GROUNDFISH MANAGEMENT TEAM REPORT ON INSEASON ADJUSTMENTS:
CANARY ROCKFISH BUFFER

In June, the Pacific Fishery Management Council (Council) tasked the Groundfish Management Team (GMT) with developing criteria for releasing the canary rockfish buffer of 188 mt. The Council also recommended at that meeting that the full Pacific ocean perch (POP; 25 mt) and darkblotched rockfish (50 mt) buffers be distributed equally to the at-sea sectors. The National Marine Fisheries Service (NMFS) distributed both buffers as recommended on July 3, 2017 (82 FR 31494). Below, the GMT describes the current status and potential need to access the canary rockfish buffer by sector, and options for releasing the buffer.

Current Canary Rockfish Catch to Date

Based on the most recent data, Table 1 shows the catch to date of canary rockfish by sector, the projected annual mortality from the 2017-2018 Analytical Document, and the 2017 allocations. As shown below, canary rockfish catches are much lower than the projected mortality and allocations for all sectors except for the at-sea sectors.

Table 1: Catch to Date, Projected Catch from the 2017-2018 Analytical Document, and the 2017 Allocation of Canary Rockfish by Sector.

Sector	Catch to Date (mt) a/	Annual Projected Mortality (2017-2018 Analytical Document)	Allocation (mt)
Off-the-Top b/	59.4	247.4	247.4
Trawl	160.2	793.4	1,060.1
- Catcher-Processor (CP)	0.9	0.4	16
- Mothership (MS)	1.3	0.7	30
- Shorebased IFQ	158	792.3	1,014.1
Non-Trawl	50.6	235.3	406.5
- Non-nearshore	0.6	1.0	46.5
- Nearshore	1.2	15	100
- WA Recreational	3.5 through July	37.2	50
- OR Recreational	16.3 through July	47.1	75
- CA Recreational	34.3 through July	135	135

a/ Catch to date represents: allocations except for the buffer for the off-the-top deductions (described in b/); total mortality for trawl sectors through August 1 (source: NPAC for at-sea, vessel account system for IFQ); retained landings for nearshore and non-nearshore (source: PacFIN through May in WA, July in OR, and February in CA; discard mortality is expected to be minor given the trip limits were established to allow harvest of incidental catch); and total mortality for recreational sectors through dates listed.

b/ Includes deductions from the Annual Catch Limit (ACL) for the Tribal fishery (50 mt), the incidental open access fishery (1.2 mt), exempted fishing permit (EFP) catch (1 mt), research catch (7.2 mt), and the "buffer" for unforeseen catch events (188 mt).

Evaluating Need to Access Buffer by Sector

Unlike the other stocks with buffers (darkblotched rockfish and POP) which are trawl dominant species, canary rockfish are encountered by the trawl and non-trawl sectors (i.e., recreational, non-nearshore, and nearshore). As such, implications of releasing canary rockfish buffer to any sector warrants a broader analysis, per the allocation framework outlined in the Groundfish Fishery Management Plan, since all sectors could be affected.

At-Sea

Using catches through August 1, the inseason bootstrap shows that there is little to no risk for the at-sea sector exceeding their 2017 canary allocations, or leaving whiting unharvested with the additional POP and darkblotched allocations received in both May and June of this year (Table 2 and Table 3). If they continue to fish off Washington to avoid bycatch of Klamath River fall Chinook as expected, then there is less than a one-in-ten-thousand chance either the catcher-processor (CP) or mothership (MS) sectors would exceed their current canary rockfish allocations (Table 2). Resumption of more southerly fishing practices, which is not expected but is possible based on whiting distribution and other bycatch avoidance practices, results in similarly low risk that either sector would exceed their canary rockfish allocation (Table 3).

At this time, canary rockfish is not expected to constrain either at-sea whiting sector; however, there is a possibility that their whiting allocations could be underutilized due to bycatch of their other allocation stocks, especially if they continue to fish northward off Washington (i.e., 35 percent chance for CPs, 10 percent for MS) as opposed to coastwide fishing (11 percent and 2 percent respectively). As such, the GMT will continue to monitor the status of the whiting fisheries on a regular basis in case a need for inseason bycatch relief develops.

Table 2: At-Sea Inseason Bootstrap Projections with Haul Level Data from north of the Oregon-Washington border from 2000-2016, and all data through August 1, 2017. Cells shaded in grey represent the likelihood that a sector will exceed that species' allocation.

Sector	Species	Allocation	Quantile					
			0.5	0.75	0.9	0.95	0.99	0.9999
CP	Canary	16	1.4	1.9	2.8	3.2	5	10.3
	Darkblotched	41.4	5.7	6.5	7.6	8.6	10.8	13.7
	POP	28.7	20.6	28.7	29.3	29.9	32.3	32.9
	Widow	411.2	236.9	289.7	350.3	411.6	413.4	439.4
MS	Canary	30	2.3	2.9	3.5	4.5	4.9	5.4
	Darkblotched	36.8	2.4	4.3	7.8	9.4	11.3	15.6
	POP	25	7.6	11.7	25	25.3	26.5	27.5
	Widow	290.3	57.3	100.7	142.5	199.9	248.2	291.9

Table 3: At-Sea Inseason Bootstrap Projections with Haul Level Data from 2000-August 1, 2017. Cells shaded in grey represent the likelihood that a sector will exceed that species' allocation.

Sector	Species	Allocation	Quantile					
			0.5	0.75	0.9	0.95	0.99	0.9999
CP	Canary	16	1.2	1.4	1.9	3.1	4.5	7.8
	Darkblotched	41.4	8.9	11	13.5	15.3	19	27.2
	POP	28.7	18	21.5	26	28.8	30	32.6
	Widow	411.2	250.8	284.6	321.8	380.4	455.8	490
MS	Canary	30	2	2.7	3.3	5.7	17.5	33.1
	Darkblotched	36.8	5	7.2	9.4	10.4	12.7	19.2
	POP	25	4.9	6.8	8.9	19.6	25.3	27.5
	Widow	290.3	65.8	83.7	112.2	166.2	214.6	264.6

While there does not currently appear to be a risk of exceeding the canary rockfish allocation for either sector, members of the at-sea sectors have stated that additional canary rockfish allocations could help them fish shallower, which could potentially further reduce bycatch of Chinook salmon. However, it is difficult for the GMT to gauge whether or not there would be reductions in Chinook salmon bycatch as a result of the at-sea sector being able to fish shallower with additional canary rockfish allocation.

Canary rockfish primarily occur at depths shallower than 164 fathoms (Groundfish Stock Assessment and Fishery Evaluation). When comparing Chinook salmon bycatch rates across depths within a given month, the bycatch rates for the at-sea whiting sectors are generally greatest in shallower depth bins (Table 4). Comparisons cannot be made in October through December, since no effort occurred in that depth bin. Therefore, there is a possibility that increased access to

shallow depths by the at-sea whiting sectors via increased allocations of canary rockfish could increase Chinook salmon bycatch. However, it is uncertain exactly where the whiting schools may be, or if other species like POP will continue to constrain the fishery, which will ultimately determine the area fished.

Table 4: Chinook salmon bycatch rates by depth bin from the 2011-2014 whiting fisheries from Table 20 of Agenda Item I.1.a, NMFS Report 2, March 2017. Zeros from October to December were due to no effort occurring within those depth bins. During months when effort occurs in all depths (May-Sept), bycatch rates are generally greatest in the shallowest depths.

		Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
At-sea sectors										
2011-2014	0-100 fm	--	0.001	**0.094**	**0.139**			0.000	0.000	0.000
	101-150 fm	--	0.014	0.011	0.003		**0.154**	**0.139**	**0.657**	0.000
	151-200 fm	--	0.008	0.020	0.005		0.032	**0.116**	**0.143**	**0.160**
	>200 fm	--	0.009	0.005	0.001		0.014	0.028	0.044	**0.109**

Shorebased Individual Fishing Quota (IFQ)

There has been concern that canary rockfish could constrain access to the more prevalent widow and yellowtail rockfishes that co-occur in the emerging midwater trawl rockfish fishery. For instance, the IFQ allocation of canary rockfish (1,014.1 mt) is approximately 15.5 times lower than the 15,639 mt combined IFQ allocations of widow rockfish (11,393 mt) and yellowtail rockfish north of 40° 10' N. lat. (4,246 mt). Therefore, the IFQ fishery as a whole would not want to exceed a ratio of 1 mt of canary rockfish per 15.5 mt of widow and yellowtail rockfishes to catch the full IFQ allocations of all three species.

Attainments of IFQ rockfish have been low relative to allocations during 2017 (to date) due to possible market constraints and/or delay in the trawl gear exempted fishing permit (EFP). As of August 1, the IFQ sector has taken less than 15 percent of the canary rockfish allocation (Table 1). The GMT notes though that a majority of widow and yellowtail rockfish catch in recent years has occurred in fall, and therefore there may be an increase in canary rockfish catch as it is a co-occurring species. Even if the IFQ fishery were tracking towards full attainment, allocating the full buffer of canary rockfish to the IFQ sector would not drastically reduce the potential of canary rockfish becoming a constraint. In other words, if all 188 mt were allocated to the IFQ fishery resulting in a 1,202.1 mt allocation, the maximum ratio of canary rockfish to widow and yellowtail rockfishes (in terms of IFQ mt) would still remain relatively low (1:13), similar to the current (1:15.5).

That being said, the GMT notes that release of the canary rockfish buffer to the IFQ sector could provide some benefits to individual IFQ quota shareholders and vessels. Benefits associated with this release would be expected to be minor. The annual vessel limit of 10 percent in 2017 corresponds to approximately 100 mt. This already provides a significant buffer at an individual vessel level, even against multiple disaster tows from the same vessel. As of August 1, no vessel has taken more than 35 percent of the annual vessel limit. Therefore, even if the Council were to allocate the entire buffer to the IFQ fishery, resulting in an approximate 17.6 mt increase in the annual vessel limit, there would likely be little benefit.

Non-trawl
During the 2017-2018 harvest specifications and management measures analysis, each non-trawl sector was given canary rockfish harvest guidelines (HGs), or shares, based on their respective projected impacts, which included additional buffer for uncertainty to account for potential changes in behavior. However, at this time, the non-trawl impacts are closer to the lower levels that were modeled, which causes the non-trawl catch (50.6 mt) to be only a fraction of the allocation (406.5 mt). The GMT notes that a majority of catch in this sector typically comes during the summer months, for which data is not currently available (as shown in Table 1). However, even if catches were to significantly increase in July and August, the GMT believes there is no projected need for the non-trawl sectors to access the buffer.

Conclusion

Based on the data presented above, the GMT does not believe that any sector will exceed their allocation, or HG, or be unnecessarily constrained by canary rockfish in 2017. **Therefore, based on the data currently available, the GMT recommends that the Council consider taking no action at this time.**

Options for Releasing the Buffer

The GMT would like to note that there are two potential pathways for increasing the canary rockfish allocations to any sector: (1) release of the buffer, or (2) release of other off-the-top set-aside residuals. For the at-sea sectors, there is also the potential for voluntary agreements between at-sea sectors to transfer canary rockfish allocations between the MS and CP sectors. Recall, in June, the Council encouraged NMFS to implement such allocation changes if the voluntary agreements are forwarded to the agency. For the non-trawl sectors, which are managed with HGs or shares, the Council could let one sector exceed its individual HG or share without any needed response if the overall allocation is projected to be under-attained.

PFMC
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