GROUNDFISH MANAGEMENT TEAM REPORT ON BIENNIAL HARVEST SPECIFICATIONS FOR 2025-26 INCLUDING OVERFISHING LIMITS AND ACCEPTABLE BIOLOGICAL CATCHES

Action Item # 1: Harvest Specifications for 2025-2026

Default Harvest Control Rules

The Groundfish Management Team (GMT) recommends the Pacific Fishery Management Council (Council) adopt default harvest control rules (HCRs) for all species in the Groundfish Fishery Management Plan (FMP) (see Agenda Item E.5, Attachment 1, Section 1.2.1), except for the species listed in Table 1 and discussed below.

Quillback Rockfish South of 42° N. lat.

Quillback rockfish south of 42° N. lat. is anticipated to be declared overfished and a subsequent rebuilding analysis is ongoing. If quillback rockfish south of 42° N. lat. is declared overfished, **the GMT recommends that quillback rockfish south of 42° N. lat. be removed from the minor nearshore rockfish complexes (both the nearshore complex north of 40° 10′ N. lat. and the deeper nearshore complex south of 40° 10′ N. lat.).** Overfished species need to be managed to their species-specific overfishing limit (OFL) and annual catch limit (ACL) and removing quillback rockfish from the minor nearshore rockfish complexes will facilitate that need. Additionally, removing quillback rockfish from the minor nearshore rockfish complexes will allow the GMT to identify and conduct any needed analyses to support the 2025-26 harvest specification for the remaining species in the complexes and will follow historic precedent the Council has used in managing other overfished rockfish species. Quillback rockfish would remain in the minor nearshore rockfish complex north of 42° N. lat. This will enable the GMT to move forward with the overwinter SPEX analysis for the remaining species in the nearshore complex. Additionally, since quillback rockfish south of 42° N. lat. would be in a rebuilding plan, the Council would need

to track mortality against the quillback rockfish south of 42° N. lat. OFL. Stocks that are in complexes are not generally monitored or managed to the stock-specific OFL.

Annual Catch Limit Alternatives

At our October meeting, the GMT reviewed the range of ACL alternatives adopted by the Council in September 2023 for rex sole, shortspine thornyhead, canary rockfish, sablefish and dover sole. **The GMT agrees with the proposed range adopted by the Council in September and recommends that the Council adopt all ACL alternatives at this meeting, including selection of preliminary preferred alternative (PPA) ACLs to facilitate the impact analysis.**

Comparing benefits and risks of different harvest strategies

Higher ACLs can provide greater economic benefits and reduce bycatch constraints, but can also increase conservation risks, especially when a stock assessment's estimates of spawning biomass (or spawning output) and fraction of unfished biomass are more uncertain. For this reason, stock assessors provide decision tables that allow the Council to compare how higher and lower harvest strategies (e.g., P* of 0.45 vs. P* of 0.40, respectively) affect spawning biomass annually over the next ten years, taking into consideration any uncertainty around stock size and status. Decision tables elucidate the risks and trade-offs from alternative future management action and should be carefully considered during decision making. Table 1 contains alternative harvest specifications for stocks with alternatives and GMT recommendations for the Council to select as PPA (in bold). Alternative HCRs are typically considered for those stocks that have new or updated stock assessments for the respective management cycle.

Table 1. Alternative harvest specifications forwarded by the Council in September 2023 for consideration for 2025-26. Bolded values represent GMT recommendations for PPA.

Stock	Default HCR	Alternative 1
Rex Sole	ACL = ABC P* 0.40	**ACL = ABC P* 0.45**
Shortspine thornyhead	ACL < ABC P* 0.40, 40 10 HCR applied	**ACL < ABC P* 0.45 , 40 10 HRC applied**
Canary rockfish	**ACL < ABC P* 0.45, 40 10 HCR applied**	ACL < ABC P* 0.40, 40 10 HCR applied
Sablefish	**ACL = ABC P* 0.45**	ACL = ABC P*0 .40
Dover Sole	ACL = 50,000 mt	**ACL = ABC P*0.45**

1. Rex Sole

Alternatives under consideration:

No Action: Default HCR ACL=ABC P* of 0.40
Alternative 1: ACL=ABC P* of 0.45

Biological Implications

The default HCR for rex sole is to apply a P* of 0.40 and to set the ACL equal to the acceptable biological catch (ABC). This has been the Council's choice since the last time it was assessed in 2013. The 2013 assessment was data-moderate and was informed by catch data and index of abundance data from the Northwest Fisheries Science Center (NWFSC) West Coast Groundfish Bottom Trawl survey (WCGBT). The 2023 assessment, while still data-moderate, was informed by additional data (catches, survey index of abundance, fishery and survey length compositions, and survey conditional age-at-length data) and estimated growth within the model, providing a more informed understanding of the stock. During the Stock Assessment and Review (STAR) panel, a projection was conducted with a P* of 0.45, Alternative 1, as a possible management option.

Actual removals are likely to remain well below the ABC under either P* value, making the risk of overfishing low, and a P* of 0.45 would provide the trawl fleet the greatest flexibility in the event of future expansion. Even if the full ABC were taken under either HCR, the stock is not expected to fall below the flatfish management target of 25 percent of unfished spawning output during the 10-year projection period, based on the base model (middle state of nature). The GMT notes that, under the low state of nature, a P* of 0.45 could result in the stock falling below the management target within the 10-year period if the trawl fishery expands and the full ACLs are taken from 2025 into the future. However, the GMT does not think this is likely given recent attainment trends (Table 4). Additionally, the base model is assumed to have 50 percent probability of reflecting the true state of the stock whereas both the low and high states of nature are assumed to have a 25 percent probability.

Table 2. Decision table from the 2023 rex sole stock assessment that compares the potential outcomes for each state of nature (alternative values of natural mortality, M) under alternative P* values with catches in metric tons.

Year	Catch	M = 0.175		M = 0.186		M = 0.210	
		Spawning Output (millions)	Fraction unfished	Spawning Output (millions)	Fraction unfished	Spawning Output (millions)	Fraction unfished
ACL P* = 0.4							
2023	447	792	0.669	913	0.761	1054	0.886
2024	447	801	0.676	915	0.764	1046	0.879
2025	3967	811	0.685	920	0.767	1039	0.873
2026	3310	671	0.566	783	0.653	909	0.764
2027	2850	570	0.481	684	0.570	815	0.685
2028	2527	497	0.420	613	0.511	749	0.629
2029	2305	446	0.377	563	0.470	702	0.590
2030	2147	411	0.347	528	0.441	670	0.564
2031	2032	386	0.326	504	0.421	649	0.545
2032	1942	367	0.310	487	0.407	634	0.533
2033	1869	354	0.299	475	0.396	623	0.524
2034	1810	343	0.290	467	0.389	617	0.519
ACL P* = 0.45							
2023	447	792	0.669	913	0.761	1054	0.886
2024	447	801	0.676	915	0.764	1046	0.879
2025	4550	811	0.685	920	0.767	1039	0.873
2026	3719	646	0.545	759	0.633	888	0.747
2027	3153	529	0.446	645	0.538	781	0.657
2028	2769	447	0.377	565	0.471	707	0.594
2029	2510	390	0.329	510	0.425	655	0.551
2030	2334	351	0.296	471	0.393	620	0.522
2031	2212	323	0.273	445	0.371	597	0.502
2032	2119	302	0.255	425	0.355	580	0.488
2033	2044	285	0.241	411	0.343	568	0.478
2034	1983	271	0.229	400	0.333	560	0.471

Table 3. The 2025-26 rex sole ACLs (mt) resulting from a P* of 0.40 and a P* 0.45.

Year	ACL with P* 0.40 (No Action)	ACL with P*0.45 (Alt. 1)
2025	3,967	4,550
2026	3,310	3,719

Table 4. Recent estimated rex sole total mortality in metric tons (mt). Data source: Groundfish Expanded Mortality Multiyear (GEMM).

Year	Estimated Total Mortality (mt)
2020	425.0
2021	393.1
2022	374.8

Economic Implications
Given that the recent estimated total mortality has been approximately 400 mt per year, which is much less than the No Action ACL or the Alternative 1 ACL, the GMT does not foresee any notable economic implications under either alternative. However, the GMT notes that P* of 0.45 would offer the trawl industry the most flexibility to increase attainment of target stocks.

Recommendations
The GMT recommends that the Council select Alternative 1, P* of 0.45, as the PPA for Rex sole. This will provide the trawl industry the most flexibility, and the stock is not expected to fall below the flatfish management target of 25 percent of unfished spawning output during the 10-year projection period, even with the projected attainment of the full ABC, which is unlikely to happen based on recent trends (attainment is about 1/10th of the ACL for the past three years).

2. Shortspine Thornyhead

Agenda Item E.5.a, GMT Report 1, November 2023 outlines two options for shortspine thornyhead ACL apportionment methods for Council consideration. **The GMT recommends the Council adopt Option 1 for the shortspine thornyhead ACL apportionment method at this November 2023 meeting to inform over-winter analysis of the alternative HCRs shown below.**

Alternatives under consideration:

No Action: Default HCR ACL<ABC P* of 0.40, 40 10 HCR applied
Alternative 1: ACL<ABC P* of 0.45, 40 10 HCR applied

Biological Implications
The default HCR for shortspine thornyhead is to apply a P* of 0.40 to determine the coastwide ABC. Additionally, the stock is estimated to be below the spawning output target and the 40-10 rule would be applied to determine the maximum coastwide ACL that is then split into two area based ACLs north and south of 34° 27′ N. lat. Due to anticipated increases in sablefish ACLs over the next few years, the trawl fleet that targets Dover sole, thornyheads, and sablefish (DTS) may expand effort, so full attainment of the ACL for shortspine thornyhead north of 34° 27′ N. lat. is a reasonable expectation. However, it is likely that much of the ACL south of 34° 27′ N. lat. will go unharvested based on recent mortality trends (Tables 6 & 7). This means that the coastwide ABC and OFL are not expected to be at risk under either HCR.

Assuming full coastwide ACL attainment, the stock remains within the precautionary zone for the entire 10-year projection period using the base model under both HCRs, with the exception of 2034 under the No Action alternative at which point the stock reaches the management target of 40 percent of unfished spawning output. Both HCRs result in minimal stock decline until 2029 (No Action) or 2031 (Alternative 1) before subsequently increasing towards the management target.

Table 5. Decision table for shortspine thornyhead that compares the potential outcomes for each state of nature (alternative values of natural mortality, M) under alternative P* values with catches in metric tons. SO = Spawning output; Dep = Depletion

		Low: M = 0.03		Base: 0.04		High: M = 0.05	
Year	Catch	SO	Dep	SO	Dep	SO	Dep
ACL P* = 0.4							
2023	756	13485	0.427	8717	0.394	9907	0.494
2024	756	13334	0.422	8687	0.392	9965	0.497
2025	711	13194	0.418	8666	0.391	10032	0.500
2026	713	13067	0.414	8659	0.391	10113	0.504
2027	716	12949	0.410	8660	0.391	10202	0.509
2028	718	12841	0.406	8670	0.392	10298	0.513
2029	720	12742	0.403	8688	0.392	10400	0.519
2030	721	12652	0.401	8712	0.393	10509	0.524
2031	722	12570	0.398	8744	0.395	10621	0.530
2032	721	12496	0.396	8782	0.397	10738	0.535
2033	720	12431	0.394	8826	0.399	10857	0.541
2034	719	12372	0.392	8874	0.401	10978	0.547
ACL P* = 0.45							
2023	756	13485	0.427	8717	0.394	9907	0.494
2024	756	13334	0.422	8687	0.392	9965	0.497
2025	815	13194	0.418	8666	0.391	10032	0.500
2026	825	13060	0.413	8652	0.391	10106	0.504
2027	834	12934	0.409	8645	0.390	10187	0.508
2028	843	12817	0.406	8647	0.390	10275	0.512
2029	851	12708	0.402	8655	0.391	10368	0.517
2030	859	12607	0.399	8670	0.392	10467	0.522
2031	866	12513	0.396	8691	0.392	10569	0.527
2032	872	12427	0.393	8717	0.394	10674	0.532
2033	877	12348	0.391	8747	0.395	10781	0.538
2034	883	12275	0.389	8782	0.397	10889	0.543

Table 6. Recent coastwide estimated shortspine thornyhead total mortality in metric tons (mt). Data source: GEMM.

Year	Estimated Total Mortality (mt)		
	North of 34° 27′ N. lat.	South of 34° 27′ N. lat.	Coastwide Total
2020	411	52	463
2021	460	42	502
2022	657	34	691

Economic Implications

The 2025 and beyond projected ACLs using a P* of 0.45 are comparable to the GMT predicted catch projections for 2023 and 2024. However, between 2007 and 2018, annual shortspine thornyhead mortality was higher than any of the 10-year projections under either HCR, reaching up to 1,681 mt during that time period. Hence, shortspine thornyhead may still become a constraining species to the groundfish fishery even under the highest P* available to the Council. Therefore, the P* choice has the potential for significant economic impact in 2025 and 2026.

Shortspine thornyhead north and south of 34° 27′ N. lat. are managed with Amendment-21 trawl/non-trawl allocations, as well as a 70 mt at-sea set-side for shortspine thornyhead north of 34° 27′ N. lat. The majority of shortspine thornyhead mortality north of 34° 27′ N. lat. is from the shorebased IFQ fishery, whereas south of 34° 27′ N. lat., the majority is from the non-trawl fishery (Table 7). Mortality in both sectors for shortspine thornyhead north of 34° 27′ N. lat. has generally been higher than any of the potential sector-specific allocations under any of the alternative HCRs and apportionment methods, assuming status quo set-asides and allocation shares (Table 8). Alternative 1 HCR (P* 0.45) and Option 1 apportionment method (five-year rolling average) would provide the greatest flexibility to both sectors to account for expected mortality north of 34° 27′ N. lat.

Table 7. Shorebased IFQ and non-trawl mortality of shortspine thornyhead north and south of 34° 27′ N. lat, 2011-2022. Source: GEMM.

Year	IFQ Mortality (mt)		Non-Trawl Mortality (mt)	
	North	South	North	South
2011	715	8	61	171
2012	715	1	57	115
2013	833	4	53	97
2014	678	2	48	84
2015	719	1	42	74
2016	737	2	40	109
2017	739	0	59	143
2018	621	0	57	108
2019	535	0	46	80

Year	IFQ Mortality (mt)		Non-Trawl Mortality (mt)	
	North	South	North	South
2020	346	0	32	50
2021	288	0	32	40
2022	357	0	26	33
Recent 5-year avg.	430	0	39	62
2011-2022 avg.	593	2	46	92

Table 8. Potential IFQ and non-trawl shortspine thornyhead allocations under alternative HCRs and apportionment methods based on 2023 off-the-top deductions and status quo trawl/non-trawl allocations and at-sea set-aside.

		Potential IFQ Allocation (mt) under Status Quo Measures	Potential Non-Trawl Allocation (mt) under Status Quo Measures
No Action HCR and Status Quo apportionment method			
North	2025	318	20
	2026	319	20
South	2025	50	167
	2026	50	168
No Action HCR and Option 1 apportionment method			
North	2025	340	22
	2026	333	21
South	2025	50	152
	2026	50	153
Alternative 1 HCR and Status Quo apportionment method			
North	2025	386	24
	2026	392	24
South	2025	50	200
	2026	50	203
Alternative 1 HCR and Option 1 apportionment method			
North	2025	402	25
	2026	409	25
South	2025	50	184
	2026	50	186

Recommendations

Given the small difference in stock depletion trajectory under both HCRs, the likelihood that much of the ACL south of 34° 27′ N. lat. will go unharvested, and with the expected constraints and

economic impacts of the ACL north of 34° 27′ N. lat., **the GMT recommends that the Council adopt Alternative 1, P* of 0.45, as PPA for shortspine thornyhead.**

3. Canary Rockfish

Alternatives under consideration:

No Action: Default HCR ACL<ABC P* of 0.45, 40 10 HCR applied
Alternative 1: ACL<ABC P* of 0.40, 40 10 HCR applied

Biological Implications

The default HCR for canary rockfish is to apply a P* of 0.45 with the ACL at less than the ABC, due to the 40 10 rule being applied. During the canary rockfish STAR panel, a projection was conducted with a P* of 0.40, Alternative 1, as a possible management option. The 2023 assessment of canary rockfish estimated the stock to be in the precautionary zone at 35 percent of unfished. Across the last three years the average estimated annual mortality is 591 mt which is above either of the proposed ACLs, which indicates that this stock will likely become constraining to the sectors that catch canary rockfish currently.

Table 9. Decision table for canary rockfish from the 2023 stock assessment that compares the potential outcomes for each state of nature (alternative values or treatment of natural mortality, M) under alternative P* values with catches in metric tons. Management (Mgmt) option A corresponds to a P* of 0.40 and option B to a P* of 0.45. Spawn = spawning output and Frac = fraction of unfished output.

Mgmt	Year	Catch	Low Spawn Single M	Low Frac Single M	Base Spawn	Base Frac	High Spawn M ramp	High Frac M ramp
A	2023	863	2523.10	0.244	2808.87	0.351	3098.08	0.430
	2024	860	2494.43	0.241	2782.56	0.347	3068.81	0.426
	2025	533	2449.39	0.237	2739.40	0.342	3021.70	0.419
	2026	533	2424.82	0.234	2713.76	0.339	2989.89	0.415
	2027	542	2392.15	0.231	2678.11	0.334	2946.34	0.409
	2028	558	2355.98	0.228	2637.77	0.329	2897.29	0.402
	2029	577	2323.21	0.224	2601.05	0.325	2853.02	0.396
	2030	598	2301.84	0.222	2577.72	0.322	2825.45	0.392
	2031	621	2298.39	0.222	2575.43	0.322	2823.73	0.392
	2032	645	2315.69	0.224	2596.64	0.324	2850.17	0.395
	2033	667	2352.54	0.227	2638.56	0.329	2899.70	0.402
	2034	686	2405.68	0.232	2695.91	0.337	2964.22	0.411
B	2023	863	2523.10	0.244	2808.87	0.351	3098.08	0.430
	2024	860	2494.43	0.241	2782.56	0.347	3068.81	0.426
	2025	571	2449.39	0.237	2739.40	0.342	3021.70	0.419
	2026	573	2420.81	0.234	2709.94	0.338	2986.12	0.414
	2027	584	2383.86	0.230	2670.26	0.333	2938.59	0.407
	2028	601	2343.21	0.226	2625.73	0.328	2885.43	0.400
	2029	623	2305.70	0.223	2584.62	0.323	2836.83	0.393
	2030	648	2279.22	0.220	2556.58	0.319	2804.60	0.389
	2031	674	2269.97	0.219	2548.98	0.318	2797.59	0.388
	2032	700	2280.56	0.220	2564.13	0.320	2817.93	0.391
	2033	726	2309.81	0.223	2599.27	0.325	2860.65	0.397
	2034	749	2354.31	0.227	2649.08	0.331	2917.64	0.405

Table 10. The 2025-26 canary rockfish ACLs (mt) resulting from a P* of 0.45 and a P* 0.40.

Year	ACL with P* 0.45 (No Action)	ACL with P* 0.40 (Alt. 1)
2025	571	533
2026	573	533

Table 11. Recent coastwide estimated canary rockfish total mortality in metric tons (mt). Data source: GEMM.

Year	Estimated Total Mortality (mt)
2020	485
2021	564
2022	723
Avg. (2020-2022)	591

Economic Implications

Canary rockfish had been declared overfished from 2003 up until the 2015 stock assessment. Since 2017, canary rockfish have been intentionally harvested and markets have increased steadily each year as this is an important species to both the trawl and non-trawl fisheries. Currently, it is harvested in both the non-trawl and trawl sectors. In the non-trawl sector the new opportunities within the Non-trawl Rockfish Conservation Area target midwater shelf species, this opportunity is likely to become constrained with the new ACLs. Canary rockfish is harvested in the trawl sector incidentally and individual fishing quota (IFQ) pounds are often held in reserve to cover schooling events. The change in the ACL will likely present a constraint to normal operations and will likely result in lower economic value due to inability to access target stocks. The GMT notes that restrictions may need to be implemented into the different sectors to account for a decreased ACL resulting from either a P* of 0.45 or a P* of 0.40.

Canary rockfish has become an important component in the longleader fishery off Oregon. This specific recreational fishery targets midwater rockfish seaward of the 40-fathom regulatory line and has increased in popularity since its inception during the fall months of 2017. With higher bag limits and larger rockfish, individual angler trips have increased from about 2,500 to over 5,500 trips in 2023. Due to this increase in angler effort, the Oregon recreational harvest quota is projected to be about 95 percent attainment of the 62.3 mt allocation for 2023. The longleader fishery will likely become even more popular in future years as the bag limit for nearshore recreational anglers may decrease in response to recent stock assessments of black and quillback rockfishes.

For California fisheries the changes to the recreational and commercial fisheries brought about to protect quillback rockfish have largely resulted in pushing commercial and recreational anglers into offshore waters to target shelf and slope rockfish species. We anticipate this shift in effort to change offshore fisheries and will likely change impacts on canary rockfish and other shelf and slope species.

Canary rockfish is also an important component of the Washington recreational fishery. The approach taken for Washington's recreational fishery has been precautionary; it wasn't until 2019 that Washington Department of Fish and Wildlife removed the canary rockfish sublimit. However, since 2019, canary rockfish has been among the top four species landed, which, together with black rockfish, lingcod, and yellowtail rockfish, makes up 94 percent of the Washington recreational catch. Attainment of canary rockfish in 2021 and 2022 was 91 and 88 percent of the Washington harvest guideline respectively, and attainment in 2023 is 51 percent of the harvest guideline

through August. Canary rockfish is not only an important component of the total recreational catch, but the availability of canary rockfish in offshore areas allows sustainable fishing opportunity by relieving pressure on more nearshore species like black, copper, and quillback rockfishes where management to stay within the harvest guidelines has been increasingly important.

Recommendations

The GMT recommends that the Council select No Action, P* of 0.45, as the PPA. The GMT notes that restrictions may need to be implemented into the different sectors to account for a decreased ACL resulting from either a P* of 0.45 or a P* of 0.40. Canary rockfish is caught in most commercial sectors (both targeted and untargeted) and fisheries have developed to access it within the recreational sector, and a P* of 0.45 will allow for the greatest opportunity for the fishery.

4. Sablefish

Alternatives being considered:

No Action: Default HCR ACL=ABC with P* of 0.45,
Alternative 1: ACL=ABC with P* of 0.40.

Biological Implications

The default HCR for sablefish is to apply a P* of 0.45. The 2023 limited update assessment included projections with a P* of 0.40, Alternative 1, for consideration. The assessment estimated multiple large year-classes in recent years (e.g., 2016, 2020, and 2021) leading to large increases in the spawning biomass at the end of the time series with the population projected to continue increasing as new recruits mature.

The assessment estimated the 2020 and 2021 recruitment events as the largest of the entire time series, however, the size of these recruitments are highly uncertain due to limited observations of them by the NWFSC WCGBT survey. Given the limited information available to inform the magnitude of the 2020 and 2021 year classes that are largely driving the projected increase in spawning biomass, the Council may want to consider a more risk-averse P*. However, it is worth noting that it is unlikely that total mortality will reach the 2025-26 ACLs under a P* of 0.40 or 0.45. Total mortality has been less than 7,000 mt annually for the last decade, and markets are a current limiting factor for attainment of sablefish. The 2022 estimated total mortality of sablefish from the GEMM is approximately 18 percent of the 2025 ACL under a P* of 0.45. As actual removals are likely to remain well below the ACL under either P* value, and neither alternative leads to declines in the fraction of unfished spawning biomass until 2028, the risk of overfishing could be considered low under both P* values.

Table 12. Decision table for sablefish from the 2023 limited update stock assessment that compares the potential outcomes for each state of nature under alternative P* values with catches in metric tons. SB = spawning biomass and SB_0 = unfished spawning biomass.

HCR	Year	Catch	SB	SB/SB_0	SB	SB/SB_0	SB	SB/SB_0
P*0.45	2023	9,118	117,519	0.630	166,569	0.699	81,817	0.558
	2024	8,359	141,875	0.761	201,559	0.846	98,275	0.670
	2025	36,545	183,592	0.984	260,780	1.095	126,884	0.865
	2026	34,699	207,142	1.110	299,826	1.258	139,748	0.953
	2027	31,632	214,059	1.148	316,170	1.327	140,726	0.959
	2028	27,385	210,719	1.130	317,238	1.331	134,879	0.919
	2029	23,217	203,091	1.089	310,681	1.304	126,680	0.864
	2030	19,914	194,403	1.042	301,045	1.264	118,407	0.807
	2031	17,616	185,924	0.997	290,498	1.219	110,823	0.755
	2032	16,130	177,993	0.954	279,948	1.175	104,008	0.709
	2033	15,208	170,621	0.915	269,750	1.132	97,837	0.667
	2034	14,587	163,747	0.878	260,043	1.091	92,167	0.628
P*0.40	2023	9,118	81,817	0.558	117,519	0.630	166,569	0.699
	2024	8,359	98,275	0.670	141,875	0.761	201,559	0.846
	2025	34,121	126,884	0.865	183,592	0.984	260,780	1.095
	2026	32,403	140,789	0.960	208,215	1.116	300,856	1.263
	2027	29,541	142,970	0.975	216,375	1.160	318,395	1.336
	2028	25,560	138,237	0.942	214,180	1.148	320,570	1.345
	2029	21,658	130,948	0.893	207,470	1.112	314,913	1.322
	2030	18,524	123,368	0.841	199,462	1.069	305,950	1.284
	2031	16,328	116,321	0.793	191,492	1.027	295,908	1.242
	2032	14,929	109,939	0.749	183,955	0.986	285,747	1.199
	2033	14,023	104,121	0.710	176,892	0.948	275,849	1.158
	2034	13,283	98,767	0.673	170,287	0.913	266,400	1.118

Table 13. The 2025-26 sablefish ACLs (mt) resulting from a P* of 0.45 and a P* 0.40 in metric tons (mt). The proportion of the ACL allocated north and south of 36° N. lat. is based on the estimated biomass by area from the NWFSC WCGBT survey with 78.5 and 21.5 percent being allocated to the north and south, respectively.

Year	Area	ACL with P* 0.45 (No Action)	ACL with P* 0.40 (Alt. 1)
2025	Coastwide	36,545	34,121
	North of 36° N. lat.	28,688	26,785
	South of 36° N. lat.	7,857	7,336
2026	Coastwide	34,699	32,403
	North of 36° N. lat.	27,238	25,436
	South of 36° N. lat.	7,460	6,967

Table 14. Recent coastwide estimated sablefish total mortality in metric tons (mt). Data source: GEMM.

Year	Estimated Total Mortality (mt)		
	North of 36° N. lat.	South of 36° N. lat.	Coastwide Total
2020	3,802	327	4,129
2021	4,844	277	5,122
2022	6,253	302	6,555

Economic Implications

Sablefish is an economically important stock to the open access (OA), non-whiting limited entry, and tribal fisheries. Sablefish is a high value target species and is also caught as part of a complex with co-occurring species in the bottom trawl fishery such as Dover sole and thornyheads. Sablefish is also a common bycatch species in the Pacific whiting fishery, and increasingly in recent years, in other fisheries.

Both HCRs will likely warrant increasing allocations and trip limits to reflect the higher ACLs, which would result in economic gains for many in the fishery. This is true for both the Limited Entry sablefish fishery as well as the OA fleet that catches sablefish, as recent declines in salmon and Dungeness crab opportunity have led to OA vessels taking advantage of higher sablefish trip limits to support their overall fishing portfolio. Both HCRs are also likely to reduce bycatch constraints for those sectors that have allocations or set-asides for sablefish but do not target sablefish, potentially giving those sectors a greater opportunity to attain their target stocks' allocations. Importantly, those same sectors are, instead, likely to be constrained by other bycatch stocks in the 2025-26 biennium as a result of other stock assessments (e.g., canary rockfish, shortspine thornyhead).

The absolute difference between the No Action and Alternative 1 HCRs will likely not result in any difference in realized economic impact (either positive or negative), given that total mortality will most likely be much lower than any of the ACLs in Table 13.

Recommendations

The GMT recommends that the Council select No Action, P* of 0.45, as PPA for sablefish. Given that actual removals are likely to remain well below the ACL under either P* value, and neither alternative leads to declines in the fraction of unfished spawning biomass until 2028, the risk of overfishing could be considered low under both P* values. However, P* 0.45 provides the greatest flexibility to all sectors

5. Dover Sole

Alternatives under consideration:

No Action: Default HCR ACL=50,000 mt (Untenable)
Alternative 1: ACL=ABC P* of 0.45

Biological Implications

Since 2015, the default HCR for Dover sole has been to set the ACL equal to a constant catch of 50,000 mt. However, in 2025-26 a constant ACL of 50,000 mt is untenable since the ACL would exceed the ABC. Given that, an Alternative HCR of P* of 0.45 with ACL set equal to the ABC needs to be considered for 2025-26. Actual removals are likely to remain well below the ABC under Alternative 1, P* value 0.45, making the risk of overfishing low, and a P* of 0.45 would provide the trawl fleet the greatest flexibility in the event of future expansion.

Table 15. The 2025-26 Dover sole ACLs (mt) resulting from the default HCR of 50,000 mt ACL and a P* 0.45.

Year	No Action ACL	ACL with P*0.45 (Alt. 1)
2025	*50,000**	47,424
2026	*50,000**	42,457

*The No Action ACL of 50,000 mt exceeds the ABC in 2025-26.

Table 16. Recent estimated dover sole total mortality in metric tons (mt). Data source: Groundfish Expanded Mortality Multiyear (GEMM).

Year	Estimated Total Mortality (mt)
2020	4,829
2021	4,103
2022	4,700

Economic Implications

Given that the recent estimated total mortality has been between 4,000 and 5,000 mt per year, which is much less than the No Action ACL or the Alternative 1 ACL, the GMT does not foresee any notable economic implications under either alternative. The GMT also notes that no action is an untenable route since the ACL is set over the ABC.

Recommendations

The GMT recommends that the Council adopt Alternative 1, P* of 0.45, as PPA because the no action alternative has the ACL set over the ABC and is therefore untenable.

GMT Recommendations

AIC#1 Harvest Specifications for 2025-26

The GMT recommends the Council adopt as PPA

- **default HCRs for all species in the Groundfish FMP, except for the species listed in Table 1, and**
- **The range of alternatives for the following species, alternatives that are bolded are recommended as PPA.**

Table 1. Alternative harvest specifications forwarded by the Council in September 2023 for consideration for 2025-26. Bolded values represent GMT recommendations for PPA.

Stock	Default HCR	Alternative 1
Rex Sole	ACL = ABC P* 0.40	**ACL = ABC P* 0.45**
Shortspine thornyhead	ACL < ABC P* 0.40, 40 10 HCR applied	**ACL < ABC P* 0.45 , 40 10 HRC applied**
Canary rockfish	**ACL < ABC P* 0.45, 40 10 HCR applied**	ACL < ABC P* 0.40, 40 10 HCR applied
Sablefish	**ACL = ABC P* 0.45**	ACL = ABC P*0 .40
Dover Sole	ACL = 50,000 mt	**ACL = ABC P*0.45**

PFMC
11/02/23