

CSU

The California State University

COUNCIL ON OCEAN AFFAIRS, SCIENCE & TECHNOLOGY (COAST)



COAST

Semi-Annual Report

Covering Activities from July 1 2010 to December 31 2010

www.calstate.edu/coast

NOW IN ITS THIRD YEAR of operations, the CSU Council on Ocean Affairs, Science and Technology (COAST) is pleased to present its fifth semi-annual progress report covering activities from July 1-December 31 2010. COAST is the umbrella organization for marine and coastal related activities within the CSU and represents hundreds of faculty members, research scientists and students from throughout the entire 23-campus system. Please visit us online at www.calstate.edu/coast to learn more.

Budget and Program Growth and Expansion

The COAST budget has grown considerably in its three years of operation from \$284,000 in 2008-2009 to \$663,000 this year, thanks in part to a very generous contribution of \$500,000 from the Chancellor for 2010-2011. This has allowed COAST to provide increased opportunities for faculty and to launch several new student initiatives.

2010-2011 COAST Budget At-A-Glance

Contributions

CSU Presidents	\$163,000
Chancellor	\$500,000
Total	\$663,000

Expenditures*

Faculty Research Incentives	\$110,000
Student Support	\$160,000
Network Development	\$ 43,000
CSU Data Integration	\$ 15,000
Public Affairs, Media & Events	\$ 42,500
Discretionary	\$ 30,000
Travel	\$ 44,000
Personnel	\$205,500
IDC	\$ 43,000
Total**	\$693,000

**Includes anticipated costs for the rest of 2010-2011*

***\$30,000 from 2009-2010 were rolled over for a 2010-2011 operating budget of \$693,000.*

COAST continues to expand its membership base and engage faculty from a variety of different disciplines across the CSU. New members include faculty with expertise in anthropology, environmental history and policy, environmental resources engineering, geology, paleoceanography and microbiology, some of whom have not previously addressed marine and coastal topics but are interested in expanding their research programs.

Faculty Scholarship and Research

COAST supports marine and coastal research and scholarship throughout the CSU through a number of different programs and incentives. In 2009 COAST launched its Faculty Research Incentive Program, which provides assigned time funding to CSU faculty members so that they can dedicate more time to successfully obtaining extramural funding. Through four separate competitions, COAST has awarded \$256,000 to 41 faculty members at 18 campuses. Through this program, CSU faculty have obtained funding totaling over \$1M:

- Jonathon H. Stillman, SFSU and Dr. Lars Tomanek, California Polytechnic State University. National Science Foundation: Ocean Acidification Category 1 Collaborative Research: RUI: Synergistic effects of temperature and pH variability on physiology, transcriptome and proteome of porcelain crabs. \$973,171
- Dr. Jesse Dillon, CSU Long Beach, and Dr. Christine Whitcraft, CSU Long Beach. California Sea Grant: Development of novel stable isotope approaches to evaluate carbon flow in a restored coastal wetland in southern California. \$34,800
- Dr. Steven Hackett, Humboldt State University, and Dr. Ana Pitchon, CSU Dominguez Hills. Pacific Gas & Electric Company: Humboldt WaveConnect baseline socio-economic study. \$39,342

Additional proposals are still in review and it is anticipated that further return on investment will be realized over the next 6-18 months.

Seven Faculty Research Incentive Program awards have been made for the 2010-2011 academic year:

- Dr. Xianhui Bu (Chemistry and Biochemistry, Long Beach): Porous materials for carbon dioxide capture and prevention of ocean acidification
- Drs. Jennifer Burnaford (Biological Science, Fullerton) and Karina Nielsen (Biology, Sonoma): Understanding the effects of low tide exposure on intertidal kelps: geographic and species comparisons
- Drs. Chris Clark (Computer Science, Cal Poly SLO), Mark Moline (Biological Science, Cal Poly SLO) and Chris Lowe (Biological Science, Long Beach): Development of an autonomous underwater vehicle based Mobile Marine Life Monitoring System (MMLMS)
- Ms. Judit Hersko (Visual and Performing Arts, San Marcos) and Drs. Victoria Fabry (Biological Science, San Marcos) and Krista Kamer (Romberg Tiburon Center, SFSU): Ocean acidification and the public: communicating research through art and science projects
- Drs. Stephanie L. Molloy (Biological Science, East Bay) and Lubo Liu (Civil and Geomatics Engineering, Fresno): Ecology of community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) in the United States Pacific Islands and coastal regions

- Dr. Mamta Rawat (Biology, Fresno): The role of low molecular weight thiols in Cyanobacteria
- Dr. Brian Tsukimura (Biology, Fresno): Supporting primary priorities for the development of management options for genus *Eriocheir* (mitten crabs)

COAST also recently announced a new program for CSU faculty and research scientists. The COAST Collaborative Resource Sharing Program encourages intercampus collaboration in marine and coastal research and education by promoting resource sharing across the CSU. The funding is intended to facilitate the generation of either preliminary data sets leading to the submission of full proposals to external funding agencies and organizations or the completion of ongoing research projects and subsequent submission of manuscripts for publication in peer-reviewed scientific journals. COAST anticipates making 5-15 awards for the spring and summer of 2011.

COAST Assigned Time Funding by Campus			
Bakersfield	\$4,416	Monterey Bay	\$9,938
Channel Islands	\$19,877	Northridge	\$9,938
Dominguez Hills	\$4,969	Sacramento	\$9,938
East Bay	\$17,664	San Luis Obispo	\$13,248
Fresno	\$18,216	San Marcos	\$9,936
Fullerton	\$7,619	SDSU	\$23,189
Humboldt	\$24,846	SFSU	\$14,907
Long Beach	\$16,562	SJSU	\$36,440
Los Angeles	\$6,626	Sonoma	\$8,282

Student Support

COAST implemented two different student award programs for CSU undergraduate and graduate students during the fall of 2010: COAST Student Awards for Marine Science Research and COAST Student Travel Awards. The goals of these programs are to increase student participation in faculty-mentored marine and coastal research throughout the CSU, enhance student experiences, and highlight CSU research at both the State and national levels.

For the 2010-2011 Academic Year Student Awards for Marine Science Research, COAST received twelve undergraduate student applications and 47 graduate student applications. Thirty-one awards totaling \$89,000 were made to eight undergraduate and 23 graduate students at nine different campuses. In 2011, COAST will award an additional \$30,000 in support for Summer 2011 to CSU undergraduate and graduate students.

Twenty-two undergraduate and graduate students from eight campuses applied for COAST Student Travel Awards. Awardees will make either oral or poster presentations at meetings and each must provide COAST with a one-page summary of the impact of the award on their undergraduate or graduate experience and professional goals after completing travel.

COAST has also initiated a pilot project with CSU Los Angeles and Humboldt State University to increase the number of federally funded work-study students participating in coastal and marine research. For 2010-2011, COAST has provided \$5,000 to each of these campuses as the required 25% institutional match. Results of the program will be reviewed during Summer 2011. If successful, this initiative can be expanded and implemented at additional campuses in the future. COAST has also engaged the California Department of Fish and Game (DFG) to develop a summer internship pilot program. COAST aims to place up to ten CSU students in internships with DFG during Summer 2011. The program will provide practical, workforce development training to students and help DFG obtain assistance on a number of scientific projects.

2010-2011 Academic Year Undergraduate Student Awards for Marine Science Research

Campus	Student	Advisor	Title
Bakersfield	Barbara Denise Chambers	Antje Lauer	Investigation the possible role microbial epibionts play in the life of cryptic species of <i>Watersipora subtorquata</i> , highly invasive bryozoa in California
Humboldt	Kellan Korcheck	Sean F. Craig	Crypsis in the nudibranch <i>Diaulula sandiegensis</i>
Long Beach	Lindsay Sturtevant	Gwen Goodmanlowe	Determining a diet shift from milk to fish using stable isotope analysis of nitrogen and carbon along the length of whiskers in California Sea Lions (<i>Zalophus californianus</i>), Northern Elephant Seals (<i>Mirounga angustirostris</i>), and Pacific Harbor Seals (<i>Phoca vitulina</i>)
Monterey Bay	Alexandra Davis	Rikk Kvitek	Rippled Scour Depressions: California's third seafloor habitat type
	Maren Mitch	Corey Garza	Relationship between intertidal habitat complexity and Ochre sea star (<i>Pisaster ochraceus</i>) abundance
San Diego	John Matthew Haggerty	Elizabeth Dinsdale	Metagenomic analysis of southern California kelp forests
	Aubrey Sever	Todd Anderson	Planktonic larval duration, pre-settlement growth rates, and timing of settlement of the bay blenny, <i>Hypsoblennius gentilis</i>
San Francisco	Chris E. Ikeda	William P. Cochlan	Microplate methodology development for nutrient analysis

2010-2011 Academic Year Graduate Student Awards for Marine Science Research

Campus	Advisor	Student	Title
East Bay	Stephanie Molloy	Sirma Mihaltcheva	The effects of heavy metal contamination on biofilm community composition in San Francisco Bay
Long Beach	Bengt Allen	Lindsay Fitzgerald-DeHoog	Thermal stress and the costs of living: Experiments in a model system
		Erika Fox	Quantifying trophic support for California halibut in a restored coastal wetland as a metric for restoration success
	Kevin Kelley	Claire Waggoner	Hepatic protein expression and endocrine disruption in contaminant-exposed English Sole in the Southern California Bight
	Chris Lowe	Katherine Lyons	Maternal offloading of organochlorine contaminants in elasmobranchs using the round stingray (<i>Urobatis halleri</i>) as a model
	Andrew Z. Mason	Violaine Desgens-Martin	Increased prevalence of carcinomas in pinnipeds: Evidence of a xenobiotic induced carcinogenic cascade?
	Christine Whitcraft	Rachel D. Wigginton	Impacts of <i>Lepidium latifolium</i> on habitat quality for Suisun song sparrows in a brackish marsh of northern California
Monterey Bay	Corey Garza	You-Young Clover Lee	A predictive habitat model for endangered black abalone, Monterey Bay, CA
		Scott Toews	Linking habitat heterogeneity to genetic partitioning in the rocky subtidal using black surfperch (<i>Embiotoca jacksoni</i>)
	James Lindholm	Ashley Knight	Spatial scales of habitat occurrence and demersal fish distributions at Piedras Blancas: Applications of landscape ecology to marine spatial management
Northridge	Mark Steele	Jennifer Granneman	A comparison of fish production on natural and artificial reefs
San Diego	Todd Anderson	Violet Compton	Evaluating predation success of a resident estuarine fish in contaminated habitat
		Sarah Wheeler	The influence of parturition date, larval condition and coastal upwelling on recruitment success of copper rockfish (<i>Sebastes caurinus</i>)
	Jose Castillo	Mary Thomas	Development of a cyberinfrastructure-based computational environment for the General Curvilinear Coastal Ocean Model
	Kevin A. Hovel	Christopher Castorani	Effects of multiple stressors on the resilience of seagrass meadows
	Rebecca Lewison	Bradley MacDonald	Spatial and temporal habitat use by East Pacific green turtles, <i>Chelonia mydas</i> , in a highly impacted foraging ground
	Jeremy Long	Renee Dolecal	Chemically-mediated seaweed-predator interactions in marine communities
San Francisco	Katharyn Boyer	Jeffrey Lewis	Effects of epifaunal grazer species on eelgrass restoration and factors controlling their distribution
		Rosa Schneider	Invasive and endangered wetland plants: management under current and future environmental conditions
San Jose	James T. Harvey	Casey Clark	Population structure, migratory behavior and pregnancy rates of humpback whales (<i>Megaptera novaeangliae</i>) in central California
		Stephanie Hughes	Epizootic risk assessment: Genotypic characterization, anti-microbial susceptibility, and seasonal diversity of <i>Vibrio</i> spp. isolated from live stranded and wild caught Pacific harbor seals (<i>Phoca vitulina richardii</i>) in central California
		Elizabeth McHuron	Selenium and mercury status of the Pacific harbor seal (<i>Phoca vitulina richardii</i>) off California
	Leslee A. Parr	Anne Cassell	Population Genetics of the Eastern Pacific mud shrimp (<i>Upogebia pugettensis</i>) and its bopyrid isopod parasite (<i>Orthione griffenis</i>)

COAST Networks

COAST has refocused and renamed its suite of multi-campus Research, Training and Technology Networks to better reflect programmatic priorities and member expertise. The Networks link together expertise, state-of-the-art equipment, analytical capabilities and facilities distributed throughout the CSU to address climate change and other anthropogenic environmental impacts on our marine and coastal environments.

- **Climate Change and the Marine Environment**—Collates large, long-term environmental data sets and promotes collaboration among scientists and stakeholders to develop integrated studies of climate variation and predict impacts to marine and coastal habitats and ecosystems.
- **Coastal Monitoring**—Builds upon existing infrastructure to continue to provide high-quality environmental monitoring data critical for addressing local and regional environmental issues and developing climate change adaptation strategies.
- **Environmental Effects on Marine Life**—Brings together the collective scientific expertise and resources of the CSU with regulators and other stakeholders to identify and evaluate the consequences of anthropogenic environmental changes on the health and adaptability of ecologically and economically important marine and estuarine organisms, including native and introduced species.
- **Geospatial Research, Education and Technology**—Advances the use of interdisciplinary geospatial data visualization and analysis to enhance our understanding of interactions between humans and the environment.
- **Marine Ecosystem Dynamics**—Engages in research and monitoring to assess how ecologically and economically important species use and interact with their environment and how human activity impacts ecosystems.
- **Marine and Estuarine Policy**—Promotes the application of science to current resource management needs and stresses the importance of socioeconomic and political considerations.

These networks address high priority coastal and marine issues and provide the technical tools and support needed to provide answers and develop effective, integrated solutions. They also provide the means to inform decision-making and promote the development of responsible public policy. Additionally they enhance CSU students' educational experiences and provide training to equip college graduates with skills necessary to successfully join the workforce and meet the coming challenges.

Through a competitive process, COAST has selected several CSU faculty members to receive assigned time funding to lead the development of selected Networks this year:

- Environmental Effects on Marine Life
 - Dr. Kevin Kelley, Department of Biological Sciences, CSU Long Beach
 - Dr. Lars Tomanek, Biological Sciences Department, California Polytechnic State University
- Geospatial Research, Education and Technology
 - Dr. Christopher Cogan, Environmental Science and Resource Management, CSU Channel Islands
 - Dr. Corey Garza, Division of Science and Environmental Policy, CSU Monterey Bay

These faculty members have successfully recruited additional CSU faculty members to the Networks, articulated benefits of working with their respective Networks and identified potential funding sources.



CSU Monterey Bay students conducting intertidal surveys, Point Lobos, CA. Image courtesy of Dr. Corey Garza.

Focus on Collaborative Fisheries Research in Sacramento

COAST is also engaged in significant efforts to build relationships with State-level policy and decision-makers. COAST convened two luncheon briefings this fall on the topic of collaborative fisheries research for legislative staff and agency officials. The first briefing on September 21 focused on the role of science in meeting informational needs. Dr. Amber Mace, Executive Director of the California Ocean Protection Council moderated the event and three CSU scientists gave presentations: Dr. Rick Starr, Moss Landing Marine Laboratories; Dr. Dean Wendt, California Polytechnic State University; and Dr. James Lindholm, CSU Monterey Bay.



The Huli Cat operating out of Pillar Point Harbor, Half Moon Bay. Image courtesy of Tom Mattusch.

The second briefing on November 17 focused on perspectives from stakeholders and featured Mr. Tim Maricich, commercial fisherman and captain of the *Donna Kathleen*; Mr. Tom Mattusch, recreational fisherman and captain of the *Huli Cat*; and Mr. Michael Bell of The Nature Conservancy, project director for California's Central Coast Groundfish Project. COAST has also engaged in meetings with individual legislative offices and resource management agencies to assess State-level needs and determine next steps in seeking solutions to state and national marine and coastal issues.

Outlook for the Next Six Months

Over the next six months COAST will:

- Convene a faculty-student research poster reception at the Chancellor's Office in Long Beach in conjunction with the January 2011 Board of Trustees meeting. Each campus will have the opportunity to send a representative faculty-student research team to present their work. The audience will include CSU Trustees, Presidents and Chancellor's Office staff.
- Present the Chancellor and CSU Presidents with a budget and workplan for 2011-2012.
- Convene its annual system-wide meeting at the Chancellor's Office on April 28 2011.
- Provide support for undergraduate and graduate students engaged in marine and coastal research.
- Provide funding to support resource sharing across the CSU to increase intercampus collaboration in marine and coastal research and education.
- Implement a summer internship program with the California Department of Fish and Game.



Dr. Corey Garza and CSUMB students at Point Lobos, CA. Image courtesy of Dr. Corey Garza.



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