), sablefish, thornyheads, lingcod, Dover sole and selected other flatfishes (not including California halibut), Pacific whiting, and some sharks and skates. Overfished federal groundfish species including bocaccio, canary, cowcod and yelloweye rockfishes are protected with very low catch limits (bycatch only) while stocks rebuild. Low bycatch limits also constrain recreational and commercial fishing opportunities for healthy fish stocks found in association with the overfished species. Seventeen species included in the GFMP are also included in California's Nearshore Fishery Management Plan (NFMP, see the Nearshore Finfish section of this report for more information).

The commercial fishery is generally regulated by a combination of allowable fishing depths, trip limits, permit and gear restrictions, and season adjustments to prevent landings from exceeding catch limits. The recreational fishery is regulated using daily bag limits, seasons, area closures, size limits, gear, and depth restrictions.

- **Preliminary 2011 commercial groundfish landings for all gears in California totaled 14.8 million pounds with an ex-vessel value of approximately \$22.6 million.**
- **Preliminary 2011 recreational catch in California totaled 3.3 million pounds¹.**

Depth-based Rockfish Conservation Areas (RCAs) implemented in 2003 continue to be used to protect rebuilding, overfished species by closing their primary depth range to groundfish fishing. The RCA closures are expected to remain in place until overfished stocks are rebuilt or a better management approach is adopted. The RCA depth boundaries have been modified to accommodate healthy fisheries as much as possible and change throughout the year to increase or restrict access as needed. However, fishing on healthy stocks remains constrained.

New Trawl Individual Quota Program Begins

The West Coast Trawl Individual Quota (TIQ) program for federal groundfish began in January 2011; it was developed over several years with input from state and federal governments, non-governmental organizations and fishing communities and individuals. TIQ programs exist in Alaska and on the East Coast, but are often only for a single species; the West coast TIQ program encompasses 21 species and three species complexes which greatly increases the complexity of the program as a whole. Holders of Limited Entry (LE) trawl

¹ data includes nearshore finfish landings and does not include December 2011

permits were allocated quota shares and corresponding quota pounds for target groundfish species and species complexes based upon past fishery participation. Quota pounds are assigned to a vessel, and may be leased to individuals/entities for use. Quota shares are not currently eligible for sale or transfer.

Overall in 2011, fewer LE trawl permits were active, and landings decreased by almost half (9,245,950 pounds) compared to 2010 (16,323,905 pounds); however, the value of landings in 2011 (\$7,872,922) did not decrease despite the lower amount of fish landed. The holders of whiting quota shares made a business decision to not fish for whiting in California during 2011, instead choosing to lease their quota shares for whiting in exchange for quota shares for higher-value sablefish. This leasing of quota shares accounts for most of the decrease seen in landings during 2011 and the lack of a decrease in value (because landings of higher value sablefish increased.) This behavior may or may not continue into the future. The fishery may change further (i.e., consolidation of the fleet) once quota shares are allowed to be sold beginning in 2013.

The LE trawl fishery is still adjusting to the TIQ program, and without several year's worth of landings data, it is difficult to tell what the full impact will be to the fishery. Data from 2011 may be anomalous due to fishery participants' adjustment to the program, as well as the domestic and international effects from the March 2011 tsunami, such as increased international demand for US caught fish since portions of Japan's fishing fleet were incapacitated after the tsunami.

For more information on groundfish, go to the Department's Marine Region website:

www.dfg.ca.gov/marine/groundfishcentral/index.asp

Nearshore Finfish

The vast majority of the nearshore commercial fishery is for live fish, which evolved from the demand for high quality, fresh fish in Asian restaurants and markets in southern California. What started out as an alternative fishery quickly expanded into a multimillion dollar industry by the early 1990s. The statewide expansion of the fishery was the impetus for the development of a Nearshore Fishery Management Plan (NFMP) and conservation measures such as a commercial restricted access program. In 2011, the nearshore live-fish component of the fishery accounted for 85 percent of all nearshore species landed.

Nineteen nearshore species are managed under California's NFMP implemented in 2002; most are also jointly managed according to the federal Pacific Fishery Management Council's Groundfish Fishery Management Plan (GFMP). The rockfish species identified in the NFMP are black, black-and-yellow, blue, brown, calico, China, copper, gopher, grass, kelp, olive, and quillback rockfishes and

treefish². The other species in the NFMP include cabezon, California scorpionfish, kelp and rock greenlings, California sheephead, and monkeyface prickleback—the latter two are exclusively state-managed.

In 2011, 407,073 pounds of nearshore permitted species were landed statewide generating an ex-vessel value of \$2 million. This relatively high ex-vessel value is due to the contribution of the lucrative live-fish component of the fishery and high price (up to \$12.00 per pound) for species such as grass and gopher rockfishes. By comparison, the statewide recreational catch for nearshore species was estimated at 1.6 million pounds of nearshore species in 2011 (based on data through November).

NFMP species have been managed conservatively since 2002 due to the lack of information on their stock status. Harvest limits were low and established on the basis of historic landings information, unless a full assessment was completed. To date, cabezon, California scorpionfish, California sheephead, kelp greenling, black, blue and gopher rockfishes have been assessed; results from all of these assessments except kelp greenling and California sheephead have been accepted for use in management.

Recently, the Department re-evaluated the state's harvest policy for kelp greenling and cabezon to conform to federal actions that increased federal harvest limits for both species. Increases in federal limits were based on a new stock assessment (cabezon) and better methods to establish harvest limits for data-limited species (kelp greenling). Beginning in 2011, the commercial cabezon trip limits were increased statewide providing more fishing opportunity. In late 2011, the Department formally noticed a regulatory change with the Commission to increase the kelp greenling commercial trip limits and recreational bag limit for implementation in 2013.

The commercial nearshore fishery is generally regulated by a combination of management measures crafted to prevent landings from exceeding specified catch limits. These measures include: allowable fishing depths, cumulative two-month trip limits, size restrictions for certain species, permit and gear restrictions, and season adjustments. Trip limits are set very conservatively to minimize encounters with “overfished” groundfish species—and as a result, historically, healthy species have been under-harvested. Federally designated “overfished” groundfish species are protected with very low catch limits (bycatch only) during their rebuilding—they include bocaccio, canary, cowcod and yelloweye rockfishes (see Groundfish Management section).

Nearshore Restricted Access Fishery

Nearshore Fishery Permit

² these species are also referred to as the “minor nearshore rockfishes” in the GFMP

In 2003, the Commission adopted a regional restricted access program for the commercial fishery that affected the landings of ten NFMP species referred to as the shallow nearshore group. The group consists of: black-and-yellow, China, gopher, grass, and kelp rockfishes, kelp and rock greenling, California scorpionfish, California sheephead, and cabezon. Permit holders are only allowed to land these nearshore species in the region for which the permit is issued—when fishing is permitted. A total statewide capacity goal of 61 permits was set to assure fishery sustainability. When the program began in 2003, a total of 224 Nearshore Fishery Permits was issued. By comparison, in 2011, that number decreased to 164 permits. The number of actively³ fished permits was 108 in 2011. Permits are transferable; new entrants to the fishery must purchase two permits from the same region and retire one to begin fishing.

Deeper Nearshore Fishery Permit

Also in 2003, a separate permit system was created with non-transferable permits that allowed the catching and landing of eight deeper nearshore species of rockfishes on a statewide—not regional—basis. This permit also capped the level of participation. These species include: black, blue, brown, calico, copper, olive, quillback, and treefish rockfishes. When the program began in 2003, a total of 292 permits were issued. By comparison, in 2011, that number decreased to 199 permits— of which, only 63 could be considered “active”.

For more information, go to the Department’s Marine Region website:

www.dfg.ca.gov/marine/groundfishcentral/index.asp

Market Squid

It was another stellar year for market squid catches in 2011. The market squid fishery was once again the largest in California, both in terms of volume and value.

- **Statewide, over 255 million pounds of market squid were landed in the calendar year, with an ex-vessel value of \$61.6 million. In 2010, the fishery landed over 267 million pounds during the calendar year, and was valued at \$70 million.**

The California market squid fishery began in the mid-1800s and has grown in the last fifteen years to become one of the state’s premier commercial fisheries. The squid regulatory season runs from April 1 through March 31 of the following year. For the second season in a row, the commercial fishery was closed mid-season. In 2010 the seasonal catch limit of 107,048 metric tons (236 million pounds) was reached by December 17, and in 2011 the same seasonal catch limit was reached by November 18.

³ based on the number of permittees whose annual landings of permit species exceeded 100 pounds

Traditionally, market squid are targeted at the end of their life span on spawning grounds adjacent to Monterey, the northern and southern Channel Islands, and the mainland coast south of Point Conception. In the Monterey area, the fishery is most active during the summer months; whereas in southern California, the majority of market squid landings take place during winter months.

The presence of market squid is strongly correlated with environmental factors, such as water temperature and nutrient availability. In warm water years and during El Niño conditions, squid become scarce and landings decline. However, when water temperatures cool, even after severe warm water events, market squid numbers can rebound quickly and dramatically.

Market squid is a state managed fishery and a federally monitored species. In December 2004, the Commission adopted the Market Squid Fishery Management Plan (MSFMP), which implemented a series of management measures including a seasonal catch limitation, weekend closures, large-scale gear closure areas, light wattage and shielding requirements. A restricted access program, which limits the number of fishing vessels, was also implemented under the MSFMP. Large-scale Marine Protected Areas (MPAs) implemented under the Marine Life Protection Act as well as the Channel Islands MPAs provide additional areas where uninterrupted spawning can occur.

For more information on market squid, go to the Department's Marine Region Coastal Pelagic Species/Highly Migratory Species website:

<http://www.dfg.ca.gov/marine/cpshms/>

Pacific Herring

California's Pacific herring sac-rope commercial fisheries are limited to the four largest spawning locations: San Francisco Bay, Tomales Bay, Humboldt Bay, and Crescent City Harbor. San Francisco Bay has the largest herring spawning stock south of British Columbia and historically produces more than 90 percent of California's herring catch. The vast majority of herring landed along the west coast of North America is exported to Japanese markets. Annual catch quotas are based on spawning biomass estimates, age structure analysis, and up-to-date oceanographic information.

- **The San Francisco Bay herring stock reached an historic population low of 4,833 tons during the 2008-09 spawning season. The population rebounded during the 2009-10 season to 38,409 tons, and increased again in the 2010-11 season to 57,082 tons, well above the historical average (1978-79 season to present) of 49,327 tons. Based on 2010-11 season age estimates, the increase in spawning biomass was due primarily to strong recruitment of three-year old herring to the spawning population.**

Approximately 94 percent of the San Francisco Bay gill net quota (1,727 tons) was landed by the combined platoons during the 2010-11 commercial herring season with a preliminary ex-vessel value of approximately \$886,000. The average "roe count" for the 2010-11 season was just over 17 percent, which is a record high for the San Francisco Bay fishery. A typical "roe count" for the San Francisco fishery is 13 to 14 percent. The ex-vessel price paid is typically based on 10 percent yield, and is adjusted for percentage points above or below. However, for the 2011-12 season a yield of 12 percent or higher is considered the minimum acceptable by the herring sac-roë buyers. The preliminary ex-vessel price for herring sac-roë in 2010-11 was \$513 per ton; far below the 15-year average of \$840 per ton. Japan is the primary buyer of herring sac-roë and the decline in value can be traced back to changing demographics. This important change has moved herring sac-roë from a traditional holiday gift to an everyday consumer product. Increased competition from Russia, Canada, Alaska and Europe has also contributed to a lower ex-vessel price for California herring sac-roë. There is however a growing interest by Chinese markets which could raise demand and prices in the future. In addition, there is an increasing demand for local and sustainable fresh fish. An emerging fresh fish fishery for herring could reshape the future of the sac-roë fishery in favor of fresh fish.

The Commission voted to keep the 2010-11 quota of 1,920 tons for the 2011-12 San Francisco Bay herring season. Preliminary data from the 2011-12 season indicate Pacific herring returning to the bay in good numbers and the outlook appears favorable for herring permittees to reach their landing quotas. The Department continues to be concerned about the status of the herring population. Of particular concern is the lack of older age classes of Pacific herring; fish greater than age four. However, the low harvest rate provides a sustainable fishery for continued stock rebuilding and supports herring's important role in both ocean and bay ecosystems.

For more information, go to the Department's Marine Region website:

www.dfg.ca.gov/marine/herring/index.asp

Abalone

Seven species of abalone are found in California: red, white, black, green, pink, pinto, and flat. Currently, only red abalone can be taken in a recreational free-diving fishery north of San Francisco Bay, primarily in Sonoma and Mendocino Counties. Commercial abalone fishing was never a significant fishery north of San Francisco and has been banned since 1949. The commercial and recreational abalone fisheries south of San Francisco Bay were closed by the Legislature in 1997 due to a decline in the populations. Recovery of abalone populations in the closed areas has been slow, and except for San Miguel Island (SMI), no areas south of San Francisco Bay are being considered for the reopening of an abalone fishery.

The Abalone Recovery and Management Plan (ARMP) was written by the Department and approved by the Commission in December 2005. The ARMP outlines restoration strategies for depleted abalone stocks in central and southern California. It also describes the management approach to be used for northern California red abalone.

Northern California Red Abalone

In 2011 over 31,000 people spent more than \$20 to purchase abalone cards to participate in the recreational red abalone fishery. This fishery is now only allowed north of San Francisco. Abalone card sales have fallen the past two years, possibly because of poor economic conditions and the implementation in 2011 of the Automated License Data System (ALDS) which enters license sales into a computerized database and only allows the purchase of one abalone card per year per person. Funds collected for abalone cards are deposited in a dedicated account which greatly enhances the Department's abalone fishery management and enforcement work.

- **Based on returned abalone cards and data from past telephone surveys, the total estimated abalone catch for 2010 was 234,000. Annual catch estimates from 2002 to 2010 range from 234,000 in 2010 to 309,000 in 2007 with an overall average of 264,000 abalone.**

The primary method of evaluating the status of northern California red abalone populations is the average density determined at eight index sites by SCUBA surveys over a three year period. Density is important in maintaining abalone populations because abalone release either eggs or sperm into the water and need to be close together for the eggs to be fertilized. The average density for surveys from 2008 through 2010 was 0.54 abalone/m² and was close to the 0.50 abalone/m² level in the ARMP which triggers a catch reduction of 25 percent.

- **During late August and early September 2011 a large Harmful Algal Bloom (HAB) appears to have caused a massive invertebrate die-off that affected red abalone, sea urchins, sea stars, crabs, and chitons from Bodega Bay to Anchor Bay in southern Mendocino County. Based on public reports, the main area impacted was the heart of the Sonoma County recreational red abalone fishery located from Fort Ross State Park to Salt Point State Park.**

The current theory for the cause of the die-off is a toxic poisoning event from the phytoplankton species (*Gonyaulax spinifera*) that was most abundant during the HAB. Department divers conducted surveys following the event at the Sonoma County abalone fishery index sites and recorded abalone mortality estimates ranging from 19 percent – 34 percent. Based on this information, the Commission approved an emergency fishery closure for Sonoma County which went into effect on Oct 4, 2011.

Southern California Red Abalone

The Department has been conducting the San Miguel Island (SMI) fishery consideration process since 2006. The collaborative process has developed a stock assessment for SMI red abalones and four separate fishery management options for the Commission to consider. Currently the process is on hold while further information is forthcoming.

White and Black Abalone

The Department is conducting white abalone restoration studies under a grant from the NOAA Fisheries Protected Species Cooperative Conservation Program (Section 6). The grant (\$1.08M total) is funding the white abalone captive rearing program at UC Davis, Bodega Marine Laboratory, and experimental stocking studies to determine optimal out-planting for abalone species restoration.

Black Abalone was listed as endangered under the federal Endangered Species Act in 2008. The Department collaborates with researchers and NOAA Fisheries on black abalone restoration and recovery monitoring. Department staff is participating in NOAA Fisheries Black Abalone Recovery Team which will develop a federal recovery plan for the species. The slow recovery of black abalone populations continues in southern California.

Pink and Green Abalone

The recovery of pink and green abalone species continues at a slightly faster pace than the two listed species. Abalone populations at the southern Channel Islands and along the mainland appear to be recovering faster than at the northern Channel Islands with more incidences of recreational divers encountering abalone. Although there are signs of improvement, the populations are significantly below the historical observations prior to population declines.

The Department concluded its feasibility study of aggregating pink and green abalone to enhance and restore populations at the southern islands in 2011. The project started in 2009 and was funded by NOAA Fisheries Service and in collaboration with the Long Beach Aquarium of the Pacific. The purpose of the study was to monitor aggregated abalone in small, defined areas to determine their survival, movement, and persistence over time. Preliminary results show that pink abalone persisted in aggregated areas longer than green abalone. Given this result, and the high survival rate after the translocation process, pink abalone may be a strong candidate species for translocation and aggregation processes for long-term recovery on a larger scale.

For more information, go to the Department's Marine Region website:
<http://www.dfg.ca.gov/marine/abalone.asp>

Ocean Management and Data Program

California Recreational Fisheries Survey

The California Recreational Fisheries Survey (CRFS) began in January 2004 in order to provide timely and accurate recreational angling catch and effort (number of fishing trips) estimates to manage California's marine recreational finfish fisheries on a sustainable basis. CRFS is a joint effort between the Department and the Pacific States Marine Fisheries Commission (PSMFC) with funding from state and federal sources. From 2004 through 2010, PSMFC staff collected the recreational fishing data for most of the saltwater species while Department staff collected salmon fishing data. Commencing January 2011, Department staff collect all the field data for recreational saltwater species. Currently, the CRFS program is in the process of transitioning data management from PSMFC to the Department as well. Beginning in January 2012, the Department will begin managing and making catch and effort estimates for the primary launch ramp and CPFV (commercial passenger fishing vessel) modes.

CRFS conducts research to obtain essential fishery information for all marine finfish fisheries managed by the state as required by the Marine Life Management Act. CRFS samplers interview anglers at fishing sites to gather marine recreational fishery data on fishing catch and effort. A telephone survey of licensed anglers provides the information needed to generate monthly estimates of total catch and effort by species for six geographic districts along California's coast. Data collected includes where and when anglers caught fish and whether they kept or released the fish. State and federal fishery managers use the data to track catch and make in-season responses if catches are projected to be higher or lower than expected before the end of the fishery year. Managers examine catch rates, average fish lengths and weights and other fishery information collected by CRFS to monitor changes in the fisheries. Managers also use the data to help determine if catch or season limits need to be changed.

The field sampling is conducted during daylight hours at publicly-accessible sites. Samplers intercept anglers upon the completion of fishing activity at beaches, piers, jetties, onboard commercial passenger fishing vessels, and at public launch ramps. Samplers conduct a voluntary interview with intercepted anglers about fishing activities and catch, and obtain biological catch information. Samplers cannot sample night-time angling effort or effort that occurs from boats that depart from and return to private marinas. The telephone survey of licensed anglers obtains the fishing effort information for the night-time and private marina boat fishing. Prior to 2011, a contractor conducted a telephone survey of commercial passenger fishing vessels to obtain effort information. In 2011, the Department obtained effort information from fishing activity records those vessels are required to provide. The field sampling, angler telephone survey, commercial passenger fishing vessel information, and sport fishing license sales information are combined to estimate total recreational fishing effort and catch.

- **In 2011, approximately 55 samplers gathered recreational fishing effort and catch data statewide. The CRFS samplers interviewed almost 46,000 anglers at more than 400 sites, and examined more than 174,000 fish. The licensed angler telephone survey completed 26,000 interviews in 2011.**
- **Anglers took an estimated four million trips to fish for marine fish in California in 2011.**

Forty-nine percent of those trips were taken by anglers fishing in San Diego, Orange, and Los Angeles counties, twenty percent by anglers in the San Francisco Bay area, and fourteen percent by anglers in Central California. Anglers in northern California took the fewest number of estimated trips.

The most commonly caught fish in San Diego, Orange, and Los Angeles counties included Pacific mackerel, Pacific sanddab, Pacific sardine, barred sandbass, and California scorpionfish.

For more information on the CRFS program, please visit the Department's Marine Region website: <http://www.dfg.ca.gov/marine/crfs.asp>

Marine Life Protection Act Process

The Marine Life Protection Act (MLPA), passed in 1999, directs the state to reevaluate and redesign California's system of marine protected areas (MPAs) to increase its connectivity and effectiveness. The MLPA contains specific goals for MPAs including, but not limited to, protecting ecosystems and representative habitats, helping sustain marine populations, improving the existing array of MPAs, and ensuring that the new system functions, to the extent possible, as a network. Under the MLPA, the Department is required to develop a master plan framework (master plan) to guide California's MPA development and management, including site recommendations, implementation and phasing, funding, monitoring, and enforcement.

California took a regional approach to redesigning its MPAs through the MLPA Initiative (Initiative), a public-private partnership which began in August 2004 to implement the MLPA. For planning purposes, the Initiative divided state waters into five distinct regions (four coastal and the San Francisco Bay), each of which had its own MPA planning process.

Different classifications used in California's MPA network include three MPA designations, a marine recreational management area, and special closures:

- **State Marine Reserve (SMR): Prohibits all take and consumptive use (commercial and recreational, living or geologic). Scientific research, and non-consumptive uses are allowed.**

- **State Marine Park (SMP):** Prohibits commercial take but may allow select recreational harvest to continue. Scientific research and non-consumptive uses are allowed.
- **State Marine Conservation Area (SMCA):** May allow select recreational and commercial harvest to continue. Scientific research and non-consumptive uses are allowed.
- **State Marine Recreational Management Area (SMRMA):** Provides subtidal protection equivalent to an MPA while allowing legal waterfowl hunting. Scientific research and non-consumptive uses are allowed.
- **Special Closure:** Geographically specific area that prohibits human entry. Special closures are generally smaller in size than MPAs and are designed to protect breeding seabird and marine mammal populations from human disturbance.

As of early 2012, planning has been completed for four of five MPA planning regions, with regulations adopted and implemented for three of the regions. The Department continues to face complex challenges following MPA implementation, such as conducting scientific monitoring and sequential assessment to inform MPA efficacy, ensuring adequate enforcement, engaging in public outreach, and managing scientific collecting permits within MPAs. Utilizing existing public-private partnerships and developing new partnerships remains a key to successful long-term management. Other partnerships have been established or are being developed to inform and enhance public awareness as management challenges in conducting effective public outreach, education, and enforcement are identified. Such partnerships include federal and state agencies such as the National Marine Sanctuaries, the California Department of Parks and Recreation, academic and non-government organizations such as the Resources Legacy Fund Foundation, Monterey Bay Sanctuary Foundation, Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), and Reef Check.

In partnership with the Monitoring Enterprise, MPA monitoring efforts are currently underway in all regions with MPAs implemented pursuant to the MLPA process. The Ocean Protection Council has provided \$4.0 million per region to help support initial baseline data collection which will be used to help inform MPA efficacy, long term data needs, and management measures.

Summary statistics for MPAs in each of the four completed regional MPA planning processes are provided below (Figure 1, Tables 1-5). All reported values are current as of February, 2012.

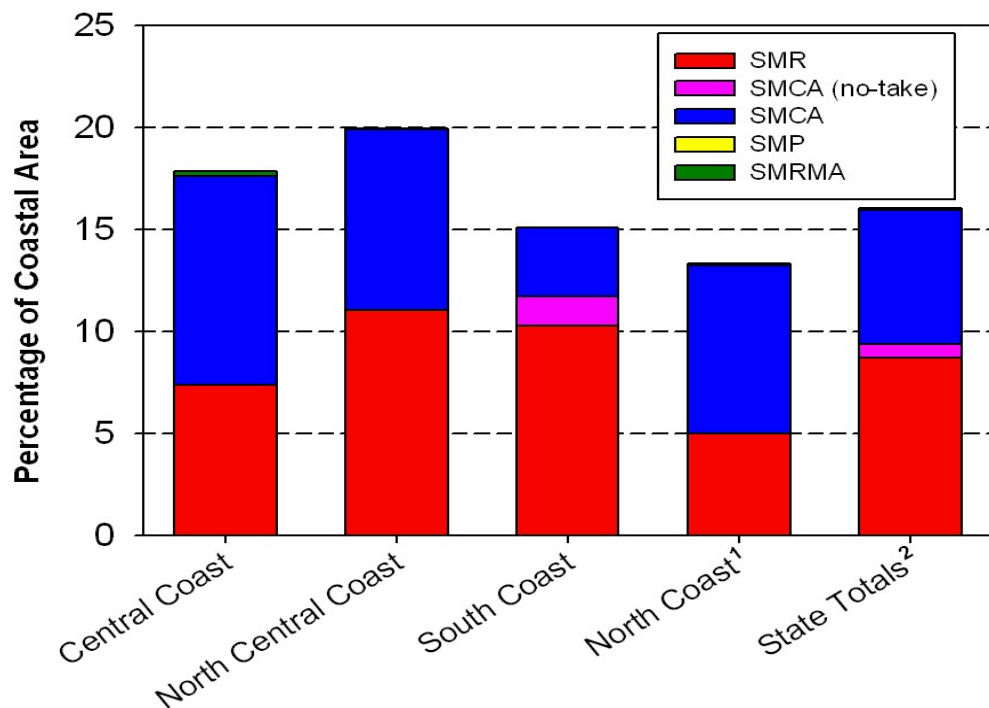


Figure 1. Percentage of each of the four California coastal regions and statewide total in marine protected areas^{4, 5}

Statewide Totals: California encompasses a total of approximately 5,285 sq mi of coastal state waters (excluding state waters in San Francisco Bay which represent approximately 473 sq mi). The statewide coastal network of MPAs includes 119 MPAs, five SMRMAs, and 16 special closures covering approximately 851 sq mi of state waters and representing approximately 16 percent of all coastal state waters (approximately nine percent is in SMRs) (Table 1). Reported values include MPAs in the north coast preferred alternative, and may be subject to change depending on the final north coast MPAs that are adopted.

Table 1. Summary statistics for marine protected areas within the entire statewide coastal network.

Type of MPA	Count	Area (sq mi) of MPAs in All Coastal State Waters ⁶	Percent of All Coastal State Waters ³
SMR	48	461	9%

⁴ Based on MPAs in the north coast proposed regulation, and may be subject to change depending on the final north coast MPAs that are adopted.

⁵ State totals include all MPAs effective in the central coast and north central coast regions, south coast regions, MPAs in the north coast proposed regulation, and do not include existing MPAs in the San Francisco Bay or special closures. Special closures were integrated into the MPA designation process and were used to provide further protections that would not otherwise be afforded by MPA designation within the same geographical location.

⁶ Excluding state waters in San Francisco Bay.

SMCA (no-take)	10	33	<1%
SMCA	61	350	7%
SMP	0	0	0%
SMRMA	5	4	<1%
Special Closures	16	3	<1%
Total²	124	851	16%

Central Coast Region: This region encompasses approximately 1,144 sq mi of state waters from Pigeon Point (San Mateo County) south to Point Conception (Santa Barbara County). A network of 28 MPAs and 1 SMRMA covering approximately 204 sq mi of state waters or about 18 percent of the central coast region has been in place since September 2007 (Table 2).

Table 2. Summary statistics for marine protected areas within state waters in the central coast region (implemented in 2007).

Type of MPA	Count	Area (sq mi) of MPAs in Central Coast State Waters	Percent of Central Coast State Waters
SMR	13	84	7%
SMCA	15	117	10%
SMP	0	0	0%
SMRMA	1	3	<1%
Total	29	204	18%

North Central Coast Region: This region covers approximately 763 sq mi of state waters from Alder Creek near Point Arena (Mendocino County) south to Pigeon Point (San Mateo County). A network of 22 MPAs, three SMRMAs and seven special closures covering approximately 154 sq mi of state waters or about 20 percent of the north central coast region has been in effect since May 2010 (Table 3).

Table 3. Summary statistics for marine protected areas within state waters in the north central coast region (implemented in 2010).

Type of MPA	Count	Area (sq mi) of MPAs in Central Coast State Waters	Percent of Central Coast State Waters
SMR	10	84	11%
SMCA	12	68	9%
SMP	0	0	0%
SMRMA	3	1	<1%
Special Closures	7	1	<1%

Total⁷	25	154	20%
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South Coast Region: This region encompasses approximately 2,351 sq mi of state waters from Point Conception (Santa Barbara County) south to the California/Mexico border, including state waters around the Channel Islands. A network of 50 MPAs and two special closures (including those previously established at the northern Channel Islands) covering approximately 356 sq mi of state waters or about 15 percent of the south coast region has been in effect since January 2012 (Table 4).

Table 4. Summary statistics for marine protected areas within state waters in the south coast region (adopted in 2010).

Type of MPA	Count	Area (sq mi) of MPAs in South Coast State Waters	Percent of South Coast State Waters
SMR	19	241	10%
SMCA (no-take)	10	33	1%
SMCA	21	80	3%
SMP	0	0	0%
SMRMA	0	0	0%
Special Closures	2	2	<1%
Total⁸	50	356	15 %

North Coast Region: This region covers approximately 1,027 sq mi of state waters from the California/Oregon border south to Alder Creek near Point Arena (Mendocino County). The public planning process in this region occurred between July 2009 and February 2011. The Commission directed the Department to develop a regulatory package for the proposed regulation on June 29, 2011, with an expected adoption in summer 2012. The proposed regulation includes 19 MPAs, one SMRMA and seven proposed special closures covering approximately 137 sq mi of state waters or about 13 percent of the north coast region (Table 5). These reported values are pending final adoption of north coast MPAs by the Commission.

Table 5. Summary statistics for marine protected areas within state waters in the north coast region, pending final adoption.

Type of MPA	Count	Area (sq mi) of MPAs in North Coast State Waters	Percent of North Coast State Waters
SMR	6	51	5%

⁷ Totals do not include special closures.

⁸ Totals include the 13 northern Channel Islands MPAs (effective since 2003), and do not include special closures.

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SMCA	13	85	8%
SMP	0	0	0%
SMRMA	1	1	<1%
Special Closures	7	<1	<1%
Total⁴	20	137	13%

For more information, go to the Department's MLPA website:

www.dfg.ca.gov/mlpa.