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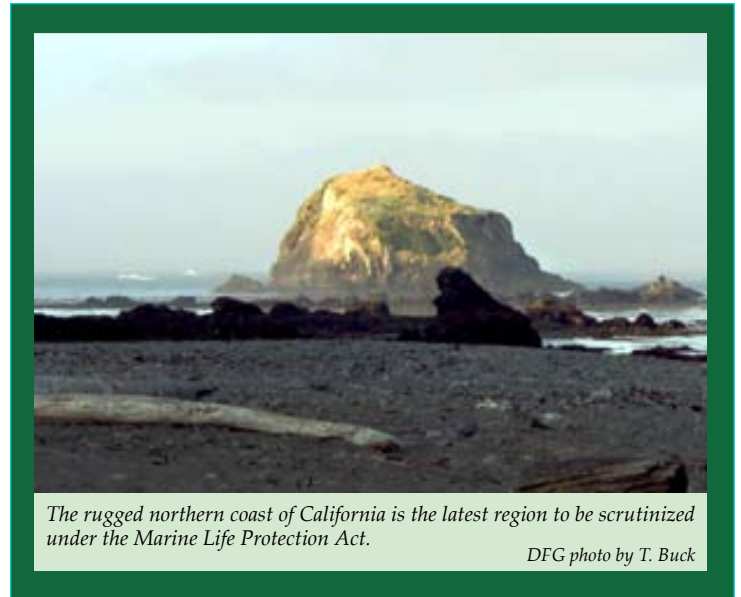
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North Coast MPA Planning Process Nears Completion

by Maggie Thomas, Scientific Aid

The planning process to implement California's Marine Life Protection Act (MLPA) on the north coast is near completion, with upcoming opportunities for public comment. The MLPA North Coast Study Region (NCSR)—spanning state waters from the California/Oregon border to Alder Creek near Point Arena in Mendocino County—is the fourth of five study regions in the state to undergo a redesign of its marine protected areas (MPAs), as required by the Marine Life Protection Act. Stakeholders and scientists have been involved in the design process for the MPAs and there are opportunities for the public to provide comment on the finalized proposals. “North Coast” continued on page 2



The rugged northern coast of California is the latest region to be scrutinized under the Marine Life Protection Act.

DFG photo by T. Buck

Pacific Herring Population Rebounds in San Francisco Bay

by Ryan Bartling, Marine Biologist

Following a record decline in the spawning population last winter, large numbers of the silvery little fish known as Pacific herring have once again returned to the waters of San Francisco Bay. The population estimate for the 2009-2010 season increased to 38,409 tons from the 2008-2009 low of 4,833 tons.

“Favorable ocean conditions likely led to better survival and improved growth for young herring,” said John Mello, senior biologist supervisor for the Aquaculture and Bay Management Project (ABMP).

Due to the larger than expected population increase,

the California Fish and Game Commission adopted the Department of Fish and Game (DFG) recommendations that the fishery be reopened for the 2010-2011 season, along with minor changes to the permit structure and season dates. The fishery for San Francisco will reopen on Jan. 2, 2011 with a quota of 1,920 tons.

The commercial fishery was closed last season for the first time in its 38-year history following three consecutive years of low spawning returns. The 2009-2010 estimate of 38,409 tons was an improvement, but remains below the historical average of 49,084 tons. Annual surveys have been conducted by DFG in San Francisco Bay since 1973.

The DFG remains committed to providing a sustainable fishery while continuing to protect herring's integral role in both ocean and bay food webs. In order to safeguard the fishery, DFG recommended a conservative 5 percent harvest rate for the 2010-2011 season. The low harvest rate will help minimize fishing mortality, a critical step for continued herring population recovery.

“Herring” continued on page 2

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After 17 public planning meetings and 26 public outreach events, the North Coast Regional Stakeholder Group (NCRSG) reached consensus on a single finalized proposal for MPAs that integrated stakeholder interests with protection goals. The Blue Ribbon Task Force (BRTF), composed of seven public leaders appointed for their experience in public policy, will receive the final NCRSG proposal at their October 25-26 meeting in Fortuna. It is the duty of the BRTF to then recommend a finalized proposal to the Commission, which has the final authority to adopt MPA regulations under the MLPA.

Opportunities to Comment

The public is invited to provide verbal and/or written comment on the final NCRSG proposal at the BRTF meeting. Feedback on specific MPAs, including boundaries, type of MPA (designation), proposed allowed uses (take regulations) and general location of proposed MPAs is valuable. These comments will help guide the BRTF in choosing their final preferred MPA proposal to advance to the California Fish and Game Commission.

If you are unable to attend the upcoming MLPA planning meeting in Fortuna, but would still like to listen and view the live broadcast, public participation

Important Links

For more information about the Marine Life Protection Act, please visit

www.dfg.ca.gov/mlpa

For updated information about the North Coast Study Region planning process, meeting dates, public participation locations, and how to comment, please visit

www.dfg.ca.gov/mlpa/northcoast.asp

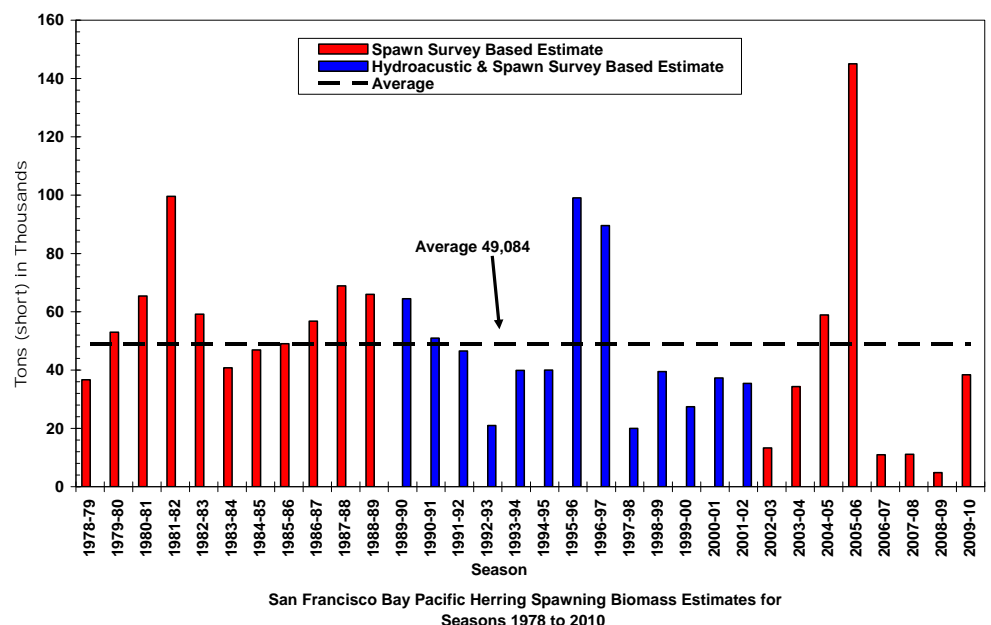
To view the final North Coast Regional Stakeholder Group's MPA proposal, please visit

www.dfg.ca.gov/mlpa/mpaproposals_nc.asp

locations will be set up in Fort Bragg and Crescent City, where viewers will be able to provide written and/or verbal comments. In addition, you can watch the meeting online (live or archived) at www.dfg.ca.gov/mlpa/meetings_n.asp.

The ocean waters fishery will remain closed indefinitely to further protect the herring stock.

DFG staff remains concerned about the herring population age structure, specifically the large proportion of younger fish (2-year-old herring) in the 2009-2010 spawning population. Herring reach reproductive maturity at age 2 and can return to spawn every year, with a large female laying 40,000 to 50,000 eggs in a single year. San Francisco Bay herring can live to be 9 years old. The ABMP management strategy is to allow the harvest of 4-year-old and older herring in the commercial fishery, to allow herring several opportunities to spawn before they run the gauntlet of the commercial fishery.



The ABMP is currently developing a fishery management plan for Pacific herring. The goals of this plan include restoring a healthy age structure that includes all ages of fish, managing commercial harvest to achieve a sustainable fishery, and providing forage for other species that utilize herring as a food source. For more information visit the ABMP Herring Fishery webpage at www.dfg.ca.gov/marine/herring/index.asp.



Marine Management News Fish Identification Quiz!

by Mary Patyten, Research Writer

Welcome to the Marine Management News Fish Identification Quiz for October 2010! Here's your chance to show off your fish identification knowledge and win an official Department of Fish and Game (DFG) fish tagging cap. To qualify for the drawing, simply send the correct answers via e-mail to AskMarine@dfg.ca.gov by Dec. 1, 2010 correctly identifying:

- The species of the fish pictured below (scientific name and an accepted common name), and
- The current daily bag limit, as given in the 2010-2011 recreational fishing regulations for California!

Be sure to type "October 2010 MMN Fish Quiz" as the "Subject" of your e-mail. The winner will be selected during a random drawing from all correct answers received by Dec. 1, 2010.

This species of fish hatches from a clutch of around 4,000 eggs after an incubation period of four to five weeks. The newly hatched young, which measure about one-third of an inch long, may spend up to one year drifting with ocean currents and feeding on tiny crustaceans such as copepods before settling to the bottom near shore.

Both males and females measure around seven inches long by the time they reach three years of age, but thereafter males grow more slowly. Both sexes reach their maximum size by age 12. This species generally reaches a length of around 18 inches, but individual fish 24 inches long have been reported.

The two sexes were thought to be different species of fish for over 70 years, until it was discovered that males and females exhibit different coloration (its mostly a matter of spots – and yes, that's a hint!).

Females are sexually mature by four years of age.

During the spawning season, which most biologists believe to occur between September and December off

California, females lay golf- to tennis-ball sized egg masses at nesting sites chosen by the males. These sites may be established in a variety of locations, from kelp to rocky reefs, and are aggressively guarded by the males. Spawning females produce at least three egg clutches per season, and multiple females may contribute to a single nest.

Adult fish of this species eat a wide variety of food including crabs and other crustaceans, worms, and juvenile fishes. The primary predators of this fish (other than fishermen) are lingcod and harbor seals.

This species is abundant from the Aleutian Islands, Alaska, to central California but is occasionally seen as far south as La Jolla, in southern California. It inhabits kelp beds and rocky reefs but is also known to frequent sandy bottom areas. It is a near shore species found in depths shallower than 150 feet.

This fish is popular with recreational anglers, especially in the northern part of the state.

Until the late 1990s, this species was

only caught incidentally by commercial fishermen, and landings of sport-caught fish far exceeded any commercial catch. However, in 1997 the emergence of the commercial "live-fish" fishery, where fish are carefully handled when caught and later sold from seawater tanks while still alive, saw commercial landings skyrocket past the recreational catch. The commercial fishery peaked in 2000 when landings reached 52,000 pounds, compared to a high of 5,700 pounds prior to the inception of the live-fish fishery.

In 1999 the DFG reduced the recreational bag limit to 10 fish, followed by further size

and bag limit reductions in subsequent years. In the commercial fishery, the DFG set a catch limit of 19,400 pounds in 2001. The total catch limit was reduced again in 2002, and in 2003 access to the commercial fishery was restricted to a certain number of permit holders. Currently, landings of this species both in the recreational and commercial fisheries are much reduced as a result of regulatory action.

If you think you know this species of fish, enter the prize drawing by sending an e-mail to the DFG at AskMarine@dfg.ca.gov with the correct scientific and a common name, and the current daily bag limit. Again, be sure to type "October 2010 MMN Fish Quiz" in the "Subject" portion of your e-mail. Answers to the quiz and the winner's name will be published in the next issue of *Marine Management News*.



DFG photo by S. Hoobler

BONUS!

Correctly identify the sex of the fish in this photo as well, and we will send you a copy of *California's Living Marine Resources A Status Report*

For the answer to the May Fish Identification Quiz, turn to Page 6!

Established in 1997, the Marine Region is one of seven Department of Fish and Game (DFG) regions that divide California into discrete, manageable areas. The Marine Region extends along the entire California coastline from Mexico to Oregon and approximately three nautical miles out to sea, including offshore islands. In accordance with the Marine Life Management Act, the Marine Region ensures that management of marine resources is based on the best available scientific information. Field staff provide for fisheries and habitat management, environmental review, and water quality monitoring statewide.

I asked staff from different projects what they were doing on Aug. 18, 2010 to provide a snapshot of the Marine Region on that particular day. The selection of responses included here illustrates the breadth and depth of the Marine Region's commitment to resource protection and research, and providing for the use and enjoyment of marine resources for everyone.

Kristin Hubbard, a marine biologist in Fort Bragg, donned her drysuit at Van Damme State Beach on the Mendocino Coast and joined a group of biologists, volunteers, and others conducting dive surveys for red abalone, as required by the Abalone Recovery and Management Plan. Divers swam 30-meter transects counting abalone to determine densities, and counted sea urchins and other small invertebrates as well.

Ten years ago, divers set up *Abalone Recruitment Modules* (ARMs), which are reinforced cages that contain cinder blocks with lots of hiding places for juvenile abalone, as stations for divers to annually count juvenile abalone. The tiny abalone in the ARMs were also counted during a weeklong survey. Twenty-one divers were on hand, including Sonke Mastrup, DFG deputy director; Laura Rogers-Bennett, senior biologist specialist; Dave Osorio, DFG diving safety officer, enforcement lieutenants Bob Puccinelli and Dennis McKiver aboard the patrol vessels *Steelhead* and *Chinook* and their crews, and University of California volunteer divers.

For Paul Ton, a marine biologist hundreds of miles to the south in Los Alamitos, Aug. 18 started at daybreak as he headed to the docks to sample commercial landings of market squid, Pacific sardine, and Pacific mackerel. As sometimes happens, fishing was poor that day, but the fishermen were anticipating a better night ahead after hearing reports of dense schools of squid at Catalina Island. As Paul headed back to the office,

The Invertebrate Management Project collects data and participates in monitoring, surveying, assessing, and managing commercial and recreational invertebrate fisheries, primarily in the nearshore environment.



Diver recording data along a transect line.
DFG photo by K. Joe

Briana Brady, an associate marine biologist based in Santa Barbara, was just starting her dive with University of California at Santa Barbara researchers. Their collaborative effort is aimed at gaining a better understanding of California sheephead spawning and predatory behavior at sites inside and outside of marine reserves on Catalina Island.

Long distances often separate Marine Region staff working on the same project. For example, marine biologists Bill Miller, Mandy Lewis, and Dianna Porzio in Los

Alamitos worked with Sonia Torres, a marine biologist 300 miles away in Monterey, reviewing photographs of sardine otoliths, or "ear bones". Otoliths act as inner ear sensory organs for balance. On this day, project staff were testing an internet-based, remote presentation and meeting application to cross-train project members in widely separated offices on the finer points of reading the age information recorded in these bones.

Because fish grow throughout their life, their bones—including otoliths—record annual growth cycles

related to seasonal differences in temperature and food availability. Researchers remove the bones and "read" the annual ring structure to determine age. The sardine age data is used in stock assessments for managing the sardine fishery.

In Monterey Ken Oda, an associate marine biologist, took a moment to pore over a photograph of a silver-

The Coastal Pelagic Species/Highly Migratory Species Project manages coastal pelagic species (Pacific sardine, Pacific mackerel, market squid, and other species) and highly migratory species (tunas, swordfish, sharks, and other species)



Sardine otoliths, used for aging the fish.
DFG photo by D. Porzio

State Finfish Management Project staff collect data and participate in analysis, research, monitoring, surveying, and other management activities related to state-managed finfish species such as surfperch, California halibut, kelp bass, and hagfish.



Barred surfperch being weighed.
DFG photo by K. Oda

colored fish sent to him via e-mail, trying to identify it for a recreational angler. The fish appeared to be either a California corbina or a white croaker, but the photograph was not of sufficient quality for positive identification. Back in the lab, Ken measured and weighed barred surfperch taken from Monterey beaches, and then dissected them to determine their sex

and reproductive condition. He also determined each fish's age by extracting and examining the otoliths, as the group of biologists studying sardines had done.

His goal: to ultimately answer the questions "How fast do surfperch grow?" and "Does the rate of growth change with latitude for a particular species?"

Ken's colleague, Kim Penttila, a marine biologist in Los Alamitos, was busy approving a new California saltwater angling record for a 1,098-pound, 12-ounce shortfin mako shark. She also

break from crunching numbers to prepare a poster presentation for the California and the World Ocean conference in San Francisco in September.

Los Alamitos license counter staff Barbara Mahan, and Linda Gottlieb with the DFG Natural Resource Volunteer Program greeted customers, answered questions from the public and directed customers to sales clerks to purchase hunting, sport fishing and commercial fishing licenses. They also assisted customers in person and by telephone in navigating the DFG website to obtain hunting and fishing information and related forms and booklets.

James Phillips, a marine biologist based in Santa Rosa, worked to coordinate sampling efforts for the commercial and recreational ocean salmon fisheries. One of the most important pieces of information he collects comes from hatchery-spawned salmon that have coded-wire tags embedded in their snouts before their release into the wild. California law requires anglers to allow researchers to remove salmon heads to

recover the tags, and today James is called upon to educate anglers about how important recovering tagged salmon heads is for inland and ocean salmon management.

In Monterey Paulo Serpa, a research analyst, created maps of marine protected area (MPA) study regions, while Brian Owens, a marine biologist in Belmont, responded to requests

License sales is one of the many administrative functions the Marine Region provides to enhance the working relationship between DFG and the public, and provide administrative guidance and support to staff.



Barbara Mahan processes applications.
DFG photo by K. Rizzo

for mapping data needed to plan potential MPAs.

Like Ashok Sadrozinski in Monterey, Brian and Adam Frimodig, a marine biologist in Eureka, prepared a presentation for the California and the World Ocean conference in San Francisco. Also in the Eureka office, Elizabeth Pope, a marine biologist, assembled information about modifications to the Stewart's Point State Marine Conservation Area for the California Fish and Game Commission. Angie Im, a scientific aid based in Los Alamitos, helped DFG front office staff respond to requests for information about the MLPA-I South Coast Study Region.

Frequent statewide travel is the norm for MPA Project staff. Rebecca Studebaker, a marine biologist based in Eureka and Susan Ashcraft, a senior biologist supervisor based in Sacramento reviewed MPA proposals for the MLPA-I North Coast Study Region, then attended a Fish and Game Commission meeting, and ended the

"Region" continued on page 10

The Life OF THE DFG'S MARINE REGION

by Ashok Sadrozinski, Marine Biologist

finalized new procedures for the California saltwater angling and diving records program which were uploaded to the DFG website (see www.dfg.ca.gov/marine/faqtrph3.asp).

Alex Vejar, an associate marine biologist in San Diego, and Phil Law, a statistical methods analyst in Belmont worked to develop ways to use party boat log information to estimate total angler catch and effort for this fishery. Meanwhile, in Monterey Ashok Sadrozinski, a marine biologist, took a



UPDATES

Marine Management News

Selected “snapshots” of current Marine Region projects

by DFG Staff

Groundfish

The California Fish and Game Commission is currently accepting public comment regarding changes to 2011 and 2012 recreational groundfish regulations and commercial groundfish regulations pertaining to cabezon trip limits. Details about the proposed regulations can be found at www.fgc.ca.gov/regulations/new/2010/proposedregs10.asp#27_20. The Commission is expected to adopt these regulations at their upcoming meeting at the Four Points by Sheraton in San Diego, CA on Oct. 20-21, 2010. The public is encouraged to submit comments or recommendations in writing, or present proposals verbally at the hearing. To be included in the official public record, comments must be received during the Commission's public comment period, which ends Oct. 22, 2010. Written comments should be mailed to: California Fish and Game Commission, 1416 Ninth Street, P.O. Box 944209, Sacramento, CA 94244-2090 or e-mail fgc@fgc.ca.gov.

The Department of Fish and Game's (DFG) Groundfish Project is considering closing the commercial fishery for greenlings (genus *Hexagrammos*) on Nov. 1. Based on landing receipts and dockside tabulation efforts, DFG expects that the statewide annual commercial allocation of 3,400 pounds of greenlings (kelp and rock greenling combined) will be taken by that date. For more information, visit the Groundfish Project website at www.dfg.ca.gov/marine/groundfishcentral.

California halibut

State Finfish Management Project staff continue to age California halibut collected primarily from the central and southern California commercial fishery. Staff collect otoliths, also known as “ear bones,” from the fish as

part of an ongoing study to improve the management of this species and to provide data for a statewide stock assessment which is nearing completion. For more information, visit the State Finfish Management Project website at www.dfg.ca.gov/marine/sfmp.

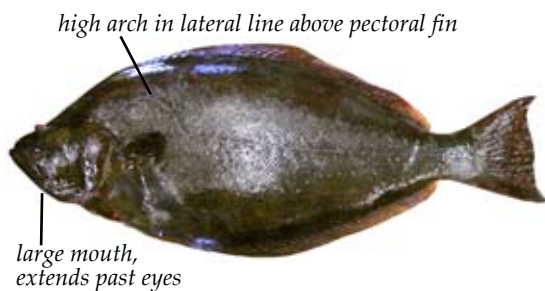
Pismo clam

Staff from multiple projects conducted the 5th Semi-Annual Pismo Clam Survey in Monterey Bay this past June. This small-scale survey documents the continued existence of a small population of sub-legal sized Pismo clams, some of which are sexually mature, in the presence of a well-established southern sea otter population in central California. The current half-day survey, conducted during negative tides, has been run once every six months since 2008, re-establishing a previous long-term Pismo clam database for Monterey Bay. For more information, contact Senior Supervisor Paul Reilly at (831) 649-2879.

Red abalone, sea urchin

The Invertebrate Management Project recently completed its annual subtidal abalone and sea urchin population surveys. Each year, three of the eight index sites established by the Abalone Recovery and Management Plan are surveyed for abalone and urchin densities. This year's surveys included the addition of Stornetta Ranch, which is included in the new Sea Lion Cove State Marine Conservation Area, and the portion of Fisk Mill Cove included in the new Stewarts Point State Marine Reserve. The surveys and the past three years of data will inform the Fish and Game Commission of the current status of the abalone population in northern California. For more information, visit the Invertebrate Management Project website at www.dfg.ca.gov/marine/abalone.asp.

May 2010 “Mystery” Fish: California Halibut



Our May Fish Identification Quiz winner, Jeff Silva of Alameda California, correctly identified last issue's mystery fish as a California halibut, *Paralichthys californicus*. The current bag limit for California halibut is three fish north of Pt. Sur (Monterey County), and five fish south of Pt. Sur (per CCR Title 14, Section 28.15).

Jeff has worked for UPS in Oakland for over 13 years. “I have been fishing for about 25 years and enjoy a wide variety of fishing techniques and locations,” he says. Jeff especially relishes trout fishing in the Sierra Nevada and fishing for rockfish all along the California coast. Congratulations, Jeff!

California Recreational Fisheries Survey: Transition to the Future

by Sandra Owen, Senior Biologist Supervisor,
and Connie Ryan, Senior Biologist Specialist and CRFS Program Coordinator

A major responsibility of the California Department of Fish and Game (DFG) is to estimate how many fish are caught in ocean waters off California. To fulfill this responsibility, DFG launched the California Recreational Fisheries Survey (CRFS) in 2004, and provided funds to the Pacific States Marine Fisheries Commission (PSMFC) to conduct the sampling part of the program. Beginning January 1, 2011 responsibility for sampling will shift to DFG as the CRFS becomes an entirely state-run sampling program.

"We are now able to realize a long-term goal of a single, integrated, statewide recreational finfish sampling program," said Marija Vojkovich, DFG's Marine Region manager. "This will provide DFG with the flexibility to meet unique data needs for California and provide more opportunities for the public to interact with DFG employees."

The transition means that DFG biologists and scientific aids will now be conducting the sampling that contributes data to the estimates. CRFS gathers data from recreational anglers and then uses that data along with other information to estimate the total number of fish caught by saltwater anglers. The DFG has always been responsible for the sampling and the estimates that CRFS produces, which are used to set bag limits, seasons and size limits, and to monitor catch limits.

Anglers will see little in terms of changes. Knowledgeable field samplers will still be asking the same questions about fishing, using the same equipment to measure and weigh the fish, and handing out brochures about all sorts of sportfishing-related issues.

The DFG and PSMFC, an interstate agency dedicated to helping state resource agencies address fisheries needs, are working together to ensure a seamless transition.



CRFS has been monitoring the recreational catch off California since 2004.
photo by E.W. Roberts Jr.



DFG Associate Marine Biologist Ed Roberts prepares to survey anglers fishing from a rock jetty.
DFG file photo

"We have had a wonderful working relationship with PSMFC for many years and will continue to work with PSMFC as we move forward towards this long-awaited goal of an entirely state-run program," said Connie Ryan, DFG senior biologist. "We are excited to have the opportunity to engage more one-on-one with recreational anglers and to continue to provide decision-makers with the highest quality data."

DFG biologists and scientific aids will work year-round on beaches, piers and jetties, at public launch ramps and hoists, and riding party boats (commercial passenger fishing vessels) to interview anglers and identify and measure fish. The scientific aid classification requires a minimum of 10 units of science-related college level classwork or a year of biological survey work. The training of all staff will be intensive, thorough and rigorous so that high standards for accurate data collection will be met.

CRFS was specifically designed to meet the needs of California. It incorporates the best elements of the former federal program, methods from DFG's successful ocean salmon sampling program and commercial passenger fishing vessel survey, and innovative approaches. In its first seven years, CRFS has substantially improved the information used to manage California's marine sport fisheries, and supported the goals of the Marine Life Management Act by providing decision-makers with science-based information.

The DFG is committed to keeping anglers, sportfishing businesses, regulatory agencies, and the general public fully informed about this change. More information about CRFS can be found online at www.dfg.ca.gov/marine/crfs.asp.

Get Hooked on the Marine Region and MLPA Initiative Web Sites!

by Aaron Del Monte, Associate Information Systems Analyst and Marine Region Webmaster

For the latest information on fishing regulations, marine resources, and news affecting our California coastline, your first stop should be the Department of Fish and Game Marine Region website, located at www.dfg.ca.gov/marine. This comprehensive information source currently contains well over 2,000 Web pages readily available to the public. If you are new to this website, we invite you to explore the valuable resources we have created. For those who have already visited the site, be sure to check back regularly, since new features, updates, and press releases are added every week. Here are some recent, noteworthy updates:

2010-2011 Supplemental Fishing Regulations Booklet

www.dfg.ca.gov/marine/sportfishing_regs2010.asp

This page contains the 2010-2011 Supplemental Fishing Regulations Booklet distributed in July 2010, which contains both marine and freshwater regulation updates. The ocean fishing section of the booklet includes updated ocean salmon sport fishing regulations and reminders, as well as updated information about marine protected areas.

Status of the Fisheries Report: An Update Through 2008

www.dfg.ca.gov/marine/status

The Marine Life Management Act instructs the Department of Fish and Game to regularly prepare reports on the status of California's fisheries and the effectiveness of management programs. The four reports featured on this page include information on hundreds of species. The 2008 report was added on Sept. 20.

Final California Commercial Landings for 2009

www.dfg.ca.gov/marine/landings09.asp

This page contains the Final California Commercial Landings and the Final Commercial Passenger Fishing

Vessel reported catches for 2009. A total of 26 tables on this page contain detailed information from marine and inland regions throughout California.

Here are some of our most popular pages:

California Ocean Sport Fishing Regulations Map

www.dfg.ca.gov/marine/fishing_map.asp

Going ocean fishing? This should be your first stop. Simply click the marine location where you plan to fish and you will access a compact list of sport fishing regulations for that area. The pages are printer-friendly, so you can print the regulations and take them with you on your next fishing trip. These pages are updated frequently, so you can be assured that they contain the most up-to-date information.

Ocean Sport Fishing Regulations

www.dfg.ca.gov/marine/sportfishing_regs2010.asp

This page features the Ocean Sport Fishing regulations booklet that was printed and distributed in February 2010. The bookmarked PDF file features bolded, italicized bookmark headings that denote sections that have changed or are new. In addition to the booklet, you will find links to in-season regulations changes, helpful illustrations and more.

Frequently Asked Questions

www.dfg.ca.gov/marine/faq.asp

Do you have a question about commercial or sport fishing, regulations, or an individual species? The easy-to-navigate questions and answers on this page in a variety of different categories are likely to lead you to the answer you are searching for.

Thank you for using the Marine Region website as a resource for news, information and regulations. We hope you will visit our site again soon! 🐟🦑

The Marine Life Protection Act (MLPA) Initiative Website

www.dfg.ca.gov/mlpa

This partnership between government agencies and private entities is striving to achieve the original MLPA goals. The 1999 MLPA directed the state to design and manage a network of marine protected areas (MPAs) in order to, among other things, protect marine life and habitats, marine ecosystems, and marine natural heritage, as well as improve recreational, educational and study opportunities provided by marine ecosystems. This website contains up-to-date information about this exciting endeavor, including up-to-date meeting information, public comments and documents for review. Current popular resources on the site include:

North Coast Region

www.dfg.ca.gov/mlpa/northcoast.asp

A single MPA network proposal was developed by the MLPA North Coast Regional Stakeholder Group in Round 3 of the north coast MPA planning process. This proposal will be analyzed by the MLPA Master Plan Science Advisory Team, California Department of Fish and Game, California Department of Parks and Recreation, and MLPA Initiative staff. The proposal will

also be reviewed by the MLPA Blue Ribbon Task Force. Members of the public are currently able to view the proposal online and provide comments online which will be accepted through Oct.18.

South Coast Region

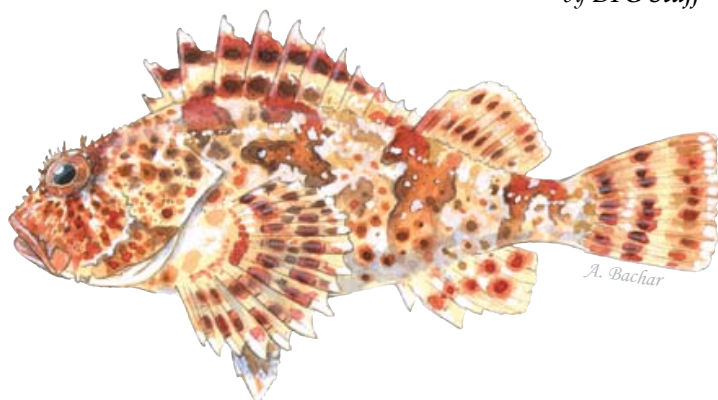
www.dfg.ca.gov/mlpa/southcoast.asp

The planning process for the South Coast Region (Point Conception to the California-Mexico border) has been

"MLPA" continued on page 10

Creature Feature California Scorpionfish

by DFG Staff



California scorpionfish, commonly known as *sculpin*, are found off the coast of California from Santa Cruz southward. Most are caught over hard, rocky bottoms at depths ranging from just below the surface to 600 ft., but some may occasionally be taken over sand or mud bottoms.

Distinguishing Characteristics

- Red to brown with dark blotches and spotting over body and fins
- Stocky body with large, spiny head, mouth, and pectoral fins

Life History & Other Notes

California scorpionfish feed on crab, squid, octopus, fishes, and shrimp. Spawning season takes place from April through August. California scorpionfish eggs are embedded in the gelatinous walls of hollow, pear-shaped egg balloons. The paired egg balloons, each 5 to 10 in. long, are joined at the small ends and contain a single layer of eggs. These transparent-to-greenish egg balloons rise rapidly from the bottom of the ocean to the surface, and release the young fish after about five days.

The California scorpionfish is the most venomous member of the scorpionfish family off California. Its dorsal, pelvic and anal fin spines possess venom glands that are capable of inflicting very painful wounds. Immediate immersion of the wound in very hot water seems to bring the best relief.

California scorpionfish readily take a hook baited with squid or fish. To remove the hook safely, insert your thumb into the mouth and grip the lower jaw firmly between your thumb and fingers while removing the hook. 🐟🪝

This Creature Feature is an excerpt from the California Finfish and Shellfish Identification Book available from the DFG Publications Office (contact (916) 322-8978 or publications@dfg.ca.gov). The book was created as part of the California Fishing Passport Program, which showcases different species of fish available to California anglers. The California Fishing Passport, a free fishing journal, is the basis of the program. For more information, visit www.fishingpassport.org.

California Scorpionfish

SCIENTIFIC NAME

Scorpaena guttata

OTHER COMMON NAMES

sculpin, rattlesnake

RANGE & HABITAT

Santa Cruz southward, mostly south of Pt. Conception, over rocky or other hard bottom habitat

LENGTH & WEIGHT

To 17 in. and 3+ lb.

LIFESPAN

To 21 years

DIET & SUGGESTED BAIT

Feeds on crab, squid, octopus, fishes, and shrimp. Try cut fish or squid for bait, or artificial lures

Tools of the Trade: DFG Scientists Sharpen Skills to Monitor Multi-Million Dollar Fishery

by Paul Ton,
Marine Biologist



DFG file photo
Pacific sardine, *Sardinops sagax*

In June 2010, biologists from the Department of Fish and Game's (DFG) Coastal Pelagic Species/Highly Migratory Species Project participated in an international Sardine Otolith Workshop hosted by NOAA Fisheries' Southwest Fisheries Science Center in La Jolla, Calif. Age data obtained from sardine otoliths ("ear bones") is used to estimate the size and composition of the population, important components of annual stock assessments.

The scientific workshop allowed for international collaboration to improve and consolidate otolith ageing techniques across all geographical areas. "This international workshop, which hosted sardine researchers from throughout the United States and Mexico, provided DFG biologists with the opportunity to share cutting-edge ageing methods and network with a broad spectrum of ageing professionals, which will ultimately help DFG to supply the best scientific data possible for managing the sardine fishery," said Dale Sweetnam, senior marine biologist.

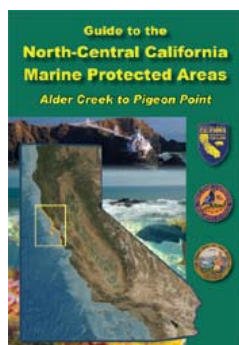
The Pacific sardine population currently extends from Mexico to Canada with fisheries in all three countries as well as all three west coast U.S. states. Otolith "agers" from Mexico, Oregon, Washington and California attended the conference.

A sardine's age is determined by removing otoliths from random fish taken from the commercial catch and counting growth rings (called *annuli*) under a microscope. At the conference, biologists examined a variety of otoliths from different

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User-Friendly Guide to North-Central Coast Marine Protected Areas Now Available!

by Angie Im, Scientific Aid



Without GPS navigation, how do you find the boundaries of a marine protected area (MPA)? Celestial navigation is no longer your only alternative to navigating the MPAs with the availability of the new *Guide to the North-Central California Marine Protected Areas*.

The pocket-sized guide, produced by the Department of Fish and Game's (DFG) Marine Region, serves as a handy reference for ocean-goers who need easy access to maps and regulations for MPAs and special closures. The new protected areas went into effect May 1, 2010 from Alder Creek (near Point Arena) to Pigeon Point (in San Mateo County). In line with DFG Marine Region goals to enhance the public's use and enjoyment of California's living marine resources, the guide assists non-GPS users by providing maps with zoomed-in satellite imagery, and landmarks that help identify north and south boundaries in these protected areas.

Printed copies of the guide are now available at DFG offices in Belmont, Fort Bragg, and Eureka, and on our website at www.dfg.ca.gov/mlpa/pdfs/nccmpas/nccmpas_guide.pdf. Distribution will be expanded soon to harbormasters, fishing license vendors, and other marine-use venues in Mendocino, Sonoma, Marin, San Francisco, and San Mateo counties. A similar guide for MPAs established in 2007 in the central coast region (from Pigeon Point

in San Mateo County to Point Conception in Santa Barbara County), is also available on our website at www.dfg.ca.gov/mlpa/pdfs/ccmpas_guide.pdf.

"Region" continued from page 5

day discussing north coast MPA proposals with DFG enforcement staff and Department of Parks and Recreation staff.

Whether sampling the docks, diving in the ocean, greeting customers, or preparing reports, Aug. 18 was another busy and productive day for DFG's Marine Region. The many tasks undertaken by staff, only a fraction of which were touched on here, are all vital to protecting, maintaining, enhancing, and restoring California's marine ecosystems for their ecological values and their use and enjoyment by the public.

For more information on Marine Region Projects, visit

www.dfg.ca.gov/marine/marineregion.asp.

The Ocean Salmon Project provides fishery-dependent and -independent data for managing California's ocean salmon fisheries, such as annual estimates of ocean salmon harvest, fishery effort, ocean abundances, and fishery impacts on stocks of special concern.



James Phillips samples returning salmon boats.
DFG photo by J. Simon

"MLPA" continued from page 8

completed. A marine protected area (MPA) proposal was unanimously adopted on Nov. 10, 2009 by the MLPA Blue Ribbon Task Force (BRTF) as the MLPA South Coast Integrated Preferred Alternative (IPA) MPA Proposal. The regulatory process is now underway. Upcoming California Fish and Game Commission meetings that will address the South Coast Region MPAs will take place on Oct. 20-21 and Dec. 15-16.

North-Central Coast Marine Protected Areas

www.dfg.ca.gov/mlpa/nccmpas_list.asp

California's North-Central Coast Marine Protected Areas went into effect May 1, 2010, from Alder Creek, near Point Arena (Mendocino County) to Pigeon Point (San Mateo County). On July 19, the Stewarts Point State Marine Conservation Area was added by the California Fish and Game Commission. The new area is currently under review for permanent

adoption. The series of 22 marine protected areas (MPAs), three marine recreational management areas, and six special closures covers approximately 153 square miles (20.1%) of state waters in the north-central coast study region. This page contains descriptions of all 31 areas, including maps, and also contains links to a printer-friendly guide and brochure (see article, above).

Central Coast Marine Protected Areas

www.dfg.ca.gov/mlpa/ccmpas_list.asp

California's Central Coast MPAs were established on Sept. 21, 2007. From Pigeon Point (San Mateo County) south to Point Conception (Santa Barbara County), the series of 29 MPAs represent approximately 204 square miles of state waters. This page contains descriptions of all 29 MPAs, including maps, and also contains links to a printer-friendly guide and brochure.

locations, compared ageing methodologies, and discussed how to refine and improve ageing methods. Ageing sardine otoliths can be very subjective, as no two otoliths are identical and environmental conditions, which affect growth, continually change. By collaborating with other researchers and qualifying the results, the workshop aided DFG biologists as well as other agers in establishing consistent ageing standards. Following the standards and protocols established at the workshop will help DFG biologists accurately determine the ages of sardines. Because the size of the sardine population appears to be in decline, determining accurate ages of fish taken in the fishery has become especially important.



Jorge Cerón Gómez (left), graduate student at Centro de Investigación Científica y de Educación [CICESE] Ensenada, Mexico, and the author compare notes on a sardine otolith.

DFG photo by D. Sweetnam

The Pacific sardine fishery is one of California's largest commercial fisheries, currently valued at almost \$5.5 million dollars. Project biologists monitor the health of the sardine population on a continuous basis. Because sardine assessments use an age-based model to determine the size of the population and, consequently, the number of sardines that may be sustainably taken by the fishery, the age of the fish taken by the fishery is an important factor needed for management. Other biological data collected



DFG's Dianna Porzio (left) and Sandra Rosenfield (Washington Department of Fish and Wildlife) use the Department's dual microscope to read and discuss the subtleties of age marks on the same otolith.

DFG photo by D. Sweetnam

from the commercial sardine catch include length, weight, sex, and stage of maturity of sampled fish.

Pacific sardines fueled the largest fishery in North America in the early 20th century. Landings peaked in 1941 with approximately 660,000 tons landed. The population crashed in the mid-1940s, followed by a 40-year period of minimal sardine landings. By the 1990s, the population had recovered enough to support a fishery. In 2009, nearly 83 million lbs. of Pacific sardine were landed in California. Currently, the size of the sardine population may be in decline.

For more information about management of California's sardine fishery, please visit www.pcouncil.org/coastal-pelagic-species/background-information/.



DFG's Sonia Torres (left) reads sardine otoliths alongside Roberto-Felix Uruga (Centro Interdisciplinario de Ciencias Marinas - Instituto Politécnico Nacional [CICIMAR], La Paz). Insert - Pacific sardine otoliths.

DFG photo by D. Sweetnam

Upcoming Commission and Council Meetings

2010 California Fish and Game Commission

www.fgc.ca.gov/meetings/2010/2010mtgs.asp

October 20-21
San Diego

November 17-18
Folsom

December 15-16
Santa Barbara

2010-2011 Pacific Fishery Management Council

[www.pcouncil.org/council-operations/
council-meetings/future-meetings/](http://www.pcouncil.org/council-operations/council-meetings/future-meetings/)

November 4-9, 2010
Costa Mesa CA

March 5-10, 2011
Vancouver WA

April 9-14, 2011
San Mateo CA

For the latest information on upcoming fishery-related meetings, please go to our Calendar of Events at www.dfg.ca.gov/marine/calendar.asp or contact the Monterey DFG office at (831) 649-2870.

**Don't Miss the 2010 CalCOFI Conference - Dec. 6-8 in La Jolla
For More Information Visit:**

<http://oceaninformatics.ucsd.edu/calcofi/conference>

MARINE Management News

Marine Management News is published three times per year by the Marine Region of the California Department of Fish and Game for everyone interested in the management and conservation of California's living marine resources. Through this newsletter we hope to keep all associates and constituents interested in participating in and/or tracking the progress of the Marine Life Management Act (MLMA) informed of developments. The MLMA strongly emphasizes an open decision-making process that involves people interested in or affected by management measures.

For more information on the MLMA or to sign up to become more involved, please visit our Web site at www.dfg.ca.gov/marine.

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The Marine Life Management Act

California's Marine Life Management Act (MLMA) of 1998 is an innovative, collaborative, science-based approach to managing all of California's living marine resources. One of its major goals is the long-term sustainability of our resources and our fisheries. The MLMA recognizes and values the non-consumptive benefits of healthy marine life as well as the interests of those who are economically dependent upon them. Implementation and enforcement of the MLMA is the responsibility of the California Department of Fish and Game, whose mission is to conserve wildlife and the habitats upon which they depend through good science and informed citizen involvement. For more information visit www.dfg.ca.gov/marine.

DFG Marine Region mission:

"To protect, maintain, enhance, and restore California's marine ecosystems for their ecological values and their use and enjoyment by the public through good science and effective communication."

Alternate communication formats of this document are available upon request. If reasonable accommodation is needed, call DFG at (707) 964-5026. The California Relay Service for the deaf or hearing impaired can be utilized from TDD phones at (800) 733-2929.