

## CONSIDERATIONS FOR IMPLEMENTING A CARRYOVER PROVISION IN GROUNDFISH MANAGEMENT

The Council is considering adding two approaches for implementing a harvest specification carryover provision to the Pacific Coast Groundfish Fishery Management Plan (FMP). This carryover provision would allow a portion of the unharvested annual catch limit (ACL) of a managed stock or stock complex to be “carried over” from one year to the next. Both approaches to the carryover provision is described in revisions to the National Standard 1 (NS1) guidelines and work by either increasing the second year ACL up to the previously specified acceptable biological catch (ABC) as an upper limit (Approach #1) or recalculating the second year overfishing limit (OFL), ABC, and ACL (Approach #2) with new projections assuming the “actual” harvest in year-one. Both approaches would increase these specifications by adding all or a portion of the previous year’s unutilized harvest.

The Council process on considering a carryover provision began with a briefing on the revised NS1 guidelines, which first described this provision, in November 2016 ([Agenda Item C.2, November 2016](#)). Initial scoping of a carryover provision occurred in March 2017 with considerations and focus questions deliberated by the Council ([Agenda Item C.2, Attachment 1, March 2017](#)). Discussion topics included which Council-managed FMPs would be best suited for this provision, managing carryover with catch uncertainty, managing carryover with assessment uncertainty, and considerations for managing carryover for healthy target stocks, as well as those managed in the precautionary zone and under rebuilding plans. In the course of this initial scoping, the Groundfish FMP was singled out as the one west coast FMP where a carryover provision could be most effective in achieving the Magnuson-Stevens Act mandate to achieve optimum yields on an annual basis. The Council decided to schedule further scoping of a carryover provision in the Groundfish FMP at their September 2017 meeting. They also wanted to further explore a Groundfish FMP amendment that frameworked this carryover provision. During the September 2017 scoping, the Council requested feedback from the Groundfish Management Team, National Marine Fisheries Service (NMFS) staff, and National Oceanic and Atmospheric Administration General Counsel on analyses needed to move this FMP amendment forward.

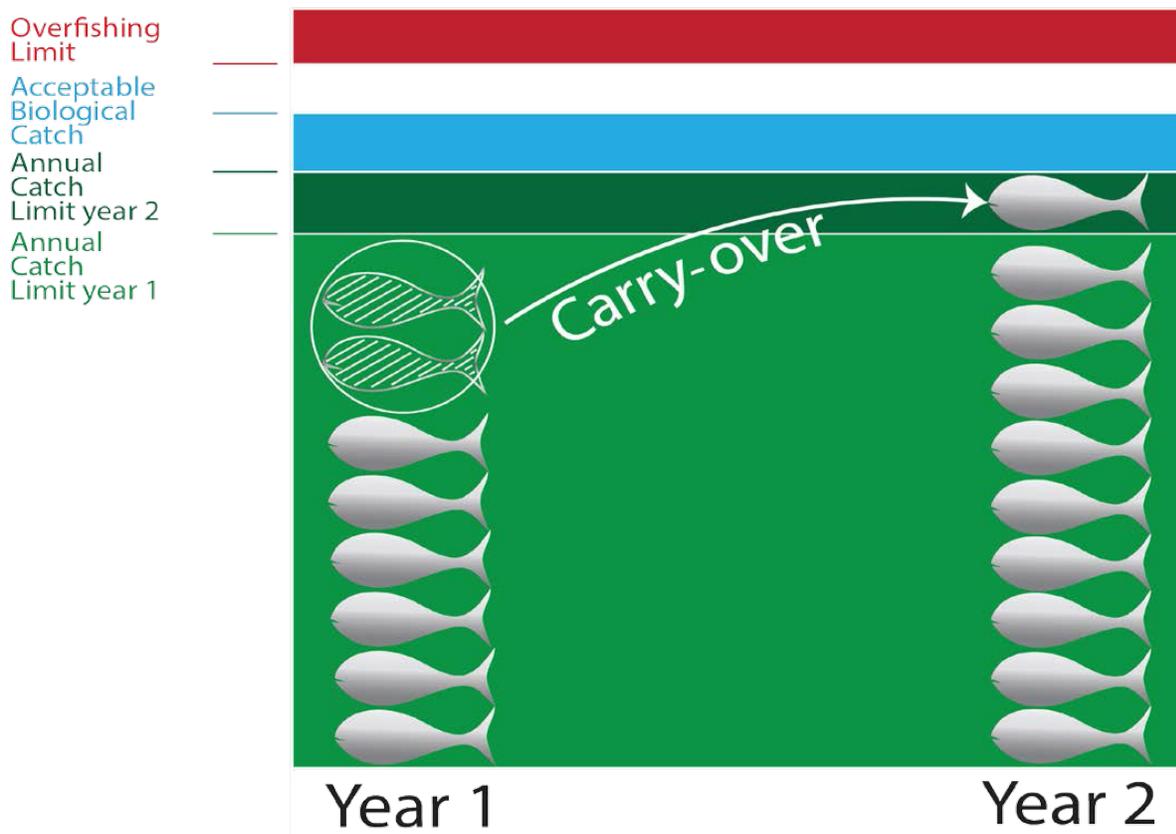
This document further explores considerations for implementing a carryover provision. A description of this carryover provision, discussion of biological impacts of stocks subject to a carryover provision, considerations for implementing a carryover provision with catch estimation uncertainty, considerations for implementing a carryover provision with assessment uncertainty, the administrative costs associated with implementing a carryover of unutilized harvest, and proposed FMP language for frameworking this provision in the Groundfish FMP follows. Some of the considerations presented herein have been presented in previous documents informing carryover in Council scoping.

## Description of the Carryover Provision

Two approaches for a carryover provision that consider changing one or more of the annual harvest specifications are described in the revised NS1 guidelines.

### *Approach 1: Utilizing the Annual Catch Limit Buffer.*

When the ACL is less than acceptable biological catch (ABC), the unharvested ACL from year 1 can be issued as carryover to increase the ACL in year 2, as long as the year-2 ACL does not exceed the ABC (Figure 1). The Council would need to develop an efficient mid-biennium mechanism to set a higher year-2 ACL.

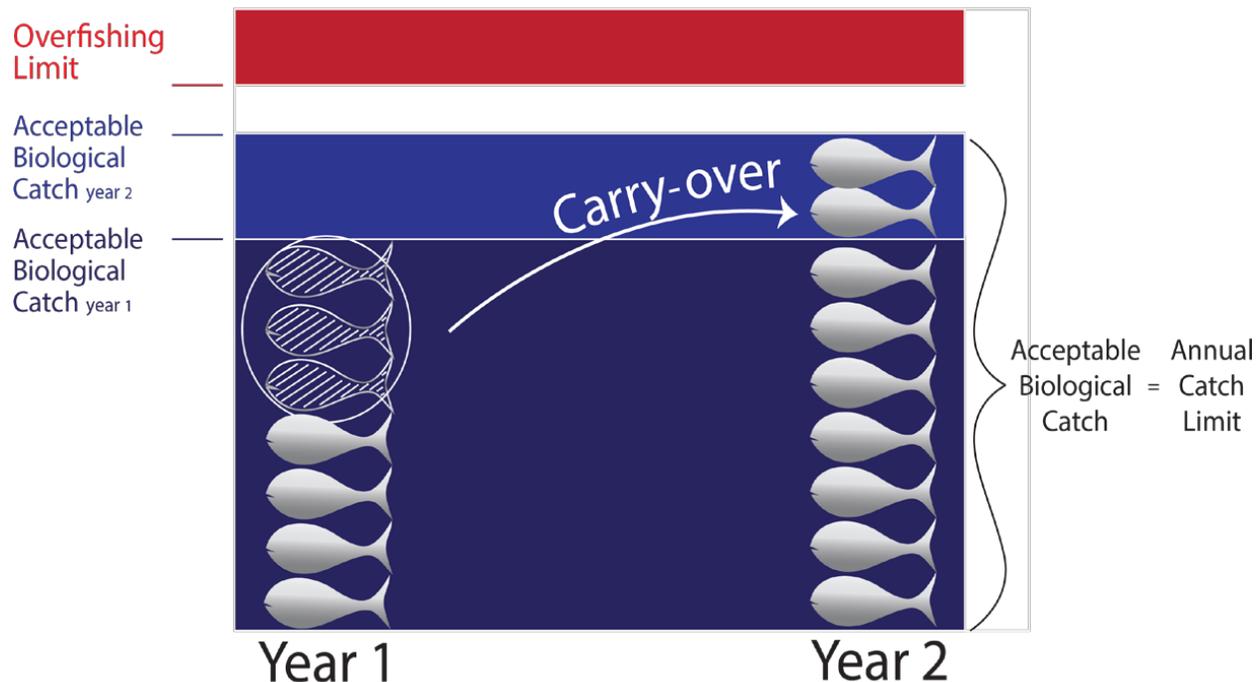


**Figure 1. Approach 1 (ACL is set below the ABC) in carryover provisions considered in the revised National Standard 1 guidelines.**

### *Approach 2: Increasing the ABC in Year 2 by the Unharvested Yield from the Previous Year.*

The new NS1 guidelines also describe that an ABC control rule may include a provision for the carryover of the unused portion of an ACL 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 ACL. This approach might be appropriate in situations when the ACL is set equal to the ABC, or when the buffer between the ACL and ABC is relatively small. The Scientific and Statistical Committee (SSC) or Science Center would be required to calculate a new year-2 ABC based on the increased

stock abundance resulting from the underharvest in year 1. Similar to the first approach, the Council would need to develop an efficient mid-biennium mechanism to set a higher year-2 ABC/ACL (Figure 2). In general, the NS1 guidelines require that any amendment to establish a carryover ABC control rule articulate when the carryover provision of the control rule can and cannot be used and how the provision prevents overfishing based on a comprehensive analysis (Figure 2).



**Figure 2. Approach 2 (ACL is set equal to ABC) in carryover provisions considered in the revised National Standard 1 guidelines.**

### Biological Impacts

Either approach has no greater biological impact relative to any projection of harvest specifications which assumes the entire ACL will be caught each year. However, this is predicated on the harvest control rule remaining the same as originally specified without consideration for a more aggressive one. In cases where the ACL is set equal to the ABC (i.e., the typical default harvest control rule for healthy stocks), Approach #1 does not provide the socioeconomic benefits associated with implementing carryover of unutilized harvest (Table 1). The cases presented in Table 1 are: 1) a healthy stock where  $ACL = ABC$ , 2) a precautionary zone stock where  $ACL < ABC$  and the ABC is projected to be trending up, 3) a precautionary zone stock where  $ACL < ABC$  and the ABC is projected to be trending down, and 4) a rebuilding stock where the ACL is set much lower than the ABC to achieve rebuilding goals. In each of these cases, the theoretical harvest in year-1 is less than the ACL and the year-2 carryover is implemented using Approach #1 with the following rule: the year-2 ACL is increased by the unutilized harvest amount in year-1 up to the year-2 ABC. The comparison of the highest two-year cumulative harvest (assuming full attainment of the year-2 ACL) with and without implementation of an Approach #1 carryover indicates that the carryover does not exceed the potential two-year cumulative ACLs under any case. However, there is no

socioeconomic benefit (i.e., the potential highest two-year harvest is the same with or without carryover) for a healthy stock where the  $ACL = ABC$ . Approach #2, where the OFLs and ABCs are recalculated with projections that assume the actual harvest in year-1 as opposed to assuming full ACL attainment, is needed to gain a socioeconomic benefit for a healthy stock under case #1. There is still no increased biological impact under Approach #2 since the projected spawning biomass and depletion of the stock does not change relative to the original projections assuming full ACL attainment. Approach #2 could be used for precautionary zone and rebuilding stocks as well, although, to be risk-neutral, the same harvest control rule will need to be applied in recalculated projections. In the case of a rebuilding stock, this recalculated projection would need to be done using the most recent rebuilding analysis. In any case, when there is a desire to be more precautionary, a portion rather than the full amount of unutilized harvest in year-1 can be carried over to year-2.

Approach #2 for carrying over unutilized harvest is the only one that can be used to implement the carryover of unutilized individual fishing quota for healthy stocks where  $ACL = ABC$  in the west coast trawl catch share program. The current catch share program allows the carryover of up to 10 percent of unutilized quota for any limited entry trawl permit holder participating in the Shorebased IFQ sector. However, legal precedent and NMFS policy will not currently allow implementation of IFQ carryover in cases where  $ACL = ABC$ , even when the risk of overfishing is low. Approach #2 should help enable the IFQ carryover to be implemented as intended.

**Table 1. Biological impacts and potential socioeconomic benefits associated with implementing carryover of unutilized harvest under Approach #1.**

ABC in yr. 1	ACL in yr. 1	Catch in yr. 1	ABC in yr. 2	ACL in yr. 2	2-yr. catch if ACLs fully attained	Highest 2-yr. catch without carryover	Highest 2-yr. catch with carryover	Result
Case 1: Healthy stock, ACL = ABC								
100	100	70	110	110	210	180	180	No increased biological impact, no net economic benefit
Case 2: Precautionary zone stock, ACL < ABC, ABC is trending up								
100	90	70	110	100	190	170	180	No increased biological impact, increased economic benefit
Case 3: Precautionary zone stock, ACL < ABC, ABC is trending down								
110	100	70	100	90	190	160	170	No increased biological impact, increased economic benefit
Case 4: Rebuilding stock, ACL << ABC								
100	5	2	110	6	11	8	11	No increased biological impact, increased economic benefit

**Managing Carryover with Catch Estimation Uncertainty**

There is currently a nine-month lag in getting fully reconciled estimates of total mortality from the West Coast Groundfish Observer Program. While inseason catch monitoring on the west coast is reasonably accurate, there is uncertainty in inseason catch estimation, especially for estimates of dead discards in non-trawl fisheries, which could limit full implementation of a carryover provision. Inseason catch estimation uncertainty is not an issue with a trawl-dominant stock such as Pacific ocean perch since all trawl trips are 100 percent monitored at sea and estimates of landings and dead discards are reported within 24 hours. One way to address this issue is to evaluate the interannual variability of discard rates of those stocks that are most likely candidates for a carryover and factoring that into a decision on how much unutilized yield to carry over from

one year to the next. If the discard rate for a given stock is highly variable from year to year, then a lesser portion of the unutilized harvest can be carried over to the next year to mitigate the risk of potential overfishing. Another strategy to consider is to wait until March of the second year to trigger a carryover action. While this timing would delay the rulemaking to implement the increase in year-2 harvest specifications, recreational total catches are known by then leaving only the non-trawl commercial fisheries with an uncertain catch accounting.

### **Managing Carryover with Assessment Uncertainty**

A consideration for implementing a carryover is the age of the assessment used to inform harvest specifications. Projections of spawning biomass and hence OFLs are less certain as the projections are extended further out in time due to recruitment, productivity, and harvest assumptions during the projection period. The SSC has acknowledged this and will be evaluating analyses intended to increase sigma values as assessments age. This may help mitigate the increased uncertainty of older assessments. However, there may be further consideration to implement a carryover of a smaller portion of unutilized harvest for older assessments or to not implement a carryover at all when an assessment reaches a certain age.

### **Draft Fishery Management Plan Amendment Language**

Section 5.5.1 of the FMP describes the framework for inseason adjustment of harvest specifications. This is the logical place to describe the framework for carryover provisions. The following excerpt of FMP Section 5.5.1 provides the proposed amendment language for the two approaches considered for carryover of harvest specifications.

FMP Excerpt of Section 5.5.1:

#### ***5.5.1 Inseason Adjustments to OFLs, ABCs, and ACLs***

Under the biennial specifications and management measures process, stock assessments for most species will become available every other year, prior to the November Council meeting that begins the three-meeting process for setting specifications and management measures. The November Council meeting that begins that three-meeting process will be the November of the first fishing year in a biennial fishing period. If the Council determines that any of the OFLs, ABCs, ACLs, or optimum yields 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.

A portion of the unharvested ACL of a managed stock or stock complex is allowed to be “carried over” from one year to the next in cases when the Council judges the socioeconomic benefits of full ACL attainment justify the cost of an extra rulemaking. Two approaches for this carryover provision are allowed: 1) increase the second year ACL up to the previously specified ABC as an upper limit or 2) recalculating the second year OFL, ABC, and ACL by projecting the actual harvest in year-one when the harvest is underutilized to recalculate the year-two harvest specifications using the previously specified harvest control rule. Both provisions would increase these specifications by adding all or a portion of the previous year’s unutilized harvest.

PFMC

11/07/17