WASHINGTON DEPARTMENT OF FISH AND WILDLIFE REPORT ON HARVEST SPECIFICATIONS AND MANAGEMENT MEASURE ACTIONS FOR 2019-2020

As we highlighted in an earlier report, the new stock assessment results for yelloweye are so changed that a reevaluation of the stock's rebuilding plan appears warranted.[1] In this report, we recommend that the Council identify and plan for such an evaluation being a high priority within the preliminary range of management measure being adopted here for the 2019-2020 cycle. We also some thoughts to illustrate what the evaluation could include.

Independent of the new assessment results, we are also recommending that the rebuilding plan be reevaluated and adjusted to better address management uncertainty in catches. As described below, we recommend that the concepts in place now as part of the buffer approach for canary rockfish, Pacific Ocean perch (POP), and darkblotched rockfish—as well as the annual catch target (ACT) for cowcod—be advanced and incorporated into the yelloweye rebuilding plan.

Recognizing that the rebuilding analysis is not yet available, we raise these issues now mainly for workload planning purposes. We recommend that work begin as early as possible with the Groundfish Management Team (GMT) tasked to begin work on the reevaluation at their October meeting.

This report begins with ideas to stimulate feedback and discussion from the Groundfish Management Team (GMT), Groundfish Advisory Subpanel (GAP), and others. Further justification and discussion of the need to reevaluate the rebuilding plan then follows.

Advancing the Buffer Approach

The key feature of the buffer approach involves setting the annual catch limit (ACL) higher than where catches are likely to occur. The purpose is to allow for variation in catch within individual sectors while maintaining a high probability of catch remaining near the target level. As described more below, the basic challenge the Council has experienced with yelloweye rebuilding is that the ACL appears fully allocated and yet catch has consistently come in well below the ACL.

The current buffer approach in place for canary, darkblotched, and POP was suggested by the GMT in June 2016 at the end of the 2017-2018 process.[2] The idea relied on existing regulations that allow the Council to set aside ACL for "unforeseen catch events." With the additional time

[1] PFMC September 2017 Briefing Book Agenda Item E.8.a, WDFW Report http://www.pcouncil.org/wp-content/uploads/2017/08/E8a_WDFW_Rpt1_SEPT2017BB.pdf.
[2] June 2016 Briefing Book, Agenda Item G.4.a, Supplemental GMT Report 2

available this cycle, the concept could be redefined to more fully capture the goal of having more flexibility for management uncertainty. Whether formally designated as such, the idea more follows the concept of the ACT.

Specifics will become easier to discuss once the results of the rebuilding analysis become available. Here we provide some general thoughts in support of making the discussion a priority. The evaluation we envision would involve incremental adjustments to existing management measures aimed at providing more stability and certainty to fishery participants and fishing communities. Although incremental, we would encourage looking to some of the ideas discussed under the *Agenda Item E.5, Flexibility in Annual Catch Limit Management Response, Scoping* and by the Community Advisory Board as part of *Agenda Item E.7 Catch Shares 5-Year Review, ROA for Follow-On Actions*. Discussions could include the following as topics of focus:

- Yelloweye has been particularly challenging for the recreational fisheries in all three states. Buffers could substantially reduce the chances of inseason management restrictions and closures. Depending on the results of the rebuilding analysis, they could also allow for evaluation of new fishing opportunities, which the Council may be hesitant to take on because of the uncertainty in catch projections, or for relaxing some measures to take some pressure off of data poor nearshore stocks.
- Allocating yelloweye quota to the individual fishing quota (IFQ) program using a risk-based projection instead of assuming that all quota will be used each year. Low yelloweye quotas are affecting the performance of the bottom trawl sector. Increasing the amount of quota pounds (QP) in circulation could allow more people to cover their risk without causing substantial increases in catch. The data suggests it would be very unlikely for many people to experience extraordinary catches of yelloweye.[3] Without major changes to behavior and individual accountability, the probability that all QP would be used would therefore be low. As an oversimplified example, if each unit of quota pound (QP) only had a 50 percent chance of being used, the Council could issue double amount of QP relative to the target level of catch. For example, if 1 mt were the target level of catch then 2 mt of QP could be issued while leaving good chances that the target would be maintained over a series of years. While this idea may sound novel, trip limit fisheries operate on the same principle. Trip limits are set knowing that not everyone that can take them will.
- Moving unused quota from the buffer between years, consistent with the latest National Standard 1 Guidelines on carryover or multi-year averaging. The Council would adjust the buffer consistent with meeting T_{Target}.

[3] The bootstrap probability analysis updated for the five-year review shows point estimates of 3-20 pounds and an upper level risk estimate of 17-81 pounds for yelloweye based for vessels making 200 bottom trawl tows on the shelf (*see* Table 3-76 for the median and 95th percentile tail conditional expectation values in *PFMC June 2017 Briefing Book, Agenda Item F.2.a, Catch Share Analysts Report: West Coast Groundfish Trawl Catch Share Program Five-year Review – Draft).*

These ideas are intended to stimulate discussion among the GMT and Groundfish Advisory Subpanel (GAP) and illustrate the concept. There are other ideas out there to address the same goal for additional sectors and we expect these will be brought forward. Buffers could be set at the individual fishery sector level or be pooled to account for or be available to address management uncertainty in multiple sectors or a combination of both. Again, at this point in the process the discussion is about whether to make this item a priority for analysis and discussion among the various management measure proposals. Workload and timely implementation of the 2019-2020 harvest specifications will be key considerations.

In terms of general magnitude, the current ACL is 20 mt for both 2017 and 2018. The corresponding ACLs from the new assessments are 29 mt in 2019 and 30 mt in 2020, although the Council may revise this default. The OFL will not be reported until November, yet we understand that it will be near 90 mt with an acceptable biological catch (ABC) in the 70-80 mt range. With current catch levels averaging less than 10 mt since 2009, setting the ACL equal to the ABC as has been done to create buffers would be unnecessary. A rough look at current allocations, just to illustrate this point, shows that many sectors could receive at least 50 percent increases, some larger, in their allocations with an ACL near 30 mt while having management measures targeted at achieving catches near or even below current ACL levels. The GMT could begin more rigorous analyses at their October meeting.

Again on the intent of incremental adjustments, we do not see changes that result in substantial increases in catch being appropriate revisions at this time. For instance, we do not think that the seaward boundary of the non-trawl rockfish conservation area (RCA), set at 100 fm in the north, could be relaxed. At the same time, a buffer approach could provide additional assurances that the boundary would not be extended unless extraordinary and persistent changes in catches occurred. The Council has routinely considered pushing the boundary deeper to lower yelloweye bycatch and at one point did move it to 125 fm in certain areas off Oregon. Some increases will likely be warranted. But we do not think a radical change to how the Council has addressed the needs of fishing communities while rebuilding the stock in as short a time as possible is necessary.

Reasons for Revisiting the Rebuilding Plan

The forecasts shown in the decision table have the rebuilding time for yelloweye being in 2026 or 2027 instead of the 2074 T_{Target} in place now. The rebuilding analysis, to be reviewed later this month, will produce the official estimates of rebuilding time. Clearly though, this is a substantial change in the best available science on the status and biology of the stock and one that warrants revaluation of the estimated times to rebuild against the needs of fishing communities on its own.

At the same time, experience with the rebuilding plan points to management uncertainty in catch as another reason for the reevaluation. When the yelloweye rebuilding plan and its "ramp-down" in the annual catch limit (ACL) were designed, it was unknown how well management measures would perform. With the core management measures for mitigating yelloweye bycatch remaining in place, there is now a time series of catch data showing a somewhat unexpected pattern. Catches have come in consistently and substantially below the ACL. All in all, this experience has shown that this management uncertainty is a key piece needing to be considered as part of how rebuilding plans address the needs of fishing communities.

Lower than expected catches have been good news in that they should translate into faster rebuilding of the stock, all else being equal. At the same time, the Council faces the prospect of closing or severely restricting some sectors inseason each year. And, many sectors would benefit from increases to their allocations. Scientific research and exempted fishing permits, both important for increasing information available for management, have also been curtailed because of tight allocations. Shifting existing allocations around would be one solution to the problem. However, there has been no clear place where the Council can reallocate from one sector to another.

Management Uncertainty and Catch Variability

A commonly heard concern about rebuilding is that catch rates are expected to increase as stocks rebuild. When catch rates are proportional to stock abundance, this is the logical expectation. The reason for the concern is one of inflation. As stocks grow, the "needs of fishing communities" higher quotas are needed to maintain the initial level of "need." This is indeed a concern with yelloweye and justifies the increases in the ACL based on the constant SPR harvest rate strategy. However, variability has proven to be more of a challenge so far. The challenge is that meeting a fixed level of "need" for a sector of fishing community means the possibility of experiencing a wide a range of catch levels.

Using the nearshore fisheries as an example, the average total mortality estimate over 2004-2016 is 1.1 mt. The low was 0.1 mt, only 9 percent of average. The high was 2.3 mt, or 209 percent of the average. In sum, providing similar levels of fishing opportunity in the nearshore fisheries can require very little catch in some years and more than double the average in others.

Similar patterns of variability across multiple sectors has made yelloweye perhaps the Council's most challenging rebuilding stock. In setting sector allocations, harvest guidelines, set asides, etc., the Council has tended to not use average, "most likely" catch levels. Rather, the Council has been precautionary with estimates and management measures for many sectors to provide fishing communities some stability if catches swing high. The downside of providing precautionary allocations to one sector means that it is unavailable to other sectors. And the combined effect of the approach has been to bring catch in well below the ACL each year. Since

the ramp-down reached the low ACL of 14 mt in 2010, total mortality has averaged just 56.1 percent of the ACL with a high of 68.2 percent in 2012 and a low of 47.4 percent in 2016.

The GMT has recognized this "joint probability" problem, with yelloweye and other species like spiny dogfish and rougheye rockfish. Setting the ACL based on sector-level numbers that each has a relatively low probability of being taken in a given year means that the combined probability of reaching the ACL will be small. High catches are possible for individual sectors in any one year. Yet the probability that several sectors will have above average years is low. The models and data available to the GMT cannot rigorously quantify these probabilities. But the pattern is clear.

The Connection to Estimated Rebuilding Times

This pattern of catch experienced so far is also important to how alternative rebuilding plans are evaluated. In brief, that evaluation looks at alternative ACL levels, the associated impacts to fishing communities, and the relative delays in the time to rebuild. Importantly, the estimated times to rebuild are based on the assumption that the ACL is fully attained every year, or at least on average, throughout the fully rebuilding period. With the dynamic described above, the more logical assumption is to assume that the catch will come in lower than the ACL.

In the current rebuilding plan, a rebuilding time based on an ACT value would be substantially different than the one based on full ACL attainment. With the new rebuilding picture, the issue may not be as large. Looking to the new decision table, the year of rebuilding between the full ACL attainment and the 60 percent attainment scenario are just one year. At the same time, management uncertainty will continue to be a key part of the challenge for addressing the "needs of fishing communities" side of the rebuilding equation for yelloweye and needs to be factored into estimated rebuilding times. At a minimum, we recommend that rebuilding times associated with an ACT or catch projection carried forward throughout rebuilding be tracked together with the estimate based on the assumption of full ACL attainment as part of the regular assessment of adequate progress in rebuilding.