JOINT ANALYST REPORT:
ANALYSIS OF ADDITIONAL MANAGEMENT MEASURES FOR 2021-22

The Groundfish Management Team (GMT) Overwinter Analytical Evaluation of 2021-2022 Harvest Specification Management Measures (hereafter "analytical document"; Agenda Item G.6., Attachment 2, April 2020) contains an analysis of the range of alternatives that were forwarded by the Council in November 2019. This report contains additional proposals forwarded by the Council in March 2020 under Agenda Item G.6 as well as several stakeholder proposals. The additional proposals include another option for setting at-sea set-asides, combining the nearshore and non-nearshore harvest guidelines (HGs) and nearshore shares for canary rockfish, and new limited entry fixed gear (LEFG) and open access (OA) trip limits. The objective of these proposals is to better achieve the harvest specifications, provide more opportunity, and enhance regulatory consistency.

At-sea set-asides

In March 2020, the Groundfish Advisory Subpanel (GAP) requested analysis of a new at-sea set-aside option that would use the three-year-average for all stocks for both the main combined and sector-specific main options. The GMT's over-winter work examined six options for at-sea set-asides for Council consideration (see Chapter 2.4 of the Agenda Item G.6., Attachment 2, April 2020; Table 2-33 and Table 2-34). This new option "Option G" was suggested by the GAP as they posited that it could potentially better reflect the expected future bycatch in the at-sea sector than the other options considered in the analytical document (e.g., 5-year average). Both the GMT and GAP acknowledged in March 2020 that a 5-year average could be biased low because it includes 2015-2016, which was before actions were taken to reduce their overall bycatch constraints (i.e., buffers for unforeseen catch events and shifts from allocations to set-asides).

Table 1 below shows the Option G set-aside values in relation to the 2018 and 2019 mortalities by sector, and the Option D values (5-year average by sector, except for those Amendment 21(A-21) species with sector specific allocations in 2019). Note that this Option maintains the elimination of the proposed set-asides for English sole, longspine thornyhead north of 34° 27' N. lat., Pacific cod, petrale sole, and starry flounder which have all had negligible mortality since 2011.

As shown, Option G would result in less tonnage being set aside compared to Option D except for darkblotched rockfish. Option D for darkblotched rockfish is based on the A-21 formula and as described in the analytical document, is likely to result in the at-sea sector exceeding their set aside based on recent mortalities. For those species where the Council is considering a flat tonnage across both sectors (i.e., 20 mt for canary rockfish and 100 mt for sablefish north of 36° N. lat.), Option G would result in a lower set aside for canary rockfish, but an increased set aside of 100 mt for sablefish north at 113.7 mt for the at-sea sector as a whole. The impact of the set aside amount for sablefish north of 36° N. lat. in the IFQ sector, where it is fully utilized, would be less under the Alternative 1 Method 2 allocations compared to No Action Method 1.[1] Alternative 2

[1] Method 1 and 2 refer to the apportionment method options being considered by the Council for apportioning the sablefish coastwide acceptable biological catch into ACLs north and south of 36° N. lat. Method 1 uses the long-

Method 1 and No Action Method 2 would result in similar impacts. For the remaining species (e.g., yellowtail rockfish north of 40° 10' N. lat.), the three-year average would cover eight of the 15 proposed species with set asides mortality in 2018 for the CP sector and only three for 2019.

For the MS sector, Option G would cover four species in 2018 mortality and eleven species in 2019. For the vast majority of species though, there is little risk to the ACL if the at-sea sectors were to go over their set- aside as discussed in the analytical document. Furthermore, while the at-sea sectors use these set asides in managing their operations, there is even a lower risk of exceeding the total set aside amount allocated to the sectors as the probability of both sectors exceeding a set aside in the same year compared to a single sector exceeding a set aside is lower as has previously been described in the Amendment 20 Catch Shares Follow-On Actions-Alternative and Impact Analysis. As discussed above, the MS sector would have exceeded the three-year average for more species in 2019 compared to the CP sector, which would have exceeded more in 2018. Overall, the sector as a whole would have exceeded seven of the 15 species mortalities in 2018 with the Option G set asides but only four in 2019.

term survey biomass proportions while method 2 uses a recent five year average. For more details, please see Agenda Item G.6., Attachment 2, April 2020.

. Table 1. Proposed new "Option G", three year sector specific average, for at-sea set asides in 2021-22 compared to "Option D" and the 2018-2019 sector mortalities (mt).

		Option D		**Option G**		**2018 Mortality**		**2019 Mortality**	
Stock/Species	**Area**	**CP**	**MS**	**CP**	**MS**	**CP**	**MS**	**CP**	**MS**
YELLOWEYE ROCKFISH	Coastwide	0	0	0	0	0	0	0	0
Arrowtooth flounder	Coastwide	65.5	10.0	33.4	5.5	45.4	10.0	40.9	2.7
Canary rockfish	Coastwide	16	30	1.5	4.2	0.9	4.7	1.7	3.3
Darkblotched rockfish	Coastwide	24.7	17.4	39.8	20.6	41.8	23.2	45.5	30.9
Dover sole	Coastwide	6.2	0.6	2.9	0.3	2.1	0.6	6.2	0.1
English sole	Coastwide					0.1	0.0	0.1	0
Lingcod	N. of 40°10' N. lat.	0.3	3.2	0.2	1.8	0.1	3.2	0.3	1.4
Longnose skate	Coastwide	0.9	1	0.7	0.5	0.9	1.0	0.7	0.0
Longspine Thornyhead	N. of 34°27’ N. lat.					0.0	0.0	0.0	0.0
Minor Shelf Rockfish	N. of 40°10' N. lat.	4.2	12.3	2.8	11.1	1.1	9.7	4.2	11.3
Minor Slope Rockfish	N. of 40°10' N. lat.	219.3	75.7	159.2	49.5	219.3	75.7	161.4	45.9
Other flatfish	Coastwide	31.6	4.8	21.9	2.5	26.9	4.8	31.6	1.5
Pacific cod	Coastwide					0.0	0.0	0	0
Pacific ocean perch	N. of 40°10' N. lat.	210.3	148.4	48.5	26.0	30.8	24.8	94.4	47.3
Petrale Sole	Coastwide					0.0	0.0	0	0
Sablefish	N. of 36° N. lat.	92.2	85.8	70.9	42.8	92.2	24.6	53.1	18.1
Shortspine Thornyhead	N. of 34°27’ N. lat.	59.6	9.8	45.5	6.1	59.6	9.8	52	5.4
Starry Flounder	Coastwide					0.0	0.0	0	0
Widow rockfish	Coastwide	447.9	316.2	188.4	105.6	62.6	144.3	92.6	106.4
Yellowtail Rockfish	N. of 40°10’ N. lat.	163.7	178.7	115.0	160.2	51.1	178.7	163.7	153.9

Combine the nearshore and non-nearshore canary rockfish HGs and shares

The Council requested analysis of a new Option 3 that would create a single HG for all non-trawl commercial fisheries. Option 1 and 2 use the status quo approach of having separate HGs for the coastwide non-nearshore and coastwide nearshore fisheries, as well as informal shares (sub-divisions) of the coastwide nearshore HG to the Oregon nearshore fishery (26.7 percent) and California nearshore fishery (73.3 percent) (Table 2). The non-trawl allocations, HGs, and shares are higher for Option 2 (i.e., fixed allocation amounts from 2017-2018) than for Option 1 (i.e., status quo allocation proportions). See the analytical report for full description and analysis. The analysts determined the best approach for analyzing Option 3 would be to create an upper bookend that combines the higher Option 2 non-nearshore and nearshore HGs and shares. This upper bookend provides the Council the ability to combine Option 1 HGs and shares if that is their preference.

Option 3 was requested because it could reduce sector constraints and increase opportunity. The separate non-nearshore and nearshore HGs and shares of Options 1 and 2 were adopted by the Council during the era when canary rockfish was overfished as a means to prevent inter-sector conflicts between the non-trawl commercial fisheries. In March 2020, the GMT and GAP discussed that the separate shares and HGs are no longer needed to prevent sector conflict now that canary rockfish are rebuilt, and the ACLs increased by over 1,000 mt. Furthermore, maintaining separate canary rockfish HGs and shares is now expected to reduce overall and sector benefits. The main issue is that because the same LEFG and OA trip limits apply to both the non-nearshore and nearshore fisheries, constraints to a single sector can cause lower trip limits that can negatively impact opportunity in other low attainment sectors.

The non-nearshore HG is becoming constraining for both Options 1 and 2 (Table 2) and will limit the ability for the Council to consider higher trip limits in the future, which will also detriment the nearshore fishery despite having low attainments. Option 3 would optimize non-nearshore and nearshore opportunities because the combined commercial HG would be the least constraining and most supportive of higher LEFG and OA trip limits, which would provide the most benefits for all commercial non-trawl sectors.

Table 2. Non-nearshore and nearshore projected canary rockfish mortality* for 2021 in relation to the HGs and shares for each of the proposed two-year allocations.

Sector and SQ allocation percentages	**Projected mortality**	**Proposed allocations and projected percent attainment**		
		Option 1 (SQ) (use same allocation proportions from 2017-18)	**Option 2** (use fixed allocations from 2017-18)	**New Option 3** (Combine option 2 to create a single commercial HG)
Non-nearshore HG	37.8	40.1 (94.3%)	46.5 (81.3%)	146.5 (51.2%)
Nearshore HG	37.2	86.4 (43.1%)	100 (37.2%)	
---OR Nearshore (26.7%)	4.2	23.1 (18.2%)	26.7 (15.7%)	
---CA Nearshore (73.3%)	33	63.3 (52.1%)	73.3 (45.0%)	

*Based on highest mortality projections associated with proposals to raise LEFG and OA trip limits. See Tables 2-54 and 2-63 in the analytical document.

Limited Entry and Open Access - Minor Shelf Rockfish Complex North of 40°10' North Latitude

The northern shelf rockfish complex is currently managed in an out-of-date trip limit category that includes widow rockfish and shortbelly rockfish. This trip limit is largely inefficient as both widow and shortbelly rockfish are managed with separate harvest specifications. The Council's ability to manage these stocks to the non-trawl allocation would be improved if separate trip limits for each species were created. As described in the analytical document, there is a proposal to manage widow rockfish with separate trip limits

as part of the 2021-22 process (see Section 2.5.2.5); however, that proposal would still leave shortbelly rockfish and northern shelf rockfish combined in the same trip limit category.

This proposal would create a separate trip limit for the northern shelf rockfish (Table 3), which in the process would also create a separate trip limit for shortbelly rockfish (described below). Under Option 1 (SQ), the northern shelf rockfish complex would continue to be managed in a trip limit category with widow rockfish and shortbelly rockfish (i.e., 200 lbs monthly for both LEFG and OA). Under Option 2, there would be separate LEFG and OA trip limits for the northern shelf rockfish complex that would be increased to 800 lbs per month for both. While typically LEFG trip limits are higher than OA limits due to the increased barrier to entry required to fish in the LEFG fishery (i.e. limited entry permit), industry requested the same trip limits during the March 2020 meeting. Additionally, if the Council chooses to make a shelf rockfish specific trip limit, this limit could be modified in the future. Option 2 is projected to increase LEFG and OA landings by 11.7 mt, ex-vessel revenue by $51,587, and total mortality by 12.7 mt (Table 3). The projected total non-trawl mortality for Options 1 and 2 of 60.5 and 73.2 mt, respectively, is well within the non-trawl allocation (i.e., 12 percent for Option 2). Option 2 would therefore better align trip limits for stocks with their own harvest specifications and increase economic benefits.

Table 3. Proposed trip limits for shelf rockfish complex north of 40°10' N. lat. and the associated projected mortality compared to the 2021 non-trawl allocation.

Option	LEFG OA Trip limit	Projected mortality (mt)	Projected non-trawl mortality (mt) a/	Non-trawl Allocation (mt)
LEFG 1 (SQ)	200 lbs / month shelf, shortbelly, and widow rockfishes	11.1	68.8	571.4
OA 1 (SQ)	200 lbs / month shelf, shortbelly, and widow rockfishes	23.6		
Total for Option 1		***34.7***		
LEFG 2	800 lbs / month shelf rockfish	15.7	81.5	
OA 2	800 lbs / month shelf rockfish	30.7		
Total for Option 2		***46.4***		

a/ Includes 25.8 mt projection for OR recreational and 8.3 mt for CA recreational.

Limited Entry and Open Access - Shortbelly Rockfish Coastwide

As discussed above, the Council is considering managing shortbelly rockfish with their own separate trip limits instead of grouping them in the trip limit category that also includes widow rockfish and the northern shelf rockfish complex. Although shortbelly rockfish are managed with their own harvest specifications, there are no trawl or non-trawl allocations; instead, there is just a shared fishery HG for all directed groundfish fisheries. The Council is considering two alternative harvest control rules for 2021-22 for shortbelly rockfish in addition to No Action (500 mt ACL): Alternative 1 (PPA), which would increase the ACL to 3,000 mt and Alternative 2, which would designate it as an ecosystem component (EC).

The main benefit of having separate shortbelly rockfish trip limits would be mainly part of the broader effort to have trip limits in 2021-22 better align with the harvest specifications. Shortbelly rockfish are a forage stock that are not targeted in fixed gear fisheries and are too small (< 12" length) to be encountered as bycatch (2007 shortbelly rockfish stock assessment). The maximum total mortality by LEFG and OA of shortbelly rockfish was 0.03 mt in 2018 and is typically 0 mt per year. However, despite *de minimis* shortbelly rockfish mortality for all the trip limit options, the non-trawl sector could be negatively impacted by No Action (i.e., 500 mt ACL) since trawl bycatch, the primary source of mortality, is projected to exceed that level in 40 percent of season simulations and could be as high as 1,000 mt. On the other hand,

Alternative 1 is not expected to constrain fisheries. Designating shortbelly rockfish as an EC species could have merit in regard to non-trawl management of shortbelly rockfish since the impacts are de minimis and the stock is not targeted for sale. They are too small in size to be captured by the hooks and pots used in the non-trawl fisheries.

Under Option 1 (SQ), shortbelly rockfish would continue to be managed in a trip limit category with widow rockfish and shortbelly rockfish (i.e., 200 lbs monthly for both LEFG and OA; Table 4). Under Option 2, shortbelly rockfish would be managed with their own 200 lb monthly limit for both LEFG and OA. Under Option 3, shortbelly rockfish would be managed with an unlimited trip limit for both LEFG and OA. The projected non-trawl mortality for all three options is less than 0.1 mt. As described above, Options 2 and 3 both better accomplish the broader objective to have trip limits better align with harvest specifications. A slight benefit for Option 3 is that an unlimited trip limit would reduce regulatory complexity.

Table 4. Proposed non-trawl trip limits for shortbelly rockfish coastwide and the associated projected mortality compared to the 2021 No Action Fishery HG and Alternative 1 Fishery HG.[2]

Option	LEFG OA Trip limit	Projected mortality (mt)	No Action Fishery HG a/	Alt 1 Fishery HG b/
LEFG 1 (SQ)	200 lbs / month shelf, shortbelly, and widow rockfishes	< 0.1	470.1	2,970.1
OA 1 (SQ)	200 lbs / month shelf, shortbelly, and widow rockfishes	< 0.1		
Total for Option 1		**< 0.1**		
Option 2: 200 lbs monthly for both LEFG and OA		< 0.1		
Option 3**:** unlimited for both LEFG and OA		**<0.1**		

a/ Based on the No Action ACL of 500 mt minus 29.9 mt set-aside
b/ Based on Alternative 1 ACL of 3,000 mt minus 29.9 mt set-aside

Limited Entry and Open Access - Yellowtail Rockfish North of 40°10' N. lat.

As described in the analytical report (see Section 2.5.2.5), there are proposals to increase the LEFG and OA yellowtail rockfish north of 40°10' N. lat. trip limits by threefold; however, there is minimal expected gain (~ 1 mt) associated with this proposal because few if any vessels are constrained by the current and lower trip limits. The primary non-trawl constraint is the non-trawl RCA.

In March 2020, the Council provided guidance to evaluate even higher trip limits for yellowtail rockfish north of 40 10' N. lat. in order to better utilize the non-trawl allocation (12 percent predicted attainments); however, they did not recommend a specific new trip limit to analyze. The Council could consider higher trip limits than Option 2 (i.e., 3,000 lbs / month LEFG and 1,500 lbs / 2 months OA), but no additional mortality is expected since there are very few instances (confidential) of vessels being constrained by the lower Option 1 trip limits (i.e., 1,000 lbs / month LEFG and 500 lbs month OA). The Council could consider adopting higher trip limits for the 2021-22 biennium or this could be done via the inseason process in the future, but again, raising the trip limits is not expected to provide much additional benefit for the non-trawl fisheries unless the non-trawl RCA is reopened.

Limited Entry and Open Access - Sablefish daily-trip-limits (DTLs) south of 36° N. lat.

Similar to the situation for yellowtail rockfish as described above, the Council gave guidance in March 2020 to evaluate higher trip limits to better utilize the LEFG and OA sablefish (OAS) south of 36° N. lat. (LES and OAS hereafter) landings targets, but did not provide a specific proposal.

[2] There is not a non-trawl allocation for shortbelly rockfish; all fisheries are managed to the coastwide ACL and fishery HG

As the Council is well aware, attainments for both these sectors are routinely low, especially OAS. Industry routinely claims low attainments are a product of the spatial closures (e.g., Cowcod Conservation Areas), lack of processing infrastructure, and market demand. Table 5 shows the LES and OAS trip limits, landings targets, and the projected landings from the analytical report for all four ACL options that are already being considered by the Council in 2021-22. LES is projected to take ~⅓ to ~½ of their landing targets, depending on the ACL option, with the status quo 2,000 lb weekly limit. OAS is only projected to land ~10 percent of their landings targets with the proposed Option 1 (SQ 2020 limits) that would carry over into 2021-22 unless changed by the Council. To attempt to increase OAS landings, the Council has already proposed Option 2 that would remove the daily limit but would retain the same weekly and bimonthly limits as Option 1. The projected landings for OAS are highly uncertain (39 - 100 mt) since the daily-trip-limit has been in place for decades and there is a lack of reliable data sources to precisely model the effects of removing it, but would remain low (less than ⅓) relative to the OAS landings target.

Table 5. Southern daily-trip-limits (DTL) projected sablefish attainments for each of the four ACL options and the trip limit options that have already been analyzed in the analytical report for the 2021-22 harvest specifications and management measures.

Year	Sector	Southern DTL landings targets for the 4 ACL Options				Projected landings (mt)
		No Action Method 1 (P*0.40 x 26.4% long-term avg)	**Alt 1 Method 1** (P*0.45 x 26.4% long-term avg	**No Action Method 2** (P*0.40 x 21.5% 5-year avg)	**Alt 1 Method 2** (P*0.45 x 21.5% 5-year avg)	
2021	LES a/	850	911	690	740	336 - 411
2022		808	867	656	704	
2021	OAS b/	364	390	296	317	Opt. 1 = 26 – 39 Opt. 2 = 39 - 100
2022		346	372	281	302	

a/ LES = 2,000 lbs weekly
b/ OAS Option 1 = 300 lbs daily or 1 landing up to 1,600 lbs per week not to exceed 4,800 lbs bimonthly
b/ OAS Option 2 = no daily limit and the same Option 1 weekly and bimonthly limits

Given that attainments are projected to be low (Table 5) even if the OAS daily-trip-limit is removed, higher weekly and/or bimonthly trip limits could be considered as requested by the Council. A custom analysis was required to evaluate the effects of raising the weekly or bimonthly trip limits due to deficiencies with the current DTL model, which would provide erroneous projections if used. That is because the DTL model is based on linear regressions that assume that the landings will always increase with higher trip limits, but the GAP has indicated that would not likely be the case. That is because few, if any, vessels report that they are being constrained by the lower status quo weekly and bimonthly trip limits (see footnotes of Table 5); therefore, raising these trip limits may not increase landings by much. The analysts evaluated vessel-specific attainments for southern DTL boats and confirmed that the weekly and bimonthly trip limits do not appear constraining as reported by industry.

Given these trends, raising the weekly and bimonthly trip limits may not increase landings by much for the southern DTL fisheries. On the other hand, raising the trip limits could be beneficial in order to attempt to stimulate higher activity and economic benefits for the low attainment southern DTL sectors. Although higher trip limits are not expected to increase landings by much, landings could be higher than expected if the higher limits incentivize new effort in the area, which has periodically occurred in the past. The inseason process could be used to lower trip limits if needed.

In conclusion, the analysis supports the Council's guidance to raise the weekly and bimonthly southern trip limits as part of the 2021-22 harvest specifications and management measures. The specific trip limits

would be a policy decision best addressed by the Council given their risk tolerance to starting out with higher trip limits and then adjusting them downward inseason, if needed, in order to better utilize the southern sablefish allocations without exceeding them. One main point for the Council to consider is to set LES trip limits higher than OAS given their higher participation history and investment costs associated with getting a limited entry permit.

Limited Entry and Open Access - Lingcod between 42° and 40°10' N. Lat.

As described in the analytical document, the Council has historically preferred a more conservative approach to LEFG and OA lingcod trip limits from 42°- 42°10' N. lat. than north of 42° N. latitude to reflect stock assessment differences in the area. However, with increases to trip limits to the north of 42° N. lat. and south of 40°10' N. lat, the Council may want to consider an increase to the area between 40°10′ - 42° N. lat. as well. An increase in this area would be equitable as well as provide more opportunity, flexibility, and stability to the industry and coastal communities in northern California. While the stock below 42° N. lat. is currently in the precautionary zone, increasing the trip limits would not cause a conservation risk given that overall attainments south of 42° N. lat. are moderate given low individual fishing quota (IFQ) attainments to the south of 40°10′ N. lat.

Under Option 1 (SQ), the trip limits for LE are 1,400 lbs bimonthly and the limits for OA are 600 lbs per month (Table 6). Option 2 would increase the LE trip limits to 2,000 lbs bimonthly and the OA limits to 1,000 lbs per month between 40°10' N. lat. and 42° N. lat. Between 42° and 40°10' N. lat., Option 2 is projected to increase non-nearshore landings by 4.3 mt and ex-vessel revenue by $21,366, and increase total (non-nearshore and nearshore) landings by 8.1 mt and ex-vessel revenue by $45,256. The non-trawl attainment is projected to be less than 590 mt of the 2,798.8 mt non-trawl allocation for all trip limit options even if the higher LEFG and OA Option 2 trip limits are adopted both north and south of 42° N. lat.

Regarding yelloweye rockfish bycatch between 42° and 40°10' N. lat., Option 2 is projected to increase the yelloweye rockfish impacts from 0.7 mt to 0.9 mt of the California nearshore ACT of 1.2 mt. The non-nearshore projected mortality for yelloweye rockfish increases from 1.3 mt to 1.4 mt of their 1.6 mt ACT. Overall, if all proposed lingcod north of 40°10 N. lat. trip limits are adopted for 2021-22, then the non-nearshore projected mortality for yelloweye rockfish is 1.5 mt.

Table 6. Status quo and proposed trip limits with associated projected mortality for lingcod north of 40°10' N. lat. in the area between 42° and 40°10' N. lat. Projected mortality from non-nearshore and nearshore fisheries are compared to the 2021 non-trawl allocation.

Option	Trip limit (42°- 40°10' only)	Non-nearshore 42° - 40°10' (mt)	CA nearshore (mt)	Total projected mortality N of 40°10 (mt)*	Non-trawl Allocation N of 40°10 (mt)
LEFG 1 (SQ)	1,400 lbs / 2 months	2.7	0.9	576	2,799.8
OA 1 (SQ)	600 lbs / month	6.2	6.6		
Total for Option 1 (SQ)		***8.8***	***7.5***		
LEFG 2	2,000 lbs / 2 months	3.7	1.4	586	
OA 2	1,000 lbs / month	10.0	10.1		
Total for Option 2		***13.7***	***11.4***		

*Includes 424 mt recreational and 137.3 mt for LEFG and OA north of 42° N. lat. based on Option 2 (Table 2-56 in the analytical document).

Limited Entry and Open Access - Minor Nearshore Rockfish and Black Rockfish between 42° and 40°10' N. Lat.

During the March 2020 meeting, there were requests for a separate blue rockfish trip limit of 2,000 lbs per 2 months in addition to the current minor nearshore rockfish trip limit of 1,500 lbs. per 2 months (Table 7; Agenda Item B.1. Comments on Non-Agenda Items - Marc Schmidt, and Dan Lee). Blue rockfish is part of the minor nearshore rockfish (MNRF) complex and contributes the highest component ACL value to the complex ACL. Individual stocks within the complex are managed at the cumulative complex ACL total, meaning if separate trip limits are given to blue rockfish then the projected mortality associated with the trip limits would lower the available quota for the remaining fish in the MNRF complex. With less available quota for the remaining stocks (i.e., black-and-yellow, China, gopher, grass, kelp, brown, olive, copper, treefish, calico, and quillback rockfish), trip limits would likely decrease as a result. Given the CA share of the MNRF complex (35.9 mt), there was no avenue available to provide a separate blue rockfish trip limit in addition to maintaining the current MNRF limit for the remaining species and the ten-fish groundfish recreational bag limit. Further, to create a sub-trip limit of a stock within a complex, it is easiest (for management and modeling) when an HG has been established; however, an HG was not proposed in November for analysis overwinter. However, through discussions with California industry members, including one of the requestors, another option that could provide additional nearshore opportunity at this point in time is to increase the MNRF complex trip limit between 42° and 40°10' N. lat. Table 7 shows the status quo (Option 1) trip limit of 1,500 lbs per 2 months and the proposed (Option 2) MNRF trip limit of 2,000 lbs per 2 months for the area between 42° and 40°10' N. lat. The status quo and predicted mortality from the trip limits in Table 7 can be found in Table 8. Landings from the proposed minor nearshore rockfish trip limit are projected to increase by 4 mt and increase ex-vessel revenue by $17,841 to $62,444 depending on the live market.

In reviewing this trip limit, the analysts also noted that it may be appropriate to adjust the black rockfish trip limit for period 1 to the same amount as the remainder of the year. The current period 1 trip limit is a remnant of the delayed harvest specifications in 2017, which rolled over the 2016 trip limits and only implemented the final preferred alternative of 7,000 lbs per 2 months for periods 2-6 in 2017-2018. The Council has not taken action previously to modify these limits; however, lowering the period 1 trip limit from 8,500 lbs per 2 months to 7,000 lbs per 2 months would not impact industry as landings rarely exceed 2,000 lbs for the period likely due to poor weather conditions preventing safe harvest opportunities. Further, providing the same trip limits throughout all periods makes it easier on industry and enforcement as well as reducing management complexity. No change in projected mortality and ex-vessel revenue is anticipated from the proposed black rockfish trip limit.

Table 7. Status quo and proposed trip limits for Minor Nearshore Rockfish and black rockfish in the area between 42° and 40° 10' N. lat.

Alternative	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Oct-Sep	Nov-Dec
Opt 1 (SQ)	8,500 lb / 2 months, no more than 1,500 lb of which may be species other than black rockfish	7,000 lb / 2 months, no more than 1,500 lb of which may be species other than black rockfish				
Opt 2	7,000 lb / 2 months, no more than 2,000 lb of which may be species other than black rockfish					

Table 8. Projected mortality from status quo proposed trip limits for Minor Nearshore Rockfish and black rockfish in the area between 42 and 40 10' N. lat.

Option	CA MNRF north Projected Mortality (mt) a/	CA MNRF Share (mt)	CA Black RF Projected Mortality (mt) a/ b/	CA Black Rockfish non-trawl allocation (mt)
Opt 1 (SQ)	31.3	35.9	264.5	346.7
Opt 2	34.9		264.5	

a/ Includes a CA Recreational mortality estimate of 20 mt for MNRF north of 40° 10' N. lat. and 197.8 mt for CA black rockfish (statewide).
b/ Includes a commercial projection mortality of 6.8 mt for CA black rockfish caught as part of the Deeper Nearshore trip limit south of 40 10' N. lat.

Limited Entry and Open Access - Dover Sole, Arrowtooth Flounder, Petrale Sole, English Sole, Starry Flounder, and Other Flatfish Coastwide

If the Council adopts the proposed increases to the OA trip limits for all rockfishes and lingcod north and south of 40°10' N. lat. (as discussed in the analytical document), it could be beneficial to also consider raising the OA trip limits for flatfish (Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish Complex species) to prevent regulatory discards, provide more flexibility and stability for the fixed gear fleet, and reduce management complexity.

The status quo (Option 1) trip limit, coastwide is 5,000 lbs per month for LE and 3,000 lbs / month, no more than 300 lbs of which may be species other than Pacific sanddabs for OA. The proposed adjustment to the flatfish trip limit, Option 2, is to increase the LE limit to 10,000 lbs per month and the OA to 5,000 lbs per month, for all flatfish. Table 9 shows the status quo and proposed trip limits and Table 10 shows the projected mortality and 2021 non-trawl allocations for all stocks within the Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish trip limit.

The increase to the LE trip limit is projected to increase landings north of 40°10' N. lat. by 4.5 mt and ex-vessel revenue by $5,448 and projected to increase landings south of 40°10' N. lat. by 5.2 mt and ex-vessel revenue by $43,660 (Table 11). The increase to the OA trip limit is projected to increase landings north of 40°10' N. lat. by 35.8 mt and ex-vessel revenue by $30,648 and projected to increase landings south of 40°10' N. lat. by 12.4 mt and ex-vessel revenue by $83,542 (Table 12).

Table 9. Status quo and proposed trip limits for Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish north and south of 40°10' N. lat.

Option	Area	Trip limit
LEFG 1 (SQ)	CW	5,000 lbs / month
OA 1 (SQ)	CW	3,000 lbs / month, no more than 300 lbs of which may be species other than Pacific sanddabs
LEFG 2	CW	10,000 lbs / month
OA 2	CW	5,000 lbs / month

Table 10. Projected non-trawl mortality and 2021 allocations for all stocks within the Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish trip limit.

Stock	Opt 1 (SQ) Coastwide (mt)		Opt 2 Coastwide (mt)		Non trawl allocation (mt)
	LE	OA	LE	OA	
Arrowtooth flounder	39.2	8.7	40.8	32.9	391.9
Dover sole	4.7	0.7	7.1	3.2	2,420.10
English sole	0.1	0.0	0.1	0.0	446.2
Petrale sole	1.6	1.3	3.3	14.3	186.4 (option 1) or 30 (option 2) b/
Starry flounder	1.3	0.2	1.3	0.5	171.8
Other flatfish a/	4.1	1.4	8.3	9.6	458.1
Total	63.3		121.2		4,074.50

a/ Includes butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole.
b/ There are two allocation options for petrale sole as described in the analytical report; Option 1 uses the status quo A-21 trawl and non-trawl allocations and Option 2 uses a new 30 mt fixed allocation for non-trawl

Table 11. Projected increases in landings and ex-vessel revenue for LEFG Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish trip limits, north and south of 40°10' N. lat.. Projected increases to landings and ex-vessel revenue are shown north and south of 40°10' N. lat. because the average price per pound is greater south of 40°10' N. lat..

Stock	Projected landings increase N of 40º10' (mt)	Projected ex-vessel revenue increase N of 40º10' N lat	Projected landings increase S of 40º10' (mt)	Projected ex-vessel revenue increase S of 40º10' N lat
Arrowtooth flounder	1.6	$459	0.0	$0
Dover sole	1.3	$1,462	1.0	$3,527
English sole	0.0	$0	0.0	$0
Petrale sole	1.6	$3,527	0.1	$582
Starry flounder	0.0	$0	0.0	$0
Other flatfish a/	0.0	$0	4.1	$30,551
Total	4.5	$5,448	5.2	$43,660

a/Includes butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole.

Table 12. Projected increases in landings and ex-vessel revenue for OA Dover sole, arrowtooth flounder, petrale sole, English sole, starry flounder, and Other Flatfish trip limits, north and south of 40°10' N. lat.. Projected increases to landings and ex-vessel revenue are shown north and south of 40°10' N. lat. because the average price per pound is greater south of 40°10' N. lat..

Stock	**Projected landings increase N of 40º10' (mt)**	**Projected ex-vessel revenue increase N of 40º10' N lat**	**Projected landings increase S of 40º10' (mt)**	**Projected ex-vessel revenue increase S of 40º10' N lat**
Arrowtooth flounder	24.1	$6,907	0.1	$285
Dover sole	1.9	$2,136	0.6	$2,099
English sole	0.0	$0	0.0	$0
Petrale sole	9.7	$21,385	3.3	$19,410
Starry flounder	0.0	$0	0.2	$1,226
Other flatfish a/	0.1	$220	8.1	$60,523
Total	***35.8***	***$30,648***	***12.4***	***$83,542***

a/ Includes butter sole, curlfin sole, flathead sole, Pacific sanddab, rex sole, rock sole, and sand sole.