

CALIFORNIA OCEAN  
PROTECTION COUNCIL

Staff Recommendation  
November 28, 2006

San Diego Sea Urchin Fishery Project:  
A Model for Community Involvement in Science-based Management  
and Value-added Marketing

Developed By: **Rebecca Pollock**

**RECOMMENDED ACTION:** Staff recommends that the council 1) determine the San Diego Sea Urchin Fishery Project to be a high priority, and 2) authorize the council Secretary to take actions necessary to provide up to \$114,120 for its implementation.

**NEAREST OCEAN or COASTAL LOCATION:** San Diego Bay area, Southern California

**AGENCY OR ENTITY RECOMMENDING PROJECT:** State Coastal Conservancy, San Diego Watermen's Association

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**EXHIBITS**

Exhibit 1: Report on the sea urchin stock assessment workshop, July 14-15, 2006

Exhibit 2: Letters of support

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**RESOLUTION:**

“The Ocean Protection Council finds pursuant to Sections 35600 *et seq.* of the Public Resources Code that the **San Diego Sea Urchin Fishery Project**, as herein described, is of high priority for ocean conservation and authorizes the Secretary to take actions necessary to provide up to \$114,120 for its implementation, including administering a grant to the San Diego Watermen's Association, a private nonprofit corporation existing under the provisions of section 501(c)(5) of the United States Internal Revenue Code. The Ocean Protection Council finds that the San Diego Sea Urchin Fishery Project would further public purposes consistent with Public Resources Code Sections 35510 and 35515.”

**PROJECT SUMMARY:**

**Background**

The San Diego Sea Urchin Fishery Project aims to move the sea urchin fishery in the San Diego

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area toward long-term conservation and sustainability. The proposed project will transform the sea urchin fishery in the San Diego area from a data-poor status to one based on good fishery-dependent and independent scientific data and models. In addition to focusing on high-quality collaborative research between fishery scientists and the fishing community, the project seeks to impart an understanding of the benefits of resource stewardship and information sharing by sea urchin fishermen. Further, the project aims to shift the local sea urchin market to a value-based system that benefits fishermen and the consumer. These efforts are required for developing responsible harvesting practices, collecting and distributing a high value product, and perpetuating local-level stewardship of the sea urchin fishery.

The proposed project will use San Diego's Point Loma kelp bed sea urchin fishery to create a replicable model for managing the sea urchin fishery elsewhere in the state based on sound science, community-driven governance, and value-added markets. Today, San Diego sea urchin fishermen primarily serve a local market; most of the catch is shipped to domestic restaurants and local vendors. Serving this market requires a steady supply of high quality sea urchin product, called uni. Sea urchin harvesting from the Point Loma kelp bed alone accounts for 50% of the San Diego fishery. There are 50 other kelp beds in Southern California, and the findings from Point Loma may be transferred to these areas and across the state.

Staff is recommending that the council 1) determine the San Diego Sea Urchin Fishery Project to be a high priority, and 2) authorize the council Secretary to take actions necessary to provide up to \$114,120 for its implementation, including administering a grant to the San Diego Watermen's Association (SDWA). Specifically, SDWA will:

- Collect, share, and manage essential scientific data with academic collaborators on the San Diego area sea urchin population
- Conduct a local sea urchin stock assessment
- Coordinate an independent group of knowledgeable fishery scientists, familiar with stock assessments for benthic invertebrates, to conduct a peer review of the assessment
- Hold facilitated meetings with divers, processors, scientists, and resource managers regarding the San Diego area in order to develop a mutually agreeable set of management proposals that would form the basis for a sea urchin fishery management plan (FMP)
- Conduct experiments for product enhancement, distribution, and marketing for the San Diego region of the fishery
- Work with a financial modeler or other appropriate collaborator to run conceptual business plans using the information gained from data collection and experiments
- Develop a report on project methodology and findings to distribute for use as a template for future projects
- Organize facilitated meetings with fishery leaders in other ports to communicate successes and lessons learned, in order to replicate this model in other parts of the sea urchin fishery and other fisheries statewide

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### **Project Implementation**

There are three essential components to the project, outlined below. Each is requisite to creating a data-rich fishery, a sustainable fishing community, and value-driven market.

#### ***1) Governance Reform: Moving towards Community-based Management***

The goal of governance reform is to develop a system of local governance under guidelines determined by the community and authorized by the state.

There are a number of institutional changes that would move the fishery from a competitive fishery (where it is not in an individual divers' interest to leave urchins behind to increase their uni content) to a non-competitive fishery, where yields and quality could be increased. After a stock assessment is conducted, harvest strategies that maximize quality can be developed collaboratively. In order to complete the stock assessment, however, fishermen must begin to collect and share accurate data about the areas they fish. Sharing information is difficult in a management regime that fosters competition and discourages cooperation. The SDWA intends to demonstrate the value of sharing data in an otherwise competitive commercial environment.

To complete this portion of the project, SDWA will demonstrate to fishermen how to collect data and explain the importance of sharing the information they gather; investigate a certification process to encourage new divers to participate in the data collection program; and develop a system of decision-making centered on "cooperative conservation" in which fishermen jointly decide to cease harvesting until urchins are high quality. This initiative has already gained some measure of support within San Diego sea urchin fleet, but requires additional education, outreach, and coordination to succeed. The incentive for fishermen is that they can benefit from improving quality and, therefore, price.

#### ***2) Collaborative Research: Data Collection and Stock Assessment***

The purpose of collaborative research is to establish data-driven management of the San Diego sub-population of sea urchins. To do so, SDWA will increase participation in a data collection program approved by the Department of Fish and Game (that is, recruit and train fishermen to collect and share essential data, as described under governance reform above), improve data storage and management systems, and complete a preliminary stock assessment. Completing a localized sea urchin stock assessment will allow for proactive management, as well as modeling of potential ecological problems by considering factors that may affect abundance, age distribution, and the impacts of the urchin fishery. The project's scientific collaborators will model alternative harvest strategies in order to obtain optimum use of the sea urchin resource.

Working with fisheries scientists at the University of California Santa Barbara (UCSB) and University of Washington (UW), sea urchin fishermen recruited and trained by SDWA will collect data inside and outside of fishing grounds by diving and remote operated vehicle (ROV) surveys. The data collection system previously created for sea urchin fishermen will be improved and expanded to include the entire area off San Diego County, and a system of managing and sharing the data will be developed. With the data collected, a local stock assessment will be completed that focuses on the sea urchin fishery at the Pt. Loma kelp bed offshore from San Diego. This assessment will provide the scientific guidance necessary to

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determine if the catches from the fishery should be reduced or could be increased. This will allow comparison of alternative harvest strategies to optimize use of the sea urchin resource.

### ***3) Improved Business Conditions: Experiments for Quality***

The purpose of this component of the project is to develop new products and improve the quality and distribution of the product to the consumer. Working with academic partners, SDWA will map quality distribution spatially and temporally with geographic information systems (GIS), with sub-samples obtained at discrete locations. Replicable translocation experiments will be conducted to determine if moving adult red sea urchins may serve as a catalyst to revitalize populations where either recruitment or development of quality uni has been impeded.

SDWA will also explore methods of transporting and storing live sea urchins after harvest that maintain quality. This is necessary because the direct marketing of live sea urchins has been impeded by problems with consistent quality and delivery of small quantities. In order to develop a steady supply of small individual quantities, natural harvests need to be augmented during periods of inclement weather. To this end, SDWA will design and test several models of cages to temporarily store sea urchins after harvest, in order to augment quality while minimizing mortality, and to deliver a product during periods when sea urchin harvests are interrupted.

Once quality, freshness, and delivery have become reliable, SDWA will begin outreach and education efforts aimed at the service sector. Finally, as a result of the information synthesized from the components of the proposed project outlined above, a business plan will be generated. Development of the business plan will be separate from, and dependent on, completion of the proposed project.

Overall, the end benefits of the proposed project will be:

- Improved communication and cooperation with the Department of Fish and Game (DFG)
- Capacity and stewardship in the sea urchin fishing community
- Improved data collection and management systems for the fishery, which can be shared statewide
- Adaptive management using an accurate and data-rich stock assessment
- Conservation of the resource through diversification of fishing effort
- Improved market value for fishermen
- Increased availability of good quality, local sea urchins to consumers
- Ability of fishermen to plan for their futures

### **Significance to Existing State Efforts**

The status of the San Diego sea urchin fishery provides an opportunity to implement the fishery reforms articulated in the council's Five-year Strategic Plan. The strong communication skills of the fishery's leadership, the fishery's track record of proactive conservation and management, and the successful outcomes anticipated ensure that the project will not be an isolated success for a localized fishery but instead will be a replicable model with implications for the entire state. In addition, the activities described in this proposal will position the sea urchin fishery for support by the California Fisheries Fund, if it is capitalized.

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The proposed project will support implementation of the Marine Life Management Act (MLMA) and help to fulfill the mandate of the California Ocean Protection Act (COPA) to support innovative approaches to sustainable fisheries management. The MLMA FMP Master Plan identified the sea urchin fishery as one of the three highest priority fisheries in need of a management plan. The sea urchin fishery is currently “data-poor,” as defined by the MLMA. To appropriately manage the fishery at the community level, basic information is needed: namely, estimates of current population size, current exploitation rate, and recruitment. Obtaining this data requires proper monitoring and assessment, and the expertise to evaluate alternative harvest strategies.

To date, funding for data collection and science-based management of California’s fisheries has been scarce. The project can add value to existing sea urchin fishery management efforts and help to implement the MLMA by supporting fishermen-led data collection and collaborative research with fisheries scientists to produce accurate and valuable stock assessments, and by supporting the development and realization of an innovative approach for area-based management.

### **San Diego Watermen’s Association**

The San Diego sector of the sea urchin fishery has sufficient infrastructure to administer grant funds and programmatic activities and has a history of proactive research and management, making it a likely candidate for success. SWDA is the first fishery harvesting cooperative in California. It is well organized, includes the area’s leading commercial sea urchin divers, and has a strong leadership voice. It was incorporated as a not-for-profit fishery cooperative under section 501(c)(5) of the U.S. Internal Revenue Code, specifically to carry out progressive, proactive fishery research and management. The purpose of SDWA is to empower San Diego divers to:

- Administer grant funds
- Develop a local infrastructure for decision making
- Develop community-based goals
- Collect and manage fishery dependent and fishery independent data
- Participate in fishery management
- Develop flexible fishery tactics and diversify their activities

SDWA has sufficient infrastructure in place to administer funds and programmatic activities, and has a track record of proactive research and management. The cooperative’s goals have been supported for several years by various foundations and nonprofit organizations.

### **Project History**

Activities by the sea urchin fishing community in San Diego to prepare for this proposal were supported by several foundations and nonprofit organizations across the country. By supporting the project, the council would be joining a successful partnership of groups nationwide that agree the San Diego sea urchin fishery is worthy of investment. Over the last two years, The Nature Conservancy and the Sand County Foundation funded the first phase of the sea urchin fishery’s program to pursue co-management, and the Alex C. Walker Foundation supported a study to evaluate the economic and conservation benefits of allocating area- and species-specific harvest rights. Commonweal Foundation funded travel expenses to an international workshop in Chile

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for SDWA directors to learn about successful international approaches in management of benthic invertebrates. The California Sea Grant Program funded a part of the project titled “Elements of Quantitative Stock Assessment for Evaluating Alternative Management Strategies.”

In the last two months, SDWA organized a workshop with funding from Environmental Defense to review data available for sea urchin stock assessments and to review objectives of a management plan and alternative harvest strategies. The report resulting from the workshop is attached as Exhibit 1. In addition, with supplemental funding from the Walker Foundation and the Sand County Foundation, a dockside meeting was held with San Diego sea urchin divers, lobster fishermen, and others to discuss their visions for improving the conservation, productivity, and profitability of the San Diego nearshore fisheries. These efforts prepared SDWA to request council funds for the final stage of the San Diego Sea Urchin Project.

Support of the funders involved to date will continue. In particular, additional funding is anticipated to supplement the deep water remotely operated vehicle (ROV) exploration and the software development and GIS elements.

### **PROJECT FINANCING**

#### **Possible Funding Sources:**

Ocean Protection Council (Coastal Conservancy)	\$114,120
<b>Total Project Cost</b>	<b>\$114,120</b>

To complete the project, staff recommends the council provide up to \$114,120 of the Ocean Protection Council’s Tidelands Oil funds, appropriated to the Secretary of Resources in the FY 04/05 for projects authorized pursuant to the California Ocean Protection Act. The Resources Agency has entered into an interagency agreement with the Coastal Conservancy to administer these funds on behalf of the Council and recommend projects for funding.

If authorized by the Council, the Conservancy will consider a grant of these funds to the San Diego Watermen’s Association at its November 2006 meeting. The grant would be made pursuant to the Conservancy’s authority under Division 21 of the Public Resources Code to award grants for living marine resources protection and restoration projects and activities consistent with Division 26.5 (COPA). It is anticipated that council funds may be complemented by mini-grants as needed from The Nature Conservancy, Sand County Foundation, The Walker Foundation, Commonweal, and/or the California Sea Grant Program.

### **CONSISTENCY WITH THE CALIFORNIA OCEAN PROTECTION ACT:**

The project is consistent with the public purposes of the COPA. Section 35510(b) establishes the principle that state decisions affecting coastal waters and the ocean environment should be designed and implemented to conserve the health and diversity of ocean life and ecosystems, and allow and encourage those activities and uses that are sustainable; sets the goal of improving monitoring and data gathering, and advancing scientific understanding, to continually improve efforts to protect, conserve, restore and manage coastal waters and ocean ecosystems; provides

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that state and local actions that affect ocean waters or ocean resources should be conducted in a manner consistent with protection, conservation and maintenance of healthy ocean ecosystems; and makes improving the health of fish in coastal waters a priority for the state. In section 35515, the legislature declared that a primary purpose of COPA is to use California's private and charitable resources more effectively in developing ocean protection and conservation strategies. Pursuant to section 35650, ocean protection funds may be used for grants to private entities, when authorized by the council, only for projects or activities that further these public purposes. Specifically, the proposed project will help to foster sustainable fisheries through collaborative research and demonstration projects between commercial fishermen and fisheries scientists.

### **CONSISTENCY WITH THE OCEAN PROTECTION COUNCIL'S FIVE-YEAR STRATEGIC PLAN:**

The proposed project is consistent with Section II-E of the council's Five-year Strategic Plan. In particular, the project addresses Objective 2, MLMA: Help establish ecologically and economically sustainable fisheries, and Objective 4, Market-based Fisheries: Support market-based fishery management approaches.

### **CONSISTENCY WITH OCEAN PROTECTION COUNCIL'S INTERIM PROJECT SELECTION CRITERIA & GUIDELINES:**

#### **Mandatory Criteria**

#### **1. Furthers the following statutory purposes and policies of the California Ocean Protection Act:**

- **Improves management, conservation, and protection of coastal waters and ocean ecosystems:**

Several aspects of the proposed project embody the ecosystem-based management (EBM) approach that guides the council, and the project's outcomes are all geared towards enhancing community-level stewardship and conservation initiative. This includes an increased understanding of the fishery and incentives to harvest sustainably.

- **Encourages those activities and uses that are consistent with sustainable, long-term protection and conservation of ocean and coastal resources:**

Reforms that will be considered will create strong incentives for stewardship and rational harvesting. The development of value-added products will provide access to new markets, stabilizing and improving prices and revenue, and create additional incentives for good harvest management and stewardship.

- **Improve monitoring, data gathering, and advances in scientific understanding of the ocean and coastal environment:**

The project involves a major data collection effort in collaboration with respected fisheries scientists, in addition to enhancement of data management and sharing. One product is a stock assessment for the local sea urchin fishery. In addition, the transportation and translocation experiments conducted will provide useful new information for the fishery and local market.

- **Improves the health of fish and fosters sustainable fisheries in ocean and coastal waters:**

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The project will be planned, directed, and conducted by fishermen working closely with academic scientists, and will ultimately enhance stewardship and long-term vesting in the resource by fishermen and other stakeholders.

- **Helps to coordinate the collection and sharing of scientific data:**

Scientists from the University of California Santa Barbara and University of Washington are collaborating with fishermen on many aspects of the project. The project includes communication of results to decision-makers and fishing communities statewide.

- **Benefits or furthers existing state programs or legislative mandates:**

The project supports implementation of the MLMA and COPA, as described in the Background and Significance section above.

2. **Consistent with the purposes of the funding source:** See Project Financing section above.
3. **Has demonstrable support from the public:** Letters of Support are attached as Exhibit 2. The project is supported by various foundations and nonprofit organizations across the country, including the Sand County Foundation, Alex C. Walker Foundation, Commonwealth Foundation, Environmental Defense, and The Nature Conservancy, as well as the California Sea Grant Program and the Department of Fish and Game. It also has the support of the Pacific Coast Federation of Fishermen Association (PCFFA).
4. **Relates directly to the ocean, coast, associated estuaries, and coastal-draining watersheds:** The project targets a priority fishery along the southern coast of California and its associated habitat.
5. **Has greater-than-local interest:** The project will be used as a model for replication in other parts of the sea urchin fishery and other fisheries statewide. This includes the methods for data collection, management, and sharing, the process for achieving reform, and the lessons learned from market-based solutions with scientific and community support.

### Additional Criteria

1. **Helps implement the California Ocean and Coastal Information, Research, and Outreach Strategy and other priorities of local, state or federal advisory groups, or scientific or policy reports, adopted by the council:** The project helps implement COPA and the council's Five-year Strategic Plan. As described above, the proposed project addresses Section II-E Objective 2, MLMA: Help establish ecologically and economically sustainable fisheries, and Objective 4, Market-based Fisheries: Support market-based fishery management approaches.
2. **The project has an element of urgency (there is an immediate threat to a coastal/ocean resource from development or natural or economic conditions, a pressing need, or a fleeting opportunity):** The project addresses one of the top three priority fisheries listed in the MLMA FMP Master Plan. The project's stakeholders are poised to move forward. Previous steps made by the potential grantee were supported by other funders and have culminated in the present stage, priming the project for council support.
3. **The project helps resolve more than one issue:** The project focuses on a particular fishery in southern California, but it addresses the council's priority of supporting collaborative research between fishermen and scientists, as well as the necessities of improved and increased data collection, the sharing of information among fishermen and between

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fishermen and resource managers, and community-supported, market-based solutions for long-term sustainability.

4. **The project includes a contribution of funds or services by other entities:** It is anticipated that entities that have funded the project to date will contribute to various aspects of the project as needed to supplement council funding.
5. **The project helps with conflict resolution:** The project creates and mediates potential conflict among fishermen, between fishermen and processors, and between SDWA and resource managers. The project includes extensive communication, transparency, and opportunities for participation.
6. **The project involves innovation (e.g. environmental or economic demonstration):** The project involves innovative approaches to fishery management and a new strategy for a community-based, market-focused fishery.
7. **The project is ready to implement (grantee or contractor will start and finish the project in a timely manner):** SDWA anticipates completing the project within twelve months of project approval by the council and entering a grant agreement with the Conservancy. The grantee is poised to begin work, and has recently conducted preparatory activities to amp up various elements of the project.
8. **The project involves a combination of local, state, or federal agencies or is a public/private partnership:** The project is led by a community cooperative working in cooperation with two universities, various nonprofits, and appropriate state partners.