

CREATING A COASTWIDE ROUGHEYE/SHORTTRAKER COMPLEX: AN  
ALTERNATIVE TO CONTINUED MANAGEMENT WITHIN THE SLOPE ROCKFISH  
STOCK COMPLEXES

NMFS requests consideration of the action alternative with options as described below. At this meeting, NMFS requests the Council to consider the NMFS action alternative options. NMFS further requests that the Action Alternative is analyzed and included for Council consideration of a Final Preferred Alternative (FPA) at the June 2014 Council meeting.

**No-Action Alternative:** For reference, the No Action alternative maintains the slope rockfish stock complexes as they are currently structured north and south of 40°10' N. lat. A description of the No-action Alternative and the management measures being analyzed that could control mortality of roughey rockfish while it remains within the current slope rockfish complexes is available in the excerpts from the Draft Environmental Impact Statement (DEIS) and in 2014 April Council meeting Agenda Item C.4 overview documents.

**Action Alternative:** Remove Roughey (including Blackspotted rockfish) and Shortraker rockfish from the North and South (of 40° 10' N. lat.) slope rockfish complexes and manage as a new coastwide roughey/shortraker (R/S) complex. Under this alternative, an overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL) would be established for the R/S complex.

Creating a new R/S complex and establishing the associated harvest specifications would allow management to occur at the R/S complex level. Managing R/S as a new complex may provide increased management options as opposed to the No Action Alternative, where a species-specific harvest guideline for roughey rockfish is being considered. For example, the Council could implement new trawl/non-trawl harvest guidelines at the R/S complex level or consider managing catch to the R/S complex ACL without establishing sector harvest guidelines.

Under the Action Alternative, several decision points are presented, and associated options are raised. These decision points and options are described further below. Following the description of the options is a section on what happens to the remaining minor slope complex.

Depending on the level of detail to which the Council is interested in tracking catch of the R/S complex, there are several potential management responses depending on the specific circumstances. Potential management responses include inseason changes to trip limits and closed areas or post season changes to management measures. Appendix B provides some potential management responses that are available to the groundfish fishery, also called accountability measures (AMs).

POTENTIAL COUNCIL DECISION POINTS WHEN CONSIDERING COASTWIDE ROUGHYEY/SHORTTRAKER (R/S) COMPLEX

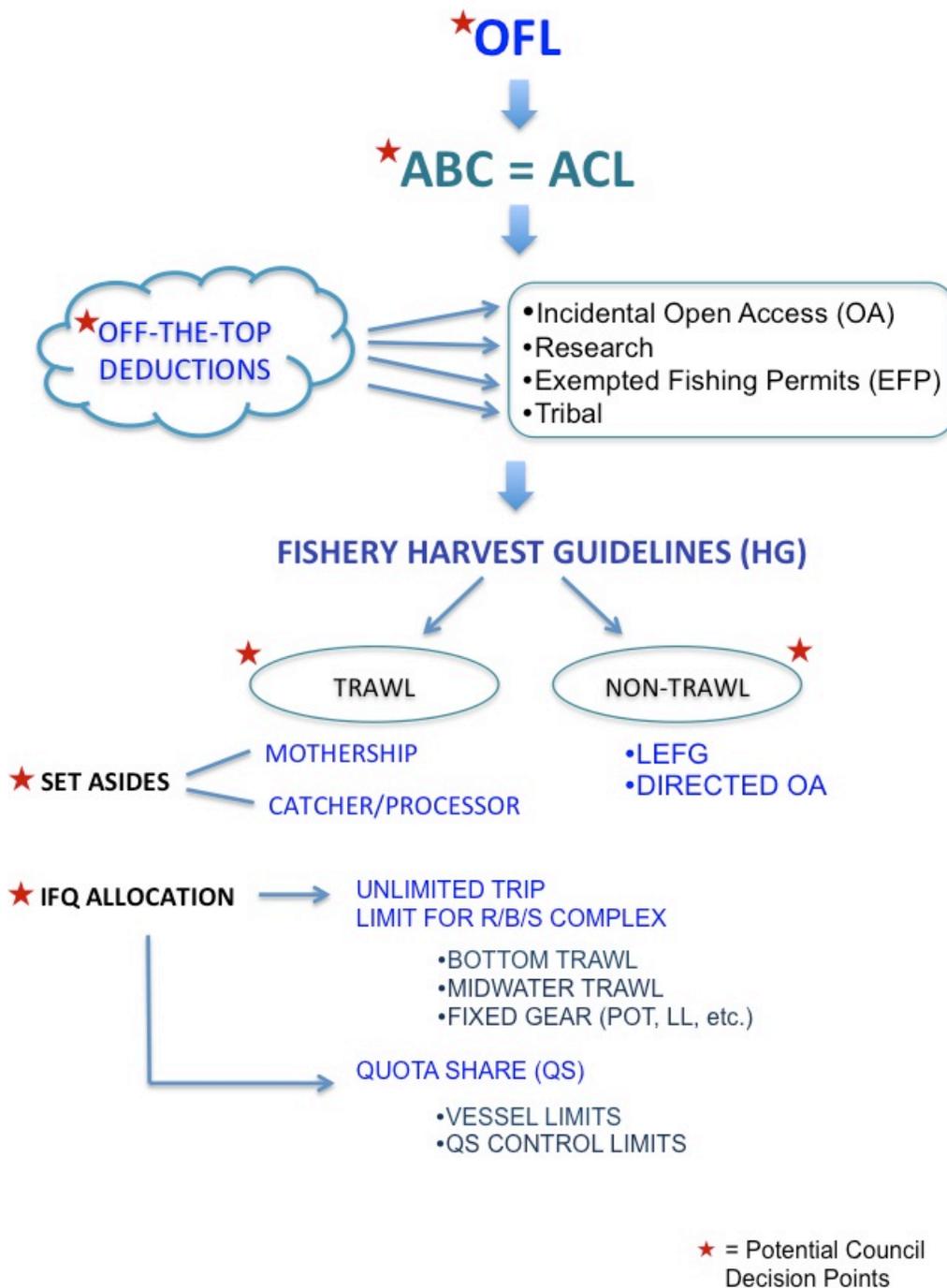


Figure 1: Potential Decision Points (★) for the Council to consider amongst various action alternative options.

**Establishing an ACL:** In creating a new coastwide R/S slope complex, the Council would need to select an OFL, ABC, and ACL.

For purposes of analysis, it is assumed that the Council would adopt the OFL contribution for rougheye and shortraker as recommended by the SSC, which would be summed to determine the R/S complex OFL. It is also assumed that the Council would select a P\* of 0.45 and a sigma of 0.72 would be used to determine the ABC for Rougheye, and that a P\* of 0.45 and sigma of 1.44 would apply for Shortraker to determine the component ABC and the summed ACLs would be set equal to the ABC in 2015 and 2016 for the R/S complex. Table 2 (below) demonstrates the resulting 2015 and 2016 OFL and ABC, and ACL contribution estimates for Rougheye/Blackspotted and Shortraker species combined, with a coastwide R/S complex OFL/ABC of 224.8 mt. for 2015 and 203.8 mt. for 2016. Of course, the Council could consider different values if desired.

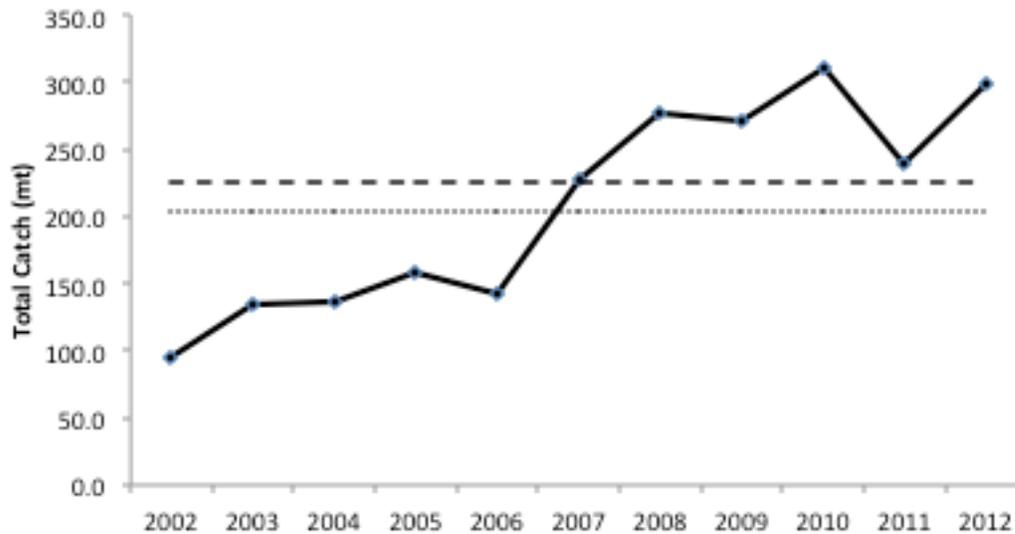
**Table 1: 2015 and 2016 OFL and ABC (=ACL) contribution estimates for Rougheye rockfish, Shortraker rockfish, Minor Slope North and Minor Slope South Complexes (North and South of 40° 10' N. lat.).**

	2015 OFL	2015 ABC/ACL	Coastwide OFL (N & S combined)	2015 ABC/ACL	2015 OFL	
<b>North Stock</b>						<b>South Stock</b>
Minor Slope North Complex	1,804	1,669	2,610	698	806	Minor Slope South Complex
Rougheye/Blackspotted	201.9	184.3	206.0	3.8	4.1	Rougheye/Blackspotted
Shortraker	18.7	15.6	18.8	0.1	0.1	Shortraker

**Table 2: 2015 and 2016 OFL and ABC (=ACL) contribution estimates for Rougheye and Shortraker species combined (coastwide).**

		2015 OFL	2015 ABC/ACL	2016 OFL	2016 ABC/ACL
Coastwide	Rougheye/Blackspotted	206	188.1	211	192.6
	Shortraker	18.8	15.7	18.8	15.7
<b>Rougheye/ Blackspotted/Shortraker</b>		<b>224.8</b>	<b>203.8</b>	<b>229.8</b>	<b>208.3</b>

Figure 2 (below) provides 2002 to 2012 historical Rougheye and Shortraker catch (all sectors) compared to 2015 OFL/ABC estimates. All R/S estimates in this analysis include all Rougheye and Shortraker associated data fields contained within the Northwest Fisheries Science Center (NWFSC) Groundfish Mortality Report (GMR) excel file, including the: (1) Rougheye; (2) Blackspotted; (3) Shortraker; and (4) Rougheye-Shortraker data fields.



**Figure 2: Estimated coastwide total catch of Rougheye/Blackspotted/Shortraker (R/S) rockfish combined coastwide, 2002-2012 historical catch (all sectors) in reference to 2015 OFL/ABC estimates (upper line=OFL, lower line= ACL). Source: NWFSC groundfish mortality report (GMR) data file developed for GMT analysis. Note: Includes Rougheye, Blackspotted, Shortraker, and Rougheye-Shortraker data GMR data fields.**

During public comment, industry representatives (and the supplemental GAP statement Agenda Item D.5.b, 2014 March Council meeting) requested consideration of future Rougheye biomass projections from the 2013 stock assessment (see Table 3). Note that Shortraker biomass projections are not available, given that the Shortraker stock has not been fully assessed. Regardless, depletion projection estimates between 47% (2013) and 53% (2024) for Rougheye Rockfish (utilizing a 188 mt catch and discard model estimate) provide some information with respect to status of the new R/S complex being considered.

**Table 3: Rougheye biomass depletion projections from the Northwest Fisheries Science Center (NWFSC) compared with average catch data from 2002 to 2012 from the final 2013 PFMC Rougheye stock assessment (1-6-2014): Projection of potential OFL, landings, and catch, summary biomass (age-10 older), spawning biomass, and depletion for the base case model projected with total catch equal to the recent 5-year catch average in 2013 and 2014 (landings *without* discards, discard estimates provided within the model), and equal to the predicted ABC (adjusted by the 40:10 control rule and 0.956 to reflect the P\* buffer afterwards). The predicted OFL is the calculated total catch determined by  $F_{SPR}=50\%$ .**

Year	Predicted OFL (mt)	ABC Catch (mt)	Landings (mt)	Age 10+ biomass (mt)	Spawning Biomass (mt)	Depletion (%)
2013			184	8,176	2,552	47.3%
2014			184	8,220	2,600	48.2%
2015	206	188	183	8,227	2,653	49.2%
2016	210	192	187	8,219	2,706	50.2%
2017	215	197	191	8,225	2,755	51.1%
2018	219	201	195	8,217	2,797	51.8%
2019	222	204	198	8,188	2,829	52.4%
2020	224	206	201	8,136	2,851	52.9%
2021	226	208	202	8,113	2,864	53.1%
2022	227	209	203	8,084	2,868	53.2%
2023	226	209	203	8,052	2,865	53.1%
2024	226	208	203	8,019	2,856	53.0%

In Table 3 above, the Rougheye assessment author (Hicks et al, 2013) focused on landings and discard rates generated by the July 2013 assessment model (which estimated an annual removal of 188 mt). The updated 2013 groundfish total mortality report data file (GMR file) provided to the Groundfish Management Team (GMT) by the NWFSC may reflect greater total removals than previously estimated (actual GMR expansions may be different than how the assessment model calculates discards). Yet, the 188 mt catch estimate stabilizes equilibrium depletion at 40% in this base model (Table 3), has an average catch of 266 mt, and results in a median estimated depletion of 49%. Although these higher total removal estimates and data summaries had not been conducted in time to inform the STAR panel and 2013 Rougheye assessment, recent projection estimates calculating the recent average five-year total mortality GMR generated catch (2008 to 2012) are described below in Table 4. The years 2008 through 2012 were chosen to estimate a total mortality average, because this is the range of years when component OFLs of Rougheye and Shortraker began to consistently exceed their contributions to the Minor Slope complexes.<sup>1</sup> Therefore, additional Rougheye depletion model runs were calculated to account for

<sup>1</sup> The recent five-year estimate (2008-2012) represents the first year that Rougheye and Shortraker exceeded their independent contribution OFLs to the Minor Slope Complex. Other recent catch ranges could be presented to the Council.

average total mortality (catch and discards) in these years to better reflect actual total mortality, and its effect on depletion estimates of the Rougheye stock.

**Table 4: Rougheye biomass depletion projections from the NWFSC compared with recent average total mortality catch data from 2008 to 2012 (average coastwide catch of 247.7 mt): Projection of potential OFL, landings, and catch, summary biomass (age-10 older), spawning biomass, and depletion for the base case model projected with total catch equal to the recent 5-year total mortality catch average in 2008 to 2012 (landings *with* total mortality discards), and equal to the predicted ABC (adjusted by the 40:10 control rule and 0.956 to reflect the P\* buffer afterwards). The predicted OFL is the calculated total catch determined by  $F_{SPR}=50\%$ . Note: 247.7 mt average Rougheye catch estimate (2008 -2012 ) includes Rougheye, Blackspotted, Shortraker, and Rougheye-Shortraker data GMR data fields.**

209.9 (Lowest Recent Year) Total Mortality Removal					247.7 (Recent 5-Year Average) Total Mortality Removal					275.9 (Highest Recent Year) Total Mortality Removal				
Year	Total Removals	Age 10+ biomass (mt)	Spawning Biomass (mt)	Depletion (%)	Year	Total Removals	Age 10+ biomass (mt)	Spawning Biomass (mt)	Depletion (%)	Year	Total Removals	Age 10+ biomass (mt)	Spawning Biomass (mt)	Depletion (%)
2013	209.9	8,194	2,560	47.44%	2013	247.7	8,194	2,560	47.44%	2013	275.9	8,194	2,560	47.44%
2014	209.9	8,217	2,600	48.18%	2014	247.7	8,182	2,586	47.91%	2014	275.9	8,156	2,575	47.72%
2015	209.9	8,204	2,644	49.00%	2015	247.7	8,135	2,616	48.48%	2015	275.9	8,083	2,595	48.09%
2016	209.9	8,176	2,690	49.85%	2016	247.7	8,073	2,648	49.06%	2016	275.9	7,996	2,616	48.48%
2017	209.9	8,167	2,732	50.63%	2017	247.7	8,031	2,676	49.59%	2017	275.9	7,929	2,635	48.82%
2018	209.9	8,147	2,769	51.31%	2018	247.7	7,979	2,699	50.02%	2018	275.9	7,854	2,647	49.05%
2019	209.9	8,110	2,797	51.84%	2019	247.7	7,910	2,714	50.29%	2019	275.9	7,761	2,652	49.14%
2020	209.9	8,054	2,817	52.20%	2020	247.7	7,823	2,720	50.41%	2020	275.9	7,650	2,648	49.07%
2021	209.9	8,028	2,828	52.41%	2021	247.7	7,767	2,718	50.37%	2021	275.9	7,571	2,636	48.85%
2022	209.9	7,998	2,832	52.47%	2022	247.7	7,707	2,708	50.18%	2022	275.9	7,489	2,616	48.48%
2023	209.9	7,966	2,828	52.41%	2023	247.7	7,645	2,692	49.88%	2023	275.9	7,406	2,590	47.99%
2024	209.9	7,932	2,820	52.25%	2024	247.7	7,583	2,670	49.48%	2024	275.9	7,323	2,558	47.41%

Under the action alternative, actual management performance of landed catch and known discards could be evaluated by the GMT as additional information becomes available (i.e., inseason selected species scorecards and end of the year NWFSC groundfish mortality reports). Fishery performance could be tracked inseason to the ACL level. Monitoring the harvests of these stocks at the R/S complex level could potentially inform future formal allocation considerations.

**Option A Decision Point – (Fishery HG):** For the new coastwide R/S slope complex, the Council could set a fishery HG below the ACL. To do so, deductions from the ACL as specified at 660.55(b) (also called “off-the-top” set-asides), would need to be determined. Off-the-top set asides would need to be considered for the Incidental Open Access (OA), Research, EFP, and Tribal (At-sea and Shoreside) fisheries for 2015-2016.

As described at 660.55(b), the fishery harvest guideline is the remaining amount after the off-the-top set-asides are deducted from the ACL. To inform what appropriate amounts

might be for the off-the-top set-asides, NMFS estimated total coastwide catches of R/S over the years 2008 through 2012 (see Tables 5 and 6).

**Table 5: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide catches (mt) by sector, 2008-2012.**

<b>Total estimated Rougheye/Blackspotted/Shortraker Rockfish coastwide catches by sector, 2008-2012.</b>					
<b>Set-Aside</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b><u>Incidental</u></b>	1.0	2.3	0.5	0.3	0.9
<b><u>Pink Shrimp</u></b>	1.0	2.3	0.5	0.3	0.9
<b><u>Tribal At-Sea Hake</u></b>	2.9	0.7	0.0	2.4	0.0
<b><u>Tribal Shoreside</u></b>	17.3	34.6	19.5	17.3	16.5

Table 5 (above) and Table 6 (below) indicate some negligible inseason variability between Non-Tribal Incidental Open Access and Pink Shrimp Fisheries. Inter-annual variability is also observable between reported Tribal At-Sea catch ranges between 0 and 2.9 mt, with even greater amounts of catches (and interannual-variability) in the Tribal Shoreside fisheries, ranging between 16.5 mt to 34.6 mt of landed Rougheye and Shortraker catch. Given inter-annual variability in harvest, adding the highest known total mortality for both Treaty sectors in recent 5-year reports would total approximately 37.5 mt per year.

**Table 6: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide catches (mt) by sector, 2008-2012 average, lowest to highest amount caught by sector.**

<b>Set-Aside</b>	<b>Average ('08-'12)</b>	<b>Range ('08-'12)</b>
<b><u>Incidental</u></b>	<b><u>1.0</u></b>	<b><u>0.3 to 2.3</u></b>
<b><u>Pink Shrimp</u></b>	<b><u>1.0</u></b>	<b><u>0.3 to 2.3</u></b>
<b><u>Tribal At-Sea Hake</u></b>	<b><u>1.2</u></b>	<b><u>0 to 2.9</u></b>
<b><u>Tribal Shoreside</u></b>	<b><u>21.0</u></b>	<b><u>16.5 to 34.6</u></b>

For comparison, the Minor Slope Complex off-the-top Set-Asides from 2013 were as follows:

Minor slope rockfish north. The 2012 ACL of 1,160 mt had 62 mt deducted from the ACL for the Tribal fishery (36 mt), the incidental open access fishery (19 mt), EFP catch (1 mt) and research catch (6 mt), resulting in a fishery HG of 1,036 mt.

In cases where the set-aside amount is unknown or uncertain (EFPs and research), these 2013 minor slope complex values could be used as a proxy until more specific estimates could help inform a Council Final Preferred Action in June.

**Option B Decision Point – (Trawl/Non-Trawl HGs):** For the new coastwide R/S slope complex the Council could also establish Trawl/Non-Trawl HGs. To do so, the following amounts would also need to be set: OFL, ABC, ACL, and off-the-top set-asides. The off-the-top set-asides and resulting fishery HG could then be apportioned through trawl/non trawl HGs. Attainment of a HG would not require that the sector be closed, which provides some

flexibility when responding inseason to potentially variable catch between and within sectors.

The non-treaty, trawl amount would be for all three sectors of the trawl fishery combined (IFQ, MS, C/P). The non-treaty, non-trawl amount would be for the limited entry fixed gear fishery, the directed open access fishery, and the recreational fishery. To inform what appropriate amounts might be for the Trawl/Non-Trawl HGs, NMFS estimated total coastwide catches of R/S over the years 2008 through 2012 (see Table 7, 8, and 9, below).

**Table 7: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide catches (mt) by Trawl/Non-Trawl sectors, 2008-2012.**

Sector	2008	2009	2010	2011	2012
<b>Non-Trawl</b>	81.0	74.5	91.7	44.3	104.7
<b>Trawl</b>	189.2	158.2	199.6	174.6	190.8

**Table 8: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide catches (mt) by Trawl/Non-Trawl sectors, 2008-2012 & 2011-2012 (Post Trawl Rationalization), average, lowest to highest amount caught by Trawl/Non-Trawl sectors.**

Sector	Average ('08-'12)	Range ('08-'12)	Average ('11-'12)	Range ('11-'12)
<b>Non-Trawl</b>	79.2	74.5 to 104.7	74.5	44.3 to 104.7
<b>Trawl</b>	182.5	158.2 to 199.6	182.7	174.6 to 190.8

**Table 9: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide catches (%) by Trawl/Non-Trawl sectors, 2008-2012, average & 2011-2012 (Post Trawl Rationalization), lowest to highest percentage caught by Trawl/Non-Trawl sectors.**

Sector	Average ('08-'12)	Range ('08-'12)	Average ('11-'12)	Range ('11-'12)
<b>Non-Trawl</b>	30.3%	20.2% to 35.4%	27.8%	20.2% to 35.4%
<b>Trawl</b>	69.7%	64.6% to 79.8%	72.2%	64.6% to 79.8%

The resulting Trawl/Non-Trawl HGs equal the fishery HG from Option B split by either a percent or set weights (in mt). The fishery HG equals the ACL reduced by the off-the-top set-aside amounts decided under Option A.

**Option C Decision Point (Within-Trawl HG):** For the new coastwide R/S slope complex, the Council could set within Trawl HGs. If within trawl HGs are desired, a trip limit for the R/S complex could be defined in Tables 1, 2, and 3 (north and south) to Part 660, Subpart D of groundfish regulations, and could be set as “unlimited” initially.

To determine within-trawl HGs, the trawl HG from Option B would be further divided between the IFQ fishery and the at-sea whiting fisheries (Mothership (MS) and Catcher-

Processor (C/P)). Regulations at 660.55(j) on fishery set-asides specify that set-asides for the at-sea whiting fisheries will be deducted from the limited entry trawl allocation. For 2012/2013, the resulting at-sea whiting set-asides were in regulation at Table 1d and 2d to Part 660, Subpart C. To inform what appropriate amounts might be for the within Trawl HGs, NMFS estimated the percentage of coastwide catches of R/S among trawl fisheries over the years 2008 through 2012 (see Table 10 and 11, below).

**Table 10: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide total mortality catches (%) by within-Trawl IFQ sectors, 2008-2012 & 2011-2012 (Post Trawl Rationalization) average, lowest to highest percentage caught (range) by Trawl/Non-Trawl sectors.**

IFQ	Average ('08-'12)	Average ('11-'12)	Range ('08-'12)	Range ('11-'12)
LE Trawl- Fixed Gear	4%	10%	0% to 12%	9% to 12%
LE Trawl- Trawl	62%	37%	32% to 93%	32% to 42%
Shoreside Hake	8%	16%	0 to 28%	4% to 28%
<b>IFQ Total % of Trawl</b>	<b>74%</b>	<b>63%</b>	<b>55% to 94%</b>	<b>55% to 71%</b>

**Table 11: Total estimated Rougheye/Shortraker (R/S) Rockfish coastwide total mortality catches (%) by within-Trawl IFQ sectors, 2008-2012 & 2011-2012 (Post Trawl Rationalization) average, lowest to highest percentage caught (range) by Trawl/Non-Trawl sectors.**

At-Sea	Average ('08-'12)	Average ('11-'12)	Range ('08-'12)	Range ('11-'12)
Catcher-Processor	23%	33%	5% to 43%	22% - 43%
Mothership	3%	4%	0 to 6%	2% - 6%
<b>At-Sea Total % of Trawl</b>	<b>26%</b>	<b>37%</b>	<b>6 to 45%</b>	<b>29% - 45%</b>

Compared to all other sectors, harvest removals between these two sectors has the highest degree of inter-annual variability (see table 10 and table 11, above).

The resulting within Trawl HGs equal the Trawl HG from Option C split by either a percent or set weights (in mt). This would result in an HG for IFQ and an HG for the at-sea sectors. Appropriate At-Sea set aside recommendations, as well as recommendations for other HG options described above, could be provided by the Council's advisory bodies (e.g, average catch 2008-2012, high, or low catch averages, etc).

**Option D Decision Point (R/S complex as an IFQ species group):** The

Council could create a new coastwide R/S slope complex IFQ species group. To do so, the following amounts would also need to be set: OFL, ABC, ACL, off-the-top set-asides, Trawl/Non-Trawl HGs, and at-sea whiting set-asides. In addition, QS would be issued consistent with regulation at 660.140(c)(3)(vii). The Council would also need to recommend QS control limits and vessel limits, including reconsidering aggregate non-whiting groundfish amounts.

Under current default rules, when removing a component species in an IFQ species complex (in which the complex itself is treated as a species for accounting purposes) removed species (i.e., Rougheye/Shortraker) continue to be managed as IFQ species. In

this case, R/S would not only be removed from the north and south minor slope complex IFQ species groups, but also recombined from north south to coastwide. Regulations at 660.140(c)(3)(vii) describe how to issue QS based on these circumstances. In addition to issuing QS for the new R/S complex, QS control limits and vessel limits would need to be established, including aggregate non-whiting groundfish limits.

Under current regulations, when two areas are combined for an IFQ species, the QS or IBQ held by individuals in each area will be adjusted proportionally such that: (1) the total QS or IBQ for the area sums to 100 percent, and; (2) a person holding QS or IBQ in the newly created area will receive the same amount of total QP or IBQ pounds as they would if the areas had not been combined (§ 660.140 (c)(3)(vii)(A)(2)).

Current regulations also require that when a management area boundary line is moved for an IFQ species, the QS or IBQ held by individuals in each area will be adjusted proportionally such that they each maintain their same share of the trawl allocation on a coastwide basis. Those holding QS or IBQ in the area being expanded will have their QS or IBQ reduced such that the total QP or IBQ pounds they receive in the year of the line movement will not increase or be reduced as a result of the expansion (§ 660.140 (c)(3)(vii)(A)(3)).

However, the Council could elect to treat a R/S coastwide complex as a non-IFQ management unit and change the default procedures. This would allow management of the new complex to occur at different levels of detail (e.g., managing to an ACL without issuing R/S quota share and resulting quota pounds).

Issuing R/S complex IFQ for the shorebased trawl fleet in 2015-2016 could be difficult to accomplish in a timely fashion and is currently not being considered in detail in the DEIS.

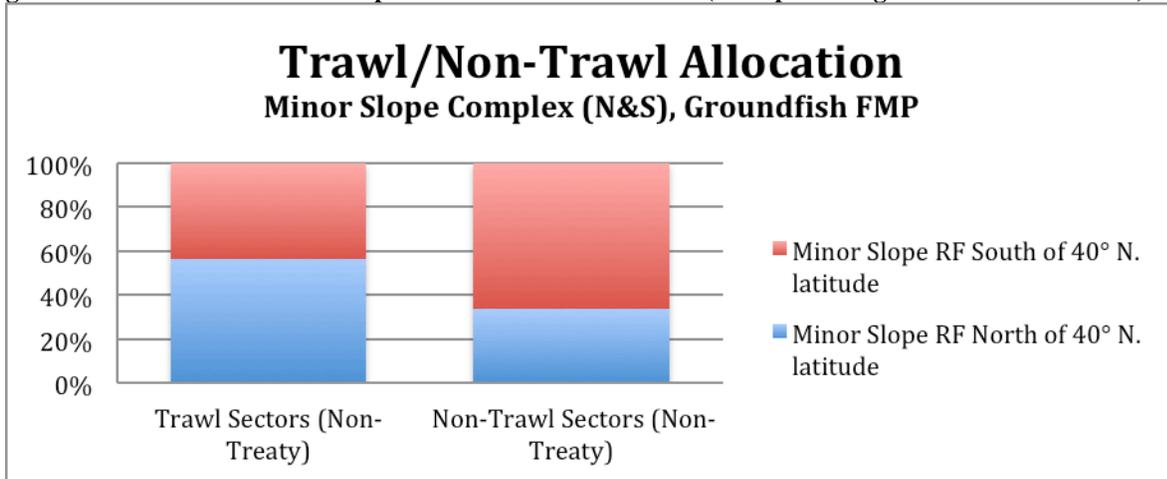
**Remaining minor slope complex discussion**

The remaining ACL for the Minor Slope complexes (North and South) would be reduced by removing Roughey and Shortraker. In addition, the appropriate amounts for the off-the-top set asides for the remaining Minor Slope complexes would likely be reduced and would need to be decided by the Council. Removing Roughey and Shortraker from the current Minor Slope complex, and looking at preliminary 2015 and 2016 Minor Slope ACLs (North and South), it seems to leave ample room in the Trawl/Non-Trawl allocations. Therefore, there may be no need to revisit the Minor Slope Amendment 21 allocations (see table 12, figure 3, below). Approximately 90% of the collective 2015 and 2016 Minor Slope ACLs remain in the complex, even when removing S/R total mortalities (catch and known discard) in the most recent five-years.

**Table 12 (below): Allocation percentages for limited entry trawl and non-trawl sectors specified for FMP groundfish stocks and stock complexes under Amendment 21 (most percentages based on 2003-2005).**

Stock or Complex	Trawl Sectors (Non-Treaty)	Non-Trawl Sectors (Non-Treaty)
Minor Slope RF North of 40° N. latitude	81%	19%
Minor Slope RF South of 40° N. latitude	63%	37%

**Figure 3 (below): Allocation percentages for limited entry trawl and non-trawl sectors specified for FMP groundfish stocks and stock complexes under Amendment 21 (most percentages based on 2003-2005).**



Interestingly, R/S-specific coastwide percentages (Table 10 and 11, above, Option C) are identical to Amendment 21 Trawl/Non-Trawl allocation percentages (Table 12, Figure 3, above) for the Minor Slope South complex post-TRAT (2011-2012), as percentages of S/R do indeed directly apply to the Trawl/Non-Trawl percentages for the Southern Minor Slope South Complex which is 63% Trawl/37% Non-Trawl (as opposed to the 81%/19% Trawl/Non-Trawl percentages of the Minor Slope North Complex).

## Appendix A: Coastwide Total Mortality Catch Summaries Among Sectors for Rougheye-Shortraker (R/S) combined; and Rougheye, Shortraker separately

The Source for this Appendix is the 2002- 2013 NWFSC Groundfish Mortality Report (GMR) excel data file.

**Table A1a: 2002-2012 Coastwide Catch Summary Among Sectors,  
Estimated coastwide total mortality catch of Rougheye/Blackspotted(R/B) rockfish, 2002-2012  
(including proportional Rougheye/Blackspotted(R/B) total mortality catch by sector of Rougheye-  
Shortraker GMR data field by annum)**

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Total estimated Rougheye/Blackspotted Rockfish coastwide catches by sector, 2002-2012.</b>											
<b>Set-Aside</b>	<b>9.3</b>	<b>16.7</b>	<b>18.5</b>	<b>21.5</b>	<b>21.4</b>	<b>24.0</b>	<b>19.5</b>	<b>36.4</b>	<b>18.9</b>	<b>18.8</b>	<b>15.9</b>
Incidental	2.4	5.0	2.6	1.5	0.5	2.0	1.0	2.2	0.5	0.3	0.7
Pink Shrimp	0.0	0.0	1.7	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Tribal At-Sea Hake	0.0	0.0	0.0	0.0	0.0	0.1	2.9	0.6	0.0	2.4	0.0
Tribal Shoreside	6.9	11.6	14.3	19.8	20.9	21.8	15.7	33.6	18.4	16.1	15.2
<b>Non-Trawl</b>	<b>21.5</b>	<b>13.3</b>	<b>24.2</b>	<b>37.3</b>	<b>42.2</b>	<b>47.0</b>	<b>62.1</b>	<b>71.6</b>	<b>86.2</b>	<b>41.3</b>	<b>84.7</b>
Nearshore Fixed Gear	0.0	0.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nonnearshore Fixed Gear	21.5	13.1	24.2	36.6	42.1	47.0	62.1	71.6	86.2	41.3	84.6
<b>Trawl</b>	<b>44.8</b>	<b>77.6</b>	<b>73.1</b>	<b>84.6</b>	<b>67.7</b>	<b>123.7</b>	<b>160.0</b>	<b>130.9</b>	<b>170.7</b>	<b>150.9</b>	<b>170.5</b>
Limited Entry Trawl Permit - Fixed Gear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.1	21.7
Limited Entry Trawl Permit - Trawl Gear	44.1	75.4	58.5	45.6	61.1	92.9	86.9	120.7	144.0	53.1	47.9
Shoreside Hake	0.0	0.0	0.8	0.2	0.0	1.9	0.6	1.6	5.1	4.2	47.1
Catcher-Processor	0.3	2.0	13.7	30.5	6.0	27.2	69.4	8.3	17.0	74.4	42.0
Mothership	0.4	0.2	0.0	8.3	0.6	1.7	3.1	0.4	4.6	4.0	11.8

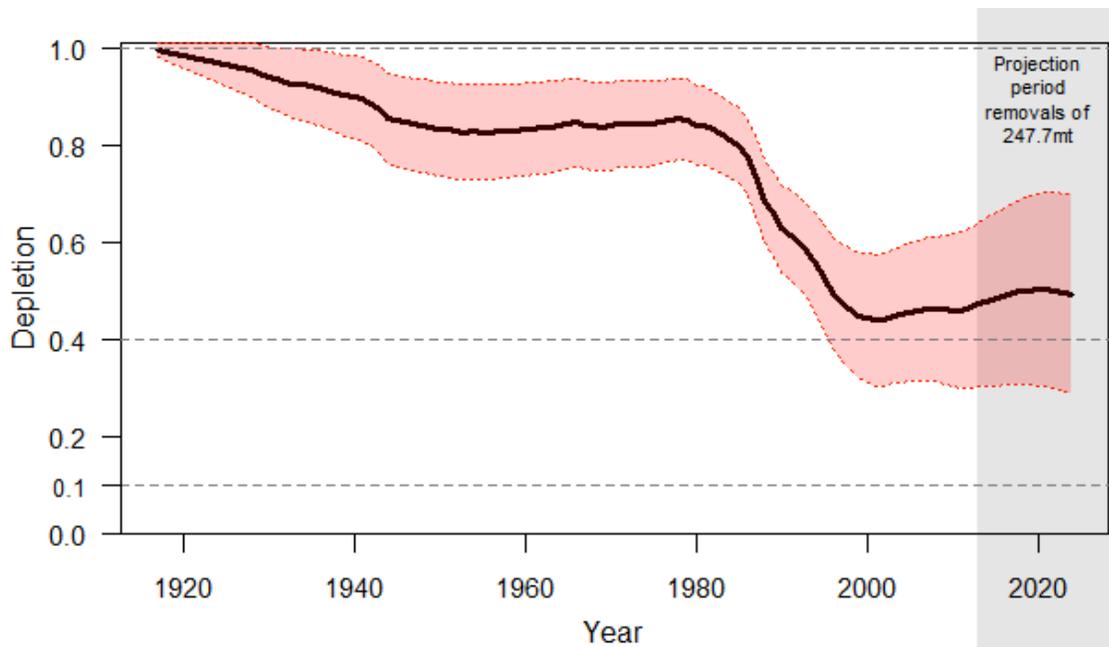
**Table A1b: 2002-2012 Coastwide Catch Summary Among Sectors,  
Estimated coastwide total mortality catch of Rougheye/Blackspotted/Shortraker (R/S) rockfish,  
2002-2012 (including proportional Rougheye/Blackspotted and Shortraker total mortality catch by  
sector of Rougheye-Shortraker GMR data field by annum)**

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Total estimated Rougheye/Blackspotted/Shortraker Rockfish coastwide catches by sector, 2002-2012.</b>											
<b>Set-Aside</b>	<b>11</b>	<b>18.6</b>	<b>19.7</b>	<b>22.6</b>	<b>22.9</b>	<b>25.2</b>	<b>21.3</b>	<b>37.5</b>	<b>20.1</b>	<b>20</b>	<b>17.4</b>
Incidental	3.01	6.43	3.08	1.54	0.53	2.23	1.03	2.27	0.54	0.29	0.88
Pink Shrimp	0	0	1.66	0.38	0	0.14	0.09	0	0.02	0.01	0.01
Tribal At-Sea Hake	0	0	0	0	0	0.06	2.86	0.66	0.03	2.41	0
Tribal Shoreside	7.97	12.2	14.9	20.7	22.3	22.7	17.3	34.6	19.5	17.3	16.5
<b>Non-Trawl</b>	<b>23.2</b>	<b>14.2</b>	<b>27.4</b>	<b>41.5</b>	<b>44</b>	<b>48.7</b>	<b>81</b>	<b>74.5</b>	<b>91.7</b>	<b>44.3</b>	<b>105</b>
Nearshore Fixed Gear	0.04	0.2	0	0.74	0.01	0	0	0	0	0	0.03
Nonnearshore Fixed Gear	23.2	14	27.4	40.7	44	48.7	81	74.5	91.7	44.3	105
<b>Trawl</b>	<b>60.2</b>	<b>103</b>	<b>88.5</b>	<b>94.5</b>	<b>76</b>	<b>154</b>	<b>189</b>	<b>158</b>	<b>200</b>	<b>175</b>	<b>191</b>
Limited Entry Trawl Permit - Fixed Gear	0	0	0	0	0	0	0	0	0	15.5	22.9
Limited Entry Trawl Permit - Trawl Gear	59.4	101	72.8	55	69.1	121	116	148	171	73.8	60.6
Shoreside Hake	0.0	0.0	1.4	0.2	0.0	3.2	0.8	1.7	6.6	6.7	52.7
Catcher-Processor	0.41	2.08	14.2	31.1	6.38	27.5	69.7	8.43	17.2	74.6	42.7
Mothership	0.39	0.16	0.02	8.32	0.58	1.73	3.06	0.36	4.61	4.05	11.8

**Table A1c: 2002-2012 Coastwide Catch Summary Among Sectors, Estimated coastwide total mortality catch of Shortraker rockfish, 2002-2012 (including proportional Shortraker total mortality catch by sector of Rougheye-Shortraker GMR data field by annum)**

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<b>Total estimated Shortraker Rockfish coastwide catches by sector, 2002-2012.</b>											
<b>Set-Aside</b>	<b>1.7</b>	<b>2.0</b>	<b>1.1</b>	<b>1.2</b>	<b>1.5</b>	<b>1.2</b>	<b>1.7</b>	<b>1.1</b>	<b>1.1</b>	<b>1.3</b>	<b>1.5</b>
Incidental	0.6	1.4	0.5	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.2
Pink Shrimp	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Tribal At-Sea Hake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tribal Shoreside	1.0	0.6	0.6	1.0	1.4	1.0	1.6	1.0	1.1	1.3	1.3
<b>Non-Trawl</b>	<b>1.8</b>	<b>0.9</b>	<b>3.2</b>	<b>4.2</b>	<b>1.9</b>	<b>1.7</b>	<b>18.9</b>	<b>2.9</b>	<b>5.5</b>	<b>3.0</b>	<b>20.0</b>
Nearshore Fixed Gear	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nonnearshore Fixed Gear	1.8	0.9	3.2	4.1	1.9	1.7	18.9	2.9	5.5	3.0	20.0
<b>Trawl</b>	<b>15.4</b>	<b>25.3</b>	<b>15.4</b>	<b>9.9</b>	<b>8.4</b>	<b>29.9</b>	<b>29.2</b>	<b>27.3</b>	<b>28.9</b>	<b>23.7</b>	<b>20.3</b>
Limited Entry Trawl Permit - Fixed Gear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3
Limited Entry Trawl Permit - Trawl Gear	15.4	25.2	14.3	9.4	8.0	28.3	28.7	27.0	27.2	20.7	12.7
Shoreside Hake	0.0	0.0	0.6	0.0	0.0	1.2	0.2	0.1	1.4	2.4	5.6
Catcher-Processor	0.1	0.1	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.7
Mothership	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Figure A1: Rougheye biomass depletion projections from the NWFSC compared with recent average total mortality catch data from 2008 to 2012 (average coastwide catch of 247.7 mt): Projection of potential OFL, landings, and catch, summary biomass (age-10 older), spawning biomass, and depletion for the base case model projected with total catch equal to the recent 5-year total mortality catch average in 2008 to 2012 (landings *with* total mortality discards).**



## ***Potential Management Responses/Accountability Measures***

### ***Accountability Measures***

While not specifically labeled as accountability measures, or AMs, in groundfish regulations or in the FMP, there are several management measures in the groundfish regulations that may be used to prevent ACLs from being exceeded, and to correct or mitigate overages of the ACL if they occur. In accordance with the National Standard 1 Guidelines as specified at §600.310, AMs are identified below in two categories: (1) Inseason AMs, and (2) AMs for when an ACL is exceeded. Some AMs are listed under more than one category depending on how they might be used (inseason, due to exceeding, or to reduce risk).

#### ***Inseason AMs***

Inseason AMs are actions that can be taken to prevent an ACL from being exceeded. Inseason AMs include, but are not limited to: (1) changes to the RCAs (§660.60(c)); (2) changes to the type of gear on board; (3) closure of a sector; (4) trip limits.

#### ***AMs for when an ACL is exceeded***

These are AMs that may be triggered to correct or mitigate if an ACL has been exceeded. AMs for when an ACL is exceeded include, but are not limited to:

1. Inseason AMs

All of the inseason AMs listed above could also be triggered in the following year if an ACL has been exceeded in the previous year. They could be triggered between fishing years or inseason.

2. New AMs

The Council could recommend new AMs through a minimum of two Council meetings, as described in the Pacific Coast Groundfish FMP at Section 6.2. NMFS would then implement the new AMs through a full notice and comment rulemaking. Management measures currently being considered in the 2015-2016 DEIS include new groundfish closed areas that could minimize mortality of Rougheye rockfish and requiring excluders.