

CALIFORNIA OCEAN PROTECTION COUNCIL

Staff Recommendation  
February 3, 2016

**Streamlining Fishery Management Plans**

OPC Fisheries Policy Advisor: Valerie Termini

**RECOMMENDED ACTION:** Authorization to disburse up to \$110,000 to California Ocean Science Trust (OST) to conduct a streamlining analysis and make written recommendations regarding peer review processes for Fishery Management Plans (FMPs). This funding will also include the scientific peer review of two FMPs piloting the new approach.

**LOCATION:** Statewide

**STRATEGIC PLAN OBJECTIVE(S):** Science-based decision-making; Sustainable fisheries and marine ecosystems

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**EXHIBITS**

Exhibit A: Letters of support

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**RESOLUTION AND FINDINGS:**

Staff recommends that the Ocean Protection Council (OPC) adopt the following resolution pursuant to Sections 35500 *et seq.* of the Public Resources Code:

“The California Ocean Protection Council hereby approves the disbursement of up to \$110,000 to California Ocean Science Trust (OST) to conduct a streamlining analysis and make written recommendations regarding peer review processes for Fishery Management Plans (FMPs). This funding will also include the scientific peer review of two FMPs piloting the new approach.”

This authorization is subject to the condition that prior to disbursement of funds, DFW and OST shall submit for the review and approval of the Executive Director of the OPC detailed scopes of work, work plans, schedules, staff requirements, budgets, and the names of any contractors intended to be used to complete the projects, as well as discrete deliverables that can be produced in intervals to ensure the projects are on target for successful completion. All projects will be developed under a shared understanding of process, management and delivery.

Staff further recommends that the Council adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the Ocean Protection Council hereby finds that:

- 1) The proposed projects are consistent with the purposes of Division 26.5 of the Public Resources Code, the Ocean Protection Act.
- 2) The proposed projects are consistent with the Ocean Protection Council's grant program funding guidelines (Interim Standards and Protocols, August 2013).
- 3) The proposed projects are not ‘legal projects’ that trigger the California Environmental Quality Act pursuant to Public Resources Code section 21068 and Title 14 of the California Code of Regulations, section 15378.”

**BACKGROUND INFORMATION:**

With financial support from the OPC and several partners, DFW will undertake the preparation of two FMPs for red abalone and Pacific herring, in accordance with provisions of the Marine Life Management Act (MLMA). The red abalone FMP is being prepared internally at DFW, whereas the herring FMP will be prepared with significant resources from outside the state. Both FMPs are expected to be submitted to the Fish and Game Commission (FGC) for adoption in 2018.

**The Marine Life Management Act**

The MLMA guides the development of FMPs. FMPs are long term planning documents which assemble information, analyses, and management alternatives that allow DFW to provide a coherent package of information and management measures to the FGC. Rather than focusing on single fisheries management, the MLMA requires an ecosystem perspective including the whole environment.

The MLMA strongly emphasizes science-based management developed with the help of all those interested in California's marine resources.

DFW is mandated by the MLMA to produce FMPs for the fisheries it manages. In the past 16 years since the MLMA was passed, only three FMPs have been completed (nearshore rockfish, squid and white seabass) and two are currently in production (spiny lobster and red abalone). The MLMA specifically calls for a holistic approach rather than ad hoc and piecemeal decisions on individual fisheries. The aim is to base decisions on comprehensive reviews of fisheries on clear objectives and measures for fostering sustainable fisheries.

**The State Has a Strong Interest in developing efficient and informative Fishery Management Plans (FMPs) with DFW**

In order for managers to make informed decisions and to fulfill the MLMA mandate, more

understanding of the state's fisheries is needed. Many fishery stocks are data-poor, which can result in ad hoc regulation of some fisheries. As currently produced, FMPs are complex documents which take a long time to complete. The State is in the process of finding ways to use data poor methods as a way to manage fisheries. To properly position itself in this regard, the State is leveraging present FMP opportunities to develop streamlined methods and approaches for the implementation of this larger program vision.

As part of this larger programmatic effort, OPC staff recommend funding to conduct peer review analyses that will simultaneously allow managers to find ways to streamline the process for peer review in FMPs, as well as reduce the cost. The use of funds for this project is targeted to specifically inform a long-term peer review approach.

### **Peer Review Needs**

External, independent peer review of the scientific underpinnings of each FMP is one way to provide the FGC and stakeholders assurances that the FMPs are based upon the best readily available scientific information, as set forth under the MLMA. Past experience has demonstrated that enlisting independent scientists to conduct a peer review results in the greatest degree of confidence from the regulated community as to the underlying science itself. The FMPs for herring and red abalone present an opportunity to explore ways to conduct peer review in new ways that increase efficiency and cost effectiveness by developing a suite of possible approaches to peer review for FMPs based on the actual need for each fishery – not a peer review system based on the needs of all fisheries. The goal is to develop a menu of options that can be used for peer review with the understanding that each fishery is unique and that some of those options might cost more, while others might cost less. Recommendations made as a result of this analysis will be incorporated into the ongoing revision to the MLMA's Master Plan for Fisheries, which will guide the preparation of future FMPs.

### **Herring**

Pacific herring are a schooling species found throughout nearshore ecosystems from California around the Pacific Rim to Korea. They are olive green-dark blue to silvery, with an average size of 6 inches (160mm) in San Francisco Bay. In California, they can live up to 8 years and they feed primarily on krill, fish larvae, and mollusks, among other microscopic marine organisms. In California, herring are found nearshore during spring and summer and migrate to bays and estuaries to spawn from November through April.

Pacific herring are an important forage species in the California marine ecosystem for a wide suite of predators, including marine birds and mammals. It is also an important commercial and recreational fish. Pacific herring are among the top forage species in terms of their proportion

in predator diets, making them an essential food source for predators on the West Coast.

The San Francisco Bay herring population supports a valuable fishery for herring roe (kazunoko), and a smaller herring-eggs-on-kelp (komochi or kazunoko kombu) fishery. San Francisco Bay also supports a limited commercial fresh fish and recreational fishery.

Since 1972, DFW has conducted herring research in San Francisco Bay as part of its ongoing monitoring and management of the commercial fishery. DFW uses annual dive surveys and spawn deposition surveys to calculate a spawning biomass estimate each year. In addition to these estimates, DFW collects commercial and recreational fishery data. These data along with various environmental indicators serve as the basis for establishing fishing quotas for the next season.

The commercial herring fishery is well managed. However, even with a very precautionary management approach, serious concerns about changing ocean conditions, sea-level rise, loss of spawning habitat, and a need to better understand spawning and stock fluctuations have prompted the need for an FMP to inform fishery managers to make any decisions on this fishery.

### **Red Abalone**

The northern California recreational red abalone fishery is the only abalone fishery currently open in California. In 2005, the FGC adopted the Abalone Recovery and Management Plan (ARMP), which governs the management of the recreational fishery and recovery of southern abalone stocks. This plan sets management guidelines and triggers for Total Allowable Catch (TAC) adjustments based on 2 criteria – density and recruitment. The ARMP has two phases of adaptive management: the interim management plan which the fishery is currently managed under, and the long-term management plan. The interim plan manages the northern California fishery as a single unit on a highly precautionary basis. The ARMP objective is to move the fishery into long-term management, where management is locally based, more responsive and adaptive, and can be less precautionary in nature. DFW has received support from the public and the FGC to move towards long-term management for the existing red abalone fishery. DFW supports a transition to ARMP long-term management goals to address recent changes to part of the fishery stock which justifies more refined management actions by geographic areas. The transition to ARMP long term management also provides an opportunity for DFW to move management of the fishery to a FMP under the MLMA to ensure sustainability of the fishery for future generations.

The northern California populations of red abalone support a very popular recreational fishery

throughout northern California. While landings (2002-2011) appear to be stable, recent declines in subtidal stocks have been recorded. Fishery independent dive surveys at index sites indicate a decline in the average density and low levels of recruitment of abalone in Sonoma County in the southern portion of the fishery. Fishery dependent creel surveys indicate reduced Catch Per Unit Effort (CPUE) at some sites. By 2010, red abalone densities at index sites had dropped close to levels requiring regulation changes to reduce the abalone catch. In late summer of 2011, an unprecedented harmful algal bloom (red tide) led to a die-off of invertebrates in Sonoma County and resulted in large numbers of dead abalone washing ashore. The die-off lowered abalone densities enough that a reduction in the red abalone catch was required and the Fort Ross site was closed. Surveys in 2012 revealed a 60 percent reduction in abalone density along transects in Sonoma County compared to baseline surveys conducted in 2003-07. Abalone mortality during the die-off was particularly high in the shallower waters (<30 feet or 9 meters) where recreational abalone divers fish for abalone.

In 2014, OST was asked to conduct a scientific review of DFW's density survey design and methods for estimating red abalone density. The goal of the review was to determine the most robust and tractable methods for estimating red abalone density, which informs management of the northern California recreational fishery. OST designed and facilitated the review in alignment with the DFW Science Institute Procedural Guidelines for Ad Hoc Independent Scientific Advisory Committees (SAC).

Red abalone has several characteristics which make it vulnerable to fishing pressure and environmental fluctuations. Tagging studies estimate it takes 12 years to reach the legal size limit of 7 inches (18 centimeters) and 5 or 6 more years to grow another inch. When abalone densities drop too low, the expectation for unsuccessful reproduction is compounded, thus increasing the risk of population collapse. Even with adequate density, abalone populations often have low levels of reproduction.

Size limits allow abalone a number of years to reproduce before being vulnerable to the fishery, and in the case of red abalone, we estimate there are 5-6 years of reproduction prior to entry into the fishery. While this may support reproduction there are problems with inexperienced pickers and divers removing abalone that are under sized. Abalone has no blood clotting mechanism and undersize abalone might not survive cuts caused during removal. This incidental mortality may decrease the benefits of the size limit that is designed to allow smaller abalone to reproduce for a number of years, prior to being fished. Smaller abalone produce fewer eggs and sperm than larger ones as gonad size increases exponentially with shell length. As legal size abalone are harder to find, wardens have observed people removing more abalone to find legal size abalone. Intertidal surveys at heavily used sites revealed few abalone of any

size, suggesting in some cases people may not be obeying the size limits.

The proposed FMP will ultimately cover fisheries management for all red abalone stocks in California. However, the initial focus will be on the northern California recreational fishery, which is the only open fishery at this time. The FMP will be revised in the future to potentially include other red abalone fisheries as those stocks recover and become eligible for a fishery. The recovery of red abalone south of the current open fishery area, as well as other abalone species, will still be covered by the recovery portion of the ARMP. DFW intends to review and make necessary changes to the portions of the ARMP that address recovery once the FMP is completed, to integrate any new information that may come out of the FMP process.

The FMP will be a document that gathers the best available scientific information on the natural history of red abalone, its fisheries (both current and historical), the economic conditions under which they operate, and the effects of the fisheries on the marine ecosystem. Further, the FMP will review fishery management methods used in abalone fisheries in other parts of the world, and examine any other conservation and management measures that should be considered for the sustainability of the resource and its fisheries.

The peer review will focus on reviewing the science and technical components that underpin the red abalone FMP to determine if it is sound and reasonable given DFWs existing data streams and analytical capability.

### **Scientific Peer Review**

Scientific peer review is the evaluation of scientific work by scientists with comparable knowledge and expertise. It constitutes a form of self-regulation by qualified members of a profession within the relevant field. Peer review methods are employed to maintain standards of quality, improve performance, and provide credibility. By developing a process that is viewed by diverse audiences as legitimate, credible and transparent, an independent peer review can legitimize, and therefore advance the use of rigorous scientific information in management and policy decisions.

Peer review processes can vary widely depending on the needs of managers and the unique features of the fishery, and may range from anonymous independent written reviews, to public in-person group workshops. The broader goal of this project will be to determine where within the range of possibilities scientific peer review in the context of the MLMA should land so that it is both feasible and credible, and develop a recommendation for such an approach can be used by DFW in the future. California manages approximately 250 state marine species. Since the MLMA was implemented, the state has only completed three. Discovering innovative

approaches and new mechanisms to fund and collaborate on future FMPs will be critical to finalizing a large subset of state-managed fisheries.

The herring and abalone FMP peer reviews will evaluate what is needed to provide the best available scientific information to managers to make informed decisions. They traditionally have focused on the following elements:

- Life History and Biological Information
- Economic Profile
- Ecosystem Considerations
- Habitat Considerations
- Fishery Management and Conservation (Harvest Control Rules)
- Research Protocols

The element of this project that is innovative will be taking these elements above and determining where partnerships, existing knowledge and new thinking can facilitate streamlining the peer review process in general for FMPs.

#### **Herring FMP Timeline**

Conduct Peer review: April 2016 -May 2016

#### **Abalone FMP Timeline**

Conduct peer review: March 2016 – December 2016

#### **PROJECT FINANCING:**

The total Project cost (including outside support of the herring and abalone FMP development) is approximately \$2,000,000. The total amount includes support from a diverse mix of interests including; philanthropic, the fishing industry, environmental organizations, and DFW.

Staff recommends that the Ocean Protection Council (OPC) authorize encumbrance of up to \$110,000 to OST to conduct a streamlining analysis and make written recommendations regarding peer review processes for Fishery Management Plans (FMPs). This funding will also include the scientific peer review of two FMPs piloting the new approach.

The funds will come from the Ocean Protection Council's fiscal year 2009-2010 appropriation from the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). The Council has previously authorized a set-aside for fishery related purposes in the amount of 4 million dollars, and this funding will come from that set-aside. Proposition 84 authorizes the use of funds for purposes consistent with Section 35650 of the Public Resources Code, establishing the California Ocean Protection Trust Fund

(Pub. Res. Code § 75060(g)). Under Section 35650(b), Ocean Protection Trust Fund monies may be expended for projects authorized by the OPC that are identified as appropriate Trust Fund purposes, as specified. The project is consistent with the Trust Fund purposes as discussed in the following section.

**Leverage of OPC funds**

The total cost to develop the herring FMP is expected to be \$939,000. The Herring Fishery Steering Committee (a diverse group of interests including; state, NGOs and the herring industry) spearheaded the development of and secured funding from an array of outside interests to complete the FMP. Of that total amount, the Herring Fishery Steering Committee partners bring \$423,400 of matching, in-kind contributions. Completion of this project will ensure conservation of an essential forage species, provide the foundation for stability and profitability of a viable herring fishery, provide a testing ground for MLMA Master Plan Review, increase efficiencies and cost savings for DFW, and provide a model for possible future FMPs under the MLMA.

The red abalone FMP is largely being developed within DFW internal resources. A similar effort for FMP development would be approximately \$1,000,000. The funds for this staff recommendation will support the peer review portion of the FMP.

**CONSISTENCY WITH CALIFORNIA OCEAN PROTECTION ACT:**

The proposed project is consistent with the Ocean Protection Act, Division 26.5 of the Public Resources Code, because it is consistent with trust-fund allowable projects, defined in Public Resources Code Section 35650(b)(2) as projects which:

- 1) Improve the management of fisheries
- 2) Foster sustainable fisheries
- 3) Improve management, conservation, and protection of coastal waters and ocean ecosystems
- 4) Provide monitoring and scientific data to improve state efforts to protect and conserve ocean/marine resources.
- 5) Science-based decision making

The proposed projects will help to foster improved management of California’s fisheries by assisting with the development of FMPs and streamlining peer review as it applies to FMPs. The proposed projects will also help to promote coordination between DFW, the OPC, the FGC and the OST. These projects will accomplish this by integrating each agency into the process as well as ensuring that information obtained benefits California’s marine resources.

**CONSISTENCY WITH THE OPC'S STRATEGIC PLAN:**



These projects implement Focal Area A: Science-based decision-making; and Focal Area D: Sustainable fisheries and marine ecosystems. Specifically, these projects support the use of scientific information in ocean and coastal resource decision-making, one of the OPC's key missions as highlighted in the California Ocean Protection Act and other state legislation. The OPC is committed to basing its decisions and actions on the best available science, and to promoting the use of science among all entities involved in the management of ocean resources. Working on these projects will support our state partners to advance improved governance of California fisheries, and will use lessons learned from earlier initiatives to inform new and innovative approaches to fisheries management.

**CONSISTENCY WITH THE OPC'S GRANT PROGRAM FUNDING GUIDELINES:**

The proposed project is consistent with the OPC's interim Grant Program Funding Guidelines for Proposition 84 funds, in the following respects:

- 1) Provide needed peer review data to inform management plans about California's fisheries
- 2) Help implement the MLMA by completing more FMPs
- 3) Help achieve top priorities for DFW and FGC
- 4) Help to maintain sustainable fisheries over the long term
- 5) Increase coordination between the OPC, DFW, FGC and OST
- 6) Employ an innovative approach problem solving regarding peer review

Required Criteria

1. Directly relate to the ocean, coast, associated estuaries, or coastal-draining watersheds: The proposed projects will result in necessary revisions to the Master Plan and obtaining information necessary to manage and ensure sustainable California fisheries.
2. Support of the public (Exhibit A)
3. Greater-than-local interest: The result of these projects will contribute to more informed management decisions and provide a framework for DFW to apply to later FMPs. These projects will support peer review for two important fisheries and the FMPs. Additionally, the culmination of the projects will further advance implementation of the MLMA, and will integrate adaptive peer review approaches for FMPs, thereby reducing costs to the state. The project is relevant to the OPC's strategic plan Focal Area D (Sustainable Fisheries and Marine Ecosystems), as well as Focal Area A (Science-based decision making).

Additional Criteria

4. Improvements to management approaches or techniques: The end result of these projects will be improvements to the FMP process and will provide information that enables DFW and the FGC to make informed decisions on the fishery based on current technology and the best available science.

5. Resolution of more than one issue: These projects will provide guidance and scientific information to streamline peer review for FMPs.
6. Leverage: See the “Project Financing” section above. DFW will be providing staff time and expertise and private funders are contributing substantial funds to complete the projects.
7. Timeliness or Urgency: These projects are needed to keep on track with the current timeline to submit these FMPs to the FGC in 2018.
8. Coordination: These projects will be coordinated efforts between OPC, DFW, FGC and OST, as well as several partners, stakeholders and members of the industry.

**COMPLIANCE WITH CEQA:**

The proposed agreements do not trigger CEQA as they are not legal projects as that term is defined pursuant to Public Resources code 21068 and Title 14 of the California Code of Regulations, section 15378.