

California Department of Fish and Wildlife
Agency Report
to the
Technical Subcommittee
of the
Canada-United States Groundfish Committee

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A. AGENCY OVERVIEW

Within the California Department of Fish and Wildlife (CDFW), the Marine Region is responsible for protecting and managing California's marine resources under the authority of laws and regulations created by the State Legislature, the California Fish and Game Commission (CFGF) and the Pacific Fishery Management Council (Council). The Marine Region is unique in the CDFW because of its dual responsibility for both policy and operational issues within the State's marine jurisdiction (0 – 3 miles). It was created to improve marine resources management by incorporating fisheries and habitat programs, environmental review and water quality monitoring into a single organizational unit. In addition, it was specifically designed to be more effective, inclusive, comprehensive and collaborative in marine management activities.

The Marine Region has adopted an approach that takes a broad perspective relative to resource issues and management. This ecosystem approach considers the values of entire biological communities and habitats, as well as the needs of communities, while to ensure a healthy marine environment and sustainable fisheries. The Marine Region employs approximately 250 permanent and seasonal staff that provide technical expertise and policy recommendations to the CDFW, CFGF, Council, and other agencies or entities involved with the management, protection, and utilization of finfish, shellfish, invertebrates, and plants in California's ocean waters.

In 2013, Legislature changed the name of the Department of Fish and Game to the Department of Fish and Wildlife to better reflect the many non-game issues under its jurisdiction. Also in 2013, the Regional Manager for the Marine Region, Ms. Marija Vojkovich retired after more than 30 years of state service. The new Regional Manager is Dr. Craig Shuman, former Marine Advisor to the CFGF.

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B. MULTISPECIES STUDIES

1. Research and Monitoring

(a) *Commercial Fishery Monitoring*

Statistical and biological data from landings are continually collected and routinely analyzed by CDFW staff to provide current information on groundfish fisheries and the status of the stocks. California's primary commercial landings database is housed in CDFW's Commercial Fisheries Information System. Outside funding also enables California fishery data to be routinely incorporated into regional databases such as [Pacific Coast Fisheries Information Network](#).

Commercial sampling occurs at local fish markets where samplers determine species composition of the different market categories, measure and weigh fish and take otoliths for future ageing studies/projects. Market categories recorded on the landing receipt may be single species (e.g., bocaccio, *Sebastes paucispinis*) or

species groups (e.g., group slope rockfish). Samplers need to determine the species composition so that landings of market categories can be split into individual species for management purposes. Table 1 lists the commercial groundfish landings for 2012 and 2013 along with the number of lengths and otoliths taken by samplers.

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Table 1. Commercial groundfish landings (metric tons) and samples taken in 2012 and 2013.

Market category ¹	2012			2013		
	m tons	Lengths	Otoliths	m tons ²	Lengths	Otoliths
Rockfish:						
Chilipepper rockfish	236	1280	349	322	1136	412
Blackgill rockfish	127	1360	322	72	682	197
Group slope rockfish	102			21		
Bank rockfish	11	367	63	52	412	136
Black rockfish	24	695	44	36	590	1
Brown rockfish	26	203		28	101	
Gopher rockfish	23	420		23	343	
Vermilion rockfish	18	170	6	22	238	2
Splitnose rockfish	20	655	93	14	373	202
Bocaccio rockfish	12	356	75	16	433	25
Grass rockfish	12	305		13	143	
Black-and-yellow rockfish	11	289		10	238	
Copper rockfish	6	73	1	7	47	
Darkblotched rockfish	7	1042	426	4	540	168
Blue rockfish	4	791	6	5	482	
Widow rockfish	2	145	186	6	255	89
Aurora rockfish	2	1459	744	5	734	348
Yellowtail rockfish	1	162	28	5	218	12
Group shelf rockfish	2			3		
Redbanded rockfish	4	198	92	0 ⁴	171	100
Group red rockfish	2			2		
China rockfish	2	13		1	8	
Greenspotted rockfish	1	102	13	2	13	3
Treefish	2	37		1	23	
Quillback rockfish	2	15	4	1	13	
Canary rockfish	1	167		2	310	149
Olive rockfish	1	31	6	1	24	
Kelp rockfish	1	2		1	23	
Starry rockfish	0	10		1	23	
Unspecified rockfish	1			0		
Flag rockfish	0	14		0	7	
Rosy rockfish	0	14		0	17	
Speckled rockfish	0	1		0		
Rosethorn rockfish	0	113	30	0	8	3
Cowcod	0	46	8	0	24	19
Greenblotched rockfish	0	15	1	0	10	
Squarespot rockfish	0			0		
Pacific ocean perch	0	56	45	0	37	31
Greenstriped rockfish	0	8		0	40	24
Group bolina rockfish	0			0		
Group nearshore rockfish	0			0		
Mexican rockfish	0	1	1	0	9	8

Table 1. Commercial groundfish landings (metric tons) and samples taken in 2012 and 2013.

Market category ¹	2012			2013		
	m tons	Lengths	Otoliths	m tons ²	Lengths	Otoliths
Rockfish (continued)						
Group rosefish rockfish	0			0		
Pinkrose rockfish	0			0	82	
Group small rockfish	0			0		
Shortbelly rockfish	0	9		0		
Honeycomb rockfish	0	2		0		
Group bocaccio/chilipepper rockfish	0			-- ⁴		
Pink rockfish	0	6	1	0	11	1
Bronzespotted rockfish	0			--		
Yelloweye rockfish	0	1		0	3	1
Stripetail rockfish	0	26	13	0	55	17
Swordspine rockfish	--			0		
Group gopher rockfish	--			0		
Copper (whitebelly) rockfish	--			0		
Group deeper nearshore rockfish	--			0		
Group canary/vermilion rockfish	--			0		
Blackspotted rockfish ³	--	11	12	7		6
Freckled rockfish ³	--	1		--		
Rougheye rockfish ³	--	35	24	--	36	19
Shorthead rockfish ³	--	3	1	--	1	
Yellowmouth rockfish ³	--	1		--		
Sharpchin rockfish ³	--			--	4	4
Silvergrey rockfish ³	--			--	1	1
Tiger rockfish ³	--			--	1	
Skates:						
Longnose skate	174	1196		148	948	
Unspecified skate	31	5		17	5	
Big skate	4	43		20	207	
California skate	1	2		0	1	
Black skate ³	--	4		--		
Sandpaper skate ³	--	4		--		
Roundfish:						
Sablefish	1627	6893	980	1364	5887	836
Longspine thornyhead	502	4876	41	652	4617	
Shortspine thornyhead	411	4304	120	427	4082	
Unspecified grenadier	99	177		83	325	60
Lingcod	48	230		64	459	
Cabazon	31	247		29	102	
California sheephead	28	6		28	45	
Kelp greenling	5	47		5	38	
Pacific whiting	4	79		4	153	
California scorpionfish	4	1		3	244	
Unspecified thornyhead	1			6		
Spotted ratfish	0			0		
Pacific tomcod	0			0		
Pacific cod	0			0		
Pacific grenadier ³	--	38		--	39	
Rock greenling	--	1		3		
Sharks:						
Lepoard shark	2			1		
Southern shark	1			1		
Spiny dogfish	1	3		1		

Table 1. Commercial groundfish landings (metric tons) and samples taken in 2012 and 2013.

Market category ¹	2012			2013		
	m tons	Lengths	Otoliths	m tons ²	Lengths	Otoliths
Flatfish						
Dover sole	2150	2428	980	2218	2557	757
Petrale sole	222	2224	154	47	3683	143
California halibut	171	34		182	27	
Arrowtooth flounder	99	982	169	118	862	44
Unidentified sanddab	59			95		
Rex sole	48	2046	172	45	2289	37
English sole	23	877	32	49	1508	148
Sand sole	18	410		15	498	
Starry flounder	5	154		5	221	
Rock sole	4	141		4	93	12
Pacific sanddab	0	585	5	2	1379	
Curlfin sole	0			0	19	
Butter sole	0			0		
Bigmouth sole	--	1		--	2	
Deepsea sole ³	--	145	4	--	13	
Fantail sole	--	2		--	14	
Hornyhead turbot	--			--	72	
Slender sole	--	9	8	--		
Spotted turbot	--	7		--	9	
Diamond turbot	--			--	2	

Notes:

1. Market categories can be either single species (e.g., lingcod, blue rockfish) or group categories (e.g., unspecified sole, group slope rockfish). In some instances, there were no landings reported for a species, yet lengths and otoliths were collected. These landings were likely reported in a group market category (e.g., fantail sole were probably listed as unspecified sole on the landing receipt).
2. Landings for 2013 are preliminary.
3. There are no market categories for these species, so these fish were landed under a group market category (e.g., unspecified sole, group shelf rockfish)
4. Zero (0) indicates that less than 1 metric ton was caught; blank indicates no catch was recorded

Source: California Commercial Fisheries Information System (landings) and California Cooperative Groundfish Survey (sample data).

(b) *Recreational Fishery Monitoring*

The California Recreational Fisheries Survey (CRFS) was initiated in January 2004 to provide catch and effort estimates for marine recreational finfish fisheries. The CRFS generates monthly estimates of total recreational catch for four modes of fishing [beach/bank, man-made structures, commercial passenger fishing vessels (CPFVs), and private and rental boats] for six geographic districts along California's 1000 plus miles of coast. The data are used to inform stock assessors and by state and federal regulators to craft regulations to protect fish stocks and provide recreational fishing opportunities. The sampling data and estimates are available on the [Recreational Fisheries Information Network](#) website.

The CRFS is a multi-part survey which uses field sampling, a telephone survey of licensed anglers, and CPFV logs (activity records for each trip). Throughout 2013, over 70 CRFS samplers gathered recreational fishing effort and catch data statewide. The CRFS samplers interviewed nearly 61,000 anglers at more than 500

sites, and examined and identified about 223,000 fish, the contractor for the licensed angler telephone survey completed 26,000 interviews, and CDFW received and processed more than 30,000 CPFV logs that were all used in the estimation process. The high sampling levels have contributed to greater accuracy and precision in estimating catch and effort, especially for overfished species.

The Council adopted provisions for adjusting the mortality rates for rockfish released with a descending device in the recreational fishery. The CRFS collected species-specific data on the use of descending devices in 2013. These data will be applied retrospectively to the harvest estimates of canary rockfish (*Sebastes pinniger*), cowcod (*S. levis*) and yelloweye rockfish (*S. ruberrimus*).

In addition to producing monthly catch and effort estimates, the CRFS provides weekly estimates of cowcod and yelloweye encounters. Recreational anglers are prohibited from retaining cowcod and yelloweye rockfish, and both species have low harvest guidelines. This close in-season monitoring helps to ensure that California stays within the harvest guidelines.

Please visit the [CRFS](#) website for more information.

Contributed by Connie Ryan (Connie.Ryan@Wildlife.ca.gov)

(c) *Inseason Monitoring*

Commercial fishery

The CFGC has authority under state law to manage nearshore species (as defined by the state's [Marine Life Management Act](#) and the Nearshore Fisheries Management Act). The CFGC has given CDFW the authority to take action as a routine management measure to close the recreational and/or commercial sectors of the cabezon, California sheephead, and greenling fisheries upon projected attainment of their respective established optimum yields and fishery allocations. The CDFW also has authority to make inseason trip limit adjustments to the commercial fisheries for cabezon, California sheephead and greenlings.

Inseason monitoring is used to track landings against statewide total allowable catches, statewide and/or regional allocations and trip limits. Staff conduct inseason monitoring of California commercial nearshore species landings in the areas north and south of 40°10' North Latitude near Cape Mendocino. This work is done in conjunction with inseason monitoring, management and regulatory tasks conducted by the Council. Weekly tallies of landing receipts are used for inseason monitoring.

In 2012 and 2013, no inseason changes were made for cabezon, California sheephead and greenlings. The last time the CFGC had to take inseason action was in 2008. Fewer participants and increased trip limits for some species has allowed the fishery to continue unchanged.

In 2012, inseason trip limit changes were made for federal sablefish, shelf rockfish complex and bocaccio. In 2013, inseason trip limit changes were made for federal sablefish, shortspine thornyhead, shelf rockfish complex, bocaccio, and deeper nearshore rockfish complex. These changes kept the catch within the allowable harvest.

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Recreational fishery

The CFGC has given the CDFW additional authority to take inseason action to modify management measures or close the recreational fishery for groundfish if harvests are projected to exceed or be well below federally-established harvest guidelines. Inseason monitoring of California recreational groundfish species catch is conducted by CDFW biologists utilizing a mathematical model that includes projected catch based on previous years' data as well as current catch rates obtained weekly from CRFS staff. Recreational catch monitoring of yelloweye rockfish, a species that significantly constrains the recreational catch of all rockfish, is available on [CDFW's Inseason Tracking](#) website.

In 2012, inseason management action was taken to modify the depth in the Southern Groundfish Management Area (Figure 1), allowing fishing in waters 50 fathoms or less (previously 60 fathoms or less). In 2013, no inseason management actions were taken and the take of yelloweye rockfish in the recreational fishery was less than half the harvest limit. The CFGC has not had to take inseason action for the recreational fishery since 2008, due in part to modifying management areas and seasonal closures to better reduce the take of yelloweye rockfish.

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2. Management

(a) *2012 & 2013 State Management Measures Affecting Groundfish*

Commercial fishery

In 2011, at the federal level, new methodologies were approved for use in determining allowable harvest amounts for data poor stocks. These methodologies were applied to kelp greenling and resulted in a significantly higher harvest limit of 121,900 pounds, more than 3 times the previous harvest limit of 37,600 pounds, was adopted by the Council. The CFGC adopted regulations increasing the total allowable catch (TAC) for greenlings to 121,900 pounds, and increased the commercial allocation from 3,400 pounds to 55,400 pounds. Along with the increased TAC, the CFGC increased the commercial greenling trip limits (Table 2).



Figure 1. Recreational groundfish management areas for 2013-14.

Table 2. Greenling commercial trip limit changes in 2012, effective May 1, 2012.

	Old trip limits (pounds)	New trip limits (pounds)
January-February	25	150
March-April (closed) ¹	25	150
May-June	25	200
July-August	25	200
September-October	25	200
November-December	25	150

Notes:

1 Since the fishery is closed, the actual trip limits are zero pounds.

Recreational fishery

As a result of the increased TAC for greenlings, the CFGC increased the recreational allocation from 34,200 to 66,500 pounds, and removed the 2-fish sub-bag limit for greenlings within the 10-fish RCG (rockfish, cabezon, greenling) daily bag limit.

In December 2012, the CFGC adopted regulations for the 2013-2014 recreational groundfish fishery to make them consistent with proposed federal regulations. The changes included:

- Increased the number of bocaccio from 2 to 3 fish within the 10-fish RCG bag limit.
- Removed the minimum size limit for bocaccio.
- Removed the minimum fillet length for bocaccio.
- Allow retention of shelf species in the Cowcod Conservation Area (CCA) in waters 20 fathoms or less.
- Adjusted the seasons according to Figure 2.

Figure 2. Season structure and depth constraints for the California recreational groundfish fishery proposed for 2013 and 2014, as recommended by the Council in June 2012.

Management area	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Northern	Closed				May 15 – October 31, < 20 fm						Closed	
Mendocino	Closed				May 15-Sept 2, 2013, < 20 fm May 15-Sept 1, 2014, < 20 fm				Closed			
San Francisco	Closed				June 1 – December 31, < 30 fm							
Central	Closed				May 1 – December 31, < 40 fm							
Southern	Closed		March 1 – December 31, < 50 fm									
CCA	Closed		March 1 – December 31, < 20 fm									

Note: See Figure 1 for groundfish management area boundaries.

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(b) *Nearshore Management*

In 2002, the CFGC adopted California’s [Nearshore Fishery Management Plan](#) (FMP) for 19 species [black (*Sebastes melanops*), black-and-yellow (*S. chrysomelas*), blue (*S. mystinus*), brown (*S. auriculatus*), calico (*S. dalli*), China (*S. nebulosus*), copper (*S. caurinus*), gopher (*S. carnatus*), grass (*S. rastrelliger*), kelp (*S. atrovirens*), olive (*S. serranoides*), quillback (*S. maliger*), and treefish (*S. serriceps*) rockfishes; cabezon (*Scorpaenichthys marmoratus*); kelp (*Hexagrammos decagrammus*) and rock greenlings (*H. lagocephalus*); California scorpionfish (*Scorpeana guttata*); California sheephead (*Semicossyphus pulcher*); and monkeyface prickleback (*Cebidichthys violaceus*)]. All but California sheephead, rock greenling and monkeyface prickleback are also included in the Council’s federal Groundfish FMP. The Nearshore FMP is based on a framework management approach that gives the CFGC a comprehensive management strategy to prevent overfishing, rebuild depressed stocks, ensure conservation, promote habitat protection and provide for non-consumptive uses.

The CFGC adopted seasonal closures, total allowable catch, and trip limits for cabezon, kelp greenling, and California sheephead. Additionally, the CFGC provided CDFW with authority to close any of these fisheries upon attainment of the

total allowable catch. Seasonal closures coincide with federal groundfish closures in waters off the state of California. In 2013, the only management changes to nearshore species are discussed above.

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(c) *Restricted Access for Nearshore Fisheries*

The State of California began a restricted access program for the commercial nearshore fishery in 2003. The Nearshore Fishery Permit is required to take the following 10 shallow nearshore species: black-and-yellow, China, gopher, grass and kelp rockfishes, kelp and rock greenlings, California scorpionfish, California sheephead, and cabezon. These species can be taken with hook-and-line or dip net gears only; trap gear can be used with a trap endorsement. The Nearshore Fishery Permit program was set up on a regional basis with four regions: North Coast Region (Oregon border to 40°10' North Latitude near Cape Mendocino), North-Central Coast Region (40°10' North Latitude to Point Año Nuevo), South-Central Coast Region (Point Año Nuevo to Point Conception), and South Coast Region (Point Conception to the U.S./Mexico border). Nearshore Fishery Permit holders may only take these nearshore species within the region on the permit. Both transferable and non-transferable Nearshore Fishery Permits are issued.

A permit capacity goal was set for each nearshore region: 14 for the North Coast Region, 9 for the North-Central Coast Region, 20 for the South-Central Coast Region, and 18 for the South Coast Region. Until a region reaches its capacity goal, permits can only be transferred on a two for one basis, whereby two permits are purchased, one is retired and the other is used to fish. When the program began in 2003, a total of 220 permits were issued. In 2013, the number of permits had decreased to 157. The number of permits has been reduced 29 percent due to 2-for-1 permit transfers and attrition. Despite this, the number of permits still exceeds the capacity goal for each region.

The Nearshore Fishery Bycatch Permit program, which was started in 2003, authorizes the take, possession, and landing of shallow nearshore species by vessels using only trawl or entangling nets (gill and trammel nets). Thirteen Nearshore Fishery Bycatch Permits were issued in 2013, a 50 percent reduction in the number of permits issued in 2003.

A Deeper Nearshore Species Fishery Permit program was also implemented in 2003. This permit allows the take of the following eight species of deeper nearshore rockfishes: black, blue, brown, calico, copper, olive, quillback and treefish. The permit is non-transferable, because there is no capacity goal for the fishery. Permit holders are not restricted by gear and may catch and land these species anywhere in the state where commercial fishing is allowed. A total of 294 permits were issued in 2003; the number of permits issued decreased to 191 in 2013, a 35 percent reduction in permits.

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C. BY SPECIES

1. Pacific Whiting

There have been no directed Pacific whiting (*Merluccius productus*) trips in California since the inception of the Trawl Individual Quota (TIQ) program. Pacific whiting quota share holders are fishing in other states or trading their whiting shares for other groundfish.

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2. Chilipepper Rockfish

Exempted fishing permits (EFP) have been granted by the Council in recent years to study the use of different gears in both commercial and recreational groundfish fisheries. One EFP was granted to commercial fishermen to study a method of commercial troll long line fishing to target chilipepper rockfish (*Sebastes goodei*) inside Rockfish Conservation Areas (RCAs). The RCAs, which are currently closed to groundfish fishing, were designed to protect overfished rockfish species such as yelloweye and canary rockfish. The inability to target healthy groundfish stocks (e.g., chilipepper rockfish) within the RCAs has resulted in underutilization of many groundfish species. The goal of this study is to determine whether alternate fishing strategies (i.e., troll long line) can provide additional fishing opportunities for commercial fisheries inside the RCAs while avoiding overfished stocks. At this time, no fishing has occurred under this EFP, although plans are underway to fish in the winter and early spring 2014.

Contributed by Joanna Grebel (Joanna.Grebel@Wildlife.ca.gov)

3. Yellowtail rockfish

A second EFP was granted to commercial fishermen to study a method of commercial jig fishing to determine whether it is possible to target yellowtail rockfish (*Sebastes flavidus*) inside the RCAs while avoiding overfished rockfish species. The goal of this study is to determine if alternate fishing strategies can provide additional fishing opportunities for the commercial fishery in the RCAs while avoiding overfished stocks. Preliminary data from five trips taken in 2013 indicate that the catch was comprised of primarily yellowtail and widow rockfish (*S. entomelas*) (57 and 30 percent of total catch, respectively). Catch of overfished species was minimal (bocaccio, canary, and yelloweye rockfish catch was 6.5, 1.4, 0.5 percent of total catch, respectively). The remainder (4.6 percent) was a combination of shelf rockfish and other species. Fishing ceased when the participants came close to their yelloweye rockfish set aside (22 pounds). Additional trips are planned for 2014.

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4. Copper rockfish

Copper rockfish is one of the 19 nearshore finfish species in California's Nearshore FMP. Successful implementation of the Nearshore FMP requires filling data gaps on essential fishery information which is lacking. For copper rockfish, there is limited information available on age and growth in California waters. The CDFW's Groundfish Ecosystem Research and Management Project initiated a study to estimate age and growth parameters of copper rockfish in California for use in future stock assessments.

Biological sample data (i.e., otoliths) from commercial, recreational and research sectors collected over the last 4 decades (1970s to present) have been compiled, with over 1200 otoliths collected. A random sub-sample of 465 otoliths representing all available size classes and sexes was selected for ageing purposes. Within the sub-set, females (n = 181) ranged from 150 mm to 565 mm total length. Males (n = 140) ranged from 168 mm to 554 mm total length. Samples where sex was unavailable (n = 144) ranged from 79 mm to 542 mm total length.

This study is still in progress. Although ages have been estimated for some samples, estimates of growth parameters have not been completed. Once ages have been estimated for the initial 476 otoliths, additional samples can be added if necessary to reduce uncertainty in growth parameters.

Contributed by Caroline Mcknight (Caroline.Mcknight@Wildlife.ca.gov)

D. OTHER RELATED ACTIVITIES AND STUDIES

1. Implementation of the Marine Life Protection Act

Overview: The Marine Life Protection Act (MLPA), passed by the California State Legislature, mandates the State to redesign, manage, and evaluate an improved MPA network to, among other things, protect marine life and habitats, marine ecosystems, and marine natural heritage¹. Prior to the passage of the MLPA in 1999, there were 63 existing MPAs that were primarily established in an ad hoc manner, mostly small and considered ineffective (covering 2.7 percent of state waters, with less than 0.25 percent in no-take MPAs). For the purposes of MPA planning from 2004 – 2012, the State was split into five planning regions that included four coastal regions and the San Francisco Bay. By the end of 2012, the MPA planning processes for all four coastal regions were completed² (Figure 3). California's redesigned statewide MPA network includes 124 MPAs (119 MPAs and five state marine recreational management areas). There are also 15 special

¹ California Fish and Game Code, Sections 2850-2863.

² Options for an MPA planning process in the fifth and final region, the San Francisco Bay, have been developed for consideration subsequent to completion of a water supply and ecosystem plan for the Sacramento-San Joaquin River Delta. For more information, visit <http://www.dfg.ca.gov/marine/mpa/sanfranciscobay.asp>.

closures (Table 3). California’s redesigned coastal MPA network covers approximately 852 sq mi of state waters or about 16 percent, and approximately 9.4 percent of which in no-take MPAs (Figure 4).

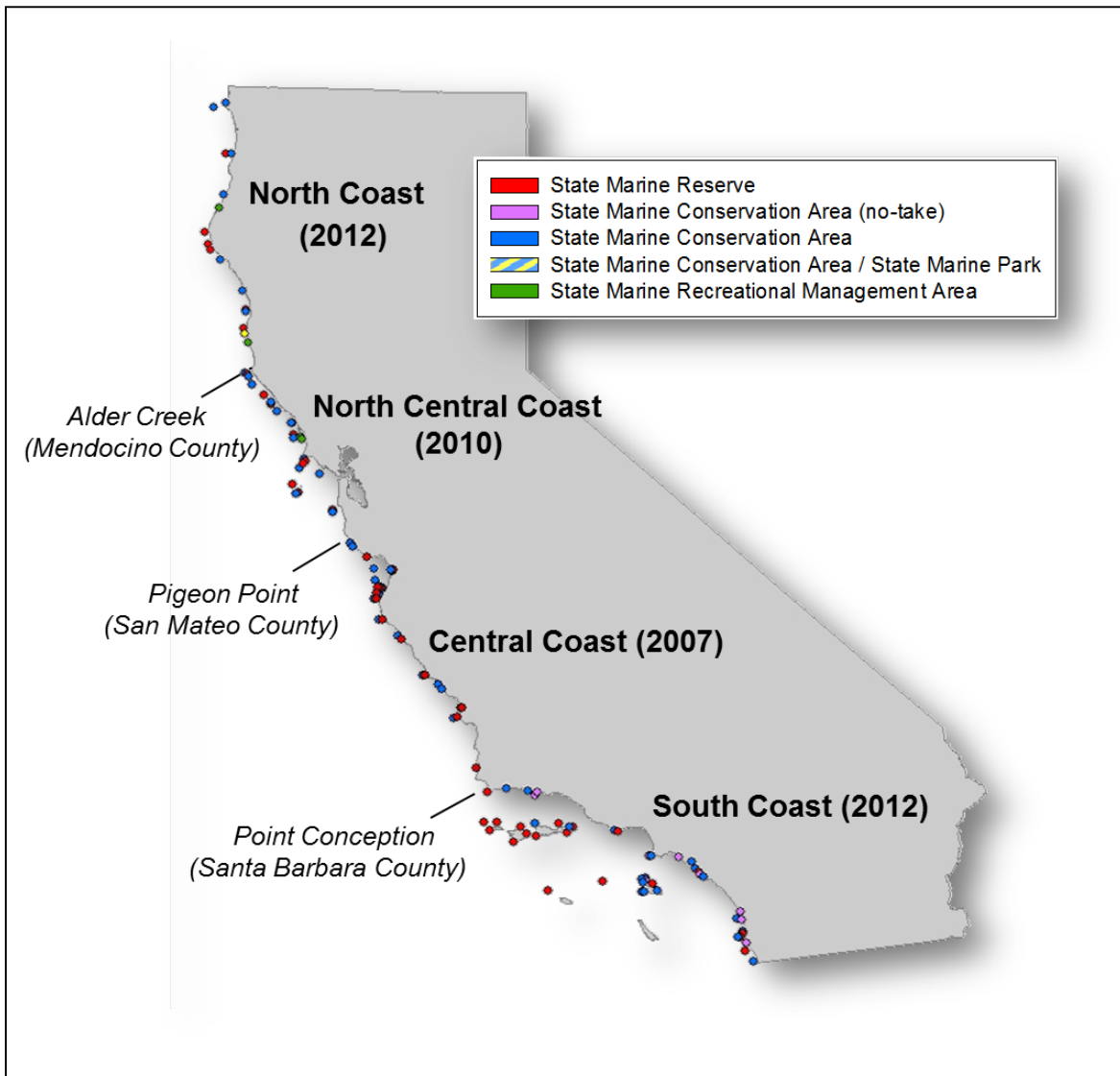


Figure 3. Locations for each MPA in California’s redesigned coastal MPA network, the four MLPA coastal planning regions, and year in which each regional MPA network took effect.

(a) *Description of the MPA Classification System Used in California*

There are different classifications used in California’s MPA network, including three MPA designations, one additional marine managed area designation, and special closures:

- State Marine Reserve (SMR): Prohibits all take and consumptive use (commercial and recreational, living or geologic). Permitted research, and non-consumptive uses may be allowed.
- State Marine Conservation Area (SMCA): May allow select recreational and commercial harvest to continue. Access for research and non-consumptive uses is encouraged.
- State Marine Park³ (SMP): Prohibits commercial take but may allow select recreational harvest to continue. Access for research and non-consumptive use is encouraged.
- State Marine Recreational Management Area (SMRMA): Provides subtidal protection equivalent to an SMPA, while still allowing legal waterfowl hunting to continue.
- Special closures: A geographically specific area that prohibits human entry. Special closures are generally smaller in size than MPAs and are designed to seasonally protect breeding seabird and marine mammal populations from human disturbance.

Table 3. Summary statistics for California’s redesigned coastal MPA network.

Designations	Count	Area (sq mi) in All Coastal State Waters	Percent of All Coastal State Waters
SMR	48	463.23	8.76%
SMCA (no-take)	10	33.60	0.64%
SMCA	60	344.50	6.52%
SMCA/SMP ⁴	1	6.26	0.12%
SMRMA	5	4.43	0.08%
Special Closures	15	3.25	0.06%
Total⁵	124	852.02	16.12%

³ In the MPA planning process, SMPs were designated as SMCAs designed with the intent to match an SMP in allowed regulations, goals and objectives. They can only be formally adopted as an SMP by the California State Park and Recreation Commission in a separate action which takes the MPA designation intent into account. After the State Park Commission adopts the SMP, then the area will have dual designation in statute as both an SMCA and SMP.

⁴ The California Fish and Game Commission designated Cambria SMCA, which was subsequently also adopted as Cambria SMP by the State Park Commission (August 2010) with the same boundaries and no change to regulations. Therefore, this MPA has dual designations, as reflected in the table.

⁵ Statewide totals include all MPAs effective in the north coast, north central coast, central coast, and south coast regions, and do not include special closures or existing MPAs in the San Francisco Bay.

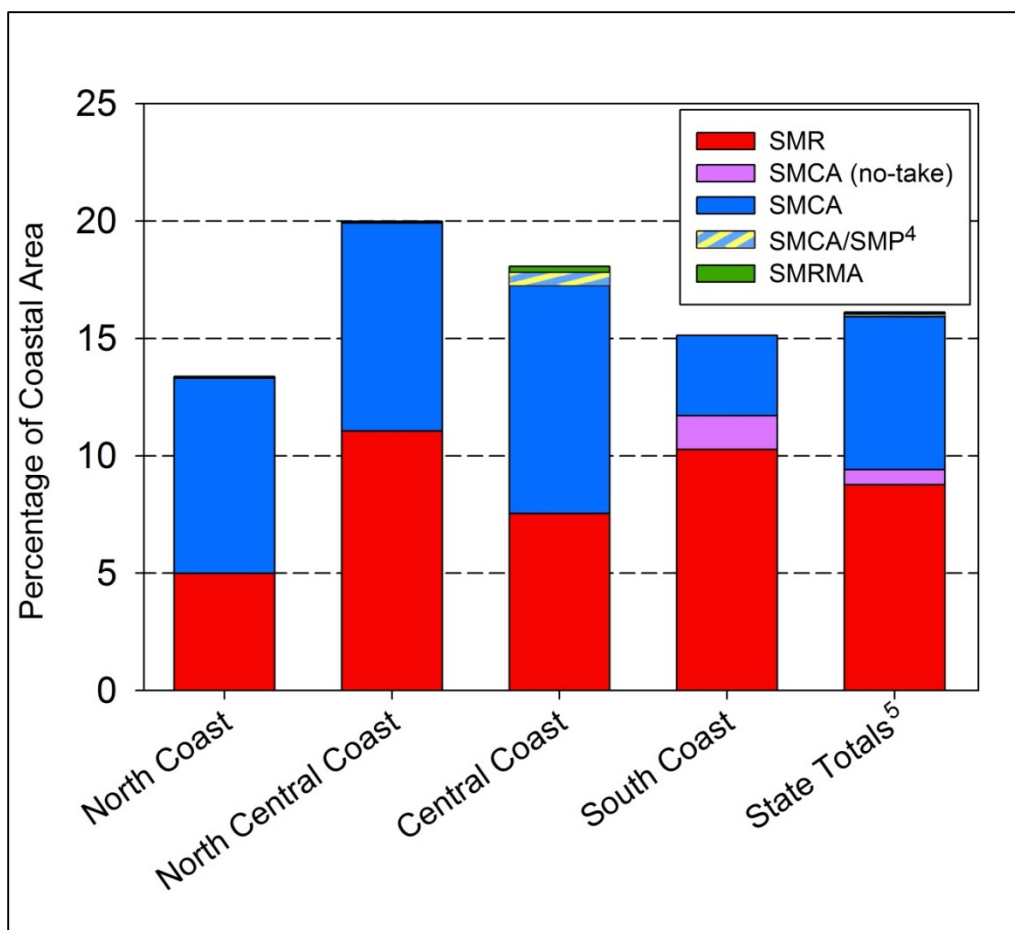


Figure 4. Percentage of each of the four California coastal regions and total state waters⁵ within MPAs by designation type.

2. California MPA Monitoring and Research Activities

Overview: CDFW is currently focused on implementing, monitoring, and managing California's MPA network relative to the [MLPA goals](#) and requirements, and other relevant California legislation such as the [Marine Life Management Act](#). Provisions of the MLPA require monitoring and research to facilitate adaptive management. CDFW works with key partners to provide oversight on all aspects of MPA monitoring to inform adaptive management. For example, CDFW collaborates with the MPA Monitoring Enterprise (MPA ME) – a program of the California Ocean Science Trust (OST), the California Ocean Protection Council (OPC), and California Sea Grant (CASG) to develop regional MPA baseline monitoring programs and 5-year MPA monitoring and management reviews, as recommended in the [MLPA Master Plan](#). Baseline programs are designed to establish an ecological and socioeconomic benchmark against which future MPA performance can be measured, and to assess whether there are any initial changes resulting from MPA implementation in one to two years after the MPAs take effect.

CDFW also works with partners, academic institutions, and others to coordinate data collection related to marine life, habitats, and commercial and recreational activities that occur both inside and outside MPAs, and to develop cost-effective long-term MPA monitoring programs. In addition, CDFW continues to explore MPA effects on California's marine fisheries, and conduct field investigations such as remotely operated vehicle projects. Please visit the [MPA Research and Monitoring Activities](#) website for more information.

(a) *Regional MPA Monitoring Activities:*

Central Coast: A network of 29 MPAs (including 28 MPAs and one SMRMA), covering approximately 207 sq mi of state waters or about 18 percent of the central coast region, went into effect in September 2007.

- The [Central Coast MPA Baseline Monitoring Program](#) was launched in 2007 to assess baseline ecological and socioeconomic conditions of the central coast regional MPA network. The baseline program supported five projects to conduct collaborative fisheries sampling, surveys of kelp forests, nearshore fish populations, rocky intertidal habitats and deep-water habitats, as well as collect socioeconomic data. Data collection and analyses for the baseline program were completed in 2012.
- A [three-day public symposium](#) was held in 2013 to present results from the baseline program, discuss perspectives on MLPA implementation, and provide a forum for local researchers to share results from their own research. Together, OST and CDFW produced a summary report sharing the baseline program monitoring results, titled [State of the California Central Coast: Results from Baseline Monitoring of Marine Protected Areas 2007-2012](#). Along with proceedings from the State of the California Central Coast Symposium, this information was provided to the CDFW and CFGC to inform their [5-year management recommendations](#) delivered in late 2013.
- Results from the baseline program will help planning and implementation of a continued MPA monitoring program, which is a collaborative effort by MPA ME, CDFW, and OPC. A related project currently underway by MPA ME, in partnership with CDFW, is to update the Central Coast MPA Monitoring Plan to reflect baseline monitoring results, apply the [statewide MPA monitoring framework](#), and ensure consistency with existing regional MPA monitoring plans. This project is underway and will continue through 2014.

North Central Coast: A network of 25 MPAs (including 22 MPAs and three SMRMAs) and six special closures, covering approximately 763 sq mi of state waters or about 20 percent of the north central coast region, went into effect in May 2010.

- Following a collaborative process with stakeholders and scientists, MPA ME in partnership with CDFW, completed the [North Central Coast MPA Monitoring Plan](#) in late 2009. The monitoring plan was adopted by the Commission in 2010. As

with other regional MPA monitoring plans, the North Central Coast MPA Monitoring Plan will be updated near the 5-year MPA monitoring and management reviews to reflect baseline program results.

- The [North Central Coast MPA Baseline Monitoring Program](#) was launched in 2010 to assess baseline ecological and socioeconomic conditions of the central coast regional MPA network. The baseline program encompasses 11 projects selected to monitor a broad range of habitats from sandy beaches, rocky reefs, and kelp forests to the deep waters around the Farallon Islands, and examine patterns of ocean currents across the whole region. Data were also collected on human activities including commercial and recreational fishing, beach use, and boating activities. Data collection and analyses are nearing completion.
- In April 2014, MPA ME in partnership with CDFW, OPC, and CASG, and in collaboration with the baseline program Principal Investigators, produced a summary report based on peer-reviewed technical reports, titled the [California North Central Coast: Marine Protected Area Baseline Monitoring Summary Report, 2010-2013](#). This is the first in a series of reports that will share monitoring highlights and next steps. The OST, CDFW, and the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) are also collaborating to explore ways to integrate data across baseline monitoring projects and with data from other programs in the region. This data integration and synthesis will culminate in a State of the Region Report in 2015.

South Coast: A network of 50 MPAs (including 13 previously established in 2003 at the northern Channel Islands that were retained without change) and two special closures, covering approximately 2,351 sq mi of state waters or about 15 percent of the south coast region, went into effect in January 2012.

- The [South Coast MPA Monitoring Plan](#) was completed in 2011, and adopted by the Commission that same year.
- The [South Coast MPA Baseline Monitoring Program](#) was launched in 2011. The baseline program includes 10 projects to monitor a broad suite of habitats including rocky shores, sandy beaches, shallow subtidal, subtidal rocky reefs, and deep water habitats. Additional projects include assessing seabird and lobster populations, patterns of human uses, and an integrative project to facilitate collaboration and data comparability among the other baseline program projects. Baseline program projects began data collection in mid-2011. As with other baseline programs, reports of their findings will undergo peer review, scheduled for late 2014 and publicly available in 2015.

North Coast: A network of 20 MPAs (including 19 MPAs and one SMRMA), along with seven special closures covering approximately 137 sq mi of state waters or about 13 percent of the north coast region, went into effect in December 2012.

- The [North Coast MPA Baseline Program](#) was launched in March 2014. Eleven projects were selected for funding to monitor habitats including kelp forests,

rocky shores, and beaches as well as commercially and recreationally important fish populations and seabirds. Projects will also document human uses, socioeconomic dimensions of MPAs, and examine patterns of ocean currents across the whole region. The north coast is also the first baseline program in California to incorporate traditional ecological knowledge, which will be shared as part of understanding the historical and current ocean conditions in the region. Data collection will begin in mid-2014.

- (b) *MPAs and Fisheries Integration*: It is expected that California's MPA network will result in various biological, ecological, and socioeconomic effects that may have broad implications for fisheries. Consequently, it is important to understand how this network of MPAs affects California's fishery resources, and how fisheries may respond to the network. However, the efficacy of MPAs in terms of both their design and fisheries-based elements remains largely untested, especially on the scale of California's MPA network. The CDFW convened a [MPAs and Fisheries Integration Workshop](#) in 2011 to elicit input from scientists representing a wide range of disciplines on the utility and practicality of using a redesigned statewide network of MPAs to inform fisheries management, and produced a workshop proceedings report. CDFW continues to build on the results of prior workshops and discussions, as well as complementary CDFW programs such as the [Nearshore FMP](#), [Abalone Recovery and Management Plan](#), and [Spiny Lobster Fishery Management Plan](#) (currently in development), to explore internally and with partners how MPA monitoring information may be used to inform California fisheries management.
- (c) *Remotely Operated Vehicle (ROV) MPA Monitoring*: Since 1999, the CDFW and its partners have performed visual surveys of fish, invertebrates, and habitat in California's MPAs. The objective of these surveys is to establish baseline conditions inside and outside MPAs and to examine initial changes in size and density of fished species after MPA implementation. The CDFW program coordinates surveys with other studies funded through the MPA baseline monitoring programs as well as other projects and partners providing information for fisheries management. To date, extensive surveys have been completed in the Channel Islands (2003 – 2009), central coast region (2007 – 2009), and north central coast region (2009 – 2011). The CDFW will be performing ROV surveys in the north coast and south coast MPAs in 2014 and the central coast MPAs in 2015.

3. Other Relevant California MPA Activities and Resources

Overview: Complementary to MPA implementation, monitoring, research, and management activities, CDFW maintains a Geographic Information System (GIS) lab, an MPA mobile website, an interactive marine and coastal data viewer, and identifies additional opportunities such as linking California's MPAs to the national system of MPAs.

- (a) *Geographic Information System*: The CDFW's [Marine Region GIS unit](#) specializes in providing GIS marine and coastal data to support California marine science and management, such as spatial data related to California's coastline, bathymetry,

fisheries, natural resources, and seafloor characteristics. Please visit the [Marine Region GIS downloads website](#) for more information.

- (b) *MPA Mobile Website*: In 2011, the CDFW unveiled a MPA mobile website allowing anglers, divers and other ocean users to look up current information about restricted areas and boundaries from land-based computers, smartphones, tablets and other portable Internet-enabled devices. Please visit [mobile MPA](#) website for more information.
- (c) *Interactive Marine and Coastal Data Viewer*: CDFW's marine and coastal data viewer, [MarineBIOS](#), offers an interactive map for referencing relevant marine resource planning data, including boundaries and regulations of California's MPAs, marine habitats, geographic references, and points of interest.
- (d) *Linking California's MPAs to the National System of MPAs*: The National MPA Center, established in 2000 by Executive Order 13158, is an active partnership between the National Oceanic and Atmospheric Administration and the Department of Interior, designed to develop and implement a national system of MPAs. The National MPA Center receives nominations by other federal, state, tribal and local governments for inclusion into a comprehensive [nationwide listing of MPAs](#). Nominated MPAs must meet specific criteria for inclusion in the national MPA network. All of California's protected areas (including 119 MPAs, five SMRMAs, and 15 special closures) have been nominated and accepted into the national system of MPAs managed by the National MPA Center.

Please visit [California's MPAs](#) website for more information on California's system of MPAs.

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APPENDIX 1:

2013 CALIFORNIA GROUND FISH COMMERCIAL FISHERY REVIEW

The 2013 California commercial groundfish harvest (Table 4) was approximately 6540 metric tons, with an ex-vessel value of \$17.4 million. Total harvest increased 4 percent compared to 2012; due primarily to increased catches of Petrale sole (*Eopsetta jordani*), English sole (*Parophrys vetulus*), sanddabs (*Citharichthys spp.*) chilipepper rockfish, bocaccio, arrowtooth flounder (*Atheresthes stomias*) and thornyheads (*Sebastes spp.*). Pacific whiting landings totaled 1741 metric tons in 2003, dropping to 5 metric tons in 2011 before decreasing to 4 metric tons in 2012 and 2013. The first year of the trawl individual quota program was 2011 and fishermen were given individual quotas for some groundfish species, including Pacific whiting. California fishermen traded their Pacific whiting shares for other species, primarily sablefish (*Anoplopoma fimbria*), in 2011 which accounted for the large increase in value (\$24.6 million). Groundfish revenue decreased 37 percent in 2013 compared to 2011, as sablefish landings decreased 43 percent.

In 2013, 77 percent of the groundfish landed were taken by bottom and mid-water trawl gear, an increase from the 64 percent observed in 2011. Line and trap gears were the second and third most common gear types in 2013 at 19 and 3 percent, respectively; both gears saw decreased use compared to 2011 (26 and 10 percent, respectively). Gill and trammel net landings were minimal, accounting for less than 0.3 percent of the groundfish catch.

Dover sole, sablefish, thornyheads and Petrale sole dominated California's 2013 groundfish harvest, making up approximately 79 percent of the state's landings (78 percent of groundfish revenue). Petrale sole landings in 2011 were less than half the landings in 2003 as harvest levels were reduced to allow the stock to rebuild. Since 2011, Petrale sole landings have been on an increasing trend, going from 174 metric tons to 470 metric tons (2011 and 2013, respectively) as the stock rebuilds. Landings of sanddabs (all species combined) declined dramatically between 2003 and 2013 going from 1294 metric tons to 97 metric tons; however, recently, landings are again on the upswing going from 51 to 97 metric tons between 2011 and 2013. Sablefish landings declined going from 2406 metric tons in 2011 to 1364 metric tons in 2013 as the ex-vessel price declined (average price \$3.32 and \$2.66, respectively) due to declining demand.

Contributed by Traci Larinto (Traci.Larinto@Wildlife.ca.gov)

Table 4. California commercial groundfish landings (metric tons) for 2011-2013.

		2011	2012	2013 ¹	2003	Percent change between 2003 and 2013	
ROUNDFISH	Cabezon	32	31	29	40	-27.4	
	California sheephead	31	28	28	49	-43.9	
	Grenadiers	87	99	83	165	-49.6	
	Kelp greenling	2	5	5	5	10.0	
	Lingcod	33	48	64	52	21.9	
	Monkeyface prickleback	0 ²	0	0	0	0.0	
	Pacific cod	-- ²	--	0	1	-99.5	
	Pacific whiting	5	4	4	1741	-99.8	
	Ratfish	0	0	0	--	--	
	Rock greenling	0	0	0	--	--	
	Sablefish	2406	1627	1364	1621	-15.8	
	FLATFISH	Arrowtooth flounder	86	99	118	43	171.8
Butter sole		--	0	0	--	--	
Curlfin turbot		0	0	0	0	0.0	
Dover sole		2412	2150	2218	3259	-32.0	
English sole		19	23	49	131	-62.8	
Pacific sanddab		4	0	2	0	1944.0	
Petrale sole		174	222	470	380	23.6	
Rex sole		68	48	45	259	-82.5	
Rock sole		2	4	4	15	-73.9	
Sand sole		13	18	15	37	-58.2	
Starry flounder		7	5	5	29	-81.0	
Unspecified sanddabs		47	59	95	612	-84.5	
Unspecified sole		13	14	17	10	78.6	
SHARKS AND SKATES		Big skate	0	4	20	0	49581.1
		California skate	0	1	0	--	--
	Leopard shark	2	2	1	8	-86.3	
	Longnose skate ³	171	174	148	--	--	
	Southern spiny dogfish	2	1	1	20	-93.9	
	Spiny dogfish	1	1	1	11	-91.2	
	Unspecified skate	30	31	17	125	-86.4	
ROCKFISH	<i>Shallow nearshore</i>						
	California scorpionfish	5	4	3	5	-48.2	
	Black-and-yellow rockfish	12	11	10	8	39.3	
	China rockfish	2	2	1	2	-9.3	
	Gopher rockfish	30	23	23	13	74.4	
	Grass rockfish	12	12	13	14	-7.3	
	Kelp rockfish	1	1	1	1	-16.1	
	Misc. shallow nearshore rockfish ⁴	0	0	0	2	-98.5	
	<i>Deeper nearshore</i>						
	Black rockfish	27	24	36	58	-38.7	
	Blue rockfish	7	4	5	8	-29.7	
	Brown rockfish	29	26	28	20	40.0	
	Copper rockfish	4	6	7	3	118.6	
Olive rockfish	1	1	1	1	69.1		

Table 4. California commercial groundfish landings (metric tons) for 2011-2013.

	2011	2012	2013 ¹	2003	Percent change between 2003 and 2013
<i>Deeper nearshore (continued)</i>					
Quillback rockfish	1	2	1	2	-65.2
Treefish	2	2	1	1	57.5
Misc. deeper nearshore rockfish ⁴	0	0	0	2	-98.9
<i>Shelf</i>					
Bocaccio	8	12	16	1	2529.0
Chilipepper rockfish	293	236	322	18	1729.4
Greenspotted rockfish	1	1	2	0	435.0
Vermilion rockfish	17	18	22	6	265.9
Widow rockfish	1	2	6	5	23.6
Yellowtail rockfish	1	1	5	2	106.8
Misc. shelf rockfish ⁴	2	5	6	174	-96.4
<i>Slope</i>					
Aurora rockfish	2	2	5	2	208.8
Bank rockfish	6	11	52	72	-28.6
Blackgill rockfish	126	127	72	179	-59.9
Darkblotched rockfish	3	7	4	6	-30.4
Splitnose rockfish	10	20	14	23	-39.2
Misc.slope rockfish ⁴	60	108	24	72	-67.3
<i>Unspecified rockfish⁵</i>					
Longspine thornyhead	461	502	652	845	-22.9
Shortspine thornyhead	460	411	427	390	9.5
Unspecified thornyheads ⁵	1	1	6	59	-90.2
TOTAL	7234	6281	6569	10616	-38.1

Notes:

1. Landings data for 2013 are preliminary.
2. Zero (0) indicates that less than 1 metric ton was landed; -- indicates no landings occurred.
3. Longnose skate market category was added in 2009. Prior to that, longnose skates were included in the unspecified skate category.
4. Misc.rockfish contain both group market categories (e.g., group shelf rockfish) and single species market categories for species with landings less than one ton per year (e.g., greenstriped rockfish) and are a minor component of the commercial catch.
5. Unspecified rockfish and unspecified thornyhead market categories were discontinued in 2001.

Source: California Commercial Fisheries Information System.

APPENDIX 2:

2013 CALIFORNIA GROUND FISH RECREATIONAL FISHERY REVIEW

The 2013 California recreational fishery caught approximately 2314 metric tons of groundfish and nearshore species (Table 5), according to estimates generated by the Recreational Fisheries Information Network (RecFIN) that are based on data collected by California Recreational Fisheries Survey (CRFS) samplers using both sampler examined catch and fish observed discarded dead. Recreational groundfish catch in 2013 was almost 20 percent higher than in 2012 and was due to increased catch of lingcod (*Ophiodon elongatus*) and rockfishes. In 2013, lingcod catch continued to increase as did rockfish catch (35 and 17 percent, respectively, compared to 2012) due to longer fishing seasons in most regions. Changes to the sampling protocol instituted in 2004 prevent a direct comparison between 2003 and 2013 recreational catch. However, given that the recreational fishery has seen increased restrictions since 2001, much like the commercial fishery, the overall catch is likely considerably lower.

Rockfishes made up 71 percent of the recreational groundfish and state nearshore species catch in 2013, down slightly from 2012 (73 percent). The slight decline can be attributed to the large increase in lingcod catch in 2013. The same thing happened in 2012—increased lingcod and decreased rockfish catches compared to 2011. That rockfish make up the majority of the recreational groundfish catch is not surprising given that anglers most commonly reported bottomfish as the target species when asked by CRFS samplers. Deeper nearshore rockfish accounted for 42 percent of the rockfish catch in 2013 followed by shelf and shallow nearshore (33 and 12, percent respectively); slope rockfish were rarely encountered due to the fact that fishing has been closed in deeper depths for a number of years. Black, vermilion, and bocaccio were the most frequently caught rockfish in 2013, followed by blue, copper and brown rockfishes. California scorpionfish, a closely related species in southern California, accounted for 7 percent of the rockfish catch in 2013. Of the non-rockfish groundfish, lingcod was most frequently caught (19 percent) in 2013. Lingcod was followed by sanddabs (all species combined), California sheephead (not a groundfish species, but a state nearshore species) and cabezon (4, 3 and 2 percent, respectively).

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Table 5. California recreational groundfish catch¹ (metric tons) for 2012-2013.

	2012	2013 ²		2012	2013 ²
Flatfish					
Butter sole	-- ³	0.0 ³	Rock sole	1.2	0.7
Dover sole	--	--	Sand sole	2.9	1.0
English sole	0.0	0.0	Starry flounder	0.9	0.9
Pacific sanddab	65.9	85.7	Unspecified sanddabs	1.9	5.6
Petrale sole	0.7	1.1	Flatfish total	73.6	95.1
Rockfish					
<i>Shallow nearshore</i>			<i>Shelf (continued)</i>		
Black and yellow rockfish	5.5	5.8	Flag rockfish	14.1	14.2
California scorpionfish	116.3	112.0	Greenspotted rockfish	17.8	11.1
China rockfish	13.8	10.0	Greenstriped rockfish	1.2	1.3
Gopher rockfish	52.4	41.2	Halfbanded rockfish	3.9	3.3
Grass rockfish	20.8	9.8	Honeycomb rockfish	6.2	9.2
Kelp rockfish	19.1	19.2	Rosy rockfish	5.6	5.5
<i>Deeper nearshore</i>			Speckled rockfish	9.6	15.5
Black rockfish	210.4	362.6	Squarespot rockfish	4.4	16.6
Blue rockfish	51.8	106.2	Starry rockfish	23.4	24.0
Brown rockfish	70.3	81.7	Vermilion rockfish	219.5	210.7
Calico rockfish	5.1	0.9	Widow rockfish	5.2	17.8
Copper rockfish	79.9	98.8	Yellowtail rockfish	53.5	55.9
Olive rockfish	31.6	20.3	Misc. shelf rockfish ⁴	17.1	16.5
Quillback rockfish	6.3	2.9	<i>Slope</i>		
Treefish	11.0	13.1	Bank rockfish	0.6	0.3
<i>Shelf</i>			Redbanded rockfish	0.1	--
Bocaccio	124.7	130.8	<i>Unspecified rockfish</i>	160.0	215.0
Chilipepper rockfish	7.7	7.3	Rockfish total	1368.7	1639.4
Roundfish					
Cabezon	43.3	39.3	Pacific whiting	0.1	0.0
California sheephead	43.0	61.3	Rock greenling	10.1	0.7
Kelp greenling	12.9	13.7	Sablefish	0.0	0.1
Lingcod	281.4	433.1	Unspecified greenlings	0.0	--
Monkeyface prickleback	6.2	2.2	Roundfish total	396.9	550.4
Sharks and skates					
Big skate	0.1	6.6	Soupin shark	0.4	0.6
California skate	0.0	0.3	Spiny dogfish	2.8	7.0
Leopard shark	35.3	14.0	Unspecified skates	--	0.0
Longnose skate	--	0.0	Sharks and skates total	38.6	28.6
GRAND TOTAL				1878	2314

Notes:

1. Recreational catch includes sampler examined catch and observed discarded dead catch.
2. Catch data for 2013 are preliminary.
3. Zero (0.0) indicates that less than 1 metric ton was caught; -- indicates no catch was recorded.
4. Misc. shelf rockfish combines species for which there was less than 1 metric ton caught per year.

Source: Pacific Recreational Fisheries Information Network (RecFIN).