



August 27, 2009

To: Mr. Dave Ortmann, Chair
Dr. Donald McIsaac, Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

Cc: Samuel Herrick, Chair
CPS Management Team
P.O. Box 271
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Re: Agenda Item I.1, CPS FMP amendment to implement NS1 Requirements

Dear Chairman Ortmann, Dr. McIsaac and Council members:

We offer the following comments concerning a plan amendment of the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) to implement National Standard 1 requirements in compliance with the Magnuson-Stevens Reauthorization Act (MSRA) of 2006. Although public scoping period was not formally noticed in the Federal Register, Oceana submitted initial public comment at the Council's March 2009 meeting. The National Coalition for Marine Conservation (NCMC) submitted written comments included in the June Council meeting briefing book, and at that meeting representatives from NCMC and the Point Reyes Bird Observatory presented the findings of PRBO's collaborative report¹ on the management of West Coast forage fish to the CPS management team and advisory subpanel.

In this letter, we elaborate on these prior comments about the importance of preserving the key role of forage fish in the California Current ecosystem in the context of NS1 compliance. There is broad agreement that forage species play a critical ecological role essential to the

¹ Available at: <http://www.prbo.org/cms/508>

health of marine ecosystems. The importance of forage species is also recognized in the revised NS1 guidelines, which emphasize the importance of maintaining adequate forage for all components of the ecosystem when determining the greatest benefit to the Nation.² The Council has taken previous actions that recognize the need for precautionary, ecosystem-based approaches including the prohibition on fishing for krill and the recent action to set conservative harvest limits for Pacific mackerel in light of a paucity of data and a high degree of uncertainty in the mackerel stock assessment. This CPS FMP amendment process affords the Council the opportunity to continue to advance precautionary and ecosystem-based approaches to the conservation and management of forage species. Clearly this process will require changes to the CPS FMP to comply with NS1 requirements for annual catch limits and accountability measures, thus improving the management of existing fisheries, but it also provides opportunities to advance ecosystem-based management approaches, including the evaluation of key parameters in harvest control rules and the designation of Ecosystem Component species.

In amending the FMP to implement a system of Annual Catch Limits (ACLs) for CPS fisheries, we hope the Council will take the direction given by NMFS to advance efforts to incorporate food web interactions explicitly into the catch specification process. The CPS FMP currently bases its target harvest guidelines for actively managed sardines and Pacific mackerel on maximum sustainable yield (MSY) control rules.³ At the same time, the definition of an MSY control rule (the formula for determining the harvest level) is said to be more conservative because the focus on management is oriented primarily towards stock biomass levels “at least as high as the MSY stock size.” The primary focus is said to be on maintaining biomass, rather than catch, in recognition of the fact that most CPS are very important in the ecosystem as forage.⁴

We support the stated intent of these rules to be more conservative in order to protect their role as forage in the ecosystem, but the statement that management is oriented towards maintaining stock biomass levels “at least as high as the MSY stock size” does not, on the face of it, suggest a more conservative management approach. In fact, it is a common objective of conventional single-species, MSY-based management – i.e., a strategy that seeks to maximize yield. It is not clear in the FMP how the MSY-based control rules and catch levels established through annual specifications are more conservative than a conventional MSY strategy nor how such rules consider the needs of predators either explicitly or implicitly. In this amendment to the CPS FMP, the Council must clarify and demonstrate how forage is accounted for in the harvest control rules and the Acceptable Biological Catch (ABC)/ ACL specifications.

The amended FMP must also incorporate a number of new provisions in the MSRA aimed at preventing overfishing and achieving optimum yield as required by National Standard 1 (NS1)

² 50 C.F.R. § 600.310 (e)(3)(iii)(C).

³ CPS FMP (Amendment 8 to the Northern Anchovy FMP), December 1998, p. 1-2.

⁴ CPS FMP (Amendment 8 to the Northern Anchovy FMP), December 1998, p. 4.1.

of the Magnuson-Stevens Fishery Conservation and Management Act.⁵ In the reauthorized Magnuson-Stevens Act of 2006, Congress required fishery managers to establish a system of ACLs and Accountability Measures (AMs) for all U.S. fisheries with a deadline for implementation of 2010 for all stocks currently subject to overfishing and 2011 for all others.⁶

In January 2009, the National Marine Fisheries Service published the final rule revising the 1998 National Standard Guidelines for National Standard 1 to assist fishery management councils in the implementation of the new ACL requirements. The new guidelines affirm that ACLs may not exceed the ABC limits recommended by scientific advisors, and managers must provide accountability to ensure that ACLs are not exceeded. Importantly, the new guidelines also recognize the benefits to marine ecosystems of maintaining adequate forage for all components of the ecosystem.⁷ Species interactions that have not been explicitly taken into account when calculating MSY should also be considered as relevant factors for setting OY below MSY, and consideration should be given to managing forage stocks for higher biomass than B_{MSY} to enhance and protect the marine ecosystem.⁸

None of the species covered by the CPS FMP are currently considered to be subject to overfishing, nor are any stocks considered overfished. Therefore, the statutory deadline for implementing the new requirements is the beginning of the 2011 fishing year. The PFMC does not currently employ the terminology used in MSRA, but a Council discussion paper from March 2009 indicates that the Council believes the existing harvest control rules for actively managed sardines and Pacific mackerel provide a basis for implementation of a new system of (Overfishing Levels (OFLs) ABCs and ACLs. We agree, but caution that making the transition will entail substantive changes in the FMP to ensure that all stocks in the FMP have the required status determination criteria (SDCs), an MSY and OY specification, an ABC control rule, mechanisms for specifying ACLs, as well as accountability measures.⁹

NMFS requires each Council to establish a mechanism for specifying ABCs and ACLs in the FMP,¹⁰ as well as a process for receiving scientific information and advice in the specification of ABC.¹¹ The procedures and mechanisms for specifying OFL, ABC, ACL and AMs should be described in each FMP. An adequate system of ABCs and ACLs should reflect the uncertainties and ecological importance of these stocks by providing an adequate buffer (margin of safety) between each of these terms to account for the scientific and management uncertainty, so that $OFL > ABC > ACL$.

We are pleased to see that the Council is initiating efforts to amend the CPS FMP to comply with the new requirements of the MSRA and the revised NS1 guidance from NMFS. We

⁵ 16 U.S.C. § 1851(a)(1).

⁶ 16 U.S.C. § 1853 (a)(15) and 1853 note.

⁷ 50 C.F.R. § 600.310 (e)(3)(iii)(C).

⁸ *Id.* at § 600.310 (e)(3)(iv)(C).

⁹ *Id.* at § 600.310 (c)(1-6).

¹⁰ *Id.* at § 600.310 (b)(iii).

¹¹ *Id.* at § 600.310 (f)(3).

highlight the following issues and concerns for particular attention in this FMP amendment process:

- **The FMP must be amended to provide a system of ABCs, ACLs and AMs for all stocks in the fishery**, including the stocks currently classified as “monitored” stocks and any non-target stocks that are caught incidentally as bycatch and determined to be “stocks in the fishery” as defined in the NS1 Guidelines.
- **The treatment of scientific uncertainty in the existing harvest control rule is inadequate to serve as a basis for determining ABC.** The NS1 guidelines specify that each Council must establish an ABC control rule based on scientific advice from its SSC, which must articulate how ABC will be set compared to the OFL based on scientific knowledge and uncertainty in the estimate of OFL and any other scientific uncertainty.¹² The SSC has expressed concern that the biomass CUTOFF in the harvest control rule does not provide an adequate buffer for scientific uncertainty because the CUTOFF is based on maximizing yield, not addressing uncertainty in OFL.¹³ The existing control rule does not provide an adequate accounting of scientific uncertainty for purposes of ABC-setting.
- **Confusion about the role of CUTOFF in the control rule must be addressed.** Aside from serving to leave a small biomass reserve in times of low stock biomass, there is nothing in the stock assessments or the FMP to suggest that CUTOFF was intended either to prevent overfishing or protect the prey base of predators. It is not at all clear in the control rule what relation CUTOFF has to the legally required Minimum Stock Size Threshold (MSST) or to the required biomass target value corresponding to B_{MSY} . There is no clear explanation of the CUTOFF’s intended purpose within a framework of target and limit reference levels to prevent overfishing and protect the prey base for predators. The ACL amendment must provide this analysis and incorporate it into the FMP.
- **The efficacy of the environment-indexed F_{MSY} exploitation FRACTION in the control rule must be addressed.** Based on running average sea surface temperatures at Scripps Pier in La Jolla, California, the F_{MSY} exploitation FRACTION in the harvest control rule has been 15% throughout the time series beginning in 1981. Since numerous changes in El Nino Southern Oscillation (ENSO) have occurred over this period, the 5-15% exploitation FRACTION rule does not seem responsive to actual interannual variations in recruitment due to climatic variability.
- **Procedures accounting explicitly for predator needs must be incorporated into the catch specification process.** The uncertainty associated with annual predation mortality is a large source of scientific uncertainty that is not explicitly accounted for in the control rule, but should be addressed explicitly in the ABC recommendation. In addition, specific procedures for setting ACLs to achieve OY for CPS stocks should be designed to maintain significantly higher biomass than

¹² *Id.* at § 600.310(f)(4).

¹³ Supplemental SSC report, 3.8.09.

the conventional single-species target biomass of B_{MSY} , as sanctioned in the new NS1 guidelines, in order to account explicitly for predator needs.

- **Spatial-temporal management of ACLs should be considered explicitly in the specification process to address the localized impacts of the fishery on the stock and on competing predators.** As part of an ecosystem-based approach to ACL-setting for CPS stocks, the Council should include explicit spatial-temporal management of ACLs in the specification process. Time and area-based fishery regulations are essential tools for addressing the shortcomings of relying solely or principally on *how much* fishing to permit without also considering carefully *when* and *where* and *how* the ACL is taken. Time-area management of ACLs is necessary to address the localized effects of fishing on the availability of prey to predators.
- **A more effective system of accountability measures must be developed for all stocks in the fishery.** The existing management controls for the sardine fishery do not apply to other CPS fisheries and do not seem likely to provide a reliable estimate of the catch and bycatch, or to ensure that ACLs will not be exceeded. Additional accountability measures are needed to address this management uncertainty in order to ensure that ACLs are not exceeded.
- **The Council should include other forage species that are not in the directed fishery as Ecosystem Component (EC) species as part of its efforts to advance ecosystem-based approaches to forage fish management.** NMFS provided the EC category in the NS1 guidelines with the expressed intent of working closely with Councils to incorporate ecosystem approaches to management. As part of the FMP amendment, we request that the Council consider and designate other forage fish that are not part of the directed fishery as EC species (e.g., Pacific saury, myctophids, Pacific sand lance, white bait smelt, and other smelts) with the expressed intent of not developing a fishery for EC species. It will be important to monitor status, trends, and ecology of EC species, using the best available information, and to integrate this information into the CPS SAFE reports as part of the Ecosystem Considerations.

An ecosystem-based approach to forage fish management must be based on preserving the integrity of the marine food web. The West Coast Governors' Agreement on Ocean Health (May 2008) recognizes the key role of forage fish in maintaining healthy and sustainable marine ecosystems and calls for the development of a PFMC Fishery Ecosystem Plan to address these concerns more fully in fisheries management. In January of 2009, the Point Reyes Bird Observatory released PRBO's report on the management of West Coast forage fish stocks, which underscores the need for an ecosystem-based approach to the conservation and management of forage fish in the California Current ecosystem to preserve their key role in the marine food web as prey. The PRBO report was a year-long collaborative effort involving scientists, fishing interests, and environmental NGOs, and its recommendations reflect a broad base of support among stakeholders of all backgrounds.

As the Council prepares to amend the FMP to comply with the MSRA's NS1 provisions, we hope you will use this opportunity to incorporate these recommendations into the FMP and

lay the groundwork for a West Coast fishery ecosystem plan that could serve as a model for other forage fish plans.

Attached to this letter are detailed comments addressing each of the issues highlighted above and related concerns. We look forward to continuing to work with the Council on this FMP amendment to ensure full implementation of the NS1 guidelines for coastal pelagic species.

Sincerely,

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Ben Enticknap
Pacific Project Manager, Oceana

Pam Lyons Gromen
Executive Director, National Coalition for Marine Conservation

Phil Kline
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Attachments

Supplementary Comments

Recommendations for CPS plan amendment to implement NS1 Requirements

- 1. The FMP’s classification scheme for stocks in the fishery must be amended to address all stocks requiring a system of ABCs, ACLs and AMs, including the stocks currently classified as “monitored” stocks and any non-target stocks that are caught incidentally as bycatch and determined to be “stocks in the fishery” as defined in the NS1 Guidelines**

The recently revised NS1 guidelines for ACLs and AMs state that the requirement for ACLs and AMs applies to all stocks in a fishery, and all stocks in the FMP should be considered “in the fishery” unless otherwise specified through rulemaking.¹ This includes non-target stocks that are caught incidentally as bycatch during the pursuit of target stocks in a fishery, as well as “regulatory discards” as defined under the Magnuson-Stevens Act, 16 U.S.C. 1802 (38), which may or may not be retained for sale or personal use.² The ACL final rule clarifies that all stocks determined to be in a fishery must have status determination criteria, MSY and OY specification, an ABC control rule, mechanisms for specifying ACLs, and accountability measures.³ A number of substantive requirements must be met:

- Each FMP *must* include an estimate of maximum sustainable yield (MSY) for the stocks in the fishery.⁴ Importantly, ecological conditions should be taken into account when specifying MSY, and ecological conditions not directly accounted for in the specification of MSY can be considered as one of the factors for setting OY below MSY.⁵
- Status determination criteria (Maximum Fishing Mortality Threshold (MFMT), OFL, and MSST, or their proxies) are required to determine if overfishing has occurred, or if the stock is overfished.⁶ In specifying SDC, a Council *must* provide an analysis of how the SDC were chosen and how they related to reproductive potential.⁷
- The overfishing level (OFL) is defined as the annual amount of the catch that corresponds to the estimate of MFMT, above which overfishing is occurring, and must be expressed in terms of numbers or weight of fish.⁸
- The minimum stock size threshold (MSST, the stock size below which the stock is considered overfished) *must* be expressed in terms of spawning biomass or other measure of reproductive potential, and MSST should equal no less than one-half of the MSY stock size or minimum stock size at which rebuilding to the MSY level would be expected to occur within 10 years, whichever is greater.⁹
- Acceptable biological catch (ABC) is a level of catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty.¹⁰ Each Council *must* establish an ABC control rule based on scientific advice from its SSC, which *must* articulate how ABC will be set compared to the OFL based on scientific knowledge and uncertainty in the estimate of OFL *and any other scientific uncertainty*.¹¹ The ABC control rule should also include a mechanism reducing fishing mortality as stock size

declines, as well as a stock abundance level below which fishing would not be allowed.¹²

- The annual catch limit (ACL) is the limit that triggers accountability measures, and ACL cannot exceed ABC.¹³
- Accountability measures (AMs) must accompany the specification of ACLs, and the guidelines identify two basic types of AMs: inseason AMs to prevent ACLs from being exceeded, and AMs for when the ACL is exceeded.¹⁴

The PFMC CPS FMP is currently comprised of five separate stocks – sardine, anchovy, Pacific and jack mackerel, and squid. Only Pacific sardines and Pacific mackerel are actively managed through formal catch specifications. Similar catch specifications are not provided for the “monitored” stocks in the FMP, even though these stocks are clearly “in the fishery” and in fact are known to be targeted, retained and sold. As such, the CPS FMP must be amended to provide the required elements of a system of ABCs, ACLs and AMs as described in the NS1 guidelines for all stocks in the FMP, including anchovies and jack mackerel. The Council indicates that existing knowledge and biological parameters can serve as the basis for developing a system of ABCs and ACLs consistent with NS1 requirements for monitored stocks. We agree, but we emphasize that ACLs must be specified with greater precaution because these stocks are assessed less frequently than the actively managed species and the uncertainty is greater. The current threshold harvest levels that serve as basis for moving the monitored species into the actively managed category are based on outdated assessments and they should be modified if necessary as a basis for establishing OFLs, ABCs, and ACLs.

One exception to the ACL requirement is market squid, which would qualify for the MSRA’s limited exemption from the ACL requirement provided for short-lived “life cycle species” with only one breeding season.¹⁵ While exempt from the ACL and AM requirements unless they are determined to be experiencing overfishing, the FMP must still specify SDC, MSY, OY, ABC, and an ABC control rule for short-lived species, in order to make determinations of overfishing and overfished status.¹⁶

In addition, the Council has classified krill as a prohibited species. The Council clearly has authority to designate prohibited harvest species, and krill should retain its current prohibited species classification as specified and implemented in Amendment 12 to the CPS FMP and the final rule implementing Amendment 12.¹⁷

1.1 A vulnerability assessment should be conducted for all stocks in the fishery and used to inform decisions about stocks in the fishery as well as catch specifications

The revised NS1 guidelines include a new provision calling on Councils to assess the vulnerability of stocks, defined as a combination of a stock’s productivity (which depends upon its life history characteristics) and its susceptibility to the fishery.¹⁸ Fishery managers should assess the vulnerability of all stocks when classifying stocks in the fishery, when determining ABCs and ACLs, and when aggregating data-poor stocks into stock complexes

for purposes of setting a group ACL to ensure that stocks are sufficiently similar in geographic distribution, life history, and vulnerabilities to the fishery.

We believe that a vulnerability analysis should be conducted for *all* stocks in the fishery, including non-target stocks caught incidentally as bycatch in the fishery to determine if they should be included in the fishery. NMFS has developed additional information and guidance on the uses of a vulnerability analysis at:

<http://www.nmfs.noaa.gov/msa2007/vulnerability.htm>. MRAG Americas provides additional resources to assist the Council in the application of these techniques, including detailed analyses of regional U.S. fisheries using Productivity and Susceptibility Analysis (PSA), the results of which are available at: http://www.mragamericas.com/PSA_WG.php.

2. An adequate ABC control rule must include explicit mechanisms to account for scientific uncertainties as well as uncertainty buffers to provide an adequate margin of safety against the risk of overfishing

For stocks required to have an ABC, the revised NS1 guidelines specify that each Council must establish an ABC control rule based on scientific advice from its SSC.¹⁹ ABC is a level of annual catch that is intended to account for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty, and therefore NMFS expects that ABC will virtually always be reduced from OFL to reduce the risk that overfishing might occur in a given year.²⁰ Because there is always uncertainty in the estimate of MSY and OFL, the ABC control rule should be configured so that ABC is *always* less than the OFL. If the control rule is structured in tiers reflecting levels of information available for setting ABC for each stock, the buffer (or margin of safety) between ABC and OFL should increase as the level of uncertainty increases.

The CPS FMP currently has a formal catch specification process for actively managed Pacific sardines and Pacific mackerel stocks and mechanisms for setting harvest guidelines for these stocks, as well as a working SSC that reviews and recommends the harvest guidelines to the Council. Only the two actively managed species have been regularly assessed. The others stocks are infrequently assessed and do not have updated assessments. In all cases, non-MSY proxies for overfishing thresholds have been developed because MSY or reasonable proxies corresponding to MSY based on conventional biological reference points have not been developed. Thus there is considerable scientific uncertainty associated with the status of CPS stocks with respect to sustainable fishing levels, and this uncertainty must be addressed in the ABC control rules and ABC recommendations.

2.1 The CPS harvest control rule must be modified to account fully for scientific uncertainty and the uncertainties should be reflected in ABC recommendations that include an adequate buffer, or a margin of safety, so that $ABC < OFL$

The CPS FMP currently employs the control rule for establishing a harvest guideline level of catch for actively managed stocks of sardine and Pacific mackerel, but the control rule is not based on a conventional spawning potential ratio (SPR) proxy for MSY. Since MSY or a proxy for MSY is considered unknown for CPS stocks, the PFMC has developed a simple decision rule as the basis for establishing a catch limit. For sardines,

$$\text{HARVEST} = (\text{BIOMASS-CUTOFF}) \times \text{FRACTION} \times \text{DISTRIBUTION}$$

where CUTOFF is an arbitrarily defined biomass level below which directed fishing must stop altogether, and FRACTION is an environmentally-driven factor based on prevailing sea surface temperature. Proponents of the control rule assert that it has inherent conservatism built into it, but there is no direct way to compare the resulting catch level to an SPR-derived catch level and the FMP does not clearly explain the derivation of the rule, its assumptions, or its relation to more conventional control rules based on the relation of spawning stock biomass to recruitment. The FMP amendment must correct this omission.

The PFMC has expressed confidence that the control rule employed for setting harvest guidelines for actively managed stocks can be modified to provide reasonable proxies for OFL, ABC and ACL with uncertainty buffers. However, we note that the CPS SAFE has concluded that the harvest control rules in the CPS FMP are dated and in need of review and potential revision.²¹ This amendment process affords the Council an opportunity to address shortcomings, clarify the purpose of key terms, and make needed modifications in the control rule:

- **Confusion about the role of CUTOFF in the control rule must be addressed.** The CPS SAFE for 2008 implies that CUTOFF is an all-purpose mechanism to protect against overfishing and conserve the forage base, but aside from serving to leave a small biomass reserve for rebuilding, there is nothing in the stock assessments or the FMP to suggest that CUTOFF was intended to protect the prey base of predators. It is not even clear in the control rule what relation CUTOFF has to the legally required Minimum Stock Size Threshold (MSST) or to the required biomass target value corresponding to B_{MSY} . The SSC has expressed concern that the biomass CUTOFF in the harvest control rule does not provide an adequate buffer for scientific uncertainty because the CUTOFF is based on maximizing yield, not addressing uncertainty in OFL.²² (Similarly, the value for FRACTION in the MSY control rule for sardine is described as a proxy for F_{MSY} , which does not suggest any consideration of the uncertainty associated with OFL.)²³ There is no clear explanation of the CUTOFF's intended purpose within a framework of target and limit reference levels to prevent overfishing and protect the prey base for predators. The ACL amendment must provide this analysis and incorporate it into the FMP.
- **The efficacy of the environment-indexed F_{MSY} exploitation FRACTION in the control rule must be addressed.** To the extent that the environment-indexed control rule accounts for changes in stock productivity during warm and cool oceanographic conditions, environmental variability is said to be factored into the catch

specification. Based on running average sea surface temperatures at Scripps Pier in La Jolla, California, however, the F_{MSY} exploitation FRACTION in the harvest control rule has been 15% throughout the time series beginning in 1981. Since numerous changes in El Niño Southern Oscillation (ENSO) have occurred over this period, it is important to consider modifying the 5-15% exploitation fraction rule to ensure that it is sufficiently sensitive to the interannual variations in recruitment due to the effects ENSO events. It may be necessary to provide more gradations from high to low to capture the interannual variability in environmental conditions that affect recruitment, for instance.

- **Predation mortality is not explicitly accounted for in the existing control rule.** The uncertainty associated with annual predation mortality is a large source of scientific uncertainty that is not explicitly accounted for in the control rule or the single-species assessments, which assume that natural mortality (M) is fixed and constant over time. Moustahfid *et al.* (2009) modeled predator removals explicitly as a type of fishery and found that adding predators explicitly in the stock assessment model produced significantly different results than the conventional single-species approach.²⁴ Spawning stock biomass was estimated to be 2-3 times higher than estimates from the conventional single-species model, and the yield at MSY was lower. Uncertainty in stock biomass also was underestimated in models that did not account for predators explicitly. The assumption of constant natural mortality (M) in the single-species model is inconsistent with evidence that predation varies as a function of abundance and availability. These factors must be addressed explicitly in the ABC recommendation.

3. The FMP should establish an ACL control rule that specifies how management uncertainty and ecological factors have been considered and factored into the system of ACLs and AMs to achieve OY

An FMP must contain conservation and management measures, including ACLs and AMs, to achieve Optimum Yield (OY) *on a continuing basis*.²⁵ To the extent possible, the relevant social, economic and ecological factors used to establish OY (see 16 U.S.C. § 1802(33)) must be quantified and reviewed. Even where quantification of these factors is not possible, the FMP still must address them in OY specification.²⁶

As noted by Oceana and National Coalition for Marine Conservation in earlier comments to the Council, the revised NS1 Guidelines provide new guidance on considering ecological factors to achieve OY that is highly relevant to the CPS stocks, given their crucial importance as forage fish for higher trophic level species in the California Current marine ecosystem. The CPS FMP recognizes the importance of these species as prey and the FMP's objectives include providing adequate forage for dependent species. While we commend the Council for acknowledging the importance of providing adequate forage, the current harvest control rules do not take into account the forage needs of predators in the specification of MSY (OFL), ABC or OY. Even in the absence of a quantifiable determination of predator

needs, the NS1 Guidelines clearly require the Council to demonstrate how it has addressed these ecological factors in its specification.

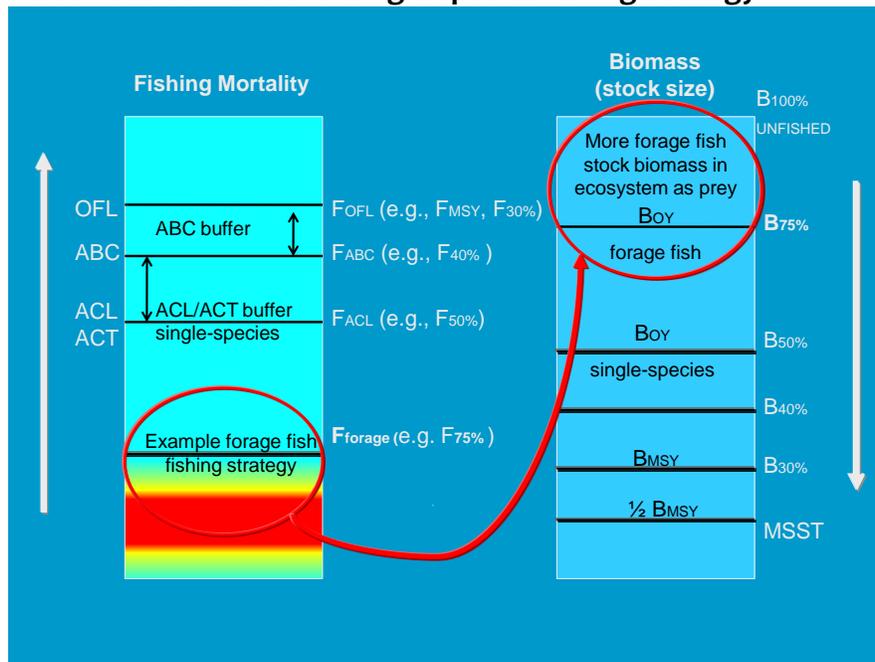
Specifically, the new guidelines acknowledge the benefits to marine ecosystems of maintaining adequate forage for all components of the ecosystem and explicitly identify consideration of forage fish stocks, predator-prey interactions, and interactions with marine mammals and birds and protected species as ecological factors to consider when determining OY for a fishery.²⁷ Species interactions that have not been explicitly taken into account when calculating MSY should also be considered as relevant factors for setting OY below MSY. In addition, the guidelines also mandate that consideration should be given to managing forage stocks for higher biomass than B_{MSY} to enhance and protect the marine ecosystem.²⁸

3.1 Specific mechanisms for setting ACLs to achieve OY should be developed with the goal of maintaining significantly higher biomass than the conventional single-species target biomass of B_{MSY}

The basis for preserving the ecological role of forage fish as prey is well established in the scientific literature. The National Research Council's Committee on Ecosystem Effects of Fishing, Phase II (NRC 2006) concluded that if the United States is to manage fisheries within an ecosystem context, food web interactions, life-history strategies, and trophic effects will need to be explicitly accounted for when developing fishery harvest strategies.²⁹ Moreover, if overfished stocks are to be rebuilt, adequate forage fish abundance must be provided to support rebuilding. The central importance of conserving forage fish is also recognized in the existing regulations implementing the MSA's essential fish habitat provisions, which establish that loss of prey species constitutes an adverse effect on EFH.³⁰

For all of the above reasons, we urge the Council to adopt specific mechanisms for setting ACLs to achieve OY for CPS stocks with the goal of maintaining significantly higher biomass than the conventional single-species target biomass of B_{MSY} , as sanctioned in the new NS1 guidelines. See **Fig. 1** below for an example:

Fig. 1 – Illustration of a more conservative forage fish “ F_{Forage} ” relative to conventional single-species fishing strategy



Source: MFCN (2009), *Implementing Annual Catch Limits: A Blueprint for Ending Overfishing in U.S. Fisheries*.³¹

4. The FMP must include a system of accountability measures for all stocks in the fishery to ensure compliance with ACLs and avoidance of overfishing

The revisions to the NS1 guidelines specify that ACL is the limit that triggers AMs.³² The system of ACLs must be accompanied by a system of management accountability measures designed to ensure that the ACL is not exceeded during the fishing season or, if overages are found to occur after the fishing season, to account for overages of the ACL equivalent in subsequent fishing seasons or years. NMFS recommends that an annual catch target (ACT) be employed as part of the system of accountability measures for management uncertainty to ensure that the catch does not exceed the ACL. In most cases, NMFS envisions that some reduction in the ACT below the ACL will result.³³ In data-poor fisheries without inseason monitoring capability, setting the ACT less than ACL increases the chances of staying within the limit and avoiding frequent overage deductions in subsequent years.

The PFMC has a system of in-season management controls for the actively managed sardine stock which includes three seasonal allocations of the harvest guideline level and closure of the directed fishery if the seasonal allocation is projected to be taken. If a seasonal allocation is either not attained or exceeded, the following seasonal allocation is adjusted to account for the underage/overage. However, the in-season harvest restrictions are not applied to the operation of the live bait portion of the sardine fishery. There are no other reporting, recordkeeping, or other compliance requirements.

These measures provide a starting point for development of AMs in the fishery, but additional measures are needed to prevent the ACL from being exceeded and provide reliable estimates of the total catch, including bycatch and discards. Comparable measures must also be developed for Pacific mackerel and the other stocks in the fishery requiring ACLs. The PFMCC SSC has indicated that there is no need to include an annual catch target (ACT) in the system of AMs to account for management uncertainty because existing management controls are adequate to ensure compliance with catch limits in the sardine fishery. But the lack of fishery observers or reporting requirements raises concerns about the true level of management control of the catch in any of the CPS fisheries.

If the Council ultimately elects not to employ ACTs as part of the system of AMs, this management uncertainty should be incorporated directly into the ACL specification (along with any relevant OY considerations) so that $ACL < ABC$. Incorporating the management uncertainty directly into the ACL calculation provides a clear basis for setting $ACL < ABC$ while still maintaining ACL as a limit not to be exceeded that triggers management measures to cease fishing upon attaining ACL. The determination of ACL should be based, where possible, on having a higher probability than ABC of not overfishing. Thus, for example, if ABC is based on a 75% probability of not overfishing, then ACL could be set based on a 90% probability of not overfishing. In data-limited situations, the determination of ACL will require other methods, such as a simple percentage buffer: e.g., $ACL = 75\% \text{ of } ABC$. The degree of management control in preventing the actual catch from exceeding ABC could also be used to set $ACL < ABC$.

4.1 The system of AMs should include an ACL performance standard to ensure that the system of ACLs and AMs is working as intended

In the revised NS1 guidelines, NMFS calls on the councils to adopt an ACL performance standard to ensure that the system of ACLs and AMs is working as intended. NMFS provides for some flexibility in the standard: the example given would only trigger a re-evaluation of the system of ACLs and AMs if the catch of a stock exceeds its ACL more often than once in the last four years (i.e., more often than 25 percent of the time), although a more conservative standard could be adopted as deemed appropriate.³⁴

Regardless of the performance standard employed, councils must still determine as soon as possible after the fishing year if an ACL was exceeded.³⁵ If management information is not available to prevent ACLs from being exceeded within the current fishing season, AMs must be triggered and implemented as soon as possible to correct the operational issue that caused the ACL overage.³⁶ In other words, re-evaluation of the system of ACLs and AMs may not be required if ACLs are exceeded infrequently, but evaluation of performance and prompt management actions to address overages are still required on an annual basis.³⁷

5. Spatial-temporal management of ACLs should be considered explicitly in the specification process to address the localized impacts of the fishery on the stock and on competing predators

As part of an ecosystem-based approach to ACL-setting for CPS stocks, we urge the Council to include explicit spatial-temporal management of ACLs in the specification process. Time and area-based fishery regulations are essential tools in the management toolkit for addressing the shortcomings of relying solely or principally on *how much* fishing to permit without also considering carefully *when* and *where* and *how* the ACL is taken. Maintaining the natural spatial structure of fish stocks should be a key consideration when implementing ACLs, and this is especially important in order to maintain the resilience of exploited stocks in the face of rapid climate change. In addition, time-area management of ACL is necessary to address the localized effects of fishing on the availability of prey to predators. Seasonal and spatial allocation of catch limits is part of a robust conservation strategy aimed at addressing concerns about localized depletions of target species, competition among fishing sectors, and interactions with competing predators.

6. The Council should include other forage species that are not in the directed fishery as Ecosystem Component (EC) species as part of its efforts to advance ecosystem-based approaches to forage fish management

The preamble to NS1 final rule encourages Councils to consider designating EC species, “in an effort to incorporate ecosystem approaches to management.” As described in the NS1 guidelines, EC species are non-target species that are not subject to overfishing, approaching overfished, or overfished, not likely to be subject to overfishing or overfished, according to the best available information, and not generally retained for sale or personal use. Recognizing the importance of krill as critical forage species, the Pacific Fishery Management Council approved Amendment 12 to the CPS FMP to prohibit the development of a fishery for krill. The North Pacific Fishery Management Council took similar action in 1998 to prevent the development of commercial fisheries for krill, Pacific sand lance, smelts, and other forage species. Under the NS1 guidelines, the Councils continue to have a great deal of discretion in defining what is in the fishery and what is not in the fishery. With that discretion comes a great deal of responsibility, and the opportunity for the Council to continue to advance ecosystem-based approaches to management.

We request that the Council designate key forage species - including Pacific saury, Pacific sand lance, myctophids, white-bait smelt, and other smelts - for which there is no directed fishery, as EC species in the CPS FMP. In doing so, we request that the Council make it the expressed intent to not develop a fishery for EC species *unless and until there is a plan in place that shows any such fishing can be conducted without harming the health of the marine ecosystem*, including a fishery ecosystem plan, stock assessment, and an FMP amendment defining appropriate ACLs and AMs. It will be important to monitor status, trends, and ecology of EC species, using the best available information, and to integrate this information into the CPS SAFE reports as part of the Ecosystem Considerations.

Endnotes

- ¹ 50 CFR § 600.310(d)(1).
- ² 50 CFR § 600.310(d)(3-4).
- ³ 50 CFR § 600.310(c)(1-5).
- ⁴ 50 CFR § 600.310(e)(1).
- ⁵ 50 CFR § 600.310(e)(1)(iv).
- ⁶ 50 CFR § 600.310(e)(2)(i).
- ⁷ 50 CFR § 600.310(e)(2)(ii).
- ⁸ 50 CFR § 600.310(e)(2)(i)(D).
- ⁹ 50 CFR § 600.310(e)(2)(ii)(B).
- ¹⁰ 50 CFR § 600.310(f)(2)(ii), 50 CFR § 600.310(f)(3).
- ¹¹ 50 CFR § 600.310(f)(4).
- ¹² 50 CFR § 600.310(f)(4).
- ¹³ 50 CFR § 600.310(f)(2)(iv).
- ¹⁴ 50 CFR § 600.310(g)(1).
- ¹⁵ 16 U.S.C. § 1853(a)(15); 50 CFR § 600.310(h)(2)(i).
- ¹⁶ 50 CFR § 600.310(h)(2)(i).
- ¹⁷ 74 Fed. Reg. 33,372 (July 13, 2009).
- ¹⁸ 50 CFR § 600.310(d)(10).
- ¹⁹ 50 CFR § 600.310(f)(4).
- ²⁰ 50 CFR § 600.310(f)(3).
- ²¹ CPS SAFE 2008, p. 46.
- ²² Supplemental SSC report, 3.8.09.
- ²³ PFMC 2008 CPS SAFE, Appendix 1.
- ²⁴ H. Moustahfid, J.S. Link, W.J. Overholtz, and M.C. Tyrrell. The advantage of explicitly incorporating predation mortality into age-structured stock assessment models: an application for Atlantic mackerel. *ICES J. Mar. Sci.*, **66**.
- ²⁵ 50 CFR § 600.310(e)(3)(ii).
- ²⁶ 50 CFR § 600.310(e)(3)(iv).
- ²⁷ 50 CFR § 600.310(e)(3)(iii)(C)
- ²⁸ 50 CFR § 600.310(e)(3)(iv)(C).
- ²⁹ National Research Council, Committee on Ecosystem Effects of Fishing, Phase II. *Dynamic Changes in Marine Ecosystems: Fishing, Food Webs, and Future Options*. National Academies Press, Washington, D.C. (2006). 160 pp.
- ³⁰ 50 CFR § 600.815(a)(7).
- ³¹ MFCN report available at: <http://www.conservefish.org/storage/marinefish3/documents/mfcnaclog.pdf>.
- ³² 50 CFR § 600.310(f)(2)(iv) and (f)(6).
- ³³ 74 Fed. Reg. 3,178, 3,193.
- ³⁴ at 50 CFR § 600.310(g)(3&4), 73 Fed. Reg. at 32544.
- ³⁵ 50 CFR § 600.310(g)(3).
- ³⁶ 50 CFR § 600.310(g)(3).
- ³⁷ 50 CFR § 600.310(g)(3).

August 26, 2009

Mr. Dave Ortmann, Chair
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220-1384

RE: Groundfish Essential Fish Habitat Modifications, Open Public Comment

Dear Mr. Ortmann and Council members:

On June 13, 2009, the Pacific Fishery Management Council (Council) reviewed two proposals to modify Groundfish Essential Fish Habitat (EFH) conservation areas. Oceana submitted the Grays Canyon and Juan de Fuca Canyon proposal following the Council's request for proposals and the EFH Review Committee's guidelines. The EFH Review Committee, Habitat Committee and Scientific and Statistical Committee concluded that the proposal had merit and met necessary proposal requirements.¹ Following reports by Council advisory bodies, Tribes and the public, the Council voted to table all proposals until no earlier than September 2010. The Council also encouraged Oceana to continue conversations with the Quinault, Quileute, Makah and Hoh.

Oceana is committed to continuing conversations regarding habitat conservation and science with the Tribes. At the same time, we believe the importance of coral and sponge habitat conservation requires continued dialogue with the Council, National Marine Fisheries Service, the Olympic Coast National Marine Sanctuary, the State of Washington, and the public.

It is our understanding that reasons for deferring further evaluation of these proposals included an unclear process and a question of urgency, given some members' perception that the Groundfish Trawl Rockfish Conservation Area (RCA) presently encompasses the Grays Canyon and Juan de Fuca Canyon sites identified in Oceana's proposal.² For purposes of clarification, we would like to note that in the Juan de Fuca Canyon area, one dive site containing Pennatulacea (a type of soft coral or octocoral) remains outside the RCA as well as coral and sponge areas identified in trawl surveys. In the Grays Canyon area, there remain sites with sponges, octocorals and rare black corals outside of the RCA. What is more, areas in the Juan de Fuca Canyon that were documented by dive surveys having long-lived gorgonian red tree corals and bubble gum corals remain vulnerable to damage by bottom contact gear. This is evidenced

¹ For example the SSC stated, "The SSC concurs that both proposals have merit, contain rational reasons for modifying EFH, and should go forward for consideration." Agenda Item E.1.c, Supplemental SSC Report.

² Council Decisions Document, June 13-18, 2009 PFMC meeting. "The Council noted the Rockfish Conservation Area closures being in effect in the areas of the proposed Olympic 2 and Grays Canyon areas until this [no earlier than September 2010] action is considered." Accessed at <http://www.pcouncil.org/decisions/0609decisions.pdf> on [June 30 2009](#).

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Essential Fish Habitat
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by the Olympic Coast National Marine Sanctuary research. It is known that these corals and sponges are rare and sensitive habitats and if they are lost due to fishing impacts, recovery is on the scale of hundreds of years, if at all.

While the RCA is an important tool for rebuilding overfished rockfish species, and we agree it does have the secondary benefit of protecting seafloor habitats, these closures are not designed for lasting protection of sensitive, vulnerable and rare coral and sponge habitats.

We look forward to continuing to work with the Council as it moves forward with habitat protections in 2010 and 2011, including review of proposals to protect unique and sensitive coral and sponge habitats.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben Enticknap", is written over a light blue rectangular background.

Ben Enticknap
Pacific Project Manager

Subject: Public comment from Don Heichel
From: Don Heichel <kiheidon@sbcglobal.net>
Date: Tue, 25 Aug 2009 10:49:50 -0700 (PDT)
To: pfmc.comments@noaa.gov

B.1 Current Habitat Issues

Dear PFMC,

I hope no trawling is allowed over rock structure, my reading indicates this is damaging to the habitat.

I also read that plumes from trawl over sand/mud bottoms are visible from space.

Is there any research that indicates that this damages the habitat too?

If no research exists, my comment is to study the effect of this plume fallout on the areas it impacts.

Don Heichel
831 239 0419

Subject: Public comment from Don Heichel
From: Don Heichel <kiheidon@sbcglobal.net>
Date: Tue, 25 Aug 2009 10:56:47 -0700 (PDT)
To: pfmc.comments@noaa.gov

B.2 Ocean Acidification and Sea Level Rise

Dear PFMC,

Since fish populations are down almost everywhere (EXCEPT ALABAMA), fishing trips have increased in length to find decent recreational fishing.

Boat miles per gallon is very low relative to cars.

Strong consideration should be given to shortening boating trips by installing underwater structure close to ports to create marine ecosystems that are more easily accessed.

This will lower the carbon footprint of fishing from boats.

**Don Heichel
831 239 0419**