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ESTIMATES OF SUSTAINABLE YIELD FOR 50 DATA-POOR STOCKS IN THE PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

E.J. Dick
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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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Southwest Fisheries Science Center

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E.J. Dick
Alec D. MacCall

National Oceanic & Atmospheric Administration
National Marine Fisheries Service
Southwest Fisheries Science Center
Fisheries Ecology Division
110 Shaffer Road
Santa Cruz, California, USA 94920-1211

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U.S. DEPARTMENT OF COMMERCE
Gary F. Locke, Secretary
National Oceanic and Atmospheric Administration
Jane Lubchenco, Undersecretary for Oceans and Atmosphere
National Marine Fisheries Service
Eric C. Schwaab, Assistant Administrator for Fisheries

Abstract

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 requires Regional Fishery Management Councils to set annual catch limits for all stocks or stock complexes in Federal fishery management plans beginning in 2011. Most species listed in the Pacific Coast Groundfish Fishery Management Plan have not been assessed, in large part due to data limitations. Estimates of sustainable yield for many these species were previously based on undocumented, ad-hoc analyses. We present estimates of sustainable yield for 50 of these stocks using two recently developed models designed to inform management of data-poor stocks. These models rely on recently reconstructed time series of historical catch for west-coast groundfish species and species-specific information related to stock productivity. For this set of data-poor stocks, recent landings statistics reflect shifts in the relative importance of certain species to west-coast fisheries (e.g. increased catches of nearshore and slope rockfish species relative to shelf species), largely due to recent regulatory actions. We provide estimates of overfishing limits (OFLs) for each of the 50 stocks along with comparisons to recent catch levels. Our results suggest that status quo harvest levels range from light exploitation of some stocks to potential overfishing of others. This information could help inform decisions regarding prioritization of future stock assessments for unassessed species. OFLs are expressed as probability distributions, reflecting our uncertainty in model parameters. We select median values as point estimates of OFL, as this statistic is most consistent with National Standard 1 guidelines.

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Introduction

The Pacific Fishery Management Council's (PFMC's) Groundfish Fishery Management Plan (FMP) includes 90+ species in waters off Washington, Oregon, and California (PFMC, 2008). Since the establishment of the FMP in 1982 and as of 2010, 30 species have been assessed. Stock assessments typically serve as the basis for management reference points including the yield resulting from fishing at the F_{MSY} harvest rate, referred to as the overfishing limit (OFL) by the PFMC. However, insufficient data exist to produce full (age- or length-structured) assessments for many species. In the past, various methods have been used to estimate OFLs for these "data-poor" species. Examples include setting OFL equal to average or maximum catch, or the product of an assumed mortality rate and biomass estimates from fishery-independent surveys. Ad-hoc precautionary reductions were sometimes applied in recognition of sources of uncertainty (e.g. scientific or management uncertainty).

Recent catch data, by themselves, have little to no scientific basis as an estimate of OFL as they do not take into account essential factors such as productivity or relative stock status. Rogers et al. (1996) attempted to incorporate these factors using an F=M approach combined with trawl survey biomass estimates. They applied this method to 13 rockfish species, but assessed all "remaining rockfish" as an assemblage. With the exception of the existing single-species assessments and the work by Rogers et al., written records describing the methods and data used to establish many existing groundfish OFLs either do not exist, or they contain insufficient detail to reconstruct the result.

We sought to improve upon existing catch-based OFL estimates for unassessed stocks in the Pacific Coast Groundfish FMP, estimating sustainable yields for 50 unassessed stocks using two recently-developed catch-based methods. Depletion-corrected average catch (DCAC) estimates a sustainable yield from average catch by accounting for unsustainable 'windfall' yield resulting from fishing down of the resource (MacCall, 2009). DCAC uses Monte Carlo simulation to propagate uncertainty in life history parameters and stock status, resulting in a distribution of yield that was likely to be sustainable. Dick and MacCall (in prep.) describe a new method, depletion-based stock reduction analysis (DB-SRA), that extends DCAC by 1) restoring the temporal link between production and biomass, 2) integrating alternative hypotheses regarding changes in abundance during the historical catch period, and 3) explicitly providing distributions of OFL over time.

Background

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSRA) requires Regional Fishery Management Councils to set annual catch limits (ACLs) for all stocks or stock complexes in Federal fishery management plans beginning in 2011. The MSRA does not define ACLs, so the National Standard 1 (NS1) guidelines specify a framework describing the relationship between OFLs, acceptable biological catch (ABCs), and ACLs: OFL ≥ ABC ≥ ACL (74 Federal Register 3178 (January 16, 2009)). Following this framework, the first step in setting an ACL is to determine the OFL. The guidelines suggest that regional scientific and statistical committees (SSCs) adjust OFLs to account for scientific uncertainty, recommending a control rule that reduces the OFL to an ABC. ACLs can then be set equal to or lower than the ABC by the regional councils.

The Groundfish Subcommittee of the PFMC's SSC reviewed the methods applied in this study during a joint meeting with the Groundfish Management Team (GMT) in Seattle, WA, January 26-28, 2010. The Groundfish subcommittee endorsed application of DB-SRA and DCAC to unassessed stocks in the FMP, and requested that the authors present the results of their analysis to the SSC at the March 2010 Council meeting (PFMC, 2010a). This report documents the results of that effort. A draft version of this report was reviewed by the SSC during the PFMC's March 2010 Council meeting. Based on that review, the SSC recommended that this approach "be used on a stock specific basis to establish OFLs for the current [2011-2012] specification process." (PFMC, 2010a). In April 2010 the PFMC adopted the results of this analysis as part of the basis for OFLs in the 2011-2012 harvest specification process (PFMC, 2010b).

Data

Primary Catch Data Sources

Catch statistics for Pacific Coast Groundfish species are maintained by several agencies, at several locations, and in various media types. Landings since the 1980s are somewhat centralized and available from databases that specialize in either commercial or recreational landings. Landings data prior to the 1980s are distributed among several electronic and paper sources. Since DB-SRA and DCAC methods require estimates of landings (by year, in the case of DB-SRA) it was necessary to reconstruct historical catches (landings and discard) for each of the 50 groundfish stocks in our analysis.

Catch estimates for each species were aggregated by species, year, and source, combining all other strata (e.g. gear type). Estimates of discard (described below) have been applied to commercial landings data so yield estimates can be treated as total catch (landings + discard). All sources of recreational catch also included estimates of discard. All final catch time series were estimated up to and including 2009. We project total catch in 2010 as equal to the average annual catch (landings plus discard) from 2008-2009. Therefore, OFL estimates for 2011 are based on the assumption that catches in 2010 will not differ greatly from the previous two years. A complete list of data sources is provided as Table 1.

CALCOM

The CALCOM database was the source for California's commercial landings estimates from 1969 – 2009 (see Appendix A for SQL code). Since multiple species are often landed within a single market category, it is necessary to "expand" landings estimates from fish tickets using species composition data obtained by port samplers. CALCOM is the source of these "expanded" landings for California, and generates estimates of species compositions and catch by year, quarter, market category, gear group, port complex, and fishery condition (i.e. live / nonlive). Expanded species compositions are uploaded to PacFIN (see below) on a monthly basis. A final "annual expansion" is uploaded to PacFIN when all landing receipts for a given year have been submitted. Pearson et al. (2008) describe the reliability of commercial groundfish landings in California from 1969-2006.

We queried CALCOM, rather than PacFIN, for estimates of California's commercial landings because 1) CALCOM is the original source of California's landings estimates, 2) at the time of this analysis a final expansion of the 2008 landings for California was completed in CALCOM but final species

compositions had not yet been uploaded to PacFIN for that year, and 3) at the time of writing this report, final landings estimates for the fourth quarter of 2009 were not available, but a preliminary expansion for 2009 was made available for this analysis (D. Pearson, NMFS, pers. comm.). Using this preliminary expansion we estimated fourth-quarter landings in 2009, by species, using landings data from the first three quarters of 2009 and the ratio of 2007-2008 statewide landings in quarter 4 to those in quarters 1-3.

PacFIN

Our primary source for commercial landings data from Oregon and Washington (1981-present) was the Pacific Fisheries Information Network (PacFIN, pacfin.psmfc.org). We queried PacFIN to obtain groundfish landings from 1981-2009 in these two states (see Appendix A for SQL code). Landings reported from "nominal" market categories were pooled with corresponding categories, e.g. landings of vermilion rockfish were estimated as the sum of market categories VRM1 and VRML.

RecFIN

Annual estimates of total recreational catch (landings and discard) for Oregon and Washington were obtained from the Recreational Fisheries Information Network website (RecFIN; www.recfin.org) for the period 1980-2009. For these states, total recreational catch was assumed equal to the combined weight of catch types A and B1 (sampler-examined catch, and angler-reported catch and discard). The California Department of Fish and Game (CDFG) supplied estimates of total recreational catch from California by year and species (J. Budrick, pers. comm.). The California recreational catch estimates for each species were derived from the combined weights of catch types A and B1, plus the fraction of fish reported as thrown back alive but assumed dead multiplied by average weights of discarded fish from 2004-2009. The percentages of fish thrown back alive and assumed dead were based on depth-dependent mortality rates developed by the GMT (PFMC, 2009), or otherwise a historical assumption of 42% discard mortality (7% for non-rockfish spp.).

Sampling for RecFIN did not occur from 1990-1992 due to lack of funding. Northern California party boat data from 1993-1995 are also not available from RecFIN. We estimated total recreational catch by state and species for the years 1990-1992 using a linear interpolation between the average catch from 1987-89 and the average catch from 1993-95.

NORPAC

Estimated bycatch of groundfish species from the at-sea whiting fleet is available for the years 1991-2009 from the NORPAC database. We queried NORPAC data (accessible through PacFIN) for estimates of total bycatch weight by species, area, and year (Appendix A). Annual estimates of total bycatch by species from this fishery were included in our catch reconstructions without modification. NORPAC landings are typically minor (< 10 mt) for stocks in our analysis. Exceptions include rougheye rockfish (270 mt), rex sole (33 mt) and redstripe rockfish (22 mt).

Rockfish Catch by Foreign Fleets, 1965-76

Foreign fleets caught substantial amounts of groundfish off the west coast of the United States in 1965-1976. Rogers (2003) described these fisheries in detail and developed a standardized method for

estimating rockfish catch during this time period by nation, area, and year. We include Rogers' catch estimates in our analysis without modification.

California Historical Catch Reconstructions

Ralston et al. (2009) describe an ongoing effort to reconstruct California's commercial landings prior to 1969 and recreational landings prior to 1981. The Climate Database Modernization Program (CDMP) provided funds to digitize historical landings data from California's commercial fisheries. As a result of that effort, reconstructions of commercial groundfish landings from 1916-1969 and recreational rockfish catch (landings + discard) from 1928-1980 are now available in an ODBC-compliant database maintained by the Southwest Fisheries Science Center's Fisheries Ecology Division in Santa Cruz, CA. We queried this database for historical landings from California's commercial and recreational fisheries (Appendix A). California recreational rockfish landings in 1980 from this data source were used in place of RecFIN estimates.

Oregon Commercial Rockfish Catch Reconstructions, 1927-1980 and 1981-1986

Historical rockfish landings (1927-1980) from Oregon's commercial fisheries were provided by NMFS and ODFW staff (V. Gertseva and M. Karnowski, pers. comm.) as part of Oregon's ongoing catch reconstruction effort. Landings estimates were stratified by year, species, and gear (trawl vs. non-trawl), but gear types were aggregated for this analysis. Oregon landings of 13 flatfish species were reconstructed after our analyses were completed and should be investigated for use in future applications (V. Gertseva and M. Karnowski, pers. comm.).

Staff from the Oregon Department of Fish and Wildlife (ODFW) supplied revised estimates of rockfish landings from 1981-1986 (M. Karnowski, pers. comm.). Oregon landings estimates in PacFIN from this time period were based on undocumented species composition data, and ODFW staff recommended using the revised estimates in place of the PacFIN data. The revised estimates were derived from total rockfish landings and available species composition data from the time period (M. Karnowski, pers. comm.). We used these data in place of 1981-1986 rockfish landings estimates from PacFIN.

Trawl-Caught Rockfish in Washington, 1963-1980

At the time of writing, Washington Department of Fish and Wildlife (WDFW) staff members are in the process of preparing historical catch reconstructions of Washington landings (T. Tsou and G. Lippert, pers. comm.). WDFW provided numerous data sets and background documents that will be considered during the state's reconstruction efforts. It was not possible to develop a detailed catch reconstruction from these sources in time for this analysis. We used readily available data sources to reconstruct time series of catch for several species caught in U.S. waters off Washington (described below). We consider our reconstruction to be a placeholder until a more thorough reconstruction is completed.

Tagart (1985) reports estimates of trawl-caught rockfish by year, species, PMFC area, and reporting agency (CDFG, ODFW, WDFW, and DFO Canada) for the years 1963-1980. We calculated species compositions from the 1969-1976 data (prior to the development of the widow rockfish fishery) and applied them to Tagart's aggregated rockfish landings from 1963-1968.

Pacific Marine Fisheries Commission (PMFC) Data Series, 1956-1980

The PMFC compiled commercial catch statistics by market category, year, month, area, and agency beginning in 1956. Landings estimates were limited to trawl gear prior to 1971 (Lynde, 1986). These data are commonly referred to as the "Data Series" and were digitized and made available by the Northwest Fisheries Science Center (NWFSC) of the National Marine Fisheries Service (NMFS). Landings in the Data Series are stratified by area where caught, as opposed to landing location. The Data Series is described in detail by Lynde (1986).

Pacific Fisherman Yearbooks

Pacific Fisherman yearbooks provide a record of total rockfish landings in Washington from the 1930s to 1956 (Anonymous, 1947, 1957; as cited in Stewart, 2007). Reported rockfish catch is partitioned into POP and other rockfish categories after 1952. Stewart (2007) found this source to be similar to catch reported in the Current Fishery Statistics series published by the Fish and Wildlife Service (see multiple citations in Stewart, 2007), with the exception of one year (1945) in which the Pacific Fisherman data estimated 7,300 mt and the Fish and Wildlife Service data showed 11,552 mt. We retained the estimate from the Pacific Fisherman yearbooks to maintain consistency with the remainder of the time series. The Pacific Fisherman data include landings originating from Canadian waters. To estimate yield available from U.S. stocks (assuming they are independent) it is necessary to identify the fraction of catch originating in U.S. waters. Alverson (1957) reports the fraction of landed rockfish that originated from U.S. waters during 1953 (14.9% for other rockfish and 9.7% for POP). We applied these proportions to the Pacific Fisherman landings to get Washington landings from U.S. waters. For years reporting only total rockfish, we used the average proportion. We then applied the 1969-1976 species composition data from Tagart (1985) to our estimates of total rockfish caught in U.S. waters off Washington to estimate rockfish landings by species from 1942-1955, as these composition data are the best available information at this time. As with the PFMC Data Series, this application of the Tagart composition data makes a strong assumption that rockfish species compositions do not vary over time. In summary, estimates of total rockfish landings in Washington for years prior to 1981 are derived from 4 sources: Pacific Fisherman yearbooks, PMFC Data Series Reports, Alverson (1957) and Tagart (1985).

Species-Specific Catch Reconstructions

Catch reconstructions for some groundfish stocks required additional analysis or relied on data sources unique to that stock. Examples include stocks with assessments that did not span the entire U.S. West Coast (resulting in area-specific substocks in U.S. waters), stocks with pre-existing catch reconstructions, and stocks with catch information available from sources other than the primary sources described in the previous section. This section provides details of reconstructions for stocks falling in one or more of those categories.

Spiny Dogfish

The primary source of landings and discard for spiny dogfish (*Squalus acanthias*) was Taylor (2008), who reconstructed historical catches in U.S. coastal waters from 1935-1980 and appended data from the PacFIN database from 1981-2006. Landing-receipt data from 1931-1939 in California were available from the CALCOM database (CALCOM, 2010). In some years, the estimated landings in California

exceeded the historical estimates from Taylor. In those years we used the California landing-receipt data. Data for years after 2005 were obtained from the CALCOM, PacFIN, and NORPAC databases.

Kelp Greenling in California

An assessment of the kelp greenling (*Hexagrammos decagrammus*) substock in Oregon was adopted by the PFMC in 2005 (Cope and MacCall, 2005). An assessment of the California substock was also completed, but the stock assessment review (STAR) panel rejected the California model for issues not related to the catch time series (PFMC, 2005a). Cope and MacCall (2005) completed a reconstruction of California landings from 1916-2004. We apply DB-SRA to their data, appending estimates of catch from 2005-2009 obtained from the CALCOM and RecFIN databases. Discard and associated mortality are assumed to be negligible because of the desirability of this species and its lack of an air bladder, which minimizes the effects of barotrauma.

Bocaccio North of 40° 10' N. Latitude

The most recent stock assessment for bocaccio (*Sebastes paucispinis*; Field et al., 2009) did not estimate an OFL for coastal waters north of 40° 10' N. latitude. Catch reconstructions for this northern area include all catch from waters off Oregon and Washington, plus a fraction of the California coast. For the CALCOM database, we assigned the port complexes of Crescent City and Eureka to this northern area. For all databases in which catch was stratified by PMFC area (e.g. PacFIN), we assigned PMFC areas 1C through 3C-S (U.S. waters only) to the northern region. This excludes a small fraction of the northern area because the southern boundary of PMFC area 1C is at 40° 30' N. latitude. Landings data are currently not available at a finer resolution, and any omitted landings from this small area are likely to be a small percentage of the total catch. For databases in which catch data were stratified by INPFC area, we assigned the Columbia, Eureka, and Vancouver (U.S. portion) areas to the northern region. Similar to the PMFC areas, the southern border of the Columbia INPFC area is 40° 30' N. latitude instead of 40° 10' N. latitude, so total catch in the northern management area may be slightly underestimated.

Presently, historical catch data in RecFIN are not readily available in a format that aggregates data by PFMC management area (north and south of 40° 10' N. latitude). California recreational catch in RecFIN for years prior to 2004 are stratified into two major areas: north and south of 34° 27' N. latitude (near Point Conception). However, recreational catch data from the California Recreational Fisheries Survey (CRFS) are stratified into 6 districts. We applied the ratio of type A (sampler-examined) catch of bocaccio in CRFS District 6 relative to bocaccio catches in Districts 1-5 (2005-2009 combined) to statewide bocaccio recreational landings to approximate landings north of 40° 10' N. latitude. The same ratio was applied to data from California's historical recreational catch reconstruction, which uses the same stratification as RecFIN (North/South of Point Conception). CRFS District 6 extends slightly south of 40° 10' N. latitude (including all of Humboldt county), possibly causing the fraction of recreational catch assigned to the northern area to be slightly overestimated.

Yellowtail Rockfish South of 40° 10' N. Latitude

Wallace and Lai (2005) assessed the population of yellowtail rockfish (*Sebastes flavidus*) north of Cape Mendocino (40° 10' N. latitude). We used DB-SRA to estimate the OFL for yellowtail rockfish in coastal waters south of the assessed area. The catch reconstruction for this (assumed) substock includes

data from the CALCOM database, specifically the port complexes from Fort Bragg through San Diego. Data from sources in which catch was stratified by PMFC area were limited to PMFC areas 1A-1B. For data stratified by INPFC area, we assigned the Conception and Monterey areas to the southern region. See the description of bocaccio landings for a description of differences between the current management line (40° 10' N. latitude) and boundaries of historical PMFC and INPFC areas.

Reconstruction of recreational data for yellowtail rockfish south of Cape Mendocino required methods similar to those used for bocaccio (see above). To approximate historical landings south of 40° 10' N. latitude, we calculated the ratio of type A (examined) catch of yellowtail rockfish in CRFS Districts 1-5 (2005-2009 combined) relative to CRFS type A catch statewide and applied that ratio to historical statewide catch estimates provided by CDFG. The same ratio was applied to California's historical recreational catch reconstruction (Ralston et al., 2009), which uses the same stratification as is found in RecFIN (North/South of Point Conception). CRFS District 6 extends slightly south of 40° 10' N. latitude (including all of Humboldt county), possibly causing the fraction of recreational catch assigned to the southern area to be slightly underestimated.

Grenadier (family Macrouridae)

One species of grenadier (Pacific grenadier or rattail, *Coryphaenoides acrolepis*) is currently listed in the FMP. Grenadiers are part of the PFMC's "other fish" complex, and are typically landed in an unspecified grenadier market category. Species composition data are not available for the unspecified grenadier market category, so we were unable to apportion catch to individual species. We reconstructed the aggregated catch of all grenadier species and applied DB-SRA to the complex as a preliminary estimate of sustainable yield, assuming that all grenadier species had life history attributes similar to those of the Pacific grenadier.

Cowcod North of 34° 27' N. Latitude

The most recent stock assessment for cowcod (*Sebastes levis*) determined status of the stock south of 34° 27' N. latitude (Dick et al., 2009). However, cowcod occur as far north as Oregon (Love et al., 2002). The RecFIN website and California's recreational catch reconstruction database stratify catch with a boundary roughly around Point Conception. We estimated recreational mortality of cowcod north of Point Conception from 1981-2009 using RecFIN catch types A (examined) and B1 (unavailable dead). The recreational catch reconstruction database (Ralston et al., 2009) which, similar to RecFIN, also includes estimates of discard mortality was the basis for historical catch from 1928-1980. Commercial catch north of Point Conception was defined, depending on the data source, as from either areas 2-5 (Ralston et al., 2009), PMFC areas 1C-2C, the Monterey INPFC area, or CALCOM port complexes from Morro Bay through Crescent City.

Blackgill Rockfish North of 40° 10' N. Latitude

Blackgill rockfish (*Sebastes melanostomus*) was last assessed in 2005 for U.S. waters south of 40° 10' N. latitude (Helser, 2005). The majority of the stock occurs in California waters, but blackgill are known to occur as far north as British Columbia (Love et al., 2002). We reconstructed the catch of blackgill rockfish for waters north of 40° 10' N. latitude. We assigned the port complexes of Crescent City and Eureka from the CALCOM database to the northern area. For all databases in which catch was stratified by PMFC area (e.g. PacFIN), we assigned PMFC areas 1C through 3C-S (U.S. waters only) to the

northern region. This excludes a small fraction of the northern area because the southern boundary of PMFC area 1C is at 40° 30' N. latitude. Landings data are currently not available at a finer resolution, and any omitted landings from this small area are likely to be a small fraction of the total catch. When catch data were stratified by INPFC area, we assigned the Columbia, Eureka, and Vancouver (U.S. portion) areas to the northern region. Similar to the PMFC areas, the southern border of the Columbia INPFC area is at 40° 30' N. latitude instead of 40° 10' N. latitude, so total catch in the northern management area may be slightly underestimated. No recreational catch was reported for blackgill rockfish north of Cape Mendocino in the available databases.

Blue Rockfish South of 34° 27' N. Latitude
Blue Rockfish North of 42° N. Latitude

Key et al. (2007) determined the status of blue rockfish (*Sebastes mystinus*) in U.S. waters between 34° 27' and 42° N. latitude (from Point Conception to the California-Oregon border). We developed separate catch reconstructions for U.S. waters north and south of the assessed area. Recreational landings and discard estimates from 1980-2009 were obtained from RecFIN (weight of catch types A and B1) for Southern California (south of Pt. Conception), then Oregon and Washington combined. Estimates of recreational catch in southern California were also available from 1928-1980 (Ralston et al., 2009). Commercial landings for Southern California were queried from CALCOM (all port complexes south of Pt. Conception) and the California commercial catch reconstruction (areas 6-8; Ralston et al., 2009). Commercial landings in Oregon and Washington were available from PacFIN (PMFC areas 2A-3B) and Oregon's commercial catch reconstruction (1927-1980).

Gopher Rockfish South of 34° 27' N. Latitude

Key et al. (2005) assessed gopher rockfish (*Sebastes carnatus*) in U.S. waters between 34° 27' and 42° N. latitude (the central and northern California coast). This species is rare north of the California-Oregon border but extends southward to southern Baja California (Love et al., 2002). Key et al. (2005) did not include the portion of the stock south of Pt. Conception due, in part, to evidence of differences in growth. We reconstructed catches for U.S. waters south of the assessed area. Sources for commercial and recreational catch were identical to those used for blue rockfish south of 34° 27' N. latitude.

Rex Sole

Pearson et al. (2008) identify rex sole as one of the top five landed flatfish in California, averaging 800 mt in the 1980s. They also note that catch estimates in California may be underestimated due to landing of rex sole in the Dover sole market category. For this analysis, commercial landings in California were estimated for 1916-2009 using data from CALCOM and Ralston et al. (2009). Estimates of commercial landings of rex sole in Oregon and Washington for 1981-2009 were obtained from the PacFIN database.

Prior to 1981, three data sources were used to reconstruct rex sole landings in Oregon for 1942-1980. Cleaver (1951) reported rex sole landings for 1942-49 in Oregon, noting "The peak landing in 1943 of 569,737 pounds represents a heavy demand for food fish, while the peak of 223,667 pounds in 1949 represents an increasing demand for mink food." Smith (1956) provided Oregon landings for 1950-53, and also reported the composition of the growing mink food landings, noting that 53% of the mink food landings was a mixture of arrowtooth flounder, Bellingham (butter) sole, and rex sole. We assume that 20% of total mink food landings were rex sole during this time period. This assumption is consistent

with an increase in landings that matches reported landings of over 1,000 mt in 1956 (fish caught for both animal food and human consumption, per the PMFC Data Series). CA landing-receipt data matched Data Series landings from Areas 1A-1C very well and were used without modification. PMFC Data Series landings for areas 2A-3B are therefore interpreted as landings by other agencies (ODFW, WDFW, DFO) from U.S. waters off Oregon and Washington. The combined data from Cleaver (1951), Smith (1956), the PMFC Data Series, and PacFIN resulted in reconstructed landing of rex sole for 1942-2009 in Oregon and 1956-2009 in Washington. Recently reconstructed landings of flatfish in Oregon became available shortly after our analysis was completed (V. Gertseva, NMFS, pers. comm.) and should be considered during future assessments of rex sole.

Sand Sole

California's commercial catch reconstruction and landing receipt databases provided estimates of sand sole landings for 1953-1968. Commercial landings in California for 1969-2009 were queried from the CALCOM database. Commercial landings for Oregon in PacFIN begin abruptly in 1987 (227 mt), and data from prior years in Oregon were not available. Sand sole landings were consistently reported in WDFW Data Reports and Progress Reports since 1963, and we used these reports to reconstruct sand sole landings in Washington from U.S. Coastal Waters (PMFC areas 2C, 3A, and 3B). The WDFW report for 1973 was not available at the time of writing, so we interpolated the missing year using the average of landings in 1972 and 1974. Landings in area 3C were rare and relatively small. Statewide sand sole landings averaged 29 tons per year for 1951-1954, but it is unclear how much was caught in inland versus coastal waters. In 1963 and 1964, 90% of sand sole caught in U.S. waters were from Puget Sound (Pattie, 1973). Cleaver (1951) refers to sand sole as a minor component of the Oregon trawl fishery prior to 1950, noting that this species was often landed with petrale sole.

Pacific Sanddab

Pacific sanddabs were historically landed as unspecified flatfish in most west coast ports. Regional demand for sanddabs has existed in California since the beginning of the fishery, but it was generally discarded or landed for animal food in Oregon and Washington. In California the unspecified sanddab market category (SDAB) is greater than 96% Pacific sanddab (Pearson et al., 2008). Following Pearson et al., we combined the unspecified sanddab market category in CALCOM with the Pacific sanddab market category (PDAB). We also assume that all Washington and Oregon landings in the unspecified sanddab market category (category UDAB in PacFIN) were of Pacific sanddab. Historical landings may be underestimated if sanddab were landed in any of the 'unspecified flatfish' or 'other flatfish' market categories.

Mortality Due to Discarded Catch

Estimates of discard in the commercial groundfish fisheries were derived from trawl reports published by the NWFSC's West Coast Groundfish Observer Program (NWFSC 2008, 2009). We calculated the ratio of discarded catch to retained catch (total catch minus discarded catch) for several species and species groups using data in both annual reports (Table 3a in NWFSC 2008 and NWFSC 2009). When species-specific rates were not supplied, ratios were developed using aggregated categories (e.g. shelf rockfish). Discard data from the mid-1980s were evaluated by Pikitch et al. (1988). An analysis based on the Pikitch data was supplied by D. Erickson (ODFW) which we combined with recent discard estimates based on the WCGOP reports to generate a matrix of discard ratios (discard / retained) by

species and year. When discard ratios were available from both sources, we interpolated the annual ratios between studies using a linear trend. We assume that discard ratios from the earliest available source remain constant for all previous years. A 50% discard mortality rate was applied to all species as a placeholder value until more detailed information can be developed.

Recreational catch estimates for Oregon and Washington were available from RecFIN. These include angler-reported estimates of fish that were discarded dead or otherwise unavailable to the sampler (catch type B1). Methods used to estimate recreational discard in California are described in the previous section, Primary Data Sources, under the RecFIN header.

Life History Data and Estimation of Natural Mortality

We compiled observed maximum age data from numerous sources, attempting to locate observations from stocks off the U.S. west coast whenever possible (Tables 2 and 3). These data were used to estimate the total mortality rate (Z, the sum of natural and fishing mortality rates) using Hoenig's (1983) method. Specifically, we used his geometric mean regression for all species,

$$\log(Z) = 1.710 - 1.084 \times \log(A_{max}), \qquad (1)$$

where A_{max} is maximum observed age and log is the natural logarithm. We adopted the total mortality rate as the best available point estimate of the natural mortality rate, M, acknowledging that this approach may overestimate M for heavily exploited species. Following MacCall (2009), we back-transformed the mortality rate into arithmetic space using the appropriate bias correction factor and an assumed standard error of 0.5 for log(Z). If estimates of M were available from a reliable source, e.g. a stock assessment from an adjacent region, we adopted those values in place of the Hoenig estimate. We used female maximum age whenever gender-specific values were reported.

Age at maturity (A_{mat}) data are the basis for time-lagged productivity in the DB-SRA model (see Model Specification, below). When gender-specific differences in A_{mat} were documented, we used female values. In some cases, length-at-maturity was converted to age using reported age-length relationships (e.g. blue rockfish, bocaccio). Estimates of A_{mat} were not available for several rockfish species, so we estimated A_{mat} by calculating the ratio of A_{mat} to A_{max} for rockfishes with available estimates, and then multiplied the mean of the ratios (0.14) by the maximum age (Tables 2 and 3).

Rougheye rockfish have been aged to 205 years in Alaska (Munk 2001). Munk reports that maximum age is at least 170 years for this species, given estimates of ageing uncertainty. We assume 170 years is the maximum age for rougheye rockfish off the U.S. west coast, given the ageing uncertainty and studies reporting greater longevity of rockfish populations at higher latitudes (Love et al., 2002). Estimates of maximum age and age at maturity were readily available for some grenadier species, but not others that might be landed in the unspecified grenadier market categories. We use life history information for Pacific grenadier as a proxy for all grenadier species landed in the unspecified grenadier complex.

Model Specification

Input Distributions

DCAC and DB-SRA estimate distributions of sustainable yield using Monte Carlo simulations to propagate uncertainty in parameters governing stock productivity and status. Both methods are flexible and can accommodate alternative model structures with different parameters as long as the user specifies distributions for those parameters. As implemented in this study, the two models characterize uncertainty using the same four input distributions.

Natural Mortality, M

Prior distributions for natural mortality were defined, for most species, by setting the expectation of a lognormal distribution equal to the point estimate of total mortality derived using Hoenig's method and assuming a log-scale standard deviation (SD) of 0.4. Appropriate bias corrections were applied when transforming the expected value of the lognormal distribution to the expected value of the log-scale normal distribution. For some species, point estimates of M were available from alternative sources, e.g. stock assessments.

F_{MSY} / M

Walters and Martell (2004) suggested that the ratio of F_{MSY} to M for demersal species in the northeastern Pacific is about 0.8. We assume that the ratio F_{MSY} / M is lognormally distributed with an expectation of 0.8 and log-scale standard deviation of 0.2 for all species. Since a ratio of lognormal distributions is itself lognormally distributed (Crow and Shimizu, 1988), this assumption defines F_{MSY} as a lognormally distributed random variable.

B_{MSY} / K

The PFMC has defined proxy values for the biomass that generates maximum sustainable yield, B_{MSY}, relative to unfished biomass (K). We refer to the ratio B_{MSY} / K as "B_{peak}". The PFMC defines target biomass as 40% of unfished biomass (0.4K) for all groundfish species other than flatfish, for which maximum productivity is assumed to occur at 0.25K, reflecting the typically high productivity of flatfish species. Since B_{peak} is constrained between 0 and 1, we assume that this parameter follows a bounded beta distribution. We set the expectation of B_{peak} equal to 0.4 or 0.25 for non-flatfish and flatfish species, respectively, with a standard deviation of 0.05 on the untransformed scale. Upper and lower bounds of 0.05 and 0.95 were used to exclude simulations with extremely skewed yield curves. See Appendix B for details regarding bounded beta distributions.

Relative Stock Status, Δ

The parameter Δ has slightly different interpretations for DCAC and DB-SRA. For DCAC, Δ is the expected proportional change in stock biomass from the first year of the catch series to the ending year. There is no requirement that the time period being evaluated begin with an unfished population, and the change in stock status can reflect population growth ($\Delta < 0$) or depletion ($\Delta > 0$). DB-SRA, in the form presented here, assumes that the time series of catch begins from an unfished population ($B_1 = K$). In this context, the parameter Δ is the proportional reduction in biomass relative to K. For example, if a

stock is expected to be at 40% of unfished biomass in the target year, E{Δ} = (1 - Δ) = 0.6. The PFMC commonly refers to stock "depletion" as the ratio $B_{current}/K$. This ratio is equivalent to 1 - Δ for the stocks evaluated using DB-SRA in this study.

We define a distribution for Δ based on a study aimed at evaluating relative bias in estimates of OFL generated by DB-SRA (Dick and MacCall, in prep.). In that study, we compare OFL estimates from DB-SRA to OFLs from 31 age-structured stock assessments of west-coast groundfish. We then develop empirical bias-correction distributions for three life-history based groups of west-coast groundfish (described in greater detail below). This approach assumes that the OFLs estimated using the age-structured stock assessments are accurate. To characterize uncertainty in Δ for unassessed stocks, we use a bounded beta distribution with E{Δ}= 0.6, SD{Δ} = 0.1, and upper and lower bounds of 0.99 and 0.01, respectively, for all DB-SRA runs. Some species in our analysis have been assessed for a portion of their range (e.g. yellowtail rockfish). To generate estimates of OFL for the unassessed areas using DB-SRA, we assume that E{Δ} matches the results from the assessment and that SD{Δ} = 0.1. Since the interpretation of Δ is different for DCAC, we assume a 60% reduction from the first year of the catch time series.

Depletion-Corrected Average Catch (DCAC)

DCAC (MacCall, 2009) is an estimate of sustainable yield for data-poor stocks of uncertain status. DCAC adjusts historical average catch to account for one-time "windfall" catches that are the result of stock depletion, producing an estimate of yield that was likely to be sustainable over the same time period. Advantages of the DCAC approach to determining sustainable yield for data-poor stocks include 1) minimal data requirements, 2) biologically-based adjustment to catch-based yield proxies with transparent assumptions about relative changes in abundance, and 3) simple computation.

Data requirements for DCAC are aggregated catch data and probability distributions describing our uncertainty about parameters governing stock productivity and status. We extend MacCall's description of DCAC to include uncertainty in a fourth parameter, B_{peak}.

To calculate the distribution of DCAC for groundfish stocks in this study, we identified the time period between the first year in which catches increased dramatically and 1999. Catches of many west-coast groundfish species declined after 1999 due to implementation of significant management measures. We then generated 10,000 random draws from each of the four input distributions using the R language/environment (R Development Core Team, 2010) and calculated

$$DCAC = \frac{\sum C_t}{n + \Delta \cdot \left[B_{peak}\left(\frac{F_{MSY}}{M}\right)M\right]^{-1}} \qquad (2)$$

for each set of draws, where n is the length of the catch time series in years, and C_t is the catch in year t.

Depletion-Based Stock Reduction Analysis (DB-SRA)

DB-SRA combines concepts from DCAC and stock reduction analysis (SRA, Kimura et al., 1984). Our approach is similar to stochastic SRA (Walters et al., 2006), in that it uses Monte Carlo simulations to derive probability distributions of stock attributes and management reference points.

For this study, we implemented DB-SRA using a delay-difference production model,

$$B_t = B_{t-1} + P(B_{t-a}) - C_{t-1} \quad (3)$$

where B_t is biomass at time t, P is latent annual production based on a preceding parental biomass, C is catch, and a is age at reproductive maturity. The latent production function, P, can take a variety of forms, although in principle any production model or stock-recruitment model could be used. Though not critical to the method we are proposing, this application of DB-SRA uses a production function that is derived from a standard stock-recruitment relationship.

Data-rich assessments of northeast Pacific groundfish stocks have conventionally assumed a Beverton-Holt stock-recruitment relationship (BHSRR), which has an inherent limitation that the biomass producing maximum latent production (B_{MSY}) cannot be larger than one-half of the unfished biomass (K). There is no reason to believe that actual populations are restricted to $B_{peak} < 0.5$. For example, the multispecies models of Walters and Kitchell (2001) and MacCall (2002) demonstrate that intraguild predation (Walters and Kitchell's "cultivation effect") can result in values of $B_{peak} > 0.5$. In the case of marine mammals, Taylor and DeMaster (1993) concluded that $0.5 < B_{peak} < 0.85$ for most pinnipeds and odontocetes. The BHSRR also has an unrealistically restrictive relationship between F_{MSY} and B_{peak} (Ricker, 1975; Brooks et al., 2010).

The Pella-Tomlinson-Fletcher (PTF) production model, first developed by Pella and Tomlinson (1969), and later reparameterized by Fletcher (1978), allows flexible specification of peak latent productivity ($0 < B_{peak} < 1$). However, several authors (Fletcher, 1978; McAllister et al., 2000) have observed that the PTF model tends to predict excessive productivity at low biomasses in the case of highly skewed production curves (i.e., where $B_{peak} < e^{-1}$). McAllister et al. proposed a hybrid Schaefer-PTF production model where the Schaefer model applies at biomasses below B_{peak}. The unreasonably high PTF productivity is a condition that is encountered at common values of BHSRR steepness (h > 0.5, where h is Mace-Doonan steepness (Mace and Doonan, 1988), and the ratio of recruitment at B = 0.2K to recruitment at B = K, e.g., Punt et al., 2008), but the hybrid Schaefer-PTF model of McAllister et al. appears to overcompensate and underestimates productivity at low abundances (Figure 1). In Appendix C we develop an alternative hybrid Schaefer-PTF model that provides a latent production function with properties similar to the BHSRR while allowing full flexibility in specifying B_{peak}. This function has the form of a PTF production model for abundances above a join-point (B_{join}), and has the form of a Schaefer model for abundances below B_{join}, where the value of B_{join} is chosen to produce a good approximation to the BHSRR model.

The analysis begins with draws from the four input parameters described above. We illustrate a single iteration of DB-SRA in Figure 2. Random draws are taken from the distributions from M and (F_{msy}/M), and their product gives a trial value for F_{msy}. The value of B_{peak} is drawn, from which MSY is given by $MSY = U_{msy} \cdot B_{MSY}/K \cdot K$ (see Appendix D for a definition of U_{msy}). At this point, the production function has only one unknown parameter to be estimated, the unfished biomass, K. Given the time series of historical catches, Equation 3 is applied sequentially from time t = 0 to time t = T, and the value of K is determined by a numerical solution that produces the reduction specified by the Δ parameter described above. The abundance trajectory in years after time T (including future years) can also be modeled by

sequential use of Equation 3. Because the four input parameters are not known precisely, a Monte Carlo approach is used to draw many sets of plausible alternatives from the prior probability distributions.

As Walters et al. (2006) observe, not all combinations of the input parameters permit the model to match the assumed relative stock depletion in the target year. Trajectories that predict negative biomass in any year (stock extinction) are removed from the set of plausible runs. Trajectories that did not go negative but either missed the target stock status or hit the boundaries of the search algorithm for unfished biomass were also excluded. From the set of retained trajectories we obtain updated distributions of Bmsy, Fmsy, MSY and the current catch at MSY fishing rate (C_{Fmsy} = OFL). The algorithm for DB-SRA is presented in more detail in Appendix D.

Productivity-Based Bias Correction Distributions

To evaluate performance of yield estimates from DB-SRA, Dick and MacCall (in prep.) compared results from DB-SRA to 31 stock assessments of eastern Pacific groundfish. We calculated the ratio of OFL distributions from DB-SRA to OFL point estimates from the stock assessments (referred to as "relative OFL" distributions). All DB-SRA runs in that study assumed stock status in the assessment year was 40% of unfished biomass on average, i.e. $E\{\Delta\} = 0.6$, and OFLs from the stock assessments were based on harvest rate proxies for Fmsy as adopted by the PFMC. We use the distributions of relative OFL as empirical bias-correction distributions for unassessed stocks.

To account for potential differences among life-history strategies, we grouped species into three categories based on productivity scores from a recent productivity-susceptibility analysis (PSA; PFMC, 2010c). Each stock's susceptibility to fisheries is subject to changes in management, so we grouped species according to productivity scores rather than vulnerability.

The draws of relative OFL for all species within each group were combined to create three productivity-based bias correction distributions, $f_j(OFL_{rel})$, for j=1,2,3. The groups consist of flatfish, high-productivity non-flatfish, and low-productivity non-flatfish. Flatfish species are typically productive stocks, with apparent differences in the location of B_{peak}, and were therefore treated separately from rockfish and roundfish. Among non-flatfish species, we defined low-productivity stocks as those with productivity scores below the median (<1.365), and the remaining non-flatfish species were combined into the high-productivity, non-flatfish category.

We generated bias-corrected OFL distribution for species *i* in group *j* by first sampling 10,000 draws with replacement from the relevant bias-correction distribution and from the OFL distribution generated by DB-SRA. The distribution of the ratio of these random draws is the bias-corrected OFL:

$$f_{i,j}^{corrected}(OFL) = \frac{f_i(OFL_{DB-SRA})}{f_j(OFL_{rel})}. \qquad (4)$$

An important consideration when using this approach is that the OFLs based on DB-SRA should be derived using the same prior distributions for stock status that were used to develop the distributions of relative OFL. This ensures consistency between the bias-correction factor and the assumptions used to estimate OFLs using DB-SRA.

Estimation of Area-Specific OFLs for Minor Rockfish Complexes

The PFMC currently defines two management areas (U.S. waters north and south of 40° 10′ N. latitude) in which some rockfishes (genus *Sebastes*) are managed as species groups, or complexes. The "minor rockfish north" and "minor rockfish south" complexes are further partitioned into 3 depth-based subcomplexes. These subcomplexes consist of species primarily found in nearshore waters, over the continental shelf, or on the continental slope ("nearshore", "shelf", and "slope" subcomplexes). Several species occur in both the northern and southern management areas. For example, brown rockfish (*S. auriculatus*) is a nearshore species that occurs in two subcomplexes, minor nearshore rockfish north, and minor nearshore rockfish south.

To assign area-specific OFLs for species with ranges crossing 40° 10′ N. latitude, we estimated coastwide OFLs and partitioned the results to the northern and southern management areas based on the cumulative landings in each area. The percentage of catch landed north and south of 40° 10′ N. latitude varies over time, so we compared results from 1983-1989, 1993-1999, and both of these periods combined. Catch from 1990-1992 was excluded because recreational sampling was postponed during that time period due to lack of funding.

All rockfish landings in Oregon and Washington were assigned to the northern management area. California commercial landings to the Eureka and Crescent City port complexes were assigned to the northern area, and all other port complexes were considered part of the southern area. Recreational landings in California are currently assigned to 1 of 6 districts. Landings prior to 2004 were stratified into 2 regions, north and south of Point Conception. We estimated the fraction of recreational landings in California that occurs in the northern area as the ratio of landings in CRFS district 6 to statewide landings, 2005-2009 (catch type A). This fraction was applied to the statewide landings to apportion California's recreational catch into the northern and southern management regions.

Results

Catch Reconstructions

Our estimates of historical cumulative catch (landings + discard) indicate that spiny dogfish, rex sole, Pacific sanddab, unspecified grenadier, and bank rockfish are the top 5 unassessed species (or species groups) in terms of total removals (Table 4). Cumulative catches of unassessed species over the last decade (2000-2009) show that Pacific sanddab is ranked first in terms of total removals, followed by unspecified grenadier, spiny dogfish, rex sole, and vermilion rockfish (Table 5). Relative to historical removals, the last decade has also seen a shift in the composition of rockfish catches. Among the 41 rockfish stocks in this study, catches of nearshore stocks have increased relative to other species (decreased in rank), with nearly two-thirds of all nearshore rockfish species changing in rank by 10 positions or more (Figure 3). Regulation of shelf rockfish species is a contributing factor in changes to the catch ranks for bocaccio (north), redstripe, and silvergray. Tables 6-55 contain catch reconstructions by species, year, and data source.

Our estimates of total rockfish landings in Washington for years prior to 1981 were derived from 4 sources: Pacific Fisherman yearbooks, PMFC Data Series Reports, Alverson (1957) and Tagart (1985).

After adjusting each source to remove catches from Canadian waters, the scale of total rockfish landings is relatively consistent among sources (Figure 4). Species compositions from Tagart (1985) during the period 1969-1976 suggest that approximately 89% of the trawl catch was composed of three species: Pacific Ocean Perch, yellowtail rockfish, and canary rockfish (Table 56). Darkblotched rockfish (~2% of the catch) was the only other species that contributed >1% to total landings.

The data available from Pacific Fisherman yearbooks included total rockfish landings in Washington from 1942 to 1955. The reported catch is partitioned into POP and other rockfish categories after 1952. These data include landings originating from Canadian waters, so it was necessary to identify the fraction of catch originating in U.S. waters. Alverson (1957) reported the fraction of landed rockfish that originated from U.S. waters during 1953 (14.9% for other rockfish and 9.7% for POP). We applied these proportions to the Pacific Fisherman estimates (using the average proportion in years reporting only total rockfish) to get Washington landings from U.S. waters (Table 57).

A comparison of the commercial rockfish landings in the PMFC Data Series (areas 2D, 3A, 3B, and 3C) to total rockfish landings from Tagart (1985) showed strong agreement between the two sources (Table 58). We estimated the fraction of rockfish landed in Washington and originating in U.S. waters by PMFC area using the Tagart data over the years 1963-1967 (Table 59). The estimated fractions of Washington rockfish landings of U.S. origin were 1.9% for area 3A, 85.2% for area 3B, and 43.9% for area 3C. We applied the area-specific fractions to the total rockfish landings by area from the PMFC Data Series, generating estimates of Washington rockfish landings from U.S. waters for the period 1956-1962 (Table 60). Finally, we applied the 1969-1976 species composition data from Tagart (1985) to estimate rockfish landings by species from 1956-1962. Landings may be over- or under-estimated for a given species if the composition of catch changed dramatically between the periods 1956-1962 and 1969-1976.

The PMFC Data Series reports catch of rock sole as early as 1956. Historical CA landings were taken from landing receipts. We approximate landings in Oregon and Washington using PMFC Data Series reports from areas 2A-3B (Figure 5). Visual inspection of WDFW Data Reports showed that the majority of rock sole landings from area 3C originated in what are now Canadian waters (WA state statistical areas 7-11). Alverson (1955) reported on the 1954 trawl fishery and noted that almost all rock sole landed in Washington were caught in the Hecate Strait, Goose Island, and Cape Scott fishing grounds. Cleaver (1951) reports that rock sole were not an important component of the Oregon trawl fishery, with landings recorded in only 2 years between 1942 and 1949.

Rex sole landings in Oregon and Washington prior to 1981 were based on the PMFC Data Series, Smith (1956), and Cleaver (1951) (Table 48). CA landing receipt data matched Data Series landings from Areas 1A-1C very well (Figure 6). We therefore consider the Data Series landings for areas 2A-3B to be a reasonable approximation of landings by other agencies (ODFW, WDFW, DFO), with negligible catch landed in California (Figure 7). The Data Series reports landings of rex sole of approximately 1100 mt in 1956 (fish caught for both animal food and human consumption). This amount is consistent with the estimates in previous years based on Smith (1956) (Table 48).

Sand sole landings in California were available from 1953-1968 as landing receipts, and 1969-present from CALCOM (Table 50). Reconstructed Washington landings increased from <1 mt in 1963 to 148 mt in 1980 (Figure 8). Reconstructed landings of flatfish species became available shortly after the

results of this analysis were adopted by the PFMC. The revised catch histories should be incorporated into future analyses.

Although the SSC endorsed the OFLs generated using DB-SRA in April 2010, an error was subsequently discovered in the historical catch time series for bocaccio north of 40° 10' N. latitude. Data from California's commercial catch reconstruction effort (Ralston et al., 2009) were omitted for the period 1916-1968. The corrected data show an increase in landings associated with demand for fish during the Second World War (Figure 9, Table 34). Omission of these data causes DB-SRA to underestimate bocaccio's contribution to the northern minor shelf rockfish complex. However, recent catches of minor shelf rockfish north of 40° 10' are approximately 5% of the OFL adopted by the PFMC in April 2010. The OFL for the complex summed to 2,032 mt, and average catch from 2007-08 was 108 mt (Bellman et al., 2008; 2009). The difference between recent catch and the potential yield is due to the constraining effects of overfished species on the catch of shelf rockfish. An increase in the OFL contribution from bocaccio (north) to the minor shelf rockfish north complex would have no practical implications for management. We acknowledge the error and recommend that it be corrected in future cycles.

Estimated ratios of discarded to retained commercial catch are presented in Table 61. When catch reconstructions were adopted from existing studies that already accounted for discard in their calculations (e.g. spiny dogfish), we set discard ratios to zero. Estimated discard ratios for rockfish complexes were 0.98, 0.45, and 0.13 for slope, shelf, and nearshore species, respectively. Splitnose rockfish were the primary component of slope rockfish discard, whereas greenstriped and stripetail rockfish were among the most discarded shelf species.

DB-SRA

We estimated OFL distributions for 42 of the 50 unassessed stocks in this study using DB-SRA (Table 62). Medians of the OFL distributions represent the yield at which there is a 50% probability of exceeding the true OFL, and are therefore consistent with the interpretation of OFL under the revised NS1 guidelines (74 Federal Register 3178 (January 16, 2009)).

For each stock, we summarize the DB-SRA results with a four-panel figure (Figures 10-51). The upper left panels show time series of catch by data source with estimated commercial discard, if applicable. Upper right panels illustrate the time series of the bias-corrected distributions of OFL, with median values connected by a solid line, and interquartile ranges connected by dotted lines. The lower left panels depict the probability that catch exceeded the OFL in a given year. Lower right panels display the bias-corrected distribution of OFL in 2011.

Most rockfish species show patterns of increasing exploitation during the 1960s and 70s, often followed by overexploitation during the 1980s and 1990s. The probability that catch exceeded the OFL dropped dramatically for most species after the 1990s due to regulatory measures. A comparison of recent catch levels (average catch, 2008-2009) and projected OFLs in 2010 suggests that if catch levels remain near recent levels, a number of species could be subject to overfishing (Table 63). Specifically, rougheye rockfish, quillback rockfish, and china rockfish have a greater than 50% chance of experiencing overfishing if 2010 catch is equal to average catch over the past two years. Other stocks near the overfishing threshold include tiger rockfish, shortraker rockfish, and black and yellow rockfish (Table 63).

The percentage of trajectories that were rejected, e.g. due to negative biomass, varied by stock (Table 64). Random draws from the distributions for M and F_{MSY}/M can result in high trial values for F_{MSY}. Trajectories based on these draws are rejected more often because high productivity permits lower estimates of unfished biomass and can result in oscillations in stock size, increasing the likelihood of negative biomass estimates.

The life-history-based distributions of relative OFL (i.e. OFLs from DB-SRA relative to the stock assessments' OFLs) suggest that without bias-correction, our production-model implementation of DB-SRA underestimates yield (Figure 52). Using these grouped distributions of relative OFL as bias-correction distributions increased median yields by roughly 80%, 25%, and 5% for flatfish, high-productivity non-flatfish, and low-productivity non-flatfish, respectively.

The PFMC currently manages individual rockfish species under two stock complexes, each with its own OFL (see section on Model Specification). We apportioned the median OFL from DB-SRA to the northern and southern management areas using historical catch data (Table 65). Rockfish species with northernmost distributions of catch include redstripe, silvergray, yellowmouth, shortraker, and rougheye. The species with southernmost catch distributions include bronzespotted, swordspine, starry, kelp, and black and yellow. A greater number of species are predominantly caught in the southern region, reflecting the greater species diversity of rockfishes in southern California relative to the Pacific northwest.

DCAC

We estimated sustainable yields for 8 unassessed stocks using DCAC (Table 66). These stocks were not accessible to DB-SRA methods for a number of reasons. Generally, when reliable landings are not available from the beginning of the fishery, DCAC is the preferred approach. Catches of soupfin shark peaked at the beginning of the available catch time series (the late 1930s; Figure 60). Similarly, recreational landings (a major component of the fishery) of blue rockfish north of 42° N. latitude were not readily available for years prior to 1980. Yield estimates for three stocks (southern gopher rockfish, northern blackgill rockfish, and blue rockfish south of the assessed area) were requested by PFMC staff during the April, 2010 meeting. Given the time constraints we were able to produce yield estimates using DCAC due to its minimal computational requirements. DB-SRA may be a reasonable alternative to DCAC for southern gopher rockfish, northern blackgill rockfish, and blue rockfish south of Point Conception, and this method could be applied in future management cycles.

For all DCAC calculations we set the first year of catch data equal to an early year in the development of the fishery. The last year of catch data was set to 1999 for all stocks, as significant regulatory changes came into effect for west-coast fisheries. Figures 53-60 show the time period used for DCAC calculations (bracketed by vertical blue lines) relative to historical landings (solid line with open circles). Some historical catch reconstructions begin with several decades of minimal catch (e.g. squarespot rockfish, Figure 54). Including these early years in the DCAC calculations artificially lowers average catch due to trivial levels of fishing effort. In each DCAC figure, average catch between the start and end years is shown by a black, solid horizontal line. Green horizontal lines represent the distribution of DCAC (median = solid line, 95% interval = dashed lines).

Discussion

The results from this analysis provide a basis for setting annual catch limits for 50 unassessed stocks in the Pacific Fishery Management Council's groundfish FMP. DCAC and DB-SRA extend previous guidance on setting yields for data-poor species by incorporating life history information and properties of population dynamics into catch-based yield estimators. These two methods are also consistent with previous guidance (e.g. Restrepo et al., 1998), in that they require explicit assumptions about stock status. Both methods explore alternative states of nature -- productivity, size, and current status of the population -- using Monte Carlo simulation. DB-SRA, a dynamic extension of DCAC, also provides information about which combinations of these factors are more or less likely than others.

Stock assessments for west-coast groundfish species often exclude portions of a species range. This can occur when trend indices or age/length composition data are not available outside of a species' primary range. Assessment authors should consider implications of these choices on coastwide management and provide guidance on how to apply OFLs coming from the assessments. If trend and/or composition data do not exist to inform yield estimates from significant portions of managed areas, authors might consider DCAC or DB-SRA to 'fill in the gaps,' as we have done here for several rockfish species (blue, gopher, blackgill, yellowtail, bocaccio, and cowcod) and kelp greenling.

Catch Reconstructions

Similar to traditional stock assessments, our implementations of DCAC and DB-SRA assume that catch is known without error. However, either method could be extended to include catch uncertainty by assigning probability distributions to the catch time series. Uncertainty in historical catch data should not hinder exploration of potential sustainable yields using these methods.

We compiled available time series of historical catch for all species in the Pacific Coast groundfish fishery management plan, attempting to reconstruct landings from the beginning of each fishery. Catch reconstruction efforts by state agencies and the NMFS have made and continue to make progress toward filling in gaps in these catch time series, but several opportunities still exist to further refine historical catch estimates.

The results from this study underscore the need to prioritize funding for catch monitoring programs and historical catch reconstruction efforts. Gaps in historical catch data affect the accuracy of traditional stock assessments as well. Collection of basic life history and catch data is inexpensive relative to fishery-independent surveys and provides information necessary for both data-rich and data-poor modeling frameworks. Survey indices of abundance can also be highly uncertain, and efforts to improve the accuracy of catch statistics may provide similar benefits to management at a lower cost.

Ongoing efforts to reconstruct California's commercial catch history provided estimates of rockfish landings, by species and area, back to 1916 (Ralston et al., 2009). Summary data of California's commercial landings (including non-rockfish species) are also available online by market category, year, CDFG statistical block, and month from 1931-1968 from the SWFSC Fisheries Ecology Division (D. Pearson, pers. comm.). Efforts are underway to digitize detailed landing receipts (1951-1968) that also include gear type. Currently, landing-receipt data for 1951, 1955, 1957, 1960, and 1965-1968 are available and online (commercial catch data from 1969-present are already available from CALCOM).

SWFSC staff expect to have all landing receipts from 1951-1968 available by 2014. Trawl log summary data from 1931-1956 are also available (annual totals; monthly values may be available pending funding), and have been used in combination with the summary data described above to create a simple gear stratification (trawl & non-trawl) until the remainder of the digitized landing-receipt data become available.

Recreational catches in Oregon and Washington prior to 1980 (pre-RecFIN) are not generally available. Washington Sport Catch Reports from 1975-1980 report rockfish landings but show that the majority of sport-caught rockfish were not recorded to species (c.f. Nye et al., 1975). Development of species composition estimates for that time period may provide a basis for Washington recreational landings from 1975 to 1979. Recreational rockfish catches have been reconstructed from 1927-1980 in California (Ralston et al., 2009). California recreational landings of non-rockfish species have not yet been compiled in a readily available electronic format for years prior to 1980.

Unspecified Catch of Pacific Coast Groundfish

Many species in the Pacific Coast Groundfish FMP are landed into market categories which combine several species. If a sufficient number of samples are taken from each sampling stratum, it is possible to partition landings from these aggregated market categories into the component species. An example of this is the well-sampled "unspecified rockfish" market category in CALCOM (Pearson et al., 2008). Administrators of the CALCOM have successfully apportioned the vast majority of aggregated commercial rockfish landings to individual species using data from California's port sampling program.

However, catch of several groundfish species continues to be assigned to generalized market categories (sometimes referred to as "unspecified" or "other" market categories). Sufficient sampling of these categories is necessary to prevent biasing estimates of sustainable yield used for management. Some databases that are actively maintained for management contain significant amounts of unspecified groundfish landings in their historical data. While the total amount of unspecified catch has decreased over time (see Pearson et al., 2008, for examples), some sampling programs continue to assign considerable amounts of catch into unspecified categories.

Two groups of species currently in the groundfish FMP are particularly affected by this practice: grenadiers and skates. Recent catches of these species are non-trivial relative to the other unassessed species in this study, with grenadiers ranked second in cumulative catch since 2000 (Table 5). Coastwide skate catches exceeded 2000 mt per year in 2007 and 2008 (Bellman et al. 2008, 2009). Increased sampling of these two groups is needed to accurately assess species-specific trends in abundance and determine sustainable yields. Landing skates as 'wings' complicates collection of species composition data. Regulations requiring retention of identifiable characteristics should be implemented, and enforced, to ensure accurate catch monitoring.

Only one species of grenadier (Pacific grenadier or rattail, *Coryphaenoides acrolepis*) is currently listed in the FMP. Grenadiers are part of the PFMC's "other fish" complex, and are typically landed in an unspecified grenadier market category. Trawl reports issued by the NWFSC suggest that between 73-79% of grenadier catch is discarded (NWFSC 2008, 2009). The trawl reports also indicate that the weight of discarded catch is mostly giant grenadier (*Albatrossia pectoralis*), a species not in the groundfish FMP. Estimates of maximum age (58) and age at maturity (23) for giant grenadier are similar to those used for Pacific grenadier (Rodgveller et al. 2010; Table 2). A targeted fishery for grenadier

developed during the 1990s in California, but landings have declined since 1996 (Pearson et al., 2008). In general, little is known about these deep-water species. It is possible that the depth range for some species may extend beyond fishable depths, providing a refuge for a portion of the spawning stock.

Commercial landings of rockfish in Oregon include an average 715 mt of "unspecified rockfish" (SPID = URCK) per year from 1987-1993, dropping to an average of 260 mt per year from 1994-1999 (PacFIN, 2010). Since 2000, landings in unspecified rockfish categories have decreased considerably. The authors recommend further investigation into potential sources of species composition data for commercial landings of unspecified rockfish in Oregon from 1987-1999.

Rockfish caught by recreational fisheries off the U.S. west coast are classified in RecFIN as "rockfish genus" when the catch is not identified to species. Fish in this category are typically angler-reported catch as opposed to sampler-examined catch. These unidentified rockfish are not accounted for in current management. The number of unidentified rockfish varies by year, state, and region within a state. In California, over 816,000 unidentified rockfish were either landed or released dead (catch types A+B1+B5) between 2005 and 2009 (RecFIN, 2010). For comparison, total recreational catches (types A+B1+B2) in Washington over the same time period sum to 1,138,000 rockfish, of which less than 2,000 were unidentified (RecFIN, 2010). From 2005-2009, the number of unidentified fish that remain unaccounted for in California is greater than 70% of all recreational rockfish catch in Washington during the same time period. The percentage of unidentified rockfish within California varies in recent years, but is consistently greater south of Point Conception (Figure 61). Data from 1980-2004 (catch types A+B1) indicate that unidentified rockfish in Southern California averaged about 11% of total recreational rockfish catch. In Northern California during the same time period, unidentified rockfish were about 15% of the total recreational rockfish catch (RecFIN, 2010).

The issue of unidentified rockfish in the recreational fisheries was presented to the PFMC in September 2009. Based on reports from each state describing unidentified rockfish catch in 2008, the PFMC decided that the unidentified catch did not pose a conservation concern (PFMC, 2009). The Council voted to postpone further analysis until additional funding became available. Recreational catch reconstructions and the stock assessments that rely on them will benefit from future efforts to either improve sampling and/or apportion this catch to individual species, particularly for species commonly found in California.

Estimates of Sustainable Yield

We estimate sustainable yields using DB-SRA and DCAC conditional on assumed distributions of stock status. By assuming, for example, that a stock is at 40% of unfished biomass (K) and that maximum net productivity for that stock also occurs around 0.4K, we are in effect asking the models to answer the following question: Given our understanding of the life history characteristics for this species, what yield can we expect to obtain assuming that historical catch has brought the stock to its target biomass level? Consider the results for rougheye rockfish. Using DB-SRA, we learn that if historical landings for this long-lived species reduced biomass on average to the level that generates maximum productivity, recent landings are likely to exceed what would be a sustainable yield (Table 63).

Our uncertainty in model parameters, as represented by the prior distributions, is propagated into the distributions of yield. OFL distributions therefore reflect our prior uncertainty, but also eliminate yield estimates associated with biologically inconsistent biomass trajectories (i.e. would have resulted in

negative or zero biomass). We assign independent priors to each of the four parameters in our models, but one could also consider joint prior distributions (Brandon et al., 2007). This approach would allow for a more flexible covariance structure and could inform additional biological constraints to further narrow the set of plausible trajectories. Further reductions in prior uncertainty could also be achieved via incorporation of abundance trends or other information through a likelihood function, i.e. a Bayesian framework (see Walters et al. 2006).

Prior to the 2011-2012 management cycle, optimal yields (OYs) for unassessed stocks have been based on a control rule that reduces recent catch estimates by 25% and 50% for data-moderate and data-poor species, respectively. Technical guidance by Restrepo et al. (1998) is often cited as the basis for these reductions. However, an important element of their advice is often forgotten: the suggested control rule for precautionary adjustment of recent catch is based on an *a priori* assumption regarding current stock status (Table 67).

Many of the stocks in this analysis are managed within a stock complex. Species in stock complexes are not monitored individually, and as long as the OFL for the complex is not exceeded there is an implicit assumption that no stock in the complex is overfished. Stocks may be experiencing overfishing, but the prior probability that any stock in the complex is below its MSST is effectively zero. Until data informing trends in relative abundance, absolute abundance, or changes in demographic structure become available and allow us to estimate status, it is reasonable to be explicit about our assumptions concerning current status to arrive at estimates of sustainable yield. Setting OFLs using catch data alone, without consideration of available life history information and principles of population dynamics, is an inferior approach because it ignores information about stock productivity which is an important determinant of yield.

A recent report by the PFMC's Groundfish Management Team (GMT) assigns vulnerability scores to species in the groundfish FMP (PFMC, 2010c). The scores were derived from a productivity-susceptibility analysis (PSA, Patrick et al. 2009). The results from this independent study are qualitatively consistent with our results. Specifically, 8 of the 10 species that our study ranks highest in terms of probability that recent catch levels would exceed the OFL are also identified by the PSA as being highly vulnerable (vulnerability score ≥ 2). The 8 species are all rockfish: rougheye, quillback, china, tiger, shortraker, aurora, vermilion, and copper. The agreement between the two studies suggests that these species should be considered as candidates for full stock assessments.

The use of catch data to distribute coastwide OFLs among management areas is not ideal. However, no alternative sources of information are currently available. Fishery-independent trawl survey data became available after our analysis was complete, but these data only inform apportionment for a small subset of the rockfish species due to limited access to rocky habitat. Apportionment of rockfish species that inhabit low-relief habitats may be well informed by this type of survey, and this approach should be considered in future applications of DB-SRA. Habitat maps may be useful for distributing OFLs among management areas. This approach requires information about relative densities associated with habitats of different quality. Maps of habitat-suitability-probabilities, such as those developed for EFH considerations (PFMC, 2005), were not intended to be proportional to density, and would require additional information to be interpreted as such (M. Yoklavich and W. Wakefield, pers. comm.).

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Tables

Table 1. Sources of catch data used in this analysis

Source Code	Source Description	References
CALCOM	California Cooperative Groundfish Survey California commercial landings, 1969-present	http://128.114.3.187/
PACFIN (PFOR, PFWA)	Pacific Fisheries Information Network Commercial landings in Oregon and Washington, 1981-present	www.pacfin.org
NORPAC	Bycatch of groundfish species in the at-sea whiting fishery 1991-present	[queried through PacFIN]
ROGERS	Rockfish catch by foreign fleets, 1965-1976	Rogers, 2003
CACR	California Commercial Catch Reconstruction, 1916-1968	Ralston et al., 2009
CARR	California Recreational Catch Reconstruction, 1928-1980	Ralston et al., 2009
ORCR	Oregon Commercial Rockfish Catch Reconstruction, 1927-1980	NMFS & ODFW (V. Gertseva and M. Karnowski, pers. comm.)
ODFW	Reconstructed commercial rockfish catch, 1981-1986	ODFW (M. Karnowski, pers. comm.)
RECCA	California Recreational Catch Reconstruction, 1981-2009	CDFG (J. Budrick, pers. comm.)
RECFIN (RECOR, RECWA)	Recreational Fisheries Information Network Oregon and Washington recreational landings and discard, 1980-present	www.recfin.org
TYLR08	Catch (landings and discard) of spiny dogfish	Taylor, 2008
TGTWA	Trawl-caught rockfish landings in Washington, 1963-1980	Tagart, 1985
PACFISH	Total rockfish landings in Washington from Pacific Fisherman Yearbooks, 1942-1955. See text for details.	Pacific Fisherman Yearbooks; Alverson, 1957; Tagart, 1985
CM2005	Landings and discard of kelp greenling in California	Cope and MacCall, 2005
PMFCDS	Pacific Marine Fisheries Commission Data Series, 1956-1980	PMFC; Lynde, 1986; NMFS NWFSC
CLVR51	Oregon landings of rex sole and sand sole, 1942-49	Cleaver, 1951
SMTH56	Oregon landings of rex sole and sand sole, 1950-55	Smith, 1956
COMDIS	Estimated commercial discards. See text for details.	Pikitch et al., 1988; NWFSC, 2008; NWFSC, 2009

Table 2. Observed maximum age, A_{MAX}, and estimates of natural mortality rate, M, and age at maturity, A_{MAT}, by species. See text for descriptions of regions, where applicable.

Group	Scientific Name	Common Name, Region	Species Code	A_{MAX}	M	A_{MAT}
Rockfish	*Sebastes aleutianus*	Rougheye rockfish	REYE	170	0.024	20
Rockfish	*Sebastes atrovirens*	Kelp rockfish	KLPR	25	0.191	4
Rockfish	*Sebastes auriculatus*	Brown rockfish	BRWN	34	0.137	4
Rockfish	*Sebastes aurora*	Aurora rockfish	ARRA	75	0.058	5
Rockfish	*Sebastes babcocki*	Redbanded rockfish	RDBD	106	0.040	4
Rockfish	*Sebastes borealis*	Shortraker rockfish	SRKR	157	0.026	22
Rockfish	*Sebastes brevispinis*	Silvergray rockfish	SLGR	82	0.053	9
Rockfish	*Sebastes carnatus*	Gopher rockfish, South	GPHR_SCB	30	0.200	4
Rockfish	*Sebastes caurinus*	Copper rockfish	COPP	50	0.090	6
Rockfish	*Sebastes chlorostictus*	Greenspotted rockfish	GSPT	51	0.088	10
Rockfish	*Sebastes chrysomelas*	Black-and-Yellow rockfish	BYEL	30	0.157	4
Rockfish	*Sebastes constellatus*	Starry rockfish	STAR	32	0.146	7
Rockfish	*Sebastes ensifer*	Swordspine rockfish	SWSP	43	0.106	3
Rockfish	*Sebastes eos*	Pink rockfish	PNKR	66	0.067	9
Rockfish	*Sebastes flavidus*	Yellowtail rockfish, South	YTRK	64	0.110	10
Rockfish	*Sebastes gilli*	Bronzespotted rockfish	BRNZ	89	0.037	15
Rockfish	*Sebastes helvomaculatus*	Rosethorn rockfish	RSTN	87	0.049	10
Rockfish	*Sebastes hopkinsi*	Squarespot rockfish	SQRS	19	0.257	5
Rockfish	*Sebastes levis*	Cowcod, North	CWCD	55	0.055	11
Rockfish	*Sebastes macdonaldi*	Mexican rockfish	MXRF	22	0.219	3
Rockfish	*Sebastes maliger*	Quillback rockfish	QLBK	76	0.057	9
Rockfish	*Sebastes melanostomus*	Blackgill rockfish, North	BLGL_N	87	0.040	20
Rockfish	*Sebastes miniatus*	Vermilion rockfish	VRML	60	0.074	5
Rockfish	*Sebastes mystinus*	Blue rockfish, South	BLUR_SCB	41	0.100	6
Rockfish	*Sebastes mystinus*	Blue rockfish, North	BLUR_ORWA	41	0.100	6
Rockfish	*Sebastes nebulosus*	China rockfish	CHNA	79	0.055	5
Rockfish	*Sebastes nigrocinctus*	Tiger rockfish	TIGR	116	0.036	16
Rockfish	*Sebastes ovalis*	Speckled rockfish	SPKL	37	0.125	4
Rockfish	*Sebastes paucispinis*	Bocaccio, North	BCAC	37	0.150	3
Rockfish	*Sebastes proriger*	Redstripe rockfish	REDS	55	0.081	7
Rockfish	*Sebastes rastrelliger*	Grass rockfish	GRAS	23	0.209	4
Rockfish	*Sebastes reedi*	Yellowmouth rockfish	YMTH	99	0.043	6
Rockfish	*Sebastes rosaceus*	Rosy rockfish	ROSY	18	0.273	4
Rockfish	*Sebastes rosenblatti*	Greenblotched rockfish	GBLC	50	0.090	10
Rockfish	*Sebastes rubrivinctus*	Flag rockfish	FLAG	38	0.121	5
Rockfish	*Sebastes rufus*	Bank rockfish	BANK	73	0.080	13
Rockfish	*Sebastes saxicola*	Stripetail rockfish	STRK	38	0.121	4
Rockfish	*Sebastes serranoides*	Olive rockfish	OLVE	30	0.157	5
Rockfish	*Sebastes serriceps*	Treefish	TREE	25	0.191	5
Rockfish	*Sebastes umbrosus*	Honeycomb rockfish	HNYC	31	0.151	5
Rockfish	*Sebastes zacentrus*	Sharpchin rockfish	SHRP	58	0.077	6
Flatfish	*Citharichthys sordidus*	Pacific sanddab	PDAB	11	0.465	2
Flatfish	*Glyptocephalus zachirus*	Rex sole	REX	24	0.200	5
Flatfish	*Lepidopsetta bilineata*	Rock sole	RSOL	22	0.219	5
Flatfish	*Psettichthys melanostictus*	Sand sole	SSOL	10	0.516	2
Elasmobranch	*Galeorhinus zyopterus*	Soupfin shark	SSRK	40	0.115	12
Elasmobranch	*Squalus acanthias*	Spiny dogfish	DSRK	80	0.054	35
Elasmobranch	*Triakis semifasciata*	Leopard shark	LSRK	25	0.191	10
Grenadiers	*Macrouridae*	Grenadier complex	GRDR	60	0.074	20
Roundfish	*Hexagrammos decagrammus*	Kelp greenling, California	KLPG_CA	25	0.191	4

Table 3. Source information for observed maximum age, A_{MAX}, and estimates of natural mortality rate, M, and age at maturity, A_{MAT}, by species.

Scientific Name	A_{MAX} Source	Source of M Estimate	A_{MAT} Source
Sebastes aleutianus	Munk 2001	Hoenig's method	Love et al. 2002
Sebastes atrovirens	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes auriculatus	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes aurora	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes babcocki	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes borealis	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes brevispinis	Love et al. 2002	Hoenig's method	Stanley and Kronlund 2005
Sebastes carnatus	Key et al., 2005	Key et al., 2005	Key et al., 2005
Sebastes caurinus	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes chlorostictus	Benet et al. 2009	Hoenig's method	Benet et al. 2009
Sebastes chrysomelas	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes constellatus	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes ensifer	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes eos	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes flavidus	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes gilli	MacCall et al. (in prep.)	MacCall et al. (in prep.)	MacCall et al. (in prep.)
Sebastes helvomaculatus	Love et al. 2002	Hoenig's method	Shaw 1999
Sebastes hopkinsi	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes levis	Butler et al. 1999	Butler et al. 1999	Dick et al., 2009
Sebastes macdonaldi	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes maliger	Yamanaka and Kronlund 1997	Hoenig's method	Love et al. 2002
Sebastes melanostomus	Helser 2005	Helser 2005	Helser 2005
Sebastes miniatus	MacCall 2005	MacCall 2005	MacCall 2005
Sebastes mystinus	Key et al., 2007	Key et al., 2007	Key et al., 2007
Sebastes nebulosus	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes nigrocinctus	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes ovalis	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes paucispinis	Field et al., 2009	Field et al., 2009	Field et al., 2009
Sebastes proriger	Love et al. 2002	Hoenig's method	Shaw 1999
Sebastes rastrelliger	Love and Johnson 1998	Hoenig's method	Love and Johnson 1998
Sebastes reedi	Schnute 1999	Hoenig's method	Love et al. 2002
Sebastes rosaceus	Tenera Env. Svcs. 2000	Hoenig's method	Love et al. 2002
Sebastes rosenblatti	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes rubrivinctus	Love et al. 2002	Hoenig's method	$0.14\times A_{MAX}$
Sebastes rufus	Piner et al., 2000	Piner et al., 2000	Piner et al., 2000
Sebastes saxicola	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes serranoides	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes serriceps	Colton and Larson 2007	Hoenig's method	Colton and Larson 2007
Sebastes umbrosus	Love et al. 2002	Hoenig's method	Love et al. 2002
Sebastes zacentrus	Love et al. 2002	Hoenig's method	Shaw 1999
Citharichthys sordidus	Love 1991	Hoenig's method	Rackowski and Pikitch 1989
Glyptocephalus zachirus	Hosie and Horton 1977	Hoenig's method	Hosie and Horton 1977
Lepidopsetta bilineata	www.fishbase.org	Hoenig's method	Fargo and Wilderbuer 2000
Psettichthys melanostictus	Pearson and McNally 2005	Pearson and McNally 2005	Pearson and McNally 2005
Galeorhinus zyopterus	Smith et al., 1998	Hoenig's method	Smith et al., 1998
Squalus acanthias	McFarlane and King 2003	Hoenig's method	McFarlane and King 2003
Triakis semifasciata	Smith et al., 2003	Hoenig's method	Kusher et al. 1992
Macrouridae	www.fishbase.org	Hoenig's method	Fargo and Wilderbuer 2000
Hexagrammos decagrammus	Cope and MacCall 2005	Hoenig's method	Cope and MacCall 2005

Table 4. Estimates of cumulative catch [mt] in descending order for 50 unassessed groundfish stocks.

Rank	Stock	Cumulative Catch [mt]	Period
1	Spiny dogfish	157209	1931-2009
2	Rex sole	101024	1931-2009
3	Pacific sanddab	84126	1931-2009
4	Grenadier (unspecified spp.)	57485	1972-2009
5	Bank rockfish	42405	1916-2009
6	Yellowtail rockfish (S. of 40° 10′ N. Latitude)	41695	1916-2009
7	Vermilion rockfish	21562	1916-2009
8	Bocaccio (N. of 40° 10′ N. Latitude)	20579	1916-2009
9	Soupfin shark	19789	1938-2009
10	Redstripe rockfish	15735	1927-2009
11	Sharpchin rockfish	13506	1916-2009
12	Yellowmouth rockfish	12489	1927-2009
13	Silvergray rockfish	11927	1916-2009
14	Greenspotted rockfish	11428	1916-2009
15	Copper rockfish	11158	1916-2009
16	Sand sole	10661	1935-2009
17	Brown rockfish	9596	1916-2009
18	Olive rockfish	9245	1916-2009
19	Rougheye rockfish	9034	1916-2009
20	Redbanded rockfish	6482	1916-2009
21	Kelp greenling (California)	5356	1916-2009
22	Blue rockfish (S. of 34° 27′ N. Latitude)	5103	1916-2009
23	Leopard shark	4553	1969-2009
24	Starry rockfish	4078	1916-2009
25	Stripetail rockfish	3052	1916-2009
26	Aurora rockfish	2755	1916-2009
27	Greenblotched rockfish	2517	1916-2009
28	Speckled rockfish	2486	1916-2009
29	China rockfish	2414	1916-2009
30	Grass rockfish	2348	1928-2009
31	Flag rockfish	2205	1916-2009
32	Shortraker rockfish	1829	1927-2009
33	Blue rockfish (Oregon and Washington)	1797	1927-2009
34	Bronzespotted rockfish	1595	1916-2009
35	Rosy rockfish	1566	1916-2009
36	Gopher rockfish (S. of 34° 27′ N. Latitude)	1564	1928-2009
37	Rosethorn rockfish	1226	1927-2009
38	Black-and-Yellow rockfish	1109	1916-2009
39	Cowcod (N. of 34° 27′ N. Latitude)	1038	1916-2009
40	Rock sole	1030	1950-2009
41	Kelp rockfish	1024	1928-2009
42	Quillback rockfish	913	1916-2009
43	Swordspine rockfish	804	1928-2009
44	Blackgill rockfish (N. of 40° 10′ N. Latitude)	563	1929-2009
45	Honeycomb rockfish	553	1916-2009
46	Treefish	488	1916-2009
47	Squarespot rockfish	375	1916-2009
48	Pink rockfish	220	1916-2009
49	Mexican rockfish	208	1916-2009
50	Tiger rockfish	99	1916-2009

Table 5. Estimates of recent (2000-2009) catch [mt] in descending order.

Recent Rank	Historical Rank	Species	Recent Catch [mt]
1	3	Pacific sanddab	9872
2	4	Grenadier (unspecified spp.)	9621
3	1	Spiny dogfish	9253
4	2	Rex sole	6365
5	7	Vermilion Rockfish	2182
6	5	Bank rockfish	1112
7	17	Brown Rockfish	1025
8	16	Sand sole	1016
9	19	Rougheye Rockfish	918
10	18	Olive Rockfish	632
11	23	Leopard shark	603
12	15	Copper Rockfish	582
13	26	Aurora rockfish	529
14	6	Yellowtail rockfish (S. of 40° 10′ N. Latitude)	470
15	21	Kelp greenling (California)	355
16	29	China Rockfish	342
17	33	Blue rockfish (Oregon and Washington)	293
18	30	Grass Rockfish	292
19	20	Redbanded Rockfish	226
20	24	Starry Rockfish	212
21	9	Soupfin shark	194
22	38	Black-and-Yellow Rockfish	187
23	42	Quillback Rockfish	185
24	40	Rock sole	185
25	14	Greenspotted Rockfish	181
26	32	Shortraker Rockfish	152
27	41	Kelp Rockfish	102
28	22	Blue rockfish (S. of 34° 27′ N. Latitude)	93
29	11	Sharpchin Rockfish	91
30	46	Treefish	80
31	31	Flag Rockfish	79
32	12	Yellowmouth Rockfish	68
33	35	Rosy Rockfish	66
34	8	Bocaccio (N. of 40° 10′ N. Latitude)	60
35	28	Speckled Rockfish	48
36	44	Blackgill rockfish (N. of 40° 10′ N. Latitude)	46
37	10	Redstripe Rockfish	45
38	27	Greenblotched Rockfish	39
39	45	Honeycomb Rockfish	38
40	36	Gopher rockfish (S. of 34° 27′ N. Latitude)	38
41	47	Squarespot Rockfish	19
42	13	Silvergray Rockfish	16
43	25	Stripetail Rockfish	16
44	37	Rosethorn Rockfish	8.4
45	50	Tiger Rockfish	8.1
46	39	Cowcod (N. of 34° 27′ N. Latitude)	5.9
47	34	Bronzespotted Rockfish	5.0
48	49	Mexican Rockfish	2.1
49	43	Swordspine Rockfish	1.1
50	48	Pink Rockfish	0.2

Table 6. Catch [mt] by year and data source for rougheye rockfish (*Sebastes aleutianus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1916	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1917	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1918	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1919	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1920	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1921	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1922	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1923	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1924	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1925	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1926	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1927	0.0	0.1	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9
1928	0.0	0.1	0.0	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4
1929	0.0	0.1	0.0	0.0	0.0	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.8
1930	0.0	0.1	0.0	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.3
1931	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0
1932	0.0	0.2	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8
1933	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
1934	0.0	0.1	0.0	0.0	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2
1935	0.0	0.1	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3
1936	0.0	0.2	0.0	0.0	0.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7
1937	0.0	0.1	0.0	0.0	0.0	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6
1938	0.0	0.1	0.0	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5
1939	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1
1940	0.0	0.1	0.0	0.0	0.0	27.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
1941	0.0	0.1	0.0	0.0	0.0	51.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.4
1942	0.0	0.0	0.0	0.0	0.0	71.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	71.5
1943	0.0	0.0	0.0	0.0	0.0	175.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	175.9
1944	0.0	0.0	0.0	0.0	0.0	55.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	56.3
1945	0.0	0.0	0.0	0.0	0.0	49.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	50.4
1946	0.0	0.0	0.0	0.0	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	54.8

Table 6 (Continued). Catch [mt] by year and data source for rougheye rockfish (*Sebastes aleutianus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1947	0.0	0.0	0.0	0.0	0.0	24.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	25.4
1948	0.0	0.0	0.0	0.0	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	35.8
1949	0.0	0.0	0.1	0.0	0.0	31.6	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	32.6
1950	0.0	0.1	0.1	0.0	0.0	23.9	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	24.9
1951	0.0	0.0	0.1	0.0	0.0	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	18.8
1952	0.0	0.0	0.1	0.0	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	20.5
1953	0.0	0.0	0.1	0.0	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	11.6
1954	0.0	0.0	0.2	0.0	0.0	12.7	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	14.4
1955	0.0	0.1	0.3	0.0	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	16.5
1956	0.0	0.1	0.4	0.0	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	15.0
1957	0.0	0.1	0.2	0.0	0.0	22.1	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	23.8
1958	0.0	0.0	0.2	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	10.5
1959	0.0	0.0	0.1	0.0	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	13.6
1960	0.0	0.0	0.1	0.0	0.0	11.6	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	14.0
1961	0.0	0.0	0.1	0.0	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	20.9
1962	0.0	0.0	0.1	0.0	0.0	18.6	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	22.0
1963	0.0	0.0	0.1	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	18.2
1964	0.0	0.0	0.1	0.0	0.0	37.1	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	39.9
1965	0.0	0.0	0.4	0.0	0.0	67.6	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	70.0
1966	0.0	0.0	0.7	0.0	0.0	60.8	0.0	0.0	0.0	0.0	98.0	2.3	0.0	0.0	161.9
1967	0.0	0.0	1.1	0.0	0.0	99.8	0.0	0.0	0.0	0.0	85.0	0.0	0.0	0.0	185.9
1968	0.0	0.0	1.4	0.0	0.0	103.3	0.0	0.0	0.0	0.0	47.0	0.0	0.0	0.0	151.8
1969	0.0	0.0	1.4	0.0	0.0	140.5	0.0	0.0	0.0	0.0	15.0	1.1	0.0	0.0	158.0
1970	0.0	0.0	2.1	0.0	0.0	103.6	0.0	0.0	0.0	0.0	17.0	0.1	0.0	0.0	122.8
1971	0.0	0.0	2.1	0.0	0.0	123.8	0.0	0.0	0.0	0.0	49.0	3.2	0.0	0.0	178.1
1972	0.0	0.0	3.0	0.0	0.0	195.5	0.0	0.0	0.0	0.0	68.0	0.0	0.0	0.0	266.5
1973	0.0	0.0	3.7	0.0	0.0	209.0	0.0	0.0	0.0	0.0	63.0	2.8	0.0	0.0	278.5
1974	0.0	0.0	4.6	0.0	0.0	229.7	0.0	0.0	0.0	0.0	45.0	0.0	0.0	0.0	279.3
1975	0.0	0.0	4.7	0.0	0.0	141.1	0.0	0.0	0.0	0.0	27.0	2.0	0.0	0.0	174.8
1976	0.0	0.0	3.9	0.0	0.0	157.3	0.0	0.0	0.0	0.0	12.0	6.6	0.0	0.0	179.8
1977	0.0	0.0	3.7	0.0	0.0	248.9	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	252.9

Table 6 (Continued). Catch [mt] by year and data source for rougheye rockfish (*Sebastes aleutianus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1978	0.0	0.0	3.7	0.0	0.0	426.6	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0	435.9
1979	0.0	0.0	5.3	0.0	0.0	181.3	0.0	0.0	0.0	0.0	0.0	96.6	0.0	0.0	283.2
1980	0.0	0.0	4.0	0.0	0.0	509.9	0.0	0.0	0.0	0.4	0.0	28.3	0.0	0.0	542.6
1981	2.1	0.0	0.0	0.0	54.3	0.0	0.0	15.9	0.0	0.0	0.0	0.0	0.0	0.0	72.3
1982	0.0	0.0	0.0	0.0	33.2	0.0	0.0	42.5	0.0	0.0	0.0	0.0	0.0	0.0	75.7
1983	0.0	0.0	0.0	0.0	41.5	0.0	0.0	10.3	0.1	0.0	0.0	0.0	0.0	0.0	51.8
1984	0.0	0.0	0.0	0.0	42.2	0.0	0.0	28.5	0.0	0.0	0.0	0.0	0.0	0.0	70.7
1985	0.0	0.0	0.0	0.0	102.3	0.0	0.0	40.9	0.0	0.0	0.0	0.0	0.0	0.0	143.2
1986	0.2	0.0	0.0	0.0	251.1	0.0	0.0	16.3	0.0	0.0	0.0	0.0	0.0	0.0	267.6
1987	9.8	0.0	0.0	0.0	0.0	0.0	357.8	64.9	0.0	0.1	0.0	0.0	0.0	1.3	433.9
1988	0.0	0.0	0.0	0.0	0.0	0.0	223.1	24.9	0.2	0.0	0.0	0.0	0.0	1.2	249.4
1989	0.6	0.0	0.0	0.0	0.0	0.0	278.3	44.2	0.0	0.0	0.0	0.0	0.0	2.3	325.4
1990	2.8	0.0	0.0	0.0	0.0	0.0	153.7	10.2	0.0	0.0	0.0	0.0	0.0	1.5	168.2
1991	1.3	0.0	0.0	4.8	0.0	0.0	175.3	18.7	0.0	0.0	0.0	0.0	0.0	2.4	202.4
1992	2.8	0.0	0.0	3.9	0.0	0.0	134.2	26.8	0.0	0.0	0.0	0.0	0.0	2.3	170.1
1993	0.0	0.0	0.0	1.1	0.0	0.0	173.1	2.5	0.0	0.0	0.0	0.0	0.0	2.8	179.5
1994	13.5	0.0	0.0	4.5	0.0	0.0	118.6	5.3	0.0	0.0	0.0	0.0	0.0	2.6	144.5
1995	6.1	0.0	0.0	1.6	0.0	0.0	216.0	41.9	0.0	0.0	0.0	0.0	0.0	5.6	271.2
1996	2.7	0.0	0.0	4.9	0.0	0.0	151.4	23.6	0.0	0.6	0.0	0.0	0.0	4.2	187.3
1997	0.6	0.0	0.0	9.2	0.0	0.0	78.6	33.1	0.0	0.0	0.0	0.0	0.0	3.0	124.4
1998	2.8	0.0	0.0	4.0	0.0	0.0	118.8	17.3	0.0	0.0	0.0	0.0	0.0	3.9	146.7
1999	1.0	0.0	0.0	1.8	0.0	0.0	46.4	18.7	0.0	0.0	0.0	0.0	0.0	2.0	70.0
2000	3.4	0.0	0.0	53.4	0.0	0.0	54.4	28.3	0.0	0.0	0.0	0.0	0.0	4.5	143.9
2001	2.8	0.0	0.0	17.2	0.0	0.0	52.3	11.1	0.0	0.0	0.0	0.0	0.0	2.8	86.3
2002	1.0	0.0	0.0	0.6	0.0	0.0	26.0	7.2	0.0	0.0	0.0	0.0	0.0	1.3	36.0
2003	1.9	0.0	0.0	0.7	0.0	0.0	43.1	11.2	0.0	0.0	0.0	0.0	0.0	2.2	59.2
2004	0.1	0.0	0.0	13.3	0.0	0.0	52.4	7.5	0.0	0.0	0.0	0.0	0.0	3.0	76.2
2005	3.2	0.0	0.0	34.4	0.0	0.0	44.5	7.2	0.0	0.0	0.0	0.0	0.0	3.8	93.0
2006	1.9	0.0	0.0	4.7	0.0	0.0	40.1	13.8	0.0	0.0	0.0	0.0	0.0	2.7	63.2
2007	3.7	0.0	0.0	28.2	0.0	0.0	55.8	12.9	0.0	0.0	0.0	0.0	0.0	4.8	105.5
2008	1.4	0.0	0.0	74.0	0.0	0.0	56.2	9.4	0.0	0.0	0.0	0.0	0.0	7.1	148.1
2009	6.3	0.0	0.0	7.9	0.0	0.0	68.6	19.2	0.0	0.0	0.0	0.0	0.0	5.1	107.0

Table 7. Catch [mt] by year and data source for kelp rockfish (*Sebastes atrovirens*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CARR	RECCA	COMDIS	Total
1928	0.0	0.1	0.0	0.0	0.1
1929	0.0	0.2	0.0	0.0	0.2
1930	0.0	0.2	0.0	0.0	0.2
1931	0.0	0.3	0.0	0.0	0.3
1932	0.0	0.3	0.0	0.0	0.3
1933	0.0	0.4	0.0	0.0	0.4
1934	0.0	0.5	0.0	0.0	0.5
1935	0.0	0.5	0.0	0.0	0.5
1936	0.0	0.6	0.0	0.0	0.6
1937	0.0	0.7	0.0	0.0	0.7
1938	0.0	0.7	0.0	0.0	0.7
1939	0.0	0.6	0.0	0.0	0.6
1940	0.0	0.8	0.0	0.0	0.8
1941	0.0	0.8	0.0	0.0	0.8
1942	0.0	0.4	0.0	0.0	0.4
1943	0.0	0.4	0.0	0.0	0.4
1944	0.0	0.3	0.0	0.0	0.3
1945	0.0	0.4	0.0	0.0	0.4
1946	0.0	0.7	0.0	0.0	0.7
1947	0.0	0.8	0.0	0.0	0.8
1948	0.0	1.6	0.0	0.0	1.6
1949	0.0	2.1	0.0	0.0	2.1
1950	0.0	2.7	0.0	0.0	2.7
1951	0.0	3.1	0.0	0.0	3.1
1952	0.0	3.0	0.0	0.0	3.0
1953	0.0	3.1	0.0	0.0	3.1
1954	0.0	5.0	0.0	0.0	5.0
1955	0.0	7.9	0.0	0.0	7.9
1956	0.0	9.3	0.0	0.0	9.3
1957	0.0	6.6	0.0	0.0	6.6
1958	0.0	8.5	0.0	0.0	8.5
1959	0.0	6.1	0.0	0.0	6.1
1960	0.0	5.3	0.0	0.0	5.3
1961	0.0	5.2	0.0	0.0	5.2
1962	0.0	4.7	0.0	0.0	4.7
1963	0.0	5.0	0.0	0.0	5.0
1964	0.0	6.6	0.0	0.0	6.6
1965	0.0	8.4	0.0	0.0	8.4
1966	0.0	16.9	0.0	0.0	16.9
1967	0.0	16.8	0.0	0.0	16.8
1968	0.0	19.0	0.0	0.0	19.0

Table 7 (Continued). Catch [mt] by year and data source for kelp rockfish (*Sebastes atrovirens*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CARR	RECCA	COMDIS	Total
1969	0.0	14.5	0.0	0.0	14.5
1970	0.0	20.0	0.0	0.0	20.0
1971	0.0	18.2	0.0	0.0	18.2
1972	0.0	23.5	0.0	0.0	23.5
1973	0.0	27.6	0.0	0.0	27.6
1974	0.0	33.6	0.0	0.0	33.6
1975	0.0	34.3	0.0	0.0	34.3
1976	0.0	29.0	0.0	0.0	29.0
1977	0.0	26.4	0.0	0.0	26.4
1978	0.0	24.7	0.0	0.0	24.7
1979	0.0	31.6	0.0	0.0	31.6
1980	0.0	30.3	0.0	0.0	30.3
1981	0.0	0.0	25.4	0.0	25.4
1982	0.0	0.0	8.5	0.0	8.5
1983	0.0	0.0	34.0	0.0	34.0
1984	1.3	0.0	44.3	0.1	45.6
1985	1.5	0.0	34.9	0.1	36.6
1986	4.6	0.0	28.4	0.3	33.3
1987	6.2	0.0	12.8	0.4	19.5
1988	10.2	0.0	11.0	0.7	21.8
1989	0.7	0.0	17.0	0.0	17.7
1990	0.7	0.0	17.1	0.0	17.8
1991	1.5	0.0	18.8	0.1	20.4
1992	1.1	0.0	20.5	0.1	21.7
1993	9.0	0.0	22.3	0.6	32.0
1994	6.3	0.0	27.9	0.4	34.6
1995	6.8	0.0	21.8	0.4	29.0
1996	6.4	0.0	12.2	0.4	19.0
1997	3.8	0.0	12.6	0.2	16.7
1998	3.1	0.0	5.0	0.2	8.3
1999	1.9	0.0	8.1	0.1	10.2
2000	1.1	0.0	7.2	0.1	8.4
2001	1.1	0.0	8.1	0.1	9.2
2002	1.1	0.0	21.9	0.1	23.1
2003	1.2	0.0	23.1	0.1	24.4
2004	1.0	0.0	4.4	0.1	5.4
2005	0.8	0.0	5.7	0.1	6.6
2006	0.7	0.0	5.4	0.0	6.1
2007	0.5	0.0	7.2	0.0	7.7
2008	0.5	0.0	5.0	0.0	5.6
2009	1.1	0.0	4.3	0.1	5.5

Table 8. Catch [mt] by year and data source for brown rockfish (*Sebastes auriculatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	COMDIS	Total
1916	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.2
1917	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	14.3
1918	0.0	15.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	16.7
1919	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.6
1920	0.0	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.9
1921	0.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.8
1922	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.4
1923	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.1
1924	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.3
1925	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.6
1926	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	9.6
1927	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.3
1928	0.0	4.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.7
1929	0.0	3.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.4
1930	0.0	7.5	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	10.5
1931	0.0	9.8	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	13.8
1932	0.0	9.5	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	14.3
1933	0.0	10.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	15.8
1934	0.0	4.9	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	11.2
1935	0.0	7.2	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	14.4
1936	0.0	6.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	15.0
1937	0.0	7.5	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	17.0
1938	0.0	8.8	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	18.3
1939	0.0	11.6	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.6	20.1
1940	0.0	10.5	11.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	22.3
1941	0.0	11.1	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.6	22.0
1942	0.0	1.1	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.7
1943	0.0	3.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.7
1944	0.0	1.2	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.6
1945	0.0	6.1	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	12.2
1946	0.0	12.4	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.7	23.0
1947	0.0	5.4	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	14.0
1948	0.0	5.4	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	22.5
1949	0.0	7.7	21.7	0.0	0.0	0.0	0.0	0.0	0.0	0.4	29.8
1950	0.0	3.5	26.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	30.3
1951	0.0	13.5	31.8	0.0	0.0	0.0	0.0	0.0	0.0	0.8	46.1
1952	0.0	17.6	28.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	46.6
1953	0.0	11.8	24.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	37.1
1954	0.0	15.7	34.3	0.0	0.0	0.0	0.0	0.0	0.0	0.9	50.9
1955	0.0	51.3	45.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	99.2
1956	0.0	54.9	48.3	0.0	0.0	0.0	0.0	0.0	0.0	3.1	106.3
1957	0.0	64.1	40.9	0.0	0.0	0.0	0.0	0.0	0.0	3.6	108.6
1958	0.0	57.6	68.5	0.0	0.0	0.0	0.0	0.0	0.0	3.2	129.4
1959	0.0	38.1	50.7	0.0	0.0	0.0	0.0	0.0	0.0	2.1	91.0
1960	0.0	60.5	42.4	0.0	0.0	0.0	0.0	0.0	0.0	3.4	106.3
1961	0.0	49.9	32.5	0.0	0.0	0.0	0.0	0.0	0.0	2.8	85.3
1962	0.0	51.5	37.8	0.0	0.0	0.0	0.0	0.0	0.0	2.9	92.2

Table 8 (Continued). Catch [mt] by year and data source for brown rockfish (*Sebastes auriculatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	COMDIS	Total
1963	0.0	65.5	47.3	0.0	0.0	0.0	0.0	0.0	0.0	3.7	116.4
1964	0.0	51.0	40.4	0.0	0.0	0.0	0.0	0.0	0.0	2.9	94.2
1965	0.0	56.0	60.5	0.0	0.0	0.0	0.0	0.0	0.0	3.1	119.6
1966	0.0	52.1	74.9	0.0	0.0	0.0	0.0	0.0	6.0	3.3	136.2
1967	0.0	60.0	75.3	0.0	0.0	0.0	0.0	0.0	11.0	4.0	150.3
1968	0.0	68.6	79.7	0.0	0.0	0.0	0.0	0.0	4.0	4.1	156.3
1969	45.5	0.0	76.7	0.0	0.0	0.0	0.0	0.0	2.0	2.7	126.9
1970	55.1	0.0	99.0	0.0	0.0	0.0	0.0	0.0	4.0	3.3	161.4
1971	64.5	0.0	88.7	0.0	0.0	0.0	0.0	0.0	4.0	3.8	161.1
1972	88.4	0.0	116.1	0.0	0.0	0.0	0.0	0.0	3.0	5.1	212.6
1973	149.7	0.0	128.0	0.0	0.0	0.0	0.0	0.0	23.0	9.7	310.3
1974	144.1	0.0	143.2	0.0	0.0	0.0	0.0	0.0	61.0	11.5	359.8
1975	142.6	0.0	147.3	0.0	0.0	0.0	0.0	0.0	15.0	8.8	313.6
1976	173.2	0.0	132.4	0.0	0.0	0.0	0.0	0.0	18.0	10.7	334.3
1977	147.4	0.0	129.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	284.7
1978	81.7	0.0	116.3	0.0	0.0	0.0	0.0	0.0	0.0	4.6	202.6
1979	63.2	0.0	129.4	0.0	0.0	0.0	0.0	0.0	0.0	3.5	196.2
1980	232.5	0.0	118.5	0.0	0.0	0.0	0.0	0.0	0.0	13.0	364.0
1981	62.5	0.0	0.0	0.0	0.0	92.6	0.0	0.3	0.0	3.5	158.9
1982	131.3	0.0	0.0	0.0	0.0	115.4	0.0	1.2	0.0	7.4	255.2
1983	21.9	0.0	0.0	0.0	0.0	125.1	0.0	0.0	0.0	1.2	148.2
1984	61.5	0.0	0.0	0.0	0.0	179.6	0.0	0.0	0.0	3.4	244.5
1985	9.1	0.0	0.0	0.0	0.0	209.1	0.0	0.0	0.0	0.5	218.6
1986	50.1	0.0	0.0	0.0	0.0	209.4	0.0	0.1	0.0	2.8	262.5
1987	13.5	0.0	0.0	0.0	0.0	164.1	0.0	15.7	0.0	0.8	194.2
1988	37.7	0.0	0.0	0.0	0.0	290.0	0.0	0.0	0.0	2.1	329.8
1989	75.9	0.0	0.0	0.0	0.0	141.5	0.0	0.0	0.0	4.2	221.7
1990	51.9	0.0	0.0	0.0	0.0	147.9	0.0	0.0	0.0	2.9	202.6
1991	63.1	0.0	0.0	4.5	0.0	122.5	0.0	0.0	0.0	3.8	193.9
1992	56.5	0.0	0.0	0.0	0.0	97.2	0.0	0.0	0.0	3.2	156.9
1993	67.3	0.0	0.0	0.0	0.0	70.1	0.0	0.0	0.0	3.8	141.2
1994	23.0	0.0	0.0	0.0	0.0	29.5	0.0	0.0	0.0	1.3	53.7
1995	20.1	0.0	0.0	0.0	0.0	40.1	0.0	0.0	0.0	1.1	61.4
1996	41.6	0.0	0.0	0.0	0.0	48.4	0.0	0.0	0.0	2.3	92.3
1997	69.7	0.0	0.0	0.0	0.0	58.0	0.0	0.0	0.0	3.9	131.6
1998	55.3	0.0	0.0	0.0	0.0	43.6	0.0	0.0	0.0	3.1	102.0
1999	58.0	0.0	0.0	0.0	0.0	65.1	0.1	0.0	0.0	3.3	126.5
2000	41.3	0.0	0.0	0.0	0.0	60.1	0.0	0.0	0.0	2.3	103.8
2001	30.5	0.0	0.0	0.0	0.0	115.7	0.8	0.0	0.0	1.7	148.8
2002	23.8	0.0	0.0	0.0	0.0	67.4	0.0	0.0	0.0	1.3	92.5
2003	20.1	0.0	0.0	0.0	0.0	153.5	0.1	0.0	0.0	1.1	174.8
2004	24.7	0.0	0.0	0.0	0.0	34.2	0.0	0.0	0.0	1.4	60.3
2005	22.3	0.0	0.0	0.0	0.0	84.7	0.1	0.0	0.0	1.3	108.3
2006	20.7	0.0	0.0	0.0	0.0	71.3	0.1	0.0	0.0	1.2	93.2
2007	22.1	0.0	0.0	0.0	0.0	57.7	0.1	0.0	0.0	1.2	81.0
2008	24.3	0.0	0.0	0.0	0.0	50.2	0.1	0.0	0.0	1.4	75.8
2009	23.8	0.0	0.0	0.0	0.0	60.9	0.0	0.0	0.0	1.3	86.0

Table 9. Catch [mt] by year and data source for aurora rockfish (*Sebastes aurora*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	COMDIS	Total
1916	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1917	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1918	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1919	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1920	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1921	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1922	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1923	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1924	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1925	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1926	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1927	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
1928	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.3
1929	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.5
1930	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.5
1931	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.4
1932	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3
1933	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4
1934	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4
1935	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3
1936	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.5
1937	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.7
1938	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.8
1939	0.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.8
1940	0.0	0.5	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.2	1.1
1941	0.0	1.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.3	2.1
1942	0.0	0.4	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.3	1.8
1943	0.0	0.9	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.7	4.2
1944	0.0	1.6	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.5	2.7
1945	0.0	3.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.7	4.4
1946	0.0	2.5	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.6	3.9
1947	0.0	2.4	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	3.3
1948	0.0	2.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.5	3.2
1949	0.0	1.5	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4	2.3
1950	0.0	2.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	2.8
1951	0.0	3.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.7	4.0
1952	0.0	3.4	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.7	4.4
1953	0.0	3.8	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.8	4.7
1954	0.0	2.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	3.1
1955	0.0	2.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.4	2.8
1956	0.0	2.6	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.5	3.4
1957	0.0	2.8	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.6	3.7
1958	0.0	4.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	5.0
1959	0.0	4.6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.9	5.7
1960	0.0	3.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.7	4.4
1961	0.0	2.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	3.1
1962	0.0	2.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.4	2.7

Table 9 (Continued). Catch [mt] by year and data source for aurora rockfish (*Sebastes aurora*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	COMDIS	Total
1963	0.0	2.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.5	3.0
1964	0.0	1.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.4	2.2
1965	0.0	1.5	0.1	0.0	0.0	1.0	0.0	0.0	0.0	0.5	3.2
1966	0.0	1.5	0.2	0.0	0.0	1.0	0.0	0.0	1.0	0.7	4.3
1967	0.0	1.4	0.3	0.0	0.0	1.6	0.0	0.0	0.0	0.6	3.8
1968	0.0	1.2	0.4	0.0	0.0	1.6	0.0	0.0	0.0	0.6	3.7
1969	2.2	0.0	0.4	0.0	0.0	2.2	0.0	0.0	0.0	0.9	5.7
1970	2.6	0.0	0.5	0.0	0.0	1.6	0.0	0.0	0.0	0.8	5.6
1971	2.9	0.0	0.5	0.0	0.0	1.9	0.0	0.0	2.0	1.3	8.7
1972	3.4	0.0	0.7	0.0	0.0	3.3	0.0	0.0	4.0	2.1	13.5
1973	4.8	0.0	0.9	0.0	0.0	3.7	0.0	0.0	12.0	4.0	25.4
1974	4.8	0.0	1.1	0.0	0.0	3.6	0.0	0.0	4.0	2.4	15.9
1975	4.7	0.0	1.2	0.0	0.0	2.8	0.0	0.0	6.0	2.6	17.3
1976	5.8	0.0	1.0	0.0	0.0	2.5	0.0	0.0	4.0	2.4	15.7
1977	5.4	0.0	0.9	0.0	0.0	4.1	0.0	0.0	0.0	1.9	12.3
1978	0.2	0.0	0.9	0.0	0.0	8.0	0.0	0.0	0.0	1.6	10.6
1979	10.8	0.0	1.3	0.0	0.0	6.6	0.0	0.0	0.0	3.4	22.2
1980	4.7	0.0	1.1	0.0	0.0	8.8	0.0	0.0	0.0	2.7	17.3
1981	5.2	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	1.5	9.3
1982	30.6	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0	7.8	47.7
1983	112.6	0.0	0.0	0.0	22.4	0.0	0.0	0.0	0.0	26.6	161.5
1984	24.7	0.0	0.0	0.0	9.2	0.0	0.0	0.5	0.0	6.8	41.1
1985	52.1	0.0	0.0	0.0	10.5	0.0	0.0	1.4	0.0	12.6	76.6
1986	80.0	0.0	0.0	0.0	17.9	0.0	0.0	0.0	0.0	19.3	117.1
1987	30.0	0.0	0.0	0.0	0.0	0.0	11.6	0.5	0.0	8.8	50.9
1988	89.5	0.0	0.0	0.0	0.0	0.0	31.9	2.5	0.0	27.7	151.6
1989	95.5	0.0	0.0	0.0	0.0	0.0	35.3	0.0	0.0	31.0	161.9
1990	146.8	0.0	0.0	0.0	0.0	0.0	38.3	1.5	0.0	46.6	233.1
1991	23.6	0.0	0.0	0.1	0.0	0.0	28.9	1.1	0.0	14.2	67.8
1992	102.0	0.0	0.0	0.0	0.0	0.0	90.4	0.1	0.0	53.3	245.8
1993	98.5	0.0	0.0	0.0	0.0	0.0	32.4	0.1	0.0	38.1	169.1
1994	80.3	0.0	0.0	0.0	0.0	0.0	15.5	0.2	0.0	29.2	125.2
1995	58.7	0.0	0.0	0.0	0.0	0.0	6.0	0.5	0.0	20.7	85.9
1996	44.8	0.0	0.0	0.0	0.0	0.0	5.2	0.3	0.0	16.6	66.9
1997	39.8	0.0	0.0	0.0	0.0	0.0	7.5	0.4	0.0	16.4	64.1
1998	25.6	0.0	0.0	0.0	0.0	0.0	12.5	0.4	0.0	13.8	52.3
1999	9.1	0.0	0.0	0.0	0.0	0.0	6.4	0.2	0.0	5.8	21.5
2000	20.3	0.0	0.0	0.0	0.0	0.0	6.9	0.2	0.0	10.6	38.0
2001	17.2	0.0	0.0	0.0	0.0	0.0	5.8	0.1	0.0	9.2	32.4
2002	37.6	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	16.2	55.8
2003	50.2	0.0	0.0	0.0	0.0	0.0	6.1	0.3	0.0	24.0	80.6
2004	61.3	0.0	0.0	0.0	0.0	0.0	7.0	0.3	0.0	30.1	98.7
2005	38.9	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	19.1	61.4
2006	28.1	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	15.5	48.9
2007	29.5	0.0	0.0	0.0	0.0	0.0	7.8	0.2	0.0	17.9	55.4
2008	10.9	0.0	0.0	0.0	0.0	0.0	7.6	1.0	0.0	9.6	29.0
2009	13.0	0.0	0.0	0.0	0.0	0.0	5.9	0.2	0.0	9.3	28.4

Table 10. Catch [mt] by year and data source for redbanded rockfish (*Sebastes babcocki*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1916	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.3
1917	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.7
1918	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.5
1919	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1
1920	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.3
1921	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0
1922	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.9
1923	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.5
1924	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.0
1925	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4
1926	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.3
1927	0.0	3.4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.9
1928	0.0	3.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.4
1929	0.0	3.9	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.9
1930	0.0	3.7	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.4
1931	0.0	4.6	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.5
1932	0.0	4.3	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.4
1933	0.0	4.2	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.8
1934	0.0	3.6	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.4
1935	0.0	3.1	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.7
1936	0.0	1.9	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.4
1937	0.0	3.1	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.5
1938	0.0	3.6	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	7.9
1939	0.0	5.1	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.0
1940	0.0	4.5	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.6
1941	0.0	4.8	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	18.2
1942	0.0	2.4	0.0	0.0	0.0	18.9	0.0	0.0	0.0	0.0	0.0	0.1	1.2	22.6
1943	0.0	13.1	0.0	0.0	0.0	52.9	0.0	0.0	0.0	0.0	0.0	0.6	3.7	70.4
1944	0.0	44.0	0.0	0.0	0.0	46.6	0.0	0.0	0.0	0.0	0.0	0.7	5.1	96.4
1945	0.0	84.6	0.0	0.0	0.0	63.3	0.0	0.0	0.0	0.0	0.0	2.2	8.4	158.4
1946	0.0	51.8	0.0	0.0	0.0	44.1	0.0	0.0	0.0	0.0	0.0	1.4	5.4	102.8

Table 10 (Continued). Catch [mt] by year and data source for redbanded rockfish (*Sebastes babcocki*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1947	0.0	46.7	0.0	0.0	0.0	27.7	0.0	0.0	0.0	0.0	0.0	0.8	4.2	79.4
1948	0.0	24.5	0.0	0.0	0.0	29.3	0.0	0.0	0.0	0.0	0.0	1.4	3.1	58.3
1949	0.0	18.0	0.0	0.0	0.0	29.7	0.0	0.0	0.0	0.0	0.0	1.7	2.8	52.2
1950	0.0	20.2	0.0	0.0	0.0	27.2	0.0	0.0	0.0	0.0	0.0	1.7	2.7	51.8
1951	0.0	35.7	0.0	0.0	0.0	23.3	0.0	0.0	0.0	0.0	0.0	1.3	3.4	63.8
1952	0.0	27.0	0.0	0.0	0.0	27.5	0.0	0.0	0.0	0.0	0.0	2.0	3.2	59.7
1953	0.0	30.9	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	1.5	2.6	49.3
1954	0.0	25.5	0.0	0.0	0.0	44.1	0.0	0.0	0.0	0.0	0.0	2.8	4.1	76.5
1955	0.0	40.6	0.0	0.0	0.0	103.0	0.0	0.0	0.0	0.0	0.0	1.9	8.1	153.7
1956	0.0	33.1	0.0	0.0	0.0	273.3	0.0	0.0	0.0	0.0	0.0	3.4	17.4	327.2
1957	0.0	42.3	0.0	0.0	0.0	74.4	0.0	0.0	0.0	0.0	0.0	2.8	6.7	126.2
1958	0.0	47.9	0.0	0.0	0.0	30.9	0.0	0.0	0.0	0.0	0.0	3.2	4.6	86.5
1959	0.0	44.8	0.0	0.0	0.0	32.2	0.0	0.0	0.0	0.0	0.0	3.6	4.5	85.1
1960	0.0	35.9	0.0	0.0	0.0	50.7	0.0	0.0	0.0	0.0	0.0	4.3	5.1	96.1
1961	0.0	27.5	0.0	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	4.7	4.4	82.5
1962	0.0	23.6	0.0	0.0	0.0	49.4	0.0	0.0	0.0	0.0	0.0	6.3	4.4	83.7
1963	0.0	30.2	0.0	0.0	0.0	46.8	0.0	0.0	0.0	0.0	4.5	0.0	4.6	86.0
1964	0.0	17.8	0.0	0.0	0.0	37.7	0.0	0.0	0.0	0.0	4.3	0.0	3.3	63.1
1965	0.0	22.3	0.0	0.0	0.0	68.4	0.0	0.0	0.0	0.0	4.5	0.0	5.3	100.6
1966	0.0	17.9	0.1	0.0	0.0	29.5	0.0	0.0	0.0	139.0	5.6	0.0	10.8	202.9
1967	0.0	20.1	0.1	0.0	0.0	34.9	0.0	0.0	0.0	62.0	0.0	0.0	6.6	123.6
1968	0.0	21.8	0.1	0.0	0.0	32.0	0.0	0.0	0.0	50.0	0.0	0.0	5.8	109.6
1969	10.7	0.0	0.1	0.0	0.0	59.2	0.0	0.0	0.0	7.0	2.0	0.0	4.4	83.3
1970	12.2	0.0	0.1	0.0	0.0	129.8	0.0	0.0	0.0	7.0	0.2	0.0	8.4	157.6
1971	16.3	0.0	0.1	0.0	0.0	71.8	0.0	0.0	0.0	13.0	2.7	0.0	5.8	109.6
1972	18.0	0.0	0.1	0.0	0.0	58.7	0.0	0.0	0.0	16.0	6.7	0.0	5.6	105.1
1973	17.0	0.0	0.1	0.0	0.0	47.0	0.0	0.0	0.0	76.0	7.2	0.0	8.2	155.7
1974	23.4	0.0	0.1	0.0	0.0	59.7	0.0	0.0	0.0	23.0	2.9	0.0	6.1	115.3
1975	21.8	0.0	0.1	0.0	0.0	37.5	0.0	0.0	0.0	28.0	5.7	0.0	5.2	98.3
1976	27.9	0.0	0.1	0.0	0.0	33.6	0.0	0.0	0.0	16.0	2.9	0.0	4.5	85.1
1977	27.8	0.0	0.1	0.0	0.0	44.3	0.0	0.0	0.0	0.0	17.9	0.0	5.0	95.1

Table 10 (Continued). Catch [mt] by year and data source for redbanded rockfish (*Sebastes babcocki*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1978	20.5	0.0	0.1	0.0	0.0	103.2	0.0	0.0	0.0	0.0	13.8	0.0	7.7	145.3
1979	22.1	0.0	0.2	0.0	0.0	34.9	0.0	0.0	0.0	0.0	10.8	0.0	3.8	71.8
1980	24.6	0.0	0.2	0.0	0.0	101.5	0.0	0.0	0.0	0.0	77.8	0.0	11.4	215.5
1981	130.8	0.0	0.0	0.0	34.1	0.0	0.0	24.3	0.0	0.0	0.0	0.0	10.6	199.8
1982	14.2	0.0	0.0	0.0	37.0	0.0	0.0	8.9	0.0	0.0	0.0	0.0	3.4	63.5
1983	114.5	0.0	0.0	0.0	50.7	0.0	0.0	24.3	0.0	0.0	0.0	0.0	10.6	200.0
1984	157.8	0.0	0.0	0.0	59.6	0.0	0.0	27.6	0.0	0.0	0.0	0.0	13.7	258.7
1985	96.3	0.0	0.0	0.0	84.7	0.0	0.0	12.0	0.1	0.0	0.0	0.0	10.8	203.8
1986	15.3	0.0	0.0	0.0	53.6	0.0	0.0	22.1	1.3	0.0	0.0	0.0	5.1	97.4
1987	16.7	0.0	0.0	0.0	0.0	0.0	39.4	10.9	0.0	0.0	0.0	0.0	5.1	72.1
1988	21.7	0.0	0.0	0.0	0.0	0.0	56.2	20.6	0.0	0.0	0.0	0.0	9.4	107.9
1989	26.2	0.0	0.0	0.0	0.0	0.0	64.7	35.8	0.0	0.0	0.0	0.0	14.6	141.3
1990	18.8	0.0	0.0	0.0	0.0	0.0	30.2	14.4	0.0	0.0	0.0	0.0	8.6	72.0
1991	23.0	0.0	0.0	0.0	0.0	0.0	35.2	18.3	0.0	0.0	0.0	0.0	11.9	88.3
1992	19.0	0.0	0.0	0.0	0.0	0.0	20.5	7.0	0.0	0.0	0.0	0.0	8.1	54.7
1993	8.6	0.0	0.0	0.0	0.0	0.0	53.6	4.0	0.0	0.0	0.0	0.0	12.8	79.0
1994	23.5	0.0	0.0	0.0	0.0	0.0	38.2	2.7	0.0	0.0	0.0	0.0	13.8	78.1
1995	18.7	0.0	0.0	1.5	0.0	0.0	33.7	9.5	0.0	0.0	0.0	0.0	14.8	78.2
1996	22.6	0.0	0.0	0.0	0.0	0.0	26.6	9.9	0.0	0.0	0.0	0.0	15.0	74.1
1997	5.2	0.0	0.0	0.0	0.0	0.0	14.6	13.0	0.0	0.0	0.0	0.0	9.0	41.8
1998	14.2	0.0	0.0	0.0	0.0	0.0	16.0	6.9	0.0	0.0	0.0	0.0	10.9	47.9
1999	13.0	0.0	0.0	0.0	0.0	0.0	10.8	12.4	0.0	0.0	0.0	0.0	11.3	47.5
2000	16.0	0.0	0.0	0.0	0.0	0.0	12.3	10.3	0.1	0.0	0.0	0.0	12.8	51.4
2001	11.2	0.0	0.0	0.1	0.0	0.0	7.2	1.7	0.0	0.0	0.0	0.0	7.1	27.2
2002	3.4	0.0	0.0	0.0	0.0	0.0	3.6	1.2	0.0	0.0	0.0	0.0	3.0	11.2
2003	5.6	0.0	0.0	0.0	0.0	0.0	3.2	1.7	0.0	0.0	0.0	0.0	4.1	14.7
2004	3.1	0.0	0.0	0.0	0.0	0.0	5.0	5.4	0.0	0.0	0.0	0.0	5.6	19.2
2005	3.2	0.0	0.0	0.0	0.0	0.0	4.0	2.5	0.0	0.0	0.0	0.0	4.2	13.9
2006	6.3	0.0	0.0	0.0	0.0	0.0	3.0	6.3	0.0	0.0	0.0	0.0	7.1	22.7
2007	7.5	0.0	0.0	0.0	0.0	0.0	6.6	0.2	0.0	0.0	0.0	0.0	6.7	21.1
2008	8.9	0.0	0.0	0.0	0.0	0.0	7.5	0.2	0.0	0.0	0.0	0.0	8.2	24.8
2009	5.8	0.0	0.0	0.0	0.0	0.0	6.5	0.8	0.0	0.0	0.0	0.0	6.4	19.4

Table 11. Catch [mt] by year and data source for shortraker rockfish (*Sebastes borealis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	COMDIS	Total
1927	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1928	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1929	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1930	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1931	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1932	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1933	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1934	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1935	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1936	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1937	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1938	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1939	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1940	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1941	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.5
1942	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.7
1943	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.1	1.7
1944	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5
1945	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1946	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5
1947	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1948	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1949	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1950	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1951	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
1952	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1953	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1954	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1955	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1956	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1957	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2
1958	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1959	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1960	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1961	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1962	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1963	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
1964	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3
1965	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.6
1966	0.0	0.0	0.0	0.5	0.0	0.0	2.0	0.0	0.1	2.7
1967	0.0	0.0	0.0	0.9	0.0	0.0	2.0	0.0	0.1	3.1
1968	0.0	0.0	0.0	0.9	0.0	0.0	1.0	0.0	0.1	2.0

Table 11 (Continued). Catch [mt] by year and data source for shortraker rockfish (*Sebastes borealis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	COMDIS	Total
1969	0.0	0.0	0.0	1.3	0.0	0.0	1.0	0.0	0.1	2.4
1970	0.0	0.0	0.0	1.0	0.0	0.0	2.0	0.0	0.1	3.1
1971	0.0	0.0	0.0	1.1	0.0	0.0	6.0	0.0	0.4	7.5
1972	0.0	0.0	0.0	1.9	0.0	0.0	4.0	0.0	0.3	6.2
1973	0.0	0.0	0.0	2.0	0.0	0.0	7.0	0.0	0.4	9.4
1974	0.0	0.0	0.0	2.2	0.0	0.0	2.0	0.0	0.2	4.4
1975	0.0	0.0	0.0	1.9	0.0	0.0	3.0	0.0	0.2	5.2
1976	0.0	0.0	0.0	1.5	0.0	0.0	1.0	0.0	0.1	2.6
1977	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.1	2.3
1978	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.2	4.2
1979	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.1	1.8
1980	0.0	0.0	0.0	4.9	0.0	0.0	0.0	6.8	0.6	12.3
1981	0.0	0.0	0.2	0.0	0.0	10.7	0.0	0.0	0.5	11.5
1982	0.0	0.0	5.3	0.0	0.0	6.4	0.0	0.0	0.6	12.3
1983	3.7	0.0	4.3	0.0	0.0	15.6	0.0	0.0	1.2	24.8
1984	0.0	0.0	47.7	0.0	0.0	152.5	0.0	0.0	10.0	210.2
1985	0.0	0.0	96.8	0.0	0.0	76.0	0.0	0.0	8.6	181.4
1986	0.0	0.0	102.0	0.0	0.0	17.7	0.0	0.0	6.0	125.7
1987	0.0	0.0	0.0	0.0	66.6	27.3	0.0	0.0	4.7	98.6
1988	0.0	0.0	0.0	0.0	56.7	13.4	0.0	0.0	3.5	73.5
1989	0.0	0.0	0.0	0.0	122.7	31.9	0.0	0.0	7.7	162.3
1990	0.0	0.0	0.0	0.0	106.2	17.4	0.0	0.0	6.2	129.8
1991	0.0	0.0	0.0	0.0	72.2	31.4	0.0	0.0	5.2	108.9
1992	0.0	0.2	0.0	0.0	31.5	17.8	0.0	0.0	2.5	51.9
1993	0.0	1.0	0.0	0.0	59.9	2.3	0.0	0.0	3.2	66.4
1994	0.0	0.1	0.0	0.0	39.2	3.7	0.0	0.0	2.1	45.1
1995	0.0	2.9	0.0	0.0	17.4	19.1	0.0	0.0	2.0	41.4
1996	1.5	0.1	0.0	0.0	46.3	19.1	0.0	0.0	3.4	70.4
1997	1.0	0.0	0.0	0.0	46.4	16.5	0.0	0.0	3.2	67.1
1998	0.4	0.2	0.0	0.0	24.8	23.1	0.0	0.0	2.4	51.0
1999	12.9	0.7	0.0	0.0	36.3	13.3	0.0	0.0	3.2	66.3
2000	0.0	0.3	0.0	0.0	20.3	5.1	0.0	0.0	1.3	27.1
2001	0.0	0.2	0.0	0.0	7.2	3.9	0.0	0.0	0.6	12.0
2002	0.2	0.1	0.0	0.0	5.3	1.1	0.0	0.0	0.3	7.0
2003	0.6	0.1	0.0	0.0	14.1	5.6	0.0	0.0	1.0	21.5
2004	0.0	0.5	0.0	0.0	11.9	1.5	0.0	0.0	0.7	14.5
2005	0.0	0.3	0.0	0.0	8.0	0.9	0.0	0.0	0.5	9.6
2006	0.0	0.2	0.0	0.0	5.1	0.4	0.0	0.0	0.3	6.0
2007	0.7	0.2	0.0	0.0	13.5	3.0	0.0	0.0	0.9	18.4
2008	0.8	0.2	0.0	0.0	8.7	2.8	0.0	0.0	0.6	13.1
2009	3.0	0.1	0.0	0.0	16.0	2.5	0.0	0.0	1.1	22.8

Table 12. Catch [mt] by year and data source for silvergray rockfish (*Sebastes brevispinis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1918	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1919	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1925	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1926	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1927	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1928	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1929	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1930	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1931	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1932	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1933	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1934	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1935	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1936	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1937	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1938	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1939	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1940	0.0	0.1	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
1941	0.0	0.1	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
1942	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	5.6
1943	0.0	0.0	0.0	0.0	0.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.2	19.7
1944	0.0	0.1	0.0	0.0	0.0	29.3	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.3	32.0
1945	0.0	0.2	0.0	0.0	0.0	44.8	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.5	52.5
1946	0.0	0.3	0.0	0.0	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.3	33.0

Table 12 (Continued). Catch [mt] by year and data source for silvergray rockfish (*Sebastes brevispinis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1947	0.0	0.1	0.0	0.0	0.0	17.9	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.2	20.8
1948	0.0	0.1	0.0	0.0	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.2	18.9
1949	0.0	0.1	0.0	0.0	0.0	14.4	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.2	20.2
1950	0.0	0.1	0.0	0.0	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0	5.4	0.2	21.4
1951	0.0	0.2	0.0	0.0	0.0	11.4	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.1	16.2
1952	0.0	0.3	0.0	0.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.2	19.3
1953	0.0	0.3	0.0	0.0	0.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.1	14.4
1954	0.0	0.2	0.0	0.0	0.0	23.9	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.3	33.4
1955	0.0	0.2	0.0	0.0	0.0	22.1	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.3	28.6
1956	0.0	0.4	0.0	0.0	0.0	45.9	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.5	57.9
1957	0.0	0.4	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.4	40.2
1958	0.0	0.4	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.2	27.6
1959	0.0	0.4	0.0	0.0	0.0	18.1	0.0	0.0	0.0	0.0	0.0	0.0	11.7	0.3	30.4
1960	0.0	0.3	0.0	0.0	0.0	25.7	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.4	40.5
1961	0.0	0.1	0.0	0.0	0.0	22.6	0.0	0.0	0.0	0.0	0.0	0.0	15.3	0.3	38.4
1962	0.0	0.2	0.0	0.0	0.0	25.3	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.4	46.5
1963	0.0	0.3	0.0	0.0	0.0	61.4	0.0	0.0	0.0	0.0	0.0	20.9	0.0	0.7	83.3
1964	0.0	0.2	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.2	25.8
1965	0.0	0.2	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	24.1	0.0	0.3	29.4
1966	0.0	0.2	0.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	376.0	31.8	0.0	3.8	429.3
1967	0.0	0.1	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	144.0	28.7	0.0	1.6	178.5
1968	0.0	0.1	0.0	0.0	0.0	57.7	0.0	0.0	0.0	0.0	58.0	19.8	0.0	1.2	136.9
1969	0.1	0.0	0.0	0.0	0.0	24.8	0.0	0.0	0.0	0.0	4.0	6.2	0.0	0.3	35.5
1970	0.1	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	7.0	19.0	0.0	0.3	39.0
1971	0.3	0.0	0.0	0.0	0.0	29.8	0.0	0.0	0.0	0.0	39.0	29.3	0.0	0.9	99.2
1972	0.3	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	26.0	5.1	0.0	0.3	34.4
1973	0.2	0.0	0.1	0.0	0.0	2.2	0.0	0.0	0.0	0.0	94.0	0.8	0.0	0.9	98.1
1974	0.3	0.0	0.1	0.0	0.0	1.8	0.0	0.0	0.0	0.0	44.0	0.0	0.0	0.4	46.6
1975	0.3	0.0	0.1	0.0	0.0	2.1	0.0	0.0	0.0	0.0	46.0	21.8	0.0	0.6	70.8
1976	0.3	0.0	0.1	0.0	0.0	1.4	0.0	0.0	0.0	0.0	14.0	16.3	0.0	0.3	32.3
1977	0.3	0.0	0.1	0.0	0.0	35.7	0.0	0.0	0.0	0.0	0.0	1036.4	0.0	9.7	1082.1

Table 12 (Continued). Catch [mt] by year and data source for silvergray rockfish (*Sebastes brevispinis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1978	0.1	0.0	0.1	0.0	0.0	57.2	0.0	0.0	0.0	0.0	0.0	989.0	0.0	9.4	1055.7
1979	1.7	0.0	0.1	0.0	0.0	43.3	0.0	0.0	0.0	0.0	0.0	1085.3	0.0	10.2	1140.5
1980	0.1	0.0	0.1	0.0	0.0	154.2	0.0	0.0	0.2	0.0	0.0	279.9	0.0	3.9	438.5
1981	0.1	0.0	0.0	0.0	71.5	0.0	0.0	146.8	0.0	0.8	0.0	0.0	0.0	2.0	221.2
1982	0.2	0.0	0.0	0.0	150.3	0.0	0.0	72.2	2.5	0.0	0.0	0.0	0.0	2.0	227.2
1983	0.1	0.0	0.0	0.0	367.6	0.0	0.0	380.5	0.0	0.0	0.0	0.0	0.0	6.7	754.9
1984	5.9	0.0	0.0	0.0	142.8	0.0	0.0	478.6	0.0	0.0	0.0	0.0	0.0	5.6	633.0
1985	6.2	0.0	0.0	0.0	359.3	0.0	0.0	260.7	0.0	0.0	0.0	0.0	0.0	5.6	631.8
1986	1.1	0.0	0.0	0.0	310.9	0.0	0.0	225.3	0.0	0.0	0.0	0.0	0.0	4.8	542.2
1987	0.8	0.0	0.0	0.0	0.0	0.0	200.0	291.0	0.0	0.1	0.0	0.0	0.0	9.3	501.3
1988	4.4	0.0	0.0	0.0	0.0	0.0	216.2	94.6	0.0	0.0	0.0	0.0	0.0	9.1	324.4
1989	0.6	0.0	0.0	0.0	0.0	0.0	193.2	139.8	0.3	0.0	0.0	0.0	0.0	13.0	347.0
1990	3.0	0.0	0.0	0.0	0.0	0.0	115.9	207.9	0.4	0.0	0.0	0.0	0.0	15.7	342.8
1991	0.0	0.0	0.0	0.0	0.0	0.0	121.8	229.0	0.4	0.0	0.0	0.0	0.0	20.3	371.5
1992	0.6	0.0	0.0	0.2	0.0	0.0	94.4	197.1	0.4	0.0	0.0	0.0	0.0	19.9	312.6
1993	3.6	0.0	0.0	0.0	0.0	0.0	96.5	38.5	1.3	0.0	0.0	0.0	0.0	10.7	150.5
1994	0.3	0.0	0.0	0.0	0.0	0.0	79.0	21.6	0.0	0.0	0.0	0.0	0.0	8.8	109.8
1995	2.0	0.0	0.0	0.0	0.0	0.0	32.2	59.4	0.1	0.0	0.0	0.0	0.0	9.1	102.8
1996	1.0	0.0	0.0	0.0	0.0	0.0	158.3	82.5	0.0	0.0	0.0	0.0	0.0	25.9	267.7
1997	0.2	0.0	0.0	0.0	0.0	0.0	28.4	60.1	0.0	0.0	0.0	0.0	0.0	10.3	98.9
1998	0.0	0.0	0.0	0.1	0.0	0.0	70.9	113.3	0.2	0.0	0.0	0.0	0.0	23.2	207.8
1999	1.1	0.0	0.0	0.3	0.0	0.0	46.0	26.0	0.2	0.0	0.0	0.0	0.0	10.0	83.6
2000	0.3	0.0	0.0	0.1	0.0	0.0	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.2	1.7
2001	0.0	0.0	0.0	0.2	0.0	0.0	0.7	3.7	0.0	0.0	0.0	0.0	0.0	0.7	5.3
2002	0.0	0.0	0.0	0.1	0.0	0.0	1.6	1.0	0.1	0.0	0.0	0.0	0.0	0.4	3.2
2003	0.0	0.0	0.0	0.1	0.0	0.0	0.4	1.1	0.1	0.0	0.0	0.0	0.0	0.3	1.9
2004	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.9
2005	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.6
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4
2007	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
2008	0.0	0.0	0.0	0.1	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.3
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5

Table 13. Catch [mt] by year and data source for gopher rockfish (*Sebastes carnatus*) south of 34° 27' N. latitude. See text for source descriptions. Values rounded to the nearest 0.1 mt.

	GPHR_SCB			GPHR_SCB			GPHR_SCB	
Year	Comm.	Rec.	Year	Comm.	Rec.	Year	Comm.	Rec.
1928	0.0	0.0	1960	3.3	2.1	1992	5.1	22.6
1929	0.0	0.0	1961	12.0	2.4	1993	4.1	1.6
1930	0.0	0.0	1962	19.5	1.9	1994	12.2	2.9
1931	0.0	0.1	1963	16.2	2.1	1995	5.1	0.4
1932	0.0	0.1	1964	13.3	3.3	1996	4.8	4.8
1933	0.0	0.1	1965	18.0	5.0	1997	3.6	2.7
1934	0.0	0.1	1966	10.1	10.9	1998	3.0	2.4
1935	0.0	0.1	1967	2.8	12.9	1999	4.3	9.9
1936	0.0	0.1	1968	2.5	15.3	2000	3.0	3.9
1937	0.3	0.1	1969	0.0	13.3	2001	2.3	2.9
1938	0.2	0.1	1970	0.0	19.8	2002	1.0	1.8
1939	0.3	0.1	1971	0.0	19.9	2003	0.3	2.5
1940	0.2	0.1	1972	0.0	26.4	2004	0.2	0.9
1941	0.1	0.1	1973	0.0	31.3	2005	0.3	5.5
1942	0.2	0.0	1974	0.0	40.3	2006	0.2	2.0
1943	0.4	0.0	1975	0.0	42.6	2007	0.1	2.6
1944	0.5	0.0	1976	0.0	33.7	2008	0.2	3.3
1945	0.7	0.0	1977	0.0	31.2	2009	0.2	3.3
1946	0.8	0.1	1978	0.0	30.3			
1947	1.0	0.3	1979	0.0	42.2			
1948	0.5	0.8	1980	0.0	74.6			
1949	0.9	0.9	1981	0.0	11.6			
1950	0.5	1.2	1982	0.0	7.8			
1951	4.0	1.0	1983	0.0	65.0			
1952	7.0	1.2	1984	0.1	97.0			
1953	7.9	1.6	1985	0.0	104.4			
1954	12.9	3.9	1986	0.8	138.7			
1955	15.4	6.7	1987	1.5	101.5			
1956	19.6	7.4	1988	2.2	54.5			
1957	17.2	4.0	1989	2.9	37.3			
1958	7.7	3.2	1990	3.6	43.5			
1959	0.5	1.9	1991	4.4	33.1			

Table 14. Catch [mt] by year and data source for copper rockfish (*Sebastes caurinus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	COMDIS	Total
1916	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.2
1917	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.6
1918	0.0	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	7.9
1919	0.0	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.2
1920	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.4
1921	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.6
1922	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.9
1923	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.2
1924	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.8
1925	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.2
1926	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.3
1927	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.0
1928	0.0	3.7	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.5
1929	0.0	3.1	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.5
1930	0.0	5.3	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.4
1931	0.0	6.3	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	11.6
1932	0.0	5.7	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	12.3
1933	0.0	4.8	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	12.5
1934	0.0	3.6	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	12.4
1935	0.0	5.9	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	16.1
1936	0.0	5.3	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	16.7
1937	0.0	6.6	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	20.2
1938	0.0	5.5	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	18.8
1939	0.0	5.1	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	16.7
1940	0.0	5.0	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	21.5
1941	0.0	5.5	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	20.7
1942	0.0	1.8	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.8
1943	0.0	2.9	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.7
1944	0.0	8.4	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	15.2
1945	0.0	20.8	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	30.5
1946	0.0	23.3	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	39.0
1947	0.0	7.0	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	19.3
1948	0.0	9.4	24.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	34.0
1949	0.0	5.2	31.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	36.6
1950	0.0	4.2	38.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	42.6
1951	0.0	12.2	47.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	60.2
1952	0.0	7.2	42.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	49.8
1953	0.0	3.3	37.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	40.5
1954	0.0	5.5	49.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	55.7
1955	0.0	2.9	66.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	69.2
1956	0.0	5.0	73.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	78.6
1957	0.0	5.9	63.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	69.3
1958	0.0	7.1	102.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	110.3
1959	0.0	7.7	78.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	86.5
1960	0.0	10.4	64.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	75.4
1961	0.0	9.5	50.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	61.0
1962	0.0	6.4	63.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	70.3

Table 14 (Continued). Catch [mt] by year and data source for copper rockfish (*Sebastes caurinus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	COMDIS	Total
1963	0.0	7.2	78.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	86.5
1964	0.0	4.7	77.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	82.7
1965	0.0	5.8	116.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	122.5
1966	0.0	6.4	158.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5	166.1
1967	0.0	8.6	170.1	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.8	183.6
1968	0.0	4.7	190.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.4	196.4
1969	2.7	0.0	190.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	192.9
1970	2.6	0.0	248.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	250.8
1971	4.7	0.0	231.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	236.1
1972	7.1	0.0	300.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	307.6
1973	7.0	0.0	350.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	358.0
1974	16.0	0.0	392.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	409.1
1975	9.6	0.0	400.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	410.4
1976	17.4	0.0	395.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	413.9
1977	15.5	0.0	399.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	415.6
1978	5.0	0.0	384.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	389.6
1979	7.4	0.0	436.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	444.7
1980	42.7	0.0	409.1	0.0	0.0	0.0	0.0	0.3	0.4	0.0	2.8	455.2
1981	13.6	0.0	0.0	0.0	0.0	0.0	505.8	3.0	0.5	0.0	0.9	523.8
1982	20.0	0.0	0.0	0.0	0.0	0.0	424.3	0.0	5.4	0.0	1.3	451.0
1983	60.5	0.0	0.0	0.0	0.0	0.0	216.6	0.0	2.4	0.0	3.9	283.3
1984	49.2	0.0	0.0	0.0	0.0	0.0	230.9	10.4	0.3	0.0	3.2	294.0
1985	26.9	0.0	0.0	0.0	0.0	0.0	293.8	2.4	0.1	0.0	1.7	324.9
1986	14.0	0.0	0.0	0.0	0.0	0.0	252.1	1.1	0.4	0.0	0.9	268.5
1987	16.0	0.0	0.0	0.0	0.0	0.0	95.8	3.4	12.6	0.0	1.0	128.8
1988	22.6	0.0	0.0	0.0	0.0	0.0	146.4	3.9	0.6	0.0	1.5	175.0
1989	36.6	0.0	0.0	0.0	0.0	0.0	135.3	4.2	0.0	0.0	2.4	178.5
1990	44.8	0.0	0.0	0.0	0.0	0.0	109.5	3.5	4.6	0.0	2.9	165.2
1991	59.3	0.0	0.0	0.0	0.0	0.0	101.3	3.3	3.5	0.0	3.9	171.2
1992	72.4	0.0	0.0	0.0	0.4	0.0	93.1	3.1	2.5	0.0	4.7	176.2
1993	72.5	0.0	0.0	0.0	1.1	0.0	89.0	3.6	0.6	0.0	4.8	171.6
1994	37.5	0.0	0.0	0.0	1.5	0.0	100.5	3.0	0.4	0.0	2.5	145.4
1995	72.1	0.0	0.0	0.1	1.1	0.0	40.6	1.5	0.3	0.0	4.8	120.4
1996	85.4	0.0	0.0	0.0	0.6	0.0	91.6	1.8	0.5	0.0	5.6	185.5
1997	80.4	0.0	0.0	0.0	3.2	0.0	41.0	3.7	0.6	0.0	5.4	134.2
1998	55.2	0.0	0.0	0.0	7.9	0.0	43.4	4.2	0.7	0.0	4.1	115.5
1999	32.4	0.0	0.0	0.0	4.4	0.0	70.9	5.4	0.8	0.0	2.4	116.2
2000	12.0	0.0	0.0	0.0	1.1	0.0	47.0	4.3	1.2	0.0	0.9	66.6
2001	15.0	0.0	0.0	0.0	1.5	0.0	34.2	2.3	0.8	0.0	1.1	54.9
2002	13.6	0.0	0.0	0.0	0.5	0.0	22.8	3.5	0.7	0.0	0.9	42.0
2003	3.0	0.0	0.0	0.0	0.6	0.0	38.1	2.5	0.7	0.0	0.2	45.1
2004	5.2	0.0	0.0	0.0	0.7	0.0	29.4	2.0	0.9	0.0	0.4	38.6
2005	5.3	0.0	0.0	0.0	0.5	0.0	59.4	3.2	1.3	0.0	0.4	70.0
2006	3.8	0.0	0.0	0.0	0.6	0.0	46.7	3.7	1.1	0.0	0.3	56.2
2007	5.3	0.0	0.0	0.0	0.5	0.0	67.3	4.2	1.2	0.0	0.4	78.8
2008	5.5	0.0	0.0	0.0	1.3	0.0	49.9	3.7	1.3	0.0	0.4	62.1
2009	4.5	0.0	0.0	0.0	1.4	0.0	58.4	2.6	0.6	0.0	0.4	67.9

Table 15. Catch [mt] by year and data source for greenspotted rockfish (*Sebastes chlorostictus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	RECCA	RECOR	ROGERS	COMDIS	Total
1916	0.0	39.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.5
1917	0.0	63.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.5
1918	0.0	59.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.9
1919	0.0	36.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.6
1920	0.0	39.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.4
1921	0.0	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.1
1922	0.0	32.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.9
1923	0.0	42.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	42.9
1924	0.0	54.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.0
1925	0.0	59.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.7
1926	0.0	75.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.5
1927	0.0	63.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	63.1
1928	0.0	55.6	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	56.3
1929	0.0	56.4	1.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	57.7
1930	0.0	58.8	1.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	60.3
1931	0.0	68.5	1.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	70.5
1932	0.0	49.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.4
1933	0.0	33.0	2.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	35.8
1934	0.0	34.7	3.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	38.1
1935	0.0	27.3	3.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	31.1
1936	0.0	14.1	4.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	18.4
1937	0.0	13.8	5.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	19.0
1938	0.0	11.1	5.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	16.2
1939	0.0	14.3	4.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	18.7
1940	0.0	19.6	5.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	25.7
1941	0.0	23.0	5.4	0.0	0.4	0.0	0.0	0.0	0.0	0.0	28.8
1942	0.0	8.7	2.9	0.0	0.5	0.0	0.0	0.0	0.0	0.0	12.1
1943	0.0	16.7	2.8	0.0	1.2	0.0	0.0	0.0	0.0	0.0	20.7
1944	0.0	34.2	2.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	36.8
1945	0.0	70.9	3.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	74.2
1946	0.0	59.7	5.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	65.2
1947	0.0	44.5	5.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	49.8
1948	0.0	38.0	11.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	49.3
1949	0.0	41.5	13.9	0.0	0.2	0.0	0.0	0.0	0.0	0.0	55.6
1950	0.0	38.0	17.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	55.5
1951	0.0	58.5	18.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	76.7
1952	0.0	38.4	18.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	56.9
1953	0.0	35.7	17.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	53.5
1954	0.0	36.5	27.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	64.0
1955	0.0	45.4	41.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	87.2
1956	0.0	43.2	47.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	90.8
1957	0.0	48.5	35.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	84.5
1958	0.0	50.4	41.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.9
1959	0.0	42.6	31.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	74.2
1960	0.0	40.9	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	68.3
1961	0.0	32.8	25.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	58.7
1962	0.0	29.4	28.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	58.3

Table 15 (Continued). Catch [mt] by year and data source for greenspotted rockfish (*Sebastes chlorostictus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	RECCA	RECOR	ROGERS	COMDIS	Total
1963	0.0	41.3	27.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	69.3
1964	0.0	29.1	32.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	61.9
1965	0.0	36.6	44.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	81.7
1966	0.0	29.8	61.8	0.0	0.4	0.0	0.0	0.0	9.0	0.0	100.9
1967	0.0	40.7	78.8	0.0	0.7	0.0	0.0	0.0	26.0	0.0	146.1
1968	0.0	43.1	84.1	0.0	0.7	0.0	0.0	0.0	7.0	0.0	134.9
1969	116.2	0.0	71.4	0.0	0.9	0.0	0.0	0.0	0.0	0.0	188.6
1970	71.0	0.0	95.4	0.0	0.7	0.0	0.0	0.0	0.0	0.0	167.1
1971	95.8	0.0	85.7	0.0	0.8	0.0	0.0	0.0	0.0	0.0	182.3
1972	136.6	0.0	111.2	0.0	1.4	0.0	0.0	0.0	0.0	0.0	249.2
1973	149.1	0.0	145.8	0.0	1.5	0.0	0.0	0.0	4.0	0.0	300.3
1974	161.0	0.0	162.5	0.0	1.6	0.0	0.0	0.0	0.0	0.0	325.2
1975	149.5	0.0	168.6	0.0	1.0	0.0	0.0	0.0	0.0	0.0	319.0
1976	186.3	0.0	159.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	346.4
1977	205.8	0.0	149.7	0.0	1.6	0.0	0.0	0.0	0.0	0.0	357.2
1978	170.8	0.0	140.3	0.0	2.9	0.0	0.0	0.0	0.0	0.0	314.0
1979	211.3	0.0	181.1	0.0	28.9	0.0	0.0	0.0	0.0	0.0	421.4
1980	139.6	0.0	119.3	0.0	12.6	0.0	0.0	0.0	0.0	0.0	271.5
1981	279.0	0.0	0.0	8.3	0.0	0.0	83.0	0.0	0.0	0.0	370.3
1982	241.0	0.0	0.0	37.3	0.0	0.0	165.9	0.0	0.0	0.0	444.2
1983	182.9	0.0	0.0	31.6	0.0	0.0	140.7	0.0	0.0	0.0	355.1
1984	136.0	0.0	0.0	14.0	0.0	0.0	176.6	0.0	0.0	0.0	326.6
1985	148.7	0.0	0.0	7.8	0.0	0.0	249.1	0.0	0.0	0.0	405.6
1986	120.0	0.0	0.0	9.1	0.0	0.0	150.5	0.0	0.0	0.0	279.6
1987	105.0	0.0	0.0	0.0	0.0	1.2	27.1	0.0	0.0	0.0	133.3
1988	160.8	0.0	0.0	0.0	0.0	10.2	60.9	0.0	0.0	0.0	231.9
1989	212.8	0.0	0.0	0.0	0.0	33.2	60.3	0.0	0.0	0.2	306.6
1990	158.8	0.0	0.0	0.0	0.0	6.0	55.2	0.0	0.0	0.2	220.2
1991	430.3	0.0	0.0	0.0	0.0	16.9	58.1	0.0	0.0	0.4	505.7
1992	117.2	0.0	0.0	0.0	0.0	10.5	61.0	0.0	0.0	0.1	188.9
1993	102.0	0.0	0.0	0.0	0.0	0.0	48.7	0.0	0.0	0.2	150.9
1994	90.9	0.0	0.0	0.0	0.0	0.0	69.3	0.0	0.0	0.2	160.4
1995	140.7	0.0	0.0	0.0	0.0	15.9	82.2	0.0	0.0	0.3	239.2
1996	158.0	0.0	0.0	0.0	0.0	14.1	37.8	0.0	0.0	0.3	210.2
1997	67.3	0.0	0.0	0.0	0.0	7.7	27.1	0.0	0.0	0.2	102.4
1998	68.2	0.0	0.0	0.0	0.0	8.1	14.3	0.0	0.0	0.2	90.8
1999	16.8	0.0	0.0	0.0	0.0	1.3	57.0	0.0	0.0	0.1	75.2
2000	7.0	0.0	0.0	0.0	0.0	0.1	41.8	0.0	0.0	0.0	48.9
2001	2.5	0.0	0.0	0.0	0.0	0.2	27.2	0.0	0.0	0.0	29.8
2002	4.3	0.0	0.0	0.0	0.0	0.2	10.3	0.0	0.0	0.0	14.8
2003	0.4	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	1.1
2004	0.5	0.0	0.0	0.0	0.0	0.0	14.4	0.0	0.0	0.0	14.9
2005	0.3	0.0	0.0	0.0	0.0	0.0	26.2	0.0	0.0	0.0	26.5
2006	0.6	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	7.6
2007	1.5	0.0	0.0	0.0	0.0	0.0	13.8	0.0	0.0	0.0	15.3
2008	1.3	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	11.8
2009	1.0	0.0	0.0	0.0	0.0	0.1	9.4	0.0	0.0	0.0	10.5

Table 16. Catch [mt] by year and data source for black-and-yellow rockfish (*Sebastes chrysomelas*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	COMDIS	Total
1916	0.0	3.9	0.0	0.0	0.0	0.0	0.3	4.1
1917	0.0	6.0	0.0	0.0	0.0	0.0	0.4	6.4
1918	0.0	7.1	0.0	0.0	0.0	0.0	0.5	7.5
1919	0.0	4.9	0.0	0.0	0.0	0.0	0.3	5.2
1920	0.0	5.0	0.0	0.0	0.0	0.0	0.3	5.3
1921	0.0	4.1	0.0	0.0	0.0	0.0	0.3	4.4
1922	0.0	3.6	0.0	0.0	0.0	0.0	0.2	3.8
1923	0.0	3.8	0.0	0.0	0.0	0.0	0.2	4.1
1924	0.0	2.2	0.0	0.0	0.0	0.0	0.1	2.4
1925	0.0	2.8	0.0	0.0	0.0	0.0	0.2	3.0
1926	0.0	4.5	0.0	0.0	0.0	0.0	0.3	4.8
1927	0.0	3.8	0.0	0.0	0.0	0.0	0.2	4.1
1928	0.0	4.6	0.1	0.0	0.0	0.0	0.3	5.0
1929	0.0	3.8	0.2	0.0	0.0	0.0	0.2	4.2
1930	0.0	5.4	0.2	0.0	0.0	0.0	0.4	5.9
1931	0.0	1.9	0.2	0.0	0.0	0.0	0.1	2.3
1932	0.0	6.2	0.3	0.0	0.0	0.0	0.4	6.9
1933	0.0	2.6	0.4	0.0	0.0	0.0	0.2	3.1
1934	0.0	1.8	0.4	0.0	0.0	0.0	0.1	2.3
1935	0.0	0.4	0.5	0.0	0.0	0.0	0.0	0.9
1936	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.6
1937	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.8
1938	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.7
1939	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6
1940	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.8
1941	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7
1942	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
1943	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
1944	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4
1945	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
1946	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.7
1947	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6
1948	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
1949	0.0	0.0	1.6	0.0	0.0	0.0	0.0	1.6
1950	0.0	0.0	1.9	0.0	0.0	0.0	0.0	1.9
1951	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6
1952	0.0	0.0	2.4	0.0	0.0	0.0	0.0	2.4
1953	0.0	0.9	2.1	0.0	0.0	0.0	0.1	3.1
1954	0.0	0.0	2.9	0.0	0.0	0.0	0.0	2.9
1955	0.0	0.0	3.9	0.0	0.0	0.0	0.0	3.9
1956	0.0	0.0	4.4	0.0	0.0	0.0	0.0	4.4
1957	0.0	0.0	3.7	0.0	0.0	0.0	0.0	3.7
1958	0.0	0.0	5.5	0.0	0.0	0.0	0.0	5.5
1959	0.0	0.0	4.4	0.0	0.0	0.0	0.0	4.4
1960	0.0	0.0	3.5	0.0	0.0	0.0	0.0	3.6
1961	0.0	0.0	3.0	0.0	0.0	0.0	0.0	3.0
1962	0.0	0.0	3.3	0.0	0.0	0.0	0.0	3.3

Table 16 (Continued). Catch [mt] by year and data source for black-and-yellow rockfish (*Sebastes chrysomelas*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	COMDIS	Total
1963	0.0	0.0	3.5	0.0	0.0	0.0	0.0	3.5
1964	0.0	0.0	3.3	0.0	0.0	0.0	0.0	3.3
1965	0.0	0.0	5.0	0.0	0.0	0.0	0.0	5.0
1966	0.0	0.0	7.1	0.0	0.0	0.0	0.0	7.1
1967	0.0	0.0	8.1	0.0	0.0	0.0	0.0	8.1
1968	0.0	0.0	8.8	0.0	0.0	0.0	0.0	8.8
1969	0.0	0.0	8.3	0.0	0.0	0.0	0.0	8.3
1970	0.0	0.0	11.5	0.0	0.0	0.0	0.0	11.5
1971	0.0	0.0	10.2	0.0	0.0	0.0	0.0	10.2
1972	0.0	0.0	13.3	0.0	0.0	0.0	0.0	13.4
1973	0.0	0.0	16.1	0.0	0.0	0.0	0.0	16.1
1974	0.1	0.0	18.9	0.0	0.0	0.0	0.0	19.0
1975	0.1	0.0	19.4	0.0	0.0	0.0	0.0	19.5
1976	0.1	0.0	18.1	0.0	0.0	0.0	0.0	18.1
1977	0.1	0.0	16.6	0.0	0.0	0.0	0.0	16.7
1978	0.0	0.0	15.4	0.0	0.0	0.0	0.0	15.4
1979	0.3	0.0	19.3	0.0	0.0	0.0	0.0	19.6
1980	0.0	0.0	19.6	0.0	0.0	0.0	0.0	19.6
1981	0.1	0.0	0.0	0.0	5.2	0.0	0.0	5.2
1982	0.1	0.0	0.0	0.0	9.2	0.0	0.0	9.2
1983	0.1	0.0	0.0	0.0	15.4	0.0	0.0	15.4
1984	7.3	0.0	0.0	0.0	28.2	0.0	0.5	35.9
1985	8.1	0.0	0.0	0.0	32.3	0.0	0.5	40.8
1986	25.4	0.0	0.0	0.0	14.5	0.0	1.6	41.5
1987	34.2	0.0	0.0	0.0	8.4	0.0	2.2	44.8
1988	55.7	0.0	0.0	0.0	12.7	0.0	3.6	72.0
1989	2.8	0.0	0.0	0.0	11.7	0.0	0.2	14.7
1990	3.0	0.0	0.0	0.0	12.3	0.0	0.2	15.5
1991	4.4	0.0	0.0	0.0	13.0	0.0	0.3	17.7
1992	3.9	0.0	0.0	0.0	13.7	0.0	0.3	17.8
1993	4.2	0.0	0.0	0.0	22.5	0.0	0.3	26.9
1994	6.8	0.0	0.0	0.0	13.4	0.0	0.4	20.7
1995	29.6	0.0	0.0	0.0	9.5	0.0	1.9	40.9
1996	38.1	0.0	0.0	0.0	4.6	0.0	2.5	45.2
1997	24.1	0.0	0.0	0.0	3.7	0.0	1.6	29.4
1998	26.4	0.0	0.0	0.0	6.0	0.0	1.7	34.1
1999	23.5	0.0	0.0	0.0	5.3	0.0	1.5	30.4
2000	18.9	0.0	0.0	0.0	8.5	0.0	1.2	28.7
2001	10.7	0.0	0.0	0.0	7.2	0.0	0.7	18.6
2002	10.0	0.0	0.0	0.0	7.5	0.0	0.7	18.2
2003	7.7	0.0	0.0	0.0	10.3	0.0	0.5	18.5
2004	10.6	0.0	0.0	0.1	4.7	0.0	0.7	16.0
2005	10.5	0.0	0.0	0.0	4.5	0.0	0.7	15.7
2006	8.4	0.0	0.0	0.0	3.5	0.0	0.5	12.5
2007	10.7	0.0	0.0	0.0	3.4	0.0	0.7	14.8
2008	12.1	0.0	0.0	0.0	6.0	0.0	0.8	18.9
2009	13.0	0.0	0.0	0.0	11.6	0.0	0.9	25.5

Table 17. Catch [mt] by year and data source for starry rockfish (*Sebastes constellatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1916	0.0	14.2	0.0	0.0	3.2	17.3
1917	0.0	22.8	0.0	0.0	5.1	27.9
1918	0.0	20.8	0.0	0.0	4.6	25.5
1919	0.0	12.5	0.0	0.0	2.8	15.2
1920	0.0	13.5	0.0	0.0	3.0	16.5
1921	0.0	11.8	0.0	0.0	2.6	14.5
1922	0.0	11.6	0.0	0.0	2.6	14.2
1923	0.0	15.6	0.0	0.0	3.5	19.0
1924	0.0	20.9	0.0	0.0	4.7	25.5
1925	0.0	22.9	0.0	0.0	5.1	28.0
1926	0.0	28.4	0.0	0.0	6.3	34.8
1927	0.0	23.6	0.0	0.0	5.3	28.9
1928	0.0	20.1	0.6	0.0	4.5	25.2
1929	0.0	20.3	1.2	0.0	4.5	26.1
1930	0.0	20.7	1.4	0.0	4.6	26.8
1931	0.0	24.7	1.9	0.0	5.5	32.2
1932	0.0	17.4	2.4	0.0	3.9	23.6
1933	0.0	12.4	2.9	0.0	2.8	18.0
1934	0.0	12.1	3.4	0.0	2.7	18.1
1935	0.0	8.7	3.9	0.0	1.9	14.5
1936	0.0	3.3	4.3	0.0	0.7	8.3
1937	0.0	3.3	5.2	0.0	0.7	9.2
1938	0.0	2.4	5.1	0.0	0.5	8.0
1939	0.0	3.1	4.4	0.0	0.7	8.3
1940	0.0	5.3	6.3	0.0	1.2	12.7
1941	0.0	6.8	5.8	0.0	1.5	14.1
1942	0.0	2.7	3.1	0.0	0.6	6.3
1943	0.0	3.4	2.9	0.0	0.8	7.1
1944	0.0	0.5	2.4	0.0	0.1	3.1
1945	0.0	1.2	3.2	0.0	0.3	4.6
1946	0.0	3.4	5.5	0.0	0.8	9.7
1947	0.0	4.8	4.7	0.0	1.1	10.6
1948	0.0	7.1	9.7	0.0	1.6	18.3
1949	0.0	7.7	12.4	0.0	1.7	21.8
1950	0.0	5.3	15.3	0.0	1.2	21.8
1951	0.0	9.0	17.0	0.0	2.0	28.0
1952	0.0	8.4	15.7	0.0	1.9	26.0
1953	0.0	6.6	14.1	0.0	1.5	22.2
1954	0.0	7.6	19.5	0.0	1.7	28.8
1955	0.0	6.8	25.7	0.0	1.5	34.0
1956	0.0	7.8	29.6	0.0	1.7	39.2
1957	0.0	6.8	26.8	0.0	1.5	35.2
1958	0.0	4.6	34.7	0.0	1.0	40.2
1959	0.0	5.3	29.5	0.0	1.2	35.9
1960	0.0	5.3	22.1	0.0	1.2	28.6
1961	0.0	4.7	18.3	0.0	1.1	24.1
1962	0.0	4.3	21.7	0.0	1.0	27.0

Table 17 (Continued). Catch [mt] by year and data source for starry rockfish (*Sebastes constellatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1963	0.0	5.9	20.7	0.0	1.3	27.9
1964	0.0	5.1	19.8	0.0	1.1	26.1
1965	0.0	6.7	29.2	0.0	1.5	37.3
1966	0.0	4.9	33.9	0.0	1.1	39.9
1967	0.0	5.8	36.1	0.0	1.3	43.1
1968	0.0	6.1	41.1	0.0	1.4	48.6
1969	11.3	0.0	38.4	0.0	2.5	52.2
1970	7.8	0.0	48.6	0.0	1.7	58.1
1971	8.1	0.0	44.8	0.0	1.8	54.7
1972	13.0	0.0	58.2	0.0	2.9	74.1
1973	12.2	0.0	75.3	0.0	2.7	90.2
1974	9.4	0.0	78.7	0.0	2.1	90.2
1975	12.5	0.0	80.4	0.0	2.8	95.7
1976	14.3	0.0	76.0	0.0	3.2	93.4
1977	10.7	0.0	69.1	0.0	2.4	82.1
1978	14.9	0.0	62.8	0.0	3.3	81.0
1979	21.0	0.0	83.0	0.0	4.7	108.7
1980	19.7	0.0	73.6	0.0	4.4	97.6
1981	24.1	0.0	0.0	54.0	5.4	83.5
1982	33.6	0.0	0.0	83.4	7.5	124.5
1983	13.2	0.0	0.0	72.0	2.9	88.1
1984	23.3	0.0	0.0	93.5	5.2	122.0
1985	14.5	0.0	0.0	91.8	3.2	109.5
1986	11.8	0.0	0.0	102.9	2.6	117.4
1987	8.9	0.0	0.0	25.3	2.0	36.1
1988	7.6	0.0	0.0	29.9	1.7	39.2
1989	41.6	0.0	0.0	42.4	9.3	93.3
1990	21.4	0.0	0.0	34.5	4.8	60.7
1991	42.0	0.0	0.0	35.4	9.4	86.7
1992	66.8	0.0	0.0	36.4	14.9	118.1
1993	37.9	0.0	0.0	41.8	8.4	88.1
1994	42.8	0.0	0.0	52.5	9.5	104.9
1995	44.5	0.0	0.0	20.5	9.9	74.9
1996	56.9	0.0	0.0	60.0	12.7	129.6
1997	26.1	0.0	0.0	46.4	5.8	78.3
1998	21.6	0.0	0.0	25.1	4.8	51.5
1999	4.7	0.0	0.0	67.6	1.0	73.3
2000	0.9	0.0	0.0	31.2	0.2	32.4
2001	0.7	0.0	0.0	21.5	0.1	22.3
2002	0.2	0.0	0.0	9.4	0.0	9.7
2003	0.0	0.0	0.0	7.6	0.0	7.6
2004	0.1	0.0	0.0	13.8	0.0	14.0
2005	0.1	0.0	0.0	32.4	0.0	32.5
2006	0.2	0.0	0.0	14.8	0.1	15.1
2007	0.8	0.0	0.0	30.2	0.2	31.1
2008	0.6	0.0	0.0	22.5	0.1	23.2
2009	0.7	0.0	0.0	23.1	0.1	23.9

Table 18. Catch [mt] by year and data source for swordspine rockfish (*Sebastes ensifer*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1928	0.0	0.0	0.0	0.0	0.0	0.0
1929	0.0	0.0	0.0	0.0	0.0	0.0
1930	0.0	0.0	0.0	0.0	0.0	0.0
1931	0.0	0.0	0.1	0.0	0.0	0.1
1932	0.0	0.0	0.1	0.0	0.0	0.1
1933	0.0	0.0	0.1	0.0	0.0	0.1
1934	0.0	0.0	0.1	0.0	0.0	0.1
1935	0.0	0.0	0.1	0.0	0.0	0.1
1936	0.0	0.0	0.1	0.0	0.0	0.1
1937	0.0	0.0	0.2	0.0	0.0	0.2
1938	0.0	0.0	0.1	0.0	0.0	0.2
1939	0.0	0.0	0.1	0.0	0.0	0.1
1940	0.0	0.0	0.1	0.0	0.0	0.1
1941	0.0	0.0	0.1	0.0	0.0	0.1
1942	0.0	0.0	0.1	0.0	0.0	0.1
1943	0.0	0.0	0.1	0.0	0.0	0.1
1944	0.0	0.0	0.0	0.0	0.0	0.0
1945	0.0	0.0	0.1	0.0	0.0	0.1
1946	0.0	0.0	0.1	0.0	0.0	0.1
1947	0.0	0.0	0.3	0.0	0.0	0.3
1948	0.0	0.0	0.6	0.0	0.0	0.6
1949	0.0	0.0	0.8	0.0	0.0	0.8
1950	0.0	0.0	0.9	0.0	0.0	1.0
1951	0.0	0.0	0.8	0.0	0.0	0.9
1952	0.0	0.0	1.0	0.0	0.0	1.1
1953	0.0	0.1	1.2	0.0	0.0	1.3
1954	0.0	0.1	2.6	0.0	0.0	2.8
1955	0.0	0.1	4.6	0.0	0.0	4.8
1956	0.0	0.1	5.5	0.0	0.0	5.6
1957	0.0	0.1	3.2	0.0	0.0	3.3
1958	0.0	0.0	2.1	0.0	0.0	2.1
1959	0.0	0.0	1.3	0.0	0.0	1.3
1960	0.0	0.0	1.4	0.0	0.0	1.4
1961	0.0	0.0	1.5	0.0	0.0	1.5
1962	0.0	0.0	1.5	0.0	0.0	1.5
1963	0.0	0.0	1.5	0.0	0.0	1.5
1964	0.0	0.0	2.0	0.0	0.0	2.0
1965	0.0	0.0	4.7	0.0	0.0	4.7
1966	0.0	0.0	9.1	0.0	0.0	9.1
1967	0.0	0.0	13.3	0.0	0.0	13.3
1968	0.0	0.0	16.7	0.0	0.0	16.7

Table 18 (Continued). Catch [mt] by year and data source for swordspine rockfish (*Sebastes ensifer*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1969	0.0	0.0	16.6	0.0	0.0	16.6
1970	0.0	0.0	25.3	0.0	0.0	25.3
1971	0.0	0.0	25.3	0.0	0.0	25.3
1972	0.0	0.0	35.0	0.0	0.0	35.0
1973	0.0	0.0	43.1	0.0	0.0	43.1
1974	0.1	0.0	53.6	0.0	0.0	53.7
1975	0.1	0.0	54.8	0.0	0.0	54.9
1976	0.1	0.0	45.5	0.0	0.0	45.5
1977	0.1	0.0	43.3	0.0	0.0	43.4
1978	0.0	0.0	42.4	0.0	0.0	42.5
1979	0.1	0.0	60.8	0.0	0.0	60.8
1980	0.0	0.0	46.8	0.0	0.0	46.8
1981	0.1	0.0	0.0	41.7	0.0	41.9
1982	0.1	0.0	0.0	57.7	0.0	57.8
1983	0.1	0.0	0.0	33.8	0.0	33.9
1984	0.1	0.0	0.0	83.6	0.0	83.7
1985	0.4	0.0	0.0	0.3	0.1	0.8
1986	0.0	0.0	0.0	0.6	0.0	0.6
1987	0.0	0.0	0.0	0.2	0.0	0.2
1988	0.0	0.0	0.0	0.4	0.0	0.4
1989	0.0	0.0	0.0	0.8	0.0	0.8
1990	0.0	0.0	0.0	0.9	0.0	0.9
1991	0.0	0.0	0.0	1.2	0.0	1.2
1992	0.0	0.0	0.0	1.4	0.0	1.4
1993	0.0	0.0	0.0	1.1	0.0	1.2
1994	0.2	0.0	0.0	3.8	0.0	4.0
1995	0.0	0.0	0.0	0.9	0.0	0.9
1996	0.6	0.0	0.0	0.2	0.1	1.0
1997	0.0	0.0	0.0	0.0	0.0	0.0
1998	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.1	0.0	0.0	0.2	0.0	0.3
2000	0.8	0.0	0.0	0.0	0.2	1.0
2001	0.0	0.0	0.0	0.0	0.0	0.0
2002	0.0	0.0	0.0	0.0	0.0	0.0
2003	0.0	0.0	0.0	0.0	0.0	0.0
2004	0.0	0.0	0.0	0.0	0.0	0.0
2005	0.0	0.0	0.0	0.0	0.0	0.0
2006	0.0	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0

Table 19. Catch [mt] by year and data source for pink rockfish (*Sebastes eos*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ROGERS	COMDIS	Total
1916	0.0	0.7	0.0	0.0	0.4	1.1
1917	0.0	1.2	0.0	0.0	0.6	1.8
1918	0.0	1.1	0.0	0.0	0.5	1.6
1919	0.0	0.6	0.0	0.0	0.3	1.0
1920	0.0	0.7	0.0	0.0	0.3	1.0
1921	0.0	0.6	0.0	0.0	0.3	0.9
1922	0.0	0.6	0.0	0.0	0.3	0.9
1923	0.0	0.8	0.0	0.0	0.4	1.2
1924	0.0	1.1	0.0	0.0	0.5	1.6
1925	0.0	1.2	0.0	0.0	0.6	1.8
1926	0.0	1.5	0.0	0.0	0.7	2.2
1927	0.0	1.2	0.0	0.0	0.6	1.8
1928	0.0	1.0	0.0	0.0	0.5	1.6
1929	0.0	1.1	0.0	0.0	0.5	1.6
1930	0.0	1.1	0.0	0.0	0.5	1.6
1931	0.0	1.3	0.0	0.0	0.7	2.0
1932	0.0	0.8	0.0	0.0	0.4	1.3
1933	0.0	0.7	0.0	0.0	0.3	1.1
1934	0.0	0.6	0.0	0.0	0.3	0.9
1935	0.0	0.4	0.1	0.0	0.2	0.7
1936	0.0	0.2	0.1	0.0	0.1	0.3
1937	0.0	0.2	0.1	0.0	0.1	0.3
1938	0.0	0.2	0.1	0.0	0.1	0.3
1939	0.0	0.2	0.1	0.0	0.1	0.4
1940	0.0	0.3	0.1	0.0	0.2	0.6
1941	0.0	0.4	0.0	0.0	0.2	0.7
1942	0.0	0.2	0.0	0.0	0.1	0.3
1943	0.0	0.3	0.0	0.0	0.1	0.4
1944	0.0	0.0	0.0	0.0	0.0	0.1
1945	0.0	0.1	0.0	0.0	0.0	0.1
1946	0.0	0.2	0.0	0.0	0.1	0.3
1947	0.0	0.3	0.1	0.0	0.2	0.6
1948	0.0	0.4	0.3	0.0	0.2	1.0
1949	0.0	0.5	0.4	0.0	0.2	1.1
1950	0.0	0.6	0.5	0.0	0.3	1.3
1951	0.0	0.8	0.4	0.0	0.4	1.6
1952	0.0	0.7	0.6	0.0	0.3	1.6
1953	0.0	0.9	0.6	0.0	0.4	2.0
1954	0.0	1.2	1.3	0.0	0.6	3.0
1955	0.0	1.1	2.5	0.0	0.5	4.1
1956	0.0	1.2	2.8	0.0	0.6	4.6
1957	0.0	1.2	1.8	0.0	0.6	3.5
1958	0.0	0.5	1.3	0.0	0.2	2.0
1959	0.0	0.5	0.7	0.0	0.2	1.4
1960	0.0	0.4	0.8	0.0	0.2	1.4
1961	0.0	0.4	0.9	0.0	0.2	1.4
1962	0.0	0.3	0.7	0.0	0.1	1.2

Table 19 (Continued). Catch [mt] by year and data source for pink rockfish (*Sebastes eos*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ROGERS	COMDIS	Total
1963	0.0	0.4	0.8	0.0	0.2	1.4
1964	0.0	0.3	1.3	0.0	0.2	1.8
1965	0.0	0.4	1.7	0.0	0.2	2.3
1966	0.0	0.5	2.5	1.0	0.7	4.8
1967	0.0	0.4	3.2	0.0	0.2	3.8
1968	0.0	0.5	3.5	0.0	0.2	4.2
1969	0.5	0.0	2.9	0.0	0.2	3.7
1970	0.4	0.0	3.8	0.0	0.2	4.4
1971	0.4	0.0	3.6	0.0	0.2	4.1
1972	0.6	0.0	4.9	0.0	0.3	5.8
1973	0.8	0.0	6.1	0.0	0.4	7.3
1974	1.0	0.0	6.6	0.0	0.5	8.1
1975	1.0	0.0	6.6	0.0	0.5	8.0
1976	1.0	0.0	5.0	0.0	0.5	6.6
1977	0.9	0.0	5.3	0.0	0.5	6.7
1978	1.7	0.0	5.0	0.0	0.8	7.5
1979	2.1	0.0	7.0	0.0	1.0	10.1
1980	1.3	0.0	4.8	0.0	0.6	6.7
1981	2.4	0.0	0.0	0.0	1.2	3.6
1982	2.6	0.0	0.0	0.0	1.3	3.8
1983	1.5	0.0	0.0	0.0	0.7	2.2
1984	2.9	0.0	0.0	0.0	1.4	4.3
1985	7.4	0.0	0.0	0.0	3.6	11.0
1986	0.4	0.0	0.0	0.0	0.2	0.6
1987	4.4	0.0	0.0	0.0	2.2	6.6
1988	0.1	0.0	0.0	0.0	0.0	0.1
1989	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0
1991	0.0	0.0	0.0	0.0	0.0	0.0
1992	0.3	0.0	0.0	0.0	0.1	0.4
1993	1.0	0.0	0.0	0.0	0.5	1.5
1994	3.5	0.0	0.0	0.0	1.7	5.2
1995	12.9	0.0	0.0	0.0	6.4	19.3
1996	0.2	0.0	0.0	0.0	0.1	0.3
1997	0.1	0.0	0.0	0.0	0.0	0.1
1998	0.0	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	0.0
2001	0.0	0.0	0.0	0.0	0.0	0.0
2002	0.0	0.0	0.0	0.0	0.0	0.1
2003	0.0	0.0	0.0	0.0	0.0	0.0
2004	0.0	0.0	0.0	0.0	0.0	0.0
2005	0.0	0.0	0.0	0.0	0.0	0.1
2006	0.0	0.0	0.0	0.0	0.0	0.0
2007	0.0	0.0	0.0	0.0	0.0	0.0
2008	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.0	0.0	0.0	0.0	0.0	0.0

Table 20. Catch [mt] by year for yellowtail rockfish (*Sebastes flavidus*) south of 40° 10’ N. latitude. Sources combined (see text for details). Values rounded to the nearest 0.1 mt.

Year	YTRKSO	Year	YTRKSO	Year	YTRKSO
1916	491.7	1948	295.4	1980	762.7
1917	764.2	1949	301.5	1981	808.6
1918	891.4	1950	449.1	1982	1622.4
1919	619.2	1951	396.6	1983	1500.8
1920	631.8	1952	328.8	1984	1648.2
1921	521.9	1953	172.1	1985	1029.0
1922	449.5	1954	220.7	1986	854.9
1923	487.2	1955	253.7	1987	746.6
1924	286.2	1956	455.0	1988	435.0
1925	364.7	1957	459.6	1989	1132.2
1926	564.0	1958	746.9	1990	1035.6
1927	453.4	1959	634.8	1991	466.4
1928	534.1	1960	369.8	1992	646.3
1929	450.5	1961	271.4	1993	288.3
1930	655.7	1962	229.8	1994	270.8
1931	591.0	1963	190.3	1995	227.4
1932	479.3	1964	125.3	1996	228.6
1933	303.1	1965	188.3	1997	728.4
1934	344.6	1966	306.4	1998	420.5
1935	411.6	1967	296.4	1999	245.8
1936	512.4	1968	260.4	2000	160.6
1937	464.6	1969	225.1	2001	58.6
1938	368.3	1970	245.6	2002	27.0
1939	258.6	1971	278.3	2003	20.3
1940	413.2	1972	373.6	2004	19.0
1941	407.8	1973	589.7	2005	25.7
1942	130.6	1974	711.1	2006	27.0
1943	155.3	1975	745.9	2007	59.5
1944	136.4	1976	558.0	2008	21.9
1945	235.9	1977	568.6	2009	50.3
1946	270.2	1978	415.1		
1947	309.3	1979	505.7		

Table 21. Catch [mt] by year for bronzespotted rockfish (*Sebastes gilli*). Sources combined; see text for details. Values rounded to the nearest 0.1 mt.

Year	FM2009	Year	FM2009	Year	FM2009
1916	6.9	1948	7.7	1980	69.1
1917	11.1	1949	10.0	1981	76.6
1918	10.1	1950	7.2	1982	97.2
1919	6.0	1951	13.7	1983	49.8
1920	6.6	1952	11.4	1984	77.0
1921	5.7	1953	10.4	1985	69.0
1922	5.6	1954	15.4	1986	45.8
1923	7.6	1955	16.8	1987	22.2
1924	10.1	1956	19.5	1988	6.4
1925	11.1	1957	16.9	1989	10.5
1926	13.8	1958	15.1	1990	3.0
1927	11.5	1959	18.4	1991	4.4
1928	9.8	1960	20.0	1992	3.5
1929	9.9	1961	19.2	1993	2.5
1930	10.1	1962	18.5	1994	11.1
1931	12.1	1963	26.5	1995	0.6
1932	8.4	1964	25.8	1996	2.7
1933	6.0	1965	35.1	1997	0.5
1934	5.9	1966	26.8	1998	2.3
1935	4.2	1967	33.0	1999	0.7
1936	1.5	1968	35.2	2000	4.7
1937	1.6	1969	31.1	2001	0.0
1938	1.1	1970	23.8	2002	0.0
1939	1.3	1971	24.3	2003	0.0
1940	2.3	1972	36.1	2004	0.1
1941	3.0	1973	37.0	2005	0.1
1942	1.2	1974	32.8	2006	0.1
1943	1.4	1975	41.8	2007	0.0
1944	0.2	1976	45.6	2008	0.0
1945	0.5	1977	38.4	2009	0.0
1946	2.3	1978	51.3		
1947	4.2	1979	77.3		

Table 22. Catch [mt] by year and data source for rosethorn rockfish (*Sebastes helvomaculatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1927	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1928	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1929	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
1930	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
1931	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1932	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1933	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1934	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1935	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1936	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
1937	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
1938	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
1939	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
1940	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
1941	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0
1942	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1
1943	0.0	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.7
1944	0.0	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.5
1945	0.0	0.0	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	2.0
1946	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.8
1947	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.2
1948	0.0	0.1	0.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.5
1949	0.0	0.0	0.4	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	2.3
1950	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	2.8
1951	0.0	0.0	0.6	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	3.0
1952	0.0	0.0	0.5	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.6	5.7
1953	0.0	0.0	0.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.6	3.6
1954	0.0	0.0	0.6	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	5.2
1955	0.0	0.0	0.8	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	4.2
1956	0.0	0.0	0.9	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.9	6.6
1957	0.0	0.0	0.8	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.6	6.0
1958	0.0	0.0	1.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	5.2
1959	0.0	0.0	0.9	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	3.6
1960	0.0	0.0	0.9	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	4.6
1961	0.0	0.0	0.7	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.8	6.1
1962	0.0	0.0	0.7	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.5	7.5
1963	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.9	2.3
1964	0.0	0.0	0.6	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.3	5.2
1965	0.0	0.0	0.8	0.0	0.0	17.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	18.2	36.5
1966	0.0	0.0	1.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	25.0	0.3	0.0	26.6	53.4
1967	0.0	0.0	1.4	0.0	0.0	1.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	13.4	27.8
1968	0.0	0.0	1.3	0.0	0.0	4.4	0.0	0.0	0.0	0.0	11.0	0.0	0.0	15.9	32.6

Table 22 (Continued). Catch [mt] by year and data source for rosethorn rockfish (*Sebastes helvomaculatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1969	0.0	0.0	1.3	0.0	0.0	1.1	0.0	0.0	0.0	0.0	21.0	0.6	0.0	23.4	47.4
1970	0.0	0.0	2.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	25.0	0.9	0.0	27.4	56.0
1971	0.0	0.0	1.5	0.0	0.0	0.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.8	5.0
1972	0.0	0.0	1.7	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.0	0.2	0.0	2.5	6.5
1973	0.0	0.0	2.5	0.0	0.0	3.1	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.3	13.0
1974	0.0	0.0	2.6	0.0	0.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	3.2	8.8
1975	0.0	0.0	2.8	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.6
1976	0.0	0.0	2.9	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.9
1977	0.0	0.0	2.6	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	11.2
1978	0.0	0.0	2.4	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	4.3	0.0	7.6	17.5
1979	0.1	0.0	2.8	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	2.1	6.9
1980	0.0	0.0	3.8	0.0	0.0	4.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	4.9	13.6
1981	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	3.4	8.6
1982	3.0	0.0	0.0	0.0	23.4	0.0	0.0	0.0	8.4	3.1	0.0	0.0	0.0	27.3	65.2
1983	2.3	0.0	0.0	0.0	13.0	0.0	0.0	0.0	5.8	0.8	0.0	0.0	0.0	15.8	37.6
1984	2.9	0.0	0.0	0.0	6.5	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	9.7	19.8
1985	10.5	0.0	0.0	0.0	21.8	0.0	0.0	0.0	1.9	0.4	0.0	0.0	0.0	33.2	67.8
1986	2.5	0.0	0.0	0.0	10.4	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.0	13.3	27.0
1987	2.1	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.6	0.3	0.0	0.0	0.0	9.1	19.2
1988	4.2	0.0	0.0	0.0	0.0	0.0	7.4	0.0	1.8	0.0	0.0	0.0	0.0	11.1	24.5
1989	9.8	0.0	0.0	0.0	0.0	0.0	8.3	0.0	9.1	0.1	0.0	0.0	0.0	16.7	44.0
1990	12.5	0.0	0.0	0.0	0.0	0.0	5.3	4.1	2.6	0.6	0.0	0.0	0.0	19.4	44.5
1991	11.7	0.0	0.0	0.0	0.0	0.0	9.5	1.3	2.0	0.8	0.0	0.0	0.0	19.2	44.5
1992	5.2	0.0	0.0	0.0	0.0	0.0	9.4	0.4	1.4	1.0	0.0	0.0	0.0	12.2	29.5
1993	5.0	0.0	0.0	0.0	0.0	0.0	21.8	0.4	0.1	2.3	0.0	0.0	0.0	21.1	50.6
1994	9.3	0.0	0.0	0.0	0.0	0.0	37.5	0.1	0.3	1.0	0.0	0.0	0.0	34.6	82.7
1995	11.2	0.0	0.0	0.0	0.0	0.0	14.8	0.6	0.0	0.9	0.0	0.0	0.0	18.6	46.1
1996	12.2	0.0	0.0	0.0	0.0	0.0	17.3	0.5	0.3	0.6	0.0	0.0	0.0	19.9	50.8
1997	11.0	0.0	0.0	0.0	0.0	0.0	16.7	0.5	0.3	0.5	0.0	0.0	0.0	17.8	46.9
1998	6.2	0.0	0.0	0.0	0.0	0.0	18.3	0.4	1.4	0.8	0.0	0.0	0.0	14.7	41.8
1999	14.7	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.6	0.4	0.0	0.0	0.0	10.4	30.3
2000	0.2	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.5	0.1	0.0	0.0	0.0	0.6	2.4
2001	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.3	1.2
2002	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.0	0.1	0.0	0.0	0.0	0.6	2.2
2003	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5
2004	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
2005	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
2007	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.6
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
2009	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2

Table 23. Catch [mt] by year and data source for squarespot rockfish (*Sebastes hopkinsi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1916	0.0	0.1	0.0	0.0	0.0	0.1
1917	0.0	0.1	0.0	0.0	0.0	0.1
1918	0.0	0.1	0.0	0.0	0.0	0.1
1919	0.0	0.1	0.0	0.0	0.0	0.1
1920	0.0	0.1	0.0	0.0	0.0	0.1
1921	0.0	0.0	0.0	0.0	0.0	0.1
1922	0.0	0.0	0.0	0.0	0.0	0.1
1923	0.0	0.1	0.0	0.0	0.0	0.1
1924	0.0	0.1	0.0	0.0	0.0	0.1
1925	0.0	0.1	0.0	0.0	0.0	0.1
1926	0.0	0.1	0.0	0.0	0.1	0.2
1927	0.0	0.1	0.0	0.0	0.0	0.1
1928	0.0	0.1	0.0	0.0	0.0	0.1
1929	0.0	0.1	0.1	0.0	0.0	0.2
1930	0.0	0.1	0.1	0.0	0.0	0.2
1931	0.0	0.2	0.1	0.0	0.1	0.3
1932	0.0	0.0	0.1	0.0	0.0	0.2
1933	0.0	0.1	0.2	0.0	0.0	0.3
1934	0.0	0.0	0.2	0.0	0.0	0.2
1935	0.0	0.0	0.2	0.0	0.0	0.2
1936	0.0	0.0	0.2	0.0	0.0	0.3
1937	0.0	0.0	0.3	0.0	0.0	0.3
1938	0.0	0.0	0.3	0.0	0.0	0.3
1939	0.0	0.0	0.2	0.0	0.0	0.3
1940	0.0	0.0	0.2	0.0	0.0	0.3
1941	0.0	0.0	0.2	0.0	0.0	0.2
1942	0.0	0.0	0.1	0.0	0.0	0.1
1943	0.0	0.0	0.1	0.0	0.0	0.1
1944	0.0	0.0	0.1	0.0	0.0	0.1
1945	0.0	0.0	0.1	0.0	0.0	0.1
1946	0.0	0.0	0.2	0.0	0.0	0.2
1947	0.0	0.0	0.4	0.0	0.0	0.4
1948	0.0	0.0	0.9	0.0	0.0	0.9
1949	0.0	0.0	1.1	0.0	0.0	1.1
1950	0.0	0.0	1.3	0.0	0.0	1.3
1951	0.0	0.0	1.2	0.0	0.0	1.2
1952	0.0	0.0	1.5	0.0	0.0	1.5
1953	0.0	0.0	1.6	0.0	0.0	1.6
1954	0.0	0.0	3.3	0.0	0.0	3.3
1955	0.0	0.0	6.4	0.0	0.0	6.4
1956	0.0	0.0	7.4	0.0	0.0	7.5
1957	0.0	0.0	4.1	0.0	0.0	4.2
1958	0.0	0.0	2.4	0.0	0.0	2.5
1959	0.0	0.0	1.7	0.0	0.0	1.8
1960	0.0	0.0	1.7	0.0	0.0	1.8
1961	0.0	0.0	1.9	0.0	0.0	1.9
1962	0.0	0.0	1.8	0.0	0.0	1.8

Table 23 (Continued). Catch [mt] by year and data source for squarespot rockfish (*Sebastes hopkinsi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1963	0.0	0.0	1.7	0.0	0.0	1.8
1964	0.0	0.0	2.1	0.0	0.0	2.2
1965	0.0	0.1	2.7	0.0	0.0	2.8
1966	0.0	0.1	4.6	0.0	0.0	4.7
1967	0.0	0.1	6.1	0.0	0.0	6.2
1968	0.0	0.1	6.4	0.0	0.0	6.5
1969	0.1	0.0	5.9	0.0	0.0	6.1
1970	0.1	0.0	8.4	0.0	0.0	8.5
1971	0.1	0.0	8.1	0.0	0.0	8.2
1972	0.1	0.0	10.5	0.0	0.1	10.7
1973	0.1	0.0	12.3	0.0	0.1	12.4
1974	0.2	0.0	15.7	0.0	0.1	16.0
1975	0.2	0.0	14.8	0.0	0.1	15.1
1976	0.2	0.0	12.1	0.0	0.1	12.4
1977	0.2	0.0	11.5	0.0	0.1	11.7
1978	0.2	0.0	10.1	0.0	0.1	10.3
1979	0.2	0.0	13.3	0.0	0.1	13.7
1980	0.2	0.0	11.7	0.0	0.1	12.0
1981	0.4	0.0	0.0	7.8	0.2	8.3
1982	0.4	0.0	0.0	6.2	0.2	6.8
1983	0.3	0.0	0.0	17.4	0.1	17.8
1984	0.3	0.0	0.0	20.2	0.1	20.5
1985	0.6	0.0	0.0	6.1	0.3	7.0
1986	0.2	0.0	0.0	13.0	0.1	13.3
1987	0.0	0.0	0.0	0.8	0.0	0.8
1988	0.0	0.0	0.0	4.8	0.0	4.8
1989	0.0	0.0	0.0	3.1	0.0	3.1
1990	0.0	0.0	0.0	3.2	0.0	3.2
1991	0.0	0.0	0.0	3.3	0.0	3.3
1992	0.0	0.0	0.0	3.5	0.0	3.5
1993	0.2	0.0	0.0	3.5	0.1	3.7
1994	0.7	0.0	0.0	5.5	0.3	6.5
1995	0.3	0.0	0.0	2.3	0.1	2.7
1996	0.0	0.0	0.0	16.9	0.0	16.9
1997	0.1	0.0	0.0	14.1	0.0	14.2
1998	0.6	0.0	0.0	6.4	0.3	7.3
1999	0.0	0.0	0.0	6.2	0.0	6.3
2000	0.0	0.0	0.0	1.8	0.0	1.8
2001	0.0	0.0	0.0	0.2	0.0	0.2
2002	0.0	0.0	0.0	0.8	0.0	0.8
2003	0.2	0.0	0.0	2.4	0.1	2.7
2004	0.1	0.0	0.0	2.5	0.1	2.7
2005	0.0	0.0	0.0	4.0	0.0	4.1
2006	0.0	0.0	0.0	0.9	0.0	0.9
2007	0.0	0.0	0.0	1.6	0.0	1.6
2008	0.2	0.0	0.0	2.0	0.1	2.3
2009	0.1	0.0	0.0	1.9	0.0	2.0

Table 24. Catch [mt] by year for cowcod (*Sebastes levis*) north of 34° 27' N. latitude. Sources combined; see text for details. Values rounded to the nearest 0.1 mt.

Year	CWCDNO	Year	CWCDNO	Year	CWCDNO
1916	0.1	1948	1.3	1980	54.9
1917	0.2	1949	1.2	1981	32.6
1918	0.2	1950	1.9	1982	33.0
1919	0.1	1951	3.8	1983	24.8
1920	0.1	1952	4.6	1984	47.4
1921	0.1	1953	5.0	1985	13.7
1922	0.1	1954	3.9	1986	16.2
1923	0.1	1955	2.6	1987	83.1
1924	0.1	1956	3.9	1988	21.3
1925	0.1	1957	4.0	1989	37.0
1926	0.1	1958	6.0	1990	33.3
1927	0.1	1959	6.3	1991	27.3
1928	0.2	1960	3.8	1992	48.2
1929	0.3	1961	2.8	1993	36.3
1930	0.3	1962	2.7	1994	23.5
1931	0.3	1963	2.8	1995	45.2
1932	0.3	1964	2.0	1996	26.0
1933	0.4	1965	2.7	1997	50.2
1934	0.4	1966	9.2	1998	19.7
1935	0.4	1967	20.9	1999	11.0
1936	0.4	1968	7.8	2000	2.7
1937	0.5	1969	5.8	2001	1.8
1938	0.5	1970	10.2	2002	0.2
1939	0.5	1971	11.2	2003	0.1
1940	0.5	1972	12.8	2004	0.1
1941	0.5	1973	24.1	2005	0.1
1942	0.2	1974	38.3	2006	0.1
1943	0.3	1975	23.0	2007	0.4
1944	1.0	1976	26.2	2008	0.1
1945	1.9	1977	20.7	2009	0.1
1946	2.2	1978	27.4		
1947	0.7	1979	35.2		

Table 25. Catch [mt] by year and data source for Mexican rockfish (*Sebastes macdonaldi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	COMDIS	Total
1916	0.0	0.1	0.0	0.0	0.1
1917	0.0	0.1	0.0	0.1	0.2
1918	0.0	0.1	0.0	0.1	0.2
1919	0.0	0.1	0.0	0.0	0.1
1920	0.0	0.1	0.0	0.0	0.1
1921	0.0	0.1	0.0	0.0	0.1
1922	0.0	0.1	0.0	0.0	0.1
1923	0.0	0.1	0.0	0.0	0.1
1924	0.0	0.1	0.0	0.1	0.2
1925	0.0	0.1	0.0	0.1	0.2
1926	0.0	0.2	0.0	0.1	0.2
1927	0.0	0.1	0.0	0.1	0.2
1928	0.0	0.1	0.0	0.1	0.2
1929	0.0	0.2	0.0	0.1	0.3
1930	0.0	0.1	0.0	0.1	0.2
1931	0.0	0.3	0.0	0.1	0.4
1932	0.0	0.1	0.0	0.0	0.2
1933	0.0	0.2	0.0	0.1	0.4
1934	0.0	0.1	0.1	0.0	0.2
1935	0.0	0.1	0.1	0.0	0.2
1936	0.0	0.1	0.1	0.0	0.2
1937	0.0	0.1	0.1	0.1	0.3
1938	0.0	0.4	0.1	0.2	0.6
1939	0.0	0.7	0.1	0.3	1.0
1940	0.0	0.7	0.1	0.3	1.0
1941	0.0	0.8	0.1	0.3	1.2
1942	0.0	0.4	0.0	0.2	0.6
1943	0.0	1.1	0.0	0.5	1.6
1944	0.0	0.8	0.0	0.3	1.2
1945	0.0	2.6	0.0	1.2	3.8
1946	0.0	1.9	0.1	0.9	2.8
1947	0.0	0.6	0.1	0.3	1.0
1948	0.0	1.6	0.2	0.7	2.5
1949	0.0	0.9	0.3	0.4	1.5
1950	0.0	0.7	0.4	0.3	1.4
1951	0.0	1.6	0.3	0.7	2.7
1952	0.0	5.7	0.4	2.6	8.7
1953	0.0	1.6	0.4	0.7	2.8
1954	0.0	0.8	0.8	0.4	2.0
1955	0.0	0.7	1.4	0.3	2.5
1956	0.0	1.3	1.7	0.6	3.6
1957	0.0	4.4	1.0	2.0	7.4
1958	0.0	2.8	0.7	1.3	4.8
1959	0.0	1.2	0.5	0.5	2.3
1960	0.0	1.0	0.5	0.4	1.9
1961	0.0	1.4	0.5	0.6	2.6
1962	0.0	1.1	0.5	0.5	2.1

Table 25 (Continued). Catch [mt] by year and data source for Mexican rockfish (*Sebastes macdonaldi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	COMDIS	Total
1963	0.0	1.1	0.5	0.5	2.1
1964	0.0	4.0	0.5	1.8	6.3
1965	0.0	1.5	0.8	0.7	3.0
1966	0.0	0.7	1.1	0.3	2.1
1967	0.0	0.7	1.3	0.3	2.2
1968	0.0	0.9	1.5	0.4	2.8
1969	0.6	0.0	1.6	0.3	2.4
1970	0.7	0.0	2.3	0.3	3.4
1971	0.6	0.0	2.3	0.3	3.2
1972	1.0	0.0	2.9	0.4	4.4
1973	0.8	0.0	3.5	0.4	4.7
1974	1.8	0.0	4.2	0.8	6.8
1975	2.5	0.0	4.0	1.1	7.7
1976	2.9	0.0	3.3	1.3	7.5
1977	3.0	0.0	3.1	1.3	7.4
1978	0.4	0.0	2.9	0.2	3.5
1979	0.5	0.0	3.9	0.2	4.7
1980	7.4	0.0	3.1	3.3	13.8
1981	0.7	0.0	0.0	0.3	1.0
1982	0.7	0.0	0.0	0.3	1.1
1983	0.7	0.0	0.0	0.3	1.0
1984	13.2	0.0	0.0	6.0	19.2
1985	1.2	0.0	0.0	0.6	1.8
1986	0.8	0.0	0.0	0.4	1.2
1987	1.6	0.0	0.0	0.7	2.4
1988	5.4	0.0	0.0	2.4	7.8
1989	3.5	0.0	0.0	1.6	5.0
1990	0.5	0.0	0.0	0.2	0.7
1991	0.8	0.0	0.0	0.3	1.1
1992	3.0	0.0	0.0	1.4	4.4
1993	1.7	0.0	0.0	0.8	2.5
1994	0.0	0.0	0.0	0.0	0.0
1995	0.1	0.0	0.0	0.0	0.1
1996	0.2	0.0	0.0	0.1	0.3
1997	0.4	0.0	0.0	0.2	0.6
1998	0.0	0.0	0.0	0.0	0.0
1999	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0
2001	0.0	0.0	0.0	0.0	0.0
2002	0.1	0.0	0.0	0.0	0.1
2003	0.0	0.0	0.0	0.0	0.0
2004	0.1	0.0	0.0	0.0	0.1
2005	0.0	0.0	0.0	0.0	0.0
2006	1.0	0.0	0.0	0.4	1.4
2007	0.1	0.0	0.0	0.1	0.2
2008	0.2	0.0	0.0	0.1	0.3
2009	0.0	0.0	0.0	0.0	0.0

Table 26. Catch [mt] by year and data source for quillback rockfish (*Sebastes maliger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1918	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1919	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1925	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1926	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1927	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1928	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1929	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
1930	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1931	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1932	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1933	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1934	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1935	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
1936	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1937	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1938	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1939	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
1940	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1941	0.0	0.1	0.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
1942	0.0	0.1	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
1943	0.0	0.2	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.8
1944	0.0	0.9	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.3
1945	0.0	2.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	3.0
1946	0.0	2.3	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	3.2

Table 26 (Continued). Catch [mt] by year and data source for quillback rockfish (*Sebastes maliger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1947	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.1
1948	0.0	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	2.0
1949	0.0	0.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7
1950	0.0	0.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7
1951	0.0	0.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.2
1952	0.0	0.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.0
1953	0.0	0.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.6
1954	0.0	0.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.2
1955	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.1
1956	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	2.5
1957	0.0	0.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.4
1958	0.0	0.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	4.0
1959	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	3.1
1960	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	2.7
1961	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.2
1962	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	2.6
1963	0.0	0.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.1	3.6
1964	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	3.0
1965	0.0	0.1	3.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.1	4.9
1966	0.0	0.0	4.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.1	5.6
1967	0.0	0.1	4.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9
1968	0.0	0.1	4.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
1969	0.0	0.0	5.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6
1970	0.0	0.0	7.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5
1971	0.0	0.0	6.5	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7
1972	0.0	0.0	9.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6
1973	0.0	0.0	10.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.3	14.3
1974	0.0	0.0	11.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	12.5
1975	0.0	0.0	11.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3
1976	0.0	0.0	12.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8
1977	0.0	0.0	13.3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.7

Table 26 (Continued). Catch [mt] by year and data source for quillback rockfish (*Sebastes maliger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1978	0.1	0.0	12.9	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6
1979	0.0	0.0	13.8	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.0
1980	0.0	0.0	14.9	0.0	0.7	0.0	0.0	0.0	2.7	0.3	0.0	0.0	0.0	0.0	18.6
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	6.1	0.5	0.0	0.0	0.0	0.0	11.5
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	7.8	6.5	0.0	0.0	0.0	0.0	19.3
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.1	4.0	0.0	0.0	0.0	0.0	44.1
1984	4.2	0.0	0.0	0.0	0.0	0.0	0.0	10.4	1.4	1.4	0.0	0.0	0.0	0.3	17.6
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.2	12.3	5.9	1.7	0.0	0.0	0.0	0.0	20.0
1986	0.1	0.0	0.0	0.0	0.0	0.0	0.1	13.2	0.5	0.7	0.0	0.0	0.0	0.0	14.6
1987	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.5	2.0	20.9	0.0	0.0	0.0	0.0	28.5
1988	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.3	0.7	0.0	0.0	0.0	0.0	4.2
1989	1.8	0.0	0.0	0.0	0.0	0.0	0.0	9.7	5.1	0.0	0.0	0.0	0.0	0.1	16.8
1990	1.5	0.0	0.0	0.0	0.0	0.0	1.4	8.7	3.0	7.5	0.0	0.0	0.0	0.2	22.2
1991	49.2	0.0	0.0	0.0	0.0	0.2	0.0	10.1	3.0	5.8	0.0	0.0	0.0	3.2	71.6
1992	5.9	0.0	0.0	0.0	0.0	4.0	0.0	11.6	3.1	4.1	0.0	0.0	0.0	0.6	29.4
1993	4.7	0.0	0.0	0.0	0.0	1.8	0.0	36.7	4.7	1.0	0.0	0.0	0.0	0.4	49.4
1994	20.3	0.0	0.0	0.0	0.0	1.0	0.0	4.0	3.6	0.7	0.0	0.0	0.0	1.4	31.0
1995	9.3	0.0	0.0	0.0	0.0	1.4	0.0	3.0	1.4	0.5	0.0	0.0	0.0	0.7	16.3
1996	11.7	0.0	0.0	0.0	0.0	1.2	0.0	3.6	2.1	1.1	0.0	0.0	0.0	0.8	20.5
1997	20.3	0.0	0.0	0.0	0.0	5.3	0.0	3.4	4.4	1.3	0.0	0.0	0.0	1.7	36.3
1998	11.9	0.0	0.0	0.0	0.0	5.0	0.0	2.7	4.9	1.5	0.0	0.0	0.0	1.1	27.2
1999	8.4	0.0	0.0	0.0	0.0	5.3	0.0	5.7	5.4	1.4	0.0	0.0	0.0	0.9	27.1
2000	6.3	0.0	0.0	0.0	0.0	2.4	0.0	6.8	3.0	1.7	0.0	0.0	0.0	0.6	20.8
2001	12.1	0.0	0.0	0.0	0.0	2.7	0.0	3.7	3.2	0.8	0.0	0.0	0.0	1.0	23.3
2002	4.7	0.0	0.0	0.0	0.0	0.8	0.0	1.3	3.6	1.6	0.0	0.0	0.0	0.4	12.3
2003	1.9	0.0	0.0	0.0	0.0	0.5	0.0	12.1	3.5	1.4	0.0	0.0	0.0	0.2	19.6
2004	1.9	0.0	0.0	0.0	0.0	1.2	0.0	3.3	2.4	2.8	0.0	0.0	0.0	0.2	11.7
2005	4.8	0.0	0.0	0.0	0.0	0.4	0.0	5.2	3.3	2.5	0.0	0.0	0.0	0.3	16.6
2006	3.2	0.0	0.0	0.0	0.0	1.6	1.1	10.1	4.8	2.4	0.0	0.0	0.0	0.4	23.6
2007	4.9	0.0	0.0	0.0	0.0	1.1	0.0	11.9	4.8	2.3	0.0	0.0	0.0	0.4	25.4
2008	5.7	0.0	0.0	0.0	0.0	1.6	0.0	4.4	4.1	2.1	0.0	0.0	0.0	0.5	18.3
2009	1.1	0.0	0.0	0.0	0.0	1.7	0.0	5.6	3.6	1.2	0.0	0.0	0.0	0.2	13.4

Table 27. Catch [mt] by year for blackgill rockfish (*Sebastes melanostomus*) north of 40° 10′ N. latitude. Sources combined; see text for details. Values rounded to the nearest 0.1 mt.

Year	BLGL_N	Year	BLGL_N	Year	BLGL_N
1929	0.4	1960	8.1	1991	19.0
1930	0.2	1961	6.1	1992	4.2
1931	0.6	1962	5.2	1993	16.3
1932	0.5	1963	7.7	1994	6.0
1933	0.9	1964	4.1	1995	15.8
1934	0.6	1965	6.1	1996	14.2
1935	0.6	1966	4.5	1997	14.9
1936	0.3	1967	5.6	1998	5.6
1937	0.8	1968	6.3	1999	15.7
1938	0.8	1969	3.3	2000	4.6
1939	1.2	1970	4.0	2001	4.1
1940	0.9	1971	4.3	2002	9.6
1941	0.7	1972	2.6	2003	5.7
1942	0.3	1973	4.4	2004	2.2
1943	4.2	1974	2.0	2005	2.6
1944	15.9	1975	2.0	2006	2.9
1945	31.0	1976	3.0	2007	3.6
1946	19.3	1977	0.0	2008	5.0
1947	16.3	1978	0.0	2009	5.2
1948	8.1	1979	0.0		
1949	5.5	1980	0.0		
1950	5.0	1981	2.9		
1951	9.5	1982	5.0		
1952	5.7	1983	5.9		
1953	6.4	1984	6.2		
1954	4.2	1985	3.1		
1955	6.9	1986	21.8		
1956	8.0	1987	17.2		
1957	11.1	1988	41.2		
1958	10.9	1989	5.9		
1959	8.8	1990	26.1		

Table 28. Catch [mt] by year and data source for vermilion rockfish (*Sebastes miniatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	COMDIS	Total
1916	0.0	22.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	22.3
1917	0.0	35.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	36.0
1918	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	33.4
1919	0.0	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	19.8
1920	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	21.5
1921	0.0	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	18.9
1922	0.0	18.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	18.5
1923	0.0	24.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	24.4
1924	0.0	32.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	32.4
1925	0.0	35.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	36.1
1926	0.0	44.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	44.7
1927	0.0	37.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	37.7
1928	0.0	32.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	34.3
1929	0.0	32.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	36.8
1930	0.0	33.8	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	38.8
1931	0.0	19.1	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	25.7
1932	0.0	50.3	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	58.6
1933	0.0	11.8	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.6
1934	0.0	28.1	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	39.6
1935	0.0	35.6	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	48.7
1936	0.0	34.6	14.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	49.2
1937	0.0	36.3	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	54.1
1938	0.0	24.0	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	41.6
1939	0.0	25.1	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	40.3
1940	0.0	32.4	20.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	53.3
1941	0.0	37.4	19.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	56.8
1942	0.0	13.3	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	23.6
1943	0.0	17.3	9.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	27.3
1944	0.0	20.2	8.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	28.6
1945	0.0	42.1	10.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	53.3
1946	0.0	40.6	18.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	59.4

Table 28 (Continued). Catch [mt] by year and data source for vermilion rockfish (*Sebastes miniatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	COMDIS	Total
1947	0.0	19.4	16.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	36.3
1948	0.0	28.2	36.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	64.8
1949	0.0	24.0	48.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	72.4
1950	0.0	38.6	56.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	95.3
1951	0.0	89.3	61.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	151.1
1952	0.0	49.4	60.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	110.4
1953	0.0	30.7	58.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	89.8
1954	0.0	44.8	87.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	132.2
1955	0.0	72.7	125.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	198.1
1956	0.0	52.6	144.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	197.1
1957	0.0	61.3	119.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	180.7
1958	0.0	123.2	143.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	267.4
1959	0.0	97.5	113.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	211.3
1960	0.0	93.0	80.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	173.6
1961	0.0	74.2	67.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	142.1
1962	0.0	56.4	82.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	139.1
1963	0.0	63.4	82.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	146.8
1964	0.0	53.8	88.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	142.2
1965	0.0	72.2	126.7	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	199.4
1966	0.0	69.2	161.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.3	233.2
1967	0.0	79.8	163.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	0.4	252.7
1968	0.0	54.4	197.3	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	2.0	0.2	255.5
1969	66.3	0.0	187.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	3.0	0.3	257.1
1970	77.5	0.0	229.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.3	309.6
1971	84.1	0.0	219.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	304.6
1972	109.3	0.0	286.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.4	397.2
1973	126.0	0.0	344.8	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	10.0	0.5	482.6
1974	145.8	0.0	363.9	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	5.0	0.6	515.8
1975	157.2	0.0	376.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.7	540.8
1976	200.3	0.0	336.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.8	539.4
1977	175.3	0.0	311.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	487.2

Table 28 (Continued). Catch [mt] by year and data source for vermilion rockfish (*Sebastes miniatus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	RECWA	ROGERS	COMDIS	Total
1978	252.7	0.0	296.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	550.4
1979	368.8	0.0	380.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	750.5
1980	331.5	0.0	363.3	0.0	0.0	9.5	0.0	0.0	0.0	7.2	0.1	0.0	1.4	713.0
1981	297.4	0.0	0.0	0.0	2.8	0.0	0.0	0.0	227.8	3.1	0.1	0.0	1.2	532.4
1982	398.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	401.4	0.2	0.0	0.0	1.6	805.6
1983	122.7	0.0	0.0	0.0	9.5	0.0	0.0	0.0	174.7	0.1	0.0	0.0	0.5	307.4
1984	135.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	316.5	0.4	1.2	0.0	0.5	453.8
1985	167.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	249.4	1.9	0.3	0.0	0.7	420.1
1986	197.8	0.0	0.0	0.0	0.1	0.0	0.0	0.0	345.0	1.8	0.0	0.0	0.8	545.5
1987	190.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	284.7	2.3	0.8	0.0	1.0	478.7
1988	157.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	285.5	3.9	0.0	0.0	0.9	447.8
1989	177.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	234.8	1.2	0.0	0.0	1.2	414.8
1990	264.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	255.0	3.3	0.7	0.0	2.1	525.3
1991	333.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	248.4	3.7	0.6	0.0	2.7	589.5
1992	293.4	0.0	0.0	0.0	0.0	0.0	3.9	0.0	241.7	4.1	0.5	0.0	2.7	546.4
1993	353.3	0.0	0.0	0.5	0.0	0.0	1.0	0.0	226.1	10.0	0.7	0.0	3.5	595.2
1994	338.1	0.0	0.0	0.0	0.0	0.0	4.2	0.0	251.0	3.2	0.3	0.0	3.8	600.6
1995	190.2	0.0	0.0	0.0	0.0	0.0	3.8	0.0	208.1	1.6	0.2	0.0	2.3	406.2
1996	157.8	0.0	0.0	0.0	0.0	0.0	1.0	0.0	218.6	2.1	0.1	0.0	2.1	381.6
1997	165.8	0.0	0.0	0.0	0.0	0.0	2.1	0.0	80.2	3.8	0.2	0.0	2.4	254.5
1998	160.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	109.4	5.6	0.3	0.0	2.5	284.5
1999	60.8	0.0	0.0	0.0	0.0	0.0	10.0	0.0	233.1	7.6	0.3	0.0	1.1	313.0
2000	18.5	0.0	0.0	0.0	0.0	0.0	3.0	0.0	171.9	3.4	0.2	0.0	0.4	197.4
2001	17.4	0.0	0.0	0.0	0.0	0.0	4.8	0.0	128.4	3.0	0.2	0.0	0.4	154.1
2002	11.3	0.0	0.0	0.0	0.0	0.0	2.1	0.0	146.0	3.6	0.2	0.0	0.3	163.4
2003	6.4	0.0	0.0	0.0	0.0	0.0	2.2	0.0	327.4	4.5	0.2	0.0	0.2	340.9
2004	14.6	0.0	0.0	0.0	0.0	0.0	1.7	0.0	224.7	3.3	0.2	0.0	0.3	244.8
2005	21.7	0.0	0.0	0.0	0.0	0.0	1.6	0.0	313.9	6.4	0.4	0.0	0.5	344.4
2006	21.5	0.0	0.0	0.0	0.0	0.0	2.4	0.0	204.1	5.8	0.5	0.0	0.5	234.8
2007	23.2	0.0	0.0	0.0	0.0	0.0	2.1	0.0	196.6	6.6	0.7	0.0	0.6	229.8
2008	15.7	0.0	0.0	0.0	0.0	0.0	3.8	0.0	105.1	5.8	0.4	0.0	0.5	131.3
2009	13.9	0.0	0.0	0.0	0.0	0.0	4.1	0.0	118.7	3.6	0.3	0.0	0.4	141.1

Table 29. Catch [mt] by year and data source for blue rockfish (*Sebastes mystinus*) north of 42° N. latitude. See text for source descriptions. Values rounded to the nearest 0.1 mt.

	BLUR_ORWA			BLUR_ORWA			BLUR_ORWA	
Year	Comm.	Rec.	Year	Comm.	Rec.	Year	Comm.	Rec.
1927	0.1		1959	2.7		1991	5.6	46.0
1928	0.1		1960	6.1		1992	49.1	43.5
1929	0.3		1961	4.6		1993	26.3	84.0
1930	0.2		1962	4.2		1994	20.6	9.3
1931	0.2		1963	1.9		1995	13.8	22.0
1932	0.1		1964	6.6		1996	5.1	33.4
1933	0.1		1965	3.5		1997	1.5	66.7
1934	0.1		1966	2.9		1998	10.8	66.4
1935	0.1		1967	3.8		1999	2.5	40.8
1936	0.2		1968	3.5		2000	5.9	39.1
1937	0.3		1969	3.5		2001	5.2	33.9
1938	0.3		1970	2.7		2002	3.9	16.3
1939	0.2		1971	2.7		2003	5.7	24.3
1940	0.4		1972	2.9		2004	5.9	22.2
1941	0.7		1973	3.4		2005	5.0	35.4
1942	0.9		1974	3.5		2006	4.7	18.1
1943	2.5		1975	2.4		2007	4.3	18.9
1944	1.1		1976	2.4		2008	2.7	17.2
1945	0.6		1977	3.3		2009	2.8	15.6
1946	0.8		1978	5.4				
1947	0.8		1979	2.3				
1948	2.8		1980	9.0	81.4			
1949	2.7		1981	0.7	216.2			
1950	1.3		1982	1.1	48.1			
1951	2.1		1983	2.3	43.9			
1952	2.2		1984	0.0	38.8			
1953	1.2		1985	0.0	55.1			
1954	13.8		1986	0.0	31.0			
1955	11.7		1987	0.0	39.7			
1956	32.3		1988	1.4	28.9			
1957	12.1		1989	2.8	92.0			
1958	2.4		1990	4.2	48.5			

Table 30. Catch [mt] by year and data source for blue rockfish (*Sebastes mystinus*) south of 34° 27' N. latitude. See text for source descriptions. Values rounded to the nearest 0.1 mt.

	BLUR_SCB			BLUR_SCB			BLUR_SCB	
Year	Comm.	Rec.	Year	Comm.	Rec.	Year	Comm.	Rec.
1916	0.2	0.0	1948	0.1	5.7	1980	1.6	283.0
1917	0.4	0.0	1949	0.1	6.9	1981	2.1	357.3
1918	0.4	0.0	1950	0.2	10.0	1982	2.4	437.7
1919	0.2	0.0	1951	0.1	7.9	1983	0.9	220.5
1920	0.2	0.0	1952	0.1	12.0	1984	0.8	133.9
1921	0.2	0.0	1953	0.0	12.8	1985	2.3	140.5
1922	0.2	0.0	1954	0.1	29.1	1986	2.8	150.0
1923	0.3	0.0	1955	0.3	57.8	1987	0.3	134.0
1924	0.4	0.0	1956	0.3	61.0	1988	1.9	75.2
1925	0.4	0.0	1957	0.4	36.8	1989	1.5	58.8
1926	0.5	0.0	1958	0.3	29.0	1990	1.2	62.0
1927	0.4	0.0	1959	0.2	14.5	1991	0.6	48.3
1928	0.4	0.1	1960	0.3	13.1	1992	27.9	34.7
1929	0.4	0.2	1961	0.3	14.6	1993	24.0	1.3
1930	0.4	0.3	1962	0.2	13.1	1994	6.7	15.6
1931	0.2	0.4	1963	0.3	16.6	1995	14.2	5.1
1932	0.5	0.5	1964	0.2	27.8	1996	2.6	35.2
1933	0.2	0.7	1965	0.2	44.7	1997	2.3	0.1
1934	0.3	0.8	1966	0.3	59.1	1998	0.6	13.7
1935	0.3	0.9	1967	0.3	80.1	1999	0.2	12.2
1936	0.4	0.9	1968	0.3	96.6	2000	0.2	2.1
1937	0.2	1.1	1969	0.3	84.4	2001	0.1	1.1
1938	0.1	1.2	1970	0.2	125.0	2002	0.4	2.5
1939	0.1	1.0	1971	0.3	118.1	2003	0.2	9.3
1940	0.1	0.8	1972	0.4	163.4	2004	0.2	14.6
1941	0.2	0.7	1973	0.4	200.9	2005	0.2	25.6
1942	0.1	0.4	1974	0.5	237.5	2006	0.3	8.6
1943	0.1	0.4	1975	0.7	245.2	2007	0.1	13.1
1944	0.0	0.3	1976	0.9	191.4	2008	0.9	7.7
1945	0.1	0.4	1977	0.8	189.0	2009	0.5	4.8
1946	0.1	0.7	1978	1.1	185.1			
1947	0.1	3.6	1979	1.9	254.2			

Table 31. Catch [mt] by year and data source for china rockfish (*Sebastes nebulosus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	RECWA	COMDIS	Total
1916	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.4	6.5
1917	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.6	10.1
1918	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.7	11.9
1919	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.5	8.2
1920	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.5	8.4
1921	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.4	6.9
1922	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.4	6.0
1923	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.4	6.5
1924	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.2	3.7
1925	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.3	4.7
1926	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.5	7.5
1927	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.4	6.4
1928	0.0	7.3	0.4	0.0	0.0	0.0	0.0	0.5	8.2
1929	0.0	6.0	0.8	0.0	0.0	0.0	0.0	0.4	7.3
1930	0.0	8.5	1.0	0.0	0.0	0.0	0.0	0.6	10.0
1931	0.0	3.6	1.3	0.0	0.0	0.0	0.0	0.2	5.1
1932	0.0	9.3	1.6	0.0	0.0	0.0	0.0	0.6	11.5
1933	0.0	3.4	1.9	0.0	0.0	0.0	0.0	0.2	5.6
1934	0.0	8.0	2.2	0.0	0.0	0.0	0.0	0.5	10.8
1935	0.0	7.1	2.6	0.0	0.0	0.0	0.0	0.5	10.1
1936	0.0	7.4	2.9	0.0	0.0	0.0	0.0	0.5	10.8
1937	0.0	6.4	3.4	0.0	0.0	0.0	0.0	0.4	10.2
1938	0.0	6.3	3.4	0.0	0.0	0.0	0.0	0.4	10.0
1939	0.0	6.5	2.9	0.0	0.0	0.0	0.0	0.4	9.9
1940	0.0	3.7	4.2	0.0	0.0	0.0	0.0	0.2	8.2
1941	0.0	1.8	3.9	0.0	0.0	0.0	0.0	0.1	5.8
1942	0.0	1.2	2.1	0.0	0.0	0.0	0.0	0.1	3.4
1943	0.0	1.8	2.0	0.0	0.0	0.0	0.0	0.1	3.9
1944	0.0	0.5	1.6	0.0	0.0	0.0	0.0	0.0	2.2
1945	0.0	0.6	2.2	0.0	0.0	0.0	0.0	0.0	2.8
1946	0.0	1.5	3.7	0.0	0.0	0.0	0.0	0.1	5.4
1947	0.0	1.6	3.0	0.0	0.0	0.0	0.0	0.1	4.6
1948	0.0	3.3	5.9	0.0	0.0	0.0	0.0	0.2	9.5
1949	0.0	4.4	7.7	0.0	0.0	0.0	0.0	0.3	12.4
1950	0.0	1.9	9.4	0.0	0.0	0.0	0.0	0.1	11.4
1951	0.0	2.8	11.0	0.0	0.0	0.0	0.0	0.2	14.0
1952	0.0	2.4	9.6	0.0	0.0	0.0	0.0	0.2	12.2
1953	0.0	2.3	8.2	0.0	0.0	0.0	0.0	0.1	10.6
1954	0.0	0.8	10.3	0.0	0.0	0.0	0.0	0.1	11.1
1955	0.0	0.3	12.4	0.0	0.0	0.0	0.0	0.0	12.7
1956	0.0	0.2	13.8	0.0	0.0	0.0	0.0	0.0	14.0
1957	0.0	0.5	13.8	0.0	0.0	0.0	0.0	0.0	14.4
1958	0.0	0.3	22.6	0.0	0.0	0.0	0.0	0.0	22.8
1959	0.0	0.6	17.5	0.0	0.0	0.0	0.0	0.0	18.2
1960	0.0	0.5	14.6	0.0	0.0	0.0	0.0	0.0	15.1
1961	0.0	1.9	12.7	0.0	0.0	0.0	0.0	0.1	14.8
1962	0.0	0.6	11.9	0.0	0.0	0.0	0.0	0.0	12.6

Table 31 (Continued). Catch [mt] by year and data source for china rockfish (*Sebastes nebulosus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	RECWA	COMDIS	Total
1963	0.0	1.0	14.9	0.0	0.0	0.0	0.0	0.1	16.0
1964	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	10.1
1965	0.0	0.5	16.5	0.0	0.0	0.0	0.0	0.0	17.1
1966	0.0	0.4	18.6	0.0	0.0	0.0	0.0	0.0	19.0
1967	0.0	0.2	24.2	0.0	0.0	0.0	0.0	0.0	24.4
1968	0.0	0.0	21.2	0.0	0.0	0.0	0.0	0.0	21.2
1969	5.1	0.0	18.0	0.0	0.0	0.0	0.0	0.3	23.4
1970	6.8	0.0	30.4	0.0	0.0	0.0	0.0	0.4	37.6
1971	4.8	0.0	22.3	0.0	0.0	0.0	0.0	0.3	27.5
1972	7.7	0.0	31.4	0.0	0.0	0.0	0.0	0.5	39.6
1973	14.9	0.0	34.7	0.0	0.0	0.0	0.0	1.0	50.6
1974	10.0	0.0	39.4	0.0	0.0	0.0	0.0	0.6	50.0
1975	9.7	0.0	38.0	0.0	0.0	0.0	0.0	0.6	48.4
1976	10.7	0.0	41.1	0.0	0.0	0.0	0.0	0.7	52.6
1977	10.4	0.0	37.2	0.0	0.0	0.0	0.0	0.7	48.3
1978	3.8	0.0	29.4	0.0	0.0	0.0	0.0	0.2	33.5
1979	10.4	0.0	33.5	0.0	0.0	0.0	0.0	0.7	44.6
1980	27.5	0.0	38.5	0.0	0.0	2.8	1.4	1.8	71.9
1981	21.8	0.0	0.0	0.0	16.0	11.4	5.7	1.4	56.4
1982	14.8	0.0	0.0	0.0	32.0	12.6	1.0	1.0	61.3
1983	7.2	0.0	0.0	0.0	17.2	0.3	0.3	0.5	25.5
1984	9.7	0.0	0.0	0.0	15.8	3.3	0.9	0.6	30.4
1985	3.0	0.0	0.0	0.0	27.8	5.3	0.3	0.2	36.6
1986	2.6	0.0	0.0	0.0	42.3	0.9	0.4	0.2	46.3
1987	6.0	0.0	0.0	0.0	54.6	6.4	2.3	0.4	69.7
1988	8.8	0.0	0.0	0.0	34.4	5.3	0.0	0.6	49.2
1989	6.5	0.0	0.0	0.0	33.7	6.4	0.0	0.4	47.0
1990	8.8	0.0	0.0	0.0	35.8	5.7	1.2	0.6	52.0
1991	12.2	0.0	0.0	0.0	33.2	5.5	1.3	0.8	53.0
1992	23.8	0.0	0.0	1.5	30.6	5.3	1.3	1.6	64.2
1993	16.3	0.0	0.0	0.8	26.9	6.3	2.3	1.1	53.7
1994	33.8	0.0	0.0	6.2	26.7	5.7	0.9	2.6	75.9
1995	28.7	0.0	0.0	6.4	22.9	2.9	0.8	2.3	64.0
1996	18.8	0.0	0.0	5.6	18.5	3.5	1.3	1.6	49.3
1997	33.6	0.0	0.0	10.6	7.3	4.8	0.6	2.9	59.9
1998	13.3	0.0	0.0	18.7	7.5	3.5	0.9	2.1	46.0
1999	8.4	0.0	0.0	23.3	16.5	6.2	1.2	2.1	57.6
2000	5.6	0.0	0.0	12.0	18.7	3.7	1.6	1.1	42.9
2001	4.8	0.0	0.0	19.3	17.2	2.7	1.1	1.6	46.6
2002	5.1	0.0	0.0	20.0	16.5	2.7	1.4	1.6	47.3
2003	1.6	0.0	0.0	10.1	19.6	2.2	1.4	0.8	35.5
2004	2.5	0.0	0.0	6.8	8.6	2.0	2.1	0.6	22.6
2005	3.1	0.0	0.0	3.8	14.4	2.1	2.0	0.4	25.7
2006	3.0	0.0	0.0	4.6	11.7	2.6	2.4	0.5	24.9
2007	4.2	0.0	0.0	6.0	13.2	3.1	2.6	0.7	29.9
2008	4.2	0.0	0.0	7.6	14.1	2.9	2.4	0.8	31.8
2009	2.6	0.0	0.0	7.9	19.9	2.2	1.8	0.7	35.1

Table 32. Catch [mt] by year and data source for tiger rockfish (*Sebastes nigrocinctus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.01 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	COMDIS	Total
1916	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
1917	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1918	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
1919	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
1920	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
1921	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
1922	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
1923	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
1924	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
1925	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
1926	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
1927	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1928	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
1929	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1930	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
1931	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
1932	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
1933	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1934	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
1935	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
1936	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1937	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
1938	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11
1939	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
1940	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
1941	0.00	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.06
1942	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.02
1943	0.00	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.04
1944	0.00	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.06
1945	0.00	0.04	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.12
1946	0.00	0.07	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.13
1947	0.00	0.06	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.09
1948	0.00	0.08	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.10
1949	0.00	0.17	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.20
1950	0.00	0.60	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.64
1951	0.00	1.10	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.01	1.14
1952	0.00	1.58	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.02	1.63
1953	0.00	1.89	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.02	1.94
1954	0.00	1.13	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.02	1.19
1955	0.00	0.60	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.65
1956	0.00	1.15	0.02	0.00	0.04	0.00	0.00	0.00	0.00	0.02	1.21
1957	0.00	1.19	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.02	1.26
1958	0.00	1.95	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.03	2.03
1959	0.00	2.49	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.03	2.57
1960	0.00	1.48	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.02	1.55
1961	0.00	1.03	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.01	1.09
1962	0.00	0.90	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.01	0.97

Table 32 (Continued). Catch [mt] by year and data source for tiger rockfish (*Sebastes nigrocinctus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	PFWA	RECOR	RECWA	COMDIS	Total
1963	0.00	1.03	0.01	0.00	0.10	0.00	0.00	0.00	0.00	0.01	1.16
1964	0.00	0.67	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.69
1965	0.00	0.68	0.02	0.00	0.08	0.00	0.00	0.00	0.00	0.01	0.79
1966	0.00	0.64	0.03	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.70
1967	0.00	0.35	0.04	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.41
1968	0.00	0.26	0.05	0.00	0.35	0.00	0.00	0.00	0.00	0.01	0.67
1969	0.00	0.00	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.11
1970	0.00	0.00	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.08
1971	0.00	0.00	0.07	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.09
1972	0.00	0.00	0.10	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.14
1973	0.00	0.00	0.12	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.43
1974	0.00	0.00	0.16	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.25
1975	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
1976	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16
1977	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
1978	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
1979	0.00	0.00	0.18	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.28
1980	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.20
1981	10.41	0.00	0.00	1.54	0.00	0.00	0.00	0.00	0.17	0.16	12.28
1982	0.01	0.00	0.00	2.47	0.00	0.00	0.00	0.03	0.16	0.03	2.69
1983	0.00	0.00	0.00	4.96	0.00	0.00	0.00	0.00	0.00	0.06	5.02
1984	0.00	0.00	0.00	4.99	0.00	0.00	0.00	1.49	0.00	0.06	6.54
1985	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.63	0.00	0.89
1986	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.05	0.08	0.01	0.64
1987	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00	0.01	0.75
1988	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.35	0.00	0.00	0.46
1989	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.68
1990	12.39	0.00	0.00	0.00	0.00	0.05	0.00	0.51	0.00	0.16	13.11
1991	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.54	0.00	0.01	0.99
1992	0.98	0.00	0.00	0.00	0.00	1.37	0.02	0.56	0.00	0.03	2.96
1993	0.21	0.00	0.00	0.00	0.00	1.15	0.03	0.71	0.06	0.02	2.18
1994	0.09	0.00	0.00	0.00	0.00	0.53	0.09	0.68	0.02	0.01	1.42
1995	0.00	0.00	0.00	0.00	0.00	0.73	0.17	0.43	0.00	0.01	1.34
1996	0.70	0.00	0.00	0.00	0.00	0.53	0.07	0.16	0.12	0.02	1.60
1997	0.29	0.00	0.00	0.00	0.00	2.30	0.46	0.46	0.23	0.04	3.78
1998	0.32	0.00	0.00	0.00	0.00	0.92	0.03	0.58	0.16	0.02	2.02
1999	0.72	0.00	0.00	0.00	0.00	1.39	0.10	1.04	0.31	0.03	3.59
2000	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.76	0.20	0.00	1.09
2001	0.15	0.00	0.00	0.00	0.00	0.43	0.00	0.50	0.06	0.01	1.14
2002	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.33	0.11	0.00	0.52
2003	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.21	0.09	0.00	0.37
2004	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.25	0.13	0.00	0.42
2005	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.20	0.21	0.00	0.43
2006	0.09	0.00	0.00	0.00	0.00	0.07	0.00	0.37	0.10	0.00	0.63
2007	0.32	0.00	0.00	0.00	0.00	0.14	0.00	0.73	0.15	0.01	1.34
2008	0.31	0.00	0.00	0.00	0.00	0.15	0.00	0.65	0.23	0.01	1.34
2009	0.02	0.00	0.00	0.00	0.00	0.11	0.00	0.57	0.10	0.00	0.80

Table 33. Catch [mt] by year and data source for speckled rockfish (*Sebastes ovalis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	RECCA	ROGERS	COMDIS	Total
1916	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.4
1917	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0	2.4	13.2
1918	0.0	11.7	0.0	0.0	0.0	0.0	0.0	0.0	2.6	14.3
1919	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.6
1920	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0	1.8	10.0
1921	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.3
1922	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	1.4	7.4
1923	0.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.6
1924	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	1.3	7.1
1925	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.3
1926	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	2.1	11.7
1927	0.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0	1.8	10.0
1928	0.0	8.2	0.1	0.0	0.0	0.0	0.0	0.0	1.8	10.2
1929	0.0	7.6	0.2	0.0	0.0	0.0	0.0	0.0	1.7	9.5
1930	0.0	9.6	0.2	0.0	0.0	0.0	0.0	0.0	2.1	11.9
1931	0.0	7.3	0.3	0.0	0.0	0.0	0.0	0.0	1.6	9.2
1932	0.0	8.7	0.4	0.0	0.0	0.0	0.0	0.0	2.0	11.1
1933	0.0	4.2	0.4	0.0	0.0	0.0	0.0	0.0	0.9	5.6
1934	0.0	6.5	0.5	0.0	0.0	0.0	0.0	0.0	1.5	8.5
1935	0.0	7.0	0.6	0.0	0.0	0.0	0.0	0.0	1.6	9.1
1936	0.0	8.1	0.6	0.0	0.0	0.0	0.0	0.0	1.8	10.5
1937	0.0	5.1	0.8	0.0	0.0	0.0	0.0	0.0	1.1	7.0
1938	0.0	3.6	0.8	0.0	0.0	0.0	0.0	0.0	0.8	5.1
1939	0.0	2.7	0.7	0.0	0.0	0.0	0.0	0.0	0.6	4.0
1940	0.0	3.4	0.9	0.0	0.0	0.0	0.0	0.0	0.8	5.1
1941	0.0	2.8	0.8	0.0	0.0	0.0	0.0	0.0	0.6	4.3
1942	0.0	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.3	2.1
1943	0.0	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.4	2.6
1944	0.0	4.5	0.3	0.0	0.0	0.0	0.0	0.0	1.0	5.8
1945	0.0	7.1	0.5	0.0	0.0	0.0	0.0	0.0	1.6	9.2
1946	0.0	6.2	0.8	0.0	0.0	0.0	0.0	0.0	1.4	8.4
1947	0.0	10.3	1.0	0.0	0.0	0.0	0.0	0.0	2.3	13.6
1948	0.0	3.9	2.1	0.0	0.0	0.0	0.0	0.0	0.9	6.9
1949	0.0	4.2	2.5	0.0	0.0	0.0	0.0	0.0	0.9	7.6
1950	0.0	6.7	3.4	0.0	0.0	0.0	0.0	0.0	1.5	11.6
1951	0.0	4.7	3.4	0.0	0.0	0.0	0.0	0.0	1.1	9.1
1952	0.0	3.8	3.5	0.0	0.0	0.0	0.0	0.0	0.9	8.2
1953	0.0	1.8	3.7	0.0	0.0	0.0	0.0	0.0	0.4	5.9
1954	0.0	3.4	6.1	0.0	0.0	0.0	0.0	0.0	0.8	10.3
1955	0.0	10.5	9.0	0.0	0.0	0.0	0.0	0.0	2.3	21.8
1956	0.0	9.2	11.1	0.0	0.0	0.0	0.0	0.0	2.0	22.3
1957	0.0	10.9	7.6	0.0	0.0	0.0	0.0	0.0	2.4	20.9
1958	0.0	10.1	7.6	0.0	0.0	0.0	0.0	0.0	2.2	19.9
1959	0.0	5.3	5.7	0.0	0.0	0.0	0.0	0.0	1.2	12.2
1960	0.0	9.4	5.3	0.0	0.0	0.0	0.0	0.0	2.1	16.8
1961	0.0	7.7	5.8	0.0	0.0	0.0	0.0	0.0	1.7	15.2
1962	0.0	6.7	7.4	0.0	0.0	0.0	0.0	0.0	1.5	15.5

Table 33 (Continued). Catch [mt] by year and data source for speckled rockfish (*Sebastes ovalis*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ODFW	ORCR	PFOR	RECCA	ROGERS	COMDIS	Total
1963	0.0	8.4	6.4	0.0	0.0	0.0	0.0	0.0	1.9	16.8
1964	0.0	5.1	7.9	0.0	0.0	0.0	0.0	0.0	1.1	14.1
1965	0.0	5.3	10.2	0.0	0.0	0.0	0.0	0.0	1.2	16.7
1966	0.0	8.0	13.0	0.0	0.0	0.0	0.0	19.0	6.0	46.1
1967	0.0	10.6	17.5	0.0	0.0	0.0	0.0	54.0	14.4	96.4
1968	0.0	9.5	18.8	0.0	0.1	0.0	0.0	15.0	5.5	48.8
1969	6.4	0.0	15.6	0.0	0.0	0.0	0.0	1.0	1.7	24.7
1970	4.9	0.0	22.0	0.0	0.0	0.0	0.0	0.0	1.1	27.9
1971	6.8	0.0	20.4	0.0	0.0	0.0	0.0	0.0	1.5	28.7
1972	10.2	0.0	24.2	0.0	0.0	0.0	0.0	0.0	2.3	36.7
1973	13.2	0.0	31.3	0.0	0.1	0.0	0.0	0.0	3.0	47.6
1974	15.8	0.0	34.3	0.0	0.0	0.0	0.0	0.0	3.5	53.6
1975	17.1	0.0	35.8	0.0	0.0	0.0	0.0	0.0	3.8	56.7
1976	14.0	0.0	34.3	0.0	0.0	0.0	0.0	0.0	3.1	51.5
1977	14.4	0.0	32.1	0.0	0.0	0.0	0.0	0.0	3.2	49.7
1978	11.8	0.0	30.8	0.0	0.0	0.0	0.0	0.0	2.6	45.2
1979	29.9	0.0	39.3	0.0	0.0	0.0	0.0	0.0	6.7	75.9
1980	12.5	0.0	42.5	0.0	0.0	0.0	0.0	0.0	2.8	57.8
1981	34.2	0.0	0.0	0.5	0.0	0.0	40.0	0.0	7.7	82.5
1982	29.5	0.0	0.0	0.8	0.0	0.0	56.2	0.0	6.8	93.3
1983	72.0	0.0	0.0	1.7	0.0	0.0	87.7	0.0	16.4	177.9
1984	28.2	0.0	0.0	0.0	0.0	0.0	71.9	0.0	6.3	106.4
1985	42.8	0.0	0.0	0.0	0.0	0.0	21.8	0.0	9.5	74.1
1986	49.6	0.0	0.0	0.0	0.0	0.0	33.1	0.0	11.1	93.7
1987	26.2	0.0	0.0	0.0	0.0	0.1	0.3	0.0	5.9	32.5
1988	12.5	0.0	0.0	0.0	0.0	0.1	0.0	0.0	2.8	15.4
1989	57.4	0.0	0.0	0.0	0.0	0.0	6.4	0.0	12.8	76.6
1990	25.6	0.0	0.0	0.0	0.0	0.0	6.9	0.0	5.7	38.2
1991	14.8	0.0	0.0	0.0	0.0	0.1	9.2	0.0	3.3	27.4
1992	46.1	0.0	0.0	0.0	0.0	0.1	11.6	0.0	10.3	68.0
1993	29.2	0.0	0.0	0.0	0.0	0.0	2.7	0.0	6.5	38.4
1994	19.7	0.0	0.0	0.0	0.0	0.0	34.9	0.0	4.4	59.0
1995	18.5	0.0	0.0	0.0	0.0	0.0	11.2	0.0	4.1	33.8
1996	40.0	0.0	0.0	0.0	0.0	0.1	12.5	0.0	8.9	61.6
1997	21.7	0.0	0.0	0.0	0.0	0.0	23.0	0.0	4.8	49.5
1998	13.1	0.0	0.0	0.0	0.0	0.0	9.6	0.0	2.9	25.6
1999	3.6	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.8	15.5
2000	0.6	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.1	7.5
2001	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.6
2002	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.4
2003	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	1.5
2004	0.0	0.0	0.0	0.0	0.0	0.0	6.4	0.0	0.0	6.5
2005	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.0	9.8
2006	0.5	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.1	3.3
2007	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0
2008	0.3	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.1	5.6
2009	0.2	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	4.6

Table 34. Catch [mt] by year for bocaccio (*Sebastes paucispinis*) north of 40° 10' North latitude. Sources combined; see results section for description of corrected values. Values rounded to the nearest 0.1 mt.

Year	April 2010	Corrected	Year	April 2010	Corrected	Year	April 2010	Corrected
1916	0.1	0.2	1948	109.7	452.5	1980	471.7	471.7
1917	0.1	0.3	1949	101.8	436.9	1981	2290.0	2290.0
1918	0.2	0.7	1950	103.8	429.8	1982	1513.4	1513.4
1919	0.1	0.2	1951	103.9	577.3	1983	1617.5	1617.5
1920	0.1	0.2	1952	71.3	317.5	1984	756.9	756.9
1921	0.1	0.3	1953	110.0	393.5	1985	971.5	971.5
1922	0.1	0.3	1954	117.1	339.5	1986	603.4	603.4
1923	0.0	0.1	1955	116.7	423.3	1987	508.1	508.1
1924	0.1	0.3	1956	230.1	554.8	1988	462.9	462.9
1925	0.4	0.9	1957	173.0	619.1	1989	626.2	626.2
1926	0.3	0.8	1958	95.6	548.4	1990	628.0	628.0
1927	0.6	1.5	1959	89.7	450.0	1991	635.2	635.2
1928	0.5	1.3	1960	131.9	455.2	1992	423.9	423.9
1929	10.2	28.2	1961	118.3	360.5	1993	405.3	405.3
1930	5.8	16.8	1962	131.3	333.6	1994	220.4	220.4
1931	21.4	49.7	1963	135.0	433.7	1995	201.3	201.3
1932	11.2	37.4	1964	110.8	276.1	1996	154.8	154.8
1933	17.5	59.4	1965	97.6	336.8	1997	167.2	167.2
1934	11.0	41.5	1966	313.4	493.1	1998	98.7	98.7
1935	13.1	43.3	1967	178.2	451.0	1999	53.6	53.6
1936	3.1	17.9	1968	173.9	486.7	2000	8.5	8.5
1937	6.7	41.5	1969	268.8	268.8	2001	15.9	15.9
1938	10.6	47.8	1970	273.0	273.0	2002	8.7	8.7
1939	31.0	86.5	1971	411.1	411.1	2003	8.2	8.2
1940	22.1	63.5	1972	309.6	309.6	2004	5.1	5.1
1941	26.7	61.3	1973	602.7	602.7	2005	3.1	3.1
1942	27.1	40.9	1974	334.8	334.8	2006	3.1	3.1
1943	80.8	250.3	1975	289.6	289.6	2007	1.8	1.8
1944	107.5	758.8	1976	361.9	361.9	2008	2.9	2.9
1945	173.9	1459.2	1977	310.7	310.7	2009	2.5	2.5
1946	118.8	945.9	1978	322.7	322.7			
1947	72.9	768.7	1979	637.0	637.0			

Table 35. Catch [mt] by year and data source for redstripe rockfish (*Sebastes proriger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1927	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1928	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1929	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1930	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1931	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1932	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1933	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1934	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1935	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1936	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1937	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1938	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1939	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1940	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1941	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1942	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
1943	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.5
1944	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.7
1945	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.9	2.1
1946	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	1.6
1947	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.8
1948	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	1.3
1949	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.8
1950	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.8	2.0
1951	0.0	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	2.3
1952	0.0	0.1	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.7	4.3
1953	0.0	0.1	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.1	2.8
1954	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.7	4.2
1955	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2	3.0
1956	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	1.3	2.1	5.3
1957	0.0	0.1	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.8	4.5
1958	0.0	0.1	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.7	4.3
1959	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	3.5
1960	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.8	4.5
1961	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.3	5.7
1962	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	2.4	3.1	7.5
1963	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	1.7	4.1
1964	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	1.5	3.7
1965	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	11.6	28.3
1966	0.0	0.0	0.0	0.0	0.0	29.4	0.0	0.0	0.0	0.0	675.0	3.4	0.0	493.4	1201.3
1967	0.0	0.1	0.0	0.0	0.0	13.5	0.0	0.0	0.0	0.0	329.0	0.0	0.0	238.7	581.3
1968	0.0	0.1	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	282.0	0.0	0.0	197.6	481.2

Table 35 (Continued). Catch [mt] by year and data source for redstripe rockfish (*Sebastes proriger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECCA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1969	0.1	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	40.0	3.2	0.0	35.7	87.0
1970	0.1	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	52.0	1.4	0.0	44.3	107.8
1971	0.1	0.0	0.0	0.0	0.0	20.9	0.0	0.0	0.0	0.0	36.0	5.2	0.0	43.4	105.7
1972	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	22.0	0.6	0.0	16.0	39.1
1973	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	28.0	68.2
1974	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0	0.0	0.0	14.9	36.3
1975	0.4	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	26.0	0.0	0.0	18.7	45.6
1976	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	1.3	0.0	18.7	45.6
1977	0.5	0.0	0.1	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	83.7	0.0	61.2	149.0
1978	0.0	0.0	0.1	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	166.9	0.0	119.5	291.0
1979	0.0	0.0	0.1	0.0	0.0	11.3	0.0	0.0	0.0	0.0	0.0	195.7	0.0	144.3	351.3
1980	1.8	0.0	0.1	0.0	0.0	21.8	0.0	0.0	0.0	0.0	0.0	113.1	0.0	95.3	232.2
1981	0.2	0.0	0.0	0.0	94.3	0.0	0.0	493.4	0.0	0.0	0.0	0.0	0.0	409.8	997.7
1982	2.7	0.0	0.0	0.0	1320.7	0.0	0.0	140.7	0.0	0.0	0.0	0.0	0.0	1020.4	2484.4
1983	44.0	0.0	0.0	0.0	373.3	0.0	0.0	185.9	0.0	0.1	0.0	0.0	0.0	420.5	1023.9
1984	5.5	0.0	0.0	0.0	158.2	0.0	0.0	5.8	0.0	0.4	0.0	0.0	0.0	118.2	288.1
1985	8.8	0.0	0.0	0.0	290.7	0.0	0.0	78.1	0.0	0.5	0.0	0.0	0.0	263.1	641.2
1986	4.9	0.0	0.0	0.0	197.0	0.0	0.0	99.4	0.0	0.1	0.0	0.0	0.0	210.0	511.4
1987	1.3	0.0	0.0	0.0	0.0	0.0	244.2	109.4	0.3	0.0	0.0	0.0	0.0	239.6	594.7
1988	1.0	0.0	0.0	0.0	0.0	0.0	317.5	34.4	0.0	0.0	0.0	0.0	0.0	230.8	583.8
1989	3.2	0.0	0.0	0.0	0.0	0.0	332.1	61.3	3.0	0.0	0.0	0.0	0.0	250.7	650.5
1990	4.3	0.0	0.0	0.0	0.0	0.0	296.4	100.5	0.8	0.0	0.0	0.0	0.0	245.1	647.1
1991	6.6	0.0	0.0	0.3	0.0	0.0	202.8	105.3	0.6	0.0	0.0	0.0	0.0	185.5	501.1
1992	0.6	0.0	0.0	0.8	0.0	0.0	181.7	97.0	0.5	0.0	0.0	0.0	0.0	159.1	439.6
1993	2.0	0.0	0.0	0.4	0.0	0.0	376.7	24.8	0.0	0.0	0.0	0.0	0.0	220.5	624.5
1994	5.5	0.0	0.0	1.9	0.0	0.0	384.9	11.9	0.5	0.0	0.0	0.0	0.0	212.2	616.9
1995	6.1	0.0	0.0	4.9	0.0	0.0	216.2	52.7	0.0	0.6	0.0	0.0	0.0	140.8	421.3
1996	1.7	0.0	0.0	0.7	0.0	0.0	181.4	35.6	0.1	0.1	0.0	0.0	0.0	105.7	325.2
1997	5.8	0.0	0.0	1.0	0.0	0.0	127.7	9.1	0.3	0.0	0.0	0.0	0.0	66.0	209.9
1998	5.2	0.0	0.0	0.0	0.0	0.0	91.1	14.5	0.1	0.2	0.0	0.0	0.0	48.7	159.7
1999	6.5	0.0	0.0	0.0	0.0	0.0	20.1	7.0	0.1	0.1	0.0	0.0	0.0	14.0	47.9
2000	0.3	0.0	0.0	2.0	0.0	0.0	3.4	1.6	0.2	0.0	0.0	0.0	0.0	2.9	10.5
2001	0.0	0.0	0.0	0.5	0.0	0.0	2.0	4.1	0.0	0.1	0.0	0.0	0.0	2.4	9.1
2002	0.0	0.0	0.0	2.8	0.0	0.0	0.6	6.4	0.0	0.0	0.0	0.0	0.0	3.4	13.2
2003	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.2	0.0	0.1	0.0	0.0	0.0	0.3	1.3
2004	0.1	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.7
2005	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.3	5.9
2006	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.2	1.0
2007	0.0	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
2009	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4

Table 36. Catch [mt] by year and data source for grass rockfish (*Sebastes rastrelliger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CARR	PFOR	RECCA	RECOR	COMDIS	Total
1928	0.0	0.3	0.0	0.0	0.0	0.0	0.3
1929	0.0	0.7	0.0	0.0	0.0	0.0	0.7
1930	0.0	0.8	0.0	0.0	0.0	0.0	0.8
1931	0.0	1.1	0.0	0.0	0.0	0.0	1.1
1932	0.0	1.3	0.0	0.0	0.0	0.0	1.3
1933	0.0	1.6	0.0	0.0	0.0	0.0	1.6
1934	0.0	1.9	0.0	0.0	0.0	0.0	1.9
1935	0.0	2.1	0.0	0.0	0.0	0.0	2.1
1936	0.0	2.4	0.0	0.0	0.0	0.0	2.4
1937	0.0	2.7	0.0	0.0	0.0	0.0	2.7
1938	0.0	2.8	0.0	0.0	0.0	0.0	2.8
1939	0.0	2.4	0.0	0.0	0.0	0.0	2.4
1940	0.0	3.3	0.0	0.0	0.0	0.0	3.3
1941	0.0	3.1	0.0	0.0	0.0	0.0	3.1
1942	0.0	1.6	0.0	0.0	0.0	0.0	1.6
1943	0.0	1.6	0.0	0.0	0.0	0.0	1.6
1944	0.0	1.3	0.0	0.0	0.0	0.0	1.3
1945	0.0	1.7	0.0	0.0	0.0	0.0	1.7
1946	0.0	2.9	0.0	0.0	0.0	0.0	2.9
1947	0.0	2.8	0.0	0.0	0.0	0.0	2.8
1948	0.0	5.8	0.0	0.0	0.0	0.0	5.8
1949	0.0	7.4	0.0	0.0	0.0	0.0	7.4
1950	0.0	9.2	0.0	0.0	0.0	0.0	9.2
1951	0.0	12.1	0.0	0.0	0.0	0.0	12.1
1952	0.0	10.9	0.0	0.0	0.0	0.0	10.9
1953	0.0	10.1	0.0	0.0	0.0	0.0	10.1
1954	0.0	16.4	0.0	0.0	0.0	0.0	16.4
1955	0.0	23.1	0.0	0.0	0.0	0.0	23.1
1956	0.0	24.0	0.0	0.0	0.0	0.0	24.0
1957	0.0	18.1	0.0	0.0	0.0	0.0	18.1
1958	0.0	23.9	0.0	0.0	0.0	0.0	23.9
1959	0.0	19.1	0.0	0.0	0.0	0.0	19.1
1960	0.0	15.7	0.0	0.0	0.0	0.0	15.7
1961	0.0	13.0	0.0	0.0	0.0	0.0	13.0
1962	0.0	14.7	0.0	0.0	0.0	0.0	14.7
1963	0.0	16.1	0.0	0.0	0.0	0.0	16.1
1964	0.0	15.0	0.0	0.0	0.0	0.0	15.0
1965	0.0	22.9	0.0	0.0	0.0	0.0	22.9
1966	0.0	31.2	0.0	0.0	0.0	0.0	31.2
1967	0.0	35.3	0.0	0.0	0.0	0.0	35.3
1968	0.0	39.9	0.0	0.0	0.0	0.0	39.9

Table 36 (Continued). Catch [mt] by year and data source for grass rockfish (*Sebastes rastrelliger*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CARR	PFOR	RECCA	RECOR	COMDIS	Total
1969	0.0	39.6	0.0	0.0	0.0	0.0	39.6
1970	0.0	52.4	0.0	0.0	0.0	0.0	52.4
1971	0.0	49.6	0.0	0.0	0.0	0.0	49.6
1972	0.0	65.6	0.0	0.0	0.0	0.0	65.6
1973	0.0	78.1	0.0	0.0	0.0	0.0	78.1
1974	0.0	94.1	0.0	0.0	0.0	0.0	94.1
1975	0.0	98.6	0.0	0.0	0.0	0.0	98.7
1976	0.0	87.6	0.0	0.0	0.0	0.0	87.7
1977	0.0	80.3	0.0	0.0	0.0	0.0	80.3
1978	0.0	76.7	0.0	0.0	0.0	0.0	76.8
1979	0.1	96.4	0.0	0.0	0.0	0.0	96.4
1980	0.1	90.3	0.0	0.0	0.0	0.0	90.3
1981	0.1	0.0	0.0	7.4	0.1	0.0	7.7
1982	0.7	0.0	0.0	12.6	0.4	0.0	13.6
1983	0.0	0.0	0.0	25.6	0.1	0.0	25.7
1984	0.5	0.0	0.0	14.2	0.0	0.0	14.7
1985	0.6	0.0	0.0	103.9	0.0	0.0	104.6
1986	1.3	0.0	0.0	41.8	0.2	0.1	43.4
1987	1.7	0.0	0.0	46.7	0.0	0.1	48.6
1988	2.8	0.0	0.0	46.6	0.0	0.2	49.6
1989	0.1	0.0	0.0	13.6	0.0	0.0	13.7
1990	0.1	0.0	0.0	27.8	0.0	0.0	28.0
1991	1.9	0.0	0.0	23.9	0.0	0.1	25.9
1992	5.8	0.0	0.0	20.0	0.0	0.4	26.3
1993	10.3	0.0	0.0	17.4	0.3	0.7	28.7
1994	34.5	0.0	0.0	11.9	0.2	2.2	48.9
1995	51.0	0.0	0.0	7.5	0.1	3.3	61.9
1996	42.5	0.0	0.0	8.6	0.2	2.8	54.1
1997	31.6	0.0	0.0	8.8	0.1	2.1	42.5
1998	42.0	0.0	0.0	8.8	0.1	2.7	53.6
1999	26.7	0.0	0.5	3.9	0.0	1.8	32.9
2000	28.6	0.0	1.9	2.8	0.6	2.0	35.8
2001	23.1	0.0	1.3	15.1	0.0	1.6	41.2
2002	17.0	0.0	1.5	9.6	0.2	1.2	29.6
2003	13.6	0.0	0.7	10.7	0.0	0.9	25.9
2004	13.7	0.0	0.6	7.2	0.0	0.9	22.5
2005	12.7	0.0	1.6	9.2	0.0	0.9	24.5
2006	17.7	0.0	0.8	14.3	0.0	1.2	34.0
2007	19.1	0.0	0.4	9.3	0.0	1.3	30.1
2008	15.9	0.0	0.2	7.5	0.0	1.0	24.6
2009	12.8	0.0	0.2	9.6	0.0	0.8	23.5

Table 37. Catch [mt] by year and data source for yellowmouth rockfish (*Sebastes reedi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1927	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1928	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1929	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1930	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1931	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1932	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1933	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1934	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1935	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1936	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1937	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1938	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1939	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1940	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
1941	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1942	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.7
1943	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	2.2
1944	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.5
1945	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	3.6	0.0	4.0
1946	0.0	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.8
1947	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.6
1948	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	2.3	0.0	2.7
1949	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	2.8	0.0	3.5
1950	0.0	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	2.7	0.0	3.6
1951	0.0	0.2	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	2.2	0.0	3.3
1952	0.0	0.2	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	5.5
1953	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	2.4	0.0	3.8
1954	0.0	0.1	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	4.6	0.0	6.4
1955	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	3.1	0.0	4.4
1956	0.0	0.1	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	5.6	0.0	7.8
1957	0.0	0.1	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	4.5	0.0	6.5
1958	0.0	0.1	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	5.2	0.0	6.7
1959	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	5.9	0.0	6.7
1960	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	7.1	0.0	8.3
1961	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	7.7	0.0	9.7
1962	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	10.4	0.1	12.8
1963	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.7	0.0	0.0	6.8
1964	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	6.3	0.0	0.0	6.5
1965	0.0	0.0	0.0	0.0	16.8	0.0	0.0	0.0	0.0	7.7	0.0	0.1	24.7
1966	0.0	0.0	0.0	0.0	16.8	0.0	0.0	0.0	1360.0	10.1	0.0	5.5	1392.5
1967	0.0	0.0	0.0	0.0	232.6	0.0	0.0	0.0	1150.0	0.0	0.0	5.5	1388.2
1968	0.0	0.0	0.0	0.0	103.1	0.0	0.0	0.0	666.0	0.0	0.0	3.1	772.2

Table 37 (Continued). Catch [mt] by year and data source for yellowmouth rockfish (*Sebastes reedi*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	NORPAC	ODFW	ORCR	PFOR	PFWA	RECOR	ROGERS	TGTWA	PACFISH	COMDIS	Total
1969	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	60.0	2.0	0.0	0.3	65.3
1970	0.1	0.0	0.0	0.0	126.4	0.0	0.0	0.0	54.0	1.6	0.0	0.7	182.8
1971	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	14.0	2.4	0.0	0.1	18.2
1972	0.1	0.0	0.0	0.0	1.3	0.0	0.0	0.0	11.0	2.8	0.0	0.1	15.2
1973	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	21.0	17.3	0.0	0.2	42.2
1974	0.1	0.0	0.0	0.0	59.3	0.0	0.0	0.0	24.0	1.6	0.0	0.3	85.3
1975	0.2	0.0	0.0	0.0	1.1	0.0	0.0	0.0	8.0	16.9	0.0	0.1	26.3
1976	0.2	0.0	0.0	0.0	1.1	0.0	0.0	0.0	6.0	5.1	0.0	0.0	12.4
1977	0.2	0.0	0.0	0.0	7.8	0.0	0.0	0.0	0.0	16.3	0.0	0.1	24.4
1978	0.1	0.0	0.0	0.0	17.0	0.0	0.0	0.0	0.0	8.6	0.0	0.1	25.8
1979	1.0	0.0	0.0	0.0	1256.5	0.0	0.0	0.0	0.0	24.9	0.0	5.1	1287.5
1980	0.2	0.0	0.0	0.0	185.1	0.0	0.0	4.7	0.0	100.2	0.0	1.1	291.4
1981	0.3	0.0	0.0	413.3	0.0	0.0	9.3	0.0	0.0	0.0	0.0	1.7	424.7
1982	0.2	0.0	0.0	179.9	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.7	184.3
1983	2.4	0.0	0.0	398.2	0.0	0.0	3.0	0.0	0.0	0.0	0.0	1.6	405.2
1984	10.9	0.0	0.0	558.3	0.0	0.0	1.3	0.0	0.0	0.0	0.0	2.3	572.8
1985	11.4	0.0	0.0	801.8	0.0	0.0	3.9	0.0	0.0	0.0	0.0	3.3	820.4
1986	11.4	0.0	0.0	328.7	0.0	0.0	3.0	0.0	0.0	0.0	0.0	1.4	344.4
1987	8.9	0.0	0.0	0.0	0.0	240.0	3.4	0.0	0.0	0.0	0.0	6.6	258.8
1988	0.1	0.0	0.0	0.0	0.0	424.9	9.0	0.0	0.0	0.0	0.0	21.3	455.3
1989	0.5	0.0	0.0	0.0	0.0	337.5	1.5	0.0	0.0	0.0	0.0	24.1	363.6
1990	3.1	0.0	0.0	0.0	0.0	337.1	1.4	0.0	0.0	0.0	0.0	31.8	373.4
1991	0.0	0.0	0.0	0.0	0.0	546.6	152.6	0.0	0.0	0.0	0.0	80.4	779.6
1992	2.3	0.0	0.6	0.0	0.0	280.8	30.9	0.0	0.0	0.0	0.0	43.1	357.7
1993	3.7	0.0	0.1	0.0	0.0	442.6	27.5	0.0	0.0	0.0	0.0	75.3	549.2
1994	4.9	0.0	1.4	0.0	0.0	234.2	3.5	0.0	0.0	0.0	0.0	44.2	288.1
1995	0.0	0.0	0.2	0.0	0.0	89.1	19.0	0.0	0.0	0.0	0.0	22.1	130.3
1996	5.6	0.0	0.1	0.0	0.0	98.9	14.4	0.0	0.0	0.0	0.0	26.9	145.9
1997	0.6	0.0	0.0	0.0	0.0	68.4	15.6	0.0	0.0	0.0	0.0	21.0	105.6
1998	0.2	0.0	0.9	0.0	0.0	35.4	3.6	0.0	0.0	0.0	0.0	10.8	50.8
1999	0.0	0.0	0.2	0.0	0.0	23.1	4.7	0.0	0.0	0.0	0.0	8.2	36.1
2000	0.0	0.0	0.0	0.0	0.0	10.4	1.4	0.0	0.0	0.0	0.0	3.7	15.5
2001	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	1.6	6.2
2002	0.0	0.0	0.6	0.0	0.0	1.5	0.0	0.1	0.0	0.0	0.0	0.8	2.9
2003	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	1.5	5.3
2004	0.0	0.0	0.0	0.0	0.0	10.5	0.1	0.0	0.0	0.0	0.0	4.3	14.9
2005	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	2.9	9.8
2006	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.8	2.4
2007	0.0	0.0	0.0	0.0	0.0	2.4	0.3	0.0	0.0	0.0	0.0	1.3	4.1
2008	0.0	0.0	0.1	0.0	0.0	1.0	0.6	0.0	0.0	0.0	0.0	0.8	2.5
2009	0.1	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	1.6	4.7

Table 38. Catch [mt] by year and data source for rosy rockfish (*Sebastes rosaceus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ORCR	PFOR	RECCA	RECOR	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1918	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1919	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1925	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1926	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1927	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1928	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.4
1929	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.7
1930	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.8
1931	0.0	0.1	1.0	0.0	0.0	0.0	0.0	0.0	1.1
1932	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.3
1933	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.6
1934	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.8
1935	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.1
1936	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	2.3
1937	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	2.8
1938	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	2.7
1939	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	2.4
1940	0.0	0.1	3.3	0.0	0.0	0.0	0.0	0.0	3.5
1941	0.0	0.2	3.1	0.1	0.0	0.0	0.0	0.1	3.4
1942	0.0	0.0	1.6	0.1	0.0	0.0	0.0	0.0	1.8
1943	0.0	0.5	1.6	0.2	0.0	0.0	0.0	0.2	2.4
1944	0.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0	1.4
1945	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	1.8
1946	0.0	0.2	2.9	0.1	0.0	0.0	0.0	0.0	3.2
1947	0.0	0.1	2.4	0.0	0.0	0.0	0.0	0.0	2.6
1948	0.0	0.1	4.9	0.0	0.0	0.0	0.0	0.0	5.1
1949	0.0	0.2	6.3	0.0	0.0	0.0	0.0	0.1	6.6
1950	0.0	0.5	7.7	0.0	0.0	0.0	0.0	0.1	8.4
1951	0.0	0.2	8.8	0.0	0.0	0.0	0.0	0.1	9.1
1952	0.0	0.3	8.0	0.0	0.0	0.0	0.0	0.1	8.4
1953	0.0	0.1	7.0	0.0	0.0	0.0	0.0	0.0	7.1
1954	0.0	0.1	9.4	0.0	0.0	0.0	0.0	0.0	9.6
1955	0.0	0.3	12.1	0.0	0.0	0.0	0.0	0.1	12.5
1956	0.0	0.4	13.7	0.0	0.0	0.0	0.0	0.1	14.2
1957	0.0	1.1	12.7	0.0	0.0	0.0	0.0	0.2	14.0
1958	0.0	0.1	17.9	0.0	0.0	0.0	0.0	0.0	18.0
1959	0.0	0.1	15.1	0.0	0.0	0.0	0.0	0.0	15.3
1960	0.0	0.0	11.2	0.0	0.0	0.0	0.0	0.0	11.2
1961	0.0	0.1	9.0	0.0	0.0	0.0	0.0	0.0	9.1
1962	0.0	0.3	11.1	0.0	0.0	0.0	0.0	0.1	11.5

Table 38 (Continued). Catch [mt] by year and data source for rosy rockfish (*Sebastes rosaceus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	ORCR	PFOR	RECCA	RECOR	COMDIS	Total
1963	0.0	0.3	11.5	0.0	0.0	0.0	0.0	0.1	11.9
1964	0.0	0.0	10.6	0.0	0.0	0.0	0.0	0.0	10.7
1965	0.0	0.0	16.6	0.1	0.0	0.0	0.0	0.0	16.7
1966	0.0	0.1	19.6	0.1	0.0	0.0	0.0	0.0	19.7
1967	0.0	0.0	21.1	0.1	0.0	0.0	0.0	0.0	21.3
1968	0.0	0.0	24.9	0.1	0.0	0.0	0.0	0.0	25.1
1969	0.3	0.0	25.8	0.2	0.0	0.0	0.0	0.1	26.4
1970	0.3	0.0	31.6	0.1	0.0	0.0	0.0	0.1	32.0
1971	0.2	0.0	28.7	0.1	0.0	0.0	0.0	0.1	29.2
1972	0.4	0.0	38.2	0.2	0.0	0.0	0.0	0.1	38.9
1973	0.4	0.0	50.0	0.3	0.0	0.0	0.0	0.2	50.8
1974	0.6	0.0	54.2	0.3	0.0	0.0	0.0	0.2	55.4
1975	0.7	0.0	56.0	0.2	0.0	0.0	0.0	0.2	57.0
1976	0.7	0.0	58.7	0.2	0.0	0.0	0.0	0.2	59.9
1977	0.6	0.0	53.8	0.3	0.0	0.0	0.0	0.2	54.9
1978	0.9	0.0	50.2	0.5	0.0	0.0	0.0	0.3	51.9
1979	1.2	0.0	62.0	0.2	0.0	0.0	0.0	0.3	63.7
1980	0.4	0.0	59.9	0.6	0.0	0.0	0.0	0.2	61.3
1981	1.1	0.0	0.0	0.0	0.0	23.6	0.0	0.2	24.9
1982	1.2	0.0	0.0	0.0	0.0	47.3	0.0	0.3	48.8
1983	3.3	0.0	0.0	0.0	0.0	45.8	0.0	0.7	49.8
1984	0.5	0.0	0.0	0.0	0.0	44.9	0.0	0.1	45.5
1985	1.3	0.0	0.0	0.0	0.0	40.7	0.2	0.3	42.5
1986	1.5	0.0	0.0	0.0	0.0	53.8	0.0	0.3	55.6
1987	3.4	0.0	0.0	0.0	0.0	17.9	0.0	0.8	22.1
1988	10.9	0.0	0.0	0.0	0.0	16.7	0.0	2.4	30.1
1989	2.6	0.0	0.0	0.0	0.0	23.6	0.0	0.6	26.9
1990	9.9	0.0	0.0	0.0	0.0	15.6	0.0	2.2	27.7
1991	12.8	0.0	0.0	0.0	0.4	13.7	0.0	2.9	29.9
1992	15.0	0.0	0.0	0.0	0.3	11.8	0.0	3.4	30.5
1993	12.6	0.0	0.0	0.0	1.8	10.1	0.0	3.2	27.6
1994	23.3	0.0	0.0	0.0	0.0	8.3	0.0	5.2	36.8
1995	4.7	0.0	0.0	0.0	0.0	5.8	0.0	1.0	11.5
1996	12.5	0.0	0.0	0.0	2.7	18.9	0.0	3.4	37.4
1997	5.6	0.0	0.0	0.0	0.1	18.8	0.0	1.3	25.7
1998	5.5	0.0	0.0	0.0	0.7	12.6	0.0	1.4	20.1
1999	1.6	0.0	0.0	0.0	0.0	16.6	0.0	0.4	18.6
2000	0.2	0.0	0.0	0.0	0.0	14.2	0.0	0.0	14.4
2001	1.2	0.0	0.0	0.0	0.5	8.5	0.2	0.4	10.6
2002	3.2	0.0	0.0	0.0	0.0	1.2	0.1	0.7	5.2
2003	0.2	0.0	0.0	0.0	0.0	2.8	0.0	0.1	3.2
2004	0.2	0.0	0.0	0.0	0.0	4.9	0.0	0.0	5.1
2005	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	5.4
2006	0.4	0.0	0.0	0.0	0.0	2.6	0.0	0.1	3.1
2007	0.5	0.0	0.0	0.0	0.0	6.1	0.0	0.1	6.7
2008	0.4	0.0	0.0	0.0	0.0	4.8	0.0	0.1	5.3
2009	0.4	0.0	0.0	0.0	0.0	6.1	0.0	0.1	6.6

Table 39. Catch [mt] by year and data source for greenblotched rockfish (*Sebastes rosenblatti*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1916	0.0	32.3	0.0	0.0	7.2	39.5
1917	0.0	52.1	0.0	0.0	11.6	63.7
1918	0.0	47.5	0.0	0.0	10.6	58.1
1919	0.0	28.4	0.0	0.0	6.3	34.7
1920	0.0	30.9	0.0	0.0	6.9	37.7
1921	0.0	27.0	0.0	0.0	6.0	33.0
1922	0.0	26.5	0.0	0.0	5.9	32.4
1923	0.0	35.5	0.0	0.0	7.9	43.5
1924	0.0	47.6	0.0	0.0	10.6	58.3
1925	0.0	52.3	0.0	0.0	11.7	63.9
1926	0.0	64.9	0.0	0.0	14.5	79.3
1927	0.0	53.8	0.0	0.0	12.0	65.8
1928	0.0	45.9	0.0	0.0	10.2	56.1
1929	0.0	46.4	0.0	0.0	10.4	56.8
1930	0.0	47.3	0.0	0.0	10.5	57.9
1931	0.0	55.4	0.1	0.0	12.4	67.8
1932	0.0	40.6	0.1	0.0	9.0	49.7
1933	0.0	27.9	0.1	0.0	6.2	34.2
1934	0.0	27.9	0.1	0.0	6.2	34.2
1935	0.0	20.6	0.1	0.0	4.6	25.3
1936	0.0	8.6	0.1	0.0	1.9	10.6
1937	0.0	8.2	0.2	0.0	1.8	10.2
1938	0.0	5.4	0.2	0.0	1.2	6.8
1939	0.0	6.5	0.1	0.0	1.4	8.1
1940	0.0	11.1	0.1	0.0	2.5	13.7
1941	0.0	14.5	0.1	0.0	3.2	17.8
1942	0.0	5.7	0.1	0.0	1.3	7.1
1943	0.0	6.7	0.1	0.0	1.5	8.2
1944	0.0	1.2	0.0	0.0	0.3	1.6
1945	0.0	2.8	0.1	0.0	0.6	3.4
1946	0.0	7.6	0.1	0.0	1.7	9.4
1947	0.0	10.0	0.3	0.0	2.2	12.4
1948	0.0	14.8	0.7	0.0	3.3	18.7
1949	0.0	16.2	0.8	0.0	3.6	20.6
1950	0.0	10.2	1.0	0.0	2.3	13.4
1951	0.0	17.1	0.8	0.0	3.8	21.7
1952	0.0	12.3	1.2	0.0	2.8	16.3
1953	0.0	9.6	1.3	0.0	2.1	13.1
1954	0.0	13.1	2.8	0.0	2.9	18.8
1955	0.0	16.1	5.4	0.0	3.6	25.0
1956	0.0	15.8	6.2	0.0	3.5	25.6
1957	0.0	14.8	3.6	0.0	3.3	21.7
1958	0.0	12.8	2.3	0.0	2.8	17.9
1959	0.0	12.7	1.4	0.0	2.8	16.9
1960	0.0	14.7	1.5	0.0	3.3	19.5
1961	0.0	12.8	1.8	0.0	2.9	17.5
1962	0.0	11.4	1.7	0.0	2.5	15.7

Table 39 (Continued). Catch [mt] by year and data source for greenblotched rockfish (*Sebastes rosenblatti*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1963	0.0	15.9	1.7	0.0	3.5	21.2
1964	0.0	13.1	2.5	0.0	2.9	18.5
1965	0.0	16.4	3.1	0.0	3.7	23.2
1966	0.0	12.3	4.7	0.0	2.7	19.7
1967	0.0	15.8	6.0	0.0	3.5	25.3
1968	0.0	16.6	6.6	0.0	3.7	26.9
1969	14.5	0.0	5.6	0.0	3.2	23.4
1970	10.7	0.0	7.6	0.0	2.4	20.7
1971	10.7	0.0	7.4	0.0	2.4	20.5
1972	16.8	0.0	9.7	0.0	3.7	30.3
1973	16.1	0.0	11.7	0.0	3.6	31.4
1974	13.0	0.0	13.5	0.0	2.9	29.4
1975	16.4	0.0	13.0	0.0	3.7	33.1
1976	19.0	0.0	10.5	0.0	4.2	33.7
1977	14.5	0.0	10.5	0.0	3.2	28.2
1978	21.3	0.0	9.6	0.0	4.7	35.7
1979	30.8	0.0	13.1	0.0	6.9	50.8
1980	26.2	0.0	9.2	0.0	5.9	41.3
1981	32.3	0.0	0.0	11.2	7.2	50.8
1982	56.8	0.0	0.0	25.8	12.7	95.2
1983	17.6	0.0	0.0	0.7	3.9	22.2
1984	33.8	0.0	0.0	5.5	7.5	46.8
1985	26.4	0.0	0.0	15.2	5.9	47.5
1986	5.4	0.0	0.0	22.4	1.2	29.1
1987	19.3	0.0	0.0	4.7	4.3	28.3
1988	2.2	0.0	0.0	21.8	0.5	24.5
1989	4.5	0.0	0.0	30.5	1.0	36.0
1990	20.5	0.0	0.0	13.3	4.6	38.5
1991	2.0	0.0	0.0	10.5	0.4	12.9
1992	2.3	0.0	0.0	7.7	0.5	10.5
1993	8.6	0.0	0.0	3.1	1.9	13.6
1994	11.8	0.0	0.0	0.2	2.6	14.6
1995	15.2	0.0	0.0	2.9	3.4	21.5
1996	12.7	0.0	0.0	11.6	2.8	27.1
1997	2.4	0.0	0.0	1.0	0.5	3.9
1998	31.5	0.0	0.0	2.4	7.0	40.9
1999	0.1	0.0	0.0	17.9	0.0	17.9
2000	0.2	0.0	0.0	11.9	0.0	12.1
2001	0.9	0.0	0.0	9.3	0.2	10.4
2002	0.4	0.0	0.0	5.1	0.1	5.6
2003	0.0	0.0	0.0	0.0	0.0	0.0
2004	0.4	0.0	0.0	1.1	0.1	1.6
2005	0.1	0.0	0.0	2.5	0.0	2.7
2006	1.1	0.0	0.0	1.3	0.3	2.7
2007	1.4	0.0	0.0	0.5	0.3	2.1
2008	0.2	0.0	0.0	0.3	0.1	0.6
2009	0.4	0.0	0.0	0.2	0.1	0.7

Table 40. Catch [mt] by year and data source for flag rockfish (*Sebastes rubrivinctus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	ROGERS	COMDIS	Total
1916	0.0	19.9	0.0	0.0	0.0	0.0	0.0	4.4	24.4
1917	0.0	32.0	0.0	0.0	0.0	0.0	0.0	7.1	39.2
1918	0.0	30.3	0.0	0.0	0.0	0.0	0.0	6.8	37.0
1919	0.0	18.6	0.0	0.0	0.0	0.0	0.0	4.1	22.7
1920	0.0	20.0	0.0	0.0	0.0	0.0	0.0	4.4	24.4
1921	0.0	17.3	0.0	0.0	0.0	0.0	0.0	3.9	21.1
1922	0.0	16.6	0.0	0.0	0.0	0.0	0.0	3.7	20.3
1923	0.0	21.7	0.0	0.0	0.0	0.0	0.0	4.8	26.5
1924	0.0	27.0	0.0	0.0	0.0	0.0	0.0	6.0	33.0
1925	0.0	29.9	0.0	0.0	0.0	0.0	0.0	6.7	36.5
1926	0.0	37.8	0.0	0.0	0.0	0.0	0.0	8.4	46.2
1927	0.0	31.4	0.0	0.0	0.0	0.0	0.0	7.0	38.4
1928	0.0	27.7	0.1	0.0	0.0	0.0	0.0	6.2	34.0
1929	0.0	27.5	0.3	0.0	0.0	0.0	0.0	6.1	33.9
1930	0.0	29.0	0.3	0.0	0.0	0.0	0.0	6.5	35.8
1931	0.0	34.2	0.5	0.0	0.0	0.0	0.0	7.6	42.3
1932	0.0	22.8	0.6	0.0	0.0	0.0	0.0	5.1	28.4
1933	0.0	16.6	0.7	0.0	0.0	0.0	0.0	3.7	21.0
1934	0.0	16.5	0.8	0.0	0.0	0.0	0.0	3.7	21.0
1935	0.0	14.2	0.9	0.0	0.0	0.0	0.0	3.2	18.3
1936	0.0	6.9	1.0	0.0	0.0	0.0	0.0	1.5	9.4
1937	0.0	6.5	1.2	0.0	0.0	0.0	0.0	1.4	9.2
1938	0.0	5.4	1.2	0.0	0.0	0.0	0.0	1.2	7.8
1939	0.0	6.4	1.1	0.0	0.0	0.0	0.0	1.4	8.9
1940	0.0	7.8	1.4	0.0	0.0	0.0	0.0	1.7	10.9
1941	0.0	8.7	1.3	0.0	0.0	0.0	0.0	1.9	11.9
1942	0.0	3.5	0.7	0.0	0.0	0.0	0.0	0.8	4.9
1943	0.0	3.7	0.6	0.0	0.0	0.0	0.0	0.8	5.1
1944	0.0	0.9	0.5	0.0	0.0	0.0	0.0	0.2	1.6
1945	0.0	2.6	0.7	0.0	0.0	0.0	0.0	0.6	3.9
1946	0.0	4.5	1.2	0.0	0.0	0.0	0.0	1.0	6.8
1947	0.0	4.8	1.3	0.0	0.0	0.0	0.0	1.1	7.1
1948	0.0	8.8	2.8	0.0	0.0	0.0	0.0	2.0	13.6
1949	0.0	9.3	3.5	0.0	0.0	0.0	0.0	2.1	14.9
1950	0.0	8.1	4.3	0.0	0.0	0.0	0.0	1.8	14.2
1951	0.0	13.9	4.6	0.0	0.0	0.0	0.0	3.1	21.7
1952	0.0	11.9	4.7	0.0	0.0	0.0	0.0	2.7	19.3
1953	0.0	12.0	4.8	0.0	0.0	0.0	0.0	2.7	19.5
1954	0.0	13.9	8.3	0.0	0.0	0.0	0.0	3.1	25.3
1955	0.0	13.4	13.1	0.0	0.0	0.0	0.0	3.0	29.5
1956	0.0	14.2	15.7	0.0	0.0	0.0	0.0	3.2	33.0
1957	0.0	11.8	10.5	0.0	0.0	0.0	0.0	2.6	25.0
1958	0.0	13.3	9.6	0.0	0.0	0.0	0.0	3.0	25.8
1959	0.0	12.1	7.7	0.0	0.0	0.0	0.0	2.7	22.5
1960	0.0	11.6	6.5	0.0	0.0	0.0	0.0	2.6	20.7
1961	0.0	11.5	5.9	0.0	0.0	0.0	0.0	2.6	19.9
1962	0.0	12.1	6.1	0.0	0.0	0.0	0.0	2.7	20.9

Table 40 (Continued). Catch [mt] by year and data source for flag rockfish (*Sebastes rubrivinctus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	PFOR	RECCA	RECOR	ROGERS	COMDIS	Total
1963	0.0	13.5	6.0	0.0	0.0	0.0	0.0	3.0	22.6
1964	0.0	11.9	6.7	0.0	0.0	0.0	0.0	2.6	21.2
1965	0.0	13.1	9.5	0.0	0.0	0.0	0.0	2.9	25.5
1966	0.0	10.0	12.3	0.0	0.0	0.0	9.0	4.2	35.6
1967	0.0	10.0	13.2	0.0	0.0	0.0	18.0	6.2	47.5
1968	0.0	7.9	15.2	0.0	0.0	0.0	6.0	3.1	32.2
1969	6.6	0.0	14.8	0.0	0.0	0.0	0.0	1.5	22.8
1970	4.7	0.0	20.2	0.0	0.0	0.0	0.0	1.0	25.9
1971	5.0	0.0	19.8	0.0	0.0	0.0	0.0	1.1	26.0
1972	7.7	0.0	25.6	0.0	0.0	0.0	0.0	1.7	35.0
1973	7.5	0.0	30.4	0.0	0.0	0.0	1.0	1.9	40.8
1974	6.5	0.0	35.4	0.0	0.0	0.0	0.0	1.4	43.3
1975	7.5	0.0	34.2	0.0	0.0	0.0	0.0	1.7	43.4
1976	8.8	0.0	28.9	0.0	0.0	0.0	0.0	2.0	39.6
1977	7.0	0.0	27.7	0.0	0.0	0.0	0.0	1.6	36.2
1978	10.7	0.0	24.2	0.0	0.0	0.0	0.0	2.4	37.3
1979	13.9	0.0	33.5	0.0	0.0	0.0	0.0	3.1	50.6
1980	8.9	0.0	30.5	0.0	0.0	0.0	0.0	2.0	41.4
1981	12.4	0.0	0.0	0.0	23.0	0.0	0.0	2.8	38.1
1982	26.7	0.0	0.0	0.0	37.3	0.0	0.0	6.0	70.0
1983	8.8	0.0	0.0	0.0	20.7	0.0	0.0	2.0	31.4
1984	14.8	0.0	0.0	0.0	22.5	0.0	0.0	3.3	40.6
1985	6.3	0.0	0.0	0.0	23.6	0.0	0.0	1.4	31.3
1986	7.7	0.0	0.0	0.0	25.6	0.1	0.0	1.7	35.2
1987	6.2	0.0	0.0	0.0	8.4	0.0	0.0	1.4	16.0
1988	1.9	0.0	0.0	0.0	9.5	0.0	0.0	0.4	11.8
1989	8.4	0.0	0.0	0.0	16.2	0.0	0.0	1.9	26.5
1990	1.4	0.0	0.0	0.0	11.2	0.0	0.0	0.3	12.9
1991	2.9	0.0	0.0	0.0	11.2	0.0	0.0	0.6	14.7
1992	5.5	0.0	0.0	0.0	11.1	0.0	0.0	1.2	17.9
1993	12.5	0.0	0.0	0.0	10.6	0.0	0.0	2.8	25.8
1994	6.8	0.0	0.0	0.0	15.5	0.0	0.0	1.5	23.8
1995	7.3	0.0	0.0	0.0	6.9	0.0	0.0	1.6	15.7
1996	6.1	0.0	0.0	0.0	16.3	0.0	0.0	1.4	23.8
1997	3.1	0.0	0.0	0.0	9.0	0.0	0.0	0.7	12.8
1998	3.2	0.0	0.0	0.0	9.7	0.0	0.0	0.7	13.6
1999	2.1	0.0	0.0	0.0	16.3	0.0	0.0	0.5	18.8
2000	0.3	0.0	0.0	0.0	14.6	0.0	0.0	0.1	15.0
2001	1.2	0.0	0.0	0.0	7.5	0.0	0.0	0.3	8.9
2002	0.4	0.0	0.0	0.0	6.5	0.0	0.0	0.1	6.9
2003	0.1	0.0	0.0	0.0	2.2	0.0	0.0	0.0	2.3
2004	0.3	0.0	0.0	0.0	7.5	0.0	0.0	0.1	7.8
2005	0.1	0.0	0.0	0.0	14.1	0.0	0.0	0.0	14.2
2006	1.0	0.0	0.0	0.0	3.8	0.0	0.0	0.2	5.1
2007	0.2	0.0	0.0	0.0	8.1	0.0	0.0	0.0	8.3
2008	0.3	0.0	0.0	0.0	5.6	0.0	0.0	0.1	6.0
2009	0.3	0.0	0.0	0.0	4.2	0.0	0.0	0.1	4.5

Table 41. Catch [mt] by year and data source for bank rockfish (*Sebastes rufus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	PFOR	RECCA	ROGERS	COMDIS	Total
1916	0.0	179.2	0.0	0.0	0.0	0.0	0.0	0.0	11.7	190.8
1917	0.0	285.9	0.0	0.0	0.0	0.0	0.0	0.0	18.6	304.5
1918	0.0	282.5	0.0	0.0	0.0	0.0	0.0	0.0	18.4	300.9
1919	0.0	178.6	0.0	0.0	0.0	0.0	0.0	0.0	11.6	190.2
1920	0.0	189.4	0.0	0.0	0.0	0.0	0.0	0.0	12.3	201.7
1921	0.0	162.1	0.0	0.0	0.0	0.0	0.0	0.0	10.6	172.7
1922	0.0	152.3	0.0	0.0	0.0	0.0	0.0	0.0	9.9	162.2
1923	0.0	191.1	0.0	0.0	0.0	0.0	0.0	0.0	12.4	203.6
1924	0.0	215.1	0.0	0.0	0.0	0.0	0.0	0.0	14.0	229.1
1925	0.0	239.7	0.0	0.0	0.0	0.0	0.0	0.0	15.6	255.3
1926	0.0	314.4	0.0	0.0	0.0	0.0	0.0	0.0	20.5	334.9
1927	0.0	264.8	0.0	0.0	0.0	0.0	0.0	0.0	17.2	282.0
1928	0.0	248.9	0.0	0.0	0.0	0.0	0.0	0.0	16.2	265.1
1929	0.0	239.4	0.1	0.0	0.0	0.0	0.0	0.0	15.6	255.1
1930	0.0	264.0	0.1	0.0	0.0	0.0	0.0	0.0	17.2	281.3
1931	0.0	335.0	0.1	0.0	0.0	0.0	0.0	0.0	21.8	357.0
1932	0.0	156.1	0.1	0.0	0.0	0.0	0.0	0.0	10.2	166.4
1933	0.0	177.5	0.2	0.0	0.0	0.0	0.0	0.0	11.6	189.2
1934	0.0	134.2	0.2	0.0	0.0	0.0	0.0	0.0	8.7	143.1
1935	0.0	147.2	0.2	0.0	0.0	0.0	0.0	0.0	9.6	157.0
1936	0.0	118.4	0.2	0.0	0.0	0.0	0.0	0.0	7.7	126.4
1937	0.0	98.3	0.4	0.0	0.0	0.0	0.0	0.0	6.4	105.1
1938	0.0	95.3	0.3	0.0	0.0	0.0	0.0	0.0	6.2	101.8
1939	0.0	115.8	0.3	0.0	0.0	0.0	0.0	0.0	7.5	123.6
1940	0.0	106.2	0.2	0.0	0.0	0.0	0.0	0.0	6.9	113.3
1941	0.0	94.6	0.2	0.0	0.0	0.0	0.0	0.0	6.2	100.9
1942	0.0	45.3	0.1	0.0	0.0	0.0	0.0	0.0	2.9	48.3
1943	0.0	133.7	0.1	0.0	0.0	0.0	0.0	0.0	8.7	142.5
1944	0.0	325.9	0.1	0.0	0.0	0.0	0.0	0.0	21.2	347.2
1945	0.0	608.8	0.1	0.0	0.0	0.0	0.0	0.0	39.6	648.6
1946	0.0	301.1	0.2	0.0	0.0	0.0	0.0	0.0	19.6	320.9
1947	0.0	399.6	0.5	0.0	0.0	0.0	0.0	0.0	26.0	426.1
1948	0.0	211.0	1.2	0.0	0.0	0.0	0.0	0.0	13.7	225.9
1949	0.0	183.0	1.4	0.0	0.0	0.0	0.0	0.0	11.9	196.3
1950	0.0	219.2	3.0	0.0	0.0	0.0	0.0	0.0	14.3	236.5
1951	0.0	308.6	3.1	0.0	0.0	0.0	0.0	0.0	20.1	331.8
1952	0.0	368.8	2.1	0.0	0.0	0.0	0.0	0.0	24.0	395.0
1953	0.0	399.8	3.1	0.0	0.0	0.0	0.0	0.0	26.0	428.9
1954	0.0	444.6	6.3	0.0	0.0	0.0	0.0	0.0	28.9	479.9
1955	0.0	576.6	7.1	0.0	0.0	0.0	0.0	0.0	37.5	621.3
1956	0.0	649.0	8.9	0.0	0.0	0.0	0.0	0.0	42.3	700.2
1957	0.0	766.3	6.2	0.0	0.0	0.0	0.0	0.0	49.9	822.4
1958	0.0	736.2	3.8	0.0	0.0	0.0	0.0	0.0	47.9	787.9
1959	0.0	543.3	3.3	0.0	0.0	0.0	0.0	0.0	35.4	581.9
1960	0.0	559.6	10.3	0.0	0.0	0.0	0.0	0.0	36.4	606.3
1961	0.0	481.5	9.3	0.0	0.0	0.0	0.0	0.0	31.3	522.1
1962	0.0	439.4	5.5	0.0	0.0	0.0	0.0	0.0	28.6	473.5

Table 41 (Continued). Catch [mt] by year and data source for bank rockfish (*Sebastes rufus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	PFOR	RECCA	ROGERS	COMDIS	Total
1963	0.0	519.4	8.3	0.0	0.0	0.0	0.0	0.0	33.8	561.6
1964	0.0	415.1	9.0	0.0	0.0	0.0	0.0	0.0	27.0	451.1
1965	0.0	414.7	13.6	0.0	0.0	0.0	0.0	0.0	27.0	455.3
1966	0.0	454.7	26.6	0.0	0.0	0.0	0.0	0.0	29.6	510.9
1967	0.0	457.9	32.3	0.0	0.0	0.0	0.0	0.0	29.8	519.9
1968	0.0	428.2	29.2	0.0	0.0	0.0	0.0	0.0	27.9	485.3
1969	158.5	0.0	19.5	0.0	0.0	0.0	0.0	0.0	10.3	188.3
1970	139.4	0.0	27.4	0.0	0.0	0.0	0.0	0.0	9.1	175.9
1971	131.9	0.0	24.7	0.0	0.0	0.0	0.0	0.0	8.6	165.2
1972	209.1	0.0	40.0	0.0	0.0	0.0	0.0	0.0	13.6	262.7
1973	294.4	0.0	49.0	0.0	0.0	0.0	0.0	23.0	20.7	387.1
1974	378.0	0.0	52.0	0.0	0.0	0.0	0.0	23.0	26.1	479.1
1975	357.3	0.0	50.6	0.0	0.0	0.0	0.0	5.0	23.6	436.4
1976	401.7	0.0	48.0	0.0	0.0	0.0	0.0	5.0	26.5	481.2
1977	406.3	0.0	45.8	0.0	0.0	0.0	0.0	0.0	26.4	478.5
1978	725.4	0.0	41.5	0.0	0.0	0.0	0.0	0.0	47.2	814.2
1979	384.9	0.0	72.6	0.0	0.0	0.0	0.0	0.0	25.1	482.6
1980	238.2	0.0	56.3	0.0	0.0	0.0	0.0	0.0	15.5	310.0
1981	1135.3	0.0	0.0	0.0	0.0	0.0	35.4	0.0	73.9	1244.6
1982	1120.2	0.0	0.0	0.0	0.0	0.0	7.8	0.0	72.9	1201.0
1983	1259.2	0.0	0.0	0.0	0.0	0.0	58.3	0.0	82.0	1399.5
1984	1999.9	0.0	0.0	0.0	11.0	0.0	46.4	0.0	130.9	2188.2
1985	1382.9	0.0	0.0	0.0	18.4	0.0	30.0	0.0	91.2	1522.5
1986	2069.1	0.0	0.0	0.0	5.9	0.0	75.9	0.0	135.1	2286.1
1987	1420.1	0.0	0.0	0.0	0.0	4.8	1.7	0.0	92.8	1519.3
1988	1113.5	0.0	0.0	0.0	0.0	1.9	0.2	0.0	72.6	1188.3
1989	868.0	0.0	0.0	0.0	0.0	6.7	6.3	0.0	58.5	939.5
1990	833.5	0.0	0.0	0.0	0.0	7.4	6.4	0.0	57.7	905.0
1991	786.0	0.0	0.0	1.7	0.0	19.5	8.2	0.0	56.8	872.2
1992	597.4	0.0	0.0	0.0	0.0	15.4	10.0	0.0	44.2	666.9
1993	324.8	0.0	0.0	0.0	0.0	15.3	6.6	0.0	25.1	371.7
1994	345.7	0.0	0.0	0.0	0.0	14.5	34.1	0.0	27.2	421.6
1995	434.8	0.0	0.0	0.0	0.0	3.0	0.2	0.0	33.8	471.8
1996	568.7	0.0	0.0	0.0	0.0	5.6	21.8	0.0	45.4	641.5
1997	426.5	0.0	0.0	0.0	0.0	5.6	11.7	0.0	34.9	478.8
1998	572.6	0.0	0.0	0.0	0.0	1.7	2.4	0.0	47.4	624.1
1999	34.4	0.0	0.0	0.0	0.0	6.1	4.9	0.0	3.4	48.9
2000	89.1	0.0	0.0	0.0	0.0	2.2	2.7	0.0	7.9	101.9
2001	96.0	0.0	0.0	0.3	0.0	0.3	0.4	0.0	8.5	105.4
2002	292.8	0.0	0.0	0.1	0.0	0.0	0.1	0.0	26.2	319.3
2003	101.9	0.0	0.0	0.0	0.0	0.0	1.0	0.0	9.3	112.3
2004	129.4	0.0	0.0	0.1	0.0	3.2	0.5	0.0	12.3	145.5
2005	37.4	0.0	0.0	0.0	0.0	1.3	0.9	0.0	3.7	43.3
2006	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	44.0
2007	45.8	0.0	0.0	0.0	0.0	0.8	0.1	0.0	4.6	51.3
2008	105.8	0.0	0.0	0.1	0.0	0.9	0.1	0.0	10.7	117.5
2009	64.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	6.5	71.0

Table 42. Catch [mt] by year and data source for stripetail rockfish (*Sebastes saxicola*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	COMDIS	Total
1916	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	7.8
1917	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.5
1918	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.8
1919	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.3
1920	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.7
1921	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	7.4
1922	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	6.8
1923	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.2
1924	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.4
1925	0.0	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	9.5
1926	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	12.8
1927	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	10.8
1928	0.0	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	10.6
1929	0.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	10.4
1930	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	11.8
1931	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	13.6
1932	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	8.8
1933	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	7.3
1934	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	7.4
1935	0.0	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	8.4
1936	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.7
1937	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.6
1938	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.6
1939	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	6.8
1940	0.0	4.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.8
1941	0.0	4.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.3
1942	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.1
1943	0.0	2.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6	3.3
1944	0.0	6.6	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	1.6	8.6
1945	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	19.2
1946	0.0	15.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	3.4	18.6
1947	0.0	9.4	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	2.2	12.2
1948	0.0	8.7	0.1	0.0	0.0	2.4	0.0	0.0	0.0	0.0	2.5	13.6
1949	0.0	16.3	0.1	0.0	0.0	2.6	0.0	0.0	0.0	0.0	4.2	23.1
1950	0.0	20.0	0.1	0.0	0.0	1.4	0.0	0.0	0.0	0.0	4.8	26.3
1951	0.0	24.6	0.1	0.0	0.0	2.4	0.0	0.0	0.0	0.0	6.0	33.2
1952	0.0	19.0	0.1	0.0	0.0	3.3	0.0	0.0	0.0	0.0	5.0	27.4
1953	0.0	21.8	0.1	0.0	0.0	1.9	0.0	0.0	0.0	0.0	5.3	29.2
1954	0.0	21.0	0.1	0.0	0.0	14.8	0.0	0.0	0.0	0.0	8.0	44.0
1955	0.0	14.9	0.2	0.0	0.0	12.4	0.0	0.0	0.0	0.0	6.1	33.5
1956	0.0	15.9	0.2	0.0	0.0	33.6	0.0	0.0	0.0	0.0	11.1	60.8
1957	0.0	13.7	0.2	0.0	0.0	13.2	0.0	0.0	0.0	0.0	6.0	33.1
1958	0.0	21.4	0.2	0.0	0.0	3.3	0.0	0.0	0.0	0.0	5.5	30.4
1959	0.0	20.1	0.2	0.0	0.0	3.1	0.0	0.0	0.0	0.0	5.2	28.6
1960	0.0	13.7	0.2	0.0	0.0	6.8	0.0	0.0	0.0	0.0	4.6	25.3
1961	0.0	12.0	0.1	0.0	0.0	5.7	0.0	0.0	0.0	0.0	4.0	21.9
1962	0.0	12.2	0.1	0.0	0.0	5.7	0.0	0.0	0.0	0.0	4.0	22.0

Table 42 (Continued). Catch [mt] by year and data source for stripetail rockfish (*Sebastes saxicola*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	COMDIS	Total
1963	0.0	13.4	0.1	0.0	0.0	3.8	0.0	0.0	0.0	0.0	3.8	21.1
1964	0.0	10.1	0.1	0.0	0.0	6.2	0.0	0.0	0.0	0.0	3.7	20.2
1965	0.0	11.9	0.2	0.0	0.0	11.0	0.0	0.0	0.0	0.0	5.1	28.2
1966	0.0	10.4	0.2	0.0	0.0	12.2	0.0	0.0	56.0	0.0	17.5	96.3
1967	0.0	13.3	0.3	0.0	0.0	14.3	0.0	0.0	32.0	0.0	13.3	73.3
1968	0.0	11.6	0.3	0.0	0.0	2.4	0.0	0.0	99.0	0.0	25.2	138.5
1969	10.3	0.0	0.3	0.0	0.0	2.1	0.0	0.0	24.0	0.0	8.1	44.7
1970	13.9	0.0	0.5	0.0	0.0	1.4	0.0	0.0	29.0	0.0	9.9	54.5
1971	12.0	0.0	0.3	0.0	0.0	21.5	0.0	0.0	22.0	0.0	12.4	68.1
1972	18.3	0.0	0.4	0.0	0.0	18.2	0.0	0.0	35.0	0.0	15.9	87.8
1973	22.0	0.0	0.5	0.0	0.0	2.6	0.0	0.0	205.0	0.0	51.2	281.4
1974	25.5	0.0	0.6	0.0	0.0	4.5	0.0	0.0	60.0	0.0	20.1	110.6
1975	32.8	0.0	0.6	0.0	0.0	2.2	0.0	0.0	79.0	0.0	25.4	140.1
1976	36.7	0.0	0.6	0.0	0.0	0.4	0.0	0.0	55.0	0.0	20.6	113.3
1977	37.8	0.0	0.6	0.0	0.0	5.4	0.0	0.0	0.0	1.7	10.0	55.4
1978	16.2	0.0	0.5	0.0	0.0	2.6	0.0	0.0	0.0	0.2	4.2	23.7
1979	45.3	0.0	0.6	0.0	0.0	1.0	0.0	0.0	0.0	0.3	10.4	57.6
1980	52.7	0.0	0.6	0.0	0.0	0.4	0.0	0.0	0.0	0.0	11.8	65.5
1981	29.3	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	8.1	44.5
1982	35.7	0.0	0.0	0.0	13.6	0.0	0.0	0.0	0.0	0.0	11.0	60.4
1983	33.1	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	7.9	43.3
1984	23.4	0.0	0.0	0.0	2.8	0.0	0.0	0.3	0.0	0.0	5.9	32.4
1985	46.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	11.2	61.4
1986	18.8	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	4.5	24.8
1987	26.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	6.0	32.8
1988	19.6	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	4.9	26.9
1989	27.6	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	6.2	34.1
1990	32.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	7.2	39.5
1991	20.6	0.0	0.0	0.1	0.0	0.0	2.3	0.0	0.0	0.0	5.1	28.1
1992	2.9	0.0	0.0	2.9	0.0	0.0	1.7	0.0	0.0	0.0	1.7	9.2
1993	36.9	0.0	0.0	0.1	0.0	0.0	5.2	0.0	0.0	0.0	9.4	51.6
1994	103.5	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	25.3	139.0
1995	48.2	0.0	0.0	0.1	0.0	0.0	1.4	0.0	0.0	0.0	11.1	60.9
1996	15.7	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	3.8	20.7
1997	17.9	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	4.8	26.5
1998	41.8	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	9.9	54.5
1999	15.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	4.0	21.8
2000	2.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.5	3.0
2001	4.4	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	1.1	6.0
2002	0.9	0.0	0.0	3.1	0.0	0.0	0.2	0.0	0.0	0.0	1.0	5.2
2003	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
2004	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2005	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2
2007	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
2008	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2009	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2

Table 43. Catch [mt] by year and data source for olive rockfish (*Sebastes serranoides*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	RECOR	ROGERS	COMDIS	Total
1916	0.0	13.8	0.0	0.0	0.0	0.0	0.9	14.7
1917	0.0	21.5	0.0	0.0	0.0	0.0	1.4	22.9
1918	0.0	24.9	0.0	0.0	0.0	0.0	1.6	26.5
1919	0.0	17.2	0.0	0.0	0.0	0.0	1.1	18.3
1920	0.0	17.6	0.0	0.0	0.0	0.0	1.1	18.7
1921	0.0	14.6	0.0	0.0	0.0	0.0	0.9	15.5
1922	0.0	12.6	0.0	0.0	0.0	0.0	0.8	13.4
1923	0.0	13.8	0.0	0.0	0.0	0.0	0.9	14.7
1924	0.0	8.5	0.0	0.0	0.0	0.0	0.6	9.1
1925	0.0	10.6	0.0	0.0	0.0	0.0	0.7	11.2
1926	0.0	16.5	0.0	0.0	0.0	0.0	1.1	17.6
1927	0.0	14.1	0.0	0.0	0.0	0.0	0.9	15.0
1928	0.0	16.2	1.5	0.0	0.0	0.0	1.1	18.7
1929	0.0	13.9	3.0	0.0	0.0	0.0	0.9	17.7
1930	0.0	19.2	3.5	0.0	0.0	0.0	1.2	24.0
1931	0.0	15.4	4.7	0.0	0.0	0.0	1.0	21.1
1932	0.0	14.1	5.9	0.0	0.0	0.0	0.9	20.9
1933	0.0	7.1	7.1	0.0	0.0	0.0	0.5	14.7
1934	0.0	12.6	8.3	0.0	0.0	0.0	0.8	21.7
1935	0.0	14.3	9.4	0.0	0.0	0.0	0.9	24.7
1936	0.0	26.1	10.4	0.0	0.0	0.0	1.7	38.2
1937	0.0	24.1	12.0	0.0	0.0	0.0	1.6	37.7
1938	0.0	15.6	12.0	0.0	0.0	0.0	1.0	28.6
1939	0.0	6.4	10.7	0.0	0.0	0.0	0.4	17.5
1940	0.0	8.6	14.2	0.0	0.0	0.0	0.6	23.4
1941	0.0	4.8	13.1	0.0	0.0	0.0	0.3	18.3
1942	0.0	1.7	7.0	0.0	0.0	0.0	0.1	8.8
1943	0.0	2.8	6.7	0.0	0.0	0.0	0.2	9.7
1944	0.0	3.8	5.5	0.0	0.0	0.0	0.2	9.6
1945	0.0	5.5	7.3	0.0	0.0	0.0	0.4	13.2
1946	0.0	4.8	12.6	0.0	0.0	0.0	0.3	17.7
1947	0.0	8.0	14.3	0.0	0.0	0.0	0.5	22.8
1948	0.0	7.5	27.3	0.0	0.0	0.0	0.5	35.2
1949	0.0	8.8	34.4	0.0	0.0	0.0	0.6	43.7
1950	0.0	19.5	42.8	0.0	0.0	0.0	1.3	63.5
1951	0.0	15.8	46.5	0.0	0.0	0.0	1.0	63.3
1952	0.0	10.9	44.6	0.0	0.0	0.0	0.7	56.3
1953	0.0	4.1	47.8	0.0	0.0	0.0	0.3	52.2
1954	0.0	4.5	85.0	0.0	0.0	0.0	0.3	89.8
1955	0.0	7.1	120.7	0.0	0.0	0.0	0.5	128.2
1956	0.0	20.8	137.6	0.0	0.0	0.0	1.4	159.8
1957	0.0	19.2	88.7	0.0	0.0	0.0	1.2	109.1
1958	0.0	14.0	102.2	0.0	0.0	0.0	0.9	117.2
1959	0.0	7.4	75.2	0.0	0.0	0.0	0.5	83.2
1960	0.0	4.0	60.8	0.0	0.0	0.0	0.3	65.0
1961	0.0	2.7	51.7	0.0	0.0	0.0	0.2	54.6
1962	0.0	2.0	61.1	0.0	0.0	0.0	0.1	63.2

Table 43 (Continued). Catch [mt] by year and data source for olive rockfish (*Sebastes serranoides*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	RECOR	ROGERS	COMDIS	Total
1963	0.0	1.9	66.6	0.0	0.0	0.0	0.1	68.6
1964	0.0	1.3	67.1	0.0	0.0	0.0	0.1	68.5
1965	0.0	1.6	99.8	0.0	0.0	0.0	0.1	101.5
1966	0.0	3.9	118.0	0.0	0.0	3.0	0.4	125.3
1967	0.0	3.2	142.7	0.0	0.0	5.0	0.5	151.4
1968	0.0	2.3	157.0	0.0	0.0	2.0	0.3	161.5
1969	6.4	0.0	147.8	0.0	0.0	1.0	0.5	155.7
1970	6.0	0.0	244.0	0.0	0.0	2.0	0.5	252.6
1971	20.9	0.0	207.5	0.0	0.0	2.0	1.5	231.8
1972	26.8	0.0	266.7	0.0	0.0	1.0	1.8	296.3
1973	57.1	0.0	301.1	0.0	0.0	2.0	3.8	364.0
1974	78.9	0.0	351.9	0.0	0.0	4.0	5.4	440.2
1975	88.0	0.0	352.3	0.0	0.0	3.0	5.9	449.2
1976	37.5	0.0	301.2	0.0	0.0	2.0	2.6	343.3
1977	46.7	0.0	288.3	0.0	0.0	0.0	3.0	338.0
1978	22.4	0.0	267.7	0.0	0.0	0.0	1.5	291.5
1979	26.1	0.0	308.1	0.0	0.0	0.0	1.7	335.9
1980	25.1	0.0	293.7	0.0	0.0	0.0	1.6	320.4
1981	14.6	0.0	0.0	153.4	0.0	0.0	0.9	168.9
1982	26.1	0.0	0.0	264.4	0.0	0.0	1.7	292.2
1983	35.8	0.0	0.0	289.5	0.0	0.0	2.3	327.7
1984	3.5	0.0	0.0	171.5	0.0	0.0	0.2	175.2
1985	10.5	0.0	0.0	141.4	0.0	0.0	0.7	152.6
1986	24.8	0.0	0.0	125.2	0.0	0.0	1.6	151.6
1987	13.0	0.0	0.0	68.0	0.0	0.0	0.8	81.8
1988	6.0	0.0	0.0	56.9	0.0	0.0	0.4	63.3
1989	6.6	0.0	0.0	52.0	0.0	0.0	0.4	59.1
1990	15.0	0.0	0.0	58.8	0.0	0.0	1.0	74.8
1991	77.1	0.0	0.0	58.7	0.0	0.0	5.0	140.8
1992	32.1	0.0	0.0	58.7	0.0	0.0	2.1	92.8
1993	26.6	0.0	0.0	89.5	0.0	0.0	1.7	117.8
1994	25.8	0.0	0.0	51.2	0.0	0.0	1.7	78.7
1995	41.0	0.0	0.0	34.8	0.0	0.0	2.7	78.5
1996	28.5	0.0	0.0	43.0	0.0	0.0	1.8	73.3
1997	8.0	0.0	0.0	70.7	0.0	0.0	0.5	79.3
1998	5.5	0.0	0.0	56.7	0.0	0.0	0.4	62.6
1999	10.2	0.0	0.0	44.2	0.0	0.0	0.7	55.0
2000	1.5	0.0	0.0	54.4	0.0	0.0	0.1	55.9
2001	1.1	0.0	0.0	55.6	0.0	0.0	0.1	56.7
2002	0.9	0.0	0.0	145.2	0.0	0.0	0.1	146.1
2003	0.7	0.0	0.0	46.1	0.0	0.0	0.0	46.8
2004	1.0	0.0	0.0	56.2	0.0	0.0	0.1	57.3
2005	1.4	0.0	0.0	88.5	0.0	0.0	0.1	89.9
2006	1.2	0.0	0.0	54.2	0.0	0.0	0.1	55.4
2007	1.8	0.0	0.0	52.9	0.0	0.0	0.1	54.8
2008	0.8	0.0	0.0	41.0	0.0	0.0	0.1	41.8
2009	2.6	0.0	0.0	24.7	0.0	0.0	0.2	27.4

Table 44. Catch [mt] by year and data source for treefish (*Sebastes serriceps*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.0	0.0	0.0	0.0	0.0
1918	0.0	0.0	0.0	0.0	0.0	0.0
1919	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0
1925	0.0	0.0	0.0	0.0	0.0	0.0
1926	0.0	0.0	0.0	0.0	0.0	0.0
1927	0.0	0.0	0.0	0.0	0.0	0.0
1928	0.0	0.0	0.0	0.0	0.0	0.0
1929	0.0	0.0	0.0	0.0	0.0	0.0
1930	0.0	0.0	0.0	0.0	0.0	0.0
1931	0.0	0.0	0.0	0.0	0.0	0.1
1932	0.0	0.0	0.1	0.0	0.0	0.1
1933	0.0	0.0	0.1	0.0	0.0	0.1
1934	0.0	0.0	0.1	0.0	0.0	0.1
1935	0.0	0.0	0.1	0.0	0.0	0.1
1936	0.0	0.0	0.1	0.0	0.0	0.1
1937	0.0	0.0	0.1	0.0	0.0	0.1
1938	0.0	0.0	0.1	0.0	0.0	0.1
1939	0.0	0.0	0.1	0.0	0.0	0.1
1940	0.0	0.0	0.1	0.0	0.0	0.1
1941	0.0	0.0	0.1	0.0	0.0	0.1
1942	0.0	0.0	0.1	0.0	0.0	0.1
1943	0.0	0.0	0.1	0.0	0.0	0.1
1944	0.0	0.0	0.1	0.0	0.0	0.1
1945	0.0	0.0	0.1	0.0	0.0	0.1
1946	0.0	0.0	0.1	0.0	0.0	0.1
1947	0.0	0.0	0.3	0.0	0.0	0.3
1948	0.0	0.0	0.5	0.0	0.0	0.5
1949	0.0	0.0	0.6	0.0	0.0	0.6
1950	0.0	0.0	0.9	0.0	0.0	0.9
1951	0.0	0.0	0.9	0.0	0.0	0.9
1952	0.0	0.0	0.8	0.0	0.0	0.8
1953	0.0	0.0	1.2	0.0	0.0	1.2
1954	0.0	0.0	2.3	0.0	0.0	2.3
1955	0.0	0.0	3.2	0.0	0.0	3.2
1956	0.0	0.0	4.5	0.0	0.0	4.5
1957	0.0	0.0	2.4	0.0	0.0	2.4
1958	0.0	0.0	2.2	0.0	0.0	2.2
1959	0.0	0.0	1.6	0.0	0.0	1.6
1960	0.0	0.0	1.5	0.0	0.0	1.5
1961	0.0	0.0	1.6	0.0	0.0	1.6
1962	0.0	0.0	1.5	0.0	0.0	1.5

Table 44 (Continued). Catch [mt] by year and data source for treefish (*Sebastes serriceps*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1963	0.0	0.0	1.5	0.0	0.0	1.5
1964	0.0	0.0	2.0	0.0	0.0	2.0
1965	0.0	0.0	2.8	0.0	0.0	2.8
1966	0.0	0.0	4.5	0.0	0.0	4.5
1967	0.0	0.0	4.6	0.0	0.0	4.6
1968	0.0	0.0	5.7	0.0	0.0	5.7
1969	0.0	0.0	4.9	0.0	0.0	4.9
1970	0.0	0.0	6.4	0.0	0.0	6.4
1971	0.0	0.0	6.7	0.0	0.0	6.7
1972	0.0	0.0	7.7	0.0	0.0	7.7
1973	0.0	0.0	8.9	0.0	0.0	9.0
1974	0.0	0.0	12.0	0.0	0.0	12.0
1975	0.0	0.0	11.8	0.0	0.0	11.8
1976	0.0	0.0	9.7	0.0	0.0	9.7
1977	0.0	0.0	9.3	0.0	0.0	9.3
1978	0.0	0.0	8.4	0.0	0.0	8.5
1979	0.0	0.0	11.1	0.0	0.0	11.1
1980	0.0	0.0	13.4	0.0	0.0	13.5
1981	0.0	0.0	0.0	9.4	0.0	9.4
1982	0.1	0.0	0.0	9.8	0.0	9.8
1983	0.0	0.0	0.0	10.9	0.0	10.9
1984	0.0	0.0	0.0	12.2	0.0	12.2
1985	0.1	0.0	0.0	16.9	0.0	17.1
1986	0.0	0.0	0.0	18.1	0.0	18.1
1987	0.4	0.0	0.0	4.1	0.0	4.5
1988	0.0	0.0	0.0	7.0	0.0	7.0
1989	0.8	0.0	0.0	11.1	0.1	12.0
1990	0.0	0.0	0.0	10.4	0.0	10.4
1991	0.3	0.0	0.0	11.9	0.0	12.2
1992	0.8	0.0	0.0	13.4	0.1	14.3
1993	1.0	0.0	0.0	16.0	0.1	17.1
1994	0.3	0.0	0.0	14.5	0.0	14.8
1995	0.7	0.0	0.0	18.7	0.0	19.4
1996	1.0	0.0	0.0	22.4	0.1	23.4
1997	1.5	0.0	0.0	6.2	0.1	7.7
1998	0.3	0.0	0.0	10.3	0.0	10.6
1999	1.0	0.0	0.0	16.8	0.1	17.9
2000	1.7	0.0	0.0	4.8	0.1	6.7
2001	1.7	0.0	0.0	10.8	0.1	12.5
2002	1.3	0.0	0.0	7.6	0.1	9.0
2003	0.8	0.0	0.0	7.1	0.1	8.0
2004	0.7	0.0	0.0	5.0	0.0	5.8
2005	0.8	0.0	0.0	9.9	0.1	10.8
2006	0.8	0.0	0.0	3.6	0.1	4.4
2007	1.1	0.0	0.0	6.1	0.1	7.3
2008	1.0	0.0	0.0	4.9	0.1	5.9
2009	1.5	0.0	0.0	7.8	0.1	9.4

Table 45. Catch [mt] by year and data source for honeycomb rockfish (*Sebastes umbrosus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.0	0.0	0.0	0.0	0.0
1918	0.0	0.0	0.0	0.0	0.0	0.0
1919	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0
1925	0.0	0.0	0.0	0.0	0.0	0.0
1926	0.0	0.0	0.0	0.0	0.0	0.1
1927	0.0	0.0	0.0	0.0	0.0	0.1
1928	0.0	0.0	0.0	0.0	0.0	0.1
1929	0.0	0.0	0.0	0.0	0.0	0.1
1930	0.0	0.0	0.1	0.0	0.0	0.1
1931	0.0	0.0	0.1	0.0	0.0	0.2
1932	0.0	0.0	0.1	0.0	0.0	0.1
1933	0.0	0.0	0.1	0.0	0.0	0.2
1934	0.0	0.0	0.1	0.0	0.0	0.2
1935	0.0	0.0	0.2	0.0	0.0	0.2
1936	0.0	0.0	0.2	0.0	0.0	0.2
1937	0.0	0.0	0.2	0.0	0.0	0.2
1938	0.0	0.0	0.2	0.0	0.0	0.2
1939	0.0	0.0	0.2	0.0	0.0	0.2
1940	0.0	0.0	0.2	0.0	0.0	0.2
1941	0.0	0.0	0.1	0.0	0.0	0.2
1942	0.0	0.0	0.1	0.0	0.0	0.1
1943	0.0	0.0	0.1	0.0	0.0	0.1
1944	0.0	0.0	0.1	0.0	0.0	0.1
1945	0.0	0.0	0.1	0.0	0.0	0.1
1946	0.0	0.0	0.1	0.0	0.0	0.1
1947	0.0	0.0	0.4	0.0	0.0	0.4
1948	0.0	0.0	1.3	0.0	0.0	1.3
1949	0.0	0.0	1.5	0.0	0.0	1.5
1950	0.0	0.0	1.9	0.0	0.0	1.9
1951	0.0	0.0	1.7	0.0	0.0	1.7
1952	0.0	0.0	2.5	0.0	0.0	2.5
1953	0.0	0.0	3.1	0.0	0.0	3.1
1954	0.0	0.0	6.2	0.0	0.0	6.3
1955	0.0	0.0	10.5	0.0	0.0	10.5
1956	0.0	0.0	12.7	0.0	0.0	12.7
1957	0.0	0.0	7.7	0.0	0.0	7.7
1958	0.0	0.0	5.9	0.0	0.0	5.9
1959	0.0	0.0	3.5	0.0	0.0	3.5
1960	0.0	0.0	4.2	0.0	0.0	4.2
1961	0.0	0.0	4.7	0.0	0.0	4.7
1962	0.0	0.0	4.1	0.0	0.0	4.1

Table 45 (Continued). Catch [mt] by year and data source for honeycomb rockfish (*Sebastes umbrosus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	RECCA	COMDIS	Total
1963	0.0	0.0	4.5	0.0	0.0	4.5
1964	0.0	0.0	7.1	0.0	0.0	7.1
1965	0.0	0.0	9.1	0.0	0.0	9.1
1966	0.0	0.0	12.2	0.0	0.0	12.2
1967	0.0	0.0	13.9	0.0	0.0	13.9
1968	0.0	0.0	15.2	0.0	0.0	15.2
1969	0.0	0.0	12.6	0.0	0.0	12.6
1970	0.0	0.0	17.0	0.0	0.0	17.0
1971	0.0	0.0	16.9	0.0	0.0	16.9
1972	0.0	0.0	21.3	0.0	0.0	21.4
1973	0.0	0.0	25.4	0.0	0.0	25.5
1974	0.1	0.0	27.3	0.0	0.1	27.5
1975	0.1	0.0	27.1	0.0	0.1	27.3
1976	0.1	0.0	21.7	0.0	0.1	21.8
1977	0.1	0.0	23.5	0.0	0.1	23.7
1978	0.1	0.0	21.3	0.0	0.1	21.4
1979	0.1	0.0	29.8	0.0	0.1	30.0
1980	0.0	0.0	20.8	0.0	0.0	20.9
1981	0.2	0.0	0.0	0.7	0.2	1.1
1982	0.2	0.0	0.0	3.7	0.2	4.2
1983	0.2	0.0	0.0	2.4	0.2	2.7
1984	0.1	0.0	0.0	2.4	0.1	2.5
1985	0.1	0.0	0.0	5.7	0.1	5.8
1986	0.6	0.0	0.0	14.5	0.6	15.8
1987	0.0	0.0	0.0	1.6	0.0	1.6
1988	0.0	0.0	0.0	5.8	0.0	5.8
1989	0.0	0.0	0.0	5.1	0.0	5.1
1990	0.0	0.0	0.0	4.0	0.0	4.0
1991	0.0	0.0	0.0	3.9	0.0	3.9
1992	0.0	0.0	0.0	3.8	0.0	3.8
1993	0.0	0.0	0.0	3.4	0.0	3.4
1994	0.0	0.0	0.0	2.9	0.0	2.9
1995	0.0	0.0	0.0	4.7	0.0	4.7
1996	0.0	0.0	0.0	14.1	0.0	14.1
1997	0.0	0.0	0.0	4.4	0.0	4.4
1998	0.0	0.0	0.0	5.1	0.0	5.1
1999	0.0	0.0	0.0	20.4	0.0	20.4
2000	0.0	0.0	0.0	4.9	0.0	4.9
2001	0.0	0.0	0.0	2.4	0.0	2.4
2002	0.1	0.0	0.0	2.6	0.1	2.8
2003	0.0	0.0	0.0	5.5	0.0	5.5
2004	0.0	0.0	0.0	2.7	0.0	2.7
2005	0.0	0.0	0.0	8.0	0.0	8.0
2006	0.0	0.0	0.0	1.7	0.0	1.7
2007	0.0	0.0	0.0	3.1	0.0	3.1
2008	0.0	0.0	0.0	3.1	0.0	3.2
2009	0.0	0.0	0.0	4.1	0.0	4.1

Table 46. Catch [mt] by year and data source for sharpchin rockfish (*Sebastes zacentrus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1916	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1917	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1918	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1919	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1920	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1921	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1922	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1923	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1924	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1925	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1926	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1927	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1928	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1929	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1930	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1931	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1932	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1933	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1934	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1935	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1936	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1937	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1938	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
1939	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
1940	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4
1941	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.7
1942	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.6	1.2
1943	0.0	0.1	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.4	2.3	4.4
1944	0.0	0.1	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.4	3.8	7.2
1945	0.0	0.3	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	1.4	6.1	11.6
1946	0.0	0.4	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.9	4.2	8.0

Table 46 (Continued). Catch [mt] by year and data source for sharpchin rockfish (*Sebastes zacentrus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1947	0.0	0.2	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.5	3.1	5.9
1948	0.0	0.3	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.9	5.1	9.8
1949	0.0	0.2	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	1.1	5.6	10.7
1950	0.0	0.1	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	1.1	4.7	9.0
1951	0.0	0.3	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.9	5.3	10.2
1952	0.0	0.3	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	1.3	7.8	14.9
1953	0.0	0.2	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.9	5.0	9.6
1954	0.0	0.1	0.0	0.0	0.0	16.8	0.0	0.0	0.0	0.0	1.8	20.7	39.4
1955	0.0	0.1	0.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0	1.2	17.0	32.3
1956	0.0	0.2	0.0	0.0	0.0	36.2	0.0	0.0	0.0	0.0	2.2	42.8	81.3
1957	0.0	0.2	0.0	0.0	0.0	16.0	0.0	0.0	0.0	0.0	1.8	19.9	37.8
1958	0.0	0.2	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	2.0	8.6	16.3
1959	0.0	0.2	0.0	0.0	0.0	4.9	0.0	0.0	0.0	0.0	2.3	8.2	15.6
1960	0.0	0.2	0.0	0.0	0.0	9.2	0.0	0.0	0.0	0.0	2.8	13.5	25.7
1961	0.0	0.1	0.0	0.0	0.0	8.5	0.0	0.0	0.0	0.0	3.0	12.8	24.5
1962	0.0	0.1	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.0	4.0	14.6	27.8
1963	0.0	0.1	0.0	0.0	0.0	10.7	0.0	0.0	0.0	2.6	0.0	14.8	28.2
1964	0.0	0.1	0.0	0.0	0.0	13.5	0.0	0.0	0.0	2.6	0.0	17.8	34.0
1965	0.0	0.1	0.0	0.0	0.0	9.8	0.0	0.0	0.0	2.2	0.0	13.4	25.5
1966	0.0	0.1	0.1	0.0	0.0	16.0	0.0	0.0	405.0	2.7	0.0	470.0	893.8
1967	0.0	0.1	0.1	0.0	0.0	11.2	0.0	0.0	233.0	0.0	0.0	271.0	515.3
1968	0.0	0.1	0.1	0.0	0.0	5.7	0.0	0.0	138.0	0.0	0.0	159.4	303.3
1969	0.1	0.0	0.0	0.0	0.0	2.0	0.0	0.0	15.0	0.4	0.0	19.3	36.8
1970	0.1	0.0	0.1	0.0	0.0	1.9	0.0	0.0	16.0	4.2	0.0	24.6	46.9
1971	0.1	0.0	0.0	0.0	0.0	8.1	0.0	0.0	14.0	6.3	0.0	31.6	60.2
1972	0.2	0.0	0.1	0.0	0.0	0.8	0.0	0.0	12.0	5.9	0.0	21.0	40.0
1973	0.1	0.0	0.1	0.0	0.0	1.7	0.0	0.0	31.0	0.6	0.0	37.1	70.7
1974	0.3	0.0	0.1	0.0	0.0	1.2	0.0	0.0	15.0	0.9	0.0	19.3	36.8
1975	0.4	0.0	0.1	0.0	0.0	3.5	0.0	0.0	15.0	0.0	0.0	21.0	40.0
1976	0.5	0.0	0.1	0.0	0.0	0.5	0.0	0.0	9.0	0.9	0.0	12.1	23.1
1977	0.5	0.0	0.1	0.0	0.0	2.9	0.0	0.0	0.0	2.1	0.0	6.1	11.6

Table 46 (Continued). Catch [mt] by year and data source for sharpchin rockfish (*Sebastes zacentrus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CARR	NORPAC	ODFW	ORCR	PFOR	PFWA	ROGERS	TGTWA	PACFISH	COMDIS	Total
1978	0.0	0.0	0.1	0.0	0.0	54.9	0.0	0.0	0.0	51.7	0.0	118.3	225.0
1979	1.7	0.0	0.1	0.0	0.0	57.2	0.0	0.0	0.0	29.4	0.0	97.9	186.3
1980	0.0	0.0	0.2	0.0	0.0	41.1	0.0	0.0	0.0	29.9	0.0	78.7	149.9
1981	0.0	0.0	0.0	0.0	130.1	0.0	0.0	13.1	0.0	0.0	0.0	158.8	302.1
1982	3.9	0.0	0.0	0.0	286.8	0.0	0.0	6.3	0.0	0.0	0.0	329.3	626.3
1983	21.0	0.0	0.0	0.0	392.2	0.0	0.0	1.7	0.0	0.0	0.0	460.0	874.9
1984	20.1	0.0	0.0	0.0	67.9	0.0	0.0	2.9	0.0	0.0	0.0	100.8	191.7
1985	62.0	0.0	0.0	0.0	273.5	0.0	0.0	10.0	0.0	0.0	0.0	383.1	728.6
1986	16.3	0.0	0.0	0.0	168.2	0.0	0.0	20.2	0.0	0.0	0.0	227.0	431.7
1987	61.9	0.0	0.0	0.0	0.0	0.0	128.6	10.7	0.0	0.0	0.0	217.6	418.8
1988	130.3	0.0	0.0	0.0	0.0	0.0	255.0	37.7	0.0	0.0	0.0	445.4	868.4
1989	31.4	0.0	0.0	0.0	0.0	0.0	339.4	85.1	0.0	0.0	0.0	467.3	923.2
1990	170.2	0.0	0.0	0.0	0.0	0.0	106.6	79.0	0.0	0.0	0.0	354.6	710.4
1991	54.0	0.0	0.0	0.1	0.0	0.0	138.4	39.7	0.0	0.0	0.0	224.9	457.0
1992	15.6	0.0	0.0	9.4	0.0	0.0	135.4	44.9	0.0	0.0	0.0	193.2	398.6
1993	30.4	0.0	0.0	0.0	0.0	0.0	328.2	35.1	0.0	0.0	0.0	359.4	753.0
1994	154.1	0.0	0.0	0.0	0.0	0.0	285.3	7.5	0.0	0.0	0.0	395.4	842.2
1995	91.6	0.0	0.0	0.0	0.0	0.0	133.6	22.2	0.0	0.0	0.0	212.0	459.5
1996	95.3	0.0	0.0	0.0	0.0	0.0	120.3	15.8	0.0	0.0	0.0	191.8	423.2
1997	113.2	0.0	0.0	0.0	0.0	0.0	187.2	19.1	0.0	0.0	0.0	255.9	575.4
1998	41.7	0.0	0.0	0.1	0.0	0.0	64.1	7.8	0.0	0.0	0.0	87.8	201.5
1999	12.9	0.0	0.0	0.0	0.0	0.0	36.3	5.3	0.0	0.0	0.0	40.5	95.1
2000	2.2	0.0	0.0	0.0	0.0	0.0	6.4	3.0	0.0	0.0	0.0	8.3	19.9
2001	0.8	0.0	0.0	2.1	0.0	0.0	4.0	0.3	0.0	0.0	0.0	4.9	12.0
2002	1.1	0.0	0.0	0.1	0.0	0.0	2.2	1.8	0.0	0.0	0.0	3.4	8.7
2003	0.0	0.0	0.0	1.1	0.0	0.0	3.4	0.2	0.0	0.0	0.0	3.0	7.7
2004	0.0	0.0	0.0	0.0	0.0	0.0	16.8	1.8	0.0	0.0	0.0	11.2	29.9
2005	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	1.9	5.1
2006	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2
2007	0.1	0.0	0.0	0.8	0.0	0.0	1.6	0.0	0.0	0.0	0.0	1.3	3.8
2008	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	0.0	0.0	0.0	0.6	1.8
2009	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.2	0.0	0.0	0.0	0.6	1.9

Table 47. Catch [mt] by year and data source for Pacific sanddab (*Citharichthys sordidus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	PFOR	RECCA	RECOR	RECWA	COMDIS	Total
1931	0.0	214.5	0.0	0.0	0.0	0.0	339.3	553.7
1932	0.0	301.5	0.0	0.0	0.0	0.0	477.0	778.5
1933	0.0	247.7	0.0	0.0	0.0	0.0	391.8	639.5
1934	0.0	347.9	0.0	0.0	0.0	0.0	550.4	898.3
1935	0.0	306.4	0.0	0.0	0.0	0.0	484.8	791.2
1936	0.0	282.0	0.0	0.0	0.0	0.0	446.1	728.1
1937	0.0	234.1	0.0	0.0	0.0	0.0	370.4	604.6
1938	0.0	301.2	0.0	0.0	0.0	0.0	476.5	777.6
1939	0.0	368.2	0.0	0.0	0.0	0.0	582.5	950.7
1940	0.0	353.4	0.0	0.0	0.0	0.0	559.1	912.4
1941	0.0	200.7	0.0	0.0	0.0	0.0	317.5	518.2
1942	0.0	160.4	0.0	0.0	0.0	0.0	253.7	414.1
1943	0.0	229.2	0.0	0.0	0.0	0.0	362.6	591.8
1944	0.0	250.1	0.0	0.0	0.0	0.0	395.6	645.6
1945	0.0	268.6	0.0	0.0	0.0	0.0	424.9	693.4
1946	0.0	308.0	0.0	0.0	0.0	0.0	487.3	795.3
1947	0.0	318.2	0.0	0.0	0.0	0.0	503.3	821.5
1948	0.0	364.8	0.0	0.0	0.0	0.0	577.1	941.9
1949	0.0	327.3	0.0	0.0	0.0	0.0	517.9	845.2
1950	0.0	310.9	0.0	0.0	0.0	0.0	491.8	802.7
1951	0.0	246.2	0.0	0.0	0.0	0.0	389.5	635.8
1952	0.0	299.0	0.0	0.0	0.0	0.0	473.1	772.1
1953	0.0	311.4	0.0	0.0	0.0	0.0	492.7	804.1
1954	0.0	340.1	0.0	0.0	0.0	0.0	538.1	878.2
1955	0.0	353.3	0.0	0.0	0.0	0.0	558.9	912.2
1956	0.0	357.6	0.0	0.0	0.0	0.0	565.8	923.4
1957	0.0	313.5	0.0	0.0	0.0	0.0	495.9	809.4
1958	0.0	183.6	0.0	0.0	0.0	0.0	290.5	474.2
1959	0.0	210.0	0.0	0.0	0.0	0.0	332.3	542.3
1960	0.0	157.1	0.0	0.0	0.0	0.0	248.5	405.6
1961	0.0	223.0	0.0	0.0	0.0	0.0	352.8	575.8
1962	0.0	306.6	0.0	0.0	0.0	0.0	485.1	791.7
1963	0.0	251.4	0.0	0.0	0.0	0.0	397.7	649.1
1964	0.0	452.7	0.0	0.0	0.0	0.0	716.1	1168.8
1965	0.0	216.9	0.0	0.0	0.0	0.0	343.1	559.9
1966	0.0	326.3	0.0	0.0	0.0	0.0	516.2	842.6
1967	0.0	310.9	0.0	0.0	0.0	0.0	491.8	802.7
1968	0.0	323.4	0.0	0.0	0.0	0.0	511.7	835.1
1969	315.7	0.0	0.0	0.0	0.0	0.0	499.5	815.2
1970	307.8	0.0	0.0	0.0	0.0	0.0	486.9	794.6

Table 47 (Continued). Catch [mt] by year and data source for Pacific sanddab (*Citharichthys sordidus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	PFOR	RECCA	RECOR	RECWA	COMDIS	Total
1971	353.9	0.0	0.0	0.0	0.0	0.0	559.9	913.8
1972	417.7	0.0	0.0	0.0	0.0	0.0	660.8	1078.4
1973	410.0	0.0	0.0	0.0	0.0	0.0	648.7	1058.7
1974	442.4	0.0	0.0	0.0	0.0	0.0	699.8	1142.2
1975	460.6	0.0	0.0	0.0	0.0	0.0	728.7	1189.4
1976	586.9	0.0	0.0	0.0	0.0	0.0	928.5	1515.3
1977	367.2	0.0	0.0	0.0	0.0	0.0	581.0	948.2
1978	337.1	0.0	0.0	0.0	0.0	0.0	533.3	870.4
1979	600.0	0.0	0.0	0.0	0.0	0.0	949.2	1549.2
1980	580.8	0.0	0.0	0.0	0.0	0.0	918.8	1499.6
1981	427.4	0.0	0.0	215.9	0.1	0.0	676.1	1319.5
1982	479.8	0.0	0.0	46.8	0.1	0.0	759.0	1285.6
1983	256.7	0.0	0.0	38.6	0.0	0.0	406.0	701.2
1984	250.9	0.0	0.0	40.0	0.0	0.0	396.9	687.9
1985	440.6	0.0	0.0	58.1	0.0	0.0	697.1	1195.8
1986	445.1	0.0	0.0	51.8	0.0	0.0	704.2	1201.0
1987	533.4	0.0	212.3	12.7	0.0	0.1	1146.1	1904.6
1988	528.0	0.0	109.7	66.7	0.0	0.0	950.8	1655.2
1989	638.7	0.0	73.9	20.9	0.0	0.0	1029.8	1763.3
1990	650.4	0.0	194.9	33.2	0.0	0.0	1183.4	2061.8
1991	558.9	0.0	313.3	33.0	0.0	0.0	1180.9	2086.1
1992	282.7	0.0	293.3	32.9	0.0	0.0	753.9	1362.8
1993	351.1	0.0	282.2	48.9	0.2	0.0	799.8	1482.2
1994	681.9	0.0	516.9	34.5	0.2	0.0	1459.0	2692.6
1995	677.5	0.0	682.1	14.5	0.0	0.0	1593.4	2967.4
1996	789.1	0.0	103.9	50.5	0.1	0.0	1005.5	1949.0
1997	929.9	0.0	241.2	36.0	0.1	0.0	1264.8	2472.0
1998	644.1	0.0	132.4	13.3	0.1	0.0	803.6	1593.5
1999	927.8	0.0	273.2	21.1	0.1	0.0	1187.7	2409.8
2000	743.7	0.0	146.0	62.6	0.1	0.0	838.9	1791.2
2001	793.1	0.0	106.1	47.1	0.1	0.0	807.5	1753.8
2002	563.5	0.0	227.1	154.2	0.2	0.0	673.5	1618.4
2003	524.8	0.0	89.5	47.1	0.4	0.0	495.1	1156.8
2004	355.4	0.0	131.7	44.3	1.8	0.0	370.7	903.9
2005	229.5	0.0	113.4	45.6	0.2	0.0	245.1	633.8
2006	115.7	0.0	296.0	23.3	0.1	0.0	275.5	710.7
2007	162.4	0.0	124.6	19.7	0.1	0.0	179.1	485.9
2008	128.4	0.0	67.5	26.3	0.0	0.0	113.3	335.5
2009	110.2	0.0	184.9	16.5	0.0	0.0	170.6	482.3

Table 48. Catch [mt] by year and data source for rex sole (*Glyptocephalus zachirus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CLVR51	NORPAC	PFOR	PFWA	PMFCDS	SMTH56	COMDIS	Total
1931	0.0	377.0	0.0	0.0	0.0	0.0	0.0	0.0	188.5	565.6
1932	0.0	252.0	0.0	0.0	0.0	0.0	0.0	0.0	126.0	378.0
1933	0.0	240.2	0.0	0.0	0.0	0.0	0.0	0.0	120.1	360.2
1934	0.0	303.6	0.0	0.0	0.0	0.0	0.0	0.0	151.8	455.4
1935	0.0	286.5	0.0	0.0	0.0	0.0	0.0	0.0	143.3	429.8
1936	0.0	233.9	0.0	0.0	0.0	0.0	0.0	0.0	116.9	350.8
1937	0.0	204.8	0.0	0.0	0.0	0.0	0.0	0.0	102.4	307.2
1938	0.0	253.8	0.0	0.0	0.0	0.0	0.0	0.0	126.9	380.7
1939	0.0	302.8	0.0	0.0	0.0	0.0	0.0	0.0	151.4	454.2
1940	0.0	269.1	0.0	0.0	0.0	0.0	0.0	0.0	134.6	403.7
1941	0.0	168.3	0.0	0.0	0.0	0.0	0.0	0.0	84.2	252.5
1942	0.0	175.8	6.2	0.0	0.0	0.0	0.0	0.0	91.0	273.0
1943	0.0	224.8	258.4	0.0	0.0	0.0	0.0	0.0	241.6	724.9
1944	0.0	187.5	53.0	0.0	0.0	0.0	0.0	0.0	120.2	360.7
1945	0.0	200.6	31.6	0.0	0.0	0.0	0.0	0.0	116.1	348.2
1946	0.0	258.7	22.1	0.0	0.0	0.0	0.0	0.0	140.4	421.2
1947	0.0	382.4	6.7	0.0	0.0	0.0	0.0	0.0	194.5	583.6
1948	0.0	403.2	59.4	0.0	0.0	0.0	0.0	0.0	231.3	694.0
1949	0.0	438.2	101.5	0.0	0.0	0.0	0.0	0.0	269.8	809.5
1950	0.0	464.1	0.0	0.0	0.0	0.0	0.0	177.7	320.9	962.7
1951	0.0	454.0	0.0	0.0	0.0	0.0	0.0	239.3	342.5	1035.9
1952	0.0	531.5	0.0	0.0	0.0	0.0	0.0	274.6	393.4	1199.6
1953	0.0	456.7	0.0	0.0	0.0	0.0	0.0	665.3	540.8	1662.7
1954	0.0	514.8	0.0	0.0	0.0	0.0	0.0	776.9	614.8	1906.5
1955	0.0	485.0	0.0	0.0	0.0	0.0	0.0	888.4	644.2	2017.6
1956	0.0	514.9	0.0	0.0	0.0	0.0	1097.9	0.0	746.7	2359.5
1957	0.0	556.9	0.0	0.0	0.0	0.0	909.9	0.0	670.3	2137.2
1958	0.0	626.7	0.0	0.0	0.0	0.0	880.0	0.0	679.5	2186.1
1959	0.0	632.7	0.0	0.0	0.0	0.0	774.3	0.0	626.1	2033.1
1960	0.0	489.3	0.0	0.0	0.0	0.0	850.1	0.0	588.0	1927.3
1961	0.0	526.8	0.0	0.0	0.0	0.0	870.5	0.0	605.0	2002.3
1962	0.0	626.4	0.0	0.0	0.0	0.0	974.3	0.0	683.5	2284.3
1963	0.0	696.6	0.0	0.0	0.0	0.0	1056.9	0.0	736.5	2490.0
1964	0.0	632.4	0.0	0.0	0.0	0.0	516.7	0.0	475.7	1624.7
1965	0.0	671.3	0.0	0.0	0.0	0.0	607.8	0.0	521.9	1800.9
1966	0.0	729.7	0.0	0.0	0.0	0.0	809.2	0.0	618.6	2157.6
1967	0.0	794.0	0.0	0.0	0.0	0.0	743.0	0.0	608.7	2145.7
1968	0.0	861.7	0.0	0.0	0.0	0.0	558.4	0.0	553.8	1973.9
1969	1024.6	0.0	0.0	0.0	0.0	0.0	676.8	0.0	653.3	2354.7
1970	789.9	0.0	0.0	0.0	0.0	0.0	627.8	0.0	535.9	1953.6

Table 48 (Continued). Catch [mt] by year and data source for rex sole (*Glyptocephalus zachirus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CLVR51	NORPAC	PFOR	PFWA	PMFCDS	SMTH56	COMDIS	Total
1971	643.9	0.0	0.0	0.0	0.0	0.0	469.9	0.0	413.2	1527.0
1972	753.7	0.0	0.0	0.0	0.0	0.0	692.2	0.0	527.7	1973.6
1973	718.8	0.0	0.0	0.0	0.0	0.0	699.9	0.0	509.3	1928.1
1974	626.7	0.0	0.0	0.0	0.0	0.0	793.8	0.0	501.4	1922.0
1975	746.8	0.0	0.0	0.0	0.0	0.0	655.9	0.0	486.7	1889.4
1976	913.0	0.0	0.0	0.0	0.0	0.0	672.2	0.0	540.6	2125.8
1977	702.2	0.0	0.0	0.0	0.0	0.0	619.6	0.0	442.8	1764.6
1978	697.6	0.0	0.0	0.0	0.0	0.0	875.9	0.0	517.7	2091.1
1979	868.5	0.0	0.0	0.0	0.0	0.0	1152.6	0.0	652.8	2673.9
1980	861.6	0.0	0.0	0.0	0.0	0.0	714.4	0.0	498.0	2074.0
1981	783.9	0.0	0.0	0.0	610.7	148.9	0.0	0.0	478.5	2022.0
1982	669.2	0.0	0.0	0.0	846.2	233.5	0.0	0.0	531.7	2280.6
1983	639.9	0.0	0.0	0.0	645.4	175.8	0.0	0.0	435.4	1896.5
1984	568.3	0.0	0.0	0.0	549.2	160.9	0.0	0.0	373.3	1651.7
1985	897.8	0.0	0.0	0.0	397.5	133.6	0.0	0.0	408.6	1837.5
1986	841.9	0.0	0.0	0.0	285.7	81.4	0.0	0.0	338.5	1547.6
1987	825.0	0.0	0.0	0.0	286.7	89.6	0.0	0.0	325.5	1526.8
1988	841.1	0.0	0.0	0.0	333.3	94.7	0.0	0.0	332.5	1601.6
1989	749.2	0.0	0.0	0.0	282.7	116.8	0.0	0.0	290.6	1439.2
1990	556.4	0.0	0.0	0.0	226.8	96.9	0.0	0.0	215.6	1095.7
1991	621.2	0.0	0.0	0.0	430.1	122.3	0.0	0.0	277.0	1450.7
1992	440.4	0.0	0.0	1.0	331.5	105.6	0.0	0.0	199.4	1077.9
1993	457.3	0.0	0.0	0.1	273.4	56.4	0.0	0.0	171.6	958.8
1994	570.0	0.0	0.0	0.3	219.4	52.3	0.0	0.0	176.8	1018.9
1995	688.0	0.0	0.0	0.4	213.3	22.7	0.0	0.0	185.8	1110.2
1996	498.2	0.0	0.0	0.0	301.9	44.9	0.0	0.0	162.3	1007.4
1997	454.0	0.0	0.0	0.0	309.2	48.2	0.0	0.0	148.5	960.0
1998	289.3	0.0	0.0	0.2	290.7	57.4	0.0	0.0	111.6	749.2
1999	285.5	0.0	0.0	0.0	281.9	22.3	0.0	0.0	97.9	687.6
2000	224.9	0.0	0.0	3.8	280.1	37.0	0.0	0.0	85.7	631.5
2001	239.5	0.0	0.0	14.4	293.8	29.1	0.0	0.0	85.4	662.2
2002	288.3	0.0	0.0	8.7	269.3	40.4	0.0	0.0	84.9	691.6
2003	278.6	0.0	0.0	0.8	280.5	39.2	0.0	0.0	78.5	677.6
2004	228.5	0.0	0.0	0.3	294.9	16.6	0.0	0.0	65.9	606.2
2005	225.5	0.0	0.0	2.2	323.8	43.1	0.0	0.0	67.2	661.8
2006	170.1	0.0	0.0	0.3	358.7	35.7	0.0	0.0	59.3	624.2
2007	181.1	0.0	0.0	0.2	355.1	29.2	0.0	0.0	54.3	619.9
2008	157.7	0.0	0.0	0.3	335.8	33.4	0.0	0.0	45.9	573.1
2009	137.5	0.0	0.0	0.4	386.4	43.4	0.0	0.0	49.4	617.1

Table 49. Catch [mt] by year and data source for rock sole (*Lepidopsetta bilineata*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	PFOR	PFWA	PMFCDS	RECCA	RECOR	RECWA	COMDIS	Total
1950	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.7
1951	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	6.5
1952	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
1953	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
1954	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
1955	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
1956	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
1957	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.7
1958	0.0	0.4	0.0	0.0	1.1	0.0	0.0	0.0	0.3	1.9
1959	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1960	0.0	1.5	0.0	0.0	1.8	0.0	0.0	0.0	0.6	3.9
1961	0.0	0.7	0.0	0.0	0.9	0.0	0.0	0.0	0.3	1.9
1962	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3
1963	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
1964	0.0	0.7	0.0	0.0	3.2	0.0	0.0	0.0	0.8	4.7
1965	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.0	0.2	1.5
1966	0.0	0.1	0.0	0.0	7.7	0.0	0.0	0.0	1.5	9.2
1967	0.0	0.2	0.0	0.0	5.9	0.0	0.0	0.0	1.2	7.2
1968	0.0	1.4	0.0	0.0	1.9	0.0	0.0	0.0	0.6	3.9
1969	1.6	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.4	2.5
1970	0.4	0.0	0.0	0.0	5.5	0.0	0.0	0.0	1.1	7.0
1971	0.0	0.0	0.0	0.0	40.9	0.0	0.0	0.0	7.8	48.6
1972	2.2	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.6	3.7
1973	3.8	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.2	7.8
1974	7.6	0.0	0.0	0.0	2.3	0.0	0.0	0.0	1.9	11.7
1975	9.8	0.0	0.0	0.0	14.5	0.0	0.0	0.0	4.6	28.9
1976	6.1	0.0	0.0	0.0	10.0	0.0	0.0	0.0	3.1	19.1
1977	1.6	0.0	0.0	0.0	15.9	0.0	0.0	0.0	3.3	20.8
1978	6.2	0.0	0.0	0.0	30.4	0.0	0.0	0.0	7.0	43.6
1979	0.9	0.0	0.0	0.0	91.6	0.0	0.0	0.0	17.6	110.1
1980	0.6	0.0	0.0	0.0	47.2	0.0	0.0	0.3	9.1	57.1
1981	3.5	0.0	9.0	5.1	0.0	2.7	0.0	0.4	3.4	24.1
1982	12.6	0.0	30.2	3.8	0.0	3.0	0.0	0.5	8.8	58.9
1983	4.8	0.0	4.2	7.4	0.0	5.4	0.0	0.0	3.1	24.9
1984	5.4	0.0	2.1	3.2	0.0	5.3	0.0	0.5	2.0	18.5
1985	8.6	0.0	0.6	6.5	0.0	7.8	0.0	0.0	3.0	26.5
1986	3.8	0.0	5.8	0.8	0.0	6.7	0.0	0.0	2.0	19.1
1987	4.2	0.0	1.1	2.0	0.0	2.7	0.0	5.0	1.4	16.3
1988	5.5	0.0	5.2	3.4	0.0	8.8	0.0	0.0	2.6	25.4
1989	10.0	0.0	2.5	4.5	0.0	1.4	0.0	0.0	3.1	21.5

Table 49 (Continued). Catch [mt] by year and data source for rock sole (*Lepidopsetta bilineata*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	PFOR	PFWA	PMFCDS	RECCA	RECOR	RECWA	COMDIS	Total
1990	7.1	0.0	2.3	2.6	0.0	3.2	0.0	0.0	2.1	17.4
1991	6.6	0.0	1.8	6.5	0.0	2.7	0.0	0.0	2.6	20.2
1992	4.3	0.0	0.3	5.8	0.0	2.1	0.0	0.0	1.8	14.3
1993	6.8	0.0	1.9	7.7	0.0	1.6	0.0	0.0	2.8	20.8
1994	3.8	0.0	3.8	3.0	0.0	0.2	0.0	0.0	1.8	12.6
1995	7.1	0.0	0.9	0.0	0.0	1.3	0.0	0.0	1.3	10.7
1996	3.5	0.0	5.3	0.4	0.0	1.3	0.0	0.0	1.5	12.1
1997	9.4	0.0	13.0	11.6	0.0	0.4	0.0	0.0	5.4	39.8
1998	9.8	0.0	5.7	15.2	0.0	0.1	0.0	0.0	4.8	35.6
1999	6.6	0.0	4.4	0.3	0.0	1.1	0.0	0.0	1.7	14.1
2000	7.5	0.0	0.5	6.0	0.0	1.0	0.0	0.0	2.1	17.1
2001	7.2	0.0	4.2	3.0	0.0	0.3	0.0	0.0	2.1	17.0
2002	12.9	0.0	6.7	7.4	0.0	0.5	0.0	0.0	3.9	31.4
2003	16.0	0.0	0.5	8.7	0.0	2.1	0.0	0.0	3.6	30.8
2004	13.2	0.0	4.4	8.3	0.0	0.6	0.0	0.0	3.6	30.1
2005	12.6	0.0	1.4	6.0	0.0	0.9	0.0	0.0	2.7	23.7
2006	5.7	0.0	3.1	2.9	0.0	0.3	0.0	0.0	1.6	13.6
2007	5.3	0.0	0.4	3.1	0.0	0.7	0.0	0.0	1.1	10.6
2008	4.6	0.0	0.2	0.2	0.0	0.5	0.0	0.0	0.6	6.1
2009	2.4	0.0	0.9	0.0	0.0	0.8	0.0	0.0	0.4	4.5

Table 50. Catch [mt] by year and data source for sand sole (*Psettichthys melanostictus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CLVR51	PFOR	PFWA	RECCA	RECOR	RECWA	SMTH56	WDFW	COMDIS	Total
1935	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1936	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1937	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1938	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1939	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1940	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1941	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1942	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.6
1943	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	16.1
1944	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.8
1945	0.0	0.0	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	17.7
1946	0.0	0.0	27.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	29.2
1947	0.0	0.0	36.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	37.9
1948	0.0	0.0	50.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	53.4
1949	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.1
1950	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	0.0	0.6	11.5
1951	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.9
1952	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.1	1.5
1953	0.0	15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	16.5
1954	0.0	33.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	35.4
1955	0.0	41.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	43.7
1956	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	36.8
1957	0.0	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	26.8
1958	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.6
1959	0.0	43.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	45.5
1960	0.0	33.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	34.7
1961	0.0	34.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	36.3
1962	0.0	88.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	92.5
1963	0.0	150.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	7.8	158.5
1964	0.0	152.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	8.1	164.8
1965	0.0	140.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	8.6	173.2
1966	0.0	106.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.7	7.8	158.4
1967	0.0	138.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.6	8.9	180.0
1968	0.0	95.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.0	101.7
1969	92.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	5.5	111.3
1970	87.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	6.0	121.8
1971	353.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.7	20.2	409.6
1972	176.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.6	13.2	267.4

Table 50 (Continued). Catch [mt] by year and data source for sand sole (*Psettichthys melanostictus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	CLVR51	PFOR	PFWA	RECCA	RECOR	RECWA	SMTH56	WDFW	COMDIS	Total
1973	109.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.7	9.6	194.3
1974	108.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.7	9.5	192.0
1975	83.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.7	8.3	168.8
1976	113.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.0	9.6	193.8
1977	110.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	106.0	11.3	227.8
1978	113.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	139.9	13.2	266.3
1979	304.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	228.6	27.7	560.4
1980	161.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	148.2	16.1	326.2
1981	199.5	0.0	0.0	0.0	56.9	8.2	0.0	0.0	0.0	0.0	13.3	278.0
1982	148.7	0.0	0.0	0.0	154.5	3.5	0.7	0.0	0.0	0.0	15.8	323.2
1983	108.3	0.0	0.0	0.0	36.0	6.3	0.5	0.0	0.0	0.0	7.5	158.7
1984	64.8	0.0	0.0	0.0	44.7	1.1	0.0	0.1	0.0	0.0	5.7	116.4
1985	128.6	0.0	0.0	0.0	102.2	1.5	0.5	0.0	0.0	0.0	12.0	244.8
1986	160.7	0.0	0.0	0.0	88.9	1.3	0.0	0.0	0.0	0.0	13.0	264.0
1987	152.5	0.0	0.0	227.0	140.9	2.8	0.0	0.1	0.0	0.0	29.1	552.4
1988	112.5	0.0	0.0	158.6	37.5	4.2	0.2	0.0	0.0	0.0	18.2	331.2
1989	110.7	0.0	0.0	220.9	75.3	1.5	0.0	0.0	0.0	0.0	25.6	434.1
1990	94.1	0.0	0.0	212.2	46.8	2.1	0.3	0.0	0.0	0.0	23.7	379.2
1991	65.6	0.0	0.0	287.7	55.8	1.7	0.4	0.0	0.0	0.0	28.6	439.9
1992	62.8	0.0	0.0	176.3	55.0	1.4	0.5	0.0	0.0	0.0	21.8	317.7
1993	73.4	0.0	0.0	211.2	18.5	0.5	0.7	0.0	0.0	0.0	23.3	327.7
1994	55.3	0.0	0.0	186.6	10.2	0.9	1.0	0.0	0.0	0.0	20.4	274.5
1995	37.0	0.0	0.0	79.7	21.0	0.4	0.3	0.0	0.0	0.0	11.6	149.9
1996	62.2	0.0	0.0	72.7	3.0	0.1	0.2	0.0	0.0	0.0	12.1	150.4
1997	49.9	0.0	0.0	86.8	2.1	0.3	2.1	0.0	0.0	0.0	12.6	153.8
1998	35.0	0.0	0.0	48.2	3.0	0.3	0.3	0.0	0.0	0.0	8.2	95.0
1999	27.3	0.0	0.0	79.2	0.5	0.2	0.3	0.0	0.0	0.0	10.6	118.0
2000	38.0	0.0	0.0	36.0	1.2	0.4	0.3	0.0	0.0	0.0	7.7	83.5
2001	76.2	0.0	0.0	47.5	0.5	0.7	0.3	0.0	0.0	0.0	13.2	138.4
2002	54.2	0.0	0.0	125.2	1.2	1.0	0.2	0.0	0.0	0.0	19.7	201.5
2003	36.7	0.0	0.0	77.3	5.4	2.0	0.2	0.0	0.0	0.0	13.5	135.1
2004	22.9	0.0	0.0	108.6	18.6	0.6	0.1	0.0	0.0	0.0	17.4	168.2
2005	25.8	0.0	0.0	70.4	13.4	0.1	0.1	0.0	0.0	0.0	13.2	122.9
2006	17.8	0.0	0.0	32.1	4.9	0.1	0.0	0.0	0.0	0.0	6.8	61.6
2007	6.3	0.0	0.0	13.8	0.2	0.1	0.0	0.0	0.0	0.0	2.6	23.0
2008	2.5	0.0	0.0	16.4	0.5	0.0	0.0	0.0	0.0	0.0	2.6	22.1
2009	4.0	0.0	0.0	48.3	0.3	0.3	0.1	0.0	0.0	0.0	6.9	59.9

Table 51. Catch [mt] by year and data source for soupfin shark (*Galeorhinus zyopterus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	NORPAC	PFOR	PFWA	COMDIS	Total
1938	0.0	1326.5	0.0	0.0	0.0	433.8	1760.2
1939	0.0	2652.9	0.0	0.0	0.0	867.5	3520.4
1940	0.0	2316.9	0.0	0.0	0.0	757.6	3074.5
1941	0.0	2172.8	0.0	0.0	0.0	710.5	2883.3
1942	0.0	902.7	0.0	0.0	0.0	295.2	1197.9
1943	0.0	810.8	0.0	0.0	0.0	265.1	1075.9
1944	0.0	285.3	0.0	0.0	0.0	93.3	378.6
1945	0.0	292.7	0.0	0.0	0.0	95.7	388.4
1946	0.0	203.6	0.0	0.0	0.0	66.6	270.2
1947	0.0	160.4	0.0	0.0	0.0	52.4	212.8
1948	0.0	92.1	0.0	0.0	0.0	30.1	122.2
1949	0.0	107.0	0.0	0.0	0.0	35.0	142.0
1950	0.0	27.8	0.0	0.0	0.0	9.1	36.9
1951	0.0	64.3	0.0	0.0	0.0	21.0	85.3
1952	0.0	50.6	0.0	0.0	0.0	16.5	67.1
1953	0.0	44.3	0.0	0.0	0.0	14.5	58.8
1954	0.0	30.2	0.0	0.0	0.0	9.9	40.1
1955	0.0	17.3	0.0	0.0	0.0	5.7	22.9
1956	0.0	73.4	0.0	0.0	0.0	24.0	97.4
1957	0.0	82.0	0.0	0.0	0.0	26.8	108.9
1958	0.0	42.0	0.0	0.0	0.0	13.7	55.8
1959	0.0	55.6	0.0	0.0	0.0	18.2	73.7
1960	0.0	58.6	0.0	0.0	0.0	19.2	77.7
1961	0.0	65.9	0.0	0.0	0.0	21.6	87.5
1962	0.0	100.3	0.0	0.0	0.0	32.8	133.0
1963	0.0	55.4	0.0	0.0	0.0	18.1	73.5
1964	0.0	90.9	0.0	0.0	0.0	29.7	120.6
1965	0.0	74.4	0.0	0.0	0.0	24.3	98.7
1966	0.0	61.9	0.0	0.0	0.0	20.2	82.1
1967	0.0	95.8	0.0	0.0	0.0	31.3	127.1
1968	0.0	78.5	0.0	0.0	0.0	25.7	104.2
1969	122.5	0.0	0.0	0.0	0.0	40.1	162.6
1970	100.4	0.0	0.0	0.0	0.0	32.8	133.2
1971	78.2	0.0	0.0	0.0	0.0	25.6	103.8
1972	65.6	0.0	0.0	0.0	0.0	21.5	87.1
1973	52.1	0.0	0.0	0.0	0.0	17.0	69.1

Table 51 (Continued). Catch [mt] by year and data source for soupfin shark (*Galeorhinus zyopterus*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	CACR	NORPAC	PFOR	PFWA	COMDIS	Total
1974	63.3	0.0	0.0	0.0	0.0	20.7	84.1
1975	38.7	0.0	0.0	0.0	0.0	12.7	51.4
1976	82.7	0.0	0.0	0.0	0.0	27.1	109.8
1977	73.6	0.0	0.0	0.0	0.0	24.1	97.6
1978	79.9	0.0	0.0	0.0	0.0	26.1	106.0
1979	125.2	0.0	0.0	0.0	0.0	41.0	166.2
1980	87.2	0.0	0.0	0.0	0.0	28.5	115.8
1981	120.2	0.0	0.0	0.0	0.1	39.3	159.6
1982	113.7	0.0	0.0	0.0	0.6	37.4	151.6
1983	80.6	0.0	0.0	0.0	1.1	26.7	108.4
1984	126.3	0.0	0.0	0.0	1.4	41.8	169.5
1985	126.0	0.0	0.0	0.0	1.5	41.7	169.1
1986	96.4	0.0	0.0	0.0	0.8	31.8	129.0
1987	91.4	0.0	0.0	8.0	0.7	32.7	132.8
1988	63.8	0.0	0.0	1.4	1.2	21.7	88.0
1989	75.0	0.0	0.0	1.5	0.5	23.9	101.0
1990	57.0	0.0	0.0	1.7	0.5	17.4	76.6
1991	47.6	0.0	0.0	2.1	0.4	13.9	64.1
1992	43.5	0.0	0.0	2.0	0.3	12.0	57.7
1993	35.3	0.0	0.0	1.9	0.5	9.2	46.9
1994	36.0	0.0	0.0	1.3	0.2	8.6	46.1
1995	29.0	0.0	0.0	1.0	0.1	6.4	36.5
1996	38.1	0.0	0.0	2.5	0.0	8.0	48.5
1997	38.5	0.0	0.2	1.7	0.5	7.4	48.3
1998	35.6	0.0	1.0	1.4	0.4	6.3	44.6
1999	44.6	0.0	0.0	0.8	0.2	6.7	52.3
2000	26.5	0.0	1.2	0.8	1.9	4.0	34.2
2001	27.5	0.0	0.6	0.2	0.2	3.3	31.7
2002	19.2	0.0	0.0	0.2	0.0	1.9	21.3
2003	19.8	0.0	0.4	0.1	0.2	1.7	22.0
2004	19.1	0.0	0.0	0.9	0.0	1.3	21.3
2005	15.1	0.0	0.8	0.1	0.2	0.8	16.9
2006	18.4	0.0	0.8	0.9	0.9	0.7	21.7
2007	13.7	0.0	0.4	0.1	0.0	0.2	14.5
2008	6.6	0.0	0.1	0.1	0.0	0.0	6.9
2009	2.8	0.0	0.1	0.1	0.1	0.0	3.1

Table 52. Catch [mt] by year for spiny dogfish (*Squalus acanthias*) as reported by Taylor (2008) for years 1940-2005. Catch prior to 1940 taken from California Landing Receipts (D. Pearson, pers. comm.) Catch after 2005 from CALCOM, NORPAC, PacFIN, and RecFIN. See text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	DSRK	Year	DSRK	Year	DSRK
1931	10.0	1958	1152.5	1985	1644.5
1932	22.9	1959	1125.5	1986	1371.5
1933	21.2	1960	1028.0	1987	1555.0
1934	22.9	1961	963.5	1988	1587.0
1935	43.7	1962	996.5	1989	1684.5
1936	23.4	1963	1009.5	1990	1851.0
1937	63.9	1964	1021.0	1991	1903.0
1938	373.9	1965	1232.5	1992	2374.0
1939	683.8	1966	1539.0	1993	2227.5
1940	576.5	1967	1498.0	1994	2171.0
1941	7094.5	1968	1228.5	1995	1337.0
1942	6117.5	1969	1310.0	1996	1056.0
1943	8167.5	1970	1246.0	1997	1323.5
1944	16806.5	1971	1166.5	1998	1186.5
1945	9198.5	1972	1306.0	1999	1330.5
1946	9162.5	1973	1376.5	2000	1173.0
1947	6236.5	1974	1479.0	2001	1094.0
1948	5313.5	1975	1599.5	2002	1460.0
1949	5023.5	1976	1992.0	2003	972.0
1950	1115.5	1977	1738.5	2004	1232.5
1951	1073.5	1978	1490.5	2005	1062.0
1952	1345.0	1979	2192.5	2006	233.8
1953	1006.0	1980	1769.0	2007	347.1
1954	1010.0	1981	1943.5	2008	1003.2
1955	1194.0	1982	1988.0	2009	675.1
1956	1218.5	1983	1572.5		
1957	1799.5	1984	1664.5		

Table 53. Catch [mt] by year and data source for leopard shark (*Triakis semifasciata*). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	RECCA	RECOR	Total
1969	8.4	0.0	0.0	8.4
1970	6.8	0.0	0.0	6.8
1971	7.7	0.0	0.0	7.7
1972	5.9	0.0	0.0	5.9
1973	4.7	0.0	0.0	4.7
1974	5.2	0.0	0.0	5.2
1975	4.9	0.0	0.0	4.9
1976	6.6	0.0	0.0	6.6
1977	10.1	0.0	0.0	10.1
1978	15.9	0.0	0.0	15.9
1979	17.7	0.0	0.0	17.7
1980	18.1	0.0	0.0	18.1
1981	23.4	97.9	0.0	121.2
1982	33.4	60.1	0.0	93.5
1983	46.9	157.3	0.0	204.2
1984	31.4	75.7	0.1	107.2
1985	32.5	168.9	0.0	201.4
1986	33.9	295.6	0.0	329.5
1987	25.1	582.6	0.0	607.7
1988	18.9	333.9	0.0	352.8
1989	22.9	210.3	0.0	233.2
1990	18.7	299.4	0.0	318.1
1991	21.7	261.4	0.0	283.0
1992	19.2	223.3	0.0	242.4
1993	23.7	136.7	0.0	160.3
1994	9.1	89.6	0.0	98.7
1995	8.5	215.1	0.0	223.6
1996	6.3	71.9	0.0	78.2
1997	9.3	49.2	0.0	58.5
1998	11.9	48.9	0.0	60.8
1999	11.6	52.3	0.0	63.9
2000	10.5	43.4	0.0	53.9
2001	10.6	50.2	0.0	60.8
2002	11.3	52.0	0.0	63.3
2003	7.8	68.6	0.0	76.4
2004	10.2	61.7	0.0	71.8
2005	11.4	45.7	0.0	57.1
2006	9.2	98.2	0.0	107.4
2007	9.1	27.5	0.0	36.6
2008	2.9	31.6	0.0	34.5
2009	1.7	38.9	0.0	40.6

Table 54. Catch [mt] by year and data source for grenadier (family Macrouridae). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CALCOM	PFOR	COMDIS	Total
1972	29.0	0.0	174.2	203.3
1973	32.1	0.0	192.9	225.0
1974	32.7	0.0	196.0	228.6
1975	44.8	0.0	268.7	313.4
1976	41.8	0.0	250.5	292.3
1977	46.4	0.0	278.5	324.9
1978	32.3	0.0	193.9	226.3
1979	36.2	0.0	217.2	253.4
1980	46.2	0.0	277.2	323.4
1981	32.9	0.0	197.1	230.0
1982	44.6	0.0	267.8	312.4
1983	76.8	0.0	461.0	537.8
1984	37.5	0.0	224.9	262.4
1985	60.8	0.0	364.5	425.3
1986	61.8	0.0	371.1	432.9
1987	57.7	0.2	347.2	405.0
1988	119.2	21.3	842.7	983.1
1989	45.6	51.2	566.8	663.7
1990	80.3	87.0	953.5	1120.8
1991	70.9	115.2	1033.0	1219.1
1992	142.4	140.8	1529.6	1812.8
1993	383.2	370.6	3957.7	4711.5
1994	529.4	397.1	4725.6	5652.1
1995	477.3	476.4	4720.5	5674.1
1996	1138.5	425.0	7504.7	9068.1
1997	640.2	301.8	4380.3	5322.3
1998	503.3	278.5	3518.3	4300.1
1999	313.4	124.0	1902.4	2339.7
2000	221.0	93.4	1320.4	1634.8
2001	213.3	93.9	1244.1	1551.2
2002	189.0	86.5	1074.4	1349.9
2003	165.2	148.0	1174.7	1487.9
2004	138.7	41.0	646.8	826.5
2005	133.5	28.1	557.4	719.0
2006	80.8	43.6	410.7	535.2
2007	105.4	24.8	410.1	540.2
2008	91.9	32.8	374.1	498.7
2009	75.2	44.1	358.0	477.3

Table 55. Catch [mt] by year and data source for kelp greenling (*Hexagrammos decagrammus*) in California waters. Catch prior to 2005 is as reported by Cope and MacCall (2005). See Table 1 for source codes and see text for source descriptions. Values rounded to the nearest 0.1 mt.

Year	CM2005	Year	CALCOM	CM2005	RECCA	Total
1916	0.0	1963		68.5		68.5
1917	1.2	1964		68.6		68.6
1918	2.4	1965		75.5		75.5
1919	3.6	1966		74.8		74.8
1920	5.1	1967		76.5		76.5
1921	6.0	1968		80.0		80.0
1922	7.3	1969		81.9		81.9
1923	8.4	1970		87.0		87.0
1924	9.6	1971		88.7		88.7
1925	10.8	1972		95.5		95.5
1926	12.0	1973		92.7		92.7
1927	13.2	1974		94.4		94.4
1928	14.4	1975		95.4		95.4
1929	15.7	1976		99.1		99.1
1930	17.0	1977		100.4		100.4
1931	18.4	1978		102.3		102.3
1932	19.7	1979		105.8		105.8
1933	21.1	1980		110.9		110.9
1934	22.4	1981		112.2		112.2
1935	23.7	1982		131.1		131.1
1936	25.4	1983		137.6		137.6
1937	27.1	1984		118.9		118.9
1938	29.0	1985		115.6		115.6
1939	30.1	1986		150.2		150.2
1940	31.3	1987		191.1		191.1
1941	32.5	1988		172.4		172.4
1942	31.3	1989		134.9		134.9
1943	31.3	1990		103.2		103.2
1944	31.1	1991		103.7		103.7
1945	31.3	1992		105.3		105.3
1946	32.0	1993		72.3		72.3
1947	40.4	1994		63.7		63.7
1948	41.7	1995		66.4		66.4
1949	43.5	1996		102.3		102.3
1950	46.3	1997		53.1		53.1
1951	48.2	1998		32.9		32.9
1952	49.7	1999		34.5		34.5
1953	48.4	2000		48.8		48.8
1954	50.2	2001		57.8		57.8
1955	54.2	2002		77.9		77.9
1956	56.4	2003		79.7		79.7
1957	57.8	2004		32.2		32.2
1958	60.4	2005	1.8		8.2	9.9
1959	58.5	2006	1.6		8.2	9.9
1960	57.9	2007	1.5		9.7	11.2
1961	57.7	2008	1.4		9.7	11.0
1962	65.8	2009	1.4		14.9	16.3

Table 56. Species compositions derived from total weight of rockfish catch by species reported by Tagart (1985) for the years 1969-1976.

Species	Percent Composition
S. aleutianus	0.1%
S. alutus	21.9%
S. babcocki	0.2%
S. brevispinis	0.8%
S. crameri	1.9%
S. diploproa	0.7%
S. elongatus	0.0%
S. entomelas	0.7%
S. flavidus	45.4%
S. helvomaculatus	0.0%
S. maliger	0.0%
S. melanops	0.6%
S. paucispinis	0.2%
S. pinniger	21.8%
S. proriger	0.1%
S. reedi	0.4%
S. ruberrimus	0.0%
S. zacentrus	0.2%
Sb. alascanus	0.0%
Unidentified	4.7%

Table 57. Washington landings of rockfish (mt) from Pacific Fisherman yearbooks. Alverson (1957) reported the fraction of Washington rockfish catch from U.S. waters in 1953, separately for POP and the "other rockfish" (RF) categories. Prior to 1952 the average fraction for the two categories is applied.

	WA Rockfish Landings				Estimated
	Source: Pacific Fisherman			Assumed fraction of	WA rockfish landings
Year	Rockfish - trawl	POP	Total	catch from U.S. waters	from U.S. waters
1942	469.2		469.2	0.123	57.7
1943	2025.2		2025.2	0.123	249.1
1944	2327.9		2327.9	0.123	286.3
1945	7300.0		7300.0	0.123	897.9
1946	4578.7		4578.7	0.123	563.2
1947	2732.7		2732.7	0.123	336.1
1948	4655.0		4655.0	0.123	572.6
1949	5720.0		5720.0	0.123	703.6
1950	5538.6		5538.6	0.123	681.2
1951	4508.5		4508.5	0.123	554.5
1952	5120.2	768.5	5888.7	(RF=0.149, POP=0.097)	837.5
1953	3165.7	1406.8	4572.5	(RF=0.149, POP=0.097)	608.2
1954	5832.1	2835.0	8667.1	(RF=0.149, POP=0.097)	1144.0
1955	4119.6	1587.0	5706.7	(RF=0.149, POP=0.097)	767.8

Table 58. Comparison of total rockfish trawl landings reported by Tagart (1985) and the PMFC Data Series (Lynde, 1986). Data are for all reporting agencies (ODFW, WDFW, and DFO Canada). Tagart PMFC areas limited to 3A (includes 2D), 3B, 3C-S, and 3C-N. PMFC Data Series areas include 2D, 3A, 3B, and 3C (includes 3C-S and 3C-N). Deviations from 1978 onward are likely due to sorting practices associated with the expansion of the widow rockfish fishery.

Year	PMFC Data Series	Tagart 1985	PMFC / Tagart
1963	6921.4	6922.7	1.00
1964	5618.2	5618.4	1.00
1965	6013.7	6028.8	1.00
1966	5326.1	5302.9	1.00
1967	2838.6	2827.6	1.00
1968	3364.8	3387.4	0.99
1969	3740.3	3739.4	1.00
1970	3699.1	3733.0	0.99
1971	3063.1	3064.9	1.00
1972	2459.8	2464.0	1.00
1973	1839.3	1836.7	1.00
1974	1626.1	1627.1	1.00
1975	2416.3	2416.1	1.00
1976	6141.2	6144.2	1.00
1977	8922.2	8919.6	1.00
1978	13947.1	13042.1	1.07
1979	15237.1	13405.4	1.14
1980	23337.4	21724.4	1.07

Table 59. Rockfish trawl landings (mt) by year, PMFC area and reporting agency (Tagart, 1985).

	3A		3B			3C-N		3C-S		
YEAR	**ODFW**	**WDF**	**DFO**	**ODFW**	**WDF**	**DFO**	**WDF**	**DFO**	**ODFW**	**WDF**
1963	2722.0	48.6	1.4	119.0	975.3	13.5	2051.5	0.1	3.0	988.3
1964	2324.0	78.1	2.5	429.0	980.0	46.1	833.6	6.7	39.0	879.4
1965	1983.0	24.7		37.0	699.9	25.8	1978.9	4.4	91.0	1184.1
1966	1910.0	7.0		25.0	797.1		873.1		116.0	1574.7
1967	1493.0	48.4	0.3	38.0	290.0	18.4	434.5		8.0	497.0
1968	1087.0	8.6	1.6	163.0	1416.3	17.4	114.2	0.3	4.0	575.0
1969	1007.0	18.0	0.1	94.0	1662.6	28.7	214.1		24.0	690.9
1970	812.0	22.4	2.9	70.0	692.3	357.5	727.3	2.0	456.0	590.6
1971	620.0	153.7	11.2	116.0	646.8	295.3	272.9	17.6	244.0	687.4
1972	927.0	232.2		141.0	413.2	113.2	202.1	0.7	7.0	427.6
1973	942.0	50.1		29.0	296.8	47.5	124.1	0.5	13.0	333.7
1974	778.0	187.1		27.0	233.8	70.7	90.3		1.0	239.2
1975	850.0	302.3		23.0	670.0	43.8	166.2			360.8
1976	1665.0	1644.1		5.0	695.6	177.2	693.3	7.8		1256.2
1977	1853.0	2158.1	6.2		1677.4	196.1	278.0	305.2		2445.6
1978	2989.1	5225.5			1924.4	165.8	197.9	0.7		2538.7
1979	3344.0	5441.1			2098.0	205.6	26.6	45.8		2244.3
1980	8194.8	9629.9		6.4	1765.3	443.6	37.1			1647.3

Table 60. Washington rockfish landings (mt) from U.S. waters, 1956-1962, by PMFC area. Estimates are based on PMFC Data Series landings (areas 3A, 3B, and 3C) from all reporting agencies multiplied by catch-weighted fractions of Washington landings by PMFC area (1963-1967).

YEAR	3A	3B	3C	Total
1956	19.3	918.6	469.6	1407.5
1957	38.8	572.5	531.8	1143.1
1958	36.5	814.8	449.1	1300.4
1959	24.2	749.2	709.5	1482.9
1960	31.4	977.3	784.4	1793.1
1961	37.1	1102.4	803.3	1942.9
1962	68.5	1009.7	1534.2	2612.4

Table 61. Estimated ratios of discarded to retained catch in commercial fisheries.

Group	Scientific Name	Common Name, Region	Pikitch et al.	NWFSC Trawl Reports
Rockfish	*Sebastes aleutianus*	Rougheye rockfish	0.001	0.100
Rockfish	*Sebastes atrovirens*	Kelp rockfish		0.130
Rockfish	*Sebastes auriculatus*	Brown rockfish		0.113
Rockfish	*Sebastes aurora*	Aurora rockfish	0.393	0.983
Rockfish	*Sebastes babcocki*	Redbanded rockfish	0.112	0.983
Rockfish	*Sebastes borealis*	Shortraker rockfish		0.100
Rockfish	*Sebastes brevispinis*	Silvergray rockfish	0.019	0.447
Rockfish	*Sebastes carnatus*	Gopher rockfish, South		0.130
Rockfish	*Sebastes caurinus*	Copper rockfish		0.130
Rockfish	*Sebastes chlorostictus*	Greenspotted rockfish	0	0.010
Rockfish	*Sebastes chrysomelas*	Black-and-Yellow rockfish		0.130
Rockfish	*Sebastes constellatus*	Starry rockfish		0.447
Rockfish	*Sebastes ensifer*	Swordspine rockfish		0.447
Rockfish	*Sebastes eos*	Pink rockfish		0.983
Rockfish	*Sebastes flavidus*	Yellowtail rockfish, South	0.063	0.357
Rockfish	*Sebastes gilli*	Bronzespotted rockfish		0
Rockfish	*Sebastes helvomaculatus*	Rosethorn rockfish	2.065	0.447
Rockfish	*Sebastes hopkinsi*	Squarespot rockfish		0.450
Rockfish	*Sebastes levis*	Cowcod, North		0
Rockfish	*Sebastes macdonaldi*	Mexican rockfish		0.450
Rockfish	*Sebastes maliger*	Quillback rockfish		0.130
Rockfish	*Sebastes melanostomus*	Blackgill rockfish, North		0.010
Rockfish	*Sebastes miniatus*	Vermilion rockfish	0.007	0.050
Rockfish	*Sebastes mystinus*	Blue rockfish, South		0.130
Rockfish	*Sebastes mystinus*	Blue rockfish, North		0.130
Rockfish	*Sebastes nebulosus*	China rockfish		0.130
Rockfish	*Sebastes nigrocinctus*	Tiger rockfish		0.013
Rockfish	*Sebastes ovalis*	Speckled rockfish		0.447
Rockfish	*Sebastes paucispinis*	Bocaccio, North	0.004	1.000
Rockfish	*Sebastes proriger*	Redstripe rockfish	1.393	0.447
Rockfish	*Sebastes rastrelliger*	Grass rockfish		0.130
Rockfish	*Sebastes reedi*	Yellowmouth rockfish	0.008	0.983
Rockfish	*Sebastes rosaceus*	Rosy rockfish		0.447
Rockfish	*Sebastes rosenblatti*	Greenblotched rockfish		0.447
Rockfish	*Sebastes rubrivinctus*	Flag rockfish		0.447
Rockfish	*Sebastes rufus*	Bank rockfish	0.065	0.100
Rockfish	*Sebastes saxicola*	Stripetail rockfish		0.447
Rockfish	*Sebastes serranoides*	Olive rockfish		0.130
Rockfish	*Sebastes serriceps*	Treefish		0.130
Rockfish	*Sebastes umbrosus*	Honeycomb rockfish		1.000
Rockfish	*Sebastes zacentrus*	Sharpchin rockfish	2.219	0.983
Flatfish	*Citharichthys sordidus*	Pacific sanddab	3.165	1.156
Flatfish	*Glyptocephalus zachirus*	Rex sole	0.559	0.174
Flatfish	*Lepidopsetta bilineata*	Rock sole	0.379	0.256
Flatfish	*Psettichthys melanostictus*	Sand sole	0.104	0.261
Elasmobranch	*Galeorhinus zyopterus*	Soupfin shark	0.327	0
Elasmobranch	*Squalus acanthias*	Spiny dogfish		0
Elasmobranch	*Triakis semifasciata*	Leopard shark		0
Grenadiers	*Macrouridae*	Grenadier complex	6.000	3.000
Roundfish	*Hexagrammos decagrammus*	Kelp greenling, California		0

Table 62. Summary statistics for OFL distributions in 2011, estimated using DB-SRA. See text for descriptions of regions

				Quantiles				
Group	**Scientific Name**	**Common Name, Region**	**Mean**	**2.5%**	**25%**	**50%**	**75%**	**97.5%**
Rockfish	*Sebastes aleutianus*	Rougheye rockfish	137.4	4.7	30.1	78.7	180.3	587.0
Rockfish	*Sebastes atrovirens*	Kelp rockfish	35.9	5.8	15.2	25.9	43.0	126.8
Rockfish	*Sebastes auriculatus*	Brown rockfish	279.1	45.6	120.1	202.7	339.1	1013.2
Rockfish	*Sebastes aurora*	Aurora rockfish	76.9	3.2	18.6	46.8	102.0	324.5
Rockfish	*Sebastes babcocki*	Redbanded rockfish	97.2	4.4	24.7	63.5	132.5	377.1
Rockfish	*Sebastes borealis*	Shortraker rockfish	39.9	1.2	8.3	22.0	50.0	184.1
Rockfish	*Sebastes brevispinis*	Silvergray rockfish	279.7	11.6	70.6	180.6	375.4	1103.7
Rockfish	*Sebastes caurinus*	Copper rockfish	269.0	12.4	70.5	184.6	373.1	997.1
Rockfish	*Sebastes chlorostictus*	Greenspotted rockfish	299.4	43.1	126.0	216.1	360.9	1095.8
Rockfish	*Sebastes chrysomelas*	Black-and-Yellow rockfish	37.4	5.9	15.2	26.8	45.2	135.6
Rockfish	*Sebastes constellatus*	Starry rockfish	101.9	5.1	27.7	70.5	138.7	372.3
Rockfish	*Sebastes ensifer*	Swordspine rockfish	19.3	0.9	5.1	12.9	26.0	76.1
Rockfish	*Sebastes eos*	Pink rockfish	4.2	0.2	1.1	2.8	5.7	16.1
Rockfish	*Sebastes flavidus*	Yellowtail rockfish, South	1777.5	85.0	489.5	1248.9	2406.1	6440.0
Rockfish	*Sebastes gilli*	Bronzespotted rockfish	16.2	0.2	2.1	6.7	18.5	89.7
Rockfish	*Sebastes helvomaculatus*	Rosethorn rockfish	27.5	1.2	6.9	17.7	37.2	108.7
Rockfish	*Sebastes levis*	Cowcod, North	16.8	0.3	2.4	6.8	18.9	92.2
Rockfish	*Sebastes maliger*	Quillback rockfish	23.8	1.0	5.9	15.0	31.6	96.6
Rockfish	*Sebastes miniatus*	Vermilion rockfish	483.1	20.6	126.1	319.5	652.6	1898.2
Rockfish	*Sebastes nebulosus*	China rockfish	47.8	2.0	12.2	31.5	64.4	193.1
Rockfish	*Sebastes nigrocinctus*	Tiger rockfish	1.8	0.1	0.4	1.1	2.5	7.4
Rockfish	*Sebastes ovalis*	Speckled rockfish	61.2	2.9	16.4	43.1	85.1	222.7
Rockfish	*Sebastes paucispinis*	Bocaccio, North	406.5	17.1	106.2	268.2	547.1	1586.9
Rockfish	*Sebastes proriger*	Redstripe rockfish	438.1	19.4	115.0	288.9	596.1	1681.6
Rockfish	*Sebastes rastrelliger*	Grass rockfish	76.1	12.2	33.2	56.2	93.4	267.7
Rockfish	*Sebastes reedi*	Yellowmouth rockfish	264.1	33.7	104.4	185.5	324.0	985.8
Rockfish	*Sebastes rosaceus*	Rosy rockfish	56.5	9.1	24.0	39.5	65.2	206.7
Rockfish	*Sebastes rosenblatti*	Greenblotched rockfish	39.6	1.7	10.0	25.9	51.3	143.9
Rockfish	*Sebastes rubrivinctus*	Flag rockfish	37.6	1.8	10.1	26.7	52.2	137.8
Rockfish	*Sebastes rufus*	Bank rockfish	918.9	39.7	227.4	594.5	1190.5	3641.2
Rockfish	*Sebastes saxicola*	Stripetail rockfish	76.4	12.2	33.5	55.9	91.6	280.0
Rockfish	*Sebastes serranoides*	Olive rockfish	271.9	40.2	110.7	189.8	318.0	973.6
Rockfish	*Sebastes serriceps*	Treefish	18.3	2.9	7.8	13.2	22.3	65.2
Rockfish	*Sebastes zacentrus*	Sharpchin rockfish	371.6	16.8	98.3	242.5	499.6	1437.3
Flatfish	*Citharichthys sordidus*	Pacific sanddab	6178.0	1087.6	2875.7	4942.5	8105.2	18139.9
Flatfish	*Glyptocephalus zachirus*	Rex sole	5419.2	972.3	2477.2	4308.6	7132.5	16241.8
Flatfish	*Lepidopsetta bilineata*	Rock sole	85.0	13.8	37.7	66.0	110.2	267.0
Flatfish	*Psettichthys melanostictus*	Sand sole	950.1	170.1	449.2	780.8	1243.6	2774.2
Elasmobranch	*Squalus acanthias*	Spiny dogfish	3384.4	137.0	854.3	2200.2	4588.5	13473.9
Elasmobranch	*Triakis semifasciata*	Leopard shark	241.5	11.6	64.0	164.0	328.2	936.5
Grenadiers	*Macrouridae*	Grenadier complex	3291.6	107.7	707.0	1828.0	4082.0	14718.2
Roundfish	*Hexagrammos decagrammus*	Kelp greenling, California	149.3	25.3	65.0	110.6	181.5	532.9

Table 63. Recent average annual catches (2008-2009) and median OFLs for 2010 from DB-SRA. Sorted in descending order of the probability that recent catch levels would exceed the OFL in 2010.

Species	Average Catch, 2008-2009	Median OFL in 2010	Probability Recent Catch Exceeds the 2010 OFL
Rougheye rockfish	127.6	80.7	0.64
Quillback rockfish	15.9	14.8	0.52
China rockfish	33.4	31.2	0.52
Tiger rockfish	1.1	1.1	0.49
Shortraker rockfish	18.0	22.1	0.44
Black-and-Yellow rockfish	22.2	26.9	0.40
Aurora rockfish	28.7	46.9	0.36
Vermilion rockfish	136.2	314.3	0.28
Treefish	7.7	12.8	0.25
Copper rockfish	65.0	179.0	0.24
Spiny dogfish	839.2	2221.6	0.24
Starry rockfish	23.6	67.6	0.22
Redbanded rockfish	22.1	63.7	0.22
Grenadier complex	488.0	1796.2	0.18
Grass rockfish	24.1	52.3	0.15
Leopard shark	37.6	154.1	0.15
Brown rockfish	80.9	194.0	0.13
Flag rockfish	5.3	24.5	0.12
Bank rockfish	94.3	585.0	0.09
Speckled rockfish	5.1	40.2	0.07
Kelp rockfish	5.5	24.1	0.03
Olive rockfish	34.6	183.5	0.01
Rosy rockfish	6.0	37.5	0.01
Rex sole	595.1	4283.0	0.01
Cowcod, North	0.1	6.3	0.01
Kelp greenling, California	13.7	101.3	0.00
Yellowtail rockfish, South	36.1	1200.5	0.00
Rock sole	5.3	62.8	0.00
Greenblotched rockfish	0.7	26.0	0.00
Greenspotted rockfish	11.2	205.5	0.00
Pacific sanddab	408.9	4509.2	0.00
Pink rockfish	0.0	2.7	0.00
Redstripe rockfish	0.4	277.5	0.00
Rosethorn rockfish	0.2	16.8	0.00
Sharpchin rockfish	1.8	235.0	0.00
Silvergray rockfish	0.9	175.7	0.00
Sand sole	41.0	706.4	0.00
Stripetail rockfish	0.1	53.6	0.00
Swordspine rockfish	0.0	12.6	0.00
Yellowmouth rockfish	3.6	179.7	0.00
Bocaccio, North	2.7	255.3	0.00
Bronzespotted rockfish	0.0	6.8	0.00

Table 64. Percentage of retained runs for DB-SRA. Runs were rejected for having negative biomass estimates, missing the target stock status, or exceeding reasonable boundaries for unfished biomass.

Group	Scientific Name	Common Name, Region	Percentage of Runs Retained
Rockfish	*Sebastes aleutianus*	Rougheye rockfish	100%
Rockfish	*Sebastes atrovirens*	Kelp rockfish	75.4%
Rockfish	*Sebastes auriculatus*	Brown rockfish	85.5%
Rockfish	*Sebastes aurora*	Aurora rockfish	99.8%
Rockfish	*Sebastes babcocki*	Redbanded rockfish	98.8%
Rockfish	*Sebastes borealis*	Shortraker rockfish	100%
Rockfish	*Sebastes brevispinis*	Silvergray rockfish	90.7%
Rockfish	*Sebastes caurinus*	Copper rockfish	84.4%
Rockfish	*Sebastes chlorostictus*	Greenspotted rockfish	79.6%
Rockfish	*Sebastes chrysomelas*	Black-and-Yellow rockfish	99.2%
Rockfish	*Sebastes constellatus*	Starry rockfish	81.4%
Rockfish	*Sebastes ensifer*	Swordspine rockfish	20.4%
Rockfish	*Sebastes eos*	Pink rockfish	77.9%
Rockfish	*Sebastes flavidus*	Yellowtail rockfish, South	90.4%
Rockfish	*Sebastes gilli*	Bronzespotted rockfish	8.6%
Rockfish	*Sebastes helvomaculatus*	Rosethorn rockfish	96.7%
Rockfish	*Sebastes levis*	Cowcod, North	10.8%
Rockfish	*Sebastes maliger*	Quillback rockfish	100%
Rockfish	*Sebastes miniatus*	Vermilion rockfish	99.2%
Rockfish	*Sebastes nebulosus*	China rockfish	100%
Rockfish	*Sebastes nigrocinctus*	Tiger rockfish	99.9%
Rockfish	*Sebastes ovalis*	Speckled rockfish	69.1%
Rockfish	*Sebastes paucispinis*	Bocaccio, North	20.6%
Rockfish	*Sebastes proriger*	Redstripe rockfish	79.3%
Rockfish	*Sebastes rastrelliger*	Grass rockfish	76.1%
Rockfish	*Sebastes reedi*	Yellowmouth rockfish	95.2%
Rockfish	*Sebastes rosaceus*	Rosy rockfish	48.9%
Rockfish	*Sebastes rosenblatti*	Greenblotched rockfish	72.3%
Rockfish	*Sebastes rubrivinctus*	Flag rockfish	74.4%
Rockfish	*Sebastes rufus*	Bank rockfish	88.4%
Rockfish	*Sebastes saxicola*	Stripetail rockfish	64.0%
Rockfish	*Sebastes serranoides*	Olive rockfish	54.3%
Rockfish	*Sebastes serriceps*	Treefish	98.9%
Rockfish	*Sebastes zacentrus*	Sharpchin rockfish	85.1%
Flatfish	*Citharichthys sordidus*	Pacific sanddab	88.6%
Flatfish	*Glyptocephalus zachirus*	Rex sole	75.5%
Flatfish	*Lepidopsetta bilineata*	Rock sole	92.8%
Flatfish	*Psettichthys melanostictus*	Sand sole	42.3%
Elasmobranch	*Squalus acanthias*	Spiny dogfish	85.2%
Elasmobranch	*Triakis semifasciata*	Leopard shark	54.7%
Grenadiers	*Macrouridae*	Grenadier complex	100%
Roundfish	*Hexagrammos decagrammus*	Kelp greenling, California	69.6%

Table 65. Apportionment of projected 2011 OFLs for minor rockfish north and south of 40° 10′ N. latitude based on cumulative catch data, 1983-1989 and 1993-1999, all sources combined. Sorted by percentage of catch in northern management area (descending order). Recreational catch data were not collected during the period 1990-1992 due to inadequate funding.

		Median	Catch (mt)		Catch (%)		OFL (mt)	
Scientific Name	**Common Name**	**OFL (mt)**	**North**	**South**	**North**	**South**	**North**	**South**
Sebastes proriger	Redstripe rockfish	288.9	4146.1	7.6	99.8%	0.2%	288.3	0.5
Sebastes brevispinis	Silvergray rockfish	180.6	4587.9	15.5	99.7%	0.3%	180.0	0.6
Sebastes reedi	Yellowmouth rockfish	185.5	4239.0	18.7	99.6%	0.4%	184.7	0.8
Sebastes borealis	Shortraker rockfish	22.0	1216.3	6.8	99.4%	0.6%	21.8	0.1
Sebastes aleutianus	Rougheye rockfish	78.7	2621.6	15.2	99.4%	0.6%	78.3	0.5
Sebastes nigrocinctus	Tiger rockfish	1.1	29.4	1.2	96.0%	4.0%	1.1	0.0
Sebastes zacentrus	Sharpchin rockfish	242.5	3770.0	173.0	95.6%	4.4%	231.9	10.6
Sebastes helvomaculatus	Rosethorn rockfish	17.7	277.3	45.8	85.8%	14.2%	15.2	2.5
Sebastes babcocki	Redbanded rockfish	63.5	1114.7	256.3	81.3%	18.7%	51.7	11.9
Sebastes saxicola	Stripetail rockfish	55.9	325.3	190.3	63.1%	36.9%	35.3	20.6
Sebastes maliger	Quillback rockfish	15.0	146.4	106.9	57.8%	42.2%	8.7	6.3
Sebastes nebulosus	China rockfish	31.5	174.0	293.8	37.2%	62.8%	11.7	19.8
Sebastes aurora	Aurora rockfish	46.8	397.7	674.6	37.1%	62.9%	17.3	29.4
Sebastes caurinus	Copper rockfish	184.6	190.2	1036.8	15.5%	84.5%	28.6	156.0
Sebastes chlorostictus	Greenspotted rockfish	216.1	295.9	2770.2	9.7%	90.3%	20.9	195.3
Sebastes rosaceus	Rosy rockfish	39.5	11.8	173.8	6.4%	93.6%	2.5	36.9
Sebastes rosenblatti	Greenblotched rockfish	25.9	12.1	218.5	5.2%	94.8%	1.4	24.6
Sebastes miniatus	Vermilion rockfish	319.5	204.8	5675.5	3.5%	96.5%	11.1	308.4
Sebastes rufus	Bank rockfish	594.5	437.9	12783.5	3.3%	96.7%	19.7	574.8
Sebastes auriculatus	Brown rockfish	202.7	60.4	2233.9	2.6%	97.4%	5.3	197.4
Sebastes serriceps	Treefish	13.2	3.1	189.0	1.6%	98.4%	0.2	12.9
Sebastes rastrelliger	Grass rockfish	56.2	6.6	600.3	1.1%	98.9%	0.6	55.6
Sebastes ovalis	Speckled rockfish	43.1	2.3	539.1	0.4%	99.6%	0.2	42.9
Sebastes rubrivinctus	Flag rockfish	26.7	0.6	178.9	0.3%	99.7%	0.1	26.6
Sebastes eos	Pink rockfish	2.8	0.0	34.3	0.1%	99.9%	0.0	2.8
Sebastes serranoides	Olive rockfish	189.8	2.2	1538.4	0.1%	99.9%	0.3	189.5
Sebastes chrysomelas	Black-and-Yellow rockfish	26.8	0.2	350.9	0%	100%	0.0	26.8
Sebastes atrovirens	Kelp rockfish	25.9	0.1	171.9	0%	100%	0.0	25.9
Sebastes constellatus	Starry rockfish	70.5	0.0	669.2	0%	100%	0.0	70.5
Sebastes ensifer	Swordspine rockfish	12.9	0.0	127.3	0%	100%	0.0	12.9
Sebastes gilli	Bronzespotted rockfish	6.7	0.0	264.2	0%	100%	0.0	6.7

Table 66. Summary statistics for DCAC distributions. See text for descriptions of regions and time periods of catch (start and end years).

Group	Scientific Name	Common Name, Region	Start Year	End Year	Mean	Quantiles 2.5%	25%	50%	75%	97.5%
Rockfish	*Sebastes carnatus*	Gopher rockfish, South	1951	1999	25.5	18.2	23.8	26.0	27.7	29.8
Rockfish	*Sebastes hopkinsi*	Squarespot rockfish	1947	1999	5.7	4.4	5.5	5.9	6.1	6.5
Rockfish	*Sebastes macdonaldi*	Mexican rockfish	1937	1999	2.8	2.1	2.6	2.8	3.0	3.1
Rockfish	*Sebastes melanostomus*	Blackgill rockfish, North	1943	1999	4.7	2.1	3.7	4.7	5.6	7.2
Rockfish	*Sebastes mystinus*	Blue rockfish, South	1953	1999	72.6	42.5	63.6	74.0	82.9	95.2
Rockfish	*Sebastes mystinus*	Blue rockfish, North	1980	1999	33.1	14.4	25.8	33.1	40.3	52.3
Rockfish	*Sebastes umbrosus*	Honeycomb rockfish	1947	1999	7.6	5.3	7.0	7.8	8.4	9.2
Elasmobranch	*Galeorhinus zyopterus*	Soupfin shark	1969	1999	61.9	32.8	52.5	62.4	72.3	86.0

Table 67. Qualitative target control rules from Restrepo et al. (1998, page 36).

Status	Control Rule
Above B_{MSY}	Target catch = 0.75*(Recent catch)
Above MSST but below B_{MSY}	Target catch = 0.50*(Recent catch)
Below MSST (i.e., overfished)	Target catch = 0.25*(Recent catch)

Figures

Figure 1. Comparison of latent production curves (upper) and production-to-biomass ratios (lower) for alternative production functions. Peak productivity occurs at 0.3K, and the hybrid model places the Schaefer join-point at 0.15K.

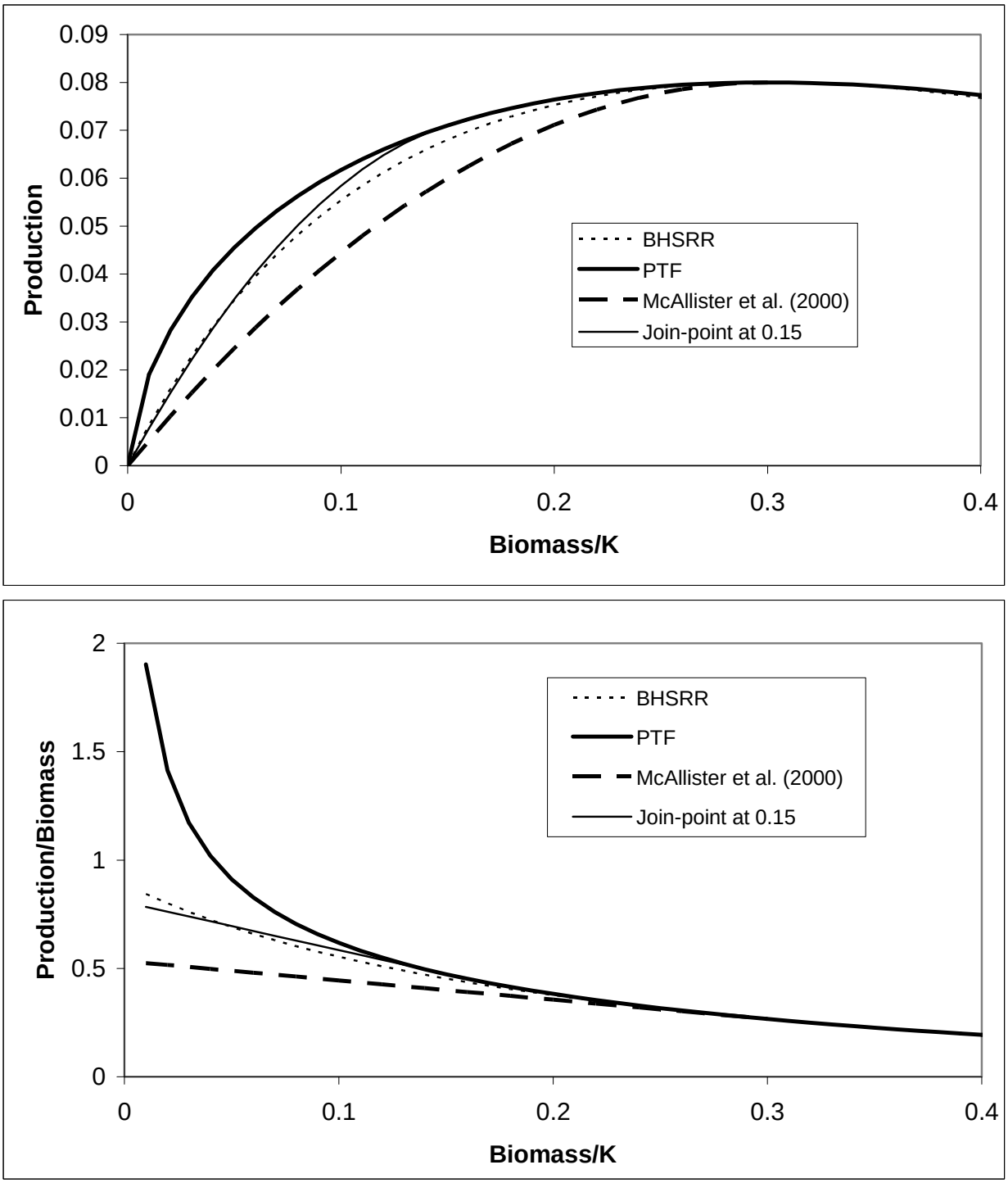


Figure 2. Illustration of a single iteration of DB-SRA, shown for an arbitrary rescaling of biomass. The slope of the diagonal line is determined by the current value of F_{MSY} (the product of M and F_{MSY}/M). The relative biomass that generates maximum sustainable yield (B_{MSY}/K) is drawn from its distribution (value shown = 0.4). Stock status relative to unfished biomass is determined by a draw from the distribution of relative biomass depletion (Δ, value shown = 0.5). For each set of draws from the input distributions, the catch time series determines the unique value of unfished biomass (K) that satisfies the current estimate of stock status.

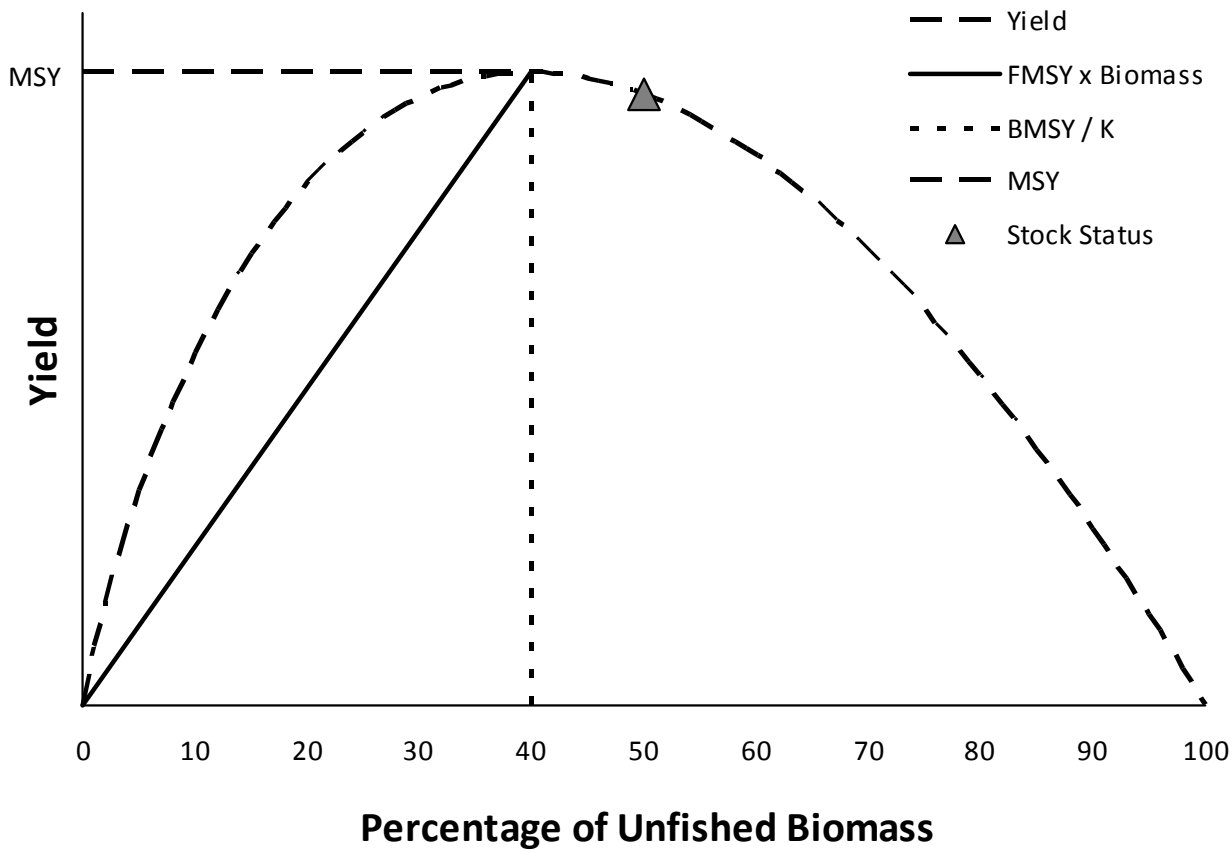


Figure 3. Rank of recent catches (2000-2009) versus rank of historical catches for 41 unassessed rockfish stocks, grouped by PFMC subcomplex. See Table 4 for historical periods by species. A lower rank indicates higher relative catch. Solid line is 1:1, dashed lines represent a 10-position change in rank between the historical and recent catch periods.

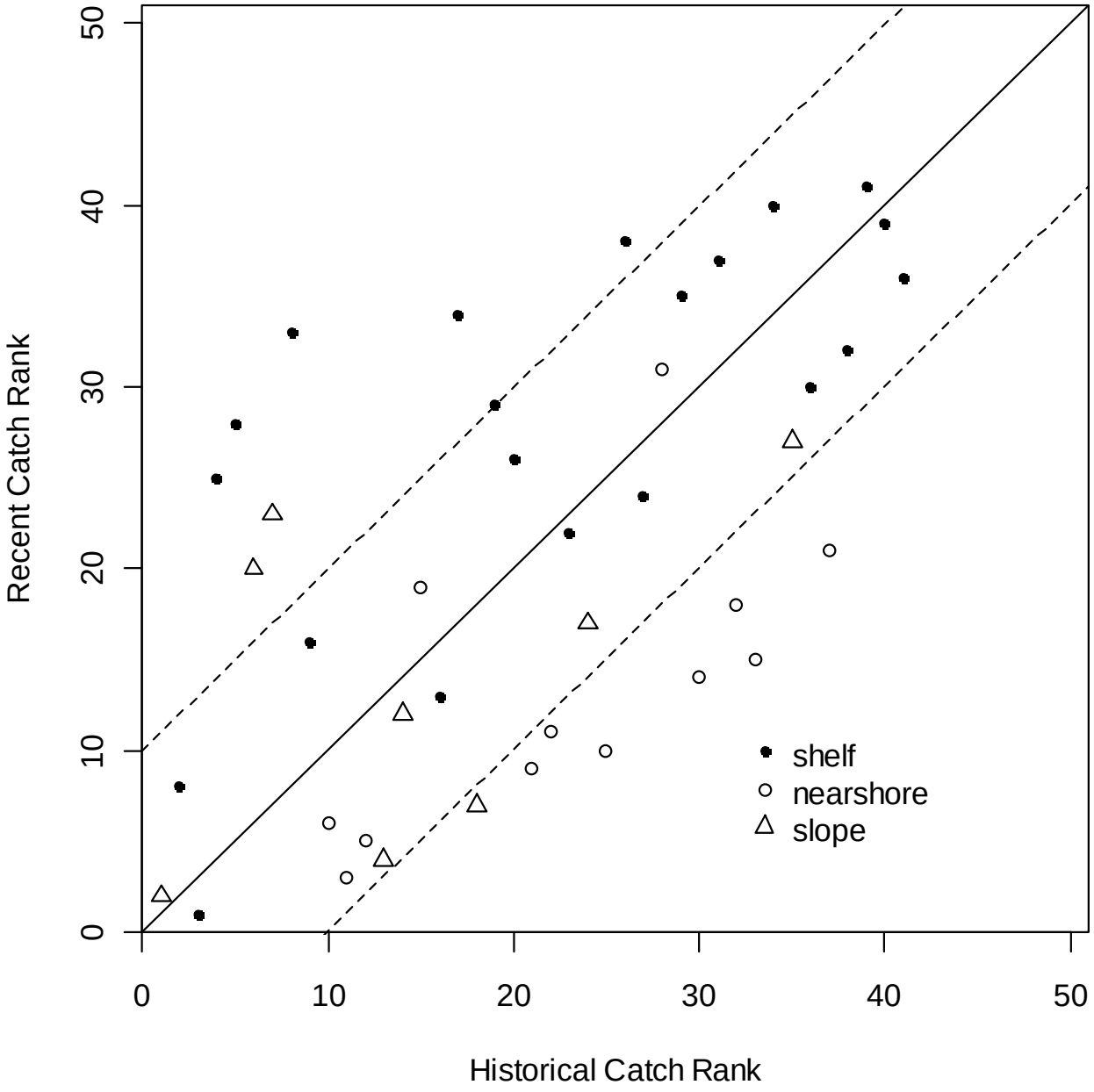


Figure 4. Estimated historical landings of trawl-caught rockfish originating from U.S. waters and landed in Washington, by data source.

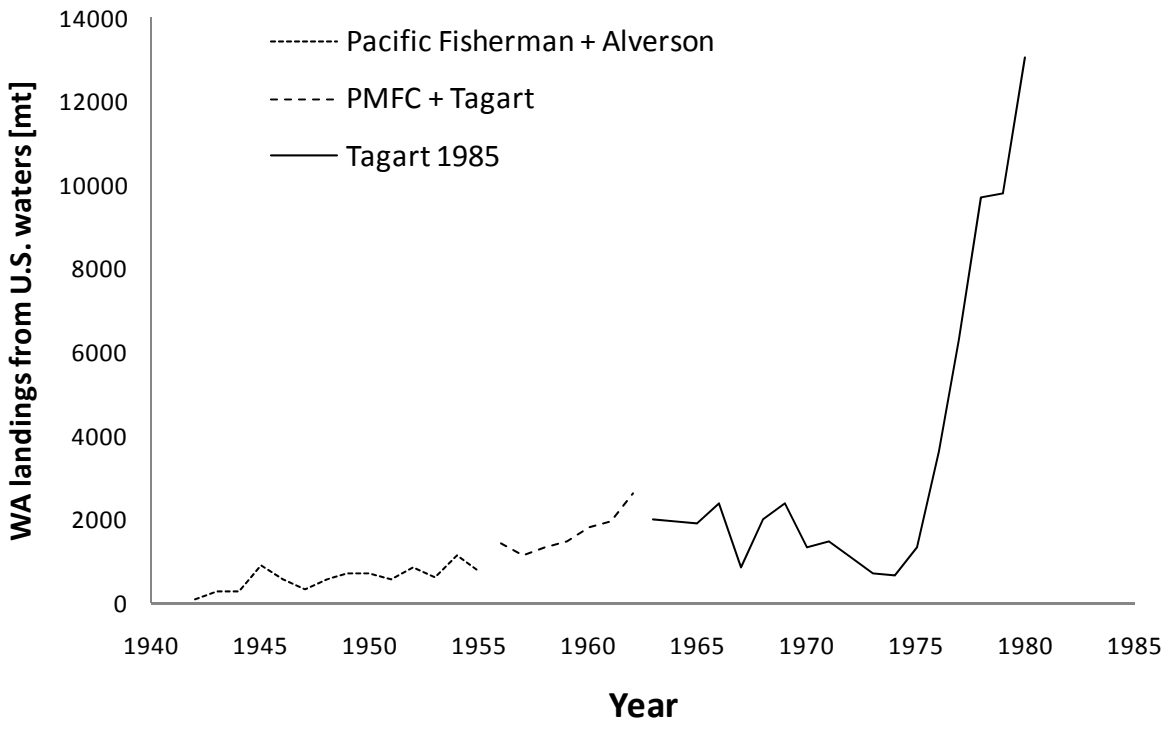


Figure 5. Estimated U.S. and Canadian landings of rock sole originating from PMFC areas 2A-3B (PMFC Data Series).

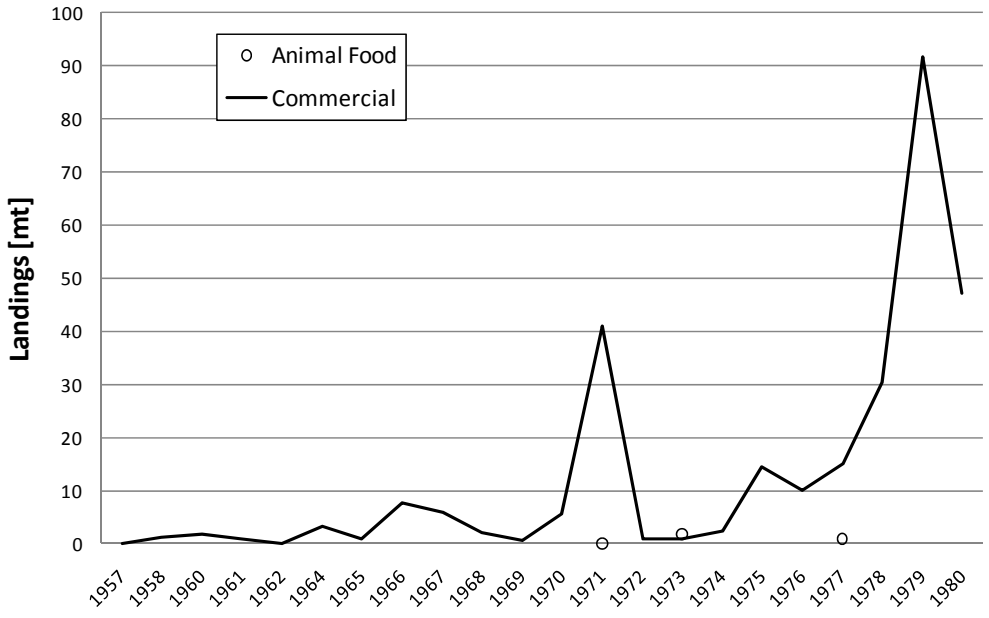


Figure 6. Comparison of rex sole landings (mt) from California Landing Receipts and the PMFC Data Series, areas 1A-1C, from 1956 to 1968.

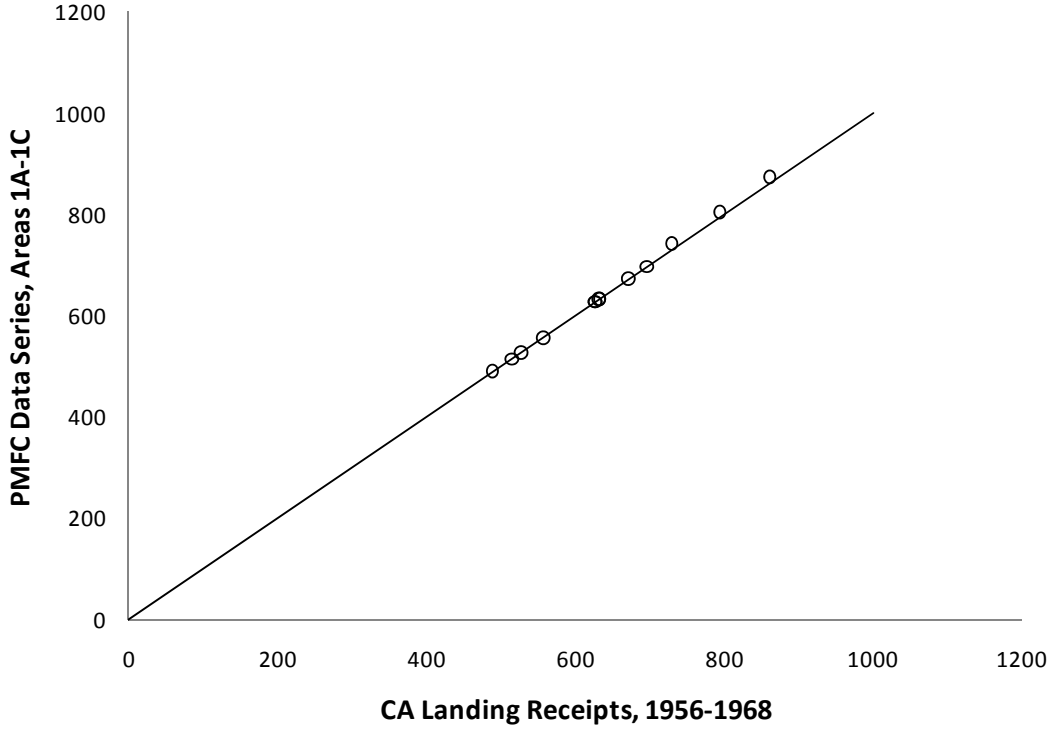


Figure 7. Estimated U.S. and Canadian landings of rex sole originating from PMFC areas 2A-3B, by use category (PMFC Data Series).

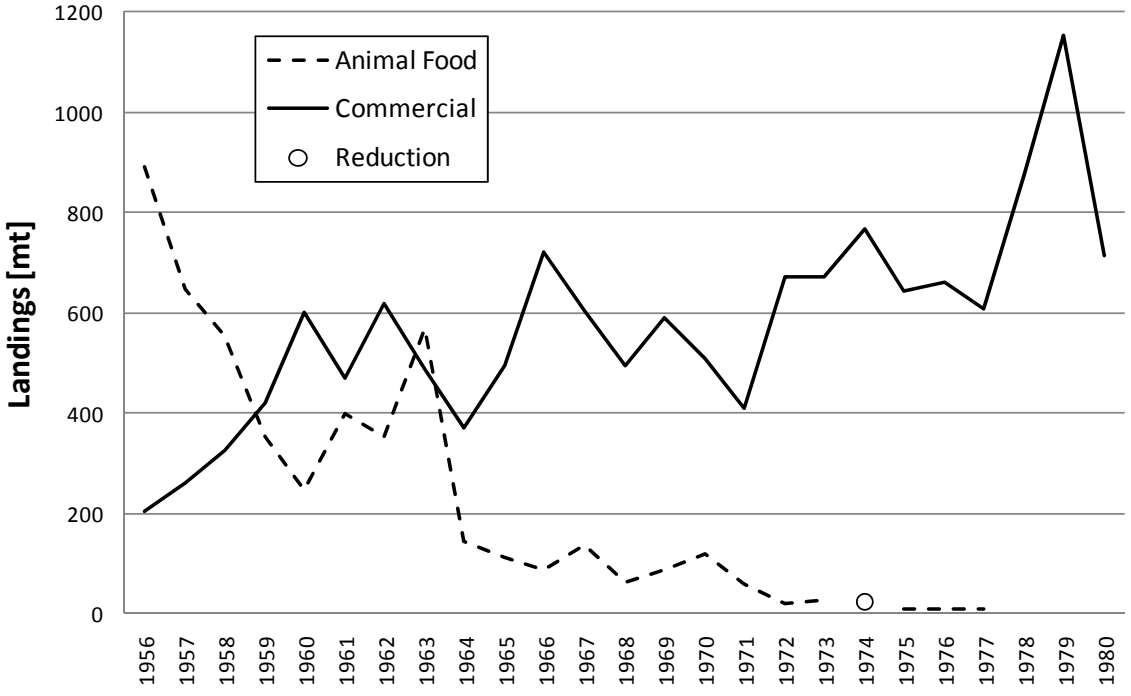


Figure 8. Estimated landings of sand sole in Washington from PMFC areas 3A and 3B (Source: WDFW Data Reports and Progress Reports, 1963-1980).

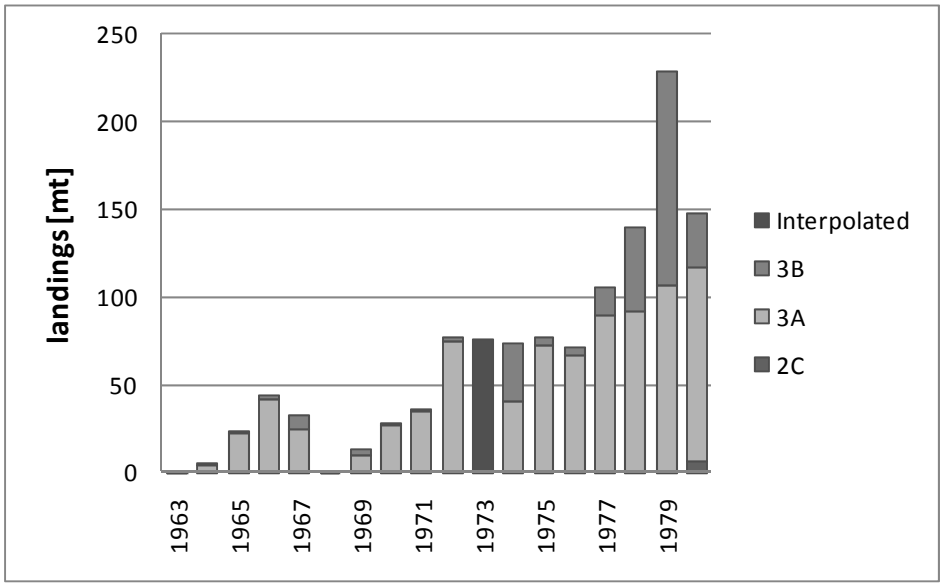


Figure 9. Corrected landings for bocaccio (*S. paucispinis*) north of 40° 10' N. latitude (red line), compared to catch estimates used to generate OFLs in April 2010 (blue line). Corrected landings differ from the April 2010 reconstruction in years prior to 1969. See text for details. The dramatic increase in landings from 1943-45 is consistent with demand for rockfish during the second World War.

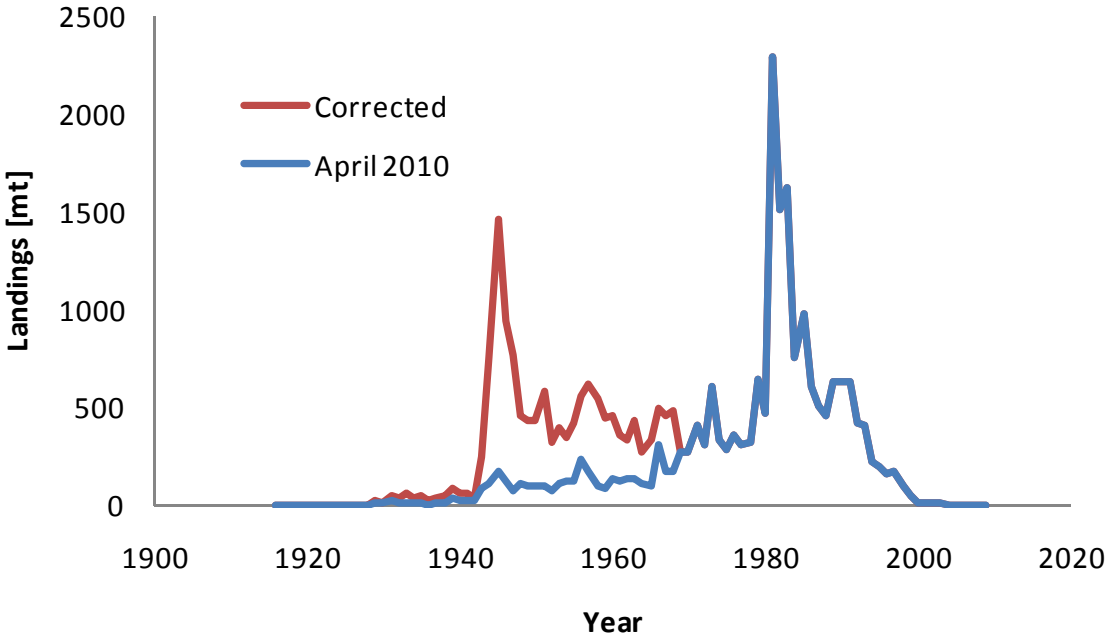


Figure 10. DB-SRA results for rougheye rockfish (*Sebastes aleutianus*). See text for description of figures.

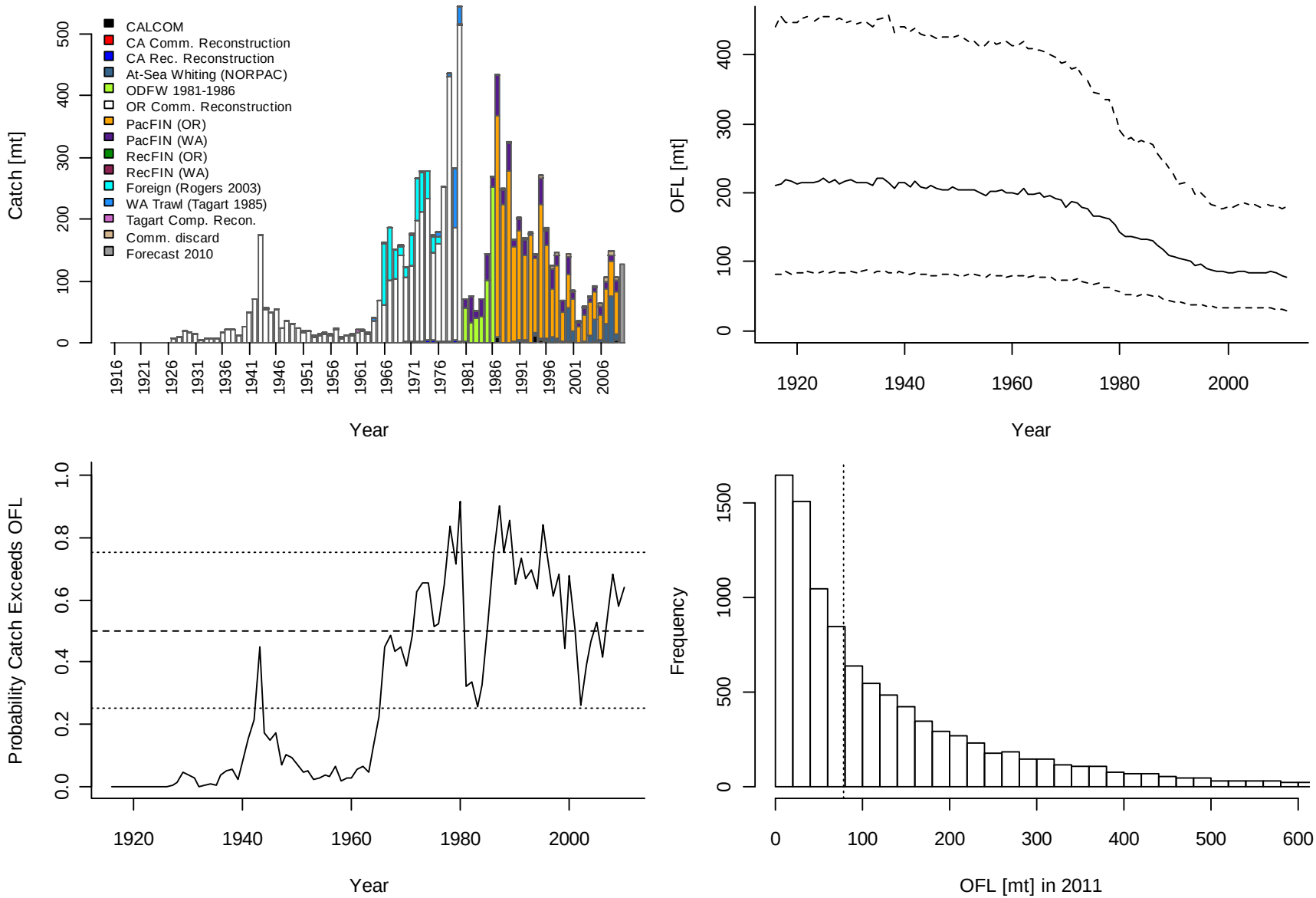


Figure 11. DB-SRA results for kelp rockfish (*Sebastes atrovirens*). See text for description of figures.

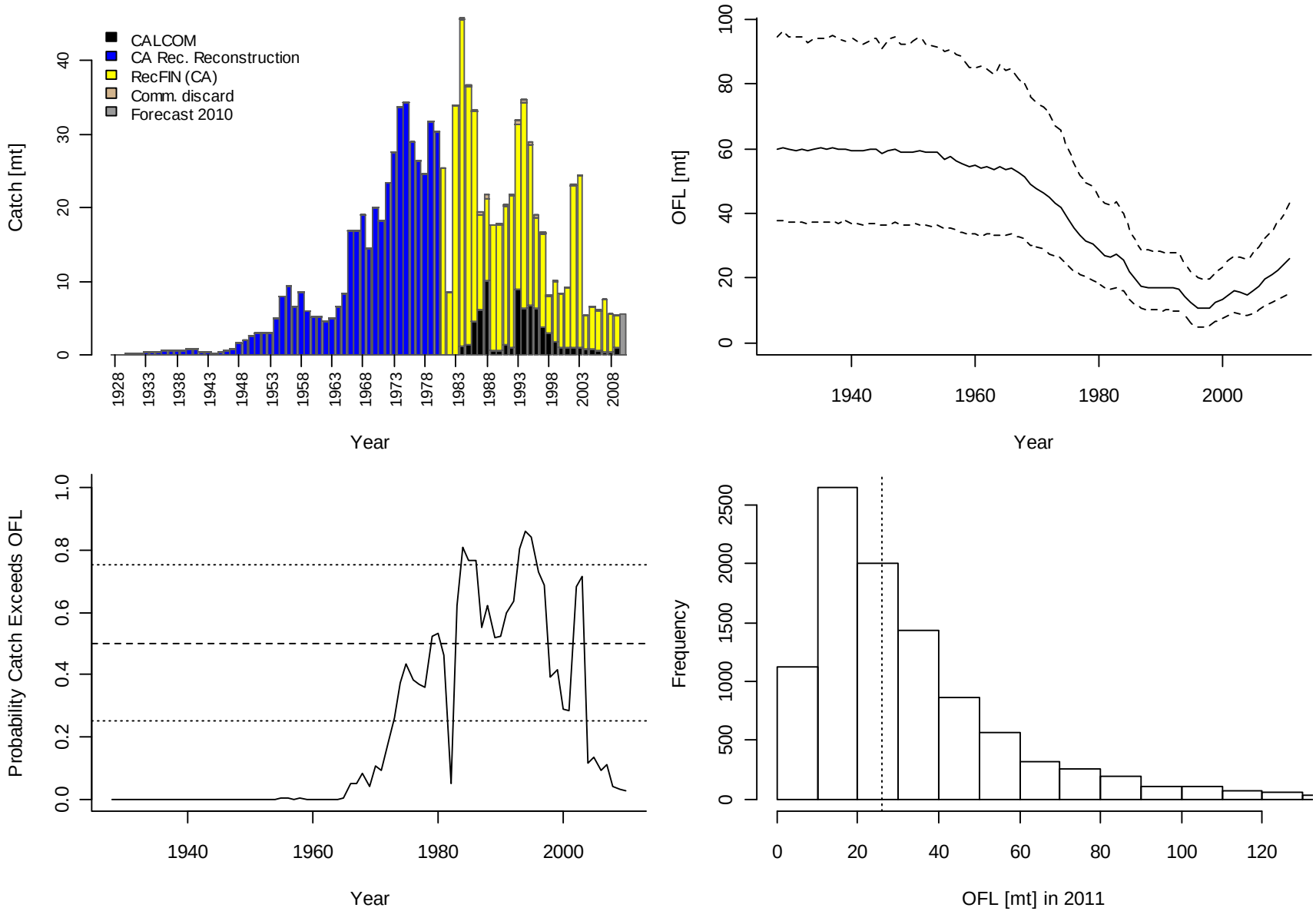


Figure 12. DB-SRA results for brown rockfish (*Sebastes auriculatus*). See text for description of figures.

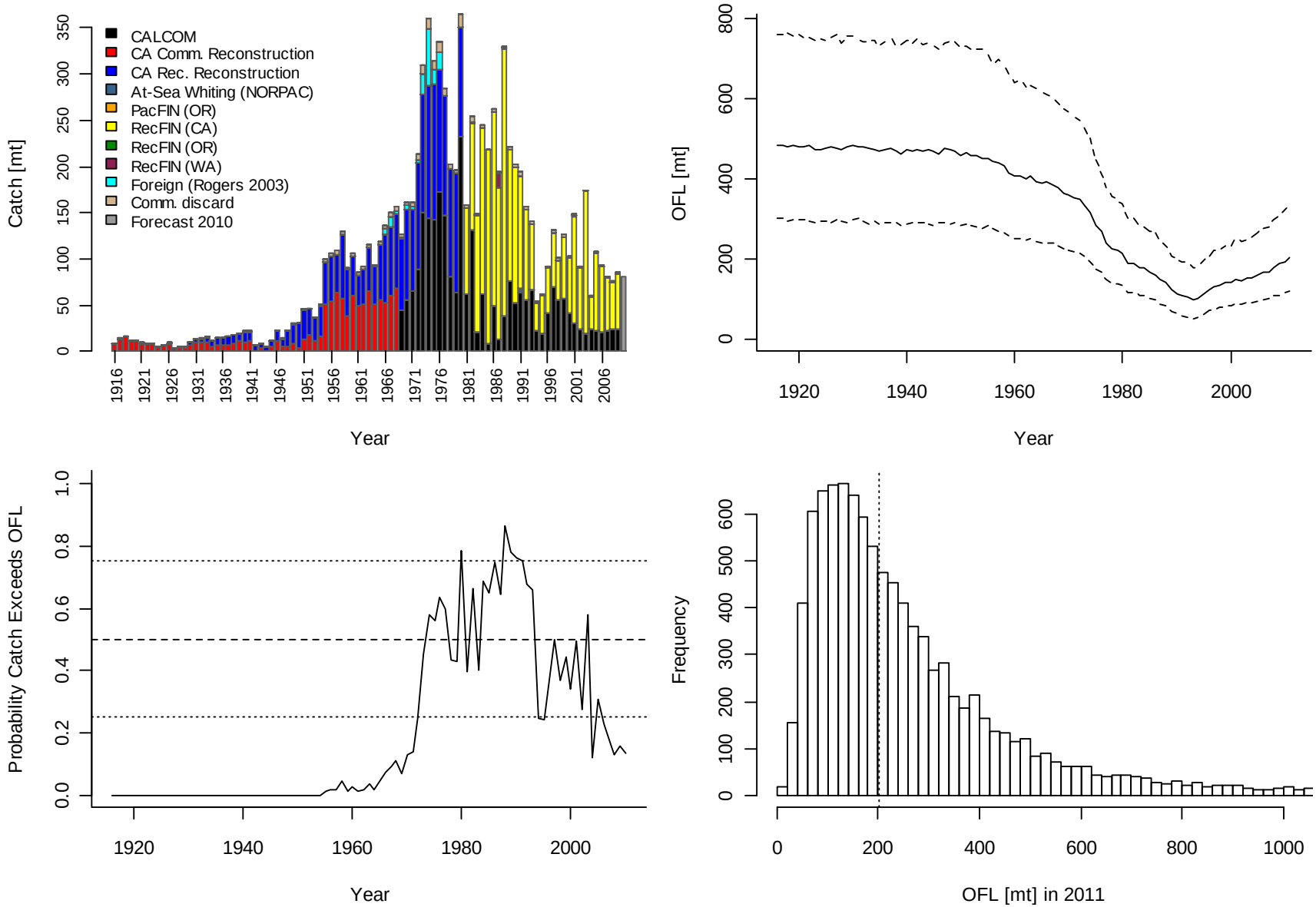


Figure 13. DB-SRA results for aurora rockfish (*Sebastes aurora*). See text for description of figures.

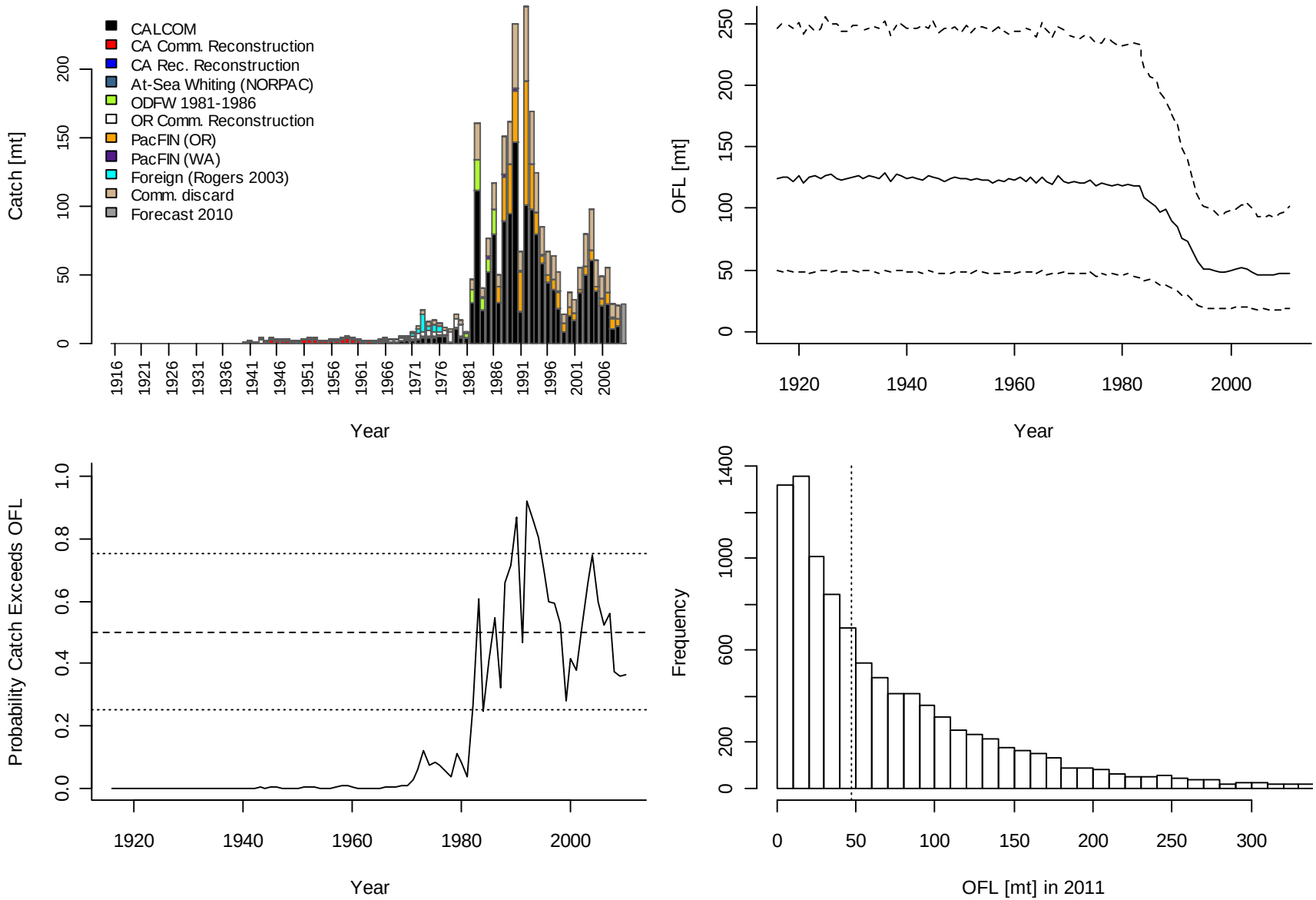


Figure 14. DB-SRA results for redbanded rockfish (*Sebastes babcocki*). See text for description of figures.

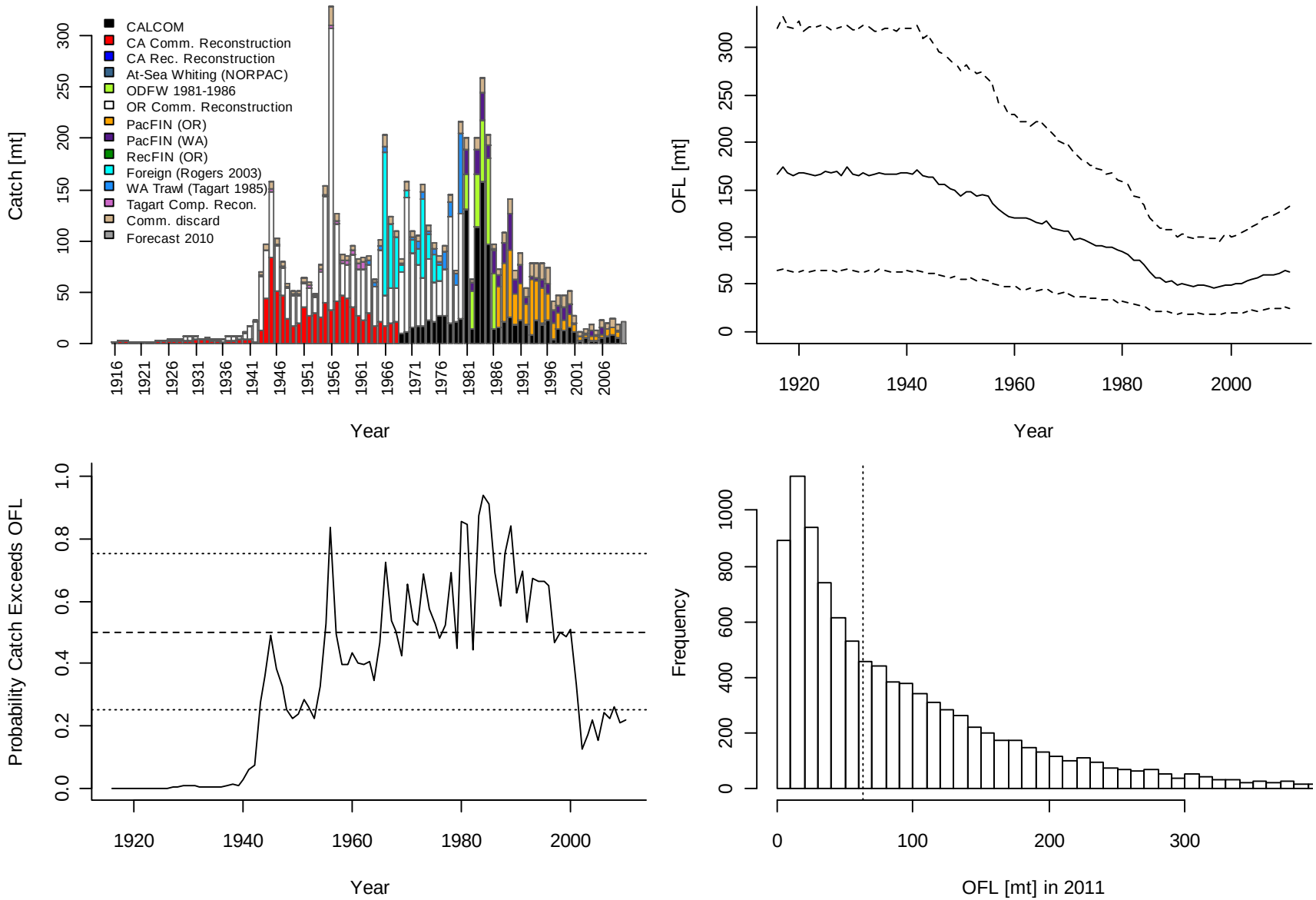


Figure 15. DB-SRA results for shortraker rockfish (*Sebastes borealis*). See text for description of figures.

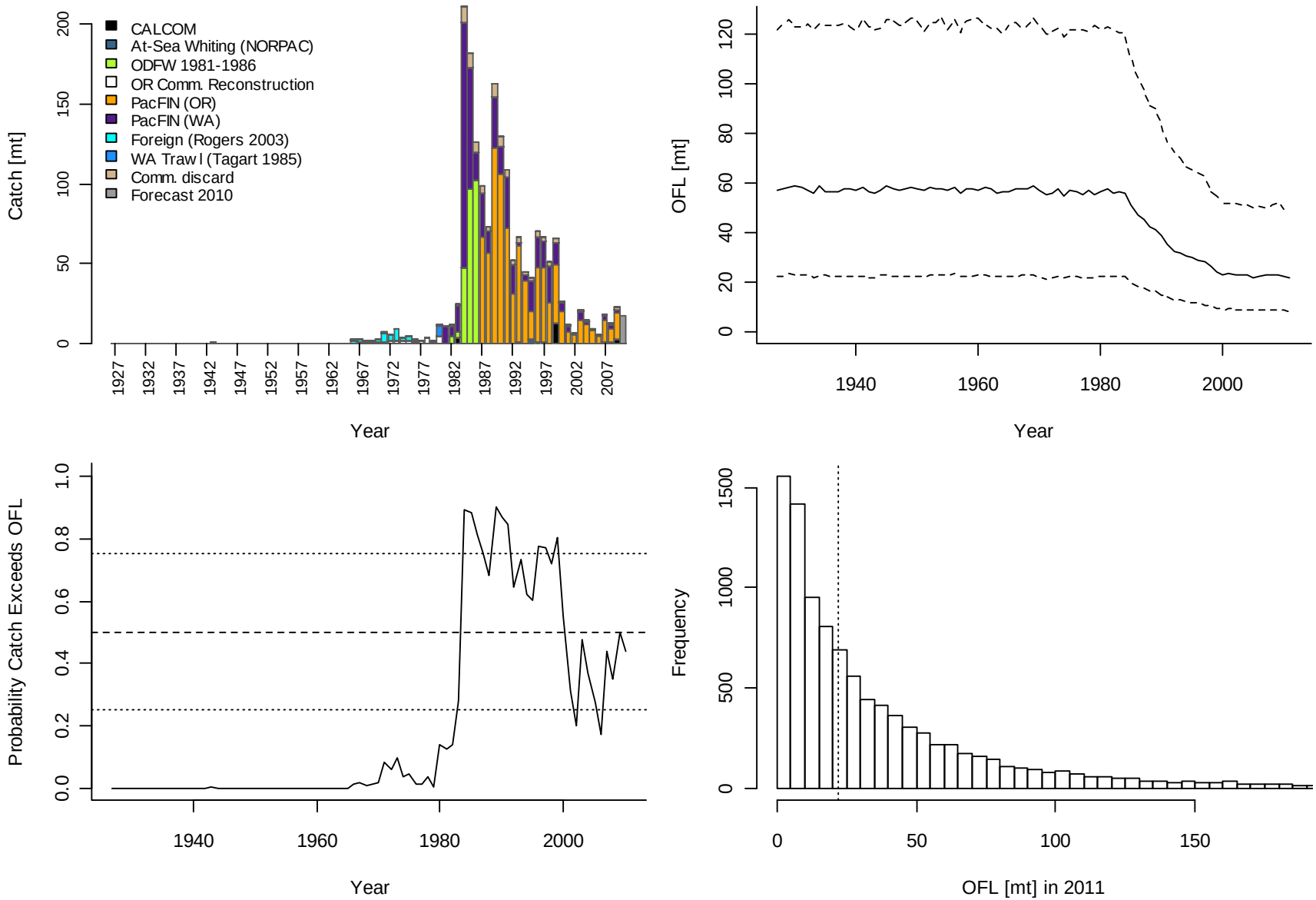


Figure 16. DB-SRA results for silvergray rockfish (*Sebastes brevispinis*). See text for description of figures.

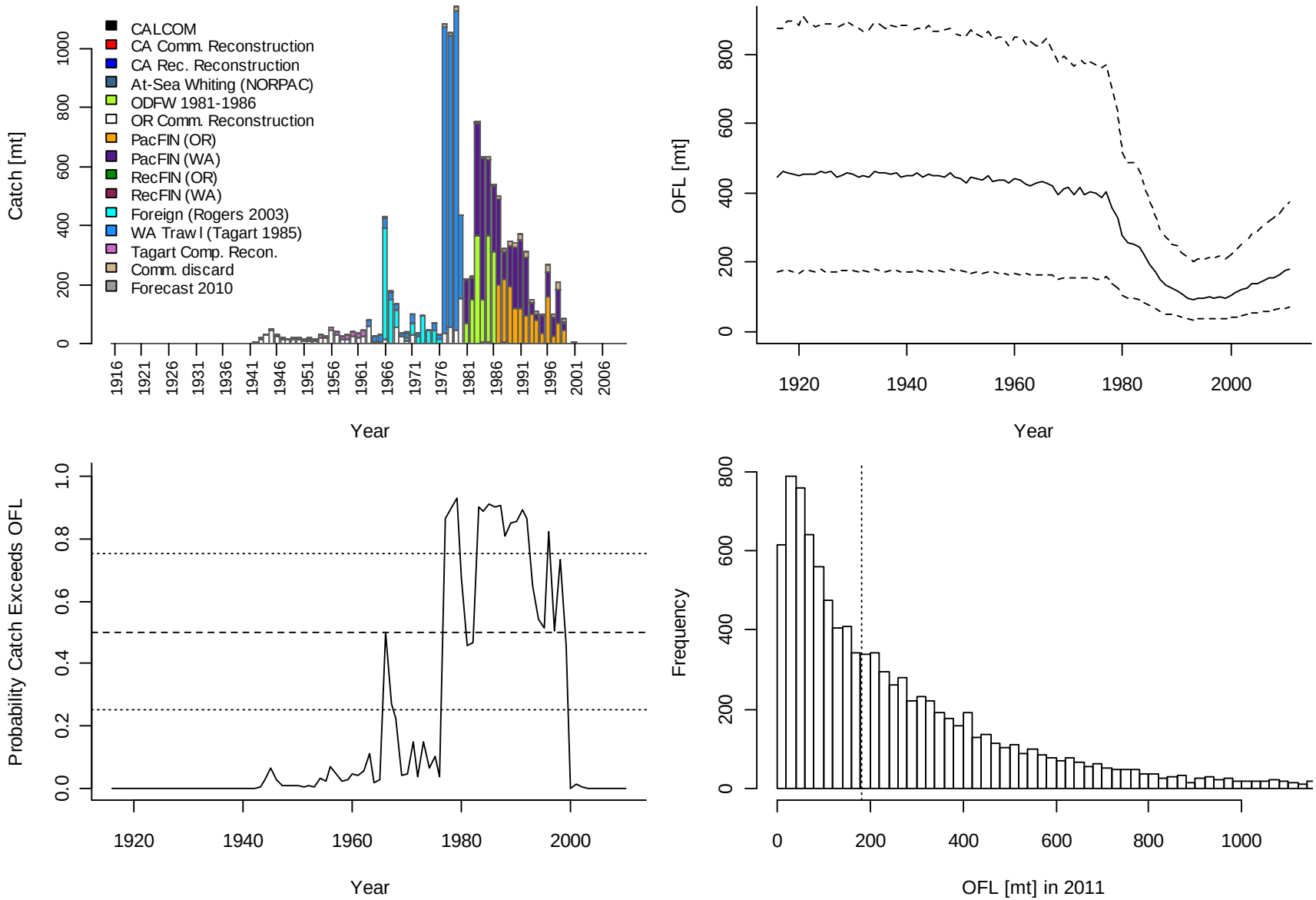


Figure 17. DB-SRA results for copper rockfish (*Sebastes caurinus*). See text for description of figures.

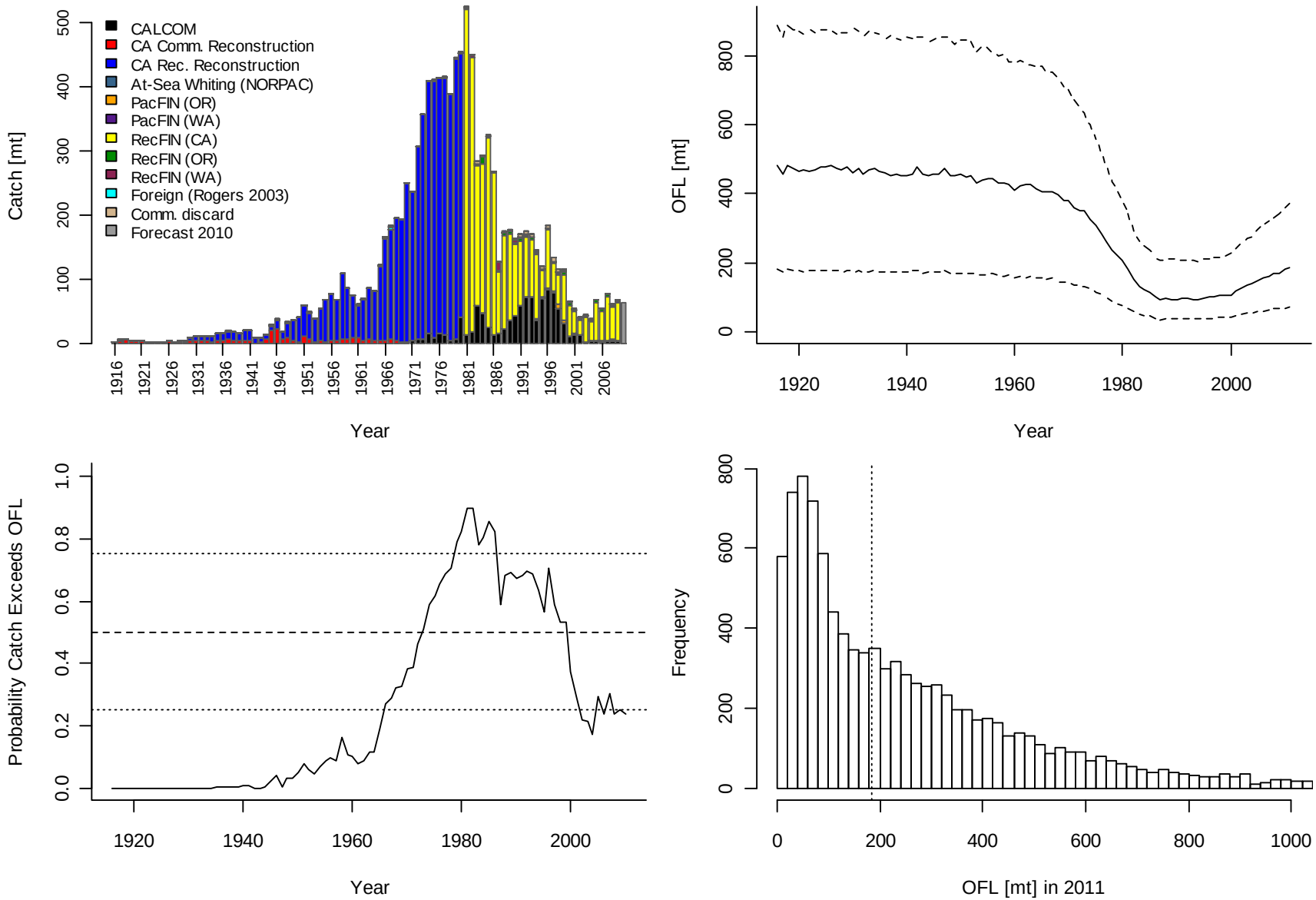


Figure 18. DB-SRA results for greenspotted rockfish (*Sebastes chlorostictus*). See text for description of figures.

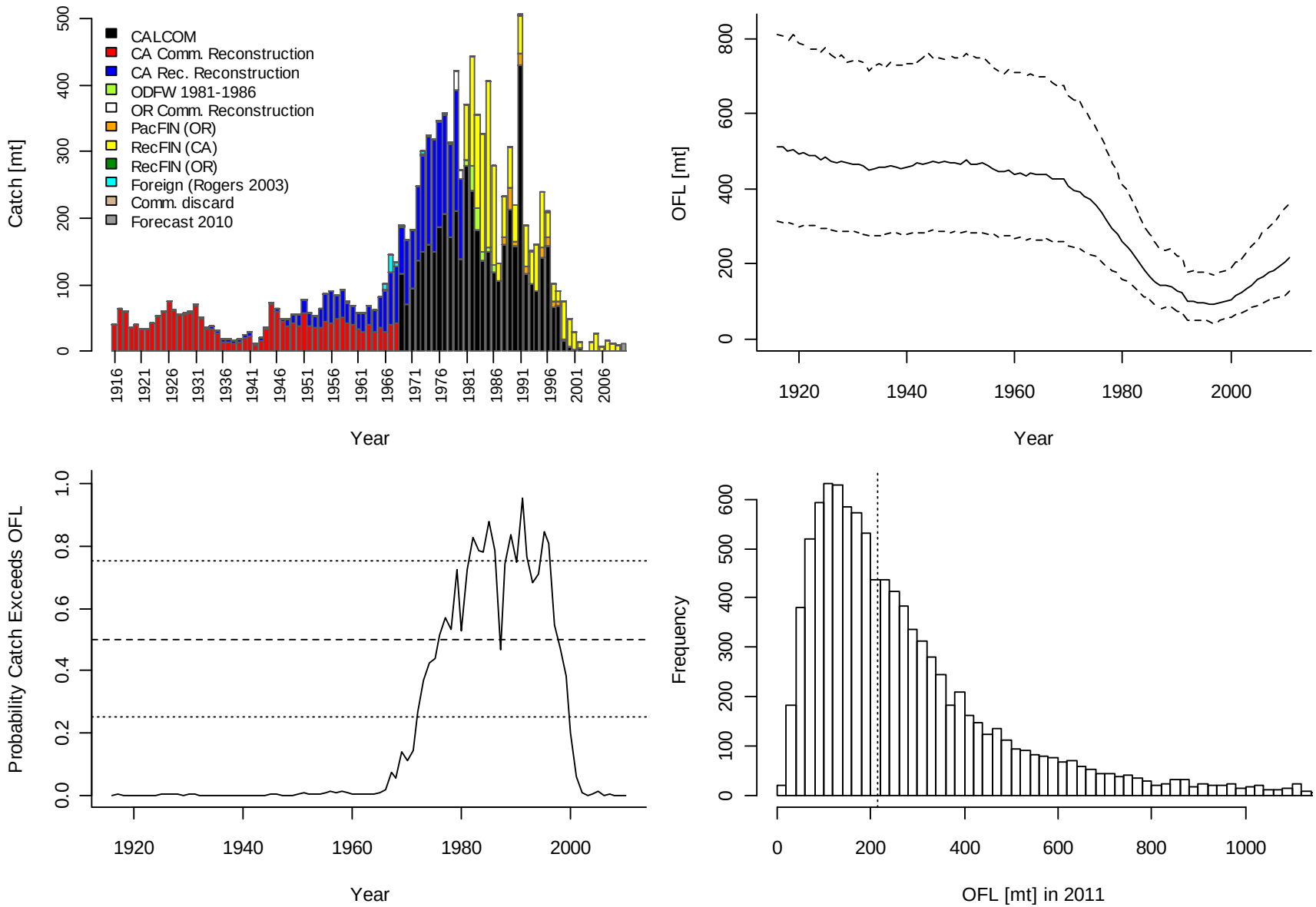


Figure 19. DB-SRA results for black-and-yellow rockfish (*Sebastes chrysomelas*). See text for description of figures.

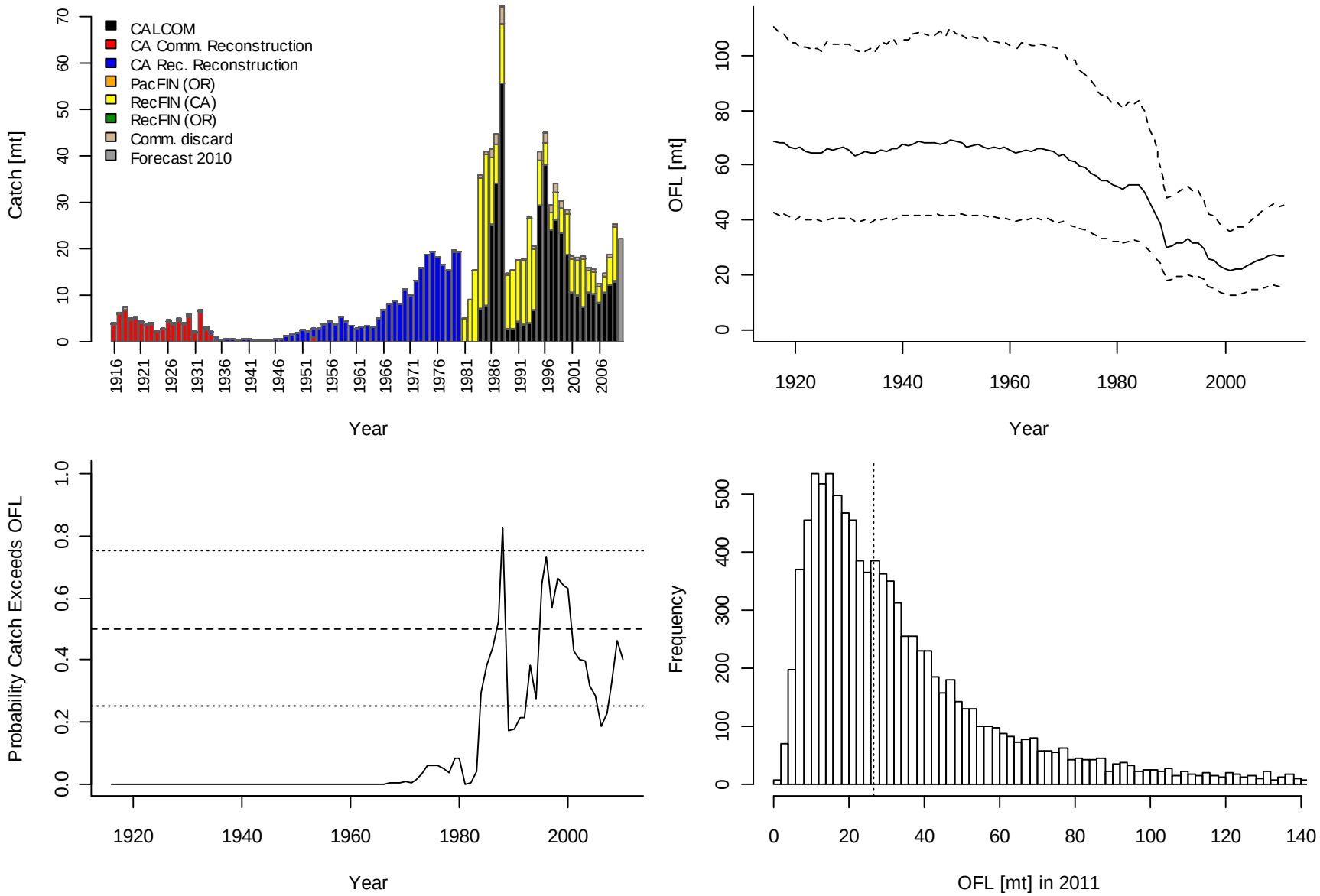


Figure 20. DB-SRA results for starry rockfish (*Sebastes constellatus*). See text for description of figures.

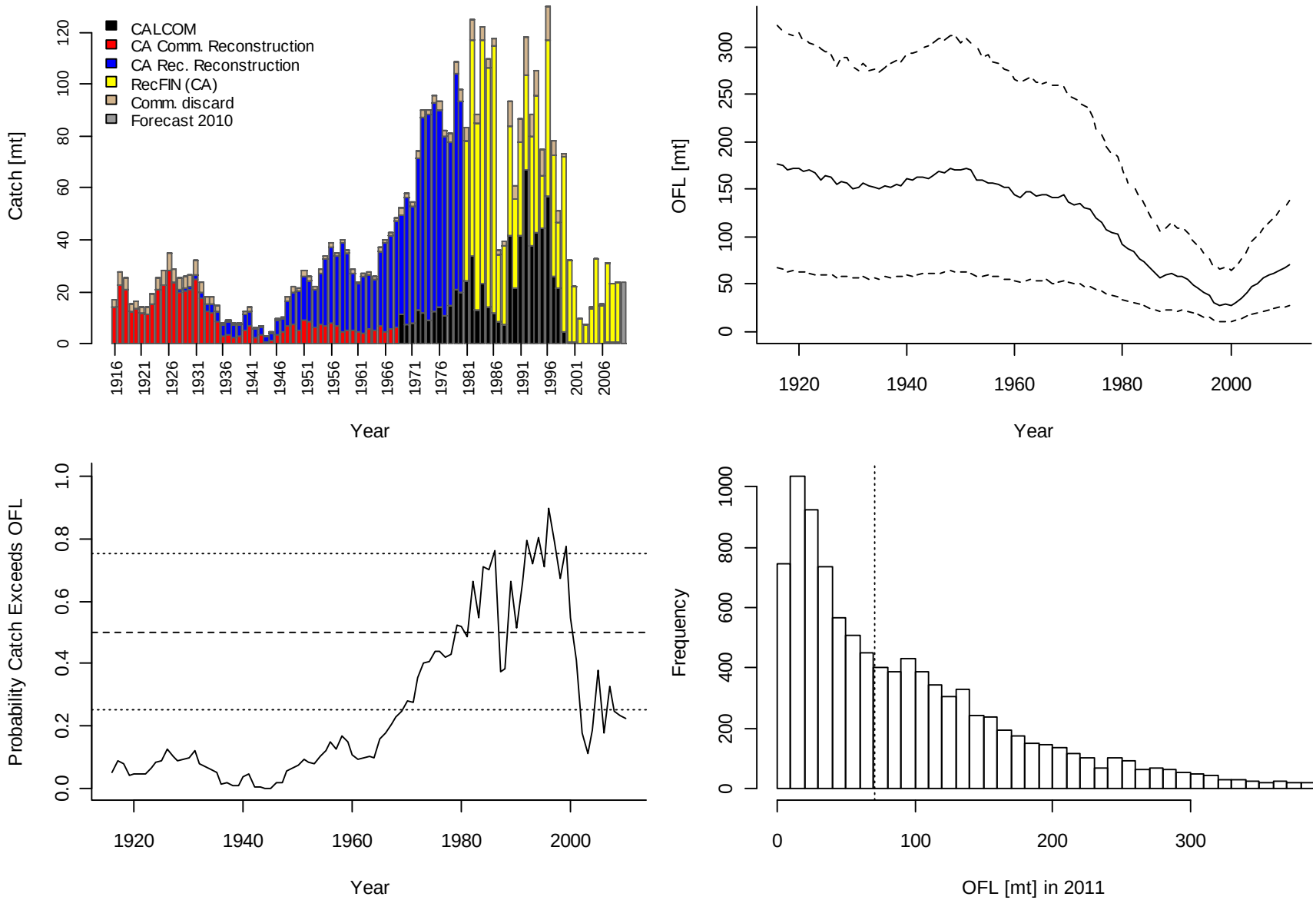


Figure 21. DB-SRA results for swordspine rockfish (*Sebastes ensifer*). See text for description of figures.

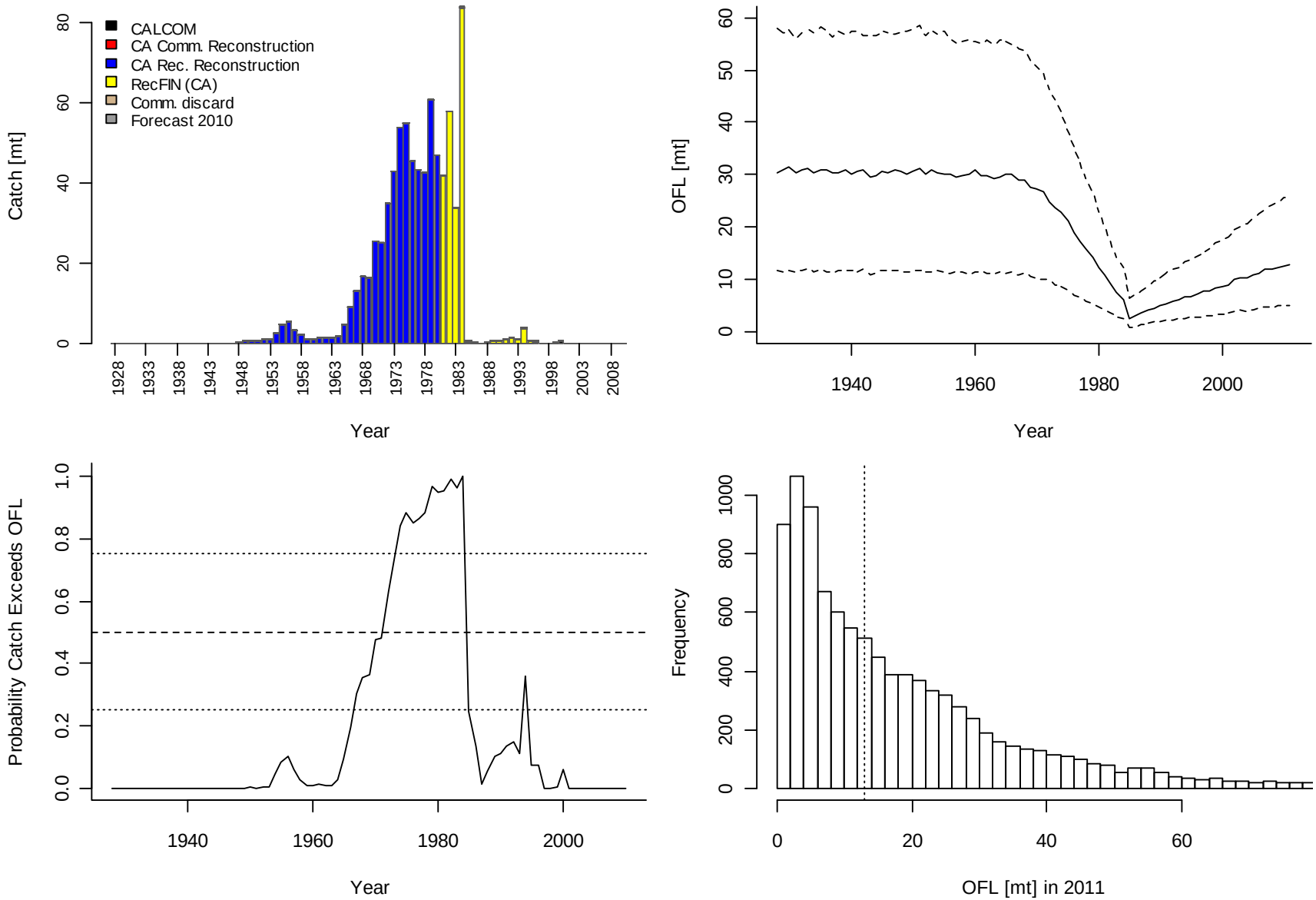


Figure 22. DB-SRA results for pink rockfish (*Sebastes eos*). See text for description of figures.

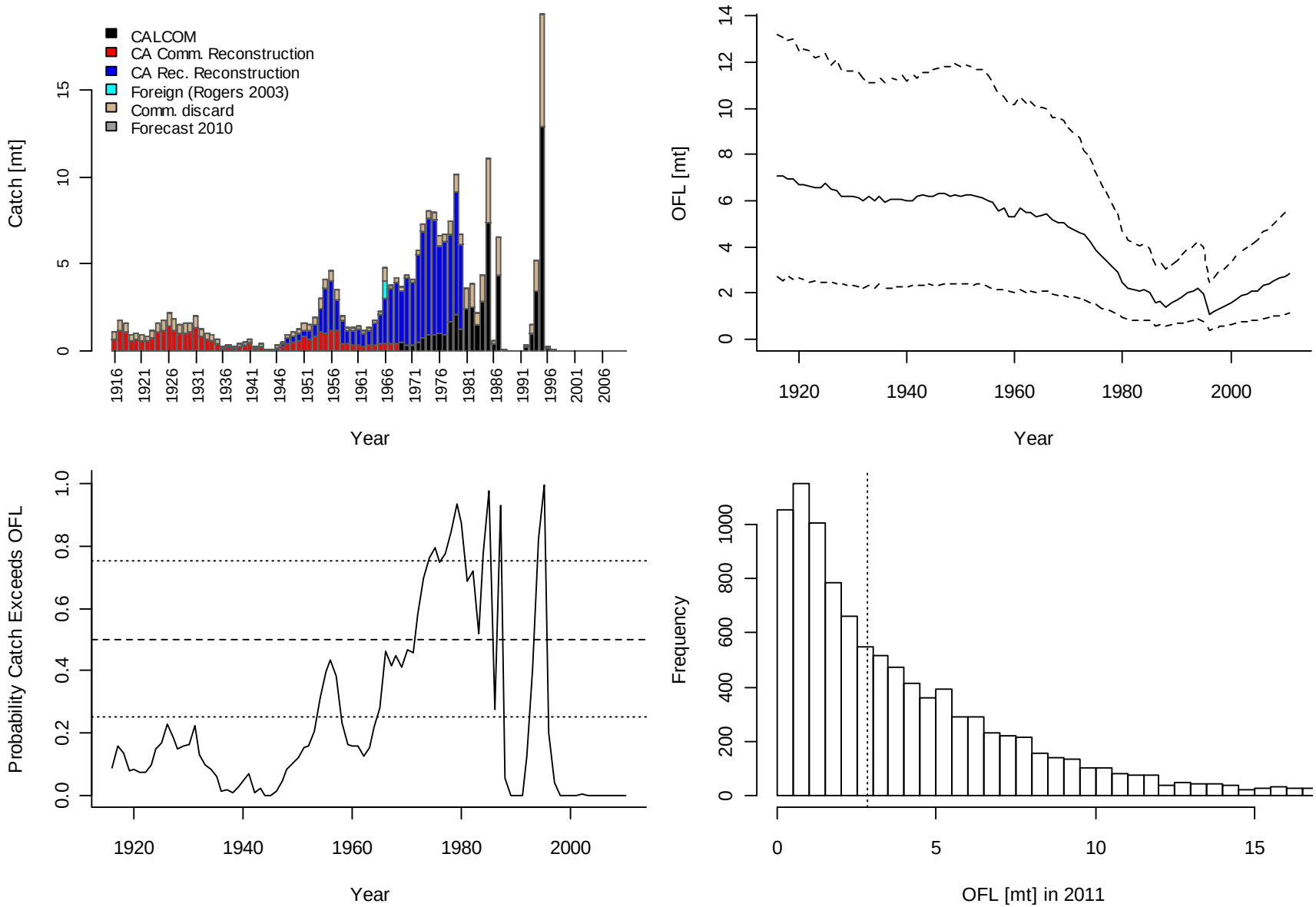


Figure 23. DB-SRA results for yellowtail rockfish (*Sebastes flavidus*) south of 40° 10′ N. latitude. See text for description of figures.

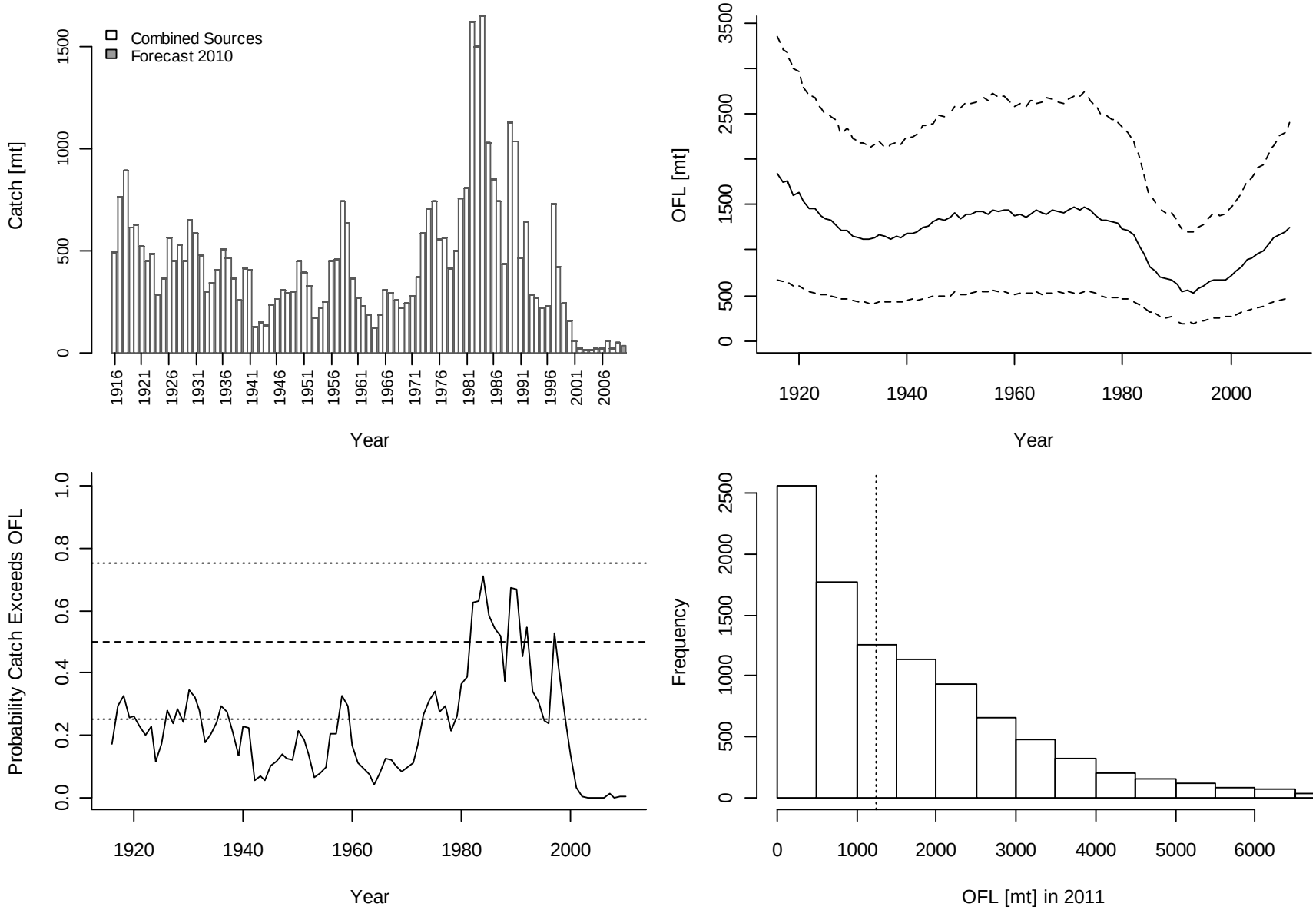


Figure 24. DB-SRA results for bronzespotted rockfish (*Sebastes gilli*). See text for description of figures.

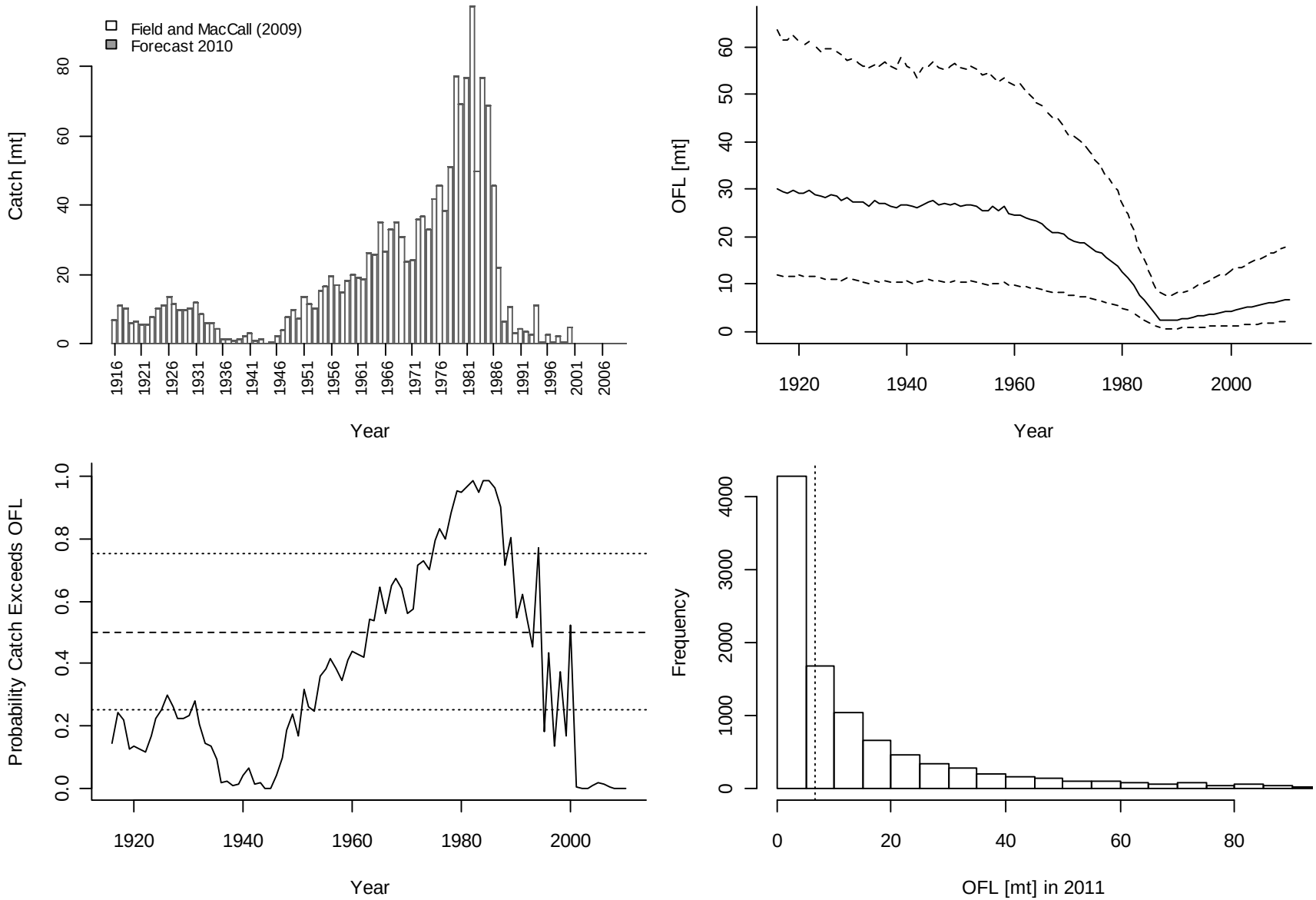


Figure 25. DB-SRA results for rosethorn rockfish (*Sebastes helvomaculatus*). See text for description of figures.

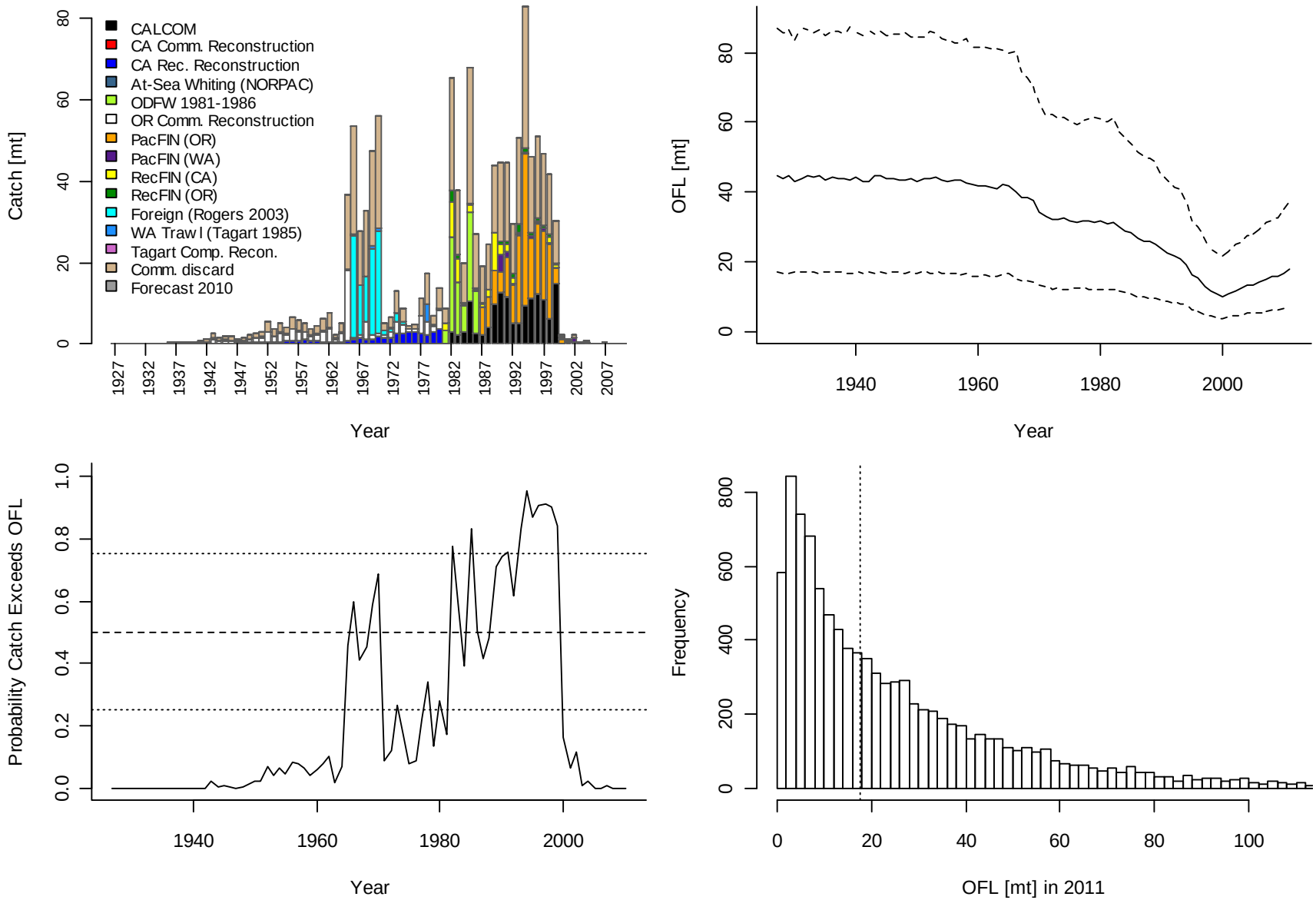


Figure 26. DB-SRA results for cowcod (*Sebastes levis*) north of 34° 27′ N. latitude. See text for description of figures.

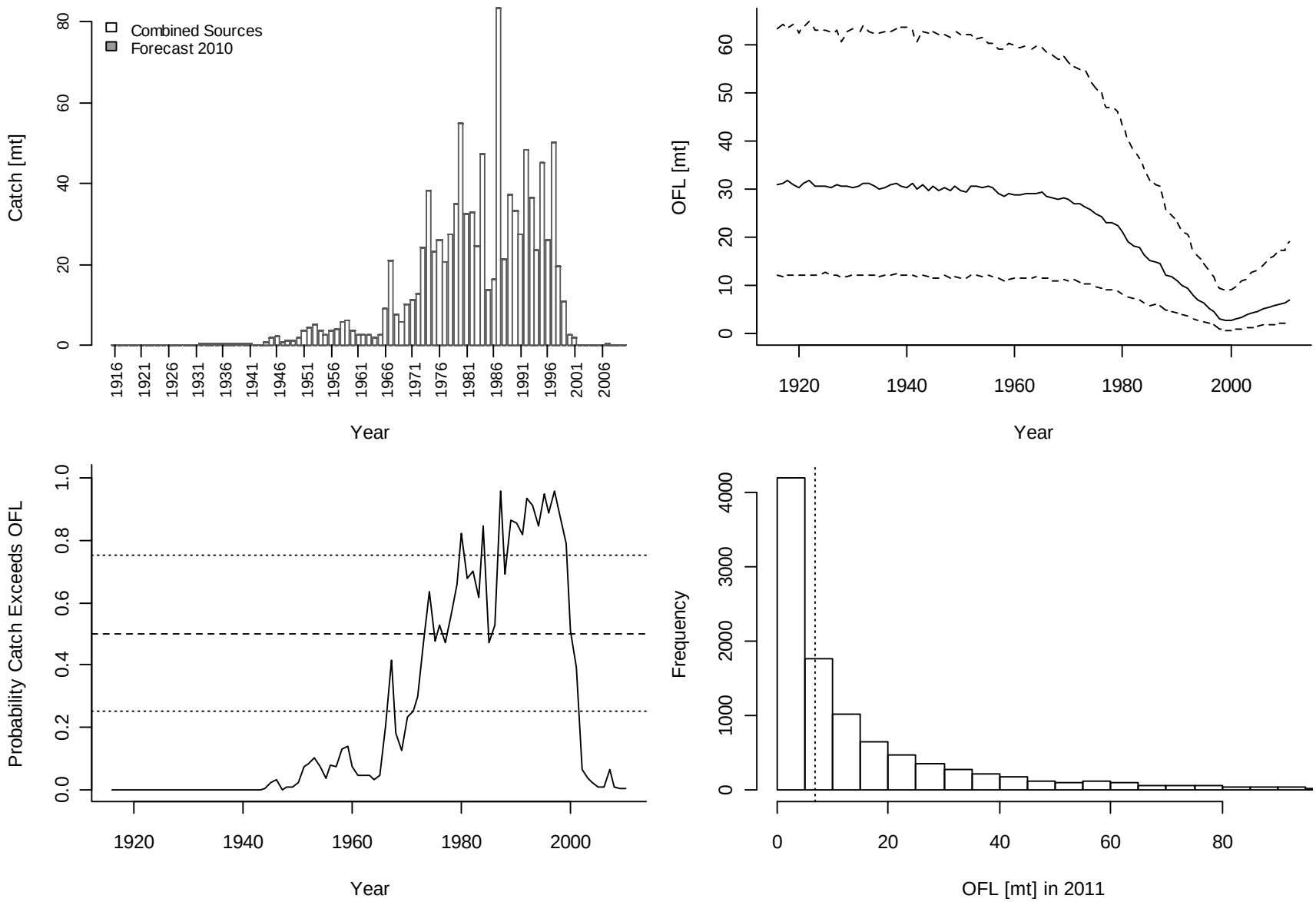


Figure 27. DB-SRA results for quillback rockfish (*Sebastes maliger*). See text for description of figures.

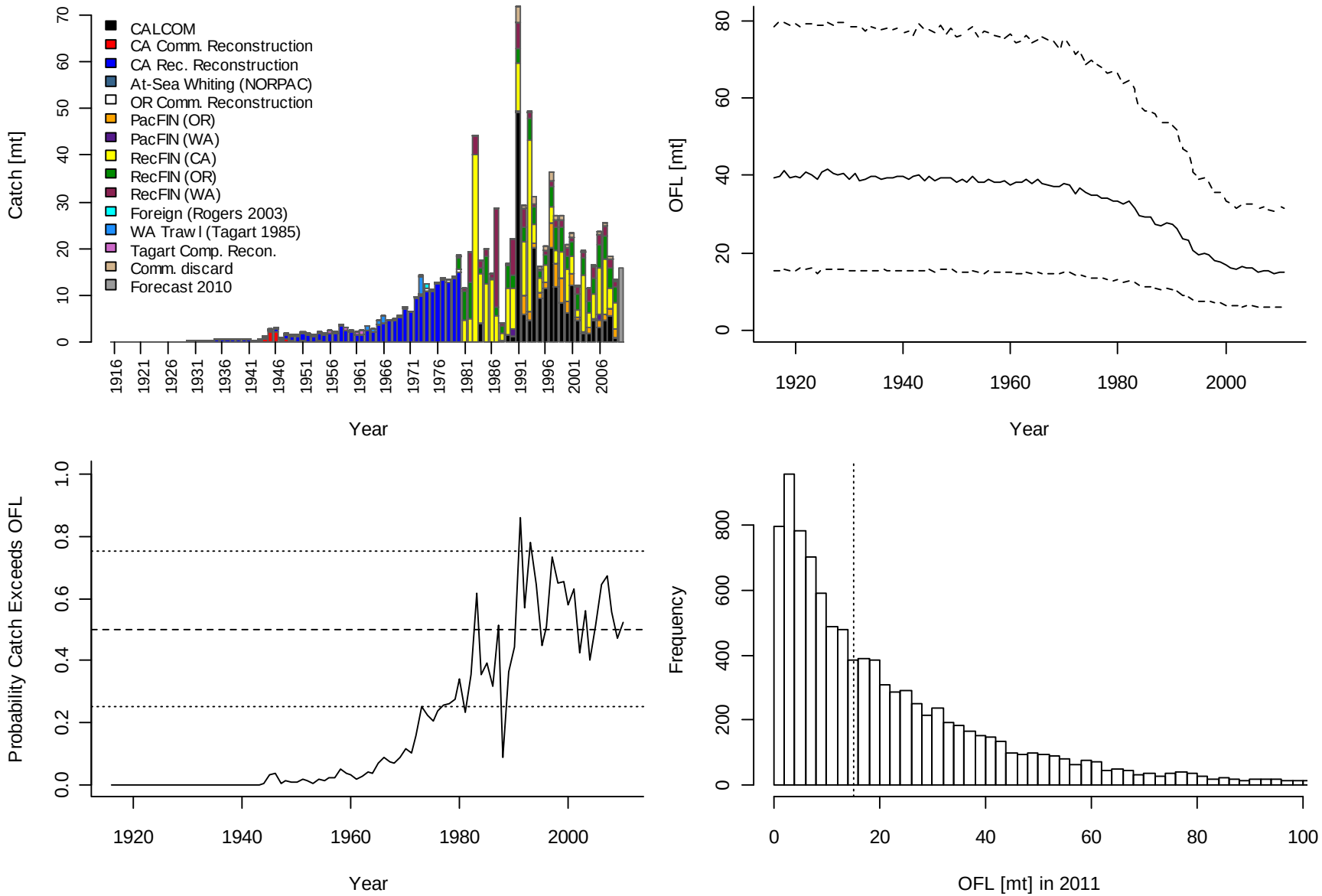


Figure 28. DB-SRA results for vermilion rockfish (*Sebastes miniatus*). See text for description of figures.

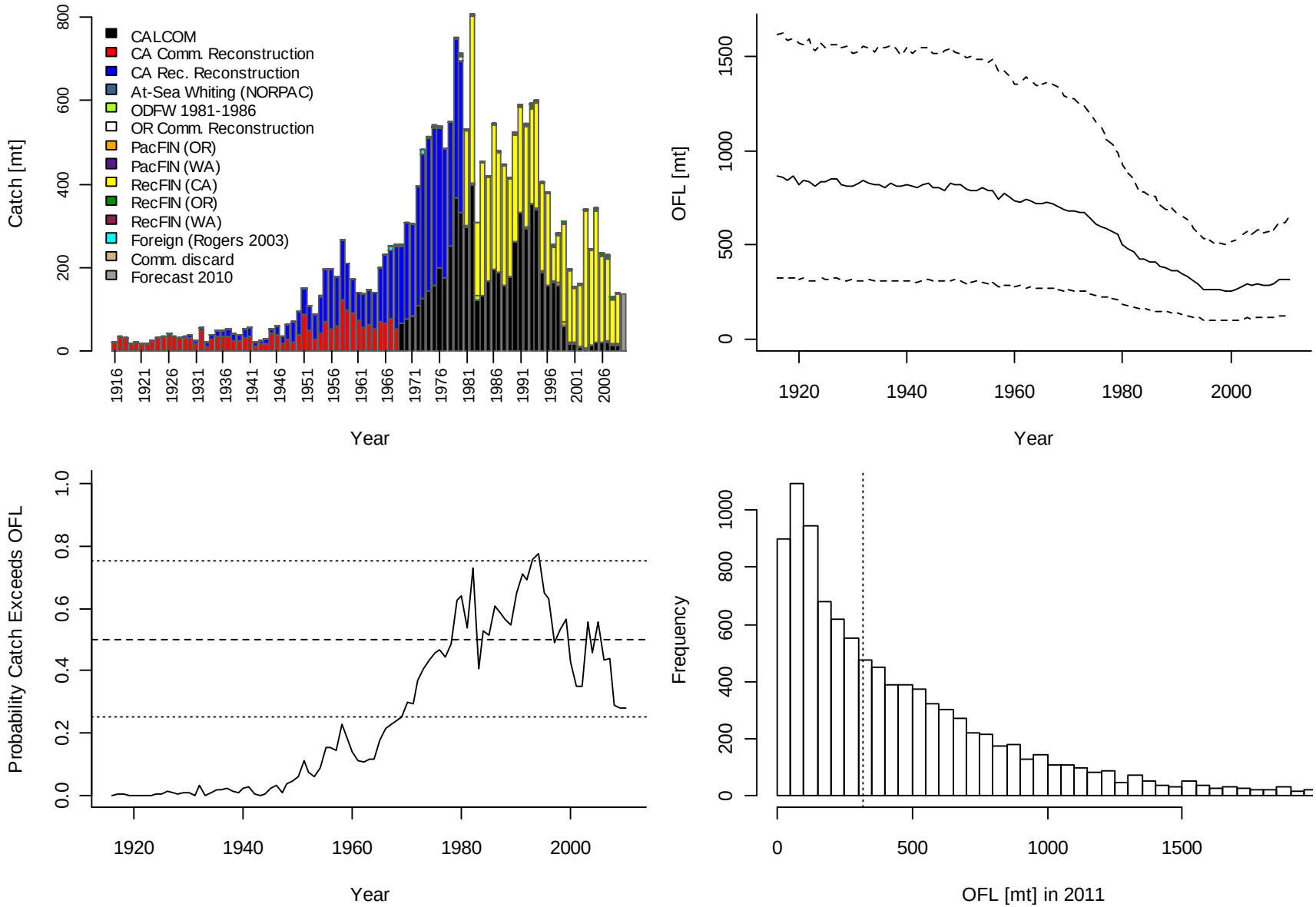


Figure 29. DB-SRA results for china rockfish (*Sebastes nebulosus*). See text for description of figures.

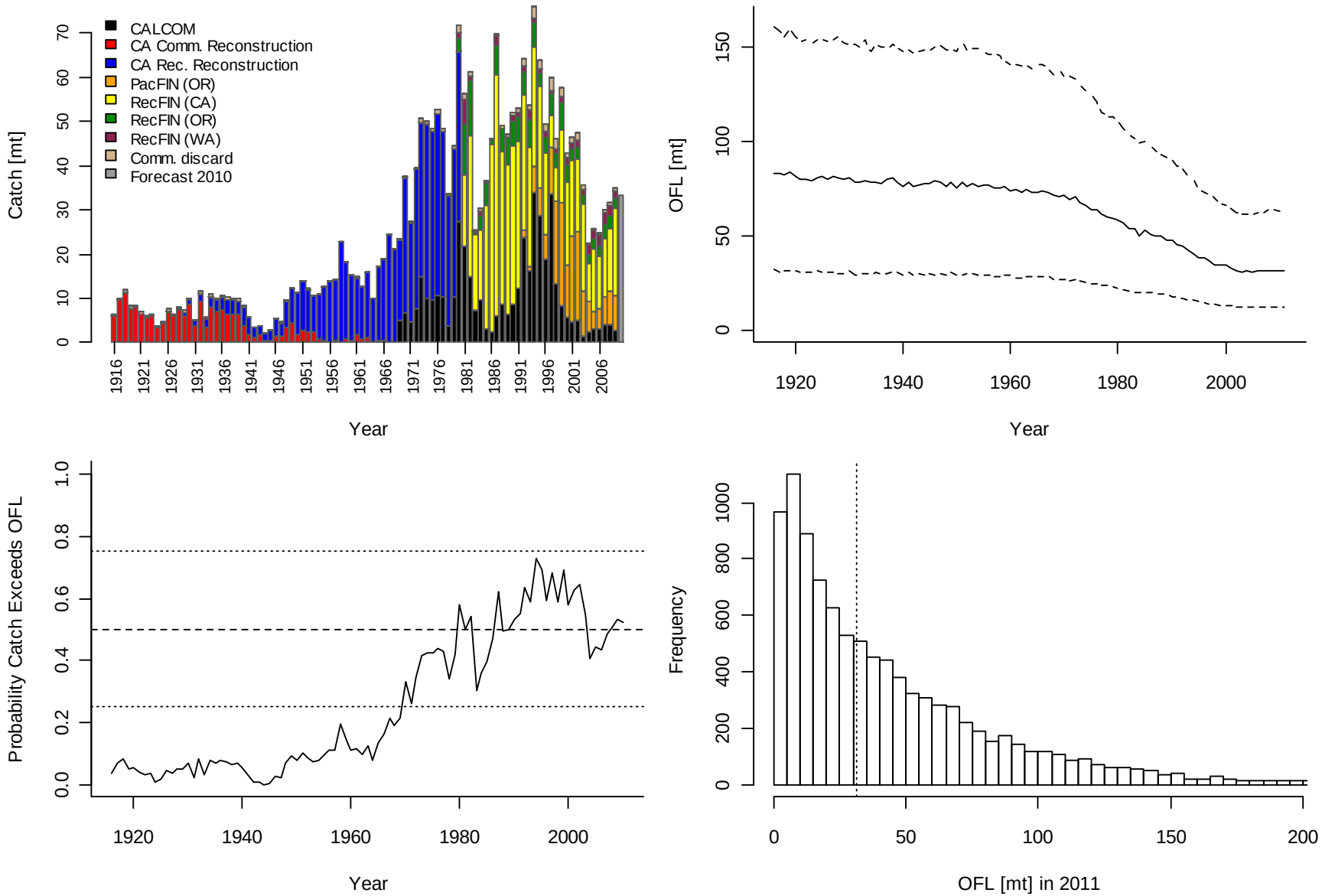


Figure 30. DB-SRA results for tiger rockfish (*Sebastes nigrocinctus*). See text for description of figures.

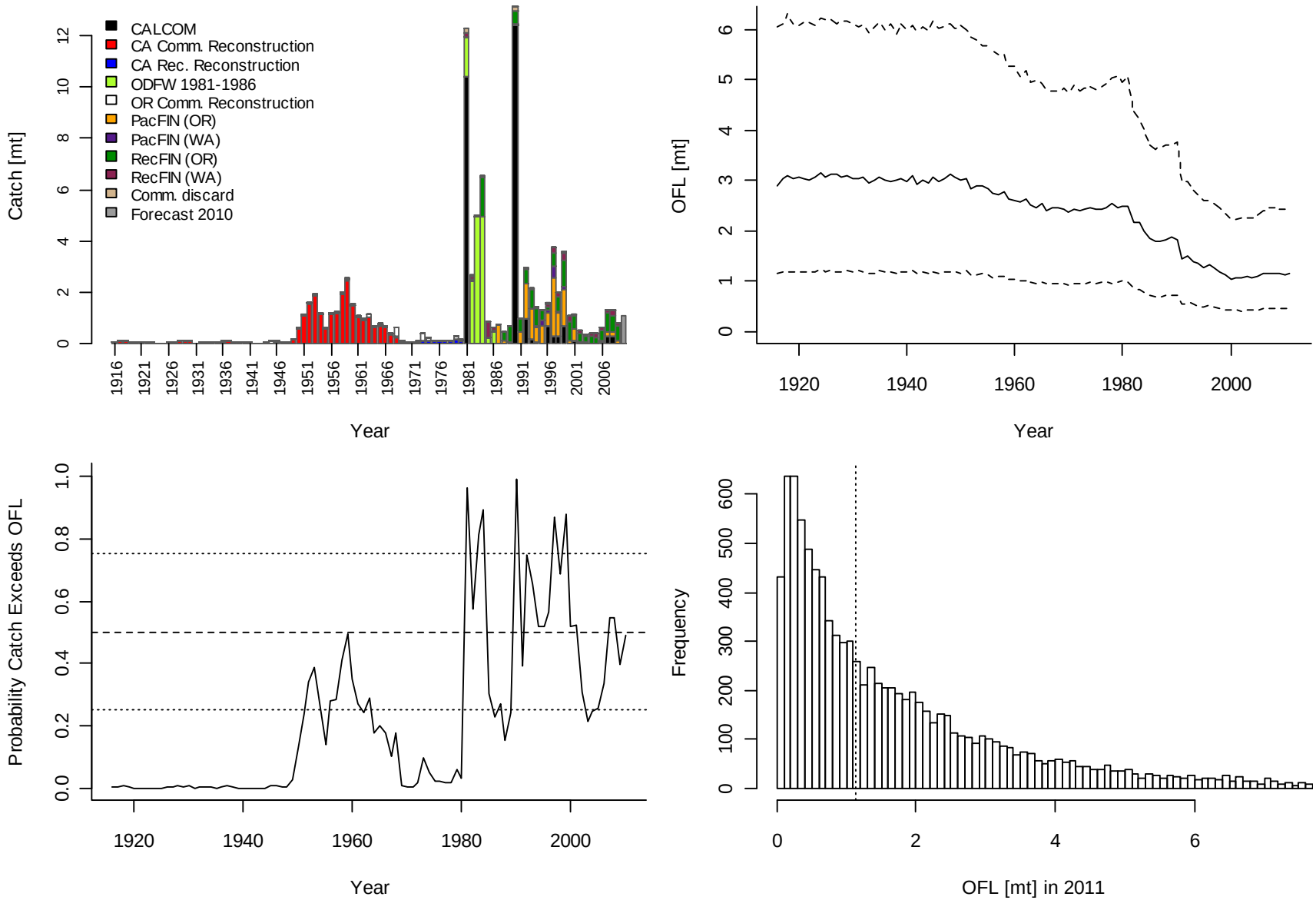


Figure 31. DB-SRA results for speckled rockfish (*Sebastes ovalis*). See text for description of figures.

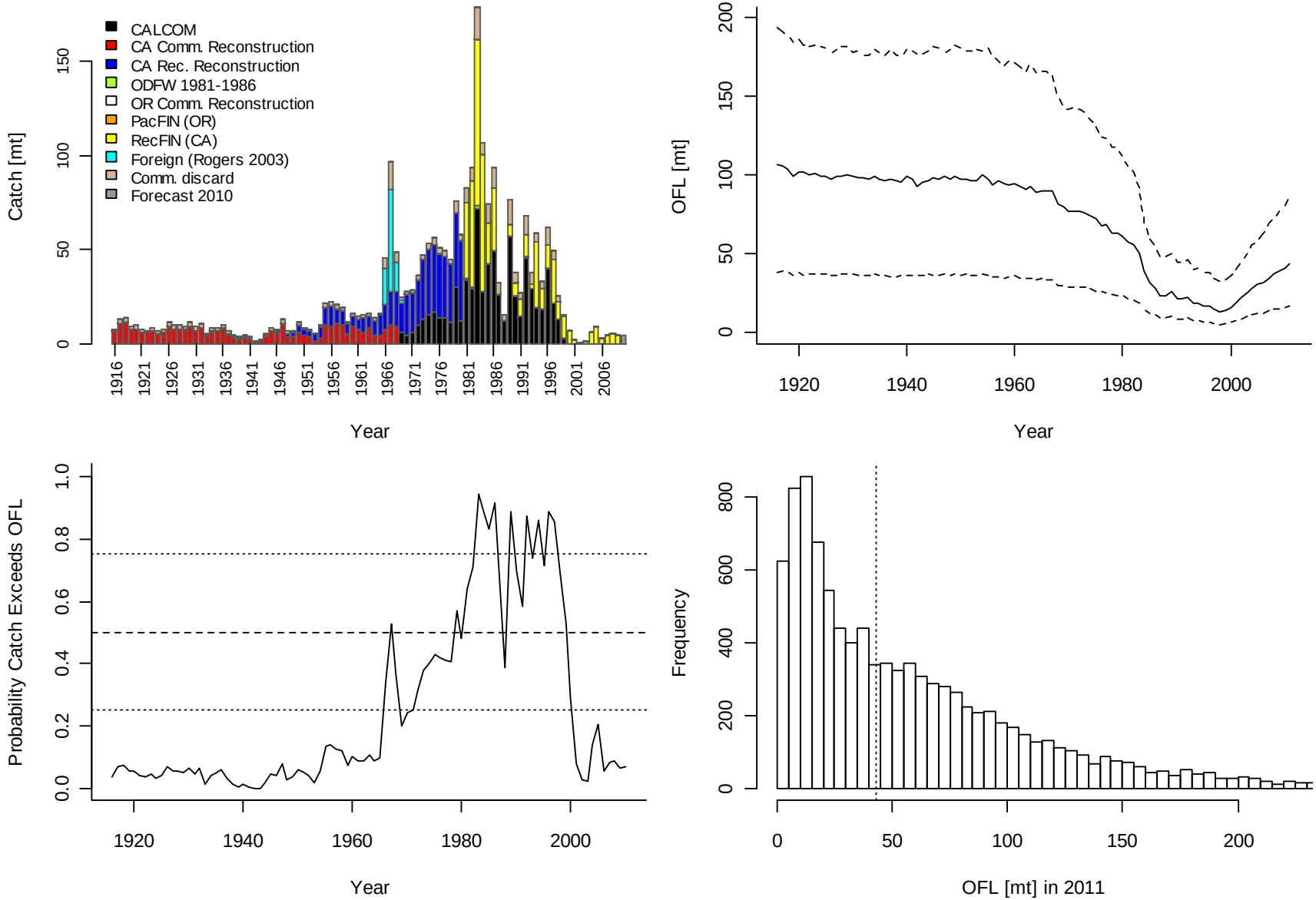


Figure 32. DB-SRA results for bocaccio (*Sebastes paucispinis*) north of 40° 10′ N. latitude. See text for description of figures.

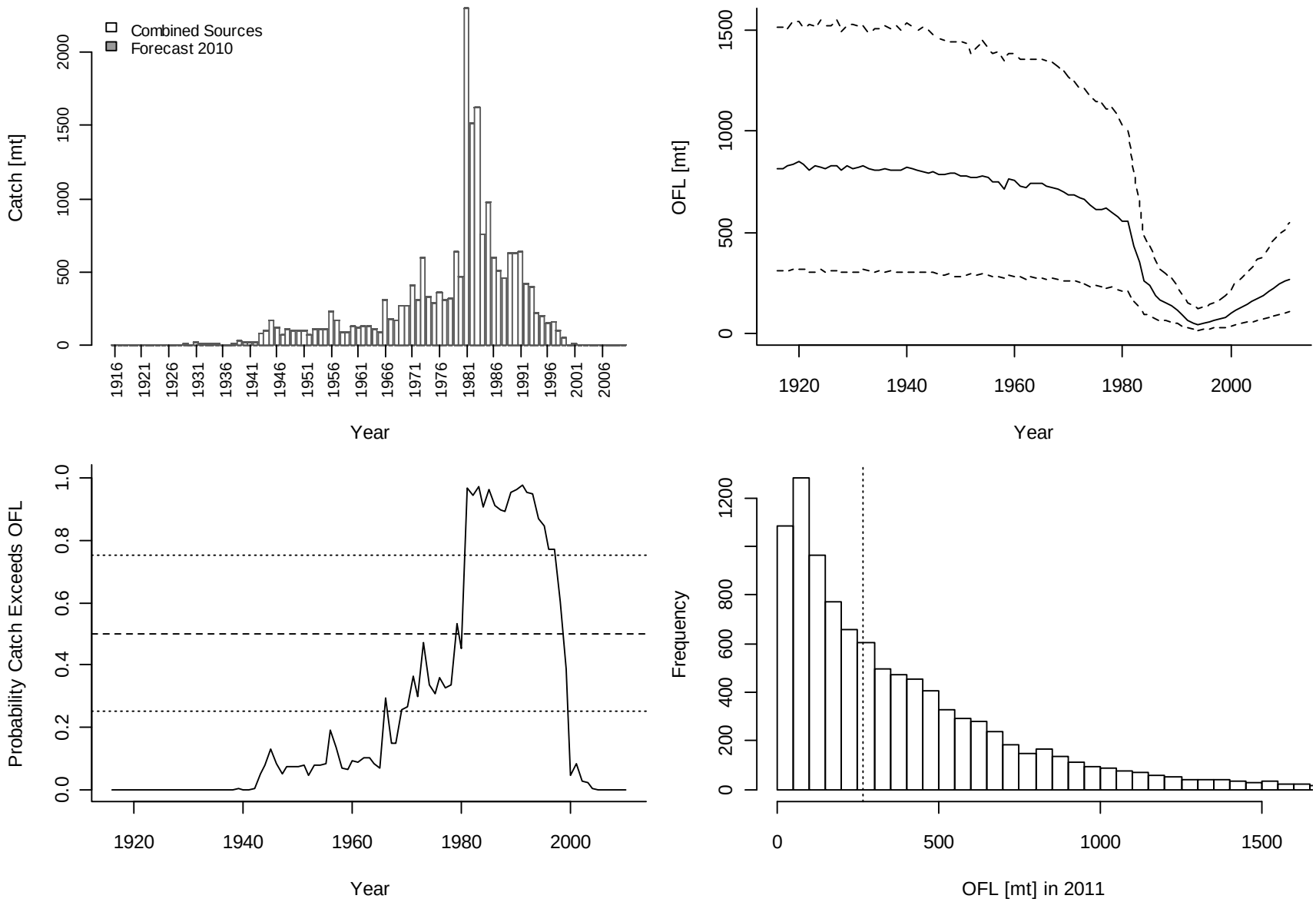


Figure 33. DB-SRA results for redstripe rockfish (*Sebastes proriger*). See text for description of figures.

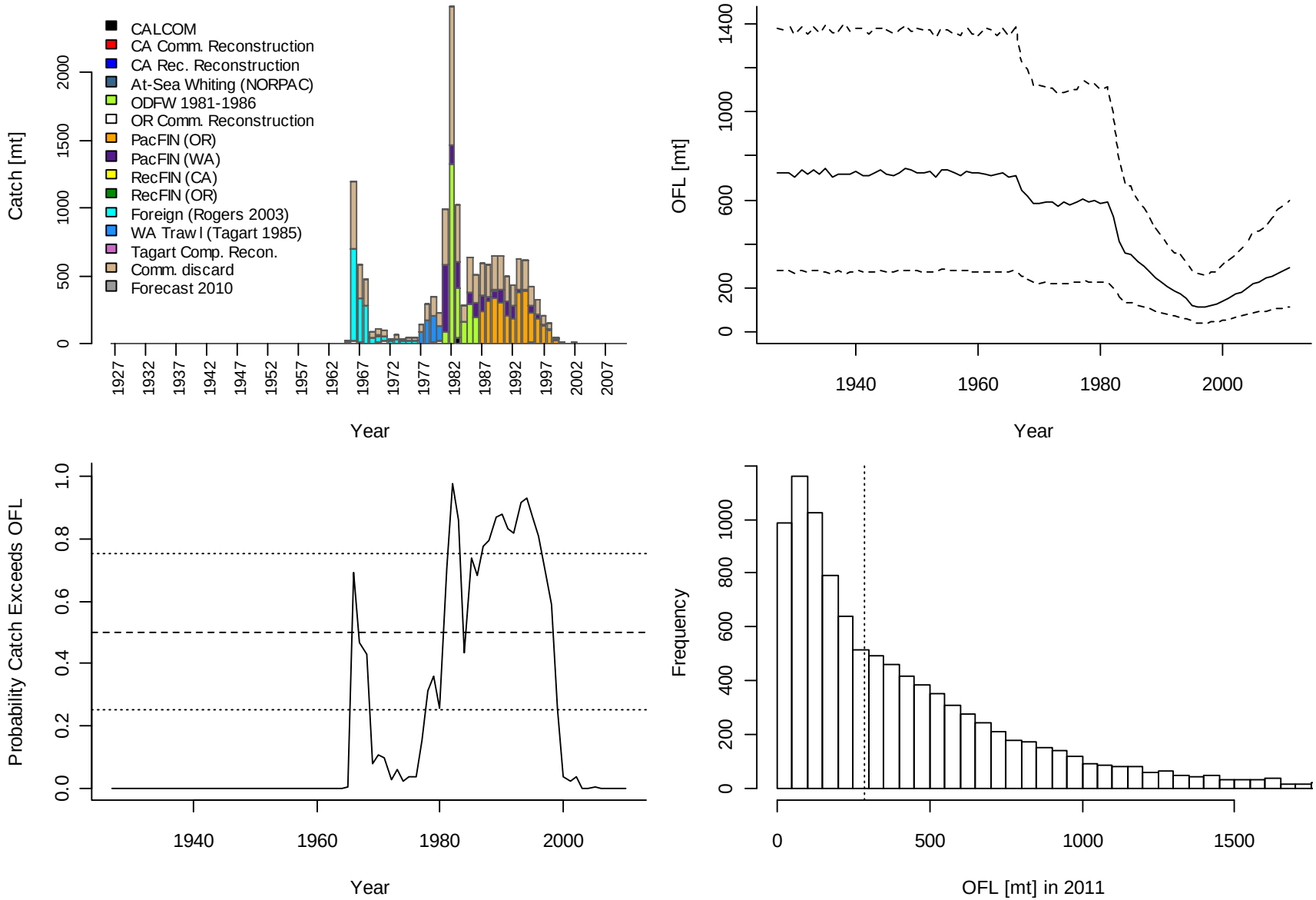


Figure 34. DB-SRA results for grass rockfish (*Sebastes rastrelliger*). See text for description of figures.

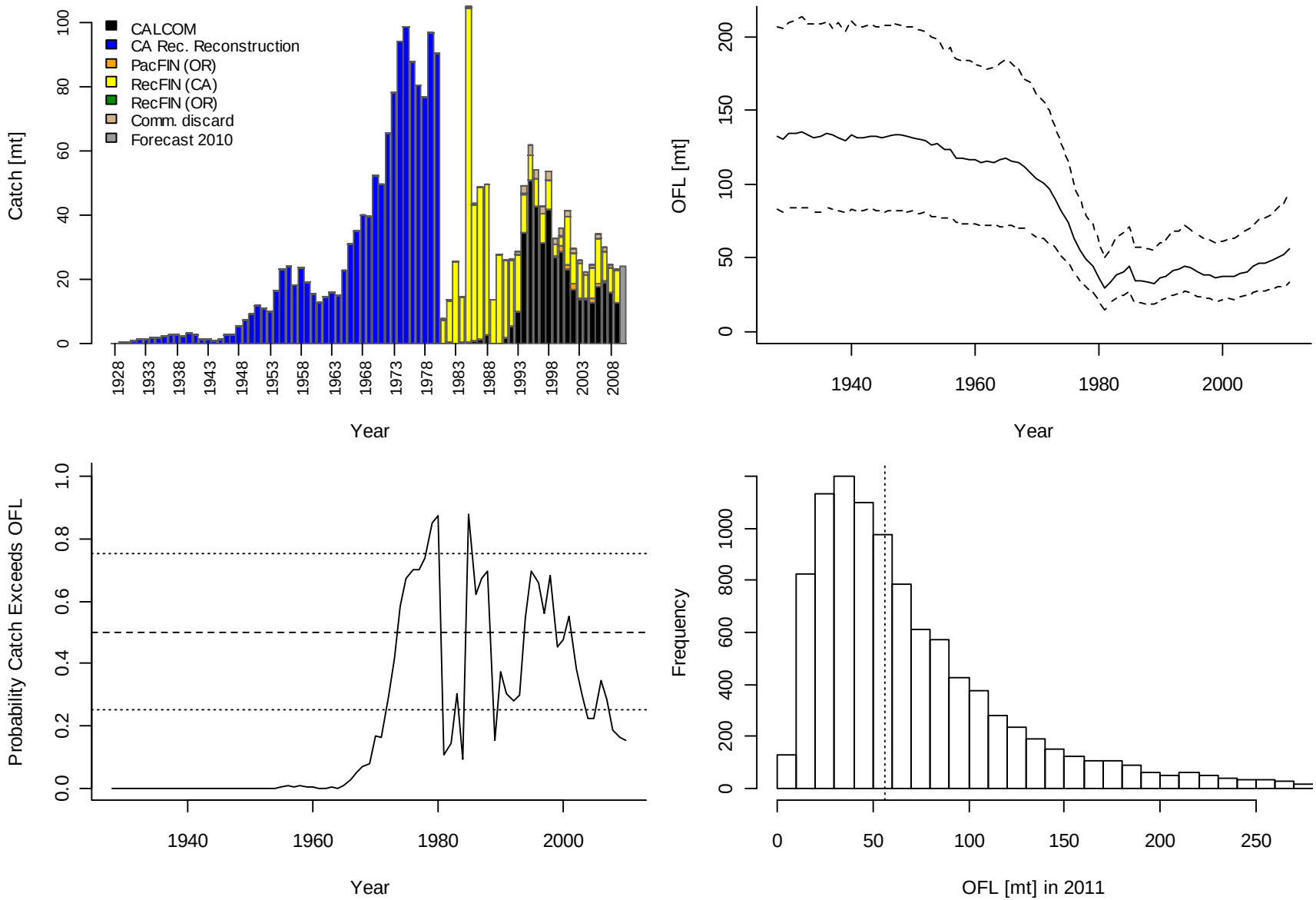


Figure 35. DB-SRA results for yellowmouth rockfish (*Sebastes reedi*). See text for description of figures.

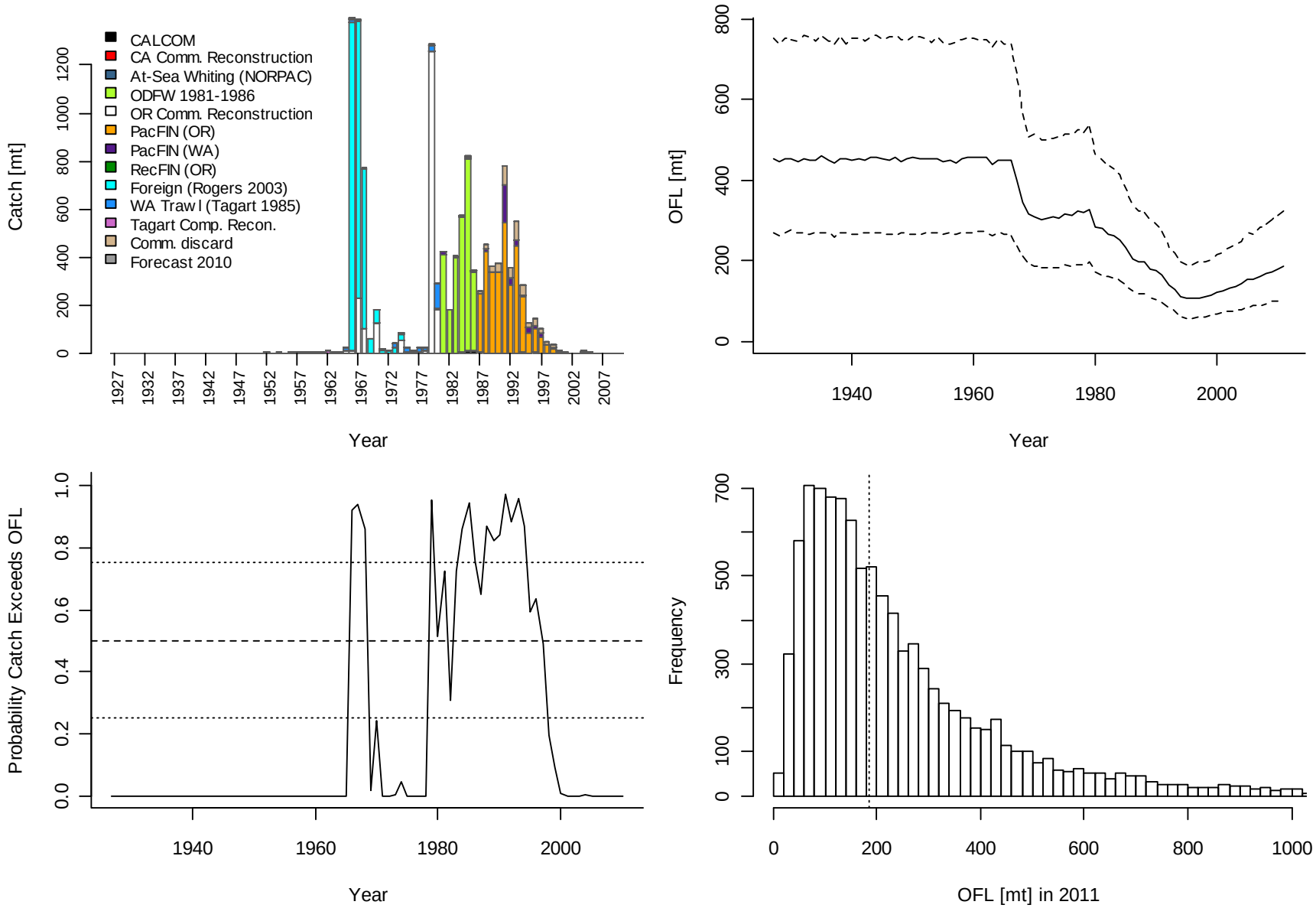


Figure 36. DB-SRA results for rosy rockfish (*Sebastes rosaceus*). See text for description of figures.

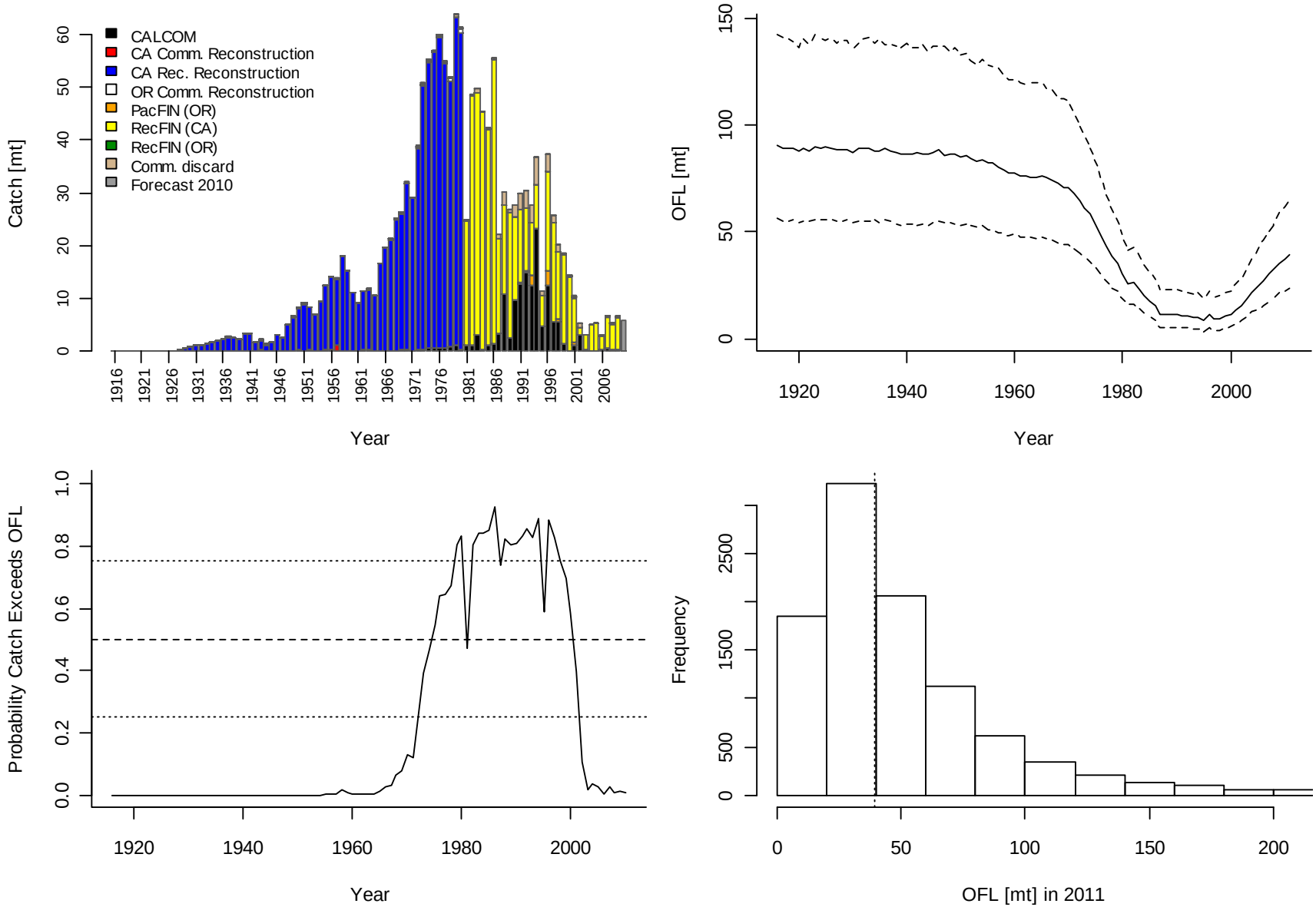


Figure 37. DB-SRA results for greenblotched rockfish (*Sebastes rosenblatti*). See text for description of figures.

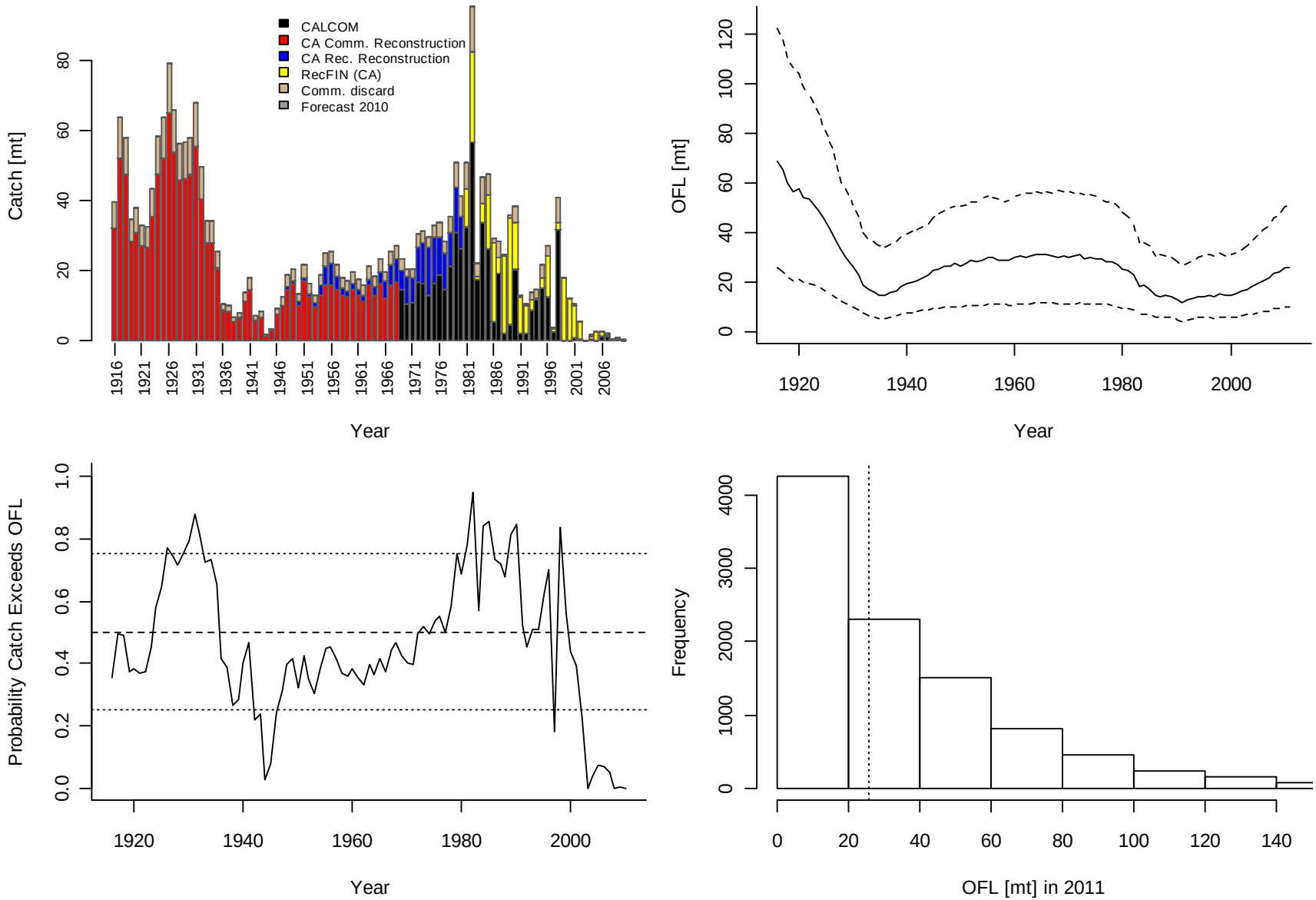


Figure 38. DB-SRA results for flag rockfish (*Sebastes rubrivinctus*). See text for description of figures.

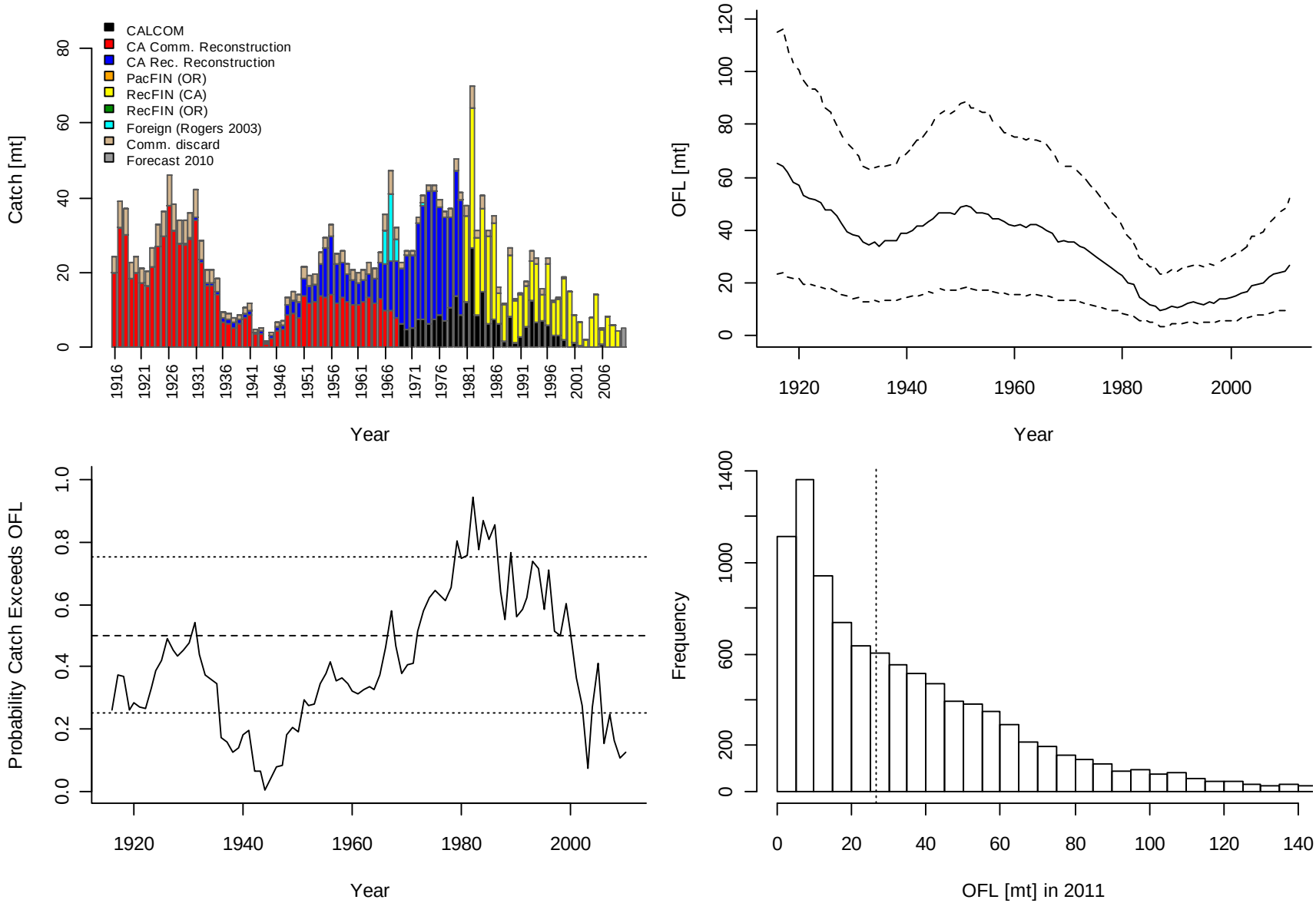


Figure 39. DB-SRA results for bank rockfish (*Sebastes rufus*). See text for description of figures.

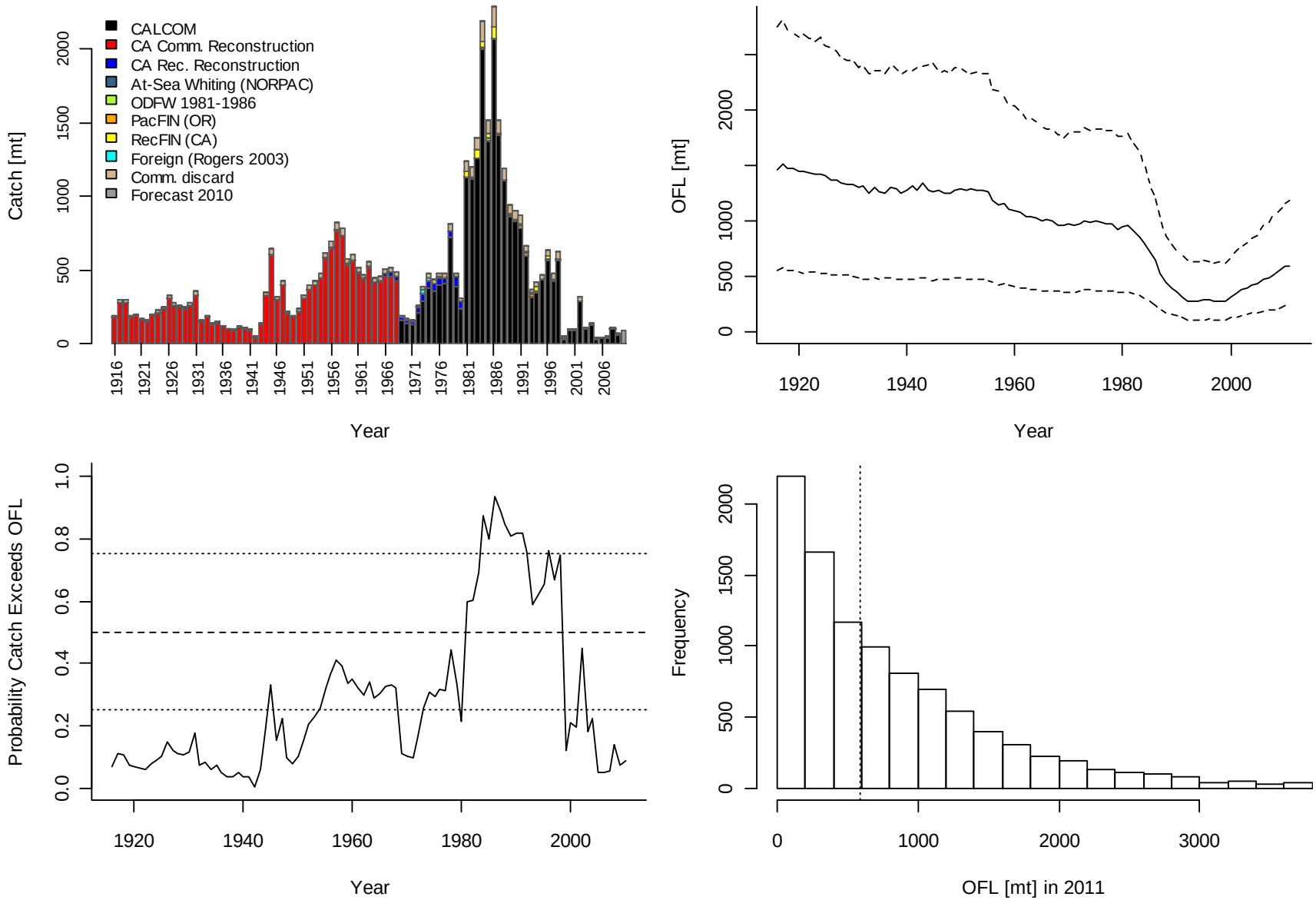


Figure 40. DB-SRA results for stripetail rockfish (*Sebastes saxicola*). See text for description of figures.

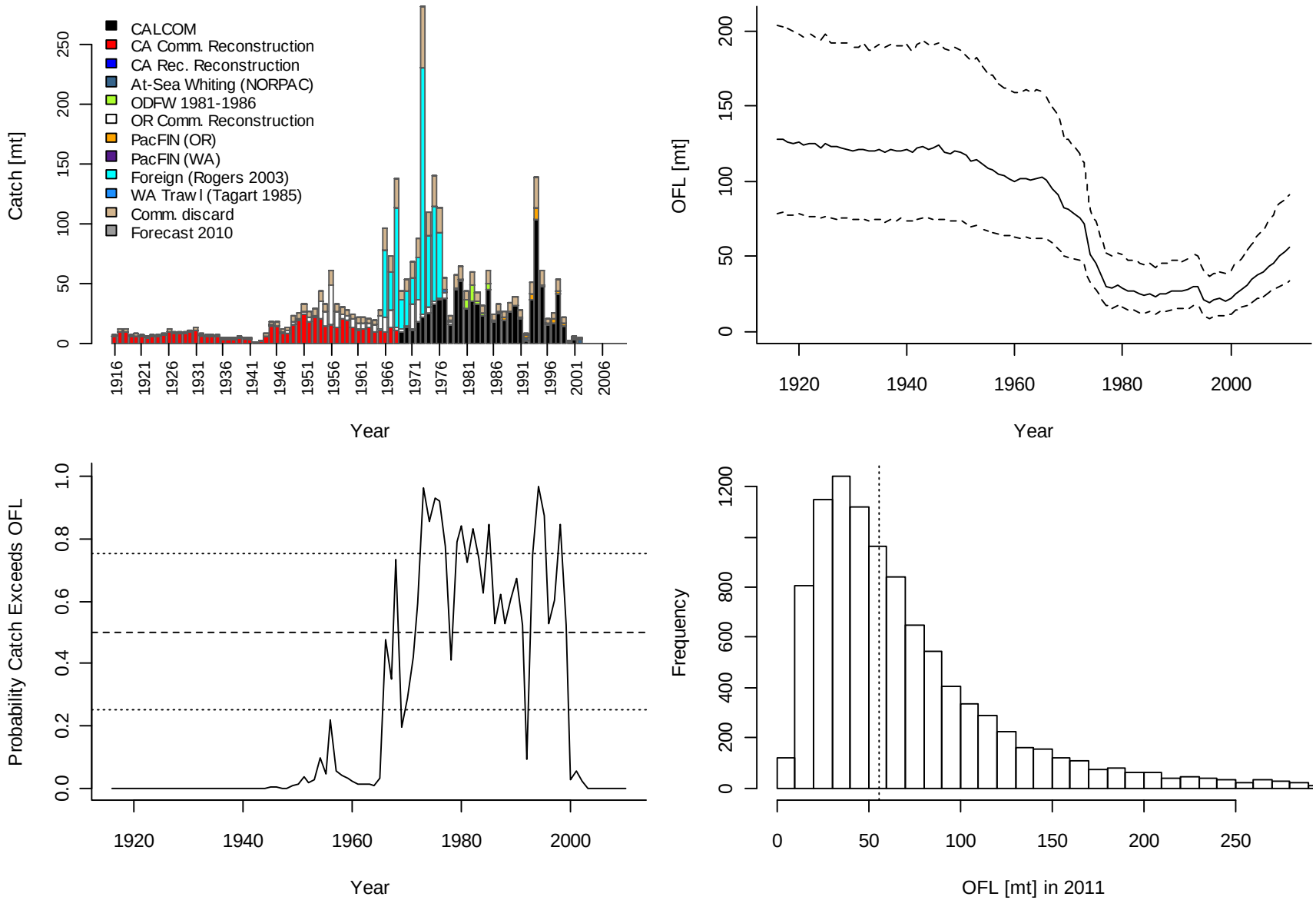


Figure 41. DB-SRA results for olive rockfish (*Sebastes serranoides*). See text for description of figures.

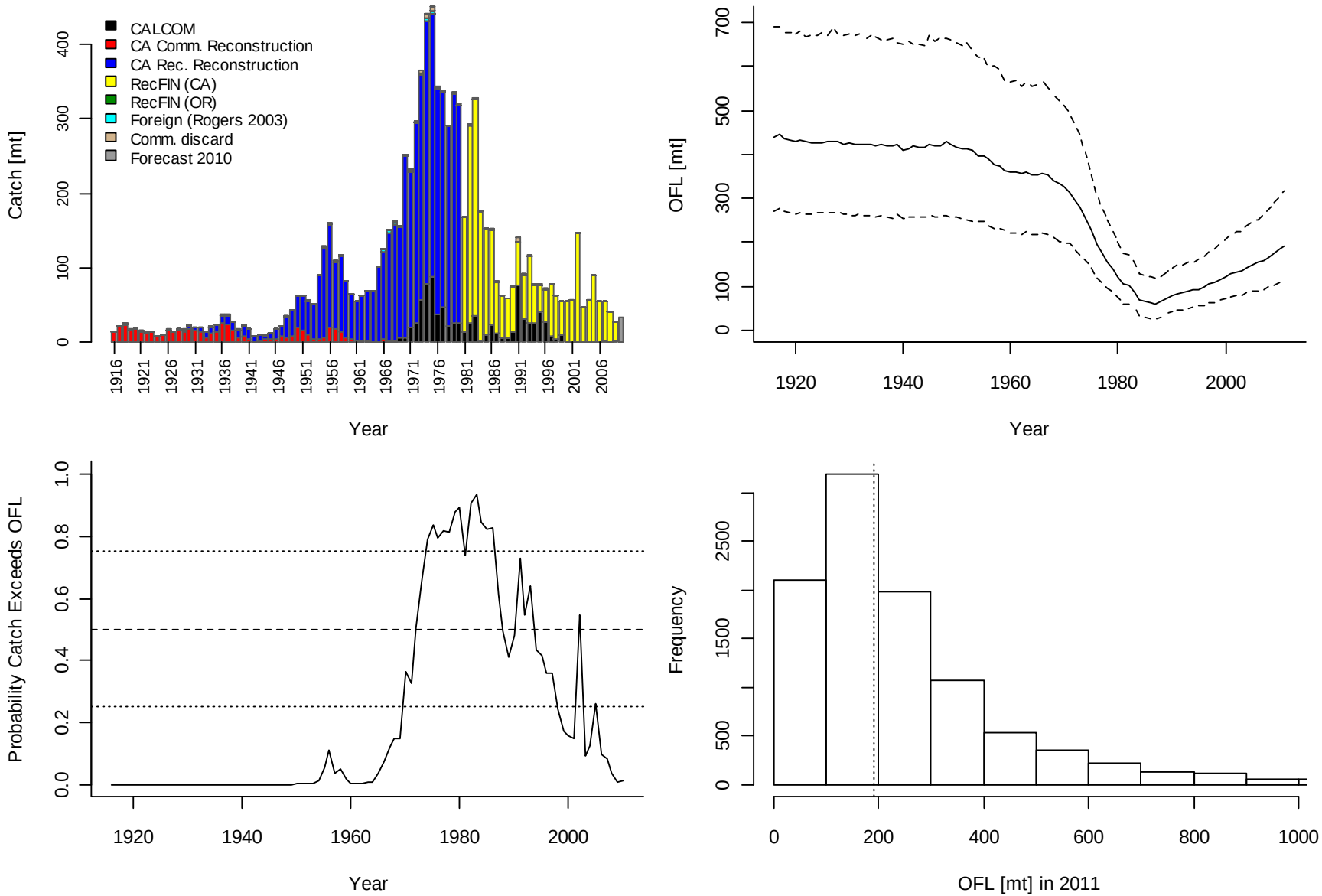


Figure 42. DB-SRA results for treefish (*Sebastes serriceps*). See text for description of figures.

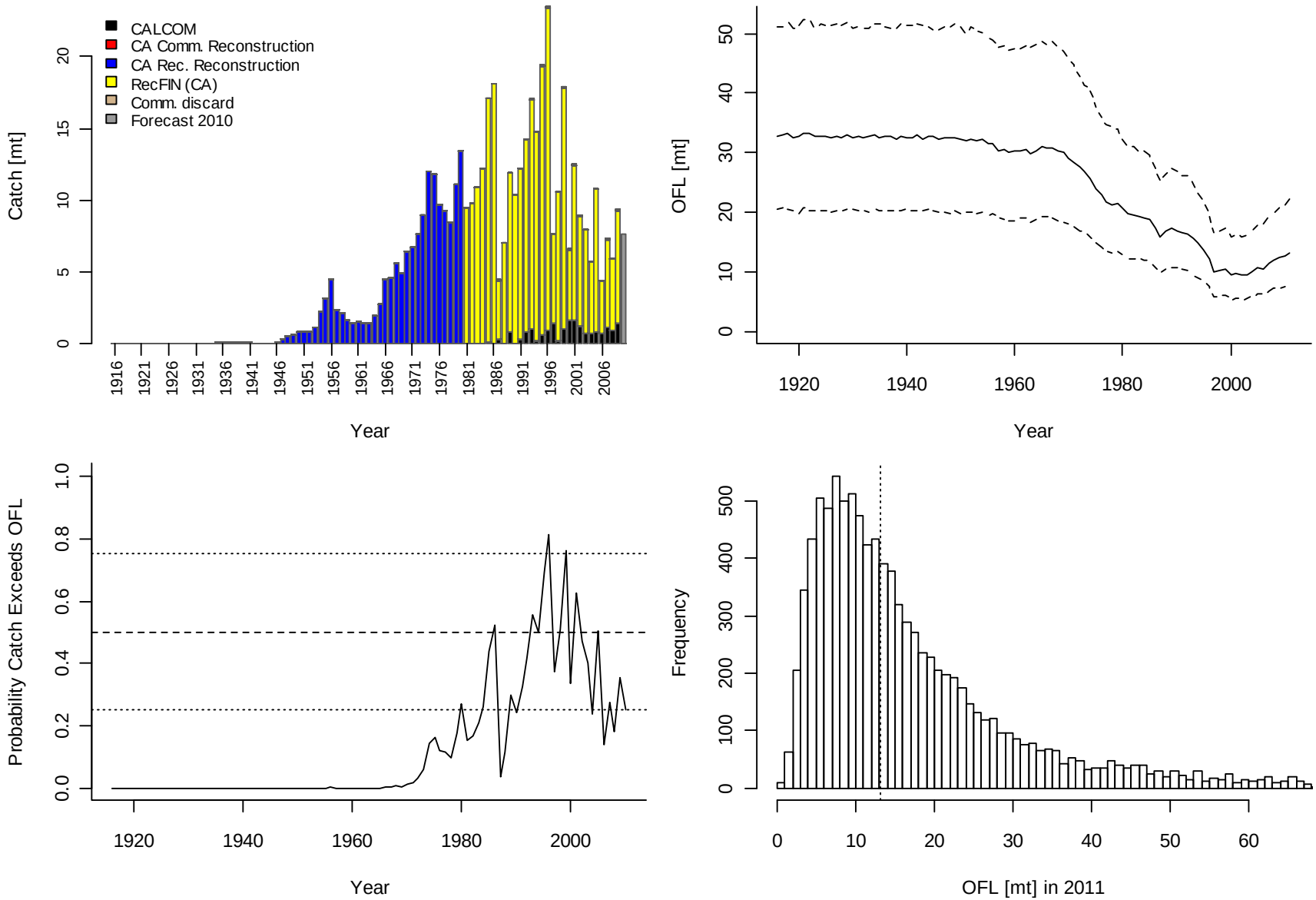


Figure 43. DB-SRA results for sharpchin rockfish (*Sebastes zacentrus*). See text for description of figures.

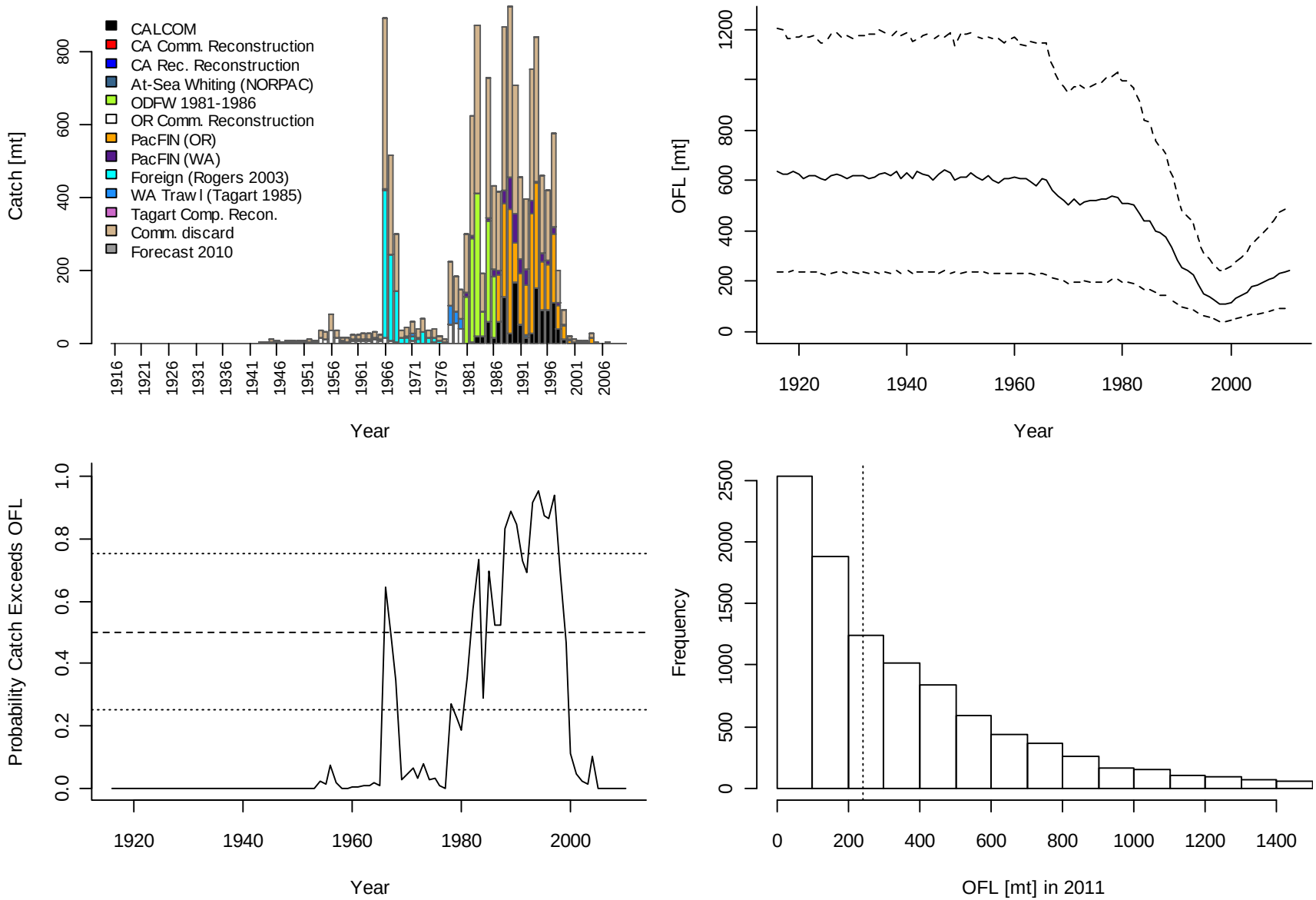


Figure 44. DB-SRA results for Pacific sanddab (*Citharichthys sordidus*). See text for description of figures.

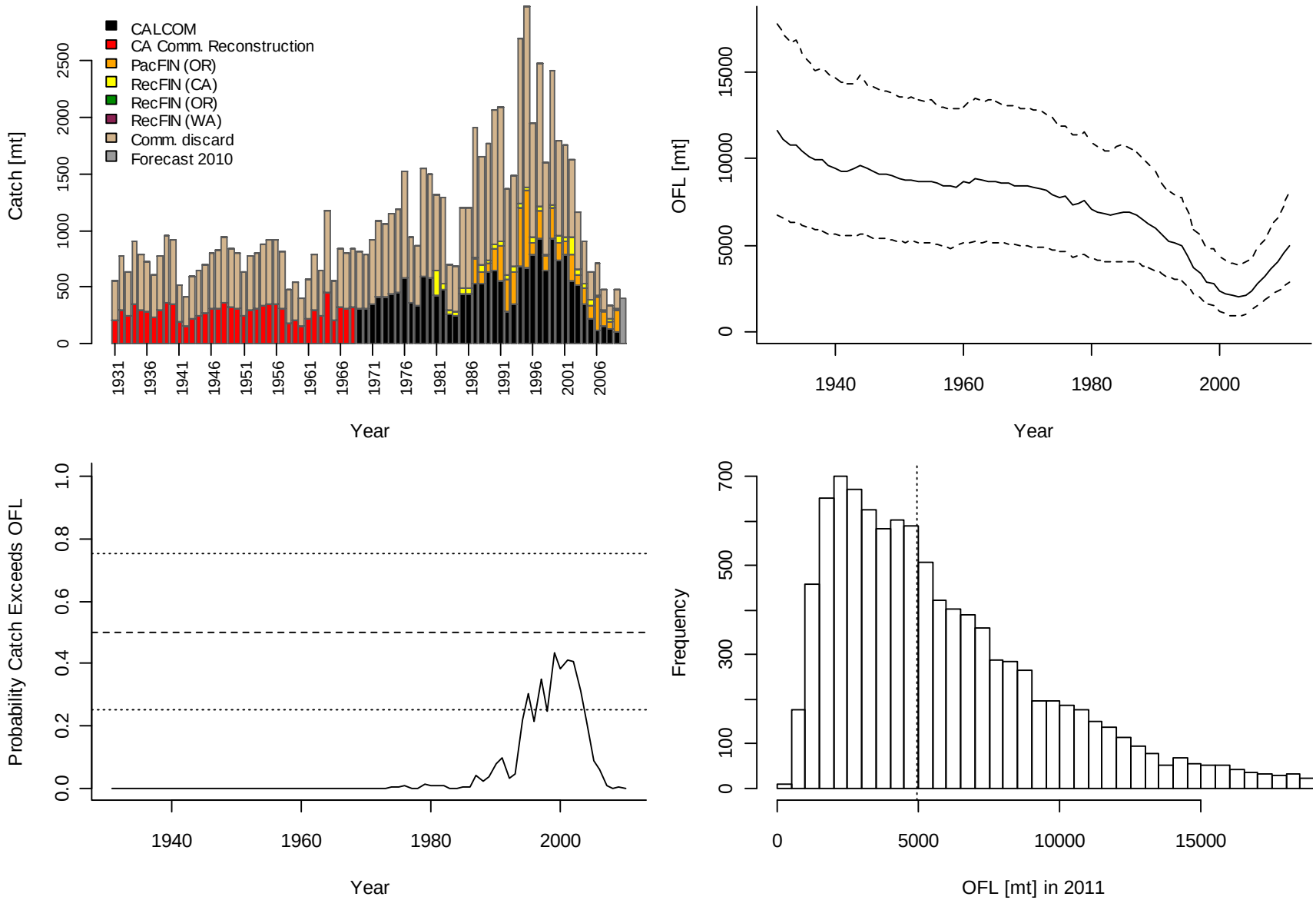


Figure 45. DB-SRA results for rex sole (*Glyptocephalus zachirus*). See text for description of figures.

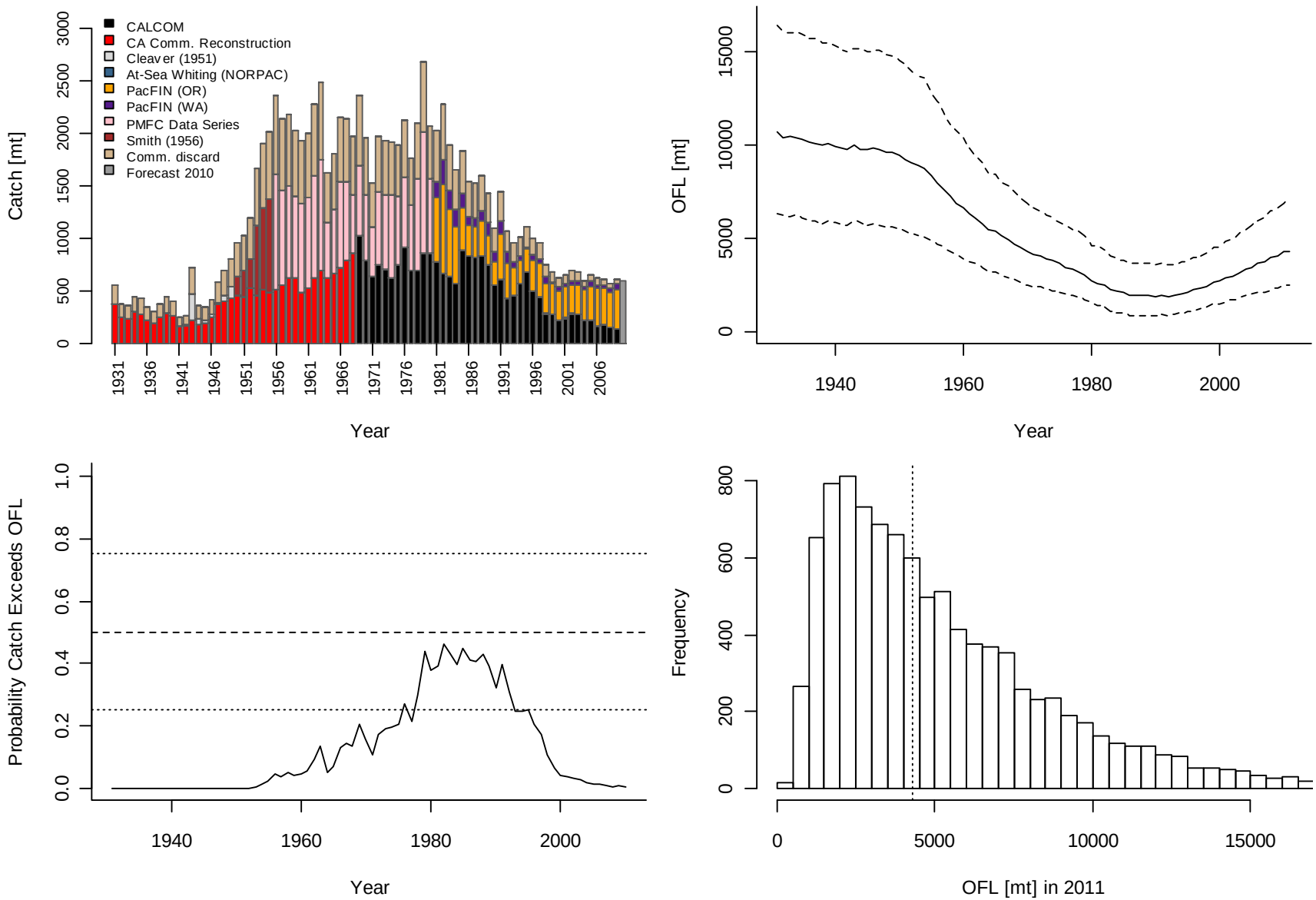


Figure 46. DB-SRA results for rock sole (*Lepidopsetta bilineata*). See text for description of figures.

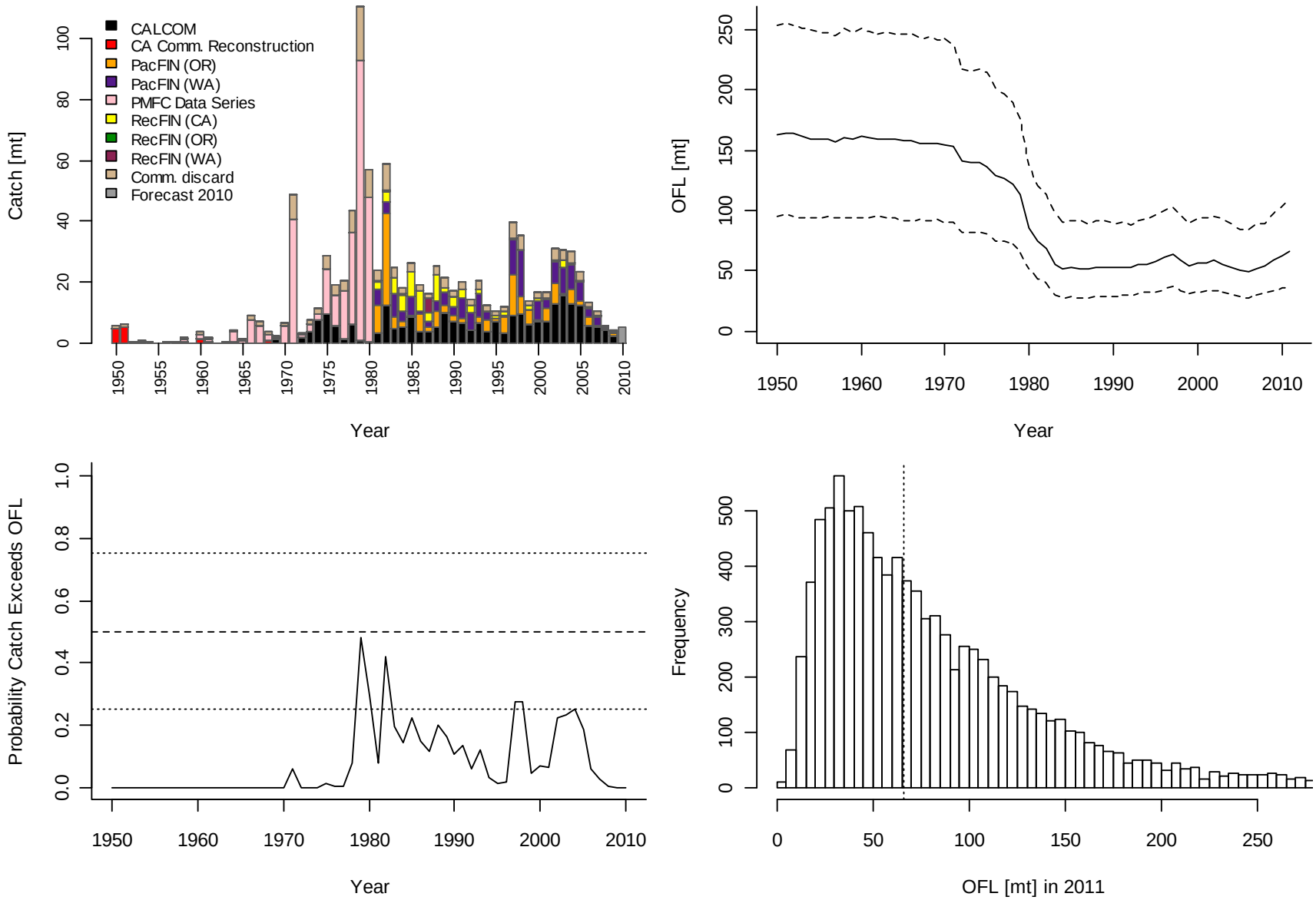


Figure 47. DB-SRA results for sand sole (*Psettichthys melanostictus*). See text for description of figures.

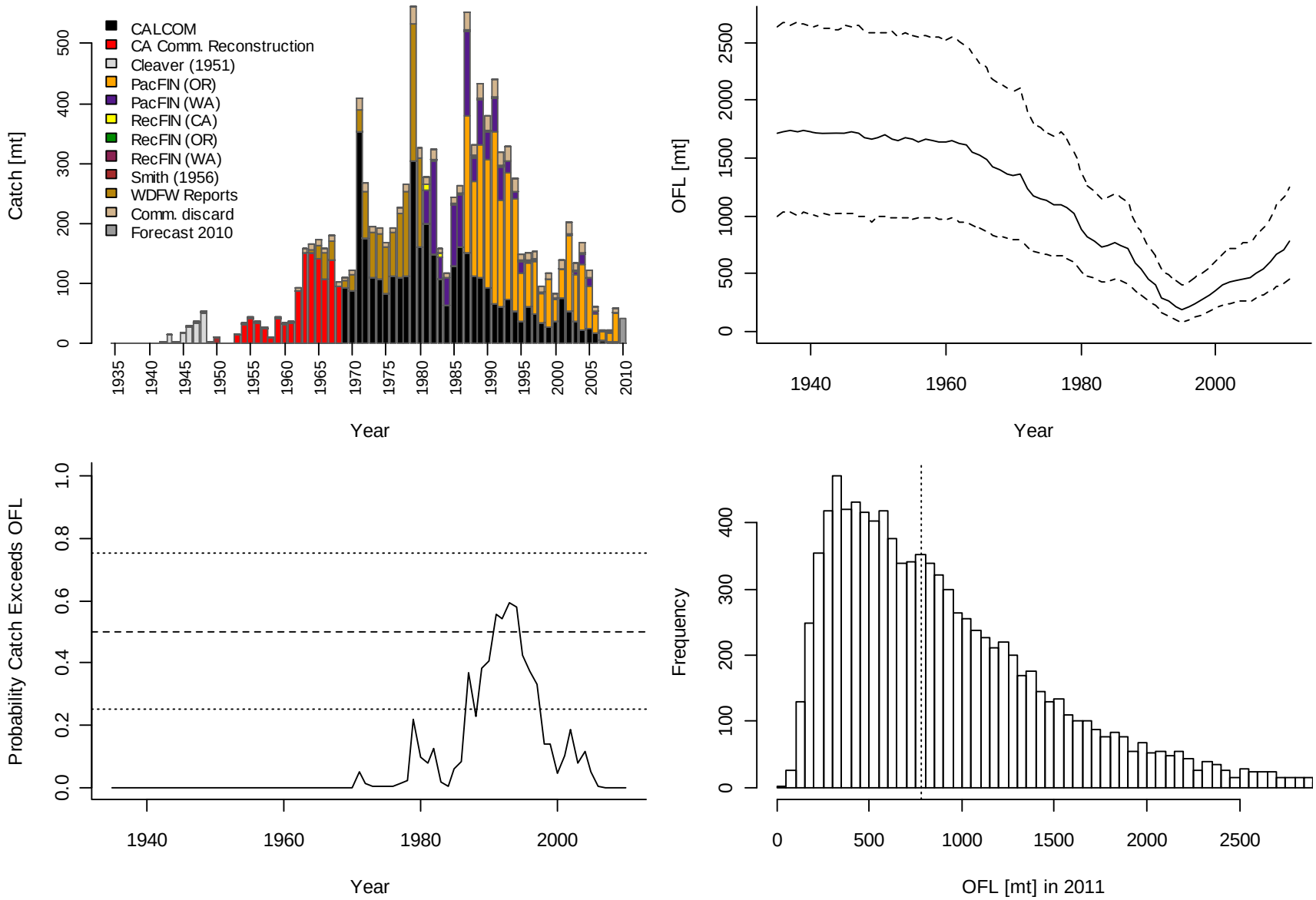


Figure 48. DB-SRA results for spiny dogfish (*Squalus acanthias*). See text for description of figures.

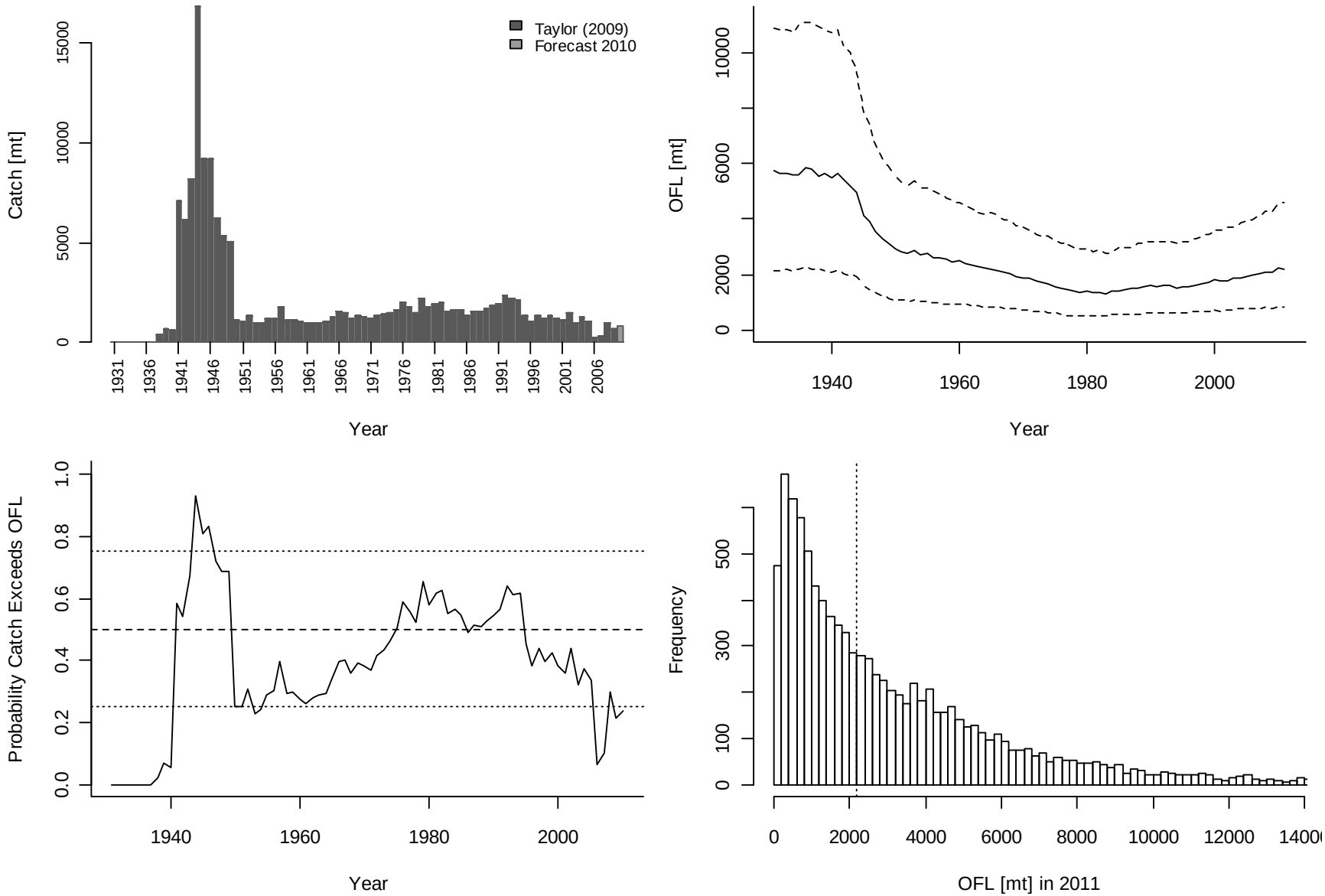


Figure 49. DB-SRA results for leopard shark (*Triakis semifasciata*). See text for description of figures.

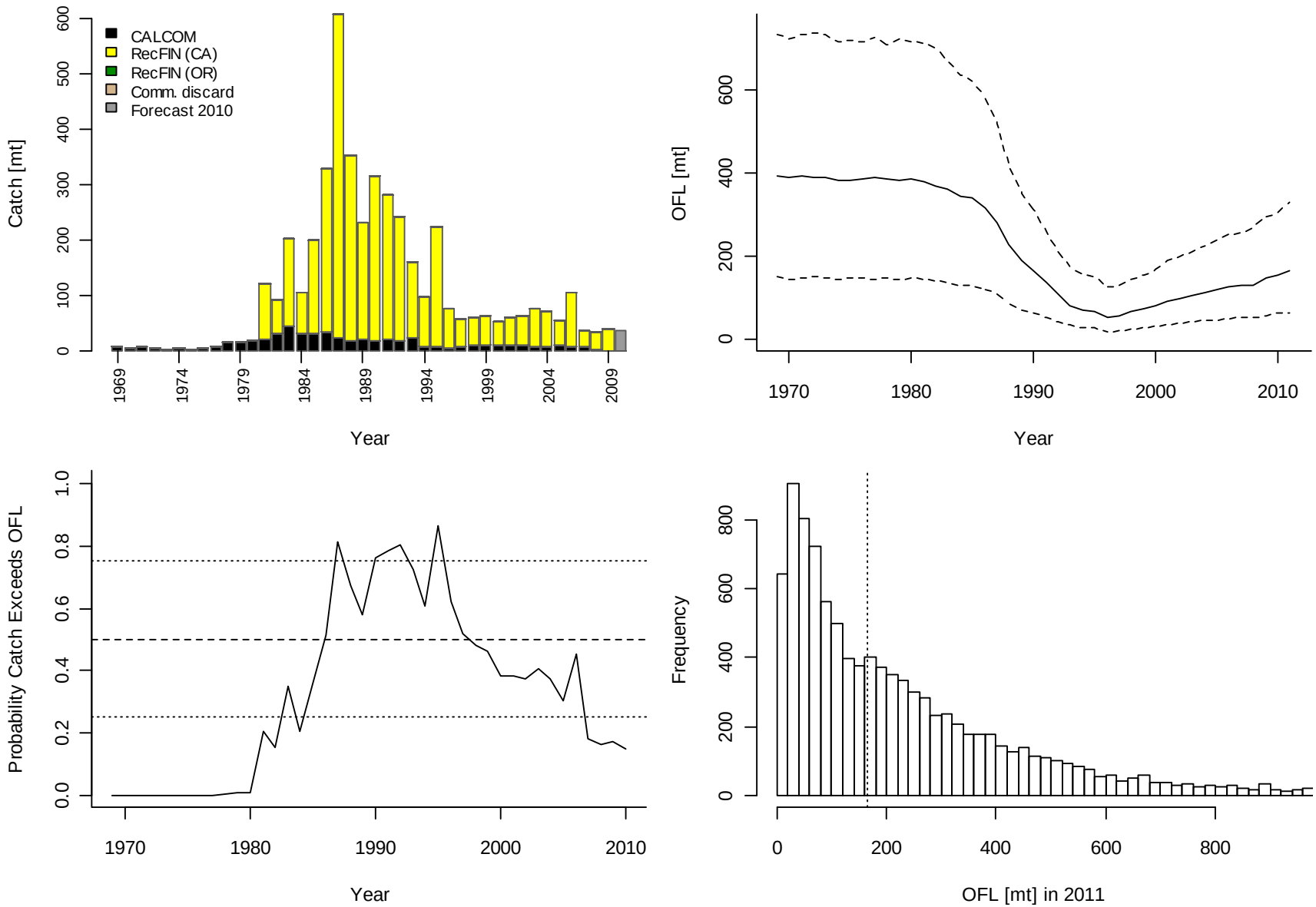


Figure 50. DB-SRA results for unspecified grenadiers (family Macrouridae). See text for description of figures.

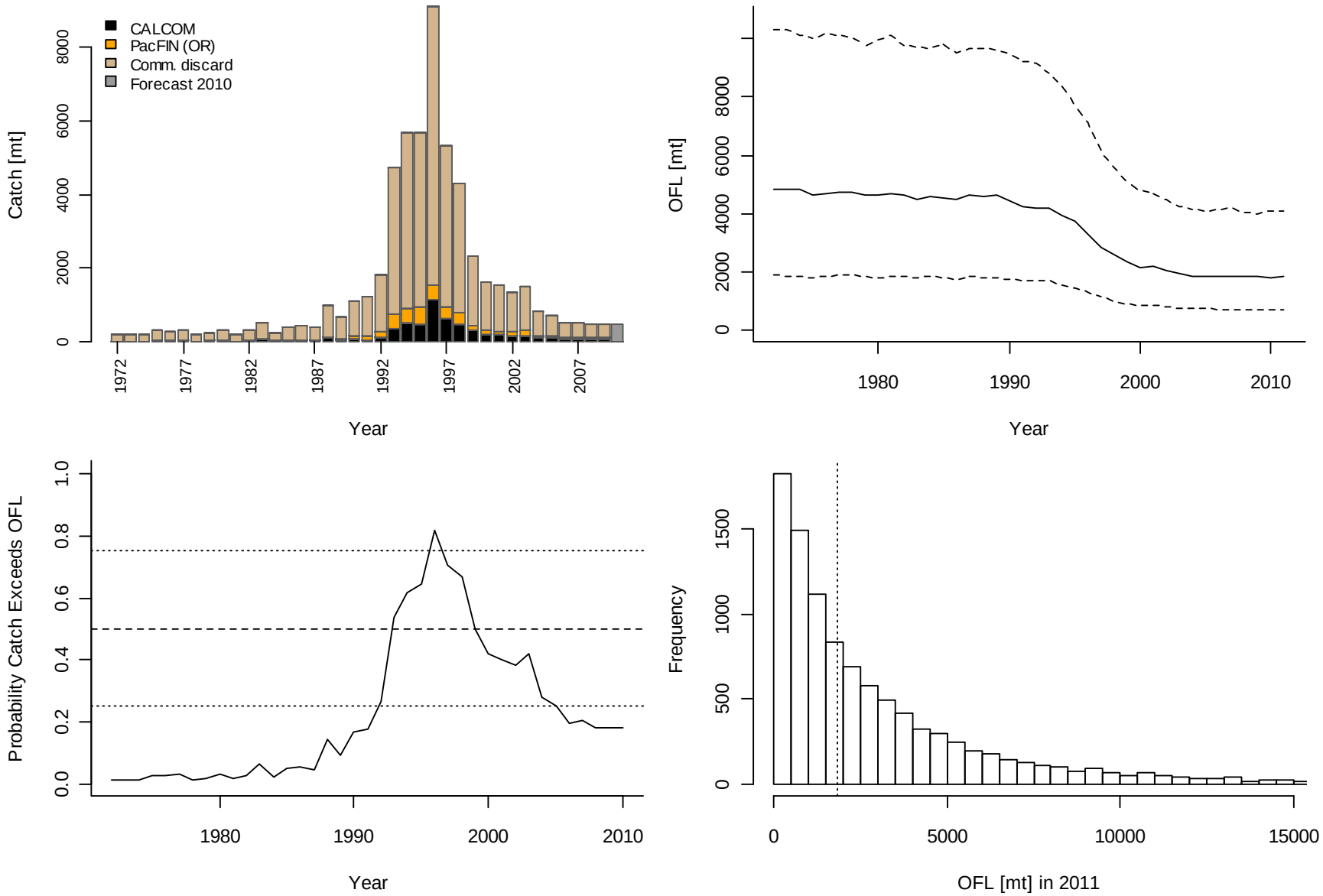


Figure 51. DB-SRA results for kelp greenling (*Hexagrammos decagrammus*) in California. See text for description of figures.

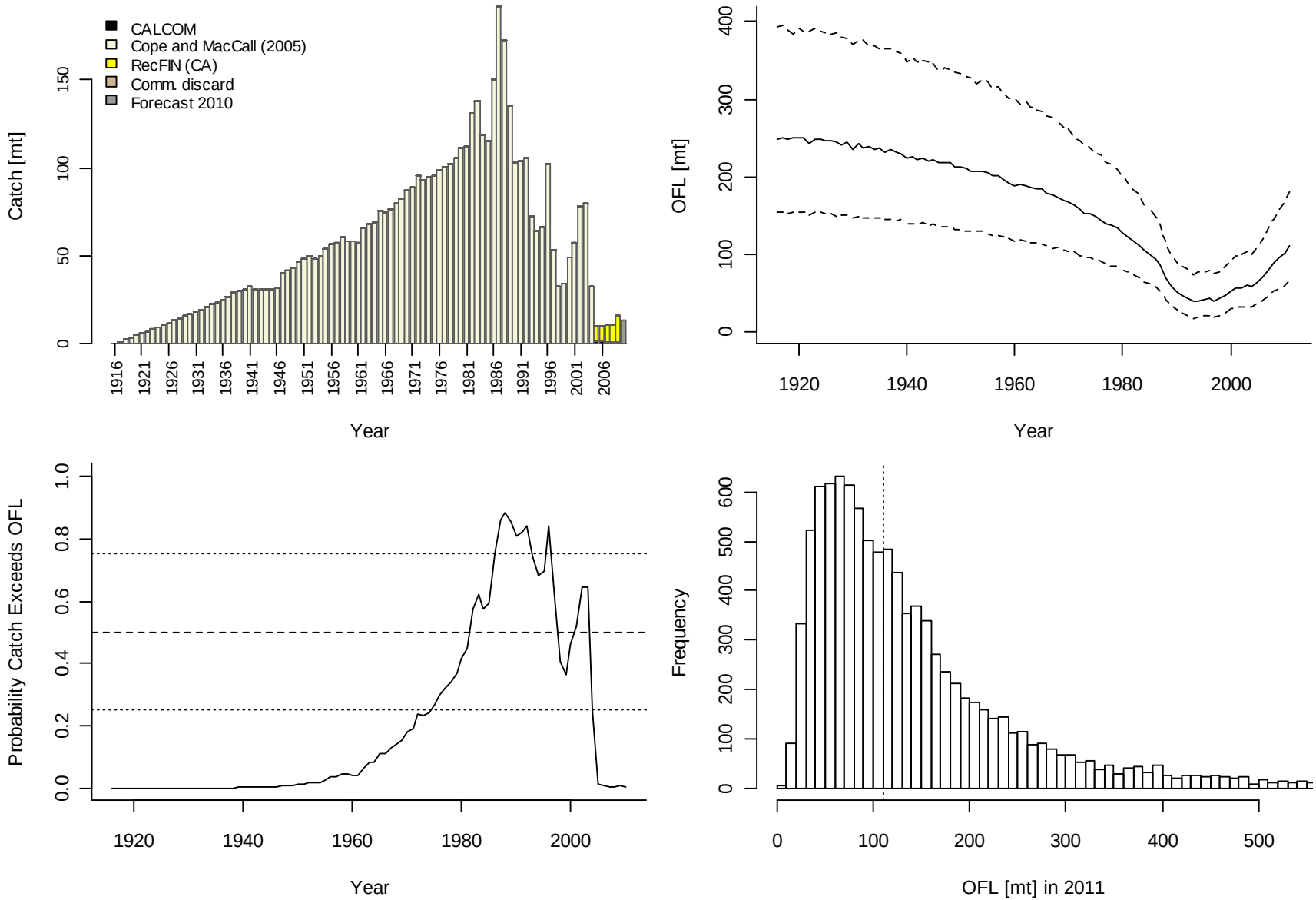


Figure 52. Box-and-whisker plots of bias-correction distributions, i.e. OFLs from DB-SRA relative to OFLs from stock assessments. Thick black lines = medians, box = inter-quartile ranges, whiskers = 2.5% and 97.5% quantiles, circles = means. Dotted reference line is unity (perfect agreement). "All.spp" is the combination of relative distributions from 31 stock assessment comparisons. Productivity-based distributions represent flatfish species, non-flatfish high-productivity species, and non-flatfish low-productivity species.

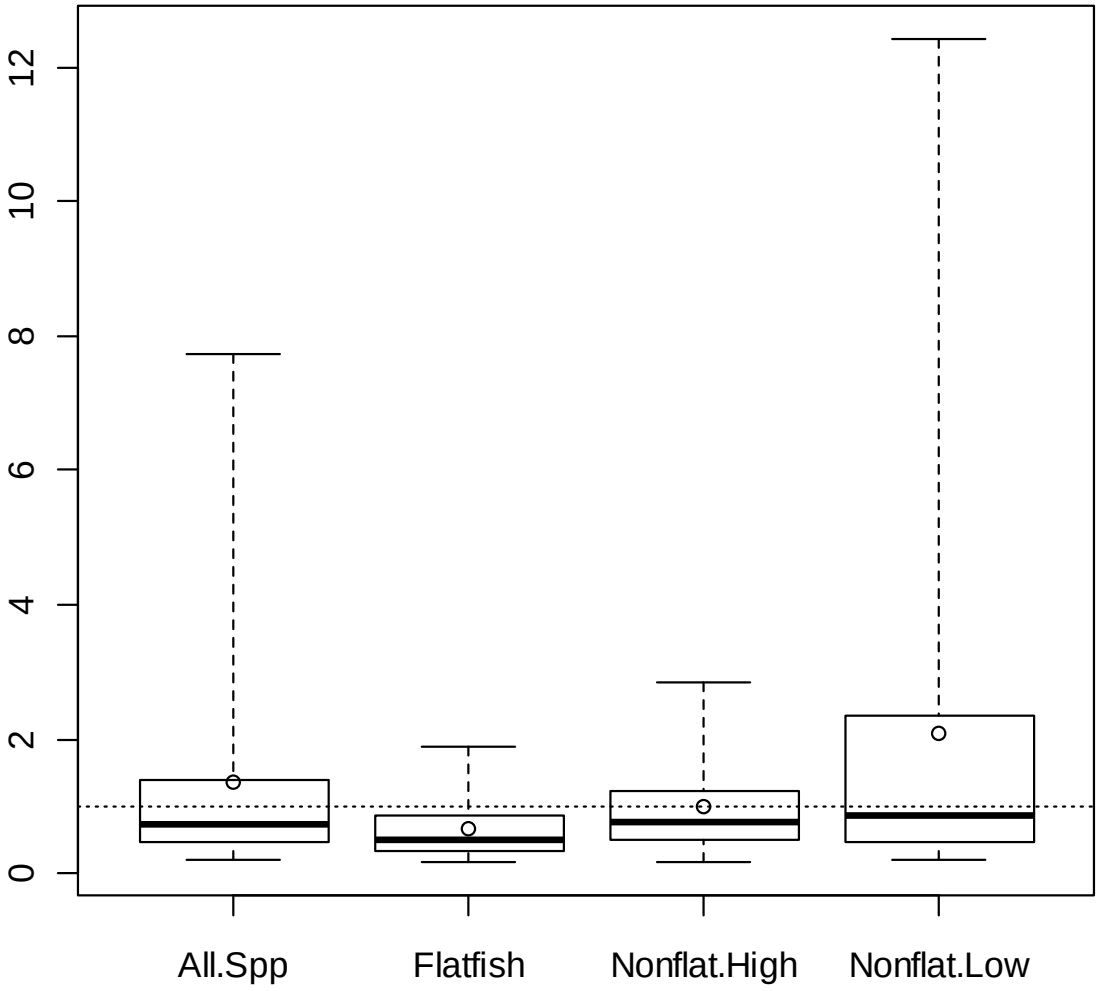


Figure 53. DCAC results for gopher rockfish (*Sebastes carnatus*) south of 34° 27′ N. latitude. See text for description of figures.

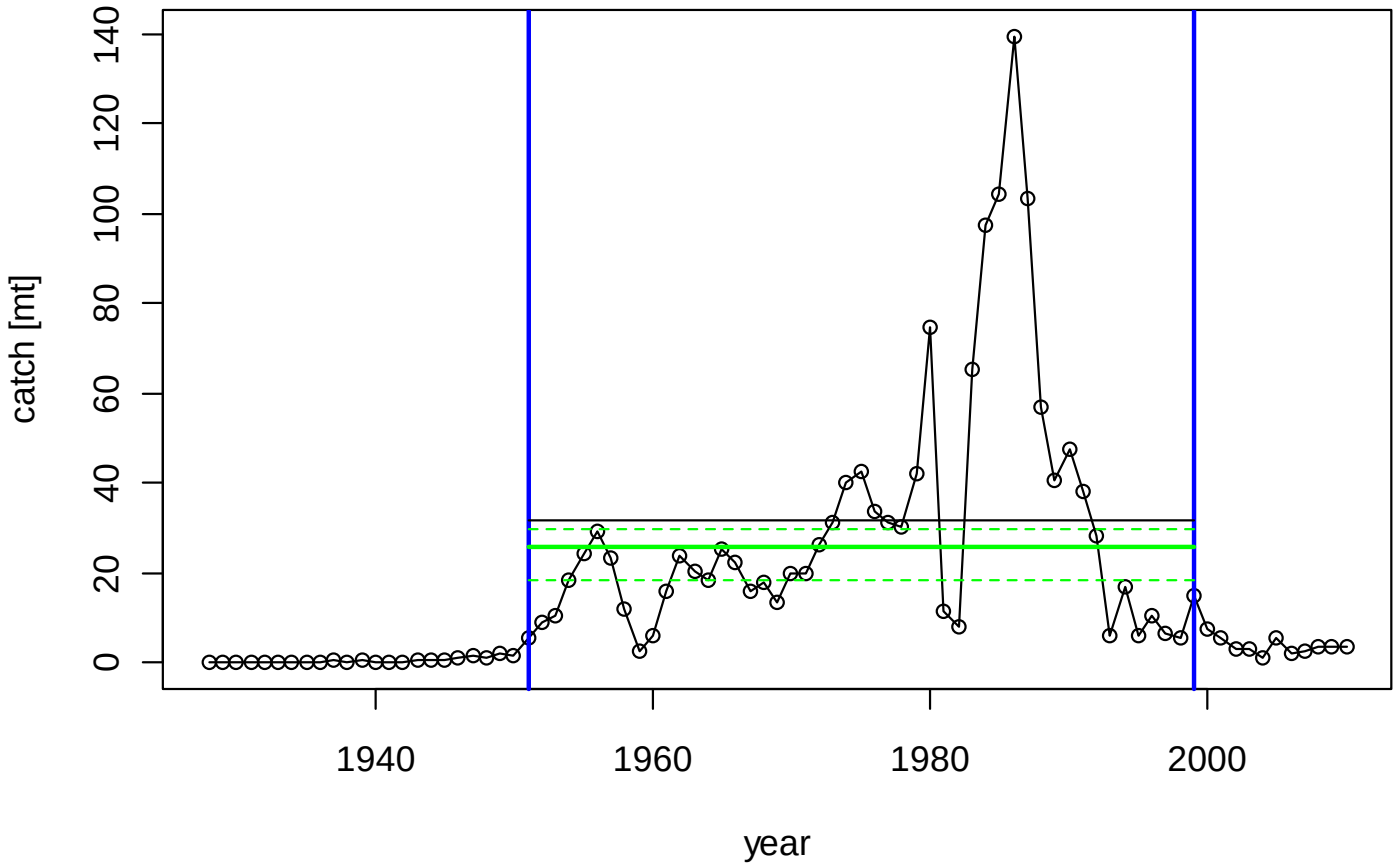


Figure 54. DCAC results for squarespot rockfish (*Sebastes hopkinsi*). See text for description of figures.

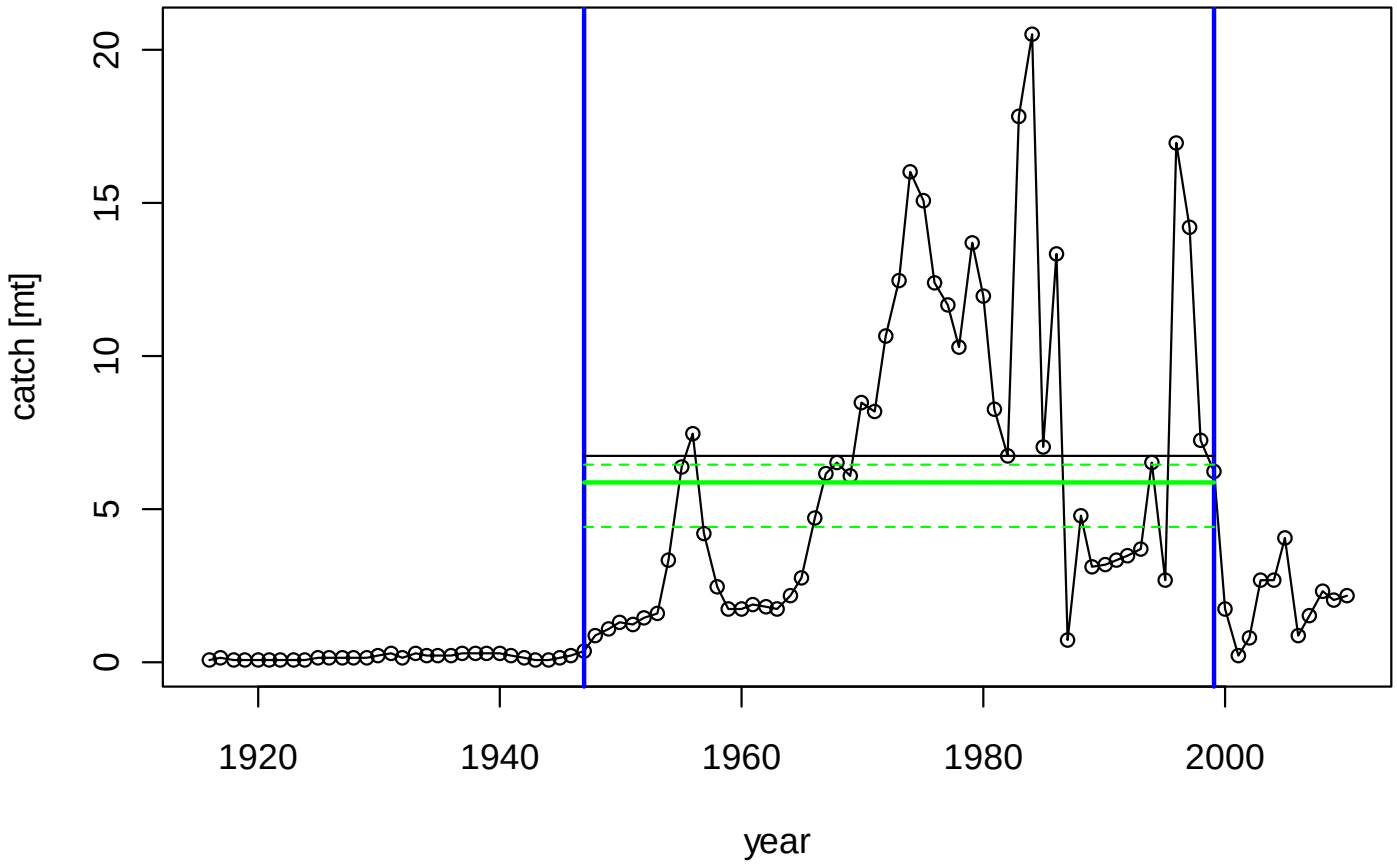


Figure 55. DCAC results for Mexican rockfish (*Sebastes macdonaldi*). See text for description of figures.

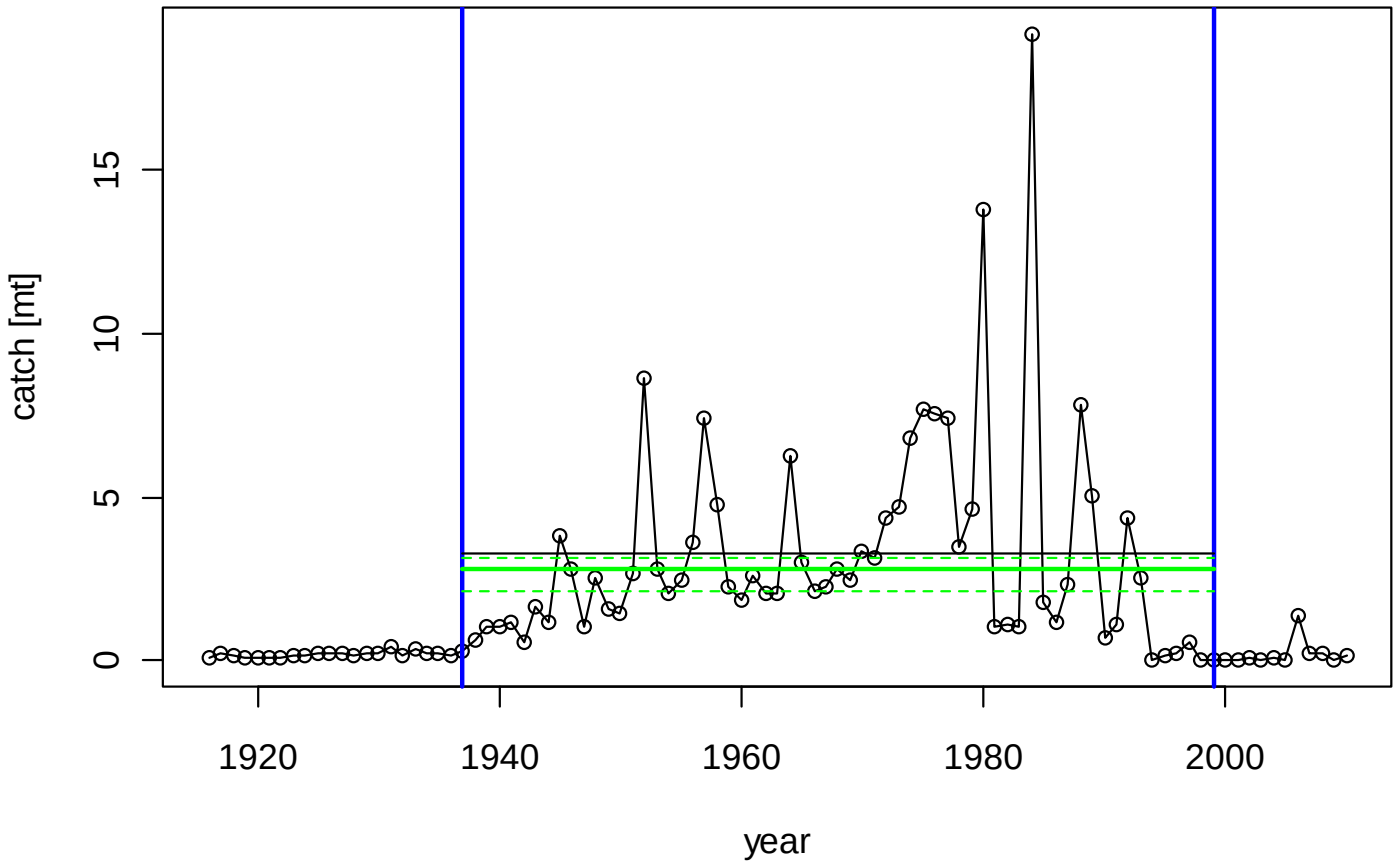


Figure 56. DCAC results for blackgill rockfish (*Sebastes melanostomus*) north of 40° 10′ N. latitude. See text for description of figures.

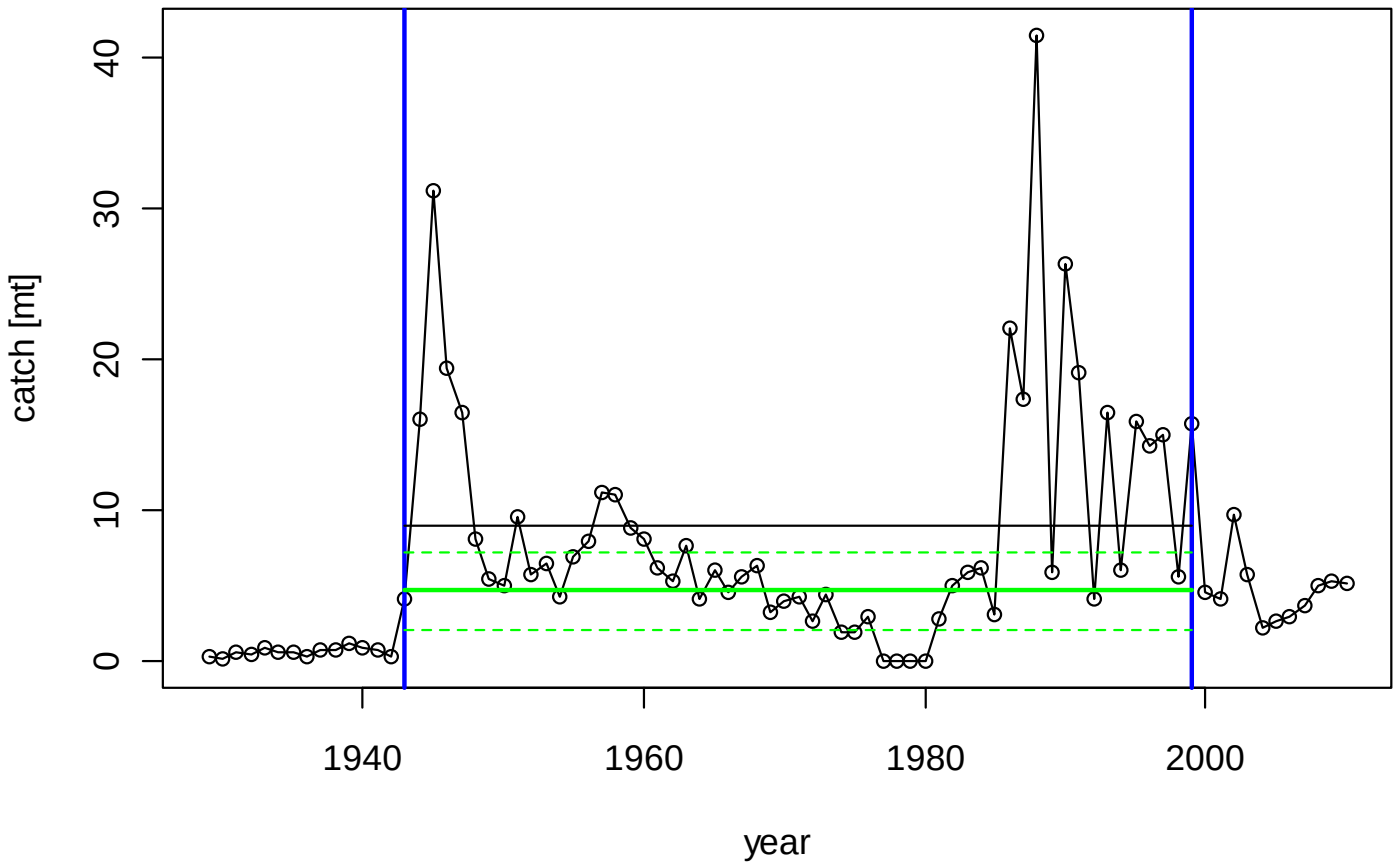


Figure 57. DCAC results for blue rockfish (*Sebastes mystinus*) south of 34° 27′ N. latitude. See text for description of figures.

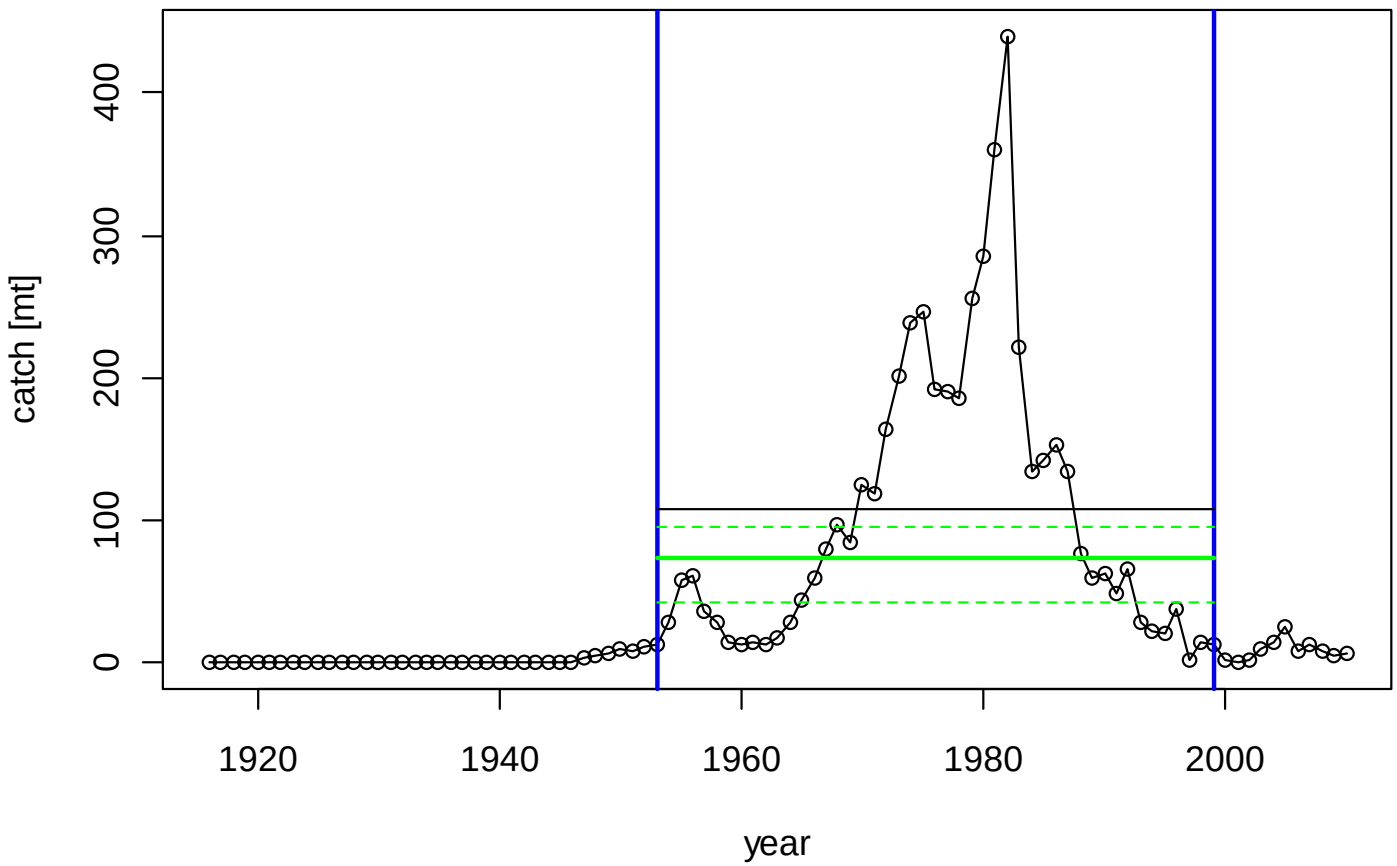


Figure 58. DCAC results for blue rockfish (*Sebastes mystinus*) north of 42° N. latitude. See text for description of figures.

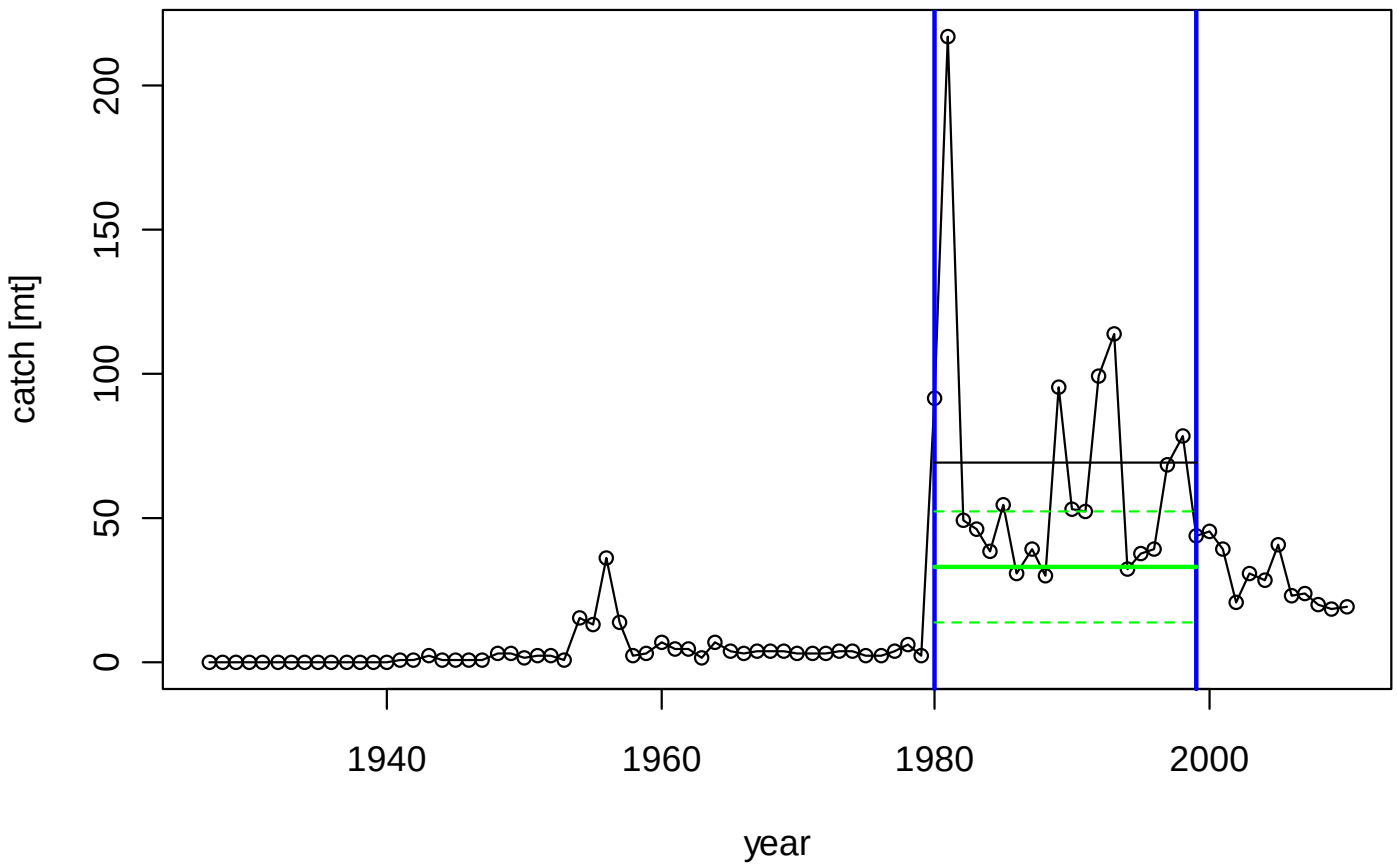


Figure 59. DCAC results for honeycomb rockfish (*Sebastes umbrosus*).

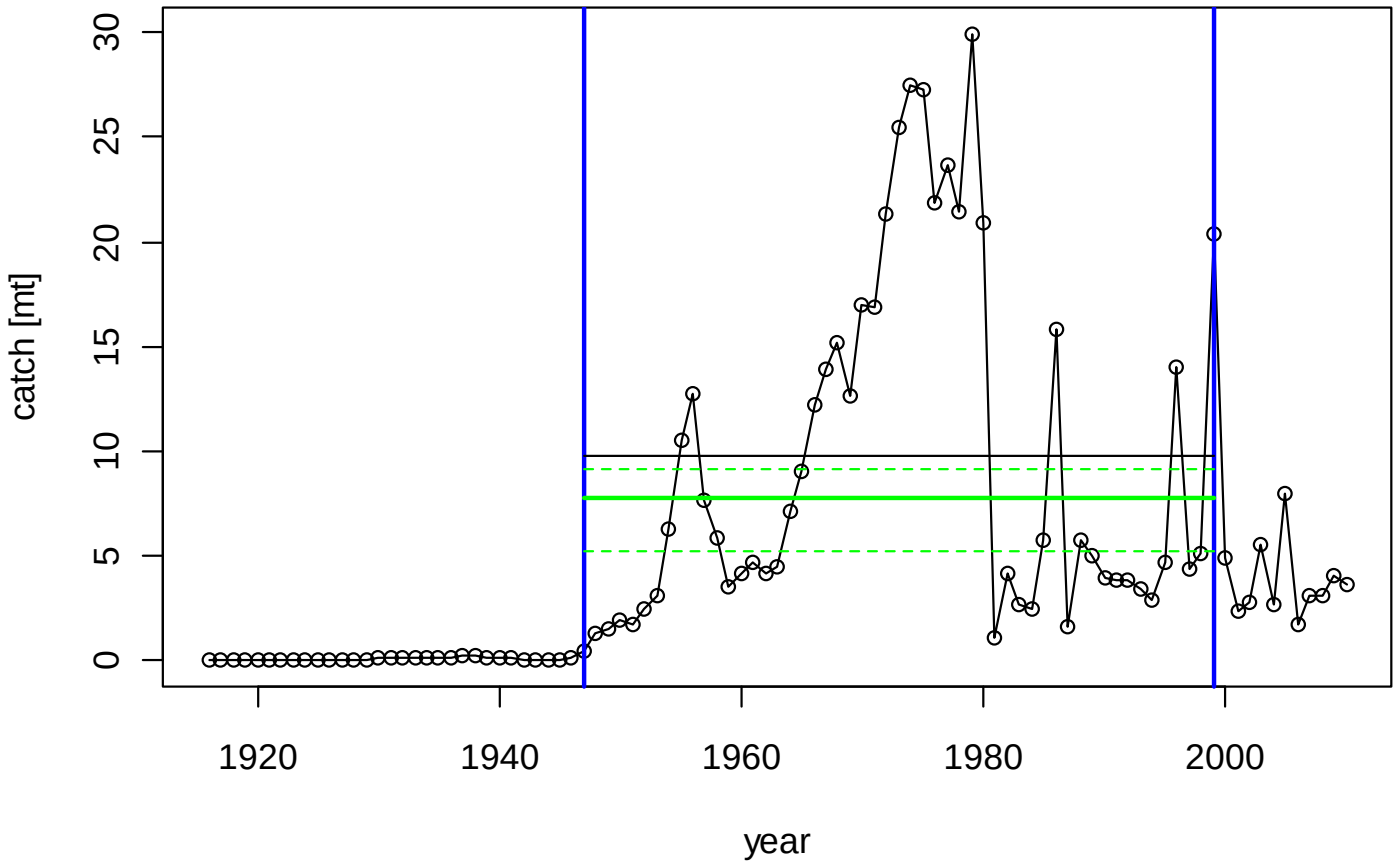


Figure 60. DCAC results for soupfin shark (*Galeorhinus zyopterus*). See text for description of figures.

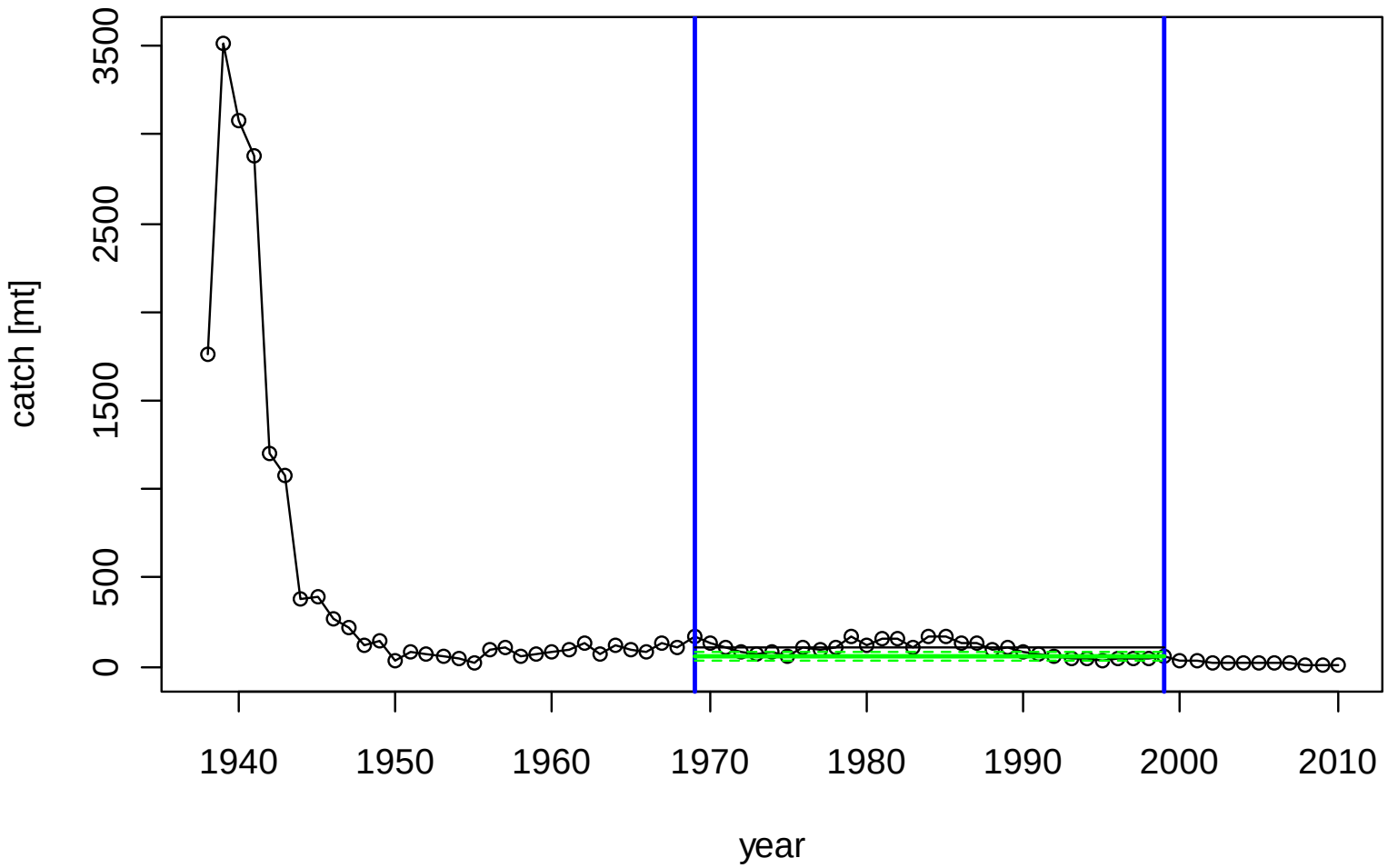
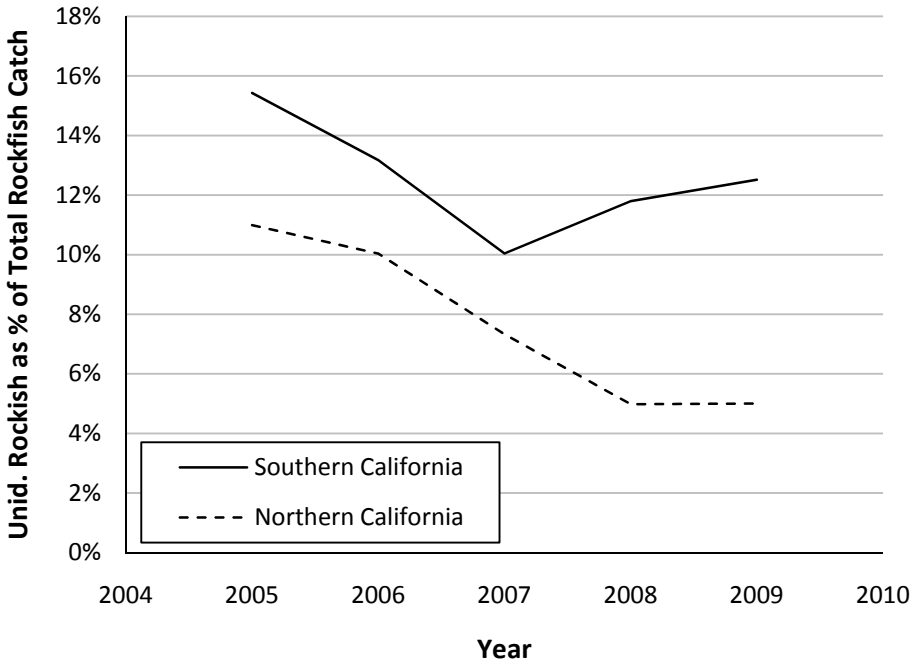


Figure 61. Percentage of unidentified rockfish in Southern California (CRFS Districts 1 & 2) and Northern California (CRFS Districts 3-6), 2005-2009. Percentages are based on numbers of fish, summing catch types A+B1+B5 (calculated total dead fish). Thornyheads (genus *Sebastolobus*) are not included in totals.



Appendix A. Structured Query Language (SQL) for Data Retrieval

PacFIN (source of Oregon and Washington commercial landings, 1981-2009)
[query date: 2/25/2010; see text for details regarding OR rockfish landings, 1981-86]

```
SELECT    (sc.lbs/2204.62) "catch.mt", sc.spid, sc.year, sc.arid, sc.pcid,
          sp.cname, sc.agglvl, sc.period
FROM      sc, gr, ar, sp
WHERE     ar.arid = sc.arid and
          sp.spid = sc.spid and
          gr.grid = sc.grid and
          ar.arid in ('UP','1A','1B','1C','2A','2B','2C','3A','3B','3S') and
          pcid in ('AOR','AWA') and
          sp.mgrp = 'GRND' and
          substr(sp.cname, 1, 1)<>'_' and
          agglvl = 'Y' and
          gr.type = 3
ORDER BY  pcid, year, spid
```

CALCOM (source of California commercial landings, 1969-2009)
[query date: 2/24/2010]

```
SELECT      Sum(com_lands.pounds)/2204.62 AS 'catch.mt',
            com_lands.species AS 'sp.code', com_lands.year AS 'year',
            com_lands.port_complex AS 'area', species_codes.species_grp
FROM        CALCOM.dbo.com_lands com_lands, CALCOM.dbo.species_codes species_codes
WHERE       (species_codes.species_grp IN ('ROCKFISH', 'FLATFISH', 'OTHER_GF',
            'SHARK', 'SKATE')) AND
            (com_lands.species=species_codes.calcom_code) OR
            (com_lands.species In ('RATF')) AND
            (com_lands.species=species_codes.calcom_code)
GROUP BY    com_lands.species, com_lands.year, com_lands.port_complex,
            species_codes.species_grp
ORDER BY    com_lands.species, com_lands.year, com_lands.port_complex
```

NORPAC (source of at-sea catch by Pacific whiting fleet, 1991-2008; obtained via PacFIN)
[query date: 2/25/2010]

```
SELECT     NPAC4900.year, sp.spid, sp.cname, ar.arid,
           sum(NPAC4900.total_weight) as total_mt,
           sum(NPAC4900.wt_retained) as retained_mt
FROM       NPAC4900, sp, ar
WHERE      NPAC4900.spid = sp.spid
           and NPAC4900.arid = ar.arid
           and ar.arid in ('UP','1A','1B','1C','2A','2B','2C','3A','3B','3S')
           and sp.mgrp = 'GRND'
GROUP BY   NPAC4900.year, sp.spid, sp.cname, ar.arid
ORDER BY   year, spid, arid
```

California commercial catch reconstruction (1916-1968; obtained via CALCOM)
[query date: 2/25/2010]

```
SELECT    Sum(RECON_COM_LANDS.pounds)/2204.62 AS 'catch.mt',
          RECON_COM_LANDS.species AS 'sp.code',
          RECON_COM_LANDS.year AS 'year', RECON_COM_LANDS.region_caught AS 'area',
          RECON_COM_LANDS.gear, RECON_COM_LANDS.source,
          species_codes.common_name, species_codes.species_grp
FROM      CALCOM.dbo.RECON_COM_LANDS RECON_COM_LANDS,
          CALCOM.dbo.species_codes species_codes
WHERE     RECON_COM_LANDS.species = species_codes.calcom_code AND
          (species_codes.species_grp In ('ROCKFISH','FLATFISH','OTHER_GF'))
GROUP BY  RECON_COM_LANDS.year, RECON_COM_LANDS.species,
          RECON_COM_LANDS.region_caught,
          RECON_COM_LANDS.gear, RECON_COM_LANDS.source,
          species_codes.common_name, species_codes.species_grp
ORDER BY  RECON_COM_LANDS.year, RECON_COM_LANDS.species,
          RECON_COM_LANDS.region_caught
```

California recreational catch reconstruction (1928-1980; obtained via CALCOM)
[query date: 2/25/2010]

```
SELECT     Sum(RECON_REC_LANDS.POUNDS)/2204.62 AS 'catch.mt',
           RECON_REC_LANDS.SPECIES AS 'sp.code',
           RECON_REC_LANDS.YEAR AS 'year',
           RECON_REC_LANDS.AREA AS 'area',
           species_codes.common_name, species_codes.species_grp
FROM       CALCOM.dbo.RECON_REC_LANDS RECON_REC_LANDS,
           CALCOM.dbo.species_codes species_codes
WHERE      RECON_REC_LANDS.SPECIES = species_codes.calcom_code
GROUP BY   RECON_REC_LANDS.SPECIES, RECON_REC_LANDS.YEAR, RECON_REC_LANDS.AREA,
           species_codes.common_name, species_codes.species_grp
```

Appendix B: Specification of Beta Distributions

If X is a beta-distributed random variable on the interval [0, 1] with parameters α and β., the mean and variance of X are

$$E\{X\} = \mu = \frac{\alpha}{\alpha + \beta}$$

$$Var\{X\} = \sigma^2 = \frac{\alpha\beta}{(\alpha + \beta)^2(\alpha + \beta + 1)}.$$

To specify X given a mean μ and variance σ^2, note that

$$\alpha = (\mu^2 - \mu^3 - \mu\sigma^2)/\sigma^2$$

$$\beta = (\mu - 2\mu^2 + \mu^3 - \sigma^2 + \mu\sigma^2)/\sigma^2.$$

To generate a beta distribution, Z, on the interval $[c, d]$, apply the linear transformation

$$Z = c + X(d - c).$$

The mean, variance, and coefficient of variation (CV) of the transformed distribution are

$$E\{Z\} = (d - c)E\{X\} + c$$

$$Var\{Z\} = (d - c)^2 Var\{X\}$$

$$CV\{Z\} = \frac{(d - c)\sqrt{Var\{X\}}}{(d - c)E\{X\} + c}.$$

To generate random draws from a beta distribution, Z, on the interval $[c, d]$ by specifying $E\{Z\}$ and $CV\{Z\}$, 1) calculate moments of the untransformed distribution using the following two equations

$$E\{X\} = \mu = \frac{E\{Z\} - c}{d - c}$$

$$Var\{X\} = \sigma^2 = \left[\frac{CV\{Z\}E\{Z\}}{d - c}\right]^2,$$

2) calculate α and β (see equations above), 3) generate random draws from the untransformed beta distribution on the unit interval, $X \sim Beta(\alpha, \beta)$, and 4) apply the linear transformation $Z = c + X(d - c)$.

Appendix C: Derivation of a hybrid Schaefer-PTF model emulating latent production from a Beverton-Holt SRR-driven model

First, we establish the generic shape of a BHSRR-driven production function. Mangel et al. (2009) developed the following simplified model, which we reinterpret as an annual difference model rather than the original differential equation model:

$$P = \frac{\alpha B}{1+\beta B} - MB \tag{C1}$$

where B is biomass, α and β are model parameters, and M is the natural mortality rate of spawning biomass on an annual basis. Mangel et al. show that unfished biomass (K) is

$$K = \frac{1}{\beta}\left(\frac{\alpha}{M} - 1\right) \tag{C2}$$

and if we want to scale the model to a value of K = 1, this has the solution

$$\beta = \frac{\alpha}{M} - 1 \tag{C3}$$

We also want to specify a specific fractional value $B_{peak} = B_{msy}/K$, which in the special case of unit unfished biomass (K = 1) is given by

$$B_{peak} = \frac{\sqrt{\frac{\alpha}{M}} - 1}{\frac{\alpha}{M} - 1} \tag{C4}$$

so that a value of α/M can be obtained for a given value of B_{peak}. An arbitrary value of M (such as 0.2) can be used, which establishes the value of α. The value of β is obtained from the solution of equation (C3), so we have now specified the generic shape of the BHSRR-driven latent production function with a specified value of B_{peak}.

We now replace this BHSRR with a nearly exact equivalent based on the Pella-Tomlinson-Fletcher (PTF) generalized production model (Fletcher 1978). Fletcher's reparameterization of the Pella-Tomlinson model (Pella and Tomlinson, 1969), again cast as an annual difference model, gives latent annual production as

$$P = gm\left(\frac{B_{t-a}}{K}\right) - gm\left(\frac{B_{t-a}}{K}\right)^n, \tag{C5}$$

where exponent n (n > 0) determines the skewness and

$$g = \frac{n^{n/(n-1)}}{n-1}, \tag{C6}$$

which is positive if n > 1 and is negative for 0 < n < 1. Parameter m is the MSY, and as before, K is the unfished biomass. Note that B_{peak} is a function only of n: $B_{peak} = n^{1/(1-n)}$ for n > 1 and 0 < n < 1, and $B_{peak} = e^{-1}$ if n = 1.

As noted by McAllister et al. (2000), a major drawback of the PTF model is that modeled productivity near the origin can be unrealistically high, especially when 0 < n < 1 (i.e., $B_{peak} < e^{-1}$). To address this problem, McAllister et al. proposed a hybrid Schaefer-PTF model in which a PTF model is used at values $B > B_{msy}$, and that a Schaefer model (n = 2) be used for $0 < B < B_{msy}$, with a "join-point" (B_{join}) at B_{msy}. From a comparison of production-to-biomass ratios from the PTF model and the hybrid model of McAllister et al. relative to that from a BHSRR (Figure 1, main text), it appears that the hybrid model has too low a productivity at low biomass.

We propose a closer approximation to a BHSRR-driven model through a modification of the hybrid model of McAllister et al., specifically by choosing a join-point based on goodness of fit to the BHSRR production-to-biomass ratio at low abundances. The Schaefer model has a linear production-to-biomass ratio, so the slope of the Schaefer model for $B < B_{join}$ is equal to the slope of the PTF production-to-biomass ratio (c) at the join point, which for the PTF model is

$$c = (1-n)gmB_{join}^{n-2}K^{-n}. \qquad \text{(C7)}$$

For $B < B_{join}$, the corresponding Schaefer production model is

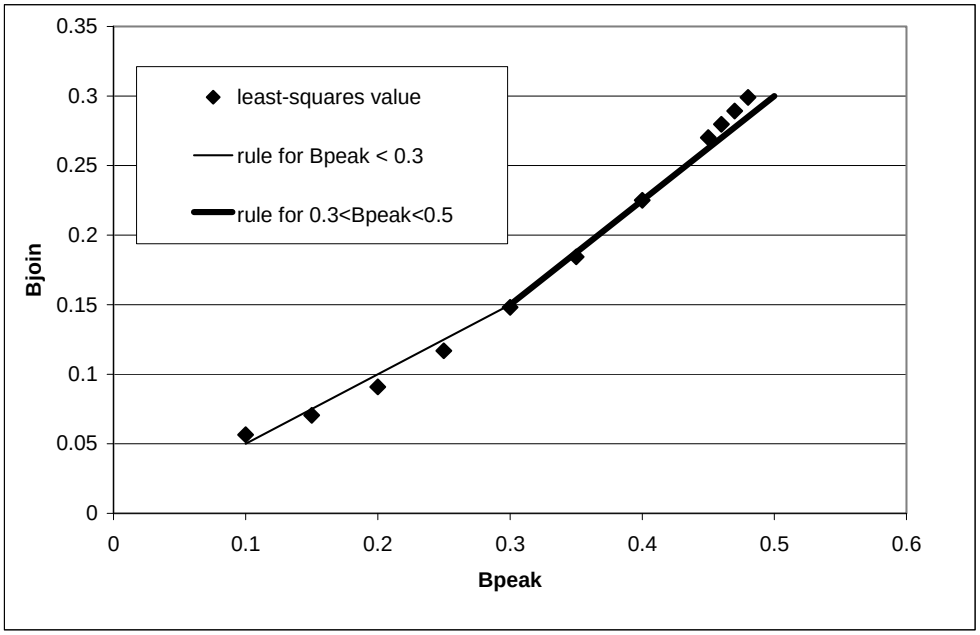
$$P = B\big(P(B_{join})/B + c(B - B_{join})\big). \qquad \text{(C8)}$$

The optimal values of B_{join} were determined by means of a least-squares solution of the difference between the P/B values of the BHSRR model and those of the Schaefer model evaluated at ten evenly-spaced locations on the interval [0.05K, B_{join}]; these values of B_{join} are shown in Figure C1. Rather than re-estimating the optimal value of B_{join} for each Monte Carlo draw, we use the following set of linear rules (solid lines in Figure A1):

- if Bpeak < 0.3, B_{join} = 0.5Bpeak ;
- if 0.3 < Bpeak < 0.5, B_{join} = 0.75Bpeak - 0.75;
- if Bpeak > 0.5, use PTF model for all B.

Note that as Bpeak approaches 0.5, the PTF model approaches being a Schaefer model, and the hybrid model becomes insensitive to the precise location of B_{join}.

Figure C1. Least squares values of hybrid Schaefer-PTF join-points to approximate a Beverton-Holt SRR, and linear approximations to optimal join-points.



Appendix D. Algorithm for Depletion-Based Stock Reduction Analysis

Iterate the following steps 10,000 times:

Draw parameter values from their assumed distributions:

1) Draw a natural mortality rate (M),
2) Draw a ratio of MSY fishing rate to M (F_{msy}/M),
3) Draw a value of B_{peak}, and
4) Draw a relative abundance level (B_T/K) in a specific recent year T which does not have to be the final year in the time series.

Specify the production function:

5) Based on the value of B_{peak}, calculate the value of the PTF skewness parameter, n, by numerical solution of $B_{peak} = n^{1/(1-n)}$.
6) Calculate $g = \frac{n^{n/(n-1)}}{n-1}$, which is positive if n > 1, and is negative for n < 1.
7) Obtain an approximate initial estimate of K (an improved initial approximation should be possible after experience is gained from the first few iterations).
8) Calculate MSY as $m = K \cdot B_{peak} \cdot U_{msy}$, where $U_{msy} = \left(\frac{F_{msy}}{F_{msy}+M}\right)\left(1 - e^{-(F_{msy}+M)}\right)$

9) If $B_{peak} < 0.5$, calculate the join-point, Bjoin according to the rule in Appendix C.

Iteratively solve for unfished abundance, K:

10) Use the delay-difference equation (1) to estimate the time series of abundances from $B_0 = K$ to B_T.
    a. Note that because of the delay term, the latent production in the first a years of the time series is zero because the parental biomass was at the unfished level.
11) Iteratively adjust the trial value of K until the value of B_T satisfies the given value of B_T/K.
12) If successful, add the parameter set and derived management quantities to the collection of successful trials, else go to step 13.
    a. $B_{msy} = K(B_{msy}/K)$
    b. $F_{msy} = M(F_{msy}/M)$
    c. $MSY = B_{msy} \cdot U_{msy}$
    d. $OFL = C_{Fmsy} = Bt \cdot U_{msy}$
    e. Project abundances to the present or future times t > T, if desired, based on observed or assumed catches (this is necessary to estimate current sustainable yields).
13) If the drawn set of parameters is rejected (Bt ≤ 0 for some t), add the parameter set and derived management quantities to the collection of unsuccessful trials.

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