Agenda Item C.7.a
WDFW Report 1
April 2026

PRELIMINARY ANALYSIS OF THE PROPOSAL FOR MORE FLEXIBLE SHARING OF THE CANARY ROCKFISH ANNUAL CATCH LIMIT

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A. Overview

In November, WDFW agreed to help analyze the ideas we offered for addressing challenges with the two-year canary rockfish allocations. This report outlines our suggested method for evaluating the proposal and provides initial analysis.

There are four main components to the approach:

1. **Recreational sectors:** modify the harvest guidelines by increasing the amounts to plan seasons with by 25% and attaching performance standard criteria to help guide Council inseason and mid-biennium responses to annual overages.
2. **At-sea sectors:** convert the set-aside to a performance standard, set 25% higher, and attaching performance standard criteria likewise intended to help guide responses to annual overages. The status quo set-aside amount (20 mt) would be distributed to the IFQ sector.
3. **Sector-by-sector evaluation:** evaluate the likelihood that each sector reaches its share of the ACL considering available projections and professional judgment of managers and fishery participants.
4. **Risk to the ACL evaluation:** evaluate the likelihood that catch across all sectors reaches the ACL based on the sector-by-sector analysis.

The core information needed to evaluate the proposal comes from the routine 2027-2028 analysis. It is simply a matter of synthesizing it. We provide an initial sector-by-sector synthesis in Sections E.3 and Appendix 2 and of the risk to the ACL in Section E.4 and Appendix 3. These syntheses are intended for critique by the GMT and GAP, managers, fishery participants, and the public. All in all, WDFW's evaluation finds that the probability of exceeding the ACL would be expected to remain very low even with the proposed modifications to the recreational harvest guidelines and the At-sea set aside.

We have not identified any regulations that would need to be changed to implement the proposal. On advice from Council staff, the specifics of the performance standards and their associated responses, if developed, could be recorded in the SAFE Report.

Of note, the performance standard approach does not take away the Council's tools for addressing sector overages in the At-sea (e.g. block area closures (BACS)) or recreational sectors (e.g. bag limit adjustments and depth closures). Instead, the purpose is to clarify expectations on when such tools should be considered and to better limit the workload involved with such consideration to situations where justified by conservation need.

B. Goal Statement

The goal of the proposal is to allow fisheries to attain more of the ACL and to prevent restrictions when unjustified by conservation need by better aligning 2027-2028 planning with

the "risk to the ACL" approach currently used to evaluate the need for inseason or mid-biennium action.

Further description of the challenges seen with the Council's two-year allocations of canary and motivations behind the proposal are found in our September and November 2025 reports. In brief, the canary ACL is fully allocated on paper and yet actual catch has come in considerably below the ACL and did so again in 2025.

As anticipated in planning for the 2025-2026 seasons, inseason projections showed that Washington's and Oregon's recreational fisheries were likely to reach or exceed their harvest guidelines. At the same time, it was also clear that there was very low risk that catch across all sectors would reach the ACL. It is unclear why the Council would wish to restrict the recreational sectors with such a surplus of the ACL available.

The IFQ sector is the major source of unused catch. The At-sea sector contributed to the surplus in most years as do the sectors accounted for with the off-the-top set asides. The IFQ sector again came in well below their allocation in 2025 despite the major reduction in the ACL. Individual accountability and the prospect of lightning strikes are the suspected causes of the low attainment. Re-allocating from the trawl to non-trawl sectors would cause some harm to IFQ participants and the At-sea sectors.

We view the proposal as a way to address the shortcomings of the existing allocation framework for the upcoming biennium more than as a "new" management measure. The Council kept allocations open to adjustment every two years so as to learn and adapt. Based on changes to the fishery and the stock since the allocations were initially developed, it is now questionable whether the trawl and non-trawl allocations are even necessary or appropriate in light of the MSA and its National Standards. Allocation of quota pounds to the IFQ sector could be the minimally sufficient allocation needed to make that program work. It may be possible for the Council to use softer planning targets for the other sectors, combined with risk-based evaluation like that proposed here, and more effectively achieve conservation and management goals. This proposal is an interim step towards fuller evaluation of that idea. The proposal would be in place only for 2027-2028 and could be improved upon or replaced starting with planning for the 2029-2030 seasons.

C. Alternatives

The alternatives proposed are organized into two main sections. The first introduces the alternative to status quo catch accounting. The second introduces the performance standard alternatives.

Before proceeding, we introduce the term **planning amount**. We use it to differentiate the amounts the Council uses to plan seasons from **projected or actual/realized catch.** Uncertainty and variability often mean there is a gap between the two. The purpose is to focus on the decision of how much to deduct from the ACL when planning.

Under status quo, the Council uses a variety of approaches. For example, the At-sea set aside has been set at a level that is unlikely to be reached in the typical year. Likewise, the allocation to the IFQ program establishes the quota pounds that circulate within the program. Past performance has shown that the quota pounds are unlikely to be fully fished. In contrast, the recreational harvest guidelines are more likely to be reached or exceeded, as was the case for Oregon's and Washington's recreational fisheries in 2025.

1. *ACL risk evaluation*

The proposal simply involves employing more risk-based evaluation of the 2027-2028 management measures and projected catches. After considering the evaluation, the Council would make a "risk/policy decision" on whether the preferred management measures for the 2027-2028 biennium would result in catch exceeding the ACL.

Formal alternatives are not needed to use this approach. However, to make the contrast clear, the alternative can be framed like this:

Status Quo	Alternative Approach
Deduct the off-the-top set asides and trawl and non-trawl allocations from the ACL as if they are 100 percent likely to be caught.	Evaluate the probability that each sector reaches its "planning amount" and how likely catch from the planned seasons is to exceed the ACL.

2. *Performance standards*

There are two parts to the performance standard: a) the alternative planning amounts and b) the if-then conditions intended to clarify when inseason or mid-biennium action should be considered. The alternatives would apply to 2027-2028 and could be refined or replaced beginning with development of the 2029-2030 management measures package.

a. Planning amount alternatives

The main thrust of the proposal would be to increase the planning amounts for the recreational and At-sea sectors by 25% and provide the 20 mt set aside to the IFQ sector as follows:

	Year	Alt 1	Alt 2	Alt 1 w/ Perf. Std.	Alt 2 w/ Perf. Std.
CA rec	*2027*	50.5	53.9	63.1	67.4
	2028	52.1	55.9	65.1	69.9
OR rec	*2027*	28.2	30.1	35.3	37.6
	2028	29.0	31.1	36.3	38.9

WA rec	*2027*	18.7	20.0	23.4	25.0
	2028	19.3	20.7	24.1	25.9
At-Sea	*2027*	20.0	20.0	25.0	25.0
	2028	20.0	20.0	25.0	25.0
IFQ	*2027*	377.3	404.0	397.3	424.0
	2028	389.6	419.2	409.6	439.2

b. If-then conditions

The performance standard approach involves setting if-then conditions for evaluating overages of the At-sea and recreational sector planning amounts. The if-then conditions would be intended to clarify expectations to managers and fishery participants and also serve to maintain accountability for controlling catch to acceptable levels. As noted in the overview, the proposal does not change the tools that the Council has available to address catch overages in the At-sea or recreational sectors. Instead, they are intended to better clarify when conservation circumstances justify consideration of those tools. As for the specific if-then conditions, we propose the following:

Status Quo	**Alternative Approach**
The Council continues the inseason "risk to the ACL" evaluation any time it looks like a sector might go over its share of the ACL.	The Council will consider inseason or mid-biennium adjustments to the sector's management measures if: • The sector's planning amount is exceeded more than once in a four-year period.[1] • The sector's planning amount is exceeded by more than 20% in any one year. • The ACL is exceeded or pre-season or inseason projections suggest that it is likely to be exceeded more than once in a four-year period or in a single year if the magnitude of the overage causes concern for optimum yield. • The Council chooses to re-evaluate for other conservation and management

[1] With 2027-2028 being the first period, the no more than one in four could be evaluated prospectively with probabilistic reasoning. Using the Bernoulli distribution to illustrate the concept, a probability of 38.6% of an overage in a single year equates to a 50-50 chance of seeing no more than one overage in a four-year period. Management measures could be set at a more risk-averse level and provide assurances that the chances of an ACL overage would remain low. For example, the risk-to-the-ACL analysis in Appendix 3 suggests that the probability of an annual overage would remain very low if the proposal were implemented.

	purposes based on new information or circumstances.

D. Proposed Evaluation criteria

Various frameworks for policy analysis and similarly structured methods are used throughout public policy and business to make decisions. Each involves similar elements, e.g. problem statements, alternative proposals for action, projection of outcomes and consequences, weighing trade-offs, etc. The selection of criteria used to evaluate trade-offs and determine which alternative is preferable is an element we emphasize here.[2] Explicit discussion of the criteria—whether the right ones are being used and how much weight to place on each—can improve the clarity and the openness and transparency of how decisions are debated and made.[3]

One of the most important evaluation criteria involves an assessment of how well an alternative would be expected to hit its policy goals, objectives, targets etc. The Magnuson-Stevens Act, and National Standard 1 in particular, provide the primary policy objectives of relevance here with the NS1 Guidelines recommending an approach for achieving them. We highlight the following:

- Accountability measures (AMs) are "management controls to prevent ACLs, including sector-ACLs, from being exceeded, and to correct or mitigate overages of the ACL."[4]
- ACLs serve as "a limit on the total annual catch of a stock or stock complex . . . that serves as the basis for invoking AMs."
- The primary objective of ACLs and AMs is to prevent overfishing and achieve optimum yield.[5]
- Uncertainty in estimates of OFLs (i.e. "scientific uncertainty") and in the ability to control catch (i.e. "management uncertainty") are at the forefront of the NS1 Guidelines. The recommended approach is designed so that there is a "low risk of exceeding limits" with the buffer between the ABC and the OFL being the recommendation for addressing scientific uncertainty and ACTs being the recommended tool for management uncertainty.[6]

[2] The discussion in this section is taken largely from the discussion of "step four" in Bardach, E., & Patashnik, E. M. (2023). *A practical guide for policy analysis: The eightfold path to more effective problem solving*. CQ press.
[3] Clearly exposing trade-offs among conflicting objectives has also been described as a "central objective" of fisheries science and management. Walters, C.J. and Martell, S.J., 2004. *Fisheries ecology and management*. Princeton University Press.
[4] 50 CFR 600.310(g)(1).
[5] 50 CFR 600.310(b)(1)(iii).
[6] 50 CFR 600.310(b)(3) and its references to (f)(2) and (g)(4).

- Performance standard: "[i]f catch exceeds the ACL . . . more than once in the last four years, the system of ACLs and AMs should be reevaluated, and modified if necessary, to improve its performance and effectiveness."[7]

These should also be read in the greater context provided by the definitions of "optimum" and "conservation and management" in Section 3 of the MSA and the Council's fundamental role of crafting FMPs that:

> contain the conservation and management measures . . . which are necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild and to protect, restore, and promote the long-term health and stability of the fishery . . . ; and consistent with the national standards, the other provisions of [the MSA] . . . and any other applicable law. In sum, AMs are meant to control catch to ACLs and ACLs are intended to achieve optimum yield.

Additional criteria commonly used in public policy analysis include efficiency, fairness and equity, legality, individual freedom, political acceptability, and transparency and openness of the decision process, and more. Many of these considerations are found in the MSA's National Standards and their respective guidelines. Here are some highlights of relevance to the proposed approach:

- NS2 and its reference in NS8 require conservation and management measures to be based upon the best scientific information available.
- NS4 requires allocations to be fair and equitable and reasonably calculated to promote conservation.
- NS5 requires the Council to consider efficiency in the utilization of fishery resources where practicable.
- NS6 requires conservation and management measures to take into account and allow for variations among and contingencies in catches.
- NS7 requires conservation and management measures to minimize costs, i.e. to consider the cost-effectiveness of alternatives.
- NS8 provides for sustained participation of fishing communities and calls for managers to minimize adverse economic impacts to the extent practicable—"[a]ll other things being equal, where two alternatives achieve similar conservation goals, the alternative that provides the greater potential for sustained participation of such communities and minimizes the adverse economic impacts on such communities would be the preferred alternative."[8]
- NS9 requires conservation and management measures to minimize bycatch to the extent practicable.

[7] 50 CFR 600.310(g)(7). Not explicitly stated but this implies an acceptable probability of 38.5% or lower.
[8] 50 CFR 600.345(b)(1).

Appendix 1 highlights select recommendations from the NS1 Guidelines in more detail.

E. Analysis

To analyze the proposal, we suggest considering the projected outcomes under the proposal and using the evaluation criteria to weigh any trade-offs compared to status quo.

1. Recreational performance standards

The modification of the recreational harvest guidelines to the performance standards would not be expected to affect core management of these sectors. The main accountability/management measures would remain in place (e.g. bag limits, depth closures, etc.). The higher planning limits would prevent additional restrictions from going into place for 2027-2028 in the Washington recreational fishery and may allow additional retention of canary in the California and Oregon recreational fisheries as well. Projections of catch in the recreational sectors should be considered under the sector-by-sector attainment and risk to the ACL analyses. Again, more detailed analysis of management measures in the recreational sectors can be found in the main 2027-2028 management measures analysis.

2. At-sea performance standards

The Council has relied on cooperative management to manage bycatch of canary and other species in the Mothership and Catcher-Processor sectors.[9] The co-ops are able to use near real time data and analysis with the aid of Sea State, Inc. and are able to self-regulate through private contract to impose measures like area closures and move along rules.[10] The co-ops have incentive to operate in this manner knowing that top-down regulation by the Council could be more costly and inflexible.

With Amendment 21-4 to the FMP, the Council decided that hard caps were no longer needed to maintain the incentive and so converted the At-sea whiting share to a set aside. This proposal would further refine that approach by converting the canary rockfish at-sea set-aside amount into a performance standard, set 25% higher, and distributing the 20 mt status quo set-aside amount to the IFQ sector. Doing so would reflect the low likelihood of reaching the status quo at-sea set-aside amount and the even lower likelihood of fully attaining the trawl allocation even when at-sea mortality is not formally accounted for.

All trawl mortality from both the At-sea and IFQ sectors would still be monitored under the trawl allocation, and setting a performance standard would still allow the Council to consider whether inseason action is needed to limit At-sea mortality in the event of high bycatch. We note that,

[9] De Alessi, M., Sullivan, J.M. and Hilborn, R., 2014. The legal, regulatory, and institutional evolution of fishing cooperatives in Alaska and the West Coast of the United States. Marine Policy, 43, pp.217-225.
[10] *See, e.g., https://www.pcouncil.org/documents/2019/06/agenda-item-i-7-b-supplemental-revised-public-presentation-1-karl-haflinger-sea-state.pdf/*

once IFQ quota pounds are distributed to accounts, they cannot be removed through inseason action, so the Council would not be able to take inseason action to limit any additional canary rockfish mortality in the IFQ sector.

A key question for the Council to consider is whether or how the At-sea incentive to avoid canary rockfish would or would not change. WDFW does not see reason to believe the incentive would change. The performance criteria would mainly serve to clarify expectations within the cooperatives on when exceeding the 25 mt planning amount would be acceptable. Expectations have been unclear.[11] As described above, and as with the evaluation criteria proposed for the recreational performance standards, the Council would clarify in the SAFE the intent to consider whether inseason or mid-biennium action is needed when the At-sea performance standard is reached or exceeded. The criteria proposed in the performance standard alternatives were partly modeled off of the current regulatory provision specific to At-sea set-asides, which lists 1) risk of a harvest specification being exceeded, 2) unforeseen impact on other fisheries, or 3) conservation concerns as reasons for the Council to consider inseason action to limit At-sea mortality.[12] The performance standard criteria would seek to add more specifics to aid in the application of these regulations.

As noted above, the distinction between the planning amount and realized or expected catch has been notable for the At-sea sectors. The At-sea sectors only caught over 20 mt once during 2015-2024 and averaged 3.5 mt in the other nine years.[13] The set aside amount was 46 mt during 2017-2020 and 36 mt during 2021-2024 and an average of 35.9 mt was unused per year. In 2025, they caught 3 mt of the 20 mt set aside.

The proposal is to provide the status quo 20 mt set aside to the IFQ program to benefit individual IFQ participants. The effect of the At-sea catch would be accounted for in the sector-by-sector and risk-to-the-ACL analyses. The performance standard could lead to an increase in catch but 25 mt would be unexpected in most years. Potential changes to fishing behavior and patterns of catch should be addressed in the sector-by-sector and risk-to-the ACL analyses.

Additionally, the GMT's 2027-2028 analysis demonstrates that spatial effort distribution is a larger factor in driving canary rockfish bycatch than At-sea Pacific whiting allocation attainment. The bootstrap simulation results indicate a zero percent probability of reaching or exceeding the 20 mt set-aside in 2027-28 when fishing effort is concentrated exclusively off of Oregon, as has been the case in recent years, even when the Pacific whiting allocation is fully attained.[14] The

[11] *See* "At-Sea Set-Aside Management and Expectations" discussion in the March 2025 GAP Report under Agenda Item H.3.
[12] 50 CFR 660.150(c)(2)(i)(B)(1)
[13] *See* Table 1 in GMT Report 1 September 2026 Agenda Item G6.
[14] The 2025 Pacific whiting allocation for both sectors was used as a proxy for the 2027-28 Pacific whiting allocations, as Pacific whiting allocations are set through the annual treaty process.

probability is roughly 1-2 percent when fishing effort is distributed across both Washington and Oregon.

3. *Sector-by-sector attainment*

Under status quo, the Council deducts what we are calling the planning amount from the ACL in full for each sector, even in cases where the GMT's analysis projects attainment to be lower than the amount. The practice is of questionable consistency with National Standard 2.

The alternative suggested here is to approach the question using risk-based, probabilistic reasoning. The information in the 2027-2028 management analysis serves as the basis for the approach and the GMT and GAP providing additional insight based on professional judgment. The "attainment factor" approach we suggested in September 2025 is one method for stepping through each sector and evaluating the planning amount. The attainment factor roughly equates to the percentage attainment expected in 2027-2028. We do not provide such analysis here but may in a future report.

Appendix 2 summarizes the current synthesis of the information provided in the 2027-2028 management measures analysis. The sector-by-sector analysis will identify the relative size of the gap between the planning amount and expected catch for each sector and the reasons for it when the gap is large. The information in the sector-by-sector analysis then serves as the basis for the risk-to-the ACL evaluation.

4. *Evaluating Risk to ACL*

Again, the proposed approach has the Council making a risk/policy call on whether the risk of exceeding the ACL under the performance standard approach for the At-sea and recreational sectors is acceptable. As a reminder, the canary rockfish ACLs under consideration for 2027-2028 are:

	Alternative 1	**Alternative 2**
2027	606 mt	643 mt
2028	623 mt	664 mt

There are various ways the Council can evaluate the risk-to-the-ACL. The "attainment factor" approach is one we suggested in our September report. The sum of the planning amounts multiplied by the attainment factors will provide one measure of expected catch against the ACL. The IFQ, At-sea sectors, and the sectors accounted for with the off-the-top set asides have been the main sources of under-attainment. It is clear that the dynamics in the IFQ sector are very significant. Input from the GAP and industry participants on how attainment may change in that sector would be very important to the Council's risk/policy call.

We also illustrate another way of evaluating the risk to the ACL and the trawl/non-trawl allocations in Appendix 3, one that considers the risk probabilistically under different assumptions of sector-specific future attainments. In summary, we calculated sector-specific attainment for canary rockfish by year and used the observed attainment range from a period with stable ACLs (i.e., prior to the reduction in 2025) to estimate the variability in attainment. We then simulated 20,000 sector-specific attainments under Status Quo (2025) sector mortalities and under various options of higher sector attainments and calculated the risk of exceeding the fishery ACL as well as the trawl and non-trawl allocations. We estimate that the risk of exceeding the non-trawl allocation is low under assumptions of moderately higher attainments in the non-trawl sector, but the non-trawl allocation would likely be exceeded if all recreational sectors attained 125% of their HG and commercial non-trawl attainment were to also increase moderately. The risk to the ACL and trawl allocation was small even under mild and moderate increases in IFQ attainments.

5. Application of Evaluation Criteria

We suggest that the GMT and GAP, after consideration of the projected outcomes, compare the alternatives against the evaluation criteria identified above and in Appendix 1. In WDFW's preliminary view, the proposal is superior to status quo based on the criteria suggested by the National Standards and their guidelines. In short, the proposal should lead to higher attainment of the ACL and thereby better achieve OY. In the framing of the NS8 guidelines, the higher attainment would achieve similar, and even superior, levels of conservation while having lower adverse impacts on the recreational and At-sea sectors.

F. Findings and Recommendations

This report serves to suggest a method by which the Council could consider the proposal for more flexible sharing of the ACL and provides initial analysis of the expected effects. The performance standard approach is intended to keep management and accountability for the recreational and At-sea sectors intact while relieving some pressure for the At-sea sectors and eliminating the need for further restrictions and perhaps even adding additional opportunities in the recreational sectors. The if-then conditions are intended to clarify expectations on when overages may be acceptable, and the suggestions we provide here are not exhaustive. We estimate that the probability of reaching the ACL under this proposal is low but recognize the possibility for change in the fishery such as different IFQ quota utilization or increased participation in the commercial non-trawl fishery that might necessitate re-evaluation of the current assumptions and expectations.

Appendix 1 – Selected Excerpts from the National Standard Guidelines

Table 1. Selected excerpts from the National Standard Guidelines. The full guidelines may be located from NMFS website.

	GUIDELINES REPRESENTATION OF THE STATUTORY LANGUAGE	SELECTED PROVISIONS FROM THE GUIDELINES	NOTES ON THE RELEVANCE TO THIS ISSUE
National Standard 2	*Conservation and management measures shall be based upon the best scientific information available.*	Scientific information that is used to inform decision making should include an evaluation of its uncertainty and identify gaps in the information. Management decisions should recognize the . . . economic (e.g., loss of fishery benefits) risks associated with the sources of uncertainty and gaps in the scientific information. 50 CFR 600.315(a)(2)	The status quo practice of not weighting a sector's share of the canary ACL by the probability it will be caught runs counter to standard scientific and risk-based methods. See notes under NS8.
National Standard 4	*Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (a) fair and equitable to all such fishermen; (b) reasonably calculated to promote conservation; and (c) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privilege.*	***Promotion of conservation.*** Numerous methods of allocating fishing privileges are considered "conservation and management" measures . . . An allocation scheme may promote conservation by encouraging a rational, more easily managed use of the resource. Or, it may promote conservation (in the sense of wise use) by optimizing the yield in terms of size, value, market mix, price, or economic or social benefit of the product. 50 CFR 600.325(c)(3)(ii)	The Council's allocation framework should be reasonably calculated to achieve OY.
National Standard 5	*Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.*	***Efficiency.*** In theory, an efficient fishery would harvest the OY with the minimum use of economic inputs such as labor, capital, interest, and fuel. Efficiency in terms of aggregate costs then becomes a conservation objective, where "conservation" constitutes wise use of all resources involved in the fishery, not just fish stocks. 50 CFR 600.330(b)(2)	Of particular relevance to the At-sea fleets, the cost of the set asides to those sectors has not been evaluated in detail.

National Standard 6	*Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.*	Continual data acquisition and analysis will help the development of management measures to compensate for variations and to reduce the need for substantial buffers. Flexibility in the management regime and the regulatory process will aid in responding to contingencies. 50 CFR 600.335(b) Every effort should be made to develop FMPs that discuss and take into account these vicissitudes. To the extent practicable, FMPs should provide a suitable buffer in favor of conservation. Allowances for uncertainties should be factored into the various elements of an FMP. 50 CFR 600.335(c)(2) Amendment of a flexible FMP would be necessary when circumstances in the fishery change substantially, or when a Council adopts a different management philosophy and objectives. 50 CFR 600.335(d)(3)	The NS6 Guidelines call for flexibility in the management regime but also tend to discuss buffers for conservation. The question to focus on may be how to right-size the buffer.
National Standard 7	*Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.*	**Analysis**. The supporting analyses for FMPs should demonstrate that the benefits of fishery regulation are real and substantial relative to the added research, administrative, and enforcement costs, as well as costs to the industry of compliance. In determining the benefits and costs of management measures, each management strategy considered and its impacts on different user groups in the fishery should be evaluated. This requirement need not produce an elaborate, formalistic cost/benefit analysis. Rather, an evaluation of effects	The Guidelines here, like NS4's "reasonably calculated to promote conservation" recommends that management measures have demonstrative benefits that justify the associated costs. This suggests that the Council should consider which measures meet conservation goals most cost-effectively.

		and costs, especially of differences among workable alternatives, including the status quo, is adequate. If quantitative estimates are not possible, qualitative estimates will suffice. 50 CFR 600.340(c) ***Burdens.*** Management measures should be designed to give fishermen the greatest possible freedom of action in conducting business and pursuing recreational opportunities that are consistent with ensuring wise use of the resources and reducing conflict in the fishery. 50 CFR 600.340(c)(1)	
National Standard 8	*Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meet the requirement of paragraph (2) [i.e., National Standard 2], in order to (a) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities.*	This standard requires that an FMP take into account the importance . . . to fishing communities. This consideration, however, is within the context of the conservation requirements . . . Deliberations . . . must not compromise the achievement of conservation requirements and goals of the FMP. Where the preferred alternative negatively affects the sustained participation of fishing communities, the FMP should discuss the rationale for selecting this alternative over another with a lesser impact on fishing communities. All other things being equal, where two alternatives achieve similar conservation goals, the alternative that provides the greater potential for sustained participation of such communities and minimizes the adverse economic impacts on such communities would be the preferred alternative. 50 CFR 600.345(b)(1)	ACL management is the main means of achieving conservation and OY. Alternatives that lead to higher attainment of the ACL would by definition not only achieve "similar conservation goals" but do better at achieving the conservation goal.

National Standard 9	*Conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.*	***General.*** This national standard requires Councils to consider the bycatch effects of existing and planned conservation and management measures. Bycatch can, in two ways, impede efforts to protect marine ecosystems and achieve sustainable fisheries and the full benefits they can provide to the Nation. First, bycatch can increase substantially the uncertainty concerning total fishing-related mortality, which makes it more difficult to assess the status of stocks, to set the appropriate OY and define overfishing levels, and to ensure that OYs are attained and overfishing levels are not exceeded. Second, bycatch may also preclude other more productive uses of fishery resources. 50 CFR 600.350(b)	Canary catch may not technically meet the NS9 definition of bycatch but the "to the extent practicable" may be of relevance to the Council's incentives for cooperative management by the At-sea sectors.

Appendix 2 – Synthesis of 2027-2028 Sector-by-Sector Attainment Projections

Table 2. Projected sector-specific attainments (percent) under the performance standard proposal compared to the status quo approach as well as the average attainment, 2022-2024. Projections assume status quo management measures (i.e., 2025 bag limits, trip limits, seasons) across both approaches. Attainments in 2025 can be found in Table A3 of Agenda Item D.5.a, Supplemental GMT Report 1, March 2026.

Fishery Sector	Average Attainment, 2022-2024	Projected Attainment of Alternative 1 Limits (Status Quo), 2027	Projected Attainment of Alternative 1 Limits (Performance Standard), 2027	Factors Contributing to Attainment
ACL Total	**51%**	**68%**	**68%**	
Off-the-top a/	**25%**	**28%**	**28%**	Research projects; Treaty fishing effort; Effort in other non-groundfish fisheries
Trawl Allocation	*53%*	*60%*	*62%*	*Attainment is not likely to vary as much as that of the non-trawl allocation*
At-sea b/	25%	38% (of 20)	30% (of 25)	Spatial effort distribution (northerly); Pacific whiting allocation attainment
IFQ	55%	61% (of 375)	60% (of 397)	Quota availability of canary rockfish; Quota market fluidity; Target species effort
Non-Trawl Allocation	*50%*	*110%*	*110%*	*Attainment could vary, depending on whether management measures are relaxed under the performance standard, and to what extent*
Comm. Non-Trawl	24%	61% (of 54.8)	49% (of 68.5)	Trip limits; Target species effort Area closures (e.g., Non-Trawl RCA)
WA Recreational	74%	119% (of 18.7)	95% (of 23.4)	Bag limits; Season structures; Area closures (e.g., YRCAs, lingcod)
OR Recreational	85%	112% (of 28.2)	89% (of 35.3)	Bag limits; Season structures; Area closures (e.g., YRCAs)
CA Recreational	51%	168-193% (of 50.5)	134-154% (of 63.1)	Bag limits; Season structures; Area closures (e.g., YRCAs)

a/ Projected 2027 attainment is based on the recent 4-year average of mortality (2022-2025), relative to the preliminarily adopted 56.6 mt off-the-top deduction.
b/ At-sea projected attainment is based on the 80th percentile of simulated catches from a full attainment, coastwide fishing scenario, using only 2017-2025 data to inform the bootstrap.

Table 3. Sector-specific projected canary rockfish mortality impacts (mt) under status quo management measures and the least restrictive management measures analyzed, compiled from the 2027-2028 management measures analysis. It is important to note that the "least restrictive" management option analyzed differed for each sector and did not capture a full relaxation of all management measures that limit canary rockfish catch for all sectors.

Fishery Sector	2027 Status Quo Projections (mt)	2027 Projections under Least Restrictive Management Analyzed (mt)	Description
Total, All Sectors a/	**415.0**	**480.5**	**2027 Alt. 1 ACL = 606 mt** **2027 Alt. 2 ACL = 643 mt**
Off-the-top	16.0	16.0	Recent 4-year average mortality, 2022-2025
Trawl Total	237.4	245.4	2027 Alt. 1 allocation = 397.3 2027 Alt. 2 allocation = 424.0
At-sea	7.4	7.4	Bycatch only; based on 80th percentile of simulated catches
IFQ	230	238	Status quo = closest to 20 mt SQ canary at-sea set-aside Least restrictive = removal of canary at-sea set-aside
Non-Trawl Total a/	166.7	224.8	2027 Alt. 1 allocation = 152.2 2027 Alt. 2 allocation = 162.5
Commercial Non-Trawl	33.7	47.7	Status quo = 2025 trip limits Least restrictive = 2026 inseason increase
WA Recreational	22.2	24.5	Status quo = 5 fish sub-bag limit Least restrictive = 7 fish sub-bag limit + removal of 30-fm closure in May
OR Recreational	31.5	55.9	Status quo = 1 fish sub-bag limit Least restrictive = no canary sub-bag limit, but part of a 5 fish bag limit
CA Recreational	68.9-79.3	84.6-97.4	Bracketed to account for uncertainty Status quo = status quo bag limit & season structure Least restrictive = status quo bag limit & open year-round at all depths

a/ The mid-point of the range projected for California recreational was used in the mortality estimate for non-trawl total and total, all sectors.

Appendix 3 – Evaluating Risk to the ACL

1. Summary

We conducted an analysis estimating the probability of exceeding the ACL and non-trawl and trawl allocations for canary rockfish, using sector-specific performance over the past five years. We calculated sector-specific attainment by year and used the observed attainment range from a period with stable ACLs (i.e., prior to the reduction in 2025) to estimate the variability in attainment. We then simulated 20,000 sector-specific attainments under Status Quo (2025) sector mortalities and under various options of higher sector attainments and calculated the risk of exceeding the fishery ACL as well as the trawl and non-trawl allocations. We estimate that the risk of exceeding the non-trawl allocation is low under assumptions of moderately higher attainments in the non-trawl sector, but the non-trawl allocation would likely get exceeded if all recreational sectors attained 125% of their HG and commercial non-trawl attainment were to also increase moderately. The risk to the ACL and trawl allocation was small even under mild and moderate increases in IFQ attainments. Our analysis shows how 'what-if' scenarios can be evaluated probabilistically to help elucidate policy trade-offs.

2. Sector Attainment Patterns

Between 2021 and 2024, attainment for canary rockfish in all sectors was less than 100%, ranging from an average of 22% for set-asides (open access, research, and tribal[15]) to between 70 and 80 percent for the Washington and Oregon recreational fisheries (Figure 3.1). When the ACL was reduced in 2025, attainment increased for the non-trawl sectors, most notably for commercial non-trawl and Washington recreational. The highest variability in attainment was observed in the At-Sea sector, mostly due to unusually high mortality in a single year, and the least variability in attainment and total mortality is seen for the commercial non-trawl sector (Figure 3.2).

[15] Tribal mortality in the GEMM is incomplete, so the set aside attainment estimate may be low

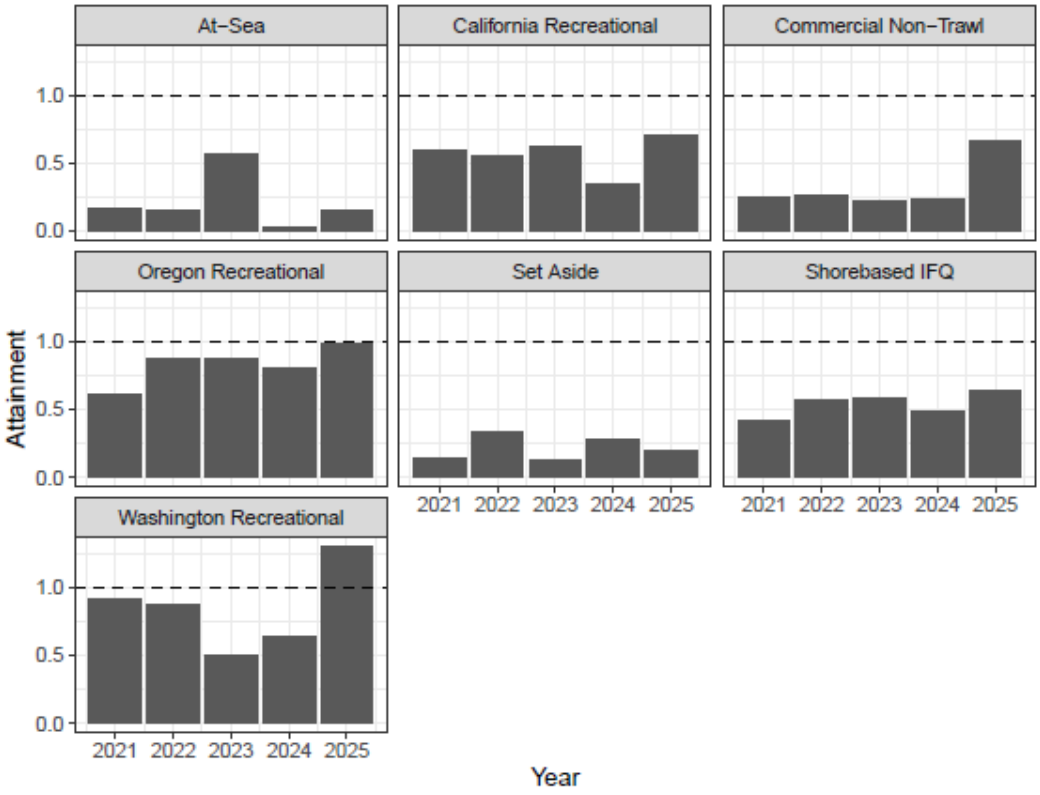

Figure 3.1. Canary rockfish attainment history by sector over the last five years. Source: GEMM

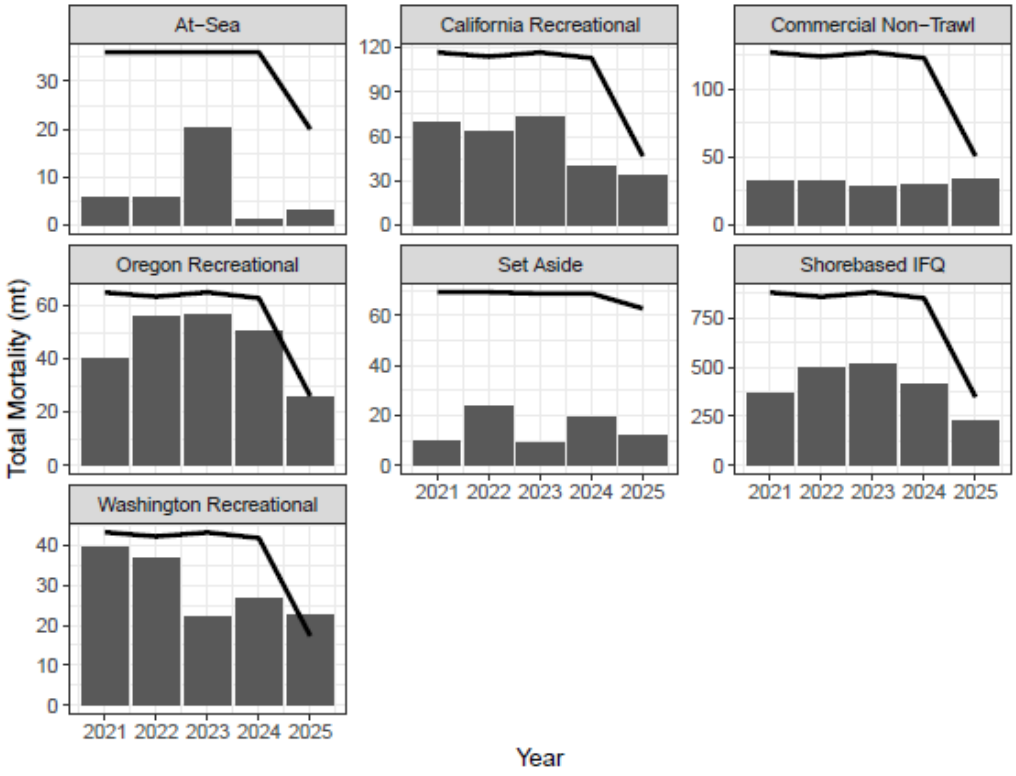

Figure 3.2. Canary rockfish total mortality and allocation/ HG history by sector over the last five years. Source: GEMM

3. *Status Quo*

The Status Quo analysis assumes 2025 sector-specific total mortality will continue in the future. When applying 2025 mortalities to the 2027 sector allocations/HGs under Alternative 2, we obtain the following sector attainments (note that attainments would be higher across the board under Alternative 1):

- Set Aside: 21%
- At-Sea whiting: 15%
- Shorebased IFQ: 61%
- Commercial Non-Trawl: 58%
- California Recreational: 61%
- Oregon Recreational: 85%
- Washington Recreational: 113%

The above attainments are roughly what we might expect to see under no changes in management, fishing behavior, and resource dynamics under the Council-preferred harvest specification alternative for 2027. Using those attainments and 2021-2024-level variability in

attainment, we generated 20,000 random attainment draws for each sector, converted those to sector mortalities and summed the mortalities to obtain fishery ACL and trawl/non-trawl mortality. We then estimated the probability of exceeding a limit as the proportion of draws that exceeded the limit.

4. Flexibility

Under a flexible approach to management, the sectors with currently high attainment would be managed to a higher limit. Under the assumption that other sectors, in particular the Shorebased IFQ fishery will continue to under-attain their HG/ allocation, the risk to the ACL and non-trawl allocation are evaluated under several scenarios of both higher non-trawl attainment and trawl attainments.

We explored three scenarios of increasingly higher mean attainments (Table 3.1). In Scenario 1, only the non-trawl sectors' attainments increase slightly compared to Status Quo. This is what we might see if recreational management measures are relaxed slightly and non-trawl vessel limits increase slightly. In Scenario 2, the non-trawl sectors' attainments increase more and the shorebased IFQ attainment is also higher (Table 3.1). Scenario 3 is meant to be a worst-case scenario, where we assume 125% attainment for the recreational sectors and additionally higher commercial non-trawl attainment (80%) and higher attainment of the Set Aside. In Scenario 3, we also assume a 150% At-Sea attainment (which translates to 30 mt), 80% Shorebased IFQ attainment and additionally a 20% increase in attainment variability for the trawl sector. The latter leads to higher occasionally large attainment draws for IFQ which might be expected if the fleets become less risk averse and lightning strikes happen more frequently.

Table 3.1. Sector-specific attainments used in this simulation. Status Quo assumes sector fishing mortalities will be as in 2025 and the attainments are the percentages of those mortalities relative to the 2027 Alternative 2 sector allotments. The three scenarios explore increasingly higher non-trawl and trawl attainments

Sector	Status Quo	Scenario 1	Scenario 2	Scenario 3
Set Aside	0.21	0.28	0.28	0.50
At-Sea	0.15	0.15	0.15	1.50
Shorebased IFQ	0.55	0.55	0.65	0.70
Commercial Non-Trawl	0.58	0.65	0.70	0.80
California Recreational	0.61	0.75	0.90	1.25
Oregon Recreational	0.85	1.00	1.20	1.25
Washington Recreational	1.13	1.20	1.20	1.25

5. *Results*

Under Status Quo, we estimated a zero percent probability of exceeding either the Alternative 2 2027 fishery ACL or trawl and non-trawl allocations (Figure 3.3, Table 3.2).

We estimated a low probability of exceeding the ACL under any of the flexibility scenarios we explored (Table 3.2), ranging from 0% under scenario 1 to 4.2% under scenario 3. The non-trawl allocation had a low probability of being exceeded in Scenarios 1 and 2, but when all recreational sectors were assumed to attain 125% of their harvest guidelines and the commercial non-trawl attainment was additionally assumed to be 80%, there was a 78.8% chance of exceeding the non-trawl allocation. The trawl-allocation had a zero percent probability of being exceeded in Scenarios 1 and 2 and a 4.8% probability of being exceeded in Scenario 3 (Table 3.2). Figure 3.4 illustrates the simulation results for Scenario 2.

Table 3.2. Probability of exceeding the fishery ACL (P(M > ACL)), non-trawl allocation (P(M > NT Alloc.)) or trawl allocation (P(M > Trawl Alloc.)) and percent ACL attainment (median, 90 percent range) under Status Quo and by simulated scenario.

	Status Quo	Scenario 1	Scenario 2	Scenario 3
P(M > ACL)	0	0	0	4.2
P(M > NT Alloc.)	0	1.3	16.8	78.8
P(M > Trawl Alloc.)	0	0	0	4.8
ACL Attainment	55 (47 - 64)	58 (50 - 67)	67 (58 - 78)	79 (66 - 98)

As our analysis shows, the expected risk to the non-trawl allocation will depend on the mortality levels to which the non-trawl fisheries are managed. Furthermore, the risk to the trawl allocation and overall ACL is very low, even under an assumption of 80% Shorebased IFQ attainment and 150% At-Sea set-aside attainment. Under the current IFQ system and structure of incentives and disincentives, those high trawl attainments are unlikely.

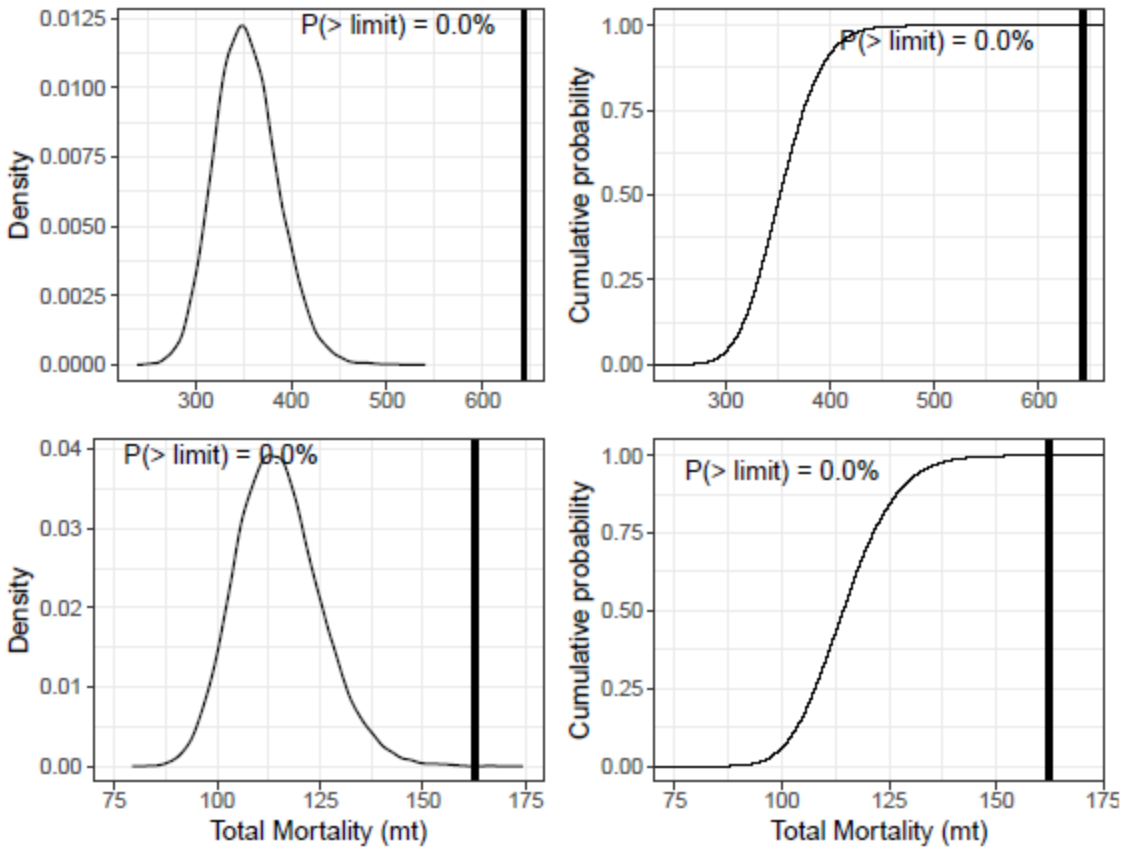

Figure 3.3. Density and cumulative probability plots of the simulated canary rockfish total mortalities for the entire fishery (top panels) and non-trawl sectors (bottom panels) under Status Quo mortality. The vertical black line is the 2027 ACL under Alternative 2 (top panels) or 2027 non-trawl allocation under Alternative 2 (bottom panels). 0.0% of the simulated mortalities exceeded either the ACL or non-trawl allocation

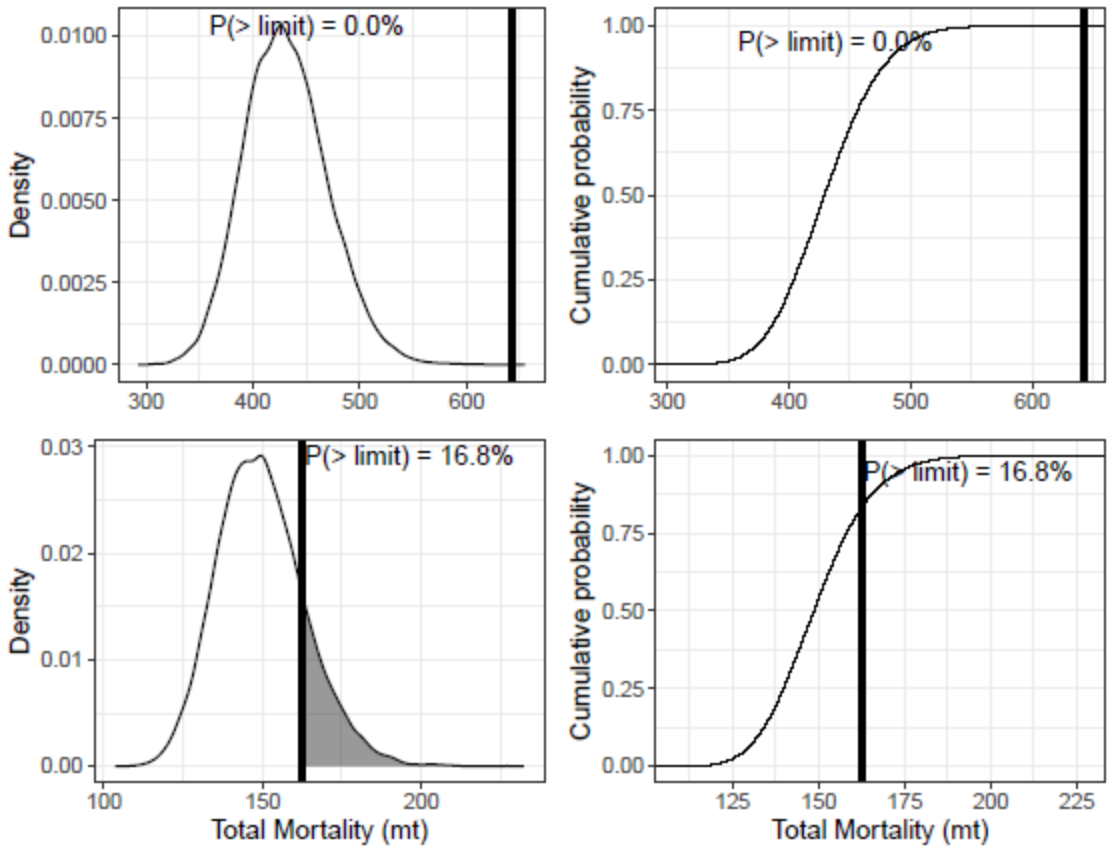

Figure 3.4. Density and cumulative probability plots of the simulated canary rockfish total mortalities for the entire fishery (top panels) and non-trawl sectors (bottom panels) under Scenario 2. The shaded areas in the left panels highlight the proportion of simulated mortalities that exceed the ACL (0%) and non-trawl allocation (16.8%) under the assumed attainments.