

THE GROUND FISH MANAGEMENT TEAM REPORT ON THE SUGGESTED RANGE OF ANNUAL CATCH LIMIT AND ANNUAL CATCH TARGET ALTERNATIVES FOR REBUILDING STOCKS

1. Introduction 1

2. Consideration of Rebuilding ACLs..... 2

 A. Widow Rockfish 2

 B. Canary Rockfish..... 3

 C. Pacific Ocean Perch..... 4

 D. Yelloweye Rockfish 6

 E. Darkblotched..... 7

 F. Petrale sole..... 8

 G. Cowcod..... 8

 H. Bocaccio..... 8

3. Discussion of Annual Catch Targets 9

APPENDIX - Analysis of Canary and Yelloweye Rockfish Impacts in the Recreational and Nearshore Fisheries 11

 RECREATIONAL..... 11

 NEARSHORE..... 19

1. INTRODUCTION

This report describes the rationale for the suggested range of 2013-14 annual catch limits (ACLs) for rebuilding stocks presented in Table 4 of Agenda Item E.4.a, Attachment 4. The alternatives presented are intended to aid the Council in identifying preliminary preferred ACLs and range for analysis. The alternatives are meant to help the Council compare and contrast strategies for rebuilding stocks in the shortest possible rebuilding time while taking into account the needs of fishing communities and the other factors named in section 304(e) of the Magnuson-Stevens Act.

The Groundfish Management Team (GMT) discussed these alternatives with Council staff based on the preliminary rebuilding analyses and information available at the team’s meeting held October 3-7. The full SSC will review the preliminary rebuilding analyses and present recommendations for their adoption or modification to the Council under Agenda Item E.2.

In discussing these ACL alternatives, the GMT attempted to follow the Council's instructions to maintain as much similarity to the 2011-12 rebuilding plans as possible while still incorporating new information from the stock assessments, rebuilding analyses, and performance of the fisheries. The Council's intent, as we understand it, is to minimize changes and analytical workload as much as possible so as to allow for more time and staff resources to be directed toward consideration of longer term improvements to the biennial management cycle.

There are many variables with which to describe a rebuilding plan, including management measures, ACLs, the scheduled harvest rate, the T_{target} year, the probability that rebuilding will have occurred by that T_{target} year, and more. The advice we received at the team's October meeting was that the existing rebuilding plans were best described by the constant SPR harvest rate, or alternative harvest strategy where applicable (i.e., 25:5 harvest control rule for petrale sole and 600 mt constant catch for widow rockfish). As we understand it, the Council does not need to analyze a range of ACL/harvest rate alternatives for those stocks if the rebuilding plan is not revised. Those not being revised can therefore be "held constant" across the integrated rebuilding alternatives.

For a given harvest strategy, changes in estimates of a stock's status, scale, and productivity from the previous assessment cycle lead to changes in the other pieces of the rebuilding plan. Under the policy of the Groundfish Fishery Management Plan (FMP), the T_{target} must be based on at least a 50% probability of successful rebuilding by that year. If the T_{target} no longer meets that standard, the rebuilding plan must be revised and a range of ACLs and harvest rates considered.

Based on this standard, the Council's rebuilding plans will need to be revised for canary rockfish and Pacific Ocean Perch (POP). The other major change is the potential rebuilt declaration for widow rockfish, which could have potential ripple effects across the Council's integrated rebuilding strategy.

The expected increase in the allowable harvest of Pacific whiting is another substantial change that the Council may wish to consider in choosing a range of ACLs for analysis. The assessment conducted this past spring estimates that the stock to be at or above its virgin stock size. Forecasts of allowable harvests in 2013-14 are more than double the ACL that was set for 2011.

We discuss each stock and rebuilding plan individually below, taking those most likely to be revised first. The statement concludes with a general discussion on the use of annual catch targets (ACTs).

2. CONSIDERATION OF REBUILDING ACLS.

A. Widow Rockfish

The base model recommended by the Groundfish Subcommittee of the SSC at the Mop Up Panel estimates stock status to be greater than $B_{50\%}$, and as in the past couple of cycles, that the stock never dropped below the $B_{25\%}$ overfished threshold. Because the current estimate of biomass is greater than $B_{40\%}$, no rebuilding analysis was produced. As the Council will hear from the SSC, the estimate of status is very sensitive to the assumed “steepness” in the stock-recruit relationship. Because of this, the GMT has requested a set of runs to augment the decision table and to explore the risks posed by this uncertainty. Those will be considered under Agenda Item E.1.

For purposes of discussion, we assumed that the Council might consider a widow ACL that is considerably higher than the 600 mt constant catch harvest strategy in place for 2011-12. If so it would open the potential for the targeting of widow rockfish. Widow was a popular midwater target stock in the past. The Council may wish to explore how widow targeting could fit into the integrated approach to rebuilding.

The potential ripple effect with the Council’s integrated approach to rebuilding would involve mainly canary rockfish and POP. Widow targeting ended before the West Coast Groundfish Observer Program went into place, yet we know from the Pikitch study, EFPs, and other sources that POP and canary would be encountered in midwater targeting of widow. The Council could consider allowing widow targeting within the current amounts of canary and POP allocated to the IFQ and co-op sectors, or, could consider increasing those allocations. We discuss how we might analyze those options in the discussions on canary and POP below.

B. Canary Rockfish

Again, the new rebuilding analysis forecasts that the Council’s existing T_{target} is not thought achievable even if fishing mortality ceased entirely on the stock beginning in 2013. The reasons for this change will be discussed under Agenda Item E.2. The change will require the Council to revise the T_{target} and consider a range of ACLs and SPR harvest rates.

Patterns in this rebuilding analysis remain similar to the existing rebuilding plan despite the changed estimate of the fastest rebuilding time. The constant SPR harvest rate of 88.7% corresponds to a T_{target} that is only 2 years beyond the $T_{F=0}$ year. This is smaller than the 3 year gap between the $T_{F=0}$ and T_{target} set in 2011-12. The 3 year gap now maps to an SPR harvest rate of 82.9% and 2013-14 ACLs of 184 and 187 mt.

The status quo SPR harvest rate now corresponds to ACLs 8%-16% larger in 2013-14 than in 2011-2012 (116 mt/119 mt vs. 102 mt/107 mt). Keeping 2011-12 ACLs in place would equate

roughly to the SPR harvest of 90% alternative shown in Table 4 (Attachment 4). The 2011-12 projections of catch are ~20-30% lower than the ACL.

The potential for midwater widow targeting and the likely increased allowable harvest of whiting would be main the reasons for analyzing larger canary rockfish ACLs. It may be difficult to analyze how the encounter rates of canary rockfish would increase in both instances because of lack of data for midwater targeting and for ACLs of the magnitude we could see for whiting. In addition, the Council has used a “performance standard” type approach for the whiting sectors in recent years which depends less on projections of encounter rates from the GMT.

An increased allocation of canary rockfish to the shoreside IFQ program would also have a presumed positive impact on non-whiting bottom trawling on the continental shelf. Effort has been lower in 2011 relative to the pre-IFQ fishery. Placing more quota in circulation in the IFQ program could lead to increased effort, and hence, landings into fishing communities. The GMT and NMFS-Council staff project team are considering how to best model the IFQ fishery.

We expect that the effect of an increased canary rockfish ACL and allocations to the recreational, nearshore, and non-nearshore fixed gear fisheries would be small. The yelloweye rockfish catch allowable to those sectors has been and will continue to be the limiting factor in those fishery sectors.

If the Council wished to consider an SPR harvest rate or ACL that allows more harvest than the status quo, the guidance we received is that lower alternatives would need to be analyzed as well. If the Council wishes to do so, we would recommend analyzing the SPR harvest rate of 91.5%. The ACLs that correspond to that alternative are most similar to what was analyzed in the 2011-12 integrated alternatives. The SPR harvest rate of 90% is too similar to the status quo SPR harvest rate for there to be contrast in estimated impacts to fishing communities. We discuss the broad tradeoffs in canary rockfish impacts in the nearshore and recreational fisheries in more detail in the Appendix.

Recommendation: identify preliminary preferred ACL and the range of analysis necessary to revise to the T_{target} year.

C. Pacific Ocean Perch

The estimates of stock status for POP are fundamentally different from 2011-12 with the changed estimate of unfished stock size considerably higher than was estimated in past cycles. This change will be explored in more detail in Agenda Item E.1. For purposes here, the main point is that the stock has much further to rebuild than previously thought, which makes the circumstances much different from those the Council considered last cycle.

As we remarked during the discussions on the disapproval of the yelloweye and cowcod rebuilding plans last cycle, we are unclear on the law and how the “needs of fishing communities” and delays from the shortest rebuilding times are to be weighed by the Council. For this reason, we recommended a wide range of alternatives that consists of T_{target} years for each year beyond the $T_{F=0}$ year up to that corresponding to the status quo ACL. We then included one higher alternative, which we choose somewhat arbitrarily, that was far enough out to show contrast in the ACL and T_{target} . Earlier or later T_{targets} could be added to the analysis if the Council chooses.

The changed estimate of B_{zero} does not affect the basic dynamics at play with bycatch of POP and its consequences to fishing communities. Recent catches for POP have been variable (Table 1). In 2011-12 the Council chose an ACT and an ACL for POP because of this variability. Coincidentally, the ACT level of 157 mt is corresponds to a SPR harvest rate that is close to the status quo SPR harvest rate of 86.4%. Because of the changed estimate of B_{zero} and resulting change in stock status, that SPR rate now corresponds to a T_{target} that is 8 years beyond the $T_{F=0}$ year. In the 2011-12 rebuilding plan, the Council’s preferred T_{target} was only 2 years beyond the $T_{F=0}$ year (the same held for the different SPR harvest rates corresponding to the ACT and the ACL).

As highlighted above, the possible reasons for considering a higher than status quo ACL include new targeting opportunity for widow rockfish and the expected substantial increase in the allowable harvests of whiting. As with canary, the increased encounters with POP from these two potential changes will be difficult to analyze. If the Council wishes to consider a higher ACL, we would look to available data from the past midwater fishery and the best available information on POP bycatch in the whiting fisheries. In recent years, we have seen POP catch increase later in the season when the whiting fishery was operating deeper and more northerly than earlier in the season. As shown in Table 1, the bulk of the catch is taken in the bottom trawl sector and has increased in recent years as more effort has shifted to areas seaward of the trawl Rockfish Conservation Area.

Lastly, given the substantial difference in rebuilding estimates, we are unsure how to help the Council evaluate whether maintaining the similar SPR harvest rate or ACL amount for POP is reasonable or not. The questions and issues we raise for consideration by the Science and Statistical Committee in Agenda Item J.4 are intended to help the Council and the public understand the broad tradeoffs at play when such changes in rebuilding estimates occur, although those discussions are not intended to take place until after consideration of the 2013-14 ACLs. The question on what is reasonable for POP in 2013-14 is one of legal interpretation decided on principles of administrative law and one that the Council should seek further guidance on from NOAA General Counsel and NMFS.

Recommendation: identify preliminary preferred ACL and the range of analysis necessary to consider revisions to the T_{target} year based on guidance from NOAA General Counsel and NMFS.

Table 1. POP historical Catches 2007 -2009, compiled from the Total Mortality reports. Catches are for areas north of 40° 10' N. lat. Southern catch is accounted for as part of the minor slope rockfish complex

Year	Non-whiting trawl	Non-tribal whiting trawl	Tribal	Total Mortality	OY/ACL
2007	126.0	26.9	0.4	157.0	150
2008	106.3	15.9	0.1	131.0	150
2009	157.7	18.6	0.1	180.5	189

D. Yelloweye Rockfish

Estimate of stock status and biology and rebuilding times for yelloweye rockfish are similar to those seen in 2011-12. At the same time, small differences have mattered with yelloweye in the past. Yelloweye rockfish is one of the stocks where the Council and NMFS differed in the 2011-12 cycle. The Council recommended a 17 mt ACT and a 20 mt ACL. NMFS disapproved that recommendation and replaced it with a 17 mt ACL.

The status quo SPR rate of 76% from the NMFS preferred alternative now corresponds to an ACL of 18 mt instead of the 2011-12 ACL of 17 mt. The SPR now corresponds to a minimum T_{Target} of 2067 instead of the 2074 T_{Target} . That same T_{target} could now be achieved with an ACL of 21 mt and SPR harvest rate of 72.7%, although the Council, as in the past, can maintain the current SPR harvest rate and hold a greater than 50% probability of rebuilding by 2074.

These changes are enough to re-raise the issues that NMFS and the Council differed on last cycle, yet again. We are following the advice that the status quo is represented by the SPR and the ACL of 18 mt.

The dynamics for fishing communities has not changed substantially from what was analyzed in 2011-12; however, we do highlight a few reasons why the Council may wish to consider altering the SPR or ACL. Yelloweye rockfish is the most limiting stock for several sectors and has been challenging because of variability in catch, especially in the recreational fisheries. As an example, the Oregon recreational bottomfish fishery was restricted to inside of 20 fathoms from July to September in 2011 because of spike in yelloweye rockfish encounters early in the season.

Higher harvest guidelines or some approach for buffering against catch variability (e.g., ACTs) would make seasons more stable and additional inseason restrictions less likely to be needed.

Increased allowable harvest of yelloweye rockfish could also allow depth restrictions in the nearshore commercial fisheries to be eased. Preliminary analysis suggests that the ACL would have to be increased to at least 21 mt before such an adjustment could occur.

The IFQ sector is another that could benefit from increased yelloweye rockfish allocation. Currently, the Council has allocated 0.6 mt to the sector. This amount is larger than the estimated fleetwide average catch in recent years, yet individual accountability has created a different dynamic in the fishery and the low amount of available yelloweye rockfish quota is being pointed to as a possible cause of law trawl effort on the shelf during this first year of the IFQ program. Landings of shelf groundfish have been important for some fishing communities. This dynamic will be difficult to analyze, yet we can explore it as part of the 2013-14 analysis.

As in past cycles, raising the ACL is not the only option for addressing impacts to fishing communities. The Council can consider reallocating the ACL between sectors as well, based on new information on bycatch and other factors.

As noted above, if the Council wishes to analyze something higher than the status quo SPR harvest rate, the guidance we have received is that the range of alternatives should include lower options as well. If the Council wishes to consider such a range, we would recommend an SPR harvest rate that corresponds to an ACL of 14 mt, because we analyzed that amount for the 2011-12 cycle. The basic tradeoffs have not changed since that analysis. We outline those tradeoffs for the nearshore and recreational fisheries—the most dynamic sectors for yelloweye rockfish this cycle—in detail in the Appendix to this report.

Recommendation: maintain status quo SPR harvest rate or identify range of alternatives for analysis.

E. Darkblotched

The rebuilding analyses recommended by the SSC Groundfish Subcommittee at the Mop Up Panel shows that the Council's status quo SPR harvest rate can be maintained. Darkblotched rockfish is caught mainly in the whiting and non-whiting trawl fisheries operating in deeper waters, and catch has been near or even slightly over OYs in recent years. Potential reasons to consider increasing allowable harvest of darkblotched rockfish would be, again, because of the potential changes in the allowable harvest of whiting and, perhaps, widow rockfish as well, or to allow increased access to slope species in the bottom trawl fishery.

Recommendation: maintain status quo SPR harvest rate or identify range of alternatives for analysis.

F. Petrale sole

The Council's status quo harvest strategy is represented by the 25-5 harvest strategy. The stock is projected to be over $B_{25\%}$ in 2013, therefore this strategy would set the ACL equal to the ABC. The ACL will be doubled relative to the 2012 amount under this strategy based on the changes in the estimates of stock status discussed in Agenda Item E.1 and on par with where catch was prior to taking action to rebuild the stock in 2009. Lowering harvests below the status quo harvest rate would be per se more risk averse towards the objective of successful rebuilding, yet the rebuilding analyses shows no contrast in times or probabilities to rebuild between the ABC harvest rate and the zero harvest strategy. As discussed in the analysis of the rebuilding plan in 2011-12, petrale sole has been one of the top three sources of revenue to the tribal and non-tribal bottom trawl sector. Catch in other sectors is minimal.

Recommendation: maintain 25-5 harvest strategy or identify more risk-averse ACL for analysis.

G. Cowcod

No new assessment or rebuilding analysis was produced for cowcod this cycle because the 2008 and 2009 catch estimates were the only new pieces of information available to update estimates of stock status and biology. Two years of catch is too small a factor to alter the rebuilding estimates made in 2011-12. We understand that the cowcod assessment will be evaluated for the next harvest specifications cycle.

Cowcod was one stock where the Council's preferred ACL (4 mt) was disapproved and replaced by the Secretary of Commerce's preferred ACL or 3 mt. The GMT assumed the Council would not wish to revisit the range of ACLs for cowcod until after the 2013-14 cycle.

Recommendation: maintain SPR harvest strategy or identify range for analysis.

H. Bocaccio

The status quo SPR harvest rate for bocaccio can be maintained based on the new rebuilding analysis. As discussed under Agenda Item E.1, there is some concern over the size of the 2010 year class and the potential for increased encounters in the California fixed gear and recreational sector. The uncertainty in the size of this large year class creates uncertainty in all estimates of

stock status and rebuilding times, from the OFL to the T_{target} . After preliminary discussions at our October meeting, the GMT concluded that the projected impacts in the California recreational fishery are well below the harvest guideline for that sector. A pulse of young fish could therefore likely be accommodated under the status quo SPR harvest rate. We will be looking more closely at these projections and reporting back to the Council if necessary in a Supplemental Report. This issue is also discussed below in the section on the use of annual catch targets (ACTs).

Recommendation: maintain SPR harvest strategy or identify range for analysis

3. DISCUSSION OF ANNUAL CATCH TARGETS

The GMT had a preliminary discussion on the potential uses of annual catch targets (ACTs) as an accountability measure to keep total mortality of overfished species within the 2013-2014 ACLs. In particular, the GMT considered whether setting an ACT may provide a benefit for species where catches have been highly variable or are very uncertain in their inseason projections. The GMT also considered how an ACT may be an appropriate characterization of the buffer that may be present for some species between the projected catch at the start of the biennium and the rebuilding ACL. For future cycles, the GMT suggests exploring the idea that ACTs could be used to augment the constant SPR harvest rate for rebuilding species. For example a constant harvest rate is meant to allow increased catch to coincide with increased availability of fish, but this increase is rarely a smooth constant trend. ACTs could be used to provide stability in management measures and increase the probability of rebuilding within the specified target while waiting for the lag in total mortality information to estimate the increase in recruitment realized by the fisheries.

Bocaccio: The GMT discussed a few sources of uncertainty in bocaccio catch levels and potential benefits of setting an ACT below the ACL. As noted above, projections of catch have been kept well below the ACL in recent years meaning that management measures have, in effect, acted like an ACT. Currently, the GMT does not have an impact projection model to estimate bocaccio catches in commercial, non-nearshore non-IFQ fisheries off California. This limits the level of detailed foresight that can be obtained when trip limits and area restrictions are developed for the commercial non-nearshore fixed gear fisheries that impact bocaccio. Also, bocaccio show variable recruitment with some year classes having the potential to be very large. Bocaccio also grow very quickly for a rockfish and recruit to the fishery as young of the year. As discussed in Agenda Item E.1, there is evidence of such a strong 2010 year class in the most recent bocaccio assessment. Impacts could increase dramatically even if management measures stay similar to past years because of this year class. How large impacts could get is unknown. A formal ACT could provide a buffer between the level of catch that would be anticipated if the magnitude of the 2010 year class is closer to average-size and the rebuilding ACL. If evidence of a higher than average 2010 year class begins to manifest in the fishery, then the buffer between the ACT and the ACL may be narrowed as bocaccio impacts increase, but could also

allow fishery managers time to react to the new fishery information and tailor management measures accordingly in order to keep total impacts below the rebuilding ACL.

Canary rockfish: The GMT notes that there is uncertainty in catch projections of canary rockfish in the recreational fisheries, and catch of canary rockfish in these fisheries can be variable between years. The Council could consider setting an ACT below the rebuilding ACL to allow fishery managers time to react to the new fishery information and tailor management measures accordingly in order to keep total impacts below the rebuilding ACL.

Cowcod: The GMT discussed the levels of uncertainty in estimating cowcod catches in recent years, and how some of the uncertainty was coming from variable and unpredictable cowcod impacts from the groundfish trawl fisheries that occur off California. Implementation of the IFQ fishery has resulted in heightened accountability and near real time reporting of catch to date in the shorebased IFQ fishery. Relative to recreational fishery impacts, there is uncertainty in catch projections but cowcod impacts in the California recreational fishery have been below the HG in recent years. Also of note, total mortality of cowcod has been variable since 2004, between 0.5 mt and 3.3 mt but the OY/ACL has not been exceeded during that period. Protections implemented to rebuild cowcod, particularly the Cowcod Conservation Areas, appear to have worked well to keep catches within the rebuilding OYs/ACLs. Based on these considerations, an ACT may not be a necessary or appropriate accountability measure for cowcod at this time.

Yelloweye rockfish: Total mortality of yelloweye rockfish in groundfish fisheries has been consistently much lower than the rebuilding ACLs in recent years (between 17% and 55% below the OY/ACL in 2004-2009). One of the explanations for this may be that, on average, our projected impacts of yelloweye rockfish tend to be precautionary, leading to actual impacts coming in below the OY/ACL even when the scorecard is fully prescribed. The amount of precaution varies across sectors and has not been evaluated comprehensively. Some sectors may have more precaution built into their projections than others. We have enough years of data on catch now that we can begin to explore variability in yelloweye catch.

The recreational fisheries have been the sectors most affected by volatility in yelloweye catch and are most likely to be subject to inseason management, in part, because they are set up with such inseason capability. An ACT meant to buffer against such volatility could bring more stability to recreational seasons and management structures.

Darkblotched rockfish: Darkblotched rockfish are primarily encountered in the commercial, limited entry trawl fishery. Total mortality of darkblotched rockfish exceeded the 2009 OY by 6% (2009 Total Mortality Report). Catch of darkblotched rockfish in the limited entry non-tribal bottom trawl fishery was higher than anticipated in 2010 and changes to management measures were necessary at the end of 2010 to reduce impacts to darkblotched rockfish. Due to the dramatic change in management of the fishery with the start of a rationalized fishery in January

2011, where vessels began fish fishing individual fishing quotas (IFQ), the Council concluded that no changes to fishery management measures for 2011 were needed.

The GMT does not recommend an ACT for darkblotched rockfish for similar reasons, because three sectors of the rationalized trawl fishery (Shorebased IFQ Program, Mothership (MS) Coop Program, or Catcher/processor (C/P) Coop Program) will be fishing on allocations of darkblotched rockfish and with heightened accountability and near real time reporting of catch to date, particularly in the shorebased IFQ fishery. In addition, catches of darkblotched rockfish in the 2011 IFQ fishery sectors have been well below their respective allocations. Based on catches to date, the shorebased IFQ fishery has caught less than 20% of their available darkblotched rockfish quota pounds (Shorebased IFQ Sector Balances Website, October 11, 2011), the MS sector has caught less than 5% of their allocation and the C/P sector has caught less than 20% of their allocation (Preliminary At-Sea Whiting Report #4, Sept. 12, 2011). Though the relatively low catch levels so far this year does not guarantee that catch rates of darkblotched rockfish will not increase toward the end of 2011, based on the information available now it does not appear that there will be an overage in the individual trawl sectors (Shorebased IFQ, MS Coop, or C/P Coop), in aggregate trawl sector allocation or the 2011 ACL.

APPENDIX - Analysis of Canary and Yelloweye Rockfish Impacts in the Recreational and Nearshore Fisheries

The recreational fisheries and nearshore commercial fisheries were highlighted above in the discussion on the yelloweye rockfish and canary rockfish rebuilding plans. The information that included in this Appendix is intended to further help the Council identify a range of ACLs to include in the integrated analysis of rebuilding ACLs.

RECREATIONAL

Canary Rockfish

48 mt ACL

Under a 48 mt ACL, recreational fisheries in all three states would need to be restricted. Restrictions will vary by state depending on what management tools are available. Examples of management tools that would likely need to be used are: decreased bag limits, depth restrictions, shorter open seasons, etc.

Specific examples of implications of a 48 mt ACL:

Washington

- Recreational bottomfish fishing would be more restrictive under a 48 mt canary rockfish ACL than are currently in place.
- The time that the 20 fathom depth restriction is in place in the north coast would be increased.
- Rockfish retention restrictions would be increased in the south coast.
- The bottomfish season could be closed early if inseason catches were tracking higher than projections.

Oregon

- Impacts to canary rockfish are not as depth dependent as impact to yelloweye rockfish; therefore, seasonal depth restrictions are not as effective a management tool as with yelloweye rockfish. However, depth restrictions scenarios similar to those under the 14 mt yelloweye rockfish ACL above would likely be necessary.
- Additionally, a decrease in the daily bag limit may be required. Changes to bag limit affect canary bycatch more so than yelloweye rockfish bycatch.
- Another potential impact to the Oregon recreational fisheries under a 48 mt canary rockfish ACL could include reduced or eliminated all-depth halibut seasons in the Central Oregon coast subarea.

California

- The depths and season length would be more restrictive in the San Francisco and Central Management Areas under a 48 mt ACL.
- Season restrictions similar to those described under the 14 mt yelloweye rockfish ACL would likely be necessary for the management areas north of Point Arena.
- The groundfish season could be closed prematurely if catches were tracking higher than projections.

101 mt ACL

Under a 101 mt ACL, recreational fisheries in all three states would likely be able to operate similarly to status quo. Restrictions will vary by state depending on what management tools are available. Examples of management tools that would likely need to be used are: decreased bag limits, depth restrictions, shorter open seasons, etc.

Specific examples of implications of a 101 mt ACL:

Washington

- Status quo management measures would be in place under a 101 mt canary rockfish ACL.
- There is the potential that more restrictive measures such as, depth restrictions for bottomfish or lingcod or closed areas where higher canary encounters are a concern, would have to be implemented through inseason action if catches are tracking higher than projected.

- If canary catches are tracking significantly higher than projections early closure of the bottomfish fishery may be necessary.

Oregon

- Under the status quo canary ACL, yelloweye rockfish is the most limiting species to the Oregon bottomfish fishery. If there is an increase in yelloweye rockfish allocation to Oregon recreational fisheries, the allocation of canary impacts could be approached, requiring inseason action.
- Even under the status quo canary ACL, with no changes to the yelloweye ACL, variation in monthly and annual canary rockfish impacts is much greater with canary rockfish than yelloweye rockfish in the Oregon bottomfish fishery (**Error! Reference source not found.**). There is the potential for inseason actions to reduce canary rockfish impacts still exists.
- The Oregon recreational Pacific halibut fisheries should be able to proceed as planned.

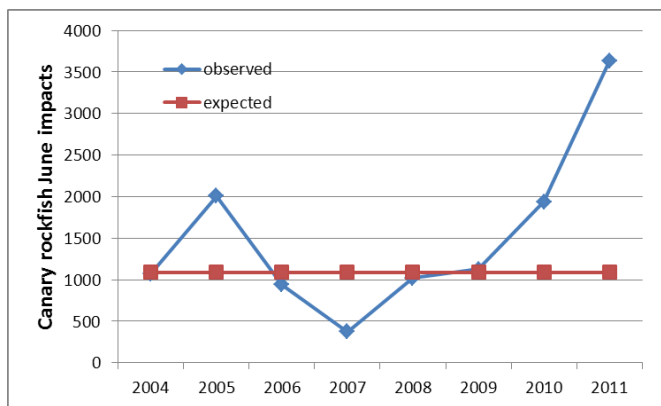


Figure 1. Oregon recreational canary rockfish bycatch estimates for June, 2004-2011.

California

- Because yelloweye rockfish is the most limiting species to California, an increase in the allocation to the recreational fishery could allow a longer season in the management areas north of Point Arena. Depth restrictions in the San Francisco and Central Management Areas could potentially be increased to 40 fathoms and 50 fathoms. Longer season lengths could also be considered. The Central and San Francisco Management Areas are also constrained by canary rockfish.
- Existing management measures would likely remain in place under a 101 mt canary rockfish ACL.
- If catches track higher than projected, more restrictive measures like depth restrictions for groundfish or closed management areas where canary encounters are high could be implemented.
- If canary encounters are tracking significantly higher than projections, an early closure of the groundfish fishery might be necessary.

116 mt ACL

Under a 116 mt ACL, recreational fisheries in all three states would likely be able to operate similarly to status quo. Yelloweye rockfish will be the limiting species, and will likely not allow access to the additional canary rockfish allocation

Specific examples of implications of a 116 mt ACL:

Washington

- Status quo management measures would likely be in place under a 116 mt canary rockfish ACL.
- There is the potential that more restrictive measures such as, depth restrictions for bottomfish or lingcod or closed areas where higher canary encounters are a concern, would have to be implemented through inseason action if catches are tracking higher than projected.
- If canary catches are tracking significantly higher than projections early closure of the bottomfish fishery may be necessary.

Oregon

- The Oregon bottomfish fishery will likely proceed as under status quo, due to yelloweye rockfish being the most restricting species.
- The Oregon recreational Pacific halibut fisheries should be able to proceed as planned.

California

- Because yelloweye rockfish is the most limiting species to California, an increase in the allocation to the recreational fishery could allow a longer season in the management areas north of Point Arena. Depth restrictions in the San Francisco and Central Management Areas could potentially be increased to 40 fathoms and 50 fathoms. Longer season lengths could also be considered. The Central and San Francisco Management Areas are more constrained by canary rockfish.

147 mt ACL

Under a 116 mt ACL, recreational fisheries in all three states would likely be able to operate similarly to status quo. Yelloweye rockfish will be the limiting species, and will likely not allow access to the additional canary rockfish allocation.

Specific examples of implications of a 147 mt ACL:

Washington

- Status quo management measures would likely be in place under a 116 mt canary rockfish ACL.
- There would be reduced potential that inseason action would be needed to restrict bottomfish fisheries if catches were tracking higher than projections as it is likely that canary catches would be below the harvest guideline due to more restrictive measures needed to reduce yelloweye rockfish catch.

Oregon

- The Oregon bottomfish fishery will likely proceed as under status quo, due to yelloweye rockfish being most restricting species.
- The Oregon recreational Pacific halibut fisheries should be able to proceed as planned.

California

- Because yelloweye rockfish is the most limiting species to California, an increase in the allocation to the recreational fishery could allow a longer season in the management areas north of Point Arena. Depth restrictions in the San Francisco and Central Management Areas could potentially be increased to 40 fathoms and 50 fathoms. Longer season lengths could also be considered. The Central and San Francisco Management Areas are more constrained by canary rockfish and the areas north of Point Arena are constrained by yelloweye rockfish, allowing only increases in season or depth restrictions to the south.

Yelloweye Rockfish

14 mt ACL

Under a 14 mt ACL, recreational fisheries in all three states would need to be restricted. Restrictions will vary by state depending on what management tools are available. Examples of management tools that would likely need to be used are: decreased bag limits, depth restrictions, shorter open seasons, closed areas, etc.

Specific examples of implications of a 14 mt ACL:

Washington

- The bottomfish fishery in Washington would require more restrictive regulations than what are currently in place. The restrictions in the north coast area would include extending the amount of time that the bottomfish fishery is closed seaward of 20 fathoms which is already closed from June through September. In the south coast, more restrictive regulations may include limiting bottomfish retention seaward of 30 fathoms.
- Early closure of the bottomfish fishery may be needed if catches track higher than what were projected.
- The management areas affected by more severe restrictions have already been heavily restricted through the use of area closures where bottomfish fishing is prohibited year round. The coastal ports of Westport, La Push and Neah Bay are sparsely populated and in very remote areas, they are heavily reliant on fishing activities for their local economies and would be significantly impacted by more restrictive fishing regulations.

Oregon

- The Oregon bottomfish fishery would have to have more severe depth restrictions than those currently in place. Possible seasonal depth restriction scenarios analyzed under similar yelloweye ACL during the 2011 and 2012 harvest specifications process are shown below:

Option	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Open all depths			Open < 20 fm						Open all depths		
2	Open < 40 fm			Open < 20 fm						Open < 40 fm		
3	Open < 30 fm			Open < 20 fm						Open < 30 fm		
4	Open < 25 fm			Open < 20 fm						Open < 25 fm		
5	Open < 20 fm											

- Depth restrictions inside of 40 fathoms (what is currently in place from April 1 through September 30) virtually shuts down the port of Winchester Bay, as all of their reef locations are outside of 40 fathoms.
 - Depth restrictions inside of 30 fathoms will eliminate fishing grounds out of most ports, however there will still be opportunities out of most ports
 - Depth restrictions inside of 25 fathoms will eliminate additional fishing grounds off all ports. Additionally, it could lead to some localized depletion, as all anglers will be forced to fish within a narrow area of the ocean (there will be additional impacts on other rockfish species, such as the minor nearshore complex).
 - Depth restrictions inside of 20 fathoms will virtually shut down the ports of Garibaldi/Tillamook and Gold Beach, as all of their reef locations are outside of 20 fathoms. Additionally, fishing grounds out of all other ports will be further restricted. As with the 25 fathom restrictions, there is the possibility of localized depletion as anglers are required to fish within a narrow area. There will be additional impacts on other species, including rockfish in the minor nearshore complex, greenling species and cabezon.
- Another potential impact to the Oregon recreational fisheries under a 14 mt yelloweye rockfish ACL could include reduced or eliminated all-depth halibut seasons in the Central Oregon coast subarea.

California

- The California recreational groundfish fishery would need to adopt more severe season restrictions than those currently in place. Northern and Mendocino Management Area depth limits are already the most constrained coast-wide and cannot be brought in to shallower depths. This could mean a season as short as 1.5 months in the management

areas north of Point Arena with further substantial negative economic impacts to vulnerable communities.

- Premature closure of management areas north of Point Arena may be needed. The first spatial closure would most likely be using the Point Vizcaino management line to close off a portion of the Mendocino Management Area. This action would essentially close Shelter Cove which is historically the port with the highest yelloweye rockfish interactions. This action depends on the rate of encounters with yelloweye rockfish and the general location of the landings.
- Shallower depth restrictions for multiple management areas south of Point Arena may also be needed to stay under the 14 mt ACL.
- Yelloweye Rockfish Conservation Areas could be implemented at the beginning of the season or if projected catch were to exceed the harvest guideline.

18 mt ACL

Under an 18 mt ACL, recreational fisheries in all three states would likely be able to operate similarly to status quo. However yelloweye rockfish impacts are variable, monthly and annually, and inseason actions (restrictions) may still be necessary, as seen in 2011 in the Oregon bottomfish fishery. In June of 2011 Oregon saw unprecedented effort in the bottomfish fishery, combined with high yelloweye rockfish bycatch rates (**Error! Reference source not found.**), and had to take inseason action, moving the depth restrictions from inside of 40 fathoms to inside of 20 fathoms on July 21, 2011.

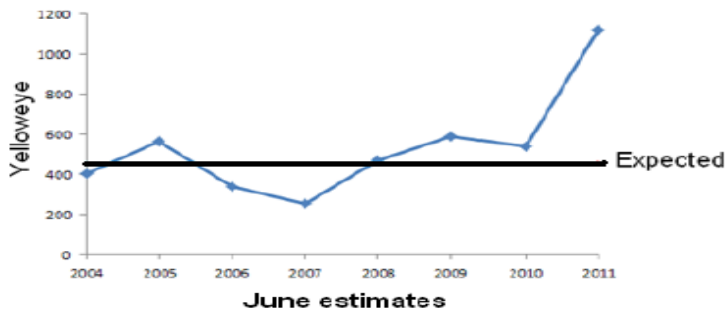


Figure 2. Oregon recreational yelloweye rockfish bycatch estimates for June, 2004-2011.

Under an 18 mt ACL, season structure and any additional inseason restrictions will vary by state depending on the magnitude of yelloweye rockfish impacts and what management tools are available. Examples of management tools that would likely need to be used are: decreased bag limits, depth restrictions, shorter open seasons, etc.

Specific examples of implications of an 18 mt ACL:

Washington

- Under an 18 mt ACL more restrictive management measures may be needed through inseason action if catch is tracking higher than expected. Potential inseason restrictions would include; more restrictive depths for bottomfish fishing or lingcod fishing or areas that are completely closed to bottomfish fishing or lingcod fishing.
- Early closure of the recreational bottomfish fishery may be necessary if catches are significantly higher than projections.

Oregon

- As seen in the last several years, the bottomfish fishery may have to be moved inseason to inside of 30, 25, or 20 fathoms, depending on how the projected impacts to yelloweye rockfish are tracking. Impacts of further depth restrictions are discussed above under the 14 mt ACL.
- Additionally, if it is anticipated that yelloweye rockfish bycatch rates are going to remain similar to seen in the last several years, the bottomfish fishery may have to be restricted to inside of 30 fathoms (instead of 40 fathoms) from April through September to help reduce impacts, as well as to reduce the potential for having to be restricted to inside of 20 fathoms.
- The Central Oregon coast subarea all-depth Pacific halibut seasons should be able to proceed as planned.

California

- Under this alternative status quo management would likely remain; currently, the allowable fishing depth is only 20 fathoms where the majority of the yelloweye are taken, as well as only a three to five month season depending on the management area.
- Recent lower than projected impacts used in the State's projection model could result in slightly longer seasons in the Northern and Mendocino Management Areas which are subject to three and five and a half month fishing seasons respectively.
- Closure of Shelter Cove through use of the Point Vizcaino Management Line or implementation of the Yelloweye Rockfish Conservation Areas could be implemented if catch were projected to exceed the harvest guideline.

21 mt ACL

Under a 21 mt ACL, recreational fisheries in all three states would likely be able to operate similarly to status quo, with the possibility of some liberalization of regulations. Restrictions will vary by state depending on what management tools are available. Examples of management tools that would likely need to be used are: decreased bag limits, depth restrictions, shorter open seasons, etc.

Specific examples of implications of a 21 mt ACL:

Washington

- Status quo management measures are likely under a 21 mt yelloweye rockfish ACL however there would be reduced potential for inseason action if catch is tracking higher than projections.

Oregon

- A 21 mt yelloweye rockfish ACL would likely allow the Oregon bottomfish fishery to operate as modeled under the 18 mt ACL with a much reduced potential for further depth restrictions inseason, as seen in the last several years.
- There is the possibility that the 40 fathom depth restrictions may be liberalized for one or more months (e.g. April or September), allowing more opportunity for deeper water species, such as lingcod.
- There is the possibility of allowing (limited) lingcod retention during the Central Oregon Coast subarea all-depth halibut season.
- The Central Oregon subarea Pacific halibut all-depth seasons should be able to proceed as planned.

California

- A 21 mt ACL may allow longer seasons (one month or more) in the Mendocino and Northern Management Areas which are subject to three and five and a half month seasons, respectively.
- This alternative could potentially provide one to two months of additional fishing opportunities in the San Francisco Management Area and the Central Management Area because they are less constrained by yelloweye rockfish.

NEARSHORE

Canary Rockfish

0 mt ACL

Under a 0 mt ACL, no fishing would be allowed in any fishery. All fisheries would be closed.

48 mt ACL

Under a 48 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be similar (but not identical) to alternative 1 (49/51 mt) analyzed in the 2011-2012 FEIS. Under this alternative, landings in the nearshore fishery in California will be impacted more severely than Oregon due to areas of high canary bycatch, but both states will be denied access to healthy target stocks due to the low canary apportionment of the non-trawl allocation. It is unknown at this time whether the RCA depth restrictions could be changed due to the strong link between the amount of canary and yelloweye rockfish allocated to this fishery. Under lower yelloweye rockfish ACLs, it is likely that the 20 fm remains in place; under higher yelloweye alternatives, there may be the potential to liberate the 20 fm depth restriction in Oregon. California has two

large canary hot spots (north and south of 40°10' N latitude) so it is likely that the 20 fm line would need to stay in place to reduce bycatch.

101 mt ACL

Under a 101 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be similar (but not identical) to the NMFS preferred alternative (102/107 mt) analyzed in the 2011-2012 FEIS. The nearshore fishery in both states will continue to be denied access to healthy target stocks unless the non-trawl apportionment of yelloweye rockfish is increased. Depending on the yelloweye ACL, Oregon may be able to liberate the depth restriction to 30 fm between 42° N and 43° N. latitude. California will most likely maintain the status quo depth restrictions (20 fm between 42° N and 40° 10' N. latitude; 30 fm between 40°10' N. latitude and 34° 27' N. latitude; 60 fm south 34° 27' N. latitude).

116 mt ACL

Under a 116 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be similar to those under 101 mt ACL. Yelloweye rockfish poses the greatest constraint on this fishery, and unless nearshore yelloweye rockfish allocation increases, neither state will be able to utilize higher canary ACL alternatives. Under a 116 mt canary ACL and a higher yelloweye ACL, both states may gain greater access to target species and be able to modify the RCA to 30 fm between 42° N and 43°N. latitude.

147 mt ACL

Under a 147 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be similar to those under 116 mt ACL.

Yelloweye Rockfish

14 mt ACL

Under a 14 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be similar (but not identical) to the no action alternative (14 mt) analyzed in the 2011-2012 FEIS. Landings would be held at reduced levels, compared to historical harvest, by restrictive trip limits or state caps implemented to reduce impacts to overfished species (particularly yelloweye). The 20 fm shoreward non-trawl RCA depth restriction currently in regulation would remain in effect between 43° N. latitude and 40°10' N. latitude. Gear conflicts and concern about localized depletion described in the 2011-12 FEIS for the area north of 40°10' N. latitude would still persist. The depth restrictions south of 40°10' N. latitude would remain unchanged (30 fm between 40°10' N. latitude and 34°27' N. latitude; 60 fm south of 34°27' N. latitude).

18 mt ACL

Under an 18 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be somewhat similar to alternative 2 (17 mt) in the 2011-12 FEIS. The nearshore fishery in both

states will continue to be denied access to healthy target stocks due to the low yelloweye apportionment of the non-trawl allocation. Landings restrictions may not be as severe as analyzed in 2011-12, but they will still be reduced compared to historical harvest and will not represent full attainment of harvest guidelines. There is the potential for the 20 fm depth restriction between 42° N. latitude to 43° N. latitude in Oregon to be liberated back out to 30 fm under an 18 mt ACL, but that cannot be confirmed without a full analysis. In California, it is highly likely that the status quo RCA structure will remain in effect unless the nearshore yelloweye allocation is revisited.

21 mt ACL

Under a 21 mt ACL, impacts to the nearshore fisheries in Oregon and California are expected to be less than under an 18 mt ACL, but the extent is unknown at this time. It is possible that the 20 fm depth restrictions may be removed in both states (between 40°10' N. latitude to 43° N. latitude), but that would depend on the nearshore yelloweye rockfish allocation and the overfished species catch sharing agreement between Oregon and California.