THE PEW ENVIRONMENT GROUP

PACIFIC FISH CONSERVATION CAMPAIGN
4189 S.E. Division St., Portland, Oregon 97202

May 31, 2012

Mr. Dan Wolford, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, #101
Portland, OR 97220

RE: Agenda Item G.1 – Consideration of Forage Fish Management Issues

Chairman Wolford and Council Members,

We are writing to request that the Pacific Fishery Management Council (Council) take action at its upcoming June meeting under Agenda Item G.1.d to advance, in a concrete and meaningful way, the protection of currently unmanaged and non-targeted forage species. As a first step, the Council should vote to establish a management objective of protecting these species, which are critical to maintaining a healthy ecosystem and sustainable fisheries. In addition, the Council should formally initiate a public process to implement the chosen management objective.

Because the status quo policy for unmanaged forage species allows for unregulated and therefore unsustainable directed fishing, the Council should adopt an objective of preventing, through Fishery Management Plan (FMP) level regulations, new fisheries from developing on these stocks until sufficient scientific knowledge is available to manage an ecologically sustainable fishery. Taking action now to establish this management objective will facilitate the process of identifying and initiating the appropriate management vehicle.

The Justification and Need to Protect Unmanaged Forage Species

Changing the burden of proof

Ecosystem-based fishery management (EBFM) and its scientific underpinnings have been extensively reviewed and vetted within the Magnuson-Stevens Act context, with implications for management becoming clearer as the discussion and the scientific foundation evolves.

As early as 1998, the Ecosystem Principles Advisory Panel (EPAP), convened by the National Marine Fisheries Service at the request of Congress, produced a report which found that EBFM "will contribute to the stability of employment and economic activity in the fishing industry and to the protection of marine biodiversity on which fisheries depend."[1] Since that time, the body of knowledge on EBFM has grown along with calls from government, scientists, fisheries managers and the fishing industry itself, lauding its merits and advocating its implementation. For example,

[1] National Marine Fisheries Service (NMFS). 1999. *Ecosystem-Based Fishery Management. A Report to Congress by the Ecosystem Principles Advisory Panel.* United States Department of Commerce, National Oceanic and Atmospheric Administration, NMFS, Silver Springs, Maryland.

in 2005 the Pacific States Marine Fisheries Commission convened a panel of scientists to identify a process to help Regional Councils "move forward in incremental ways, from the existing management approaches that generally consider ecosystem interactions in an implicit and often peripheral way, to a management system that, over time, would incorporate explicit EBFM considerations into the fishery assessments themselves."[2]

Commonly found in much of the literature on the subject of EBFM is the recognition that while a lack of scientific knowledge is a barrier to full implementation, there are certain first steps and actions that can be taken under our current management framework and understanding of ecosystem science. According to the EPAP report and others, chief among those is to reverse the burden of proof on the development of new fisheries.[3]

> *The modus operandi for fisheries management should change from the traditional mode of restricting fishing activity only after it has demonstrated an unacceptable impact, to a future mode of only allowing fishing activity that can be reasonably expected to operate without unacceptable impacts.*

For economically and ecologically critical forage species that support a healthy California Current ecosystem and all the benefits that we derive from it, the need to take this first step is even more paramount.

Protecting the food web

Taking a proactive approach that preserves ecosystem function by protecting forage species is another widely recognized and important component of EBFM, and one that has been a proven success in terms of implementation and outcomes. For example, the states of Washington and Alaska have both implemented Forage Fish Management Plans that recognize and prioritize the role of forage species as prey in the ecosystem and restrict directed harvest accordingly.[4] In particular, the Alaska Board of Fisheries finds that "abundant populations of forage fish are necessary to sustain healthy populations of commercially important species of salmon, groundfish, halibut, and shellfish."[5] Other examples of specific federal FMP level protections for forage species are discussed below in Table 2.

Preservation of the marine food web is also explicitly listed in the goals and objectives section of both the Gulf of Alaska (GOA) and the Bering Sea and Aleutian Islands (BSAI) Groundfish

[2] Pacific States Marine Fisheries Commission (PSMFC). 2005. *Strengthening Scientific Input and Ecosystem-Based Fishery Management for the Pacific and North Pacific Fishery Management Councils.* Suggestions from a panel discussion. July 19-20, 2005. Seattle, Washington.

[3] See EPAP Report, Mangel, M. et al. 1996. Principles for the conservation of wild living resources. Ecological Applications 6(2):338-362., Sissenwine, M. P. 1987. Councils, NMFS, and the Law. Pages 203-204 in: R. Stroud (ed.) *Recreational Fisheries* (11). Sport Fishing Institute. Washington, D. C., Dayton, P. K. 1998. Reversals of the burden of proof in fisheries management. Science 279:821–822.

[4] Bargmann, Greg. (1998) Forage Fish Management Plan. A plan for managing the forage fish resources and fisheries of Washington. Washington Department of Fish and Wildlife. Olympia, WA.

[5] Alaska Board of Fisheries.1999. 5 AAC 39.212. Forage Fish Management Plan

FMPs. These FMPs further specify that one general action to be taken under that objective is to "continue to protect the integrity of the food web through limits on harvest of forage species."[6]

It is important to note that actions to protect the marine food web through the conservation of forage species have been undertaken with support from the commercial fishing industry. For example, a report commissioned in 2007 by the Marine Conservation Alliance, an organization of commercial fishing industry groups, finds that one of the 13 best practices for EBFM is to manage and protect food webs. A specific action included under this practice is "a ban on new fisheries for most forage species, designed to avoid potential depletion of prey needed by fish, seabirds and marine mammals."[7] Furthermore, in a public letter to the North Pacific Fishery Management Council (NPFMC), the Alaska Groundfish Data Bank states that "[H]harvesting both predators and prey is akin to burning a candle at both ends."[8]

The best available science supports forage conservation

In the last year alone we have seen three seminal scientific reports highlighting the importance of conserving forage species. A study released in July 2011 by Smith et al. demonstrated that fishing on forage species can have significant negative impacts on marine ecosystems and in particular commercial and recreationally valuable species.[9] These findings held true for the California Current ecosystem and the study went on to recommend management reference points and exploitation rates for existing forage fisheries that are twice as conservative as the traditional maximum sustainable yield approach.

In November 2011 a study was published by Cury et al. that found when forage fish biomass falls below one third of the maximum historical biomass, seabird populations respond by producing fewer chicks.[10] Most surprising here is that the predator response was consistent across ecosystems and seabird species. Of importance to resource managers is that this study provides a threshold of minimum forage species biomass needed to sustain seabird populations and productivity over the long term.

In April 2012, the Lenfest Forage Fish Task Force, a group of 13 preeminent scientists from around the globe, released a report providing practical, science-based recommendations for the management of forage species, given their critical role in marine ecosystems and the need to transition toward an ecosystem-based approach to fisheries management. For data poor forage species, the Task Force recommends that no new fisheries be initiated until sufficient information is available to manage an ecologically sustainable fishery.[11] According to the Task

[6] NPFMC. 2011. Gulf of Alaska Groundfish FMP & Bering Sea and Aleutian Island Groundfish FMP. Available at: http://www.fakr.noaa.gov/npfmc/

[7] Warren, Brad. 2007. *Sea Change: Ecological Progress in U.S. Fishery Management.* A report jointly commissioned by the Marine Conservation Alliance and the Institute for Social and Economic Research and the University of Alaska Anchorage. July, 24, 2007.

[8] See Alaska Groundfish Data Bank letter to NPFMC. April 9, 1997. Available at: http://www.pewenvironment.org/uploadedFiles/PEG/Publications/Other_Resource/Alaska%20Groundfish%20Data%20Bank%20Testimonial.PDF

[9] Smith ADM et al 2011. Impacts of Fishing Low–Trophic Level Species on Marine Ecosystems. *Science* **333** (6046): 1147-50, 26 August 2011 (published online July 21, 2011); available at www.sciencexpress.org.

[10] Cury, P.M. et al. 2011. "Global Seabird Response to Forage Fish Depletion – One Third for the Birds." Science 334:1703-06

[11] Pikitch, E., et al. 2012. Little Fish, Big Impact: Managing a Crucial Link in Ocean Food Webs. Lenfest Ocean Program. Washington, DC. 108 pp.

Force, information needed to manage a sustainable forage fishery includes population status and trends, environmental drivers, identification of dependent predators and their status, and foraging patterns. Most, if not all, of the unmanaged species on the list of California Current Ecosystem forage species drafted by the Ecosystem Plan Development Team (EPDT)[12] do not meet these information criteria and thus according to Lenfest recommendations, should not become the target of new commercial fisheries.

Status quo policy is inadequate

The status quo policy under which new fisheries can proceed in the absence of a FMP is inadequate. As we have previously noted for the Council, the Council's List of Allowable Fisheries (List) includes a broad Non-FMP Category which currently allows new fisheries on unmanaged species to start up without Council approval.[13] Furthermore, even if the List were updated to eliminate this catch-all authorization and exclude specific species or gear types, new fisheries would still be able to proceed after notification and a 90-day waiting period unless the Council successfully petitions the National Marine Fisheries Service to take a 6 month emergency regulatory action, and even then an FMP or FMP amendment would still need to be initiated to extend the emergency action another 6 months and implement permanent regulations.

The Council has an opportunity at this time to further establish itself as a leader in the transition towards ecosystem-based fishery management. It can take action now to manage fisheries for the long-term health of the ecosystem, or maintain the status quo under which it can only react to new and potentially harmful fisheries as they develop. We urge the Council to take the former course.

Demand is rising for new forage fisheries

The Council's own draft Fishery Ecosystem Plan (FEP) includes a market analysis which shows that, based upon their value in global commodity markets, many of the unmanaged forage species in the California Current Ecosystem could become the target of future fisheries. In particular, the analysis finds that:

> *Demand for LTL species in the production of fishmeal has mainly been driven by the spectacular growth of global aquaculture, which is expected to continue into the foreseeable future…Given limited potential for increased fishmeal production from traditional LTL species prices for fishmeal and fish oil will continue to rise. This makes the prospect for fisheries developing on the minor LTL species all that more attractive, as higher fishmeal prices are sure to translate into higher exvessel prices for the raw ingredients.*[14]

[12] PFMC 2011. Draft Pacific Fishery Ecosystem Plan, Appendix A. Available at http://www.pcouncil.org/wp-content/uploads/H2a_ATT1_DRAFT_ECO_PLAN_NOV2011BB.pdf
[13] See Pew Environment Group letter to PFMC. March 23, 2012. Available at: http://www.pcouncil.org/wp-content/uploads/H5c_SUP_PC2_APR2012BB.pdf
[14] PFMC 2011. Draft Pacific Fishery Ecosystem Plan, Appendix A. Available at http://www.pcouncil.org/wp-content/uploads/H2a_ATT1_DRAFT_ECO_PLAN_NOV2011BB.pdf

As can be seen from this analysis, protecting unmanaged forage species is not just a philosophical or theoretical discussion about idealistic management scenarios. There is demonstrated potential for new fisheries to emerge on these species, with market pressures coming from non-consumptive uses such as fishmeal and fish oil. In fact, many of the unmanaged forage species off the West Coast are fished at industrial levels in other ecosystems.[15] This potential, in combination with what we know about the ecological importance of these species to well-functioning marine ecosystems, constitutes a management vacuum that must be filled.

Protecting forage species has broad public support

To date the Council has received over 19,000 individual pieces of correspondence from engaged members of the public, urging it to take action to protect forage species for the sake of a healthy ecosystem, sustainable fisheries and vibrant coastal communities. Over 110 licensed commercial fishermen and women on the West Coast have written to the Council, urging it to prevent new fisheries from developing on forage species until adequate science is available. Additionally, a diverse list of both commercial and recreational fishing organizations have advocated for the Council to implement needed forage protections, including a reversal on the burden of proof for new forage fisheries. The regional fishery management council process encourages public participation, and we hope that this strong show of public support for protecting unmanaged forage species is helpful as the Council continues its deliberation on how best to proceed.

Council Action and Guidance to Date

The importance of forage species is not a new issue for fisheries management and forage conservation has been the impetus for previous federal actions (see Table 2 below), including the 2006 prohibition on krill fishing in the West Coast Exclusive Economic Zone (EEZ). In 2010, during the development of Amendment 13 to the Coastal Pelagic Species (CPS) FMP, there were requests from the public that the Council use that amendment as an opportunity to protect unmanaged forage species by including them in the CPS FMP as ecosystem component species with corresponding conservation and management measures. However, the Council chose not to take that opportunity and there were indications that an Ecosystem FMP would be a more appropriate vehicle for addressing non-FMP forage species.[16]

During the Council's deliberation on EBFM in June 2011, we testified in favor of adopting an Ecosystem FMP with the regulatory authority to establish protections for unmanaged forage species. However, as the Council did not take that opportunity to establish a regulatory Ecosystem FMP, we were pleased that it nevertheless advanced the forage issue by directing the EPDT to develop a list of unmanaged species that could potentially be the target of a new fishery. It was our understanding that the purpose of this list was to identify forage species currently unmanaged in the West Coast EEZ that may warrant further protections.

[15] *Ibid p. 31*
[16] PFMC. 2010. Amendment 13 to the Coastal Pelagic Species Fishery Management Plan. Draft Preliminary Alternative and Analyses. Available at: http://www.pcouncil.org/wp-content/uploads/H2a_ATT1_NS1_GUIDE_CPS_MARCH_2010_BB.pdf

In November 2011, the Council was presented with a list of California Current forage species with corresponding management status and an analysis of the potential for new fisheries to develop on unmanaged forage species.[17] Upon receiving this information the Council requested further analysis of the need and mechanisms for expanding protective measures for forage species.[18]

In response to the Council's November guidance, the EPDT conducted work sessions in January and April 2012 whose purpose included further analysis of the need and mechanisms for expanding protective measures for unexploited forage species.[19] We participated in both of these work sessions in addition to conducting our own analysis of the available regulatory pathways and concluded that:

- The justification for protecting unmanaged forage species is clear and compelling.
- Protections for unmanaged forage species must be housed in a regulatory FMP.
- There is ample precedent for successful FMP-level preclusions of new forage fisheries.

The Council's record on this issue includes an identified and discrete set of unmanaged forage species and a market analysis showing those species to be the potential target of future fisheries.[20] Given what we know about the critical ecological and economic importance of forage species, the accurate and comprehensive information in the Council's record clearly demonstrates the need to protect these species from unregulated fishing in the absence of sufficient scientific knowledge.

Potential Mechanisms for Protecting Unmanaged Forage Species

Through our own analysis and our participation in the EPDT work sessions, several broad approaches to protecting unmanaged forage species have risen to the surface:

Table 1

Mechanism	Description	Pros	Cons
A. Bring unmanaged forage species into the Coastal Pelagic Species FMP	*Designate unmanaged forage species as Ecosystem Component Species (ECS). ECS would not be classified as "in the fishery." *Adopt management measures for ECS to prohibit directed fishing. *Group species by highest taxonomic order for ease of management.	*Precedent exists for NMFS approvability. (NPFMC, Krill) *Council can establish criteria for developing a new fishery. *Satisfies stated Council member preference for reversing burden of proof on new fisheries. *Council can manage these species before other, less appropriate entities. *Most closely in line with Council guidance from June 2011.	*Position of CPS Management Team is unclear, having expressed that additional forage protection should be in a regulatory EFMP, that the EFMP should not be regulatory, and that species should be managed under the "appropriate" species FMP. *Workload, budget and urgency concerns from NMFS.

[17] PFMC 2011. Draft Pacific Fishery Ecosystem Plan, Appendix A. Available at http://www.pcouncil.org/wp-content/uploads/H2a_ATT1_DRAFT_ECO_PLAN_NOV2011BB.pdf
[18] PFMC 2011. November Decision Document. Page 5. Available at http://www.pcouncil.org/wp-content/uploads/1111decisions.pdf
[19] PFMC 2011. Ecosystem Plan Development Team Work Session Announcement. Available at http://www.pcouncil.org/2011/12/17770/epdt_conf_call/
[20] PFMC 2011. Draft Pacific Fishery Ecosystem Plan, Appendix A. Available at http://www.pcouncil.org/wp-content/uploads/H2a_ATT1_DRAFT_ECO_PLAN_NOV2011BB.pdf

Mechanism	Description	Pros	Cons
B. Bring unmanaged forage species into respective FMPs	*Break up unmanaged forage species into groupings or complexes according to Council's existing FMPs. *Designate as ECS in each respective FMP, with associated management measures.	* Some Council members have expressed that forage species are best managed under primary FMPs in which they are encountered as bycatch.	*Would require multiple FMP amendments or an omnibus amendment. *Council members have expressed preference to limit action to schooling pelagics which fit most within CPS. * May lead to disparate approaches by different management teams.
C. Develop a "hybrid" Fishery Ecosystem Plan (FEP)	*FEP would be largely advisory, with limited regulatory authority only over unmanaged, non-FMP forage species. *Unmanaged forage species could either become management unit species or ECS; with corresponding management measures.	*Continuity of work with EPDT retaining primary responsibility for development of FEP and corresponding management measures. *May best allow for consideration of new forage protections in the context of ecosystem role of LTL species.	*Unclear whether the Council can authorize even limited regulatory authority in an FEP, or if so, whether it can specifically limit regulatory authority to unmanaged forage species. *Unclear whether forage species would be "in the fishery" or ECS. *EPDT workload concerns if forage protection and broader EBFM work are both retained. *Uncertain timeline and future for FEP development.
D. Expand FEP into an Ecosystem Fishery Management Plan (EFMP)	*Full-scale EFMP with regulatory authority over non-FMP species and cross-FMP issues. *Abandon FEP and begin new process to develop an EFMP. *Require scoping, NEPA, public comment, etc.	*May best allow for the development of forage protections within an ecosystem-wide context rather than a particular FMP.	*Inconsistent with Council decision from June 2011. * Would require beginning again with new FMP development. *Uncertain timeline and future for EFMP development.
E. Refine MSA "List of Allowable Fisheries"	*Currently, non-FMP species are open to unmanaged fishing with no notice to or approval by the Council. *Removing non-FMP species category would mean that a prospective fisherman would only need to provide notice to the Council and then proceed with fishing after 90 days unless the Council has taken emergency action.	*Provides ancillary benefits from process of examining and updating list to reflect current state of Council-managed fisheries.	*Limits opportunity for public participation. *No explicit and established process for removing fisheries, species or gear from the list. *Even if the "non FMP" category was removed or modified, the Council would still need to take emergency action to block a new forage fishery within 90 days of notification. *Such action would be a petition for Emergency Action by the Secretary of Commerce, therefore approval is not assured. *Emergency action could only last a maximum of 360 days, dependent on initiation of an

Mechanism	Description	Pros	Cons
E. Refine MSA "List of Allowable Fisheries			FMP or FMP amendment. Thus an FMP action is ultimately required no matter what. *Because the Council is now aware of the potential for new forage fisheries, any proposed new fishery is not "unforeseen" and this may weaken any eventual Council petition.

Why CPS FMP Provides the Best Option for Protecting Unmanaged Forage Species

CPS FMP is the Council preferred option

To date the issue of protecting unmanaged forage species has been tasked to the EPDT, as protection of the food web and the conservation of forage species is a broadly recognized goal of ecosystem-based fishery management.[21] However, the Council's motion under the Ecosystem-Based Management agenda item in June 2011 stated:

> *"Additional management measures for forage fish species, if any, would be considered through the Coastal Pelagic Species (CPS) FMP, as the Council deems appropriate.[22]"*

While we agree that the justification and reasoning for protecting forage species is ecosystem-based, the Council's Fishery Ecosystem Plan (FEP) is an inappropriate vehicle because without regulatory authority it lacks the ability to enact conservation and management measures. Furthermore, the timeline for establishing a fully developed FEP remains unclear and is inconsistent with the need to take action now, before capital is invested in developing new fisheries. For this reason, among others, we support establishing protections for unmanaged forage species within the CPS FMP, at least until such time as the FEP or an Ecosystem FMP becomes a viable option. In addition, there are likely significant benefits to existing CPS fisheries that will result from a preclusion on new fisheries on the unmanaged forage base. As there is a finite pool of high-quality forage biomass to support fisheries and predators, preserving the overall forage base and diversity will ensure that increased predation pressure does not shift to the managed stocks if a currently unmanaged species is depleted by a new, unregulated fishery.

Providing adequate forage is a goal of the CPS FMP

The Goals and Objective section of the CPS FMP includes the following goal/objective:

> *6. Provide adequate forage for dependent species.*[23]

[21] For example see: 1) Amendments 36 and 39 to the GOA and BSAI Groundfish FMPs. Fed Reg 63. No 51. March 17, 1998. 2) PFMC 2008. Amendment 12 to the CPS FMP. 3) PFMC 1998. CPS FMP, Goals and Objectives, Page1-4.
[22] June PFMC Meeting, Motion 20, #3 (Agenda Item H.1.d, Page 48)

While this goal/objective of the CPS FMP applies to the managed and monitored species currently "in the fishery," it is consistent with the reasoning and justification for protecting unmanaged forage species. All of the species in the CPS FMP are forage species in that they are preyed upon by a wide variety of marine life. The fact that this FMP is the only one managed by the PFMC with an associated forage objective makes it the most appropriate of all the regulatory plans for including additional forage species as ecosystem components.

CPS FMP was created to manage for "Future Fishery Expansion"

Establishing a proactive and precautionary policy for currently non-targeted forage species is consistent with one of the Council's primary reasons for creating the Coastal Pelagic Species (CPS) Fishery Management Plan in the first place - the need to proactively manage for future fishery expansion:

> *An important advantage in implementing and FMP with limited entry at this time is that future increases in capacity of the CPS fishery could be managed before problems arise…..It is likely that the CPS fishery will become overcapitalized faster than management authorities can react if sardine, or other CPS, increase in abundance or markets develop. Experience with the CPS and other fisheries indicate that the process of developing fishery management programs is slower than the rate at which a fishery can become overcapitalized. There is substantial excess capacity in the groundfish, herring and salmon fisheries (including the factory trawler fleet), for example, that could enter the CPS fishery in a matter of months if markets develop.*[24]

While the reasoning above excerpted from Amendment 8 to the Northern Anchovy FMP primarily addressed the species in the CPS fishery, it should also hold for the species in Appendix A of the Draft FEP, as similar market forces and geographic overlap would attract future fishery expansion. In particular and as noted in the Draft FEP, increasing demand from the rapidly growing global aquaculture industry[25] will continue to exert pressure to develop new forage fisheries.

Examples of Federal Forage Protections Enacted Elsewhere

It is important to keep in mind that protecting and conserving forage species in federal waters, and in particular those forage species that are not being fished, has been done before in several instances using differing approaches. All have been demonstrated successes, and they include innovative approaches that have shown that the burden of proof can be successfully reversed.

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[23] PFMC. 1998. Coastal Pelagic Species FMP. Page1-4. Available at: http://www.pcouncil.org/wp-content/uploads/a8fmp.pdf
[24] PFMC. 1998. Coastal Pelagic Species FMP Amendment 8, Appendix B, p. B-3.
[25] FAO (2011) State of World Fisheries and Aquaculture. Fisheries and Aquaculture Department. Food and Agriculture Organization of the United Nations. Rome, Italy.

Table 2

	NPFMC Arctic FMP	NPFMC GOA/BSAI Groundfish FMP	PFMC Coastal Pelagic Species FMP
General Description	FMP approved in 2009 whose primary purpose was to preclude new commercial fisheries in the Arctic Management Area, including for forage species, unless and until robust information was available and deemed sufficient to approve a new fishery	Twin FMP amendments (BSAI Groundfish FMP Am 36 and GOA Groundfish FMP Am 39) were originally approved in 1998 to prevent the development of directed commercial fisheries for forage species. Subsequent amendments enacted in 2011 to designate forage and prohibited species as Ecosystem Component Species (ECS).	FMP Amendment (Am 12) initiated in 2004 for the purpose of developing a formal prohibition on directed krill fisheries, and approved in 2009. Am 12 revised the CPS FMP to prohibit commercial fishing for all species of krill in the West Coast EEZ.
What specific management measures were enacted to protect unmanaged forage fish?	Commercial fishing on forage fish species was prohibited in the Arctic Management Area unless and until sufficient scientific information is available.	Prohibited directed fishing for select forage species at all times in Federal waters of the BSAI and GOA. Maximum Retainable Bycatch (MRB) allowance of 2% by weight of the retained groundfish on any given trip.	Implemented regulations stating that vessels in all EEZ fisheries may not "fish for, target, harvest or land" krill species.
Were the forage stocks designated as Management Unit Species (MUS) in the action?	No, forage stocks were not included in the MUS designation. Instead, three species (Arctic cod, Saffron cod, and Snow crab) were included in the MUS with *de minimis* OY's.	No. Only "Target Stocks" were included in the MUS designation and forage stocks may not be targeted under the Alaska Groundfish FMP's	Yes. Krill species are included in the list of MUS in the CPS FMP.
Were the forage stocks designated as "In the Fishery" (SIF) in the action?	No. Forage stocks are in the Ecosystem Component category, not in the fishery.	No. All forage stocks are either Prohibited Species or are in the Ecosystem Component category, and are thus not in the fishery.	Yes. Krill species are in the fishery under the CPS FMP.
Were the forage stocks designated as Prohibited Species (PS) in the action?	No. PS is a designation used in NPFMC fisheries for species encountered during commercial fishing. Since the Arctic FMP prohibits all commercial fishing, the designation is technically not used, even though fishing for forage stocks is prohibited	No. PS is a designation used in these FMP's for some ECS encountered during commercial groundfish fishing, (i.e. salmon, crab, Pacific herring). While this action effectively prohibited directed fishing on the forage complex, the PS designation only applies to Pacific herring.	Not exactly. Krill species are considered "Prohibited Harvest Species" (PHS), a new designation created under Am 12 to describe species which may not be taken by an y gear or fishery in the US EEZ, whereas PS may not be retained by CPS fishery participants, but are legally harvested under other FMP's.
Were the forage stocks designated as ECS in the action?	Yes.	Yes. The 2010 update and reaffirmation of the forage fishery preclusion designated the forage complex as ECS.	No. While the CPS FMP does designate some forage stocks as ECS, the Krill species are not ECS.
Were forage stocks grouped into stock complexes in the action?	Yes. The ECS in the Arctic FMP include all "finfish," "marine invertebrates," and "other forms of marine animals and plant life" other than the three MUS.	Yes. The original action and the 2010 update group the forage stocks into nine (9) taxonomic families and include all species within those families.	Yes. Am 12 grouped the forage stocks in question at the taxonomic order level by protecting "all species of euphausiids that occur in the EEZ off the West Coast."

Application of Examples to Current Situation

For the current consideration of implementing protections for unmanaged forage species in the West Coast EEZ, useful parallels can be drawn from the actions in both the GOA/BSAI Groundfish FMPs and the Arctic FMP.

1) The preclusion on directed fishing for forage species in the GOA/BSAI Groundfish FMPs was successfully implemented in an area where large-scale commercial long-line and trawl fisheries were being prosecuted. For this reason, the prohibition on directed fishing included a maximum retainable bycatch allowance of two percent, meaning that vessels fishing for other species in the region could retain a quantity of forage species up to two percent of the round-weight of the targeted species. In the West Coast EEZ, where groundfish fisheries are currently being prosecuted, action taken by the Council to protect unmanaged forage species should include a similar bycatch allowance so that existing fisheries are not unduly and negatively impacted.

2) For Arctic fish resources, the Arctic FMP "provides management measures to prohibit commercial fishing until information is available to support sustainable management of any future authorized fishery."[26] The reason for adopting similar management measures for unmanaged forage species in the West Coast EEZ is to maintain the role they play in the California Current ecosystem and protect them from unregulated harvest unless and until information is available to support ecologically sustainable management of any future fishery.

3) The Arctic FMP has three management unit species with *de minimus* optimum yields (Arctic cod, saffron cod and snow crab) and designates all other species in the Arctic EEZ as ecosystem component species, including forage species. See the Table below:

Table 3-3 Target Species and Ecosystem Component Species.

	Finfish	Invertebrates	Other Marine Life*
Target Species	Arctic cod and saffron cod	Snow crab (*C. opilio*)	
Ecosystem Component Species	All finfish other than Arctic cod, saffron cod	All marine invertebrates other than snow crab (*C. opilio*)	All other forms of marine animals and plant life

*other than finfish, invertebrates, marine mammals, and birds

3.4.1 Forage fish species

Commercial fishing on forage fish species is prohibited in the Arctic Management Area. Forage fish are prey for other marine ecosystem fauna including fish, birds, and marine mammals. Forage fish species other than the target species are included in the "Ecosystem Component Species" category.

Similarly, the Council should designate the list of unmanaged forage species from Appendix A of the draft FEP as ecosystem component species in the CPS FMP, enabling it to enact appropriate conservation and management measures as identified above in #1.

4) To accommodate the potential for future fisheries, the Arctic FMP provides a process by which a species can be moved from the ecosystem component category into the actively

[26] NPFMC. 2009. Arctic FMP. Page ES-4. Available at: http://www.fakr.noaa.gov/npfmc/PDFdocuments/fmp/Arctic/ArcticFMP.pdf

managed category. Similarly, the Council can provide a process and criteria by which a CPS FMP ecosystem component species can be moved into the actively managed category if it wishes to consider authorizing a sustainable fishery on that stock.

5) While ecosystem component species are exempt from status determination criteria, they can have conservation and management measures enacted for them, even though they are not technically "in the fishery."[27] Similar to the Arctic FMP, whose management measures prohibit commercial fishing until information is available to support sustainable management of any future authorized fishery, and consistent with section 303(b)(12) of the Magnuson-Stevens Act, the Pacific Council should adopt management measures to prohibit commercial fishing for or directed harvest of ecosystem component species.[28]

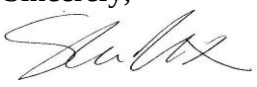
Conclusion

The status-quo policy for unmanaged forage species does not adequately ensure protection of the marine environment upon which our valuable fisheries depend. Given what we know about their critical ecological and economic importance, action is need to protect them from unregulated new fisheries that would otherwise take place in the absence of adequate scientific information. In order to ensure the ecological role that unmanaged forage species play, permanent protections for them must be housed in an FMP with the regulatory authority to enact conservation and management measures. That is the only way to bring these unmanaged forage species into the Council's jurisdiction, thereby ensuring that before any new fisheries begin, the appropriate science is conducted to make certain that any such fishery could be sustainable and not harm the marine ecosystem or other valuable fisheries.

The need to manage for future fishery expansion calls for proactive measures. The Council and its advisory bodies, along with state and federal agency staff have the knowledge and expertise necessary to develop a comprehensive suite of alternate management options from which the Council can choose. What they currently lack is clear direction from the Council that it wishes to protect this critical subset of forage species. Now is the time to take action and establish that direction, and to formally initiate a public process.

Thank you again for the opportunity to participate in this public process and share our concerns regarding ecosystem-based management and the protection of the California Current forage base. We look forward to working with the Council and all stakeholders to maintain healthy oceans and sustainable fisheries.

Sincerely,



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[27] NOAA/NMFS. 2011. Annual Catch Limits and National Standard 1 Q & A's. Available at: http://www.nmfs.noaa.gov/msa2007/docs/acl_faq_may27_2011.pdf

[28] (See 74 FR 11 at 3186, and Arctic FMP Environmental Assessment, Appendix VI - NMFS letter to NPFMC)