

GROUND FISH MANAGEMENT TEAM REPORT ON OVERFISHED SPECIES MORTALITY

The Groundfish Management Team (GMT) demonstrated that the commercial nearshore fishery exceeded the coastwide catch share of both yelloweye rockfish and canary rockfish during 2013 (see Tables 1 and 2 in [Agenda Item E.8.a, GMT Report 1, April 2015](#)). For example, in 2013, the mortality of yelloweye rockfish was 2.7 mt, whereas the catch share was 1.2 mt. Likewise, the 2013 commercial nearshore catch of canary rockfish (10.5 mt) exceeded the nearshore catch share of 6.2 mt. This [GMT Report 1](#) also showed that both yelloweye and canary mortalities in 2013 were below the annual catch limit (ACL) and the non-trawl allocations.

Some notable changes occurred for the nearshore fisheries in both 2013-2014 and 2015-2016, as described in the Harvest Specifications and Management Measures Final Environmental Impact Statements (FEIS). The shoreward Rockfish Conservation Area (RCA) was moved from 20 fathoms to 30 fathoms off Oregon beginning 2013, providing greater access to nearshore species and reducing gear conflicts. Likewise, the shoreward RCA was moved from 20 fathoms to 30 fathoms in northern California between 40°10' and 42° N. latitude (California/Oregon border) beginning in 2015. In addition, the ACLs for Minor Nearshore Rockfish were considerably reduced beginning 2015 relative to previous years (e.g., see [Agenda Item E.8.a, ODFW Report, April, 2015](#)) and the States of Oregon and Washington have set up additional precautionary measures for managing and tracking their nearshore fisheries ([Agenda Item F.7.b, Supplemental WDFW/ODFW Report, June 2014](#)). The State of California will continue to use a state established harvest guideline and track the fishery inseason ([Agenda Item F.7.b, Supplemental CDFW Report 1, 2014](#)). Finally, beginning in 2015, the Council increased the catch share of yelloweye rockfish for the commercial nearshore fishery (coastwide) from 1.2 mt to 1.7 mt, while reducing the catch share of this species in the non-nearshore fixed gear fishery from 1.1 mt to 0.6 mt.

The GMT believes that the Council has at least three choices to respond to these recent overages of the yelloweye rockfish and canary rockfish commercial nearshore fishery catch share. Those options include (1) implementing additional management measures to reduce the catch of yelloweye rockfish and canary rockfish, (2) increasing the commercial nearshore fishery catch share for yelloweye rockfish and canary rockfish, or (3) a combination of both. The GMT also understands that the Council may consider no action at this time, if the probability of exceeding the ACL is low and if the sum of all projected impacts does not estimate that catch will exceed the ACL. This statement provides analyses that may help with this decision.

Modeling Platforms

The projected mortalities of overfished species shown in the 2015-2016 FEIS were calculated using the nearshore model with bycatch and landings data through 2012 as well as state landing limits. The WCGOP recently provided the GMT with an updated model that includes an additional year of bycatch data (i.e., 2013). The nearshore model inputs were also reconfigured to better match other data products and provide efficiencies. The GMT has not had the opportunity to adequately evaluate the performance of the updated model. The GMT was able; however, to update the model used in the FEIS with the most recent state landing limits and most recent 5-year average landings data for species without state limits (i.e., 2013 and 2014 landings

data were added). Hereinafter, the results referenced are derived from the FEIS model with bycatch rates through 2012, landings data through 2014, and current state landing limits.

The overfished species projections for the nearshore fishery will be updated at the June Council meeting using the updated nearshore projection model. We note, however, that the relative change in mortality is anticipated to be similar between models, because data are added (rather than replaced) as models are updated. Furthermore, the mortality rates applied to discards are the same in both models.

Impact of Moving the Shoreward RCA from 30 fathoms to 20 fathoms

The status quo shoreward RCA for commercial fixed gear is 30 fathoms for Oregon and northern California (north of 40°10' N. lat.). Results indicate that moving the RCA from 30 fathoms to 20 fathoms for both Oregon and California (north of 40°10' N. latitude) will reduce mortality of yelloweye rockfish by 0.3 mt and reduce the mortality of canary rockfish by 0.2 mt (Table 1). The remaining alternatives, where the RCA is moved shallower by only one state at a time, result in fewer savings.

Uncertainties to Consider

The GMT stresses that even though the projection models may estimate overfished species mortalities that are below the catch share, there is high variation in annual mortalities which make annual predictions difficult.

Since the 2013 yelloweye rockfish mortality (2.7 mt) is 1 mt greater than the 2015 commercial nearshore fishery catch share of 1.7 mt, a savings of only 0.3 mt would not solve the current dilemma. The same is true for canary rockfish, for which the difference is even greater.

Potential impacts to the Minor Nearshore Rockfish complex of moving the shoreward RCA to 20 fathoms is uncertain. Projection models are not available to measure RCA impacts on this complex. Minor Nearshore Rockfish ACLs were reduced considerably in 2015 relative to previous years (see 2015-2016 FEIS). It is possible that moving the shoreward RCA shallower may provide fewer areas (or options) for commercial nearshore fishermen to avoid species within the Minor Nearshore Rockfish complex.

Table 1. Impacts of 20 and 30 fm RCAs (north of 40°10' N. latitude) to coastwide yelloweye and canary rockfish mortality. Changes in mortality relative to status quo (SQ) were estimated using the 2014 nearshore overfished species projection model.

Options	RCA Action	Yelloweye rockfish	Canary rockfish
Status Quo	OR: 30 fathoms CA: 30 fathoms	SQ	SQ
Option 1	OR: 30 fathoms CA: 20 fathoms	-0.2	-0.1
Option 2	OR: 20 fathoms CA: 30 fathoms	-0.1	-0.1
Option 3	OR: 20 fathoms CA: 20 fathoms	-0.3	-0.2

Probability of exceeding the ACL and the Non-Trawl Allocation for Yelloweye Rockfish and Canary Rockfish

The annual mortality of yelloweye rockfish and canary rockfish varies considerably within the commercial nearshore fishery and within other fisheries (i.e., the non-nearshore fixed gear fishery, recreational fisheries, trawl fisheries, research catches, etc.). This was demonstrated in the 2015-2016 FEIS for yelloweye rockfish (see Appendix B, pages 37-53). Because there is a buffer in the scorecard (Attachment 1), and because it is unlikely that allocations, harvest guidelines, catch shares, and set asides will be exceeded by all sectors during the same year, it has been demonstrated that the probability of exceeding the ACL for yelloweye rockfish is low (i.e., < 3 percent probability; 2015-2016 FEIS, Appendix B, pages 37-43). We provide a similar analysis here for both yelloweye and canary rockfish to help the Council understand the probability of exceeding various specifications. The analyses shown below will demonstrate the probability of exceeding the 2015 harvest specifications, allocations and catch shares as follows:

- catch share for yelloweye rockfish (1.7 mt) and canary rockfish (6.2 mt),
- ACL for yelloweye rockfish (18 mt) and canary rockfish (122 mt), and
- Non-trawl allocation for yelloweye rockfish (11.2 mt) and canary rockfish (49.9 mt).

Differences between this analysis and that provided for the 2015-2016 FEIS includes (1) updated surface discard mortality rates (see [GMT Report 1](#)) and (2) the addition of 2013 WCGOP mortality data (Somers et al., 2014). Years of data included in this analysis are 2007 – 2013. Annual total catches for all sectors (including set-asides) were used to evaluate the probability of exceeding the ACL. Simulation analyses using the program R were performed as described in the 2015-2016 FEIS (Appendix B, pages 37-53) and in [Agenda Item F.7.b, REVISED Supplemental GMT Report 2](#) (June 2014).

Yelloweye rockfish

The primary goal of the Council is to ensure that groundfish fisheries remain below their ACLs. Even though GMT scorecards typically project that most of the yelloweye rockfish ACL will be harvested (e.g., for 2015, the scorecard projects that 16.7 of 18.0 mt of the ACL will be taken (Attachment 1), in reality, all sectors combined have not caught more than 70 percent of the ACL

during recent years. Reasons include: (a) many deductions taken from the ACL are based on high or highest catches in recent years and (b) even though some sectors may exceed their allocation, it is unlikely that all sectors will exceed each of their allocations during the same year. The result has been annual catches much lower than the ACL or OY (e.g., see Somers et al., 2014).

The 2015 ACL for yelloweye rockfish is 18 mt (Figure 1). **The simulations provided herein show that there is a 0.02 percent probability of exceeding the 2015 yelloweye rockfish ACL.**

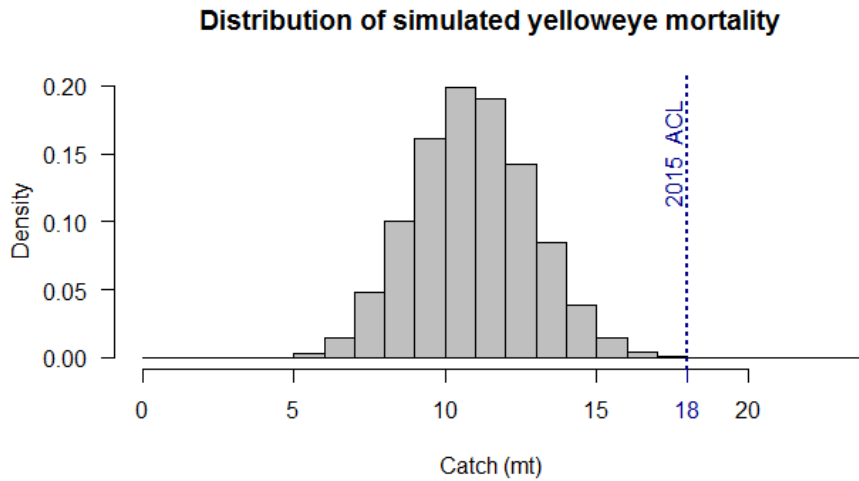


Figure 1. Distribution of simulated annual yelloweye catches for all sectors and set-asides combined. The vertical dashed line represents the 2015 ACL (P = 0.022%)

A similar simulation analysis was performed for yelloweye rockfish to evaluate the probability of exceeding the non-trawl allocation (recreational fisheries, commercial non-nearshore fisheries, and commercial nearshore fisheries). **The probability of exceeding the 2015 non-trawl yelloweye rockfish allocation (= 11.2 mt) is 17 percent (Figure 2).**

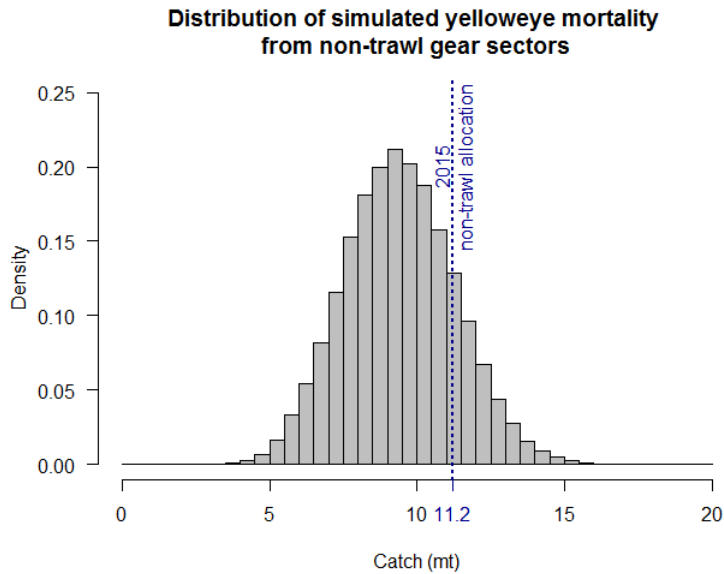


Figure 2. Distribution of simulated annual yelloweye mortality for the non-trawl sectors. The vertical line represents the non-trawl allocation (= 11.2 mt). (P = 17%).

Figure 3 shows the simulated distributions of annual catches for the commercial nearshore fishery (coastwide). The 2015 catch share (1.7 mt) and the 2013 mortality (2.71 mt) are shown as vertical dashed lines. **This simulation shows that the probability of exceeding the 2015 catch share is 47 percent.** Probabilities of exceeding the catch share decrease as the catch share increases. There is virtually no probability of this fishery exceeding 5 mt of yelloweye rockfish per year.

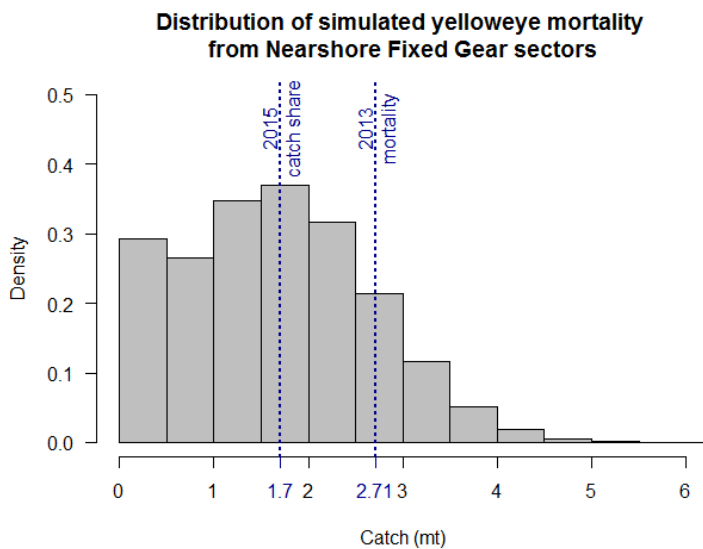


Figure 3 . Distribution of simulated yelloweye catch from the nearshore fixed gear sector.

Canary rockfish

Simulations were also applied to canary rockfish catches (2007-2013) to estimate probabilities of exceeding the 2015 ACL, non-trawl allocation, and the commercial nearshore catch share.

Results of the canary rockfish analyses were:

- **The probability of exceeding the 2015 canary rockfish ACL (122 mt) is 0 percent (Figure 4).**
- **The probability of exceeding the 2015 canary rockfish non-trawl allocation (= 49.9 mt) is 0.1 percent (Figure 5).**
- **The probability of exceeding the 2015 canary rockfish catch share (6.2 mt) is 64 percent (Figure 6).**

Variability in annual catches of canary rockfish are extremely high in the nearshore fixed gear sector, which results in simulation runs resulting in 0 mt of catch, shown in Figure 6. High variability in the WCGOP mortality estimates may have resulted from a number of factors, including low observer coverage for the sector ([Agenda Item E.8.a, GMT Report 1, April 2015](#)).

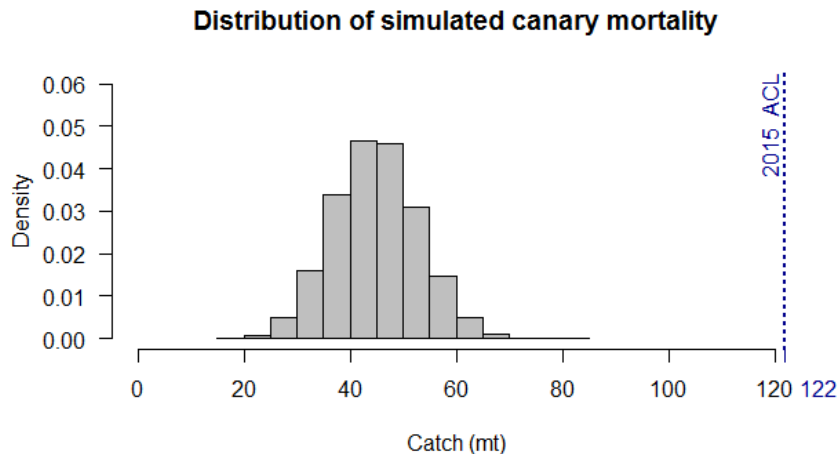


Figure 4. Distribution of simulated annual canary rockfish catches for all sectors and set-asides combined. The vertical dashed line represents the 2015 ACL.

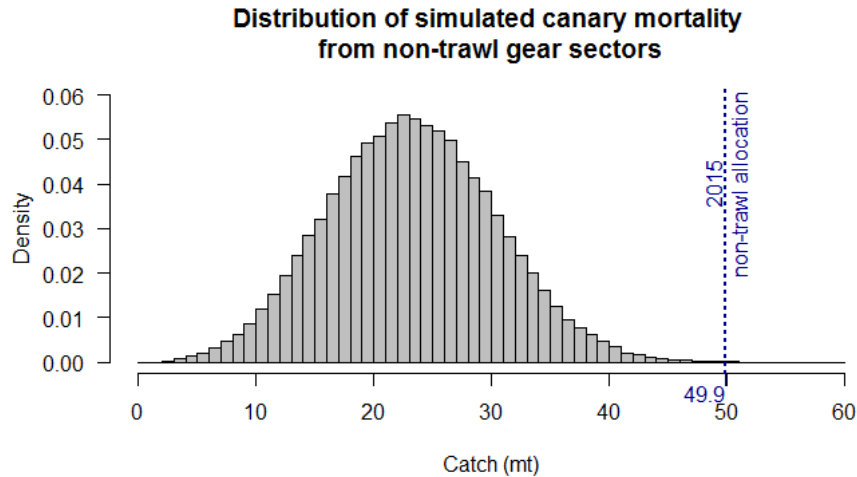


Figure 5. Distribution of simulated annual canary rockfish mortality for the non-trawl sectors. The vertical line represents the non-trawl allocation (= 11.2 mt).

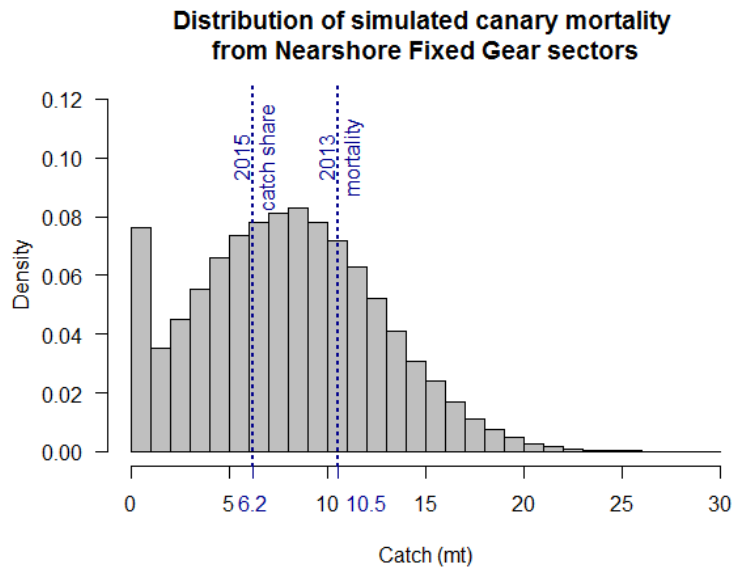


Figure 6. Distribution of simulated canary rockfish catch from the nearshore fixed gear sector. (P = 64%)

Summary

Under current conditions, the probability of exceeding the ACL is low for both yelloweye rockfish and canary rockfish. On the other hand, the probability of exceeding the nearshore catch shares for yelloweye rockfish and for canary rockfish is 47 percent and 64 percent, respectively. As such, the Council may consider imposing more restrictive management measures, or allowing the projection to be higher than the catch share, or increasing the catch share for the commercial nearshore fishery. Moving the RCA back to 20 fathoms (north of

40°10' N. latitude) was shown to reduce mortality of yelloweye rockfish by 0.3 mt and canary rockfish by 0.2 mt.

GMT Recommendations

- **Consider the available options to address the probability of exceeding the commercial nearshore share for yelloweye rockfish (RCA change, increase catch share, or a combination of the two). See Figure 3 for probability distributions.**
- **Consider the available options to address the high probability of exceeding the commercial nearshore share for canary rockfish (RCA change, increase catch share, or a combination of the two). See Figure 6 for probability distributions.**

Overfished Species Scorecard Update

The overfished species scorecard (Attachment 1) has been updated based on the 2015-2016 groundfish final regulations which published on March 10, 2015. Those updates include:

- Allocations or projected impacts (0.1-0.7 mt) for several sectors;
- Cowcod updated to show that the off the top deductions are subtracted from the 10 mt ACL, and that the harvest specification for the other sectors is a 4 mt annual catch target (ACT);
- The Oregon recreational fishery canary rockfish projected impacts have been updated to the values show in the FEIS, which reflect the 2015 regulations allowing a one fish sub-bag limit;
- The non-nearshore model was updated with new bycatch rates with the addition of one year of data for 2013. Projected impacts changed minimally for canary rockfish, darkblotched rockfish, and yelloweye rockfish; and
- The nearshore model was updated with the addition of 2013 and 2014 landings data and updated state landing limits. Estimated yelloweye impacts increased from 1.3 to 1.4 mt (nearshore catch share = 1.7 mt) and canary impacts increased from 6.7 mt to 7.4 mt (nearshore catch share = 6.7 mt).

Attachment 1. Scorecard for 2015. Allocations^a and projected mortality impacts (mt) of overfished groundfish species for 2015.

Fishery	Bocaccio b/		Canary		Cow cod b/		Dkbl		Petrale		POP		Yelloweye	
	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/ g/	Projected Impacts g/	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts	Allocation a/	Projected Impacts
<i>Date: 15 April 2015</i>														
Off the Top Deductions	8.3	8.3	15.2	15.2	2.0	2.0	20.8	20.8	236.6	236.6	15.0	15.0	5.8	5.8
EFPC/	3.0	3.0	1.0	1.0	0.02	0.02	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Research d/	4.6	4.6	4.5	4.5	2.0	2.0	2.1	2.1	14.2	14.2	5.2	5.2	3.3	3.3
Incidental OA e/	0.7	0.7	2.0	2.0	--	--	18.4	18.4	2.4	2.4	0.6	0.6	0.2	0.2
Tribal f/			7.7	7.7			0.2	0.2	220.0	220.0	9.2	9.2	2.3	2.3
Bottom Trawl			0.8	0.8			0.2	0.2	45.4	70.0	3.7	3.7		0.0
Troll			0.5	0.5			0.0							0.0
Fixed gear			0.3	0.3			0.0						2.3	2.3
mid-water			3.6	3.6			0.0							0.0
whiting			4.3	4.9				0.3			7.2	11.1		
Trawl Allocations	81.9	81.9	56.9	56.9	1.4	1.4	301.3	301.3	2,544.4	2,544.4	135.9	135.9	1.0	1.0
-SB Trawl	81.9	81.9	43.3	43.3	1.4	1.4	285.6	285.6	2,539.4	2,539.4	118.5	118.5	1.0	1.0
-At-Sea Trawl			13.7	13.7			15.7	15.7	5.0	5.0	17.4	17.4	0.0	--
a) At-sea whiting MS			5.7	5.7			6.5	6.5			7.2	7.2		
b) At-sea whiting CP			8.0	8.0			9.2	9.2			10.2	10.2		
Non-Trawl Allocation	258.8	117.6	49.9	31.8	2.6	1.2	15.9	5.7	35.0		7.2	0.3	11.2	9.9
Non-Nearshore	79.1		3.8					5.5				0.3	0.6	0.6
LE FG				0.9						0.3				
OA FG				0.2						0.1		0.0		
Directed OA: Nearshore	1.0	0.4	6.7	7.4				0.2		0.0			1.7	1.4
Recreational Groundfish														
WA			3.4	0.8			--		--		--	--	2.9	2.8
OR			11.7	9.1			--		--		--	--	2.6	2.2
CA	178.8	117.2	24.3	13.4		1.2		--		--		--	3.4	2.9
TOTAL	349.0	207.8	122.0	103.9	4.0	2.6	338.0	327.8	2,816.0	2,781.0	158.1	151.2	18.0	16.7
2015 Harvest Specification	349	337	122	119	4.0	4.0	338	330	2,816	2,816	158	158	18	18
Difference	0.0	129.2	0.0	15.1	0.0	1.4	0.0	2.2	0.0	35.0	-0.1	6.8	0.0	1.3
Percent of ACL	100.0%	61.7%	100.0%	87.3%	100.0%	65.0%	100.0%	99.3%	100.0%	98.8%	100.1%	95.7%	100.0%	92.9%
Key			= not applicable											
		--	= trace, less than 0.1 mt											
			= Fixed Values											
			= off the top deductions											

a/ Formal allocations are represented in the black shaded cells and are specified in regulation in Tables 1b and 1e. The other values in the allocation columns are 1) off the top deductions, 2) set asides from the trawl allocation (at-sea petrale only)
 3) ad-hoc allocations recommended in the 2013-14 EIS process, 4) HG for the recreational fisheries for canary and YE.

b/ South of 40°10' N. lat.

c/ EFPs are amounts deducted from the ACL to accommodate anticipated applications. Values in this table represent the estimates from the 15-16 biennial cycle, which are currently specified in regulation.

d/ Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.

e/ The GMT's best estimate of impacts as analyzed in the 2015-2016 Environmental Impact Statement (Appendix B), which are currently specified in regulation.

f/ Tribal values in the allocation column represent the values in regulation. Projected impacts are the tribes best estimate of catch.

g/ the cowcod harvest specification is a 4.0 mt Annual Catch Target (ACT). The off the top deductions are subtracted from the 10 mt ACL