# NATIONAL MARINE FISHERIES SERVICE AND PACIFIC FISHERY MANAGEMENT COUNCIL STAFF JOINT REPORT ON HARVEST SPECIFICATIONS FLEXIBILITIES AND ADAPTIVE MANAGEMENT IN THE GROUNDFISH FISHERY

National Marine Fisheries Service (NMFS) and Pacific Fishery Management Council (Council) staff collaborated to explore the viability and trade-offs of pathways to increase adaptability and flexibility within the Pacific Coast Groundfish Fishery Management Plan (FMP). This report is generated in response to the Council's groundfish workload and new management measures prioritization in March (D1-D4 of Agenda Item H.8.a, Supplemental GAP Report 1, March 2025) and the Adaptive Management special project guidance in April.

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# 1 Status Quo and Assessment of the Problem

## 1.1 Groundfish Harvest Specifications and Management Measures Process

Under Amendment 17 to the Groundfish FMP, the Council transitioned from an annual management cycle (more details below in Section 10) to a biennial cycle, in which harvest specifications and management measures would be set for two years. Council Operating Procedure (COP) 9 outlines the schedule for groundfish management. There are three processes within the Council's overall biennial timeline: stock assessments, harvest specification and management measures, and groundfish stock definitions.

Stock assessments are reviewed and adopted in the odd year that is Year 1 of the current biennium, which, over the next six months, then feeds into the adoption of overfishing limits (OFL), acceptable biological catches (ABC), and annual catch limits (ACL) for the next biennium (see example for 2027-2028 in Agenda Item E.8, Attachment 1). Below ACLs, the Council can also establish annual catch targets (ACT), allocations, and other measures to manage the fishery. Some stock and stock complex allocations are established within the Groundfish FMP (see Section 6.3.2.), while others are determined on a biennial basis. For a history of formal and biennial allocations and the stocks impacted, see Agenda Item E.5, Attachment 1.

The Council adopts the preliminary preferred alternatives (PPA) and final preferred alternatives (FPA) for harvest specifications and management measures at Council meetings that include the opportunity for public engagement. NMFS then issues a proposed rule that includes an additional opportunity for public comment. Following the proposed rule, the Secretary of Commerce makes their decision on whether to approve the proposed harvest specifications and management measures and NMFS issues a final rule if approved.

## 1.2 Exploration of the Problem(s)

While the public and Council advisory bodies have made it clear that they consider the West Coast groundfish fisheries to be in crisis (most recently in Agenda Item H.8.a, Supplemental GAP Report, March 2025), and while there is unified support in finding solutions (Agenda Item B.1., Public Comment, April 2025) to address scarcity, lack of flexibility, instability, and inefficiencies in the fishery, it is unclear, at this point, what aspects of the existing management regime need to change in order to provide relief. Thus, to explore potential solutions, staff examined what aspects of the current management regime may be impeding those characteristics of the fishery that are intended to be amplified through this action (e.g. maximizing harvests, stability, etc.). Staff also seek further clarification from industry and the Council on what desired outcomes each envisions as a result of this action in order to most effectively and efficiently analyze the potential efficacy of potential action items.

Scarcity of quota for harvest in commercial and recreational groundfish fisheries on the U.S. West Coast is likely caused by multiple constraints. However, first, and most importantly, overfishing must be prevented, and rebuilding of overfished species must be pursued as quickly as possible. In a multi-species fishery, where ACLs are set based on the best stock-specific scientific information available, ACLs are not always calculated to optimize the fishery harvests. Thus, it is inevitable that some ACLs will restrict access to other stocks' ACLs. Currently, in the groundfish fishery, high attainment of any stocks' ACLs is relatively rare and the consistent harvesting of less than the ACLs for almost all stocks contributes to scarcity. Table 1 shows the number of stocks/stock complexes with ACLs specified, by year, and the percent attainment. Overall, only 14 groundfish stocks or stock complexes have exceeded 90 percent attainment in a year (including those described above) with sablefish north of 36° N. lat. and Petrale sole each exceeding 90 percent in 8 of the 14 years. Since 2017, when most stocks that were overfished at the start of the time series (resulting in low ACLs) were rebuilt, approximately 40 percent of all managed stocks/complexes attained less than 25 percent of the ACL. For reference, Section 11 contains a table with the percent attainment by stock/stock complex since 2011.

Table 1. Number of stocks/stock complexes by percent attainment, 2011-2024.

| **Percent Attainment** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-25% | 10 | 11 | 10 | 10 | 14 | 15 | 18 | 15 | 17 | 24 | 20 | 17 | 18 | 19 |
| 26-50% | 18 | 15 | 16 | 20 | 13 | 11 | 12 | 12 | 12 | 12 | 14 | 14 | 13 | 12 |
| 50-75% | 5 | 8 | 8 | 5 | 7 | 8 | 6 | 5 | 5 | 4 | 7 | 5 | 7 | 9 |
| 75-90% | 2 | 1 | 3 | 3 | 1 | 4 | 1 | 5 | 5 | 3 | 1 | 3 | 4 | 2 |
| 90+% | 4 | 4 | 2 | 1 | 5 | 2 | 5 | 5 | 4 | 0 | 0 | 3 | 0 | 0 |
| Total Number of Stocks | 39 | 39 | 39 | 39 | 40 | 40 | 42 | 42 | 43 | 43 | 42 | 42 | 42 | 42 |
| | | | | | | | | | | | | | | |
| % stocks with <25% attainment | 25.6% | 28.2% | 25.6% | 25.6% | 35.0% | 37.5% | 42.9% | 35.7% | 39.5% | 55.8% | 47.6% | 40.5% | 42.9% | 45.2% |
| % stocks with <50% attainment | 71.8% | 66.7% | 66.7% | 76.9% | 67.5% | 65.0% | 71.4% | 64.3% | 67.4% | 83.7% | 81.0% | 73.8% | 73.8% | 73.8% |

From 2011-2024, there have been only six instances of ACLs being exceeded. Three were in 2017 (Cabezon off Oregon, Black rockfish off Oregon, and Sablefish north of 36° N. lat.), one in 2018 (shortbelly), one in 2019 (shortbelly) and one in 2022 (nearshore rockfish complex north of 40° 10' N. lat.). For the two cases in which the shortbelly ACL was exceeded, it is important to consider that the ACL was set artificially low, at 500 mt (ABC was 5,789 mt), and that there was minimal risk of overfishing the stock.

The Council and stakeholders have noted a decline in the ACLs for several key stocks since 2021 (when the time-varying sigma was implemented- see history in Section 4.1). The decline in ACLs are due, in part, to the most recent stock assessments and the time-varying sigma used in setting harvest specifications. For this report, Council and NMFS staff highlight key stocks and complexes that may be constraining the groundfish fishery, including canary rockfish, shortspine thornyhead, the shelf rockfish complexes, widow rockfish, and Petrale sole. *Figure 1* below shows the OFLs and ACLs for each key stock/stock complex from 2019-2026. For ease of viewing, shortspine thornyhead ACLs for North and South of 34°27' N. lat. were combined from 2019-2024 as it is managed coastwide as of 2025.

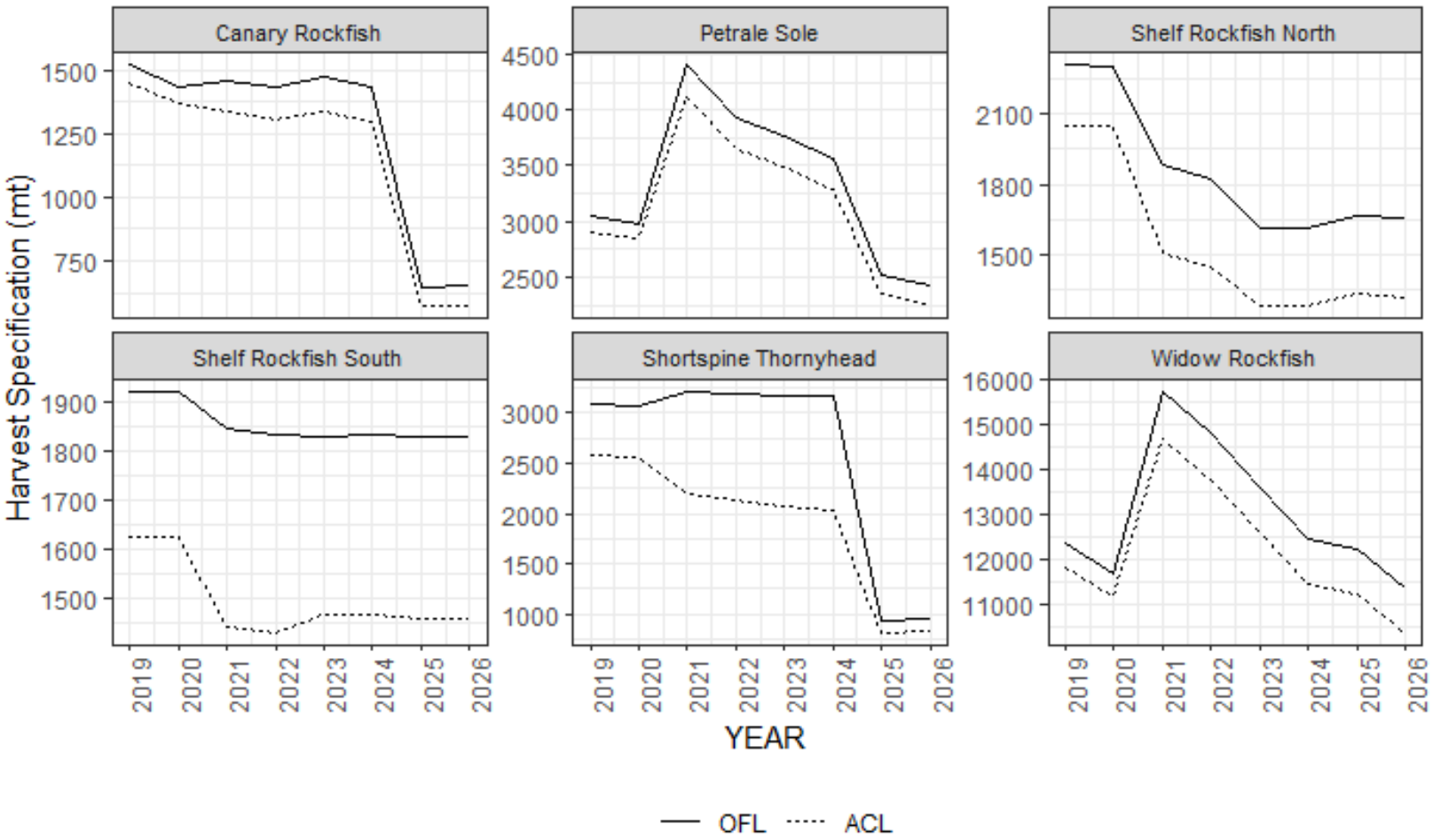


Figure 1. Overfishing limits (OFLs) and Annual Catch Limits (ACLs) for select stocks with notable declines in ACLs between 2021 and 2026.

In 2021, there is a noticeable larger difference between the OFLs and ACLs, as compared to the previous years – mostly due to the implementation of the time varying sigma. For canary rockfish, there were catch-only updates that occurred in 2017, 2019, and 2021 – mitigating some of the impact of the time-varying sigma, and thereby resulting in a relatively consistent buffer across the time series (prior to 2025) between OFL and ACL. Petrale sole was assessed in both 2019 and 2023, therefore, showing a relatively consistent difference between the OFL and ACL across the time series, as newer projections were available.

For the shelf rockfish complex (north and south), the majority of the species within these complexes are Category 3 stocks, with harvest specifications based on a 2011 analysis (and updated as appropriate to get needed projections). The only stocks within the complexes that were assessed in the last five years are vermillion/sunset and squarespot rockfish – both assessed in 2021. The impact of these assessments can be seen in particular for shelf rockfish South, where the buffer between the OFL and the ACL declined as the two stocks were upgraded from Category 3 to Category 2.

Shortspine thornyhead had its first assessment since 2013 in 2023 (a catch only projection was done in 2019). With the more recent assessment, the buffer between the OFL and ACL decreased after the 2023 assessment: however, the scale of the OFL coming out of the most recent assessment was much lower than previously estimated.

Widow rockfish, which was assessed in 2015 with an update assessment in 2019 and a catch only update in 2023, had a relatively similar differential between the OFL and ACL over time. This was likely due to the catch only update mitigating any impacts from the time varying sigma applied to results from the 2019 assessment.

The declines in ACLs could be for a variety of reasons, but the impact to industry in terms of stability and opportunity has been noted as a concern. From 2020 (the last year before the time-varying sigma was implemented and used in assessments completed in 2017 or prior) to 2025 (using the most recent assessments or projections from 2023), the percent decrease in ACLs were as follows:

- Petrale sole: 17.2 percent
- Canary rockfish: 58.2 percent
- Shelf rockfish North: 35.1 percent
- Shelf rockfish South: 10.3 percent
- Shortspine thornyhead: 68.1 percent

The only stock examined in this exercise that had nearly identical ACLs in 2020 and 2025 was widow rockfish.

Agenda Item E.5, Attachment 1 provides an assessment of all trawl/non-trawl allocations (formal and biennial) from 2011-2024. Species with high allocation attainment for the trawl sector on a routine basis include petrale sole and sablefish north of 36° N. lat. (11 and 9 years in excess of 90 percent respectively from 2011-2024). The non-trawl sector, on the other hand, has seen high attainment for a few select stocks in one or two years. Most of the non-trawl sector high attainments were of stocks that had low non-trawl allocations (i.e., trawl dominant stocks like

darkblotched rockfish or longnose skate) or were co-occurring stocks that were overfished/rebuilding (such as yelloweye and canary rockfish). Some stocks with high ACL attainment discussed above (e.g., Oregon black rockfish) are not formally allocated, but have an informal sharing between the commercial and recreational fisheries.

Given the high degree of underattainment for most groundfish stocks at the ACL and allocation level, as described above, underattainment is a problem to be further explored. Prior to scoping solutions for the problem, further refinement and articulation on what aspects of the management framework may contribute to underattainment (or other issues) should be developed.

## 2 Scoping of Management Measures

This document is intended to refine the Council's recent recommendations and priorities with respect to the effort to consider, develop, and implement strategies for improving management flexibility, efficiency and responsiveness.

The items presented for consideration in this document include:

1. Mid-Biennium Harvest Specifications Change: This item considers adding a framework to the FMP to allow for an increase in the harvest specifications (OFL/ABC/ACL) for a species based on a new stock assessment for the second year of a biennium ("green light"). This could respond to new scientific information and provide a more timely response in increasing ACLs associated with higher estimated biomass or changing fishery conditions.
2. Changes to the ABC Control Rule: This item would consider changing the limits of P*, which characterizes the risk of overfishing, from 0.45 to 0.499, within the harvest control rule (HCR) framework. This change would make the setting of harvest specifications less risk adverse for some stocks in order to provide additional yield for fisheries. Due to the Scientific and Statistical Committee's (SSC) sole authority under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to set the ABC, the SSC would need to confirm that raising the P* upper bound would not necessitate changes to the sigma bounds in response.
3. Phase-In ABC Control Rule: Develop a framework for a phase-in ABC control rule to stabilize fisheries by minimizing short-term disruptions from new stock assessments.
4. Multi-Year Average Catch Policy: Evaluate an overfishing determination or implementation of accountability measures based on multi-year average catch against an average of harvest specifications (OFL, ACL). Implementing this measure could mean that an overfishing determination would not be warranted for OFL exceedance or that accountability measures are not required for ACL exceedance, in certain circumstances.
5. Carryover of Unutilized ACL: Consider adjusting harvest specifications in a subsequent year based on unutilized ACL in a prior year. Multiple approaches could be considered to achieve this, each with trade-offs.

Additionally, staff has offered additional items for consideration in the light of the Council's comments and guidance under the Groundfish Workload and Adaptive Management Project items. To facilitate consideration of this document by readers less familiar with the Groundfish FMP, staff recommend reviewing Agenda Item E.8, Attachment 2.

# 3 Mid-Biennium Harvest Specifications Change

## 3.1 Overview

Section 5.5 of the Groundfish FMP describes two authorities for the inseason establishment or adjustment of harvest specifications. However, these authorities are limited in their scope.

1. Inseason Adjustments to OFL/ABCs/ACLs

   "If the Council determines that any of the OFLs, ABCs ACLs, or [optimum yield] OYs set in the prior management process are not adequately conservative to meet rebuilding plan goals for an overfished species, harvest specifications for that overfished species and/or for co-occurring species may be revised for the second fishing year of the then-current biennial management period. Beyond this process, OFLs, ABCs, ACLs, OYs, ACTs, HGs, and quotas may only be modified in cases where a harvest specification announced at the beginning of the biennial fishing period is found to have resulted from incorrect data or from computational errors." (See Section 5.5.1)

Currently, as described above, there is only the ability to ramp down harvest specifications mid-biennium (i.e., "red light"). However, there is no other ability to modify harvest specifications outside of a technical error even if new information is brought to light. For example, in year 1 of the biennium, stock assessments to be used to inform the upcoming biennium are reviewed and adopted. The results of that stock assessment could be similar to the current understanding of the fishery or have a better or worse projection. Therefore, if an overfished stock was declared rebuilt mid-biennium or if a stock's status was more positive than previously thought, there is no mechanism in the FMP to implement that change mid-biennium (i.e., a "green light"). This results in a lag in the implementation of the new assessment and resulting specifications until the next biennium, potentially resulting in lost opportunity and an unnecessary constraint on opportunity if the current specifications are achieved more quickly due to increased populations in the water. A primary example of this came in 2015 when a high bycatch tow (lightning strike) of canary rockfish resulted in single vessel being in deficit and unable to fish in the IFQ sector until 2017 when the new assessment results (from 2015) were enacted.

2. Inseason Establishment and Adjustments of ACLs, optimum yield (OYs), harvest guidelines (HGs), and Quotas

   "ACLs, OYs, ACTs [Annual Catch Target], and HGs or quotas may be established and adjusted inseason (1) for resource conservation through the "points of concern" framework described in Section 6.2.2; (2) in response to a technical correction to OFL described above; or, (3) under the socioeconomic framework described in Section 6.2.3." (See Section 5.5.2)

Under this provision, no adjustment to the OFL and ABC is permitted mid-biennium and adjustments may only occur to harvest specifications or management measures below the ABC. The points of concern framework is a tool to address resource conservation issues and includes situations such as when catch is expected to exceed the current ACL, OY, HG, or quota or estimated bycatch of a species increases substantially above previous estimates. Ultimately, the Council could recommend the implementation of a management measure to address the conservation issue such as new HGs, quotas, size limits, trip limits. The socioeconomic framework addresses non-biological issues such as "resource allocation, seasons, or landing limits based on

market quality and timing, safety measures, and prevention of gear conflicts". This framework permits all of the actions under the points of concern framework in addition to the direct allocation of resources.

The socioeconomic framework is not used frequently because, for most species, the ACL is set equal to the ABC (i.e., the ACL is set at the highest level permissible). The most recent use of the framework was in September 2019. Over two meetings, Council undertook an action to increase the 2020 ACL for shortbelly rockfish and to remove the ACT for cowcod to address socioeconomic concerns. The Council recommended changes at its November 2019 meeting. NMFS considered and approved the Council recommendation; it was packaged with annual Pacific whiting harvest specifications and was effective June 18, 2020 (85 FR 36803, June 18, 2020).

### 3.2 Past Work

During the implementation of Amendment 17 to the Groundfish FMP, the Council recommended inclusion of a mid-biennium policy change – but only allowed for decreases in harvest specifications (Section 5.5.1 of the FMP). In 2004, the Council tasked the ad hoc "Groundfish Information Policy Committee" with analyzing the "green light" policy, but the committee recommended not moving forward with the FMP change as it would potentially "subvert the intended stability of the multi-year management process" (Agenda Item F.8, Situation Summary, September 2016).

The Council began scoping of the "green light" policy again in September 2016. The Council gave guidance that any action would not be automatic and therefore any changes to harvest specifications would need to come through the Council process, which would reduce the amount of time any revised specifications would be in place to relieve constraints. Additionally, the Council noted that the default HCR would inform any changes in mid-biennium harvest specifications.

In November 2016, the Council reviewed further analysis of then proposed staff-developed alternatives in Agenda Item F.7., Attachment 1 that were based on the September 2016 Council guidance. The Council also reviewed a range and framework provided by the Oregon Department of Fish and Wildlife (ODFW). At that time, the Council adopted a range of alternatives for a mid-biennium harvest specification adjustment policy that included: (1) no-action, (2) consideration for overfished species only, and (3) potential adjustment for any stock scheduled for assessment. The Council identified Alternative 3 as their PPA, which would have allowed for an increase in groundfish harvest specifications in the second year of a biennial management cycle, when a new assessment indicated a substantial increase in the available harvest of a stock. The new policy would have allowed such an increase for any newly-assessed stock in cases where a significant increase in available yield would provide substantial benefits to fisheries and fishery-dependent communities.

In November 2017, the Council was scheduled to take final action, but it decided to halt further consideration of this new policy in deference to other higher priority tasks (November 2017 Decision Summary Document). NMFS did outline that there would be two pieces to this policy: (1) creation of a framework through an FMP amendment (to which NMFS provided proposed FMP language) and (2) the requirement that the harvest specifications and resulting management measures be covered by a previous analysis under the National Environmental Policy Act (NEPA;

Agenda Item F.5.a, Supplemental NMFS 1 Report, November 2017). The GMT provided preliminary responses (Agenda Item F.5.a, Supplemental GMT 1, November 2017) to each of the questions proposed by NMFS on developing the framework.

While the Council did not move forward with the mid-biennium adjustment policy in 2017, the Council did request that the NMFS's Northwest Fisheries Science Center provide information to inform stock assessment priorities for both 2019 and 2021, when assessment priorities were identified in March 2018. Prior to 2018, stock assessment priorities were determined for only a single year in advance. NMFS noted in Agenda Item F.9.a, NMFS Report 1 that this was a hurdle for its consideration of the mid-biennium adjustment for the 2019-2020 harvest specifications. The Council began its current stock assessment prioritization process in which priorities are determined for the two upcoming biennia, in March 2018.

### 3.3 Potential Trade-Offs

This potential action would not require expansive changes to the biennial harvest specifications and management cycle, and could be more responsive than status quo and applied on an ad hoc basis for certain stocks. However, from past considerations, we understand that a green light framework that allows for full Council discretion on a case-by-case basis to make adjustments such as deviations from the default ACL harvest control rules, changes to allocations, etc., would be difficult to analyze in advance in order to create significant efficiencies for timely implementation and fishery relief.

Additionally, this potential action would not decrease biennial cycle scope or workload, and may add to workload depending on the result of the assessment and whether or not there is sufficient NEPA coverage to support a mid-biennium change. Additional runs from the stock assessment team (STAT) would also be needed for the mid-biennium change in addition to the run for the upcoming biennium. The SSC would also need to endorse OFLs and ABCs resulting from the new assessment. Likely new ACLs would also need to flow through existing, status quo allocation structures and existing management measures to be released in a timely manner. Thus, within the existing biennial harvest specifications and management measures structure, and under applicable laws, it is unlikely that case-by-case mid-biennium ACL changes could be decided and implemented in a quick enough manner to provide any real, timely relief to the fishery. These potential issues have been brought forward previously, but have not been fully addressed in prior Council discussions.

## 4 Changes to the ABC Control Rule Parameters

### 4.1 Overview

The Council initially set the P*/sigma framework as the ABC Control Rule in Amendment 23 (approved by NMFS in December 2011) for use in the 2011-2012 biennium. This established the current harvest specifications framework in response to the 2006 MSA reauthorization and the corresponding revisions to the National Standard 1 (NS1) Guidelines. The 2006 MSA "amended the MSA to include new requirements for annual catch limits (ACLs) and accountability measures (AMs) and other provisions regarding preventing and ending overfishing and rebuilding fisheries", whereas the NS1 Guideline revisions included information on the difference between OFL, ABC, and ACLs and ABC control rules. As described in the Groundfish FMP (Section 4.4)

> "The ABC is a harvest specification set below the OFL and is a threshold that incorporates a scientific uncertainty buffer against overfishing (i.e., exceeding the OFL). The ABC is adopted by the Council based on its preferred level of risk aversion in combination with the recommendations of the SSC regarding scientific uncertainty. The ABC is based on a percentage reduction of the OFL. In cases where scientific uncertainty associated with estimating an OFL (σ) is quantified by the SSC, the percentage reduction that defines the scientific uncertainty buffer and the ABC can be determined by translating the estimated σ to a range of probability of overfishing (P*) values. Each P* value is then mapped to its corresponding buffer fraction. The Council then determines the preferred level of risk aversion by selecting an appropriate P* value, accordingly. In cases where the P* approach is used, the upper limit of P* values considered will be 0.45."

The P* concept, which is employed in various ways by the other fisheries management councils (see Scientific Coordination Subcommittee 8 Report), is at its core the allowable probability of exceeding a limit in the next management period (Prager, et al 2003). As described in Ralston, et al 2011,

> "On the U.S. west coast, the Pacific Fishery Management Council (PFMC) has adopted a policy of defining the ABC as the product of the OFL and a fractional factor or "buffer" that is based on the probability that the ABC exceeds the true (but unknown) OFL, a value termed P* (Shertzer et al., 2008; PFMC, 2010). A P*=0.5 is equivalent to fishing at $F_{MSY}$, with no precautionary reduction to account for scientific uncertainty. Thus, the approach adopted by the PFMC requires the development of an ABC control rule that maps a policy decision (P*<0.5) to a buffer that is used to reduce the OFL to an ABC."

The sigma value, determined by the SSC, is meant to express the scientific uncertainty in the OFL. As described in Hamel and Wetzel 2023,

> "The scientific uncertainty around the estimated OFL in the final year of the assessment model is represented by $\sigma$. The Scientific and Statistical Committee (SSC) of the PFMC specifies this value for each endorsed assessment, where $\sigma$ is defined as the standard deviation of a log-normal distribution, and where the estimated OFL in the final model year is considered the median of that distribution. The magnitude of $\sigma$ estimated within an assessment is closely linked to the amount of data and/or the modeling assumptions used in the stock assessment, hence, the SSC has specified default $\sigma$ values that serve as lower limits that should be incorporated into data-rich, data-moderate, and data-limited assessments of West Coast groundfish species. "

The Council then selects a P*, which is bounded at the upper limit of 0.45, which is the Council's degree of risk tolerance that the ABC for a stock is being set higher than what the OFL should have been, or that catching the ABC would result in biological overfishing of the stock. For the maximum value of 0.45, this represents a 45 percent chance in terms of the risk. The North Pacific Fishery Management Council (NPFMC) does use the same P*/sigma framework as the Groundfish FMP, but allows for P* to go up to 0.49. Several other Councils use a framework that includes P*, and choose a P* of 0.40 or lower. Alternatively, other Councils' SSCs set their ABCs without Council recommendations on risk tolerance playing a role. While the use of P* by the Council provides a small role for the Council in setting the ABC, the role is limited to providing a further reduction in the ABC beyond what the SSC has recommended. At most, the Council can suggest

no further reduction is necessary, but cannot use P* or another mechanism to influence setting an ABC higher than what the SSC has recommended because the MSA vests the authority of setting the ABC solely with the SSC.

In 2017, the SSC began discussions on updating sigma (Agenda Item F.7a, Supplemental SSC Report 1, June 2017). The SSC's Groundfish and Coastal Pelagic Species (CPS) Subcommittees reviewed the two proposals – one to update the baseline sigma and one on increasing sigma uncertainty as stock assessments age (i.e., time-varying sigma). With regards to the baseline sigma, the initial meta-analysis of Ralston et al., 2011 looked at uncertainty around the estimated final year spawning output as a proxy for the uncertainty on the OFL. However, the new research looked at directly measuring the uncertainty of the OFL estimates instead (Privitera-Johnson and Punt, 2020). For the time-varying sigma, the analysis discussed the need to account for increased scientific uncertainty as stock assessment age (presented to the Council and SSC as Agenda Item G.3.a, Supplemental REVISED Attachment 3, March 2019 and formalized as Wetzel and Hamel 2023).

In March 2019, the Council considered the recommendations of the SSC to adopt new sigma values for Category 1 assessments (affecting the baseline values of Category 2 and 3 assessments) and to include a time-varying sigma (Agenda Item G.3.a, Supplemental SSC Report 1, March 2019). The GMT provided a report about the potential consequences of those changes on assessments and harvest specifications, in particular the time-varying sigma, in Agenda Item G.3.a, Supplemental GMT Report 1, March 2019. The Council adopted the new sigma values for use in the 2021-2022 harvest specifications cycle. The associated buffers under a P* of 0.45, from before 2019 and after this decision, are found in Table 3, reproduced below. Note that the time-varying sigma was not incorporated into the Groundfish FMP and only exists in the groundfish stock assessment Terms of Reference (TOR). Additionally, staff have yet to discover other Councils that use a formal time-varying sigma when determining harvest specifications. Some other Councils' SSCs use ad-hoc methods (such as risk tables) to change their determination of the ABC/sigma.

**Table 3. A comparison of the old and new scientific uncertainty reductions for P* = 0.45.**

| P*=0.45 | Category 1 | | Category 2 | | Category 3 | |
|---|---|---|---|---|---|---|
| Year | Old | New | Old | New | Old | New |
| 1 | 4.4% | 6.1% | 8.7% | 11.8% | 16.6% | 22.2% |
| 2 | 4.4% | 6.5% | 8.7% | 12.6% | 16.6% | 22.2% |
| 3 | 4.4% | 7.0% | 8.7% | 13.5% | 16.6% | 22.2% |
| 4 | 4.4% | 7.4% | 8.7% | 14.3% | 16.6% | 22.2% |
| 5 | 4.4% | 7.8% | 8.7% | 15.1% | 16.6% | 22.2% |
| 6 | 4.4% | 8.3% | 8.7% | 15.9% | 16.6% | 22.2% |
| 7 | 4.4% | 8.7% | 8.7% | 16.7% | 16.6% | 22.2% |
| 8 | 4.4% | 9.1% | 8.7% | 17.4% | 16.6% | 22.2% |
| 9 | 4.4% | 9.6% | 8.7% | 18.2% | 16.6% | 22.2% |
| 10 | 4.4% | 10.0% | 8.7% | 19.0% | 16.6% | 22.2% |

## 4.2 Past Work

In response to new technical guidance from NMFS on NS1 (on the subject of carryover provisions), the GAP[1] recommended a variety of flexibilities be explored in March 2017, including a maximum P* higher than 0.45. The Council generally supported scoping flexibilities, and scheduled an agenda item for September 2017 called "Flexibility in Annual Catch Limit Management Response, Scoping". However, changes to P* were not considered at that time (Agenda Item F.9.a, Supplemental NMFS Report 1, November 2017).

When the SSC brought forward the new research and recommendations on sigma in March 2019 (described above in the "overview"), the GMT suggested looking further at the P*/sigma framework. In June 2019, during the consideration of Phase-In ABC Control Rules (described below), the GMT described considerations for increasing P* to 0.49 and determined that it would likely not provide significant increases for most high attainment Category 1 stocks, given the frequency of assessments (resulting in resetting of the time-varying sigma). Figure 1 of Agenda Item D.5.a, Supplemental GMT 1, June 2019 shows the comparison of OFL to ABC reductions for Category 1 and Category 2 stocks over a 10 year period (Category 3 stocks have a static sigma applied) and the impact of the buffer.

In September 2019, the Council continued to scope phase-in control rules, including a potential increase in P*, as described above. However, the GMT and GAP recommended no further consideration be given to these options at the time, as the GMT and GAP determined that ad-hoc phase in rules could address the concerns raised at the time (Agenda Item H.7.a, Supplemental GMT Report 1, September 2019, Agenda Item H.7.a, Supplemental GAP Report 1, September 2019)

As a part of Fishery Ecosystem Plan (FEP) Initiative 4, the Council also recommended the exploration of the use of risk tables that were developed in the NPFMC. Risk tables in the NPFMC are used by the NPFMC's SSC to assess uncertainties outside of the assessment; however, the use of the risk tables is qualitative (i.e., a score in a category does not result in a specific increase in the buffer). The Council is currently considering using risk tables in the application of sigma for new assessments, in a parallel track, for the 2027-2028 harvest specifications process (September 2025 Decision Summary Document). However, there are multiple pathways that have been preliminarily discussed for the use of risk tables, including in adjustments to P* and/or in the application of the time-varying sigma (Agenda Item H.1.a, CCIEA Team Report 1, September 2024).

## 4.3 Potential Trade Offs

An increase in P* maximum would reduce the buffer between OFL and ABC, potentially increasing ABCs, and thus providing more fishery yield available for harvest. The measure could allow the Council to be less risk-averse for some stocks, when attempting to balance socioeconomic benefits with preventing overfishing. This potential action would revise the harvest specifications framework in the FMP (i.e., requires an FMP amendment) and may be a good use of a programmatic NEPA analysis.

[1] Agenda Item C.2.b. Supplemental GAP Report, March 2017

It would take time and resources up front to consider how the P* upper bound would fit in with sigma, including the engagement of the SSC to develop and endorse an updated P*/sigma table with revised buffer amounts. A higher P* is less risk-averse, and thus modifies the harvest specifications framework to be less risk-averse. Due to the SSC's sole authority under the MSA to set the ABC, the SSC would need to confirm that raising the P* upper bound would not necessitate changes to the sigma bounds in response.

# 5 Phase-In ABC Control Rule

## 5.1 Overview

The NS1 guidelines state at 50 CFR 600.310(f)(2)(ii):

> "(A) Phase-in ABC control rules. Large changes in catch limits due to new scientific information about the status of the stock can have negative short-term effects on a fishing industry. To help stabilize catch levels as stock assessments are updated, a Council may choose to develop a control rule that phases in changes to ABC over a period of time, not to exceed 3 years, as long as overfishing is prevented each year (i.e., the phased-in catch level cannot exceed the OFL in any year). In addition, the Councils should evaluate the appropriateness of phase-in provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible."

A June 2020 NOAA Technical Memorandum on National Standard 1[2] lays out potential benefits and risks of allowing phase-in control rules. Benefits of phase-in provisions include stability to fisheries by allowing longer times to adapt to the changes in harvest specifications. Risks include potential for increased risk of overfishing due to lower buffer between OFL and ABC in the near-term and lower low-OFL and low-ABC after the phase-in (see Figure 2 of the NOAA Tech Memo).

Phase-in ABC Control Rules can be done on an ad-hoc basis, as has been done by the Council in the past for Oregon black rockfish in 2021-2022 and 2023-2024. Oregon black rockfish is a primary target stock for both recreational and commercial fisheries and had in recent years closed prematurely due to reaching the ACL or HG early. ODFW therefore recommended that the 2020 ABC be specified for the 2021-2022 biennium as well as the 2023-2024 biennium as they waited on a new assessment (done in 2023) and then return to the default HCR in 2025.

Alternatively, it can be done in a framework manner as was done by the South Atlantic Fishery Management Council (SAFMC) in their Comprehensive Acceptable Biological Catch Control Rule Amendment. Under that amendment, the SAFMC established criteria for when phase-in is allowed and approach for the phase-in. The SAFMC amendment allowed greater flexibility in specifying ABC increases than ABC decreases. For ABC decreases, the SAFMC recommended a 3 year schedule on how the ABC would be modified; after that time, the ABC would be based on revised projections that account for the prior 3 year phase in.

[2] NOAA Technical Memorandum NMFS-F/SPO-203, July 2020

### 5.2 Past Work

In June 2019, the Council initially scoped phase-in ABC control rules as a possible new management measure for the 2021-2022 biennium in response to the changes in sigmas (i.e. changes to baseline sigma and inclusion of time-varying sigma; see above) recommended by the SSC in March 2019 (Agenda Item D.5 Situation Summary, June 2019).

At its September 2019 meeting, the Council more fully scoped the potential action, considering draft technical guidance from NMFS, advice of the SSC, and other comments. The SSC advised that frequent use of a phased-in approach could have greater consequences to a stock's status than status quo, and reiterated that overfishing must be prevented each year. At that time, the GMT and GAP did not recommend further consideration to amend the FMP to allow for a phase-in approach (or for an increase to P* max; see further discussion on this issue above) because the current FMP framework allows for case-by-case consideration of different ABC control rules. Accordingly, the Council took no action to further its consideration of the potential phase-in measure at the September 2019 meeting.

In 2020, NMFS issued a technical memorandum regarding, in part, NS1 guidelines and phase-in ABC control rules (See Overview).

### 5.3 Potential Trade-Offs

If designed to be a dynamic framework, the analyses for implementing the phase-in framework could provide increases to ACLs that would be functionally similar to Status Quo (case-by-case ABC control rule), but with a comparably lower incremental future workload.

If the Council was interested in designing a framework for phase-in ABC control rules, it should consider both increases and decreases. It would require work up front and it could be challenging to design the framework in a way that would maximize flexibilities for the long-term. That being said, phase-in frameworks developed by other Councils (such as the SAFMC) could be used as a starting point. Status quo case-by-case ABC control rule (in the near-term) could provide the same flexibility to the Council as a phased-ABC, with workload trade-offs. Formalizing a framework for phased-in ABC HCRs would likely be more prescriptive when used, as compared to Status Quo.

## 6 Multi-Year Average Catch Policy

### 6.1 Overview

A 'multiyear plan' is referenced in section 303(a)(15) of the MSA.

> (a) REQUIRED PROVISIONS.—Any fishery management plan … shall— (15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

NS1 Guidelines provide additional context for use of a multiyear plan. A multiyear plan must include a mechanism for specifying ACLs for each year with appropriate accountability measures

(AMs) to prevent overfishing and maintain an appropriate rate of rebuilding if the stock or stock complex is in a rebuilding plan. A multiyear plan must provide that, if an ACL is exceeded for a year, then AMs are implemented for the next year.

There are two parts of the NS1 Guidelines that can be considered as a part of this multiyear policy: (1) determining if a stock was subject to overfishing, and (2) inseason management response if an ACL is projected to be/is exceeded.

### 6.1.1 Overfishing Determination

The final rule for the 2016 NS1 Guidelines (81 FR 71858, 10/18/2016) states:

"Small amounts of excess effort or catch in a single year may not jeopardize a stock's ability to produce [maximum sustainable yield] MSY over the long term, thus an overfishing stock status determination based on that single year's reference point may not be the most appropriate characterization of stock status. To address this issue, the proposed revisions introduced a multi-year approach (that may not exceed 3 years) to allow Councils to examine whether the extent to which a stock has surpassed its overfishing threshold actually jeopardizes the stock's ability to produce MSY on a continuing basis. See § 600.310(e)(2)(ii)(A)(3) of the proposed action. Using a multi-year approach to determine overfishing[3] stock status is best used when managers believe the most recent year's data point may not reflect the overall status of the stock." (p. 71859)

A multiyear approach is used to determine overfishing by other Councils. Some Councils use a three-year average fishing mortality (F) compared to $F_{MSY}$ (or a proxy) from a stock assessment, while others use three-year average of catch compared to an OFL (derived from the results of a stock assessment). Some Councils use a multiyear approach in data-limited situations, where either fishery dependent, fishery independent, or any data that could inform stock status is limited.

### 6.1.2 Accountability Measures Based on Multi-Year Average Catch Data

NS1 Guidelines at 50 CFR 600.310(g)(5) state:

"Some fisheries have highly variable annual catches and lack reliable inseason or annual data on which to base AMs. If there are insufficient data upon which to compare catch to ACL, AMs could be based on comparisons of average catch to average ACL over a three-year moving average period or, if supported by analysis, some other appropriate multi-year period. Councils should explain why basing AMs on a multi-year period is appropriate. Evaluation of the moving average catch to the average ACL must be conducted annually, and if the average catch exceeds the average ACL, appropriate AMs should be implemented consistent with paragraph (g)(3) of this section."

In most of the cases where that provision has been applied around the U.S., it's been for the recreational sector.

## 6.2 Past Work

The Council originally considered developing a multi-year average catch policy in 2017. However, there was some confusion around what was possible under the NS1 revised guidelines, as noted by the GMT in Agenda Item F.5.a, Supplemental GMT Report, June 2017. The Council

[3]Mortality exceeds the OFL for a given year.

tasked the GMT and GAP with developing a purpose and need statement and providing examples of how a multi-year average catch policy could work. Additionally, the Council asked NMFS to report back on whether the policies would require an FMP amendment.

In September 2017, the GMT provided a proposed purpose and need for each policy, considerations for FMP amendments, and some examples of where the policy could work (Agenda Item E.5.a, Supplemental GMT Report 1, September 2017). However, in those discussions, the GMT stated that it would like input from NOAA General Council and the NS1 technical working group on an understanding of the policy. Of note, the GMT at the time recognized that the accountability measures provision would likely be used infrequently as pre-season and inseason management are designed to keep catch below the ACLs. In November 2017, the Council recommended that this (and the carryover provision) be brought back for consideration in the 2019-2020 harvest specifications and management measures process (September 2017 Decision Summary Document).

In November 2017, NMFS provided feedback on the GMT report and considerations of potential workload associated with the multi-year catch policy. Also at that time, NMFS noted that multi-year approaches to overfishing determinations would require stock-specific analysis and criteria. NMFS also noted that the multi-year approach for accountability measures was established for fisheries with highly variable annual catches and without reliable inseason or annual data on which to base accountability measures (Agenda Item F.9.a, Supplemental NMFS Report 1, November 2017). Ultimately, the Council chose not to move forward with consideration of the multi-year average catch policy, in November 2017, due to high workload and likely limited benefit.

In March 2025, the GAP recommended "exploring a multi-year ACL, as in a rolling combined 2-year ACL, or other mechanism to achieve similar flexibility" (Agenda Item H.8.a, Supplemental GAP Report 1, March 2025). However, staff are not currently aware of an allowance to set a catch limit for multiple years. The NS Guidelines 1 at 50 CFR 600.310(f)(4) state:

> "***General.*** … A "multiyear plan" as referenced in section 303(a)(15) of the Magnuson-Stevens Act is a plan that establishes harvest specifications or harvest guidelines for each year of a time period greater than 1 year. A multiyear plan must include a mechanism for specifying ACLs for each year with appropriate AMs to prevent overfishing and maintain an appropriate rate of rebuilding if the stock or stock complex is in a rebuilding plan. A multiyear plan must provide that, if an ACL is exceeded for a year, then AMs are implemented for the next year consistent with paragraph (g)(3) of this section."

Therefore, it appears that the "multiyear" plan simply relates to number of years in which the ACL(s) are set for (e.g., annually for Pacific whiting, two-year periods/biennially for groundfish, or until changed for some CPS such as jack mackerel), and does not permit an ACL (which is an annual limit) to be set across multiple years.

### 6.3 Potential Trade-Offs

This potential action could temper reactivity within the fishery if an OFL or ACL is exceeded. However, staff identified limited applicability of this policy, given the relative confidence of inseason tracking of groundfish catches compared to ACLs. Any multi-year policy would not obviate the need for inseason action to prevent exceeding an ACL. In addition the multi-year policy

is intended for fisheries with highly variable annual catches, lacking inseason information, or lacking annual fishery data. Certain groundfish sectors may meet one or more of these criteria, occasionally, but the fishery overall does not.

# 7 Carryover of Unutilized ACL

## 7.1 Overview

NS1 Guidelines at 50 CFR 600.310(f)(2)(ii)(B) state:

> "(B) Carry-over ABC control rules. An ABC control rule may include provisions for the carry-over of some of the unused portion of an ACL (i.e., an ACL underage) from one year to increase the ABC for the next year, based on the increased stock abundance resulting from the fishery harvesting less than the full ACL. The resulting ABC recommended by the SSC must prevent overfishing and must consider scientific uncertainty consistent with the Council's risk policy. Carry-over provisions could also allow an ACL to be adjusted upwards as long as the revised ACL does not exceed the specified ABC. When considering whether to use a carry-over provision, Councils should consider the likely reason for the ACL underage. ACL underages that result from management uncertainty (e.g., premature fishery closure) may be appropriate circumstances for considering a carry-over provision. ACL underages that occur as a result of poor or unknown stock status may not be appropriate to consider in a carry-over provision. In addition, the Councils should evaluate the appropriateness of carry-over provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible."

There are two approaches for carryover that are outlined in the NS1 Tech Memo: Utilizing the ACL Buffer (Approach 1) and ABC Adjustment (Approach 2). A carryover framework could be designed to be used between years and/or from one two-year cycle to the next.

*Approach 1: Utilize ACL Buffer*

Under this approach, if the ACL is lower than the ABC and there is underattainment of the ACL, the Council could increase the ACL in the following year up to but not exceeding the ABC.

*Approach 2: ABC Adjustment*

Under approach 2, an ABC control rule would be established so that the ABC is adjusted upward to account for the ACL underage in the previous year, but the ABC could not be increased beyond the established OFL. In general, this approach also includes consideration of a deviation from the default ABC control rule.

For the majority of groundfish stocks, the default HCR includes a P* of 0.45 and ABC=ACL, resulting in potentially little to no discernable increases in available yield under the carryover provisions outlined in Approach 1. However if the ABC were increased in Approach 2, it could provide a 1:1 increase in quotas even when the HCR is ABC=ACL.

### 7.2 Past Work

In March 2017, the Council was briefed by NMFS on NS1 carryover provisions, considered the advice of the groundfish advisory bodies, and recommended moving forward with scoping carryover provisions for all its FMPs. The Council tentatively scheduled scoping of carryover provisions for the Groundfish FMP later in 2017. In their March 2017 statements, the GAP[4] and GMT[5] both offered thoughts and considerations for how "all-sector" carryover could work in the groundfish fishery. The potential "All Sector" carryover provision referenced the NS 1 carryover provisions and was meant to distinguish it from carryover issued for the shorebased IFQ sector. Carryover for the shorebased IFQ sector can be issued annually for any species, where the ACL is less than the ABC for individual vessel accounts, for amounts of unused QP or IBQ pounds up to its carryover limit (10 percent of total QPs). The Council considered all-sector carryover provisions as a possible new management measure for the 2019-2020 harvest specifications and management measures at the November 2017 meeting (Agenda Item F.9, Supplemental Attachment 3, November 2017). Supplement Attachment 3 further explores considerations for implementing a carryover provision in the Groundfish FMP. In their November 2017 statements, NMFS, the GAP, and the GMT recommended not including all-sector carryover as a new management measure in the 2019-2020 harvest specifications due to workload concerns, but recommended that it move forward separately (Agenda Item F.9.a., Supplemental NMFS Report 1, November 2017).

In 2018, the Council revised the groundfish workload and new management measure process (formerly known as "omnibus") and during the November 2018 meeting, the GMT and GAP recommended deleting all-sector carryover from the workload and new management measure list (as a part of the "Flexibility in ACL management item") and keeping only the item that considered raising the 10 percent limit for shorebased IFQ carryover. The GMT at the time stated that "only a few high attainment stocks such as sablefish would benefit from "Big C" carryover, and therefore this should not be a priority."

The technical memorandum described under "Overview" was issued in 2020, after the conclusion of the Council's initial consideration of carryover.

### 7.3 Potential Trade Offs

Unharvested amounts of an ACL carrying over could be beneficial for stocks where ACLs decline significantly from one biennium to the next, particularly for stocks that are co-occurring and allow access to target species. However, all-sector carryover would not provide higher quotas for high-attainment stocks as there would be limited quota to carry over. Carryover does not directly address underlying management problems, which contribute to low attainment, but carryover could ease concerns over the appropriateness of long-term allocation decisions or to assist in providing stability in cases of reduced ACLs or constraining stocks limiting access to target species.

Carryover quotas may not arrive for fisheries when they are needed most, as implementing new ACLs and/or ABCs, and all associated harvest specifications deriving from them (HGs, trawl/non-trawl allocations, Shorebased IFQ allocations, etc.), would require a rulemaking process, which

[4] Agenda Item C.2.b. Supplemental GAP Report, March 2017

[5] Agenda Item C.2.a. Supplemental GMT Report, March 2017

would raise timing and workload considerations. The NS1 Tech Memo contemplates Year 1 to Year 2 carryover, but the groundfish fishery has complete and final estimates of total mortality late in Year 2 such that the timing of all-sector carryover would need to be from Year 1 to Year 3. Alternatively, preliminary estimates could be carried over from Year 1 to Year 2, with a potential uncertainty buffer, and topped-up once Year 1 mortality estimates are finalized. Carryover provisions still need to prevent overfishing, so species with smaller buffers between the OFL and ABC may benefit less. The SSC still needs to approve new ABCs, so there are workload considerations for revising ABCs more frequently, if done more frequently than the current biennial schedule. If carryover rules that would increase the ABC under approach 2 are considered further, they should be considered in concert with other ABC control rule changes that also move forward. For example, if the P* is increased to 0.49, resulting in a minimal buffer between the OFL and the ABC, then carryover might be less impactful.

The Council could consider frameworking some "if, then" statements, so that it is clear in the future when carryover would happen, how carryover would happen, and who would benefit from it. Timeliness of carryover quota availability may be improved by creating an automatic action or a more prescriptive carryover framework, similar to IFQ carryover that is done outside of the Council process. This could allow carryover to be helpful to the fishery most of the time, even if it is rarely ideal.

# 8 Other Options for Consideration

In addition to the measures discussed above, staff have discussed additional areas where flexibilities could be added to the Groundfish FMP (numbered for reference; in no particular order).

## 8.1 Allocation Framework

As shown in Agenda Item E.5, Attachment 1, there are few groundfish allocations that have had high levels of attainment (and even fewer consistently) over the last 15 years. Yet, the management under the FMP's allocation structures has resulted in early closures, or limiting opportunity within the fishery, when there is little to no risk to the ACL. Typically, allocations are made between the trawl and non-trawl sector (which is comprised of recreational and commercial fisheries). However, non-trawl commercial fisheries may have different timing and data considerations compared to recreational fisheries. Therefore, the Council could consider modifying the typical allocation framework into a commercial and recreational allocation. Or, for stocks that are primarily commercial species, recreational set asides may be appropriate as a way of accounting for expected mortality (as is done for sablefish north of 36° N. lat.). Additionally, the Council could explore developing an inseason authority to change allocations inseason. As described under the "Mid-Biennium Harvest Specification Change" item, the FMP allows for consideration of this type of change through the point of concern or socioeconomic framework. However, this takes two meetings and a full rulemaking. By moving to a framework model, there would be the ability for the Council to shift allocations more quickly, as needed, so long as potential actions are appropriately scoped and evaluated ahead of time. In considering this idea, it is important to note that allocations could not be taken away from the IFQ sector after QPs are issued and therefore there could be limited utility in this potential action depending on the species.

## 8.2 Off-the-Top Accounting Change

Consider options to account for mortality from sources outside the recreational and commercial groundfish fisheries (e.g., scientific research, non-groundfish fisheries, Tribal fisheries) to be accounted for at the ABC level, rather than deducted from the ACL. Past NS1 Guidelines (cir. 2009) advised Councils that all mortality of stocks in the fishery must be accounted for against the ACL, which is how the Council designed ACL control rules for groundfish. Current NS1 Guidelines do not include this provision. The New England Fishery Management Council (NEFMC) makes reductions for some sources of mortality from the ABC (or equivalent) prior to setting the ACL. For West Coast groundfish, it could mean that variable catches in off-the-top sources alone would not cause exceeding the ACL, and thus not trigger accountability measures. It makes sense that high catches in scientific research or Tribal fisheries would not trigger ACL-exceedance accountability measures, as those activities are not the subject of such accountability measures. An explanatory example is provided below:

- If scientific research mortality was accounted for between the ABC and ACL, occasional higher than expected catch by scientific research would only necessitate fishery management action of the groundfish fishery (managed within the ACL), if the OFL was projected to be exceeded. If scientific research catch was occasionally lower than expected, it may not result in 'stranded' metric tonnage that could have been available to the fishery.

## 8.3 Increase frequency of catch only assessments

The Council could also consider increasing the number of catch only assessments to update all specifications (OFL, ABC, ACL). Catch only updates, which utilize the most recently adopted assessment and update with the recent actual catch information, could produce higher projections for OFL, ABC, and ACLs; although it is unlikely that it would be at the same 1:1 ratio as described under Carryover Approach 2. Under the current biennial framework, this would be a mid-biennium adjustment (see above) and would require that a similar framework be set up. However, if an annual specifications process were implemented, this would be an additional approach to increase the available yield for select stocks. Catch only projections do not currently restart the clock on time-varying sigma, but depending on the attainment, could provide an offset to the time-varying sigma penalty due to assessment uncertainty. Catch only projections are not as resource intensive as update or full stock assessments, but the Council could consider whether increasing the frequency of catch only updates, in favor of one less full or update assessment, may provide some stability in the harvest specifications.

## 8.4 Default Assessment Catch Projections Change

Currently, in the development of decision tables used in projections for stock assessments, full ACL removals are assumed under the default HCR for the 10-year projections for years 3-10. This is assumed because it is the maximum harvest amount and it allows maximum flexibility in changing management to try to attain ACLs, while limiting management workload that would arise if realized harvest was above assumed removals. However, for the majority of groundfish stocks, attainments are far less than the ACL. Therefore, future ACLs that are not updated through catch-only projections or assessments are artificially lower than they would be based on the harvest trends of the fishery. This aspect of the management regime could contribute to scarcity. However, it is important to consider how changes to this assumption would be built into the specifications

process and what the rationale for the projection would be. The GMT and GAP would be best suited to provide feedback on the ACLs, and how outside conditions such as markets or other stock changes may impact the attainment in the future. Changing assumed removals to something lower than the ACL would not be well suited for rebuilding or overfished stocks or those stocks with high attainment.

### 8.5 Mixed-Stock Exception

The Council could explore the potential utility of the mixed-stock exception as a mechanism to meet management goals, which may include a goal of higher rates of ACL attainment. Further consideration on whether this provision, which may allow overfishing of one stock to allow access to target stock(s), consistent with MSA and the National Standard Guidelines, may be warranted.

### 8.6 New OFL/ABC Control Rule

The Council could also consider exploring a new, stabilizing method of setting harvest specifications (OFL or ABC) over the longer term to lower the high, highs and raise the low, lows. Clark and Hare, 2004 examined this concept for the International Pacific Halibut Commission (IPHC), and while the IPHC did not adopt its use, the concept may provide some stability in the groundfish fishery to mitigate large swings in catch limits from new assessments. This idea would need to be more fully scoped, including consultation with the SSC and Science Centers, for suitability within the frameworks of the FMP and applicable laws for the groundfish fishery.

### 8.7 Annual Specifications

The Council could consider changing from the two-year biennial specifications process to an annual specifications process (see below Process Considerations for more details), which would eliminate the need for mid-biennium harvest specification changes and could be designed to include a carryover framework. However, this potential change could also undermine the relative stability and efficiencies gained from a two-year harvest specification cycle.

## 9 Summary Overview or Staff Take-Homes

1. Multiple items considered in this document affect the ABC Control Rule in some way, and there may be interplay between them. For example, there could be limited to no buffer between the OFL and the ABC, especially under an increased P*, so Carryover Approach 2 might be rendered useless because the ABC could not be increased any further.
2. Changes to catch accounting practices and policies could help provide relief by allowing the inseason movement of quotas within the fishery as a whole based on new information. This could include off-the-top deductions taken before setting ACL, Carryover, or exploring flexibilities in the allocation framework.
3. Precautionary Redundancies: There is inherent uncertainty throughout the chain of events involved in fisheries management. There may be ways to reduce unwanted precautionary policies in a manner consistent with the MSA and National Standard Guidelines. For example, the Council currently counts mortality from all sources against the ACL, but it perhaps does not have to.
4. Control Reduces Flexibility/Timeliness: The more control the Council relinquishes to "if-then" criteria (i.e., a more prescriptive framework) the more likely reactions to changing

fishery conditions could be implemented in a timely manner. For example, staff could explore feasibility and mechanisms to framework **Carryover** provisions or **Mid-Biennium ACL Changes** in a way that could be implemented with a single *Federal Register* notice or without a *Federal Register* notice.

Staff note that **Multi-Year Average Catch Policy** may be the item most ill-fitted to the Groundfish FMP because the fishery has relatively thorough and timely fishery-dependent data flows, and has fishery-independent information over continuing time series. Staff also note that only changing P* maximum to higher than 0.45 (considered in the **Changes to the ABC Control Rule)** may not be an effective use of the Council's limited resources in the short term. Given recent Council Coordination Committee (CCC) discussion, a holistic look at the interplay between the ABC control rule framework and stock assessments may be warranted (e.g. P*, time-varying sigma, risk tables, assessment capacity, assumptions for projections/catch-only updates, etc.).

Depending on the problem the Council is trying to address with this potential action, different mechanisms may meet those goals. If ACL attainment is a primary concern, it could be furthered with **Mid-Biennium Harvest Specifications Change, Carryover of Unutilized ACLs, and Dynamic Allocations**. These items would increase the annual harvestable surplus of the subject stock for the subject year, providing additional fishing opportunity while preventing overfishing. For the first two items, the ACL attainment would likely not increase for the subject stock, but rather might increase the availability of constraining stocks to harvest co-occurring stocks. For example, if there were a way to increase canary rockfish ACLs in the current biennium, it could increase widow or yellowtail rockfish or whiting attainments where canary rockfish is a constraining species. The unfortunate aspect of a **Mid-Biennium Harvest Specifications Change** is that the new ACLs likely would not be in effect until the last three to six months of the biennial period, due to rulemaking timelines. Rulemaking timelines could affect **Carryover of Unutilized ACLs,** too, though frameworking or other solutions to improve timeliness could be explored. As always, there are workload considerations, and if the Council does not want to take a formulaic approach, it could increase analytical workload to implement these items. In addition, staff note that, as compared to the past Council discussion on a **Mid-Biennium Harvest Specifications Change**, the stock assessment planning process has changed (now the Council determines priorities for the upcoming two biennia), which may reduce the need or otherwise influence the trade-offs for this item. **Carryover of Unutilized ACLs** could reduce scarcity for stocks with small ACLs that are not often highly utilized, or reduce scarcity and constraints for select stocks for individuals or sectors. This could indirectly increase attainment of target stocks.

Staff noted that stabilizing harvest specifications and providing reliable access to groundfish are likely outcomes with items that reduce the variability in harvest specifications and still mitigate the risk of overfishing. The items staff identified as most obviously lending themselves to stabilize harvest specifications are the **Phase-In ABC Control Rule, Carryover,** and the **Changes to the ABC Control Rule**. The benefits of these policies could include ramping down catches of species of concern (or stocks where the biomass estimates have declined) to allow for scientific research, help for struggling markets to find solid ground, and the mitigation of the short term impacts to industry by creating a longer transition (three years instead of one year) in the application of the lower harvest specifications. However, staff also note that the Council could use these policies to increase harvest of constraining stocks, which could increase the risk of overfishing and may not

be appropriate. Staff note that these items also may surgically fit within the current biennial harvest specifications framework.

Staff noted that the greatest time and workload savings could likely be found with items that establish frameworks, including analysis of specific "if, then" scenarios could be done for implementing the framework, and the need for further analysis when the framework is used is minimized. The items staff identified as most obviously lending themselves to a framework are: **Phase-In ABC Control Rule, Changes to the ABC Control Rule, and/or Carryover of Unutilized ACL**. The risk with prescriptive frameworks is that it is unlikely all foreseeable future actions the Council wants to take for ongoing management of the fishery would be covered. Another challenge is the frontloading of the analytics; where assumptions about the future conditions of the fishery must be made in order to estimate the environmental impacts and socioeconomic benefits, and the conclusions may not be very informative. This could be the subject of a Programmatic EIS that could provide some of that frontloading.

# 10 Process Considerations

One of the things that the Council could consider is moving from a biennial cycle to an annual harvest specifications cycle. Prior to 2005-06, the first biennial cycle, groundfish stock assessments, harvest specifications, and management measures were developed and implemented annually. This meant that the entire harvest specifications and management process was undertaken from start to finish annually and implemented by NMFS through temporary rulemaking. The two-year cycle was developed, primarily, to accommodate requirements for notice and comment rulemaking for harvest specifications implementing regulations. Additionally, as described in the Amendment 17 Environmental Impact Statement (EIS), the change to biennial specifications was to maximize time for stock assessment scientists, Council staff, and NMFS staff to prepare necessary materials for a January 1 implementation date, and to allow the Council to work on other items not associated with the harvest specifications and management measures process in the "off year". However, with staffing increases and other priorities coming into the Council process, the concept of an "off year" has shifted so that large groundfish actions are happening during years where the harvest specifications process is ongoing and the year where harvest specifications are not being developed meaning that the groundfish portfolio is still significant. There was also the idea that the two year cycle would provide stability. However, with the implementation of the biennial process, the Council lost some ability to be responsive and flexible. Without a highly prescriptive framework, requirements for notice and comment rulemaking would need to be met, regardless of whether the harvest specifications are developed annually or biennially, and therefore process changes should be designed to accommodate at least six months for NMFS's rulemaking.

The Council could therefore consider a rolling, continual cycle of annual specifications. It would be very different from the current biennial specifications process in that not all stocks would have harvest specifications changed or updated every year, and new specifications would be developed for select stocks over the course of two years, to accommodate notice and comment rulemaking. The benefits of this approach could render **Carryover of Unutilized ACLs** (Approaches 1 and 2) and **Mid-Biennium Harvest Specifications Change** unnecessary. Carryover could just be implemented when the annual specifications are set, even for stocks where there are no new assessments. Increasing the frequency of catch only updates, described under **Other Options,**

would align well with an annual specifications process. Each year a few stocks are assessed (same as last year or different) and those assessments are used to inform Council-recommended harvest specifications that would be implemented via a notice and comment rulemaking approximately 18 months after the draft assessment is publicized. Each year, this process would repeat. For stocks unlikely to be assessed frequently, the Council could set a schedule of harvest specifications for the expected period of time until it is next assessed. In other words, annual specifications for stocks could be set for several years (such as using the ten year projections from an assessment). However, with a change to annual specifications, the Council would need to consider that while this could increase flexibility and responsiveness, it could result in less time to work on other items on the same timeline as currently done in the "non-specifications" year. Additionally, there could be more interannual variation in the ACLs or fishing opportunities depending on the results of assessments coming more frequently, thereby reducing the stability. However, measures such as the **Phase-In ABC Control Rule** could mitigate that variation, if set up appropriately.

# 11 Appendix: Attainment by Stock/Stock Complex and Year

The following table shows the percent attainment by stock/stock complex by year. Data is based on the West Coast Groundfish Observer Program Groundfish Estimated Mortality Matrix (GEMM) from 2011-2023 and preliminary estimates from PacFIN and recent observed discards for 2024. Blank cells represent years in which the stock/stock complex did not have a specified ACL. Shading shows stocks with greater than 50 percent, with darker shading representing the highest values.

| Stock/Stock Complex | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Arrowtooth Flounder | 17.91% | 21.62% | 40.79% | 32.05% | 32.42% | 27.70% | 10.48% | 8.27% | 6.22% | 5.22% | 8.12% | 9.98% | 4.85% | 5.59% |
| Big Skate | | | | | | | 53.83% | 37.17% | 43.50% | 27.27% | 14.24% | 11.29% | 10.65% | 7.92% |
| Black (Ca) | | | | | | | 46.05% | 42.65% | 48.42% | 35.92% | 67.84% | 79.44% | 44.46% | 52.12% |
| Black (Or) | | | | | | | 102.26% | 80.08% | | | | | | |
| Black (S Of 46 16) | 51.27% | 55.44% | 84.15% | 80.44% | 92.57% | 75.45% | | | | | | | | |
| Black (Wa) | 49.51% | 61.69% | 70.95% | 75.28% | 85.32% | 89.28% | 68.43% | 83.65% | 80.13% | 45.96% | 61.74% | 54.60% | 54.28% | 50.53% |
| Blue/Deacon/Black Rockfish Complex Off Oregon | | | | | | | | | 75.40% | 75.86% | 77.43% | 93.78% | 77.71% | 69.57% |
| Bocaccio Rockfish (South Of 40 10) | 42.59% | 51.09% | 46.88% | 31.63% | 40.54% | 34.61% | 28.30% | 41.96% | 22.44% | 16.33% | 21.14% | 29.87% | 33.15% | 43.94% |
| Cabezon (Ca) | 40.56% | 43.99% | 41.90% | 49.30% | 58.38% | 51.26% | 37.20% | 35.03% | 32.52% | 23.49% | 23.81% | 37.79% | 18.46% | 26.72% |
| Cabezon (Or) | 96.20% | 93.96% | 69.57% | 53.40% | 58.09% | 60.43% | 112.34% | 92.98% | | | | | | |
| California Scorpionfish | 77.85% | 95.24% | 95.58% | 73.08% | 74.12% | 77.30% | 55.40% | 67.67% | 39.36% | 23.45% | 43.64% | 48.55% | 45.73% | 65.53% |
| Canary Rockfish | 58.33% | 44.67% | 39.14% | 45.80% | 93.77% | 60.88% | 23.49% | 39.33% | 40.27% | 35.42% | 42.12% | 54.21% | 54.09% | 44.17% |
| Chilipepper Rockfish (South Of 40 10) | 16.60% | 16.89% | 24.12% | 19.56% | 12.51% | 5.65% | 4.90% | 11.92% | 16.30% | 27.61% | 31.76% | 36.04% | 55.57% | 53.68% |
| Cowcod | 46.67% | 33.33% | 60.00% | 26.67% | 12.00% | 13.00% | 17.00% | 31.00% | 54.00% | 58.00% | 15.48% | 2.68% | 18.63% | 10.87% |
| Darkblotched Rockfish | 42.38% | 37.03% | 41.86% | 42.64% | 43.70% | 41.82% | 37.19% | 52.60% | 54.39% | 41.98% | 38.04% | 41.99% | 36.84% | 44.09% |
| Dover Sole | 31.86% | 29.79% | 32.39% | 26.41% | 12.85% | 14.71% | 15.07% | 12.97% | 11.59% | 9.66% | 8.21% | 9.40% | 7.71% | 6.17% |
| English Sole | 1.04% | 2.21% | 5.24% | 5.44% | 4.00% | 6.58% | 3.23% | 3.45% | 2.26% | 1.33% | 2.63% | 3.51% | 2.96% | 2.73% |

| Stock/Stock Complex | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kelp Greenling/Cabezon Off Oregon | | | | | | | | | 21.42% | 17.25% | 20.10% | 22.37% | 18.49% | 25.92% |
| Kelp Greenling/Cabezon Off Washington | | | | | | | | | 89.09% | 35.00% | 28.50% | 44.12% | 42.00% | 51.91% |
| Lingcod (N of 42) | 25.24% | 34.00% | | | | | | | | | | | | |
| Lingcod (North Of 40 10) | | | 28.43% | 25.51% | 28.40% | 30.39% | 34.66% | 32.82% | 20.62% | 17.92% | 16.00% | 17.80% | 23.27% | 27.66% |
| Lingcod (S of 42) | 12.55% | 15.57% | | | | | | | | | | | | |
| Lingcod (South Of 40 10) | | | 38.97% | 47.95% | 71.55% | 72.14% | 43.55% | 39.77% | 38.11% | 33.35% | 28.27% | 27.44% | 34.10% | 37.21% |
| Longnose Skate | 68.44% | 74.53% | 49.72% | 45.73% | 42.70% | 46.62% | 45.25% | 39.71% | 34.63% | 27.87% | 34.82% | 34.79% | 36.42% | 34.78% |
| Longspine Thornyhead (North Of 34 27) | 45.68% | 44.41% | 54.00% | 46.63% | 24.51% | 22.39% | 29.16% | 14.08% | 10.56% | 4.97% | 3.57% | 3.74% | 2.07% | 1.18% |
| Longspine Thornyhead (South Of 34 27) | 6.67% | 4.56% | 5.31% | 6.25% | 0.84% | 1.21% | 1.42% | 1.70% | 1.61% | 1.19% | 1.08% | 0.96% | 0.87% | 0.66% |
| Nearshore Rockfish North (North Of 40 10) | 81.62% | 95.35% | 79.15% | 56.70% | 93.62% | 83.91% | 84.29% | 75.52% | 95.19% | 67.44% | 63.92% | 112.21% | 75.98% | 56.63% |
| Nearshore Rockfish South (South Of 40 10) | 48.37% | 45.78% | 50.24% | 55.96% | 60.46% | 64.49% | 61.78% | 60.60% | 62.24% | 31.63% | 53.33% | 55.44% | 31.51% | 37.67% |
| Other Fish | 33.41% | 19.55% | 19.96% | 19.33% | 40.21% | 50.08% | 22.49% | 17.44% | 25.40% | 22.59% | 38.52% | 38.61% | 28.97% | 9.10% |
| Other Flatfish | 18.77% | 18.16% | 20.81% | 21.55% | 12.44% | 15.07% | 11.38% | 11.59% | 9.62% | 8.60% | 11.58% | 11.29% | 9.94% | 8.20% |
| Pacific Cod | 37.95% | 39.63% | 24.66% | 27.47% | 50.23% | 36.41% | 9.94% | 5.73% | 3.28% | 1.14% | 1.67% | 2.57% | 4.29% | 4.78% |
| Pacific Ocean Perch (North Of 40 10) | 33.50% | 31.80% | 38.60% | 36.86% | 38.23% | 41.71% | 43.95% | 54.06% | 14.07% | 12.76% | 12.97% | 10.85% | 8.89% | 10.32% |
| Petrale Sole | 97.90% | 97.77% | 87.91% | 92.04% | 95.51% | 93.86% | 93.98% | 96.82% | 90.53% | 75.79% | 70.92% | 84.61% | 84.03% | 87.65% |
| Sablefish (North Of 36) | 97.14% | 88.83% | 90.32% | 88.23% | 97.92% | 94.73% | 101.62% | 91.74% | 91.30% | 66.45% | 70.31% | 97.07% | 73.08% | 73.58% |
| Sablefish (South Of 36) | 94.04% | 56.05% | 43.10% | 43.87% | 35.43% | 32.56% | 23.98% | 23.25% | 22.50% | 16.09% | 14.61% | 16.72% | 12.51% | 12.67% |
| Shelf Rockfish North (North Of 40 10) | 7.71% | 9.34% | 7.00% | 8.46% | 3.67% | 4.08% | 15.56% | 17.33% | 32.75% | 29.61% | 32.22% | 25.36% | 25.43% | 23.71% |

| Stock/Stock Complex | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shelf Rockfish South (South Of 40 10) | 49.82% | 56.58% | 60.14% | 47.28% | 34.11% | 26.92% | 34.51% | 34.16% | 47.49% | 23.77% | 39.27% | 36.27% | 63.24% | 36.31% |
| Shortbelly | 24.40% | 15.00% | 50.00% | 35.20% | 1.84% | 5.98% | 64.00% | 101.54% | 133.32% | 19.43% | | | | |
| Shortspine Thornyhead (North Of 34 27) | 52.64% | 52.40% | 61.64% | 51.65% | 47.64% | 49.13% | 51.90% | 46.85% | 39.96% | 24.64% | 32.18% | 47.18% | 31.74% | 41.30% |
| Shortspine Thornyhead (South Of 34 27) | 47.26% | 32.29% | 28.59% | 24.58% | 8.66% | 12.44% | 16.17% | 12.32% | 9.38% | 5.84% | 5.56% | 4.65% | 4.16% | 5.36% |
| Slope Rockfish North (North Of 40 10) | 29.46% | 39.44% | 30.54% | 25.34% | 44.57% | 41.90% | 24.50% | 35.10% | 34.62% | 20.42% | 33.34% | 31.60% | 25.05% | 24.69% |
| Slope Rockfish South (South Of 40 10) | 30.78% | 40.75% | 24.08% | 23.36% | 15.38% | 11.71% | 16.20% | 14.25% | 10.93% | 9.10% | 11.58% | 14.65% | 12.00% | 17.80% |
| Spiny Dogfish | | | | | 33.70% | 38.18% | 23.81% | 93.15% | 79.92% | 24.09% | 20.96% | 28.74% | 36.51% | 22.29% |
| Splitnose Rockfish (South Of 40 10) | 2.85% | 4.02% | 3.09% | 4.07% | 1.85% | 1.03% | 1.51% | 2.34% | 0.46% | 0.96% | 1.51% | 1.93% | 2.63% | 1.99% |
| Starry Flounder | 1.59% | 1.04% | 0.61% | 1.62% | 1.01% | 1.24% | 1.58% | 0.55% | 3.43% | 1.73% | 1.76% | 3.60% | 3.11% | 2.55% |
| Widow Rockfish | 36.07% | 46.62% | 33.29% | 49.62% | 44.56% | 51.01% | 47.15% | 83.55% | 80.87% | 75.26% | 73.92% | 88.07% | 87.37% | 84.84% |
| Yelloweye Rockfish | 55.29% | 70.59% | 58.89% | 50.00% | 70.00% | 51.05% | 96.00% | 89.00% | 61.46% | 33.47% | 33.40% | 64.90% | 71.54% | 46.52% |
| Yellowtail Rockfish (North Of 40 10) | 31.28% | 36.55% | 32.09% | 33.52% | 30.02% | 23.69% | 49.31% | 58.71% | 59.12% | 61.36% | 48.40% | 53.33% | 59.32% | 52.87% |