The South Coast's Recreational Fisheries

In California, **recreational anglers can fish from beaches, piers, jetties, docks, and aboard private and Commercial Passenger Fishing Vessels (CPFVs).** Due to the numerous fishing areas available within the South Coast, which encompasses California's jurisdictional waters (0-3 nautical miles from shore) from Point Conception in Santa Barbara County to the US-MEX border, including offshore islands, sampling recreational anglers can be more difficult and time intensive than sampling their commercial counterparts. Scientists at the California Department of Fish and Wildlife (CDFW) collect data to estimate total annual catch and effort through two different avenues: **the California Recreational Fisheries Survey (CRFS) and the CPFV logbooks.**

CRFS Estimates

To address the issue of recreational harvest of marine finfish, the CRFS project uses survey protocols implemented in 2005 to estimate catch and effort for finfish caught in California from four different fishing modes: private and rental boats, CPFVs, man-made structures (e.g. piers), and beach/bank coastal features. Currently, the CRFS method for estimating CPFV catch and effort is being revised to incorporate information from the CPFV logbooks. Because of this, the catch and effort estimates presented in this report regarding CPFVs are calculated from the CPFV logbook data only.

CRFS Estimates details continued on page 2.

CPFV Logbooks

CPFV logbook data are one of the only resources available that document actual take of finfish for recreational purposes. CPFV operators are required to submit logbooks about every trip, detailing the number of anglers aboard, the number of hours fished, number and species of fish kept, as well as numerous other metrics. These logbooks have provided CDFW with consistent data about this component of recreational fisheries since the 1930s, allowing for long-term analysis of South Coast recreational fisheries.

CPFV Logbook details continued on page 4.

CRFS Effort and Catch Estimates

Annually, CRFS samplers complete over 7,000 sampling assignments and made over 68,000 contacts with fishermen statewide, collecting data to produce effort and catch estimates for all sport caught finfish.

Effort–the number of angler trips–in the South Coast for this report period, decreased from a region-wide high of approximately 2.5 million trips in 2006 to a low in 2011 with less than 1.7 million angler trips taken amongst all fishing modes (Figure 1). Estimates for the 2010 beach/bank and 2011 man-made modes only account for part of the year due to curtailed sampling.

While the annual estimated number of angler trips rebounded in 2012, effort declined in 2013-2015 with approximately 1.9 million total trips in the South Coast in 2015. Despite the overall decline, **the number of angler trips on private vessels and CPFVs increased from 2012-2015, with CPFVs reaching a decade high of approximately 654 thousand trips in 2015.**

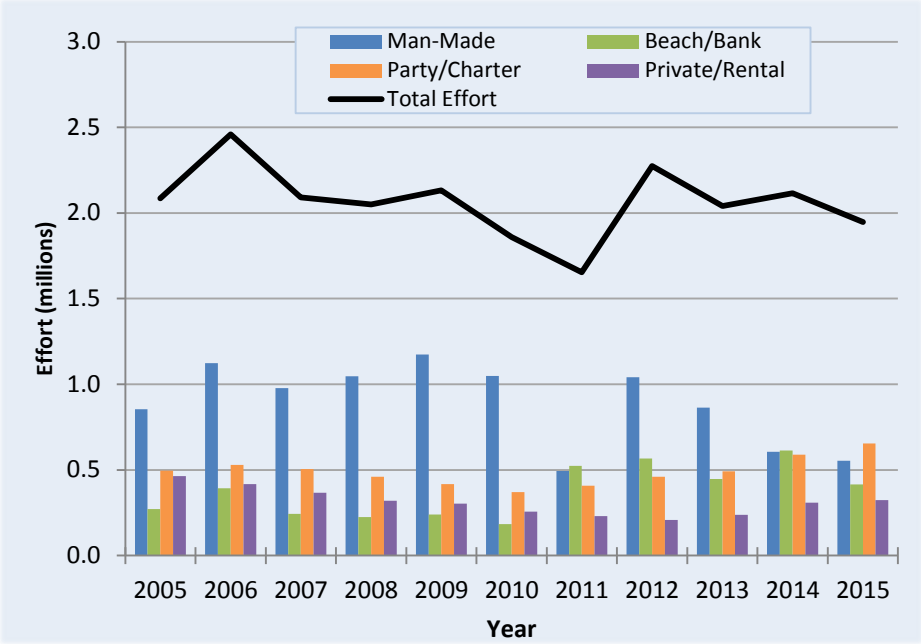
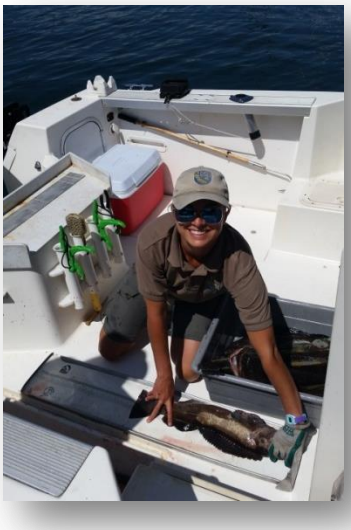


Figure 1. CRFS estimates regarding effort (number of angler trips) for man-made, beach/bank, and private/rental vessel fishing modes, in the South Coast, 2005-2015. Due to reduced CRFS sampler trips on CPFVs to accommodate more paying passengers, CPFV logbook data was used to display effort for party/charter vessels. Southern California Region (ocean only) from 2005-2015. Data source: CDFW.



Fast Facts

- **Sportfishing can be affected by the weather, gas prices, the economy, the time of year, and fishing seasons.**
- **Any person who is 16 years of age or older must have a sport fishing license to take any type of fish in state waters unless fishing from a public pier.**
- **CDFW has a California fishing passport program to challenge people throughout the state to catch 150 different fish and shellfish species.**

Retained catch—the number of finfish examined by CRFS samplers or reported kept within CPFV logbooks—for the four fishing modes declined from 4.1 million fish kept in 2006 to a region wide low of approximately 2.6 million fish kept in 2010. Retained catch then increased from 2010-2012, and has since been on the decline primarily driven by fewer fish kept when fishing from man-made structures (Figure 2). Despite the declines, **both boat-based fishing modes showed stable or increasing retained catch since 2010.**

Total catch—the number of finfish examined by CRFS samplers, reported kept within CPFV logbooks, or released dead–for the four fishing modes declined from a high of 7.2 million finfish removed in 2006 to a low of 3.9 million finfish removed in 2015 (Figure 3). Estimates of total catch for the 2010 beach/bank and 2011 man-made modes only account for part of the year due to curtailed sampling.

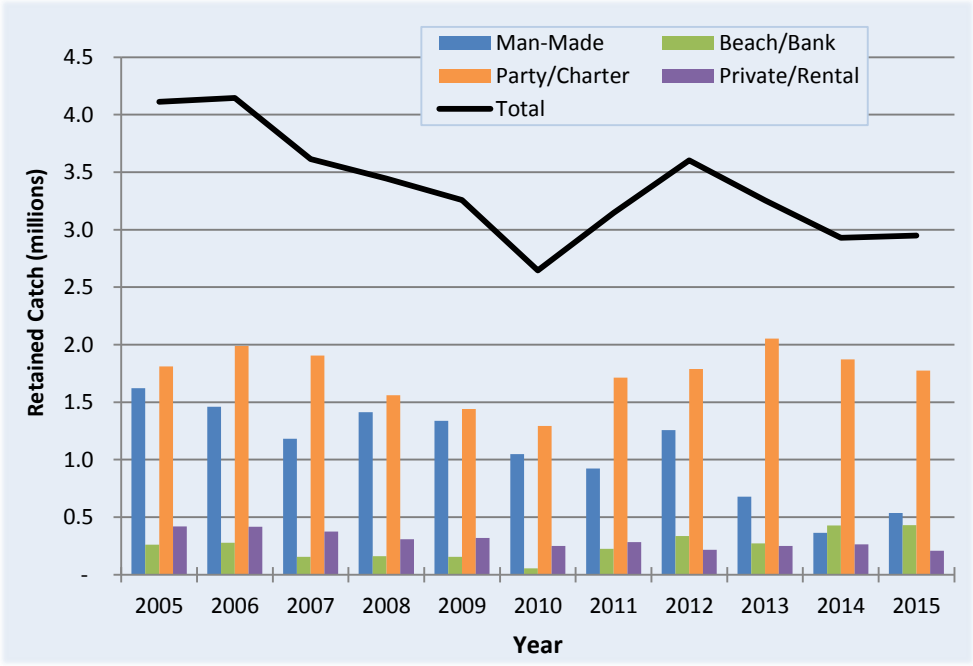


Figure 2. CRFS estimates regarding retained catch (total number of finfish kept) for shore-based fishing modes and private/rental vessels. Due to reduced CRFS sampler trips on CPFV's to accommodate paying passengers, CPFV logbook data was used to display Retained catch for party/charter vessels. Southern California Region (ocean only), 2005-2015. Data source: CDFW.

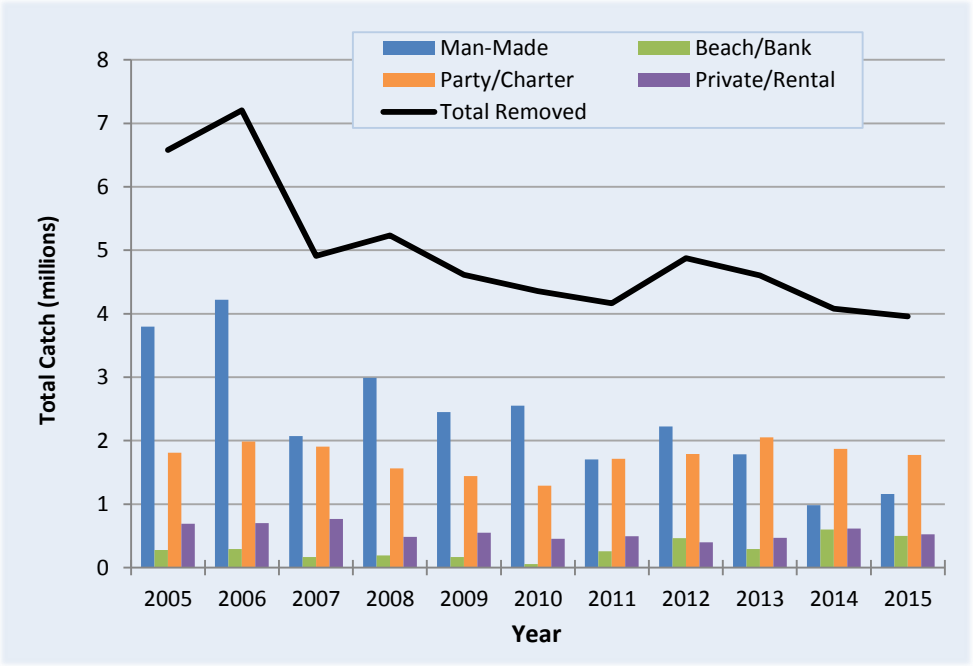


Figure 3. CRFS estimates regarding total catch (total number of finfish kept and released dead) for shore-based fishing modes and private/rental vessels. Due to reduced CRFS sampler trips on CPFV's to accommodate paying passengers, CPFV logbook data was used to display removed finfish for party/charter vessels. Southern California Region (ocean only), 2005-2015. Data source: CDFW.

Shore Based Fishing Modes

The major components of catch in 2005 for shore-based fishing modes (man-made structures and beaches/banks) included Pacific Mackerel, Pacific Sardine, Queenfish, Barred Surfperch, and Jacksmelt.

The major components of catch for shore modes in 2015 included the same species as 2005 with one exception: Walleye Surfperch replaced Queenfish.

Boat Based Fishing Modes

The major components of catch in 2005 for boat-based fishing modes (CPFVs and private/rental vessels) included rockfish species (Bocaccio, Blue, Copper, Vermilion, and Gopher), Kelp Bass, Barred Sand Bass, and California Scorpionfish.

The major components of catch for boat modes in 2015 included the same five rockfish species as 2005, Sanddabs, Yellowtail, and California Scorpionfish.

CPFV Logbooks

CPFV captains are required to submit logbooks to CDFW on a monthly basis. This timely and consistent delivery of recreationally-based marine data provides a clear picture at a fine regional scale of fishing activity throughout the State. While CPFV logbooks help provide a clearer picture of recreational fishing effort from chartered vessels, the CRFS project continues to use field surveys in tandem with logbook data as a supplemental source of information. In the South Coast there are a multitude of ports available for CPFVs to launch from. The port groupings used for the analyses are provided on Table 1.

Table 1- Commercial passenger fishing vessel South Coast port groupings

Port Group	Port Name
Santa Barbara/ Ventura	Gaviota Beach; Santa Barbara Harbor; Goleta Beach; Ventura
Oxnard/Port Hueneme	Oxnard; Port Hueneme
Los Angeles	Malibu; Avalon; Los Angeles; Santa Monica; Marina Del Rey; Point Dume
Redondo Beach/San Pedro/Long Beach	Long Beach; Terminal Island; Redondo Beach; Hermosa Beach; Wilmington; San Pedro
Newport Beach	Newport Beach; Seal Beach; Balboa; Huntington Beach
Dana Point	Dana Point
Oceanside	Oceanside
San Diego/Mission Bay	Mission Bay; La Jolla; Imperial Beach; San Diego; Point Loma; National City; Chula Vista

CPFVs: Vessel Numbers

For the report period, the total number of CPFVs operating in the South Coast reached a high in 2014 with 340 vessels in operation (Figure 3). This peak followed a steady increase in number of operational vessels that started in 2010. The number of CPFV vessels showed a slight decline in 2015; even so, the number in 2015 was the second highest throughout the years of 1992-2015. **The San Diego/Mission Bay port group experienced the largest increase in the total number of CPFVs, increasing from 41 vessels in 1993 to 146 vessels in 2014**. Although not quite as large, the Los Angeles port group as well as the Redondo Beach/San Pedro/Long Beach port group also increased in overall CPFV numbers. The remaining port groups maintained a steady level of CPFVs, with **little to no loss in vessel numbers**.

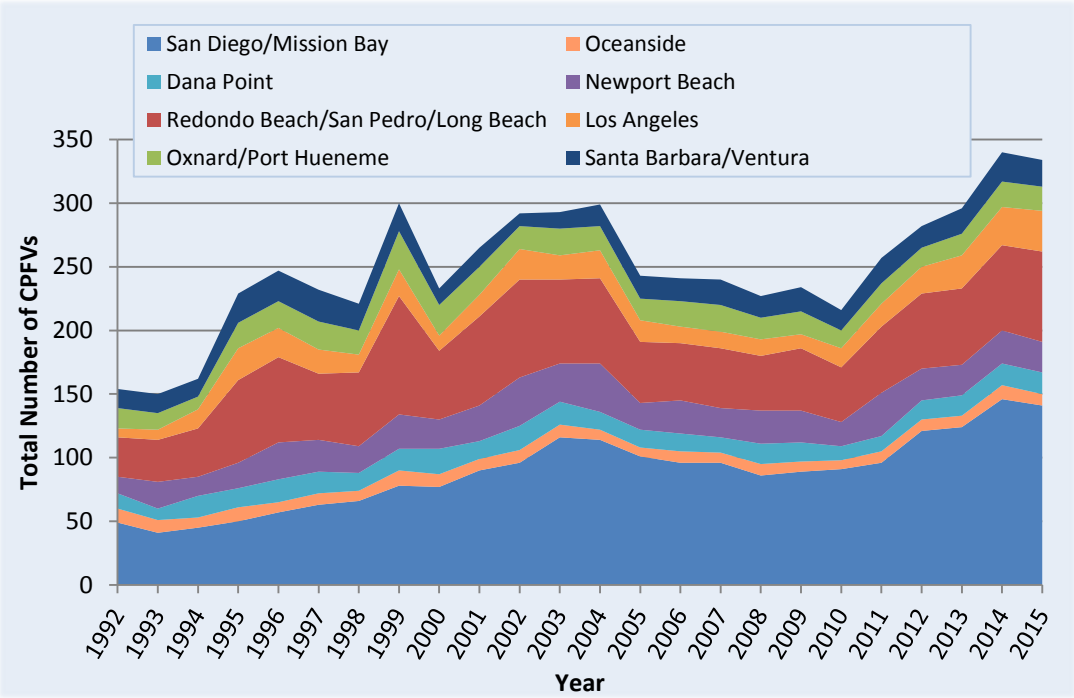


Figure 3. Total number of CPFV's fishing in the South Coast from 1992-2015. Port groups identified in Table 1. Data Source: CDFW.

CPFVs: Trip and Anglers

The total number of CPFV trips within the South Coast decreased steadily from a high of approximately 27,000 trips in 1997 to a low of approximately 17,500 trips in 2010 (Figure 4). During this decline, the average number of anglers per vessel also decreased from a high of approximately 26 anglers per vessel in 1997 to a low of approximately 21 anglers per vessel in 2010. The total number of CPFV trips then increased from 2011-2015. However, during this same time period, the average number of anglers per vessel declined, averaging between 22-23 anglers per vessel.

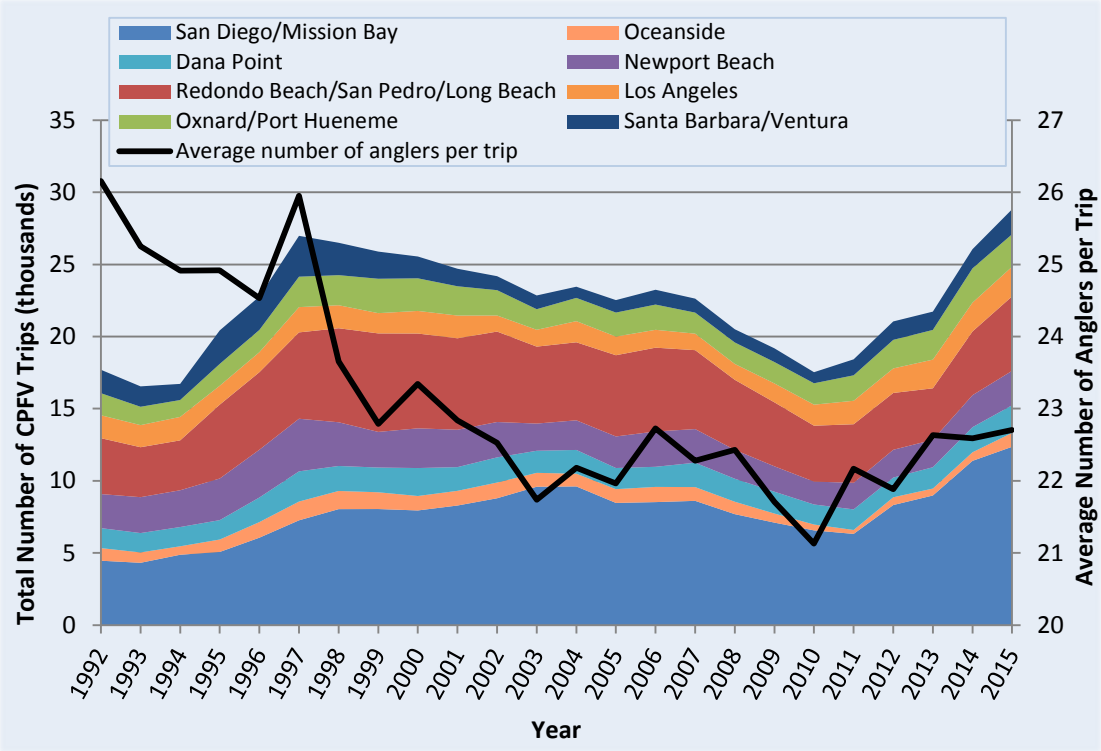


Figure 4. Total number of CPFV trips and average number of anglers per trip within the South Coast from 1992-2015. Port groups identified in Table 1. Data source: CDFW.

During the trips taken by CPFVs from 1992-2015, **rockfish species were the most commonly landed marine finfish (with landings increasing 4x from 2003 to 2015) followed by Barred Sand Bass, Kelp Bass, and California Scorpionfish (Figure 5).** After 2004, Barred Sand Bass contributed less to the overall number of fish landed, declining by more than 90% when compared to the total catch landed in 1992 relative to 2015. Similarly, coastal pelagic species (includes Pacific Mackerel, Jack Mackerel, and unspecified Mackerel) and California Barracuda both declined by more than 90% from 1992 to 2015, and Kelp Bass declined by approximately 76% within the same time frame. Countering these declines, landings of Sanddabs, Yellowtail, and Ocean Whitefish increased approximately 113x, 6x, and 2x respectively from 1992 to 2015.

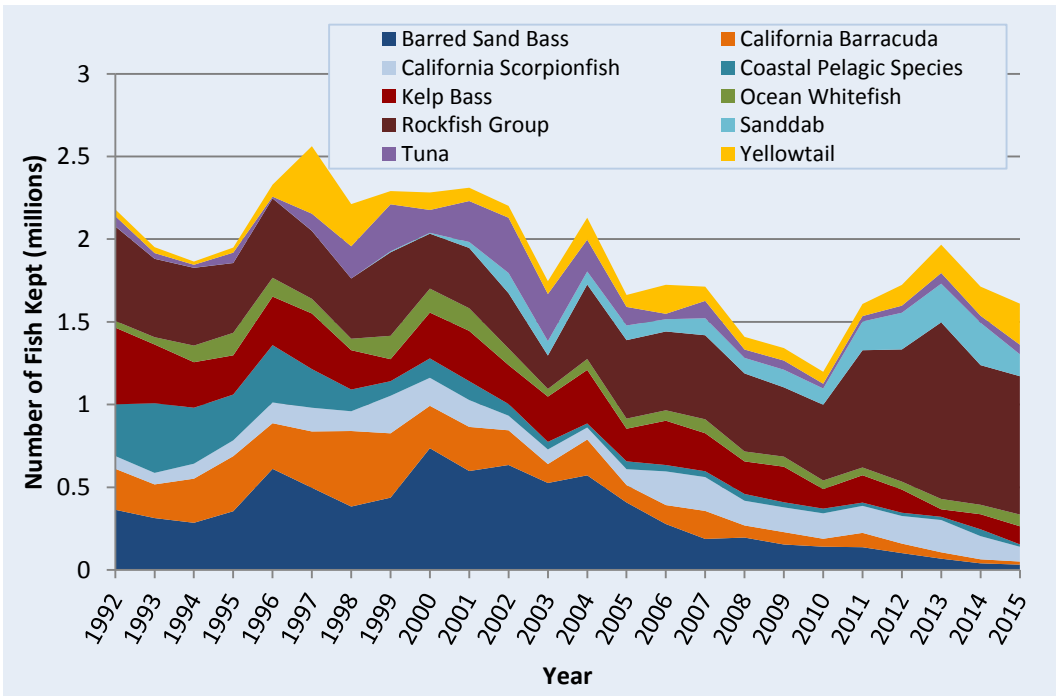


Figure 5. Total number of the top 10 species kept during CPFV fishing trips within the South Coast from 1992-2015. Data source: CDFW.

CDFW Fishery Research

Research conducted by environmental scientists at CDFW revealed that a combination of environmental changes and fishing effort contributed to the decline in Kelp and Barred Sand Bass populations in the South Coast during the 2000's (Figure 5). They found saltwater bass larval abundance to be consistently low from 1999-2003 (indicating a period of potential recruitment failure). This recruitment failure coincided with colder than average sea surface temperatures, and increased fishing effort on the adult populations of Kelp Bass and Barred Sand Bass. The culmination of stressors contributed to the declines in catch-per-unit-effort observed in the mid-2000's, and offers a possible factor as to why Yellowtail and Sanddabs were able to replace Barred Sand Bass and Kelp Bass as top fished species in the South Coast beginning in the late-2000's.

Landed Species

The overwhelming majority of rockfish landed from 1992-2015 were unspecified. However, beginning in 2000 the CPFV logbook format changed to capture commonly landed rockfish species. **Of the rockfish species identified, Bocaccio was landed the most frequently followed by Copper and Blue** (Figure 6).

Rockfish are found throughout the South Coast, with many residing in areas that may be afforded protections by MPAs. Most of California's MPAs extend from shore to the jurisdictional 3 nautical mile offshore state line; so the majority of rockfish that may be found within an MPA are the 13 species that make up a management group known as nearshore rockfish. These 13 nearshore rockfish species are further subdivided into shallow nearshore species and deep nearshore species (Table 2). Of the 13 nearshore species, Gopher Rockfish, Copper Rockfish, and Blue Rockfish, are the most commonly recorded species in the South Coast CPFV logbooks (Table 2 and Figure 7).

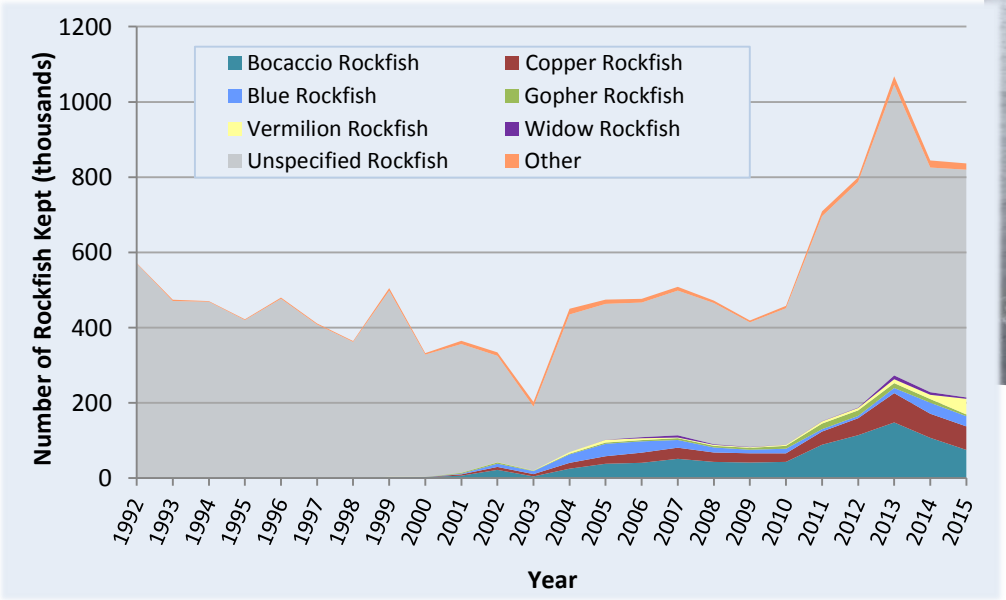


Figure 6. Total number of rockfish kept during CPFV fishing trips within the South Coast from 2004-2015. Data source: CDFW.

Table 2- Total number of nearshore rockfish species reported kept by CPFV operators within the South Coast from 2004-2015. Data source: CDFW

	Shallow Nearshore Rockfish Species					***Deep Nearshore Rockfish Species***							
Year	**Black and Yellow**	**China**	**Gopher**	**Grass**	**Kelp**	**Black**	**Blue**	**Brown**	**Calico**	**Copper**	**Olive**	**Quillback**	**Treefish**
2004	102	32	2,040	3	1	1	22,371	0	0	15,505	21	0	36
2005	2	1	3,447	11	10	190	32,969	151	0	20,059	234	1	53
2006	51	24	3,370	14	0	1	30,062	2	0	27,021	14	0	35
2007	17	97	4,891	0	11	17	20,443	0	0	29,621	3	0	37
2008	161	124	4,293	0	1	0	13,382	0	0	25,064	24	0	17
2009	14	0	5,231	0	32	33	9,426	0	0	24,533	0	0	24
2010	73	0	7,640	0	4	2	12,269	300	0	22,645	20	0	57
2011	164	0	14,989	36	115	69	6,305	418	0	35,027	22	0	69
2012	1	3	14,779	21	0	34	6,129	755	7	45,077	36	0	68
2013	0	112	12,940	0	1	175	13,676	17	70	77,977	505	0	39
2014	10	30	9,735	0	2	106	29,327	0	173	64,032	220	0	58
2015	0	123	4,569	53	10	8	27,162	356	2	62,546	3,527	0	250
Total	595	546	87,924	138	187	636	223,521	1,999	252	449,107	4,626	1	743

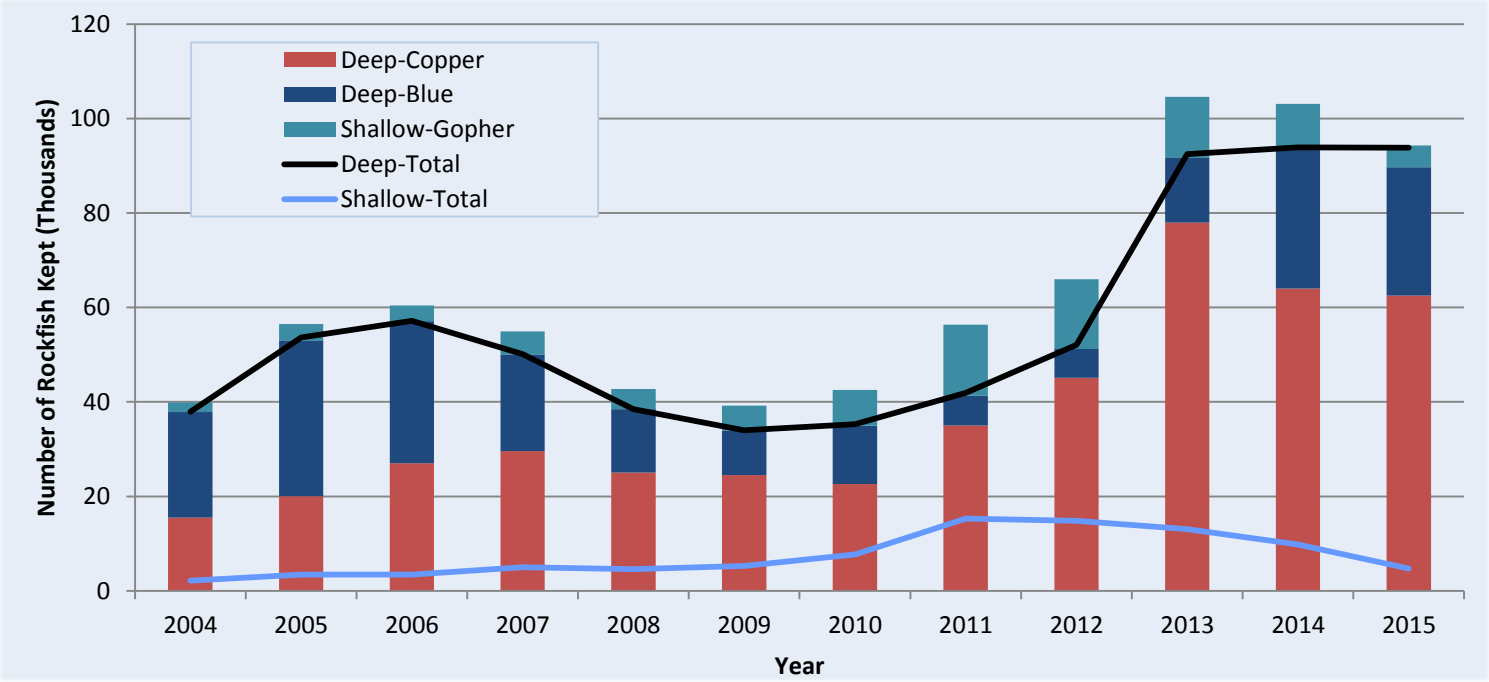


Figure 7. Top three nearshore rockfish species, and total number of shallow and deep nearshore rockfish groupings, recorded as kept during CPFV fishing trips within the South Coast from 2004-2015. Data source: CDFW.

A number of factors can affect trends in CPFV effort and catch, including oceanographic conditions, target species availability, fuel prices, the state of the economy, and regulation changes. With only three years of post-MPA data available, it is not possible at this time to tease out the impacts of MPA implementation from the myriad of other factors. Additional years of data may make such an evaluation possible.

Acknowledgements

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