Agenda Item E.9.b
GMT Report 2
November 2011

GROUNDFISH MANAGEMENT TEAM REPORT ON PRELIMINARY MANAGEMENT MEASURES FOR 2013-14

Summary and Recommendations

1. Choose range of alternatives for monitoring and controlling catch of blackgill rockfish, including guidance for sharing between sectors for purposes of trip limit modeling (Table 3), if necessary.
2. Continue to manage greenspotted rockfish within the minor shelf complexes for 2013-2014.
3. Provide guidance on the scope of the RCA changes for the IFQ fishery in 2013-14.
4. Provide guidance on the use of multiple fishing gears during IFQ trips. Options range from complex to relatively simple.
5. Analyze modifying regulations to allow use of four-seam trawls shoreward of the RCA

Introduction

At their September meeting, the Council repeated their intent to reduce the scope and number of changes to status quo harvest specifications and management measures for 2013-2014. The Council adopted only a few new management measures for preliminary analysis and scoping. Based on Council guidance, the Groundfish Management Team (GMT) considered the following list of proposed management measures for analysis in the 2013-2014 cycle, and provides the following thoughts. For each proposal, the GMT attempted to give the Council enough information to assist them in the adoption of a preliminary range of 2013-2014 management measures for more detailed analysis.

Keeping Mortality within Harvest Specifications

At the September meeting, the Council provided guidance on analyzing alternatives for blackgill and greenspotted rockfish, spiny dogfish, and longnose skate including keeping the species within the complexes, adding a sorting requirement for blackgill rockfish, and adjusting trip limits as necessary to keep mortality of all groundfish species within harvest specifications.

Blackgill Rockfish (South of 40°10' N. latitude)

Although blackgill rockfish south of 40°10 N. latitude was assessed previously, species-specific harvest specifications were never defined in federal regulation. That is, it was never given its own overfishing limit (OFL), acceptable biological catch (ABC), or annual catch limit (ACL). Blackgill rockfish have been managed as part of the overall southern slope rockfish complex and its harvest specifications have contributed to the complex as a whole. Although the 2011 blackgill rockfish assessment (Agenda Item G.4.a, Attachment 13, September 2011) indicates that historical catches (Table 1) have been higher than the preliminary harvest specifications (OFL and ABC) for 2013-14, they never exceeded the historical contribution to the complex.

Table 1. Final OFLs and preliminary preferred ABCs for blackgill rockfish south of 40°10 N. latitude for 2013-2014 (Agenda Item E.4.a, Attachment 3) along with the historical OFL/ABC contribution of blackgill rockfish to the southern slope rockfish complex and catches of blackgill rockfish, as summarized from the 2011 stock assessment

Year	OFL	ABC*
2013	131	119
2014	134	122

**The Council's preliminary preferred ABCs from*

Year	OFL/ABC	ACL/OY	Catches
2001	343	306	128.0
2002	343	306	164.2
2003	343	306	189.8
2004	343	306	151.6
2005	343	306	113.6
2006	343	306	130.4
2007	292	292	55.1
2008	292	292	79.2
2009	282	282	136.8
2010	282	282	151.6
2011	282	263	
2012	282	263	

Status quo

Under status quo there will not be a sorting requirement. The total catch of blackgill rockfish taken in the IFQ fishery will count against the slope rockfish IFQ and the limited entry and open access landings will be managed by slope rockfish trip limits, which vary by location (Table 2). Total mortality of blackgill rockfish will continue to be reported by the West Coast Groundfish Observer Program (WGCOP) annually.

The only measure available to the IFQ fishery to reduce the catch of blackgill rockfish would be an adjustment to the seaward boundary of the RCA (trawl and non-trawl RCAs are currently at 150 fm). Because blackgill are most abundant from 160 to 270 fm[1], it is probable that to effectively reduce blackgill rockfish mortality, the RCA would have to be moved to depths that would effectively eliminate all slope rockfish opportunities, which would adversely affect the IFQ fishery.

[1] Excerpt from the assessment: "Blackgill are a slope rockfish species, and are generally rare in waters less than 100 meters and most abundant in waters between 300 and 500 meters depth. Love et al. (2002) report a depth distribution of 87 to 768 meters, however from ten years of data from the NWFSC combined trawl survey, only one haul greater than 600 meters encountered blackgill (that tow was at 647 meters) and the shallowest fish was encountered at 133 meters."

In the limited entry and open access fisheries, blackgill rockfish is included within the aggregate slope rockfish trip limits (Table 2). Under current regulations, the slope rockfish trip limit could be taken entirely of blackgill. The only measures available to this fishery to slow the catch of blackgill rockfish is to adjust the seaward boundary of the RCA (similar to the IFQ fishery) and/or trip limit reductions. Any trip limit reductions would be applied to the aggregate slope rockfish limit and would likely be drastic (because it would apply to the entire complex, not just blackgill rockfish) and would limit access to other healthy slope rockfish species.

Table 2. Summary of limited entry and open access fixed gear trip limits south of 40º10' N. lat.

Limited Entry (slope rockfish including darkblotched)	
South of 40º10'	40,000 lb/2 months
Open Access (slope rockfish including darkblotched)	
40º10' to 38º	Per trip, no more than 25% sablefish landed
South of 38º	10,000 lb/2 months

Manage in Complex, Apply Sorting Requirement, and/or Modify Trip Limits

Another alternative to keep blackgill rockfish mortality within harvest specifications is to keep the species in the slope rockfish complex and apply a sorting requirement. A sorting requirement could be implemented based on an ACL[2], a harvest guideline (HG), or a scientific sorting requirement. A HG and scientific sorting requirement would function similarly and could be applied to allow blackgill to be actively tracked within the fisheries[3].

Under a HG, landings and discards in the IFQ fishery would continue to count against slope rockfish QP[4]. Because a sorting requirement would be implemented, it is possible blackgill landings could be verified by catch monitors and port biologists. Discards at sea would be recorded by the observer at the species level, as currently done. If mortality appears to be tracking higher than the HG, the Council could reduce blackgill impacts by moving the seaward boundary of the RCA, which could adversely affect IFQ fishermen as described above under status quo. The GMT notes that attainment of a HG does not require action or closure of a fishery, per the definition in the regulations.

Implementing a HG for the limited entry and open access fixed gear fisheries could provide an effective means to keep catch within harvest specifications. Since these fisheries are currently managed under trip limits, the blackgill component of the aggregate slope rockfish trip limit could be reduced without greatly affecting other slope rockfish species.

Since there are no formal allocations between the limited entry and open access sectors (and no formal trip limit models), the GMT would need guidance on how to share between the sectors to begin modeling. The historical blackgill landings by sector are provided in Table 3 to help inform a decision to facilitate modeling.

[2] Issuing a blackgill specific ACL would automatically remove it from the complex.
[3] A sorting requirement only tracks landings and does not count them against a numerical value.
[4] Species specific IFQ can only be issued based on an ACL, not a harvest guideline.

Table 3. Landings of blackgill rockfish in the limited entry and open access sectors south of 40º10’ N, latitude from 2000-2010.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg 00-10	Avg 05-10	Avg 08-10
LE	29.80	27.45	46.88	73.05	42.99	23.92	37.94	14.88	22.56	51.68	44.58	37.79	32.59	39.61
OA	3.21	11.64	38.40	53.35	25.82	12.91	18.49	7.72	15.01	28.64	45.95	23.74	21.45	29.87
Total Fleet	33.01	39.09	85.28	126.40	68.81	36.84	56.42	22.61	37.57	80.32	90.53	61.54	54.05	69.48

% LE	90.3%	70.2%	55.0%	57.8%	62.5%	64.9%	67.2%	65.8%	60.0%	64.3%	49.2%	61.4%	60.3%	57.0%
% OA	9.7%	29.8%	45.0%	42.2%	37.5%	35.1%	32.8%	34.2%	40.0%	35.7%	50.8%	38.6%	39.7%	43.0%

Greenspotted rockfish

The 2011 greenspotted rockfish assessment (Agenda Item G.4.a, Attachment 15, September 2011) indicates that landings (Table 4) have been far lower than preliminary harvest specifications for 2013-14. Since the majority of this stock currently resides at depths within the RCA and catches have been below their complex contribution, additional protective measures such as sorting requirements or more restrictive RCAs may not be necessary.

All trawl IFQ analyses and initial issuance regulations have been completed based on current management of minor shelf rockfish north and south of 40°10' N. lat. Removing greenspotted rockfish from the southern minor shelf rockfish complex and designating a species-specific specification would require modifications to initial issuance rules, and control and vessel limits (for individual species and aggregate QS) for greenspotted rockfish and southern minor shelf rockfish. Determining the permit catch histories of greenspotted rockfish separately from the other southern minor shelf rockfish catch histories may be a very difficult task and may not be doable in time for January 1, 2013 implementation.

As such, the Council may want to consider continuing to manage greenspotted rockfish within the minor shelf complexes for 2013-2014 for the reasons stated above.

Table 4. Greenspotted rockfish catches (mt) as summarized from the 2011 stock assessment.

Year	North (40º10'-34º27')	South (34º27'- US/Mexico border)
2000	31.8	17.4
2001	17.3	13.5
2002	4.6	10.7
2003	0.5	0.6
2004	0.6	14.6
2005	0.3	25.8
2006	0.2	7.2
2007	1.2	13.8
2008	0.9	10.9
2009	1.1	14.7
2010	0.4	11.3
2011	-	-
2012	-	-
2013	*73.3**	
2014	*73.3**	

**presumptive ABCs from Agenda Item E.4.a, Attachment 3. The Council did not identify separate ABCs for the two areas.*

Dogfish and Longnose Skate

In September, the Council asked the GMT to evaluate new trip limits for dogfish and longnose skate for 2013-14. The GMT has received detailed catch data from the West Coast Groundfish Observer Program (WCGOP) for both stocks, although we were unable to fully analyze the data for inclusion in this report. We will be analyzing catch and encounter rates for these two species by fishery sector, area, depth, and season and reporting on that analysis in a supplemental report at the November Council meeting.

In the GMT's preliminary discussions, we concluded that catch of dogfish can be managed without removing the stock from the Other Fish complex. Some trip limits exist now for the stock and dogfish are easily identifiable and reported individually on fish tickets. However, because of the high rate of discards, further reductions in trip limits may have limited effect in controlling total mortality. Trip limits can be used to limit additional targeting of dogfish yet do not create incentives to avoid incidental catch. The great majority of dogfish catch is thought to be incidental. Therefore, time-depth-area closures may be necessary to limit catch below certain levels. Other measures, such as handling rules (e.g., hook straightening; cutting the gangion near the hook; or carefully removing the hook by twisting it from the fish with a gaff) in fixed gear fisheries may also reduce overall mortality on dogfish.

In September, the Council chose a more risk-averse P* for dogfish (compared to other stocks) resulting in ABCs of 2,044 mt for 2013 and 2,024 mt for 2014. In Agenda Item E.4, the Council will decide the range of ACLs for Other Fish complex and/or dogfish, which will determine the level of catch to target with management measures.

The circumstances for longnose skate are similar to dogfish in that they are caught incidentally and therefore trip limits may have limited effect in controlling total mortality. Longnose skate was removed from the Other Fish complex and has been managed with its own ACL since 2009. Following the 2011-12 policy, the ACL for 2013-14 will be 1,349 mt.

Summary catches, 2007-09 for dogfish are reported in Table 5. The same information is presented for longnose skate in Table 6, although just for 2009 because landings of skate were not reliably reported prior to 2009. The GMT notes that WCGOP reports assume 100 percent of the discarded fish die and will be investigating whether that is an appropriate assumption.

More detail will be given with the complete analysis of WCGOP data.

Table 5. West Coast Groundfish Total Mortality Estimates, by Sector in Metric Tons, for Spiny Dogfish from 2007-2009.

	Shoreside commercial fisheries						WA	All	Total recreational fishing mortality				Remaining	Estimated
YEAR	LE bottom trawl	CA Halibut	Pink shrimp	Non-Nearshore fixed-gear	Nearshore fixed-Gear	Shoreside hake mid-water trawl	tribal landings	at-sea hake fisheries	WA	OR	CA	Research	incidental OA fisheries landings	total fishing mortality
2007	652	3	1	509	0	51	113	155	0	0	5	13	1	1,504
2008	1,023	3	4	332	1	59	303	673	--	0	3	14	82	2,497
2009	665.5	3.2	0.4	216.2	0.0	16.0	125.4	163.4	--	0.1	4.9	10.9	1.0	1,206.9

Table 6. West Coast Groundfish Total Mortality Estimates, by Sector in Metric Tons, for Longnose Skate in 2009. Estimates assume 100% mortality of discards.

	Shoreside commercial fisheries						WA	All	Total recreational fishing mortality				Remaining	Estimated
YEAR	LE bottom trawl	CA halibut	Pink shrimp	Non-Nearshore fixed-gear	Nearshore fixed-Gear	Shoreside hake mid-water trawl	tribal landings	at-sea hake fisheries	WA	OR	CA	Research	incidental OA fisheries landings	total fishing mortality
2009	1275.4	--	2.1	173.3	0	0.1	--	0.2	--	--	--	2.8	1.3	1,455.1

Increase Access to Target Species, While Minimizing Bycatch

Rockfish Conservation Area Boundary (RCA) Adjustments for the IFQ Fisheries
Every biennial cycle, the GMT provides analysis on the RCA boundaries for commercial fisheries. In the rationalized fishery, trawl and legal non-trawl gears can be used to harvest groundfish quota pounds (QP). Vessels adhere to the RCA according to the gear deployed.

For the 2013-2014 process, the GMT is requesting Council guidance on the scope of the IFQ RCA analysis for 2013-14. Changes to the current RCA structure would be explored to provide increased access to target species, while allowing individual accountability to minimize impacts to overfished species. Council guidance is necessary so that the GMT can coordinate with the Project Team to determine the type and scope of analysis required for the desired action. For example, some changes may be considered routine and accomplishable through inseason actions while others may require analysis in the EIS.

There is a wide range of RCA changes that could be contemplated. We list some examples below. To be clear, the GMT does not specifically endorse or recommend any of these options, they are listed only for the purpose of initiating discussion:

1. Changing the shoreward trawl RCA boundary from shore to 75 fm or 100 fm (boundaries in 2007, prior to shoreward closure), in the area north of Cape Alava (48°10' N. latitude)
2. Narrowing the trawl RCA either coastwide or in small areas of the coast. Examples of previous requests include:
    - Implementing a modified 200 fm trawl RCA boundary in Period 2 to provide increased access to petrale sole north of 40°10' N. latitude (Request from Agenda Item H.4.b, Supplemental GAP Report, March 2011)
    - Implementing a year round shoreward trawl RCA boundary of 100 fm north of 40°10' N. latitude (Request from Agenda Item H.4.b, Supplemental GAP Report, March 2011)
3. Creating a new non-trawl IFQ RCA that would apply only to QP harvested with legal non-trawl gears
4. Removing the trawl RCA entirely

The GMT notes that the complexity of item 4 may be greater than the narrow scope envisioned by the Council for the 2013-14 process.

IFQ Fishery Lingcod Length Restrictions
The Council requested analysis to inform either removing the lingcod length restriction in the IFQ fishery or lowering the length limit to 20 inches. This analysis looks like it is reasonable to analyze and there appears to be sufficient data to analyze biological impacts.

Allow Multiple Fishing Gears on a Single Trip under the IFQ Program

Issue: A primary benefit of such a management measure would be to improve the economic efficiency of IFQ trips.

Background: Current regulations place restrictions on the use of multiple fishing gears during single trips under the IFQ Program and are complex (Table 7). Under section 660.13(d)(5)(iv) of the regulations, a fisher can use multiple non-trawl gears on one trip, but can only catch groundfish against IFQ measures, while declared as IFQ (660.140(b)(i)-(v); also, one may not use groundfish fixed gear and groundfish trawl gear during a single trip. Multiple bottom trawl types may not be used during a single trip when fishing south of 40^{o} 10' N. latitude; however, this restriction does not apply north of 40^{o} 10' N. latitude where multiple types of bottom trawls can be fished seaward of the RCA on one trip. A summary of the regulations by area are as follows:

South of 40º10' N. latitude

- Bottom Trawl: A vessel *may not* have small footrope trawl gear and any other type of bottom trawl gear onboard simultaneously. § 660.130, (c)(2) and (c)(4)(ii)(A)
- Midwater Trawl and Bottom Trawl gear onboard: A vessel *may not* have both bottom trawl gear and midwater gear onboard simultaneously. § 660.130, (c)(3); and (c)(4)(ii)(A)

North of 40º10' N. latitude

- Midwater Trawl and Bottom Trawl gear onboard: a vessel *may not* have both bottom trawl gear and midwater gear on board simultaneously.
  § 660.130, (c)(3) and (c)(4)(i)(A) and (c)(4)(i)(F)
  - Shoreward of the RCA
    While fishing shoreward of the RCA north of 40º10' N. latitude, it is unlawful to fish for groundfish using small footrope trawl gear (except selective flatfish gear) or have small footrope trawl gear (except selective flatfish gear) on board. § 660.130, (c)(2);
    - ✓ In other words, it is illegal to use and possess small footrope gears (except SFF gear) shoreward of the trawl RCA north of 40º10' N. latitude. **Only selective flatfish trawl gear shoreward of the RCA N. of 40º10' N latitude may be on board and be deployed.**

  - Seaward of the RCA
    While fishing seaward of the RCA north of 40º10' N. latitude, a vessel may have more than one type of limited entry bottom trawl gear on board, either simultaneously or successively, during a cumulative trip period. § 660.130, (c)(4)(i)(A)
    - ✓ In other words**, it is legal to possess and use multiple groundfish bottom trawl gears onboard a vessel seaward of the RCA north of 40º10' N. latitude.**

Table 7. Multiple-trawl gear restrictions during single trips under the IFQ Program (by area). MWT = midwater trawl; BT = bottom trawl; SFF = selective flatfish trawl.

	MWT gear & BT gear allowed during the same trip	Multiple BT gears allowed during the same trip
South of 40º10' N. lat.	No	No
North of 40º10' (Shoreward of RCA)	No	**SFF only**
North of 40º10' (Seaward of RCA)	No	**Yes**

One final example that we would like to highlight for trawl fisheries north of 40º10' N. latitude, is that it is currently not permissible to carry a small-footrope trawl gear, except selective flatfish trawl gear, if fishing occurs shoreward of the RCA where only selective flatfish trawls are permitted. It is possible to use multiple bottom trawl gears seaward of the RCA, for example selective flatfish trawl gear and large footrope gear. While this combination is currently allowed, the 2009-2010 EIS indicated the number of sampled trips rarely encountered the use of multiple gears in California and Washington. Approximately 2.7 percent of the trips sampled in Oregon deployed used multiple gears, mostly in Astoria

One of the main reasons for restricting gear types, prior to the IFQ Program and 100 percent observer coverage was to ensure that appropriate bycatch rates for overfished species were applied for each trip and gear type. Another main reason for restricting gear types was to allow vessel monitoring systems, paired with vessel declarations, to provide enough information for the enforcement of gear-specific area restrictions.

Potential Solutions: Under the IFQ Program, where observer coverage is 100 percent, requests have been made by industry to allow multiple trawl gear types, or carry both fixed gear and trawl gear during single IFQ trips. In addition, the deployment of legal gear by area can now be tracked and verified for each haul under IFQ because observers record gear type used for each haul. Hence, the question is posed whether it should be permissible to fish with multiple gear types during a single trip under IFQ. Although versatility and flexibility is certainly advantageous to fishers, this issue should be thoroughly scoped regarding unintended consequences within federal and state regulations, fishery data recording and management, enforcement, management, and vessel safety before being developed and before implementation is anticipated. Preliminary concerns have been raised regarding these entities and are described below.

Agency Concerns: The GMT notes that the use of multiple bottom trawl gears seaward of the RCA, north of 40°10' N. latitude, is currently allowed, though few vessels participate. However, given recent interest in providing for multiple gears under the IFQ fisheries, it is anticipated that a greater number of vessels would participate causing increased problems for the reporting systems, as summarized in the sections below. These concerns arose during GMT discussions and are intended to flag issues for other groups and advisors to comment and advise the Council on based on their institutional perspectives and expertise (e.g., the Enforcement Consultants, WCGOP, the state management agencies, etc).

- ***PacFIN and landings receipts.*** PacFIN currently uses the Office of Law Enforcement (OLE) declarations database to distinguish between IFQ and non-IFQ catch in landings data in the Quota Species Monitoring (QSM) Best Estimate Reports. That declarations system currently only accommodates one IFQ gear type per IFQ trip, and would need to be updated and vetted, for purposes of enforcement, although PacFIN is currently examining more accurate, permanent means of separating IFQ from non-IFQ landings for the QSM.
- ***States.*** Such a change needs scoping at the state database manager level, and could potentially require significant effort for fish ticket data systems modification, if the similar issue of implementation of a 2011 Council recommendation to record fixed gear sablefish primary and subsequent daily trip limit landings to the individual groundfish permit level (which is still in transition) is an indication. It also has potential to complicate shoreside sampling programs for species composition and biological data, which ultimately informs stock assessments. Port sampling activities currently assume that sampled landings were caught with a single gear. Sampling would have to be adjusted if landed catch were to come from multiple gears. For one, catch would need to be assigned to the gear on the fish ticket, which might be possible if the onboard observers are able to track that information. Current state laws would also need to be examined for conflict.
- ***WCGOP***. From WCGOP's perspective, allowing multiple gears on an IFQ trip would create a substantial workload, and would require a considerable amount of time to prepare for and implement. Such a change would necessitate numerous database modifications, including redefining rules and recoding for gear type per haul, redefining and coding automated error checking, recreation of data entry interfaces and forms, redefining IFQ Vessel Account support catch calculation algorithms, and redefining observer trip-fish ticket matching procedures. It would delay other changes currently in motion to facilitate the IFQ program and IFQ Vessel Account catch data system, and create greater uncertainty in estimated catch per gear type.
- ***Enforcement.*** If a fisher were to carry both fixed and trawl gear on board for IFQ fishing, there is currently no way to confirm what gear is being fished at one point in time, and thus which RCA applies. The current solution to this (with an IFQ gear and a non-IFQ gear), is that enforcement must apply the most restrictive area regulation to the fisher on the trip (when fishing for IFQ groundfish and non-IFQ non-groundfish species). Many fishers are currently flagged for RCA violations when using a gear to which the RCA does not apply. This would also apply to multiple IFQ gears of different type, on one trip.

  Potential long-term solutions include either updating the VMS system with gear sensors, or implementing electronic logbooks; either could provide means for real-time declarations.

  The responsibility for communicating of gear type being fished for purposes of enforcement might not be an acceptable role for the observer. Section 6.4.1.1 of the FMP states that vessels that harvest groundfish in waters off Washington, Oregon, and California "may be required to accommodate an observer and/or video electronic-monitoring system for the purpose of collecting scientific data or verifying catch landings and discard used for scientific data collection. These vessels may also be required to

accommodate an observer and/or electronic monitoring system for the purpose of estimating total catch inseason, or to implement a sector-or vessel-specific total catch limit program." Enforcement of gear type is not listed among these purposes, and WCGOP has traditionally shied from placing observers in an enforcement role.

We understand that the observer program is already stretched thin, and this issue relates to another current issue of observer coverage; mixed IFQ/non-IFQ trips need an observer on-board for the entire trip, which adds substantial observer time.

Vessel safety: Safety concerns may arise from catch load distribution on the vessel, and load distribution during offloading of catch from one gear-type at a time, both of which are necessary for accurate fish ticket reporting. This issue may already be handled now, considering that trips with IFQ and non-IFQ catch do take place currently. Industry and the Coast Guard could comment on these issues.

Considerations for Further Analysis: The GMT suggests that it would improve economic efficiency to allow vessels fishing under the IFQ Program to deploy multiple gear types during a single trip. The GMT also suggests that this management measure could improve safety, because allowing multiple gears may facilitate individuals catching their QP with fewer trips across the bar and fewer days at sea. For example, under current regulations, if an individual wished to catch and deliver their QP of shallow water flatfish (e.g., sand dabs and English sole) and deeper water flatfish (e.g., Dover and rex sole), then that vessel would be required to:

- fish with the selective flatfish trawl shoreward of the RCA to catch the shallow water species;
- return to port, deliver the catch, and load the small footrope trawl on the net reel;
- return to sea and fish seaward of the RCA with the small footrope trawl
- return to port to deliver the catch.

The scenario described above demonstrates that the number of sea days and bar crossings could be reduced if multiple gear types were allowed during single trips.

At the same time, the GMT suggests that this analysis could be complex and difficult, depending on the alternatives selected. For example, allowing trawl and non-trawl gear to be fished during a single IFQ trip would represent the most complex analysis possible, and perhaps the most problematic combination for enforcement, the WCGOP, and the states. The simplest alternative may be to allow both the selective flatfish trawl and the small footrope trawl to be fished during a single trip. Other combination of trawl gears may be intermediate in complexity for an analysis, and would exhibit their own set of advantages and problems (e.g., allowing midwater and bottom trawls to be fished during a single trip).

The GMT is hesitant to list potential alternatives and Council considerations for each alternative at this stage. Instead, we seek guidance from the Council regarding whether to move forward, and if so, the types of alternatives that the Council would like to consider. The GMT recognizes that input will be required from the GAP, EC, WCGOP, NMFS, and the states to develop a list of reasonable alternatives if this management measure moves forward. The GMT stresses that the

analysis could become time consuming and overly complex if potential gear combinations become too numerous or too diverse.

Modify Regulations to Allow Use of Four-Seam Trawls Shoreward of the RCA

Issue: Allow the use of four-seam trawls shoreward of the RCA to facilitate the use of flexible grates for excluding Pacific halibut from trawl catches. A primary benefit of such a management is reduced catches of Pacific halibut and increase access to shelf flatfishes for the IFQ Program.

Background: Prior to 2005, small footrope trawls (and midwater trawls) were allowed shoreward of the RCA. There were no requirements regarding the number of panels (or seams), the breastline height (which approximates the maximum height of the headrope above the footrope), or the length of the headrope for bottom trawls fished shoreward of the RCA (Figure 1). The selective flatfish trawl became a requirement in 2005 north of 40^{o} 10' N latitude when trawling shoreward of the RCA. Modifications to the "typical" small footrope trawl were required for the development of the selective flatfish trawl (see Figure 1) and are described in Federal Pacific Coast Groundfish Regulations (Page 375; September 2, 2011):

(i) Selective flatfish trawl gear. Selective flatfish trawl gear is a type of small footrope trawl gear. The selective flatfish trawl net must be a two-seamed net with no more than two riblines, excluding the codend. The breastline may not be longer than 3 ft (0.92 m) in length. There may be no floats along the center third of the headrope or attached to the top panel except on the riblines. The footrope must be less than 105 ft (32.26 m) in length. The headrope must be not less than 30 percent longer than the footrope. An explanatory diagram of a selective flatfish trawl net is provided as Figure 1 of part 660, subpart D."

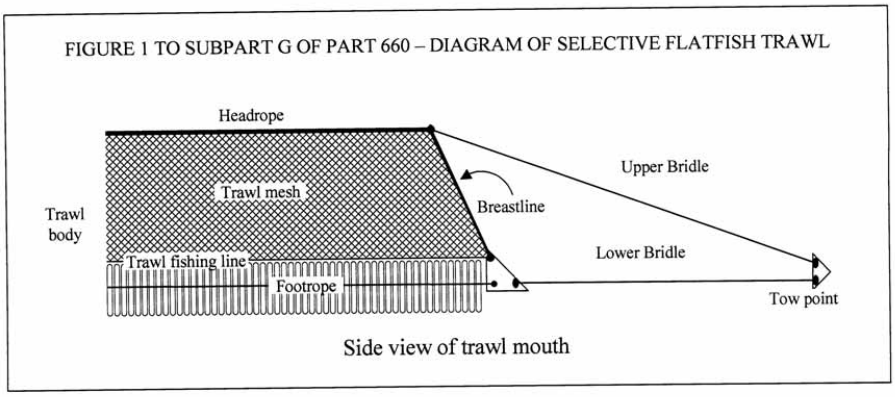

Figure 1. Diagram of the selective flatfish trawl (Federal Pacific Coast Groundfish Regulations, Page 375; September 2, 2011).

The purpose of this design was to reduce the catch of overfished rockfish species (e.g., canary rockfish), while providing access to a portion of the traditional shelf flatfish fishery (see 2005-2006 FEIS). The restricted breastline length ensured that the headrope height was approximately no more than 1 m above the footrope, and the required ratio of headrope length to footrope length provided a "cutback" headrope. Research in Oregon demonstrated that this low-rise trawl

with a "cutback" headrope would maintain or increase flatfish catches while reducing catches of certain larger rockfish and roundfish species (including canary rockfish) and Pacific halibut relative to the most common four-seam trawls that were used by the U.S. west coast groundfish fleet at the time (King et al. 2004; Hannah et al. 2005). The reduced catches of rockfishes, other roundfishes, and Pacific halibut was thought to be facilitated by the low and "cutback" headrope because: (a) some fishes may move up and away from the bottom as they encounter the trawl footrope (e.g., Bublitz 1996; Rose 1996), and, (b) some fraction of certain "schooling" species may exceed 1 meter above the bottom as the trawl passes by (e.g., Pacific whiting and canary rockfish).

Concern and Potential Solution: Under the current IFQ program, many fishermen are concerned of exceeding their Pacific halibut IBQ before accessing their QPs for target species (see the presentation by Dr. John Gauvin, PFMC, Agenda Item I.7.c, Public Comment, Power Point Presentation, April, 2011). Since the inception of the IFQ Program, fishermen have been experimenting with sorting grates (rigid and flexible) that have been successfully used in Alaska trawl fisheries to reduce the catch of Pacific halibut (e.g., Rose and Gauvin 2000). These grates guide certain species (such as Pacific halibut) out of the trawl at fishing depth (through top or bottom escape panels) while allowing for the retention of species that are smaller and/or that exhibit different behaviors within trawls. Flexible grates are preferable to rigid grates because of ease of handling (e.g., see PFMC, Agenda Item I.7.c, Supplemental Public Comment Power Point, April 2011), and potentially safety concerns.

Although rigid grates may be effectively applied to both four- and two-seam trawls, flexible grates may be ineffective or problematic in two-seam trawls, which are required shoreward of the RCA. The water flow in the back end of a two-seam trawl (e.g., in the areas of the intermediate and codend) may be low, and consequently, these areas of the two-seam net may collapse on occasion during a tow. The result may be reduced halibut escapement or high loss of target species. The water flow throughout four-seam trawls may be higher than two-seam trawls which may result in higher success of flexible sorting grates for excluding Pacific halibut from the catch. Hence, two-seam trawls that are required shoreward of the RCA may not be suitable for the installation of flexible grates.

Considerations for Further Analysis: The GMT acknowledges that the limited Pacific halibut IBQ may be a significant constraint for individuals achieving their target species QP, and consequently, the commercial fishery reaching the ACL for many of the trawl-dominant species. Under Amendment 21, the maximum halibut IBQ allowed for the IFQ Program will be 279,570 lbs (round wt, legal + sublegal) until 2014, and 215,054 lbs (round wt, legal + sublegal) thereafter. These values for Pacific halibut IBQ represent a significant reduction to the annual halibut mortality demonstrated by the limited entry trawl fishery prior to the IFQ Program (e.g., approximately 459,000 to 633,000 lbs round weight for the years 2005 to 2009; Heery et al., 2010). Hence, measures may be required to reduce Pacific halibut catch and increase access to target species.

Further analysis of this potential management measure may be possible with low or moderate effort, depending on alternatives. Some considerations for analysis of this potential management measure will include: (a) potential for increased (or decreased) catch of overfished species, (b)

improved access to target species, and (c) impact to the habitat (e.g., substrate). With these considerations in mind, potential alternatives that could be analyzed with low to moderate effort include:

- *No Action (Status Quo; Selective Flatfish Trawl).*

- *Alternative 1 (Four-Seam Selective Flatfish Trawl):* Allow four-seam trawls shoreward of the RCA, with all regulated specifications equal to the selective flatfish trawl except the number of seams (four instead of two).

- *Alternative 2 (Four-Seam Cutback Small Footrope Trawl):* Allow four-seam trawls shoreward of the RCA, with **cutback headrope** similar to the selective flatfish trawl. All other gear regulations currently in effect for small footrope trawls remain the same (e.g., small footrope, mesh size, chaffing gear, etc). Headrope height is unrestricted.

- *Alternative 3 (Four-Seam Small Footrope Trawl):* Allow four-seam, small footrope trawls shoreward of the RCA. All current gear regulations shown for small footrope trawls would remain in place (e.g., headrope height and the headrope length:footrope length ratio are unrestricted).

- *Alternative 4 (Two-Seam Selective Flatfish Trawl Modified with Four-Seam Intermediate & Codend):* Allow existing two-seam selective flatfish trawl nets to be modified to include a four-seam intermediate and cod-end section.

Alternatives 1 – 3 progressively deviate from the selective flatfish trawl while maintaining all features of the small footrope trawl. Alternative 4 is a combination selective flatfish trawl (2-seam) that is modified to allow four-panel (seam) intermediate and codend that may better facilitate the installation of a flexible grate. Some potential impacts of these alternatives include:

- The alternatives may not significantly impact the habitat (e.g., substrate) relative to status quo because only small footrope trawls are included. The analysis would become more complex if alternatives included large footrope trawls due to their potential impact to the substrate shoreward of the RCA.
- Alternatives 1 – 4 allow four-seam trawls shoreward of the RCA, which will facilitate the use of flexible grates. This action may increase escapement of Pacific halibut from trawls at fishing depth relative to status quo, and subsequently increase access to target species QP.
- Although Alternative 1 may show similar catch rates for overfished species as Status Quo, this alternative would require the most significant modifications to four-seam small footrope trawls that fishermen currently own, and would therefore be most expensive for the fleet to implement. Cost to the fleet decreases with each alternative.
- Catch rates for target species may be significantly higher for alternatives 2 and 3 relative to status quo under equal conditions (i.e., fishing in the same area at the same time).
- Even though catch rates of overfished species may be relatively higher for alternatives 2 and 3 relative to status quo (under equal conditions), the IFQ Program requires 100%

observer coverage, and fishermen are individually accountable for constraining catches within their Quota Pounds. This feature of the IFQ Program will likely result in fishermen adjusting their fishing methods to ensure that they remain within their Quota Pounds for overfished species (e.g., tow location and tow duration)

- Alternative 4 may show similar catch rates for overfished species as Status Quo, but would require fewer modifications to develop relative to Alternative 1. Alternative 4 might be a cost-effective solution that would enable fishermen to modify their two-seam selective flatfish trawl nets in a manner that is more compatible with flexible grate halibut excluder designs. This type of modification is common in Bering Sea flatfish trawl fisheries and has achieved successful results.

GMT Recommendation: The range of alternatives that provide for the use of Pacific halibut excluders (grates) could result in increased access to target species while minimizing catch of Pacific halibut, a significant benefit to the IFQ Program. The potential analysis described above could be completed with low to moderate effort since the overall impacts to groundfish would remain within the trawl allocation. That is, any changes to the harvest levels of the IFQ species will be accounted for by existing QPs. For non-IFQ species, changes to trip limits could be accommodated inseason if landings are projected to be greater than the trawl allocation. Further, as noted above, no changes to habitat are anticipated as a result of the proposed alternatives.

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