Summary of available data to support U.S. West Coast groundfish stock assessments

by
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Contents

Introduction

This document provides a detailed summary of available data that may be used to support assessments in 2025. A detailed summary of data available by year and across sources can allow the Pacific Fishery Management Council (Council) and advisory bodies to understand the coverage of data across time and the potential viability of a new assessment or assessment type.

Data from Pacific Fisheries Information Network (PacFIN), Recreational Fisheries Information Network (RecFIN), Southwest Fisheries Science Center (SWFSC) Commercial Passenger Fishing Vessel (CPFV) cooperative collections, California Cooperative Research Program (CCFRP) survey, the Northwest Fisheries Science Center (NWFSC) West Coast Groundfish Bottom Trawl Survey (WCGBT), and NWFSC Hook-and-Line (HKL) surveys are summarized.

Commercial data summaries were downloaded from PacFIN on December 13, 2023. The number of length samples, read ages, and unread age structure (e.g., otoliths, fin rays, or spines) samples by species, state, and year were summarized. Age structure records were provided directly from the Washington Department of Fish and Wildlife (WDFW) for 2000-2023 and Pacific States Marine Fisheries Council (PSMFC) commercial collection in California for 2011-2023. Oregon Department of Fish and Wildlife (ODFW) confirmed that age structure records in PacFIN were correct and recommended using these data directly. Only data available between 2000-2023 are summarized here.

Recreational data summaries were downloaded from RecFIN on December 13, 2023. The number of length samples, read ages, and unread age structures were summarized by species and state between 2000-2023. Available age and age structure counts for Oregon and Washington were downloaded from RecFIN on January 30, 2024. There are no age or age structure sample data collected from California recreational fisheries currently in RecFIN and recent age structure collections from 2017-2023 were provided directly by CDFW. The recreational age structure collections provided by CDFW were collected by various methods outside of the California Recreational Fisheries Survey (CRFS) sampling program: 1) from angler surrendered fish for copper rockfish, quillback rockfish, and yelloweye rockfish that were kept in excess of recreational bag limits or were prohibited to be retained, 2) cowcod under CDFW's Exempted Fishing Permit encountered encountered incidentally by Commercial Passenger Fishing Vessels, and 3) randomly sampled from private/rental and party/charter recreational vessels. Any future assessment, will need to investigate the California recreational age structures for representativeness to determine whether they could be linked to a recreational fleet within a model.

Data collected by the NWFSC WCGBT survey between 2003-2023 and the NWFSC HKL survey from 2004-2022 are summarized by species. Similar to the summaries provided for the commercial and recreational fisheries; lengths, read ages, and unread age structures collected are available by year. Additionally, the number of tows (NWFSC WCGBT survey) or the sites (NWFSC HKL survey) that observed each species by year are also provided. The CCFRP

length samples by year and species are summarized here as well. No additional CCFRP data are included in this report. A separate report detailing CCFRP data is available.

Tables 1 and 2 provide the total number of length, age, and unread age structure samples that are summarized in this document from fishery collections for each state and each survey.

Table 1: Total number of available lengths, ages, and unread age structures by state from fisheries collections from 2000-2023 summarized in this document.

State	Source	Species	Lengths	Ages	Age Structures
California	Commercial	62	728,884	45,805	58,679
California	Recreational	52	1,301,456	0	4,478
California	SWFSC-CPFV Coop.	28	3,679	762	2,914
Oregon	Commercial	54	905,905	159,122	476,121
Oregon	Recreational	45	647,589	60,999	44,335
Washington	Commercial	44	401,815	108,607	83,718
Washington	Recreational	35	145,372	79,200	17,845

Table 2: Total number of available lengths, ages, and unread age structures by fishery independent collections from 2000-2023 summarized in this document.

Source	Species	Lengths	Ages	Age Structures
CCFRP	32	180,983	0	0
NWFSC HKL	32	76,394	5,721	70,673
NWFSC WCGBT	61	1,515,275	144,704	248,172

0.1 Survey Length Compositions

The length data collected by the NWFSC WCGBT survey were expanded using a generalized area-based stratification. The composition data were expanded using a design-based approach with strata based on state latitudes with two depth strata: 55 - 183 m and 183 - 549 m, for all species except for four. The four exceptions were species with considerable biomass at depths greater than 549 m: sablefish, Dover sole, longspine thornyhead, and shortspine thornyhead. These four species had an additional depth strata that included deeper waters, 549 - 1,280 m, for each state area. The expanded length composition data were summarized using either a 2 or 4 cm bin structure depending upon the range between maximum and minimum lengths observed within the survey data. Species where the range between the maximum and minimum lengths observed by the survey were less than 60 cm, 2 cm data bins were used, and for species where the range was 60 cm or greater the data bins were set at 4 cm. All length observations were treated as unsexed fish for simplicity and for ease of

observing potential trends in length observations across time. The generalized stratification and bin structure selected here provides a simple summary of the data that can be useful for decision making, but will likely differ from a species specific approach that would be selected in a future assessment. Additionally, the NWFSC WCGBT survey selectivity for each species will impact the lengths observed and has not been explicitly accounted for in this analysis.

The NWFSC WCGBT survey often capture fish at small sizes for select species and can provide early insight on recent recruitment. Additional plots were created for select species to examine the presence or absence of small sized fish. The criteria for the species selected was based on species with available ages in the data set, 20 percent of the available ages were age 5 or less, and the survey had at least 500 cumulative observations of those young ages. The species that met these criteria were arrowtooth flounder, bocaccio, canary rockfish, chilipepper, darkblotched rockfish, greenstriped rockfish, lingcod, Pacific ocean perch, Pacific sanddab, petrale sole, sablefish, splitnose rockfish, and widow rockfish. First, for each species expanded length composition for all length data by year were calculated. The expanded length compositions were then subset to only include lengths associated with the age associated with the lower 20 percent of observation or smaller. The remaining length composition data were then plotted. For each species a table is also provided that indicate the median size at age each each age.

The length data collected by the NWFSC HKL survey were summarized to reflect the proportion of observations by species, length bin, and year. The length composition data were summarized using either a 2 or 4 cm bin structure depending upon the range between maximum and minimum lengths observed within the survey data. Species where the range between the maximum and minimum lengths observed by the survey were less than 60 cm, 2 cm data bins were used, and for species where the range was 60 cm or greater the data bins were set at 4 cm. All length observations were treated as unsexed fish for simplicity and for ease of observing potential trends in length observations across time. Similar to the NWFSC WCGBT survey, the selectivity of the NWFSC HKL survey for each species will impact the lengths observed and has not been explicitly accounted for in this analysis.

The length data plots for the CCFRP survey are not provided here. For detailed information about CCFRP survey data please see the separate CCFRP report.

0.2 Survey Relative Indices of Abundance

Indices of abundance are not included in this report for March due to non-finalized data (NWFSC HKL) or lack of time between finalizing data and the March PFMC Council meeting (NWFSC WCGBT). These will be included in a revised report for June.

0.3 Additional Data

Data may be available for consideration in future assessments that are currently not included in this report. A summary of potential additional data that could be available are described below:

- Totals for data collected in 2023 in PacFIN and RecFIN are incomplete for all states.
- Data collected in 2023 by the CCFRP are not yet available. Additionally, in recent years CCFRP has been collecting age structures from a small number of fish from the reference area (i.e., areas open to fishing). The numbers of age structures and aged fish from this survey were not available for this report. There is a separate document is provided that summarizes data collected by the CCFRP for select species that details the number of samples by location, area type (marine protected area or reference area), and plots of available length compositions.
- Data collected in 2023 by the NWFSC HKL survey are not yet available. All data summarized from this survey are from 2004 - 2022.
- Age structures collected from 12 groundfish species in 2019 by CDFW from purposive sampling (i.e., non-random) from commercially landed fish were not included in this report (Table 3). This commercial pilot project involved obtaining randomly selected fish from participating fish businesses, either at the time of landing, or in the case of multiple landings utilizing the same gear type, after the landing had occurred. These ages would not be associated with a commercial fleet in an assessment due to their non-random collections.

Table 3: Total number of unread age structures by species collected by CDFW from the commercial pilot project.

Species	2019
Blackgill rockfish	83
Blue rockfish	501
Brown rockfish	345
Cabezon	22
Canary rockfish	146
Gopher rockfish	5
Grass rockfish	7
Lingcod	113
Quillback rockfish	6
Starry rockfish	2
Vermilion rockfish	331
Yellowtail rockfish	123

- Age structures collected from carcasses of groundfish species between 2017-2019 by CDFW recreational fisheries were not included in this report (Table 4). These collections may be considered by future assessments but would likely only be used as marginal ages (i.e., would not inform growth) given the uncertainty around the true fish length (e.g., length prior to filleting).

Table 4: Total number of unread age structures by species collected by CDFW from recreational fish carcasses.

Species	2017	2018	2019
Black rockfish	0	212	250
Blue rockfish	0	255	190
Bocaccio	0	71	32
Brown rockfish	0	24	1
Cabezon	0	3	5
Canary rockfish	0	122	41
China rockfish	0	8	11
Gopher rockfish	0	5	21
Greenspotted rockfish	0	0	1
Kelp greenling	0	6	1
Kelp rockfish	0	0	1
Lingcod	51	225	52
Olive rockfish	0	100	37
Starry rockfish	0	7	29
Tiger rockfish	0	0	3
Treefish rockfish	0	0	2
Vermilion rockfish	0	76	41
Widow rockfish	0	24	3
Yellowtail rockfish	0	96	121

- Historical data collections from various research projects exist at the SWFSC that have not been cataloged and entered into any database. Species-specific searches may yield additional samples within these collections.

While this document only summarizes data from 2000-2023, there are additional data available from earlier years that could be incorporated into future assessments.

- ODFW and WDFW have substantial collections from periods prior to the years summarized in this report from their commercial and recreational sampling programs.
- CDFW is undergoing a review of historical age structures collections (i.e., referred to as refugia samples) for samples from the 1980s and earlier. If sufficient documentation exists for these historical samples they could be potentially included in future assessments. Since this work is ongoing it is unclear how many samples may be available across species.

Finally, summarizing commercial and recreational data from each state accurately continues to be challenging due to differences by state in what information is transmitted to PacFIN and RecFIN or data now within either of these databases (e.g., California otolith collections).

Receiveing and understanding the available commercial and recreational data requires emailing various representative in each state who thankfully have been accommodating in answering questions and providing additional data summaries. However, given the challenges around acquiring and collating, data summaries may not be comprehensive or have unintentional errors. Any issues identified, will be addressed in future versions.

Arrowtooth flounder

The most recent assessment of arrowtooth flounder was an update assessment conducted in 2017. Across available data, arrowtooth flounder have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 226 positive tows per year.

Table 5: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for arrowtooth flounder.

State	Source	Lengths	Ages	Age Structures
California	Commercial	7,596	0	0
California	NWFSC WCGBT	9,422	802	2,593
California	Recreational	19	0	0
Oregon	Commercial	21,739	0	18,285
Oregon	NWFSC WCGBT	26,157	2,078	6,129
Oregon	Recreational	136	0	0
Washington	Commercial	13,612	763	3,461
Washington	NWFSC WCGBT	21,622	1,448	4,225
Washington	Recreational	29	0	18

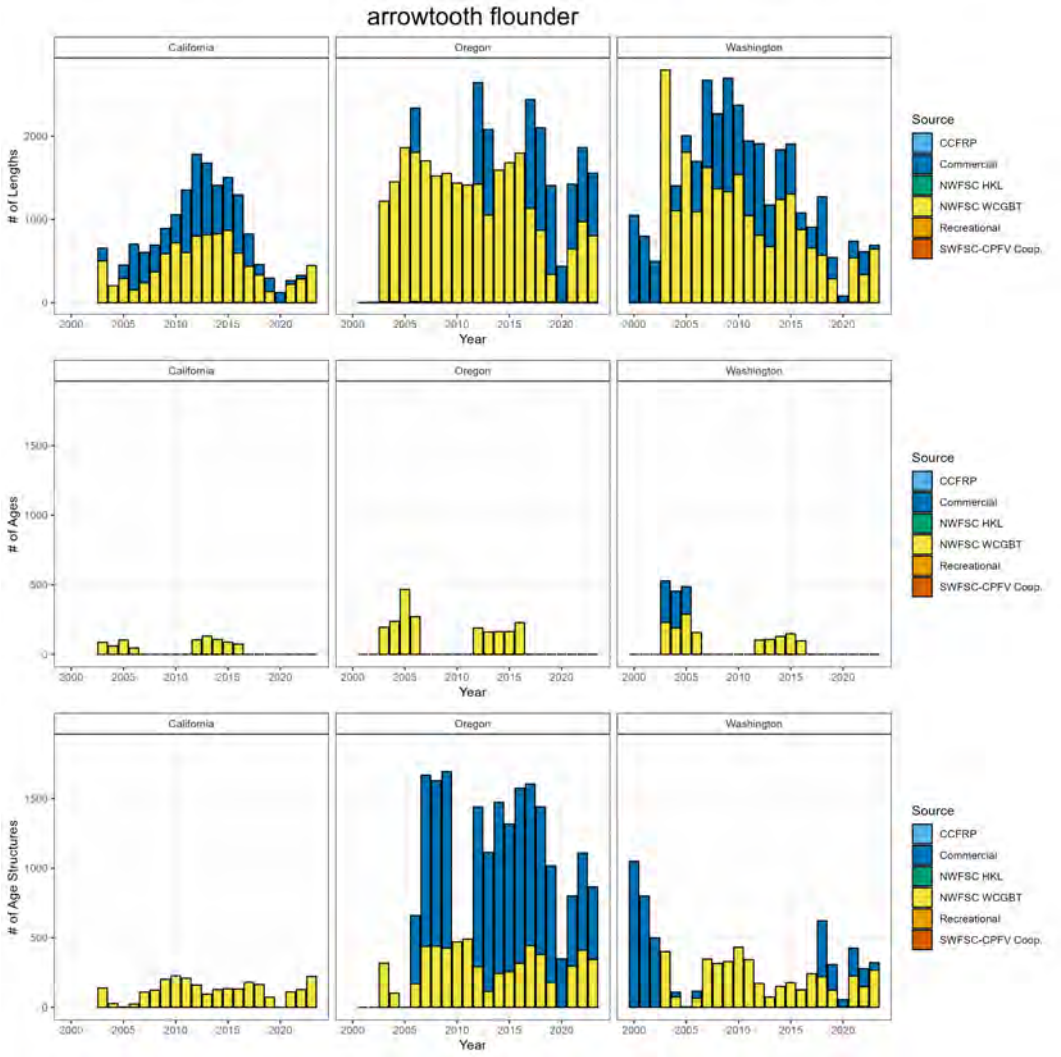

Figure 1: Total number of available lengths, ages, and age structures by data source by year for arrowtooth flounder. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

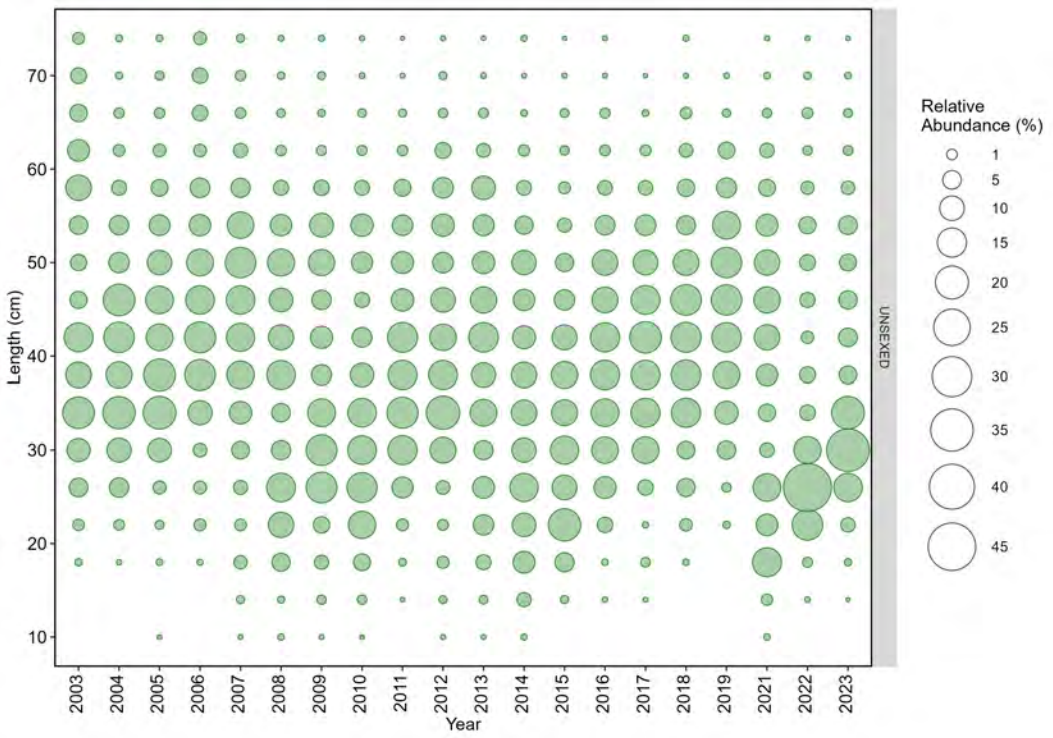

Figure 2: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for arrowtooth flounder. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

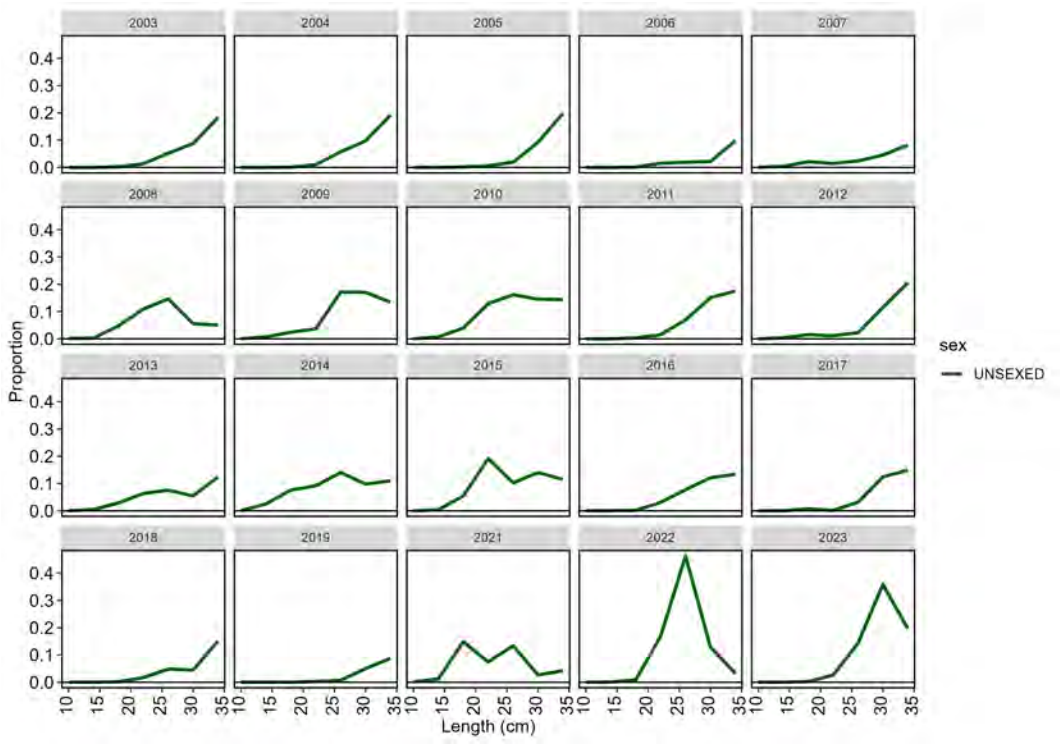

Figure 3: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 3 or younger for arrowtooth flounder. The most recent assessment of arrowtooth flounder in 2017 estimated large recruitments (i.e., greater than 0.50) in 2011, 2012, and 2013.

Table 6: The median length (cm) associated with fish age 3 or younger for arrowtooth flounder based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
1	19
2	25
3	31

Aurora rockfish

The most recent assessment of aurora rockfish was a benchmark assessment conducted in 2013. Across available data, aurora rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 84 positive tows per year.

Table 7: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for aurora rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	20,697	723	3,170
California	NWFSC WCGBT	25,467	2,269	7,604
Oregon	Commercial	12,761	480	12,010
Oregon	NWFSC WCGBT	5,112	749	2,701
Washington	Commercial	1,342	0	692
Washington	NWFSC WCGBT	459	72	250

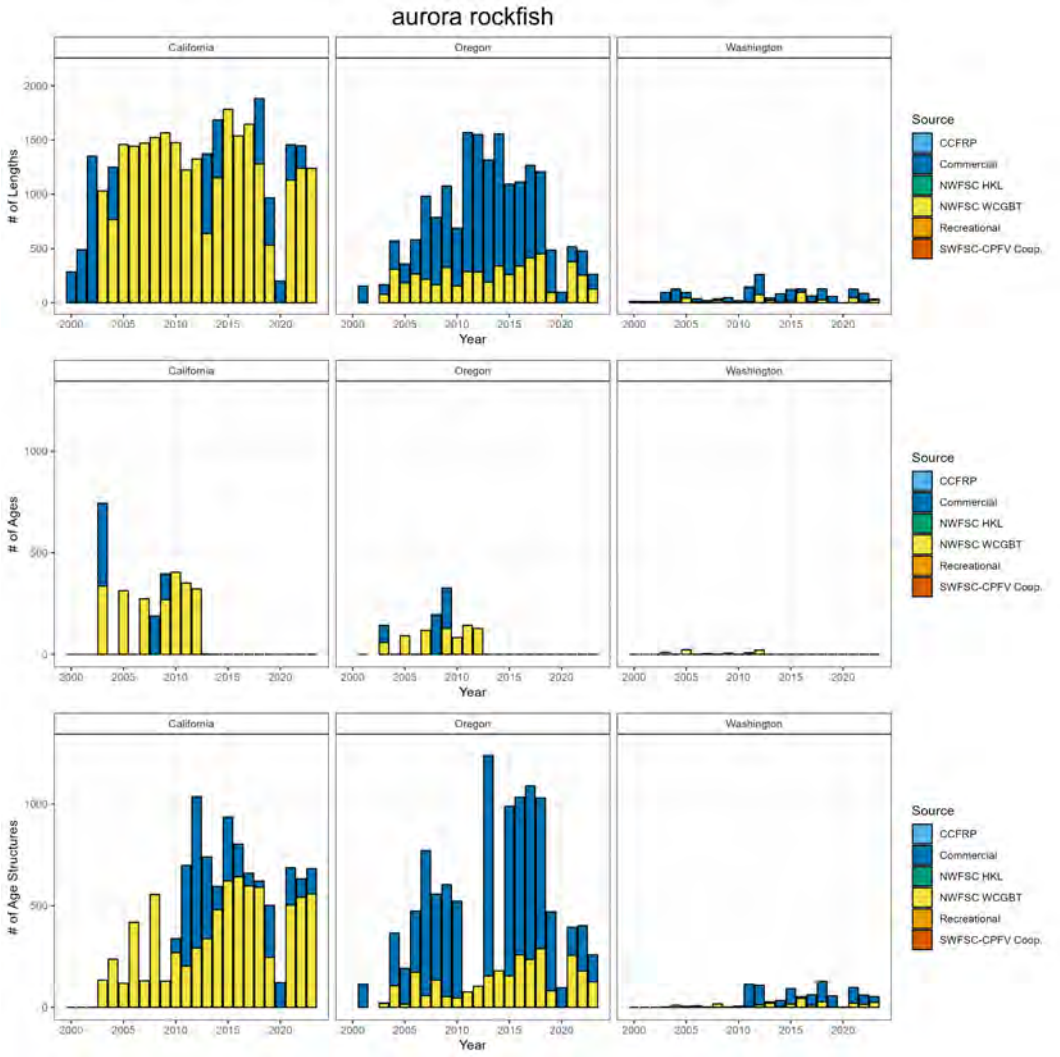

Figure 4: Total number of available lengths, ages, and age structures by data source by year for aurora rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

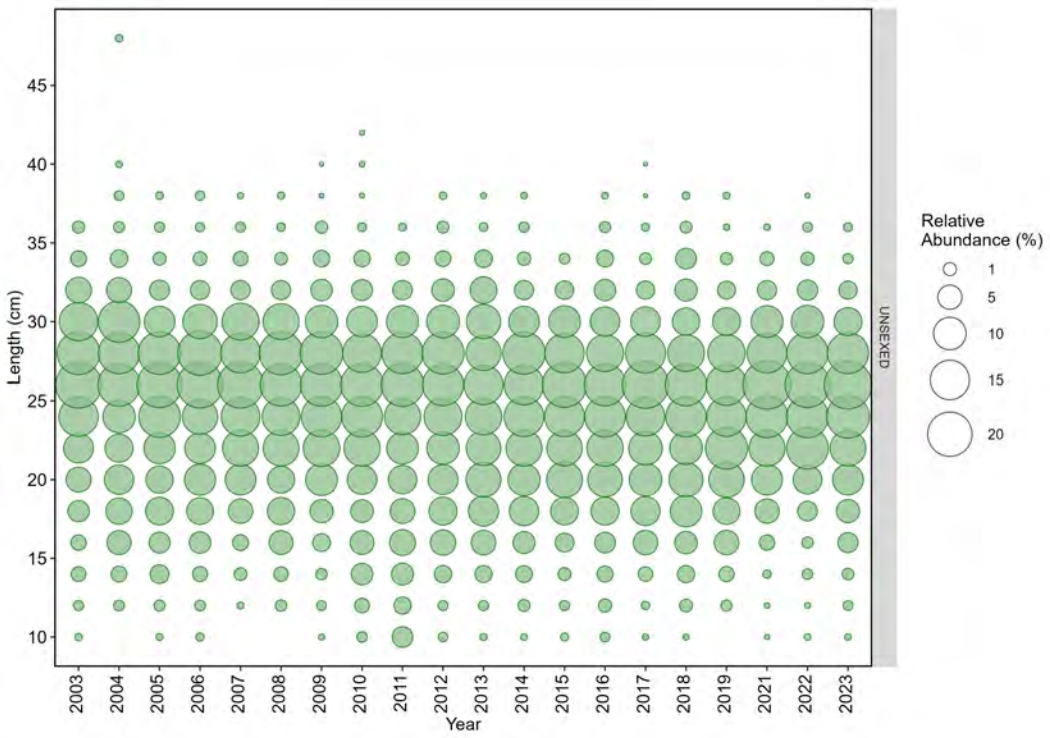

Figure 5: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for aurora rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Bank rockfish

The most recent assessment of bank rockfish was a data-limited assessment conducted in 2010. Across available data, bank rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 12 positive tows per year and the NWFSC HKL survey has an average of 25 positive sets per year the area south of Point Conception in California.

Table 8: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for bank rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	10,282	0	1,146
California	NWFSC HKL	3,143	0	3,143
California	NWFSC WCGBT	1,993	0	1,351
California	Recreational	854	0	0
California	SWFSC-CPFV Coop.	15	0	15
Oregon	Commercial	1,615	0	1,569
Oregon	NWFSC WCGBT	139	0	52
Washington	Commercial	244	0	236
Washington	NWFSC WCGBT	4	0	4

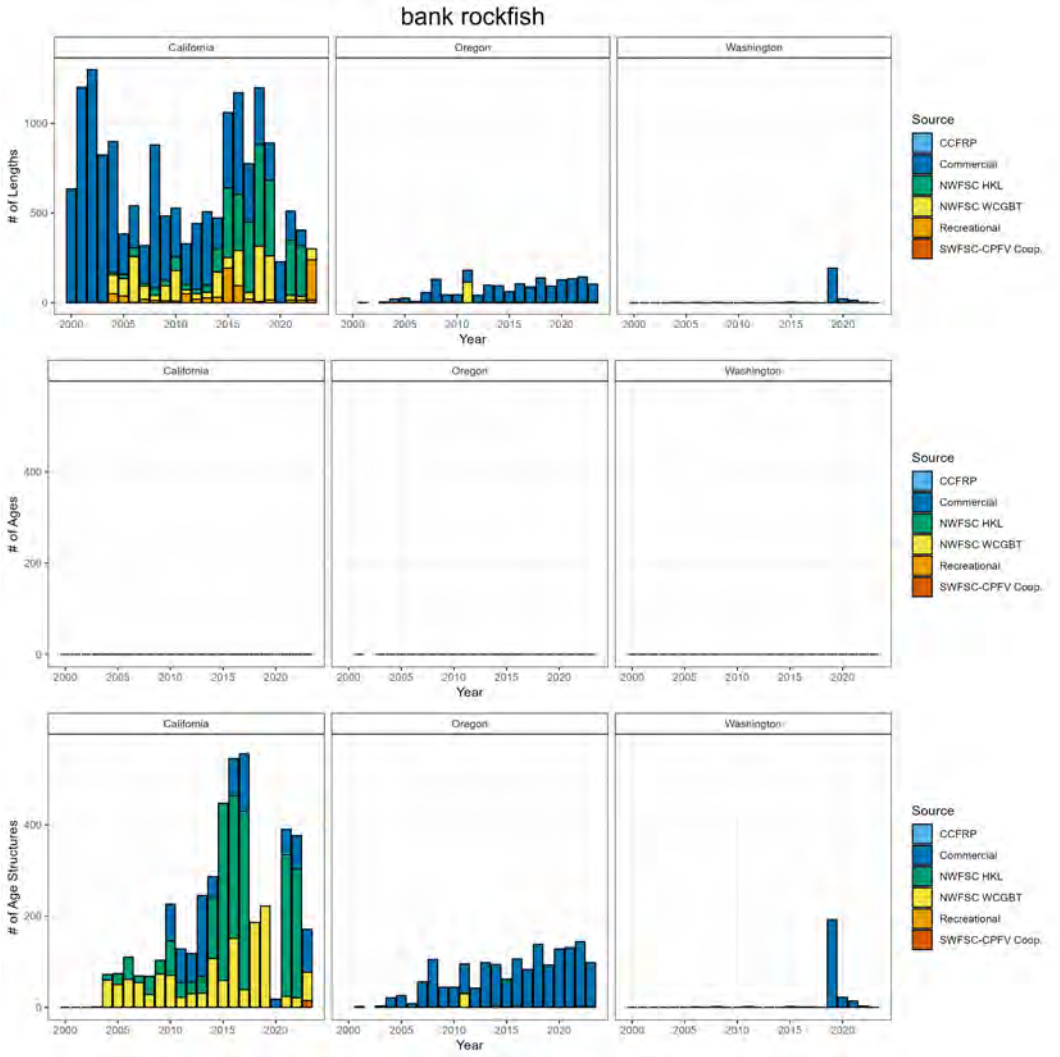

Figure 6: Total number of available lengths, ages, and age structures by data source by year for bank rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

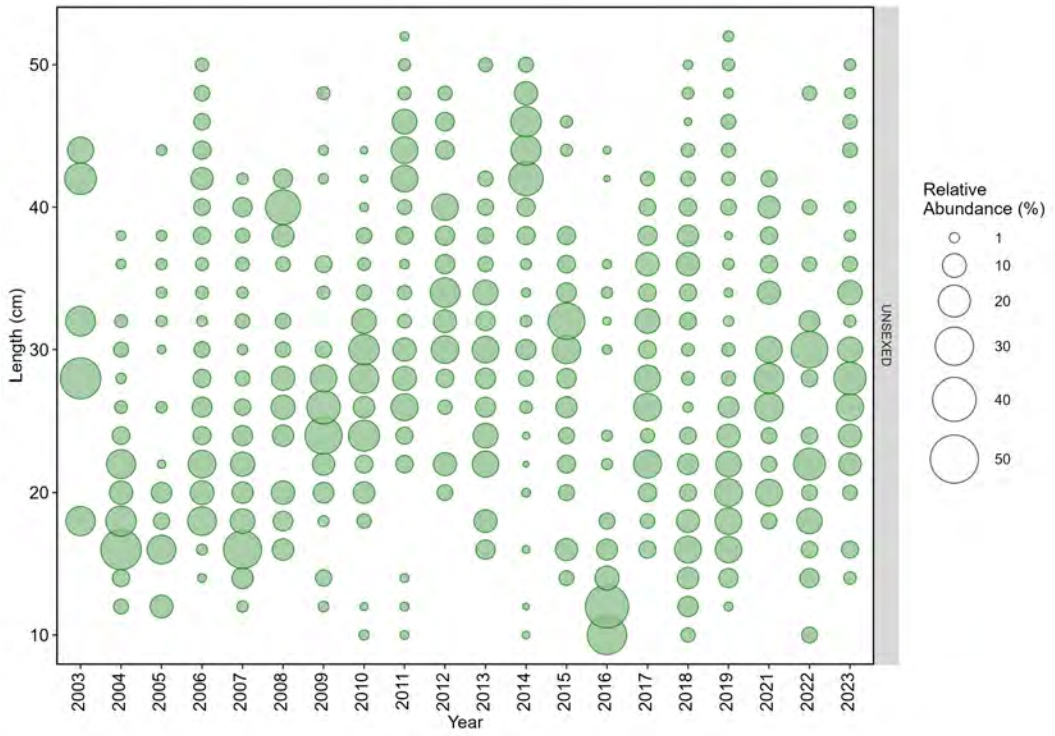

Figure 7: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for bank rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

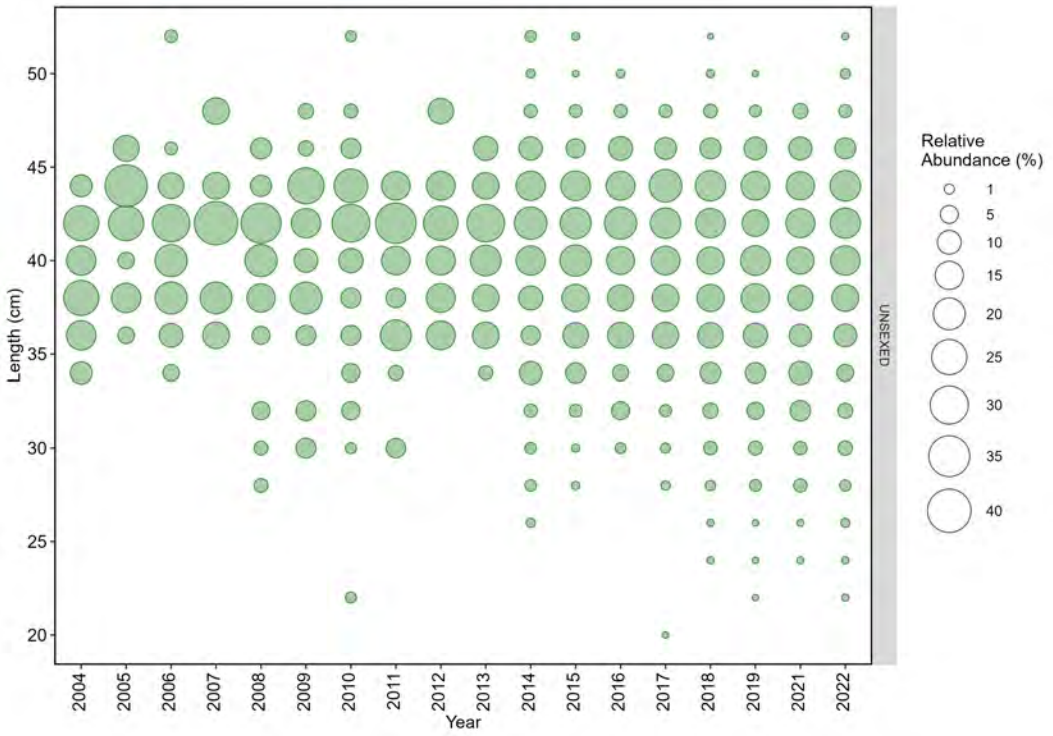

Figure 8: Length (cm) compostion data from the NWFSC Hook and Line survey for bank rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Big skate

The most recent assessment of big skate was a benchmark assessment conducted in 2019. Across available data, big skate have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 92 positive tows per year.

Table 9: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for big skate.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	1	0	0
California	Commercial	1,579	0	0
California	NWFSC WCGBT	2,205	351	102
California	Recreational	33	0	0
Oregon	Commercial	6,920	652	1,877
Oregon	NWFSC WCGBT	2,359	386	270
Oregon	Recreational	14	0	0
Washington	Commercial	1,450	104	537
Washington	NWFSC WCGBT	2,135	297	209

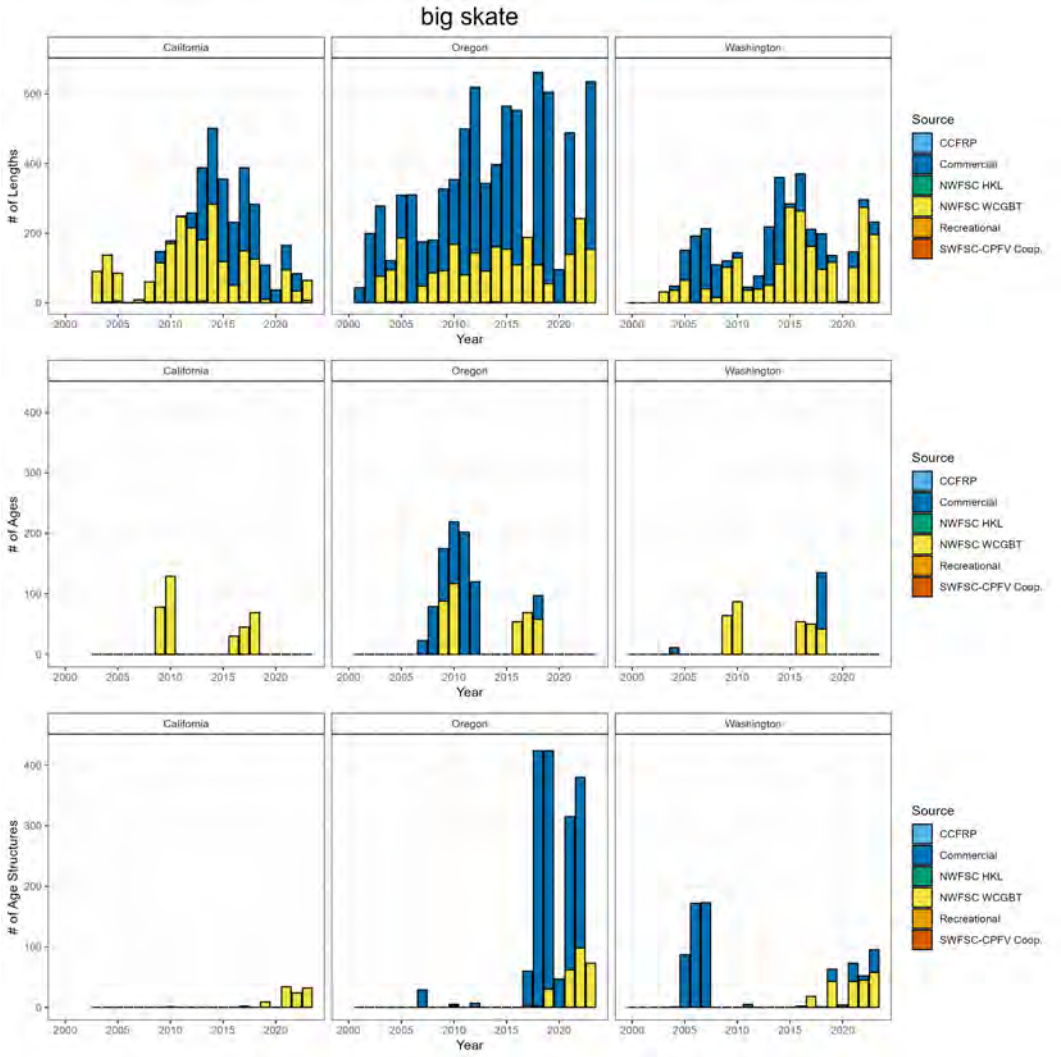

Figure 9: Total number of available lengths, ages, and age structures by data source by year for big skate. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

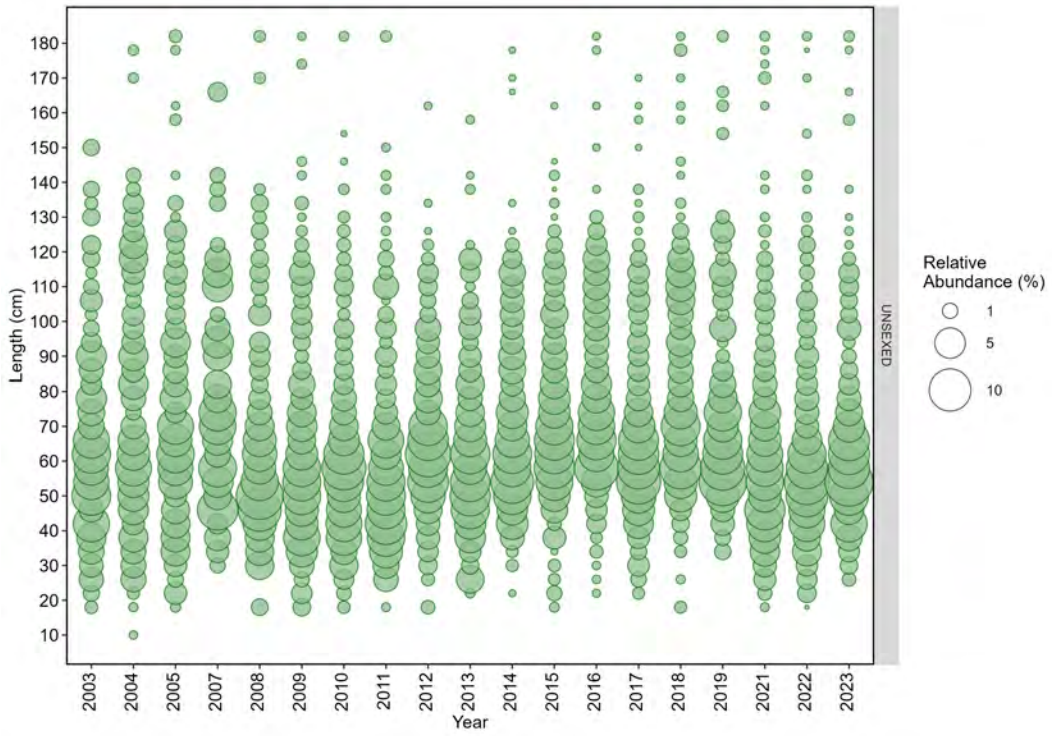

Figure 10: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for big skate. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Black rockfish

The most recent assessment of black rockfish was a benchmark assessment conducted in 2023. Across available data, black rockfish have been observed and sampled by both commercial and recreational fisheries.

Table 10: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for black rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	18,732	0	0
California	Commercial	13,182	1,461	1,896
California	NWFSC WCGBT	3	0	3
California	Recreational	138,362	0	328
California	SWFSC-CPFV Coop.	140	0	140
Oregon	Commercial	90,402	16,456	18,719
Oregon	NWFSC WCGBT	11	0	11
Oregon	Recreational	243,233	34,289	7,221
Washington	Commercial	95	20	0
Washington	NWFSC WCGBT	2	0	2
Washington	Recreational	56,876	39,816	1,822

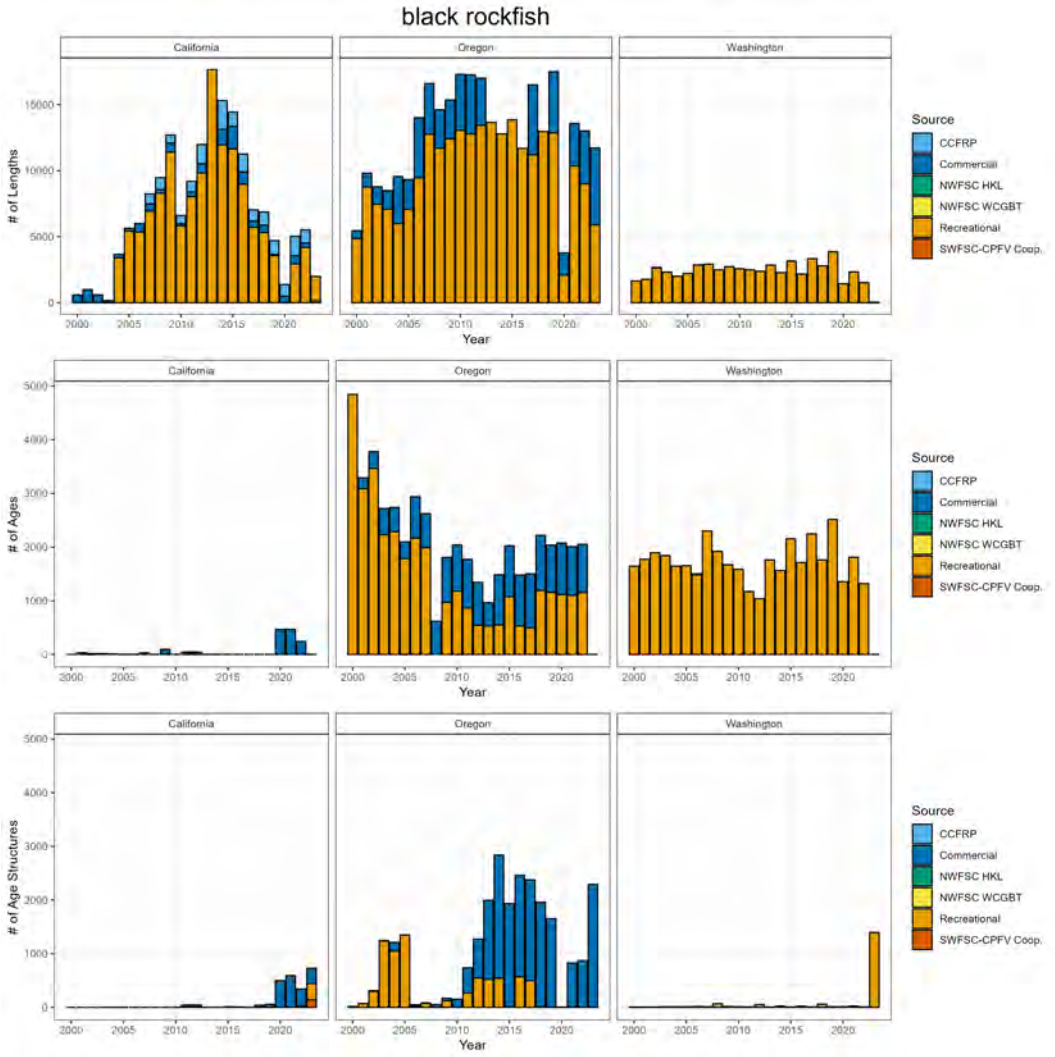

Figure 11: Total number of available lengths, ages, and age structures by data source by year for black rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Blackgill rockfish

The most recent assessment of blackgill rockfish was an update assessment conducted in 2017. Across available data, blackgill rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 35 positive tows per year.

Table 11: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for blackgill rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	20,862	1,097	2,893
California	NWFSC HKL	5	0	5
California	NWFSC WCGBT	9,923	1,937	5,125
California	Recreational	2	0	4
Oregon	Commercial	6,745	0	6,616
Oregon	NWFSC WCGBT	277	11	245
Washington	Commercial	711	0	147
Washington	NWFSC WCGBT	13	0	13

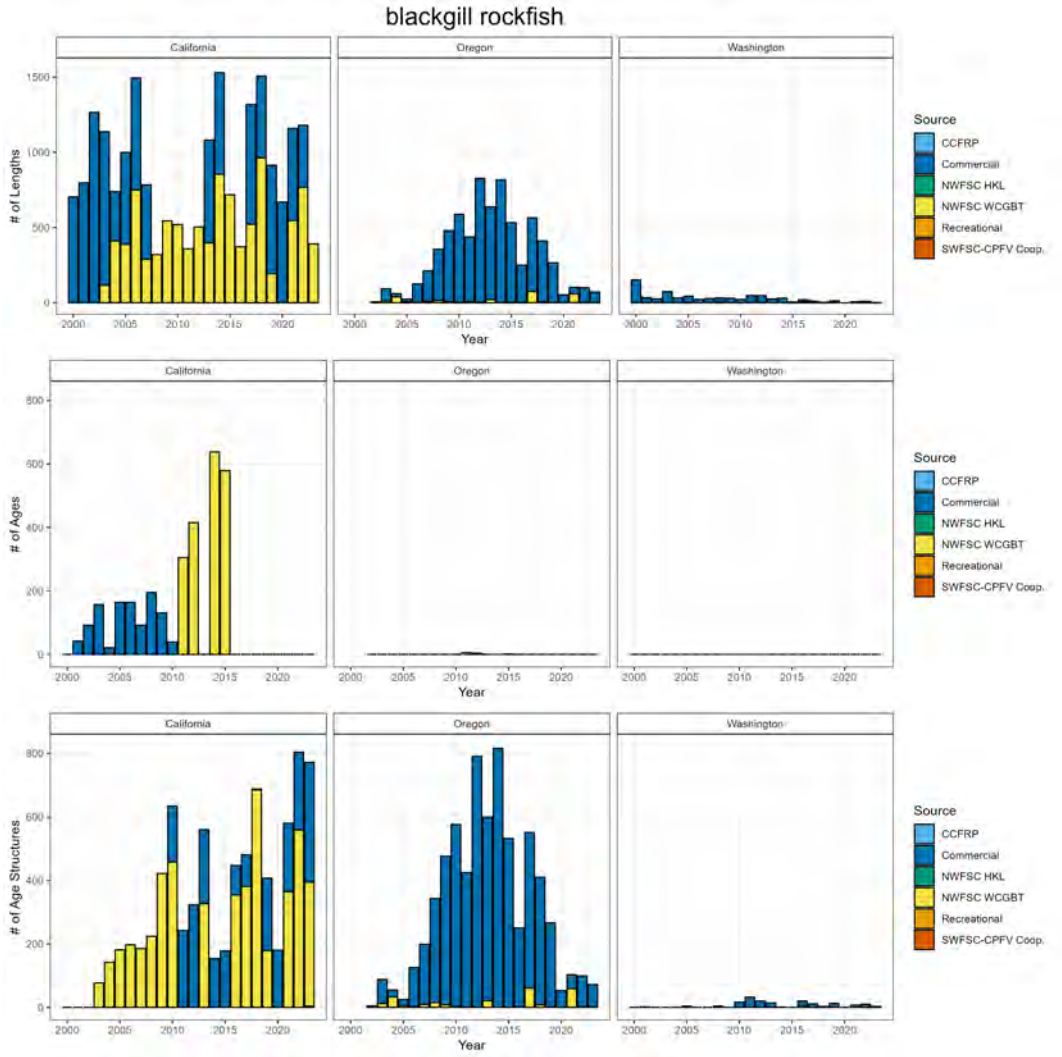

Figure 12: Total number of available lengths, ages, and age structures by data source by year for blackgill rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

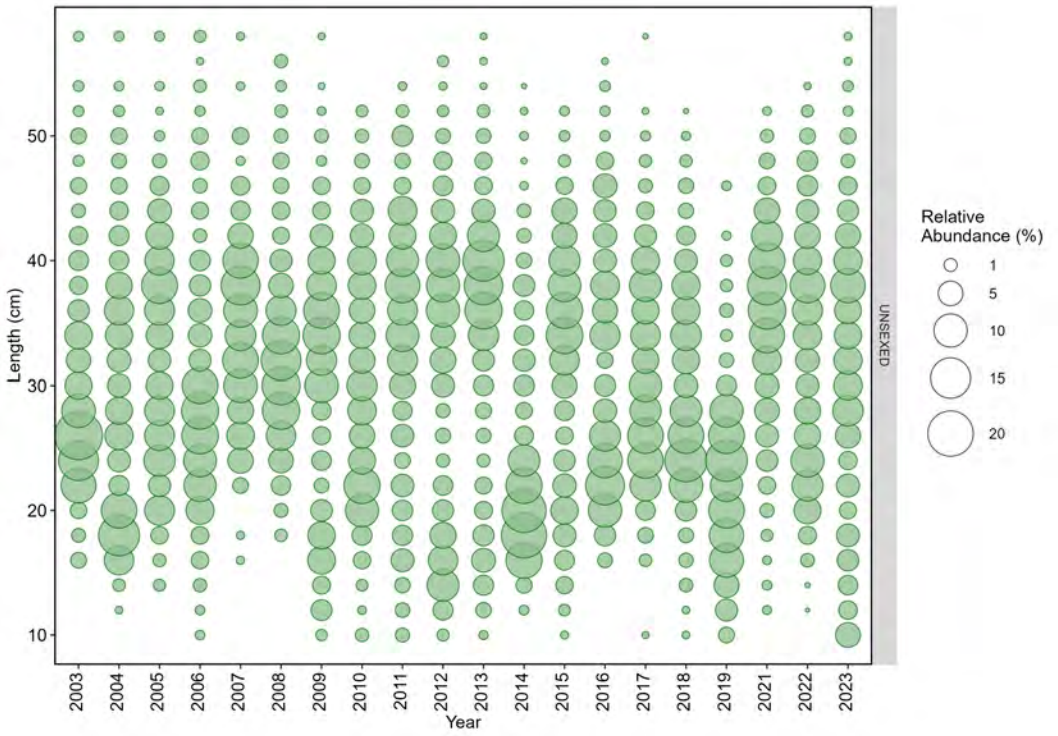

Figure 13: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for blackgill rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Blue and deacon rockfish

The most recent assessment of blue and deacon rockfish was a benchmark assessment conducted in 2017. Across available data, blue and deacon rockfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC HKL survey. The NWFSC HKL survey has an average of 9 positive sets per year.

Table 12: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for blue and deacon rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	81,497	0	0
California	Commercial	6,127	82	1,193
California	NWFSC HKL	714	0	714
California	NWFSC WCGBT	124	0	42
California	Recreational	159,726	0	308
California	SWFSC-CPFV Coop.	233	0	232
Oregon	Commercial	5,653	2,191	1,975
Oregon	Recreational	33,967	3,813	8,487
Washington	Recreational	4,779	101	3,148

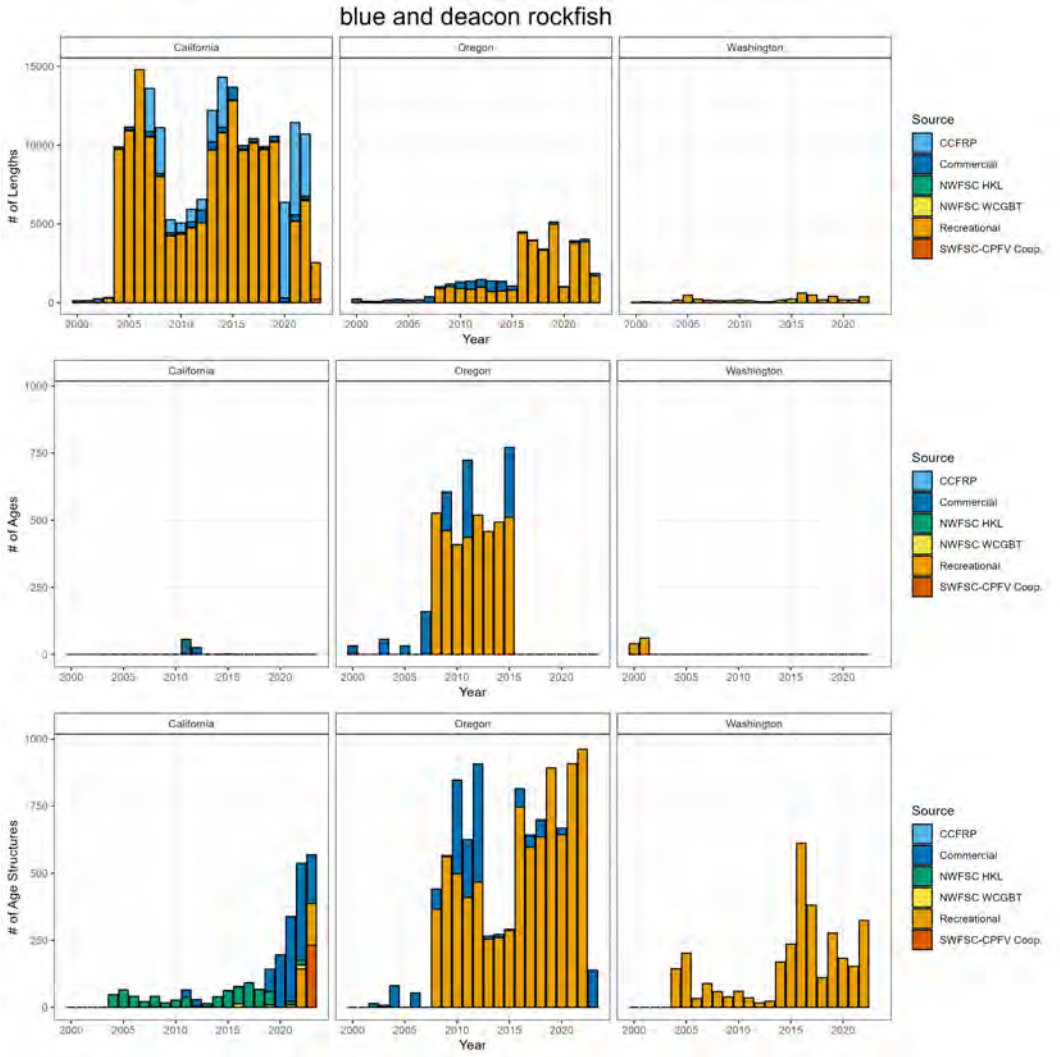

Figure 14: Total number of available lengths, ages, and age structures by data source by year for blue and deacon rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

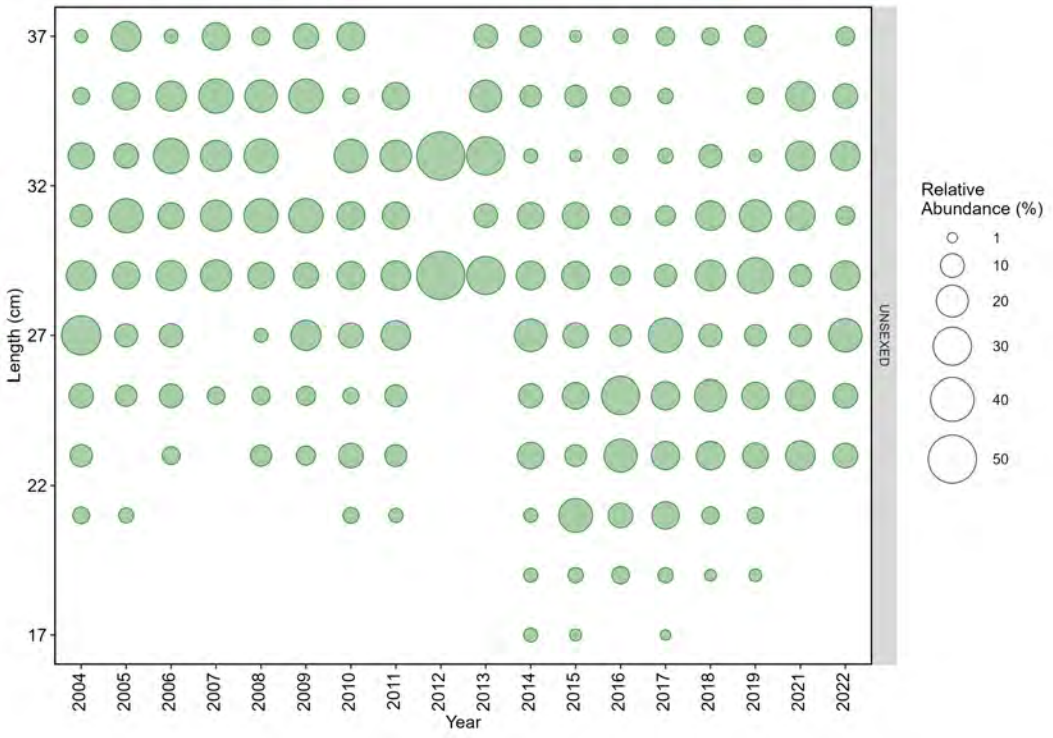

Figure 15: Length (cm) compostion data from the NWFSC Hook and Line survey for blue and deacon rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Bocaccio

The most recent assessment of bocaccio was an update assessment conducted in 2017. Across available data, bocaccio have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 50 positive tows per year and the NWFSC HKL survey has an average of 107 positive sets per year the area south of Point Conception in California.

Table 13: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for bocaccio.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	53	0	0
California	Commercial	12,713	121	2,530
California	NWFSC HKL	18,899	0	18,899
California	NWFSC WCGBT	9,799	2,759	3,508
California	Recreational	49,415	0	124
California	SWFSC-CPFV Coop.	1	0	1
Oregon	Commercial	4,630	0	4,466
Oregon	NWFSC WCGBT	214	20	142
Oregon	Recreational	900	0	0
Washington	Commercial	2,481	0	1,463
Washington	NWFSC WCGBT	426	74	302
Washington	Recreational	625	0	433

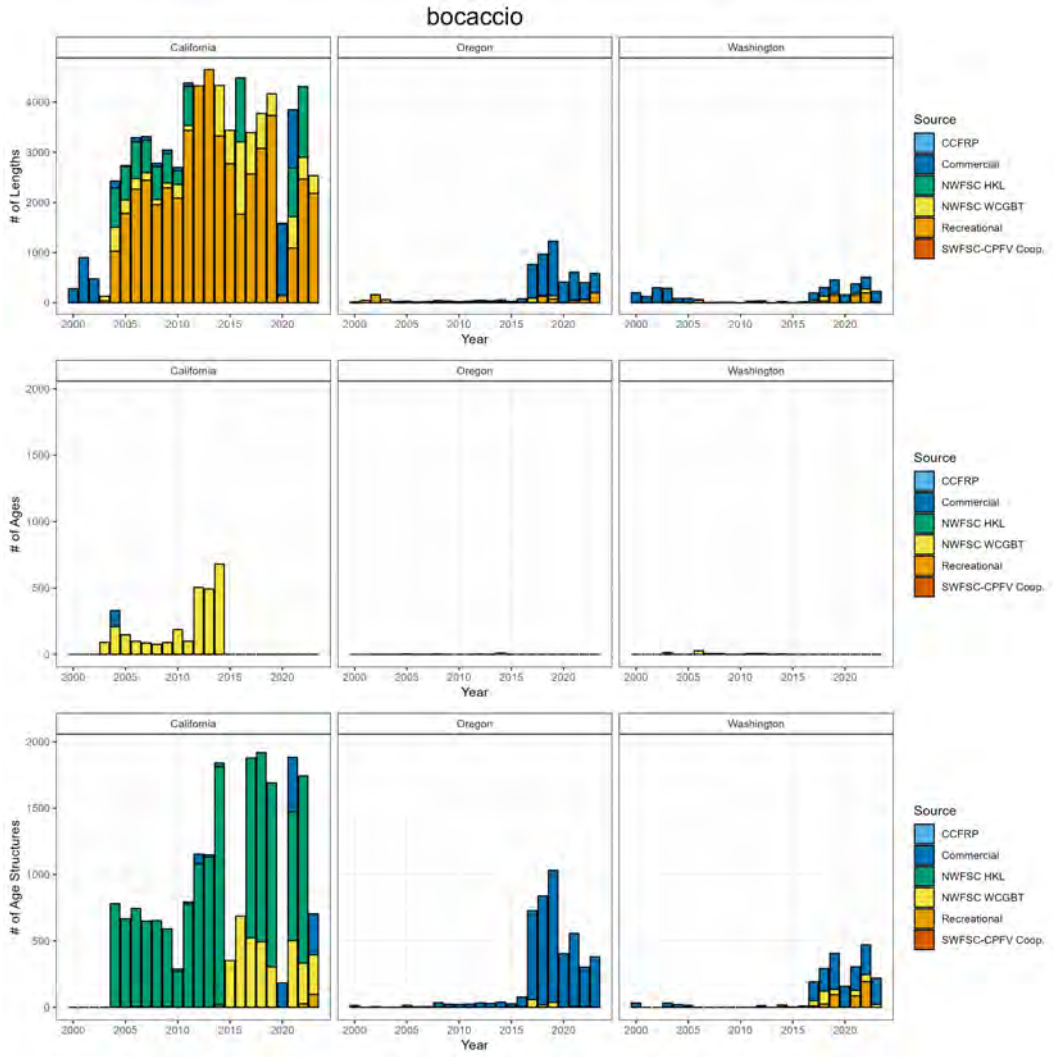

Figure 16: Total number of available lengths, ages, and age structures by data source by year for bocaccio. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

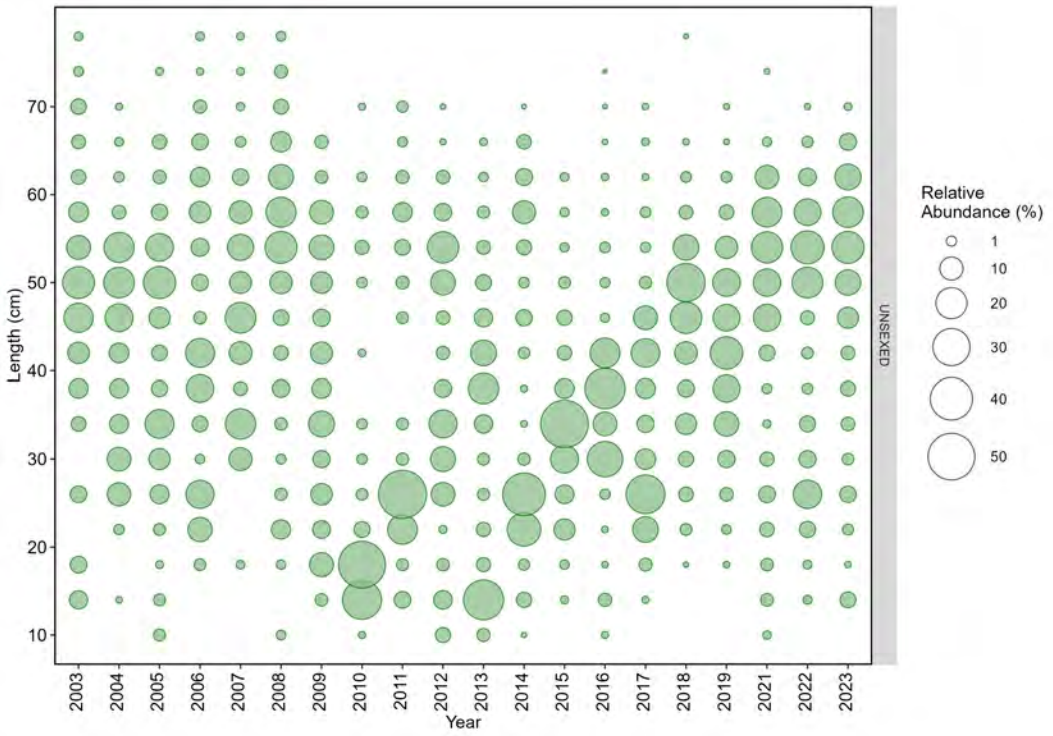

Figure 17: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for bocaccio. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

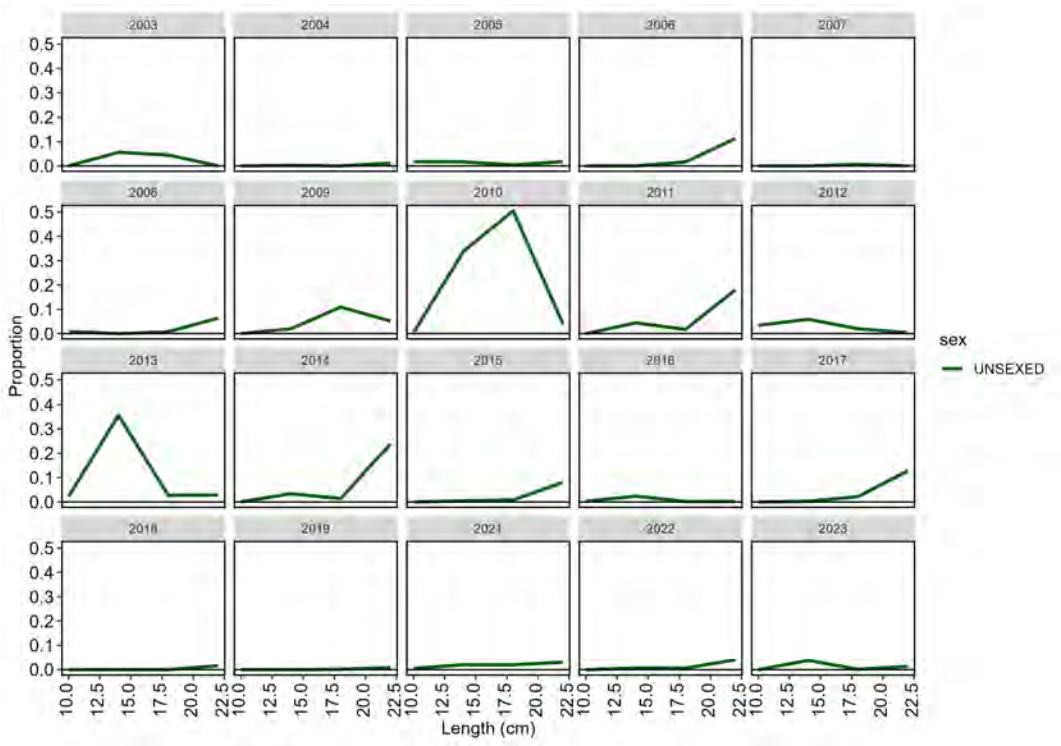

Figure 18: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 0 for bocaccio. The most recent assessment of bocaccio in 2017 estimated large recruitments (i.e., greater than 0.50) in 2010, 2013, and 2014.

Table 14: The median length (cm) associated with fish age 0 for bocaccio based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	17

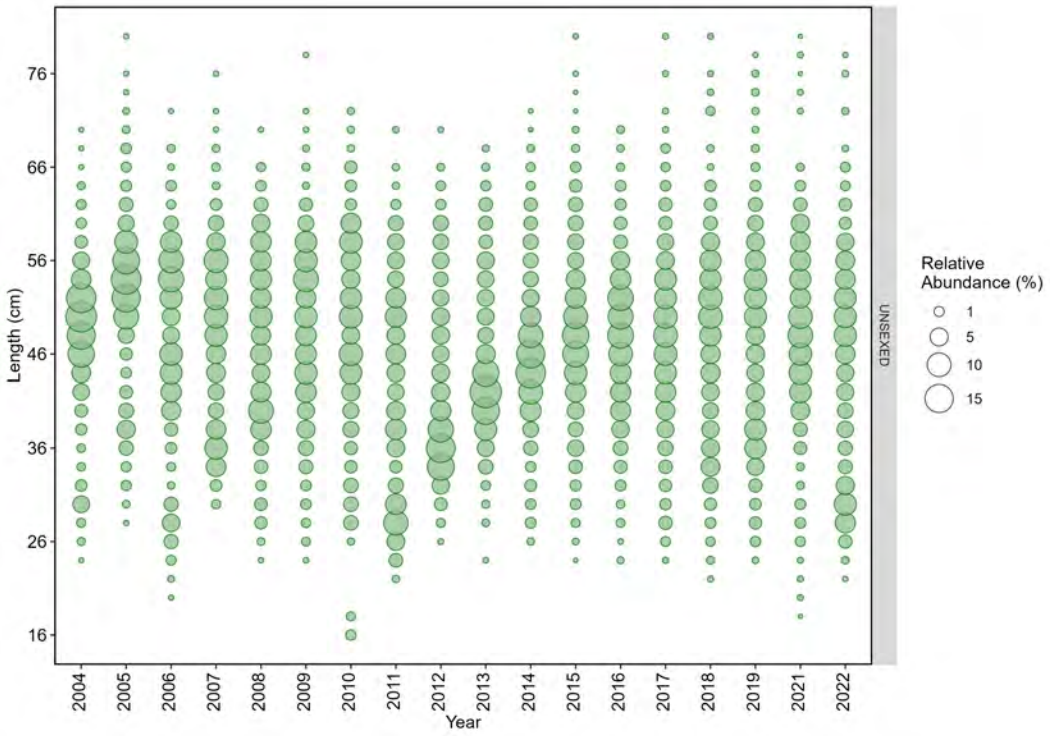

Figure 19: Length (cm) compostion data from the NWFSC Hook and Line survey for bocaccio. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Brown rockfish

The most recent assessment of brown rockfish was a data-moderate assessment conducted in 2013. Across available data, brown rockfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT has a coastwide average of 6 positive tows per year and the NWFSC HKL survey has an average of 1 positive sets per year the area south of Point Conception in California.

Table 15: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for brown rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	2,032	0	0
California	Commercial	5,017	0	99
California	NWFSC HKL	22	0	22
California	NWFSC WCGBT	693	0	543
California	Recreational	78,162	0	402
California	SWFSC-CPFV Coop.	113	0	113
Oregon	Commercial	11	0	3
Oregon	NWFSC WCGBT	2	0	2
Oregon	Recreational	556	13	56
Washington	Recreational	56	0	38

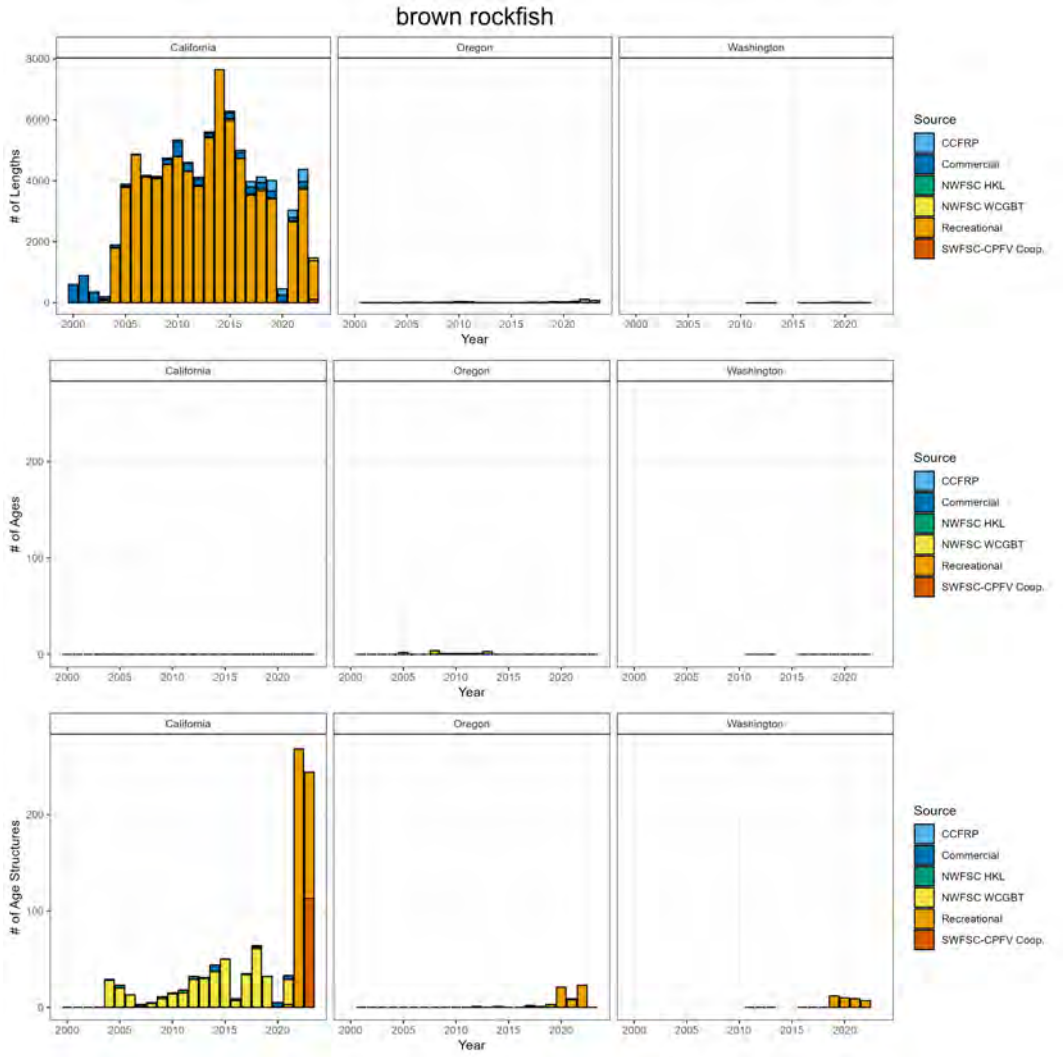

Figure 20: Total number of available lengths, ages, and age structures by data source by year for brown rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

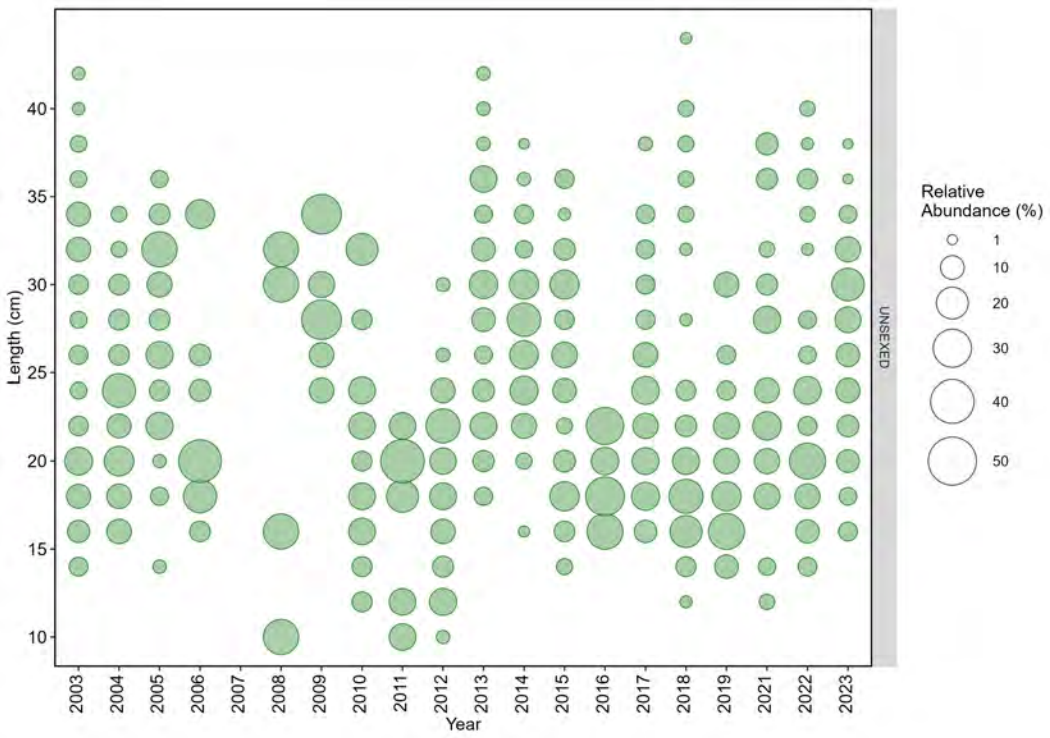

Figure 21: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for brown rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Cabezon

The most recent assessment of cabezon was a benchmark assessment conducted in 2019. Across available data, cabezon have been observed and sampled by both commercial and recreational fisheries.

Table 16: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for cabezon.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	505	0	0
California	Commercial	7,848	0	16
California	NWFSC WCGBT	5	0	4
California	Recreational	15,737	0	4
California	SWFSC-CPFV Coop.	1	0	1
Oregon	Commercial	18,154	366	368
Oregon	NWFSC WCGBT	1	0	1
Oregon	Recreational	28,167	2,328	1,314
Washington	NWFSC WCGBT	1	0	1
Washington	Recreational	4,535	0	2,351

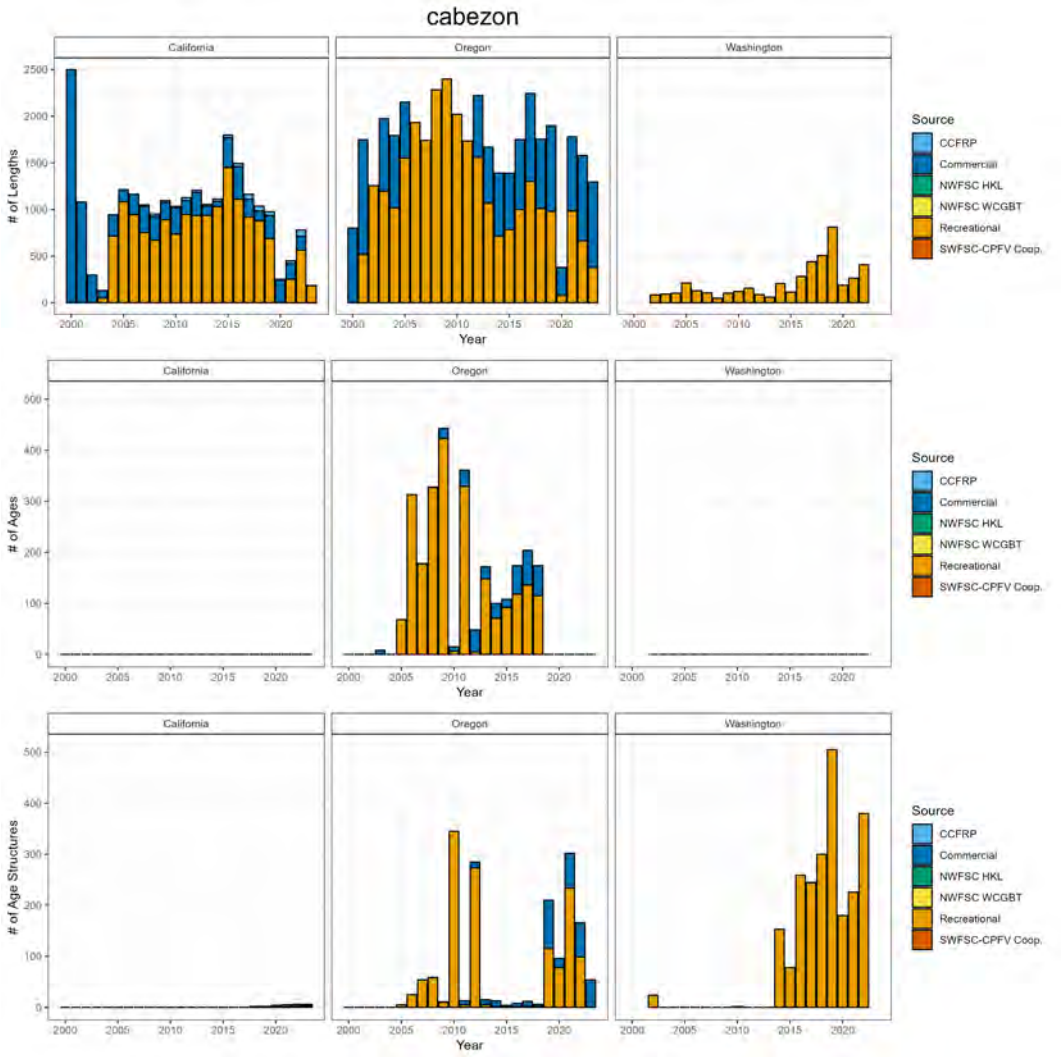

Figure 22: Total number of available lengths, ages, and age structures by data source by year for cabezon. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

California scorpionfish

The most recent assessment of California scorpionfish was a benchmark assessment conducted in 2017. Across available data, California scorpionfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 13 positive tows per year and the NWFSC HKL survey has an average of 1 positive sets per year the area south of Point Conception in California.

Table 17: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for California scorpionfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	340	0	0
California	Commercial	768	0	0
California	NWFSC HKL	34	0	34
California	NWFSC WCGBT	3,992	911	939
California	Recreational	62,590	0	0
California	SWFSC-CPFV Coop.	85	0	85

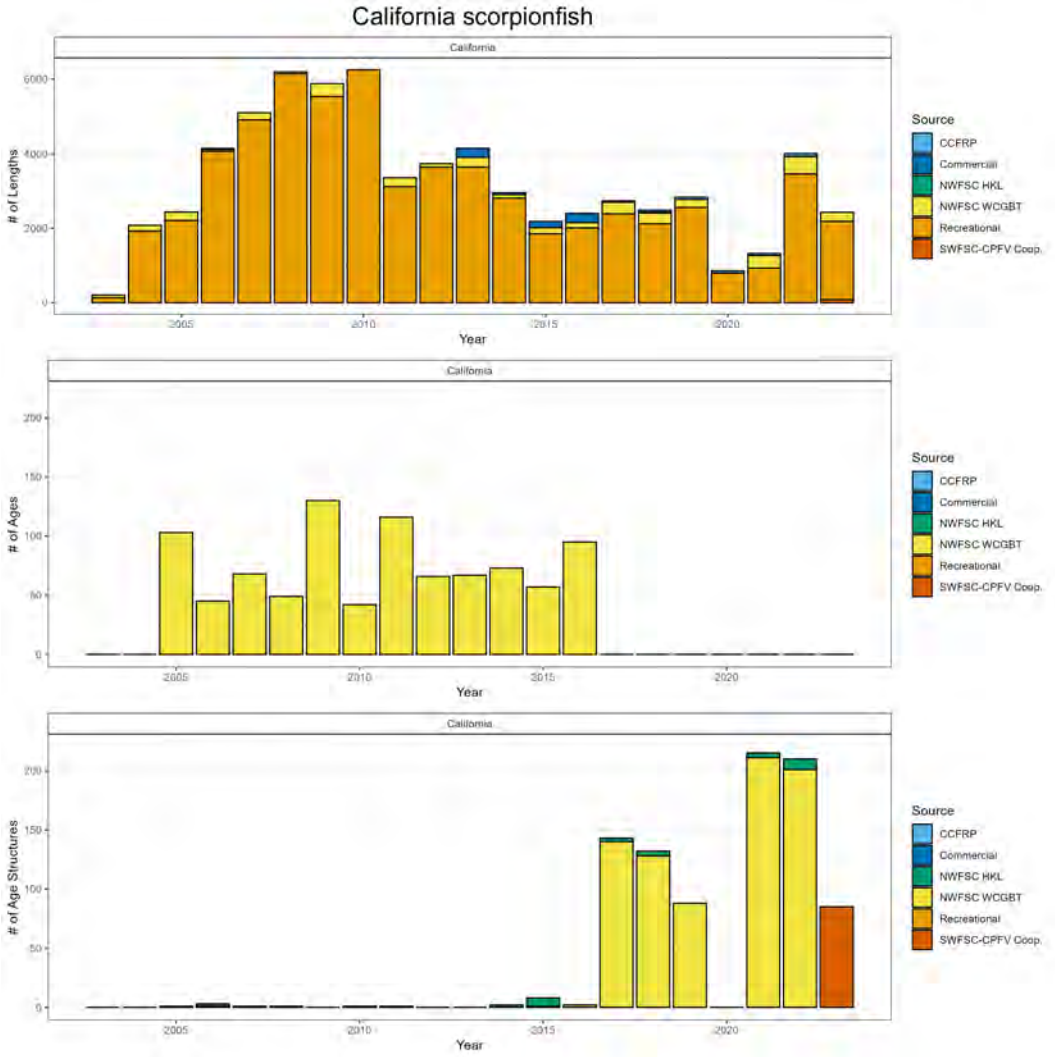

Figure 23: Total number of available lengths, ages, and age structures by data source by year for California scorpionfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Canary rockfish

The most recent assessment of canary rockfish was a benchmark assessment conducted in 2023. Across available data, canary rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 53 positive tows per year and the NWFSC HKL survey has an average of 7 positive sets per year the area south of Point Conception in California.

Table 18: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for canary rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	3,427	0	0
California	Commercial	8,066	310	2,884
California	NWFSC HKL	375	192	183
California	NWFSC WCGBT	3,168	1,854	94
California	Recreational	21,042	0	367
California	SWFSC-CPFV Coop.	284	0	284
Oregon	Commercial	25,739	16,367	7,322
Oregon	NWFSC WCGBT	4,524	3,052	47
Oregon	Recreational	35,213	2,878	2,353
Washington	Commercial	11,580	10,113	782
Washington	NWFSC WCGBT	6,331	3,556	272
Washington	Recreational	6,991	5,032	1,144

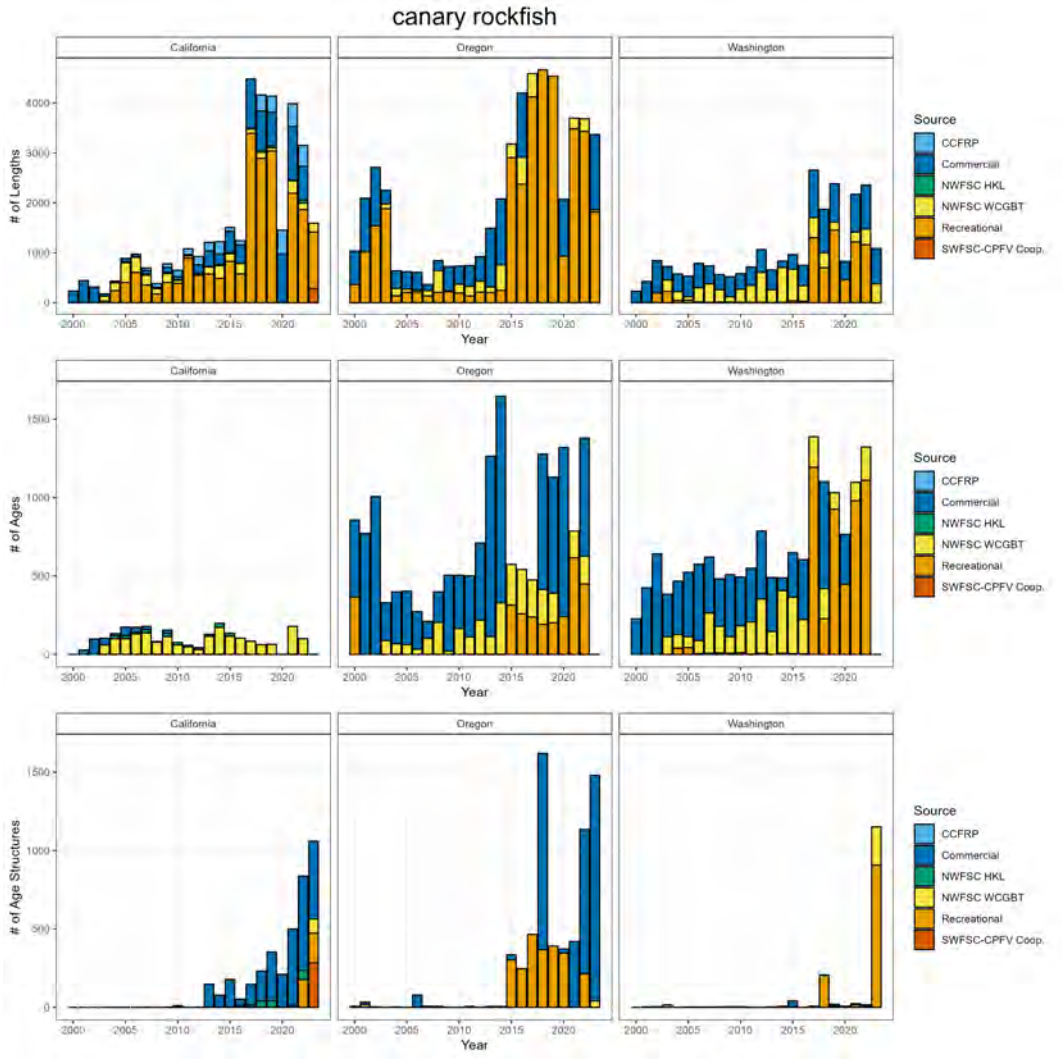

Figure 24: Total number of available lengths, ages, and age structures by data source by year for canary rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

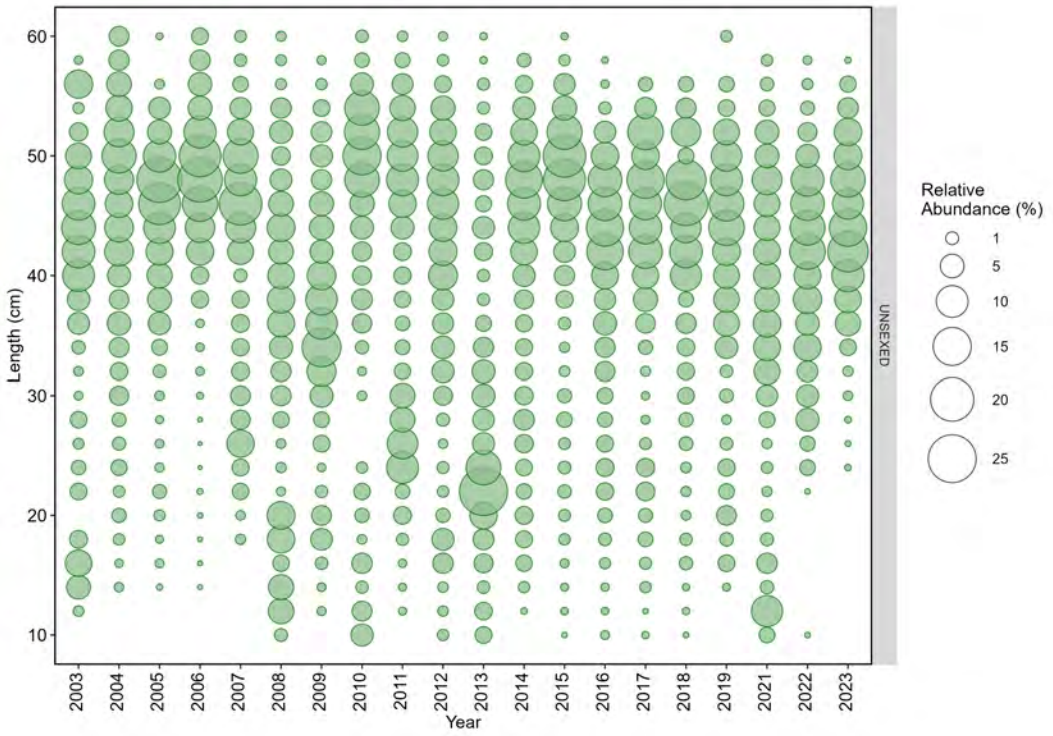

Figure 25: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for canary rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

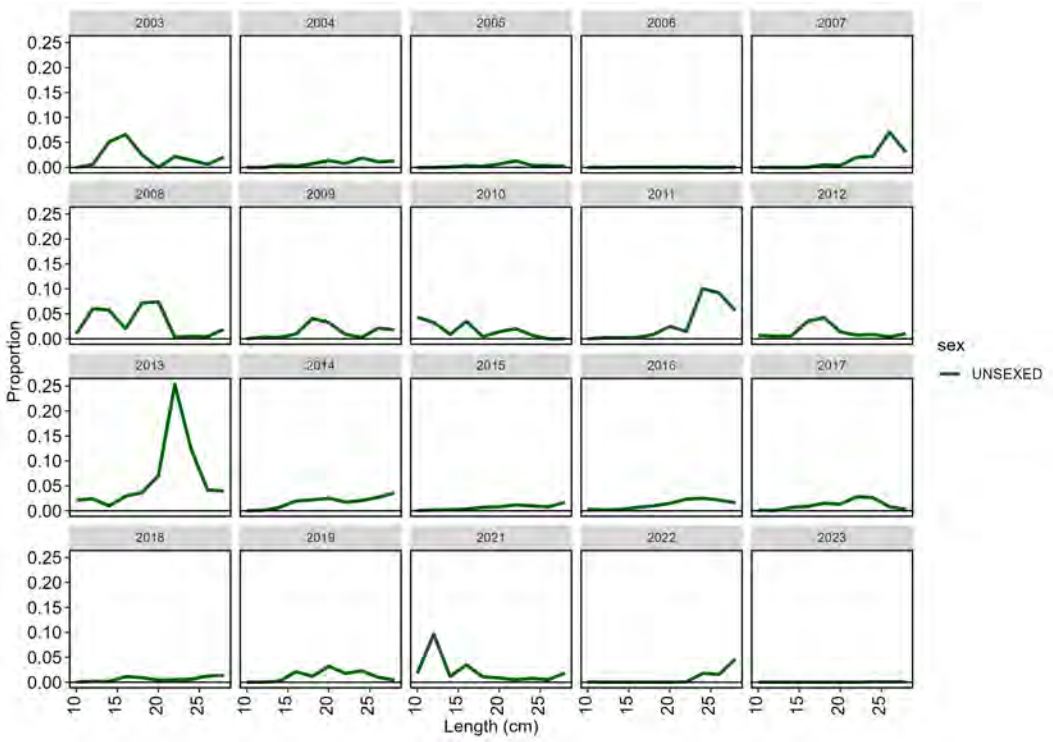

Figure 26: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 4 or younger for canary rockfish. The most recent assessment of canary rockfish in 2023 did not estimate any large recruitment (i.e., greater than 0.50 recruitment deviation) events since 2003.

Table 19: The median length (cm) associated with fish age 4 or younger for canary rockfish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	8.50
1	12.50
2	18.00
3	22.25
4	26.50

Chilipepper

The most recent assessment of chilipepper was an update assessment conducted in 2015. Across available data, chilipepper have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 91 positive tows per year and the NWFSC HKL survey has an average of 22 positive sets per year the area south of Point Conception in California.

Table 20: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for chilipepper.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	1	0	0
California	Commercial	39,249	7,862	5,776
California	NWFSC HKL	2,389	0	2,389
California	NWFSC WCGBT	32,613	8,068	4,369
California	Recreational	9,604	0	124
California	SWFSC-CPFV Coop.	4	0	4
Oregon	Commercial	3,913	0	3,797
Oregon	NWFSC WCGBT	2,071	484	402
Oregon	Recreational	51	0	0
Washington	Commercial	84	0	84
Washington	NWFSC WCGBT	91	27	40
Washington	Recreational	1	0	0

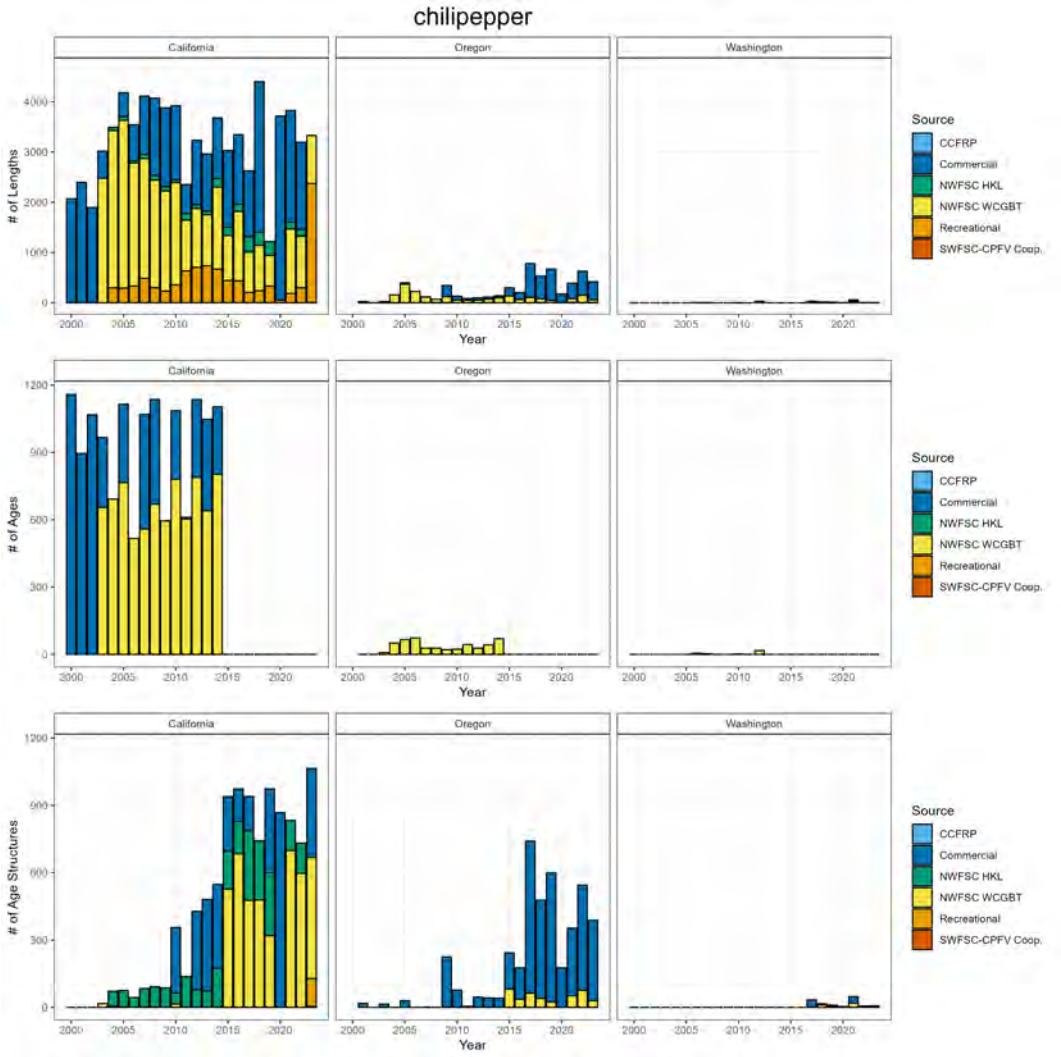

Figure 27: Total number of available lengths, ages, and age structures by data source by year for chilipepper. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

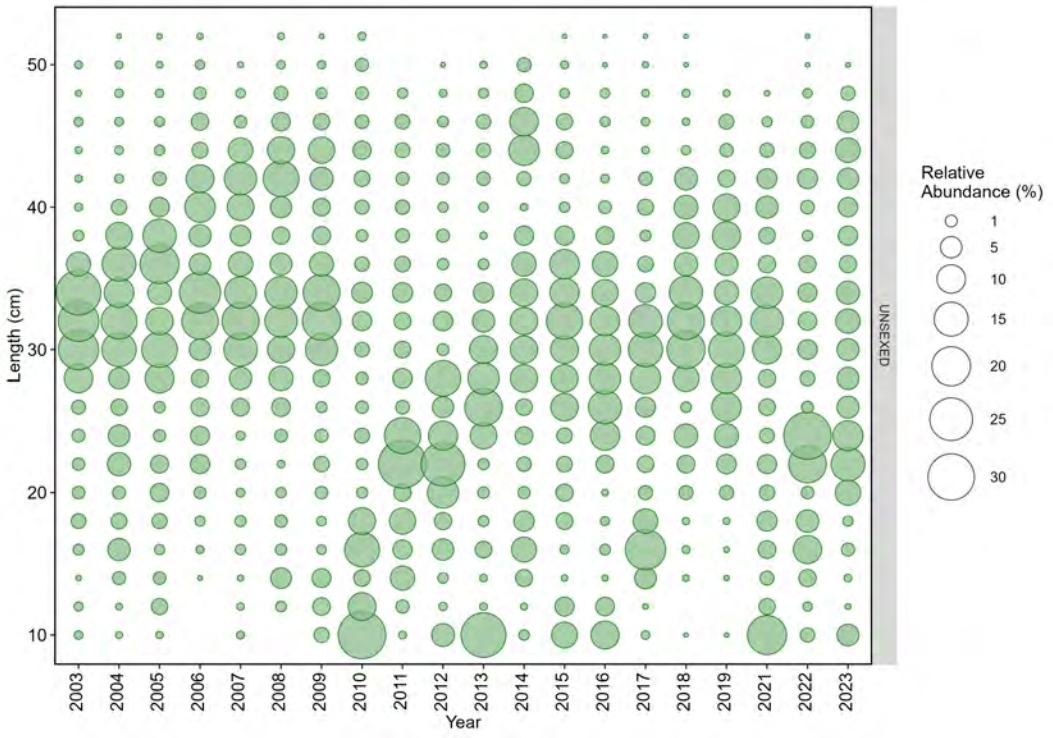

Figure 28: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for chilipepper. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

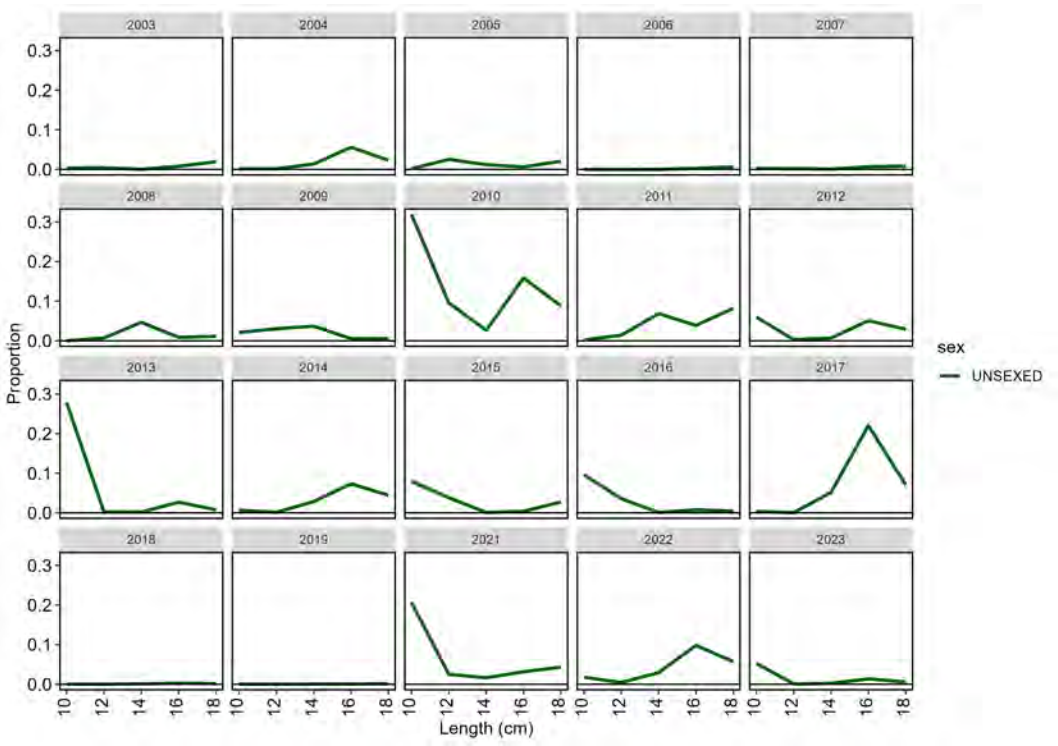

Figure 29: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 1 or younger for chilipepper. The most recent assessemnt of chilipepper in 2015 estimated large recruitments (i.e., greater than 0.50) in 2009, 2010, 2013, and 2014.

Table 21: The median length (cm) associated with fish age 1 or younger for chilipepper based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	11
1	17

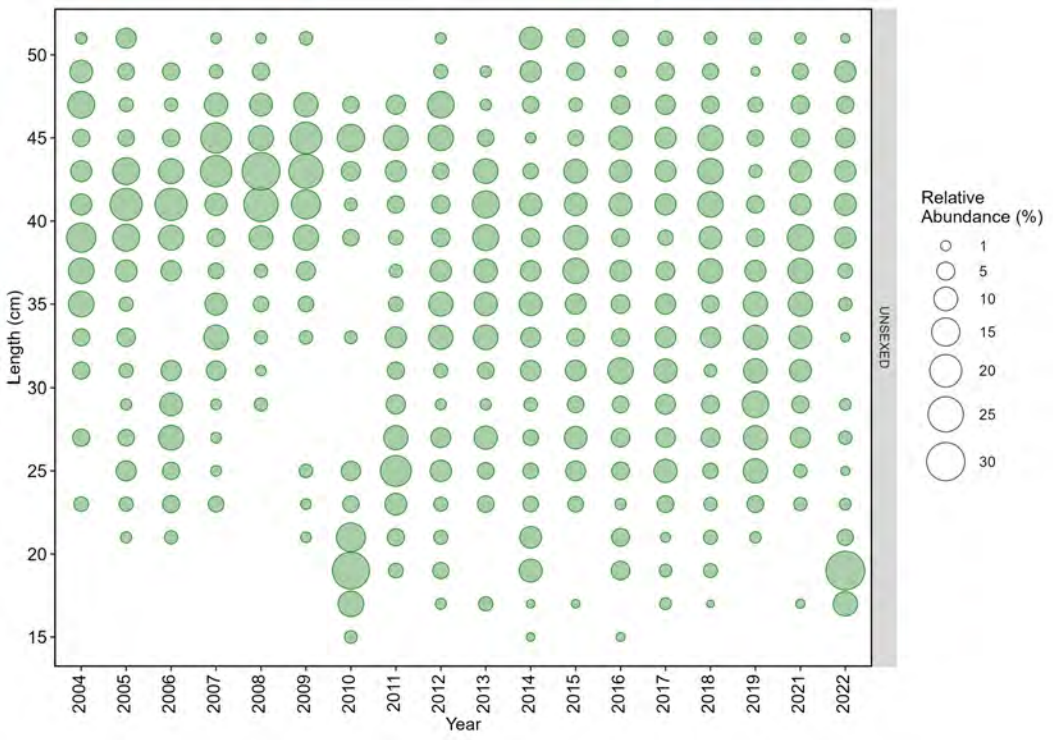

Figure 30: Length (cm) compostion data from the NWFSC Hook and Line survey for chilipepper. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

China rockfish

The most recent assessment of China rockfish was a benchmark assessment conducted in 2015. Across available data, China rockfish have been observed and sampled by both commercial and recreational fisheries.

Table 22: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for China rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	2,017	0	0
California	Commercial	1,650	0	2
California	Recreational	17,298	0	49
California	SWFSC-CPFV Coop.	3	0	3
Oregon	Commercial	18,209	1,393	1,371
Oregon	Recreational	14,403	928	1,472
Washington	Recreational	4,526	1,293	1,460

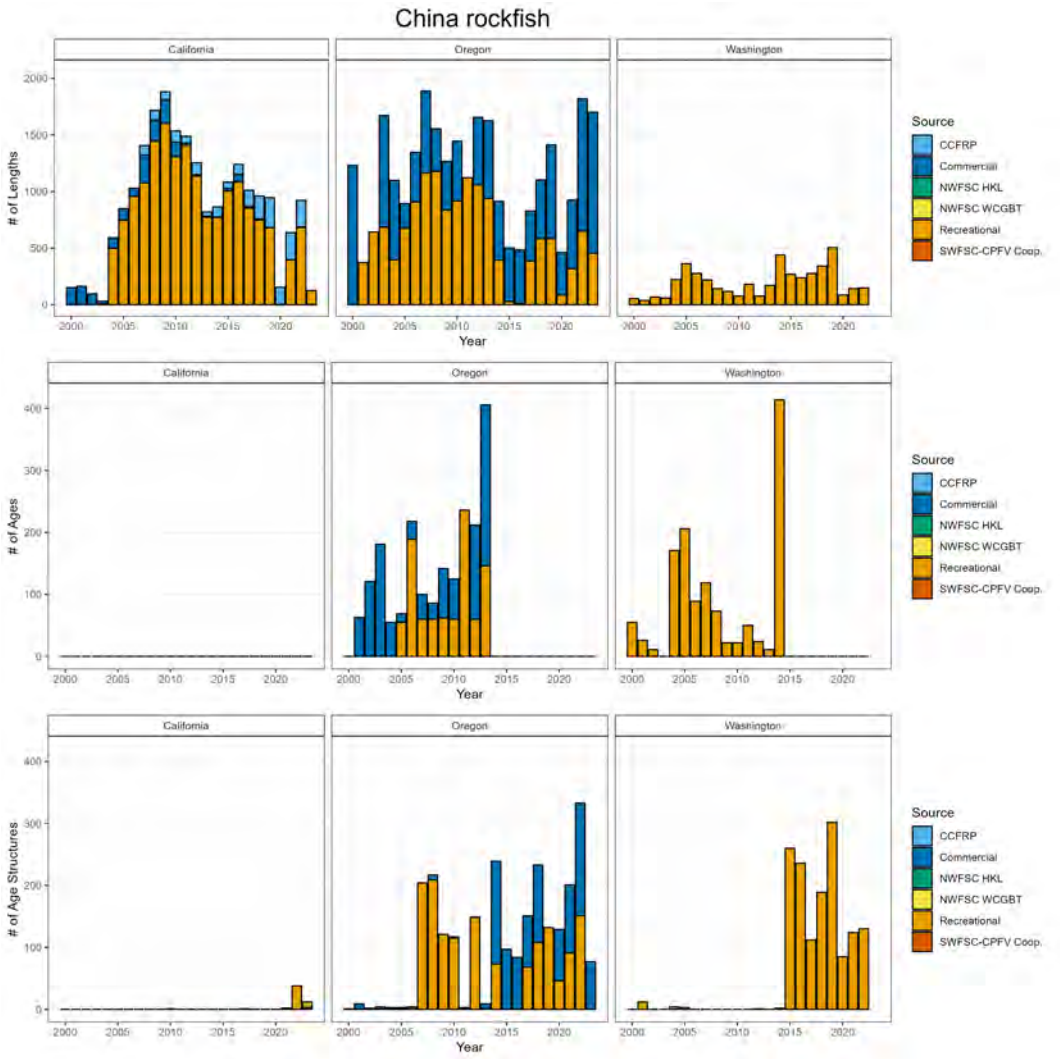

Figure 31: Total number of available lengths, ages, and age structures by data source by year for China rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Copper rockfish

The most recent assessment of copper rockfish was a benchmark assessment conducted in 2023. Across available data, copper rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 9 positive tows per year and the NWFSC HKL survey has an average of 23 positive sets per year the area south of Point Conception in California.

Table 23: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for copper rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	5,977	0	0
California	Commercial	2,633	234	293
California	NWFSC HKL	1,213	1,213	0
California	NWFSC WCGBT	1,329	833	89
California	Recreational	63,388	0	267
California	SWFSC-CPFV Coop.	1,017	762	255
Oregon	Commercial	1,934	351	162
Oregon	NWFSC WCGBT	4	4	0
Oregon	Recreational	15,294	2,298	365
Washington	Commercial	6	1	0
Washington	Recreational	3,575	1,752	464

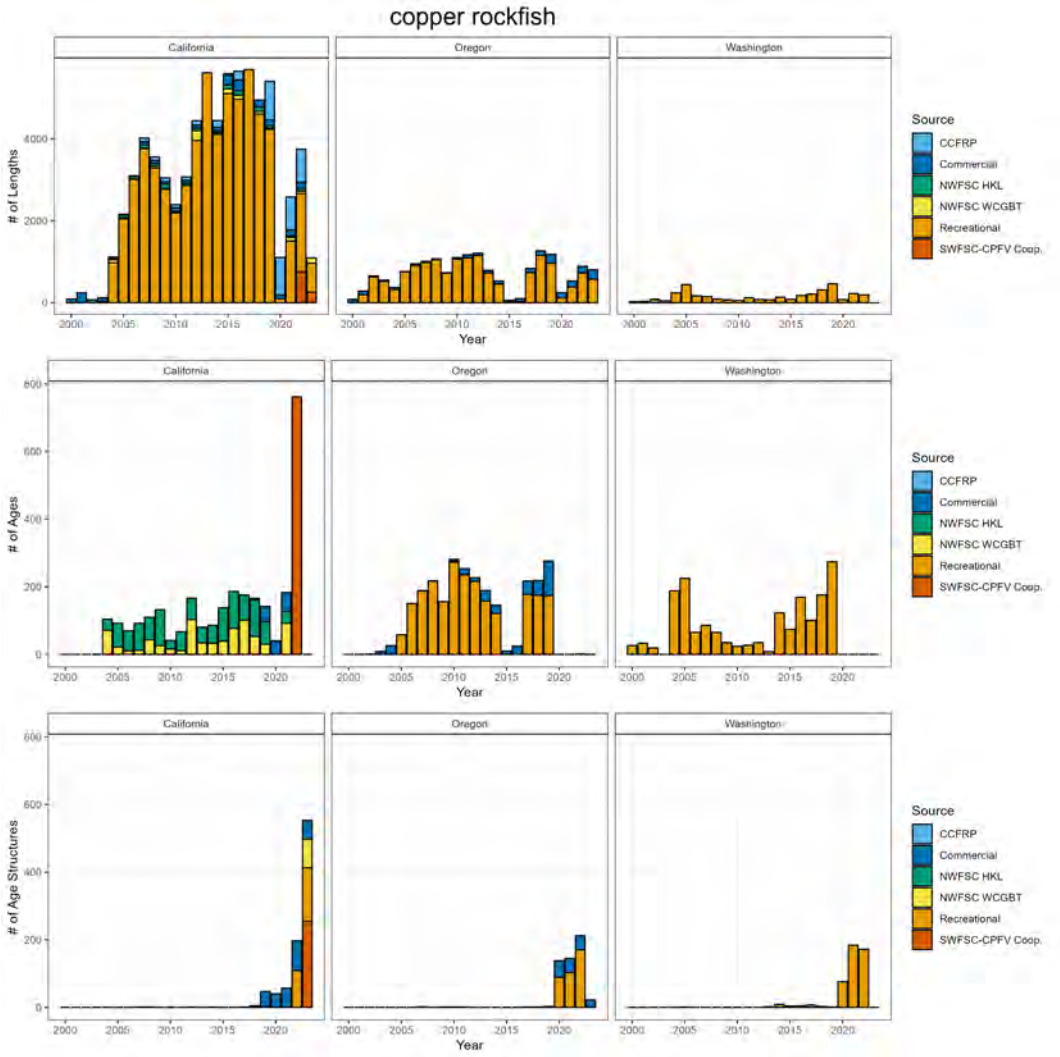

Figure 32: Total number of available lengths, ages, and age structures by data source by year for copper rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

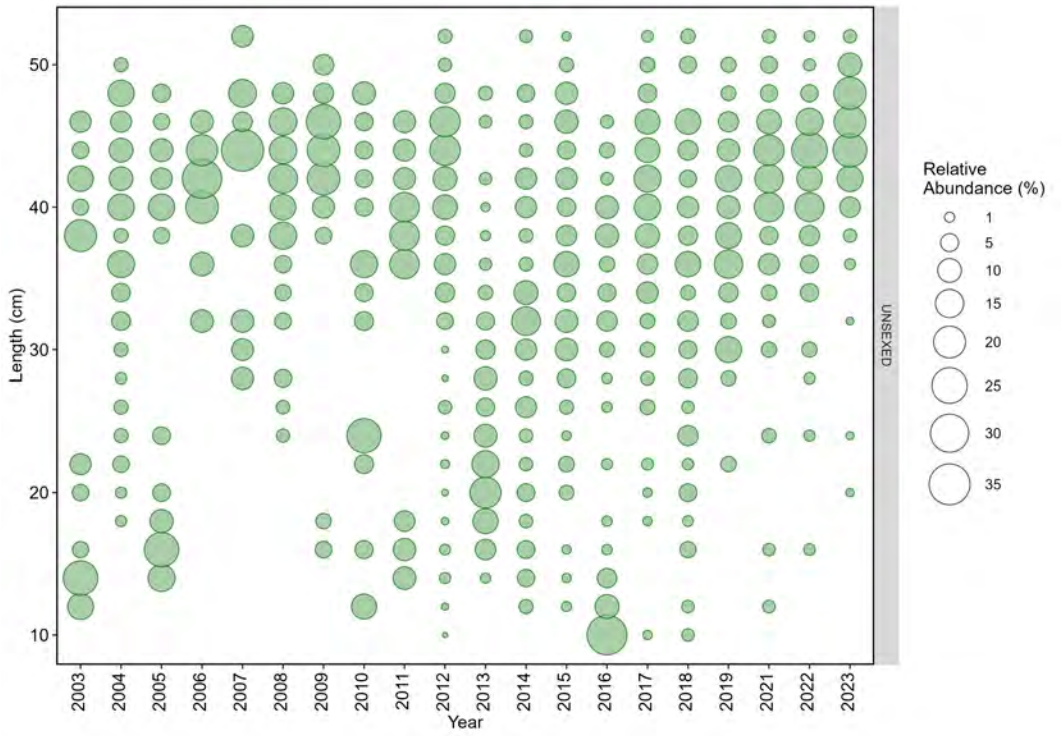

Figure 33: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for copper rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

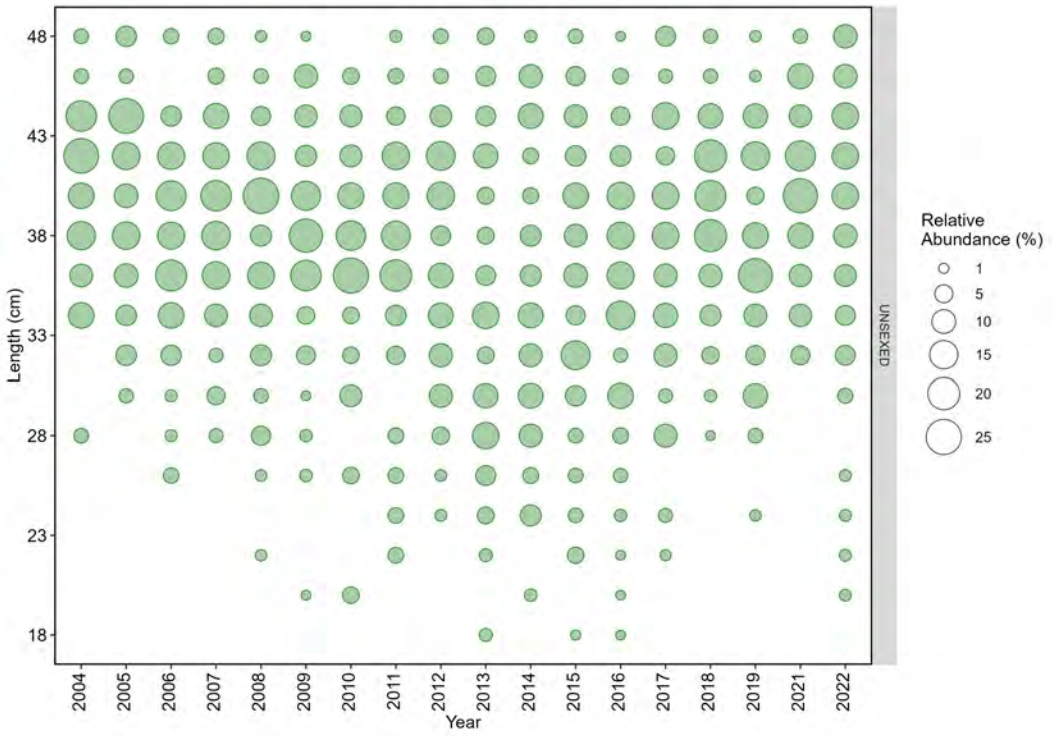

Figure 34: Length (cm) compostion data from the NWFSC Hook and Line survey for copper rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Cowcod

The most recent assessment of cowcod was a benchmark assessment conducted in 2019. Across available data, cowcod have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 19 positive tows per year and the NWFSC HKL survey has an average of 20 positive sets per year the area south of Point Conception in California.

Table 24: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for cowcod.

State	Source	Lengths	Ages	Age Structures
California	Commercial	1,218	0	547
California	NWFSC HKL	856	440	416
California	NWFSC WCGBT	881	462	407
California	Recreational	220	0	51
Oregon	Commercial	78	0	76
Oregon	NWFSC WCGBT	10	3	7
Washington	Commercial	1	0	0
Washington	NWFSC WCGBT	1	0	1

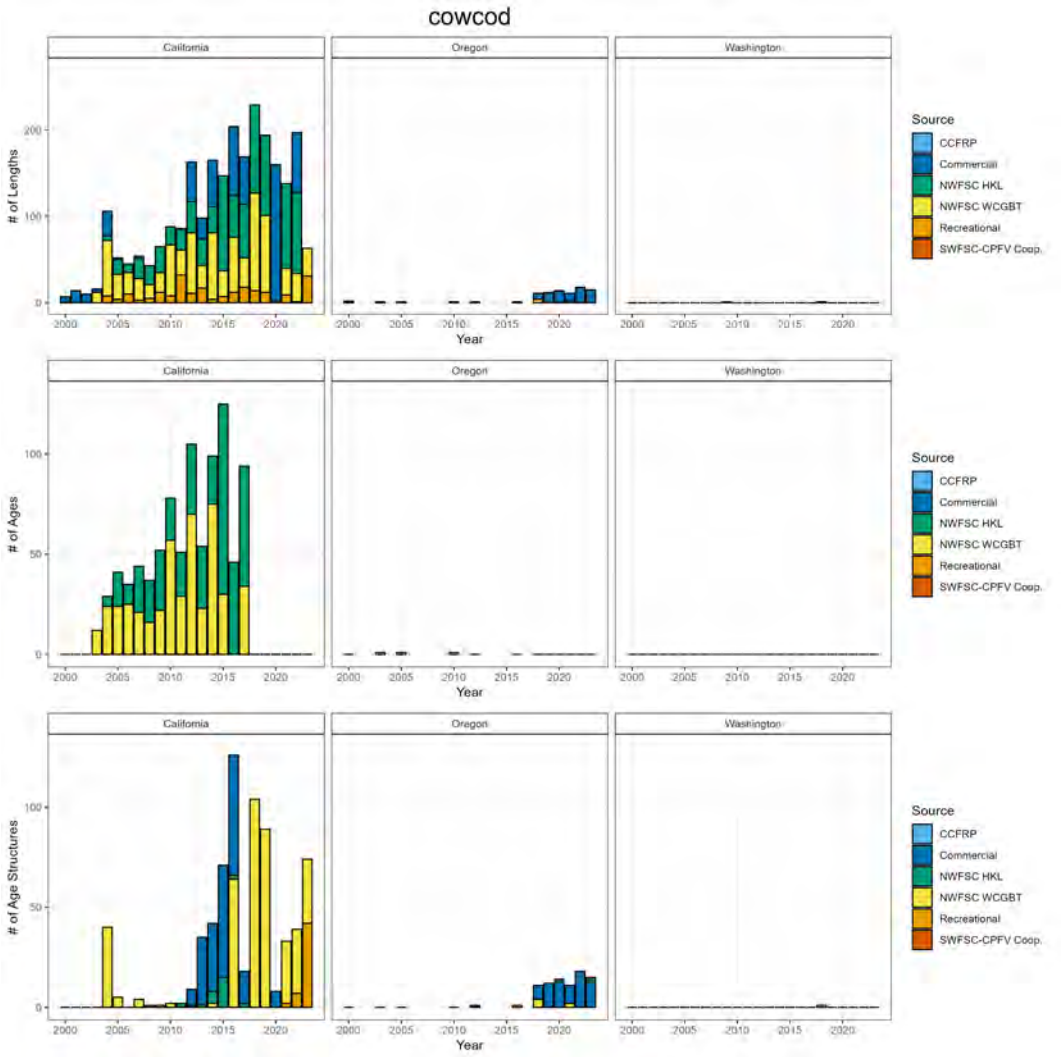

Figure 35: Total number of available lengths, ages, and age structures by data source by year for cowcod. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

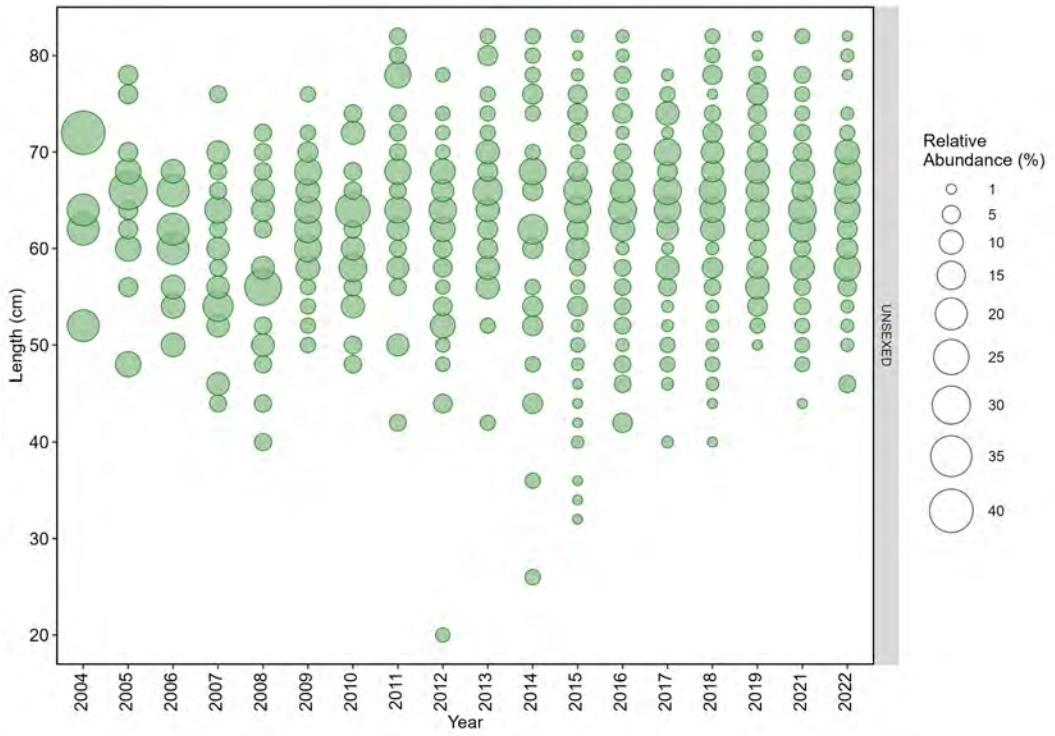

Figure 36: Length (cm) compostion data from the NWFSC Hook and Line survey for cowcod. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Curlfin sole

To date, no assessment or analysis has been conducted on curlfin sole. Across available data, curlfin sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 74 positive tows per year.

Table 25: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for curlfin sole.

State	Source	Lengths	Ages	Age Structures
California	NWFSC WCGBT	9,136	0	1,235
California	Recreational	5	0	0
Oregon	NWFSC WCGBT	1,316	0	325
Oregon	Recreational	1	0	0
Washington	NWFSC WCGBT	172	0	53

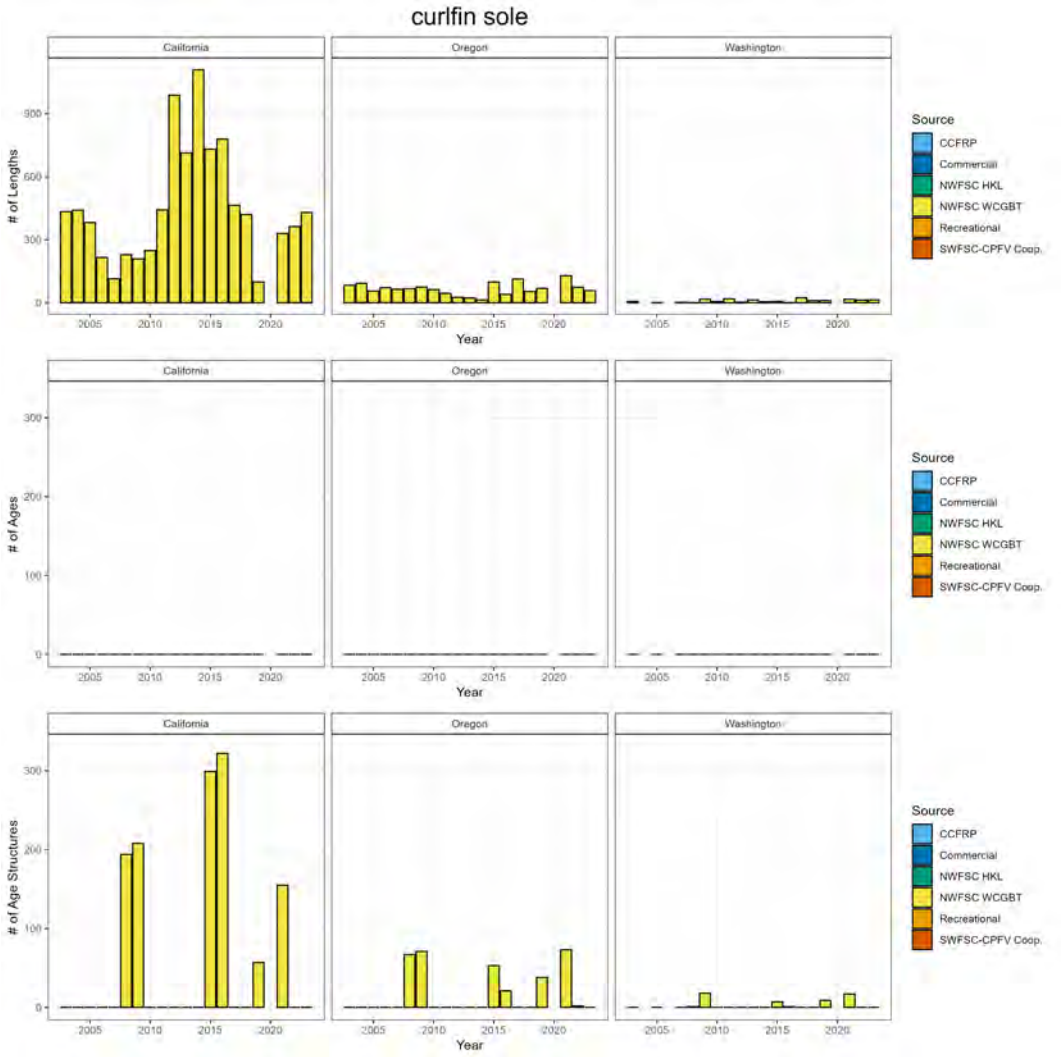

Figure 37: Total number of available lengths, ages, and age structures by data source by year for curlfin sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

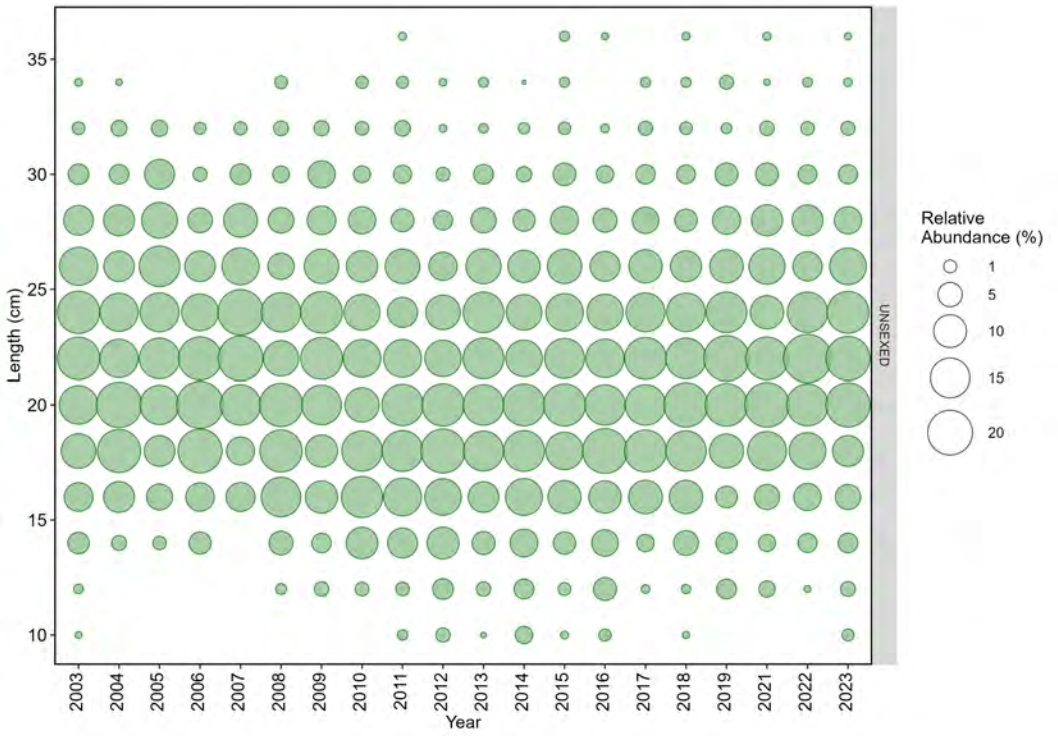

Figure 38: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for curlfin sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Darkblotched rockfish

The most recent assessment of darkblotched rockfish was an update assessment conducted in 2017. Across available data, darkblotched rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 112 positive tows per year.

Table 26: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for darkblotched rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	23,551	6,288	3,187
California	NWFSC WCGBT	7,146	2,561	717
Oregon	Commercial	46,618	24,239	18,625
Oregon	NWFSC WCGBT	19,343	6,117	2,213
Oregon	Recreational	6	0	0
Washington	Commercial	12,760	4,419	3,585
Washington	NWFSC WCGBT	10,245	3,041	982
Washington	Recreational	1	0	0

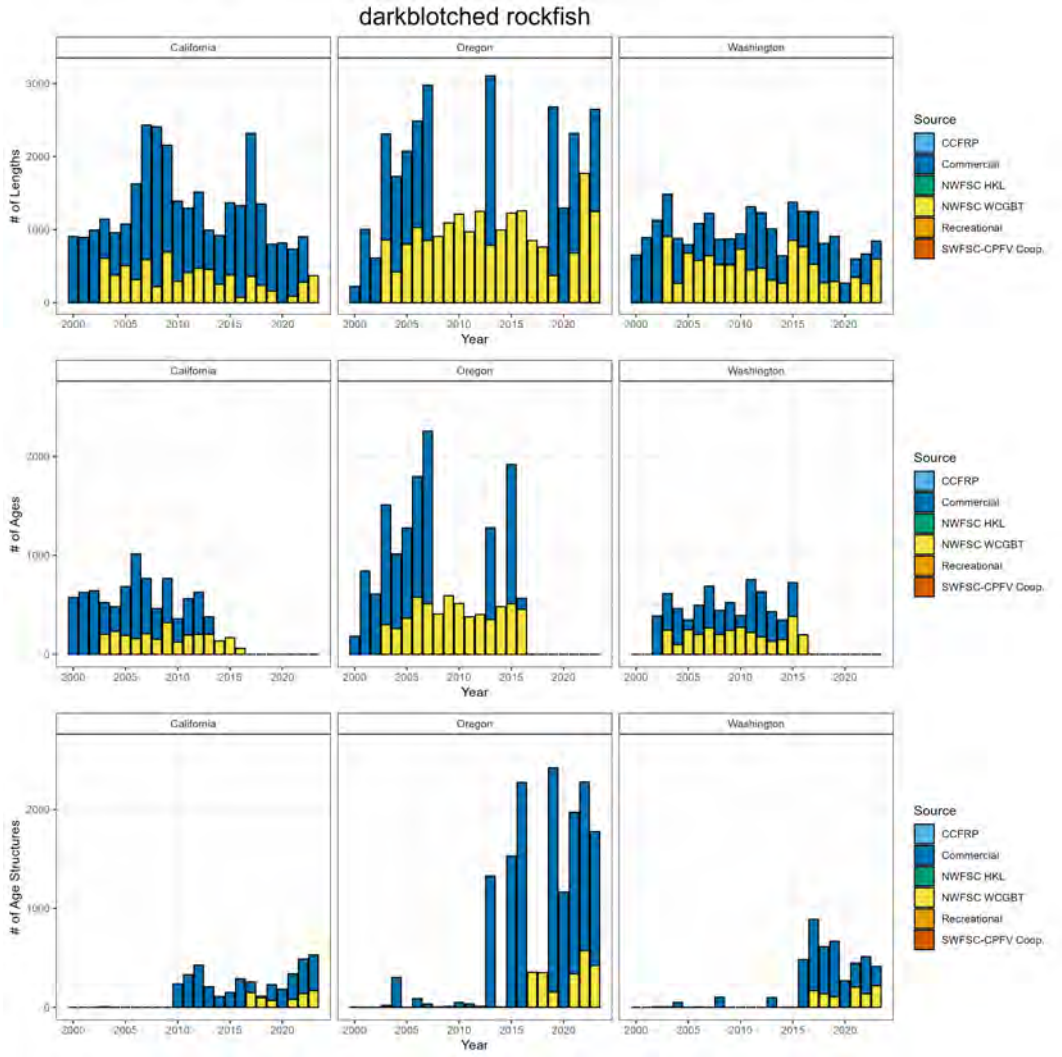

Figure 39: Total number of available lengths, ages, and age structures by data source by year for darkblotched rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

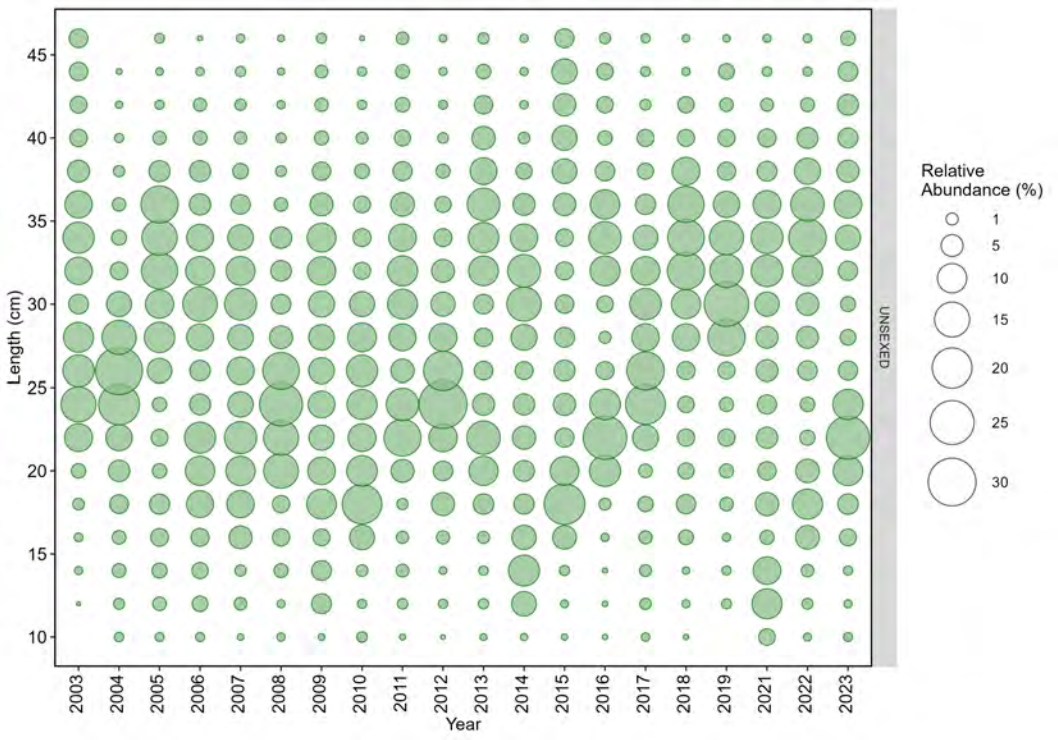

Figure 40: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for darkblotched rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

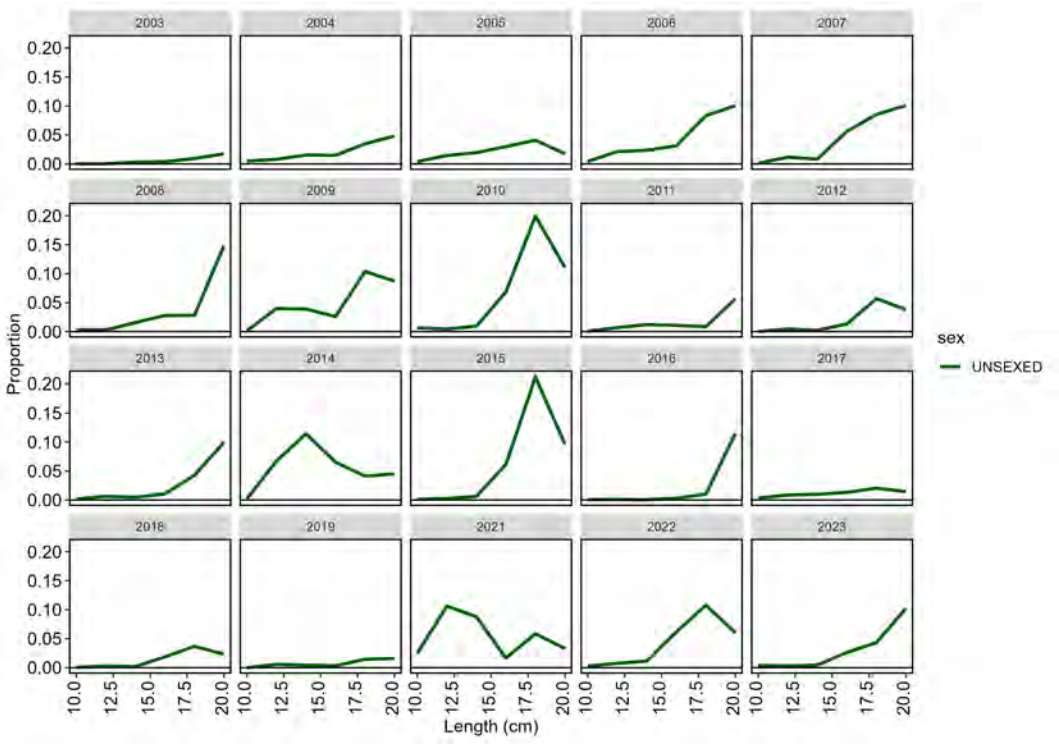

Figure 41: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 2 or younger for darkblotched rockfish. The most recent assessment of darkblotched rockfish in 2017 estimated large recruitments (i.e., greater than 0.50) in 2008 and 2013.

Table 27: The median length (cm) associated with fish age 2 or younger for darkblotched rockfish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	9
1	14
2	18

Dover sole

The most recent assessment of Dover sole was a benchmark assessment conducted in 2021. Across available data, Dover sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 530 positive tows per year.

Table 28: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for Dover sole.

State	Source	Lengths	Ages	Age Structures
California	Commercial	45,970	11,407	6,466
California	NWFSC WCGBT	83,404	8,577	5,310
California	Recreational	9	0	0
Oregon	Commercial	62,878	10,192	34,093
Oregon	NWFSC WCGBT	63,022	5,454	3,592
Oregon	Recreational	22	0	0
Washington	Commercial	25,415	7,385	8,651
Washington	NWFSC WCGBT	35,481	2,866	2,074
Washington	Recreational	2	0	0

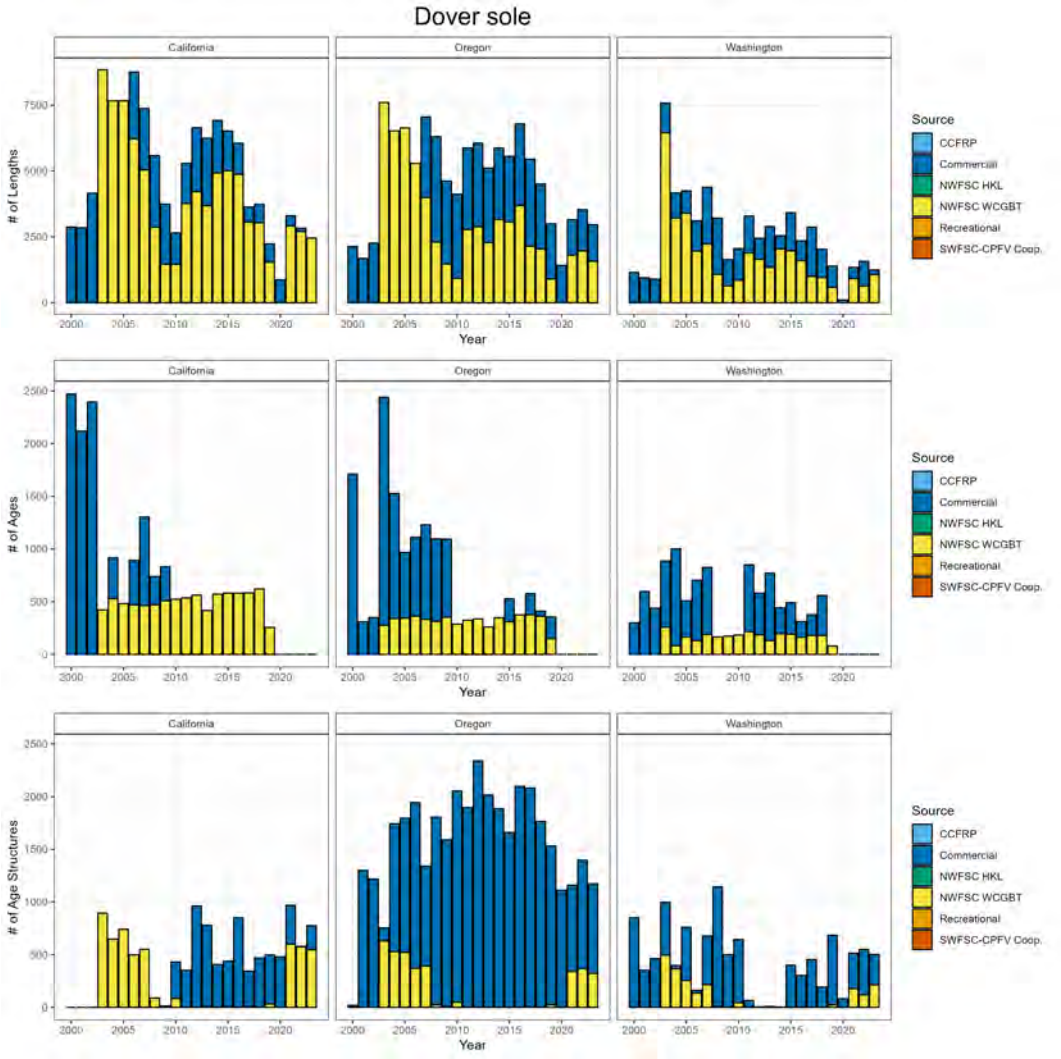

Figure 42: Total number of available lengths, ages, and age structures by data source by year for Dover sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

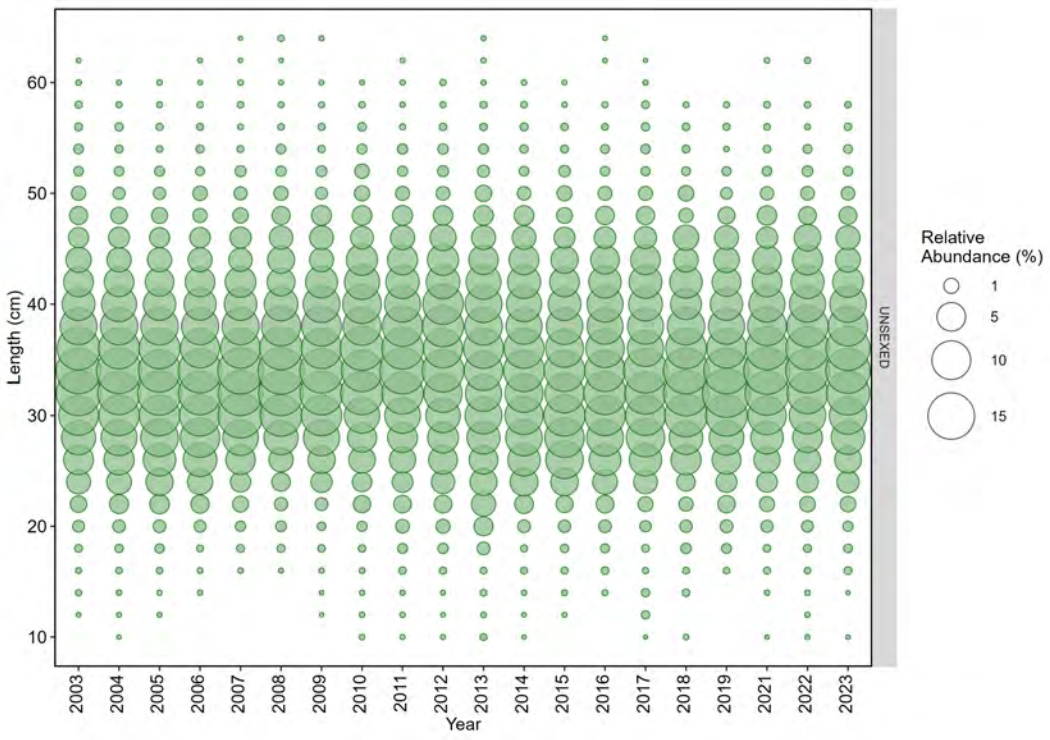

Figure 43: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for Dover sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

English sole

The most recent assessment of English sole was a data-moderate assessment conducted in 2013. Across available data, English sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 264 positive tows per year.

Table 29: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for English sole.

State	Source	Lengths	Ages	Age Structures
California	Commercial	23,868	0	1,583
California	NWFSC WCGBT	43,625	478	8,592
California	Recreational	17	0	0
Oregon	Commercial	32,135	1,015	24,612
Oregon	NWFSC WCGBT	28,590	264	4,810
Oregon	Recreational	24	0	0
Washington	Commercial	19,160	10,482	2,601
Washington	NWFSC WCGBT	14,697	156	3,124
Washington	Recreational	2	0	1

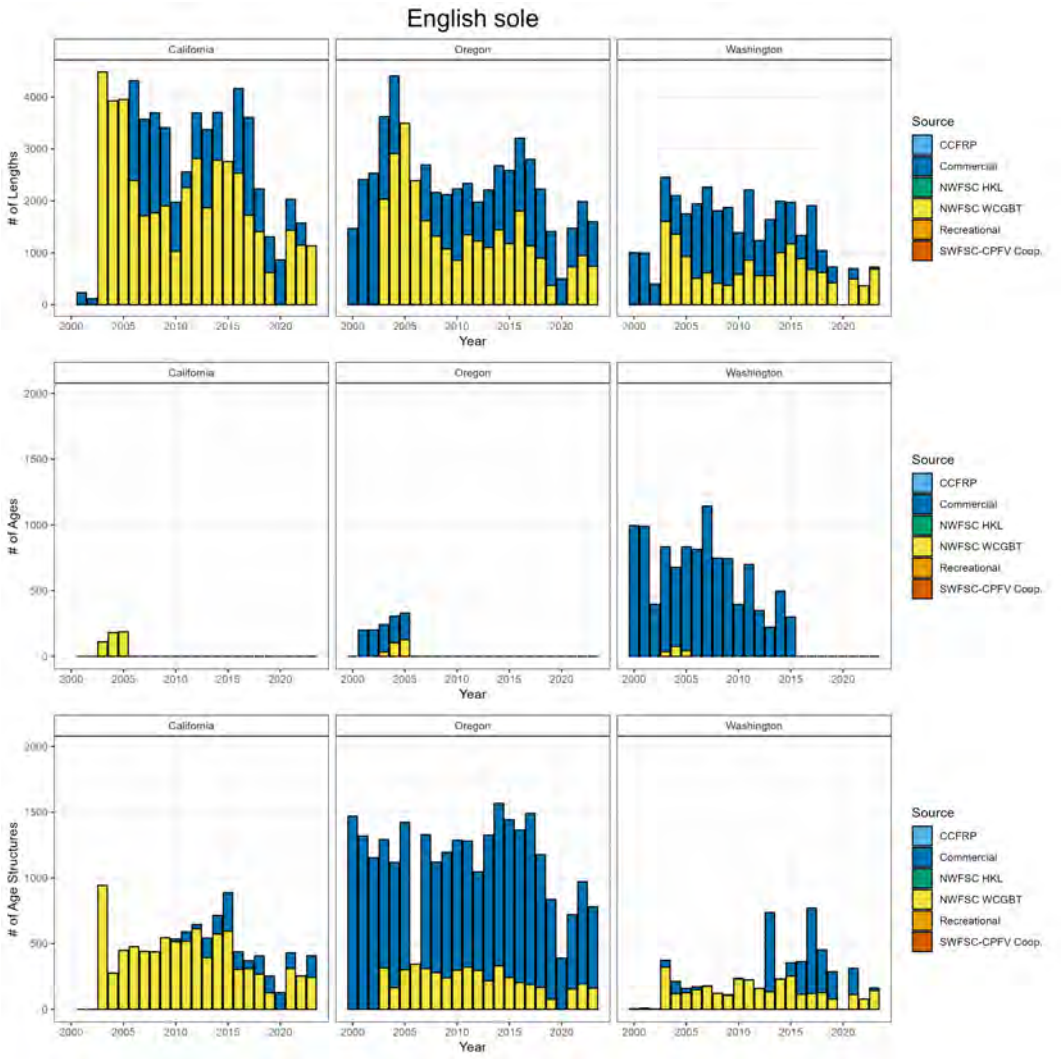

Figure 44: Total number of available lengths, ages, and age structures by data source by year for English sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

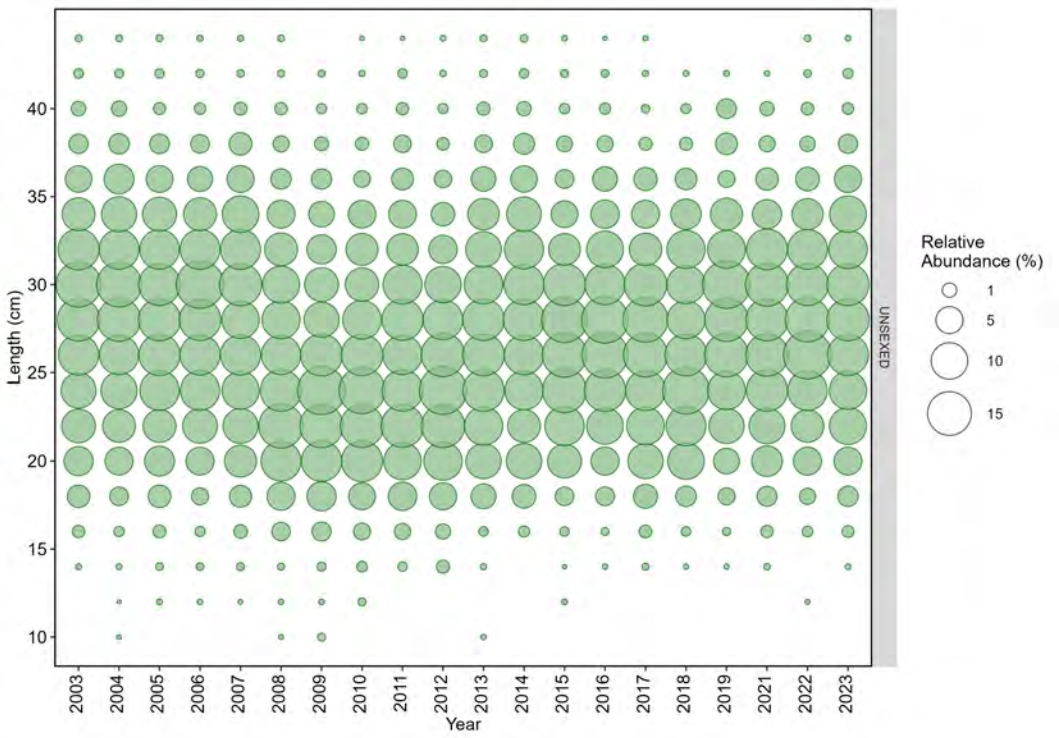

Figure 45: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for English sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Flag rockfish

The most recent assessment of flag rockfish was a data-limited assessment conducted in 2010. Across available data, flag rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 7 positive tows per year and the NWFSC HKL survey has an average of 8 positive sets per year the area south of Point Conception in California.

Table 30: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for flag rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	1	0	0
California	Commercial	295	0	5
California	NWFSC HKL	208	0	208
California	NWFSC WCGBT	489	3	361
California	Recreational	11,733	0	23
California	SWFSC-CPFV Coop.	17	0	17
Oregon	NWFSC WCGBT	4	0	4
Oregon	Recreational	14	0	0

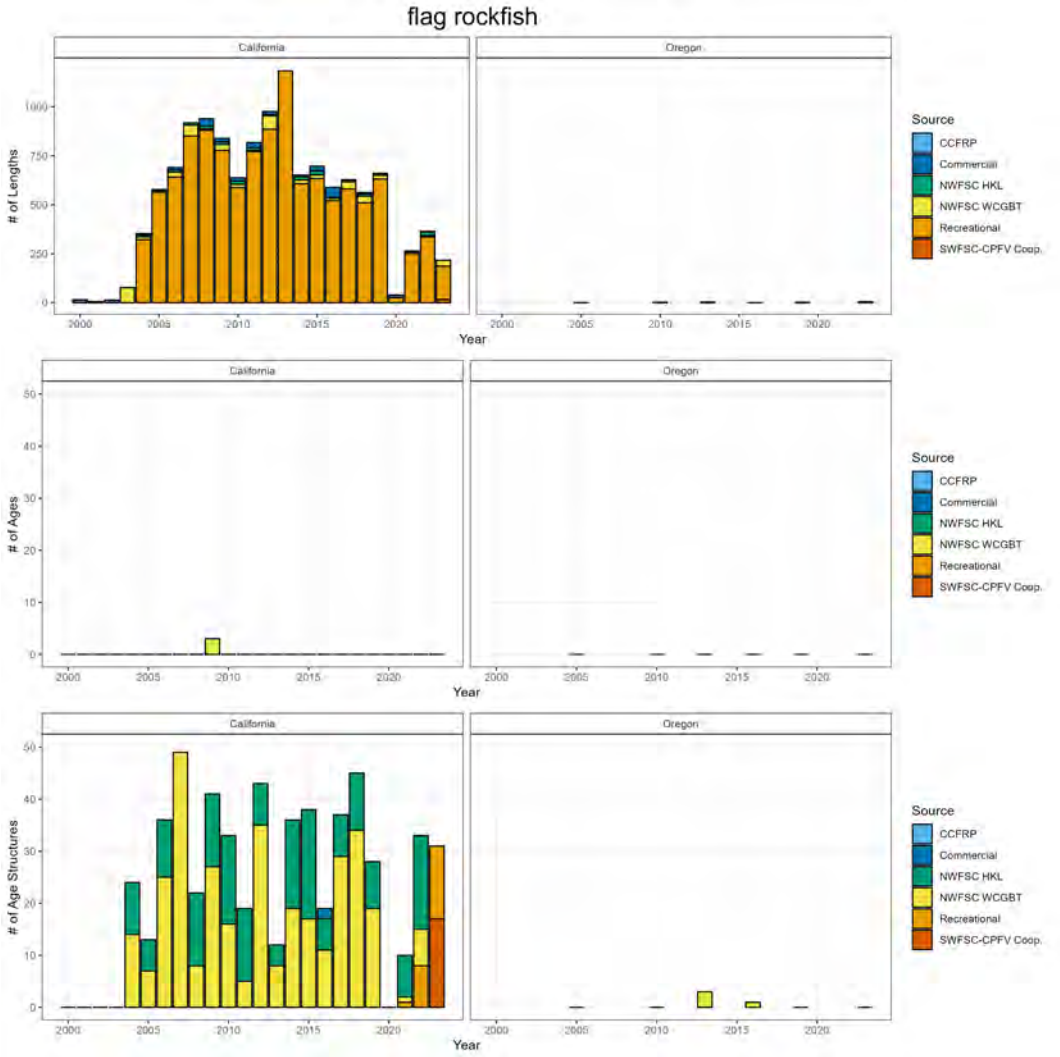

Figure 46: Total number of available lengths, ages, and age structures by data source by year for flag rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Flathead sole

To date, no assessment or analysis has been conducted on flathead sole. Across available data, flathead sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 52 positive tows per year.

Table 31: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for flathead sole.

State	Source	Lengths	Ages	Age Structures
California	Commercial	1	0	0
California	NWFSC WCGBT	76	0	38
Oregon	Commercial	1,501	0	1,381
Oregon	NWFSC WCGBT	3,777	0	1,627
Oregon	Recreational	1	0	0
Washington	Commercial	1	0	1
Washington	NWFSC WCGBT	7,699	0	1,788

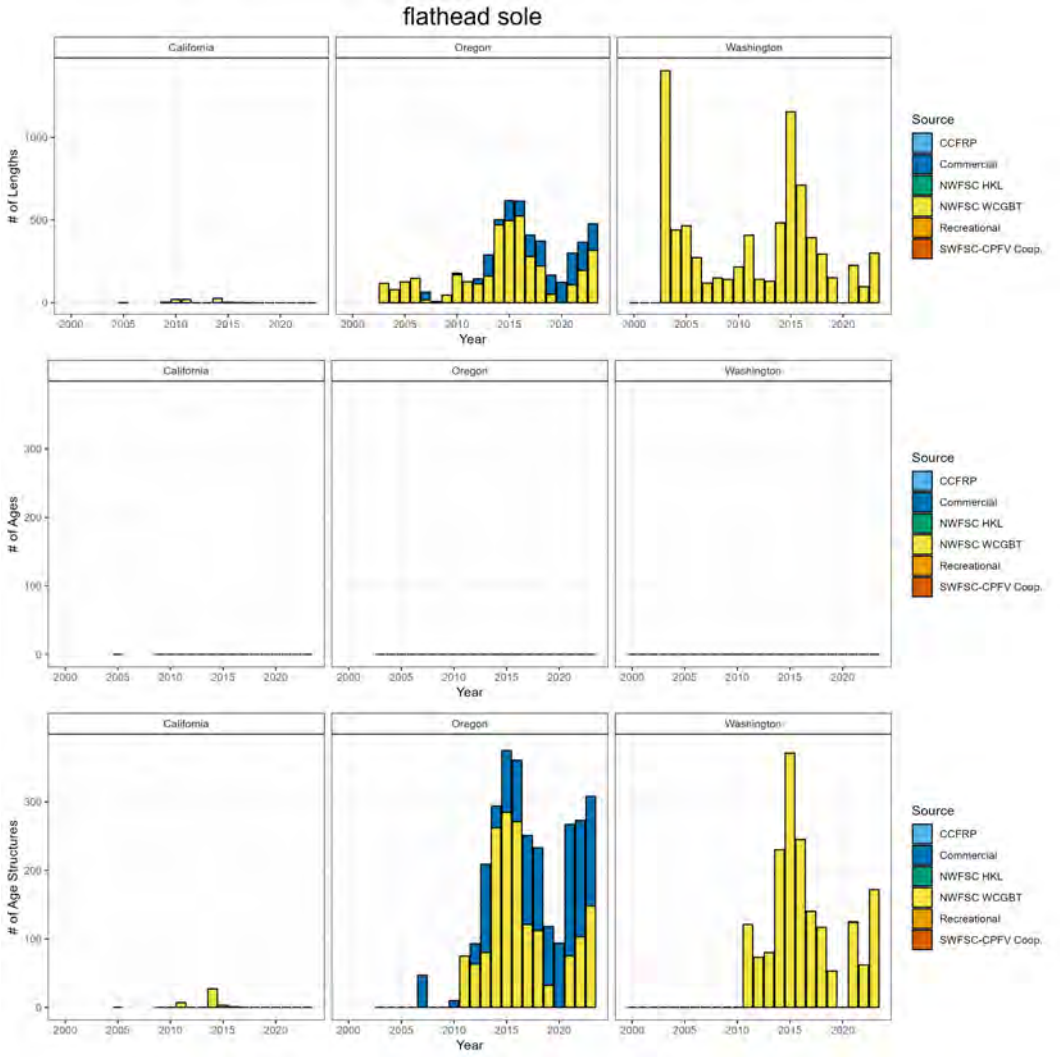

Figure 47: Total number of available lengths, ages, and age structures by data source by year for flathead sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

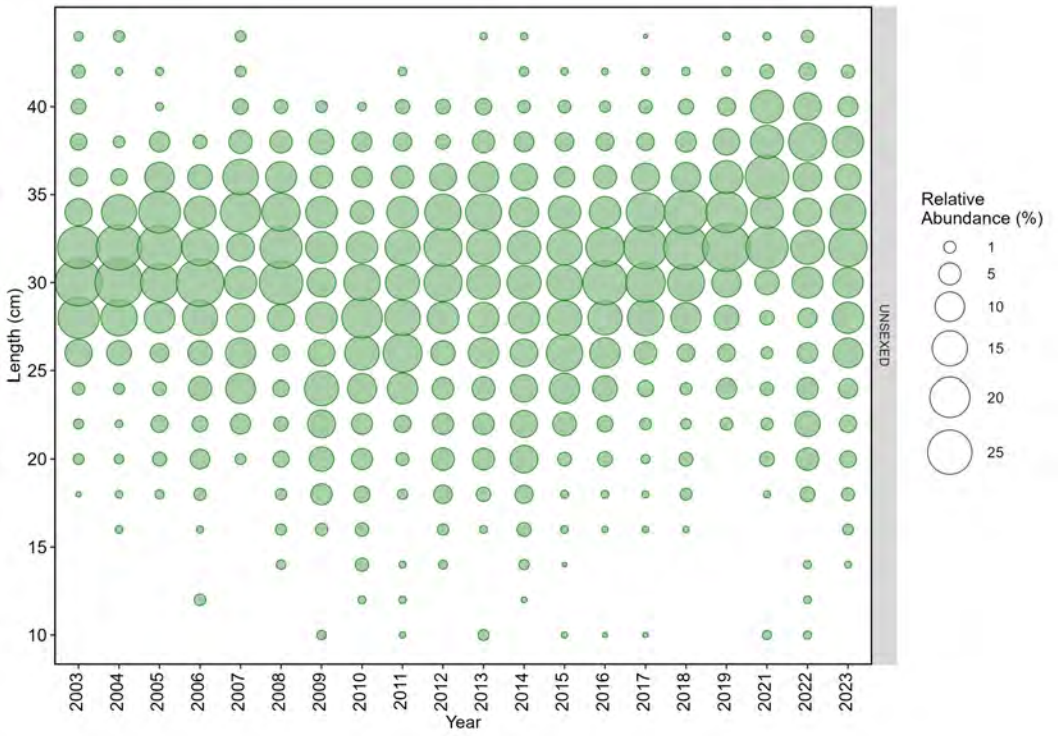

Figure 48: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for flathead sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Gopher and black and yellow rockfish

The most recent assessment of gopher and black and yellow rockfish was a benchmark assessment conducted in 2019. Across available data, gopher and black and yellow rockfish have been observed and sampled by both commercial and recreational fisheries. The NWFSC WCGBT survey has an average of 1 positive tows per year.

Table 32: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for gopher and black and yellow rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	32,887	0	0
California	Commercial	26,547	46	246
California	NWFSC HKL	8	0	8
California	NWFSC WCGBT	15	0	13
California	Recreational	98,757	0	281
California	SWFSC-CPFV Coop.	107	0	107
Oregon	Commercial	265	0	24
Oregon	NWFSC WCGBT	2	0	2
Oregon	Recreational	174	0	21

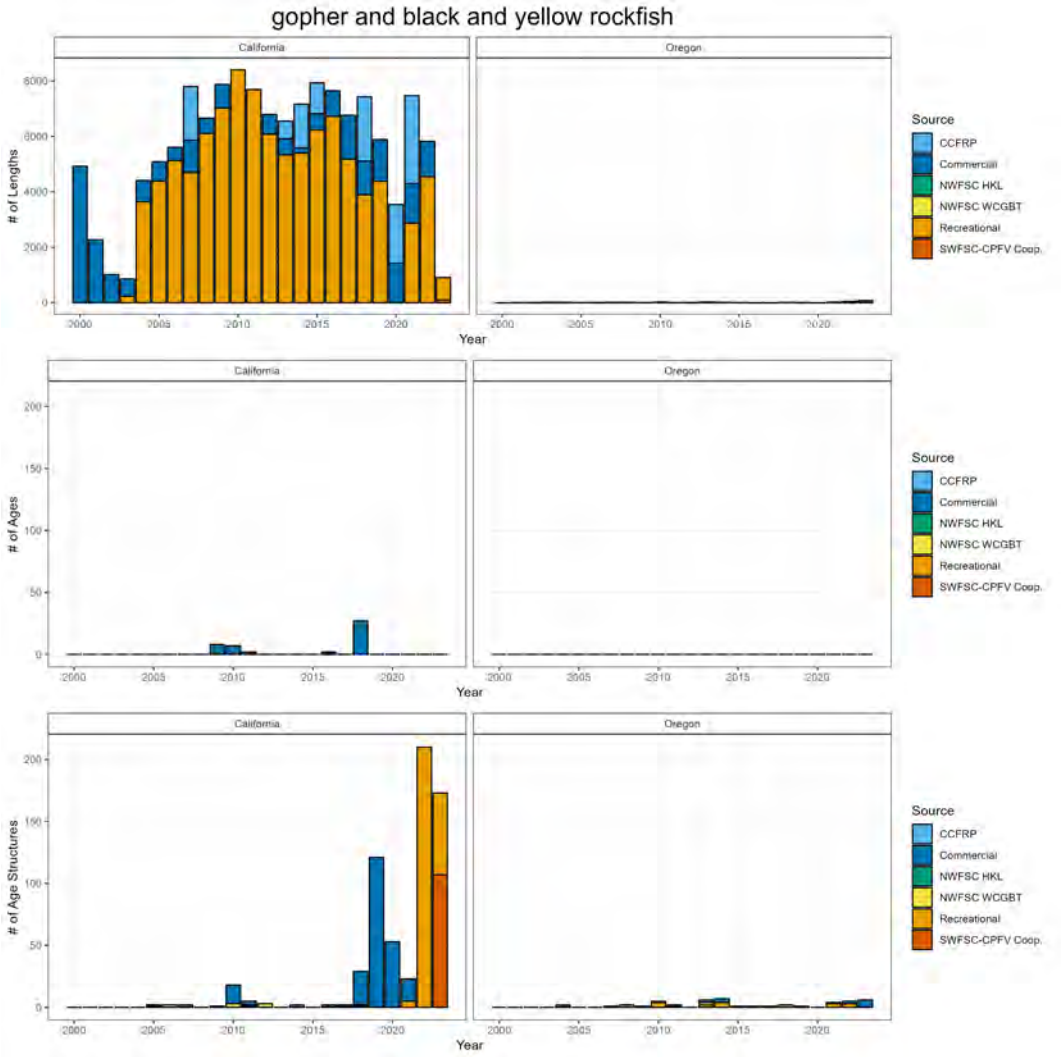

Figure 49: Total number of available lengths, ages, and age structures by data source by year for gopher and black and yellow rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Grass rockfish

The most recent assessment of grass rockfish was a data-limited assessment conducted in 2010. Across available data, grass rockfish have been observed and sampled by both commercial and recreational fisheries.

Table 33: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for grass rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	25	0	0
California	Commercial	4,894	0	1
California	Recreational	5,084	0	11
Oregon	Commercial	923	0	7
Oregon	Recreational	156	0	10
Washington	Recreational	12	0	9

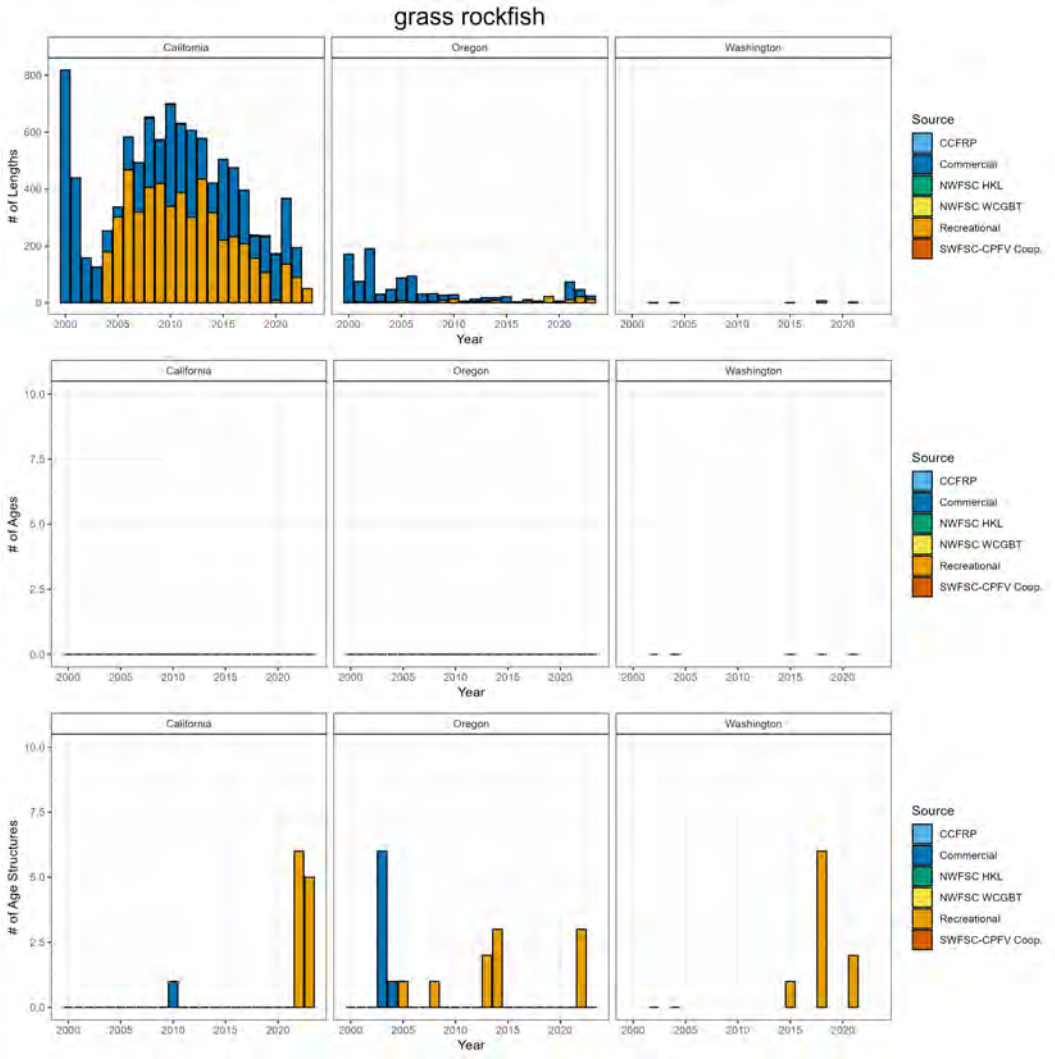

Figure 50: Total number of available lengths, ages, and age structures by data source by year for grass rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Greenspotted rockfish

The most recent assessment of greenspotted rockfish was a benchmark assessment conducted in 2011. Across available data, greenspotted rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 35 positive tows per year and the NWFSC HKL survey has an average of 58 positive sets per year the area south of Point Conception in California.

Table 34: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for greenspotted rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	3,893	0	500
California	NWFSC HKL	5,347	843	4,504
California	NWFSC WCGBT	7,415	701	3,537
California	Recreational	20,306	0	403
California	SWFSC-CPFV Coop.	245	0	245
Oregon	Commercial	695	0	687
Oregon	NWFSC WCGBT	1,208	0	941
Oregon	Recreational	144	0	0
Washington	Commercial	11	0	6
Washington	NWFSC WCGBT	43	0	39

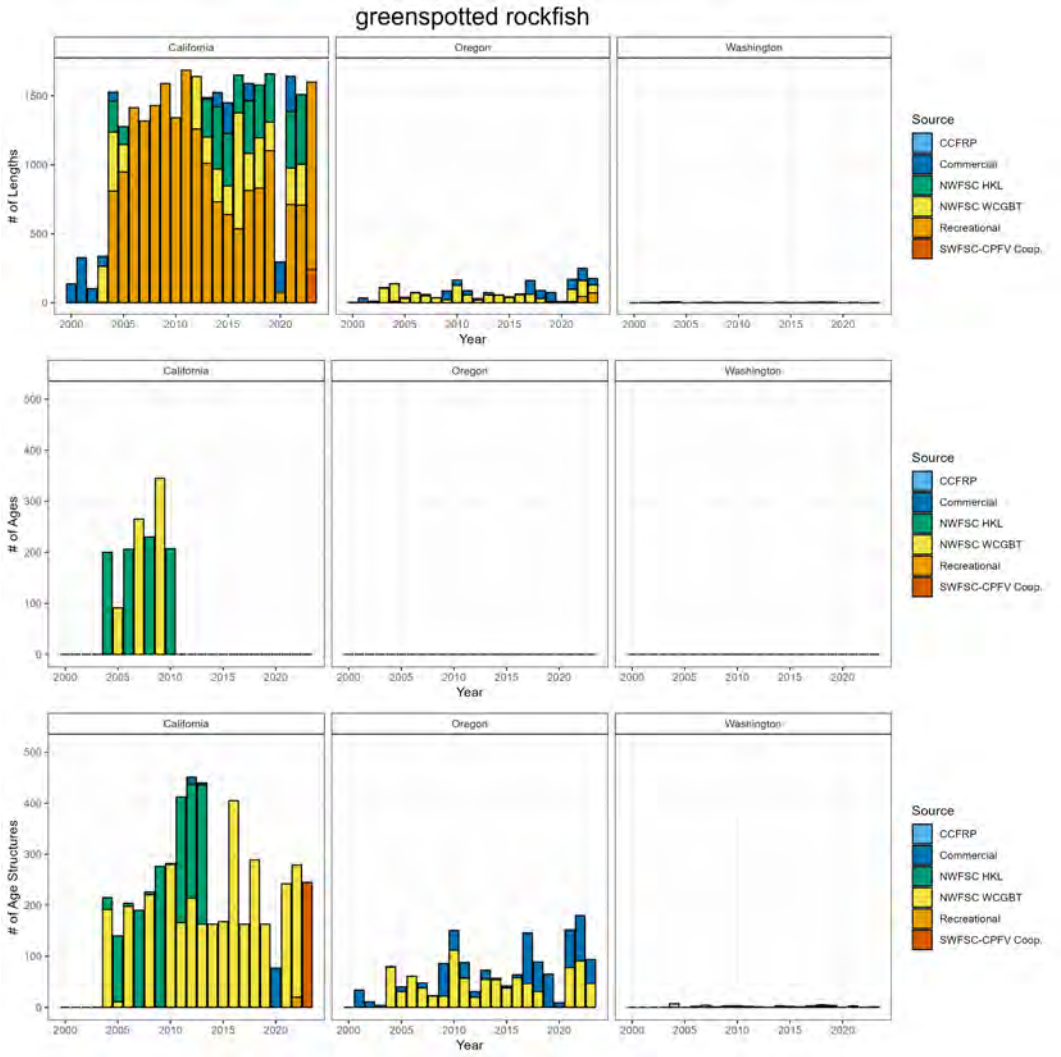

Figure 51: Total number of available lengths, ages, and age structures by data source by year for greenspotted rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

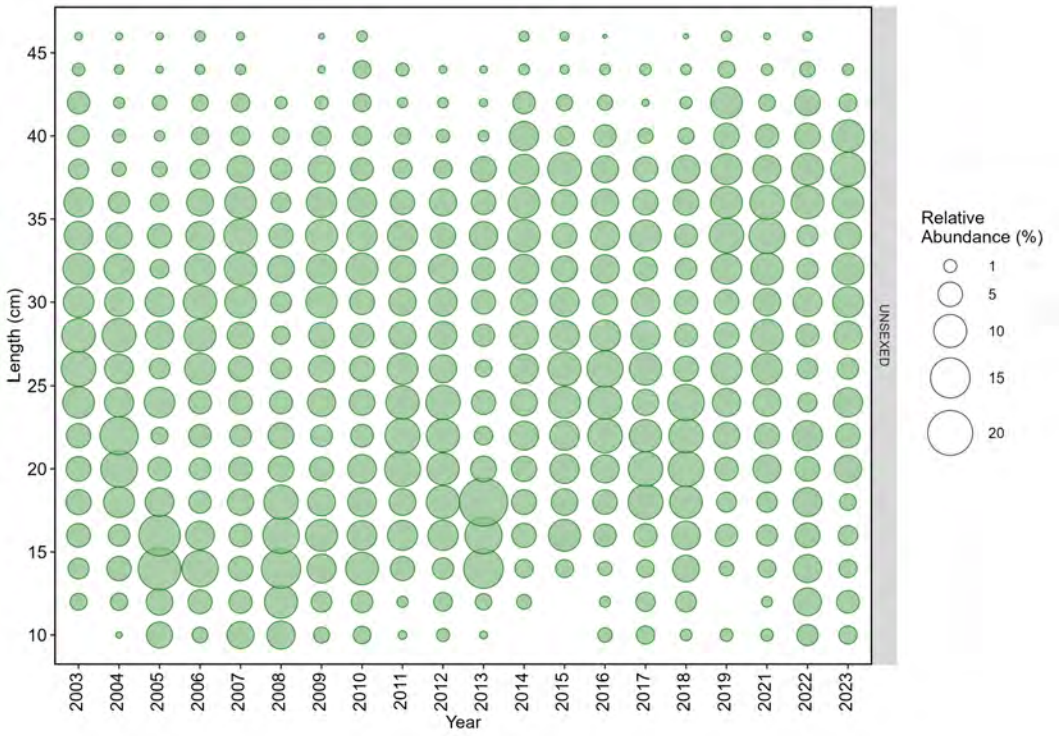

Figure 52: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for greenspotted rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

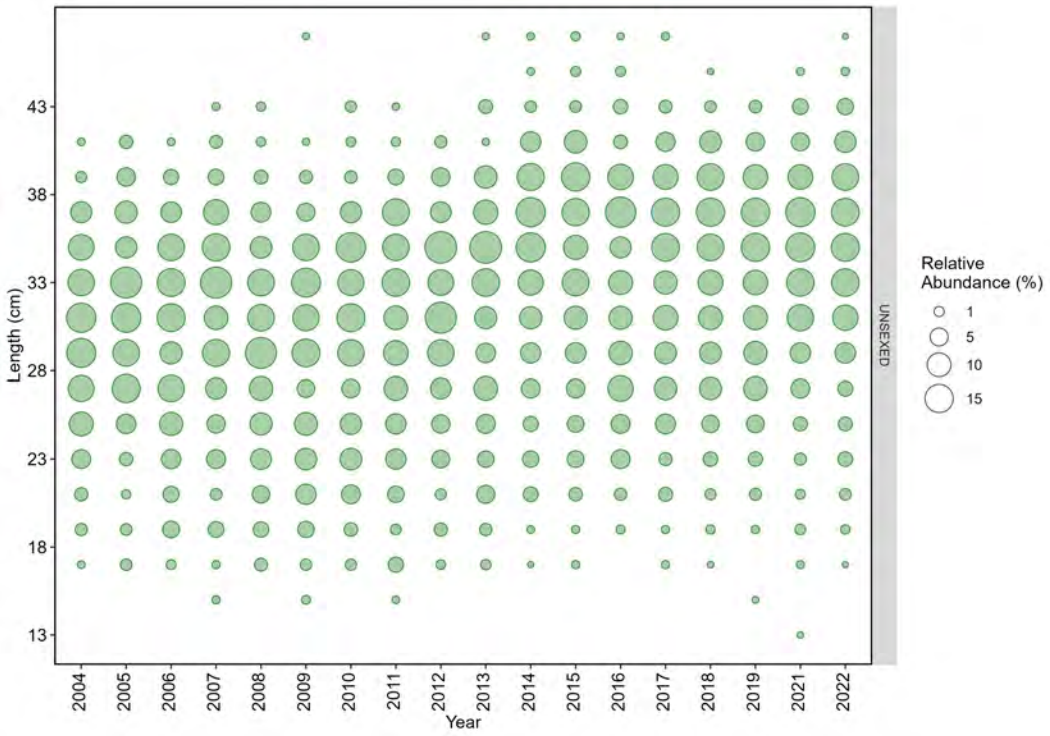

Figure 53: Length (cm) compostion data from the NWFSC Hook and Line survey for greenspotted rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Greenstriped rockfish

The most recent assessment of greenstriped rockfish was a benchmark assessment conducted in 2009. Across available data, greenstriped rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 161 positive tows per year and the NWFSC HKL survey has an average of 23 positive sets per year the area south of Point Conception in California.

Table 35: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for greenstriped rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	3,079	0	381
California	NWFSC HKL	942	0	942
California	NWFSC WCGBT	15,963	1,359	3,912
California	Recreational	2,990	0	40
California	SWFSC-CPFV Coop.	127	0	127
Oregon	Commercial	7,204	0	6,525
Oregon	NWFSC WCGBT	17,678	1,263	3,362
Oregon	Recreational	735	0	0
Washington	Commercial	5,777	0	1,476
Washington	NWFSC WCGBT	11,105	792	2,058
Washington	Recreational	117	0	76

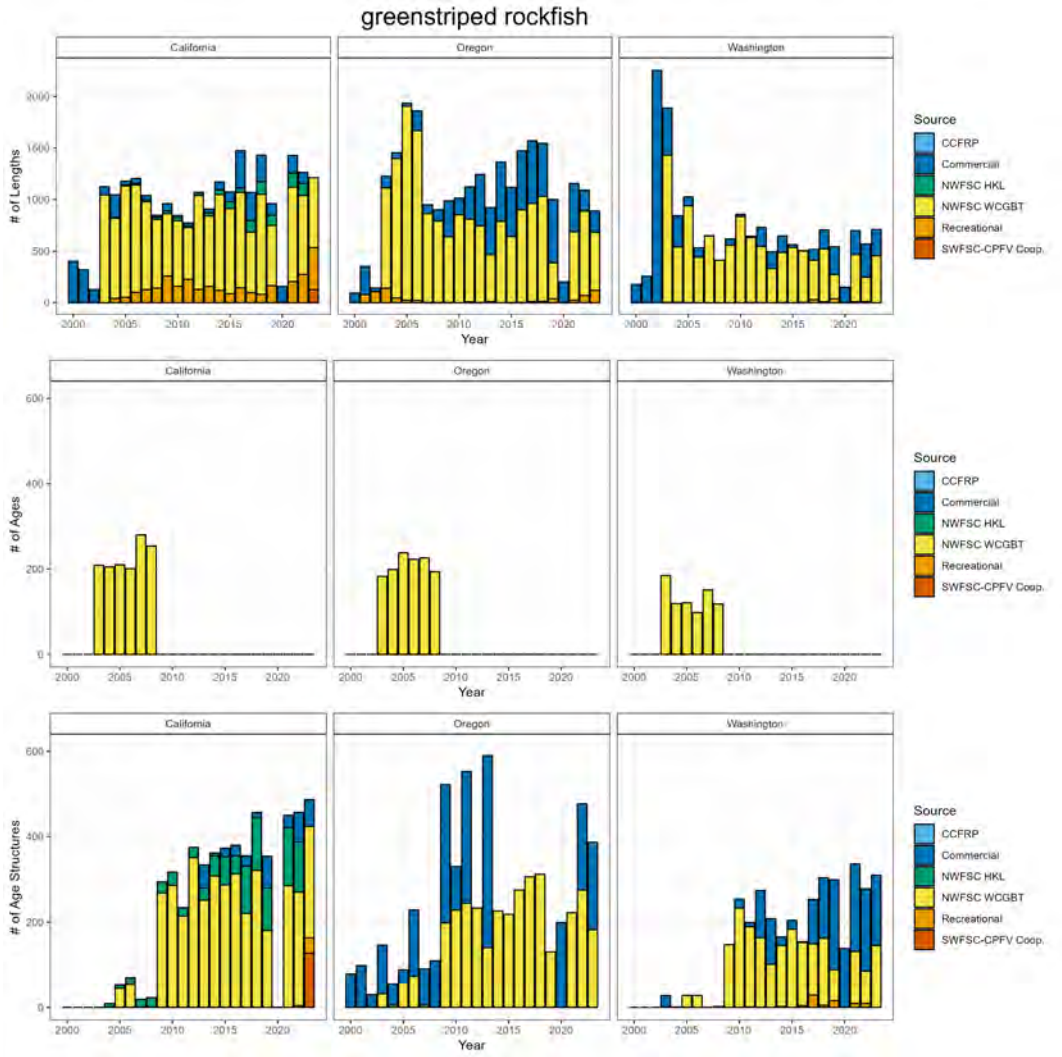

Figure 54: Total number of available lengths, ages, and age structures by data source by year for greenstriped rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

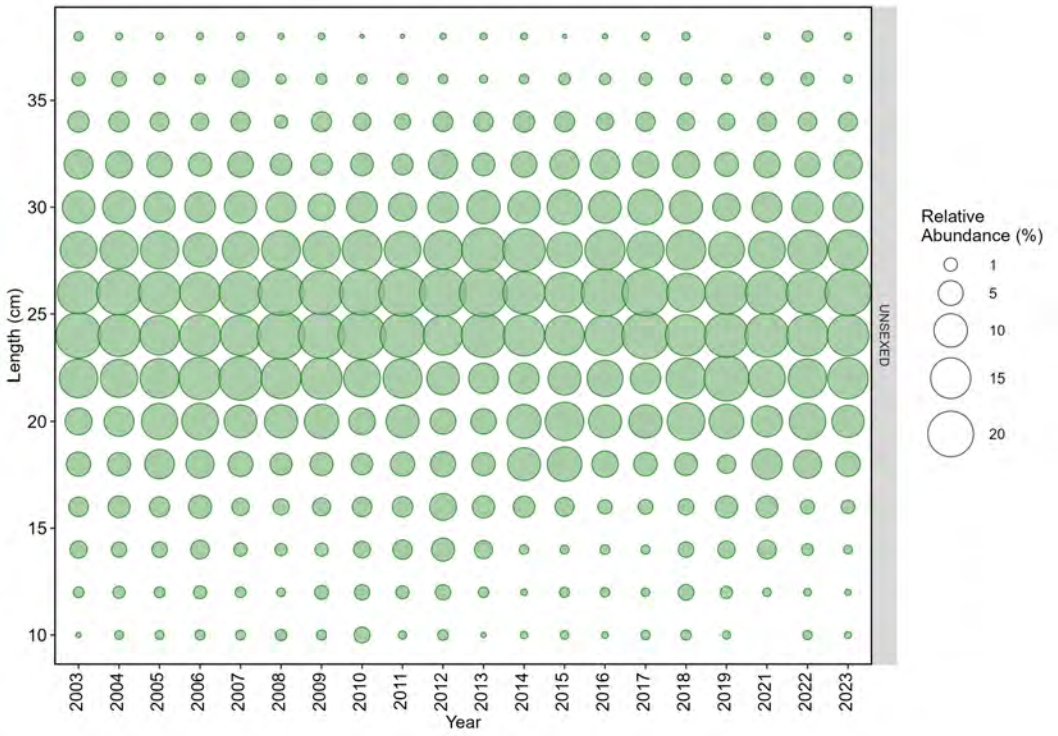

Figure 55: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for greenstriped rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

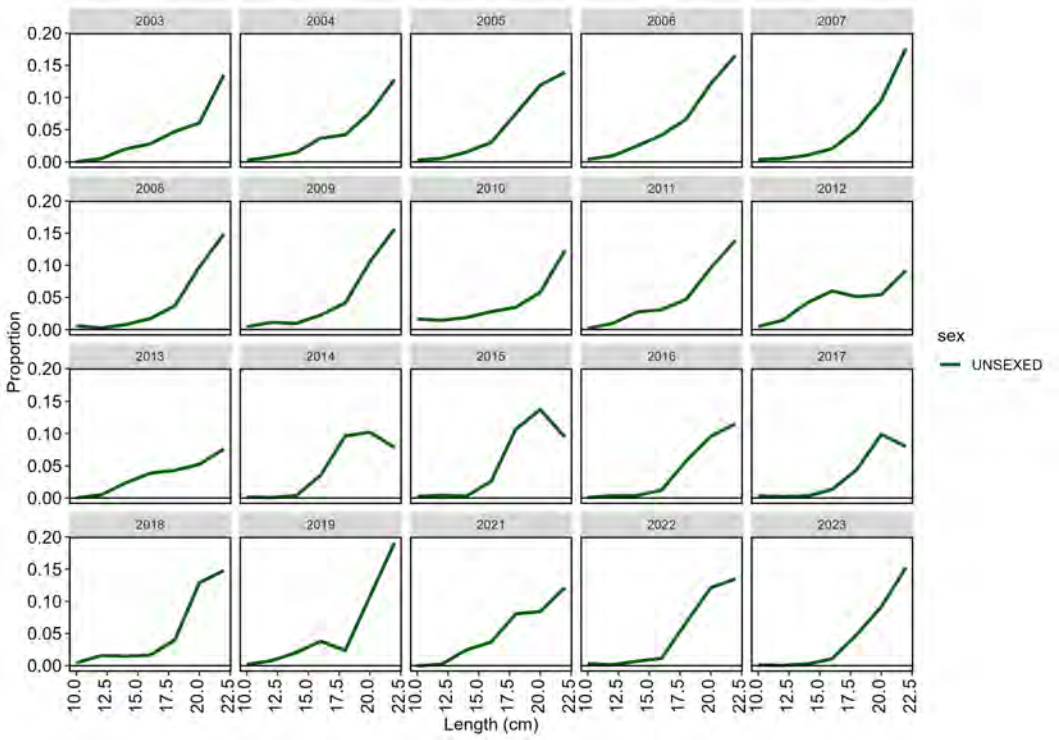

Figure 56: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 5 or younger for greenstriped rockfish. The most recent assessment of greenstriped rockfish in 2009 estimatd large recruitments (i.e., greater than 0.50) in 2004 and 2005.

Table 36: The median length (cm) associated with fish age 5 or younger for greenstriped rockfish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
1	10
2	13
3	16
4	18
5	20

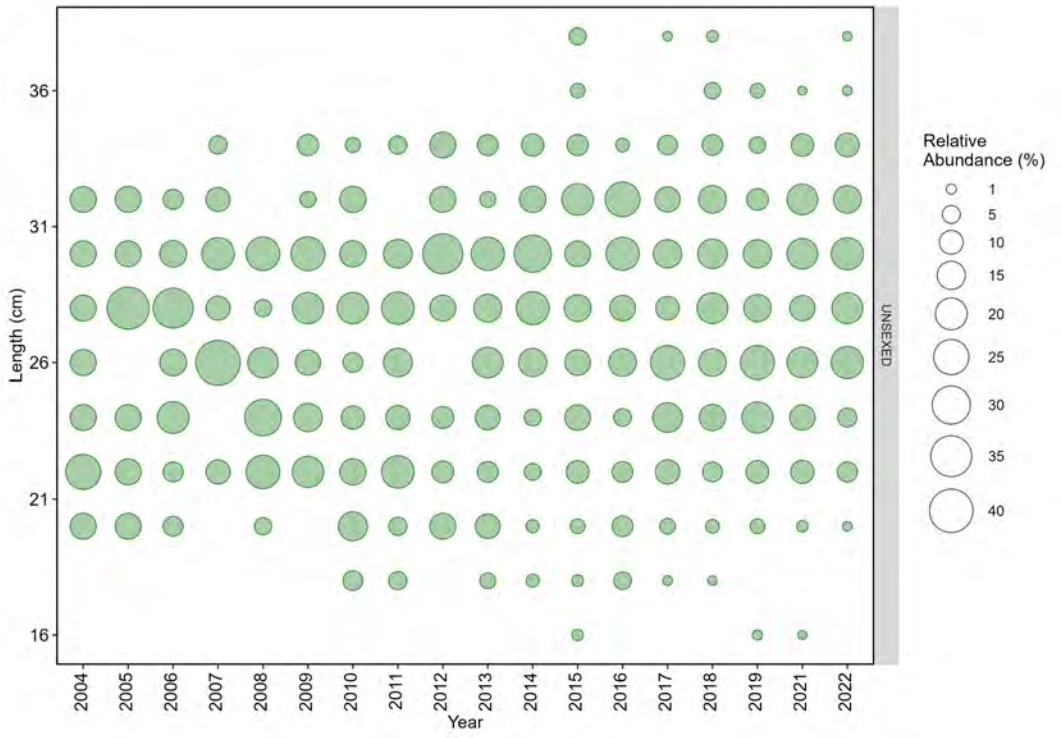

Figure 57: Length (cm) compostion data from the NWFSC Hook and Line survey for greenstriped rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Honeycomb rockfish

The most recent assessment of honeycomb rockfish was a data-limited assessment conducted in 2010. Across available data, honeycomb rockfish have been observed and sampled by recreational fisheries and the both the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 1 positive tows per year and the NWFSC HKL survey has an average of 6 positive sets per year the area south of Point Conception in California.

Table 37: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for honeycomb rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	500	0	0
California	Commercial	87	0	13
California	NWFSC HKL	237	0	237
California	NWFSC WCGBT	301	0	188
California	Recreational	14,418	0	14
California	SWFSC-CPFV Coop.	8	0	8

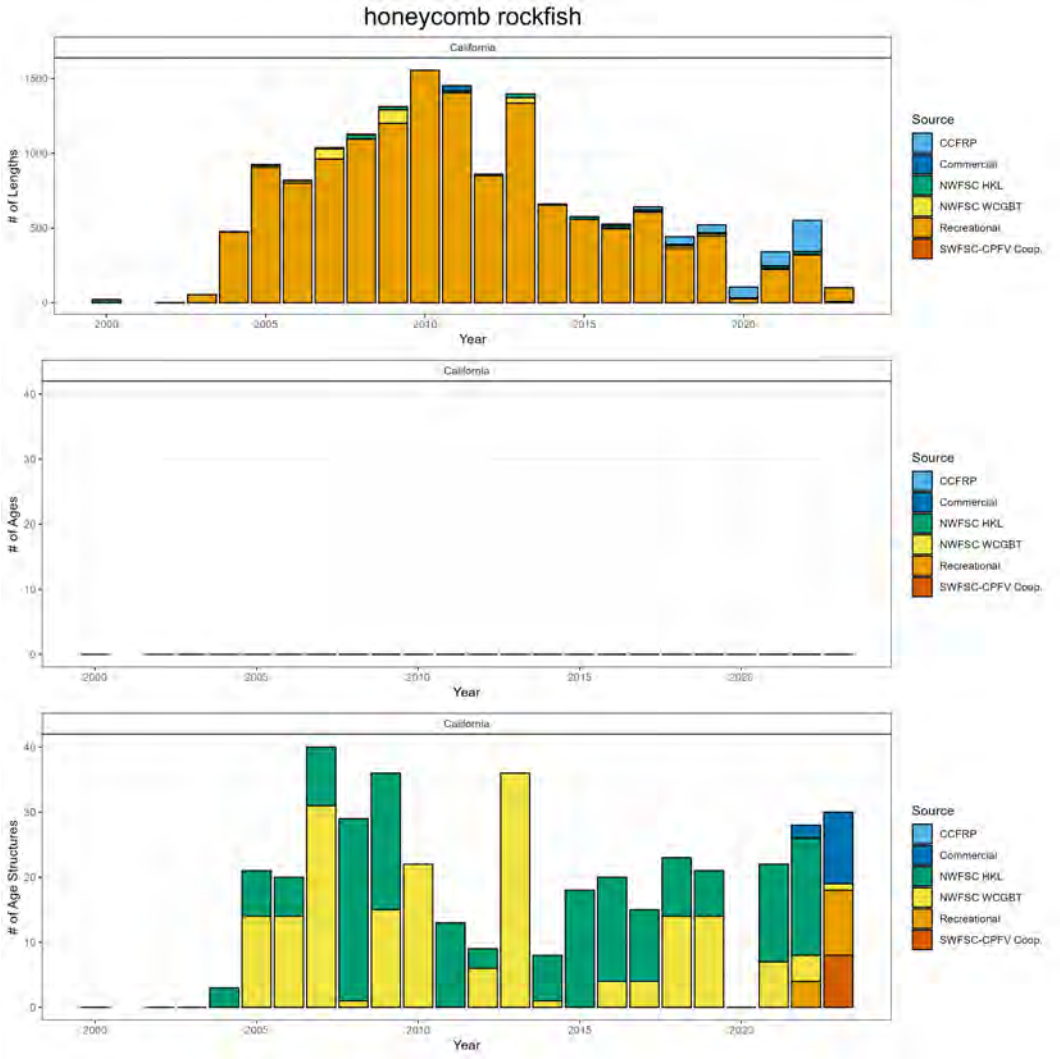

Figure 58: Total number of available lengths, ages, and age structures by data source by year for honeycomb rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Kelp greenling

The most recent assessment of kelp greenling was a benchmark assessment conducted in 2015. Across available data, kelp greenling have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 10 positive tows per year.

Table 38: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for kelp greenling.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	949	0	0
California	Commercial	3,031	0	2
California	NWFSC WCGBT	51	0	46
California	Recreational	10,655	0	0
Oregon	Commercial	41,674	348	634
Oregon	NWFSC WCGBT	651	0	482
Oregon	Recreational	34,883	2,553	3,456
Washington	Commercial	2	0	1
Washington	NWFSC WCGBT	203	0	183
Washington	Recreational	5,547	1,308	1,190

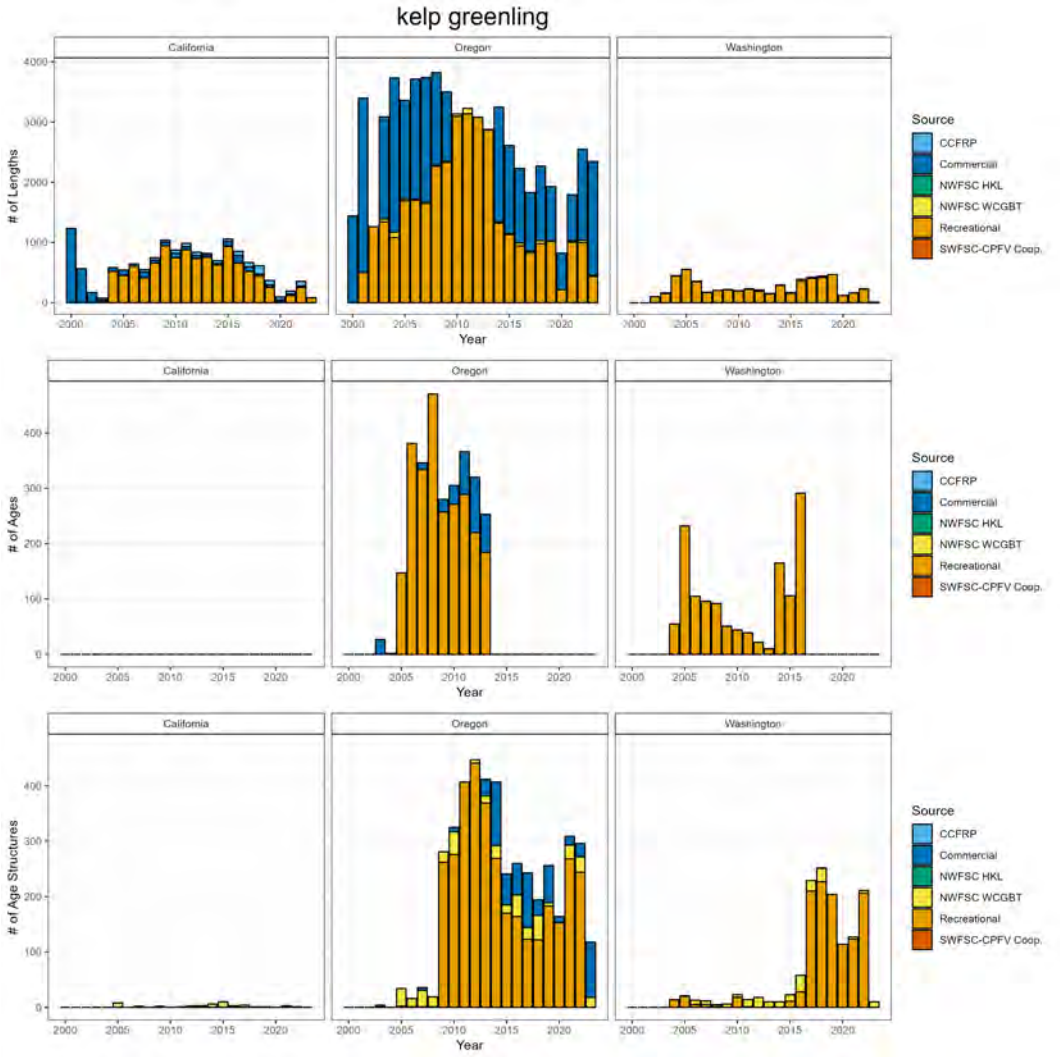

Figure 59: Total number of available lengths, ages, and age structures by data source by year for kelp greenling. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Kelp rockfish

The most recent assessment of kelp rockfish was a data-limited assessment conducted in 2010. Across available data, kelp rockfish have been observed and sampled by both commercial and recreational fisheries.

Table 39: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for kelp rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	3,125	0	0
California	Commercial	853	0	3
California	NWFSC WCGBT	5	0	5
California	Recreational	13,802	0	25
California	SWFSC-CPFV Coop.	2	0	2
Oregon	Recreational	2	0	0

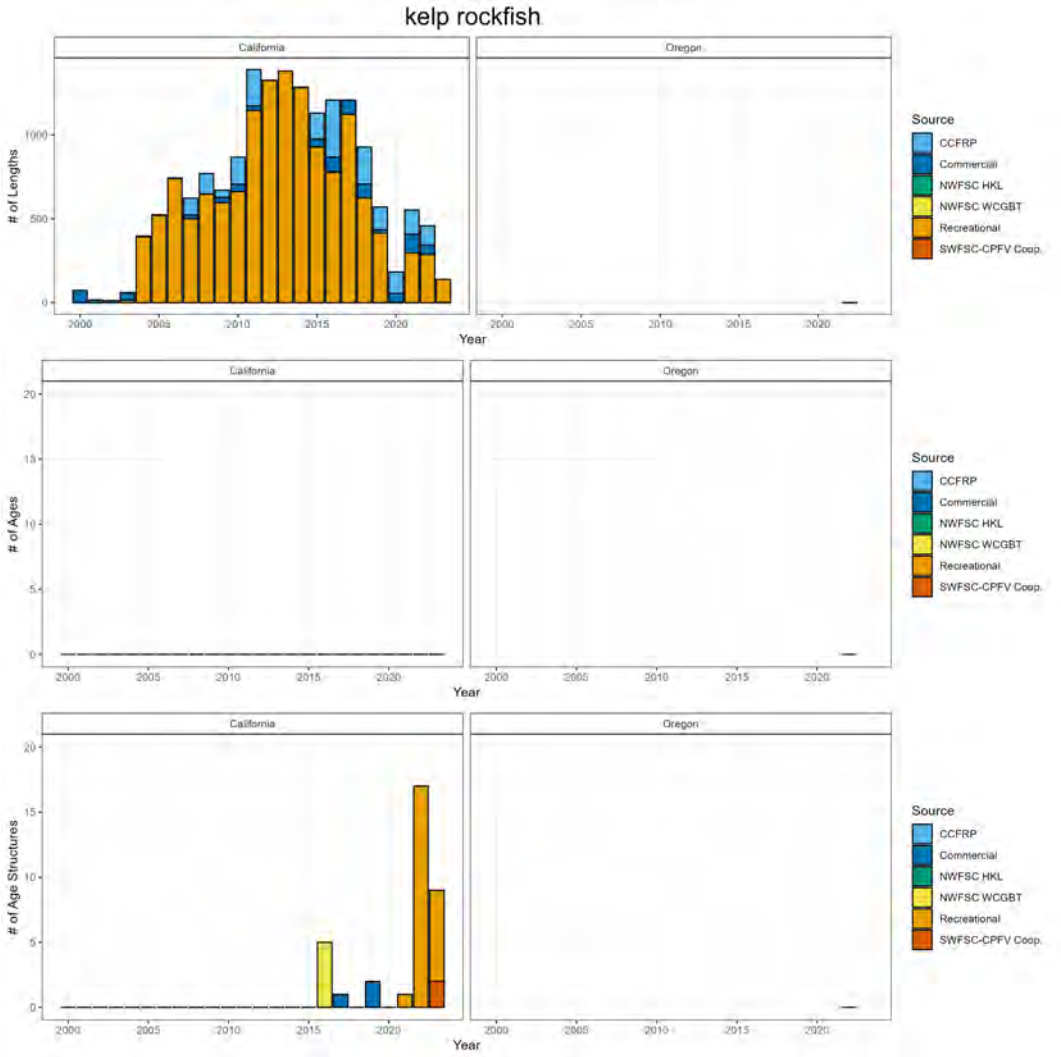

Figure 60: Total number of available lengths, ages, and age structures by data source by year for kelp rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Leopard shark

The most recent assessment of leopard shark was a data-limited assessment conducted in 2010. Across available data, leopard shark have been observed and sampled by only recreational fisheries.

Table 40: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for leopard shark.

State	Source	Lengths	Ages	Age Structures
California	Recreational	1,103	0	0

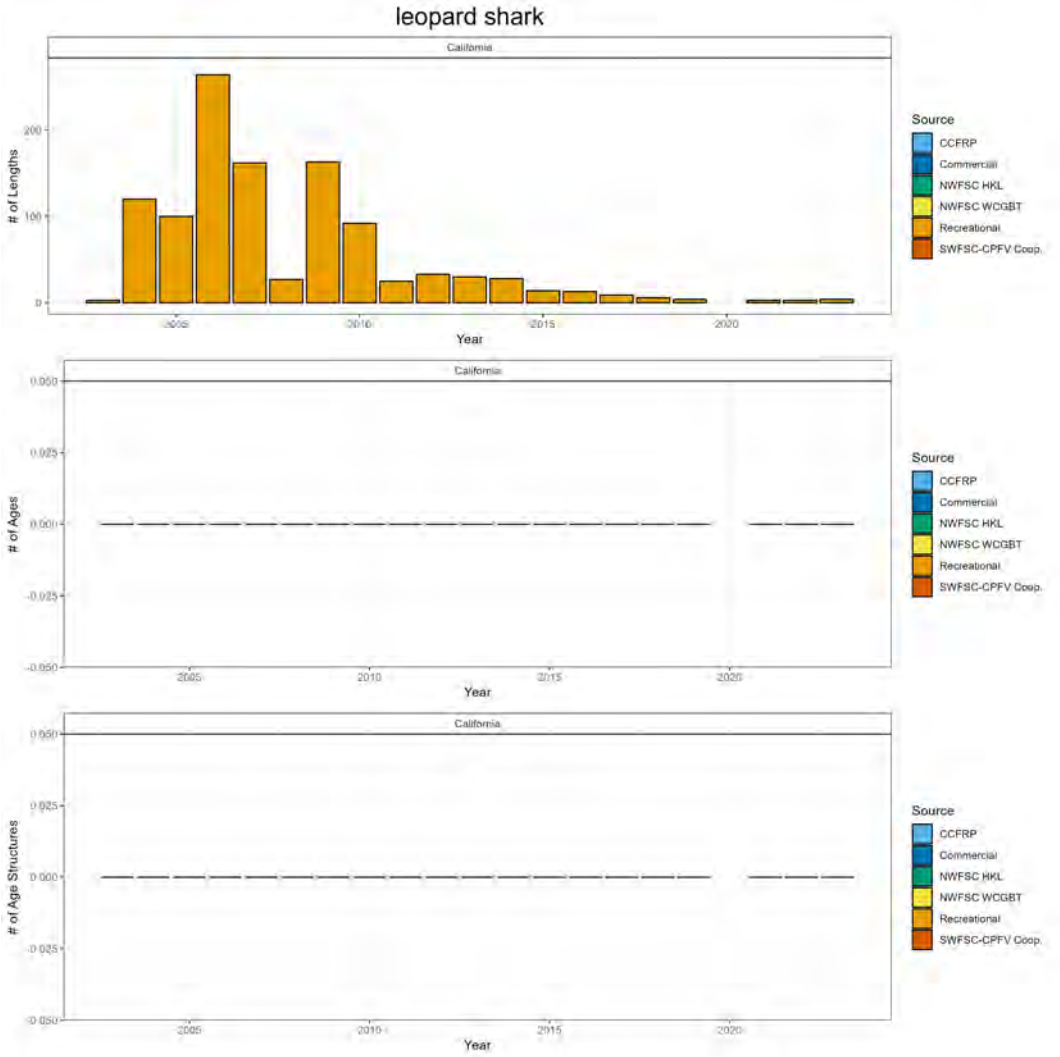

Figure 61: Total number of available lengths, ages, and age structures by data source by year for leopard shark. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Lingcod

The most recent assessment of lingcod was a benchmark assessment conducted in 2021. Across available data, lingcod have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 208 positive tows per year and the NWFSC HKL survey has an average of 26 positive sets per year the area south of Point Conception in California.

Table 41: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for lingcod.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	5,581	0	0
California	Commercial	11,401	681	0
California	NWFSC HKL	938	0	938
California	NWFSC WCGBT	14,030	4,650	2,802
California	Recreational	98,243	0	0
California	SWFSC-CPFV Coop.	1	0	1
Oregon	Commercial	38,250	5,301	3,643
Oregon	NWFSC WCGBT	8,522	2,638	2,099
Oregon	Recreational	144,218	9,062	15,444
Washington	Commercial	10,550	6,319	1,044
Washington	NWFSC WCGBT	6,373	1,726	1,340
Washington	Recreational	31,256	16,971	2,997

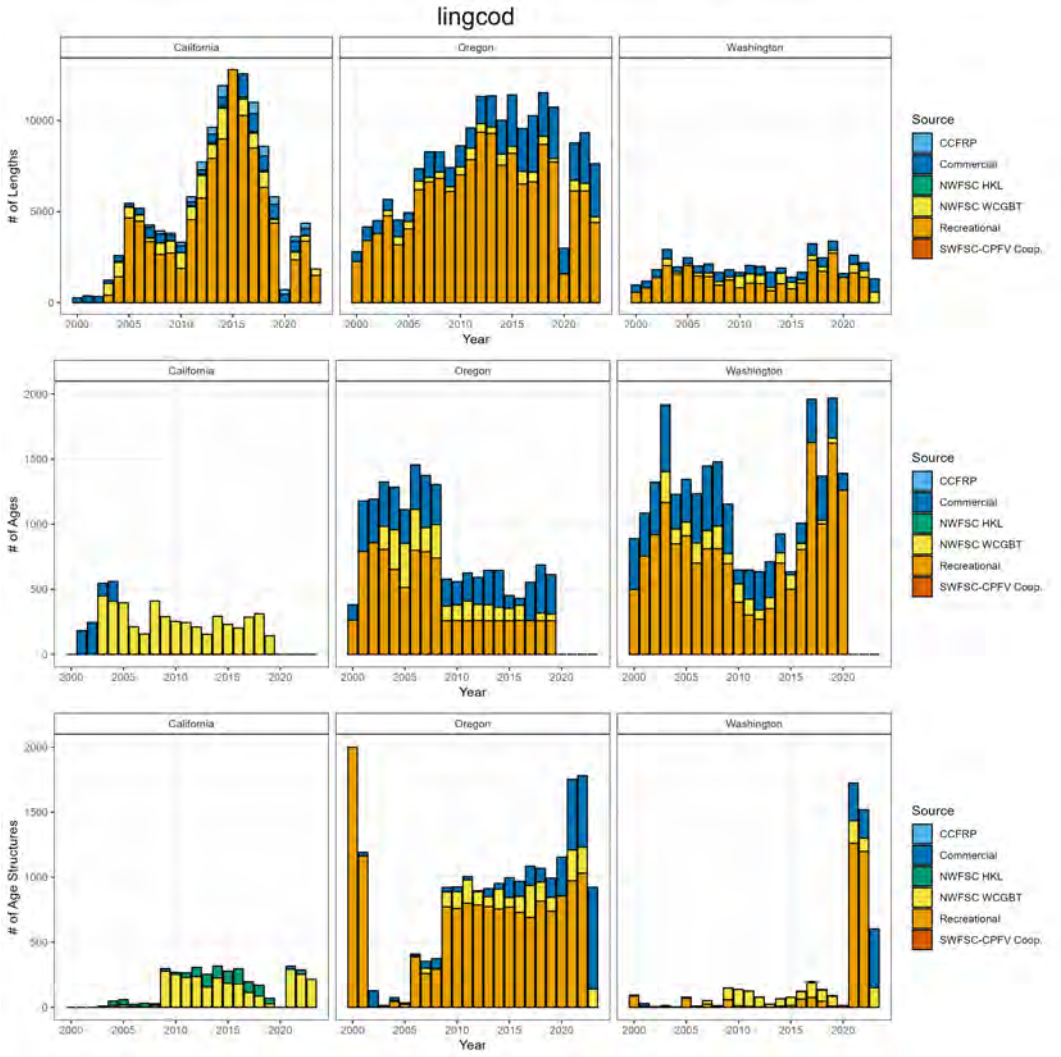

Figure 62: Total number of available lengths, ages, and age structures by data source by year for lingcod. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

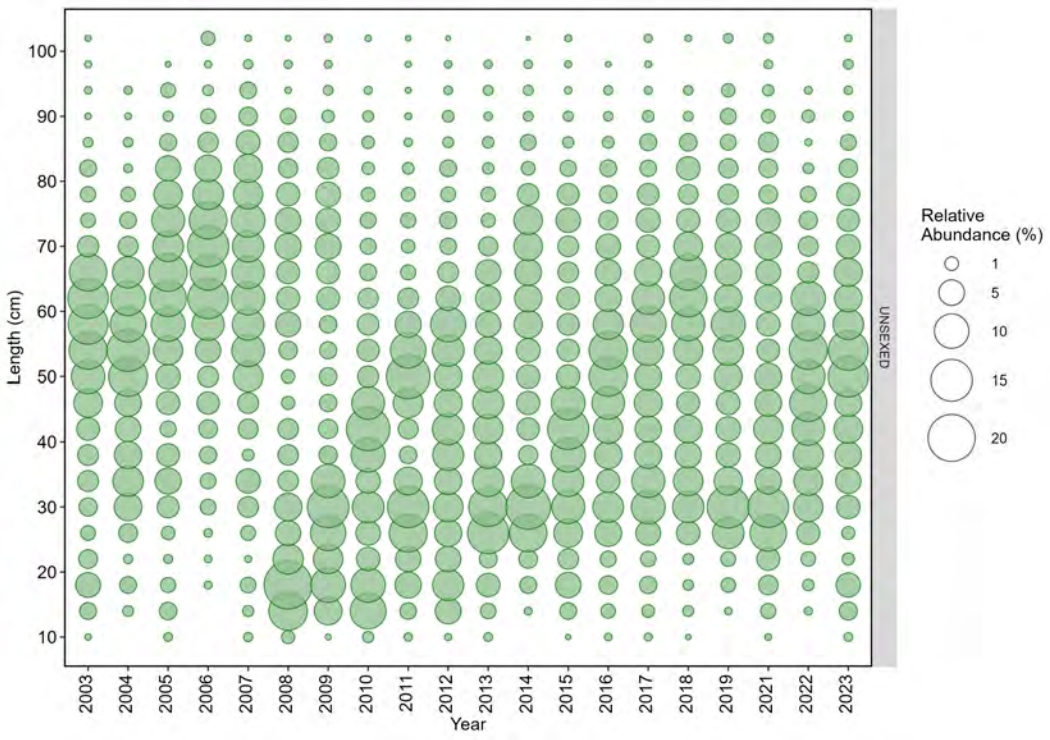

Figure 63: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for lingcod. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

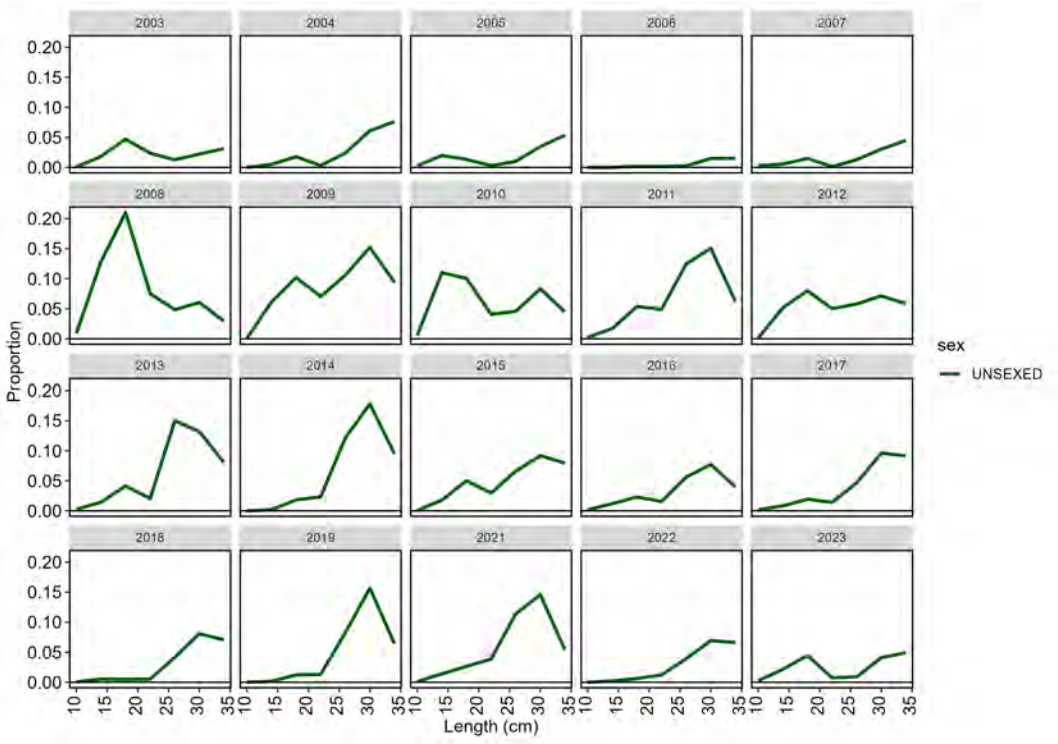

Figure 64: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 1 or younger for lingcod. The most recent assessment of lingcod north in 2021 estimated a large recruitment (i.e., greater than 0.50) in 2008. The most recent assessment of lingcod south in 2021 estimated a large recruitments (i.e., greater than 0.50) in 2008, 2010, and 2013.

Table 42: The median length (cm) associated with fish age 1 or younger for lingcod based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	19
1	31

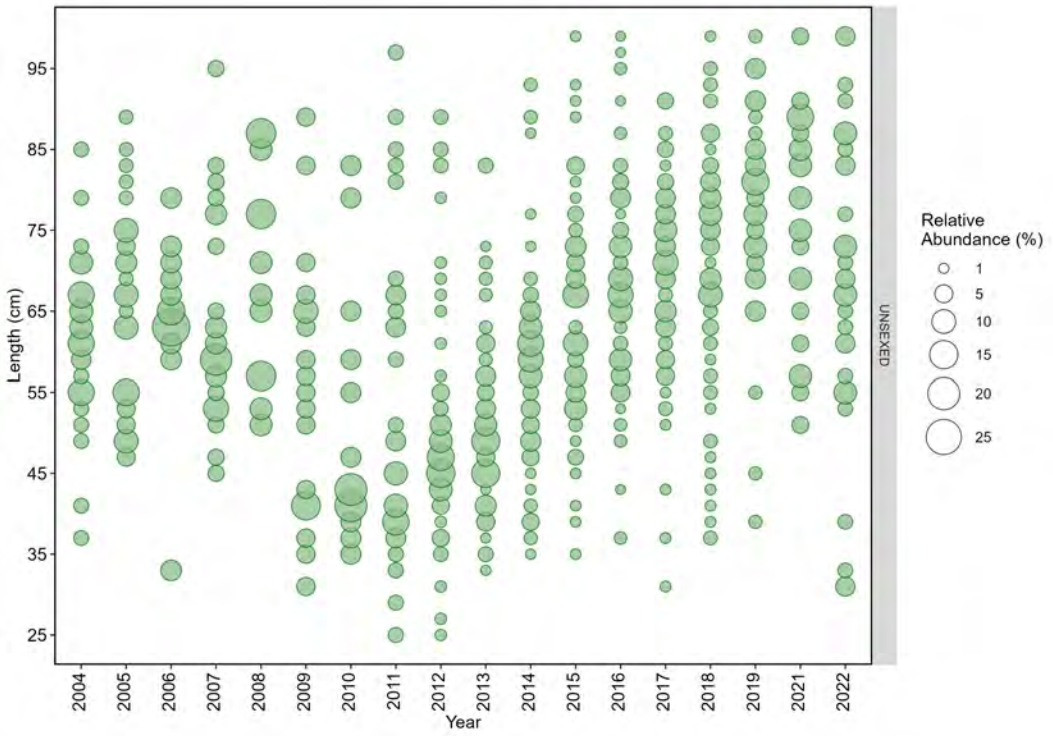

Figure 65: Length (cm) compostion data from the NWFSC Hook and Line survey for lingcod. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Longnose skate

The most recent assessment of longnose skate was a benchmark assessment conducted in 2019. Across available data, longnose skate have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 351 positive tows per year.

Table 43: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for longnose skate.

State	Source	Lengths	Ages	Age Structures
California	Commercial	10,058	0	0
California	NWFSC WCGBT	33,239	336	1,057
California	Recreational	7	0	0
Oregon	Commercial	18,692	0	6,814
Oregon	NWFSC WCGBT	16,139	209	661
Oregon	Recreational	22	0	0
Washington	Commercial	7,631	0	1,423
Washington	NWFSC WCGBT	9,407	102	334

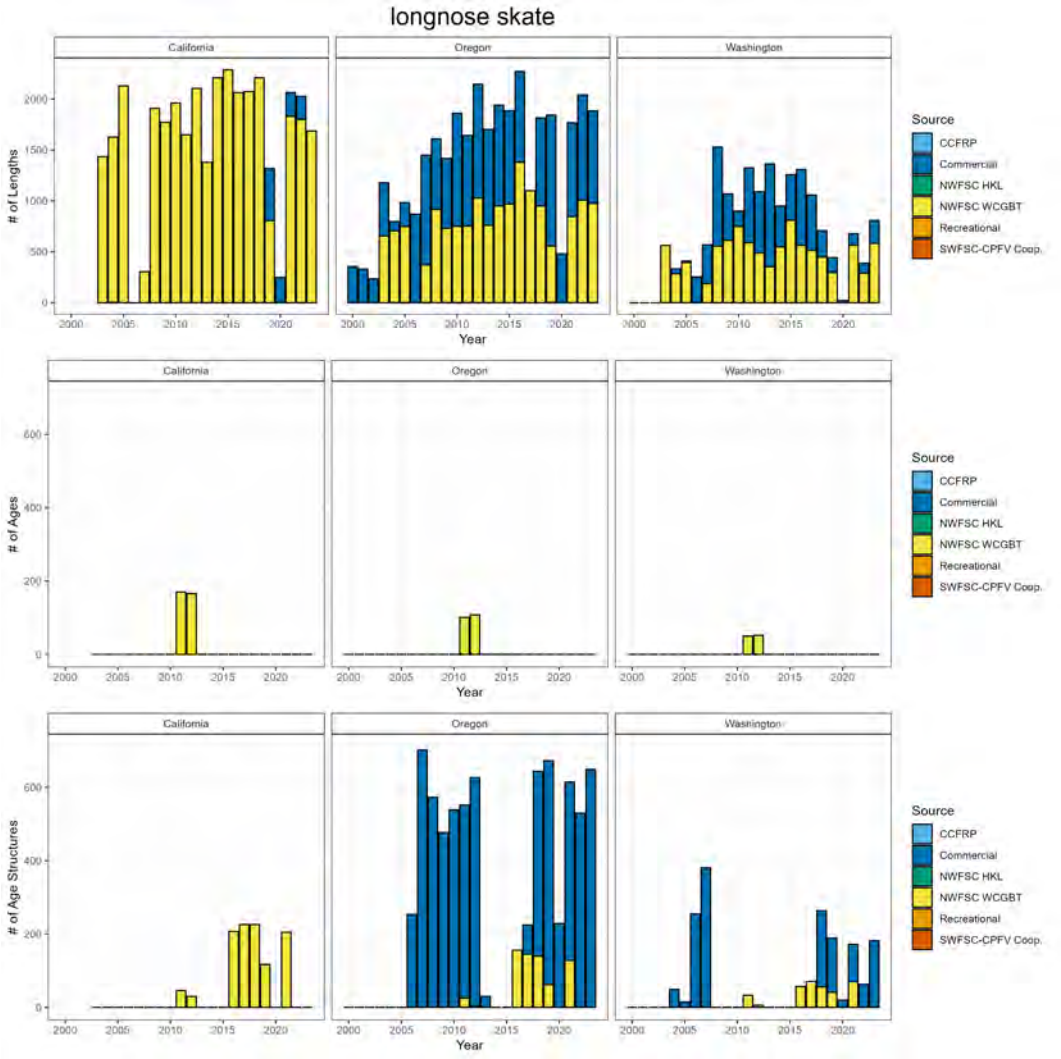

Figure 66: Total number of available lengths, ages, and age structures by data source by year for longnose skate. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

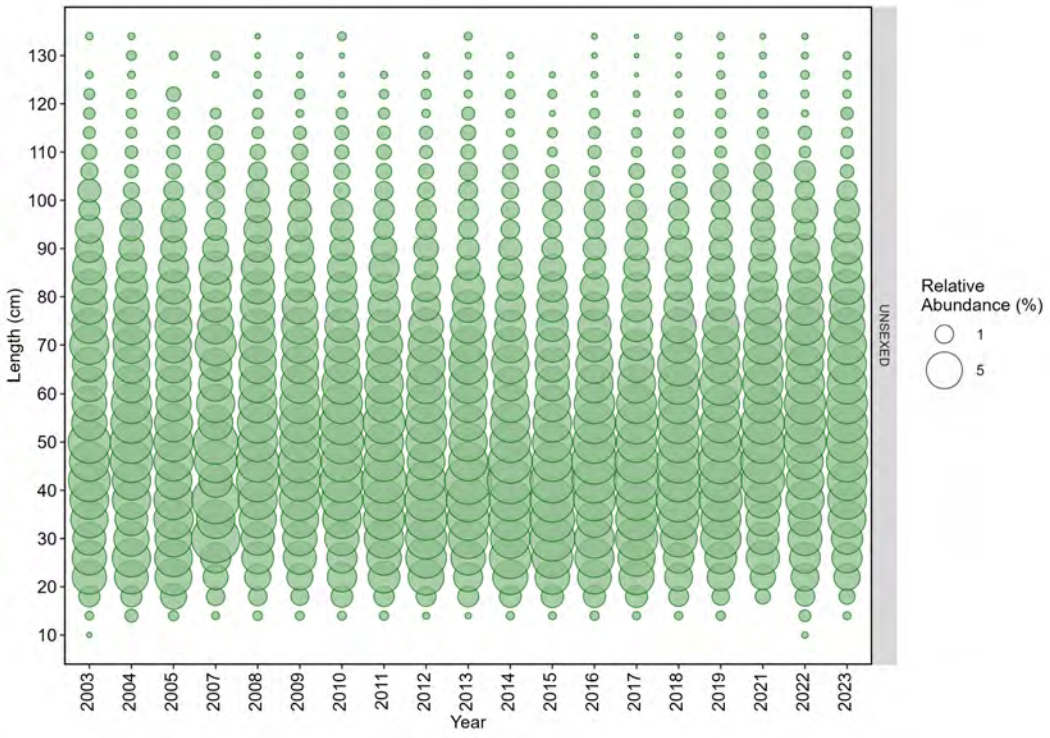

Figure 67: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for longnose skate. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Longspine thornyhead

The most recent assessment of longspine thornyhead was a benchmark assessment conducted in 2013. Across available data, longspine thornyhead have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 222 positive tows per year.

Table 44: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for longspine thornyhead.

State	Source	Lengths	Ages	Age Structures
California	Commercial	77,606	0	0
California	NWFSC WCGBT	70,562	0	9,343
Oregon	Commercial	29,381	30	22,443
Oregon	NWFSC WCGBT	31,288	0	3,779
Washington	Commercial	5,956	0	152
Washington	NWFSC WCGBT	15,033	0	1,934

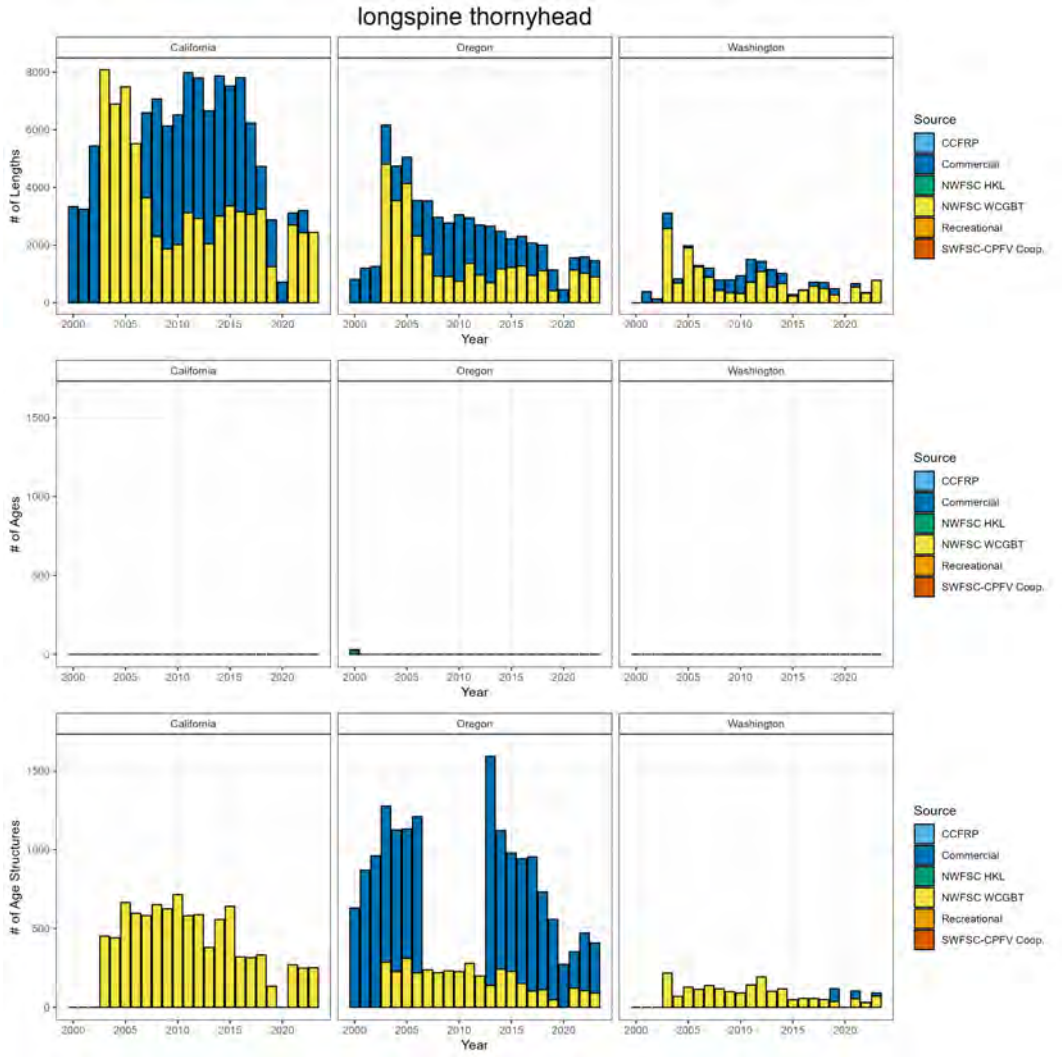

Figure 68: Total number of available lengths, ages, and age structures by data source by year for longspine thornyhead. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

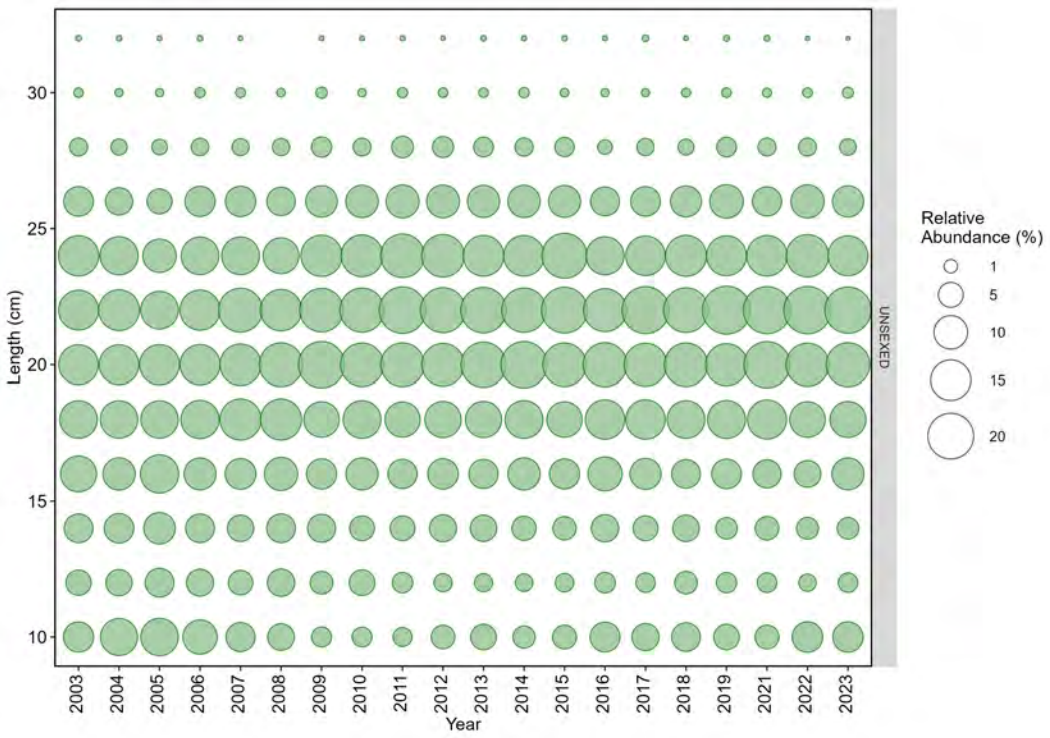

Figure 69: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for longspine thornyhead. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Olive rockfish

The most recent assessment of olive rockfish was a data-limited assessment conducted in 2010. Across available data, olive rockfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC HKL survey. The NWFSC HKL survey has an average of 11 positive sets per year.

Table 45: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for olive rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	10,151	0	0
California	Commercial	404	0	94
California	NWFSC HKL	646	0	646
California	NWFSC WCGBT	6	0	6
California	Recreational	39,154	0	19
California	SWFSC-CPFV Coop.	48	0	48
Oregon	Commercial	6	0	4
Oregon	Recreational	39	0	0

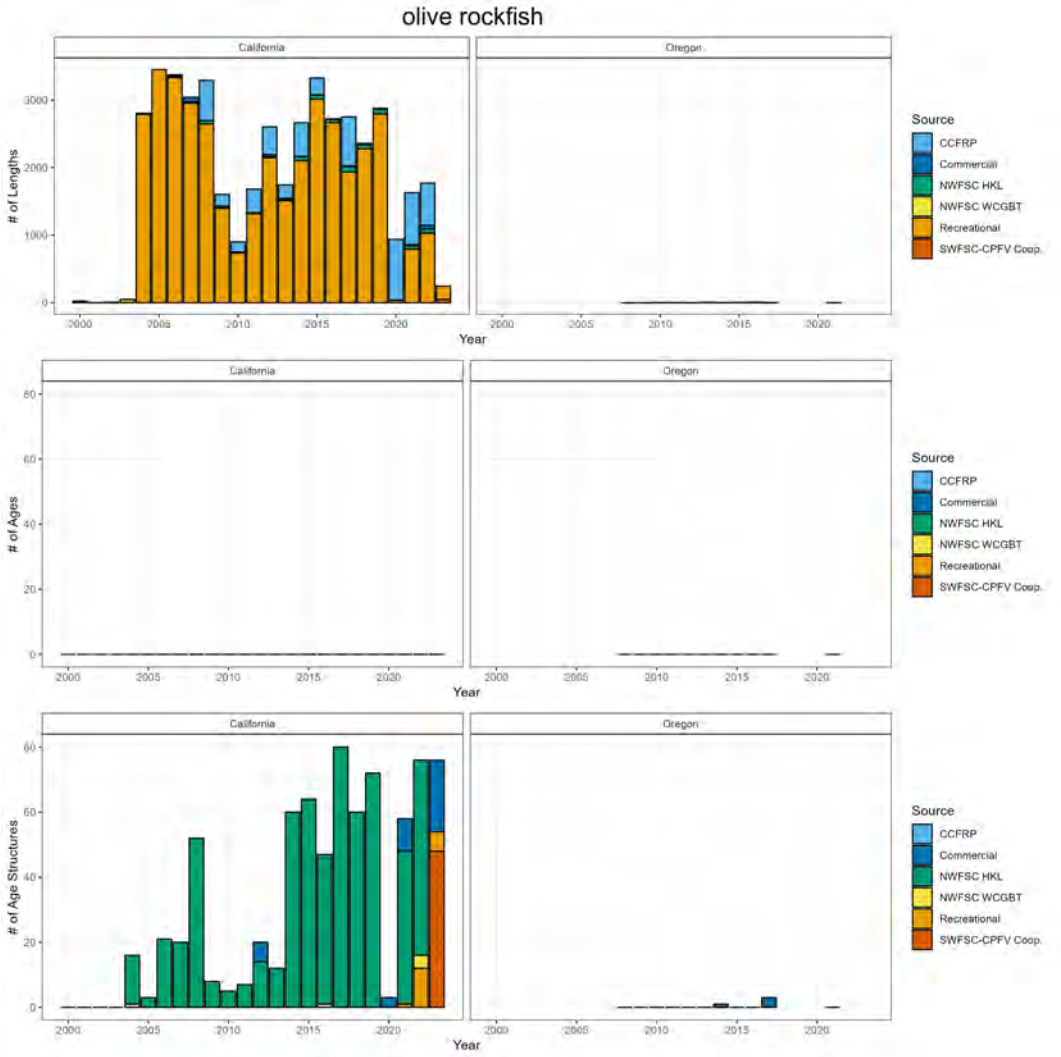

Figure 70: Total number of available lengths, ages, and age structures by data source by year for olive rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Pacific cod

To date, no assessment or analysis has been conducted on Pacific cod. Across available data, Pacific cod have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 29 positive tows per year.

Table 46: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for Pacific cod.

State	Source	Lengths	Ages	Age Structures
California	Commercial	28	0	9
California	NWFSC WCGBT	14	0	0
Oregon	Commercial	4,491	0	4,249
Oregon	NWFSC WCGBT	279	0	98
Oregon	Recreational	57	0	0
Washington	Commercial	15,909	346	1,656
Washington	NWFSC WCGBT	3,865	0	1,387
Washington	Recreational	377	0	124

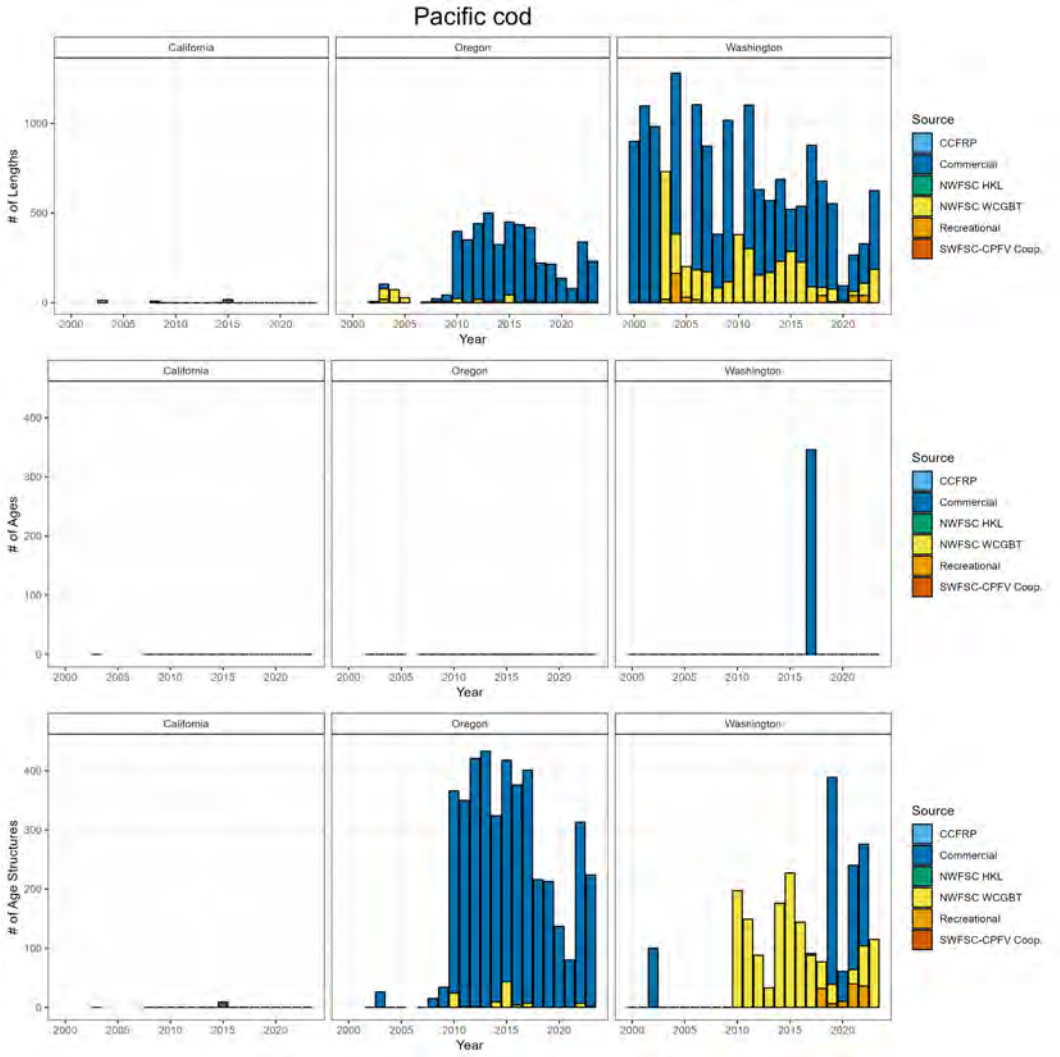

Figure 71: Total number of available lengths, ages, and age structures by data source by year for Pacific cod. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

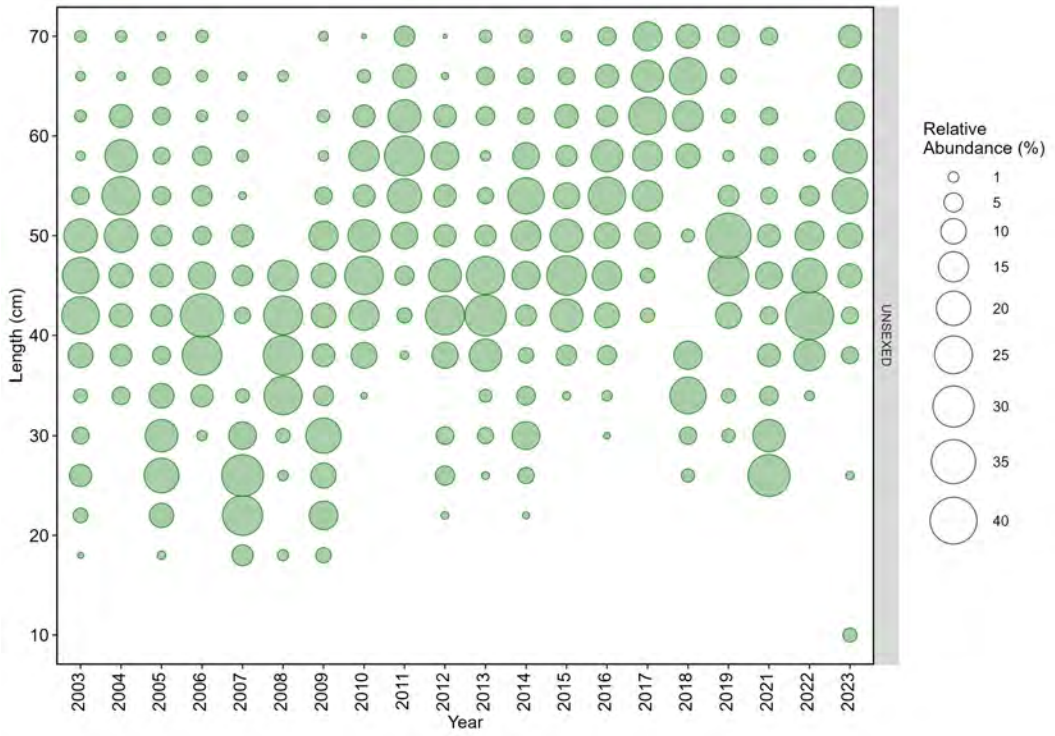

Figure 72: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for Pacific cod. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Pacific ocean perch

The most recent assessment of Pacific ocean perch was a benchmark assessment conducted in 2017. Across available data, Pacific ocean perch have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 48 positive tows per year.

Table 47: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for Pacific ocean perch.

State	Source	Lengths	Ages	Age Structures
California	Commercial	1,133	0	592
California	NWFSC WCGBT	223	78	144
Oregon	Commercial	36,258	11,948	20,442
Oregon	NWFSC WCGBT	7,466	2,669	2,797
Oregon	Recreational	5	0	0
Washington	Commercial	13,106	6,847	2,873
Washington	NWFSC WCGBT	9,131	3,135	2,284
Washington	Recreational	13	2	4

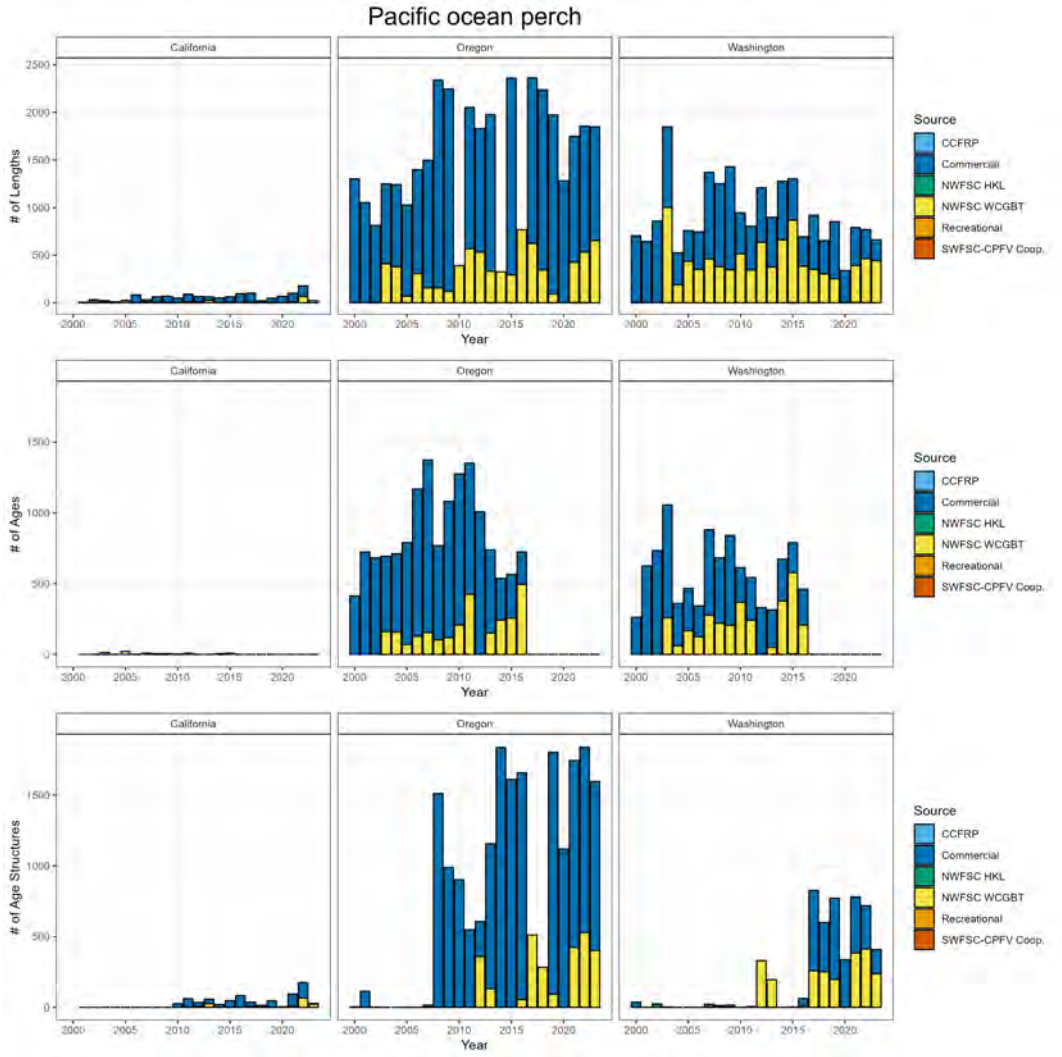

Figure 73: Total number of available lengths, ages, and age structures by data source by year for Pacific ocean perch. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

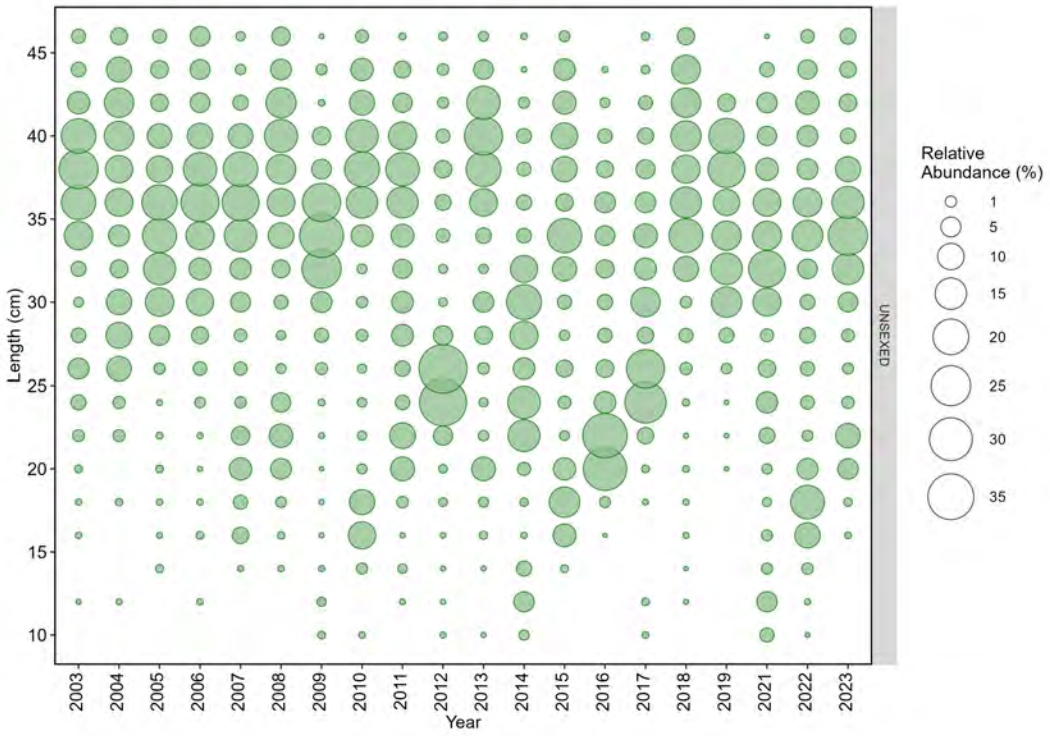

Figure 74: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for Pacific ocean perch. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

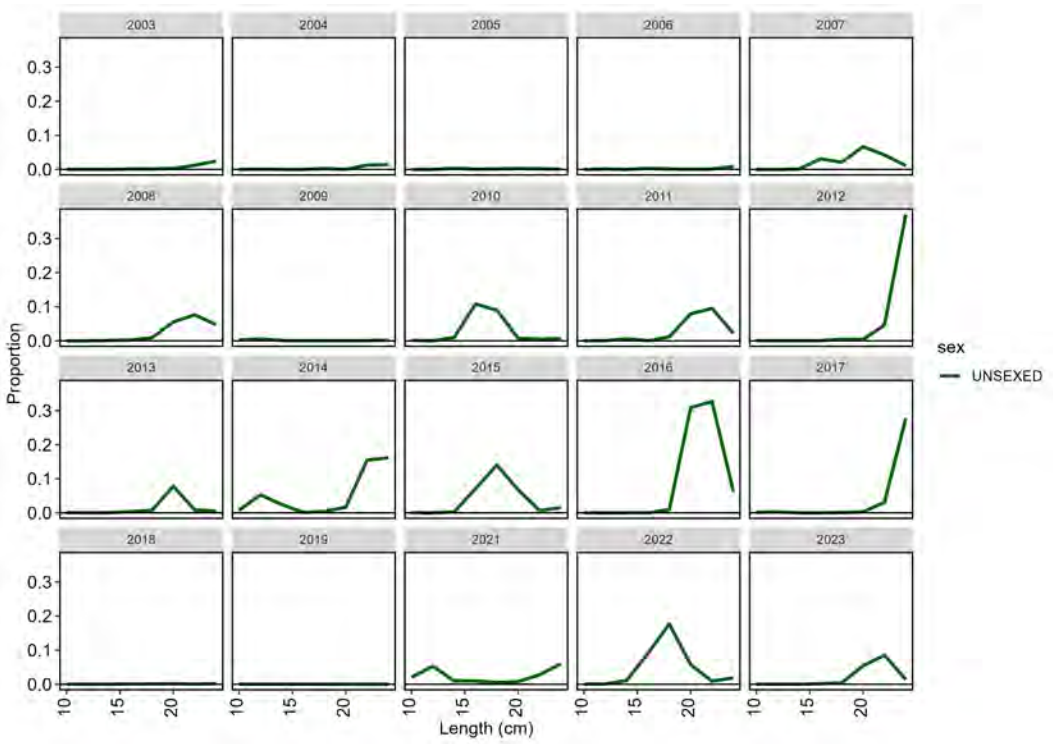

Figure 75: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 3 or younger for Pacific ocean perch. The most recent assessment of Pacific ocean perch in 2017 estimated large recruitments (i.e., greater than 0.50) in 2008, 2011, and 2013.

Table 48: The median length (cm) associated with fish age 3 or younger for Pacific ocean perch based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	6.5
1	13.0
2	18.0
3	22.0

Pacific sanddab

The most recent assessment of Pacific sanddab was a data-limited assessment conducted in 2010. Across available data, Pacific sanddab have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 207 positive tows per year.

Table 49: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for Pacific sanddab.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	222	0	0
California	Commercial	24,256	1,105	446
California	NWFSC WCGBT	52,433	4,714	3,709
California	Recreational	47,230	0	0
Oregon	Commercial	14,051	2,707	10,305
Oregon	NWFSC WCGBT	25,567	2,241	1,885
Oregon	Recreational	1,588	0	0
Washington	Commercial	120	0	50
Washington	NWFSC WCGBT	11,660	1,006	990
Washington	Recreational	9	0	0

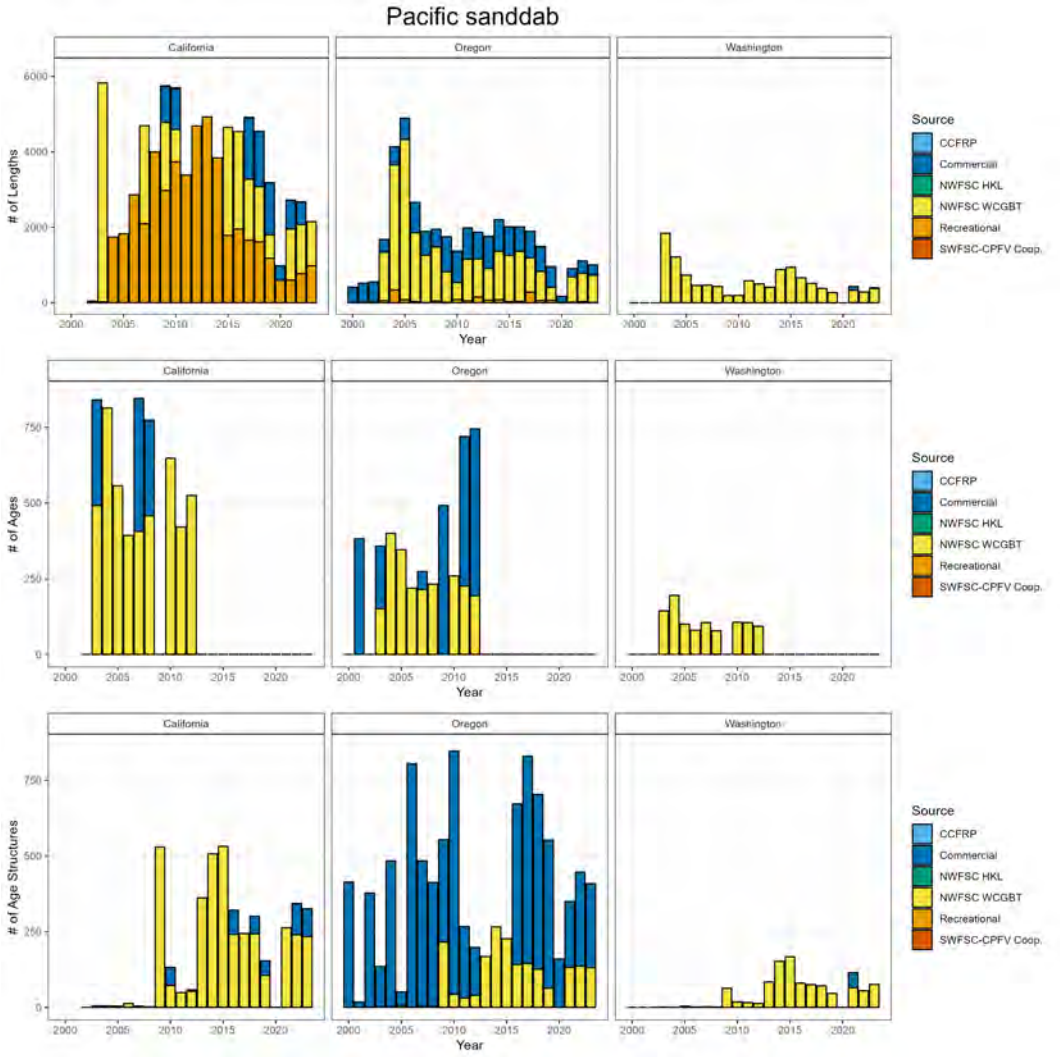

Figure 76: Total number of available lengths, ages, and age structures by data source by year for Pacific sanddab. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

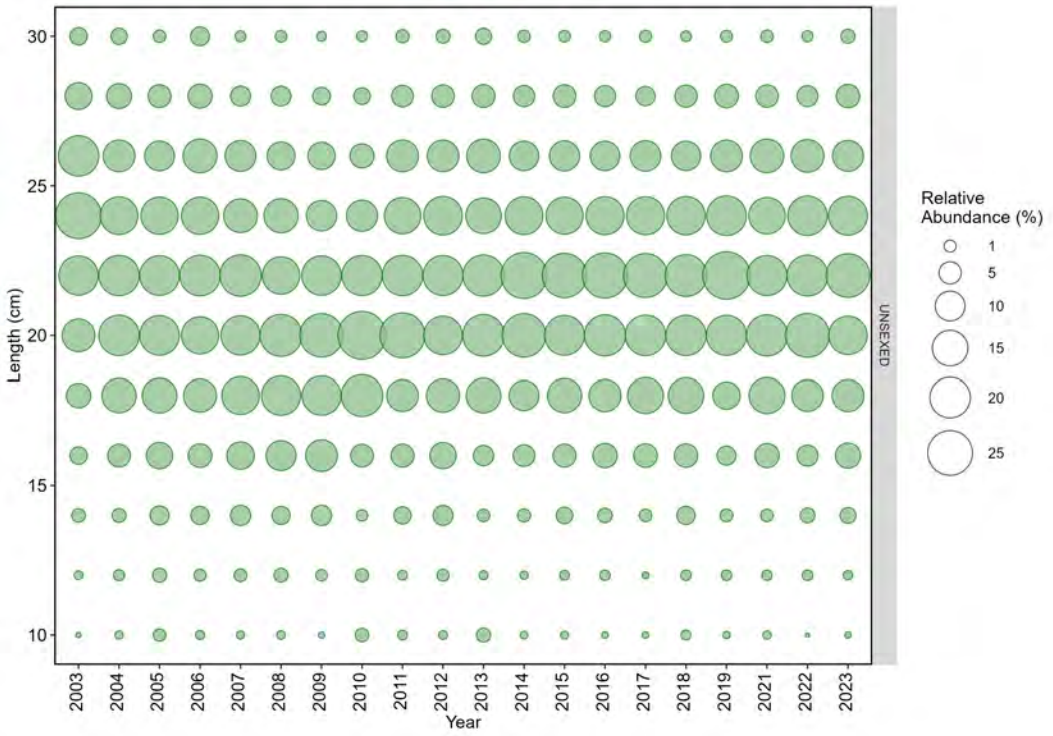

Figure 77: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for Pacific sanddab. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

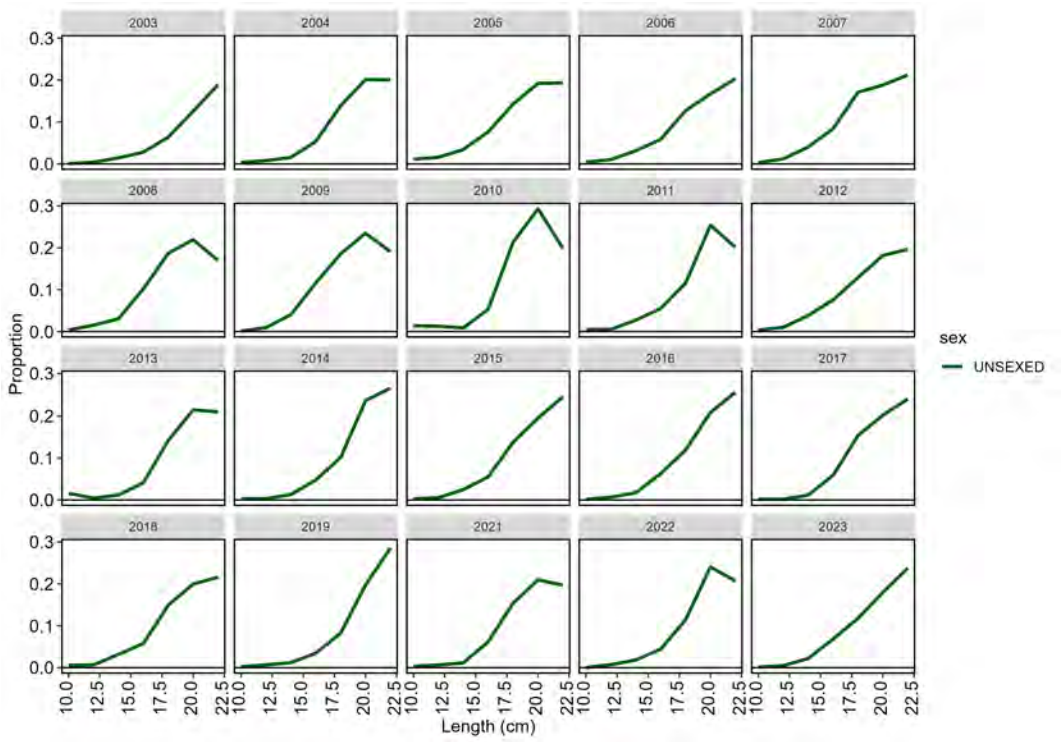

Figure 78: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 3 or younger for Pacific sanddab. The most recent assessment of Pacific sandab in 2013 (not adopted for use by management) estimated a large recruitment (i.e., greater than 0.50) in 2010.

Table 50: The median length (cm) associated with fish age 3 or younger for Pacific sanddab based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	10
1	14
2	17
3	20

Pacific spiny dogfish

The most recent assessment of Pacific spiny dogfish was a benchmark assessment conducted in 2021. Across available data, Pacific spiny dogfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 165 positive tows per year.

Table 51: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for Pacific spiny dogfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	2	0	0
California	Commercial	330	0	0
California	NWFSC HKL	6	0	6
California	NWFSC WCGBT	17,599	285	4,609
Oregon	Commercial	4,049	0	958
Oregon	NWFSC WCGBT	4,014	124	1,711
Washington	Commercial	9,569	3,473	1,432
Washington	NWFSC WCGBT	11,646	182	2,922

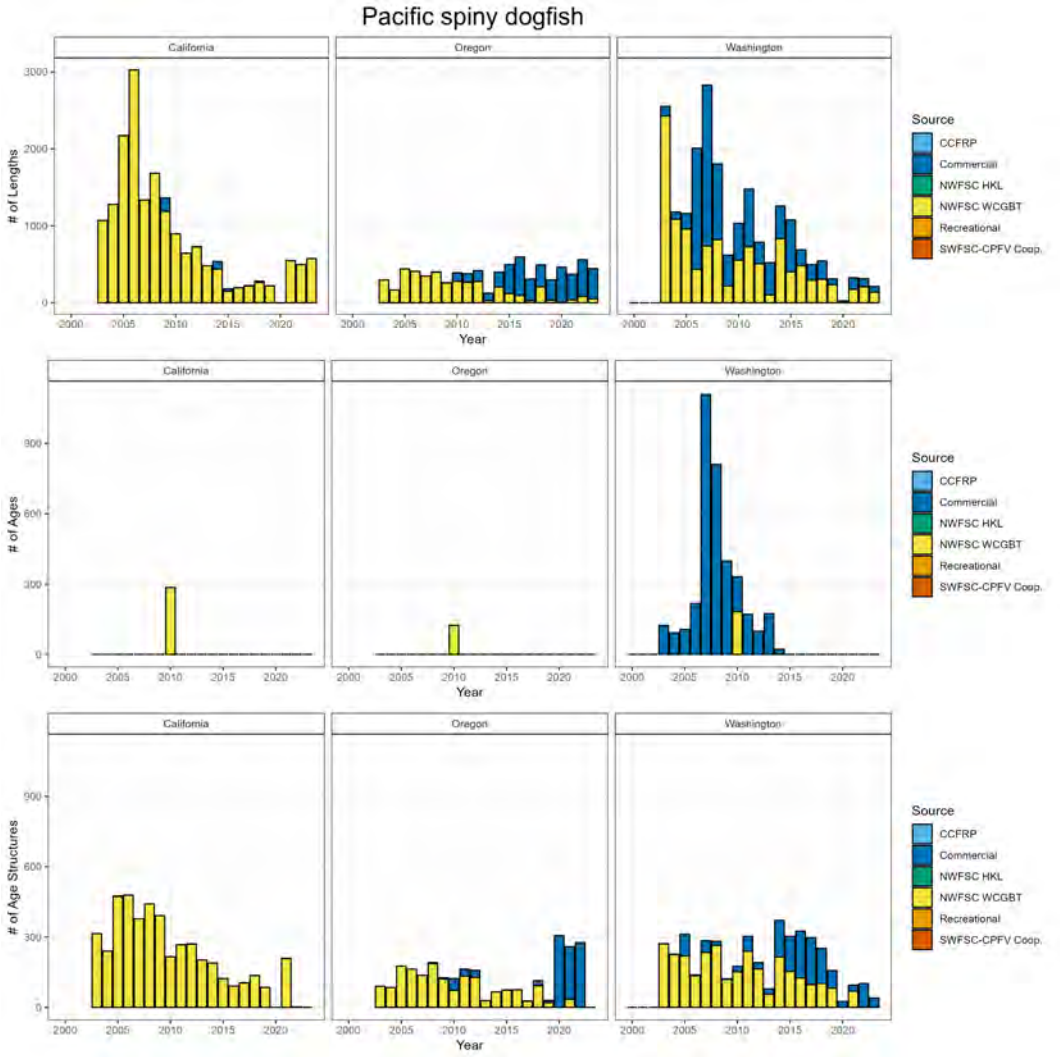

Figure 79: Total number of available lengths, ages, and age structures by data source by year for Pacific spiny dogfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

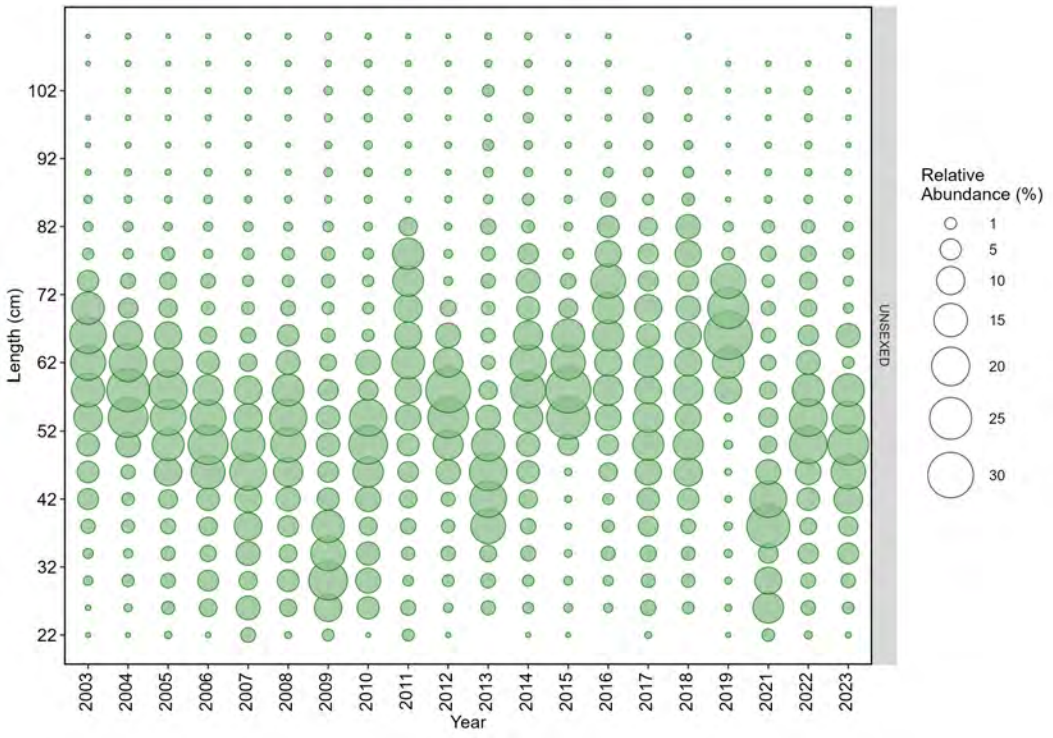

Figure 80: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for Pacific spiny dogfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Petrale sole

The most recent assessment of petrale sole was a benchmark assessment conducted in 2023. Across available data, petrale sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 271 positive tows per year.

Table 52: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for petrale sole.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	10	0	0
California	Commercial	56,613	4,035	4,153
California	NWFSC HKL	2	0	2
California	NWFSC WCGBT	34,359	7,165	2,698
California	Recreational	2,229	0	0
Oregon	Commercial	45,557	12,006	26,579
Oregon	NWFSC WCGBT	27,699	4,493	3,022
Oregon	Recreational	2,798	0	0
Washington	Commercial	28,401	16,305	1,429
Washington	NWFSC WCGBT	17,168	3,040	2,190
Washington	Recreational	59	22	12

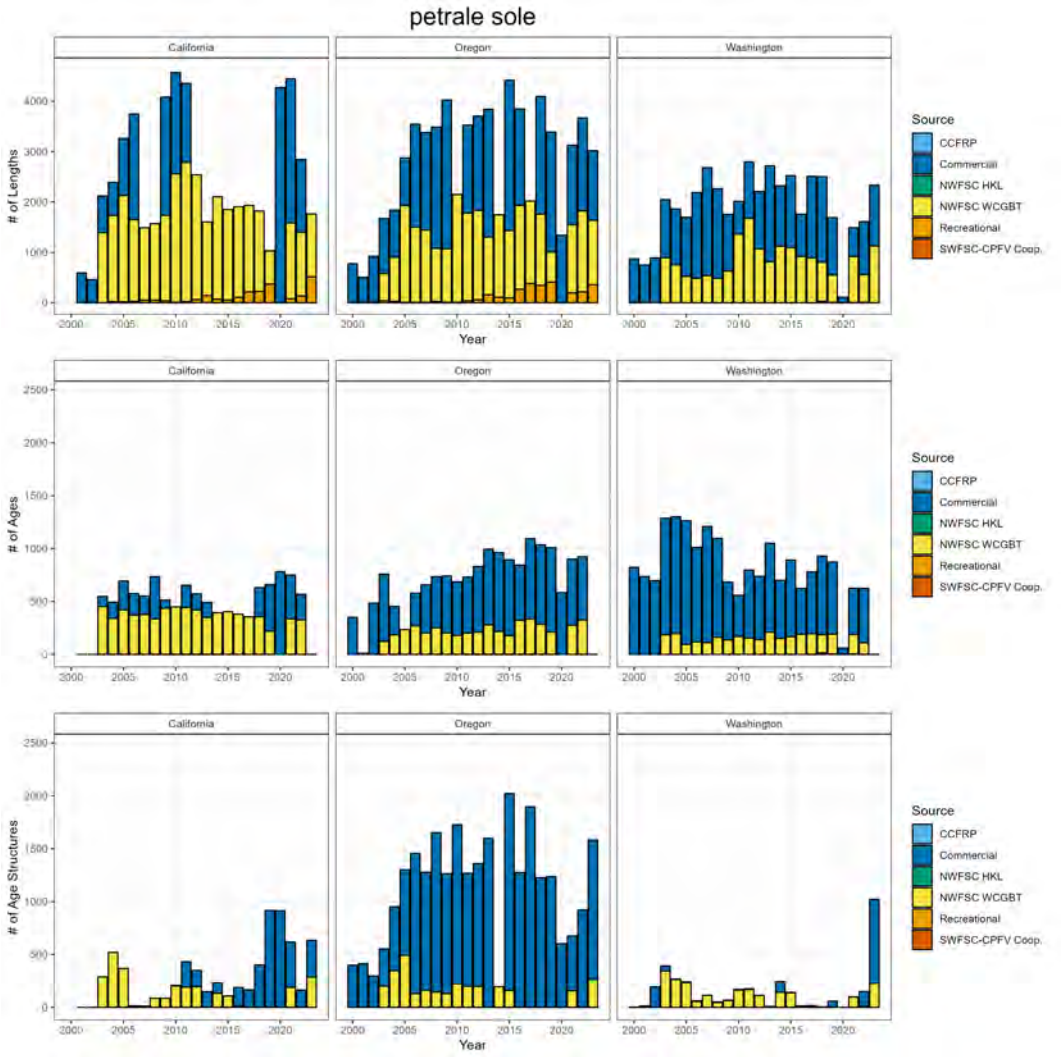

Figure 81: Total number of available lengths, ages, and age structures by data source by year for petrale sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

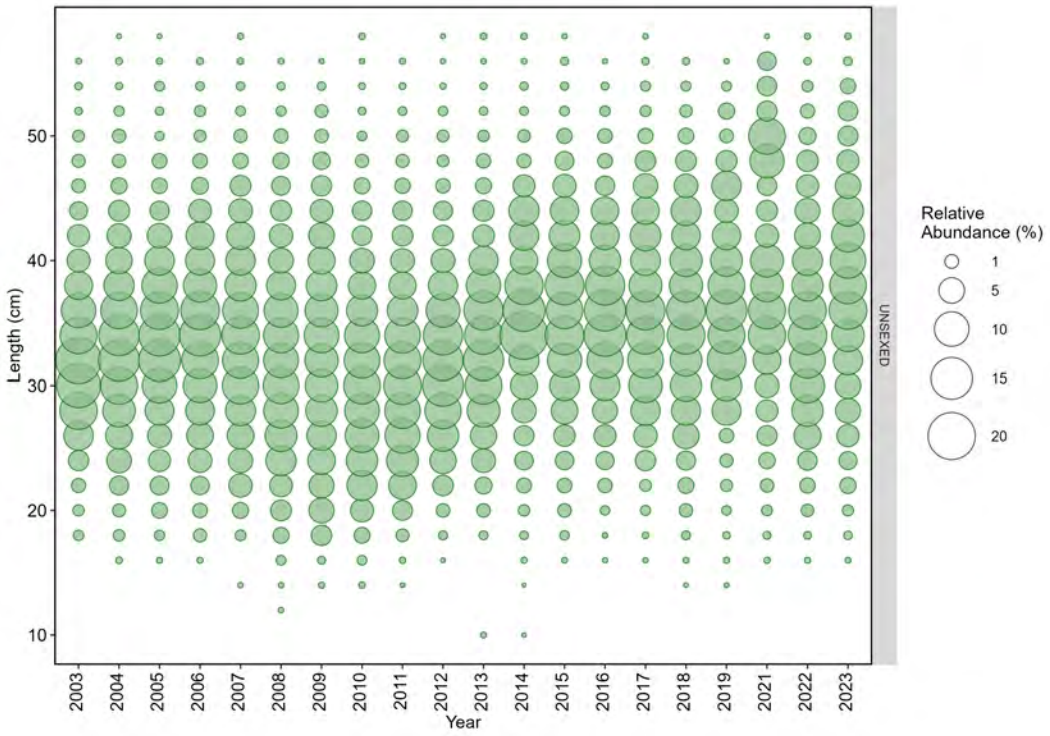

Figure 82: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for petrale sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

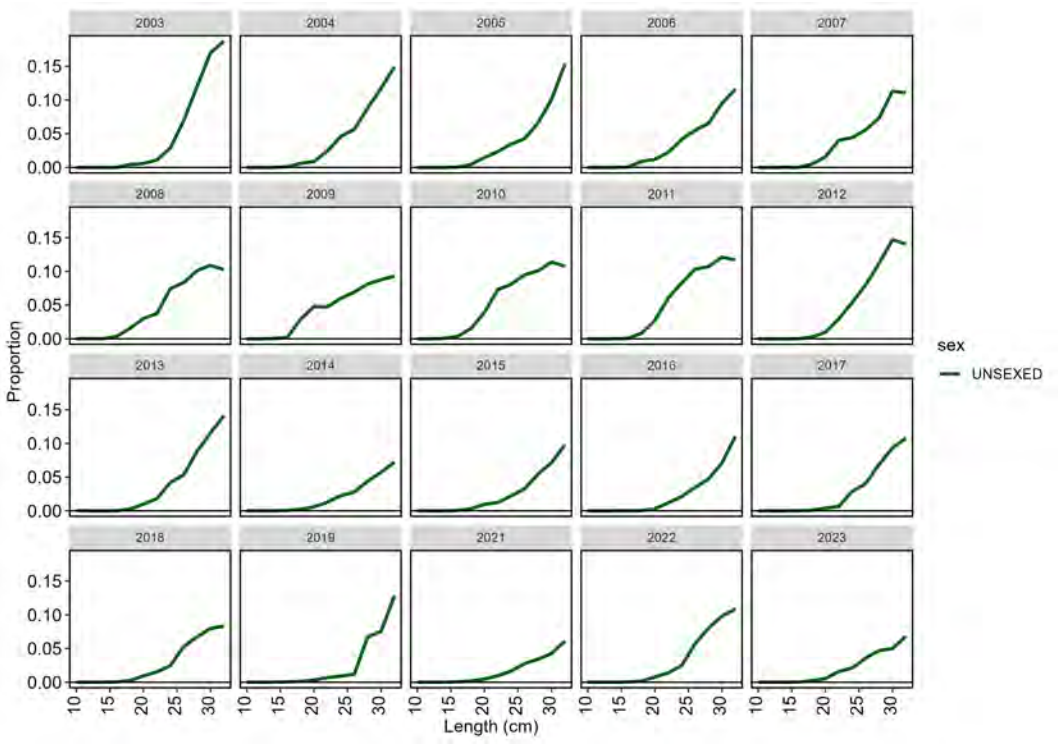

Figure 83: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 4 or younger for petrale sole. The most recent assessment of petrale sole in 2023 estimated large recruitments (i.e., greater than 0.50) in 2006, 2007, and 2008.

Table 53: The median length (cm) associated with fish age 4 or younger for petrale sole based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
1	18.0
2	21.5
3	26.0
4	29.5

Quillback rockfish

The most recent assessment of quillback rockfish was a data-moderate assessment conducted in 2021. Across available data, quillback rockfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 4 positive tows per year.

Table 54: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for quillback rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	332	0	0
California	Commercial	1,151	0	262
California	NWFSC WCGBT	26	21	0
California	Recreational	5,810	0	141
California	SWFSC-CPFV Coop.	135	0	135
Oregon	Commercial	3,579	475	1,038
Oregon	NWFSC WCGBT	119	82	20
Oregon	Recreational	20,133	1,522	2,767
Washington	Commercial	185	37	35
Washington	NWFSC WCGBT	100	70	9
Washington	Recreational	5,076	2,154	487

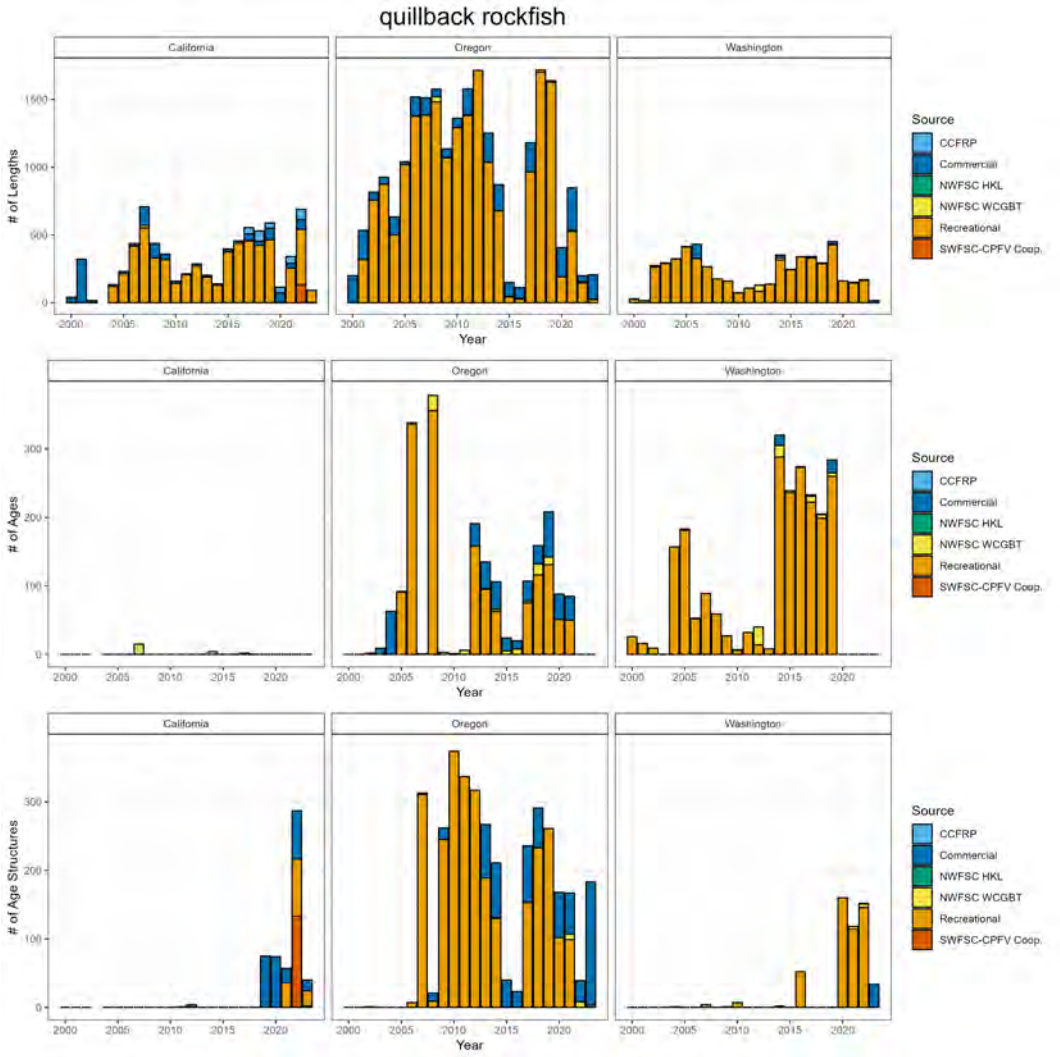

Figure 84: Total number of available lengths, ages, and age structures by data source by year for quillback rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

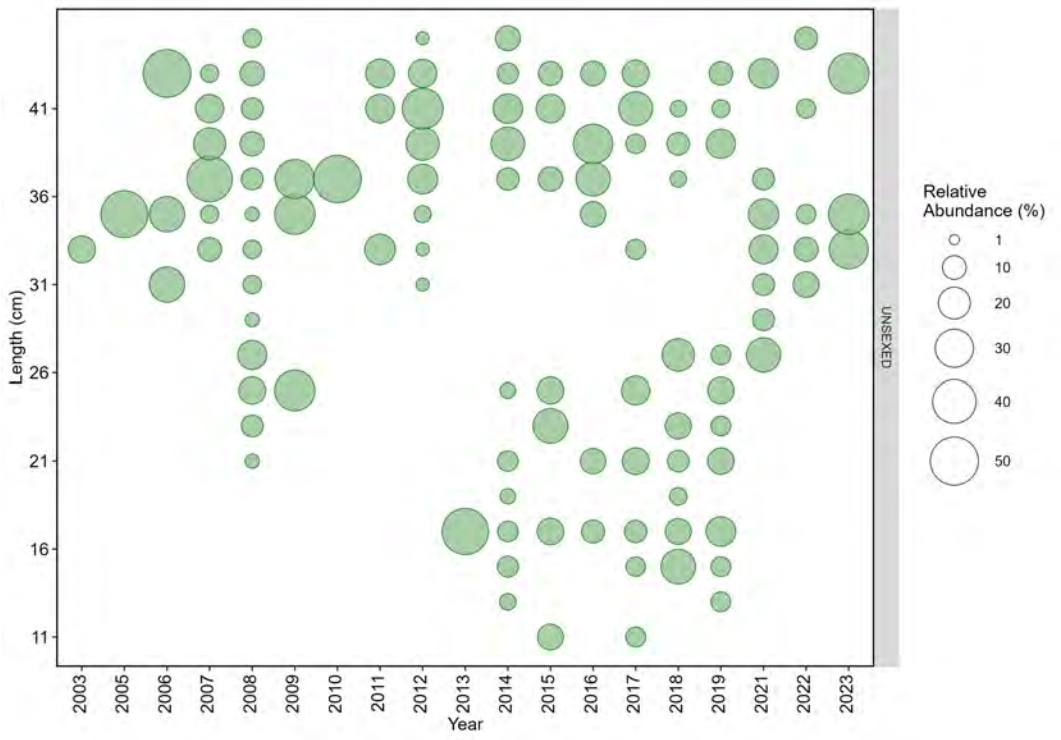

Figure 85: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for quillback rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Redbanded rockfish

The most recent assessment of redbanded rockfish was a data-limited assessment conducted in 2010. Across available data, redbanded rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 53 positive tows per year.

Table 55: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for redbanded rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	5,463	1	1,937
California	NWFSC WCGBT	965	0	933
California	Recreational	5	0	0
Oregon	Commercial	13,437	278	12,759
Oregon	NWFSC WCGBT	1,701	0	1,612
Oregon	Recreational	58	0	0
Washington	Commercial	16,533	0	8,666
Washington	NWFSC WCGBT	1,167	0	1,092
Washington	Recreational	74	0	28

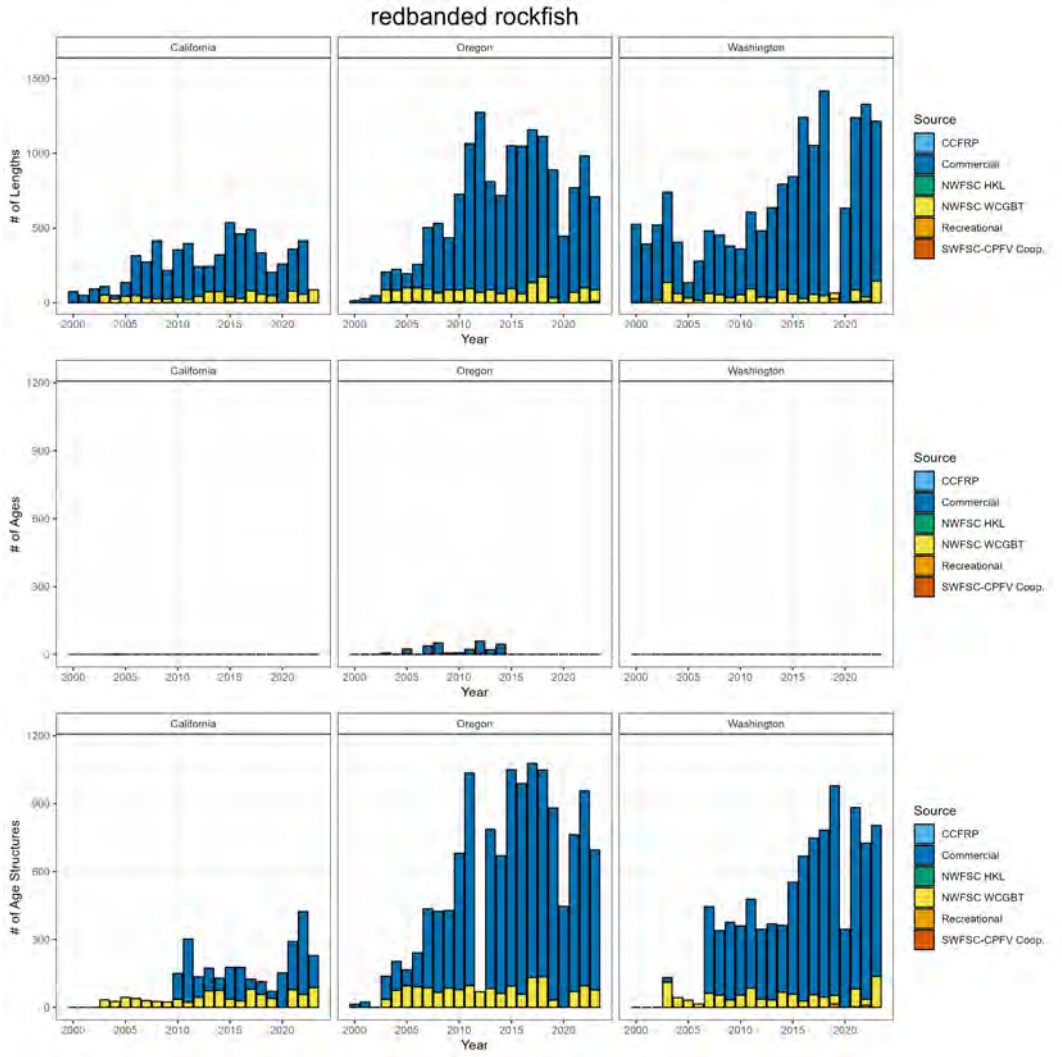

Figure 86: Total number of available lengths, ages, and age structures by data source by year for redbanded rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

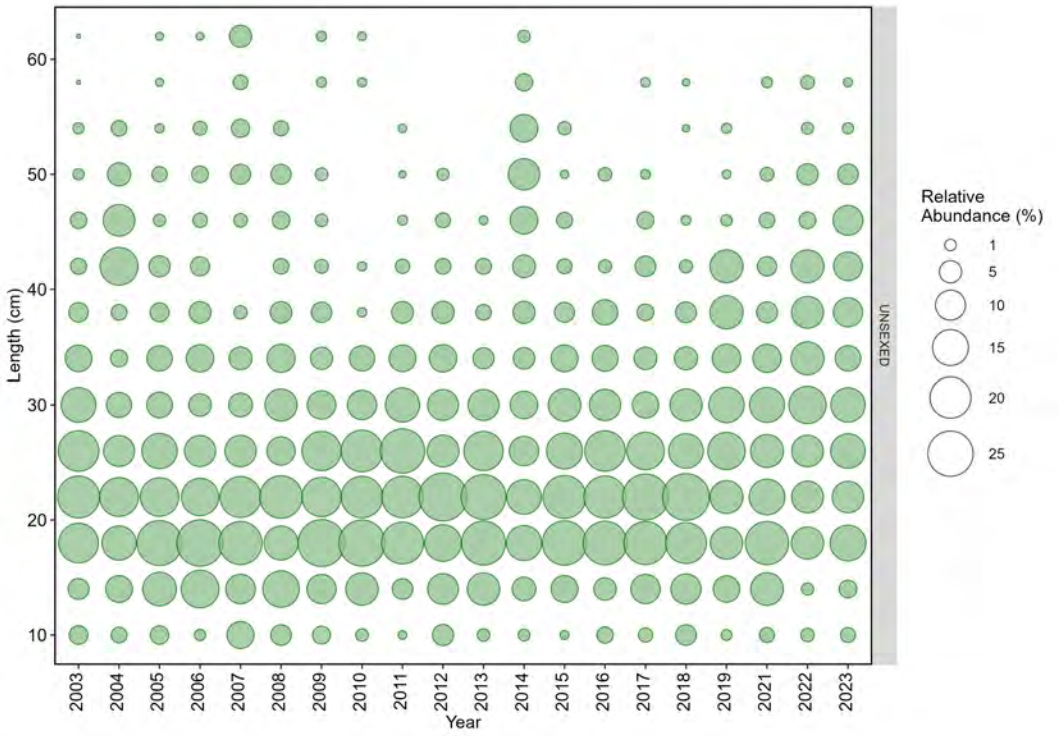

Figure 87: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for redbanded rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Redstripe rockfish

The most recent assessment of redstripe rockfish was a data-limited assessment conducted in 2010. Across available data, redstripe rockfish have been observed and sampled by recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 13 positive tows per year.

Table 56: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for redstripe rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	32	0	0
California	NWFSC WCGBT	348	0	199
California	Recreational	19	0	0
Oregon	Commercial	4,291	0	4,141
Oregon	NWFSC WCGBT	3,954	0	1,731
Oregon	Recreational	312	0	0
Washington	Commercial	3,457	0	1,097
Washington	NWFSC WCGBT	3,383	0	1,700
Washington	Recreational	6	0	6

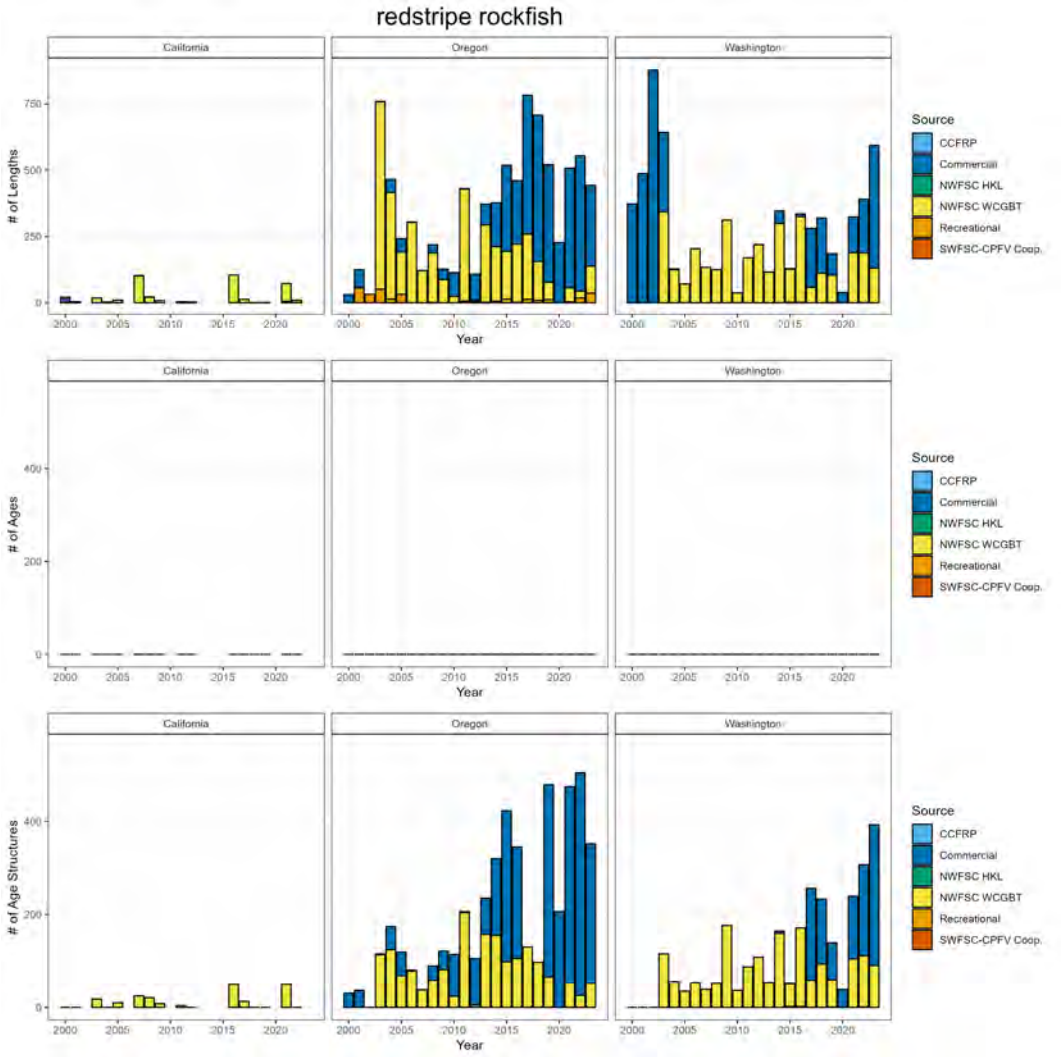

Figure 88: Total number of available lengths, ages, and age structures by data source by year for redstripe rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Rex sole

The most recent assessment of rex sole was a data-moderate assessment conducted in 2023. Across available data, rex sole have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 384 positive tows per year.

Table 57: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for rex sole.

State	Source	Lengths	Ages	Age Structures
California	Commercial	35,679	0	1,787
California	NWFSC WCGBT	56,004	273	4,771
California	Recreational	1	0	0
Oregon	Commercial	24,666	0	19,844
Oregon	NWFSC WCGBT	62,018	200	4,242
Washington	Commercial	2,315	0	1,635
Washington	NWFSC WCGBT	28,509	148	2,126

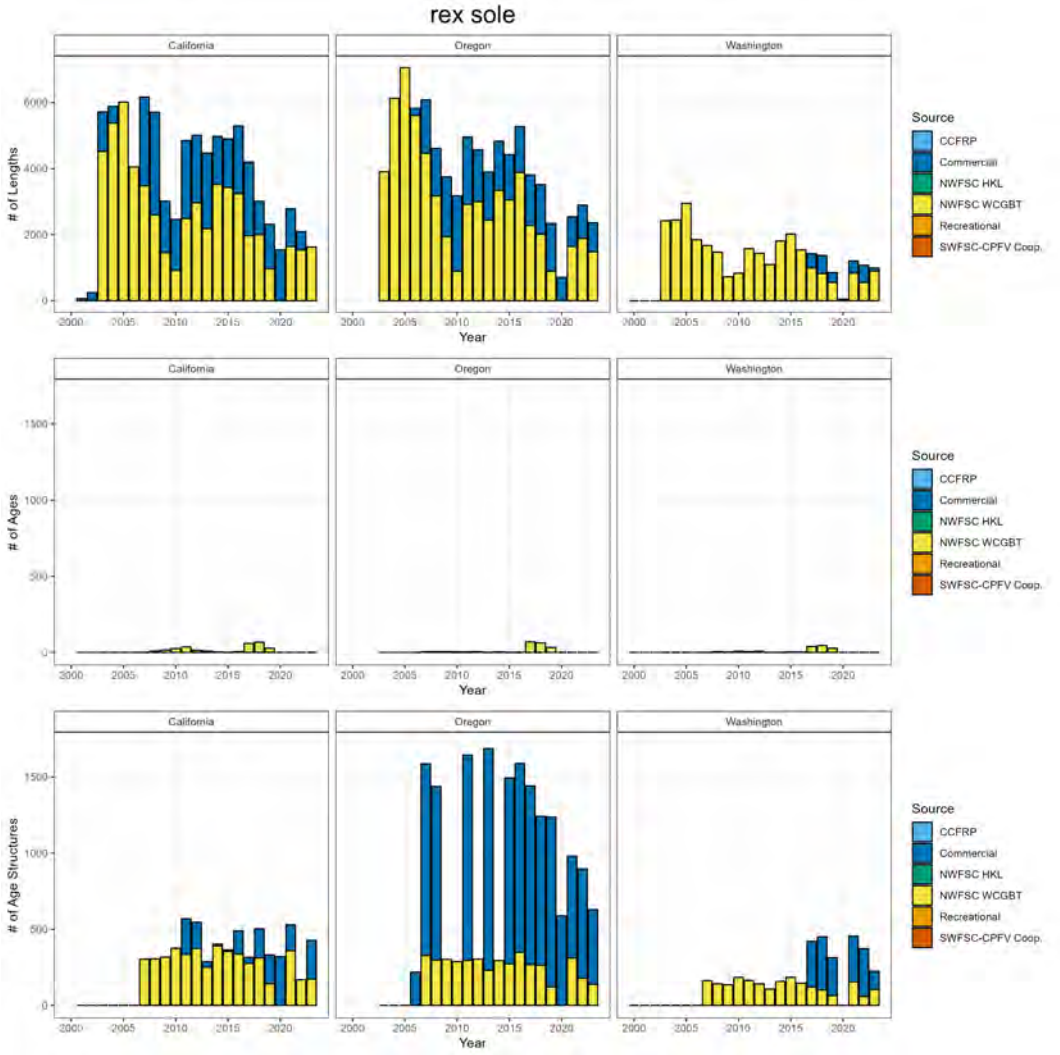

Figure 89: Total number of available lengths, ages, and age structures by data source by year for rex sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

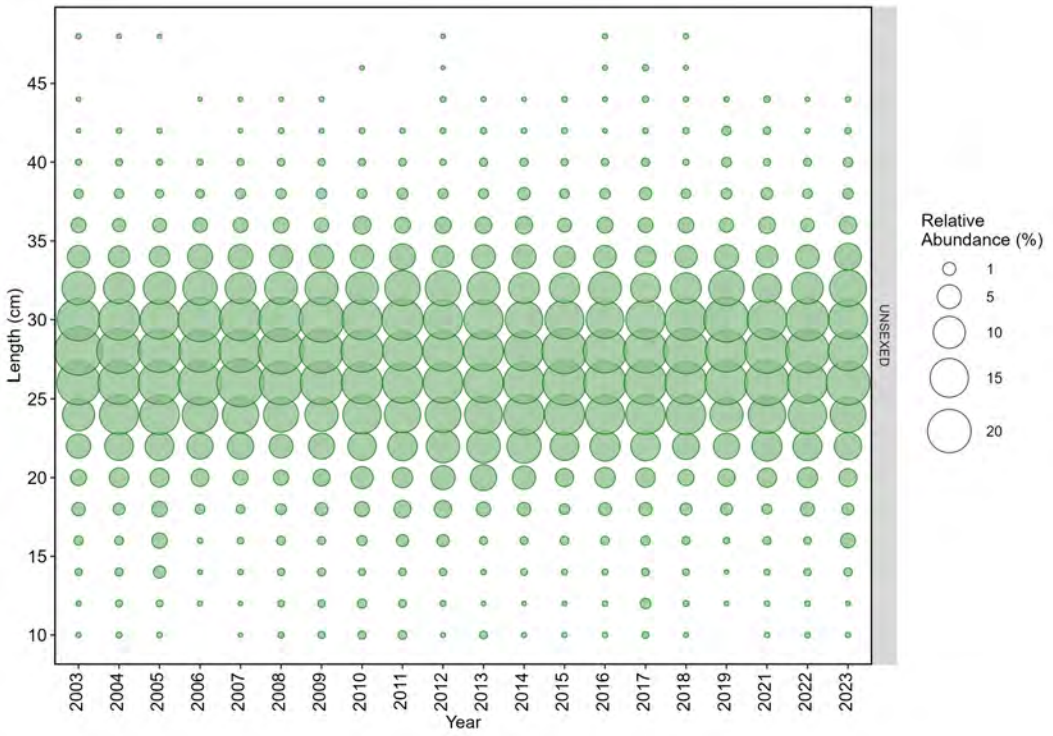

Figure 90: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for rex sole. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Rosethorn rockfish

The most recent assessment of rosethorn rockfish was a data-limited assessment conducted in 2010. Across available data, rosethorn rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT survey has an average of 48 positive tows per year.

Table 58: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for rosethorn rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	202	0	0
California	NWFSC HKL	37	0	37
California	NWFSC WCGBT	2,945	0	1,458
California	Recreational	37	0	0
Oregon	Commercial	2,183	0	2,100
Oregon	NWFSC WCGBT	9,688	0	3,846
Oregon	Recreational	551	0	0
Washington	Commercial	1,586	0	967
Washington	NWFSC WCGBT	6,835	0	2,853
Washington	Recreational	6	0	3

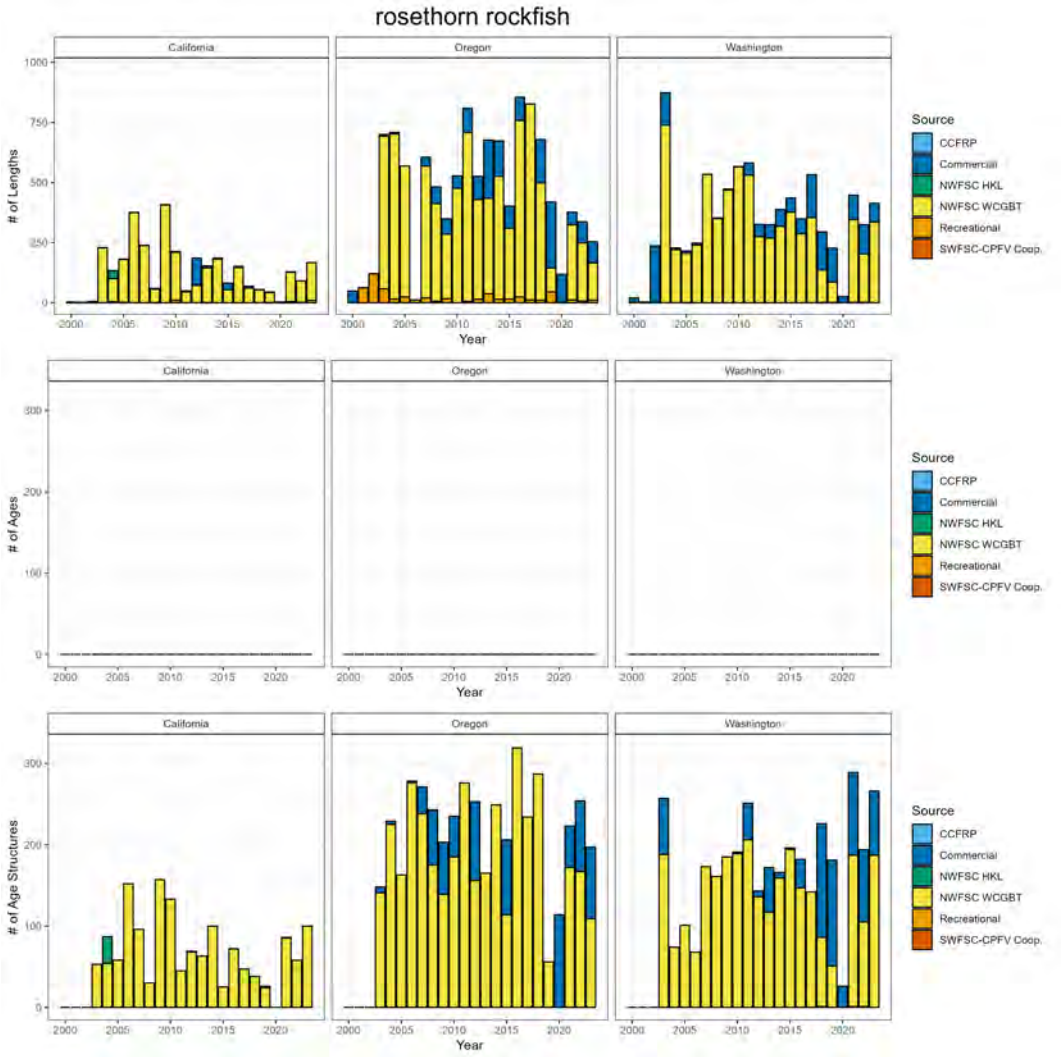

Figure 91: Total number of available lengths, ages, and age structures by data source by year for rosethorn rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

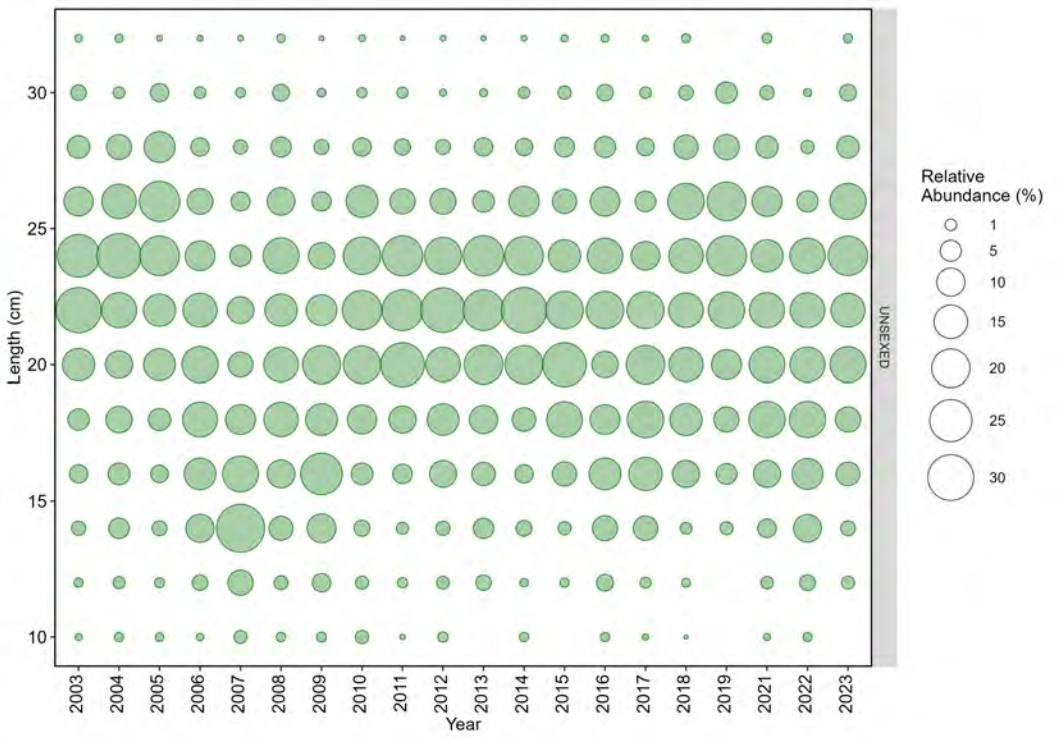

Figure 92: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for rosethorn rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Rosy rockfish

The most recent assessment of rosy rockfish was a data-limited assessment conducted in 2010. Across available data, rosy rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 2 positive tows per year and the NWFSC HKL survey has an average of 21 positive sets per year the area south of Point Conception in California.

Table 59: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for rosy rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	1,091	0	0
California	Commercial	305	0	0
California	NWFSC HKL	1,076	0	1,076
California	NWFSC WCGBT	375	0	195
California	Recreational	20,763	0	8
California	SWFSC-CPFV Coop.	11	0	11
Oregon	Commercial	44	0	15
Oregon	NWFSC WCGBT	1	0	1
Oregon	Recreational	232	0	0

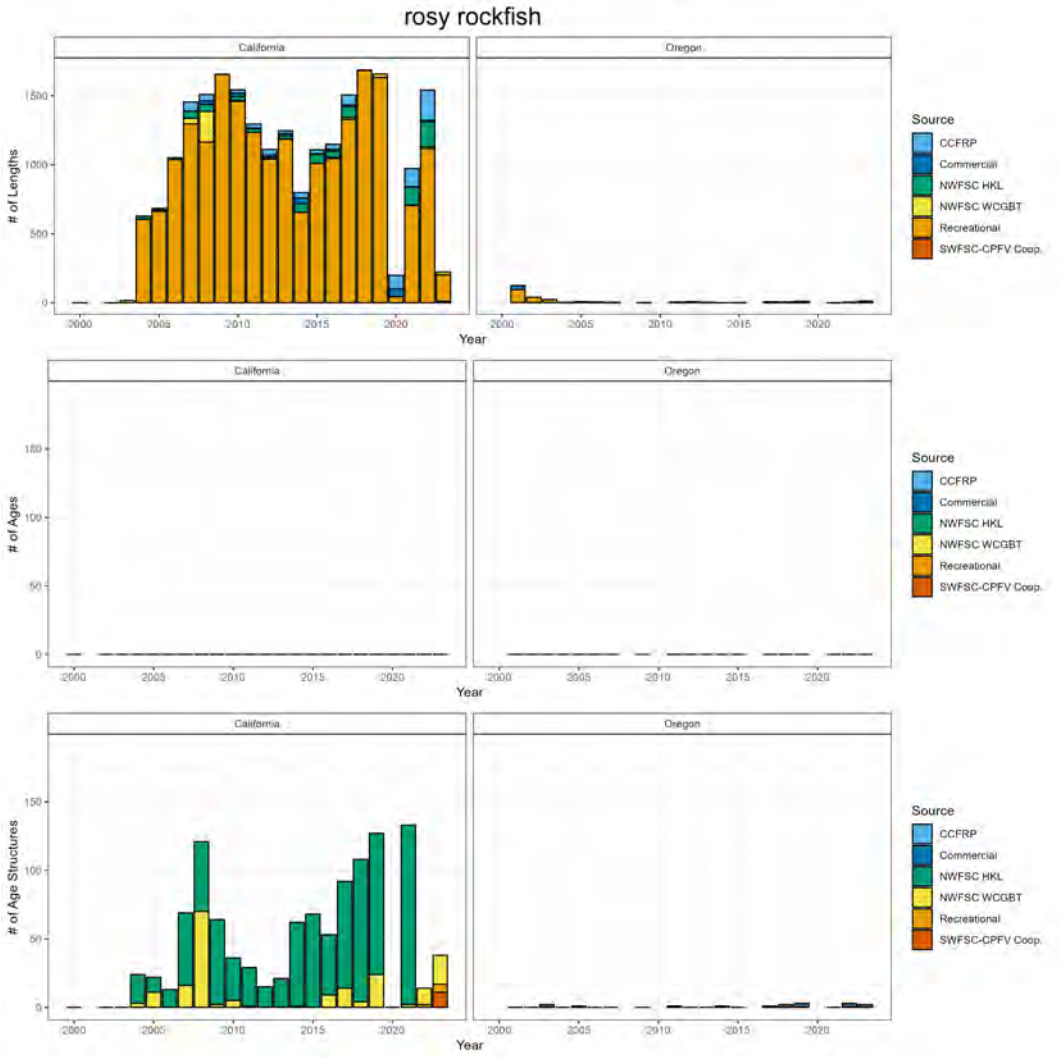

Figure 93: Total number of available lengths, ages, and age structures by data source by year for rosy rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

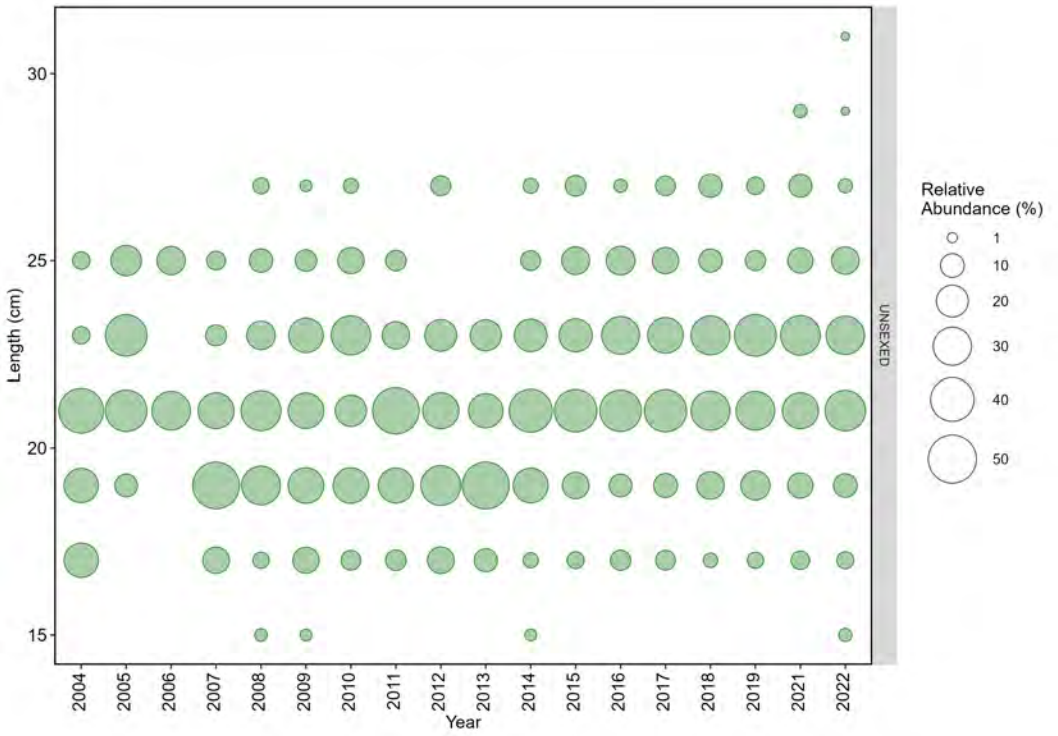

Figure 94: Length (cm) compostion data from the NWFSC Hook and Line survey for rosy rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Rougheye and blackspotted rockfish

The most recent assessment of rougheye and blackspotted rockfish was a benchmark assessment conducted in 2013. Across available data, rougheye and blackspotted rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 28 positive tows per year.

Table 60: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for rougheye and blackspotted rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	1,166	0	312
California	NWFSC WCGBT	15	5	9
Oregon	Commercial	18,517	725	16,888
Oregon	NWFSC WCGBT	1,023	528	323
Washington	Commercial	31,086	396	15,696
Washington	NWFSC WCGBT	1,204	429	625
Washington	Recreational	2	0	0

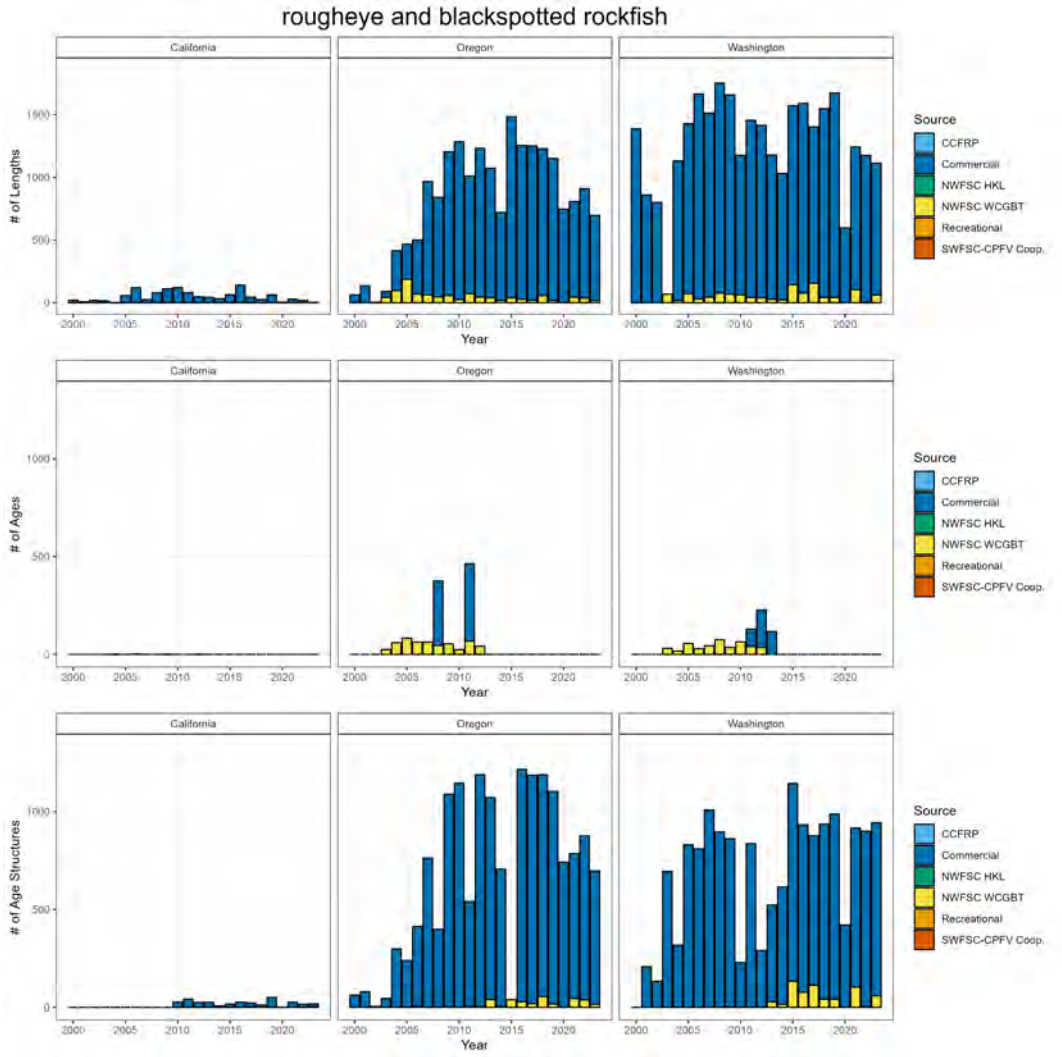

Figure 95: Total number of available lengths, ages, and age structures by data source by year for rougheye and blackspotted rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

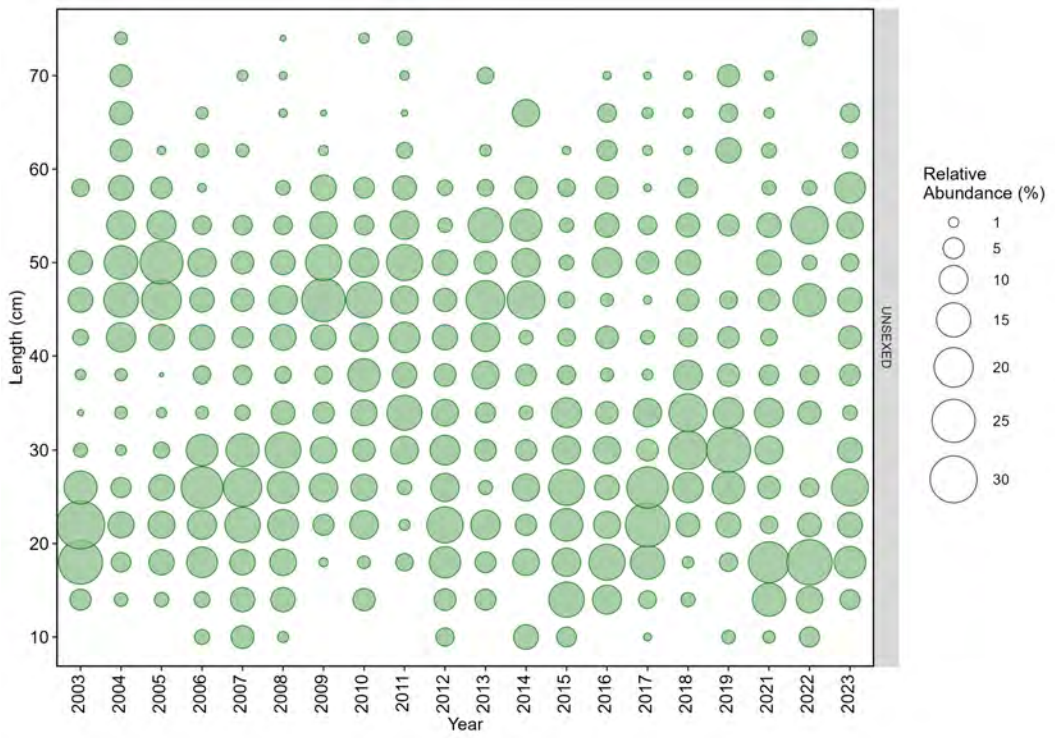

Figure 96: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for rougheye and blackspotted rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Sablefish

The most recent assessment of sablefish was an update assessment conducted in 2023. Across available data, sablefish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 420 positive tows per year.

Table 61: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for sablefish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	92,304	7,666	6,497
California	NWFSC WCGBT	47,908	12,309	6,567
California	Recreational	407	0	13
Oregon	Commercial	83,614	13,359	67,174
Oregon	NWFSC WCGBT	31,848	8,328	4,353
Oregon	Recreational	2,344	0	0
Washington	Commercial	70,713	3,481	9,755
Washington	NWFSC WCGBT	14,415	3,950	2,055
Washington	Recreational	538	0	316

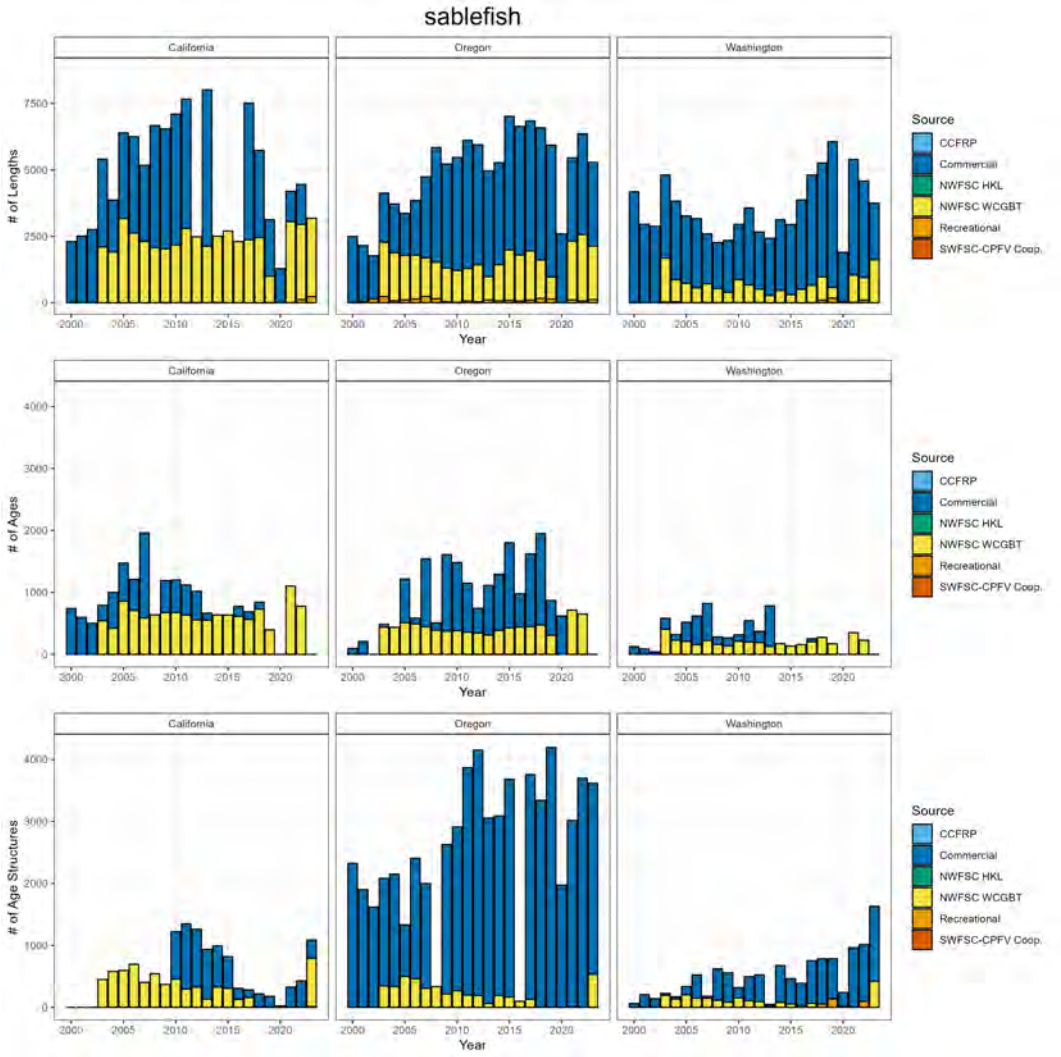

Figure 97: Total number of available lengths, ages, and age structures by data source by year for sablefish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

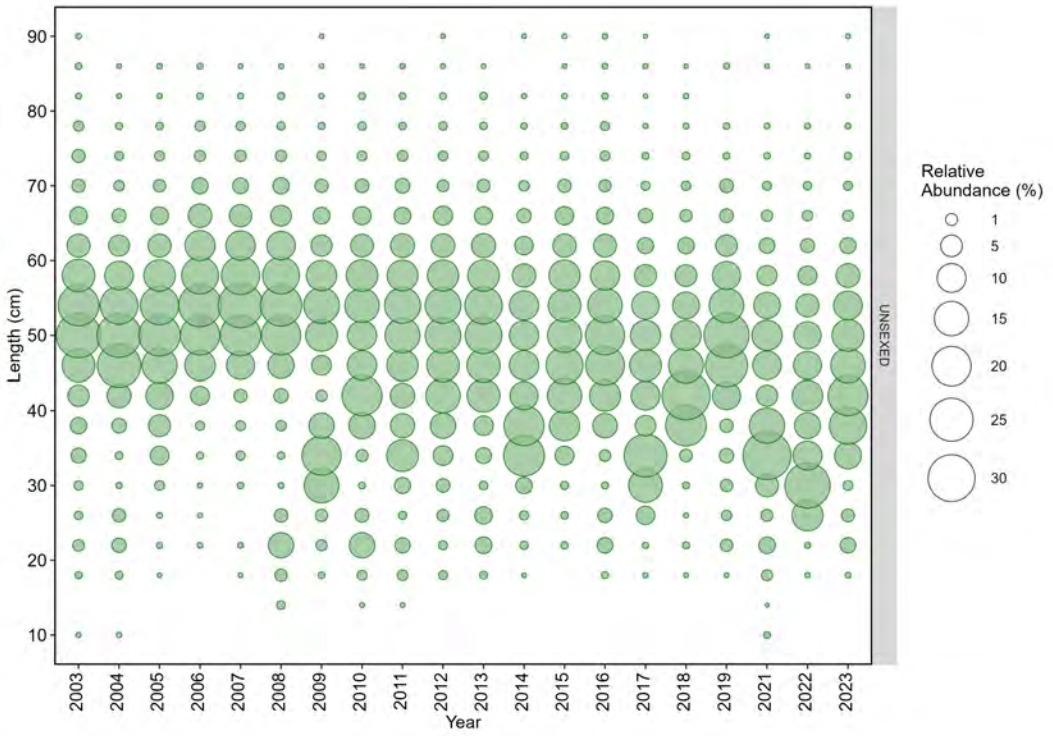

Figure 98: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for sablefish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

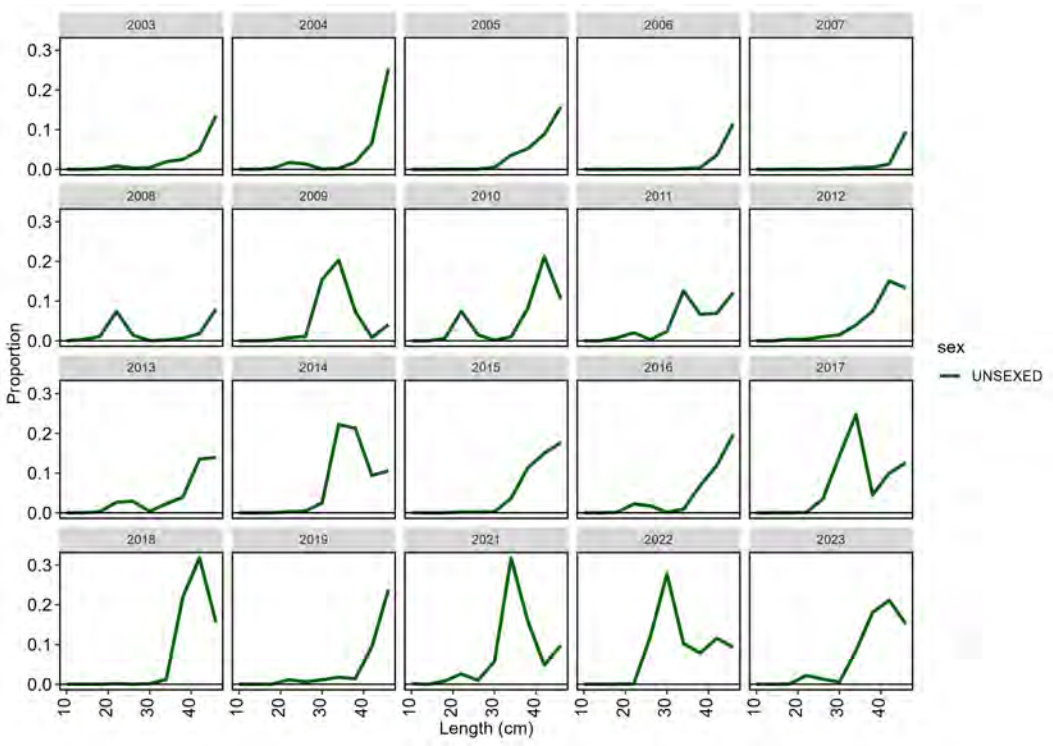

Figure 99: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 2 or younger for sablefish. The most recent assessment of sablefish in 2023 estimated large recruitments (i.e., greater than 0.50) in 2008, 2010, 2013, 2015, 2016, 2017, 2020, and 2021.

Table 62: The median length (cm) associated with fish age 2 or younger for sablefish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	24.5
1	36.0
2	43.5

Sand sole

The most recent assessment of sand sole was a data-limited assessment conducted in 2010. Across available data, sand sole have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 10 positive tows per year.

Table 63: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for sand sole.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	8	0	0
California	Commercial	4,595	0	0
California	NWFSC WCGBT	309	0	265
California	Recreational	628	0	0
Oregon	Commercial	3,550	0	3,322
Oregon	NWFSC WCGBT	660	0	248
Oregon	Recreational	929	0	0
Washington	Commercial	4	0	4
Washington	NWFSC WCGBT	233	0	78
Washington	Recreational	2	0	0

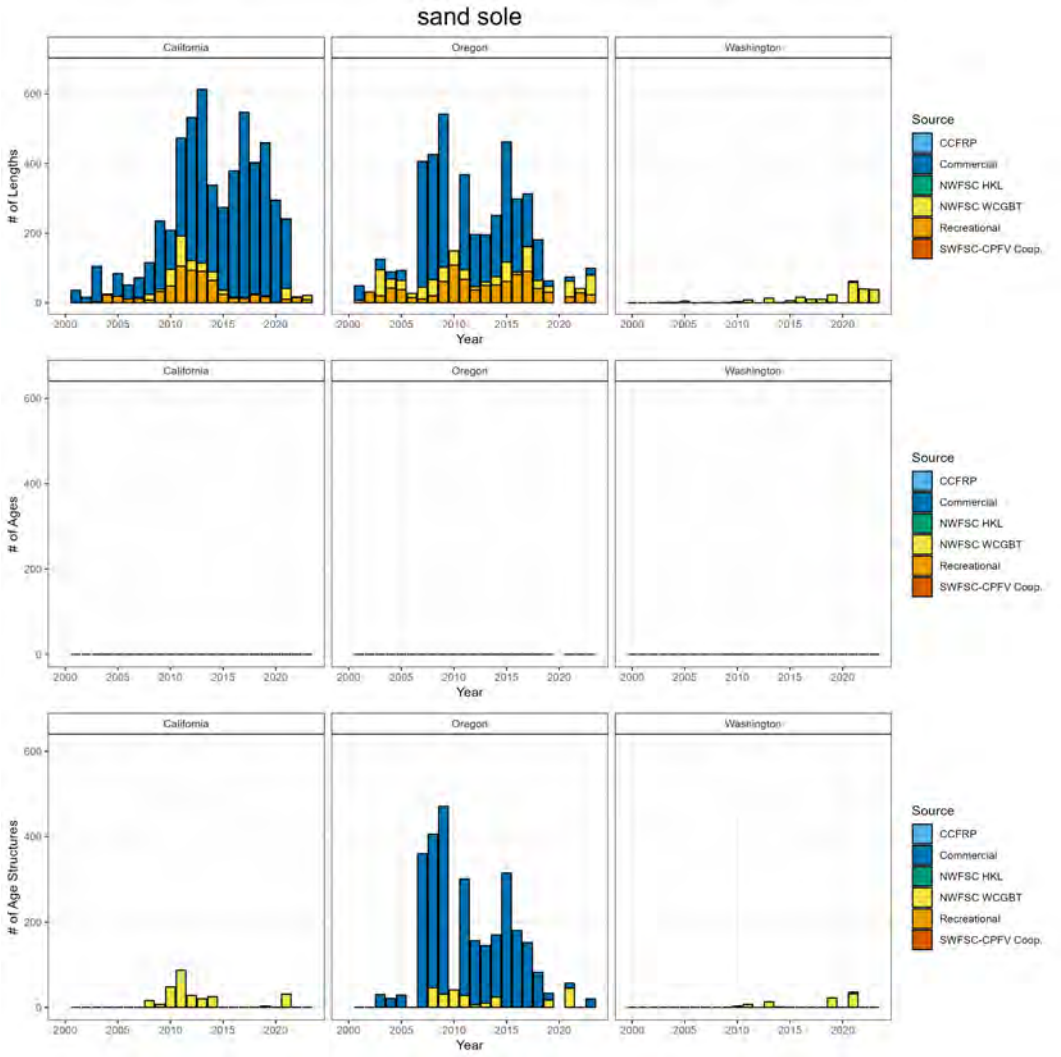

Figure 100: Total number of available lengths, ages, and age structures by data source by year for sand sole. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Sharpchin rockfish

The most recent assessment of sharpchin rockfish was a data-moderate assessment conducted in NA. Across available data, sharpchin rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 43 positive tows per year.

Table 64: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for sharpchin rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	181	0	20
California	NWFSC HKL	13	0	13
California	NWFSC WCGBT	3,411	0	1,739
Oregon	Commercial	2,819	0	2,769
Oregon	NWFSC WCGBT	8,773	0	3,472
Washington	Commercial	2,208	0	445
Washington	NWFSC WCGBT	7,376	0	3,269

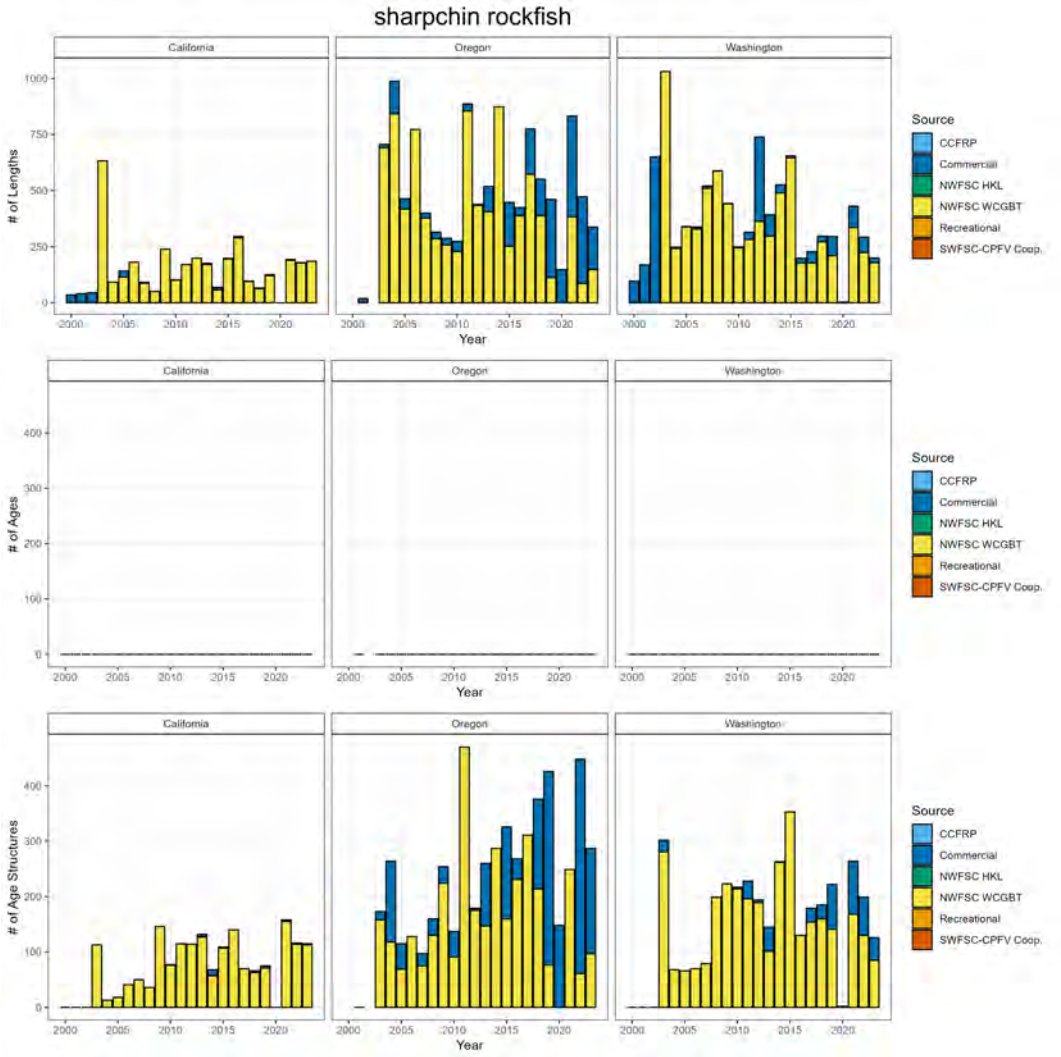

Figure 101: Total number of available lengths, ages, and age structures by data source by year for sharpchin rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

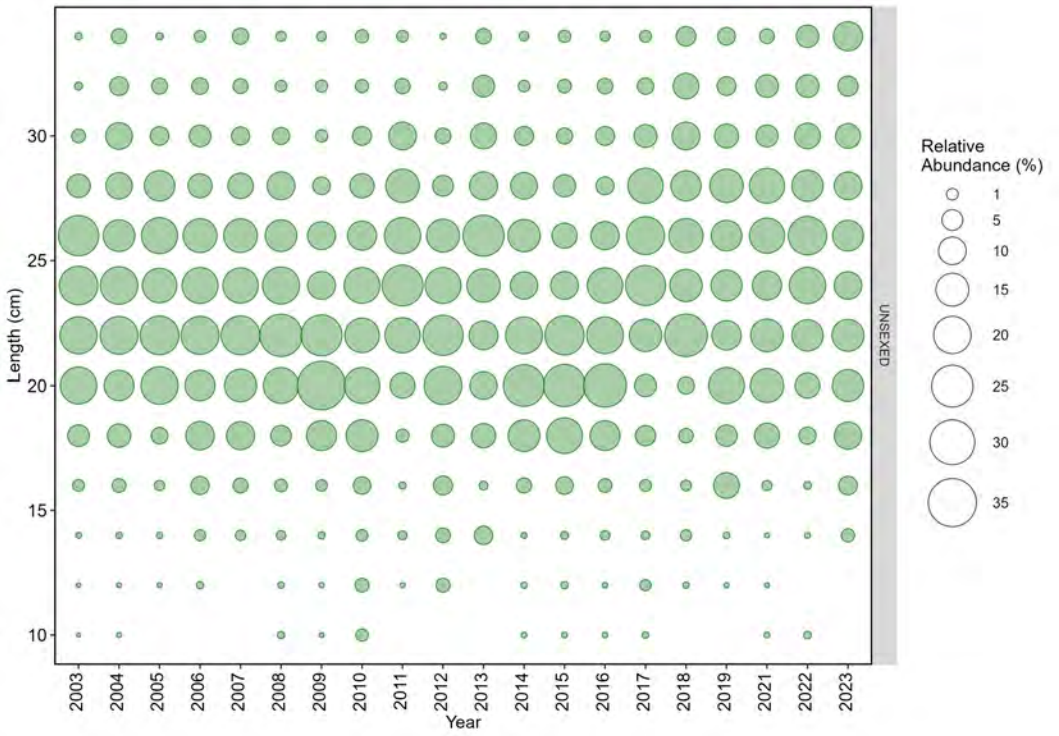

Figure 102: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for sharpchin rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Shortraker rockfish

The most recent assessment of shortraker rockfish was a data-limited assessment conducted in 2010. Across available data, shortraker rockfish have been observed and sampled by only commercial fisheries. The NWFSC WCGBT survey has an average of 1 positive tows per year.

Table 65: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for shortraker rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	71	0	37
California	NWFSC WCGBT	1	0	0
Oregon	Commercial	3,080	20	3,032
Oregon	NWFSC WCGBT	30	0	29
Washington	Commercial	3,274	0	2,420
Washington	NWFSC WCGBT	21	0	19

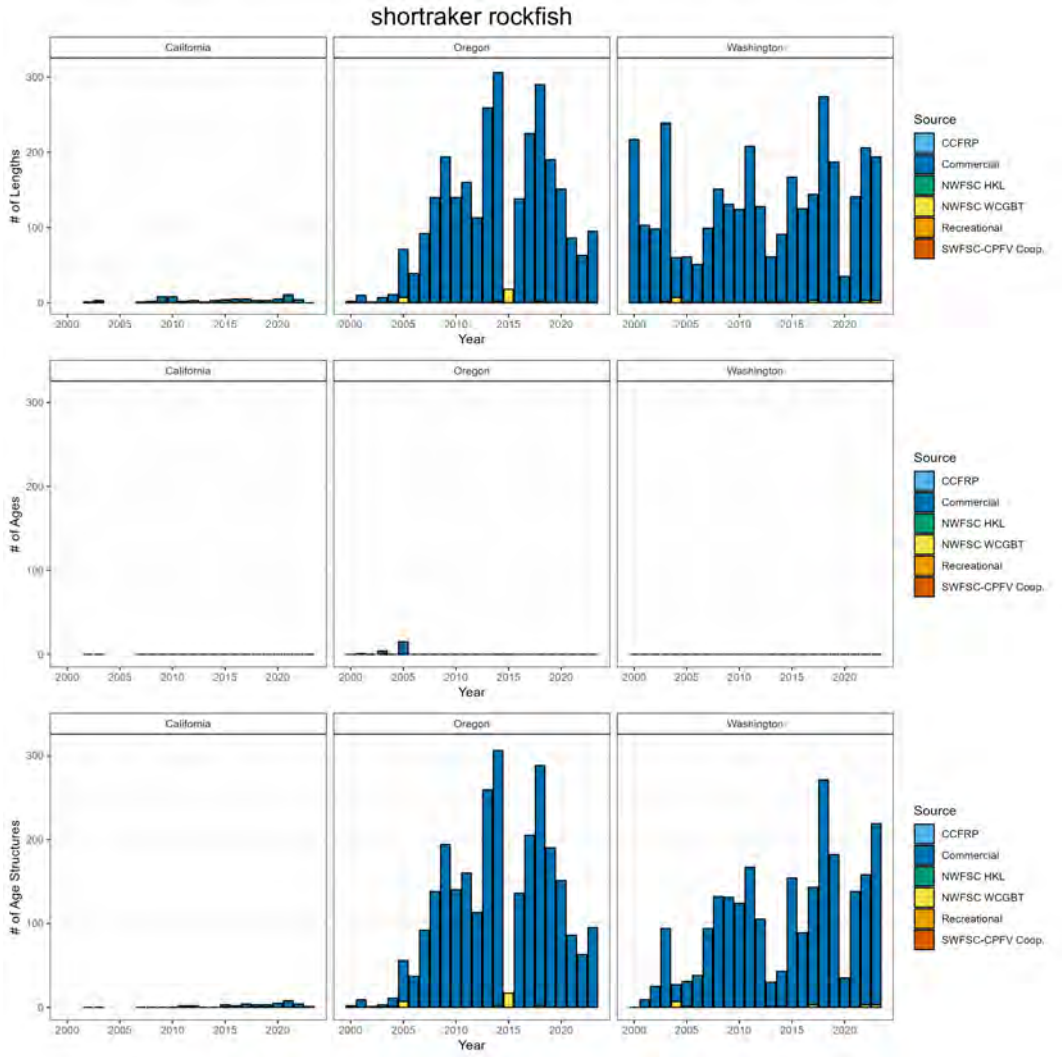

Figure 103: Total number of available lengths, ages, and age structures by data source by year for shortraker rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Shortspine thornyhead

The most recent assessment of shortspine thornyhead was a data-moderate assessment conducted in 2023. Across available data, shortspine thornyhead have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 322 positive tows per year.

Table 66: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for shortspine thornyhead.

State	Source	Lengths	Ages	Age Structures
California	Commercial	62,267	0	327
California	NWFSC WCGBT	45,806	0	11,723
California	Recreational	3	0	1
Oregon	Commercial	36,244	0	27,719
Oregon	NWFSC WCGBT	39,188	0	6,811
Washington	Commercial	20,125	0	926
Washington	NWFSC WCGBT	13,566	0	2,944

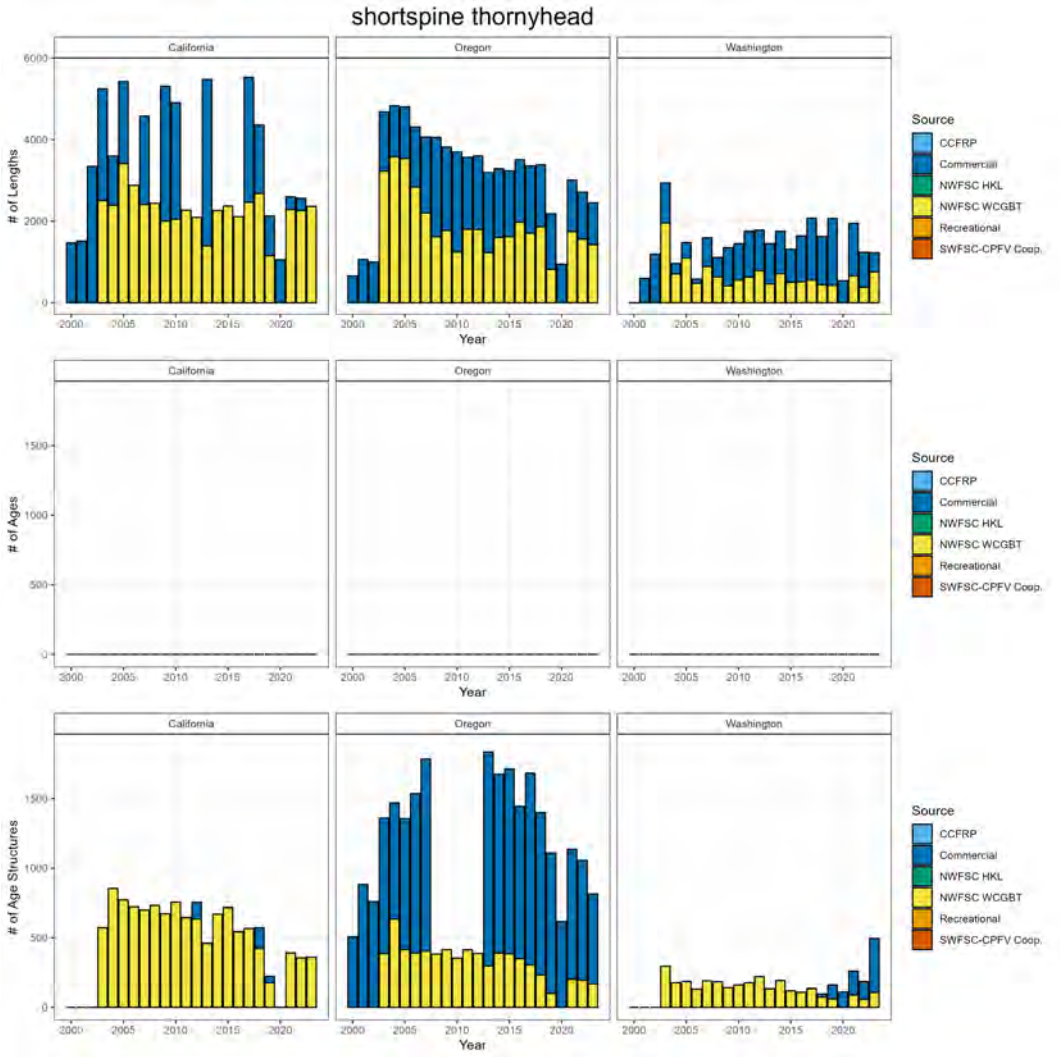

Figure 104: Total number of available lengths, ages, and age structures by data source by year for shortspine thornyhead. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

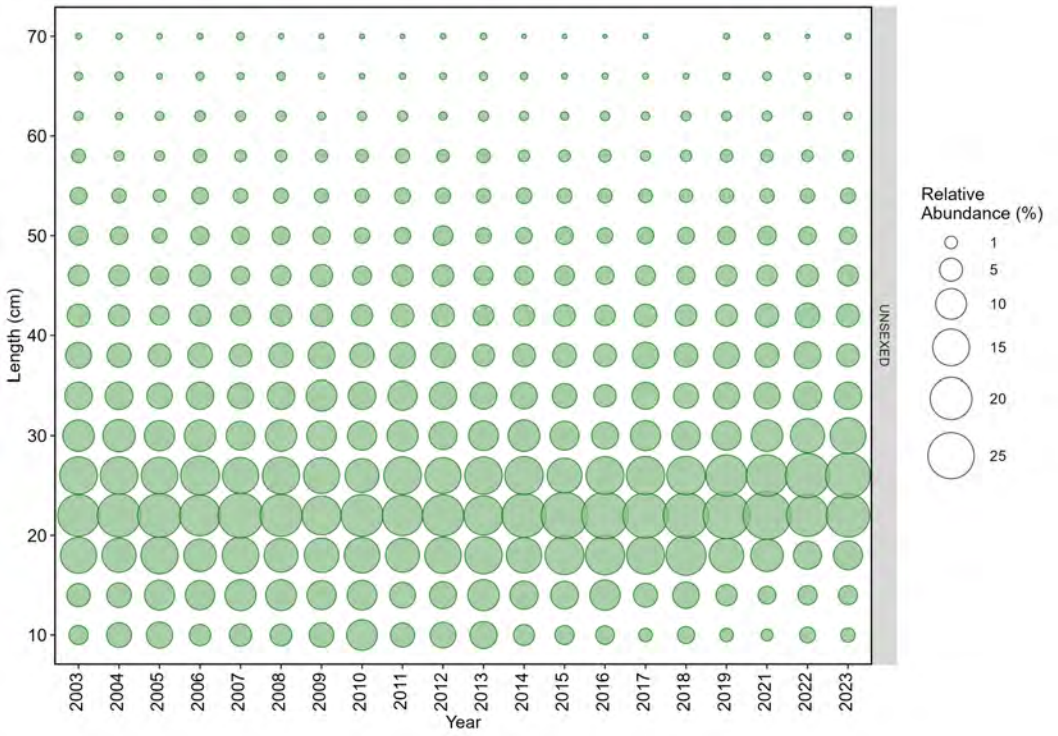

Figure 105: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for shortspine thornyhead. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Silvergray rockfish

The most recent assessment of silvergray rockfish was a data-limited assessment conducted in 2010. Across available data, silvergray rockfish have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 6 positive tows per year.

Table 67: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for silvergray rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	17	0	0
California	NWFSC HKL	4	0	4
California	NWFSC WCGBT	15	0	15
California	Recreational	1	0	0
Oregon	Commercial	2,860	0	2,759
Oregon	NWFSC WCGBT	419	0	331
Oregon	Recreational	593	0	0
Washington	Commercial	1,310	0	0
Washington	NWFSC WCGBT	396	0	369
Washington	Recreational	137	0	102

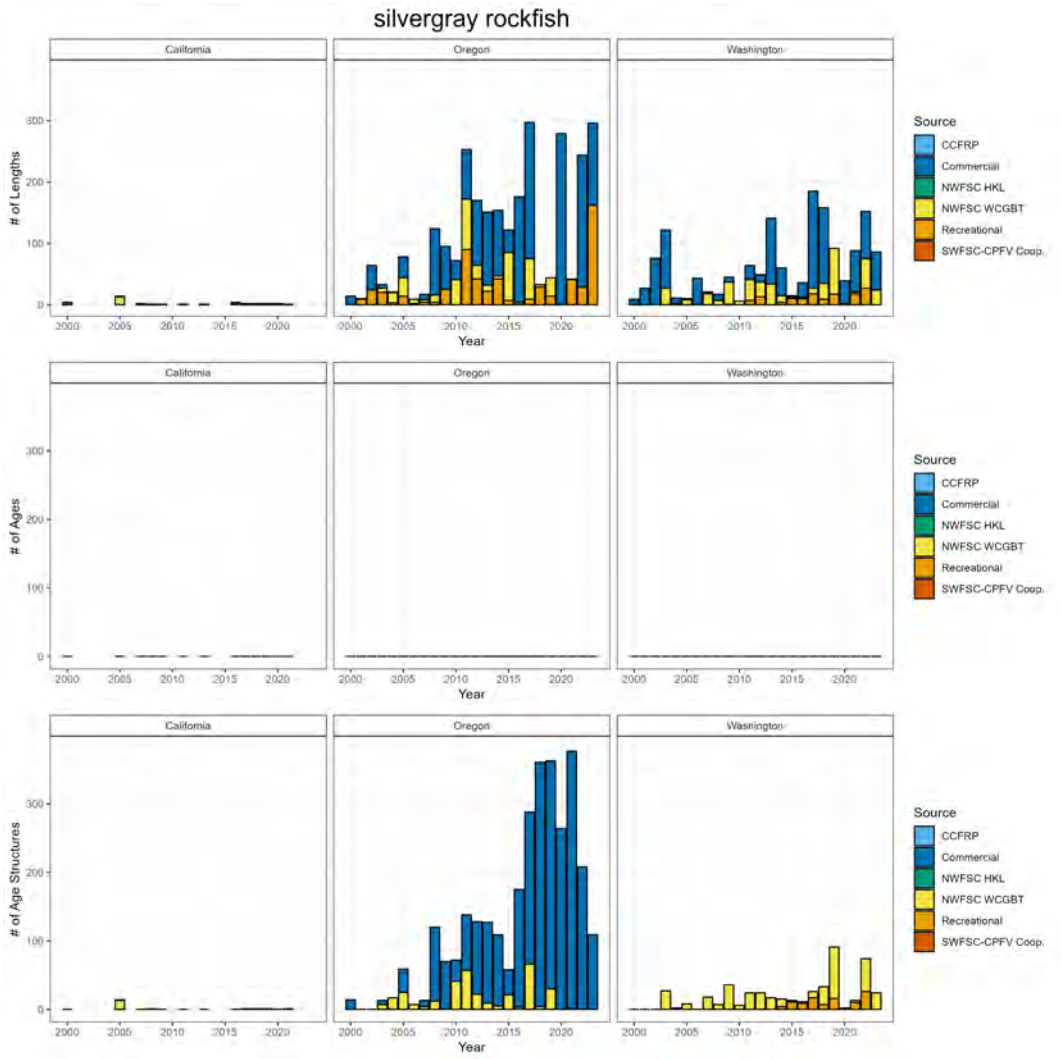

Figure 106: Total number of available lengths, ages, and age structures by data source by year for silvergray rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Speckled rockfish

The most recent assessment of speckled rockfish was a data-limited assessment conducted in 2010. Across available data, speckled rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 2 positive tows per year and the NWFSC HKL survey has an average of 44 positive sets per year the area south of Point Conception in California.

Table 68: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for speckled rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	412	0	1
California	NWFSC HKL	4,020	0	4,020
California	NWFSC WCGBT	285	0	157
California	Recreational	10,144	0	11
California	SWFSC-CPFV Coop.	84	0	82
Oregon	Recreational	2	0	0

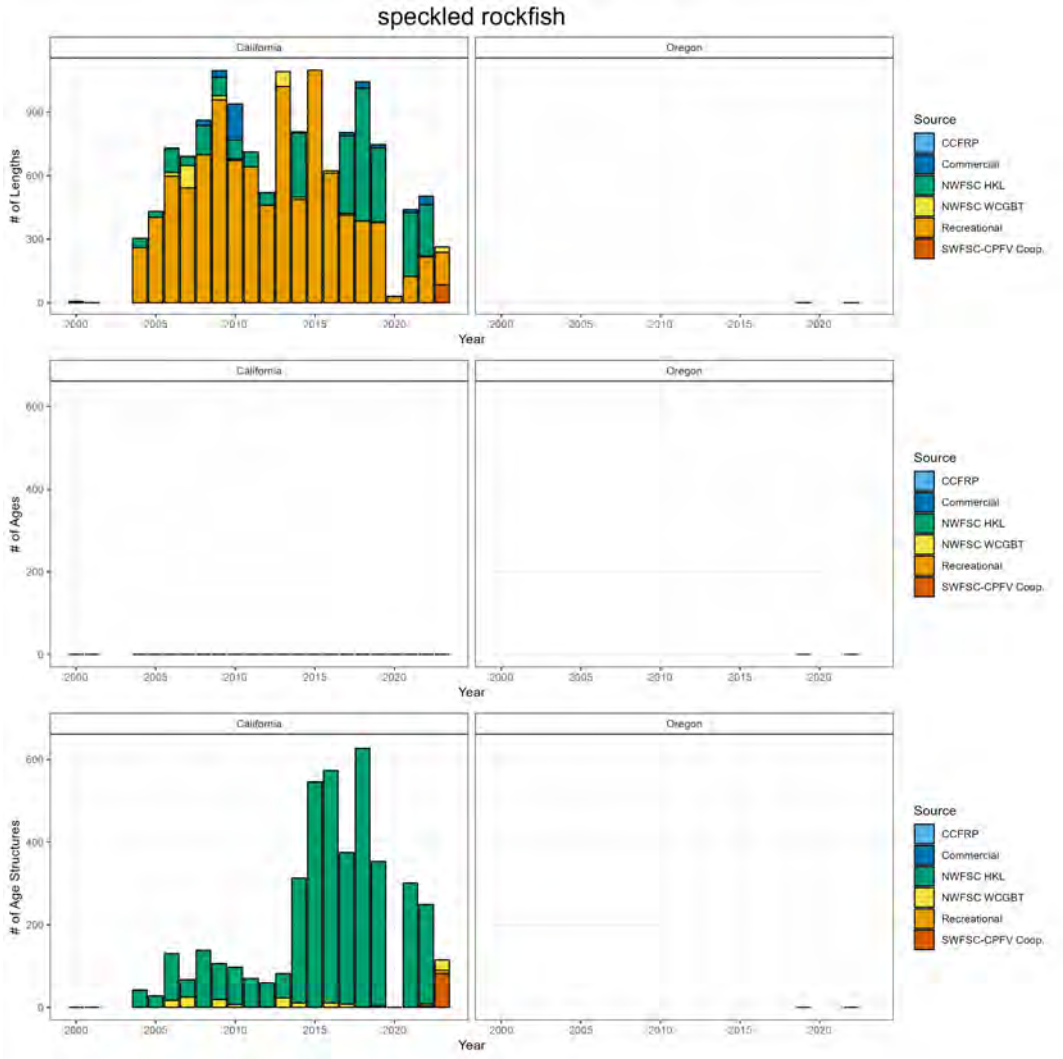

Figure 107: Total number of available lengths, ages, and age structures by data source by year for speckled rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

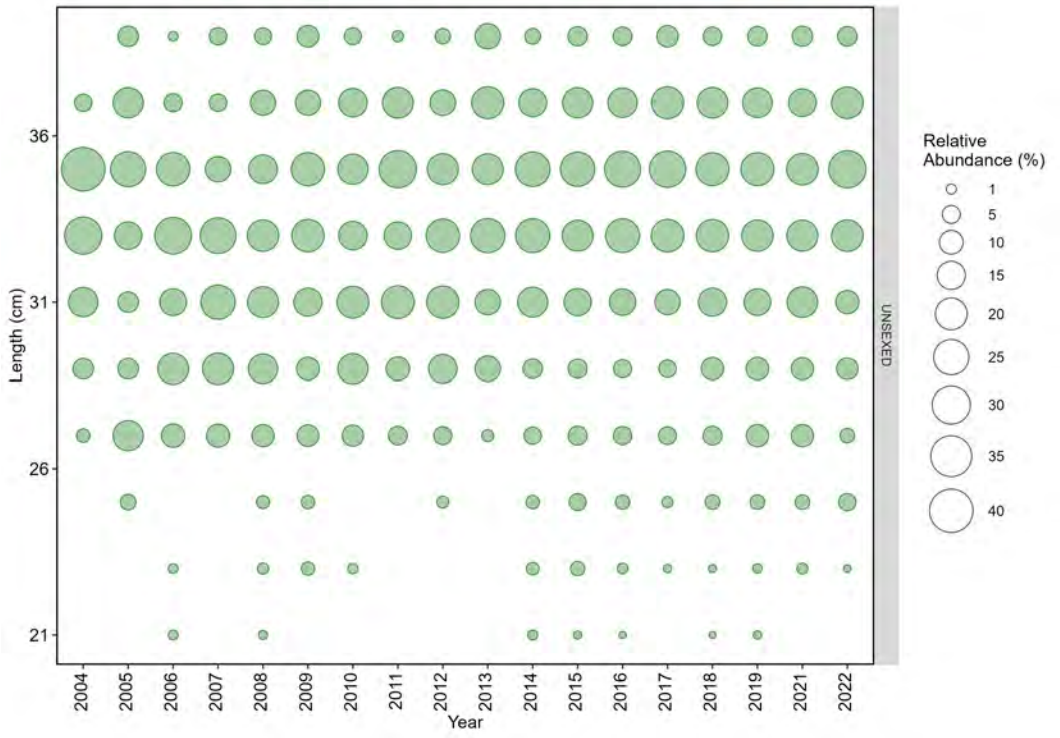

Figure 108: Length (cm) compostion data from the NWFSC Hook and Line survey for speckled rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Splitnose rockfish

The most recent assessment of splitnose rockfish was a benchmark assessment conducted in 2009. Across available data, splitnose rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 128 positive tows per year.

Table 69: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for splitnose rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	17,558	0	1,311
California	NWFSC WCGBT	32,476	1,568	5,866
Oregon	Commercial	12,509	0	12,266
Oregon	NWFSC WCGBT	16,505	1,011	3,288
Washington	Commercial	3,175	3	990
Washington	NWFSC WCGBT	3,703	327	771

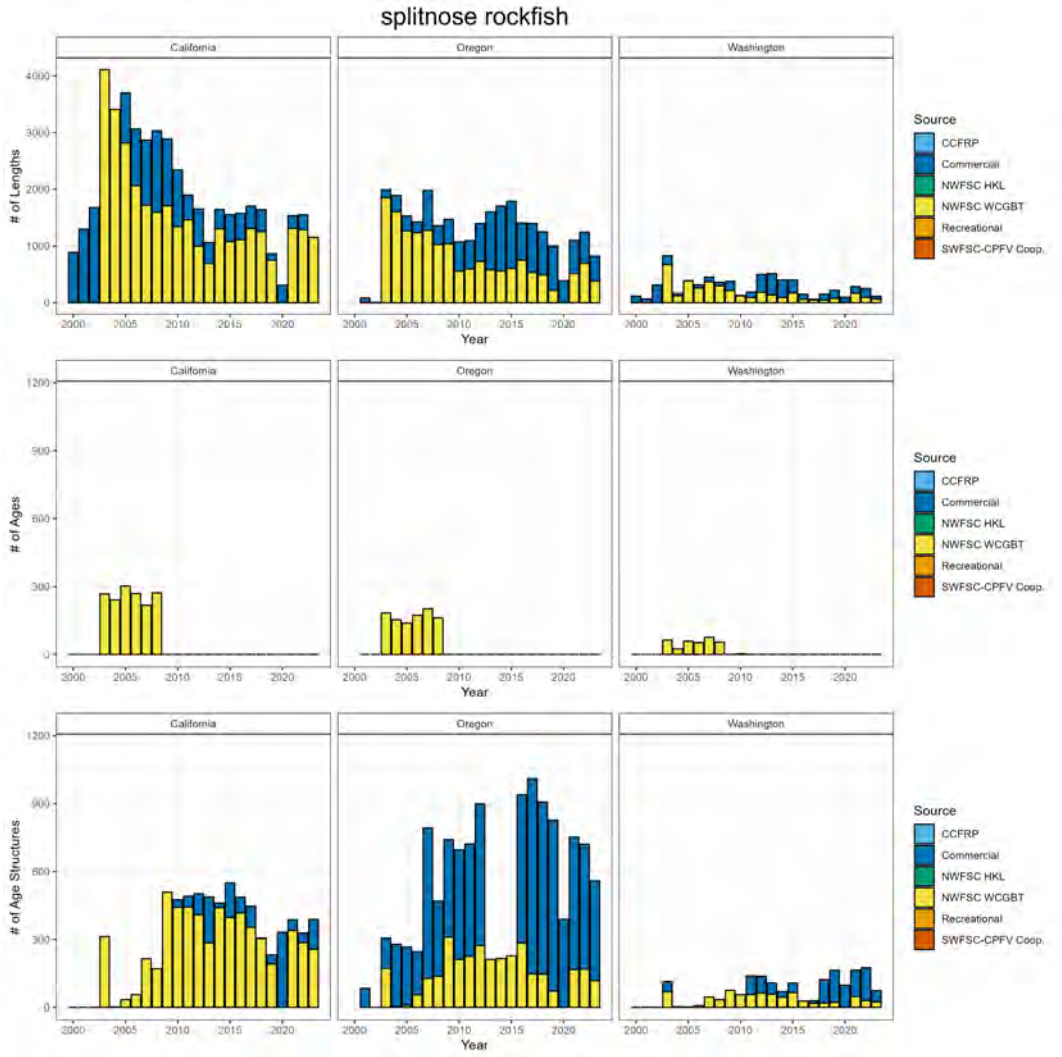

Figure 109: Total number of available lengths, ages, and age structures by data source by year for splitnose rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

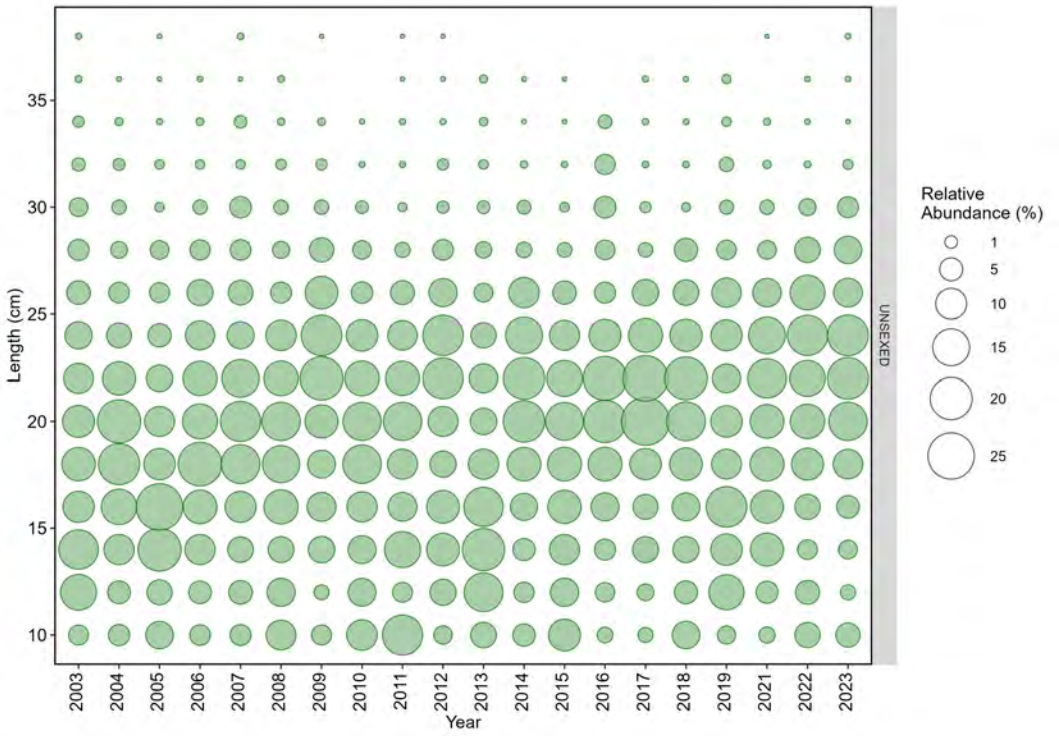

Figure 110: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for splitnose rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Table 70: The median length (cm) associated with fish age 2 or younger for splitnose rockfish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	7
1	9
2	12

Squarespot rockfish

The most recent assessment of squarespot rockfish was a data-moderate assessment conducted in 2021. Across available data, squarespot rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 10 positive tows per year and the NWFSC HKL survey has an average of 26 positive sets per year the area south of Point Conception in California.

Table 71: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for squarespot rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	5	0	0
California	Commercial	116	0	29
California	NWFSC HKL	1,934	344	1,590
California	NWFSC WCGBT	4,760	402	1,140
California	Recreational	17,587	0	12
California	SWFSC-CPFV Coop.	2	0	2
Oregon	NWFSC WCGBT	4	1	1

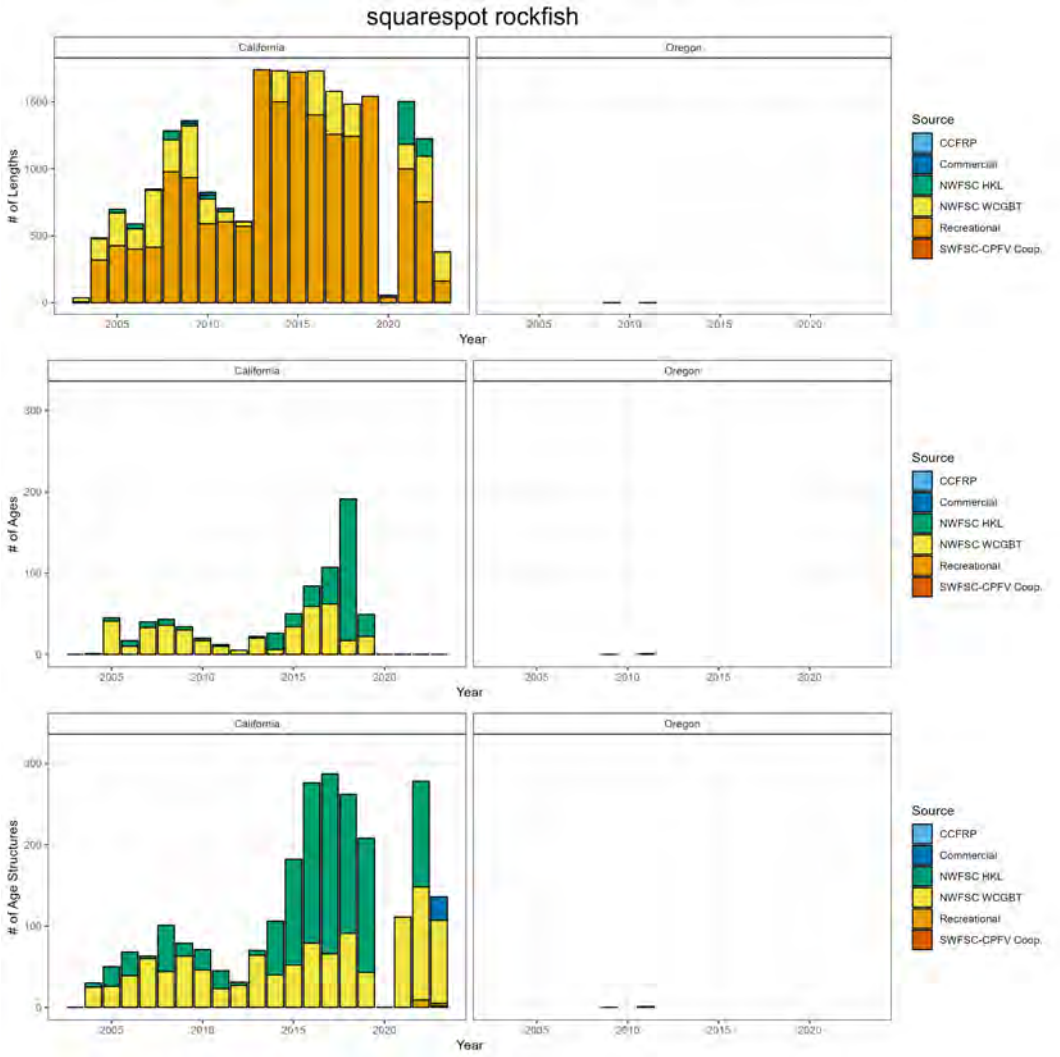

Figure 111: Total number of available lengths, ages, and age structures by data source by year for squarespot rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

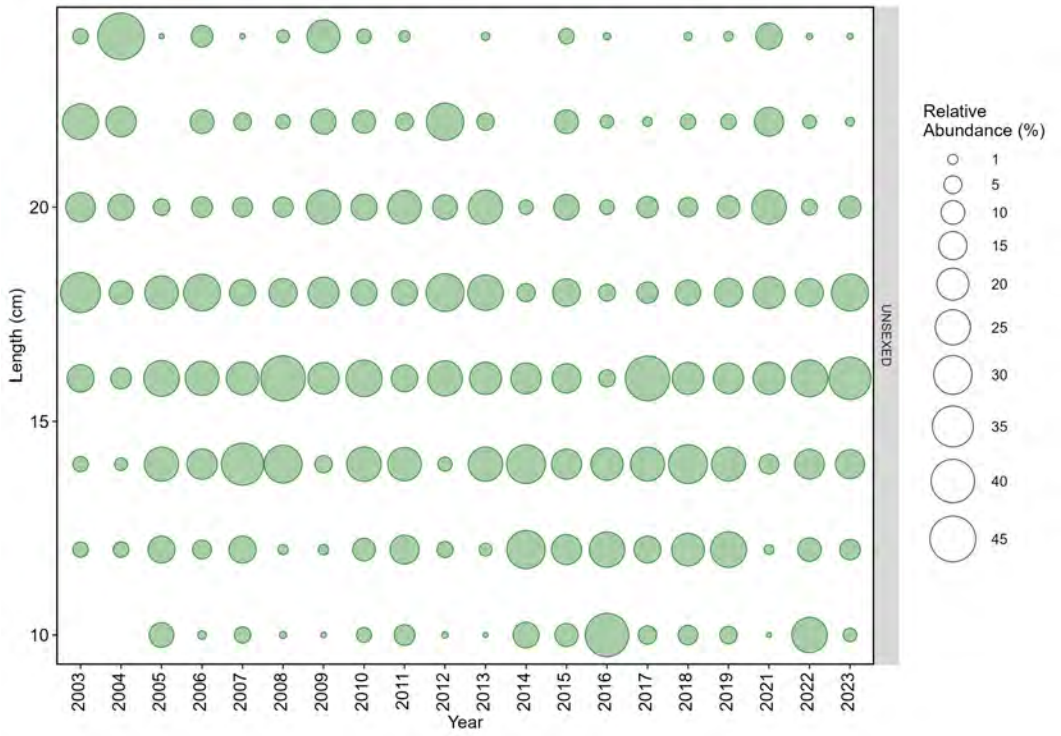

Figure 112: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for squarespot rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

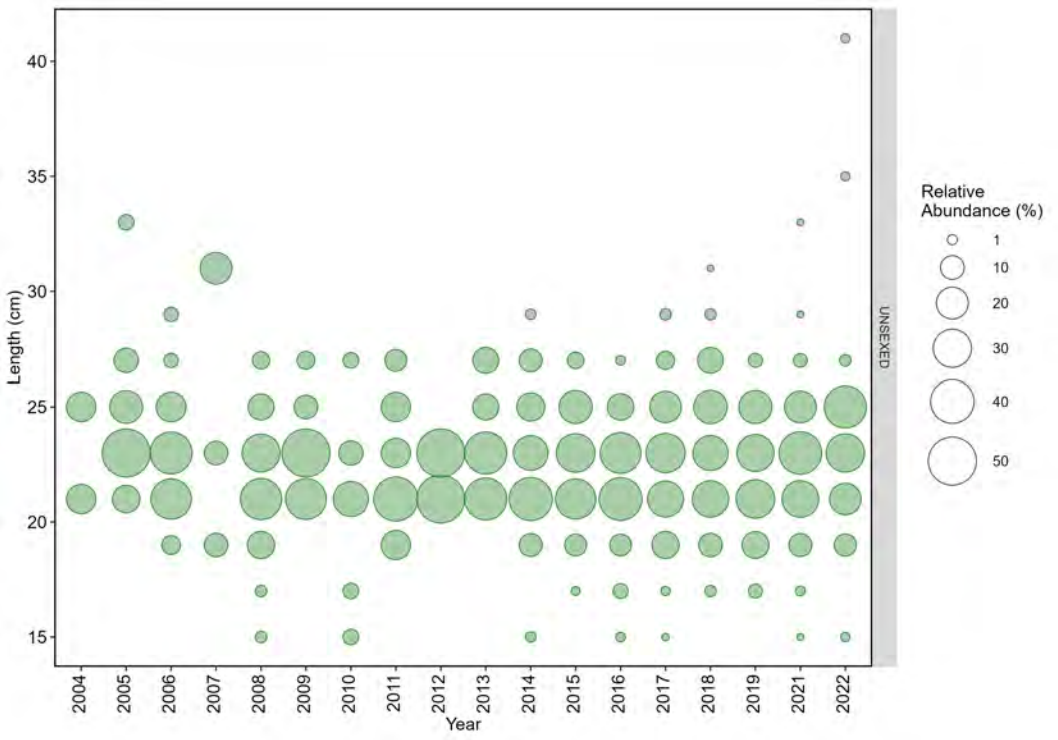

Figure 113: Length (cm) compostion data from the NWFSC Hook and Line survey for squarespot rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Starry flounder

The most recent assessment of starry flounder was a data-limited assessment conducted in 2010. Across available data, starry flounder have been observed and sampled by both the commercial and recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 9 positive tows per year.

Table 72: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for starry flounder.

State	Source	Lengths	Ages	Age Structures
California	Commercial	4,086	0	0
California	NWFSC WCGBT	386	0	349
California	Recreational	535	0	0
Oregon	Commercial	2,933	0	2,788
Oregon	NWFSC WCGBT	91	0	76
Oregon	Recreational	176	0	0
Washington	Commercial	11	0	11
Washington	NWFSC WCGBT	68	0	68
Washington	Recreational	92	0	8

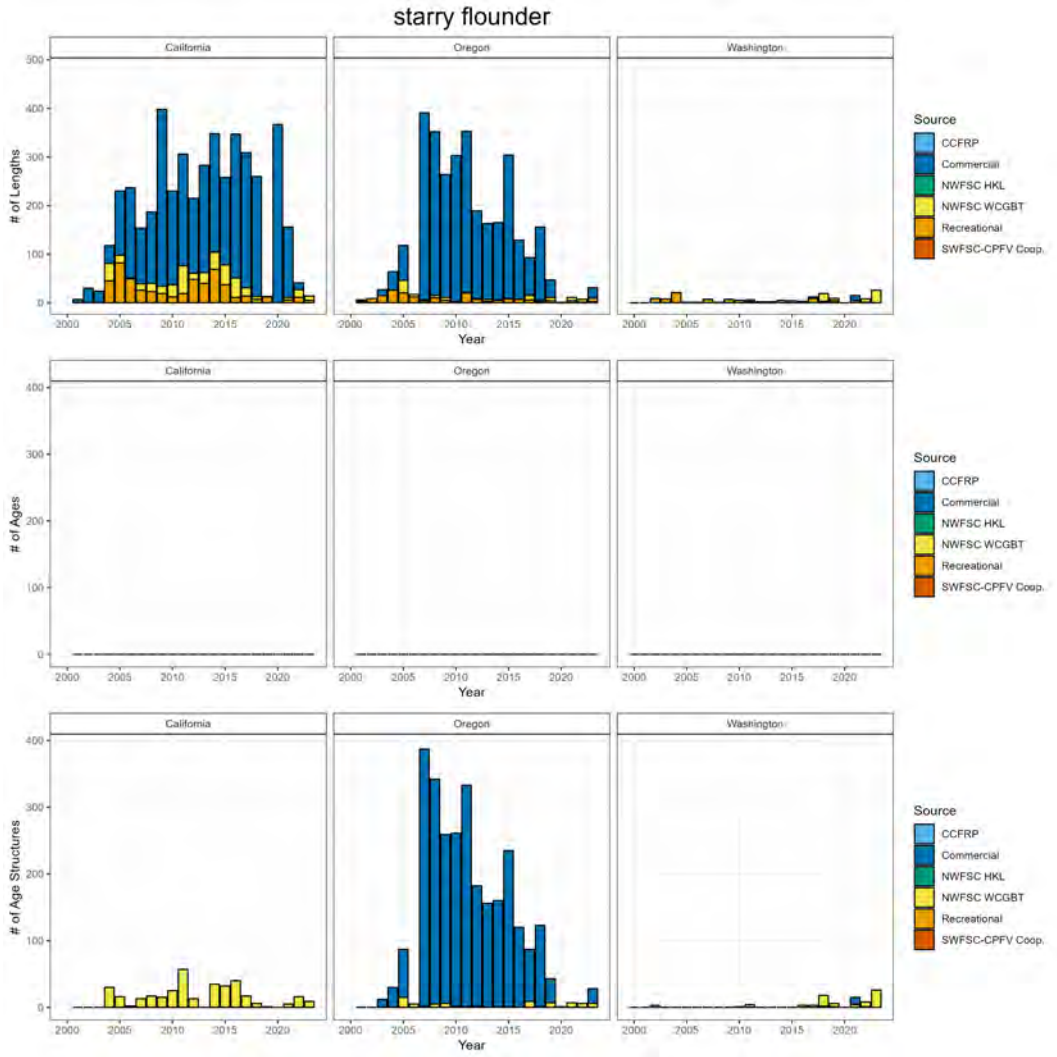

Figure 114: Total number of available lengths, ages, and age structures by data source by year for starry flounder. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Starry rockfish

The most recent assessment of starry rockfish was a data-limited assessment conducted in 2010. Across available data, starry rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 2 positive tows per year and the NWFSC HKL survey has an average of 47 positive sets per year the area south of Point Conception in California.

Table 73: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for starry rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	208	0	0
California	Commercial	676	0	65
California	NWFSC HKL	2,721	0	2,721
California	NWFSC WCGBT	86	0	80
California	Recreational	34,688	0	73
California	SWFSC-CPFV Coop.	110	0	110

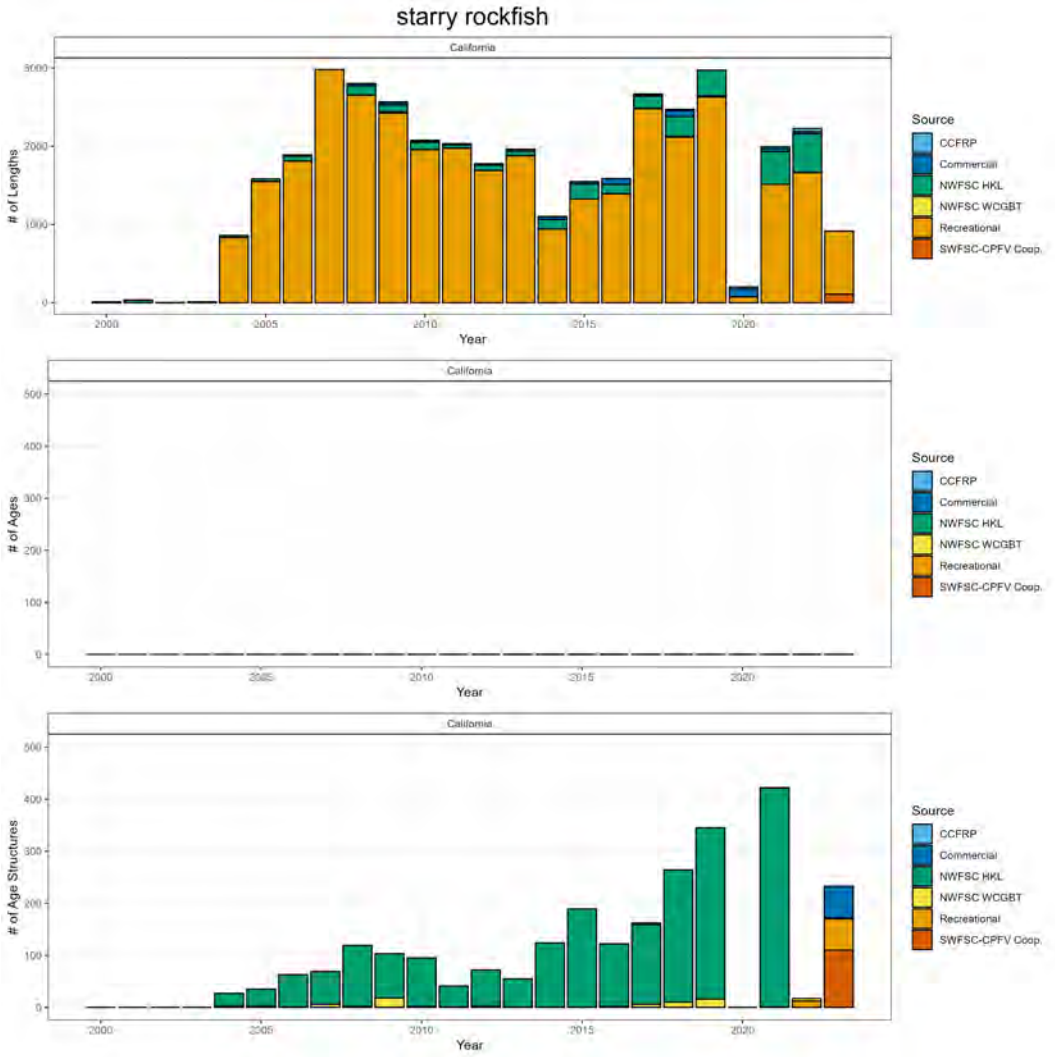

Figure 115: Total number of available lengths, ages, and age structures by data source by year for starry rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

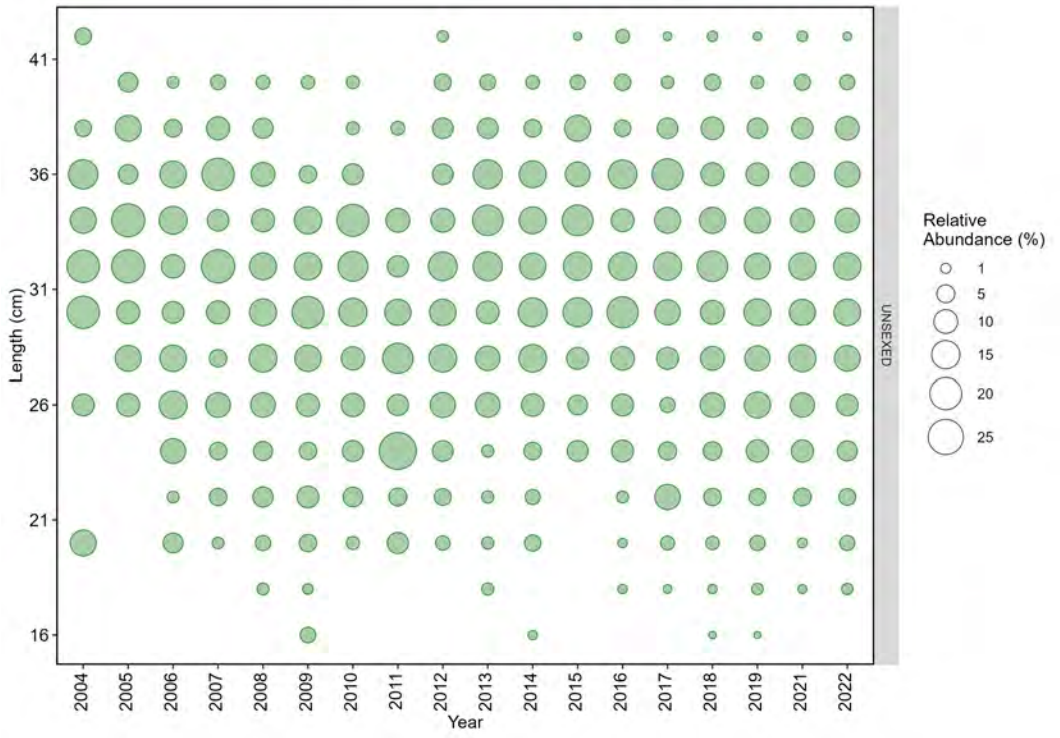

Figure 116: Length (cm) compostion data from the NWFSC Hook and Line survey for starry rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Stripetail rockfish

The most recent assessment of stripetail rockfish was a data-limited assessment conducted in 2010. Across available data, stripetail rockfish have been observed and sampled by recreational fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 139 positive tows per year.

Table 74: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for stripetail rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	776	0	0
California	NWFSC HKL	2	0	2
California	NWFSC WCGBT	41,014	0	8,326
California	Recreational	82	0	0
Oregon	Commercial	1,699	0	1,661
Oregon	NWFSC WCGBT	8,084	0	2,073
Washington	NWFSC WCGBT	1,667	0	564

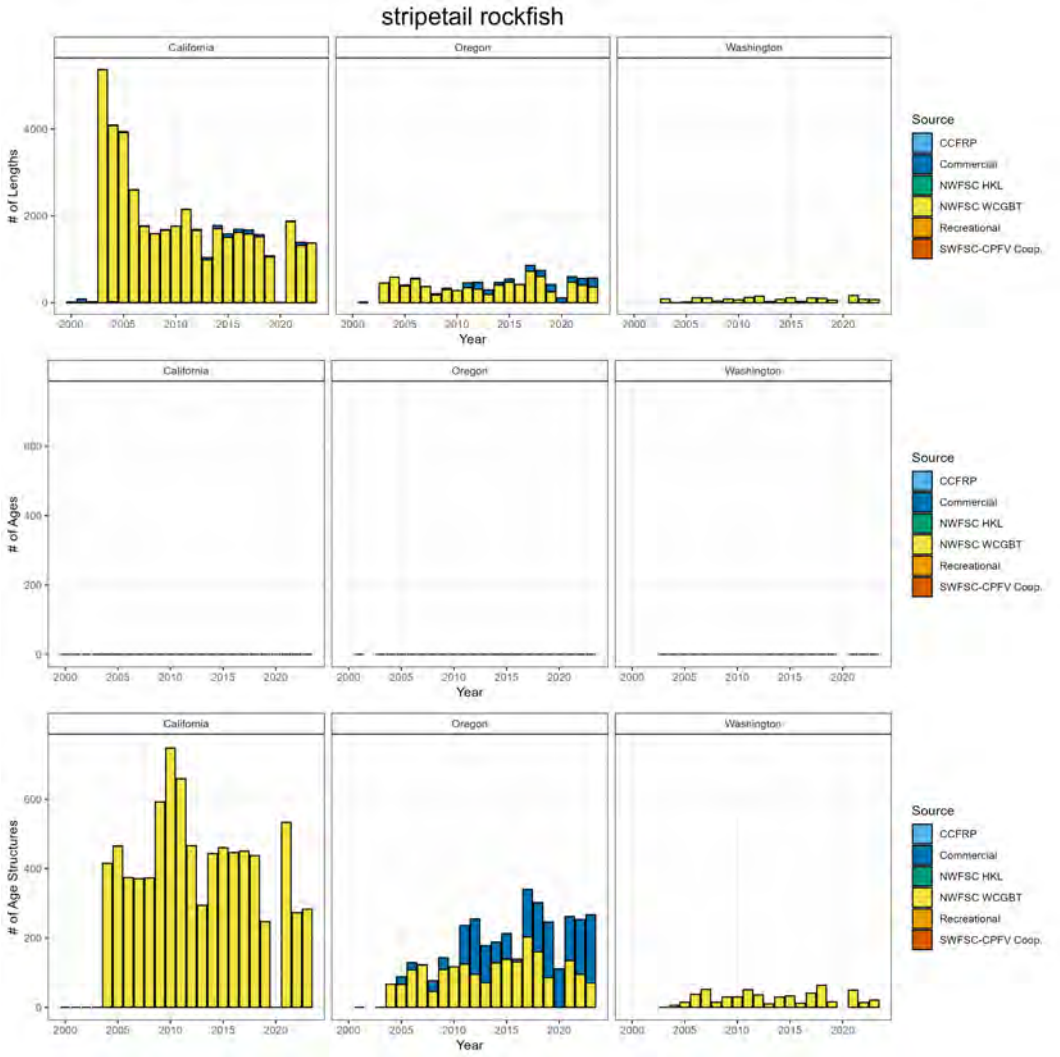

Figure 117: Total number of available lengths, ages, and age structures by data source by year for stripetail rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

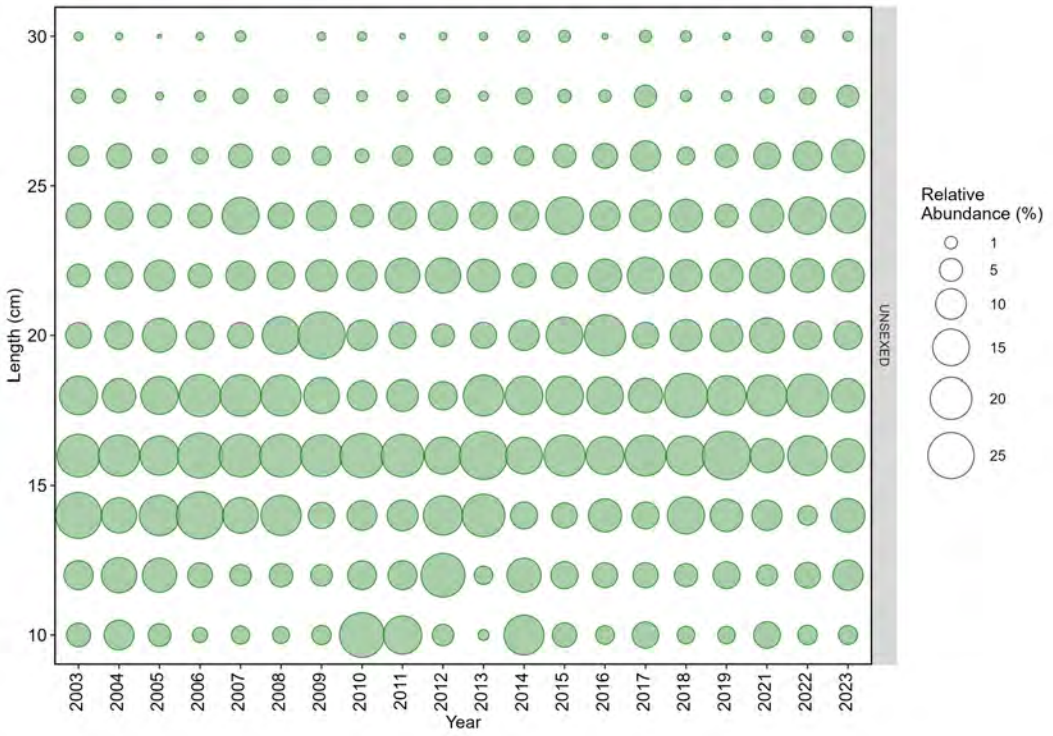

Figure 118: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for stripetail rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Treefish

The most recent assessment of treefish was a data-limited assessment conducted in 2010. Across available data, treefish have been observed and sampled by both commercial and recreational fisheries.

Table 75: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for treefish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	685	0	0
California	Commercial	988	0	0
California	NWFSC HKL	7	0	7
California	NWFSC WCGBT	1	0	1
California	Recreational	11,087	0	8
California	SWFSC-CPFV Coop.	23	0	23

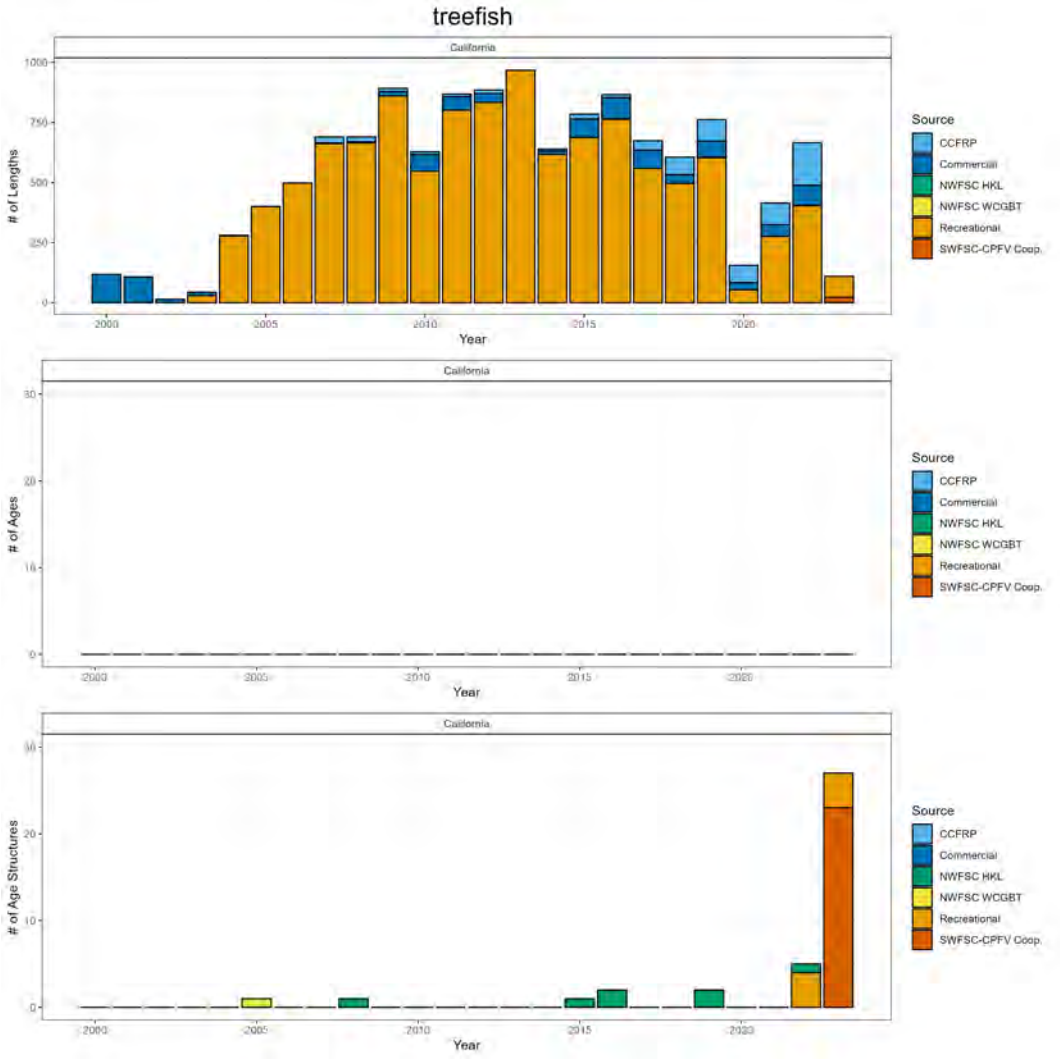

Figure 119: Total number of available lengths, ages, and age structures by data source by year for treefish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Vermilion and sunset rockfish

The most recent assessment of vermilion and sunset rockfish was a benchmark assessment conducted in 2021. Across available data, vermilion and sunset rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 12 positive tows per year and the NWFSC HKL survey has an average of 101 positive sets per year the area south of Point Conception in California.

Table 76: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for vermilion and sunset rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	5,780	0	0
California	Commercial	8,030	0	775
California	NWFSC HKL	27,812	2,565	25,247
California	NWFSC WCGBT	3,354	1,754	638
California	Recreational	140,885	0	595
California	SWFSC-CPFV Coop.	432	0	432
Oregon	Commercial	2,783	1,121	1,184
Oregon	NWFSC WCGBT	2	2	0
Oregon	Recreational	14,490	1,315	1,165
Washington	Recreational	1,528	771	199

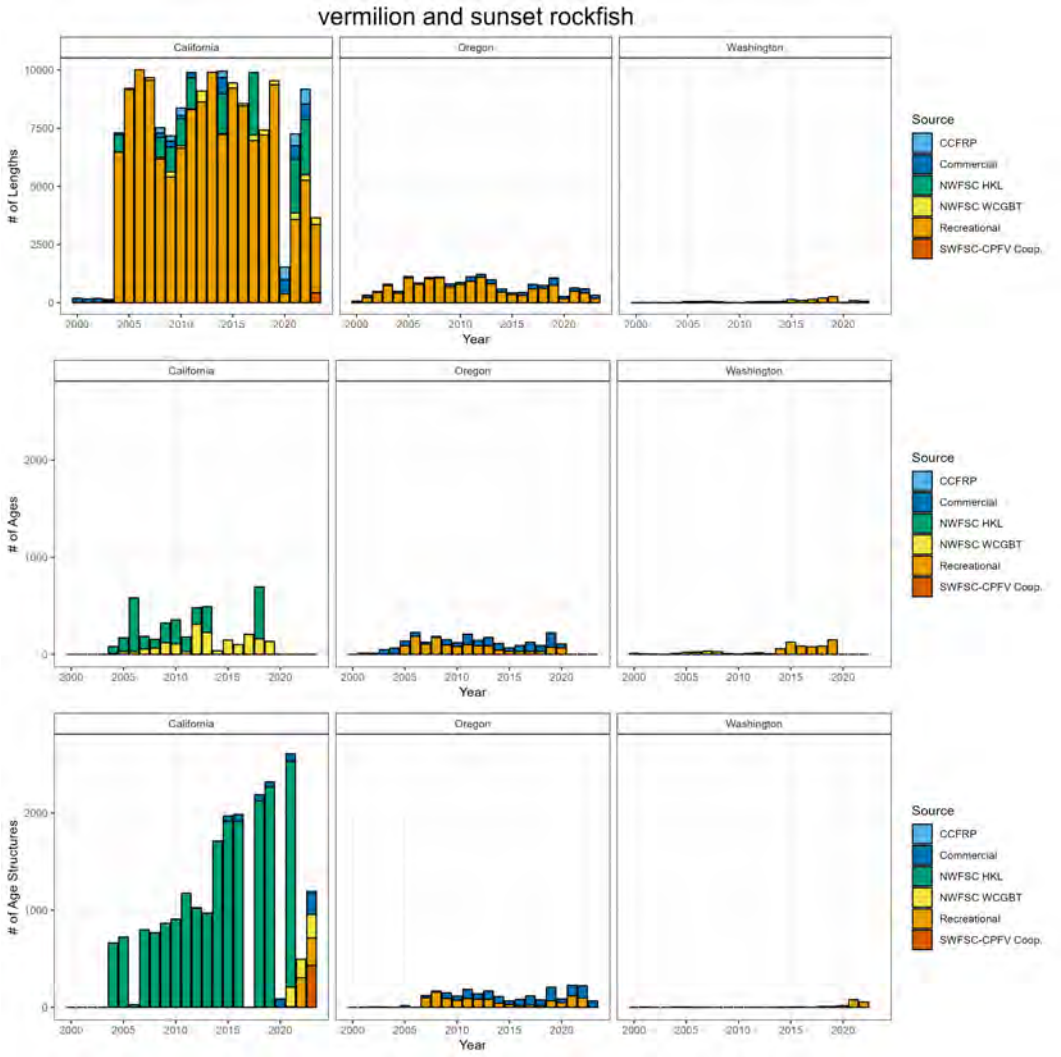

Figure 120: Total number of available lengths, ages, and age structures by data source by year for vermilion and sunset rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

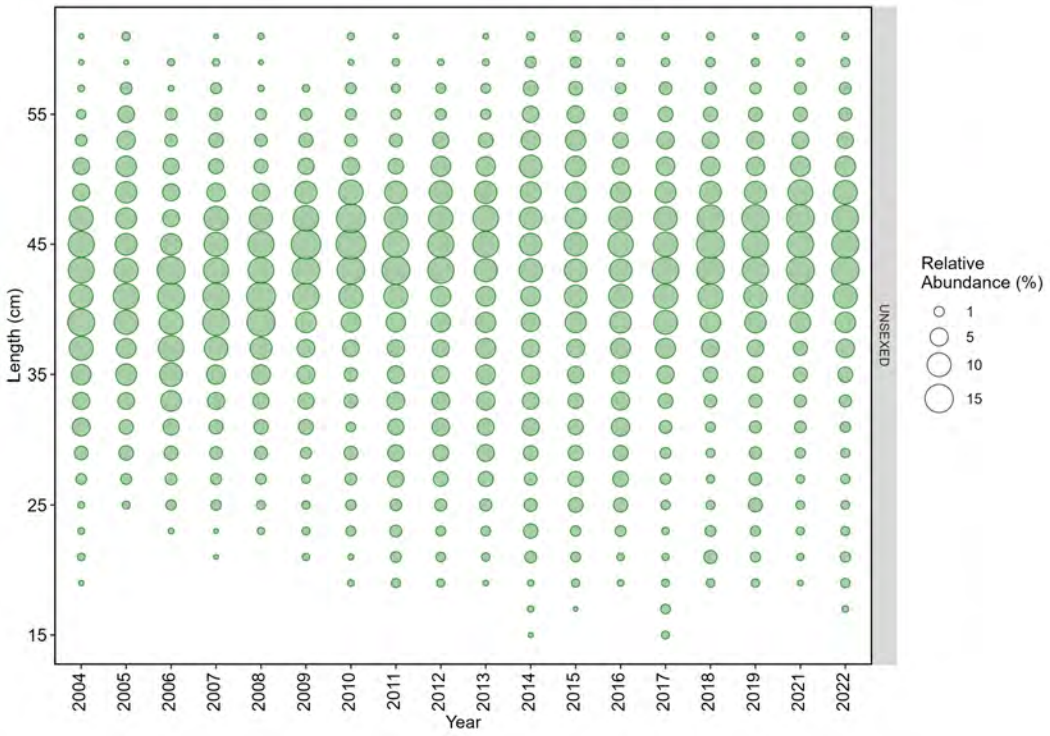

Figure 121: Length (cm) compostion data from the NWFSC Hook and Line survey for vermilion and sunset rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Widow rockfish

The most recent assessment of widow rockfish was an update assessment conducted in 2019. Across available data, widow rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 25 positive tows per year and the NWFSC HKL survey has an average of 15 positive sets per year the area south of Point Conception in California.

Table 77: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for widow rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	17	0	0
California	Commercial	9,962	1,884	3,606
California	NWFSC HKL	858	0	858
California	NWFSC WCGBT	1,679	990	172
California	Recreational	7,217	0	14
California	SWFSC-CPFV Coop.	12	0	12
Oregon	Commercial	34,261	10,611	19,706
Oregon	NWFSC WCGBT	1,862	1,002	221
Oregon	Recreational	6,419	0	0
Washington	Commercial	18,999	10,059	4,946
Washington	NWFSC WCGBT	1,041	515	76
Washington	Recreational	4,162	2,328	1,149

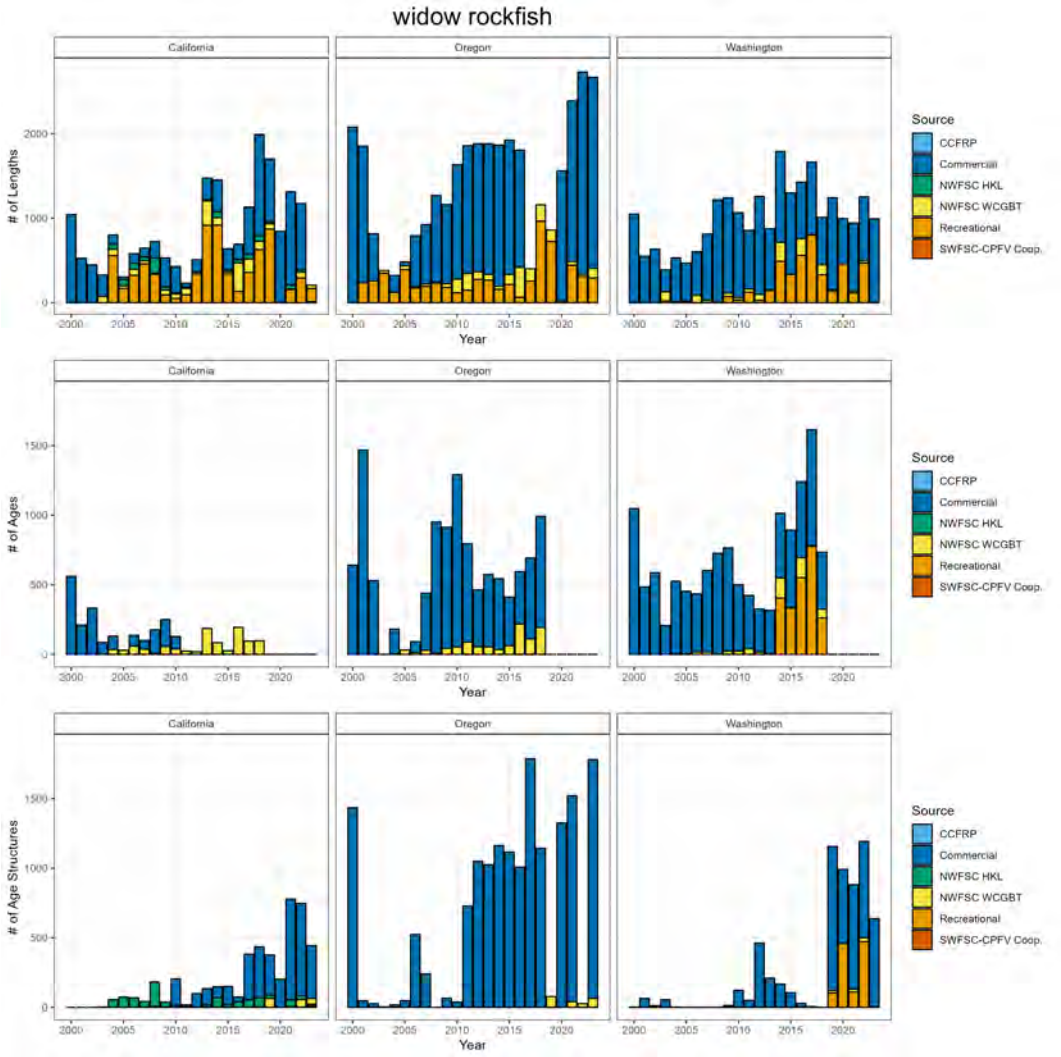

Figure 122: Total number of available lengths, ages, and age structures by data source by year for widow rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

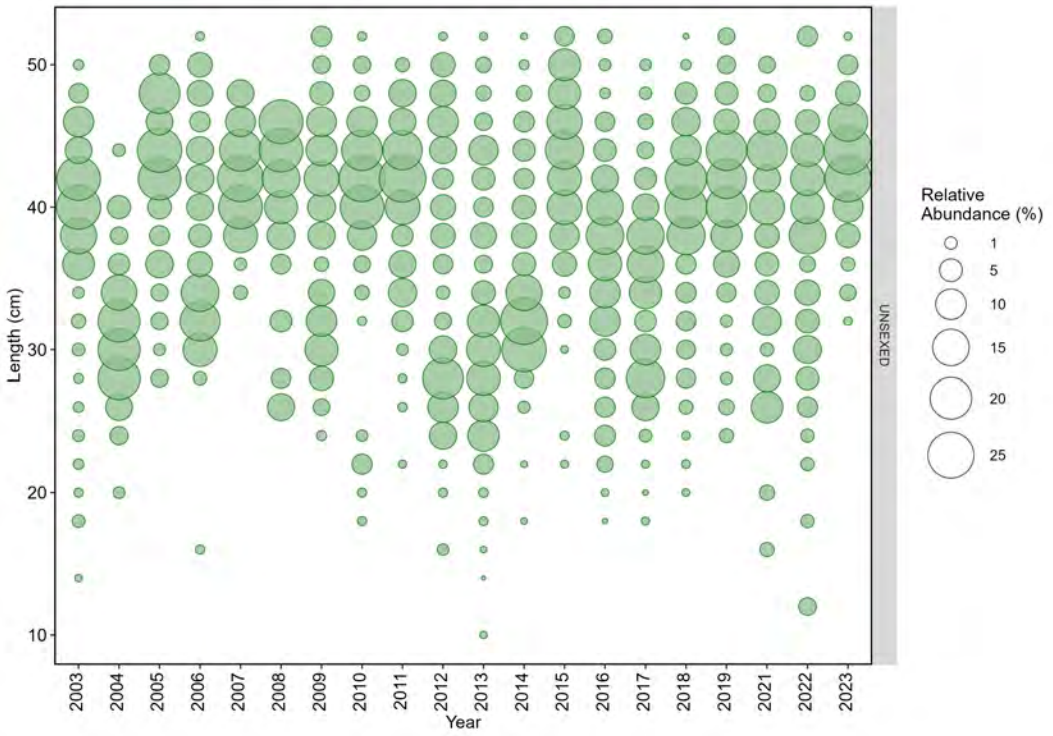

Figure 123: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for widow rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

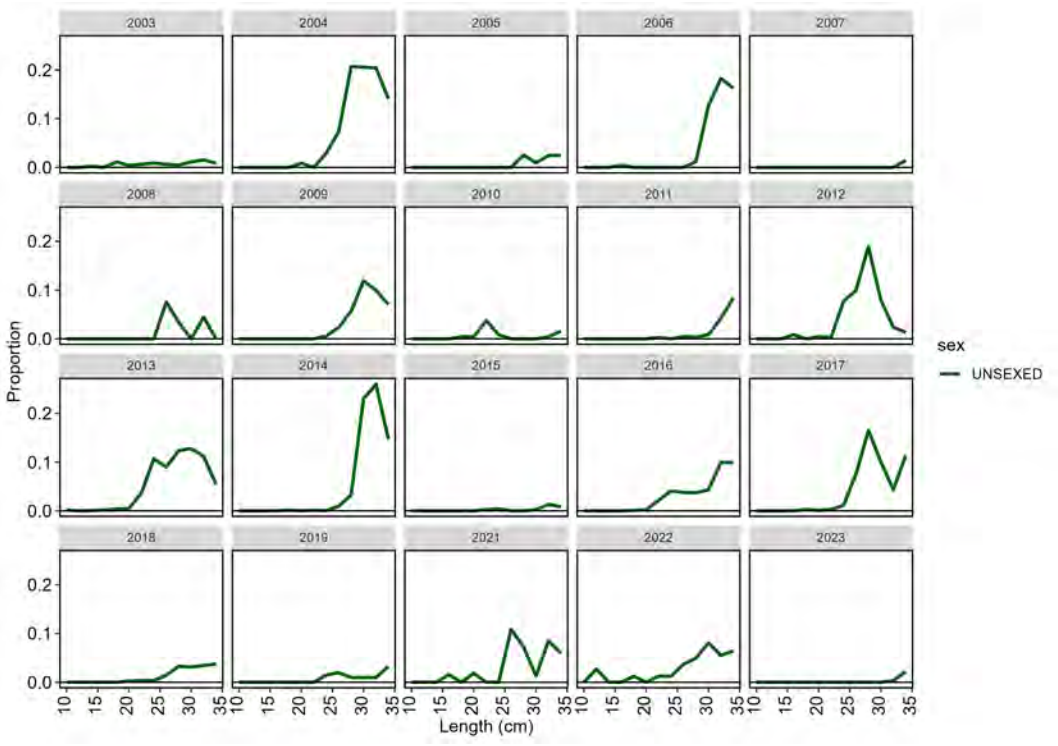

Figure 124: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey with fish associated associated with age 5 or younger for widow rockfish. The most recent assessment of widow rockfish in 2019 estimated large recruitments (i.e., greater than 0.50) in 2004, 2008, 2010, 2013, and 2014.

Table 78: The median length (cm) associated with fish age 5 or younger for widow rockfish based on aged fish from the NWFSC West Coast Groundfish Bottom Trawl survey.

Age	Length (cm)
0	7.0
2	22.0
3	25.5
4	29.0
5	32.5

Yelloweye rockfish

The most recent assessment of yelloweye rockfish was a benchmark assessment conducted in 2017. Across available data, yelloweye rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 15 positive tows per year and the NWFSC HKL survey has an average of 4 positive sets per year the area south of Point Conception in California.

Table 79: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for yelloweye rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	212	0	0
California	Commercial	258	0	94
California	NWFSC HKL	132	0	132
California	NWFSC WCGBT	158	101	57
California	Recreational	1,093	0	446
Oregon	Commercial	1,459	449	655
Oregon	NWFSC WCGBT	433	311	121
Oregon	Recreational	2,471	0	0
Washington	Commercial	2,248	867	737
Washington	NWFSC WCGBT	402	271	131
Washington	Recreational	584	323	231

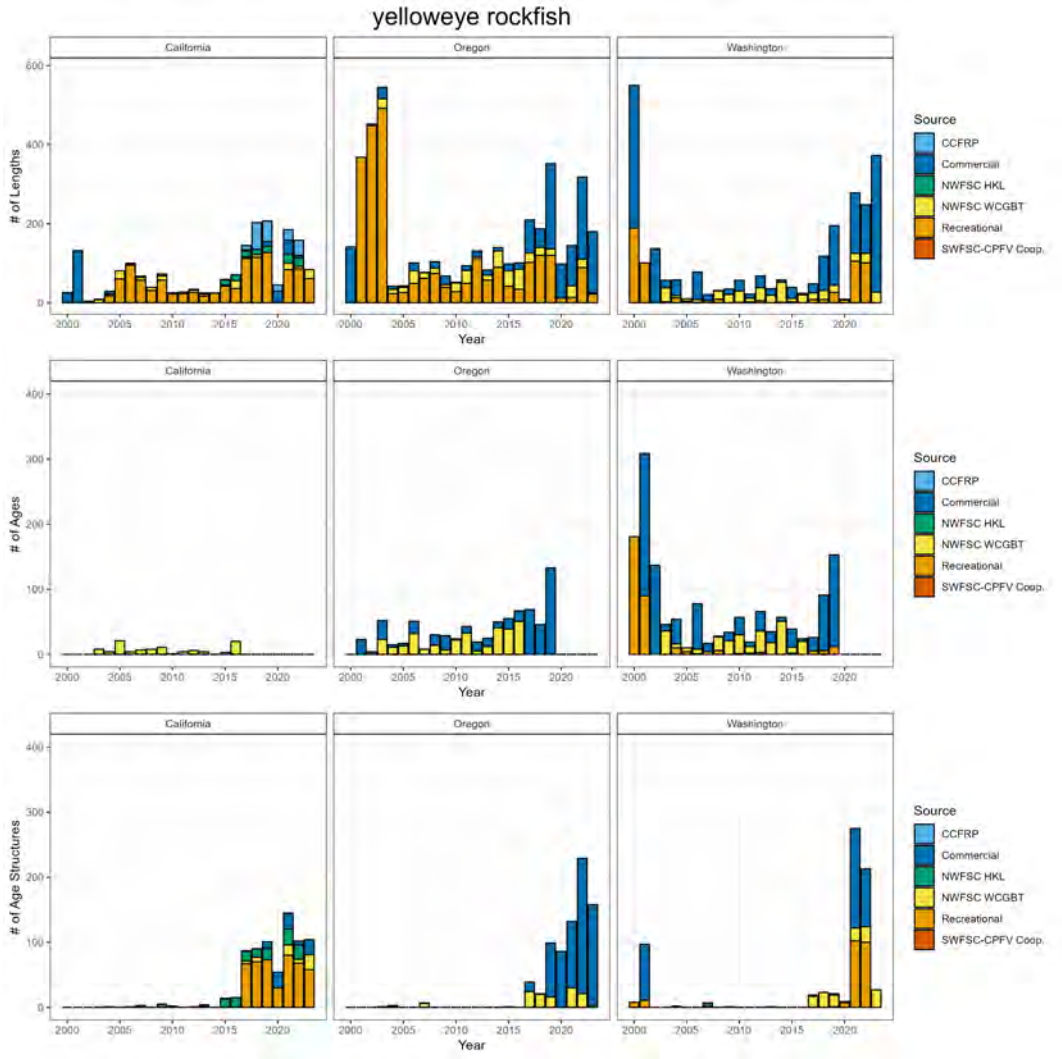

Figure 125: Total number of available lengths, ages, and age structures by data source by year for yelloweye rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

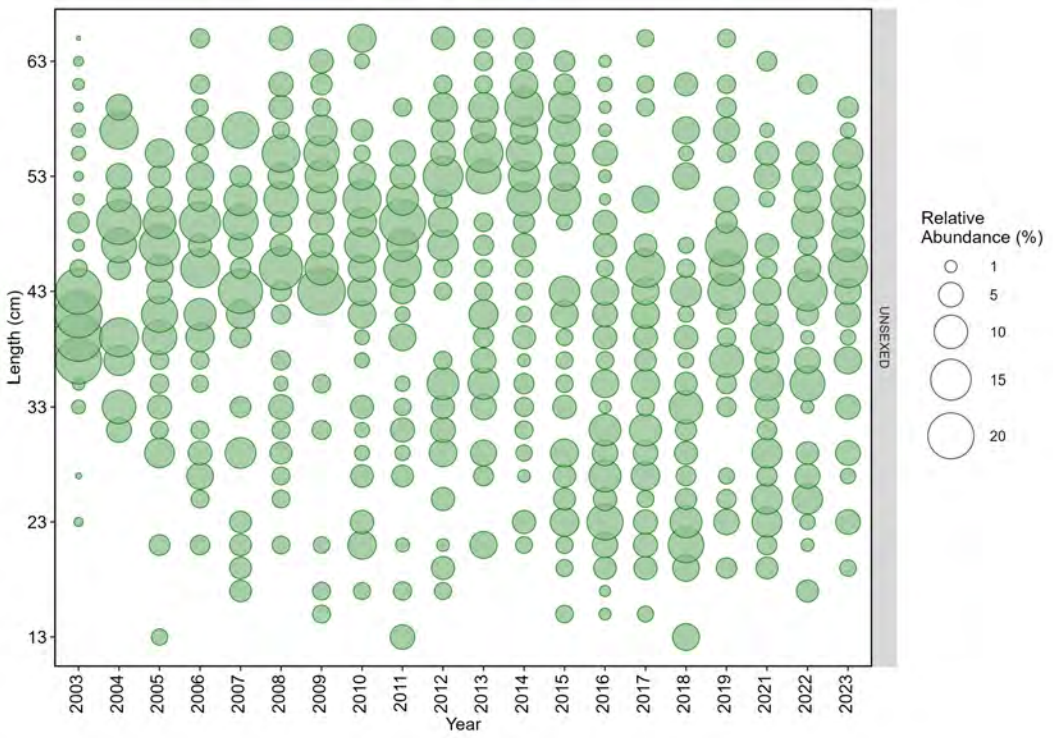

Figure 126: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for yelloweye rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Yellowmouth rockfish

The most recent assessment of yellowmouth rockfish was a data-limited assessment conducted in 2010. Across available data, yellowmouth rockfish have been observed and sampled by commercial fisheries and the NWFSC WCGBT survey. The NWFSC WCGBT survey has an average of 2 positive tows per year.

Table 80: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for yellowmouth rockfish.

State	Source	Lengths	Ages	Age Structures
California	Commercial	23	0	0
California	NWFSC WCGBT	1	0	1
Oregon	Commercial	2,856	0	2,840
Oregon	NWFSC WCGBT	530	0	261
Oregon	Recreational	49	0	0
Washington	Commercial	473	1	344
Washington	NWFSC WCGBT	52	0	52
Washington	Recreational	2	0	0

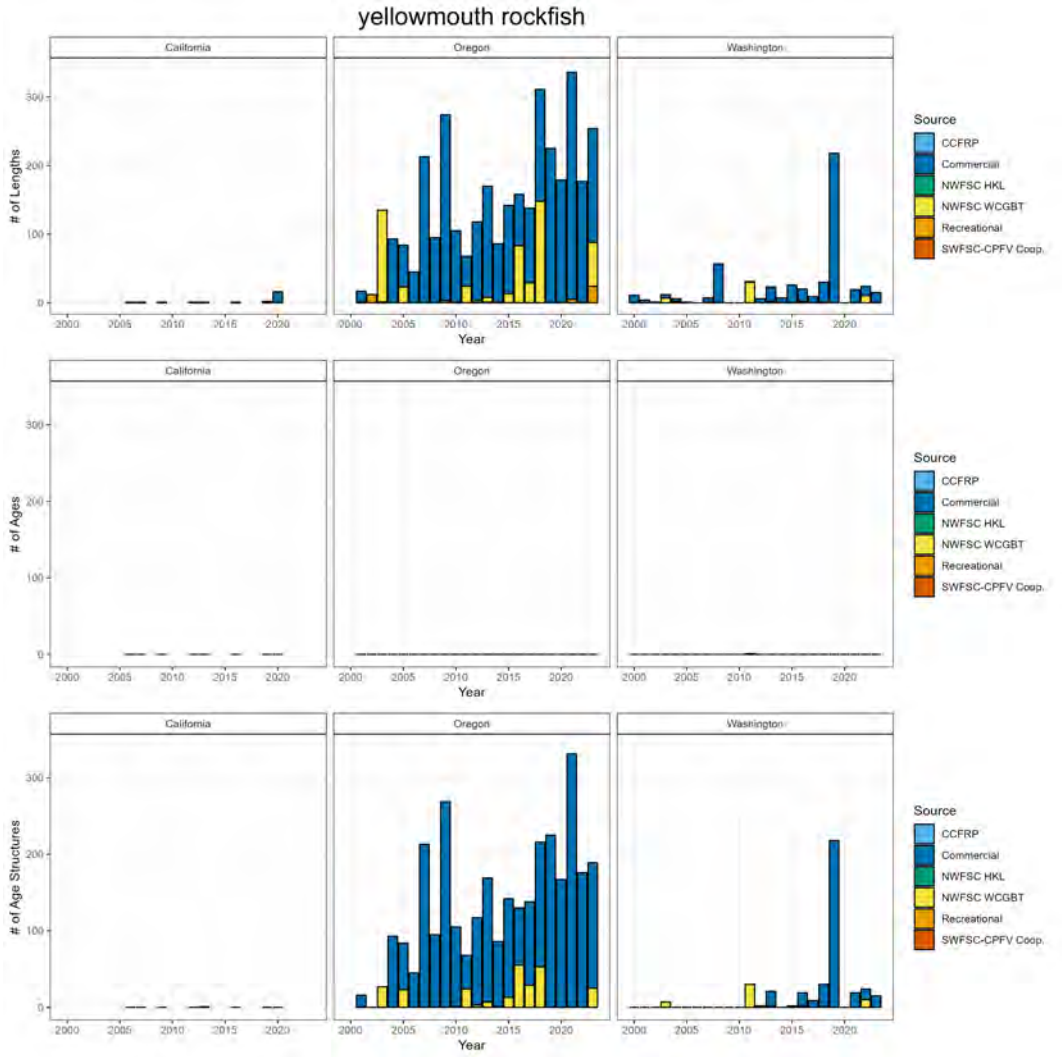

Figure 127: Total number of available lengths, ages, and age structures by data source by year for yellowmouth rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

Yellowtail rockfish

The most recent assessment of yellowtail rockfish was a benchmark assessment conducted in 2017. Across available data, yellowtail rockfish have been observed and sampled by both commercial and recreational fisheries and the NWFSC WCGBT and HKL surveys. The NWFSC WCGBT has a coastwide average of 46 positive tows per year and the NWFSC HKL survey has an average of 13 positive sets per year the area south of Point Conception in California.

Table 81: Total number of available lengths, ages, and unread age structures by data source and state between 2000-2023 for yellowtail rockfish.

State	Source	Lengths	Ages	Age Structures
California	CCFRP	4,610	0	0
California	Commercial	5,181	802	1,493
California	NWFSC HKL	1,794	124	1,670
California	NWFSC WCGBT	1,805	554	284
California	Recreational	68,270	0	312
California	SWFSC-CPFV Coop.	419	0	419
Oregon	Commercial	45,390	26,042	10,820
Oregon	NWFSC WCGBT	3,214	837	1,046
Oregon	Recreational	42,007	0	204
Washington	Commercial	38,139	27,186	1,262
Washington	NWFSC WCGBT	12,690	3,783	2,805
Washington	Recreational	13,775	7,327	25

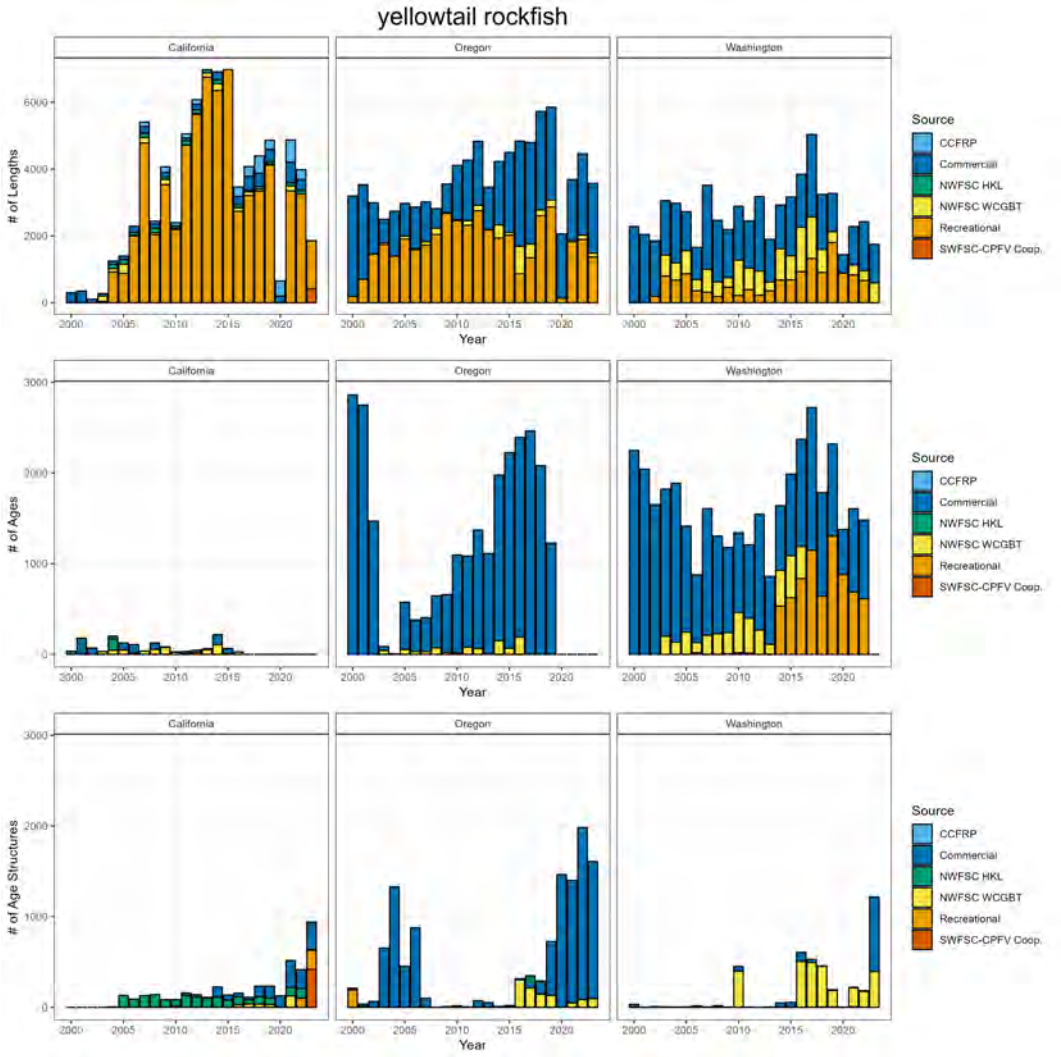

Figure 128: Total number of available lengths, ages, and age structures by data source by year for yellowtail rockfish. Note the y-axis is unique for the number of lengths plot row compared to the number of age and age structure plot rows.

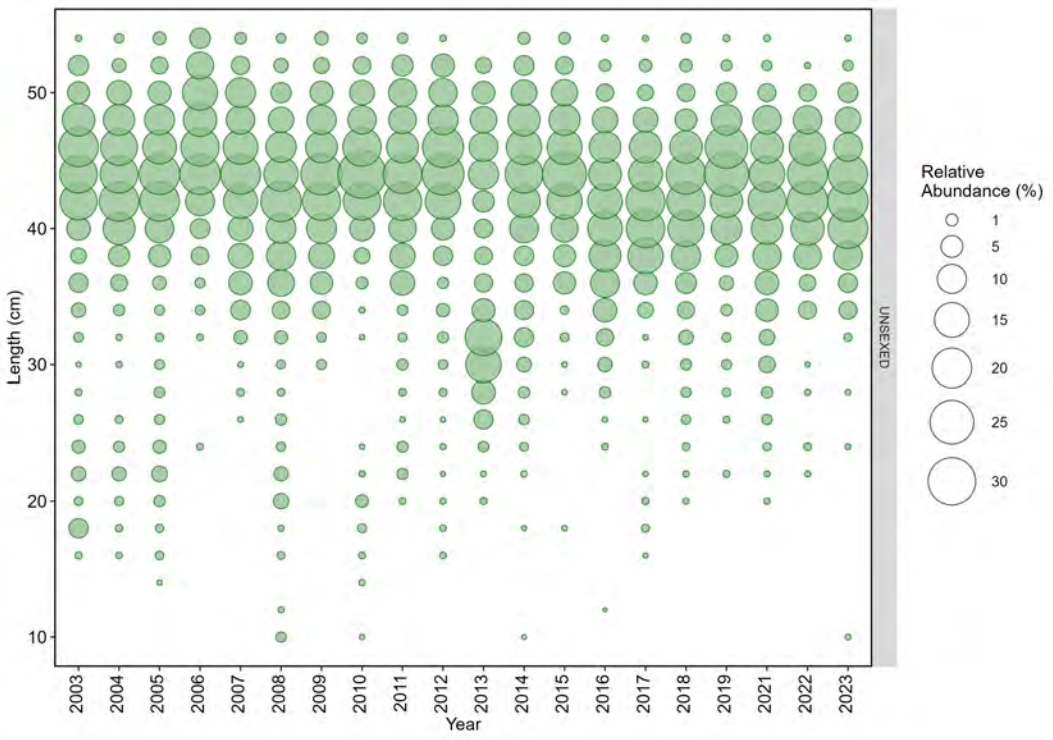

Figure 129: Length (cm) compostion data from the NWFSC West Coast Groundfish Bottom Trawl survey for yellowtail rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

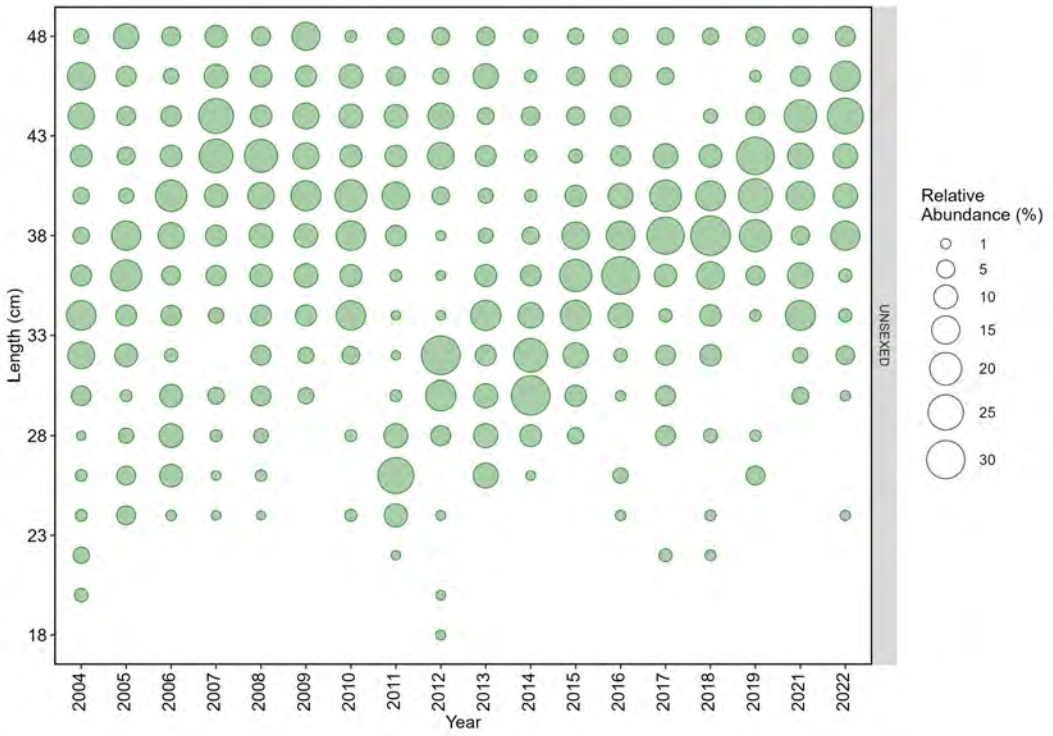

Figure 130: Length (cm) compostion data from the NWFSC Hook and Line survey for yellowtail rockfish. Size of the circles within a year indicate higher (larger circles) and lower (smaller circles) proportion observed by length bin.

Maturity data

Maturity samples for a wide range of West Coast groundfish species have been collected across a range of sources: NWFSC WCGBT survey, NWFSC HKL survey, Pacific hake survey, at-sea sampling of the Pacific hake fishery, and port sampling by ODFW and WDFW. Samples have been collected between 2009 - 2022. The following summary does not include collection from the 2023 NWFSC WCGBT and HKL surveys.

Table 82: Summary of the total number of collected and read maturity samples by species at the NWFSC.

Species	Collected	Read
arrowtooth flounder	254	0
aurora rockfish	567	567
bank rockfish	733	62
big skate	180	180
black rockfish	643	599
blackgill rockfish	126	126
blue and deacon rockfish	70	0
bocaccio	837	737
brown rockfish	46	0
canary rockfish	1228	1169
chilipepper	157	157
copper rockfish	182	182
cowcod	355	102
darkblotched rockfish	958	898
Dover sole	722	258
greenspotted rockfish	314	175
greenstriped rockfish	73	73
kelp greenling	8	8
Lingcod	1161	760
Longnose skate	508	508
longspine thornyhead	184	0
Mexican rockfish	1	1
olive rockfish	27	1
Pacific Cod	125	0
Pacific Hake	3815	2947
Pacific ocean perch	583	583
petrale sole	728	394
quilback rockfish	3	0
redbanded rockfish	333	0
rosy rockfish	59	39
rougheye and blackspotted rockfish	295	86
sablefish	1321	876
shortbelly rockfish	259	0

Table 82: Summary of the total number of collected and read maturity samples by species at the NWFSC. (*continued)*

Species	Collected	Read
shortspine thornyhead	1141	591
speckled rockfish	459	301
squarespot rockfish	118	118
starry flounder	213	0
stripetail rockfish	67	67
swordspine rockfish	89	89
vermilion and sunset rockfish	1643	1139
widow rockfish	270	50
yelloweye rockfish	624	97
yellowmouth rockfish	8	0
yellowtail rockfish	638	468

Acknowledgement

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