COASTAL CONSERVANCY

Staff Recommendation
June 30, 2004

COASTAL OCEAN CURRENTS MONITORING PROGRAM

File No. 04-034 and 04-035
Project Manager: Sheila Semans

RECOMMENDED ACTION: Authorization to: (1) accept a $7,000,000 grant from the State Water Resources Control Board (SWRCB) for implementation of the Coastal Ocean Currents Monitoring Program; and (2) disburse up to $10,200,000 to Scripps Institution of Oceanography, U.C. San Diego and up to $10,200,000 to San Francisco State University to implement the Coastal Ocean Currents Monitoring Program.

LOCATION: The Coastal Ocean Currents Monitoring Program is statewide.

PROGRAM CATEGORY: Integrated Coastal and Marine Resources Protection

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EXHIBITS

Exhibit 1: Coverage map of California
Exhibit 2: Regional system design maps
Exhibit 3: COCMP benefits paper
Exhibit 4: HF Radar and other instrumentation
Exhibit 5: State Water Resources Control Board Resolution
Exhibit 6: Letters of Support

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Section 31220 of the Public Resources Code:

"The State Coastal Conservancy hereby authorizes acceptance of a grant from the State Water Resources Control Board (SWRCB) of seven million dollars ($7,000,000) for implementation of the Coastal Ocean Currents Monitoring Program. The Conservancy further authorizes the disbursement of an amount not to exceed three million five hundred thousand dollars ($3,500,000) of the SWRCB funds and six million seven hundred thousand dollars ($6,700,000) of Conservancy funds to Scripps Institution of Oceanography, U.C. San Diego, and the disbursement of an amount not to exceed three million five hundred thousand dollars

($3,500,000) of the SWRCB funds and six million seven hundred thousand dollars ($6,700,000) of Conservancy funds to San Francisco State University to implement the Coastal Ocean Currents Monitoring Program, subject to the following conditions:

1. Prior to disbursement of Conservancy funds, the grantees shall each submit for the review and written approval of the Executive Officer of the Conservancy the following:
    a. A final work program, schedule, and budget.
    b. The names and qualifications of any contractors to be employed in carrying out the work.
    c. Evidence that all necessary permits and/or approvals have been obtained.
    d. Evidence that the grantees have available all other funds necessary for the project."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with Public Resources Code Section 31220, regarding the Conservancy's mandate to protect and restore marine resources.
2. The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines adopted by the Conservancy on January 24, 2001."

PROJECT SUMMARY:

> *"Ocean managers and policy makers need comprehensive scientific information about the oceans and its environment to make wise decisions. Increased knowledge can support sustained resource use, economic development, and conservation of the ocean's biological diversity and natural beauty." (US Commission on Ocean Policy preliminary report, April 20, 2004, pg. 303)*

Staff is recommending that the Conservancy accept a grant of seven million dollars from the State Water Resources Control Board (SWRCB) and authorize the disbursement of the SWRCB funds and an additional fourteen million of Conservancy funds to Scripps Institution of Oceanography, U.C. San Diego and San Francisco State University as lead institutions to implement the Coastal Ocean Currents Monitoring Program (COCMP), a highly collaborative statewide program to monitor and map the surface currents off the coast of California. This unprecedented program is a partnership of academic and government institutions working with industry and non-governmental organizations to design a real time monitoring system along the state's 1100 miles of coastline.

Over the past year and a half, Conservancy staff has consulted with various academic, agency and private-sector specialists to establish the best framework for the COCMP: two regional, science-based ocean observing systems that will be integrated into one statewide program (Exhibit 1). This authorization would allow the two regional consortia, the Southern California Ocean Observing System (SCCOOS) and the Central and Northern Ocean Observing System (CeNCOOS) to implement the systems designed for their respective areas and to integrate and disseminate data on a statewide basis in close to real time Internet accessible formats.

The recently released U.S. Commission on Ocean Policy preliminary report (OCPR) highlights many objectives California has articulated through recent legislation and policy, including the need to develop applied research enabling more effective resource management. Little is known about our ocean resources, and "high quality, accessible information is critical to making wise decisions about ocean and coastal resources and their uses to guarantee sustainable social, economic, and environmental benefits from the sea" (OCPR, pg. xiii). COCMP's primary objective is to provide water quality managers, natural resource managers, scientists, the public, and policy makers with science based tools for better management of ocean resources. Additionally COCMP will provide the capability for evaluating the effectiveness of California's current management strategies, serving also as a risk management and early warning tool.

Through collaboration with existing monitoring networks, individual observatories and the anticipated federal ocean observing system, the information generated by COCMP will be integrated with, and benefit from, the broader multidisciplinary data sets needed to fully understand movement of water and associated materials within California's coastal ocean.

COCMP Benefits

COCMP's primary objective is to effectively translate science into useful and timely information products for policy makers, managers, educators and the public. An interactive dialogue will be developed where academics will work with end users to continually refine the system to produce the types of products needed to support management decisions. This two-way feedback will also guide new research directions and new technology.

The principal focus of COCMP is coastal water quality. Human activities on land and sea impact coastal water quality and these impacts become more severe as populations grow. Weather-independent surface current monitoring that efficiently covers large, continuous coastal areas provides new capabilities for observing coastal pollution. With COCMP data, the tracking of pollution incidents can occur in real time, or archived data can be used to forensically track down pollution events by tracing them back to the source location. These data can also be used to create simulations to forecast potential effluent trajectories, and the timing of effluent releases could be synchronized to the appropriate oceanographic conditions.

In addition to improved water quality, there will be many collateral benefits from COCMP as the system will also provide valuable information for a host of other priority issues in the California coastal ocean. Further, the value of COCMP will continue to develop as this new data is integrated with existing or future information, from both state and federal efforts. Information on surface current flows is expected to benefit the following areas:

- Promoting the scientific design of marine protected areas that aid the recovery of both marine and anadromous fisheries
- Increased effectiveness of search and rescue operations
- Useful information for coast and ocean recreational uses such as boating and surfing
- Increased efficiency in responding to natural hazards like storm surge and coastal erosion
- Increased efficiency of maritime shipping
- Increased precision in weather and climate forecasts

Please refer to Exhibit 3 for a more complete discussion on COCMP benefits.

REGIONAL CONSORTIA

The primary technical component of the COCMP will be a network of surface current mapping devices known commonly as High Frequency Radar (HF radar), widely regarded as the most economical technology available to assess large-scale physical and biological change in the coastal ocean. HF Radar are remote sensing instruments capable of mapping ocean surface current and wave distributions using information from radio frequency equipment deployed along the shoreline (exhibit 4). It is the non-invasive, real-time, large-area-coverage aspects of HF radar systems that make them ideally suited to a statewide monitoring program, such as COCMP. Additional technologies will be deployed to augment HF Radar as needed, such as Acoustic Doppler Current Profilers (ADCP) for site-specific, surface-to-bottom current analysis.

Due to the very different oceanographic regimes off the California coast, it became evident that two distinct, but integrated, regional systems would need to be developed in order to effectively address local concerns. As well as working together in the state, the two consortia are also collaborating with partners in Mexico and Oregon to ensure a unified west coast system that will allow for larger, ecosystem-based analysis. Both regional systems are also being designed to integrate seamlessly with the national Integrated Ocean Observing System (IOOS).

SCCOOS

The Southern California Coastal Ocean Observing System (SCCOOS) is a consortium of eleven Southern California universities and laboratories that covers an area from Northern Baja CA in Mexico northward to Morro Bay. This area has a higher population density and higher economic productivity than any other coastal region in the country. Clean beaches and coastal waters are essential to both the economy and lifestyle of Southern California.

Not surprisingly, water quality is a primary concern in Southern California where 20 million people live within fifty miles of the coast. Beach usage is higher in Southern California than in the other 49 states combined and these popular beaches continue to experience more closures than any other area along the western coastline of North America. Consequently, SCCOOS has designed an observing system that, among other things, will lead to a better understanding of the transport processes that carry bacteria or other pathogens to the beach and provide for more timely warning of the start of beach contamination events. Other coastal water quality improvements will include source identification of pollution, tracking the transport and dispersion of plumes from known stormwater discharges and outfalls to identify regions of impact, and predicting high impact areas from non-point source pollution during storm events.

Because of the dense population in the area, the SCCOOS consortium has developed an implementation plan that focuses on an extensive application of high resolution / short range HF Radar systems, spaced at approximately 20-40km along the coastline and at offshore sites on the Channel Islands (Exhibit 2a). This proposed infrastructure leverages nine existing HF Radar sites and will incorporate 20 new sites. Complementary observations of nearshore currents will be made with drifters, bottom-mounted surfzone sensors, and ADCPs mounted on moorings and on autonomous underwater vehicles. To improve prediction of nearshore currents that are inshore of HF Radar coverage, in-situ observations spanning relatively small regions for limited

time periods will be used to validate and calibrate nearshore models that can be applied continuously over larger areas.

Other main benefits of the SCCOOS system will be an improved understanding of: beach nourishment processes and coastal erosion; transport of deposited dredge material and how the fine sediments might negatively impact coastal ecology; response capabilities to toxic spills and rescue operations; improved understanding of the transport, fate and impact of the brine from desalinization plants.

Staff recommends the Conservancy provide up to $3,500,000 of SWRCB funds, and $6,700,000 of Coastal Conservancy funds to Scripps Institution of Oceanography, U.C. San Diego. Scripps will be the lead institution for the consortium, and will subcontract to six marine labs to implement the program.

CeNCOOS

The Central and Northern Coastal Ocean Observation System (CeNCOOS) is also a consortium of eleven universities and marine laboratories, and will cover the area from Pt. Conception northward to the Oregon border. The challenge faced by the northern consortium is how to cover such a large geographic region effectively, meeting the needs of highly populated areas and well used bays, as well as cover some of the more remote stretches of Northern California that contain some of the state's most valuable marine resources.

In response to this challenge, CeNCOOS proposes the implementation of a multi-scale system that would enable continuous monitoring of the region, while focusing resources in areas of higher population or critical resource value. This will be accomplished through the creation of a nested array of HF radar systems of different range and spatial resolution. A large-scale, coarser resolution array (3-12 km) will observe the continental shelf and slope areas and will link the region with similar arrays in Southern California and Oregon. In the populated region between Monterey Bay and Bodega Bay, including the Gulf of the Farallones, there will also be a high-resolution nested array to resolve hourly currents at a 1-kilometer resolution. And in San Francisco Bay, a higher-resolution array (0.3 km) will provide information about the heavily trafficked region between the Port of Oakland and Carquinez Strait. This HF Radar system will also be enhanced with surf zone observations and models of longshore currents.

Ocean surface currents within the entire Northern California region out to approximately 160 km will be monitored using a network of 11 long-range HF radar systems and 15 standard-range systems. Within San Francisco Bay, 4 additional high-resolution systems will be used. The proposed infrastructure leverages nine existing sites (Exhibit 2b).

Water quality issues in the north relate primarily to the discharge of river-borne sediments and anthropogenic material, discharges through surface runoff drainage systems and permitted outfalls, marine discharges including accidents (oil spills) and intentional incidents (ballast water exchange), coastal erosion, and naturally occurring phenomena including harmful algal blooms.

North Coast fisheries management agencies can also exploit COCMP information to help separate natural fluctuations from the human induced changes. A better understanding of the integration of oceanic and coastal processes with watershed hydrologic processes will lead to

better long-term management of anadromous fish species. Related to marine fish, COCMP data will provide more information on the temporal and spatial characteristics of feeding and spawning habitats as well as larval entrainment and, possibly, settlement. This information can be built into fisheries surveys for stock assessments as well as fisheries management strategies.

Staff recommends the Conservancy provide up to $3,500,000 of SWRCB funds, and $6,700,000 of Coastal Conservancy funds to San Francisco State University (SFSU) as the lead institution for the consortium. SFSU will subcontract to ten marine labs to implement the program.

IOOS

One of the twelve critical actions recommended in the OCPR was the need to implement a national Integrated Ocean Observing System (IOOS), which would be based on a backbone of coordinated regional systems, like COCMP. The report recommends a funding build up to $650 million annually by 2010. Federal support is critical to the ongoing operation of the COCMP after the initial five years. With the $21 million dollars dedicated to COCMP proposed in this authorization, California will have made the largest commitment to coastal ocean observations of any coastal state, and taken a real leadership role on the national level. The Conservancy's Executive Officer received a letter from the Global Ocean Observing System (GOOS) Steering Committee encouraging California to become a candidate for the first round of IOOS pilot projects. In order for California to successfully compete for sustained support from the national program, it must successfully launch the COCMP now.

SCCOOS and CeNCOOS are California's nascent regional organizations under IOOS. IOOS is presently in a detailed planning stage and SCCOOS and CeNCOOS have been structured under IOOS governance rules and share administrative and technical goals in support of industry, NGO and public end-users.

Site Description: The COCMP will cover the entire California coast (Exhibit 1). SCCOOS will focus on the Southern California Bight (Exhibit 2a) and CeNCOOS will cover the coast from Pt. Conception to the Oregon boarder (Exhibit 2b). At various points, the system will encompass the 24 nautical mile contiguous zone of the U.S., with the continental shelf as the priority area.

The appropriate technologies to be deployed include High Frequency Radar (HF Radar) for shore-based, long-range monitoring of surface currents and ADCPs for site-specific, surface-to-bottom current analysis. HF Radar are remote sensing instruments capable of mapping ocean surface current and wave distributions using information from radio frequency equipment deployed along the shoreline. ADCPs are generally mounted on moorings in the open water and use underwater sound to measure vertical profiles of horizontal currents. Additionally, shore-based and moored meteorological stations will contribute data necessary to understand the physical-biological coupling inherent in the processes that drive currents and link water movement to biological productivity.

Project History: Although a number of the older marine laboratories, primarily Hopkins Marine Station and the Scripps Institution of Oceanography, have maintained long-term records on localized sea surface temperature, California coastal observations are generally spotty and site specific, lack sustained funding, and commonly fail to provide information applicable to the wide spectrum of resource management needs. The first attempt at an interagency focused long-term coastal ocean assessment was the California Cooperative Oceanic Fisheries Investigations

(CalCOFI) initiated in 1949 in response to the collapse of the sardine fishery. CalCOFI includes both biological and physical sampling from ships and, as one of the longest marine data sets in history, has provided much of our insight into the California Current System.

Each of California's academic marine biological laboratories maintains various shore-based or near-shore ocean and meteorological measurements. In addition, several major nearshore physical and biological oceanographic investigations have been conducted in the last twenty years. In the 1980s, the Coastal Ocean Dynamics Experiment (CODE) studied the dynamics of wind forcing on upwelling, and was conducted in two multi-year projects involving nearly all the major U.S. oceanographic institutions and federal agencies. During the mid-1990s, the Minerals Management Service funded a study of ocean currents in the Santa Barbara Channel to assist in oil spill response. This study ended in the late 1990s. Also in the mid-1990s, the Packard Foundation funded the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), the first long-term study to examine changes in intertidal and subtidal marine ecosystems over time. PISCO uses CODAR to a limited extent and also relies on acoustic Doppler current profilers for site-specific high resolution current monitoring. PISCO SCUBA survey protocols and PISCO physical oceanography information are an important part of California Department of Fish and Game's Cooperative Research and Assessment of Nearshore Ecosystems (CRANE) project, which is intended to assess ecologically and economically important nearshore species to benefit fisheries management and marine protected area monitoring.

Recognizing the need to fill the significant data gaps necessary to support coastal ocean management, in 2000 an unprecedented number of scientists came together to create a conceptual model for monitoring California's nearshore environment. The proposed program, described as CalCOOS, represented consensus among virtually every academic institution in the state that maintains a marine program. CalCOOS submitted a funding proposal to the National Science Foundation but was unsuccessful. However, the products, organization, and goals articulated by CalCOOS may well provide the template for COCMP.

Also, in 2002 the University of California Marine Council funded a new long-term program called the Network of Environmental Observations of the Coastal Ocean (NEOCO). NEOCO integrates physical, biological, and chemical data in a common quality controlled format from seven sites from La Jolla to Bodega. Working with NEOCO and other ongoing marine programs to integrate data and maximize collaboration will enhance the benefits of the COCMP.

During the past four years water providers such as the Sonoma County Water Agency and municipalities such as the City of Imperial Beach have independently funded HF radar systems in partnership with the University of California to address such divergent issues as salmon recovery and coastal water quality underscoring the utility of this type of ocean observing capability. All of these systems will be incorporated into COCMP.

In August 2003, the Conservancy Board authorized grant funding to Commonweal, Inc. to begin planning the COCMP. Commonweal, a nonprofit organization that specializes in ecosystem-based science collaborations and has a special interest in improvement of public management of coastal ocean resources and habitat, undertook a ten-month COCMP planning effort in coordination with the Conservancy. This planning effort led to a sequential grant proposal and review process that involved participation by scientists from within and outside California, industry, non-governmental organizations and extensive collaboration with state and federal

regulatory and resource agencies. The submission and review of detailed regional grant proposals from each consortium under this process are the basis for this authorization.

PROJECT FINANCING:

Coastal Conservancy	$14,000,000
State Water Resources Control Board	$7,000,000
University of California	$500,000
California State University	$500,000
In-Kind Contribution:	
Science and management advisory committees*	$37,500
University of California	$1,500,000
California State University	$1,500,000
Total Project Cost	**$25,037,500**

*The total for the science and advisory committee member participation is an estimate of approximately 25 people, for 10 days/year, at an average salary of $75/hour for a period of two years.

The anticipated source of Conservancy funds for this project is, in part, a FY 02/03 appropriation to the Conservancy from the California Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Fund (Proposition 40). The Proposition 40 funds were appropriated to the Conservancy under the Watershed, Clean Beaches and Water Quality Act ("AB 2534"). AB 2534 added Chapter 5.5 to the Conservancy's enabling legislation (Public Resources Code § 31220), which, as subsequently amended, authorizes the Conservancy to undertake or provide grants for coastal and marine habitat and water quality protection and restoration projects, including projects that provide for "monitoring and mapping of coastal currents". AB 2534 also appropriated funds from Proposition 40 to the Conservancy to carry out projects under Section 31220 and specifically required that the Conservancy dedicate $7,000,000 for the purposes of funding coastal ocean monitoring and mapping projects. The funding for the proposed project directly meets and satisfies this latter requirement. In addition, the project meets the general Proposition 40 requirements for grant funding priority, since it includes a commitment of matching funds from a variety of sources.

The other anticipated source of Conservancy funding is a FY 03/04 appropriation to the Conservancy from the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50). Proposition 50 authorizes the use of these funds for the purpose of protecting coastal watersheds through projects designed to restore and protect water and land resources (Water Code Section 79570). Funds may also be used for planning and permitting associated with projects of this type. Implementation of the COCMP will serve these objectives in a variety of ways. Installation of the coastal monitoring system will serve to identify watershed pollutant source, flow and impact, will help identify the impact of sedimentation on lower estuarine ecosystems, and provide valuable information on the oceanic conditions necessary for the survival of anadramous fish species. In addition, under Proposition 50, any watershed protection activities financed with Proposition 50 funds must be "consistent with the

applicable adopted local watershed management plan and the applicable regional water quality control plan adopted by the regional water quality control board" (Water Code Section 79507). The proposed project is consistent with such plans, as described in detail in the "Consistency with Local Watershed Management Plan/State Water Quality Control Plan" section, below.

SWRCB was also appropriated $7,000,000 of Proposition 50 funds in FY 03-04, specifically earmarked by the legislature for "the California Ocean Data Observing System (CODOS) to improve the monitoring of coastal waters." Though the program name differs slightly from the COCMP project name, the intent of the legislative language was that the $7,000,000 appropriated to the SWRCB was to be contributed toward the COCMP to insure an integrated coastal monitoring system. In light of this and recognizing that the Conservancy has already established a coastal monitoring program, the SWRCB decided to grant the SWRCB Proposition 50 funds to the Conservancy for the COCMP. SWRCB Resolution No. 2004-0012, authorizing the grant, is attached as Exhibit 5.

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

This project would be undertaken pursuant to Chapter 5.5 (Section 31220) of the Conservancy's enabling legislation, Division 21 of the Public Resources Code, regarding integrated coastal and marine resource protection. Consistent with §31220(a), the Conservancy has consulted with the Regional Water Quality Control Boards and the State Water Resources Control Board, and representatives from these agencies have participated on the advisory committees of the COCMP to ensure consistency with Chapter 3 (commencing with §30915) [Clean Beaches Program] of Division 20.4 of the Public Resources Code [Watershed, Clean Beaches, and Water Quality Act]. Consistent with §31220(b)(5), the proposed project will "provide for monitoring and mapping of coastal currents, marine habitats, and marine wildlife, in order to facilitate the protection and enhancement of resources within the coastal zone" by purchasing and installing the infrastructure to monitor coastal surface currents that will result in better ocean science to support resource management needs. Also consistent with this section, the Conservancy has consulted with the Department of Fish and Game, and DFG has designated a representative to sit on a COCMP science advisory committee. Finally, as required by §31220(c), the project will include an evaluation component and the ultimate product, the coastal monitoring program, will be subject to rigorous monitoring and evaluation by several qualified advisory committees.

CONSISTENCY WITH CONSERVANCY'S STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 6, Objective B,** the proposed project will serve to improve water quality and benefit coastal resources by enabling marine laboratories and other departments to track ocean pollutants (strategy 7).

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines adopted January 24, 2001, in the following respects:

Required Criteria

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Consistency with purposes of the funding source:** See the "Project Financing" section above.
3. **Support of the public:** The COCMP enjoys wide ranging support from legislators, scientists, and resource managers (see Letters of Support, Exhibit 6). Support for a federal ocean observing system, which would be comprised of state systems including COCMP, was most recently articulated in the United States Commission on Ocean Policy preliminary report released in April.
4. **Location:** The COCMP is expected to cover as much of the coast of California as is feasible given the current funding. The system will range from the coastline out to the 24 nautical mile contiguous zone of the U.S., with the continental shelf as the priority area.
5. **Need:** As the number of people living near the coast continues to increase rapidly, the demand on coastal systems to provide commerce and recreation result in more severe water quality impacts. The COCMP will improve our capacity to detect regional and global changes in the ocean environment and predict how these changes will alter coastal ecosystems. This will increase our ability to more effectively protect and restore healthy coastal marine ecosystems for the benefit of all Californians. Without Conservancy funding, near-term implementation of COCMP would not be realized and its benefits would be deferred until future funding might be available.
6. **Greater-than-local interest:** The creation of a sustained and integrated ocean observing system has benefit for people and resources beyond even California's shores. Data can be used for climate change predications, to improve national security, mitigate the effects of natural hazards, improve the safety of marine operations and rescue operations, reduce public health risks, and protect and restore living marine resources that know no jurisdictional boundaries.

Additional Criteria

7. **Urgency:** Concurrent with the evolution of COCMP, a new federal initiative of regional ocean observation systems is now under way, providing the potential for operational and funding partnerships. In order for California to successfully compete for support from the national program, it must launch the COCMP now.
8. **Resolution of more than one issue:** Data collected through the COCMP will address a variety of management concerns including coastal water quality, fisheries management, MPA design and evaluation, oil spill response, and coastal erosion/sediment/pollution transport.
9. **Leverage:** See the "Project Financing" section above.

11. **Innovation:** Not only will the equipment purchased for the COCMP be state-of-the-art, but so will the data integration and modeling technologies.

15. **Cooperation:** COCMP has proven to be one of the most technically and organizationally ambitious projects undertaken in state marine resource management science. In order to successfully implement the COCMP, the regional consortia, comprised primarily of marine

institutions, will work closely with state and federal agencies, resource managers, non-governmental organizations, industry, and various local governments.

CONSISTENCY WITH THE COASTAL ACT:

Article 4 of Chapter 3 of the Coastal Act (Public Resources Code Sections 30230-30237) sets forth policies for the marine environment. Section 30230 provides: "Marine resources shall be maintained, enhanced, and where feasible, restored. . . . Use of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes." A well-designed COCMP will provide the technology to more effectively protect and restore healthy coastal marine ecosystems. Section 30231 states: "The biological productivity of coastal waters . . . appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges. . . ." It is anticipated that predictive transport model will be produced from the data derived by the COCMP, which will enable us to understand where pollutants are moving in real-time. These results may influence the timing of effluent discharges, and at a minimum, will allow for a better understanding of the impacts and timing of pollutants on recreational beaches, thus reducing the possibility of human exposure.

CONSISTENCY WITH LOCAL WATERSHED MANAGEMENT PLAN/ STATE WATER QUALITY CONTROL PLAN:

The inherent intent of the local coastal watershed management plans is to prevent water quality degradation and to protect the beneficial uses of coastal waters. Water quality control plans adopted by the State Water Resources Control Board address the minimum requirements for effluent quality and may specifically define the maximum constitute levels acceptable for discharge into various waters. These plans are designed to focus limited resources on key issues, the use of sound science, and promote cooperative, collaborative efforts within a watershed for the protection and enhancement of coastal waters. As a collaborative statewide program, the COCMP will contribute to the scientific information pool that supports the development of water quality standards in coastal watersheds. Also, through the use predictive pollutant transport models, the COCMP will help refine the management of effluent and other point source discharges to the coast.

COMPLIANCE WITH CEQA: The proposed project is categorically exempt from review under the California Environmental Quality Act (CEQA) pursuant to 14 Cal. Code of Regulations Section 15304, which exempts "minor public or private alterations to land, water, and/or vegetation which do not involve the removal of healthy, mature, scenic trees." The proposed project will involve the installation of no more than 50 HR Radar systems. Most HF Radar systems will include two compact antennae (one transmit and one receive antenna) as well as a small enclosure for a personal computer for data acquisition and radial current processing (Exhibit 4). The antenna elements have receive and transmit masts ideally mounted no more than 50 m apart and near the water's edge. Installations of HF Radar units will involve only minor alterations to land and will not involve the removal of healthy, mature vegetation, and will

impact an area no bigger than 10 feet by 10 feet. Any installations will avoid adverse impact on scenic or visual resources.

HF radar units are connected via cables to electronics that operate within an environmentally controlled shelter big enough to hold a computer and monitor. Computer equipment will be placed within existing structures whenever possible. The possible construction of any housing unit for the computer equipment would be categorically exempt under 14 Cal. Code of Regulations Section 15303, which exempts from CEQA the construction or conversion of small structures, including accessory structures that could be envisioned here.
Additional equipment proposed for COCMP will be used for short-term, discrete studies designed to augment predictive models in the nearshore environment. Use of this type of equipment is likewise exempt under 14 Cal. Code of Regulations Section 15304 as minor public or private alterations to land, water, and/or vegetation. Instrumentation may include ADCPs, bottom-mounted surfzone sensors, gliders, and autonomous underwater vehicles. The use of such equipment will be minimal, and the impact to the marine environment will be insignificant. Static instrumentation will be mounted typically on buoys (some existing), on structures already in the water (e.g. piers) or on the sea floor. Sea floor mountings will not occur in sensitive marine habitats.

Upon Conservancy approval of the project, staff will file a Notice of Exemption.