2011 CALIFORNIA LEGISLATIVE FISHERIES FORUM

Department of Fish and Game Annual Marine Fisheries Report

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FISHERIES FORUM
Department of Fish and Game
Marine Fisheries Report

Executive Summary

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. Management policy for living marine resources is guided by the Marine Life Management Act (MLMA) and focuses on sustainable use, conservation (including habitat protection), rebuilding depressed stocks, preventing overfishing, and establishing a scientific foundation for management decisions. Fishery management plans (FMPs) are a primary mechanism for implementing these policies, and seven FMPs have been adopted by the federal and state governments, which in combination encompass well over 100 different species. However, numerous other fisheries are managed without an FMP, and in those cases the same standards of sustainability, conservation, and science-based information are applied by regulatory authorities. The result is that the great majority of California's marine fisheries are not overfished, and for those few that have been found to be depleted, recovery is the overriding management objective.

Fishing regulations are periodically evaluated by the Department to verify their effectiveness, and they are tailored to work under the particular conditions for each fishery. 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. Typical regulatory restrictions are size limits, season closures, area restrictions, gear restrictions, limitations on eligibility to obtain permits, and numerous variations on 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.

Notable successes in fishery management during the past 12 months include San Francisco Bay herring and market squid. During the previous season, the herring fishery was closed by the Commission due to low abundance. Following the closure, the fishery benefited from a precautionary 2010/2011 quota based on an increased spawning biomass, resulting in high catch rates and good roe yields. High squid abundance during 2010 resulted in record landings, and the

fishery reached its quota limit for the first time since the FMP was adopted. There is also reason for guarded optimism for Chinook salmon, which recently met their Sacramento River escapement goal for the first time since 2006. Other important fisheries where management appears to be effective include nearshore finfish, Dungeness crab, and spiny lobster, all of which show evidence of sustainability under present management.

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

For the great majority of actively managed fisheries, the goal of sustainability appears to be met. In cases where stocks are known to be depressed; regulations are in place to provide the opportunity for rebuilding, dependent upon environmental influences and other factors. When new conservation problems arise, the Department responds quickly and makes recommendations based upon a foundation of sound science. The Department continues to seek ways to address management issues such as how to implement the concept of ecosystem-based fishery management, the integration of Marine Protected Areas (MPAs) into fishery management, and the potential for co-management where constituents play a larger role in their fishery.

In addition to fishery research and management, during the past year the Department contributed to two major activities involving ocean resources: 1) the program to collect field data for estimating angler ocean catches was successfully transferred from the Pacific States Marine Fisheries Commission to the Department; and 2) the Department was a major partner in the ongoing process to create a network of MPAs along the coast of California.

Fisheries Reports

Pacific Salmon

The Pacific Fishery Management Council's (Council) Salmon Fishery FMP was developed in 1977 and was the first FMP implemented by that regional fishery management entity. 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). 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, Central Valley spring Chinook, and California coastal Chinook and coho. All of these stocks are listed under both federal and State ESAs. 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 ocean fisheries since 1995.

In 2009, an estimated 40,900 Sacramento River Fall Chinook (SRFC) adults (ages three, four, and five) returned to spawn in the Sacramento River Basin, significantly below the annual conservation objective of 122,000-180,000 adult spawners required by the Council's Salmon FMP. However, a jack (age two fish) return of 9,500 SRFC resulted in an ocean abundance forecast that allowed for limited fisheries in 2010. For the 2010 season, NMFS and the Council recommended season structures that targeted an SRFC conservation objective of 180,000 adult spawners. Additionally Klamath River fall Chinook (KRFC) continue to managed under the FMP's rebuilding plan after failing to meet the conservation objective in 2004, 2005, and 2006.

The commercial salmon fishery was open for a short period in 2010 for the first season since 2007. In 2010, there was an eight-day commercial salmon season from July 1-4 and July 8-11 from the Fort Bragg area to the US/ Mexico Border. The Fort Bragg area also had two quota fisheries: (1) July 15-29 or 18,000 Chinook, and (2) August 1-31 or 9,375 Chinook. The quota was not met in either of these fisheries and they remained open for the entire length of their respective season.

The commercial fleet landed 114 tons of dressed Chinook (15,100 fish) in 2010. Ex-vessel prices for dressed salmon averaged $5.47 per pound and the ex-vessel value of the California commercial fishery was approximately $1.2 million.

The 2010 recreational season had significantly more fishing opportunity than the 10-day fishery in 2009. The 2010 recreational salmon fishery was also constrained by both SRFC and KRFC stocks. Additionally, the NMFS provided guidance that additional fishery restrictions were necessary to protect ESA-listed Sacramento River winter Chinook. Recreational fishing restrictions to protect this stock 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.

In 2010 California recreational Chinook landings and effort (angler-trips) increased significantly from 2009. Recreational anglers landed approximately 14,700 Chinook during 48,800 angler-trips compared to 700 Chinook during 5,400 angler-trips in 2009. While total catch and effort for 2010, were significantly lower than forecasted, catch-per-unit-effort was similar to predicted estimates.

The adopted commercial and recreational season structure for 2010 was constructed to result in an escapement of 180,000 adult SRFC.

- **In fall 2010, an estimated 125,300 SRFC adult (ages three, four, and five) salmon escaped to the Sacramento River Basin to spawn. This is the first time SRFC has met its conservation objective of 122,000-180,000 adult spawners since 2006.**

For more information, including specific fishing opportunities, go to the Department's Marine Region website: www.dfg.ca.gov/marine/oceansalmon.asp

California Spiny Lobster

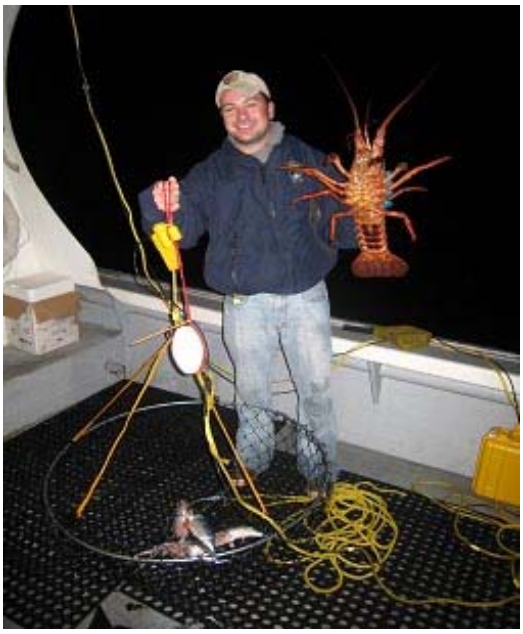
The commercial fishery for California spiny lobster in southern California began in the late 1800s. Commercial fishermen use baited traps that are individually buoyed and deployed along the mainland coast from Pt. Conception to the Mexican border and at all the offshore islands. There is also a large recreational fishery, involving skin and scuba divers, and fishermen using hoop nets.

- **The 2009-10 commercial lobster season landings totaled 753,000 pounds, with an ex-vessel value of $9 million.**

Commercial landings were almost split evenly between ports in San Diego County (30 percent), Los Angeles/Orange counties (34 percent), and Santa Barbara/Ventura counties (36 percent), similar to the previous season. The preliminary landing total for the 2010-11 commercial season which is still underway, is 422,000 pounds. The 10-year average catch for the commercial fishery is 747,500 pounds. Lobster is a high value product, with fishermen usually receiving over $10 a pound.

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. Fluctuations in lobster landings are not unexpected, as the fishery is strongly influenced by El Niño and La Niña events. The 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 done by using fairly simple tools like: the take of male lobsters only, a minimum size limit, seasons, trap mesh sizes and escape ports for 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 200 permits) and a requirement that recreational fishermen record their catch and effort by date, location and gear type. Department projections indicate that the total recreational catch could range from 30 percent



to 60 percent of the commercial catch based on a subsample of returned report cards.

The Department has been working on collaborative lobster research projects with students of Dr. Lenihan at UCSB, Dr. Hovel at SDSU, and Dr. Lowe at CSULB. In a project with Scripps Institution of Oceanography, Department staff helped to count larval lobsters in nearly fifty years of archived water samples collected during California Cooperative Oceanic Fisheries Investigations (CalCOFI) cruises. From these counts an fishery independent index was produced which is not affected by changes in fishing effort or technology and which may be used for determining the trends in lobster population size.

The Department has been developing a spiny lobster stock assessment over the past year. The stock assessment is a key component of a FMP that the Department may eventually undertake. The Department hosted a lobster data and stock assessment needs workshop at UCSB in December 2009 and a half day data workshop in December 2010 to introduce commercial and recreational fishermen to the datasets available for the ongoing stock assessment effort. A report covering preliminary results of the stock assessment is being finalized for review.

For more information on the California spiny lobster, go to the Department's Marine Region website: www.dfg.ca.gov/marine/invertebrate.

Dungeness crab

Northern and central California waters are the source of California's catch of Dungeness crab. 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 some of the highest catches occurring in the past decade. The time-series of commercial landings records dates back to 1916, but the 2009-10 season is the first for which an estimate of the sport catch could be made with the establishment of a coastwide catch sampling program as part of the California Recreational Fisheries Sampling program.

- **Preliminary 2009-10 commercial Dungeness crab landings in California totaled 17.2 million pounds with an ex-vessel value of $34.2 million.**

Historically, rough estimates put the sport catch at about one percent of commercial catch. Preliminary estimates show that approximately 365,000 crabs

were landed in the recreational fishery during the 2009-10 season, equating to about 650,000 pounds or about 3.7 percent of the combined commercial and sport catch.

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 375 active during the past season. However, there is concern among some fishermen that an increase in the use of the latent permits could cause overfishing and worsen overcrowding on crab fishing grounds.

The Dungeness crab catch has followed a cyclical pattern, with peaks and troughs approximately every 7 to 12 years. Landings for 2008-2009 totaled 6.2 million pounds, well below the 10-year moving average of 13.2 million pounds. However, the catch for 2009-10 rebounded to 17.2 million pounds. Landings data for 2010-11 is not available as of this date, but preliminary indications are that the Central California catch may be one of the highest on record.

Despite the fluctuating catches, ex-vessel value during the past 10 seasons has averaged $26.0 million - maintaining Dungeness crab as one of the most valuable fisheries in California. While the 2009-10 catch was worth $34.2 million the average ex-vessel price per pound was only $1.99, down from the high of $2.75 paid to fishermen during the 2007-08 season when the crab was more scarce.

Management

The Dungeness crab fishery is one of the last major state-managed commercial fisheries in California managed by the Legislature rather than the 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. In recent years, the most pressing issue has been the number of traps deployed in both central and northern California. In California, as the only west coast state not to adopt trap limits, there is no limit to the number of traps a boat may fish or the frequency with which they are fished. As the groundfish industry has declined, larger multi-purpose vessels have devoted more effort to Dungeness crab. Economic studies have pointed out a huge over-investment in gear; much more is being used than is actually needed to catch all crabs for the

season. According to a 2003 report based on a fisherman survey, there were at least 172,000 traps being fished in California during the 2001-2002 season. No recent or official estimates have been made. However, if Oregon is any indication, their estimated number of traps soared from 150,000 in 2002 to 200,000 in 2005 before implementation of a trap limit.

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 (DCTF) in 2009. The DCTF 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. Recommendations submitted included establishment of a pilot trap limit program modeled along the lines of Oregon's program, and an extension of the task force sunset date. Legislation to implement some of the provisions recommended by the DCTF failed and the enabling legislation expired on January 1, 2011.

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 can 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 1999 to 2010, total annual commercial landings ranged from a high of 1.31 million pounds in 1999 to a low of 389,300 pounds in 2007 and averaged 814,600 pounds. During this same period, annual ex-vessel value ranged from a high of $3.28 million in 1999 to a low of $1.84 million in 2007. Preliminary 2010 commercial landings (for all gear types) totaled approximately 499,260 pounds with an ex-vessel value of $2.2 million. The top two port complexes, by pounds landed for all gear types combined, were San Francisco (48 percent) and Santa Barbara (33 percent).

From 1999 to 2009, annual recreational California halibut landings ranged from a high of 1.84 million pounds in 2003 to a low of 291,000 pounds in 2007, and averaged 920,000 pounds annually; this exceeded the average annual landings of the commercial fishery during the same period. The 2010 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.

The Department has entered into a contract to conduct the first-ever statewide stock assessment of California halibut. Data compilation began in January 2009. Project staff delivered relevant data sets, historical documents, and other documents related to California halibut to the stock assessment contractor. A draft assessment is currently undergoing internal Department review.

In September 2009, Department biologists concluded an 8-month hooking mortality study of California halibut in San Francisco Bay. The goal of the survey was to investigate the impact, if any, of hook-and-line gear on released sub-legal sized California halibut. Statistical analysis, concluded in 2010, indicates that there is no significant difference between hook types as related to mortality. The report, which includes recommendations for handling and releasing halibut, will be posted to the Department's web site.

For more information on California halibut, go to the Department's Marine Region website at : www.dfg.ca.gov/marine/sfmp/index.asp

Groundfish

Approximately 92 species of bottom-dwelling marine fishes are included in the federal Groundfish FMP 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 FMP 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.

- **Preliminary 2010 commercial groundfish landings for all gears in California totaled 20.9 million pounds with an ex-vessel value of approximately $19.0 million.**

- **Preliminary 2010 recreational catch in California totaled 2.3 million pounds[1].**

Approximately 68 percent of the recreational groundfish catch for 2010 occurred north of Point Conception. Recreational fishing effort, especially north of Point Conception, is often severely constrained by depth restrictions in order to conserve federally designated "overfished" species like canary and yelloweye rockfishes which often occur in deeper water. Yelloweye rockfish is so constraining to the recreational fishery from Point Arena to Cape Mendocino that the fishing season is only three months long.

The California Recreational Fisheries Survey (CRFS), begun in 2004, provides catch and effort estimates for marine recreational finfish fisheries. Since 2009, the Department has been successfully using CRFS weekly sample data and monthly catch estimates to monitor the fishery and prevent emergency closures during the year.

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. Depth-based Rockfish Conservation Areas (RCAs) implemented in 2003 continue to be used to protect species of concern 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. Enforcement of the RCAs has been enhanced by the federal requirement of electronic Vessel Monitoring Systems to be on board all commercial fishing vessels with federal Limited Entry permits and open access vessels that fish in federal waters (farther than three miles from shore).

Additional tools are currently being implemented through the Council process to enhance groundfish fisheries management. The Council finalized the framework necessary to implement the Trawl Rationalization program which will assign individual quotas (IQ) for target species and species complexes to individual trawl permits beginning in 2011. IQ programs exist in Alaska and on the East Coast, but are often only for a single species; the West coast IQ program will encompass many species which greatly increases the complexity of the program as a whole. While it is the most complex Trawl IQ program in the nation, it should move the fleet toward greater accountability for fishing behavior while reducing discards and overall by-catch in the trawl fleet.

For more information, go to the Department's Marine Region website at: www.dfg.ca.gov/marine/groundfishcentral/index.asp

[1] Data includes nearshore finfish landings and does not include December 2010

Nearshore Finfish

Nineteen nearshore species are managed under California's Nearshore Fishery Management Plan (NFMP) implemented in 2002; 17 are also jointly managed according to the federal Pacific Fishery Management Council's (Council) Groundfish Fishery Management Plan. Rockfish species identified in the NFMP include black, blue, brown, calico, China, copper, gopher, grass, olive, quillback, and treefish rockfishes and are referred to as the minor nearshore rockfishes. The other species in the NFMP include cabezon, California scorpionfish, greenlings, California sheephead, and monkeyface prickleback; the latter two are exclusively state-managed.

The commercial fishery is generally regulated by a combination of management measures crafted to prevent landings from exceeding specified catch limits including: allowable fishing depths, cumulative two-month trip limits, size restrictions for certain species, permit and gear restrictions, and season adjustments. 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).

Restricted Access Nearshore Fishery

The nearshore live-fish fishery evolved from the demand for specialty foods 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 expansion of the fishery was the impetus for the development of the NFMP and the restricted access program. In 2010, the nearshore live-fish component of the fishery accounted for 85 percent of all nearshore species landed.

Nearshore Fishery Permit

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 2010, that number decreased to 167 permits. The number of actively fished permits was 123 in 2010, based on the number of permittees whose annual landings of permit species exceeded 100 pounds. New entrants to the fishery must purchase two permits 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 basis. It 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 2010, that number decreased to 207 permits—of which, only 60 could be considered "active".

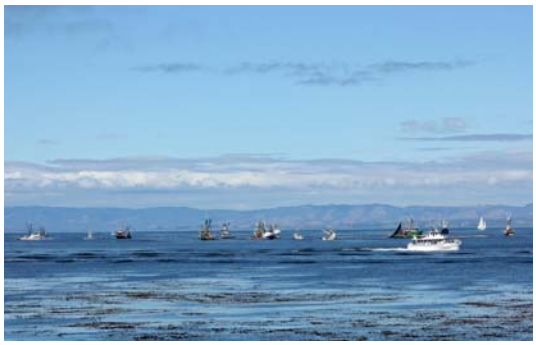
2010 Commercial Nearshore Landings

In 2010, 424,022 pounds (192 metric tons) of nearshore permit 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 per pound. By comparison, the statewide recreational catch was estimated at 1.4 million pounds (626.4 mt) of nearshore species in 2010 (based on data through November).

For more information, go to the Department's Marine Region website: www.dfg.ca.gov/marine/groundfishcentral/index.asp

Market Squid

It was a banner year for market squid in 2010. The market squid fishery was the largest in California, both in terms of volume and value.



- **Statewide, over 267 million pounds of market squid were landed with an ex-vessel value of $66.7 million. In 2009, the fishery landed 200 million pounds and was worth $56.4 million.**

From 1999 to 2008, the market squid fishery averaged $20.7 million in value and 142.7 million pounds in landings. The average price per pound decreased from $0.28 in 2009 to $0.25 in 2010. 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.

Traditionally, market squid are targeted at the end of their life span on spawning grounds adjacent to Monterey, the northern and southern Channels 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. The colder than normal water conditions observed since February provided optimal conditions for squid spawning.

Market squid is a state managed fishery and a federally monitored species. In 2005, the Commission adopted the Market Squid Fishery Management Plan (MSFMP), which implemented a series of fishery control rules 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 permits, was also implemented under the MSFMP.

For more information on market squid, go to the Department's Marine Region Coastal Pelagic Species/Highly Migratory Species website at: www.dfg.ca.gov/marine/cpshms

Pacific Herring

California's Pacific herring sac-roe 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. Annual catch quotas are based on spawning biomass estimates, age structure analysis, and up-to-date oceanographic information.

San Francisco Bay herring sac-roe and herring-eggs-on-kelp fisheries were closed by the Commission for the 2009-10 season due to a record low spawning biomass estimate from the prior season of 4,833 tons. This was the first time a herring roe fishery closure was approved by the Commission since the fishery began in 1973-74. The Department and the Director's Herring Advisory Committee (DHAC), composed of fishing industry representatives, both supported this closure.

The San Francisco Bay herring population rebounded during the 2009-10 spawning season, due to a strong recruitment of the 2-year old herring (2007-08 year class) to the spawning population, as well as improved physical condition of the fish in the population. Although the Department's spawning biomass estimate of 38,409 tons was well above the previous season's record low, it fell below the historical average (1978-1979 season to present) of 50,238 tons. While the increase in biomass is encouraging, the Department remains concerned with the low estimated numbers of age four and older herring in the spawning population. For this reason the Commission adopted the Department and DHAC's recommendation for a conservative harvest rate of 5 percent of the previous season's biomass, which results in a 1,920 ton quota for the 2010-11 San Francisco Bay herring season.

Preliminary data from the 2010-11 season show Pacific herring returning to San Francisco Bay in good numbers and the outlook favorable for the herring permittees to reach their landing quotas. The Department continues to be concerned about the status of the herring population. However, the low harvest rate recommendation provides for a sustainable fishery while supporting continued stock rebuilding, thus promoting herring's important role in both ocean and bay ecosystems.

The Department's Marine Region staff is currently developing a Herring FMP. The goals of this plan include restoring healthy age structure to the population, managing commercial harvest to achieve a sustainable fishery, and to provide forage to other species that utilize herring as a food source.

For more information, go to the Department's Marine Region website at: www.dfg.ca.gov/marine/abmp.

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. 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. Fishing pressure, predation by sea otters in central California, and the withering syndrome (WS) disease contributed to the population decline. 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 and eventually for other recovered abalone stocks. The Commission adopted the ARMP with the selection of an alternative which examines the potential for reopening a fishery on the SMI red abalone stock, depending upon the condition of that particular stock.

<u>Northern California Red Abalone</u>

North of San Francisco, the recreational fishery for red abalone is so popular that 38,581 people spent more than $19 each in 2009 to buy abalone cards. Abalone card sales for 2010 haven't been finalized but will probably be lower by about 3,000 cards. Funds collected for abalone cards are deposited in a dedicated account to help finance the Department's abalone fishery management and enforcement work. A substantial amount of money is collected from abalone card fees but significant amounts of revenue from other sources support this

work on abalone.

Abalone regulations include size limit, open seasons, open hours, bag limit of three per day, abalone cards with tags, and no use of SCUBA or surface supplied air. Only one card may be bought per year and 24 tags attached to the card help enforce the annual limit for abalone. This year the problem of people illegally buying more than one abalone card to exceed the annual limit will be addressed by the Automated License Data System (ALDS) which enters license sales into a database and only allows the purchase of one abalone card per year.

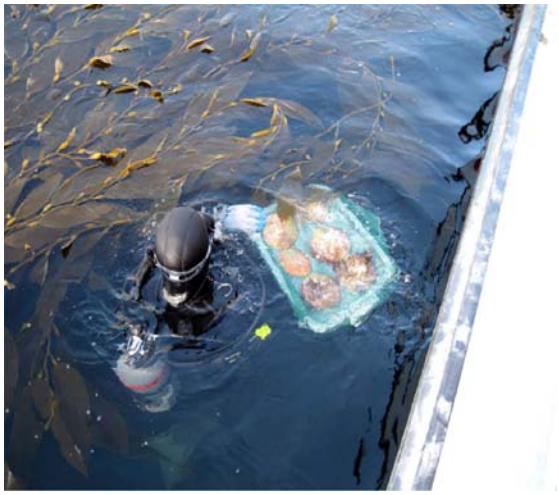
The primary method of evaluating the status of northern California red abalone populations is the average density determined at eight index sites by SCUBA surveys over a three year period. Density is important in maintaining abalone populations because abalone release either eggs or sperm into the water and need to be close together for the eggs to be fertilized. The average density for current surveys from 2008 through 2010 is 0.54 abalone/m^2 and is close to the 0.50 abalone/m^2 level in the ARMP which triggers a catch reduction of 25 percent. Concerns over the decrease in density have prompted the Department and the Commission to consider possible regulation changes for 2012.

Recreational abalone fishermen are required to record their catch on abalone report cards and return the cards to the Department. Based on returned cards and a telephone survey, the total catch for 2009 was estimated to be 295,000 abalone. Annual catch estimates from 2002 to 2009 have ranged from 235,000 to 309,000 with an overall average of 268,000 abalone for that period. The 2008 telephone survey included economic data which was used to estimate nearly $13 million was spent on abalone trips.

Southern California Red Abalone

The Department has been conducting the SMI fishery consideration process since 2006. During this process the Department has sought collaboration by empanelling a constituent group, the Abalone Advisory Group (AAG). The purpose of the AAG is to provide the Commission with a limited range of fully developed alternatives for managing a potential SMI fishery. The process has developed a stock assessment for SMI red abalones using recent survey data from a cooperative assessment survey conducted by the Department and constituents. The stock assessment creates the basis for determining a potential Total Allowable Catch (TAC) as part of the fishery consideration process.

Along with the stock assessment, the process has also developed four separate fishery management options for the Commission to consider. The AAG, with the help of the Department and facilitation team, generated a report to the Commission in 2010 outlining the work to date. Currently the process is on hold and the Commission is waiting for further information before they make a decision on a fishery.



White and Black Abalone

The Department entered into an Endangered Species Act Section 6 agreement with NOAA fisheries in 2009. This agreement allows the Department to compete with other states for Section 6 grant funding for restoration of endangered species under the jurisdiction of NOAA Fisheries (i.e. white and black abalones). That same year the Department submitted a proposal for Section 6 grant funding and was successful in receiving a three year award to conduct white abalone restoration studies. The grant ($1.08M total) will be used to fund the white abalone captive rearing program at UC Davis, Bodega Marine Laboratory, and for Department biologists to conduct experimental stocking studies to determine the optimal technique for out-planting captive reared abalone for restoration.

Recent evidence shows some recruitment and potential recovery of black abalone populations at San Nicolas and Santa Cruz Islands. Current restoration research efforts have been focused on finding some sort of genetic-based resistance to Withering Syndrome, a disease that has devastated once abundant black abalone populations. Additionally research efforts are also focused on successful captive propagation of the species for recovery out-planting.

Pink and Green Abalone

Department exploratory surveys for the southern and northern Channel Islands conducted from 2007-2009 showed continued depleted stocks for pink and green abalone. This was especially true for the northern islands of Santa Cruz and Anacapa islands. However, there are considerably higher densities at the southern islands including Santa Catalina and San Clemente islands. During recent surveys, Department divers have been observing increased populations of green abalone and multiple year classes, which indicate successful recruitment. Although there are signs of improvement, the populations are still way below the historical observations prior to population declines. On the mainland, Department divers and recreational divers have been finding increased numbers of green abalone in San Diego County.

In the spring of 2009, the Department initiated a study at San Clemente and Santa Catalina islands to determine the feasibility of aggregating pink and green abalone to enhance and restore populations in small-scale areas. This project is funded by NOAA Fisheries Service and is in collaboration with the Long Beach Aquarium of the Pacific. The study sites allow for the monitoring of tagged aggregated abalone in a small, defined area to determine their survival, movement, and persistence over time. If the aggregation methods prove to be successful, they could be used on a larger scale.

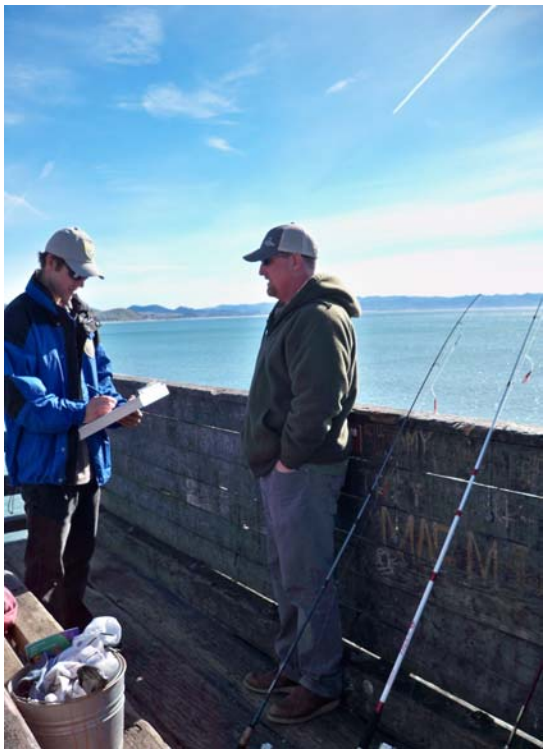
For more information, go to the Department's Marine Region website at: www.dfg.ca.gov/marine/invertebrate.

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. In 2010, the Department and PSMFC worked to transition the collection of field data to the Department. As of January 2011, Department staff collect all the field data for recreational saltwater species.

CRFS conducts research to obtain essential fishery information for all marine 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. In 2010, a contractor conducted a telephone survey of commercial passenger fishing vessels to obtain effort information. In 2011, the Department will obtain 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 2010, 44 samplers gathered recreational fishing effort and catch data statewide. The CRFS samplers interviewed almost 50,000 anglers at more than 400 sites, and examined more than 146,000 fish. The licensed angler telephone survey completed 26,000 interviews in 2010.**

- **Anglers took an estimated 3.1 million trips to fish for marine fish in California in 2010.**

Sixty-three percent of those trips were taken by anglers fishing in San Diego, Orange, and Los Angeles counties, eight percent by anglers in Ventura and Santa Barbara counties, and twenty-nine percent by anglers north of Point Conception to the Oregon border. The most commonly caught fish in San Diego, Orange, and Los Angeles counties included Pacific mackerel, Pacific sardine, Pacific sanddab, barred sandbass, and California scorpionfish.

For more information on the CRFS program, please visit the Department's Marine Region website at: www.dfg.ca.gov/marine/recfishingdata

Marine Life Protection Act (MLPA) Process

The MLPA, passed in 1999, directs the state to reevaluate and redesign California's system of marine protected areas (MPAs) to increase its coherence and effectiveness. The MLPA contains specific goals for MPAs including, but not limited to, ecosystem protection, protecting 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) for MPAs in California to guide MPA development and management, including information guiding specific site recommendations, implementation and phasing, funding, monitoring, enforcement and management.

California has taken 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 in California. Each regional MPA planning process has included the following primary entities:

- Blue Ribbon Task Force (BRTF), appointed by the Secretary of the California Natural Resources Agency, which provides guidance and oversight and ultimately makes recommendations for MPA alternatives and a preferred alternative to the Commission;
- Regional Stakeholder Group (RSG), appointed by the chair of the BRTF and the Director of the Department, with the primary objectives of:
    - developing regional goals and objectives for a network component of MPAs;
    - developing MPA-specific objectives;
    - reviewing existing MPAs relative to goals and objectives; and
    - developing alternative MPA proposals as required by the MLPA;
- MLPA Science Advisory Team (SAT), appointed by the Director of the Department, which provides scientific advice to the BRTF, Regional Stakeholder Group, and Commission in developing alternative MPA proposals;
- Statewide Interests Group (SIG) is composed of members from key interest groups from around the state with a willingness and capacity to communicate with as broad a constituency as possible. The SIG provides a forum for enhanced communication between the BRTF and stakeholders regarding implementation of the MLPA Initiative;
- Department staff, who provide biological and fisheries management expertise, scientific input, policy advice, review alternative MPA proposals for enforcement feasibility and function, engage in public outreach, manage scientific collecting permits, coordinate the California Environmental Quality Act and regulatory processes, conduct scientific monitoring and sequential assessment and review of MPA efficacy, and other informational and staffing needs; and
- MLPA Initiative staff and contractors, who provide professional facilitation at meetings, a geographical information system data base for informational needs and mapping, contracted research, review of all documents, and other critical process needs.

Regional Planning Update

Four of five MLPA planning regions have been completed as of early 2011, with regulations adopted for three out of four. The Department faces 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 (State Parks), 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.

For more information, go to the Department's MLPA website at: www.dfg.ca.gov/mlpa.