



California  
Sea Grant  
College  
Program  
2007-2010



Site  
Review  
Briefing  
Book  
May 17-18, 2011



Coastal Science Serving California

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## Agenda

**Location: Bldg. T-29 at Scripps Institution of Oceanography**

### Tuesday, 17 May

- 8:30 Arrival, Coffee, Continental Breakfast
- 9:00 Welcome, Introductions and Introductory Remarks (Eckman, Haymet)
- 9:20 California Sea Grant Program: Structure and New Developments (Eckman)
- 10:20 Break
- 10:40 Sea Grant Research: National and State Programs (Oh)
- 11:30 Sea Grant Funding and Discussion (Hughes)
- 12:00 Lunch
- 13:00 Sea Grant Communications (Gear)
- 13:45 Sea Grant Extension Program Overview (Starr)
- 15:00 Break
- 15:15 Panel #1: CASG and Career Development (Oh)
- 16:00 Special Presentation: Climate Change Adaptation (Myers)
- 16:30 Private Session for SG Review Committee
- 17:30 Reception (on campus, Bldg. T-29)
- 19:00 Group Dinner in La Jolla (SG Review Committee and CASG Management Team)

### Wednesday, 18 May

- 8:30 Arrival, Coffee, Continental Breakfast
- 9:00 Special Presentation: Endangered Coho Salmon Recovery in California (Olin)
- 9:35 Panel #2: CASG and Applied Research/Mariculture Example (Olin/Starr)
- 10:20 Break
- 10:40 Panel #3: CASG and State and Federal Partnerships (Oh)
- 11:25 Sea Grant Advisory Board (Cherr, Cameron, Eckman)
- 12:05 Lunch
- 13:00 SG Review Committee: Private Deliberations and Writing
- 15:30 Outbrief by SG Review Committee to CASG Management Team and Haymet
- 16:30 Adjourn



# Program Management and Organization

California Sea Grant (CASG) uses a management team approach in setting policies and coordinating the program's activities in research, outreach and education in one of the most populous and diverse coastal states in the nation. The team meets bimonthly face-to-face, and uses telephone and email discussions to deal with urgent business that arises between meetings. The members of the management team and their responsibilities are:

**Director, James Eckman**, who joined the program in January 2011, is responsible for overall execution of the program, supervises management team members, handles proposal processing/review and award recommendations for annual awards from NOAA core funds, is a delegate for the national Sea Grant Association, and networks and promotes the program within the state and nationally.

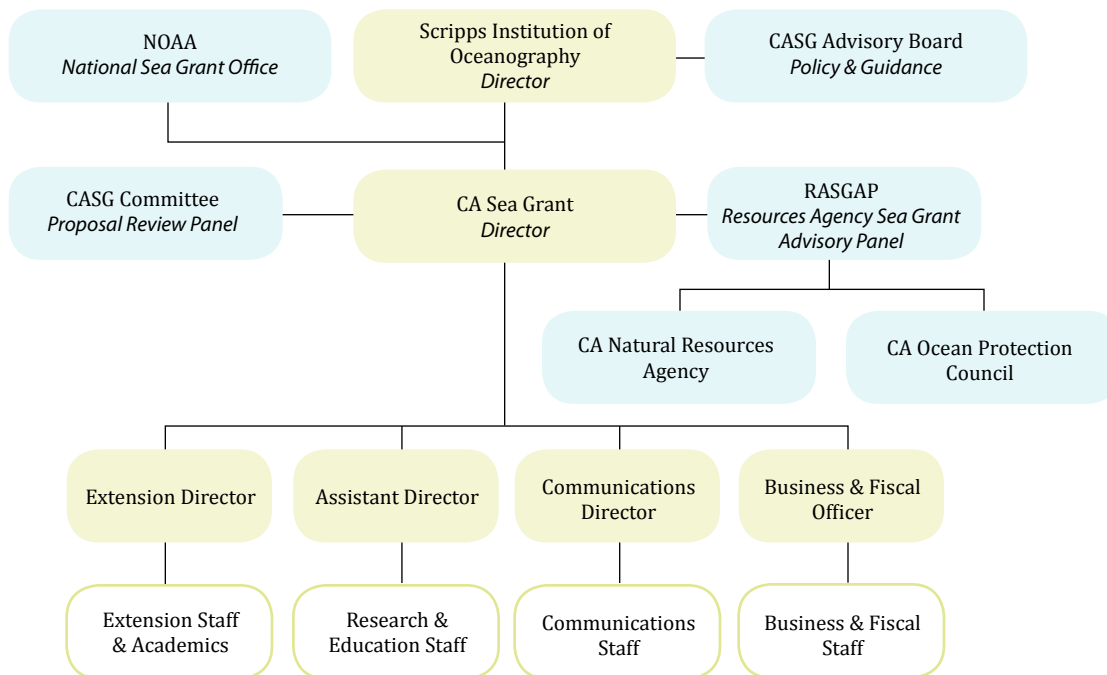
**Assistant Director, Shauna Oh**, coordinates with the director in the scientific and policy aspects of research program management, and is responsible for administering the marine science and policy graduate and postdoctoral fellowships, and the evaluation process for all noncore research proposals submitted to the program.

**Administrative Officer, Catherine Hughes**, oversees administrative operations, budgetary and fiscal monitoring and compliance issues for CASG. She supervises and leads the fiscal and programming support staff in carrying out the operational and fiscal services for CASG faculty and programs. She is responsible for applying NOAA and National Sea Grant fiscal policies and budget analysis, and overseeing all program expenditures for NOAA, as well as outside sources of funds.

**Communications Director, Marsha Gear**, is responsible for program communications, disseminating scientific information from funded research, and supporting outreach and education efforts to promote marine science literacy.

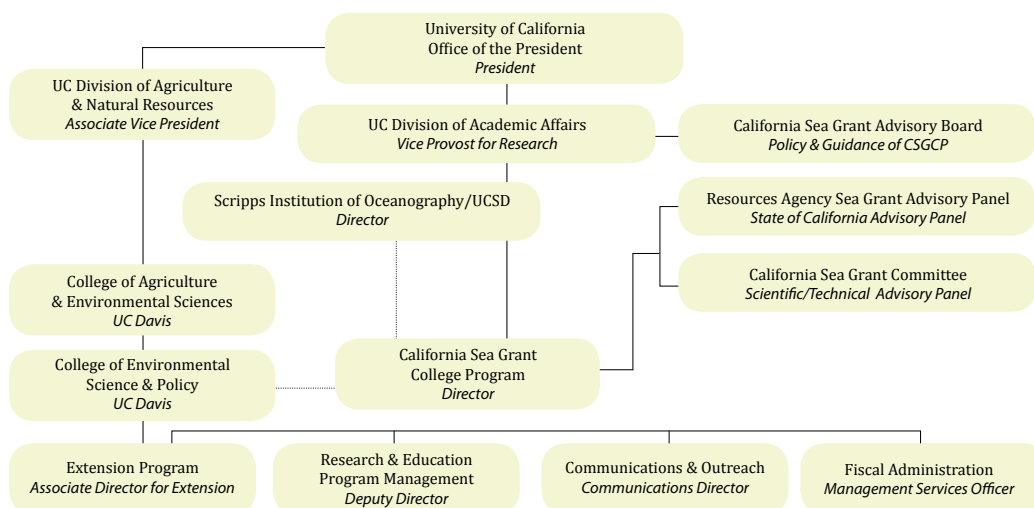
**Acting Extension Director, Richard Starr**, leads a team of highly trained academics who identify important coastal and marine issues and conduct integrated research, outreach and education projects. He facilitates collaborations among CASG Extension Academics (SGEP), California universities, state agencies, the National Sea Grant network, the National Sea Grant Office (NSGO), and CASG's NSGO program officer to address local, regional, national, and international issues. Also, Starr conducts his own extension projects.

2011 CASG Organization Chart





### Former CASG Organization Chart



## Sea Grant Advisory Board – Membership and Function

The CA Sea Grant Advisory Board (SGAB) advises the Director of CASG Program and the UCSD Vice Chancellor for Marine Sciences (Scripps Institution of Oceanography Director). The SGAB plays an important role in guiding the CASG administrative team in program operation and direction. SGAB members bring broad expertise, experience, advice, and diverse perspectives to the program and include senior officials and leaders from business and industry, the state university system, and state government. SGAB members historically have served three-year terms but many have

been reappointed to additional terms based upon the needs of CASG and its stakeholders. The SGAB meets as frequently as necessary, on average about twice a year.

The hiring of a new Director in January 2011 has prompted a reconstitution of the SGAB. This was done via close consultation between the CASG Director and UCSD Vice Chancellor for Marine Sciences. The SGAB now has at least fifty percent new members. They will meet for the first time on May 31, in part to discuss recommendations that come from the Site Review.

### SGAB Membership

Last Name	First Name	Inst Affiliation	Location	Discipline
<b>Cherr</b> (chair)	Gary	Bodega Marine Lab/UC Davis	Bodega	toxicology & chemical stressors on animals
<b>Baird</b>	Brian	California Natural Resources Agency	Sacramento	state natural resources including ocean issues
<b>Briscoe</b>	John	Briscoe, Ivester & Bazel LLP	San Francisco	legal—marine law
<b>Cameron</b>	Andy	Cal Tech	Pasadena	molecular biology & genomics
<b>Doremus</b>	Holly	UC Berkeley	Berkeley	coastal & marine protection law
<b>Fernandez</b>	Linda	UC Riverside	Riverside	environmental & natural resource economics
<b>Friehe</b>	Carl	UC Irvine	Irvine	atmospheric science
<b>Fong</b>	Peggy	UCLA	Los Angeles	algal communities
<b>Garfield</b>	Toby	San Francisco State	San Francisco	physical oceanography
<b>Griggs</b>	Gary	UC Santa Cruz	Santa Cruz	coastal processes & development, geological hazards
<b>Jaffe</b>	Jules	SIO	La Jolla	marine technology: acoustics & optics
<b>Mace</b>	Amber	Exec. Dir., California OPC	Oakland	marine protection & resources
<b>Parravano</b>	Pietro	self-employed fisherman	Half Moon Bay	commercial fishing
<b>Pleschner-Steele</b>	Diane	Pleschner & Associates	Buellton	commercial fishing industry
<b>Scheiber</b>	Harry	Boalt School of Law	Berkeley	legal
<b>Schmitt</b>	Russell	UC Santa Barbara	Santa Barbara	population & community ecology
<b>Terrill</b>	Eric	SIO	La Jolla	coastal observing
<b>Weisberg</b>	Steve	SCCWRP	Costa Mesa	environmental monitoring, water quality
<b>Yates</b>	Marylynn	UC Riverside	Riverside	water & wastewater microbiology

[Continuing Members](#) [Past Members](#) [New Members](#)

## Percentage of Time Director and Staff Devote to SG (FTEs)

FTE FY2010–2011	Title	FTE Federal	FTE Match	Total FTE/Leveraged
<b>Management and Planning</b>				
Eckman/Moll	Director	0.20	0.80	1
Shauna Oh	Asst. Director	0.375	0.625	1
Catherine Hughes	Fiscal Operations	0.16	0.74	0.9
Rose Madson	Fund Manager	0.14	0.86	1
Carol Bailey-Sumber	Contracts & Grants Specialist	0.5	0.5	1
Roberto Chavez	Programmer	0.67	0.33	1
Torrey Larson	Fellowship Program Asst./ Asst. Fund Manager	0.09	0.49	0.58
<b>Communications</b>				
Marsha Gear	Director of Communications	0.89	0.11	1
Christina Johnson	Science Writer	0.81	0.19	1
Joann Furse	Editor	0.75	0.25	1
Suzanne Morton	Communications Program Asst.	0.2	0.3	0.5
Debora Marshall	Communications Program Asst.	0.5		0.5
<b>Extension</b>				
Richard Starr	Acting Director	0.77	0.23	1
Carolynn Culver	SG Advisor	1		1
Monique Myers	SG Advisor	0.98	0.02	1
Paul Olin	SG Advisor	0.6	0.4	1
Caroline Pomeroy	SG Advisor	1		1
Susan Schlosser	SG Advisor	0.80	0.2	1
Pamela Tom	SG Advisor	0.9	0.1	1
Jodi Cassell*	SG Advisor	0.24	0.18	0.42
Leigh Taylor-Johnson*	SG Advisor	0.24	0.18	0.42
Kim Beaird*	Manager	0.5	0.3	0.8
Cheryl Barnes	Program Assistant to Extension Director	0.25		0.25
Debora Marshall	Program Assistant/Humboldt		0.5	0.5
Georgia Ratcliffe	Programmer	0.27		0.27
Jamie Banta*	Administrative Asst.	0.31		0.31
Janelle Kohl*	Administrative Asst.	0.42		0.42
Julie Hensen*	Administrative Asst.	0.17		0.17

\*No longer with the Sea Grant program.



## Program Setting

CASG is a statewide program that annually funds marine research, extension and education at more than 20 public and private institutions throughout the state.

There have been two major changes in program setting since October 2003, both related to reductions in state funds to the University of California system. The system-wide University of California Office of the President (UCOP) began decentralizing and downsizing its operations in 2008. Reporting lines for a group of programs known as Multi-Campus Research Units, of which CASG is one, were reassigned from the UCOP Vice President for Research to individual UC campuses. As a result, CASG now reports to the Vice Chancellor for Marine Sciences, Dr. Tony Haymet, at Scripps Institution of Oceanography (SIO), University of California, San Diego. This has the benefit of forging closer synergy with SIO, where CASG has its headquarters.

The second major change also came as a result of the reduced funding to and the subsequent reorganization of the UC Division of Agriculture and Natural Resources (ANR), where the SGEP was formerly based. In 2010, CASG was notified of UC ANR's decision to no longer contribute funding to nor administer the CASG Extension Program. This necessitated moving the SGEP directly under CASG's administration at UC San Diego. This transition has been successfully accomplished and is enabling the closer integration of the SGEP with other program components.

Most of the program's administration and communications staff members are located on the campus of SIO, UCSD. The acting director for extension is located at Moss Landing Marine Laboratories, where he maintains an adjunct faculty position. Six of SGEP's seven extension advisors, now all UC San Diego employees, are strategically located at or near marine science institutions along the coast of California: Eureka (near Humboldt State University), Santa Rosa, UC Santa Cruz, Moss Landing Marine Laboratories (operated by the California State University system), UC Davis and UC Santa Barbara.

# Recruiting Talent

**Setting Investment Priorities**—CASG management strives to wisely invest and account for the public funds it receives and also be alert to emerging trends and opportunities. The program invests in research, education and outreach based largely on Strategic Focus Areas identified in the national and state strategic plans, which have been carefully integrated. CASG has an external Advisory Board and is regularly reviewed and evaluated by a national review panel assembled by the NSGO. This review solicits external comments from stakeholders and provides feedback to program management to encourage its continual improvement. Advice and feedback are incorporated into future program strategic plans and funded activities.

CASG regularly reviews its strategic plan and priorities to ensure that it maintains its vision and focus, and continues to play a leadership role in coastal and marine resource research, education and outreach to benefit California, the West Coast region and the nation. Recent changes in how CASG administers its annual request for proposals are, in part, designed to make the program more responsive to research priorities that may be in need of special and immediate attention (see below).

**Proposal Review**—Preliminary proposals and full proposals submitted to CASG are evaluated via a review process designed to ensure the highest standards of integrity and that funded projects have both scientific novelty and relevance to program, state and national interests. An annual call for preliminary project proposals (preproposals) is widely distributed via web-publication and email.

The Resources Agency Sea Grant Advisory Panel (RASGAP; see membership this page) conducts the initial review of preliminary proposals. Input from RASGAP is directed toward identifying and meeting priorities for funding according to the needs of state resource protection and management agencies.

The California Sea Grant Committee (CSGC; see membership this page), comprised of academic scientists with expertise in areas funded by the program, conducts an additional review of preliminary proposals. At this stage, screening is based on the project's innovative approach, uniqueness of the idea, importance, quality of science, and appropriateness to CASG. Each preproposal is considered on its own merits without regard for campus or institutional affiliation. Based on input from RASGAP and CSGC, the CASG recommends a subset (typically ≈25 percent) of preproposals be submitted as full proposals.

Full proposals are mailed to external merit reviewers. The CSGC meets a second time to evaluate full proposals with the benefit of the written merit reviews. Criteria for selection at

## Resources Agency Sea Grant Advisory Panel (RASGAP)

- Brian Baird**—RASGAP Chair, California Natural Resources Agency
- Debbie Asepline-Neilson**, California Department of Fish and Game
- Marina Brand**, State Lands Commission
- Kenneth Coale**, Moss Landing Marine Laboratories
- Fred Conte**, UC Davis—Department of Animal Science
- Clif Davenport**, California Department of Conservation
- Don Disraeli**, Kanaloa Seafood
- Peter Douglas**, California Coastal Commission
- Reinhard E. Flick**, California Department of Boating and Waterways
- Margy Gassel**, Environmental Health Hazard Assessment
- Dominic Gregorio**, State Water Resources Control Board
- Tom Jones**, Boeing Marine Systems
- Christine Kehoe**, California State Senate
- James Moffett**, University of Southern California—Department of Biological Sciences
- Dirk Rosen**, Marine Applied Research & Exploration
- Peter Struffenegger**, Sterling Caviar

this step include: (1) rationale; (2) scientific merit and impact or outreach quality; (3) innovativeness; (4) programmatic justification; (5) practical impact and user relationships; (6) relationship to Sea Grant priorities; (7) qualifications and past record of investigators or past record of program components; and (8) strength of outreach program including educational activities. Merit reviews, user collaboration, expected impact (scientific and practical), and letters of support from potential users help determine whether these criteria are met.

When all the input is received from the external mail reviewers, the CSGC and RASGAP, the CASG management team and director of CASG make the final recommendations regarding approval of proposals for funding. The NSGO is then sent those recommendations for final review and approval.

## California Sea Grant Committee (CSGC)

- Member #1:** Aquaculture, Freshwater and Marine Algae, Aquatic Biology
- Member #2:** Genetics of Marine Organisms, Aquacultural Genetics
- Member #3:** Chemical Ecology; Chemical Communication/Chemical Signaling; Marine Natural Products Chemistry; Secondary Metabolism; Harmful Algal Blooms; Plankton Ecology
- Member #4:** Environmental Controls of Algal (planktonic and benthic) Production, Community Structure, and Assessment of the Causes and Consequences of Human-Induced Eutrophication of Rivers, Lakes, Estuaries and Coastal Oceans
- Member #5:** Invertebrate Reproductive Biology, Life-History Ecology, and Ecosystem Functions in the Marine and Estuarine Environments
- Member #6:** Marine Fisheries; Biochemical Adaptations to Environmental Stress; Larval Ecology of Marine Fishes; Molecular Genetics of Marine Fish
- Member #7:** Physical Oceanographic Processes; Continental Shelf and Estuarine Circulation

## Program Management Indicators: Project Selection—Core Funds

	2007	2008 EPD*	2008	2009	2010 EPD*
<b>Preproposals Submitted</b>	88	44	84	99	44
<b>Number of Institutions</b>	27	17	59	24	21
<b>Full Proposals Submitted</b>	30	N/A	23	23	17
<b>Number of Participating Institutions</b>	14		20	16	12
<b>New Projects Funded</b>	12	16	6	6	17
<b>Continuing Projects</b>	11	N/A	14	12	10
<b>Recruitment of PIs</b>					
<b>Number of PIs and Co-PIs Funded</b>	37	21	37	37	44
<b>Number of New PIs and Co-PIs Funded</b>	8	10	3	2	6
<b>Number of Institutions Funded</b>	10	12	12	11	14

\*One-year awards called "Enhanced Program Development"

## Success in National Competitions

CASG has been highly successful in national competitions related to aquaculture, aquatic invasive species research and outreach, fisheries extension, and regional planning.

### West Coast Sea Grant Collaborations

CASG has also worked successfully with the other West Coast Sea Grant programs to address regional research needs and obtain additional funds in support of regional resource man-

agement. In September 2006, the three West Coast governors signed the West Coast Governors' Agreement (WCGA), a groundbreaking effort to coordinate ocean and coastal resource management along the entire coast. An Action Plan to implement the WCGA was released in July 2008, and Action Coordination Teams (ACTs) were established to provide region-wide planning and facilitation to implement the Action Plan. The WCGA Action Plan and descriptions of ACTs are available at [www.westcoastoceans.gov](http://www.westcoastoceans.gov).

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### National Strategic Initiatives (NSIs)

Competitions	2007	2008	2009	2010
<b>Aquatic Invasive Species</b>				
Preproposals received/forwarded to NSGO	7	23		
Full proposals forwarded to NSGO	1	2		1
CASG projects funded	N/A*	0		1**
Total projects funded by NSGO	0*	3		6
<b>Aquaculture Research</b>				
Proposals received/forwarded to NSGO				6
CASG projects funded				1
Total projects funded by NSGO				18
<b>Oyster Disease</b>				
Preproposals received	2			
Full proposals forwarded to NSGO	1			
CASG projects funded	1			
Total projects funded by NSGO	5			
<b>Population Dynamics</b>				
Applications received/forwarded to NSGO	5	2	7	6
Fellowships funded to CASG	0	2	1	2
Total fellowships funded by NSGO	2	5	7	5
<b>Marine Resource Economics</b>				
Applications received/forwarded to NSGO	1	0	1	0
Fellowships funded to CASG	0	0	1	0
Total fellowships funded by NSGO	2	2	2	2
<b>Knauss</b>				
Applications received	5	1	8	13
Applications forwarded to NSGO	5	1	6	6
CASG applications selected by NSGO	2	0	6	5
Fellowships funded to CASG	2	0	5	4

\*Competition cancelled

\*\*As part of Pacific Northwest region

A substantial number of California graduate students have received fellowships in a variety of NOAA national competitions.



## Leveraged Funds

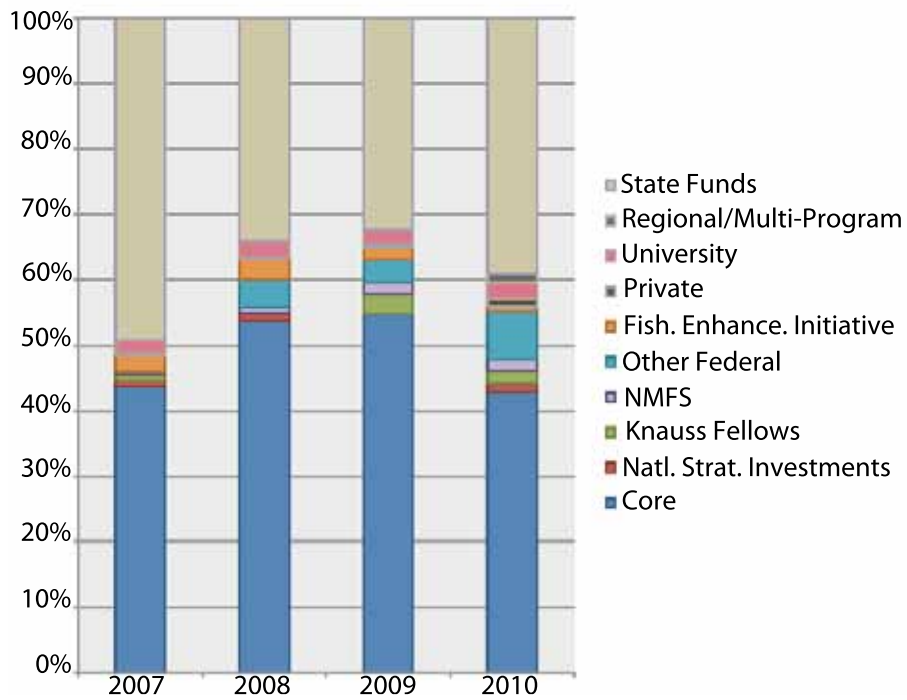
	2007	2008	2009	2010
Leveraged funding (money managed by or within direct influence of CASG, received from other sources 2007–2010)				
<b>NSGO</b>	<b>428,990</b>	<b>381,397</b>	<b>488,202</b>	<b>655,147</b>
Fisheries Extension Enhancement Initiative	226,942	235,173	146,984	73,492
National Strategic Investments	87,381	82,058		120,594
Regional/Multi-Program Project				124,646
John A. Knauss Marine Policy Fellowship	83,000	0	217,500	176,000
NMFS/Sea Grant Population Dynamics	31,667	64,166	91,635	128,332
NMFS/Sea Grant Marine Resource Economics			32,083	32,083
<b>Other Federal</b>		<b>308,632</b>	<b>241,079</b>	<b>716,531</b>
California-Nevada Climate Adaptation Program				35,000
National Marine Sanctuary BWET-RESTOR Project				58,837
NOAA Coastal Services Center-Fellow			40,000	40,000
USDI Bureau of Reclamation		308,632	201,079	50,887
US Army Corps of Engineers				466,170
USDI Fish & Wildlife Service				65,637
<b>State</b>	<b>4,260,752</b>	<b>2,462,478</b>	<b>2,292,181</b>	<b>3,529,884</b>
Ocean Protection Council/Coastal Conservancy	2,667,765	625,147	618,408	2,809,552
CA Natural Resources Agency	156,828	157,000	156,550	156,472
CA Department of Fish & Game				17,233
Delta Stewardship Council	1,436,159	1,680,331	1,517,223	546,627
<b>Private</b>	<b>15,000</b>	<b>15,000</b>	<b>15,000</b>	<b>106,562</b>
Center for Ecosystem Management and Restoration				88,898
Monterey Bay Sanctuary Foundation	15,000	15,000	15,000	17,664
<b>University</b>	<b>168,000</b>	<b>168,000</b>	<b>162,000</b>	<b>162,000</b>
UCSD/SIO	168,000	168,000	162,000	162,000
<b>Subtotal</b>	<b>4,872,742</b>	<b>3,335,507</b>	<b>3,198,462</b>	<b>5,170,124</b>
<b>Core Funds</b>	<b>3,763,029</b>	<b>3,872,000</b>	<b>3,872,000</b>	<b>3,872,000</b>
Research	1,791,375	1,689,646	1,722,119	1,823,574
Education	51,588	52,000	52,000	64,492
Extension	931,502	981,138	1,004,745	1,004,745
Communications	451,898	464,693	480,850	468,726
Management	452,532	520,835	490,464	440,463
Development Grants	84,134	163,688	121,822	70,000
<b>Annual Totals</b>	<b>8,635,771</b>	<b>7,207,507</b>	<b>7,070,462</b>	<b>9,042,124</b>

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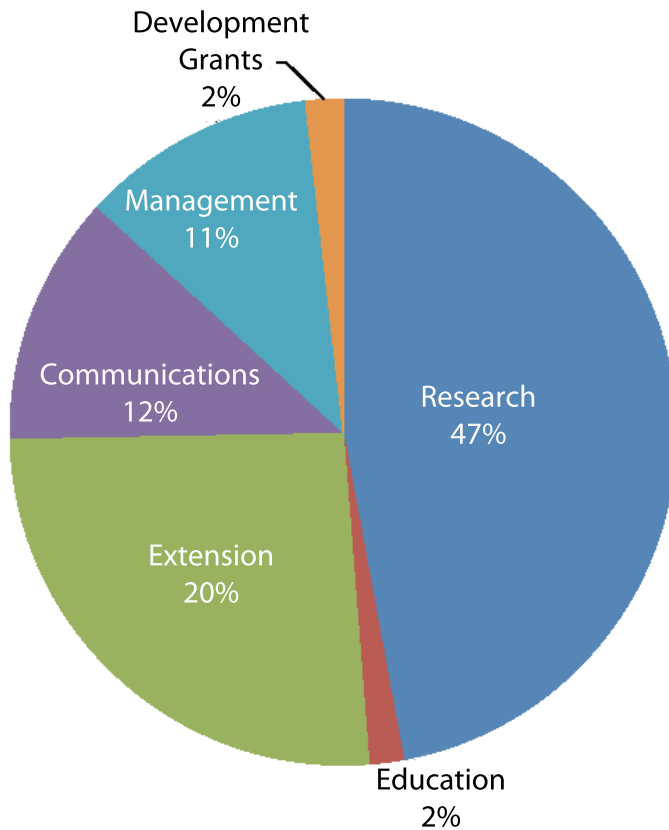
The Sea Grant programs in Washington, Oregon and California began collaborating in 2006 to identify and focus resources on priority West Coast regional research and information needs to support marine science and ocean management on an ecosystem level. The resulting 2009 report, *West Coast Regional Research and Information Needs*, is based on more than 5,000 comments from nearly 1,000 stakeholders. The comments are available in an online database that links each comment to research topics and locations (<http://seagrant.oregonstate.edu/research/RegionalPlanning/>). In 2010, the four West Coast Sea Grant programs successfully applied for regional funding from the NSGO for fellowships to collaboratively support implementation of common elements of the

WCGA on Ocean Health and the 2009 report. Four West Coast Sea Grant Fellows were selected in late 2010 and early 2011 and placed in state or federal host agencies for two years, where their activities will directly support the WCGA Action Plan. This plan identified seven key priorities facing the West Coast: clean coastal waters and beaches; healthy ocean and coastal habitats; effective ecosystem-based management; reduced impacts of offshore development; increased ocean awareness and literacy among the region's citizens; expanded ocean and coastal scientific information, research and monitoring; and sustainable economic development of coastal communities.

## California Sea Grant: 4-Year Funding History



## FY 2010-11 Distribution of Core Funds



# Stakeholder Engagement

## State Agency Partners

For 41 years, CASG has successfully applied its unique capability to combine coastal and marine research, education and outreach to benefit the communities, industries and people of California, the region and the nation. In recent years, the program has been invited to collaborate with state agencies to administer research programs of mutual interest that are designed to meet specific state priorities using designated funds.

California's **Ocean Protection Council (OPC)**, established in 2004, coordinates government agencies to better manage our ocean resources and sets forth the state's marine research and conservation goals. In meeting OPC's goal to improve scientific understanding of our ocean and coastal ecosystems, CASG is identified in the OPC's strategic plan as a mechanism to review and award grants that meet OPC guidelines and priorities. Since 2007, CASG has worked with the OPC to determine where priorities and expertise converge; and by working together, the two organizations have reduced the overhead and management costs of supporting collaborative marine research and outreach. The result is that CASG administers dedicated OPC funds to assist the state by managing priority research and outreach projects such as the development of ecosystem-based management pilot programs, investigation of the extent and implications of ocean acidification on the California shelf, tools to weigh various restoration options for California Chinook salmon, and forecasts and projections of HABs.

The proposals submitted in response to OPC priorities undergo the same review process as core CASG proposals, including review by the Resources Agency Sea Grant Advisory Panel (RASGAP). The RASGAP is chaired by the Assistant Secretary of Ocean and Coastal Policy and includes representatives from state resources agencies, elected state officials and UC and CSU campuses. RASGAP meets biannually in-person to review and prioritize proposal submissions based on state and OPC priorities.

In California, the **Marine Life Protection Act (MLPA)** was passed in 1999 and required the California Department of Fish and Game (CDFG) to design and manage a network of marine protected areas (MPAs) to protect marine life and habitats and preserve ecosystems and natural heritage, among other things. The MLPA further requires monitoring of the MPAs to facilitate adaptive management of the MPAs. The first step in implementing such an effort is to ensure proper acquisition of quality baseline data. CASG has been contracted to administer baseline studies in four of the five designated study regions in the state (north, north central, central, and south coasts). CDFG approached our program in 2006 to contract monitoring studies and socioeconomic research for the designated MPAs in the central coast study region. The Central Coast Baseline Program was established in 2007 as a collaborative effort between CDFG, State Coastal Conservancy, Ocean Protection Council and CASG to provide

summary descriptions, assessment and understanding of ecological and socioeconomic conditions inside and outside MPAs designated under MLPA. In 2008, the OPC approved the disbursement of \$12 million over the next several years for CASG to solicit, review and oversee projects in support of the MPA Baseline Programs in the remaining study regions, working closely with the MPA Monitoring Enterprise, which is developing the monitoring framework for MPAs statewide.

Another significant area of activity for CASG in recent years has been the creation and administration of the **Delta Science Fellows Program**. Beginning in 2003, the Program (formerly known as the CALFED Science Fellows Program) has paired graduate students and postdoctoral researchers with Bay-Delta agency scientists and senior research mentors. Fellows work on collaborative data analysis and research projects applicable to the California Bay-Delta region. The Science Program has funded 43 Fellows, with funds totaling over \$6 million. The program's goals are to invest in knowledge that will fundamentally advance the understanding of the complex environments and systems within the Bay-Delta system, to aid policy-makers and managers, and to train the next generation of research scientists for water issues in California. The Science Fellows have worked with community mentors at California Department of Water Resources, U.S. Geological Survey, Pacific Science Center, The Nature Conservancy, CDFG, Bureau of Reclamation, and U.S. Fish and Wildlife Service.

## State and Federal Agency Hosts

Many agencies in California are involved in the management and planning of coastal resources, and in the future these agencies will need a large number of trained, politically astute individuals to manage ocean and coastal problems. There are only a few statewide educational programs that provide technically trained graduate students with practical experience in marine resource management. Recognizing this need for educating the next generation of marine and coastal policy makers, the **CASG State Fellowship Program** was established in 1987. Modeled after the highly successful Knauss Marine Policy Fellowship Program, our State Fellowship Program provides recent graduates an opportunity to acquire "on the job" experience in the planning and implementation of marine and coastal resource policies and programs in the state of California. The State Fellowship Program has supported 64 fellows to work with 18 different state and federal hosts in California. In recent years, State Sea Grant Fellows have been assigned to work with the California Ocean Resources Management Program of the California Natural Resources Agency; the California Ocean Protection Council; the California Ocean Science Trust; the Delta Science Program; the California State Parks; NOAA's Monterey Bay and Channel Islands National Marine Sanctuary Programs; the NOAA Coastal Services Center, West Coast Regional Office; and the NOAA MPA Center.

## International Collaborations

At the request and with support from NOAA Office of Oceanic and Atmospheric Research International Activities Office, CASG has engaged with three Korea Sea Grant (SG) programs to assist with the creation, administration and development of the nascent Korea SG Program. This collaboration was initiated in 2006 at the request of the Korean Ministry of Maritime Affairs and Fisheries following a visit to NOAA and CASG by a delegation of Korean scientists and government officials. After this initial visit, the Korean government invited representatives of CASG to visit the Ministry of Marine Affairs and Fisheries (MOMAF) in Seoul, and the two existing Sea Grant programs, Yeongnam SG in Busan, and Honam SG in Mokpo. This visit provided an opportunity for CASG staff to discuss the philosophy of Sea Grant, and the essential research, education, extension and communication components that are integral to the success of Sea Grant. In 2007, Jung Bu SG Program was created at Inha University in Incheon and CASG provided similar support with information on program development and planning. In time, formal Memoranda of Cooperation between CASG and Yeongnam, Honam, and Jung Bu SG programs were created. Visits to the United States by representatives of Korea SG, and continued visits to Korea by representatives of CASG, occurred on an annual basis with regular exchange of information on program administration, scientific peer review, grants management, extension programming and strategic planning.

Seeking additional information on the Sea Grant network, Korean delegations of six to 13 scientists, managers and staff attended Sea Grant Week in Maine, San Diego and New Orleans. International Symposiums were organized by California and Louisiana SG programs when they acted as hosts for Sea Grant Week in San Diego and New Orleans, respectively. Three members of the CASG Management Team were invited to participate in the first Korea Sea Grant Week held in Busan in 2009. At this event it was evident that the Korean programs were fully engaged with excellent presentations on strategic planning, research conducted and educational outreach activities. As part of Sea Grant Week in San Diego in 2008, CASG also coordinated a two-day field tour to observe Sea Grant programming in San Diego, Los Angeles and Santa Barbara, which included 11 Korean colleagues and three members of the Indonesia Sea Partners Program. In the fall of 2009, delegations from all three Korea SG programs visited California on three separate five- to seven-day visits that included programmatic exchanges in the following areas:

1. Coastal tourism development
2. Value-added seafood processing, like designer canneries
3. Community-based fishery co-management
4. Recreational fishing, boating and other pursuits
5. Commercial fishing and management
6. Ocean monitoring
7. Aquaculture

The relationship between CASG and Korea SG has matured and Korea now has six regional programs. These programs collectively have a comprehensive understanding of the

workings of a successful program such that regular visits by CASG staff to facilitate program development are no longer undertaken. Discussions are currently underway for joint research collaborations, exchange of graduate students for collaborative research and for graduate students from California universities to assist Jung Bu SG with the operation of marine science summer camps.

## CASG Extension Program (SGEP) Collaborations

SGEP develops collaborations with NOAA staff, state and federal agencies, other university researchers, nongovernmental organizations, industry representatives, communities and educators to conduct integrated research, education and outreach projects. Extension advisors organize symposia, workshops and meetings to identify local, regional, state, national and international resource problems. SGEP uses our expertise and community connections to bring teams of people together to work on projects. We embrace diversity, and work with people regardless of values, and world-views that arise from differences of culture and circumstance. A few highlights of SGEP collaborations follow with a more complete listing starting on page 13.

## SGEP Collaborations with NOAA

The following are a few examples of specific projects through which SGEP engages a wide variety of diverse stakeholders to work on common goals. Other projects will be highlighted during our site review in May.

SGEP Advisors Monique Myers and Susan Schlosser have been working in collaboration with National Weather Service employees to extend NOAA's climate change research to coastal communities. In 2009, Myers and Schlosser arranged two large meetings of NOAA personnel and university climate change experts, including NOAA staff members from the Western Regional Climate Center, National Marine Fisheries Service, National Ocean Service, National Weather Service Offices, Chief of the Western Region Hydrologic and Climate Services Division, several meteorologists-in-charge, as well as directors of climate change centers at SIO and UC Berkeley and the state climatologist. Additionally, Myers and Schlosser initiated the California Climate Change website, an interactive website comprised of interviews with the directors of UC climate change centers and other leading climate experts. The interviews are available for download as both audio and video files at <http://groups.ucanr.org/CAClimateChangeExt/index.cfm>.

Recently, SGEP Advisors Myers and Schlosser received funding from the California and Nevada Applications Program (CNAP) Regional Integrated Sciences and Assessments (RISA), to help identify coastal decision makers' information needs for climate change adaptation. They began collaborating with USC SG Advisor, Juliette Hart, to develop a coastal climate change adaptation survey. This work is in coordination with the National Sea Grant climate change adaptation survey effort. The Stanford Center for Ocean Solutions joined as a collaborator and the project gained momentum with interest expressed by a variety of local, state and federal entities.



Currently project partners include: USC SG, Center for Ocean Solutions at Stanford University, Ocean Protection Council, NOAA Coastal Services Center, Susanne Moser Research and Consulting, Tijuana River NERR, San Francisco Bay NERR, Local Governments for Sustainability (ICLEI), Bay Conservation and Development Commission, CA Coastal Commission, Southern California Coastal Ocean Observing System and CNAP RISA at SIO. The partners are working to develop a completed survey and distribution list. It is anticipated that the survey will be administered by the end of May and the results will be analyzed during the summer. The information from the survey will be used to inform climate adaptation workshops in Northern and Southern California in fall 2011.

### **SGEP Collaborations with State and Federal Agencies**

For the past five years, SGEP Advisor Susan Schlosser has been building collaborations with a diverse set of local, state and federal agencies to improve management of the Humboldt Bay estuarine ecosystem. Schlosser has led a diverse group of people, which includes 50 collaborators from 32 organizations, in an ecosystem-based management process to develop community-based planning strategies for Humboldt Bay and watershed management and conservation. As the leader of the large collaborative process, Schlosser guided the development of vision and mission statements, establishment of community priorities, and development and implementation of a strategic plan.

**Humboldt Bay Initiative**—Coastal areas and surrounding communities face an increasing number of threats to the health of their environments and ways of life, including loss of marine habitat, water pollution, and impacts from climate change. Managing these challenges is complicated and involves decision makers, social institutions, government agencies and community members that all have a stake in the outcome. Since 2007, SGEP Advisor Susan Schlosser approached these issues in the Humboldt Bay ecosystem through an ecosystem-based management program called the Humboldt Bay Initiative (HBI). Recognizing the full range of connections between social, biological and physical components of the ecosystem, HBI considers all the different functions and relationships of the local ecosystem, and integrates all types of information and knowledge to comprehensively address natural resource management issues. HBI completed a strategic plan in 2009 where 44 collaborators participated in a five-day workshop. HBI is currently working on the highest priority issues from the strategic plan, a coordinated response to climate change. The climate change strategy includes a three-pronged approach. Scientists and engineers from Humboldt State University, Oregon State University, Cascadia Geosciences, CalTrans, Humboldt County, U.S. Fish and Wildlife Service, Bureau of Land Management, National Geodetic Survey, the National Weather Service, and Northern Hydrology, are developing a science plan to improve the accuracy of the vertical reference system to correct errors due to seismic activity. Lack of accurate vertical reference datum adversely affects sea-level rise predictions, sediment measurement, and restoration projects. The project will inform planning and preparedness for climate change adaptation,

contribute to ecological forecasting and foster sustainable communities. Project team members from the Humboldt Bay Harbor District, City of Arcata, National Marine Fisheries Service, U.S. Fish and Wildlife Service, CDFG, National Weather Service, U.S. Army Corps of Engineers, U.S. Bureau of Land Management, City of Trinidad, the Pacific Coast Joint Venture, Redwood Community Action Agency, Humboldt County, and Humboldt Baykeeper identified existing, local socioeconomic, geophysical, ecological and weather/climate/water data sets for use in climate change models. Additionally the HBI project team collaborated with the EBM Tools Network to submit a proposal to the Campbell Foundation to increase community capacity to deal with the consequences of climate change through education and training on geospatial and planning tools. Notification on this funding will be in spring 2011.

**Seafood Extension**—SGEP Advisor Pamela Tom works with stakeholders in the seafood industry in California, nationally and internationally to provide up-to-date information on the safety, benefits and risks of seafood consumption. The groups she interacts with include seafood importers, inspectors, processors, retailers, labs, educators, researchers, chefs and consumers. Tom collaborates with other Sea Grant programs, agency and industry colleagues to offer professional seafood workshops and conferences that teach skills and share relevant scientific information. The popular “sensory decomposition” hands-on training sessions, which Tom organizes in conjunction with the FDA and NOAA’s Seafood Inspection Program, give participants guidance in using their senses of sight and smell to judge whether fish samples would pass FDA standards. From 2007 to 2010, Tom participated in approximately 18 workshops and trainings in the United States and planned three international programs in Vietnam for seafood imports to the United States.

Tom maintains the Seafood Network Information Center website SeafoodNIC (<http://seafood.ucdavis.edu/>), a clearinghouse for seafood information and the source of a host of topics ranging from regulations, product development and marketing to consumer safety. This website averages 20,000 hits/month. In addition, Tom maintains several seafood listservs, including an international seafood HACCP discussion list with (more than 1,150 subscribers across the globe representing more than 55 countries) and a domestic Seafood Announcements Information List (SAIL) that issues timely updates and advisories for 460 subscribed seafood professionals. Tom has collaborated with Georgia Sea Grant in establishing the Safe Oysters website (<http://safeoysters.org/>) that deals with *Vibrio vulnificus* health issues and averages 10,000 hits/month. She also collaborated with Florida State University in creating a website on Prohibited Antimicrobial Agents in Seafood (<http://safeseafood.ucdavis.edu/>), which averages 285 hits/month. Her current internet web project includes cooperating with colleagues from Oregon State University and the Sea Grant Programs of Delaware, Florida, New York and Rhode Island on a project funded by the U.S. Department of Agriculture to develop educational programs on seafood risks and benefits for health care pro-

viders and other professionals who provide seafood information to consumers.

### **SGEP Collaborations with International Programs**

An offshoot of the CASG-Korea collaboration was the engagement of SGEP Advisor Paul Olin with the National Fisheries Research Development Institute (NFRDI), which is a partner with NOAA in planning and reviewing joint aquaculture research projects conducted under the NOAA-Korea Joint Project Agreement (JPA). Olin is a member of the panel and attended the 4<sup>th</sup> U.S.-Korea Aquaculture Panel meeting held at NFRDI in Busan in 2008, and the 5<sup>th</sup> U.S.-Korea Aquaculture Panel hosted by NOAA at SIO in 2010.

Sea Grant Advisor Paul Olin has been involved with the U.S.-Japan Natural Resources Panel on Aquaculture (UJNR) since 1994 when he was asked to make a presentation on the status of Pacific salmon populations in the United States. Since then, Olin has participated in five annual UJNR meetings as a presenter, participant or organizer. Most recently, in 2010 he participated in the 39<sup>th</sup> Science Symposium of the UJNR Aquaculture Panel in Kagoshima as interim Vice-Chair of the Panel, and presented a paper entitled, "Aquaculture in the United States of America: Present Status and Future Opportunities." Following this meeting Olin was selected as Vice-Chair of the U.S. contingent of the UJNR Aquaculture Panel. In that capacity he is currently involved in planning for the 40<sup>th</sup> annual meeting of the UJNR Aquaculture Panel to be held in October 2011.

The UJNR Aquaculture panel, which is composed of United States and Japanese scientists, meets annually to conduct business meetings and a symposium on selected scientific topics in the field of aquaculture. The theme of each annual symposium is agreed upon in three- or five-year plans developed jointly by the panels. Business meetings and symposia are followed by field trips (related to the selected scientific theme) to research institutes, universities, fish farming centers and commercial farms. Meetings alternate annually between nations.

Business meetings are held each year to plan and discuss progress toward the following goals:

- Conduct cooperative research and studies of mutual interest to both nations.
- Arrange for the exchange of scientists for either short-term or long-term collaborations.
- Provide for exchange of scientific information through an annual literature exchange.
- Publish results of the annual scientific symposium.

### **SGEP Collaborations with Groups of Individuals**

Historically, the Russian River in Northern California provided spawning and rearing habitat for tens of thousands of anadromous fishes. Habitat loss and degradation led to dramatic population declines, leading to the listing of coho, steelhead and Chinook salmon as threatened species under the Federal Endangered Species Act. With more than 97 percent of the Russian River watershed in private ownership, active participation of private landowners is critical to the

recovery of salmon populations. In response to this issue, SGEP Advisor Paul Olin created the Russian River Tributary Restoration and Landowner Outreach Program. The objective of this collaborative program was to develop a cadre of landowners knowledgeable about salmon habitat requirements who could be role models in their communities, and restore habitats on high-priority stream reaches. Since 1998, more than 40 individual stream enhancement and habitat restoration projects, covering more than 73 tributaries and over 1000 miles of streambed, have been completed on targeted tributaries, resulting in increased salmon spawning events.

### **SGEP Collaborations with Fishing Communities**

CASG has long had a close relationship with fishery participants and fishing communities. This close relationship has been strengthened in the past five years by infusion of National Sea Grant Fisheries Extension Enhancement funds. There is a growing awareness that to sustain fish populations and coastal communities and economies, fisheries need to be managed on smaller spatial scales. State and federal fishery managers find it difficult, however, to collect data on a regional basis. Additionally, with current budgetary limitations, more cost-effective tools for managing fisheries are needed. A solution to this dilemma is to involve stakeholders in the collection and interpretation of data on finer spatial scales.

As an example of a solution, SGEP Advisor Carrie Culver worked with commercial crab fishery participants in Southern California, CDFG and university scientists to improve the collection and use of scientific data for cryptic benthic species targeted by trap fisheries (e.g., crabs, lobster, prawns). These species are not readily quantified using conventional methods and thus are not usually included in fishery monitoring efforts. To solve this problem, Culver and collaborators evaluated sampling regimes to identify the best ways to accurately estimate at-sea catches and thus provide better information about the status of crab populations, specifically about the dynamics of the southern rock crab fishery. They also developed and tested protocols for engaging fishery participants in data collection, collected essential fishery information about the three crab species that constitute the rock crab fishery, and developed a framework for integrating a broad, long-term collaborative data collection program into the management process. The resulting information led to regulatory changes for the crab fishery, and the project is being used as a model for development of collaborative fishery data collection programs in other shellfish fisheries.

Similarly, in 2006 SGEP Advisor Rick Starr formed a California Collaborative Fisheries Research Program (CCFRP) to address the need for better information about nearshore fisheries. During the development of the CCFRP, Starr worked with fishery participants, state and federal fishery scientists, NGO staff, harbor masters and university scientists, to establish protocols for collaborative research that would be useful for fishery managers, and utilize volunteer anglers. From 2006 through 2010, the protocols have been implemented with more than 500 fishery participants from five central coast fishing communities; and the group has generated a data set based on 30,000 fishes that were tagged, measured

and released. The protocols the collaboration developed provide rigorous, standardized estimates of species composition, density, length frequency and movement of fishes. This project demonstrated that fishery participants and scientists can collaborate successfully to provide resource managers with accurate information, thus allowing members of the fishing community to play an active role in the evaluation of marine policy. Efforts continue on ways to integrate the collected information and protocols into the management process.

Additionally, SGEF Advisor Carrie Pomeroy has studied the human dimensions of California port communities and their fisheries, developing fishing community profiles to inform ecosystem-based management programs and to more proactively and effectively address fisheries, marine management and community development issues and opportunities. As part of this work Pomeroy, in collaboration with a NOAA Fisheries SWFSC economist, conducted socioeconomic research integrating archival and field data collection and analysis to develop historically grounded descriptions of four Northern California fishing (port) communities and their regional context. More than 180 fishing community members and other knowledgeable individuals participated in the project. Pomeroy's efforts addressed critical fisheries social science information gaps, increased awareness and understanding of the human dimensions of local fisheries and fishing communities, and enhanced efforts to manage working waterfronts and fisheries to support healthy, productive and sustainable marine ecosystems and coastal communities.

Integrating the biological and human dimensions of fisheries, SGEF Advisors Rick Starr, Carrie Culver and Carrie Pomeroy worked with CDFG staff to sponsor a workshop to collect ideas about ways to manage fisheries for which little information is available. The workshop, entitled, "Managing Data-Poor Fisheries: Case Studies, Models and Solutions," consisted of presentations and discussions among 100 international fishery scientists, resource managers, environmental organizations and fishermen. The workshop resulted in more than 400 specific ideas for managing fisheries. In addition, a series of manuscripts that describe ways to address data-poor fisheries were submitted from national and international experts (including the three SGEF advisors) and discussed at the workshop. Manuscripts were published in a special issue of American Fisheries Society's online journal, *Marine and Coastal Fisheries*, and in a CASG publication. All manuscripts, workshop notes, and ideas are available online and in a report presented to CDFG. These materials address: 1) alternative management strategies for data-poor fisheries; 2) new analytical techniques for guiding management with minimal data; and 3) new techniques for collecting and integrating biological and socioeconomic data. CDFG has taken several actions since the workshop to evaluate potential options for enhancing management of state resources.

## SGEP Collaborations

### NOAA

Coastal Services Center  
 National Centers for Coastal Ocean Science  
 National Geodetic Survey  
 National Marine Fisheries Service:  
 Aquaculture Program  
 Habitat Conservation/Restoration Center  
 Northwest Fisheries Science Center, Seattle, WA  
 Office of Protected Resources  
 Office of Sustainable Fisheries  
 Recreational Fishing Services  
 Southwest Fisheries Science Center, Santa Cruz, CA:  
 Pacific Fisheries Environmental Laboratory  
 National Marine Protected Areas Center  
 National Marine Sanctuary Program:  
 Channel Islands National Marine Sanctuary  
 Monterey Bay National Marine Sanctuary  
 National Estuarine Research Reserve System  
 Elkhorn Slough National Estuarine Research Reserve  
 San Francisco Bay National Estuarine Research Reserve  
 Tijuana River National Estuarine Research Reserve  
 National Undersea Research Program  
 National Weather Service  
 North Pacific Fishery Management Council  
 Pacific Fishery Management Council  
 Regional Integrated Sciences & Assessments (RISA)  
 Seafood Inspection Program  
 Western Regional Center

### SG Network

Alaska SG  
 Marine Advisory Program  
 Delaware SG  
 Florida SG  
 Georgia SG  
 Gyeonggi SG (Korea)  
 Hawaii SG  
 Honam SG (Korea)  
 Louisiana SG  
 Maryland SG  
 MIT SG  
 New Hampshire SG  
 New York SG  
 North Carolina SG  
 Oregon SG  
 Rhode Island SG  
 Safe Sustainable Seafood Supply Focus Team  
 Seafood HACCP Alliance  
 SG Law Center  
 Texas SG  
 University of Southern California SG  
 Virginia SG  
 Washington SG  
 Yeongnam SG (Korea)

### Other Federal

Centers for Disease Control  
ICLEI—Local Governments for Sustainability  
U.S. Army Corps of Engineers  
U.S. Bureau of Ocean Energy Management  
U.S. Bureau of Reclamation  
U.S. Coast Guard  
U.S. Department of Agriculture:  
    Animal and Plant Health Inspection Service  
    The National Institute of Food and Agriculture  
U.S. Department of Fish and Game (Marine Region)  
U.S. Department of the Interior: Bureau of Land Management  
    National Park Service—Redwood National Park  
U.S. Fish and Wildlife Service: Habitat and Resource  
    Conservation/Coastal Program  
    Humboldt Bay National Wildlife Refuge  
U.S. Food and Drug Administration  
U.S. Forest Service  
U.S. Geological Survey  
U.S. Navy: Naval Postgraduate School, Monterey, CA

### Regional/State/Local Government

Alaska Department of Fish & Game  
Association of Monterey Bay Area Governments  
California Coastal Commission  
California Coastal Conservancy  
California and Nevada Applications Program (CNAP)  
California Collaborative Fisheries Research Organization  
California Department of Fish & Game, Marine Region  
California Department of Food & Agriculture  
California State Parks  
California Department of Public Health, Food & Drug Branch  
California Department of Public Health, Environmental Health  
    Investigations Branch  
California Department of Transportation  
California Energy Commission Public Interest Research Program  
California Fish and Game Commission  
California MPA Monitoring Enterprise  
California Natural Resources Agency  
California Ocean Protection Council  
California Ocean Science Trust  
City of Arcata  
City of Eureka  
City of Trinidad  
County of Del Norte  
County of Los Angeles Department of Health Services  
Environmental Science and Engineering Program at UCLA  
Humboldt Bay Cooperative Eelgrass Project  
Humboldt Bay Harbor, Recreation & Conservation District  
Humboldt Bay Shellfish Technical Advisory Committee  
Humboldt County  
North Coast Regional Water Quality Control Board  
Ocean Resources Enhancement & Hatchery Program, Carlsbad  
Oregon Department of Agriculture, Food Safety Division  
Oregon Department of Fish & Wildlife  
Pacific Coast Joint Venture

Pacific States Marine Fisheries Commission  
    Pacific Fisheries Information (PacFIN) Program  
    Recreational Fisheries Information (RecFIN) Program  
Regional Water Quality Control Boards  
San Francisco Bay Conservation & Development Commission  
Santa Cruz County Parks & Recreation Department  
Santa Cruz Port District  
Seafood Laboratory, Astoria, OR  
Sonoma County Water Agency  
Southern California Coastal Ocean Observing System (SCCOOS)  
Central and Northern California Ocean Observing System (CeNCOOS)  
UC Davis Department of Animal Science  
UC Davis Department of Wildlife, Fish & Conservation Biology  
UC Santa Barbara, National Center for Ecological Analysis and Synthesis  
UC Santa Cruz  
University of California Cooperative Extension  
University of Washington, School of Aquatic & Fishery Sciences  
    School of Marine Affairs  
Ventura County Office of Education  
Washington Department of Fish & Wildlife  
West Coast Governors Agreement on Ocean Health  
White Sturgeon Broodstock Development Program  
Woods Hole Oceanographic Institution

### Industry/Recreation/NGOs

Adventures by the Sea, Monterey, CA  
Alaska Seafood Marketing Institute  
All Seas Wholesale, Inc  
American Fisheries Society  
Bumble Bee® Foods, LLC  
Cachuma Lake Marina  
Caito Fisheries  
California Abalone Association  
California Association of Harbor Masters & Port Captains  
California Aquaculture Association  
California Fisheries and Seafood Institute  
California Fisheries Coalition  
California Lobster & Trap Fishermen's Association  
California Salmon Council  
California Sea Urchin Commission  
California Waterfowl Association  
California Wetfish Producers' Association  
Campbell Foundation  
Capt. Hook's Sportfishing  
Carlsbad Aquafarm  
Cascadia Geosciences  
Center for Ocean Solutions  
Central Coast Women for Fisheries  
Channel Islands Dive Club  
Channel Islands Harbor  
Channel Islands Live Project  
Chefs Association of the Pacific Coast, Inc.  
Chesapeake Fish Company  
Chicken of the Sea®  
Chumash Maritime Association  
Cisco Sportfishing  
Coast Oyster  
Coast Seafoods



Commercial Fishermen of Santa Barbara	Pacific Seafood
Communication Partnership for Science and the Sea (COMPASS)	Pacific Watershed Associates
Crescent City Harbor District	Paradise Dive Club
David Heil & Associates	Partnership for the Interdisciplinary Studies of Coastal Oceans (PISCO)
Del Norte Fishermen's Marketing Association	Peter Pan® Seafoods, Inc., Seattle, WA
Ducks Unlimited	Pier 45 Seafood
EBM Tools Network	PlanWest Partners
Elkhorn Slough Foundation	Point Conception Hook & Line Association
Elkhorn Slough Safaris	Port Hueneme Harbor
Environmental Defense Fund	Pucci Seafood
Federation of Independent Seafood Harvesters	Recreational Fisheries Information (RecFIN) Program
Friends of the Dunes	Recreational Fishing Alliance
Food for Thought® (sustainable food)	Redwood Community Action Agency
Global Aquaculture Alliance	Redwood Region Audubon Society
Grassy Bar Oyster Company International	Salmon Trollers' Marketing Association
H&H Seafood	San Diego Yacht Club
H&N Seafood	San Francisco Estuary Institute
Half Moon Anchorage	Santa Barbara Channel Keepers
Hog Island Oyster Company	Santa Barbara Harbor
HT Harvey & Associates	Santa Barbara Maritime Museum
Hubbs-SeaWorld Research Institute	Santa Barbara Museum of Natural History
Humboldt Baykeeper	Santa Barbara Sea Center
Humboldt Bay Stewards	Santa Barbara Shellfish
Humboldt Fishermen's Marketing Association	Santa Cruz Fishermen's Marketing Association
Humboldt Redwoods Company	Save Our Shores, Santa Cruz
Impact Assessment, Inc.	S.E.A. Lab, Monterey Bay
Industrial Economics, Inc.	Sea Landing (SB)
Institute of Food Technologists	Sea Urchin Harvester's Association
Jacoby Creek Land Trust	Seafood Producers Cooperative, Bellingham, WA
Joint Oil/Fisheries Liaison Office	Seafood Products Association, Seattle, WA
Kanaloa Seafood, Inc.	Seafood Suppliers, Inc.
Kona Kai Marina	Slade Gorton and Co., Inc
Lake Casitas	Southern California Fishermen's Association
Lake Miramar	Southern California Trawlers' Association
Lake Piru	Southwest Yacht Club
Marina Recreation Association	Stellar Biotech
Marine Activities Resource Education (MARE) Program	Stolt Sea Farm California, LLC
Marine Education Center	Susanne Moser Research and Consulting
Marine Science Institute—Redwood City	Taylor Shellfish Farms, Quilene, WA
McBain and Trush	Taylor United
MERITO project	Tenera Environmental
Monterey Abalone Company	The Abalone Farm
Monterey Bay Aquarium	The Cultured Abalone, Inc.
Monterey Bay Aquarium Research Institute	The David and Lucille Packard Foundation
National Fisheries Institute	The Fishermen's Marketing Association, Inc., Bodega Bay, CA
Natural Capital Project	The Fishery, Inc.
North Coast Land Trust	The Nature Conservancy
Northern Hydrology	The Ocean Conservancy
Noyo Harbor District	Trinidad Fishermen's Marketing Association
Noyo Women for Fisheries	Trinidad Rancheria
Ocean Beauty Seafoods, Inc., Seattle, WA	UC Santa Barbara Dive Club
Ocean Garden Products, Inc.	United Anglers
Ormond Pointe Native Plant Nursery	United Pier & Shore Anglers
Pacific Aquaculture Caucus	Vandenberg AFB Aqualliers
Pacific Aqua Farm	Ventura CoastKeeper
Pacific Coast Federation of Fishermen's Associations, Inc.	Ventura County Commercial Fishermen's Association
Pacific Coast Joint Venture	Ventura County Shorebirds
Pacific Fisheries Technologists	

Watershed Resources Center
West Coast Ecosystem-Based Management Network
Western Fish Boat Owners' Association
White Sturgeon Broodstock Development Program
Wild Planet Seafood
Wildlife Conservation Society
William C. Bannerman Foundation
World Wildlife Fund
Wiyot Tribe

**International**

Canadian Department of Fisheries & Oceans
Inter-American Tropical Tuna Commission
International Abalone Society
MegaPesca Lda., Portugal
National Food Institute, Denmark
New Zealand Institute for Crop & Food Research, Ltd.
Pacific Biological Station, BC, Canada
Seafish Industry Authority, UK
Shanghai Ocean University, China
Spanish Research Council, University of Barcelona
U.N. Food & Agriculture Organization
Vietnamese Association of Seafood Exporters & Producers, Vietnam

**CASG Service on Boards and Committees**

**Sea Grant Network**

Alaska SG Site Review Team (2010); CASG former Director Russ Moll.

Alaska SG International Smoked Seafood Conference Steering Committee (2007); SGEP Advisor Pamela Tom.

Alaska SG International Smoked Seafood Conference Technical Program Committee (2007); SGEP Advisor Pamela Tom.

Alaska SG Proposal Review Panel (2007); SGEP Advisor Pamela Tom.

Hazard Resilient Coastal Communities Focus Team Member (2011); SGEP Advisor Monique Myers.

Healthy Coastal Ecosystem Focus Team (2008–10); CASG former Director Russ Moll.

International Ocean Sciences Meeting, 2010, Portland, OR, co-convenor with WA, USC and MD SG programs, of a special session on research for policy and decision-making; CASG former Director Russ Moll.

Korea SG Week, Plenary speaker, Busan, Korea (2009); CASG former Director Russ Moll.

Knauss Selection Review Panel for Class 2010 (2009); CASG Assistant Director Shauna Oh.

National SG Safe and Sustainable Seafood Focus Team; SGEP Advisor Paul Olin.

NOAA West Fisheries and Climate Change Workshop Planning Team (2010–11); SGEP Advisor Carrie Pomeroy.

Ocean Acidification Effects on Shellfish Workshop, 2010, Costa Mesa, CA, cosponsored with WA and OR SG programs; CASG former Director Russ Moll and CASG Communications Director Marsha Gear.

Regional Aquatic Invasive Species project by four West Coast SG programs; SGEP Advisor Carrie Culver and Communications Director Marsha Gear.

Safe Sustainable Seafood Focus Team; SGEP Advisor Paul Olin.

Sea Grant Association/External Relations Committee (2000–10); CSAG former Director Russ Moll.

Sea Grant Association/Member of two ad hoc committees on Sea Grant Review Process (2008); CASG former Director Russ Moll.

Sea Grant Association/Program Mission Committee (2007–09); CASG former Director Russ Moll.

Sea Grant Banners Committee; CASG Science Writer Christina Johnson.

Sea Grant Climate Network <http://sgccnetwork.ning.com>; SGEP Advisors Monique Myers and Susan Schlosser.

Sea Grant Fisheries Extension White Paper (2006–08); SGEP Advisors Paul Olin and Carrie Pomeroy.

Seafood HACCP Alliance Steering Committee (2007–date); SGEP Advisor Pamela Tom.

Seafood HACCP Alliance Editorial Committee (2008–date); SGEP Advisor Pamela Tom.

Seafood HACCP Alliance Train-the-Trainer Committee (2007–date); SGEP Advisor Pamela Tom.

Sustainable Coastal Community Development Network <http://sgsccdn.ning.com>; SGEP Advisor Monique Myers.

West Coast Regional Marine Research and Information Needs, partner with WA, OR and USC SG programs; CASG former Director Russ Moll and SGEP Advisors Paul Olin and Susan Schlosser.

West Coast SG Fellowships regarding West Coast Regional Marine Research and Information Needs and WCGA; CASG Assistant Director Shauna Oh.

**NOAA**

Elkhorn Slough National Estuarine Research Reserve Advisory Panel; SGEP Acting Director Rick Starr.

Human Dimensions of Harmful Algal Blooms, National Ocean Service (2005–09); SGEP Advisor Carrie Pomeroy.

MPA Federal Advisory Committee (2008–11); CASG former Director Russ Moll.

Pacific Fisheries Management Council, Highly Migratory Species Advisory Sub Panel (2007–date); SGEP Advisor Pamela Tom.

PICES Study Group on Communications (2008–09); CASG Communications Director Marsha Gear.

### Other Federal

National Aquaculture Extension Steering Committee (2007); SGEP Advisor Paul Olin.

National Association of State Universities and Land Grant Colleges (NASULGC), Executive Board/Board on Oceans and Atmosphere (2000–07); CASG former Director Russ Moll.

U.S. Department of Agriculture/Western Regional Aquaculture Center Technical Advisory Committee Member (2004–date); SGEP Advisor Susan Schlosser.

U.S. Fish and Wildlife Service/Climate Change Adaptation Program/North Pacific Landscape Conservation Cooperative Interim Planning Committee Member (2010); SGEP Advisor Susan Schlosser.

### State/Regional

California and the World Ocean Meeting, Convener and Chair of Special Session on Ocean Acidification (2010); CASG former Director Russ Moll.

California and the World Ocean Meetings (2006, 2010) Concurrent Sessions Committee; CASG Assistant Director Shauna Oh.

California Aquaculture Development Committee (2008); SGEP Advisor Paul Olin.

California Current Ecosystem-Based Management Initiative Science Advisory Committee (2007–09); SGEP Advisor Carrie Pomeroy.

California Dungeness Crab Task Force (2009–10); former SGEP Advisor Jim Waldvogel and SGEP Advisor Carrie Pomeroy.

California Ocean Science Trust/Member of Board of Trustees (2002–08); Chair (2007–08); CASG former Director Russ Moll.

California Programmatic Environmental Impact Report on Marine Aquaculture; SGEP Advisor Paul Olin.

California Salmon Council (2007–date); SGEP Advisor Pamela Tom.

California Sea Urchin Committee (2006–date); SGEP Advisor Carrie Culver.

California State University Monterey Bay Graduate Program Planning Committee Member (2006–07); SGEP Acting Director Rick Starr.

California Marine Protected Area Science Advisory Panel Member (2006–07); SGEP Acting Director Rick Starr.

California Marine Protected Area Science Advisory Committee Member (2006–07); SGEP Advisor Carrie Pomeroy and SGEP Acting Director Rick Starr.

Central Coast/North Central Coast/South Coast MPA Baseline Program Team Member; Assistant Director Shauna Oh.

Channel Islands Marine Sanctuary Foundation/Collaborative Marine Research Committee (2005–07); SGEP Advisor Carrie Culver.

Coastal Regional Sediment Management Plan for the Eureka Littoral Cell (2010–date); SGEP Advisor Susan Schlosser.

Coastal Sediment Management Workgroup (2010–date); CASG Assistant Director Shauna Oh.

Collaborative Fisheries Research West Executive Board (2010–date); CASG Assistant Director Shauna Oh.

Collaborative Fisheries Research West Advisory Committee (2010–date); SGEP Advisors Carrie Culver and Carrie Pomeroy and SGEP Acting Director Rick Starr.

Fifteenth Western Groundfish Conference Organizing Committee Member (2007–2008); SGEP Acting Director Rick Starr.

Fisheries Information Network for the Southern California MLPA Process (2009); SGEP Advisor Carrie Culver.

Humboldt Bay Harbor, Recreation and Conservation District Advisory Committee Member (2007–date); SGEP Advisor Susan Schlosser.

Humboldt Bay Shellfish Technical Advisory Committee Member (2010–date); SGEP Advisor Susan Schlosser.

Humboldt Bay Symposia Steering Committee Chair (2008); SGEP Advisor Susan Schlosser.

Humboldt State University/Marine Science Institute Community Liaison Board Member (2007–10); SGEP Advisor Susan Schlosser.

Humboldt Wave Energy Advisory Group (Pacific Gas & Electric Company) (2009–10); SGEP Advisor Susan Schlosser.

Marine Life Protection Act Initiative Baseline Science Management Panel (2006–07); SGEP Advisor Carrie Pomeroy.

Monterey Bay Crescent Ocean Resources Consortium; SGEP Acting Director Rick Starr.

Monterey Bay National Marine Sanctuary Research Activities Panel (1996–date); SGEP Advisor Carrie Pomeroy and SGEP Acting Director Rick Starr.

Monterey Bay National Marine Sanctuary Marine Spatial Planning Group Member; SGEP Acting Director Rick Starr.

Moorpark College Environmental and Earth Sciences Advisory Committee (2011); SGEP Advisor Monique Myers.

Northcoast Marine Mammal Center Board of Directors; former SGEP Advisor Jim Waldvogel.

Ocean Acidification Workshop Steering Committee (2010); CASG former Director Russ Moll.

University of California Marine Council (2000–08); CASG former Director Russ Moll.

Ventura County Civic Alliance Compact for a Sustainable Ventura County, Committee Member (2011); SGEP Advisor Monique Myers.

West Coast Ecosystem-Based Management Network Advisory Committee Member (2008–date); SGEP Advisor Susan Schlosser.

**Other**

Camp SEA Lab Board of Directors Member; SGEP Acting Director Rick Starr.

International Union of Food Science and Technology Marketing Task Force (2007–08); SGEP Advisor Pamela Tom.

Pacific Fisheries Technologists Conference, Executive Committee, President (2008); SGEP Advisor Pamela Tom.

Voices of the Bay Fisheries Education Project Advisory Board (2005–date); SGEP Advisor Carrie Pomeroy.



## Program Changes Resulting from Previous Review

The 2003 PAT report (dated Dec. 9, 2003) made nine recommendations to CASG, and the NSGO's Final Evaluation Report (July 1, 2004) reiterated two of them (they are numbered sequentially below for ease of reference). The CASG management team in 2004 implemented several strategies in response. Recent changes in the program leadership have brought new ideas and new talents to bear on some of these topics. A new director joined CASG in January 2011, an acting extension director was appointed in October 2009, and several new staff members have joined the program since 2003, and all contributing to changes in program strategies and practices.

**Recommendation 1:** *Fiscal Support—The PAT strongly recommends ways be found to continue the level of fiscal funding (~\$211,000) that had been provided for the support of CASG.*

**Response:** The previous decrease in state funding resulted from a 2001 budget shortfall in California. CASG negotiated a five-year memorandum of understanding (MOU) with SIO, UCSD and UCOP that was finalized in May 2005, and which provided state funds of \$168,800 annually to CASG from SIO. The MOU, which expired in May 2010, also provided that the annual cost of Sea Grant Association dues (currently \$8,000) be paid by CASG. CASG's new director is in the process of negotiating a new MOU with SIO.

**Recommendation 2:** *Location—The PAT recommends that the management function of CASG that is currently housed at SIO ... continue to be located at SIO. Although there may be benefits to some distribution of writing staff within Communications to other locations in the UC system, where they might be co-located with an Advisor on a campus with significant marine research capacity, the Communications Program should continue to be kept in one location and co-located with the Director.*

**Response:** After a series of communications among UCOP, UCSD and SIO, a mutually agreeable solution was reached. The program headquarters, the management team (except the acting extension director) and communications team remain located at SIO

**Recommendation 3:** *Solution—The PAT recommends that the optimal solution to the fiscal and location issues would be a resolution of the impasse between SIO and UCOP. That solution should provide support and an institutional setting for CASG that is constructive and fiscally secure without disruption of the human capital that so contributes to its excellence. If the latter is impossible, then UC should provide the program a secure fiscal and institutional future and the support to make any necessary transitions.*

**Response:** As mentioned above, a mutually agreeable solution was reached. As a result of many factors, including budget cuts, decentralization and staff reductions at UCOP, CASG now reports to the UCSD Vice Chancellor for Marine

Sciences at SIO and is in the process of creating a new MOU with SIO, which will include provisions for space and state funds for CASG.

**Recommendation 4:** *The PAT recommends that CASG use some of its "seed" money strategically to identify and develop proposals to fill gaps in its program.*

**Response:** Since the 2003 PAT, CASG has twice implemented a call for Enhanced Program Development (EPD) research proposals, which were smaller, one-year awards of \$10–15K plus a trainee. Applicants in 2010 were instructed to review the CASG Strategic Plan 2010–2013; California's Ocean and Coastal Information, Research, and Outreach Strategy; and the Ocean Protection Council's Five-Year Strategic Plan. The EPD awards have been successful in filling gaps in CASG's program and in bringing new researchers, particularly early-career scientists, into the CASG family. In some cases, these awards have also resulted in data in support of successful full CASG research proposals in subsequent years. CASG now plans a schedule where these awards will be regularly offered every two years, alternating with larger research awards solicited in odd years.

**Recommendation 5:** *We recommend that CASG continue to expand and direct its outreach and communication efforts to engage CASG researchers with stakeholders.*

**Response:** CASG has increased its use of electronic media, especially email and the web, in taking science to stakeholders. We have quadrupled the number of news releases sent annually and doubled our electronic mailing list since 2003. In 2010, CASG Communications implemented two social networking sites, Facebook and Twitter, to reach the younger generation with our news and funding opportunities. Most recently, CASG created an online bulletin board to facilitate matching of scientists with citizens and nongovernmental organizations with mutual interest in collaborating in collecting baseline data for the state's south coast marine protected areas baseline program. Proposal applicants are encouraged to include an outreach or education component and to discuss their plans with CASG extension and communications staff and work with those staff in implementing their outreach and education strategies.

**Recommendation 6:** *The PAT recommends that CASG work with university administration to identify new researchers and deliver targeted information about CASG.*

**Response:** The program leadership has implemented various communications technologies (expanded use of its website and email, initiated webinars and social media) to supplement its campus visits and communicate with researchers at public and private institutions throughout California and to encourage cross-disciplinary, multi-institutional proposals. In 2010, e.g., CASG awarded funds to 17 universities, nine marine laboratories/institutes in California, and to co-PIs located at another 32 organiza-

tions, including NOAA marine sanctuaries, state resource agencies, etc.

**Recommendation 7:** *Clearly, meeting the needs of under-represented groups is beyond the capacity of CASG on its own, but the PAT recommends that CASG explore partnerships with other groups and institutions, relying on the methods it uses for other complex, multi-faceted issues.*

**Response:** CASG provided several years of financial support to Camp SEA Lab in the Monterey area, a program that targets underrepresented youth and for which Rick Starr, SGEP acting director, is a founding board member. Two SGEP advisors, Monique Myers and Carrie Culver, have programs in their areas that engage and reach underrepresented youth. Myers' RESTOR project is in its third year and has served approximately 1,500 fifth- to ninth-grade students. SGEP Advisor Carrie Pomeroy serves on the Advisory Board of the Monterey Bay Area Voices of the Bay fisheries education project, a collaborative effort among fishery participants, teachers and scientists to reach out to the region's socioculturally and economically diverse youth through place-based activities and curriculum. Most recently, CASG has also created an informal partnership with the Ocean Discovery Institute (ODI; formerly Aquatic Adventures), a nonprofit summer and after-school marine science education program that targets ethnically diverse fifth- to twelfth-grade students in San Diego's inner city schools, to identify undergraduate students who attended ODI's Ocean Leaders program and who might be recruited for CASG's summer Isaacs Assistantships. CASG has also created Spanish language versions of two videos produced for the general public in recent years. CASG will continue to explore other opportunities and partnerships as resources allow.

**Recommendation 8:** *The PAT recommends that CASG continue to develop mechanisms and new approaches in order to facilitate additional integration of research and outreach.*

**Response:** CASG has explored three approaches. For two years CASG pursued a partnership with COSEE California wherein COSEE staff volunteered their time to develop outreach components for interested CASG proposers, a strategy that netted limited results for the time invested. CASG's Extension staff review and provide advice on research proposal selection. In some instances, SGEP staff are co-PIs on research projects, notably in aquaculture and social science.

**Recommendation 9:** *In light of California's high Latino population, consider providing bilingual abstracts/summaries of publications.*

**Response:** CASG has considered this recommendation, and we have paid for translation of two video scripts into Spanish and produced a second version of each video in Spanish. The vast majority of material CASG publishes is aimed at college-educated audiences, marine resource managers and legislators who are fluent in English. English is the primary language of marine science worldwide, so we have concluded that we are making the best possible use of our limited communications resources.

#### **NSGO Recommendations:**

**Recommendation 10:** *We agree with the intent of the PAT recommendations that problems related to the fiscal support and institutional setting for the CASG program must be resolved quickly and in a manner that is not detrimental to the CASG program.*

**Response:** Please see responses to Recommendations 1–3 above.

**Recommendation 11:** *We recommend that a memorandum of understanding be developed between the director of SIO (or the President of the campus that eventually hosts the CASG program if not SIO) and the UCOP clarifying the obligations and responsibilities of each institution.*

**Response:** Please see response to Recommendation 1 above.





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