

12 Black Rockfish, *Sebastes melanops*



Black rockfish, *Sebastes melanops*. Photo credit: Edgar Roberts.

History of the Fishery

The black rockfish, *Sebastes melanops*, is an important recreational and commercial species in the nearshore rockfish group, particularly in areas north of San Francisco.

Black rockfish are an important commercial nearshore species in California, specifically in the Crescent City port complex; 74 percent, by weight, of all black rockfish were landed there over the past decade. Black rockfish are recorded specifically in the market category “black rockfish” on landing receipts, but some black rockfish may also be recorded in other market categories such as “blue rockfish” or “rockfish, group black/blue.” Conversely, due to similarity in appearance, blue rockfish are sometimes recorded as “black rockfish” on landing receipts.

Black rockfish are part of the deeper nearshore species complex composed of black, blue, brown, calico, copper, olive, quillback and treefish rockfishes. Since 2003, a Deeper Nearshore Species Fishery Permit (DNSFP) has been required to take deeper nearshore species. Black rockfish are caught primarily using hook and line gears, with marginal amounts caught in traps. In the past, black rockfish were also caught using trawl gear or gill nets. Since 1998, commercial landings of black rockfish made up approximately 52 percent of deeper nearshore rockfish species landings by weight. Commercial landings of black rockfish fluctuated between 110,603 pounds (50 metric tons) and 229,640 pounds (104 metric tons) from 1998 to 2008 (Figure 12-1) but showed no distinct trend. Many of the decreases in annual landings correspond to changes in management structure, as discussed below in Management Considerations. Annual ex-vessel value for black rockfish ranged between \$98,219 in 1999 to \$436,900 (Figure 12-1) in 2008 even though landings of black rockfish have not increased overall.

During the last decade, the live fish fishery for nearshore species has expanded drastically, especially for black rockfish (Figure 12-2). Black rockfish are a fairly hearty fish that can withstand the stresses of being caught and transported to the end destination. Fish landed live often command a premium price (sometimes over \$8.00 per pound; \$17.60 per kilogram) which contributed to the increase in ex-vessel value over the last decade despite no increasing trend in landings (Figure 12-1). Beginning in

2002 and continuing through 2008, more than half of all landings of black rockfish are of live fish (Figure 12-2).

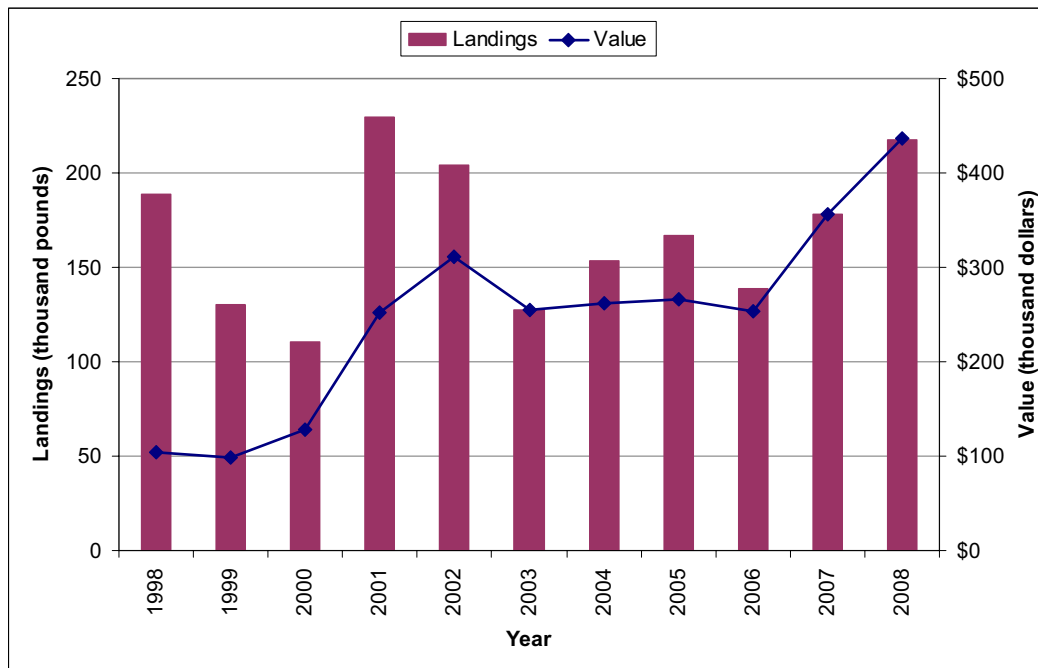


Figure 12-1. Black rockfish commercial landings and value, 1998-2008. Data source: CFIS data, all gear types combined.

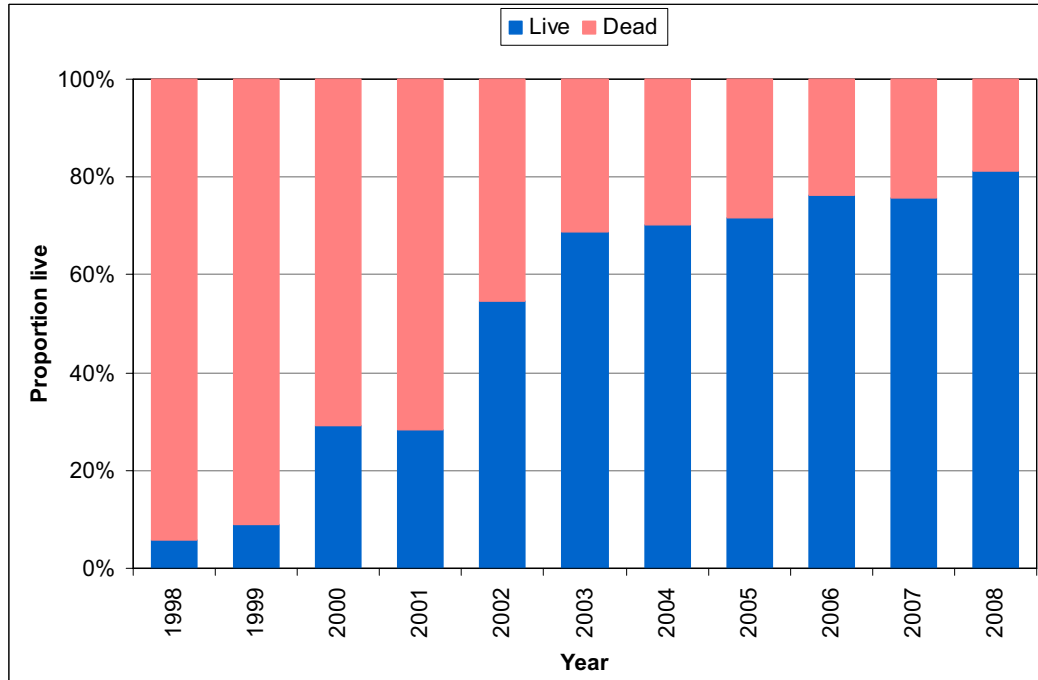


Figure 12-2. Proportion of black rockfish landed live in the commercial fishery, 1998-2008. Data source: CFIS data, all gear types combined.

Recreationally, black rockfish are considered a primary target species due to their size and relative abundance along the central and northern parts of the California coast. Recreational fishery surveys collect data from California's recreational fisheries, the Marine Recreational Fishery Statistical Survey (MRFSS)—from 1980 to 2003, and the California Recreational Fishery Survey (CRFS)—begun in 2004 and ongoing. Due to changes in the sampling protocol and how the data are used to estimate catch these two surveys are not comparable. Data from the MRFSS program show that estimates of black rockfish from 1998 through 2003 ranged from 161,000 to 736,000 fish kept (Figure 12-3) although the high estimate for 2003 is considered questionable. Recreational landings data for black rockfish from 2004 to 2008 (CRFS data) show a range of 156,000 to 218,700 fish landed annually with the lowest catch in 2007 and the highest catch in 2005 (Figure 12-4).

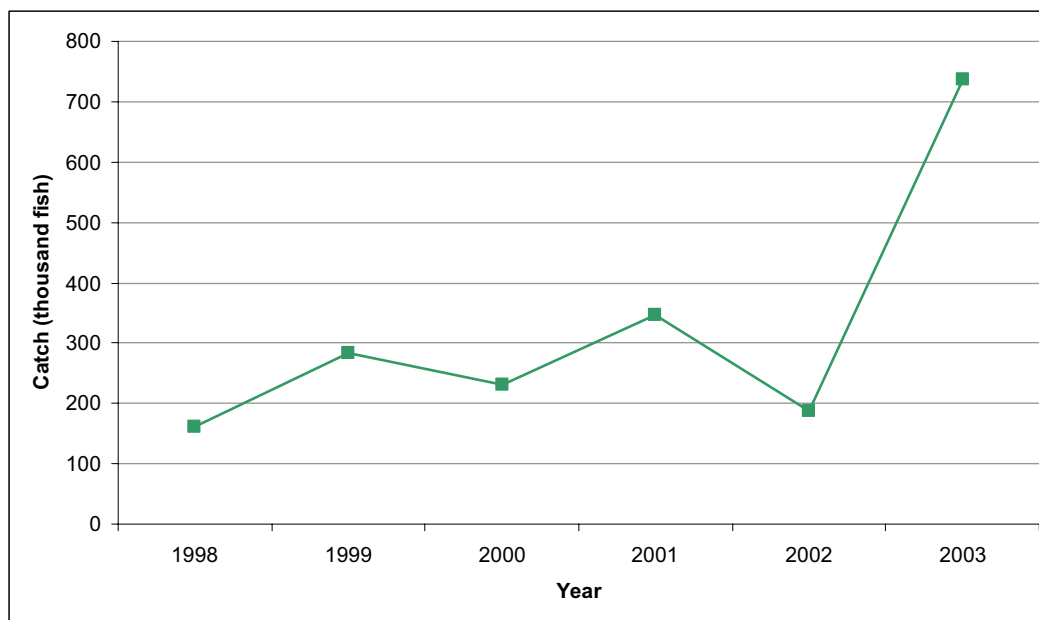


Figure 12-3. Black rockfish recreational catch, 1998-2003. Data source: MRFSS data, all fishing modes and gear types combined.

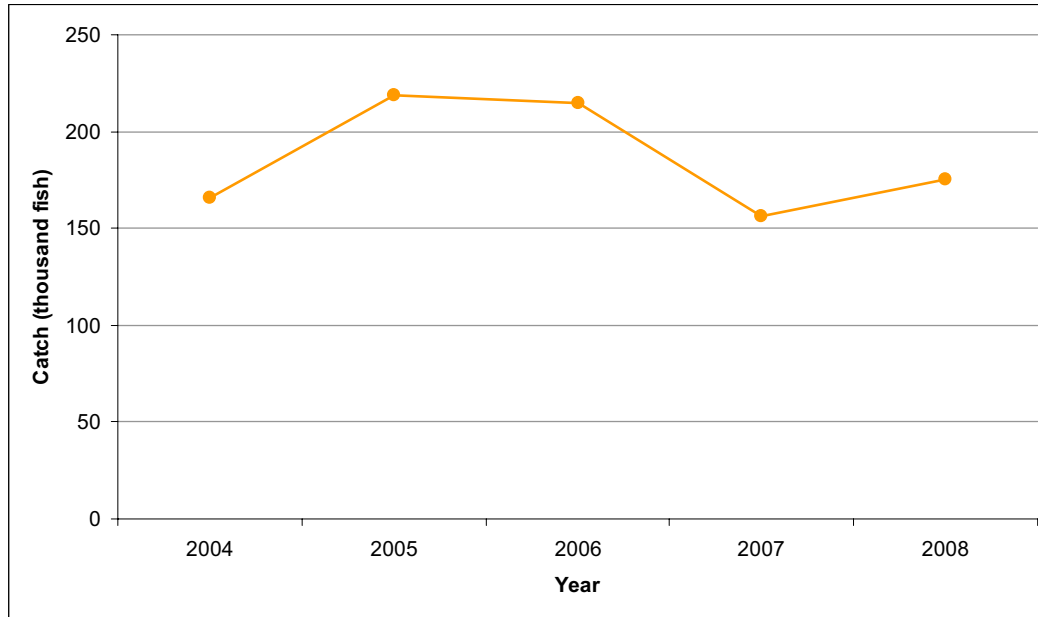


Figure 12-4. Black rockfish recreational catch, 2004-2008. Data source: CRFS data, all fishing modes and gear types combined.

Black rockfish are landed in the following modes of the recreational fishery: private/rental boats (63 percent), commercial passenger fishing vessels (CPFVs) (33 percent), beaches and banks (2 percent), and man made structures (2 percent). Catch estimates from 2004 to 2008 were distributed from north to south as follows: Del Norte and Humboldt counties (44 percent), Mendocino County and Shelter Cove (15 percent), Sonoma and San Mateo counties (32 percent), and from Santa Cruz to San Luis Obispo counties (9 percent). Black rockfish were not landed south of Point Conception.

The CPFV logbook did not list individual rockfish species until 2005; prior to that it only listed unspecified rockfish. However, when black rockfish began being reported in the CPFV logbook data in 2005, 23,374 fish were reportedly landed; catch peaked in 2007 with 65,771 black rockfish reportedly landed (Figure 12-5).

Recreational catch of black rockfish has decreased by 22 percent from 2005 to 2008 (Figure 12-4), mostly due to changes in management and season structure, as discussed in the Management Considerations section below. The average length of retained fish from 1998 to 2008 (MRFSS and CRFS data) is 13.2 inches (33.5 centimeters) with no increasing or decreasing trends in overall average length of retained fish (Figure 12-6).

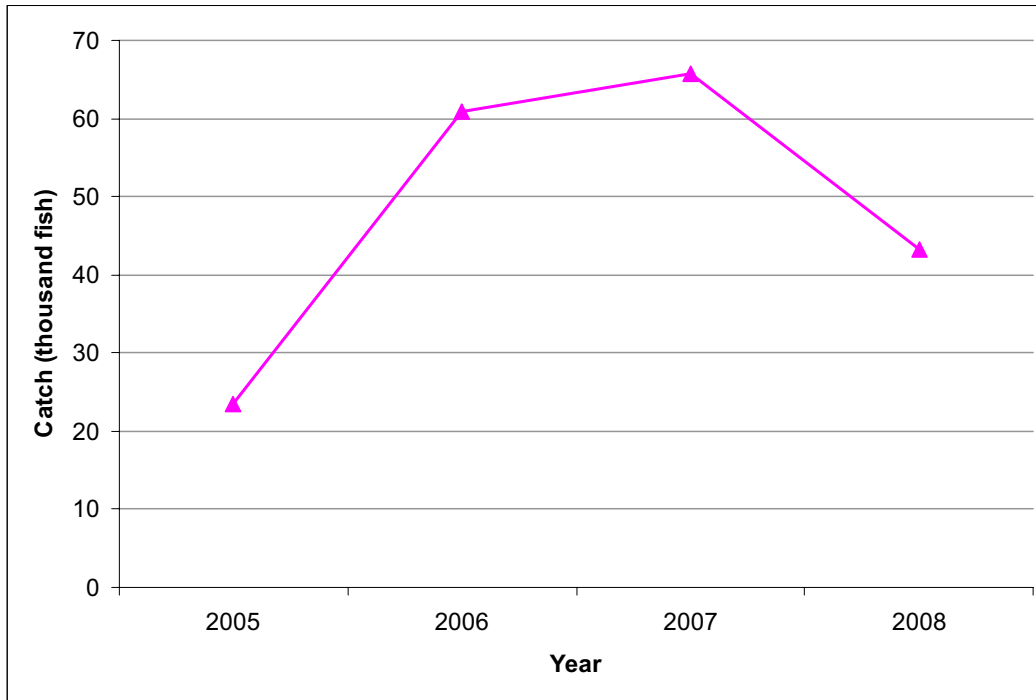


Figure 12-5. Black rockfish commercial passenger fishing vessel (CPFV) catch, 2005-2008. Data Source: CPFV logbook data.

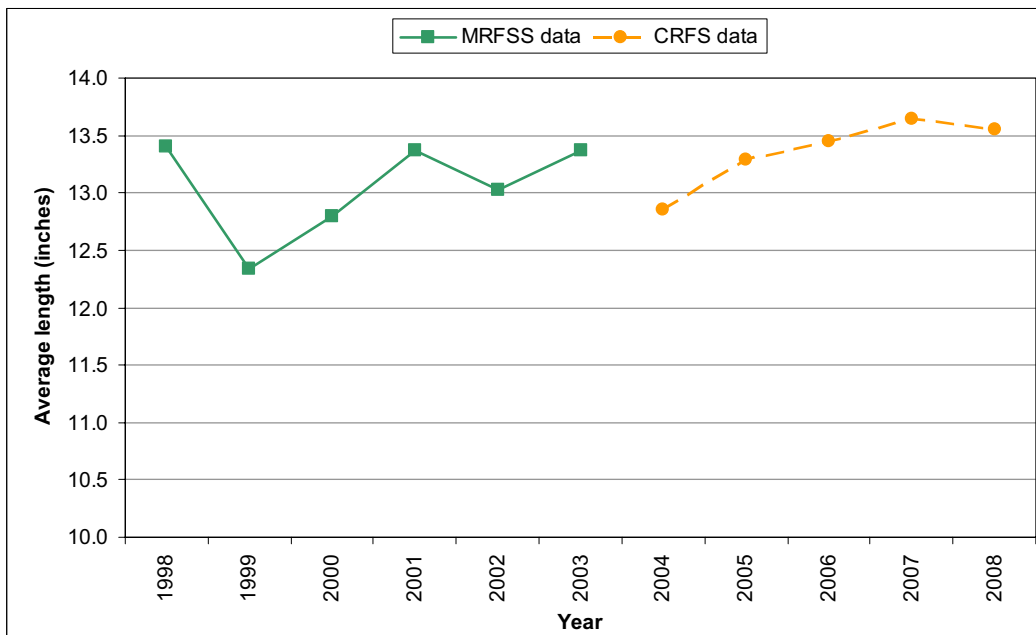


Figure 12-6. Black rockfish average length for the recreational fishery, 1998-2008. Data source: MRFSS (1998-2003) and CRFS (2004-2008) data, all fishing modes and gear types combined.

Status of Biological Knowledge

Black rockfish are found from Amchitka Island (Aleutian Islands, western Alaska) to Huntington Beach (southern California) but are uncommon south of Santa Cruz, California. They occur in depths ranging from 0 to 1200 feet (0 to 366 meters) but most often are found in waters shallower than 180 feet (55 meters). Black rockfish frequently occur in schools, sometimes schooling with blue, yellowtail, widow, or dusky rockfishes, but may also be found resting on or near rocky bottoms.

Male black rockfish transfer their sperm to the females in July and August, and the females store the sperm until their eggs mature, usually between September and November. Larval release occurs from January through May; individual females produce between 125,000 and 1,200,000 eggs per season. Larvae are pelagic until they are four to six months old, or 1 to 1.5 inches in length (3 to 4 centimeters), at which time they settle out of the plankton and inhabit nearshore intertidal and estuarine areas generally shallower than 65 feet (20 meters). Juvenile and adult black rockfish primarily feed on crab megalops larvae, amphipods, isopods and other fishes (including other rockfish). As they grow larger, black rockfish tend to inhabit deeper waters, but may frequent shallower depths in the summer months. Black rockfish grow quickly, with most individuals having entered the fishery by the time they are 3 to 4 years old, or 10 to 11.5 inches (25 to 29 centimeters) in length. Half the population will be mature at 6 to 7 years of age, or 14 inches (36 centimeters) in males and 16 inches (41 centimeters) in females. Males reach a maximum size earlier than females and mature at a smaller size and younger age. Females grow larger than males with maturity of all females occurring by 9 years of age, or 17 inches (43 centimeters). The largest recorded black rockfish was 27.6 inches (69 centimeters) and 11 pounds (5 kilograms). Black rockfish have been known to live up to 50 years.

Black rockfish are often confused with blue rockfish because they are similar in appearance. Features that distinguish black rockfish from blue rockfish include the former's relatively large mouth with the maxilla extending behind the eye, a rounded anal fin, black speckling on the dorsal fin, and a wide light grey area along the lateral line.

Limited tagging studies in California, and more recent tagging studies in Oregon, have shown black rockfish generally have relatively small home territories, although several individuals have been recaptured tens or even hundreds of miles from the original tagging location. A study published in 2008 gives insight to vertical migration in black rockfish on a daily and yearly basis. The study also suggests black rockfish maintain their swim bladder at a smaller volume than neutral presumably to avoid the detrimental effects that rapid decompression in shallow depths can produce.

Status of the Population

There have been two recent stock assessments for black rockfish occurring off the coast of California and Oregon: the first in 2003, followed by one in 2007. Despite the population dipping into the "precautionary zone" (defined below), both recent assessments found the current black rockfish stock to be healthy. The 2007

assessment estimated current spawning stock biomass was about 70.9 percent of the unfished size. While the results of the stock assessments apply to black rockfish in both Oregon and California, much of the data analyzed in the assessments were from Oregon samples as California had very little fishery-dependent or -independent life history data. Future stock assessments for black rockfish would benefit from having additional length and age data as well as more comprehensive recreational and commercial catch records for California.

Management Considerations

Black rockfish are currently managed under joint jurisdiction by the California Department of Fish and Game (Department) and the federal Pacific Fishery Management Council (PFMC). Prior to 1982, black rockfish was managed under state jurisdiction by the Department along with the California Fish and Game Commission, and the state legislature. Black rockfish was designated a federal groundfish in 1982 when the PFMC implemented the Groundfish Fishery Management Plan. Since 2003, black rockfish may only be harvested commercially by a fishery participant in possession of a state Deeper Nearshore Species Fishery Permit.

Prior to the year 2000, the PFMC managed black rockfish as part of the “other rockfish” complex and did not assign a separate Allowable Biological Catch (ABC) or Optimum Yield (OY) for black rockfish. In an effort to control fishing pressure, beginning in the year 2000, and continuing through 2003, PFMC assigned an ABC value for black rockfish landed north of 40° 10' North Latitude [near Cape Mendocino (Humboldt County)], but allowed black rockfish landed south of 40° 10' North Latitude to continue being managed as part of the “other rockfish” complex. In 2004, PFMC established a management line for black rockfish at the border between Oregon and Washington and assigned separate ABC and OY values for the two areas (Washington is assigned the northern portion and Oregon and California share the southern portion). There is a further division of the southern section of the OY into harvest guidelines (HGs): north of 40° 10' North Latitude (Washington/Oregon border to Cape Mendocino, Humboldt County) which is shared through a formal agreement between California and Oregon, and south of 40° 10' North Latitude (Cape Mendocino to the U.S./Mexico border).

Commercial catch is managed by use of season, area, depth and gear restrictions, and bimonthly trip limits. Black rockfish are closed to commercial fishing south of 40° 10' North Latitude during March and April, but open year round north of 40° 10' North Latitude. Depth constraints keep commercial nearshore fishers in fairly shallow waters (less than 180 feet; 55 meters) to avoid impacts to yelloweye rockfish and other overfished species. Recreational catch is managed by the use of seasons, area, gear and depth restrictions, and bag limits. The recreational groundfish season length differs from region to region with the most restrictive season lengths in the northern part of the state [fishery may be open only three months of the year north of Point Arena (Mendocino County)] and the most lenient season lengths in the southern region of the state [fishery is open nine months south of Point Conception (San Luis Obispo County)]. Daily bag limits for the rockfish, cabezon and greenling complex were

decreased to 10 fish, in combination, in 2000. More recent regulatory actions include the adoption of marine protected areas (MPAs) along the central California coast which may offer some protection to black rockfish. Under the current management structure, the recreational and/or commercial fisheries for nearshore groundfish (including black rockfish) may be closed early if the projected catch is expected to attain or surpass the ABC, OY or HG prior to the end of the season.

To further California's black rockfish management efforts in the future, more comprehensive life history and landings data from commercial and recreational fisheries are desirable.

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Further Reading

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Black rockfish commercial landings and value, 1998-2008.					
Year	Pounds	Value	Year	Pounds	Value
1998	188,642	\$104,438	2004	127,176	\$254,928
1999	130,194	\$98,219	2005	166,943	\$266,541
2000	110,603	\$128,183	2006	138,241	\$253,445
2001	229,640	\$252,488	2007	178,415	\$356,519
2002	203,909	\$311,199	2008	217,556	\$436,900
2003	127,176	\$254,928			

Data Source: CFIS data, all gear types combined.

Black rockfish recreational catch, 1998-2003.	
Year	Number of fish
1998	161,786
1999	282,997
2000	230,214
2001	346,179
2002	187,545
2003	735,698

Data Source: MRFSS data, all fishing modes and gear types combined.

Black rockfish recreational catch, 2004-2008.	
Year	Number of fish
2004	166,016
2005	218,689
2006	214,653
2007	155,950
2008	175,585

Data Source: CRFS data, all fishing modes and gear types combined.

Black rockfish CPFV catch, 2005-2008.	
Year	Number of fish
2005	23,374
2006	60,899
2007	65,771
2008	42,924

Data source: CFPV logbook data.