GROUNDFISH MANAGEMENT TEAM REPORT ON
2025-26 FISHERIES ANALYSIS UPDATE

During our overwinter analysis, the Groundfish Management Team (GMT) identified several management measures that may benefit from Pacific Fishery Management Council (Council) guidance at the March Council meeting. Based on the Council's guidance in March, the GMT will refine and/or modify the analysis with the anticipation that the full analysis is not likely to be revised until June, but the GMT may be able to provide preliminary analysis or information in April to inform the Council's Preliminary Preferred Alternative (PPA).

Contents

Summary of harvest specifications and management measures the GMT is seeking Council guidance on and/or providing updates on:

Harvest Specifications:

- Quillback rockfish off California
    - The GMT continues to recommend the same range of options as we identified in November with an initial recommendation of the ABC rule as the preliminary preferred option for the rebuilding strategy. The GMT seeks guidance from the Council if additional rebuilding strategies should be analyzed.

Routine Management Measures:

- At-sea set-asides
  - Does the Council want to keep the third GMT-developed option of 450 mt for yellowtail rockfish north of 40° 10′ N. lat. in the range of alternatives?
  - Does the Council want to keep the second GMT-developed option of 300 mt for widow rockfish?
- Petrale sole allocations
  - At this point, the GMT does not see merit in investigating an allocation change for 2025-26.
  - Does the Council want the GMT to continue analyzing this or cease analysis?
  - Does the Council want to analyze, as part of the 2025-26 management measures package, petrale sole management measures for the California, Oregon, and Washington recreational fisheries that could be used inseason or preseason to limit petrale sole mortality in 2025-26, as needed?
- Canary rockfish allocations
  - Is the range of options proposed in Agenda Item F.7.a, Supplemental GMT Report 2 sufficient?
  - Does the Council want the GMT to continue analyzing this or cease analysis?
- Widow rockfish allocations
  - Is the range of options proposed in Agenda Item F.7.a, Supplemental GMT Report 1 sufficient?
  - Does the Council want the GMT to continue analyzing this or cease analysis?
- Sablefish recreational set-aside south of 36° N. lat.
  - Update: The sablefish recreational set-aside proposed in November was placed in the non-trawl sector's analysis, because it will come out of the non-trawl allocation south of 36°N. lat.

New Management Measures:

- Shortspine Thornyhead **new*
  - Does the Council want the GMT to analyze either Pathway 1 or Pathway 2 in this harvest specifications cycle? Or defer to Pathway 3 (see Agenda Item F.7.a Supplemental GMT Report 3)?
- Rockfish Species Sorting Requirements
  - The GMT sees merit in pursuing this action through a process outside of biennial management measures to provide additional time for coordination with and evaluation by state sampling program managers and commercial fish buyers.
  - Does the Council want the GMT to continue analyzing this new management measure for 2025-26, or would the Council prefer to address this through an alternative pathway?
- Discard Mortality Rates **new*
  - Update: Overwinter, the GMT realized that an incorrect table of Discard Mortality Rates (DMR) was being used by RecFIN and provides the corrected values for years prior to 2022.

- Sablefish Recreational Discard Mortality Rate **new*
    - The GMT sees merit in pursuing a DMR for sablefish in the recreational fishery. Currently, an adopted DMR for sablefish is only available for the commercial trawl and fixed gear fisheries.
- California Continuous Transit Requirements
    - Update: NMFS will implement emergency measures to address issues raised by the GAP in September and November 2023 regarding continuous transit requirements (related to invertebrate/ groundfish combo trips and multi day fishing trips) in the California recreational fishery; these measures will address concerns for the 2024 fishing year.
    - The request should still remain on the new management measures list for 2025 and beyond.

Quillback Rockfish off California

In Agenda Item E.7.a, Supplemental GMT Report 1, November 2023, the GMT recommended analyzing 'bookends' of the rebuilding strategies shown in Table 1, F=0 (T_{Target} = 2045), which represents the minimum time to rebuild, and the Acceptable Biological Catch (ABC) Rule (T_{Target} = 2060), which represents the strategy that is closest to the maximum time to rebuild but does not result in an ACL that exceeds the OFL. **The GMT continues to recommend the same range of options as we identified in November with an initial recommendation of the ABC rule as the preliminary preferred option for the rebuilding strategy. The GMT seeks guidance from the Council if additional rebuilding strategies should be analyzed.**

Table 1. Quillback rockfish off of California rebuilding strategies proposed for analysis by the GMT.

	F=0	ABC Rule
2021 assumed removals (mt)	15.58	
2022 assumed removals (mt)	18.11	
2023 assumed removals (mt)	11.12	
2024 assumed removals (mt)	10.62	
2025 OFL/ACL	1.52/0	1.52/1.3
2026 OFL/ACL	1.81/0	1.7/1.5
SPR	1	-
T_{target}	2045	2060
T_{max}	2071	2071
Probability of recovery by T_{max}	0.999	0.736

Yellowtail Rockfish and Widow Rockfish At-Sea Set-Asides

In November 2023, the Council adopted a range of at-sea set-asides that included two options for yellowtail rockfish north of 40° 10′ N. lat. and one (i.e., status quo) option for widow rockfish. The at-sea set-aside options the Council adopted in November 2023 for these two species categories are:

- Yellowtail rockfish north of 40° 10′ N. lat.:
    - Option 1 (Status Quo): 320 mt
    - Option 2: 360 mt
- Widow rockfish:
    - Option 1 (Status Quo): 476 mt

During our overwinter analysis, the GMT identified the potential need to analyze a higher option for yellowtail rockfish north of 40° 10′ N. lat. and a lower option for widow rockfish. **The GMT seeks guidance from the Council on whether to continue analyzing these new options for at-sea set-asides.**

For yellowtail rockfish north of 40° 10′ N. lat., the GMT added to the range of analysis a third option of 450 mt. The bootstrap simulation projections for 2025-26 were higher than the sector's maximum mortality, which indicates possible overestimation of risk to the set-aside. However, there is high variability in yellowtail rockfish north mortality in the at-sea sector, and the Shorebased IFQ allocation would still increase by 10-14 percent in 2025 under a set-aside of 450 mt. It is worth noting that the years in which yellowtail rockfish mortality was high are largely driven by large bycatch events off of Washington and do not appear to be related to Pacific whiting attainment levels. While 450 mt is 133 mt higher than the at-sea sectors' maximum mortality since 2011, a higher set-aside for yellowtail rockfish north may help the sectors prioritize avoidance of species of greater concern in 2025-26 such as canary rockfish or shortspine thornyhead.

For widow rockfish, the GMT added to the range of analysis a second option of 300 mt, which is 176 mt lower than the status quo set-aside. The GMT's overwinter analysis identified cumulative economic impacts to the Shorebased IFQ fishery across several high value species as a result of allocation reductions, including widow rockfish. The status quo set-aside of 476 mt is based on the at-sea fishery's maximum mortality in 2017. In all other years since 2011, at-sea mortality has been less than 210 mt with an average of 111 mt when the 2017 maximum is excluded. A lower set-aside of 300 mt would reduce negative economic impacts to the IFQ fishery in 2025-26 while accounting for expected widow rockfish mortality in the at-sea sector, noting that there is a low probability of the set-aside being exceeded under either option.

Petrale Sole Allocations

Appendix A provides preliminary analysis of impacts to the trawl and non-trawl fisheries from status quo petrale sole management measures, as well as a deep dive into potential drivers of the increase in California recreational mortality of petrale sole in 2023.

The non-trawl allocation of petrale sole was fully attained in 2023, at 30.2 mt out of the 30 mt non-trawl allocation. The majority of 2023 mortality was attributed to the California recreational fishery for which estimated catches increased from less than 7 mt annually in all years prior to 2023 up to 21.4 mt in 2023. At the November Council meeting, the GMT alerted the Council to the potential for the 2023 non-trawl allocation to have been exceeded by a more substantial amount, but that determination was based on preliminary projections that have been updated with final estimates. The most recent data now show that the non-trawl allocation was fully attained, with a minor (0.2 mt) overage.

The increase in non-trawl mortality and the potential for an allocation exceedance initiated the GMT to investigate whether the petrale sole trawl/non-trawl allocations need to be adjusted in 2025-26 to accommodate the additional non-trawl mortality. The non-trawl allocation was only minimally exceeded in 2023, and the trawl sector attained approximately 92 percent of their allocation. Therefore, the ACL is not expected to be exceeded in 2023, pending final mortality estimates in Fall of 2024. The GMT is unsure if 2023 is an anomalous year for the recreational fishery. At this point, the GMT does not see merit in investigating an allocation change for 2025-26, as the ACL does not appear to be at risk, and the Shorebased IFQ fishery is expected to experience substantial impacts in 2025-26 from allocation reductions of 37-40 percent under status quo management measures. **The GMT requests guidance regarding whether the GMT should continue analysis of petrale sole trawl/non-trawl allocation adjustments for the 2025-26 biennium.** However, the GMT does see merit in exploring inseason management tools for the California and/or other states recreational fishery to keep non-trawl mortality within the non-trawl allocation, if needed. Currently, the only non-trawl management measures the Council has are specific to the non-trawl commercial sector (trip limits). Having recreational management tools for 2025-26 as well could create equity in future inseason actions between the commercial non-trawl and recreational sectors if the non-trawl allocation were at risk and inseason action is needed. The GMT will closely monitor the attainment of petrale sole and, if necessary, may reconsider allocation adjustments for the 2027-28 biennial process.

Multiple factors seem to be influencing the higher California recreational harvest in 2023. While there is the potential for further increases in petrale sole mortality in the California recreational fishery in 2025-26, there is also the potential for decreases compared to 2023 depending on seasonal depth changes the Council will implement to protect quillback rockfish, especially requirements for anglers to fish inside of 20 fms (Agenda Item F.8.a Supplemental CDFW Report 2 March 2024). It is difficult to predict at this time. If mortality continues to increase in 2025-26 for any of the non-trawl sectors such that the allocation and/or ACL is at risk of being exceeded, the only tools the Council could use inseason to limit non-trawl petrale sole mortality are commercial trip limits. Currently, none of the state recreational fisheries have petrale sole management measures (e.g., bag limits, season changes, depth closures, etc.) that could be adjusted inseason. Therefore, if the non-trawl allocation was exceeded or projected to be exceeded in 2025-26 and inseason action is needed to avoid exceeding the ACL, the commercial non-trawl sector may be unjustly impacted, particularly if the majority of mortality comes from one or more recreational fisheries.

Therefore, the GMT requests guidance from the Council regarding whether to analyze for 2025-26 petrale sole management measures for the California, Oregon, and Washington recreational fisheries that could be used inseason to limit petrale sole mortality, as needed. For equity reasons, if the Council chooses to develop inseason tools to limit recreational harvest, those tools should be developed for all three state fisheries, not just California, despite the lower contributions to 2023 mortality from Oregon and Washington. The GMT did not identify comparable trends in the Oregon and Washington recreational fisheries that indicate their respective mortalities would put the non-trawl allocation at risk of being exceeded in 2025-26 (Appendix A). Annual Washington recreational mortality since 2016 has made up less than 0.2 percent of the status quo 30 mt non-trawl allocation, and annual Oregon recreational mortality since 2016 has made up less than 14 percent. While Oregon recreational makes up a more

substantial portion of mortality than Washington, mortality in that fishery has remained relatively stable since 2016. Unlike California, which saw significant changes to recreational seasons by pushing anglers into offshore waters, there have not been any management changes to either the Washington or Oregon recreational fisheries in recent years that would potentially lead to higher petrale sole mortality in 2025-26.

Rockfish Species Sorting Requirement

At the November 2023 meeting, the Council added rockfish species sorting requirement as a new management measure to the 2025-26 biennial management measures package for analysis. The GMT has conducted preliminary analysis and prepared those findings for potential consideration of a Preliminary Preferred Alternative (PPA) at the April Council meeting. The GMT anticipates submitting a report for the April advanced briefing book that outlines the potential scope of the action and preliminary impact findings. While the GMT has identified many potential impacts to sampling programs and commercial fish buyers, we appreciate that there is a wide array of fish buying operations and while similar in purpose, each state sampling program also has unique aspects. While the remaining harvest specifications process (April and June) does afford opportunity for public review and for the Council to receive public comment, the GMT sees merit in pursuing this action through a process outside of biennial management measures to provide additional time for these findings to be shared with and evaluated by state sampling program managers and commercial fish buyers. **The GMT requests Council guidance regarding whether the GMT should continue analyzing this new management measure for 2025-26, or would the Council prefer to address this through an alternative pathway?**

The GMT, through its discussions of the species sorting requirement item, has learned/identified that there are inconsistencies across state commercial sampling programs. The GMT did not discover any significant issues but notes that a review may be warranted. A comprehensive review of the state sampling programs and data management processes was completed in the 1990s through a working group under the auspices of the Pacific States Marine Fisheries Commission (PSMFC). The effort culminated in the publication of a NOAA technical document in 1997[1] which supported standardization across state sampling programs. To our knowledge, no similar effort has been undertaken since. Given the substantial changes to the commercial groundfish fisheries and the likely incremental changes in the state's programs as they respond to these changes, and the importance of robust fishery-dependent data to management, the Council may want to consider a contemporary effort. Possible avenues to undertake such an effort include the Council's methodology review process, adding it to the workload prioritization list, or as part of a PSMFC project separate from the Council process.

Discard Mortality Rates

During over-winter analysis of 2025-26 groundfish harvest specifications, the GMT determined the recreational descending device discard mortality rates for canary rockfish, yelloweye rockfish, and cowcod in the Stock Assessment and Fishery Evaluation (SAFE) are in error. While the correct DMRs are currently being applied to discard data when accounting for mortality, the SAFE does not reflect the correct values. Our investigation revealed that at the March 2014 Council meeting,

[1] Sampson, D.B., and P.R. Crone. 1997. Commercial fisheries data collection procedures for U.S. Pacific coast groundfish. NOAA Tech. Memo. NMFS NWFSC-31, 189 p.

the Council adopted Discard Mortality Rates (DMR) for the three species of rockfish (canary rockfish, yelloweye rockfish, and cowcod) as shown in Agenda Item D.3.b., Supplemental GMT Report 2, March 2014 (page 278), Table 1. However, the 2018 SAFE document (and subsequent SAFE documents) incorrectly references the DMR table from Agenda Item D.3.b., GMT Report, March 2014 (page 261) instead of the DMR values adopted by the Council (Agenda Item D.3.b., Supplemental GMT Report 2, March 2014; page 278). In 2022, new DMRs were adopted by the Council for the three species identified in Table 1 as well as black rockfish and guild-specific depth-dependent groups (Agenda Item H.4.a Supplemental GMT Report 3, November 2022) as shown in Table 1. The correct descending device DMRs for these three rockfish species, accounting for correct 2018 rates as well as 2022 updates, are provided in Table 1. **The GMT recommends that the Council direct Council Staff to correct the 2018, 2020 and 2022 SAFE to reflect the Agenda Item D.3.b., Supplemental GMT Report 2, March 2014.**

Table 2. Approved discard mortality rates for canary rockfish, yelloweye rockfish, and cowcod when using a descending device.

Species	Depth (fm)	Surface Mortality Rate	Mortality Rate with a Descending Device (pre-2022)	Current Mortality Rate with a Descending Device
Canary Rockfish	0-10	21%	21%	3%
	10-20	37%	25%	3%
	20-30	53%	25%	3%
	30-50	100%	48%	18%
	50-100	100%	57%	92%
	>100	100%	100%	100%
Yelloweye Rockfish	0-10	22%	22%	9%
	10-20	39%	26%	9%
	20-30	56%	26%	9%
	30-50	100%	27%	11%
	50-100	100%	57%	38%
	>100	100%	100%	100%
Cowcod	0-10	21%	21%	9%
	10-20	35%	35%	9%
	20-30	52%	52%	9%
	30-50	100%	57%	25%
	50-100	100%	57%	38%
	>100	100%	100%	100%

Sablefish Discard Mortality Rate in the Recreational Fisheries

The GMT has outstanding questions on how to account for sablefish discarded at sea, as the encounter rate has increased in recent years in all three states. Currently, there are no DMRs approved for recreational fishery discards of sablefish. Analysis has been done for the commercial fisheries, with an adopted DMR of 20 percent associated with sablefish released in the fixed gear

fishery or a seven percent DMR, which is specified in the 2022 SAFE for FMP species that lack a swim bladder (SAFE). **The GMT requests the Council give guidance on if the team should provide analysis regarding sablefish DMRs for the recreational fisheries.** Additional input from the SSC is requested, as sablefish is likely to draw more interest from recreational anglers in future years.

Appendix A. Petrale Sole Allocation Analysis

Petrale sole ACLs are decreasing in 2025-26 by 32 percent in 2025 and 36 percent in 2026, compared to 2023. Additionally, in 2026, petrale sole enters the precautionary zone (i.e., below the management target), which means the 25-5 rule is applied (FMP *§4.6.1*)). Petrale sole is a valuable target species in the groundfish trawl fishery with some incidental catch in the non-trawl fishery. It is subject to a biennial allocation of a fixed 30 mt to the non-trawl sector and the remainder of the fishery harvest guideline (HG) to the trawl sector (3,069 mt in 2023). At the November 2023 Council meeting, the GMT identified a recent increase in petrale sole catches by the non-trawl sector and the potential to exceed the status quo 30 mt HG allocation in 2025-26 (Table 3). The current year-end estimated non-trawl harvest for petrale sole in 2023 is 30.2 mt, which is 0.2 mt higher than the 30 mt non-trawl sector allocation.

The decrease in the 2025-26 ACLs relative to the current biennium (Table 3) are in response to the 2023 stock assessment of petrale sole (Taylor et al., 2023). The reduction in ACL translates to commensurate trawl/non-trawl allocation reductions. This change primarily impacts the Shorebased IFQ fishery, as the at-sea and non-trawl sectors are both allocated fixed amounts. The following sections analyze the impacts to the trawl and non-trawl sectors under status quo management measures, as well as possible factors driving the increase in California recreational mortality in 2023. California Recreational mortality saw the greatest change in mortality in 2023 with 21.4 mt of harvest from this sector alone.

Table 3. Trawl/non-trawl allocations, mortality, and attainments for petrale sole from 2011-2024 (excluding landings and attainment in 2024) and expected 2025-26 harvest specifications. GF = groundfish

Year	ACL (mt)	Fishery HG (mt)	Total Directed GF Mort. (mt)	Trawl				Non-Trawl			
				Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.	% of total directed GF mort. (mt)	Sector Alloc. (mt)	Sector Mort. (mt)	Sector attain.	% of total directed GF mort. (mt)
2011	976	911	814	876	812	92.7%	99.8%	35	1.3	3.8%	0.2%
2012	1,160	1,095	1,058	1,060	1,057	99.7%	99.8%	35	1.7	5.0%	0.2%
2013	2,592	2,358	2,129	2,323	2,126	91.5%	99.8%	35	3.3	9.3%	0.2%
2014	2,652	2,418	2,320	2,383	2,319	97.3%	99.9%	35	1.3	3.8%	0.1%
2015	2,816	2,579	2,504	2,544	2,500	98.3%	99.8%	35	3.9	11.0%	0.2%
2016	2,910	2,673	2,481	2,638	2,475	93.8%	99.8%	35	5.5	15.7%	0.2%
2017	3,136	2,895	2,743	2,750	2,735	99.5%	99.7%	145	7.9	5.4%	0.3%
2018	3,013	2,772	2,654	2,633	2,645	100.5%	99.6%	139	9.4	6.7%	0.4%
2019	2,908	2,587	2,392	2,458	2,378	96.7%	99.4%	129	14.0	10.8%	0.6%
2020	2,845	2,524	2,124	2,398	2,116	88.2%	99.6%	126	8.8	7.0%	0.4%
2021	4,115	3,728	2,825	3,698	2,817	76.2%	99.7%	30	8.1	26.9%	0.3%
2022	3,660	3,273	3,009	3,243	2,997	92.4%	99.6%	30	11.7	38.9%	0.4%
2023	3,485	3,099	3,079	3,069	2,827	92.1%	98.9%	30	30.23	100.9%	1.1%
2024	3,285	2,899		2,869				30			
2025	2,354	1,976		1,946				30			
2026	2,238	1,860		1,830				30			

Impacts

Trawl Fishery

Over 99 percent of trawl-caught petrale sole is caught by bottom trawl vessels in the Shorebased IFQ fishery. The five-year average of petrale sole mortality in the groundfish trawl fishery is 2,627 mt (2019-2023), which is 145 percent of the 2025 allocation and 144 percent of the 2026 allocation (Figure 1). Petrale sole mortality in the bottom trawl fishery has been steadily increasing since 2011, with the exception of 2020 due to the COVID-19 pandemic, noting that the stock was overfished and rebuilding between 2011-2015. Petrale sole mortality in the at-sea sectors has been less than 0.02 mt annually since 2002, which is well within the fixed 5 mt status quo at-sea set-aside.

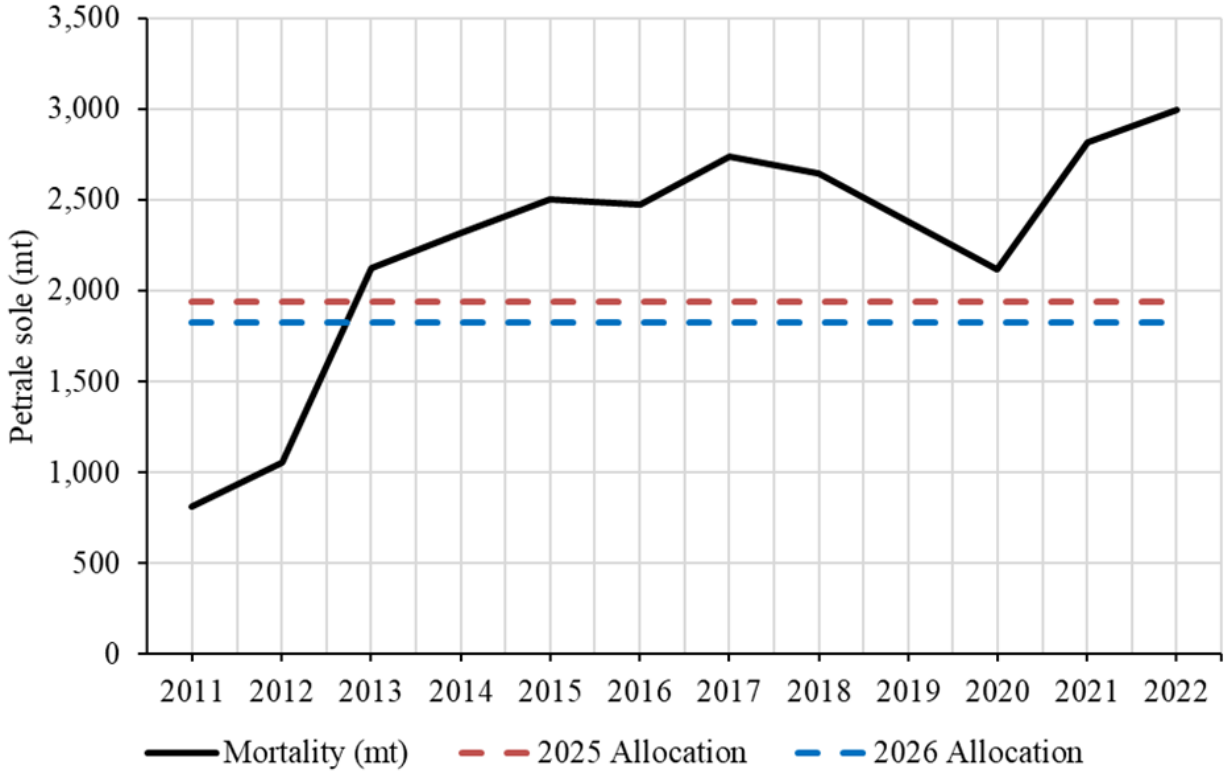

Figure 1. Petrale sole mortality (mt) in the IFQ fishery from 2011 to 2022, compared to the 2025 and 2026 allocations (dashed lines). Source: GEMM. Petrale sole was overfished between 2011-2015, which is the main reason catches were relatively low during that period.

Under status quo management measures, the IFQ fishery is projected to catch 1,796 mt of petrale sole in 2025 and 1,689 mt in 2026, with 93 percent allocation attainment both years[2]. Those projections are 1,084 mt and 1,191 mt lower than the fishery's recent average mortality since 2021 (Table 4). Those differences amount to potential ex-vessel revenue losses of $2,867,744 in 2025 and $3,150,814 in 2026, based on the 2023 average price per pound of petrale sole caught by bottom trawl vessels ($1.20). In 2023, the IFQ fishery earned $7,410,493 in ex-vessel revenue from petrale sole landings alone.

Table 4. 2025 and 2026 IFQ petrale sole allocations, projected catch, and projected attainment under Alternative 1 HCR and status quo management measures.

2025			2026			Avg. petrale sole IFQ Mortality (mt), 2021-2023
IFQ Allocation (mt)	Projected IFQ Catch (mt)	Projected IFQ Attain.	IFQ Allocation (mt)	Projected IFQ Catch (mt)	Projected IFQ Attain.	
1,941	1,796	93%	1,825	1,689	93%	2,880

[2] This is based on projections from the IFQ model, for which methodology details will be provided at the April Council meeting.

While transferring around 15 mt from the trawl allocation to non-trawl would accommodate recent increases in non-trawl mortality, it would also further expand upon the petrale sole allocation reductions the IFQ fishery will experience in 2025-26, albeit marginally relative to the full allocation. While small relative to the allocation, a difference of 15 mt equates to roughly $40,000 in ex-vessel revenue for bottom trawl vessels. 11 of the 52 IFQ bottom trawl vessels that participated in 2023 derived the majority of their revenue from petrale sole. The other major revenue contributors for bottom trawl vessels are Dover sole, sablefish, and chilipepper rockfish. Bottom trawl vessels may be limited in their ability to supplement petrale sole losses with Dover sole because of shortspine thornyhead allocation reductions, a co-occurring species. If markets can accommodate the additional landings, bottom trawl vessels may be able to make up for lost petrale sole revenue by increasing their sablefish catch. However, the average 2023 price per pound of sablefish from bottom trawl landings was less than $1.00, and members of the GAP have already expressed concerns about potentially flooding the sablefish markets.

Non-Trawl Fishery

Overall, petrale sole mortality in the non-trawl fishery has steadily increased from 2014-2017, stabilized from 2017-2022, and spiked in 2023 with the additional catches coming from primarily California recreational fisheries (Figure 2). The vast majority of petrale sole mortality in the non-trawl fishery is retained. The relatively small portion of discard mortality is from the LEFG sector, with an average of 0.27 mt per year since 2002 (i.e., less than one percent of the non-trawl allocation, annually).

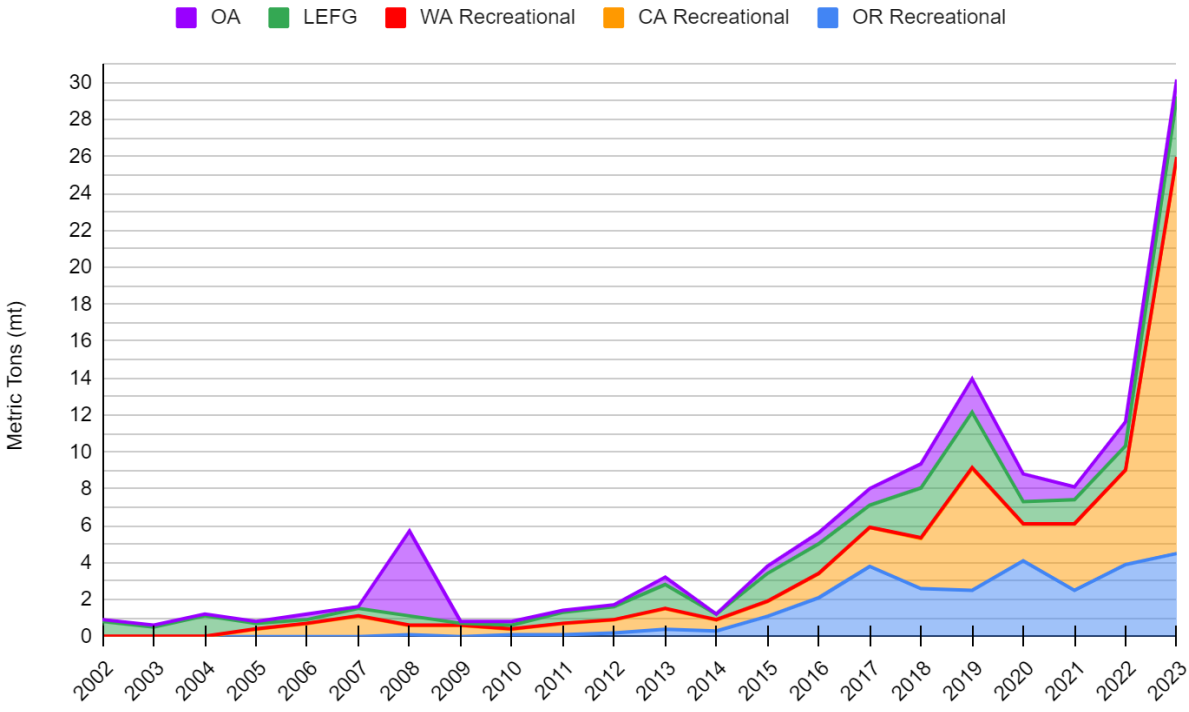

Figure 2. Non-trawl mortality by sector of petrale sole from 2002-2023. The status quo non-trawl allocation is 30 mt.

California Recreational Fishery

2023 petrale sole mortality in the California recreational fishery increased substantially compared to 2021 and 2022 (Table 5). It is difficult to decipher what drove the 2023 changes observed, but there are likely multiple potential factors influencing the increase in total mortality. The increase could have been influenced by closures of other fisheries (e.g., salmon), introduction of all-depth fishing and the offshore-only groundfish fishery (which required anglers to fish seaward of the 50 fm Non-Trawl RCA line) at the start of 2023, and inseason action in 2023 which halted all-depth fisheries in Aug./Sep. of 2023 north of Pt. Conception to offshore-only fishing (CDFW Press Release). These changes were primarily to reduce impacts to California quillback rockfish. The biggest change between 2023 and previous years is the introduction of the offshore-only groundfish fishery which likely is driving the bulk of the additional recreational petrale sole catch. Table 6 presents the 2023 recreational harvest of petrale sole by month, management area, and boat mode, with depth restrictions for each management area also shown.

Based on recreational catch estimates for 2023, 77 percent of catch came from the private rental (PR) mode, and 23 percent came from the party charter (PC) mode, which is roughly the same as the 3:1 ratio of petrale sole catch for PR:PC seen in previous years (Table 5). This suggests that the recreational sector has not greatly changed its practices and, collectively, caught more petrale sole in 2023. From 2021 to 2023, the Central Management Area (CMA) contributed the greatest total mortality (mt) of petrale sole, making up 71 percent of California's total mortality (mt) in 2021, 39 percent in 2022, and 39 percent in 2023. This is likely due to the closer proximity to deeper depths around the Monterey Canyon, providing easier access to petrale sole fishing grounds. In 2023, the San Francisco Management Area (SFMA) contributed 48 percent of California's total mortality (mt), compared to 11 percent in 2021 and 15 percent in 2022. This is a substantial increase in petrale sole harvest in the SFMA likely due to the bathymetry of the area, which has limited offshore-only areas to harvest groundfish. This feature of the area pushed anglers into areas which are also surrounded by prime petrale sole habitat. The Northern Management Area (NMA) also increased in total mortality from 2021 through 2023, likely due to offshore fishing and anglers keeping petrale sole when fishing for Pacific halibut. As seen in Table 5, petrale sole harvest decreased in the NMA after the August closure of the Pacific halibut fishery (CDFW press release on Pacific halibut closure).

A petrale sole bag limit analysis investigated whether the 2023 recreational spike in catch was due to a small number of anglers taking a large amount of petrale sole or a large number of anglers taking a low amount of petrale sole. In 2023, more than 75 percent of the recreational bags that contained any petrale sole had four or fewer petrale sole. Less than 25 percent of recreational bags containing petrale sole in 2023 had five or more petrale sole, with up to 13 petrale sole in less than 2 percent of bags sampled. In 2022 more than 95 percent of the recreational bags that contained any petrale sole had four or fewer petrale sole. Less than 5 percent of recreational bags containing petrale sole in 2022 had five or more petrale sole, with up to 20 petrale sole in less than 0.4 percent of bags sampled. This suggests that petrale sole catch per angler is increasing, as opposed to a small number of anglers specifically targeting or retaining large amounts of petrale sole.

Table 5. Petrale sole total mortality (mt) by Groundfish Management Area and Boat Mode (Charter boat and Private skiff) from 2021-2023. CRFS catch estimates through November 2023. No reported data is represented by "-".

Groundfish Management Area	2021		2022		2023	
	Charter	Private	Charter	Private	Charter	Private
Northern Management Area	0.0	0.2	0.1	1.3	0.1	1.8
Mendocino Management Area	0.0	0.3		0.8	0.3	1.6
San Francisco Management Area	0.0	0.4	0.2	0.6	2.4	4.6
Central Management Area	0.9	1.6	0.6	1.4	2.0	8.2
Southern Management Area	-	0.0	-	0.0	0.0	0.1
Total Mortality by Mode	**1.0**	**2.5**	**0.9**	**4.1**	**4.9**	**16.2**
Total PC/PR Mortality by Year	3.5		5.1		21.0	
Percentage of Total by Mode	29%	71%	19%	81%	23%	77%

If management measures are needed to limit California recreational petrale sole catch in order to stay within the non-trawl allocation, a bag limit may not be effective unless it was very low (1-3 fish, or no retention), since most anglers do not keep more than 4 fish. As fisheries are likely changing in 2024 and 2025-26 to allow for increased nearshore opportunity it might be premature to impose a bag limit on the fishery at the start of the year. Since recreational estimates typically have a two month lag, we likely would not have a solid estimate of petrale sole harvest until the September Council meeting. At this point imposing any bag through inseason action (including down to 1 fish) would likely have limited impact on petrale sole harvest, as recreational effort tends to be substantially lower in the Fall and most anglers only keep 1 fish. While an inseason bag limit adjustment during the year may not be as effective, it could potentially be useful as a mid-biennium action. Specifically, if an allocation was exceeded in 2025, a bag limit or other management measure could be implemented for the start of the 2026 season to prevent exceeding the allocation for a second consecutive year, which would be more effective than imposing a bag limit mid-season.

Petrale sole exhibit ontogenetic shift throughout the year. "Juveniles show little coastwide or bathymetric movement while studies suggest that adults generally move inshore and northward onto the continental shelf during the spring and summer to feeding grounds and offshore and southward during the fall and winter to deep water spawning grounds" (SAFE 2022). This yearly shift in movement, along with California recreational anglers being required to fish deeper than 50 fm or being allowed to fish all-depths during the spring and summer months, may also play a role in the increased petrale sole harvest in 2023. As illustrated in Table 6, higher petrale sole harvest is seen in summer months with all-depth or offshore-only opportunity.

As in the 2023-24 and previous bienniums, the current 2025-26 Management Measure Analytical Document only analyzes a year-round California recreational fishery with unlimited petrale sole retention at all depths and with petrale sole exempt from the general finfish bag limit. These management measures were implemented previously to encourage petrale sole fishing, as the non-trawl allocation of 30 mt was under attained. Petrale sole recreational catch is typically reported through CDFW inseason reports at each Council meeting. If new tools for the 2025-26 biennium

were added to manage harvest of petrale sole in the non-trawl sectors, the Council could take inseason action at any of their meetings, or mid-biennium if it appeared the non-trawl allocation would be exceeded, particularly if the ACL appeared to be at risk.

It is unclear whether the 2023 California recreational harvest is a one-time spike or a new normal for the fishery. It is safe to assume that any year where there is an offshore-only season, there will likely be higher than average recreational petrale sole catch off of California. Changes to the recreational season structure in 2025-26 to reduce California quillback rockfish impacts will likely be similar to the inseason changes for the 2024 season outlined in Agenda Item F.8.a Supplemental CDFW Report 2 March 2024. These changes will likely result in months where recreational fishing is only allowed shoreward of 20 fm which would likely decrease petrale sole catch. Months that will be seaward of 50 fm will likely see similarly higher petrale sole catch in the northern portion of the state as was seen in 2023. Additionally, as salmon recover and fishing opportunity for salmon increases, there will likely be some reduction to groundfish effort overall. However, it is unknown whether this additional petrale sole harvest will facilitate a new and lasting interest in petrale sole harvest, as seen with the rise of the Pacific halibut fishery which manifested during the previous California salmon closures. There appears to be some indication that this spike in catch is primarily due to pushing anglers into offshore waters with anglers incidentally catching petrale sole rather than a large increase in anglers targeting petrale sole.

Table 6. 2023 petrale sole total mortality (in mt) by Groundfish Management Area, Boat Mode (Charter boat and Private skiff), and month in 2023. CRFS catch estimates through November 2023. The depth restrictions for each management area are also shown. No reported data is represented by "-", data that is not yet available is represented by a "/".

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	NMA RCG depth	**Closed**	**Closed**	**Closed**	**Closed**	**May 15 All depth**	**All depth**	**All depth**	**All depth till Aug 21 > 50fm**	**> 50fm**	**> 50fm till Oct 15 then closed**	**Closed**	**Closed**
NMA	**1.88**	**0**	**0**	**0**	**0**	**0.17**	**0.23**	**0.88**	**0.43**	**0**	**0.18**	**0**	**/**
PC	**0.1**	-	-	-	-	0.02	0.01	0.06	0.02	-	-	-	/
PR	**1.78**	-	-	-	-	0.15	0.22	0.82	0.41	-	0.18	-	/
	MMA RCG depth	**Closed**	**Closed**	**Closed**	**Closed**	**May 15 > 50 fm**	**>50**	**July 15 >50 fm after All depth**	**All depth Aug 21 > 50fm**	**> 50fm**	**> 50fm**	**> 50fm**	**> 50fm**
MMA	**2.24**	**0**	**0**	**0**	**0**	**0.3**	**0.48**	**0.88**	**0.04**	**0.36**	**0.1**	**0.08**	**/**
PC	**0.32**	-	-	-	-	0.06	0.12	-	-	0.09	0.03	0.03	/
PR	**1.92**	-	-	-	-	0.24	0.37	0.88	0.04	0.26	0.07	0.05	/
	SFMA RCG depth	**Closed**	**Closed**	**Closed**	**Closed**	**May 15 > 50 fm**	**>50**	**July 15 >50 fm after All depth**	**All depth till Aug 21 > 50 fm**	**> 50fm**	**> 50fm**	**> 50fm**	**> 50fm**
SFMA	**6.92**	**0**	**0**	**0**	**0**	**0.6**	**2.03**	**0.54**	**0.61**	**2.88**	**0.25**	**0.02**	**/**
PC	**2.36**	-	-	-	-	0.07	0.42	-	-	1.85	0.02	-	/
PR	**4.55**	-	-	-	-	0.53	1.6	0.54	0.61	1.03	0.23	0.02	/
	CMA RCG depth	**Closed**	**Closed**	**Closed**	**Closed**	**All Depth**	**All Depth**	**All Depth**	**All Depth**	**> 50fm**	**> 50fm**	**> 50fm**	**> 50fm**

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CMA	**10.21**	**0**	**0.05**	**0.32**	**0.29**	**0.59**	**1.24**	**3.63**	**1.4**	**1.98**	**0.41**	**0.3**	**/**
PC	**2.05**	-	0.05	0.29	0.24	0.16	0.31	0.64	0.05	0.23	0.08	-	/
PR	**8.16**	-	-	0.03	0.06	0.43	0.93	2.98	1.34	1.75	0.34	0.3	/
	SMA RCG depth	**Closed**	**Closed**	**Closed**	**All Depth**	**All Depth**	**All Depth**	**All Depth**	**All Depth**	**All depth till, Sep 16 > 50fm**	**> 50fm**	**> 50fm**	**> 50fm**
SMA	**0.09**	**0**	**0**	**0**	**0.03**	**0**	**0.03**	**0**	**0**	**0**	**0**	**0.04**	**/**
PC	**0.03**	-	-	-	0.03	-	-	-	-	-	-	-	/
PR	**0.07**	-	-	-	-	-	0.03	-	-	-	-	0.04	/

Oregon Recreational Fishery

Over the past 10 years, petrale sole catch in the Oregon recreational fishery has increased. Some of this may be in response to an increase in annual bottomfish angler trips per year beginning in 2015, though the majority of petrale sole are encountered incidentally on Pacific halibut (halibut) trips, as petrale sole are rarely (if ever) the targeted species (Table 7). The recreational halibut seasons are broken up between all-depth fishing days (no depth restriction) and nearshore fishing days (fishing allowed shoreward of the 40-fathom regulatory line) off Oregon. Since 2019, the halibut allocation has been at a high enough quota that has allowed for additional all-depth halibut fishing days, providing anglers more opportunity to harvest halibut along with petrale sole. Petrale sole catch rates have also increased, peaking in 2020 at 0.16 petrale sole per halibut angler (Table 7). Current management measures for petrale sole off Oregon is limited to 25 fish per angler, with no depth, time or area restrictions (outside of the Stonewall Bank Yelloweye Rockfish Conservation Area [YRCA]).

If the halibut allocation remains high enough for all-depth halibut fishing, petrale sole encounters will remain similar to the last few years. Additionally, if the rockfish bag limits decrease due to lower quotas, anglers may choose to target flatfish. For example, in response to a closure of nearshore rockfish in 2017, there was an increase in petrale sole both targeted and retained. Petrale sole caught in the bottomfish and halibut fisheries is included in Table 7.

Table 7. Oregon recreational petrale sole total mortality (in mt) by trip type and catch per angler trip on halibut trips only. (Source: RecFIN)

Year	Bottomfish	Pacific Halibut	Other	Total	Catch per angler from Pacific halibut trips
2014	0.1	0.1	0.1	0.3	0.01
2015	0.2	0.9	0.1	1.1	0.05
2016	0.2	1.8	0.1	2.1	0.08
2017	1.2	2.3	0.2	3.8	0.10
2018	0.3	2.0	0.3	2.6	0.09
2019	0.3	2.0	0.3	2.5	0.11
2020	0.2	3.5	0.4	4.1	0.16
2021	0.2	1.7	0.7	2.5	0.11
2022	0.4	3.0	0.5	3.9	0.13
2023*	0.4	3.4	0.7	4.5	0.15

* 2023 data available through November only.

Washington Recreational Fishery

Species-specific estimates of flatfish mortality are not available for the Washington recreational fishery. The Ocean Sampling Program collects species information when intercepting anglers during dockside interviews. However, the catch estimation procedure combines all flatfish species, other than Pacific halibut, to produce a Flatfish Order estimate.

Flatfish species targeting and mortalities are not substantial in the Washington recreational fishery; total Flatfish Order mortality from 2016 to 2023 averaged 1.8 mt. The singular exception is sanddabs which are targeted for use as bait by a small segment of anglers. Over this same range of years, sanddab species comprised 80 percent of all Flatfish. To evaluate catch and the relative importance of petrale sole to the recreational fishery, the proportion of petrale sole comprising the unexpanded estimate of flatfish species was applied to Flatfish Order total mortality[3]. Based on this approach, the total mortality of petrale sole in the Washington recreational fishery in 2023 was estimated at 0.08 mt. Since 2016, total petrale mortality averaged 0.03 mt (Table 8).

Actions to address management needs of other species in the recreational fishery in 2025-2026 are not anticipated to affect the relative importance of petrale sole to anglers.

Table 8. Washington recreational petrale sole mortality estimated as a percent of Flatfish Order (mt).

Year	Estimated Flatfish Order mortality (mt)	Estimated petrale sole mortality (mt)
2016	1.96	0.02
2017	1.23	0.02
2018	1.58	0.05
2019	1.57	0.05
2020	2.02	0.01
2021	1.79	0.01
2022	1.62	0.03
2023	2.89	0.08

Commercial Non-Trawl Fisheries

Petrale sole are primarily caught on targeted sablefish trips in commercial non-trawl non-nearshore fishery. The remainder of the commercial non-trawl mortality is attributed to the nearshore fishery in minor amounts. The projections in Table 9 are based on different sablefish attainment scenarios and the bycatch ratio for petrale sole from the non-nearshore model. To address whether there is a risk of a harvest specification being exceeded, the GMT provides a range of scenarios that are more likely than full 2025-26 sablefish ACL attainment. The GMT modeled different ACL scenarios as proxies for low and medium attainment of the 2025-26 ACLs.

> **High Attainment Scenario:** The Non-nearshore modeled projections for the full ACL values and therefore the full fixed gear sablefish north of 36° N. lat. share attainment. Full results will be provided in the Council Analytical Document for the April Council meeting.
>
> **Medium Attainment Scenario:** This scenario uses the ACL proxy of 18,048 mt, which is the average ACL of 2023-2026 to model for incidental harvest within the sablefish fishery. This results in a limited entry fixed gear share of 8,489 mt and an open access share of 1,518 mt.

[3] This same method was used to derive the estimates of sanddabs.

Low Attainment Scenario: The 2023 sablefish ACL north of 36° N. lat. represents a low attainment scenario given that the model models the resulting limited entry and open access fixed gear share (of 3,993 mt and 714 mt, respectively). The current 2023 mortality estimates in the PacFIN scorecard as of 12/20/2023 are 2,039.3 mt and 493.1 mt, respectively. This estimate uses landings data and a three year moving average of discards. The 2023 ACL was used, because even though this is a low scenario in terms of the 2025-2026 ACLs, it represents the highest harvest limits have been since 2011.

Based on discussion with GAP members and public testimony, it is reasonable to expect that sablefish will be under a low attainment scenario until markets improve; therefore, a reasonable projection range for petrale sole from the fixed gear sector is 4.3-4.64 mt for the 2025-2026 years (Table 9).

Table 9. Petrale sole mortality projections caught within the targeted sablefish fishery from the non-nearshore model with the additional average mortality between 2021-2023 from the GEMM for the nearshore sector compared with the no action landings as the low range of the projection.

Non-Nearshore Fixed Gear Mortality Projection (mt)			Nearshore Mort Estimate (Avg. of 2021-23)	Landings in 2023: No Action (mt)
High attainment scenario	Medium attainment scenario	Low attainment scenario		
15.54	9.83	4.62	0.02	4.3

PFMC
03/09/24