

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE REPORT ON CALIFORNIA CATCH
USED FOR 2021 DATA MODERATE GROUND FISH STOCK ASSESSMENTS

The California Department of Fish and Wildlife (CDFW) reviewed the draft assessment documents in the briefing book for quillback rockfish ([Agenda Item G.5, Attachment 10, June 2021](#)) and copper rockfish ([Agenda Item G.5, Attachment 6, June 2021](#)) ([Agenda Item G.5, Attachment 7, June 2021](#)) and have the following comments regarding data inputs. CDFW suggests there is a lot more that can be done within bounds of a data-limited assessment where catch streams are a primary source of input data. CDFW suggests catch information could be incorporated in more than just a single way, e.g., combined total statewide removals for all sectors. Off California, the minor nearshore complex is managed consistently with itself (other than black rockfish, which has its own specifications). Nearshore stocks have been managed together for 20 years such that evaluating the comparative catch contributions to the nearshore complex over time should largely negate any effects of the management changes (e.g., season lengths, depths or bag or trip limits) over time. These management changes have certainly affected the total volume of catch of these stocks over time, and in recent years, the relaxation of management measures has probably contributed significantly to recent increases in catch. Considering the proportion of catch relative to total catch of minor nearshore stocks over time is one very easy way to evaluate if contributions of a particular catch have changed over time, producing a different index of 'catch' beyond just total removals.

Quillback Rockfish

The output model indicates the stock is at 14 percent of minimum stock size threshold (MSST) with a resulting Overfishing Limit (OFL) of 2.67 mt and an Acceptable Biological Catch (ABC) of 0.83 mt in 2023 for California coastwide. As these length-based models are not inclusive of all data available used in full benchmark assessments, the resulting output scale of this OFL/ABC does not logically comport with the recent increasing take of quillback rockfish seen in both the sport and commercial sectors (Figures 1-4, Tables 1 and 2). It could be expected to see the opposite trend where there is no fish in the catch or severely declining catch given the depletion levels suggested in this assessment. CDFW recommends additional review of data inputs be conducted to understand this contrasting observation.

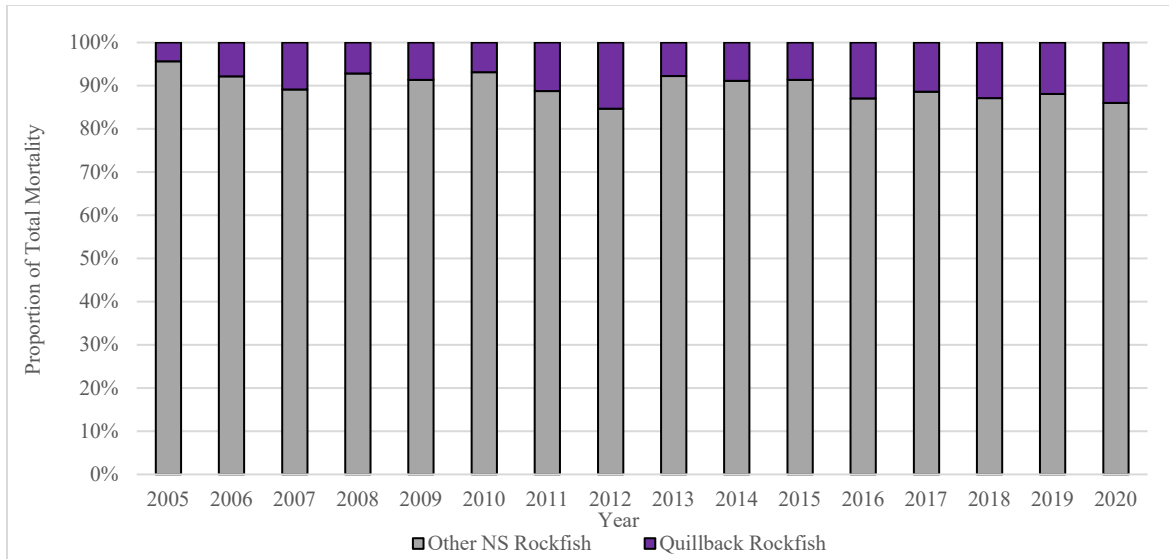


Figure 1. Proportion of recreational total mortality for quillback rockfish and other nearshore rockfish (except black rockfish) from the OR/CA border to Pt. Arena from 2005-2020. Data from RecFIN.

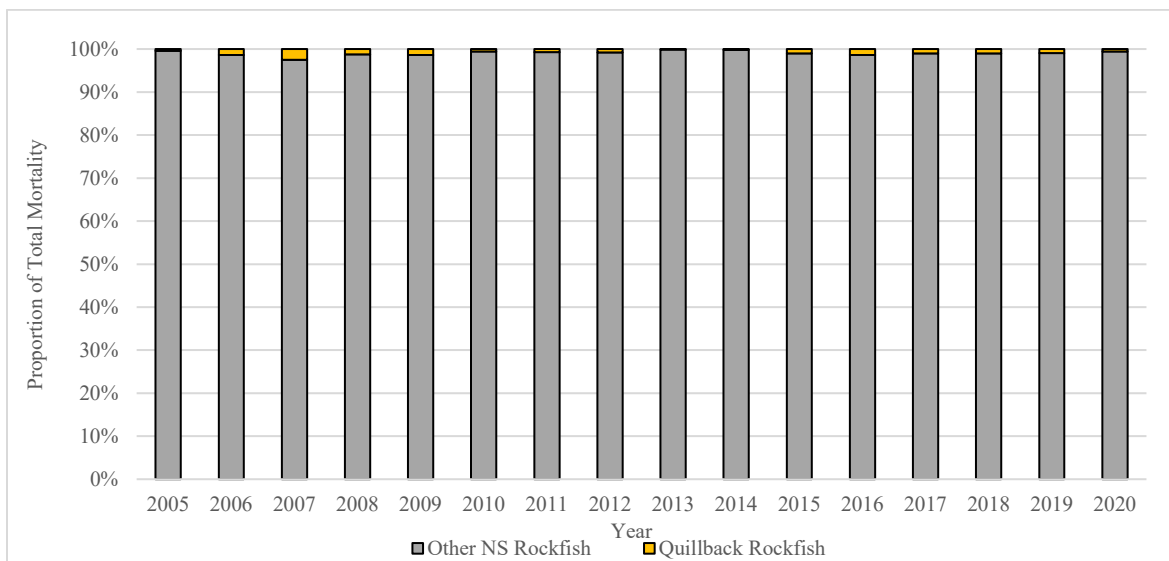


Figure 2. Proportion of recreational total mortality for quillback rockfish and other nearshore rockfish (except black rockfish) in California from Pt. Arena to Pt. Conception from 2005-2020. Data from RecFIN.

Table 1. Recreational total mortality (metric tons) for quillback rockfish and other nearshore rockfish (except black rockfish) in California from 2005-2020. Data from RecFIN. Recreational catch south of Point Conception is minimal and not included here.

Year	Quillback Rockfish (OR/CA border to 40° 10' N Lat.)	Other Nearshore Rockfish (OR/CA border to 40° 10' N Lat.)	Quillback Rockfish (40° 10' N Lat. to Point Conception)	Other Nearshore Rockfish (40° 10' N Lat. to Point Conception)
2005	2.20	10.66	3.50	509.03
2006	2.24	13.53	7.92	494.68
2007	3.21	13.71	9.50	323.28

2008	1.47	6.41	3.27	242.83
2009	1.71	8.31	4.02	228.99
2010	1.23	8.60	1.45	254.06
2011	2.30	6.34	2.20	256.78
2012	3.60	6.53	2.42	234.89
2013	1.95	7.13	0.95	251.80
2014	1.48	4.31	1.05	318.28
2015	2.62	8.94	4.80	406.52
2016	2.42	8.37	6.06	378.51
2017	4.22	14.09	5.55	435.97
2018	4.15	11.79	5.96	431.24
2019	5.22	15.50	6.24	449.51
2020	4.28	13.42	3.70	221.88

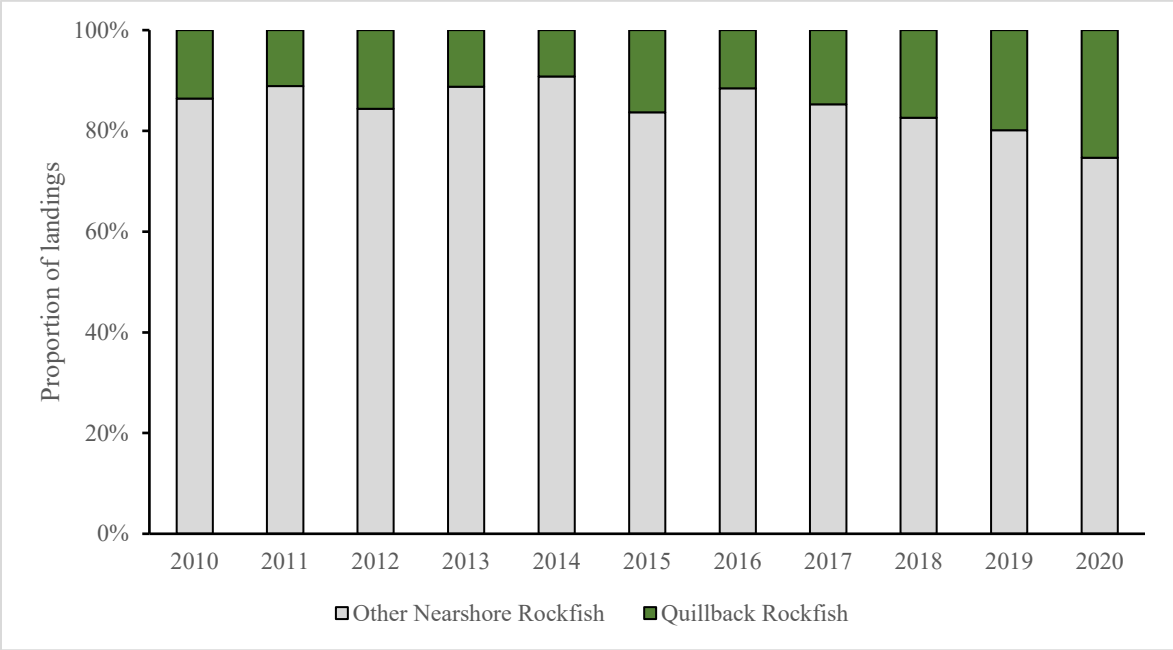


Figure 3. Proportion of commercial landings for quillback rockfish and other nearshore rockfish (except black rockfish) in California from the OR/CA border to 40° 10' N. Lat. from 2010-2021. Data from PacFIN. Data does not include discard mortality, which is estimated less than 0.01 mt for quillback rockfish.

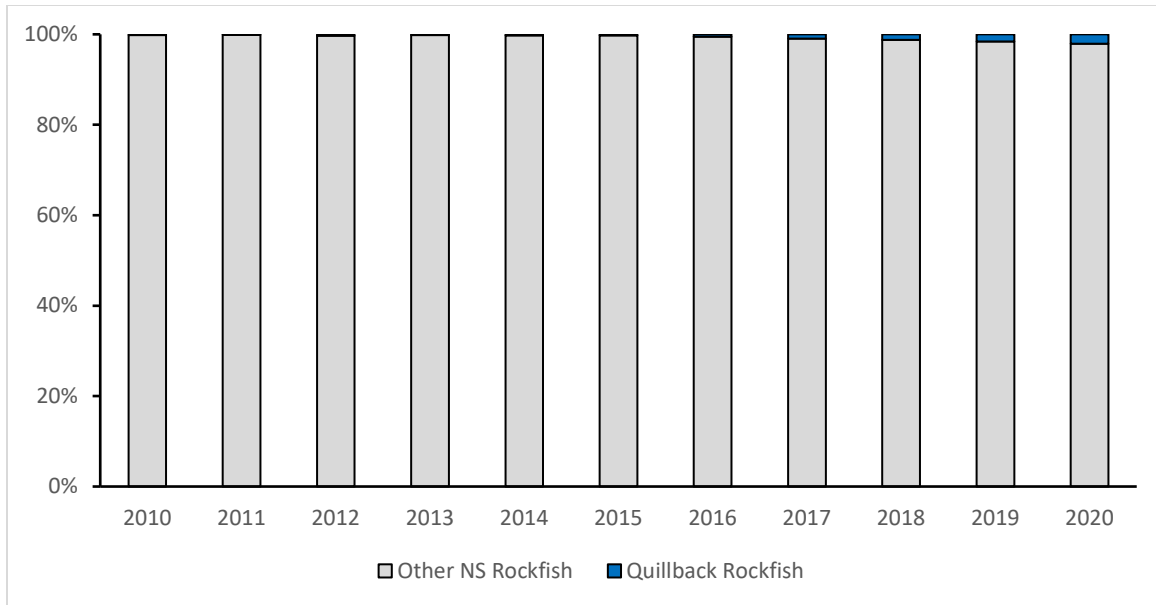


Figure 4. Proportion of commercial landings for quillback rockfish and other nearshore rockfish (except black rockfish) in California from 40° 10' N. Lat. to Point Conception from 2010-2021. Data from PacFIN. Data does not include discard mortality, which is estimated less than 0.01 mt for quillback rockfish.

Table 2. Commercial landings (metric tons) for quillback rockfish and other nearshore rockfish (except black rockfish) in California from 2010 to 2020. Data from PacFIN. Data does not include discards, which is estimated less than 0.01 mt for quillback rockfish. Catch south of Point Conception is minimal and not included here.

Year	Quillback Rockfish (OR/CA border to 40° 10' N Lat.)	Other Nearshore Rockfish (OR/CA border to 40° 10' N Lat.)	Quillback Rockfish (40° 10' N Lat. to Point Conception)	Other Nearshore Rockfish (40° 10' N Lat. to Point Conception)
2010	0.77	4.91	0.10	76.75
2011	0.84	6.72	0.10	85.57
2012	1.39	7.51	0.21	71.47
2013	0.52	4.15	0.15	76.55
2014	0.24	2.41	0.20	80.18
2015	0.90	4.62	0.19	90.78
2016	0.58	4.46	0.38	72.24
2017	1.92	11.11	0.77	84.02
2018	1.51	7.15	1.12	89.06
2019	2.44	9.82	1.45	90.14
2020	2.43	7.16	1.78	83.63

Commercial data inputted into the model using PacFIN landings based on CALCOM expansions were unusually high in 1991 at 57.17 mt ([Agenda Item G.5., Attachment 10, June 2021](#)). Noting the extremely low values in preceding years, a singular data point which is approximately 50 times higher

than all other values is cause for additional review of the expansion process used.

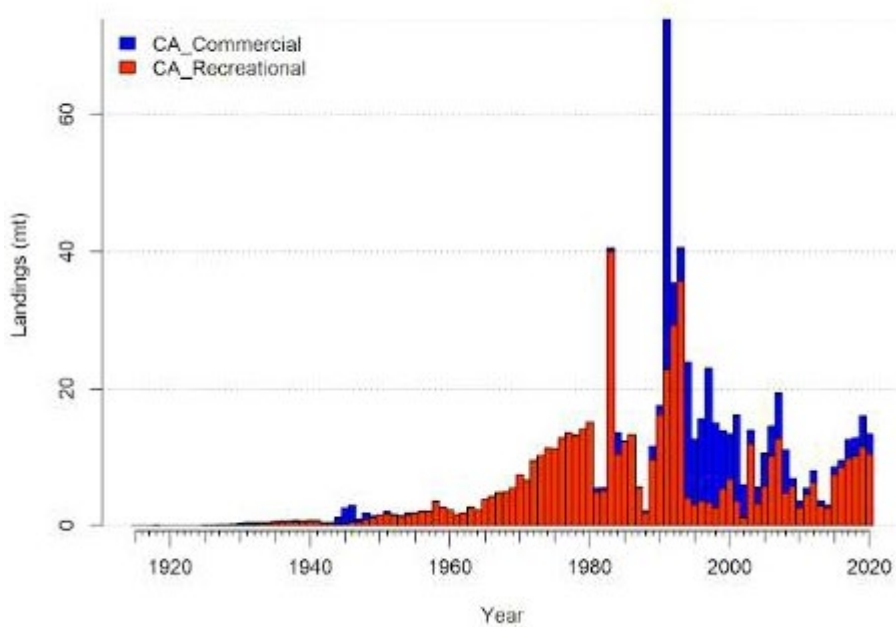


Figure 5. Taken directly the DRAFT Status of quillback rockfish (*Sebastes maliger*) in U.S. waters off the coast of California in 2021 using catch and length data, Figure 1.

Copper Rockfish

Similarly, the output model for copper rockfish in northern California indicates the stock is at an MMST of 39 percent with an OFL of 91.55 mt and an ABC of 78.6 mt, and southern California (south of Pt. Conception) at 18 percent MSST with an OFL of 21.83 mt and an ABC of 8.79 mt for 2023. The resulting output scale of these OFL/ABCs do not reasonably align with the recent increasing proportion of copper rockfish seen in both sectors across these regional areas (Figures 6-9, Tables 3 and 4.) north and south of Point Conception.

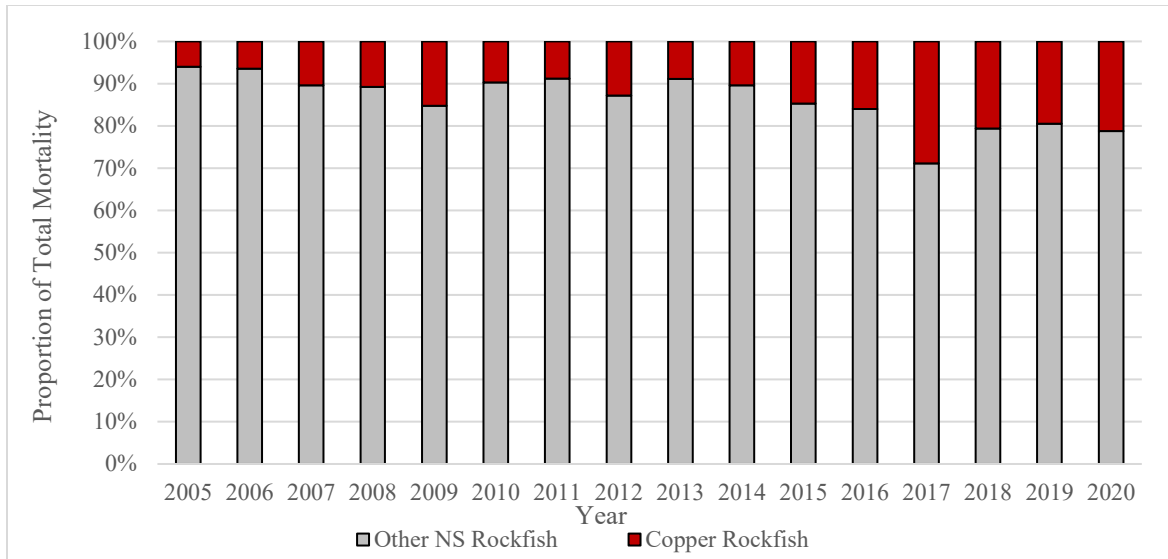


Figure 6. Proportion of recreational total mortality for copper rockfish and other nearshore rockfish (except black rockfish) in California north of Pt. Conception from 2005-2020. Data from RecFIN.

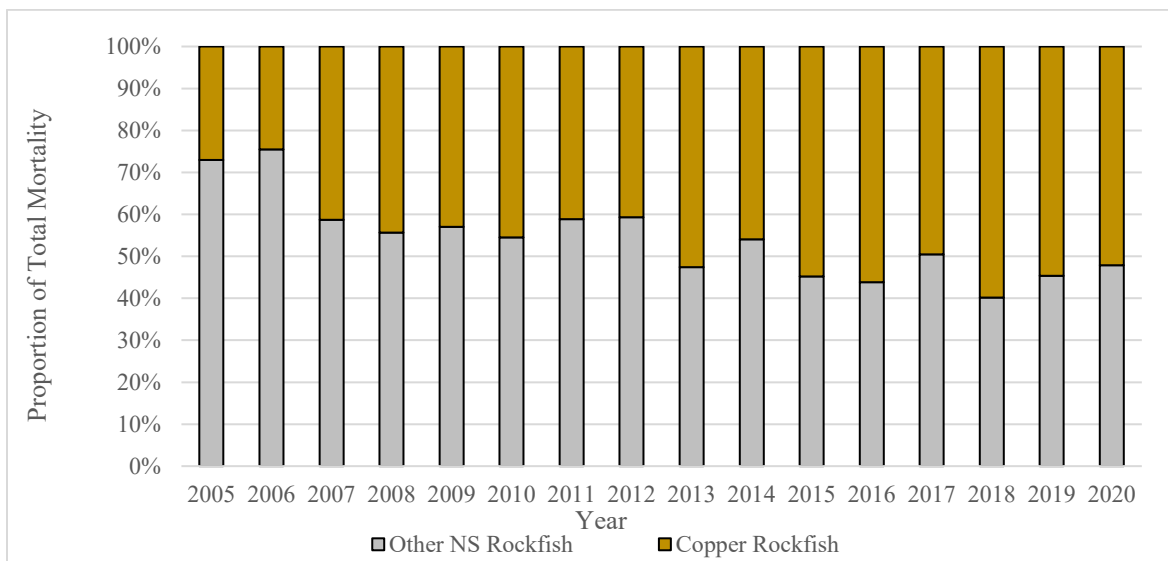


Figure 7. Proportion of recreational total mortality for copper rockfish and other nearshore rockfish (except black rockfish) in California south of Pt. Conception from 2005-2020. Data from RecFIN.

Table 3. Recreational total mortality (metric tons) for copper rockfish and other nearshore rockfish (except black rockfish) in California from 2005-2020. Data from RecFIN.

Year	Copper Rockfish (OR/CA border to Pt. Conception)	Other Nearshore Rockfish (OR/CA border to Pt. Conception)	Copper Rockfish (Pt. Conception to US/Mex border)	Other Nearshore Rockfish (Pt. Conception to US/Mex border)
2005	31.67	493.72	31.10	83.79
2006	33.40	484.97	13.39	41.22
2007	36.39	313.31	32.91	46.77
2008	27.40	226.57	27.61	34.70
2009	36.94	206.08	23.52	31.20

2010	25.80	239.54	22.58	27.05
2011	23.59	244.02	43.68	62.42
2012	31.74	215.70	48.22	70.21
2013	23.24	238.59	75.79	68.43
2014	33.80	291.32	57.66	67.90
2015	62.20	360.69	75.98	62.75
2016	63.12	332.24	93.28	72.90
2017	132.78	327.05	82.36	84.01
2018	93.25	359.89	96.18	64.53
2019	92.83	383.63	74.94	62.20
2020	51.58	191.70	13.12	12.07

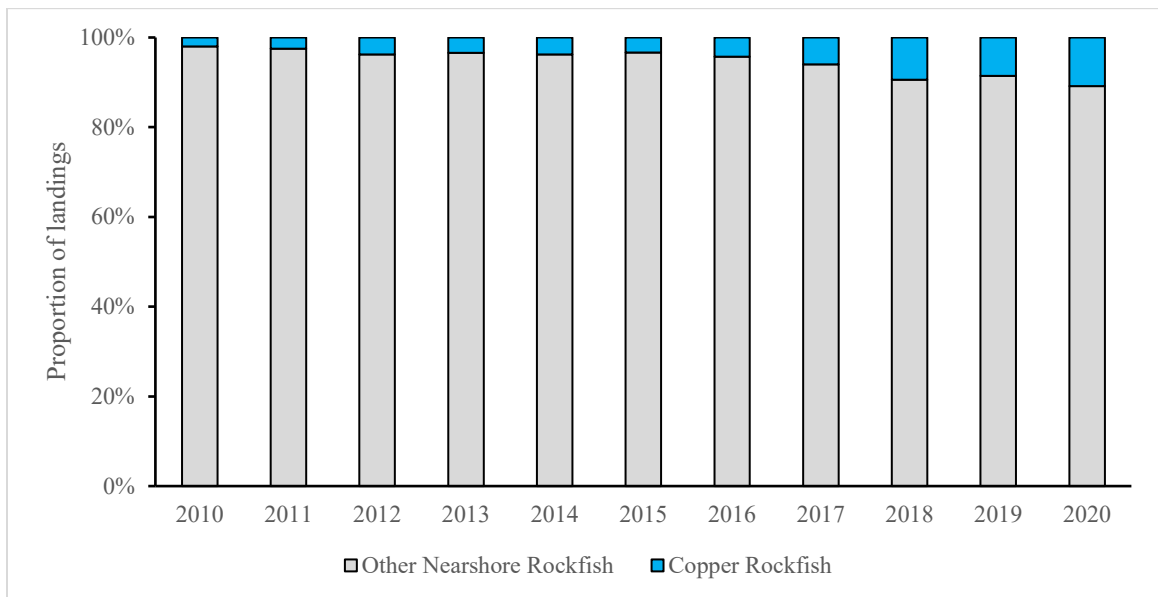


Figure 8. Proportion of commercial landings for copper rockfish and other nearshore rockfish (except black rockfish) in California from the OR/CA border to Point Conception from 2010-2021. Data from PacFIN. Data does not include discard mortality which is estimated <0.98 mt north of Point Conception.

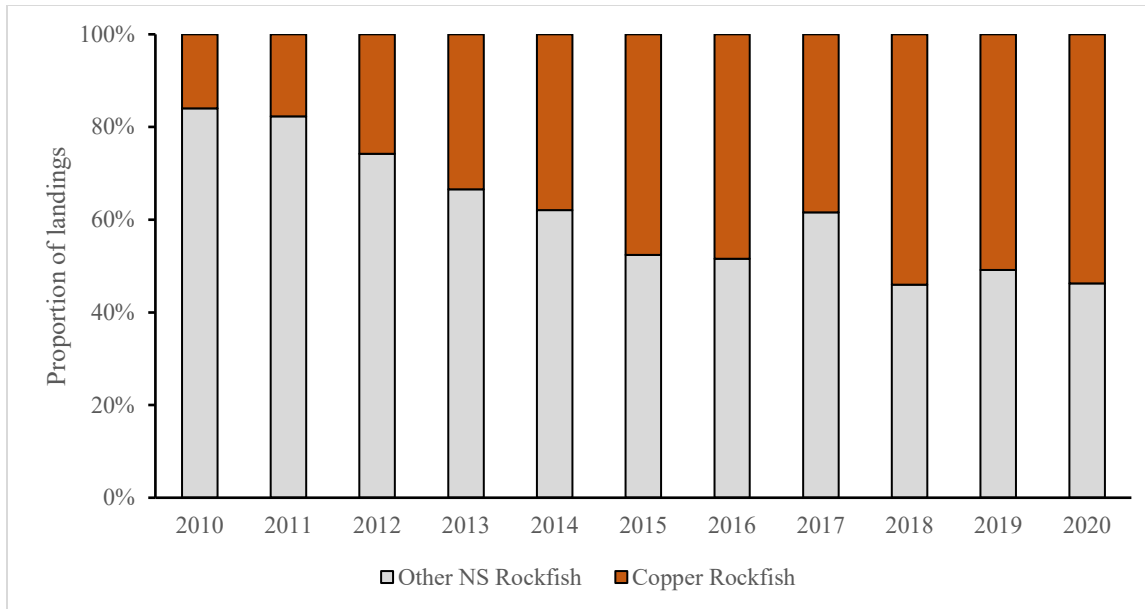


Figure 9. Proportion of commercial landings for copper rockfish and other nearshore rockfish (except black rockfish) in California from Point Conception to the U.S./Mexico border from 2010-2021. Data from PacFIN. Data does not include discard mortality which is estimated less than 0.5 mt for copper rockfish south of Point Conception.

Table 4. Commercial landings (metric tons) for copper rockfish and other nearshore rockfish (except black rockfish) in California from 2010-2021. Data from PacFIN. Data does not include discard mortality which is estimated less than 0.5 mt for copper rockfish south of Point Conception.

Year	Copper Rockfish (OR/CA border to Point Conception)	Other Nearshore Rockfish (OR/CA border to Point Conception)	Copper Rockfish (Point Conception to U.S./Mexico border)	Other Nearshore Rockfish (Point Conception to U.S./Mexico border)
2010	1.66	80.87	1.51	7.95
2011	2.31	90.91	1.31	6.07
2012	3.04	77.54	2.67	7.69
2013	2.75	78.61	3.85	7.66
2014	3.15	79.88	4.01	6.56
2015	3.24	93.25	5.80	6.39
2016	3.30	74.37	5.52	5.87
2017	5.84	91.98	4.43	7.11
2018	9.31	89.53	5.08	4.32
2019	8.86	94.99	5.53	5.34
2020	10.32	84.69	6.42	5.53