

SEP 28 2011

PFMC Council,

PFMC

I am writing out of a concern that the increasingly huge demand the aquaculture industry has for forage fish. If left unchecked it would literally take the fish out of the mouths of salmon, tuna, & all the marine wildlife that is totally dependent on forage fish. Commercial fisheries would fail & all the marine life would be depleted.

Did we not learn our lesson when Weyerhaeuser's salmon farms in Chile gobbled up most of the forage fish off S. America. Local fisheries collapsed & most fishermen were out of work. That in turn caused an environmental disaster & Weyerhaeuser just bailed out on the whole mess.

It is not sustainable to take 7-12 lbs of forage fish out of the ocean ~~to~~ ship it halfway around the world to grow 1 lb. of bluefin tuna. We're cutting our own throats & it is just plain stupid.

I support a strong fishery ecosystem plan that accounts for the value of forage fish as prey for ocean wildlife.

Comm. fisherman
for 38 yrs.

Thank You,
al Butler
F/O Mickey

Subject: Protect forage fish
Date: Thu, 13 Oct 2011 20:07:45 -0400 (EDT)
From: BobUnreel@aol.com
To: pfmc.comments@noaa.gov
CC: JGERSON@beitler.COM, dpickford@roadrunner.com, LPortnuff@deweysquare.com

As a fishing club with a 30 year record of supporting marine fishery conservation we strongly urge support for the Pacific Fishery Management Council effort to develop a fishery ecosystem plan for forage fish. Our Club has been working with the Dept of fish and Game and Hubb's Research Institute for the last 14 years raising and releasing white seabass. For most of the those 14 years there have been very few white seabass in SM Bay. This year and last we have had an abundance of krill and squid in the Bay. Predictably, we have seen an increase in seabass and all marine animals including blue whales. On the other hand we have seen fleets of squid boats from all over the Pacific Coast descend on the Channel Islands and take incredible hauls to be turned into fish meal. There needs to be a management plan to protect our forage fish and ensure enough stay in the ocean as a food source to sustain other valuable fish and marine life that are vital to our coastal fishing and tourism economy. I am reminded about what happened to the economy of Monterrey after the sardines were wiped out.

Robert Godfrey, Secretary
MARINA DEL REY ANGLERS, Inc.
4230 del Rey Ave
Marina del Rey, CA 90292

October 13, 2011

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

RE: Agenda Item H.2. Ecosystem Based Management/ Request to initiate CPS FMP amendment to protect forage species

Dear Chairman Wolford and members of the Council:

We are pleased that in June 2011 the Pacific Fishery Management Council (PFMC) tasked the Ecosystem Plan Development Team (EPDT) with developing a list of important West Coast forage species which might potentially be the targets of fisheries in the future. Given the importance of forage species to the overall health of the ocean ecosystem, the intent of developing this list is to determine precautionary management measures to ensure that any new fisheries for forage species be conducted without harming the health of the ocean ecosystem. Based on this discussion and our work on this topic over the last several years, we submitted comments to the EPDT and attended the September 21-22 EPDT meeting addressing this issue. We are writing now to provide the Council with a list of important forage species which we believe the Council should consider. We've also included the current management status of each species, and known population status. Oceana respectfully requests that the PFMC move this issue forward by initiating an amendment process to the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) to incorporate those forage species not already in another Federal FMP into the CPS FMP. Further we request that directed commercial fisheries be prohibited from developing on these species unless and until an ecosystem plan and appropriate management benchmarks are in place that would allow a sustainable fishery to commence without adversely impacting the functional role these species provide as prey to other marine life.

As you know, the Council took unanimous action in 2006 to prohibit directed fishing for krill off the U.S. West Coast through an amendment to the CPS FMP. This action followed state prohibitions on fishing and landing krill in California, Oregon and Washington. The Council and NMFS took this action with interest in, "preserving key trophic relationships between fished and unfished elements of the food web in order to maintain the integrity of the ecosystem and to minimize the risk of irreversible adverse impacts on managed fish stocks and other living marine resources from adverse impacts."¹ At the time, some Council members wondered why the focus was only on krill, as there are many other important and unmanaged forage species that should also be protected in a similar fashion. This fact was not lost on many people and hence, for the same reasons the krill prohibition was put in place, there has been a growing call over the past few years to identify and protect all of the unmanaged forage species in the California Current ecosystem.

We are aware of several previous and ongoing attempts to compile lists of important forage species of the California Current ecosystem, including: the list identified in the partial Draft Environmental Assessment for Amendment 13 to the CPS FMP,² forage species already protected by the North Pacific Fishery Management Council,³ the below list we provided to the EPDT at its September meeting, and the list submitted by the Pew Environment Group to the Council at the September 2011 meeting. Also relevant are several key data sources including: a NOAA Tech Memo elucidating diet guilds,⁴ California Current ecosystem models,⁵ and specific diet studies on seabirds, marine mammals, and key fish species.

As you may be aware, global finfish and shrimp aquaculture are increasing faster than any other food sector, and this industry is dependent on feeds derived from wild-caught fish. As pointed out by a member of the EPDT at the September meeting, it is inevitable that the ever-increasing demand for fish meal and fish oil from the rapidly growing global aquaculture industry will at some point make any species from which these products can be extracted economically viable, even if they do not appear viable today. We can only postulate whether this will be next year or decades from now. Prohibiting fisheries from developing for forage species before they start is much easier politically and economically than closing fisheries after capital investments are made. Therefore, no species should be excluded from a list of species for which fisheries could potentially develop.

In the discussion of the June 2011 motion on Ecosystem-Based Management, the PFMC indicated that the appropriate pathway toward establishing precautionary protections for this important group of forage species that are not currently included in federal FMPs or subject to commercial fishing pressure would be to add them to the CPS FMP. This is in part because the PFMC decided that the Fishery Ecosystem Plan would not have regulatory authority. Given the increasing scientific recognition of the ecological importance of forage species,⁶ the precautionary actions already taken by the Council to prohibit a commercial krill fishery, action by the Council to set the 2011-2012 shortbelly rockfish catch at less than 1% of the ABC, and the work done by the EPDT in response to the Council's direction, we request that the Council now initiate an amendment to the CPS FMP that would:

1. Add to the CPS FMP all forage species for which no major commercial fishery exists, and which are not currently included in a federal FMP; and
2. Promulgate regulations that prohibit directed commercial fishing for all such species (similar to what was done for krill or as ecosystem component species with management measures, including a prohibition on catch).

In considering which species would meet the definition of forage species, we recommend the Council include those species which:

- Are major components of the diets of one or more upper trophic level species;
- Are frequently found in the diets of numerous upper trophic level species;
- Comprise a major part of the overall forage base; and/or
- Provide prey for key life history stages or are important during certain seasons.

To aid the Council in this process, we have attached at the end of this letter a list of forage species meeting these criteria, and describe the current management status and the extent to which major commercial fisheries are currently being prosecuted on each species. We submitted this previously to the EPDT and we respectfully request your adoption of this list.

Regarding the question of whether these unfished forage species would be management unit species or ecosystem component species (as defined in the NS1 guidelines), we would be open to either approach, but we suggest that establishing them as ecosystem component species with management measures including a prohibition on directed commercial catch would allow the Council to achieve the desired objectives while minimizing the staff burden associated with adding new species to the Council's jurisdiction. We suggest that the EPDT continue to assist with this approach moving forward. In addition, we would hope that any such regulations would not conflict with or supersede management currently in place by state fishery managers.

Ultimately, this action would be a tangible transition to an ecosystem approach to fisheries. Similar action was taken by the North Pacific Fishery Management Council in the 1998 forage species prohibition and in the 2009 Arctic FMP. This action would not adversely affect any existing stakeholder and much of the background work has already been completed. We hope you will move this issue forward on the path indicated by the June 2011 Council discussion by initiating this proposed CPS FMP amendment at the November 2011 Council meeting.

Sincerely,



Ben Enticknap
Pacific Project Manager, Oceana

¹ PFMC 2008. Management of Krill as an Essential Component of the California Current Ecosystem. Amendment 12 to the Coastal Pelagic Species Fishery Management Plan. Environmental Assessment. February 2008, at page 1.

² PFMC 2010. Amendment 13 to the CPS FMP, Partial Draft EA. Agenda Item F.2.a, Attachment 1. June 2010, at 17.

³ NMFS 1998. Final Environmental Assessment and Regulatory Impact Review for Amendment 36 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area and Amendment 39 to the Fishery Management Plan for Groundfish of the Gulf of Alaska to Create and Manage a Forage Fish Species Category. National Marine Fisheries Service, Juneau, Alaska. 1998.

⁴ Dufault, A.M., K. Marshall, and I.C. Kaplan. 2009. A synthesis of diets and trophic overlap of marine species in the California Current. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-103, 81 p.

⁵ Field, J.C., Francis, R.C., and Aydin, K. 2006. Top-down modeling and bottom-up dynamics: Linking a fisheries-based ecosystem model with climate hypotheses in the Northern California Current. *Progress in Oceanography* 68:238-270. AND, for example: Samhuri, J.F., Levin, P.S., and Harvey, C.J. 2009. Quantitative Evaluation of Marine Ecosystem Indicator Performance Using Food Web Models. *Ecosystems* 12:1283-1298. AND Horne, P.J., I.C. Kaplan, K.N. Marshall, P.S. Levin, C.J. Harvey, A.J. Hermann, and E.A. Fulton. 2010. Design and parameterization of a spatially explicit ecosystem model of the central California Current. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-104, 140 p.

⁶ E.g., Smith et al. 2011. *Science*. Impacts of fishing low-trophic level species on marine ecosystems. 10.1126/science.1209395. 21 July 2011.

Oceana's Proposed List of Key Forage Species in the California Current (as of October 13, 2011)

Common Name	Scientific Name	Management	Major fishery?*	Population status
California market squid	<i>Doryteuthis opalescens</i>	California Market Squid FMP and NMFS CPS FMP	yes	unknown
Northern anchovy	<i>Engraulis mordax</i>	NMFS: CPS FMP/ Washington Forage FMP	yes	unknown
Pacific herring	<i>Clupea pallasii</i>	Various levels of state management (CA, OR, WA). Washington Forage Fish Management Plan	yes	Stocks range from moderately healthy to critically low.
Pacific sardine	<i>Sardinops sagax</i>	NMFS: CPS FMP/ Washington Forage FMP	yes	Coastwide overfishing in 2009, Stock below sustainable biomass levels (Bmsy)
Pacific mackerel	<i>Scomber japonicus</i>	NMFS: CPS FMP	yes	low
Jack mackerel	<i>Trachurus symmetricus</i>	NMFS: CPS FMP	yes	unknown
Pacific hake YOY	<i>Merluccius productus</i>	NMFS: Groundfish FMP	yes	healthy/ large uncertainty
Rockfishes YOY	<i>Sebastes spp.</i>	NMFS Groundfish FMP and states (e.g. CA Nearshore FMP)	yes	some rockfishes overfished, some healthy, some unknown
Krill	<i>Euphausiidae</i>	NMFS: CPS FMP, OR/WA/CA fishery prohibitions	no	unknown
Neon flying squid	<i>Ommastrephes bartramii</i>	No active management	no	unknown
Boreal clubhook squid	<i>Onychoteuthis borealijaponica</i>	No active management	no	unknown
American shad	<i>Alosa sapidissima</i>	No active management	no	unknown, assumed healthy
Surf smelt	<i>Hypomesus pretiosus</i>	No active management/ WA Forage Fish Management Plan	no	unknown
Night smelt	<i>Spirinchus starksi</i>	No active management/ WA Forage Fish Management Plan	no	unknown
Longfin smelt	<i>Spirinchus thaleichthys</i>	No active management/ WA Forage Fish Management Plan	no	active petition to list CA population as threatened species under federal ESA. CA listed as threatened
Eulachon	<i>Thaleichthys pacificus</i>	NMFS: ESA Threatened as of 2010/ WA Forage Fish Management Plan and OR/ WA joint Columbia River Eulachon Management Plan	no	threatened
Whitebait smelt	<i>Allosmerus elongatus</i>	No active management/ WA Forage Fish Management Plan	no	unknown
Delta Smelt	<i>Hypomesus transpacificus</i>	California endangered species/ U.S. Fish and Wildlife Service threatened species	no	threatened - endangered
Capelin	<i>Mallotus villosus</i>	No active management/ WA Forage Fish Management Plan	no	unknown (southern extent of range is WA)
Topsmelt	<i>Atherinops affinis</i>	No active management	no	unknown
Jacksmelt	<i>Atherinops californiensis</i>	NMFS: proposed EC species in CPS FMP	no	unknown
Lanternfish	<i>Myctophidae</i>	No active management	no	unknown
Pacific saury	<i>Cololabis saira</i>	No active management	no	unknown
Pacific sandlance	<i>Ammodytes hexapterus</i>	No active management/ Washington Forage Fish Management Plan	no	unknown
Shortbelly rockfish	<i>Sebastes jordani</i>	NMFS: Fishery prevented through 2012 in Groundfish FMP	no	depressed
Californian grunion	<i>Leuresthes tenuis</i>	CDFG: recreational fishery only	no	unknown
Codfishes YOY	Gadidae	NMFS: Groundfish FMP	no	unknown
Pacific tomcod	<i>Microgadus proximus</i>	No active management	no	unknown
Greenlings YOY	<i>Hexagrammos spp.</i>	NMFS: Groundfish FMP	no	unknown
Pacific Sanddab	<i>Citharichthys spp.</i>	NMFS: Groundfish FMP	no	unknown
Surfperches	Embiotocidae	No active management	no	unknown
Sculpins	Cottidae	No active management	no	unknown
Midshipman	<i>Porichthys spp.</i>	No active management	no	unknown
White croaker juvenile	<i>Genyonemus lineatus</i>	No active management	no	unknown
Kelpfish	Clinidae	No active management	no	unknown
Gunnels	Pholididae	No active management	no	unknown
Pricklebacks	Stichaeidae	No active management	no	unknown
Deep-sea smelts	Bathylagidae	No active management	no	unknown
Bristlemouths	Gonosomatidae	No active management	no	unknown

* Major Fishery = greater than 1,000 metric tons landed on average, 1996-2010. Pacific Fisheries Information Network (PacFIN) Report #307, 1996-2010. Pacific States Marine Fisheries Commission, Portland, OR.



AGENDA ITEM H.2.

**NATIONAL COALITION FOR MARINE CONSERVATION
4 Royal Street, S.E., Leesburg, VA 20175**

October 13, 2011

Dr. Donald McIsaac
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 101
Portland, OR 97220

RE: Development of a Council Fishery Ecosystem Plan

Dear Dr. McIsaac,

At the June 2011 Pacific Fishery Management Council meeting, the National Coalition for Marine Conservation (NCMC) supported development of a Fishery Ecosystem Plan and adoption of the purpose and needs statement drafted by the Ecosystem Plan Development Team. We are pleased that the council has taken this important step and that you are now engaged in preparing a process and a schedule for moving forward.

In written and oral statements to the Council in June and at previous meetings, we've testified in favor of developing indicators of ecosystem status as a key element of the FEP, with an emphasis on an index of California Current forage fish abundance and benchmarks for assessing "healthy" states to be maintained and "unhealthy" states to be avoided. I am writing now to re-state the importance of this issue and to urge the Council to establish development of such an ecosystem status indicator as a priority FEP goal.

The NMFS Ecosystem Principles Advisory Panel, on which I served, recommended that a Fishery Ecosystem Plan "provide a metric against which all fishery-specific FMPs are measured in order to determine whether or not management effectively incorporates and achieves the Council's ecosystem goals." I believe this objective is captured in the Purpose and Needs Statement, viz., "...to enhance the Council's species-specific management programs with more ecosystem science, broader ecosystem considerations and management policies that coordinate Council management across its FMPs and the California

Current Ecosystem (CCE).” The metric, in this context, is where information and policy intersect, resulting in improved decisions.

At the June EPDT meeting, members of the team agreed that we need benchmarks for ecosystem status and/or integrity. There was also agreement within the team that “forage is a reasonable place to start” and that we have the science to begin developing an index of forage abundance now.

There can and should be other indicators under development, but assessing the status of the CCE forage base, qualitatively as well as quantitatively, should be identified as a priority, near-term action under the FEP. The literature and emerging practice demonstrate that these kinds of ecosystem status indicators are necessary to an effective ecosystems approach to fishery management and, most importantly, that they are viable.

For instance, Aydin (2008) points out that the low level of overall available forage in the Bering Sea and Aleutian Islands ecosystem (sandlance, eulachon, capelin, herring, shrimp, jellyfish and other forage fish) was viewed by the North Pacific Council’s Plan Team as a *qualitative* reason for being cautious in setting allowable harvests of pollock.¹ In short, low numbers of forage fish are considered a negative indicator, while high numbers are an indication of favorable conditions for predators.²

Livingston et al (2005) discuss the need to a) develop indicators to assess the ecosystem-level impacts of fishing and b) predict possible future trends in these indicators. Noting the ecosystem goals of maintaining predator-prey relationships, energy flow and balance within the system and species diversity, the authors recommend (among other things) a *quantitative* index of forage biomass, with a threshold for action, as an indicator for maintaining pelagic forage availability.³

Earlier this month, the 4th National SSC Workshop (October 4-6 in Williamsburg, Virginia) was convened to consider approaches to implementing ecosystem-based fishery management through the Councils, and a special session was devoted to conserving forage fish. Recognizing the importance of maintaining productivity and stability at the ecosystem level, the group recommended Councils consider exploring ways to estimate forage biomass for a system as well as estimating demands for forage in that same system. Information on system level productivity, it was noted, could be used strategically to guide and coordinate management under individual FMPs.

¹ Aydin, K. 2008. *The evolution of ecosystem approaches: notes from the front lines*. Alaska Fisheries Science Center. NOAA Fisheries Service.

² Northwest Fisheries Science Center. 2011. *Indicators Under Development: Forage Fish and Pacific Hake Abundance*. NOAA Fisheries Service.

³ Livingston, P.A., Aydin, K., Boldt, J., Ianelli, J., and Jurado-Molina, J. 2005. *A framework for ecosystem impacts assessment using an indicator approach*. ICES Journal of Marine Science, 62: 592-597.

We urge the Council to task the EPDT with identifying and developing ecosystem indicators that could be used to inform existing and future management decisions, especially those affecting key forage species in the California Current, consistent with the Council's ecosystem-based fishery management goals as set out in the FEP's Purpose and Needs Statement and entered into the record during deliberations at the June Council meeting.

Thank you for considering our views.

Sincerely,

A handwritten signature in black ink that reads "Ken Hinman". The signature is written in a cursive, slightly slanted style.

Ken Hinman
President