California MLPA Initiative Southern Coast Project
Southern Coast Regional Stakeholder Group (SCRSG)
Work Group 3

(September 17, 2009 12:00pm draft final version)

ADDENDUMS

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California MLPA Initiative Southern Coast Project
Southern Coast Regional Stakeholder Group (SCRSG)
Work Group 3 Marine Protected Area (MPA) Rare Deep Rock Habitat Addendum
(September 17, 2009 2:00pm draft final version)

RARE DEEP ROCK HABITAT ADDENDUM

The task assigned to workgroup number three is to develop and refine an array which continues to address Master Plan Science Advisory Team (SAT) guidelines and strives to achieve preferred SAT size and spacing guidelines. In the course of our deliberation it became clear that it would be exceedingly difficult to replicate and protect key hard 100 to 3000 meter (m) habitat and its associated species in some sub bioregions.

These habitats are rare in the south coast study region. We identified three locations, at Point Dume, Catalina Island and in North San Diego County, which contained sufficient concentrations of this rare habitat. But only at Point Dume did deepest rock occur in combination with enough other key habitats to be captured in an efficient and economical marine protected area (MPA). Due to complex geographic and socioeconomic constraints, we were unable to design efficient MPAs that included 100 to 3000 m hard habitat in the other two locations.

At Santa Catalina Island the only viable concentration of deepest rock was south of East End. It was too far from our Farnsworth SMR cluster of habitats to be included, but too close to make another 9 square mile Catalina coastal MPA just to capture this rare habitat. We proposed an **East End Offshore Bank SMCA** that was designed as a floating shape, not connected to the shoreline, much like the two shapes in Monterey Bay, capturing just this habitat and deepest soft bottom. While this met the minimum SAT guidelines for a 100 to 3000 m hard replicate in each sub-bioregion, and had minimal economic impacts as an offshore MPA with pelagic fishing allowed, it offered little else and contradicted other SAT and blue ribbon task force (BRTF) guidelines and Department of Fish and Game (DFG) feasibility.

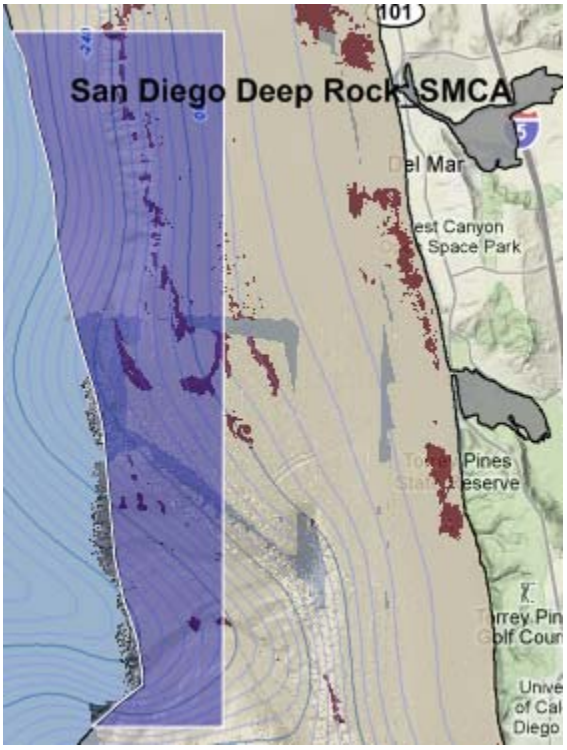
Because the shape was not contiguous with the shoreline of the island we were informed by DFG that our design failed to meet the department's feasibility and enforceability guidance due to multiple "hanging corners" and a lack of inshore and offshore connectivity. We also received considerable feedback from other members of the Regional Stakeholders Group that our Catalina Island MPA network was perceived as excessively designed to score habitat replications.

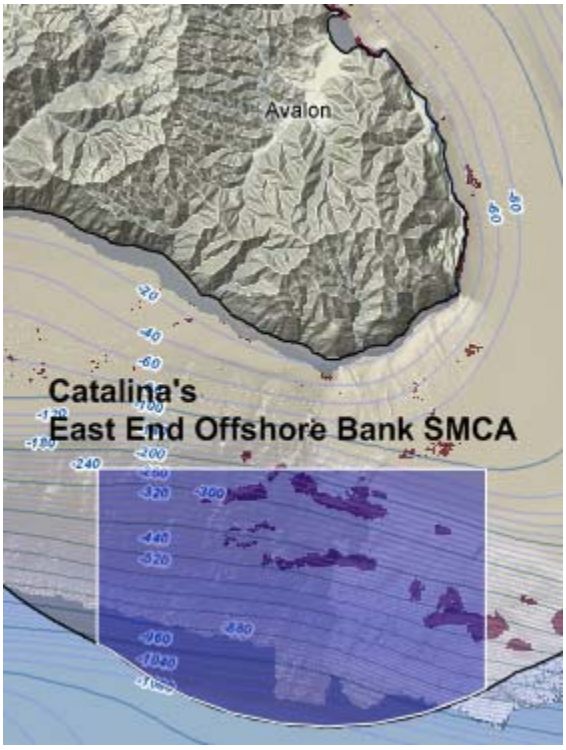
Accordingly, we elected to remove the East End Offshore Bank SMCA from our final array. We wish to bring to the attention of the BRTF and SAT that it is possible to capture this rare habitat for the eastern Channel Islands, at the cost of having a State Marine Conservation Area that essentially includes a single habitat type. The draft shape and all its relevant design considerations are included with this addendum.

Workgroup number three had a similar challenge in replicating rare 100 to 3000 m deep rock habitat in San Diego County. There was no substantial single concentration of this habitat, just a string of deep rock pearls stretching along the outer State waters limit line from La Jolla Canyon to Solana Beach. To capture enough of this deep rock habitat, a shoreline to state limits MPA would have to be exceedingly large, entailing excessive socioeconomic costs, and would not efficiently capture the other high quality key habitats we sought for inclusion in our south coastal MPAs.

Accordingly, our group developed a second offshore shape which captures the targeted amount of deep rock habitat, and very little else. On the last day we reluctantly dropped this MPA from our final array, realizing that in doing so we were now missing 2 attainable replicates of this deepest hard habitat.

In the event the BRTF and the SAT find it obligatory to provide protection for deepest rock habitat in the south coastal sub-bioregion, the **San Diego Deep Rock SMCA** will capture the required amount of this habitat in the least costly manner we could devise. We provide the draft shape, rationale and design considerations for that proposal as a part of this addendum.





Rationale and design considerations for San Diego Deep Rock SMCA and Catalina's East End Offshore Bank SMCA can be found in the following table and in Marine Map using MPA ID# 73931 and MPA ID# 73153 respectively.

	San Diego Deep Rock SMCA	East End Offshore Bank SMCA
MPA ID	73931	73153
LOP	High	High
Size (square miles)	9.60	9.01
Bioregion	South Mainland	East Channel Islands
Depth Range	154 - 1303 ft.	296 - 3609 ft.
Allowed Uses	The take of all living marine resources is prohibited except: 1. The recreational take of pelagic finfish by hook and line. 2. The commercial take of pelagic finfish by hook and line; and coastal pelagic finfish by pelagic seine.	The take of all living marine resources is prohibited except: 1. The recreational take of pelagic finfish by spearfishing; and pelagic finfish by hook and line. 2. The commercial take of pelagic finfish by hook and line; and swordfish by harpoon.
Goals and Objectives	G1: (O-1, O-3, O-4), G2: (O-2, O-3), G4: (O-1, O-2), G5: (O-1, O-3), G6: (O-3, O-4)	G1: (O-1, O-3), G2: (O-1, O-2, O-3, O-4), G3: (O-2), G4: (O-1, O-2), G5: (O-1, O-5), G6: (O-3, O-4)
Site-Specific Rationale	Protects SAT key hard 100-3000m habitat and associated species diversity in a north San Diego County urban setting, the only replication of this rare habitat in the south Coast mainland bioregion.	This MPA was designed specifically to protect the deepest rock reef key habitat in the study region (100-3000 meter depth category) - the only East Channel Islands SAT-listed location for this rare habitat and species assemblage. It also replicates equally deep soft bottom habitats for comprehensive deep species synergy.
Design Considerations	Replicates a rare coastal habitat with no negative socioeconomic impacts, avoiding the coast, cities, sewer outfalls, beach nourishment projects, fishing effort and surfers.	This SMCA compliments Farnsworth SMR - the 2 MPAs combined capture all possible East Channel Islands key habitats. This MPA leaves an equivalent amount of deep reef to the east along with deep soft bottom for an accurate scientific control in monitoring MPA biomass increase results. May be the only area in the south coast study region with enough deep reef to allow this side by side comparison. To reduce socioeconomic impacts, this SMCA is minimum-sized and allows surface fishing for some pelagic species with High LOP, that will not affect the deep benthic habitats. Designed not to extend to shore to avoid impacts to popular nearshore commercial and recreational fisheries and to maintain high LOP for allowed surface fishing. Hanging corners on full minutes. Offshore shape has minimal fishery impact, commensurate with the limited number of habitats available for protection in this MPA.
Boundary Text	North: 32 59' South: 32 53' East: -117 18' West: State waters line	North: 33 17' South: State waters line East: -118 18' West: -118 22'

California MLPA Initiative Southern Coast Project
Southern Coast Regional Stakeholder Group (SCRSG)
Work Group 3 Orange County Regional Management for MPA Cluster
(September 17, 2009 draft final version)

Regional Management for Orange County Marine Protected Area Cluster

Goal 3 (Objectives 1,2,3) and Goal 5 (Objectives 2,3,4) Rationale

Summary:

The proposed South Orange County MPA cluster (Newport Coast SMCA, Laguna Beach SMR, Dana Point SMCA) encompasses eight existing Marine Protected Areas that are currently managed through a cooperative of state, county, and city governments, NGOs, academic institutions and research organizations. The ten year old Orange County Marine Protected Area Council (OCMPAC) has existing mechanisms in place for ongoing improvements in monitoring, research, education, and enforcement and is seeking a MOU with the California Department of Fish and Game to continue their efforts at a localized regional level.

The rich ecosystems that exist within this area already provide recreational, educational and study opportunities, and these activities would be enhanced by further protection. The Cities of Newport Beach, Laguna Beach and Dana Point as well as Crystal Cove State Park, offer various education field trips and interpretive programs based on the existing MPA's rocky intertidal and coastal habitats. In addition, three NGO's, Laguna Ocean Foundation, Ocean Institute, and the Crystal Cove Alliance have extensive educational programming concerning the coastal habitats associated within the proposed MPA cluster.

The proposed cluster would encompass 4 existing Multi-Agency Rocky Intertidal Network (MARINe) sites, two SWAT or PISCO biodiversity sampling sites, three Areas of Special Biological Significance, and several habitat restoration projects including kelp restoration and rocky intertidal restoration. California State University, Fullerton and MBC Applied Environmental have conducted monitoring in the intertidal and subtidal for over two decades and both are looking to increase monitoring sites and extend research efforts to other areas along the coast.

The Orange County MPA cluster would be sited adjacent to terrestrial state, county, and city parks with associated agencies prepared to dedicate their resources in a shared management effort. The Cities of Laguna Beach, Dana Point, and Newport Beach have all hired personnel to be stewards of their local MPAs and all have the authority to issue citations of MPA violations based on Fish and Game Code and CCR Title 14. The State Park system that operates Crystal Cove has sworn officers that regularly patrol the park. Marine laboratories and marine education facilities, including Crystal Cove Park and Marine Research Facility, Kierkoff Marine Lab, Back bay Science Center, and the Ocean Institute, would all act as "eyes on the water" to facilitate management, enforcement, monitoring, education and outreach.

Listed below, by proposed MPA, are the many organizations, their resources, and their current involvement in marine protection along the Orange County Coast.

Newport Coast SMCA

The Newport Coast State Marine Conservation Area would encompass the Robert E. Badham SMCA, Crystal Cove State SMCA, and Irvine Coast SMCA.

City of Newport Beach

The Robert E. Badham State Marine Conservation Area, an Area of Special Biological Significance, is located within the jurisdiction of the City of Newport Beach. The City employs Marine Educators and a Marine Program Supervisor who facilitates programs out of Little Corona Beach, Corona del Mar State Beach and the Upper Newport Bay.

Education and enforcement Programs include:

- Marine Program Supervisor and over 10 paid Marine Educators
- Formal education programs with 8,000 to 10,000 annual participants,
- Informal education to people who approach or are approached by Marine Education Staff, conservatively estimated at 30,000 annually,
- Informal enforcement of Fish and Game Regulations by Marine Educators and Marine Program Supervisor who has citing authority,
- Formal enforcement of municipal codes supporting Fish and Game Regulations by 2010,
- Interpretive and regulatory sign placed at the top of the access trail to Little Corona indicating that the area is a MPA with plans to increase signage and clearly define boundaries in the future,
- Robert E. Badham Docent Program, began in January 2009, that works in conjunction with the Marine Educators and will involve the support of local residents.

For monitoring and research, the City of Newport Beach Marine Program Supervisor currently partners with:

- Fish and Game on outreach, including “Drains to Ocean” and the connectivity of water systems/local watershed.
- Fish and Game on Rocky Intertidal Ecology,
- OC Coastkeeper on Eelgrass education, water quality/ASBS programs as well as Rocky Intertidal programs,
- Newport Nautical Museum on Rocky Intertidal Ecology and Good Tidepooler information,
- MiOcean on Good Tidepooler outreach programs and water quality
- Santa Ana Zoo on a local Watershed exhibit
- Kierkoff Lab
- CSU Fullerton
- Irvine Valley College on sediment analysis and local Geology
- UC Irvine
- Mt. San Antonio College
- Back Bay Naturalists and Friends

California State Parks, Crystal Cove

The Newport Coast SMCA would encompass Crystal Cove and Irvine Coast State Marine Conservation areas. Crystal Cove is a State Park Underwater Park and has also been deemed an ASBS. The Crystal Cove State Park General Plan and Interpretive Plan include protective and educational measures for the intertidal and subtidal areas of the park.

Education and enforcement programs include:

- Full time State Park Interpretive Specialist and at least 3 other employees helping in program development and delivery.
- Formal K-12 educational programs with an estimated 14,000 students participating,
- Formal training to adult groups and informal training by docents estimated at 18,000 annually,
- Guided and self-guided educational programs that include tidepool ecosystems, adaptations, marine mammals, marine debris and recycling, and migrations
- School group visits, led by state park employees with an orientation package and video sent to teachers for use in their class, a short lesson on site, and then a short hike to the tidepools,
- PORTS- Parks Online Resource for Teachers and Students offering a class visit to the tidepools, but over an interactive video-conference link. A live classroom session with an interpreter on the shoreline delivers age-appropriate materials with class questions. This methodology has been used with SCUBA divers underwater in the MPA interpreting the subtidal resources.
- Trained volunteer docents who help deliver educational messages to focused visitation at reefs exposed during weekend minus tides.
- Interpretive and regulatory signage consistent with all Orange County MPAs posted on site,
- Badged rangers and lifeguard staff trained on Marine Protection Area enforcement codes.

For monitoring and research, the following resources are currently in place to help view, measure, and study nearshore and offshore marine areas:

- State Park enforcement Officers
- State Park Dive Team
- State Park Rescue Vessels
- State Park Senior Resource Ecologist
- State Park Natural Resource Team
- State Park Interpreters and educators
- Tidepool Docents and volunteers
- Aquarium of the Pacific Kelp Restoration effort
- Aquarium of the Pacific Fish Counts
- REEF-trained fish counters
- UCI Field Ecology Course read intertidal transects 2 years, wrote report
- Contract work with Marine Biological Consultants on intertidal
- MMS long-term intertidal transects
- Collaborative work with OCMPAC

Crystal Cove Alliance

The Crystal Cove Alliance (CCA) is the non-profit partner supporting education, conservation, and restoration efforts within Crystal Cove State Park. Crystal Cove Alliance manages the Park and Marine Research Facility and coordinates University research with the intent of improving both Park management practices and educational programs.

Education programs include:

- Research projects that examine nearshore water quality, surf zone chemistry, intertidal and sandy beach ecology,
- An exhibition and series of education programs entitled SNAP! (Science and Nature at the Park) that allow over 50,000 park visitors and K-12 students to interface with active research projects.
- Environmental education programs, interpretive signage, brochures and exhibits that explore marine conservation topics to the broad constituency of 1.4 million Park visitors each year.

For monitoring and research, the following resources are currently in place to help view, measure, and study nearshore and offshore marine areas:

- Management of the Park and Marine Research Facility
- Partnerships with UCI, Chapman University, Pepperdine University, CSUF, Scripps Institution of Oceanography, and Orange Coast College
- Financial support and training for Tidepool docent program
- Finanacial support and training for Parks Online Resources for Teachers and Students Program
- Development of broad range of education products and services delivered to K-12 students and 1.4 million visitors per year

Laguna Beach SMR

The Laguna Beach SMR would encompass Heisler Park State Marine Reserve, Laguna Beach State Marine Conservation Area, and South Laguna Beach State Marine Conservation Area. Heisler Park State Marine Reserve is currently an ASBS.

City of Laguna Beach

The City of Laguna Beach Department of Marine Safety has developed the Laguna Beach Marine Protection Management Plan with Enforcement, Education, Research Management, and Public Outreach.

Enforcement and educational programs include:

- A Marine Protection Officer responsible for patrol of Laguna Beach beaches, rocks, parks and tidepools,

- City enforcement staff (Laguna Beach Police, Beach Patrol, Animal Control and Lifeguards) trained to enforce State Fish and Game Code, CCR Title 14 Code, Boating and Waterways Code, and Laguna Beach Municipal Code,
- Beach lifeguards trained to educate the public in marine protection regulations, policies and procedures,
- A city ordinance identifying the city's Marine Protected Areas, establishing an Area Manager, and making it a municipal code violation to disturb the tidepool habitat within City Marine Protected Areas,
- Marine Protection regulatory signs designed and kept up by department staff and the City of Laguna Beach,
- Tidepool Education Program for K-12 students with estimated 5000 students annually, including outreach to local elementary schools, provision of marine ecology lectures and guided tours of the tidepools to paying school groups,
- Scout troop education program, resulting in "Marine Protection" badge,
- Three part-time "Tidepool Educator" positions that assist with the education programs,
- Research Management responsibilities involving approving and tracking all research and collection activities with the City of Laguna Beach Marine Protected Areas,
- Public Outreach responsibilities that include general community outreach to educate public of "good tidepooler rules," as well as building media relations and improving relationships with local groups and organizations such as divers, fishers, hotels, artists, environmentalists, surfers, etc.,
- Interpretive and educational signage as well as educational brochures to tidepooling visitors.
- Hosting of townhall meetings to encourage community participation in the Marine Life Protection Act process.

Several monitoring programs have been established at numerous Orange County MPAs.

- The Multi-Agency Rocky Intertidal Network (MARINe) has four locations (Shaw's Cove, Treasure Island, Crystal Cove, and Dana Point) to monitor the abundances of target species. This network (http://www.marine.gov/), funded by various organizations including Minerals Management Services, US Department of Interior, spans the West Coast from California to Washington, encompassing over 100 sites.
- The Orange County MPA monitoring programs was established in 2002 and continued until 2005. Surveys were conducted at three locations (Dana Point, Little Corona del Mar, and Treasure Island) to monitor the levels of human use and souvenir species most notably effected by human activities.
- Weston Solutions, Inc recently established transect lines to monitor at Little Corona del Mar, Morning Canyon, Crystal Cove, and Heisler Park.
- Coastal Resources Management is currently quantifying and characterizing human activities in rocky intertidal zones at Little Corona del Mar, Morning Canyon, Crystal Cove, and Heisler Park.
- The Montage Resort is supporting a monitoring program aimed to quantify levels of human use and determine the impacts of the resort on the rocky intertidal zone at Treasure Island.
- The OCMPAC is working to monitor commercial lobster fishing in Orange County MPAs by Quantifying Commercial Lobster Fishing Effort in waters from Dana Point Harbor to Newport Harbor.
- Laguna Ocean Foundation is monitoring shorebirds off the coast of Laguna Beach with

their ongoing Non-Breeding Shorebird Area Survey

Laguna Ocean Foundation

Laguna Ocean Foundation is a non-profit 501(C) (3) organization actively involved in coastal resource management through a number of activities and programs including the following:

- A dedicated board of LOF directors actively involved in local city environmental policy development, including the creation of the first City employed Marine Protection Officer position,
- A volunteer "Tidewater Docent Program", with over 200 trained volunteer tidewater docents,
- Participation in early research and management plan development (Vision 2030),
- A staff of 12 funded professional educators and 4 interns.

For monitoring and research the following resources are currently in place to help view, measure, and study nearshore and offshore marine areas:

- Tidepool habitat survey for monitoring baseline data
- Shorebird survey for monitoring baseline data
- Beach Ecosystem Health Report to determine human use/impact
- Treasure Island Human Use Survey
- Heisler Park Whale Tail Grant Human Use Survey
- Urban Run-off Study to map all drainage and test samples
- Educational outreach videos
- Marine educational pamphlet series
- Aliso Creek Lagoon habitat restoration study
- Daily intertidal kelp monitoring
- Implementation of City of Laguna Beach General Plan policy calling for visitor management on the coast; working on development of Coastal Resources Management Plan to identify specific management plans of individual sections of the coastline.

Dana Point SMCA

The Dana Point State Marine Conservation Area would encompass the Niguel SMCA and the Dana Point SMCA.

The City of Dana Point

The City of Dana Point recognizes the importance of natural resources in both its Local Coastal Plan and the Land Use element of the General Plan. Both plans call for the conservation of the natural and plant communities under the guidelines of the Coastal Act. The City has authorized staff to participate in coastal resource management efforts within the Niguel and Dana Point Marine Conservation Areas and has hired a Natural Resource Protection Officer to work with

the Department of Fish and Game and the Orange County Marine Protected Area Council on collaborative management efforts for marine resources.

Enforcement and educational programs with monitoring capabilities include the following:

- A Natural Resource Protection Officer with the authority to city under State Fish and Game Code and CCR Title 14 Code,
- Joint Volunteer Tidepool Docent programs with the Ocean Institute,
- A city managed Open Space Biological park on the Headlands promontory. These terrestrial open space parks are adjacent to and include shoreline areas along a portion of the Marine Conservation Areas,
- A Nature Interpretive Center located on top of the Dana Point Headlands. The Nature Interpretive Center will serve as the operations center of the City of Dana Point Open Space Parks, with the Natural Resources Protection Officer working out of this location,
- Interpretive exhibits for the terrestrial parks that will also serve as a great location to include educational material regarding Marine Protected Areas,
- Overlooks that provide panoramic view of the coastline (including all current local MPAs) as well as the California Coastal national Monuments offshore, which are also referred to as “San Juan Rocks,”
- Dana Point harbor with operational facilities for County Sherriff and Depart of Fish and Game wardens, including the Fish and Game vessel *Thresher*.

<u>The Ocean Institute</u>

The Ocean Institute has become nationally known for its hands-on marine science, environmental education and maritime history programs where participants learn about oceanography, science, and California history and students voyage onto the ocean, study in labs and live aboard tall ships.

Educational and enforcement programs include:

- 61 award-winning, immersion style programs with more than 150,000 K-12 students and 8,000 teachers annually participating,
- A fully equipped educational facility located at the Dana Point Harbor and the sole land based entrance to the Dana Point SMCA,
- High school interns to develop research and monitoring program
- Management responsibilities of the former Dana Point Marine Life Refuge, including being instrumental in the passing of State Senate Bill 716. SB 716 provides increased protection for the intertidal area while maintaining access to the area for purposes of scientific collection, education and recreation, it also restricts the possession of any mechanism for take (ie. fishing poles, spear guns) within the rocky intertidal area,
- Instrumental role in educating formal and informal visitors of the delicacy of the marine resources through the “good tidepooler rules” and the Tidepool Preservation Project, allowing for increased awareness of the Marine Protected Areas within the Headlands area,
- Host of the Orange County Regional Marine Enforcement Training,
- Accounting and secretarial duties for the Orange County Marine Protected Area Council

For monitoring and research the following resources are currently in place to help view, measure, and study nearshore and offshore marine areas:

- Research Vessel, including sidescan sonar, grab sampler, water sampling bottles, fluorometer,
- Existing partnerships with college research facilities including SCRIPPS, UCSB, UCI,
- Available staff with degrees in marine sciences,
- Two ocean going vessels that currently educate school children but are could be equipped for simultaneous monitoring and research.

Orange County Regional (Entire South OC MPA Cluster)

Cal State Fullerton

Southern California academic institutions are represented by Cal State Fullerton in the Orange County Marine Protected Area Council. CSUF has been active in establishing a regional protocol for responsible collection and research in Orange County marine protected areas. Multiple faculty members at CSUF are in a prime position to be able to conduct/assist with much of the monitoring and research required to maintain scientifically valid marine protected areas. Intertidal monitoring has been conducted in the area for over 12 years in addition to a number of other human impact or ecological studies. Current monitoring may be expanded to include more sites and to possibly help address some questions arising from placement of marine reserves. Funding currently exists for monitoring from MMS, Dept of Interior. In addition to intertidal work, Cal State Fullerton faculty members have experience in subtidal monitoring, particularly with kelp habitats, and would be of assistance for those projects.

Areas of expertise of interested faculty members at CSUF include the following:

- Dr. Jayson Smith: Intertidal work, human use levels, coastal visitor use management
- Dr. Steve Murray: intertidal work, monitoring of intertidal systems
- Dr. Danielle Zacherl: invertebrate specialist; works a lot on dispersal, natal tagging; incorporates a lot of SCUBA into her work; also interest in oyster ecology particularly in Newport Bay including dispersal, recruitment, and restoration
- Dr. Mike Horn: Fish specialist; seabird ecology; likely to be interested in changes in population numbers of fish
- Dr. Jennifer Burnaford: intertidal work, marine phycology

MBC Applied Environmental

MBC Applied Environmental Sciences has been a member of the group that has evolved into the Orange County Marine Protected Areas Committee for nearly 10 years. During that time MBC and its scientists have been privileged to contribute their experience and share ideas with the Committee with the goal of protecting Orange County rocky intertidal habitats and enhancing the experience of these resources for all users. As part of that contribution, MBC helped develop a community-based monitoring program, established transect locations, provided personnel to assist with monitoring and data entry, and recently designed a program to analyze the commercial lobster fishery in the Orange County Marine Protected Areas.
In 40 years of operation MBC has become one of the most experienced biological consulting firms on the Pacific Coast. MBC's staff is actively engaged in a wide range of marine studies and has conducted numerous ecological studies, biological assessments, and habitat restoration programs on the West Coast, in the Gulf of Mexico, and in Alaska. MBC's experience and expertise in marine ecosystems includes benthic biology, nearshore fisheries

and fish life-history, kelp bed biology and restoration, coastal ecology, water quality and physical oceanography. MBC is committed to its participation in the Orange County Marine Protected Areas Committee and looks forward to the opportunity to continue to assist all members of the Committee as their management responsibilities broaden into new areas and habitats.