Groundfish Assessment Prioritization to Inform the Selection of Species for Assessment in 2025 and Additional Considerations

Groundfish Asssessment Prioritization Tool

A new webpage, pfmc-groundfish-assessment-prioritization, to present the overall scoring by species and for each factor was developed for 2024. The webpage replaces the Excel workbook provided in previous cycles. The webpage allows the user to navigate between the overall rankings, ranking by each of the ten factors, and to access the methodology information.

The information available in the web tool are similar to information provided in previous cycles. The information available by tab are:

- The Methodology tab describes the methodology in calculating each factor.
- The 2024 Overall Ranking tab provides rankings by species. The rankings are shown via an interactive plot that reflects the contributions from each factor in the overall rank by species and also shown below in table format.
- The tool allows users to adjust the weights assigned to each factor. This provides the opportunity to explore alternative weighting approaches and how they impact overall rankings. Users can also download the overall ranking figure and table for the standard and alternative weighting approaches.
- Each of the ten factors are viewable under the Factors tab. Users can select the specific columns to show for each factor, customize the coloring of the columns, sort by management group (e.g., complex), and search for specific species using the search bar. The scoring from each factor is also available for download.
- The Groundfish Assessment Calendar tab provides a preliminary look at potential weeks for Stock Assessment Review (STAR) panels given the currently scheduled Pacific Fishery Management Council (Council) meetings in 2025.
- The Resources tab links to national guidance on groundfish assessment prioritization, previous Council decisions, and literature references in the process.

Similar to previous cycles, this year's groundfish assessment prioritization continues to summarize information for each species by factor coastwide regardless of stock definition area (if defined). Generally, species selected for assessment have been assessed across their U.S. West Coast range in the same assessment year (i.e., either in a single area model or multiple area-based models).

Top Ranked Species for Assessment Consideration

The top five species identified in the 2024 groundfish assessment prioritization are quillback rockfish, brown rockfish, widow rockfish, yellowtail rockfish, and chilipepper. The species ranked 1-25 are shown in Table 1.

The number one ranking assigned to quillback rockfish is largely driven by recent average attainment well exceeding the coastwide total of the Overfishing Limit (OFL) species-specific contribution to the minor nearshore complexes, anticipated future constraints to the fishery given draft 2025 Annual Catch Limits (ACLs), the aggregated coastwide stock status, and the need for rebuilding the stock in California waters. Quillback rockfish was most recently assessed in 2021 with separate model areas for California, Oregon, and Washington with the Council adopting state-specific stock definitions in June 2023 (June 2023 Decision Document).

Brown rockfish, ranked 2nd, was last assessed in 2013 with projections from this assessment continuing to be used to inform 2025-26 harvest specifications. The overall ranking of brown rockfish is driven by its importance to both the commercial and recreational fisheries and the extended time since the most recent assessment. Brown rockfish is ranked as the 14th most important species to the commercial fishery based on ex-revenue data and 8th to the recreational fishery driven by the importance of this species within California.

Yellowtail rockfish was most recently assessed in 2017 using two model areas split north and south of 40° 10′ N. lat. However, only the assessment for the northern area was approved for use in management leaving the southern portion of the population unassessed. Yellowtail rockfish is one of the top ranked species across the commercial, tribal, and recreational fisheries leading to the species' high ranking in this year's groundfish assessment prioritization. In 2017, the Scientific and Statistical Committee (SSC) suggested that the 2017 northern assessment could be considered for an assessment update. However, the SSC has also generally recommended that benchmark assessment be conducted for all stock areas within the same assessment cycle to ensure consistent modeling decisions can be made across model-areas. Since it will be eight years since the northern assessment was conducted for yellowtail rockfish by the next assessment cycle, new benchmark assessments may need to be considered for both areas. Additionally, it is unclear whether the issues identified in 2017 for the southern model can be fully addressed. There are still limited otoliths collected from the commercial and recreational fisheries available for ageing (i.e., approximately 1,700 otoliths may be available for ageing). There are more than 1,900 otoliths collected by Northwest Fisheries Science Center (NWFSC) surveys that could be used to inform growth in the model but would likely not be associated with an accompanying survey index of abundance due to limited observations or limited sampling area.

Widow rockfish, ranked 4th, was most recently assessed in 2019 as an update of the 2015 benchmark assessment. Widow rockfish was ranked as the most commercially important species

based on ex-vessel revenue (e.g., noting that sablefish has the highest ex-vessel revenue across groundfish species but the score was reduced due to being assessed in 2023). Additionally, the average OFL attainment was ranked 6th (tied for 6th with petrale sole, redbanded rockfish, and treefish) at 76 percent. Both the 2015 and 2019 assessments estimated the stock to be well above the management targets resulting in increases in ACLs and subsequent catches. In 2017 catch of widow rockfish exceeded 6,300 mt. This increased to over 10,000 mt in 2018, and has ranged between 8,429-12,119 mt during 2019-2022 with the highest catches occurring in 2022. In 2019, the SSC suggested that the next assessment of widow rockfish be a benchmark if catches continued to increase for the stock (Agenda Item H.5.a, Supplemental SSC Report 1, September 2019). Given the continued and increasing high catches of widow rockfish, a benchmark assessment should be considered for this species.

The 5th overall ranking of chilipepper is driven by its importance to the commercial fishery, regional importance to the California recreational fishery, and the extended time since the last assessment. Chilipepper is ranked 8th in terms of commercial ex-vessel revenue and is considered one of the more important recreational species in California. The last assessment was conducted in 2015 as an update of the 2007 assessment. There are a large number of unread otoliths collected by the NWFSC West Coast Groundfish Bottom Trawl (WCGBT) and Hook and Line (HKL) surveys that could be aged to support a new assessment.

Five unassessed species ranked in the top 25 this cycle: redbanded rockfish, rosethorn rockfish, starry rockfish, treefish, and Pacific sanddab. The overall rankings of redbanded rockfish (6th) and rosethorn rockfish (12th) are largely driven by higher attainment of the species-specific OFL contribution based on recent average catches (e.g., 98 percent attainment for rosethorn rockfish and 80 percent for redbanded rockfish), lack of assessments, and the proxy stock status using the Productivity Susceptibility Analysis (PSA) scores, which are both greater than 2.0, indicating that each have a higher level of vulnerability to the fishery. Starry rockfish, ranked 22nd, also has a PSA score greater than 2.0, indicating increased vulnerability to the fishery, with an average OFL contribution attainment around 60 percent. Treefish, ranked 23rd, is estimated to have an average 76 percent attainment of the species-specific OFL contribution. Finally, Pacific sanddab, ranked 25th, is largely driven by large quantities of survey data available to inform an assessment. However, it is important to note that in 2013 an assessment of Pacific sanddab was attempted but was not approved for use by management due to substantial issues in estimating a population scale.

Of these highly-ranked species where a benchmark assessment has not been attempted, redbanded rockfish, rosethorn rockfish, and starry rockfish have the greatest number of lengths, ages, and unaged otoliths available to support an assessment. Rosethorn rockfish is well observed by the NWFSC WCGBT survey with an average of 48 tows catching this species ("positive tows") per year and a total of 19,468 lengths and 8,157 unaged otoliths. Redbanded rockfish also has a good number of observations in the NWFSC WCGBT survey per year (e.g., average of 52 positive tows)

but have fewer individuals observed within each positive tow such that across all years of the survey there are 3,833 lengths and 3,637 unaged otoliths. Starry rockfish are observed in their southern California range, south of Point Conception, by the NWFSC HKL survey with the survey having collected 2,721 unaged otoliths. Starry rockfish are also observed by both the commercial and recreational fisheries in California with over 38,000 lengths collected since 2000 but only 248 otoliths collected from the fisheries within that same period (i.e., commercial: 65 otoliths, recreational: 183 otoliths, with 110 of those collected by the Southwest Fisheries Science Center [SWFSC] commercial passenger fishing vessel [CPFV] cooperative collections in 2023 and 2024).

Species Identified in 2022 for Potential Assessment in 2025

Of the species ranked in the top five, both quillback rockfish and yellowtail rockfish were identified as potential species for assessment in 2025 by the Council during the 2022 groundfish assessment prioritization agenda item (Table 2 in Agenda Item G.7.a, Supplemental GMT Report 1, September 2022). The other species identified in 2022 for potential assessments in 2025 were rougheye and blackspotted rockfish, Pacific spiny dogfish, China rockfish, aurora rockfish, yelloweye rockfish, and sablefish.

Rougheye and blackspotted rockfish is ranked 17th overall, moving up ten positions from its ranking in 2022. The increase in ranking is largely driven by its importance to the commercial and tribal fisheries, the projected 83 percent attainment of the 2025 ACL, and the time since the previous assessment (which was conducted in 2013). Additionally, several new research products are available to be considered for use within a new assessment. Genetic research investigating the proportion of rougheye rockfish vs. blackspotted rockfish off the U.S. West Coast conducted by researchers at the NWFSC is available and could be used to better inform groundfish assessment categorization. Additionally, new estimates of rougheye and blackspotted rockfishes' maturity-at-age and -size are available to be incorporated in a future assessment.

Similar to rougheye and blackspotted rockfish, aurora rockfish was last assessed in 2013. The overall ranking of aurora rockfish increased to 44th overall from 63rd in 2022 largely driven by its importance to the commercial fishery, the time since the most recent assessment, and the quantity of additional survey data collected since the previous assessment. Aurora rockfish are well sampled by the NWFSC WCGBT survey where a new assessment in 2025 would be able to extend the survey time series by 11 years and include additional length and age compositions.

Pacific spiny dogfish dropped in rank from 43rd in 2022 to 54th overall this cycle. Pacific spiny dogfish was assessed most recently in 2021. While Pacific spiny dogfish remains an important top-down predator within the ecosystem, the importance to the commercial, tribal, and recreational fisheries is limited beyond potential limitations posed as a bycatch species. One issue identified in the 2021 assessment is the uncertainty around the proportion of the population in waters off the U.S. West Coast during the summer months when the NWFSC WCGBT survey is conducted.

New tagging research is being conducted and is anticipated to conclude sometime in 2025 and could help address this uncertainty but may not be available in time for inclusion in a new assessment that same year.

China rockfish increased in rank to 18th overall compared to its rank of 25th in 2022, with this change being driven by the factors measuring commercial and recreational importance and assessment frequency with the previous assessments having been conducted in 2015.

The overall ranking of yelloweye rockfish decreased to 24th overall from 9th in 2022 largely due to revisions in the calculation of the constituent demand factor score. However, yelloweye rockfish remains an important species to the commercial, tribal, and recreational fisheries that is currently still managed under a rebuilding plan. The catch-only rebuilding analysis conducted in 2023 estimated a more than 50 percent probability of rebuilding by 2028 assuming full ACL removals between 2025-27 (Wallace, 2023) given the estimated parameters and population trajectory from the 2017 assessment (Gertseva and Cope, 2017a), decreasing from the previous expected rebuilding year of 2029, which was based on the 2017 rebuilding plan (Gertseva and Cope, 2017b).

Finally, sablefish remains one of the most important groundfish species with a limited assessment update conducted in 2023 to estimate the stock trajectory and status given recent large recruitment events. The magnitude of recent recruitment events are still highly uncertain with only data from the NWFSC WCGBT survey being updated in the 2023 limited update assessment. A benchmark assessment of sablefish in 2025 could provide more informed estimates of stock status and would provide opportunities to address deficiencies in the 2019 assessment (e.g., accounting for time-varying growth).

Species Where an Assessment Update Could be Conducted

At the conclusion of each groundfish assessment cycle the SSC comments on whether an assessment could be considered for an update assessment in future cycles. Species assessed between 2017 to 2021 that had an SSC recommendation of potential update assessments across all model-areas (including those with only one area) are listed in Table 2. These species could be potentially be selected for an assessment update in 2025. Assessments that were conducted in 2015 or earlier were not included given the extended time since assessment and the SSC determination. The longer the time period between an assessment being conducted and an assessment update being conducted increases the potential for data or model issues arising that cannot be addressed within an assessment update. Additionally, species that were assessed in 2023 were not included since benchmark assessments were conducted in the most recent assessment cycle.

The most recent assessment type for three of the species in Table 2 were assessment updates: blackgill rockfish, bocaccio, and darkblotched rockfish all conducted in 2017. The more time that has passed since an assessment (or update) was conducted there is an increase in the probability

that specific modeling assumptions or parameterization selected in the assessment may no longer be supported by the data, requiring more extensive modeling changes. Given the time since the original benchmark assessments were conducted (i.e., 2011 for blackgill rockfish and 2015 for both bocaccio and darkblotched rockfish), a new benchmark assessment may be better choice since it would provide additional flexibility to deal with any needed data or model parameterizations.

Previously Assessed Species with Older Assessments

The number of assessed species where the most recent assessments were conducted ten or more years ago has increased over time. As of 2025, there are currently twelve species with most recent assessments having occurred ten or more years ago: splitnose rockfish (Gertseva et al., 2009), greenstriped rockfish (Hicks et al., 2009), greenspotted rockfish (Dick et al., 2011), sharpchin rockfish (Cope et al., 2014), rougheye and blackspotted rockfish (Hicks et al., 2013), aurora rockfish (Hamel et al, 2013), longspine thornyhead (Stephens and Taylor, 2013), brown rockfish (Cope et al., 2014), English sole (Cope et al., 2014), China rockfish (Dick et al., 2015), kelp greenling in Oregon (Berger et al., 2015), and chilipepper (Field et al, 2015). Currently, the 2025-26 draft harvest specifications for ten of these species are based on assessment model projections, including the most out-of-date assessment for splitnose rockfish.

Increased uncertainty during the projection period is currently accounted for by applying time-varying adjustments to scientific uncertainty. The research that informed the increase rate applied to the uncertainty was determined by examining the change in uncertainty between a low and base state of nature at the end of a ten-year projection period (Wetzel and Hamel, 2023). It is unclear how the rate of change in uncertainty could differ if longer projection time periods were examined and if the current approach adequately accounts for the uncertainty of using projections from assessments older than ten years.

If new assessments are not conducted for these species in 2025, the SSC may need to discuss whether projections should continue to be used from these older assessments or if these assessments should be assigned a category 3 designation and how to determine future OFLs and Acceptable Biological Catches (ABCs).

Tables

Table 1. The top 25 ranked species for the 2024 groundfish assessment prioritization.

Species	Overall Rank	Total Score	Commercial Importance	Tribal Importance	Recreational Importance	Constituent Demand	Rebuilding	Stock Status	Fishing Mortality	Ecosystem	New Information	Assessment Frequency
quillback rockfish	1	4.77	5.5	3.79	5.78	5	10	7	10	0	0	0
brown rockfish	2	4.52	7.03	1.57	7.35	1	0	4	5	0.02	0	8.2
yellowtail rockfish	3	4.46	8.91	8.92	8.14	1	0	2	3	1.99	3	3.6
widow rockfish	4	4.3	10	7.03	5.29	3	0	1	7	0.6	1	1.8
chilipepper	5	4.2	7.86	1.16	3.98	0	0	2	3	1.18	4	8.2
redbanded rockfish	6	4.11	5.35	7.8	0	6	0	6	7	0	5	3.6
vermilion and sunset rockfish	7	3.99	7.61	0	9	4	0	3	10	0.12	2	0
bocaccio	8	3.92	7.52	5.58	7.82	1	0	3	2	0.98	3	3.6
lingcod	9	3.9	8.99	9.01	10	1	0	3	2	3.09	0	0
English sole	10	3.84	5.6	7.6	0.04	1	0	1	1	0.22	4	10
sablefish	11	3.76	9.17	10	0.3	2	0	2	5	9.59	1	0
rosethorn rockfish	12	3.74	3.88	4.03	0	6	0	6	8	0.01	6	3.6
petrale sole	13	3.74	8.21	9.02	1.36	4	0	3	7	0.73	0	0.9
kelp greenling	14	3.71	6.71	1.25	5.45	1	0	1	1	0.05	0	8.2
greenstriped rockfish	15	3.7	3.43	4.52	2.35	3	0	1	1	0.09	5	10
greenspotted rockfish	16	3.6	4.86	1.69	5.23	1	0	5	2	0.01	4	6.4
rougheye and black spotted rockfish	17	3.58	5.47	8.89	0	4	0	3	5	0.01	2	4.5
China rockfish	18	3.52	6.3	1.25	5.2	2	0	3	5	0.02	0	4.5
canary rockfish	19	3.42	5.56	7.31	5.87	5	0	5	3	0.08	0	0.9
black rockfish	20	3.41	6.14	4.27	7.79	4	0	4	5	0.94	0	0
longspine thornyhead	21	3.4	6.74	5.33	0	1	0	2	1	0.27	4	6.4
starry rockfish	22	3.38	4.25	0	6.02	2	0	6	5	0.03	4	3.6
treefish	23	3.36	5.35	0	3.82	4	0	3	7	0	0	3.6
yelloweye rockfish	24	3.29	2.09	7.52	5.4	4	9	5	3	0.12	0	0
Pacific sanddab	25	3.28	6.06	0.94	5.16	2	0	3	1	0.1	6	3.6

Table 2. Species with assessments conducted between 2017-2021 that were identified by the SSC for a potential future assessment update.

Species	Assessment Year	Assessment Type
big skate	2019	Benchmark
blackgill rockfish	2017	Update of the 2011 Benchmark
blue and deacon rockfish	2017	Benchmark
bocaccio	2017	Update of the 2015 Benchmark
California scorpionfish	2017	Benchmark
cowcod	2019	Benchmark
darkblotched rockfish	2017	Update of the 2015 Benchmark
Dover sole	2021	Benchmark
gopher and black and yellow rockfish	2019	Benchmark
longnose skate	2019	Benchmark
yelloweye rockfish	2017	Benchmark
yellowtail rockfish	2017	Benchmark