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Report to the Legislature March 2007 through July 2008

The California Ocean Science Trust (OST) was established by the California Secretary for Resources pursuant to the California Ocean Resources Stewardship Act (CORSA) of 2000. As specified by this Act, the Trust is required to report annually on its activities to the legislature and the Chair of the Joint Committee on Fisheries and Aquaculture.

OVERVIEW

The California Ocean Science Trust (OST) is a nonprofit 501(c)(3) public benefit corporation established pursuant to the California Ocean Resources Stewardship Act of 2000 to encourage coordinated, multi-agency, multi-institution approaches to translating and applying ocean science to management and policy.

The mission of the OST is to ensure that the best available science is applied to California policies and ocean management to successfully maintain a healthy, resilient, and productive ocean and coast.

To achieve our mission, and align with the purposes laid out in the enabling legislation, the OST has two overarching organizational goals:

Goal 1: Facilitate collaboration To facilitate two-way connections between the world of science and that of policy and management by establishing and supporting multi-partner information systems and exchanges that yield tangible improvements in coastal and ocean management, the OST will serve as a bridge among science, management, and policy organizations.

Goal 2: Institutionalize integration The OST will institutionalize the integration of best science, where necessary, into California coastal ocean policy and decision making by building new organizations, programs, and processes and catalyzing applied research, thereby reflecting the great need to develop, disseminate, and apply science that is designed to inform and improve policy and management.



BOARD OF TRUSTEES AND STAFF

There are currently nine members of the OST Board of Trustees. The diverse board membership provides the broad perspective needed to bridge institutional gaps in knowledge, communication, and working relationships, which often hamper the development and use of appropriate science in California's complex ocean and coastal management system.

Board membership adheres to the following constituent representation:

- Secretary of the California Resources Agency (1)
- Secretary of the California Environmental Protection Agency (1)
- Director of Finance (1)
- Chancellor of the California State University and President of the University of California (3)
- Ocean and Coastal Interest Groups (2)
- Representatives of the General Public (2)

STAFF

The OST currently has 5 full-time staff, led by Dr. Amber Mace, who serves simultaneously as the Executive Director of the OST and Science Advisor to the Ocean Protection Council (OPC).

MEETINGS

The OST Board of Trustees has held meetings on the following dates during this report period of March 2007 through July 2008:

April 2007

June 2007

October 2007

February 2008

May 2008

All meeting agendas and approved minutes are available on the OST's website.

OVERVIEW OF CURRENT PROGRAMS

Consistent with its statutory mandate to bridge the gap between the coastal and ocean research community and coastal and ocean resource managers, the OST has established the following two programs:

Program 1: Science Advice to the State

The OST provides science advice to California state agencies and coordinating bodies such as the OPC. The OST will serve the state by coordinating expert advice and acting as a liaison and bridging institution to these agencies. The OST will improve coordination among scientists, policymakers, and resource managers, focusing specifically on issues that are a priority for the latter.

Since February 2007, the OST has provided science advice to the OPC, and formally designated the Executive Director of the OST as the Science Adviser to the OPC and co-chair of the OPC Science Advisory Team (OPC-SAT). The Science Advisor not only provides technical guidance to the OPC, but also serves as the OPC representative to relevant science projects and activities throughout the state, the West Coast, and nationally.

Program 2: Piloting, Developing, and Incubating New Ventures

This program focuses on developing and institutionalizing new and innovative approaches for better linking science with policy and management. As its first such project, the OST is incubating the Marine Protected Areas Monitoring Enterprise, which is a new entity focused on developing and delivering monitoring data that is essential for ensuring the long-term adaptive management of a new statewide system of marine protected areas (MPAs) designated through the Marine Life Protection Act (MLPA).

PROGRAM ACCOMPLISHMENTS

Program 1: Science Services to the State

OST Accomplishments March 2007 to July 2008 for California State Science Integration

The OST provides coastal and ocean science services and serves the state by coordinating expert advice and acting as a liaison and bridging institution. The OST improves coordination among scientists, policymakers, and resource managers. The organization is in the process of establishing mechanisms and partnerships to connect science and scientists with the OPC and to improve communication, collaboration, and quality interactions between scientists and the OPC. Currently, no other organization has the same mandate.

The OST has accomplished the following over the course of 16 months:

1. **Providing Scientific Recommendations to the OPC:** The OST provided OPC members and staff with advice through a variety of avenues, including:
 - **Developing Research Priorities Linking Science to Management.** The OST has worked with OPC staff to develop annual research priorities for the OPC allocation of funds for research through the two state Sea Grant programs in 2006 and 2007. In 2007, the OST helped the OPC pilot an innovative new approach for funding research that more directly links managers with scientists and ensures research results will be more useful for improving ocean and coastal management. The OST currently is coordinating the

efforts of the new OPC -SAT to develop research priorities in 2008 for 2009 research funding.

- Coordinating the OPC Science Advisory Team. The OST coordinated the OPC-SAT selection process, and the first OPC-SAT members were adopted at the February 2008 OPC meeting in Ventura, California. The OST has started to develop policies and guidelines for the OPC-SAT and is fielding requests from the OPC staff for information and peer reviews of project proposals and reports. The OST coordinated the first in-person meeting September 10, 2008 to coincide with the OPC meeting on September 11, 2008. The meeting focused on developing research priorities and identifying emerging issues for OPC research funding for 2009.
- Developing Directory of Scientific Experts. The OST developed a directory of experts for internal use on a wide range of topics and has a specialized directory of water quality scientists and agency staff categorized by priority issue expertise.
- Establishing and Convening Technical Working Groups, Workshops, and Science Forums to Address Questions or Critical Management Problems Identified by the OPC. The OST has co-organized the following working groups, workshops, and science forums.
 - Harmful Algal Bloom Workshop: National Oceanic and Atmospheric Administration's (NOAA) Center for Sponsored Coastal Ocean Research, the Southern California Coastal Water Research Project (SCCWRP), and the OST hosted a harmful algal bloom (HAB) workshop on April 2-3, 2008. The goals of the workshop were to compare current methods for studying HABs and to improve data sharing and communication among HAB scientists in order to advance California's capabilities to rapidly respond to HAB events. An additional goal of the workshop was to identify research priorities that will advance the development of a HAB monitoring network and improve California's predictive capabilities.
 - *Workshop products include a final report with recommendations to the OPC that detail opportunities to further develop a HAB monitoring network.*
 - Ocean Observing Workshop: A September 2007 workshop was held on linking ocean observing systems with two key coastal management issues - water quality and marine protected areas. It was organized by the Coastal States Organization and co-sponsored by the OST.
 - *Workshop products include a report that details opportunities to better utilize or further develop products and tools with*

clear, applied benefits for modifying or improving resource management or policy decisions, and a request for proposals (RFP) to more clearly define these opportunities.

- Administration and Peer Review of Science. Coordinating the development of contracted reports (produced either by academics or consultants), and internally-developed information syntheses and reports:
 - Invasive Species Risk Assessment: The OST is administering up to \$1 million to develop an aquatic invasive species risk assessment project. As the project manager, the OST is providing the supporting science services and peer review for this assessment. The OST worked with OPC staff to develop an RFP, coordinate the peer review of the RFP, and administer an RFP process to identify consultants who will conduct risk assessments for 6 invasive species vectors in California.
 - Wave Energy Report: The OST coordinated 3 reviews for the full report and each of 6 chapters for a total of 21 independent reviews for a white paper on wave energy in California. This paper discusses the state of knowledge regarding potential environmental impacts associated with wave energy technologies in California that need to be taken into consideration during the development of this industry.

- Providing Technical Advice on Specific Agenda Items. Since 2007, the OST has provided technical advice on numerous OPC agenda items. The OST is present at weekly OPC staff meetings to advise agenda development. For example, the OST has provided advice on such topics as salmon, marine protected areas, and sea-level rise.

- 2. Bringing Science to the OPC: To inform OPC staff and members of emerging critical ocean and coastal science issues, as well as significant scientific findings, the OST facilitated:
 - Connecting Science to Policy and Management. Sharing and disseminating information between the scientific community and relevant state agencies and the OPC through various mechanisms including convening meetings among OPC staff, agencies, and scientists:
 - Academic Community and Water Quality Regulators: The OST is currently working to link the academic community and water quality regulators. The OST contracted with T.C. Hoffmann & Associates to develop a report that focuses on the relationship among the Water Boards, water quality regulators, and academic scientists by exploring their current modes of operation. The report offers ways in which, together, these

groups can produce and use science that can inform regulatory policy more effectively and will assist the Water Boards in fulfilling its mission of protecting water quality.

- Coordinating with California State Agencies: The OST has coordinated and participated in workshops targeting agencies such as the Department of Fish and Game, State Lands Commission, State and Regional Water Boards, and California Environmental Protection Agency (CalEPA).
- Information Exchange on Emerging Issues. The OST brings emerging scientific information to the OPC by recommending numerous speakers for OPC presentations and panels on various topics, such as climate change and salmon.

3. Providing Outreach to the Scientific Community: To inform the scientific community of OPC activities and support the policy actions of the Council with robust scientific research, the OST coordinated the following:

- Applying Science to Management. Communication with recipients of OPC-funded research projects to ensure that researchers are coordinating with managers and the resulting research is applied to state management needs.
- Communicating OPC Objectives and Research Needs. Presentations to scientists and academic institutions on OPC objectives and research priorities:
 - Ocean Resource and Research Advisory Panel (ORRAP), Costa Mesa, CA, April 2007
 - Monterey Bay National Marine Sanctuary Research Advisory Panel, Carmel, CA, May 2007
 - Pacific Coast Ocean Observing System (PaCOOS) Board of Governors meeting, Seattle, WA, May 2007
 - University of California Marine Council, UCMC, Oakland, CA, May 2007
 - University of California at Santa Cruz, Ecotoxicology 160 Coastal Policy Challenges of the 21st Century, May 2007
 - University of California at San Diego School of International Relations and Pacific Studies, La Jolla, CA, May 2007
 - University of California at San Diego, Scripps Institute of Oceanography, Science Policy Course, La Jolla, CA, May 2007
 - California Council on Science and Technology (CCST), Irvine, CA, October 2007
 - San Francisco Estuary Institute (SFEI), Oakland, CA, March 2008
 - Monterey Coastal and Ocean Round Table, Moss Landing, CA, April 2008

4. **Providing the Science Advisor to the OPC:** The OST provided the Science Advisor to the OPC, who oversees the development and provision of the science services to the OPC. The OPC Science Advisor performs the following functions:
- **Coordinating Science for the California Ocean Protection Act (COPA).** Served as lead scientific staff to the OPC by coordinating all scientific aspects of the planning and implementation of COPA.
 - **Implementing Objectives of the California Ocean and Coastal Information, Research, and Outreach Strategy.** Implemented objectives of the California Ocean and Coastal Information, Research, and Outreach Strategy to ensure that projects brought before the OPC met scientific standards and established OPC funding guidelines.
 - **Proposal Review.** Participated in all the of project proposal review sessions to evaluate the technical merit of proposals submitted to the OPC for funding.
 - **Resources Agency Sea Grant Advisory Panel Proposal Review.** Supported the Resources Agency Sea Grant Advisory Panel (RASGAP) process by providing review of proposals and advice to the OPC and Assistant Secretary for Ocean and Coastal Policy. Provided logistical support for and arrangement of RASGAP meetings.
 - **Sea Grant Proposal Review.** Participated in the technical reviews coordinated by Sea Grant for the OPC funded research pre-proposals and full proposal review process.
 - **Communicating with Key Partners and Donors.** Met with representatives from state and federal agencies, NGOs, industry, foundations, and other groups to discuss OPC research and monitoring priorities and identify opportunities for increased communication and collaboration.
 - **Communicating with Federal Decision Makers.** Traveled to Washington, DC to meet with agency representatives and Congressional staff in March 2007 and January 2008.
 - **Participating in Steering Committee Representing OPC Objectives and Connecting Science to Policy and Management.** The OST has participated in the following steering committees and advisory groups to represent the OPC and connect science to policy and management:
 - **Southern California Coastal Water Research Project, Commission Technical Advisory Group (SCCWRP CTAG);** Technical representative for the OPC Commissioners on SCCWRP, Brian Baird and Drew Bohan.
 - **Ocean Observing Workshop Steering Committee:** Planned a workshop on linking ocean observing systems with key coastal

management issues of water quality and marine protected areas. Organized by the Coastal States Organization and co-sponsored by the OST.

- Harmful Algal Bloom Workshop Steering Committee: NOAA's Center for Sponsored Coastal Ocean Research, the Southern California Coastal Water Research Project (SCCWRP), and the OST hosted a HAB workshop in April 2008.
- Regional Ecosystem-Based Management (EBM) Science Needs Steering Committee: Planning for a workshop on EBM science needs for the California Current Large Marine Ecosystem (CCLME) organized by UCSC and COMPASS.
- Comparative Analysis of Marine Ecosystem Organization (CAMEO) Steering Committee: Implemented a new program called CAMEO to fund tools and data analysis relevant to MPAs. The CAMEO program is a joint collaboration of National Science Foundation and NOAA, academia, other federal and state agencies, and private foundations. The program itself was recommended by the National Ocean Research Priority Plan and Implementation Strategy.
- Ocean Science Summit Steering Committee: The OST Executive Director was a moderator for the break-out session on oceans and climate change at the conference.
- Participating in Workshops. Provided outreach on OPC activities at conferences and meetings across the state and nationally. The OST has participated in workshops detailed throughout this document to represent the OPC and connect science to policy and management. In addition, the OST has participated in OPC-sponsored workshops, such as the Collaborative Fisheries Research Workshops.

Program 2: Piloting, Developing, and Incubating New Ventures

The State of California Marine Protected Areas Monitoring Enterprise

The Marine Life Protection Act Master Plan Framework adopted by the Fish and Game Commission describes a strategy for effective monitoring of the state's MPAs that includes developing "the institutions and processes for adaptive management which do not yet exist." These elements include "the institutions and processes by which monitoring data are collected, maintained, and made useful to policy makers over long periods of time."

The OPC approved a contract with the OST at the November 28, 2006 OPC meeting to incubate and launch an entity that would initiate an effort to develop a small, flexible, and capable organization designed to:

- lead development of systematic, cost-effective monitoring of the state's MPAs;
- manage, synthesize, and distribute monitoring data; and
- effectively communicate monitoring information in a way that assists the Department of Fish and Game and the Fish and Game Commission in meeting their statutory mandates, broadens understanding of the state's marine ecosystems, and serves the needs of other stakeholders

The incubation plan, which has secured the support of the Department of Fish and Game, stakeholders, and the philanthropic community, was based upon the experience of similar efforts in the United States and abroad, including Australia's Great Barrier Reef Marine Park.

The initial stages of the MPA Monitoring Enterprise, which began with the hiring of Dr. Cheri Recchia in September 2007, have focused on building capacity to manage and carry out key activities. To this end, in its first year, the Monitoring Enterprise has:

- Recruited a Lead Scientist
- Established a Coordinating Committee with representatives from the Resources Agency, the Department of Fish and Game, the MLPA Initiative, the Ocean Protection Council, and the California Ocean Science Trust
- Established an External Technical Advisory Group to advise on information management
- Begun a survey of decision-makers, resource managers, stakeholders, and scientists regarding their needs and priorities for MPA monitoring information, the first of three steps in building an information management system
- Secured a substantial commitment of support from the philanthropic community

Additionally, the Monitoring Enterprise is leading the development of an MPA Monitoring Plan for the North Central Coast. MPAs are scheduled to be implemented in that region in 2009, so it is important that monitoring begin as soon as possible to enable assessment of the performance of the MPAs against MLPA goals and to support adaptive management of these sites in the future. The monitoring plan must reflect both the interests of stakeholders and the best available science to be effective, and be designed to ensure collection of the most important and useful monitoring information. The North Central Coast MPA Monitoring Plan will serve as a template for monitoring plans for other regions and will contribute to assessment of MPAs statewide. Development of this plan includes:

- Workshops with scientists, stakeholders, and resource managers to identify monitoring priorities
- Establishment of scientific working groups to design and recommend innovative and strategic approaches to monitoring over large spatial scales and in the context of a complex and dynamic ecosystem and changing global climate
- Estimation of costs of MPA monitoring and recommendations for top monitoring priorities
- Exploration of innovative approaches to carrying out monitoring, for example through partnerships with volunteers, fishermen, and researchers
- Scientific and public review of a draft version of the monitoring plan
- Approval or adoption of the final monitoring plan by the Fish and Game Commission

FUNDING ROLE

The OST's funds will be used to support the new OST programs, including the development of the Science Advice to the State. While the OST does not fund independent research, it does provide advice to the OPC, review proposals, and coordinate feedback from the OPC-SAT on research priorities. In addition, the OST works with researchers and managers to ensure that research aligns with the needs of the state. Furthermore, the OST leverages funds, raises awareness, fosters new contexts for collaboration, and otherwise acts as a catalyst for action to develop and then apply the science needed to support effective decisions.

CURRENT LEVEL OF TRUST FUNDING

To implement Science Advice to the State, the OST received \$200,000 from the OPC in 2008 to provide science advice to the OPC through September 2008. The OPC awarded the OST up to \$1 million for the Invasive Species project. The OST will receive three years of funding from the Coastal Impact Assistance Program (CIAP) funds for \$140,000 annually through Fiscal Year 2011.

To incubate the Monitoring Enterprise, the OST received a 3-year grant for \$2 million from the OPC in December 2006.