

GROUND FISH MANAGEMENT TEAM REPORT ON TENTATIVE ADOPTION OF 2009-2010 GROUND FISH FISHERY SPECIFICATIONS/MANAGEMENT MEASURES

At its April meeting the Council adopted acceptable biological catches (ABCs) and a range of optimum yields (OYs) including preliminary preferred OYs for groundfish species and complexes for analysis. These harvest specifications are included in the Preliminary Draft Environmental Impact Statement (EIS) in Tables 2-1a and 2-1b (Agenda Item F.4.a, Attachment 1).

Under this agenda item, the Council is scheduled to adopt final preferred OYs for depleted species, adopt rebuilding plan revisions for selected depleted species, and provide guidance on management measures for 2009-2010 fisheries.

The Groundfish Management Team (GMT) discussed revised rebuilding analyses, the preliminary preferred OYs adopted at the April meeting and their management implications and has the following comments:

HARVEST SPECIFICATIONS

Yelloweye

In April, the Council requested that National Marine Fisheries Service (NMFS) run a rebuilding analysis based on a yelloweye rockfish OY of 17 mt for both 2009 and 2010 (yelloweye OY Alternative 5). The GMT's report on the issue stated that the 17 mt OY in 2010 would likely have short-term benefit to communities but that the preliminary rebuilding analysis of the 17 mt OY suggested that it would result in "lower harvest levels after the ramp-down is complete." (Agenda Item H.7.c, Supplemental GMT Report, April 2008).

The analysis of the alternative ramp-down strategy is provided in Agenda Item F.4.a, Supplemental Attachment 3. In sum, the analysis estimates that a 17 mt OY in 2010 would delay the median year to rebuild the stock by 0.1 years compared to a 2010 OY of 14 mt if the constant harvest rate is set at a 71.9 percent spawning biomass per recruit (SPR) harvest rate in 2011. The analysis also shows that there would be no delay relative to the status quo ramp down strategy if the SPR is set at the slightly lower SPR harvest rate of 71.94 percent instead of 71.9 percent. Although it is unlikely that harvest rates can be controlled to this level of accuracy, this slightly lower harvest rate would equate to a 0.02 mt reduction in the OY in 2011 and 2012 and an increase in the probability of rebuilding by T_{target} from 54.7 percent to 55.0 percent (compared to a 2010 OY of 14 mt and constant SPR of 71.9 percent).

Current Federal regulations state that, "Yelloweye rockfish is subject to a ramp-down strategy where the harvest level will be reduced from current levels until 2011 [at which time the stock] will be subject to a constant harvest rate strategy with a constant SPR harvest rate of 71.9 percent." This constant harvest rate beginning in 2011 is a key feature of the yelloweye rebuilding plan and represents the Council's primary decision on how to rebuild the stock in "as short [a time] as possible, taking into account the needs of fishing communities."

The four year ramp-down period is an additional feature of the rebuilding plan designed to mitigate the negative community impacts of an immediate transition to the constant harvest rate. It was described in the record of decision as a transition period for both management and industry to learn how to manage to the highly restrictive harvest levels needed to rebuild yelloweye and to collect additional fishery independent information that could be used to improve the data-poor stock assessment. The GMT notes that a 17 mt OY in 2010 would require a more abrupt adjustment on the part of management and industry to the constant harvest rate in 2011. Although the original ramp-down analysis was done assuming an OY of 14 mt in 2010, an OY of 17 mt in 2010 does not significantly alter the rebuilding schedule. Moreover, recent information shows that bycatch of yelloweye is higher in several fisheries than previously thought (including the bottom trawl fishery and the California recreational fishery), meaning that a lower yelloweye OY in 2010 will have larger implications to fisheries and communities than previously thought.

Finally, the GMT notes that management measures for the 2009–2010 will be heavily influenced by the yelloweye OY. To facilitate development and analysis of management measures for Agenda Items F.7 and F.9, the GMT believes it is necessary to adopt final OYs under this agenda item and to provide guidance on yelloweye rockfish catch sharing scenarios for analysis.

Widow and Darkblotched Rockfish

The Council's preliminary preferred OY for darkblotched rockfish was chosen because of the importance of the stock to the groundfish trawl sectors. Darkblotched is highly limiting to the trawl fisheries because it co-occurs with the most economically important species in the fishery such as petrale sole, sablefish, and whiting. The previous EIS estimated that a "no darkblotched fishing" scenario would result in total exvessel value losses of \$64.6 million, including \$14.3 million for the non-whiting trawl sector and \$27.1 million for the whiting sector.¹ In addition, darkblotched appears to restrict exvessel revenues in the trawl fisheries more than other species such as canary. The GMT estimated those sectors lose 6 percent in exvessel revenues for a 1 percent reduction in darkblotched bycatch. It would take a 14 percent reduction in canary bycatch to equal that same rate of revenue loss.

The Council's integrated rebuilding strategy under Amendment 16-4 centers on pushing fishing effort off of the more sensitive rebuilding species and on to the less sensitive rebuilding species (i.e., off of species with longer rebuilding times and onto species able to rebuild quicker). This concept was recommended as the best way of taking into account the biology of the stocks and the needs of fishing communities in a programmatic fashion that simultaneously considered all rebuilding species and groundfish sectors. The GMT still recommended this as the best approach for balancing "short as time as possible" with the "needs of fishing communities."

During the development of this concept, darkblotched rockfish was identified as a less sensitive rebuilding species, implying that the OY on darkblotched rockfish be set high relative to more sensitive species such as yelloweye. However, the results of the most recent darkblotched rockfish assessment recategorize darkblotched rockfish as more sensitive to harvest levels. The best available estimates of the biology and status of darkblotched now predict an expected time

¹ See Table 7-69 in the "Final Environmental Impact Statement (FEIS) for the Proposed ABC/OY Specifications and Management Measures for the 2007-2008 Pacific Coast Groundfish Fishery / Amendment 16-4 to the Groundfish FMP." The estimates were calculated for both "no fishing" on darkblotched and POP. Given the co-occurrence of the two species, no fishing on one stock would effectively end fishing on the other.

to rebuild of 2018 if fishing mortality on darkblotched ceased in 2009 (i.e., $T_{F=0}$)². The expected time to rebuild under the Council's preliminary preferred alternative is 2030 (i.e., T_{Target}).

On the other hand, the rebuilding year for widow rockfish is less sensitive to changes in harvest levels. For example, the widow rockfish OY could be set at considerably higher levels and still result in a rebuilding year of 2009 – the same year as if no catch of widow were to occur.

At the March 2008 Council meeting, the GMT identified a relationship between widow rockfish and darkblotched rockfish in the whiting fishery. In order to avoid darkblotched rockfish, the whiting industry has prosecuted opportunities in a manner that increased widow rockfish impacts and vice versa.

Although this relationship between widow and darkblotched is still uncertain, the GMT notes that the Council could consider lowering the darkblotched OY even further than the preliminary preferred alternative and balance it with an increase in the widow rockfish OY. In other words, the needs of fishing communities might be similarly met, and the estimated time to rebuild for darkblotched decreased, by reducing the darkblotched OY and increasing the widow OY. Specifically, the GMT estimates that a decrease in the darkblotched OY of 15 mt could be accommodated with a widow rockfish OY of approximately 515 to 540 mt. This 15 mt reduction could come out of the darkblotched bycatch limit in the whiting fishery to avoid a disproportionate impact to the non-whiting trawl sector. The expected year of rebuilding under the resulting darkblotched OY of 285 mt would become 2028, 2 years sooner than the preliminary preferred alternative.

Cowcod

The GMT reviewed the record of decisions related to the proposed OY alternatives for cowcod and the Council-preferred OY alternative of 3 mt adopted in April. As with any overfished species, the Council must rebuild in as short a time as possible while taking into account the needs of the fishing community. To that end, the GMT notes the Council should consider the following issues in setting a final 2009-2010 cowcod OY.

Changes to the 2007 Assessment and Rebuilding Analysis

The 2007 cowcod assessment incorporated a suite of corrections and changes to the previous assessment, resulting in revised estimates of several management reference points. The change in perception of stock status is reflected in the results of the revised rebuilding analysis. Due to technical flaws in the 2005 assessment, the GMT does not recommend direct comparison of revised rebuilding parameters to status quo values. The revised rebuilding analysis identifies a minimum rebuilding year ($T_{F=0}$) of 2061. A 2 mt OY extends the median rebuilding year by four years (to 2065) relative to the minimum rebuilding time. The preferred alternative OY of 3 mt extends the rebuilding time by another four years to 2069. A 4mt OY results adds another 3 years to the median rebuilding time (2072) relative to the preferred alternative (Table 1).

² T_{MIN} is the shortest time to rebuild from the onset of the rebuilding plan or from the first year of a rebuilding plan, which is usually the year after the stock was declared overfished. The shortest possible time to rebuild the stocks with revised rebuilding plans is $T_{F=0}$, which is the median time to rebuild the stock if all fishing-related mortality were eliminated beginning in 2009.

Table 1. Comparison of median rebuilding times, SPR harvest rates, and associated OYs (rounded to the nearest mt) for proposed alternative actions

OY	Median Rebuilding Year	SPR Harvest Rate
0	2061	F _{100%}
2	2065	F _{90%}
3	2069	F_{83.6%}
4	2072	F _{72%}

Analysis of Impacts to the Trawl Fishery

Cowcod is one of the principal constraints to trawl fishing activity south of 40° 10' N. latitude. Under the existing OY, trawl vessels in the south operate with RCA restrictions and trip limits for target species that are constrained in order to minimize impacts. A cowcod OY of 0 mt would close the majority of the trawl fishery south of 40° 10'. A 2 mt OY would not result in a complete closure of the trawl fishery, but would require relatively heavy restrictions that may include expansion of the trawl Rockfish Conservation Area (RCA) boundaries, or reductions to cumulative limits, or both. Analysis indicates that a 2 mt cowcod OY could reduce revenues in the trawl fishery by approximately 45 percent compared to a status quo OY of 4 mt.

Analysis indicates a 3 mt OY could accommodate a trawl fishery that is similar to status quo. However, a 3 mt OY could result in greater repercussions to fishing activity than a 4 mt OY, simply because there is variation in cowcod catch from year to year. For example, the status quo estimate of cowcod bycatch in the trawl fishery is approximately 1.3 mt, but estimates have ranged up to approximately 2.1 mt in past years under similar management regulations. It is more likely that such variation could be accommodated with a 4 mt OY than a 3 mt OY meaning that if bycatch is higher than expected, action may not be required under a 4 mt OY, but action could be required under a 3 mt OY. The rebuilding analysis suggests that the additional ton of catch relative to the preferred 3 mt OY adds three years to the median rebuilding time.

Analysis of Impacts to the Recreational Fishery

More than 99 percent of the catch of cowcod in the California recreational fishery occurs south of Point Conception. The fishery has remained below the current 0.3 mt harvest guideline (HG) under the 4 mt OY in 2005-2007. Under the 2 mt OY alternative the California recreational HG would be reduced to 0.15 mt. Although cowcod catch is projected to be 0.1 mt in 2007 under status-quo management, the average catch from 2005-2007 is 0.2 mt, which would exceed the HG under this option. Thus, under the 2 mt OY, actions such as depth restrictions would be need to reduce cowcod catch below the HG. A 40 or 50 fm depth restriction would reduce access to valuable fishing opportunities on the offshore banks and redirects effort to nearshore species. Alternatively, with a 3 mt OY, the resulting 0.23 mt HG for the California recreational fishery would accommodate the 3 year average catch without the need for a reduction of the depth restriction from 60 fm and allows for a shift in effort away from nearshore species assuming catches are not higher than the three-year average.

Species Currently Managed in Stock Complexes

In April, “as a general matter” the Scientific and Statistical Committee (SSC) recommended, “that the Council manage fisheries based on stock targets and thresholds that are defined at a

level concordant with stock assessments, not based on an assemblage aggregate.” (Agenda Item H.1.c, Supplemental SSC Report, April 2008). That general recommendation was followed with:

However, if the Council elects to continue managing blue rockfish as part of the southern nearshore assemblage, in-season landings should be closely tracked to ensure that the blue rockfish catch does not exceed its ABC. This issue primarily applies to blue rockfish but other species may have similar concerns, e.g. longnose skate.

The GMT did not have opportunity to address this recommendation at the April meeting but did revisit the blue rockfish and longnose skate decisions at this meeting.

The GMT’s discussion first focused on identifying criteria or factors that help delineate the pros and cons of managing a stock with “stock targets and thresholds that are defined at a level concordant with stock assessments” or “based on an assemblage aggregate.” These pros and cons can be measured with respect to the resource (i.e., biological considerations), to management (i.e., administrative implications), and to industry. In general, the biological considerations involved the stock resilience and stock status. Management concerns focused on how well catch can be projected and tracked, how close recent catches have been to the ABC, and additional administrative duties related to tracking stocks individually. Discussion on industry considerations revolved around the additional burdens related to handling and sorting new species (e.g., safety, additional cost, practicality).

Longnose skates

As with most elasmobranchs, skates exhibit life history characteristics that make them vulnerable to overharvesting. These include long lifespans, low fecundity, slow growth, and late maturation. Uncertainty in historical catches used for the assessment, increasing landings of many skate species, and recent catch estimates approaching the ABC adopted by the Council in April contribute to the risk of exceeding the ABC for this stock in the future. While the latest assessment for longnose skates indicates that the stock is healthy (66 percent of B_0), the GMT recommends removing this species from the Other Fish complex and setting a species-specific OY. Given the uncertainty in the contribution of longnose skates to the Other Fish complex, the GMT recommends reducing the Other Fish ABC by 3,400 mt (based on ABCs of 3,428 and 3,269 mt in 2009 and 2010 respectively) in both 2009 and 2010 and then reducing that amount by 50 percent to derive OYs for the complex each year.

Likewise the GMT suggests that the other two skate species currently included in the groundfish Fishery Management Plan (FMP) (California and big skates) be listed under the scientific sorting requirement to facilitate gathering biological information for more refined management in the future. The GMT notes that these requirements place a burden on both industry and management. Either a species-specific OY for longnose or a scientific sorting requirement for other species would require landing skate species in the round until identification methods for dressed animals could be developed. Skates are large animals and handling them whole from the time of capture until sorting and/or sampling imposes logistical difficulties compared to landing mixed wings. For management agencies there is the increased regulatory burden of tracking longnose skate against an OY and collecting biological data on those species with a scientific sorting requirement.

The GMT notes that individual states may also consider exploring landing or sorting requirements for those species not included in the FMP (e.g. starry, sandpaper, rougtail, Aleutian, deep sea, etc.) but caught in appreciable amounts in commercial fisheries. The information gathered on these species could potentially inform inclusion in the FMP in the future, or other refined management to prevent overharvest of potentially vulnerable elasmobranch species. Alternatively, skates could be identified to individual species in the future under a rationalized trawl fishery with 100 percent observer coverage.

Blue rockfish

Blue rockfish are currently managed in the Minor Nearshore Rockfish complex for the areas both north and south of 40° 10' N. latitude. The recent assessment for that portion of the stock in California waters North of Point Conception shows a depletion level of 29.7 percent of B_0 and recent catches approaching or exceeding the ABC adopted by the Council in April. Blue rockfish are characterized by high recruitment variability and uncertainty in key life history parameters (growth, fecundity, longevity, and maturation age). The STAR panel report notes that blue rockfish have lower natural mortality relative to species with which it is usually caught, and that most of the catch consists of females. The report concludes that "...for a given level of fishing intensity, spawning output will be reduced to a greater degree for blue rockfish than for other nearshore species." (Agenda Item D.3.a, attachment 4, November 2007). The GMT is concerned that blue rockfish may be vulnerable to overharvest, especially since the base model suggests the stock is currently in the precautionary zone.

The GMT discussed an alternative proposal by California Department of Fish and Game (CDFG) for a tiered OY for blue rockfish of 230 mt for waters off the state of California while still managing the species within the minor nearshore rockfish complex. Under the proposal the complex would be managed to achieve, but not exceed the combined blue rockfish OY and the remaining minor nearshore rockfish contribution under the overall minor nearshore rockfish OY. In other words, if the blue rockfish OY were not achieved, the remaining minor nearshore rockfish contribution could be increased to take that difference; however the converse would not be true (i.e. in order to prevent overharvest of blue rockfish). The GMT notes that at this time there is no regulatory mechanism to allow carry over of OY from one stock or complex to another.

In the state of California, blue rockfish are caught primarily in the recreational nearshore fishery, with some catch occurring in the commercial hook-and-line fishery. They are currently managed within the Minor Nearshore Rockfish complex. Removing blue rockfish from the Minor Nearshore complex in California and giving them an OY would decrease flexibility in the management of economically important nearshore fisheries by mandating specific action upon attainment of the OY in any one year. Federal agencies would also have the increased regulatory burden of tracking catches against the OY. The species in the nearshore fisheries are still caught as a mixed complex and achieving either the blue rockfish or the reduced minor nearshore rockfish OY would likely require closing the entire nearshore fishery due to inability to selectively harvest individual species within the complex. In other words, reductions in bag or trip limits alone for an individual species would increase regulatory discards while still resulting in total catches that exceed the OY. However, the GMT notes that if a species has its own OY, it is not automatically required that it must have species-specific management measures or trip limits (e.g. darkblotched).

Even with the concern over a possible increase in the need for inseason management and potential economic impacts, the GMT recommends specifying a species-specific OY for blue rockfish in California (2009 action alternatives 3 or 4). The ABC recommended by the SSC and adopted by the Council for blue rockfish in California at the April meeting (241 mt in 2009 and 239 mt in 2010) results from the base case model in the assessment. The GMT notes, however, that the 230 mt OY in alternative 4 reflects an OY set equal to the 2010 ABC from the base model (221 mt) with 9 mt added for the area South of Point Conception and no 40-10 adjustment rather than the base case model ABC adjusted by the Council’s default 40-10 adjustment policy (reflected in OY alternative 3).

The GMT further notes that if a species-specific OY is chosen for blue rockfish in California, the Council needs to adopt minor nearshore rockfish OYs both north and south reduced by the contribution of blue rockfish in California. These correspond to the Alternative 3 minor nearshore rockfish OYs for both areas.

MANAGEMENT MEASURES

To facilitate the Friday decision on management measures under F.9, the GMT requests that the Council provide direction on catch sharing arrangements, especially for yelloweye rockfish. The GMT has reviewed the catch shares by sector in Chapter 2 of the DEIS for both canary and yelloweye. The two scenarios contained in this section are based on the percentages of canary and yelloweye OY after deducting yield set-asides to account for projected tribal, research, non-groundfish, and possible EFP fisheries (Table 2-6 in F.4.a, Attachment 1). These percentages are calculated based on the estimated impacts provided in the initial 2005 and 2007 scorecards for recreational and directed commercial groundfish fisheries. These analyses indicate varying impacts on fishery sectors depending on the catch sharing formula. The impacts of these sharing arrangements, based on canary and yelloweye OYs of 105 mt, 17 mt, and 14 mt respectively, compared to current estimates of impacts (i.e. from the April 2008 scorecard) are shown in Table 2 below.

Table 2. Yield amounts of canary and yelloweye rockfish from the Council-preferred OYs for directed commercial and state recreational groundfish fisheries based on the initial 2005, 2007, and current 2008 bycatch scorecards used by the GMT in their initial analyses of 2009-10 groundfish.

Groundfish Sector	Catch Shares by Sector							
	Canary 105 mt			Yelloweye				
	2005 Sharing (mt)	2007 Sharing (mt)	SQ	17 mt		14 mt		SQ
			2005 Sharing (mt)	2007 Sharing (mt)	2005 Sharing (mt)	2007 Sharing (mt)		
LE Non-Whiting Trawl	20.7	21.8	9.1	0.3	0.1	0.2	0.1	0.6
LE Whiting Trawl	18.9	13.0	4.7	0.3	0.0	0.2	0.0	0.0
LE Fixed Gear	2.3	2.5	1.1	1.9	1.8	1.4	1.3	2.2
Directed OA	2.6	5.8	3.8	0.5	1.9	0.3	1.4	2.0
WA Rec	5.2	4.7	5.7	2.7	2.8	2.0	2.0	6.2
OR Rec	16.8	18.0		2.5	2.6	1.8	1.9	
CA Rec	24.1	24.9	9.0	2.8	1.7	2.1	1.2	2.1
Total	90.6	90.7	33.4	11.0	10.9	8.0	7.9	13.1

The GMT notes that there are issues with using bycatch scorecards to decide allocations. For instance, some estimates provided in the 2005 scorecard based on more recent understanding of the information for several commercial fisheries. For the whiting fishery, the GMT notes that in the 2005 scorecard there was a yelloweye value of 0.4 mt, or 2.8 percent of the directed fishery total. This value is inconsistent with bycatch estimates in all other years when there were few or no yelloweye rockfish captured by any whiting sector. For directed Open Access fisheries, the yelloweye and canary estimates in 2005 are well below the estimates for 2007. This is likely due to the fact that observer data from the Open Access fleet first became available in 2005 and was based on a relatively small sample size.

The GMT also noted an issue with the California recreational yelloweye estimate in the 2007 scorecard. The 2007 HG for the California recreational fishery was based on CDFG's RECFISH impact model that did not accurately reflect the proportion of catch by depth and proportion of catch by month for yelloweye rockfish. The yelloweye rockfish mortality impact projected by CDFG in their preferred alternative for 2007-2008 was 1.7 mt. This projection resulted in a California yelloweye rockfish recreational HG of 2.1 mt for 2007 and 2008. California subsequently revised its model resulting in a hind-casted catch of 3.0 mt for 2007.

With these considerations, the GMT requests guidance on the specific sharing scenarios to focus on for decision making under F.7 and F.9 to analyze based on the preferred OYs selected for OFS especially yelloweye and canary.

GMT Recommendations

- Adopt a final yelloweye ramp-down strategy.
- Consider reducing the darkblotched OY and increasing the widow OY with a commensurate change in the darkblotched bycatch limit in 2009-2010 whiting fisheries.
- Adopt a cowcod OY of 3 or 4 mt.
- Manage longnose skate with individual OYs rather than within the other fish complex.
- Manage blue rockfish in California with an individual OY rather than within the minor nearshore rockfish complexes.
- Provide guidance on the catch sharing scenarios for limiting species, particularly canary and yelloweye.

PFMC
6/9/08