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The Value of Marine Institutions: An Economic Survey of Marine Research and Education Institutions in Monterey and Santa Cruz Counties

Judith T. Kildow Dr
National Ocean Economic Program, jakildow@gmail.com

Nathaniel Miller
Monterey Institute of International Studies

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Abstract
It is recognized that ocean and coastal areas of the United States contribute significantly to our nation's overall economy. What is not completely understood is the extent to and manner in which our economy benefits from the wide range of marine and coastal activities. One area of the ocean economy that has not been collectively measured or examined is the contribution of marine research and education institutions. The goal of the project was to create a prototype strategy at a local level for collecting data at a national level, in order to create an economic sector of these institutions and activities that would be equivalent to other economic sectors for which the federal government already collects data such as tourism and agriculture. The purposes of this project were

(1) to select the key indicators that could demonstrate the value of these institutions, and

(2) to determine the economic contribution of these institutions to the local, state and national economies. In order to achieve these purposes, I constructed a survey tested it at MBARI, and then distributed it to the marine research and education institutions of Monterey Bay Crescent as a beta test for the entire state and possibly the nation. The results of the survey are presented as aggregate information that detail important economic contributions to the region such as: employment figures, annual earned wages, annual budgets, sources of funding, and distribution of research spending. A summary of the results shows that the combined annual budgets of the marine research and education institutions in Monterey Bay Crescent is $209,496,619. There are 1,726 employees within those institutions with wages totaling more than $77,703,833. There are also 861 students. I also discovered that the federal government funds 46% and foundations 35% of the overall monies that support these institutions. Furthermore the results of this project indicate that projects with a primary focus on coastal processes and on biodiversity research have the greatest amount of funding, while climate change and marine policy have the least. The implications of these results are of great importance in filling the void of economic data and contribution of marine research and education institutions to our economy. This project, conducted in Monterey Bay Crescent, serves as a beta-test in order to improve upon a survey that may be used throughout the U.S. In order to achieve this, broader application, I considered problems and limitations that lead to possible changes in the survey.

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Nathaniel Miller, Monterey Institute of International Studies
Mentor: Judith Kildow
Summer 2007

Keywords: annual budget, annual wages, employment, research focus, funding

ABSTRACT

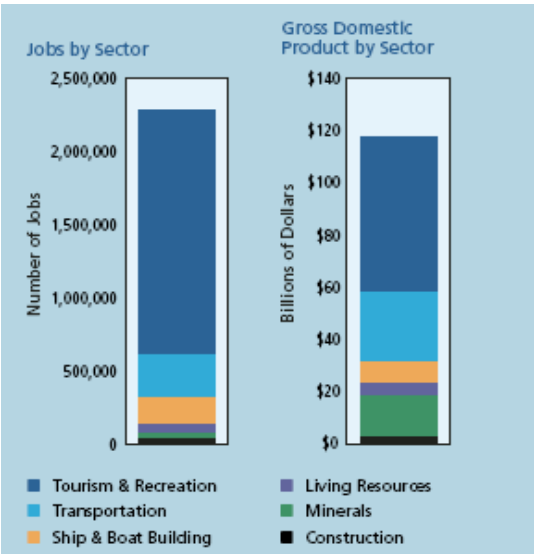
It is recognized that ocean and coastal areas of the United States contribute significantly to our nation's overall economy. What is not completely understood is the extent to and manner in which our economy benefits from the wide range of marine and coastal activities. One area of the ocean economy that has not been collectively measured or examined is the contribution of marine research and education institutions. The goal of the project was to create a prototype strategy at a local level for collecting data at a national level, in order to create an economic sector of these institutions and activities that would be equivalent to other economic sectors for which the federal government already collects data such as tourism and agriculture. The purposes of this project were (1) to select the key indicators that could demonstrate the value of these institutions, and (2) to determine the economic contribution of these institutions to the local, state and national economies. In order to achieve these purposes, I constructed a survey tested it at MBARI, and then distributed it to the marine research and education institutions of Monterey Bay Crescent as a beta test for the entire state and possibly the nation. The results of the survey are presented as aggregate information that detail important economic contributions to the region such as: employment figures, annual earned wages, annual budgets, sources of funding, and distribution of research spending. A summary of the results shows that the combined annual budgets of the marine research and education institutions in Monterey Bay Crescent is $209,496,619. There are 1,726 employees within those institutions with wages totaling more than $77,703,833. There are also 861 students. I also discovered that the federal government funds 46% and foundations 35% of the overall monies that support these institutions. Furthermore the results of this project indicate that projects with a primary focus on coastal processes and on biodiversity research have the greatest amount of funding, while climate change and marine policy have the least. The implications of these results are of great importance in filling the void of economic data and contribution of marine research and education institutions to our economy. This project, conducted in Monterey Bay Crescent, serves as a beta-test in order to improve upon a survey that may be used throughout the U.S. In

order to achieve this, broader application, I considered problems and limitations that lead to possible changes in the survey.

INTRODUCTION

The problem this project seeks to address is the lack of significant understanding of the economic contributions of marine research and education institutions. The National Ocean Economics Program (NOEP) along with the Bureau of Labor Statistics (BLS) provide the public as well as policy makers with a wide range of economic and socio-economic information related to U.S. coasts and oceans. A major area of data for the NOEP is the ocean market economy. The ocean market economy is the portion of the economy that relies directly on ocean assets of services. The NOEP market data for the ocean economy is currently divided into six sectors: (1) Marine Construction, (2) Living Resources, (3) Offshore Minerals, (4) Ship and Boat Building, (5) Tourism and Recreation, and (6) Marine Transportation. Within each sector a number of economic indicators may be measured. These include the number of jobs, amount of wages, and value added after the cost of doing business (GDP). Employment figures and Gross Domestic Product are shown here. The figure below shows how these are measured.

Fig. 2 Employment and GDP in the Ocean Economy 2000

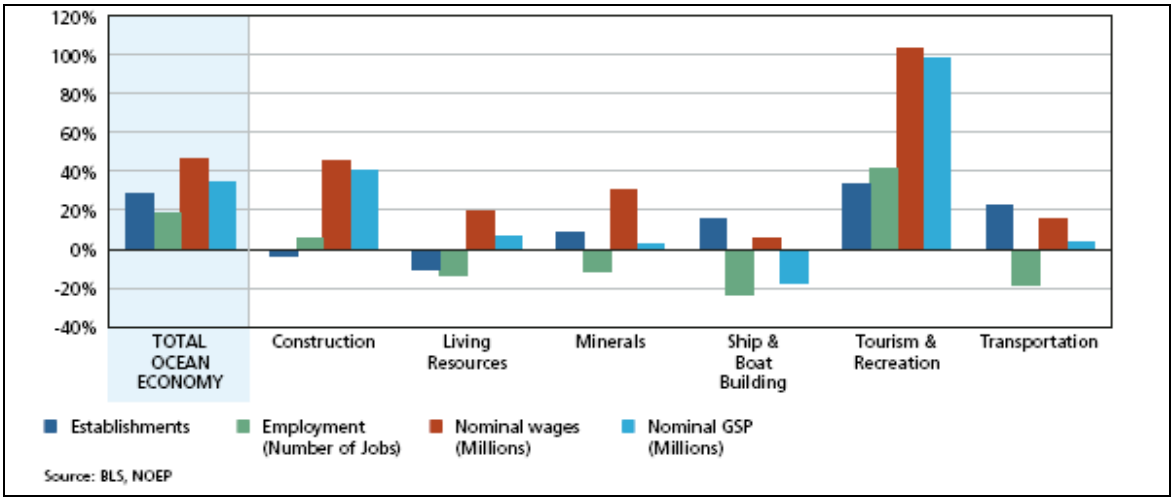


Source: U.S. Commission on Ocean Policy 2000

The six market sectors are all comprised of multiple industries. These industries and their over-encompassing sectors do not represent the entire market contribution of coastal and ocean activities. However, the NOEP aspires to provide the most accurate representation of these contributions. Because of this, the NOEP is currently adding two sectors to their market data. One sector is Coastal Real Estate, and the other is Marine Research and Education Institutions. This project serves as a prototype at the local level to create and test the survey that will be used to collect the data needed to complete the Marine Research and Education sector of the NOEP's database. By collecting yearly

figures for the current six sectors of the Ocean Economy one can examine current levels of contribution as well as change over the years. By adding additional sectors we shall have a more complete understanding of the total Ocean Economy. Furthermore if we compile and examine time-series datasets for the Ocean Economy we will understand its growths and declines. The figure below demonstrates this ability to examine the change in important economic areas of the current six sectors of the ocean economy.

Fig. 2 Changes in the Ocean Economy 1990-2000



VALUING THE COASTS AND OCEANS

While many people now believe our oceans are highly undervalued, it has become increasingly apparent that the public along with policy makers need more information on the contributions of the ocean economy in order to spur funding for appropriate programs. In 2004 the U.S. Commission on Ocean Policy published a final report entitled "An Ocean Blueprint for the 21st Century." Near the beginning of this report it is emphasized that a major challenge to our oceans is simply not recognizing their value. While in many ways our oceans' value cannot be quantitatively measured, there are also many direct and indirect measurable economic contributions provided by our oceans. These include categories measured in this project such as amount of employment, annual wages, total annual budgets, number of students, and sources of funding.

PREVIOUS WORK

This project seeks to create a new sector of ocean market data; therefore there is little previous work on the topic. However, Gary Griggs of the University of California, Santa Cruz had collected budget and employment figures for the institutions of the Monterey Bay Crescent. The latest collection of his data can be found in Appendix A. Griggs' information is what I used to fill in estimates for the two naval institutions that did not return the survey.

RESEARCH SPENDING

Along with determining market economic data another intention of the survey was to determine the allocation of research expenditures. Research projects were classified into

seven categories; Climate Change, Biodiversity, Coastal Processes, Chemical Cycling, Ocean Engineering, Marine Policy, and Other.[1] This information is essential in order to determine what areas of research are getting the most attention and funding.

MATERIALS AND METHODS

LIST OF INSTITUTIONS

First of all, we needed to decide what should be included as a marine research and education institution. Because of the previous work by Gary Griggs it was decided that this project would focus on the marine institutions of the Monterey Bay Crescent. The survey performed on these institutions would then serve as a beta test for applying the survey to the entire state of California, and eventually to all 30 coastal states of the U.S. Significant institutions or divisions of institutions that had a majority marine, coastal or watershed focus would be included in the survey. This includes entire institutions devoted to marine research and/or education, such as Monterey Bay Aquarium Research Institute, as well as divisions such as the Division of Science and Environmental Policy at Cal State University, Monterey Bay. The final list was comprised of 22 institutions (see Appendix B), ranging from Santa Cruz to Pacific Grove.

SURVEY

The created survey needed to measure the market contributions of marine institutions. The survey had to be general enough to apply to a range of different institutions. In order to remain consistent with the six other sectors of the ocean market economy, the number of employees, annual wages, and annual budgets had to be included. Additionally, sources of funding, and the number of students who were candidates for degrees were to be reported. This was all part of the first portion of the survey. The second portion consisted of the distribution of research spending. Cells on the survey were created for the contacts at the institutions to list their current research projects along with the amount of expenditures associated with those projects. Furthermore these projects were to be categorized into one of seven different research themes (climate change, biodiversity, chemical cycling, coastal processes, ocean engineering, marine policy or other). The survey was meant to remain simple in order to get the most accurate response, yet also collect all of the necessary economic data. The survey template may found in Appendix C.

CONTACT

The next step was to contact someone at every institution. We sent our survey out to a specific contact name at every institution along with a letter from Dr. Judith Kildow, the Principal Investigator of NOEP, with my name and contact if they had questions. Attached were instructions and clarifications on how to complete the survey (see appendix D). Many follow up emails and phone calls were necessary in order to get the survey in the correct hands and returned with the correct data.

COLLECTION AND ANALYSIS

[1] Categories derived from conversations with Dr. Marcia McNutt

The next few weeks involved compiling the data from the returned surveys, making sure the correct information had been provided, and formulating the data into aggregate form to avoid disclosure of individual institutional information as promised by us.
This information will be presented on the NOEP website as the seventh sector of the Market Ocean Economy. No information will be published on an individual institutional level. The compiled numbers were analyzed in numerous ways to determine the significance of the results. Because time was short, only a few results are reported here. More will be gleaned over the next month.

RESULTS

20 of the 22 marine research institutions completely filled out their surveys. Fleet Numerical and the Naval Research Lab declined to participate in the survey. I was able to compile total annual budgets and employment figures for all 22 by using my returned surveys combined with Gary Griggs' research. This information is in the table below.

Monterey Bay Crescent
Marine Research Institutions 2006

Total Annual Budgets	$209,496,619
Total Employees	1,726

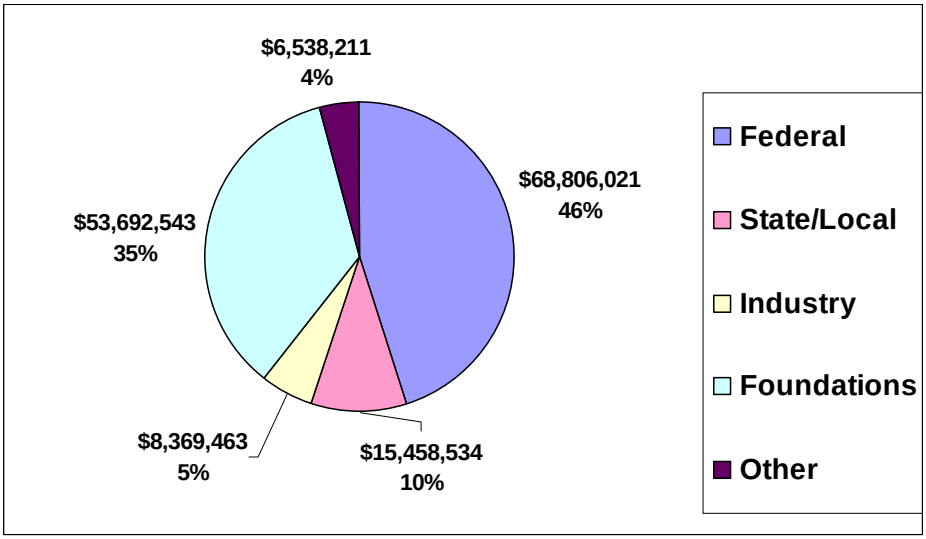
More detailed information was collected from the 20 institutions that completed the surveys. The table below demonstrates this in the additional categories of wages and students.

20 Marine Research Institutions 2006

Total Annual Budgets	$169,496,619
Total Annual Wages	$77,703,883
Total Employment	1,426
Total Students	861

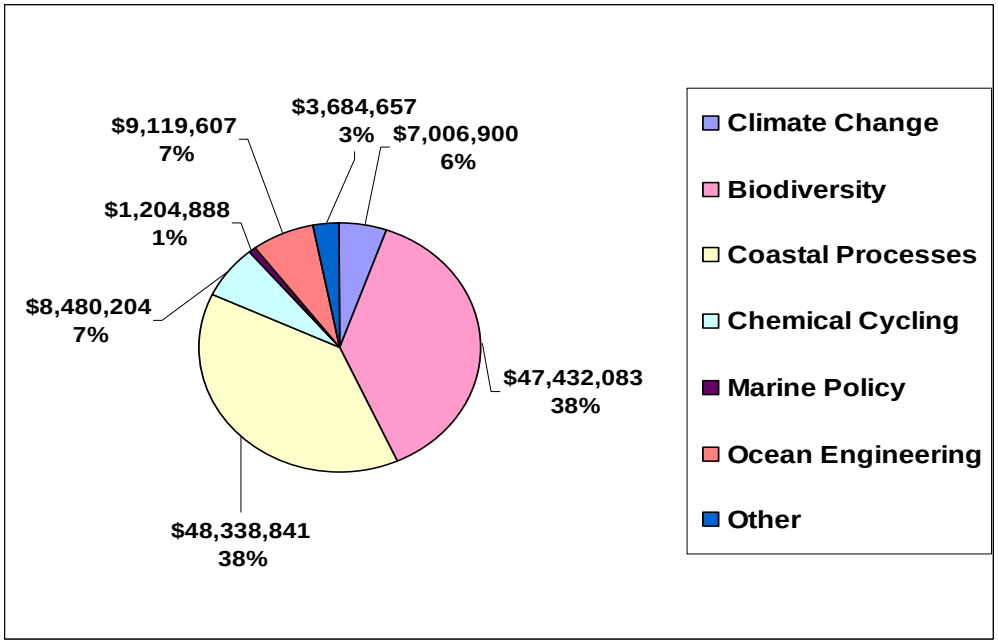
Another area of collected data demonstrated where monies came from to fund these institutions. In the pie chart below one can see the distribution of funding sources.

Sources of Funding for 20 Marine Research Institutions in 2006



The second portion of the survey collected data on the distribution of research spending money. The aggregate data is represented in the pie chart below.

Areas of Research Spending for 20 Marine Research Institutions in 2006



DISCUSSION

By collecting the employment, earned wages, and annual budgets of marine research and education institutions we can examine their contribution to the entire Ocean Economy in the same way we measure the contribution of the other six sectors. This will put a greater value on the marine science that is occurring, by informing the public as well as policy makers of its economic contributions. This is an important sector that should not be neglected. The table below shows how important marine research and education is to Monterey County relative to the two largest employment sectors. Agriculture and Leisure provide the most number of jobs for the county, and while marine research and education provides one percent of the total jobs, the wages contribute disproportionately to the economy. Note that the average wages among marine research and education employees is nearly $10,000 greater than the average of all the sectors combined, and $20,000 over that of agriculture. This demonstrates the large monetary contributions of the sector that have a ripple effect throughout the entire economy.

Totals for Monterey County					
Sector	Jobs	% of Total Jobs	Wages	% of Total Wages	Average Wage
Agriculture	40,411	24%	$1,056,169,000	17%	$26,136
Leisure	21,010	12%	$461,312,000	7%	$21,957
Marine Research	**1,234**	**1%**	**$56,218,883**	**1%**	**$45,558**
All Sectors	168,173		$6,384,847,000		$37,966

From the results of the data we can see that the majority of funding comes from the federal government, followed closely by foundations. Those two categories combine to provide 81% of the funding for marine research and education in Monterey Bay Crescent.
If we look at the distribution of research spending we see that coastal processes and biodiversity projects are getting the most funding. It is interesting to note that climate change research is one of the least funded categories, and that marine policy **is** the least funded.

CHALLENGES AND LESSONS LEARNED

The largest challenge of this project was finding the correct contact at each institution, communicating with that contact, and then urging them to complete the survey in a timely manner. This took many emails and phone calls, as well as some much needed persuasion efforts from Judy Kildow. There were a few lessons learned from having the institutions fill out the survey. Because we used the Monterey Bay Crescent as a beta test, this was helpful. Now the survey can be corrected and improved before it is used for the states of California, Florida, and then all of the U.S. One of those problems was how to determine the appropriate research categories. At first we wanted to use the research categories from the final report of the ocean science and technology committee from

January 2007.[2] However, these categories were somewhat convoluted and overlapping. We thought they might be difficult for our institutions to decipher. After consulting Dr. McNutt we created our own six categories with a seventh category of, "other" for research that did not seem to fit. A final issue that reoccurred with many of our institutions was incorrect labeling of students and employees. Our contacts seemed to label there student workers as students, which was not our intention. This will be more clearly explained in the revised survey.

CONCLUSIONS

Immediate conclusions can be drawn from the results of this survey. First, marine research and education institutions do significantly contribute to the economy in the Monterey Bay Crescent Area through jobs, wages, and annual budgets. Second, federal government and foundations make up a large majority of the funding sources. Finally, coastal processes and biodiversity research are the most well funded areas of research in the area. More broadly we can conclude that it is important and necessary to understand the contributions of marine research and education institutions into the ocean economy. This is a significant sector and must not be neglected. With marine research and education market data we can more effectively value the ocean's contributions to humans.

ACKNOWLEDGEMENTS

There are many people outside and within MBARI that greatly contributed to the completion of this project. My thanks go out to Judith Kildow and the entire NOEP team, Norm Steinberg, Patrice Carroll, Gary Griggs, George Matsumoto, and my contacts at the 20 institutions in Monterey Bay Crescent.

References:

U.S. Commission on Ocean Policy (2004). "An Ocean Blueprint for the 21st Century."

Bureau of Labor Statistics, United States Federal Government.

Unpublished research by Gary Griggs. University of California Santa Cruz. (Appendix A).

[2] NSTC Joint Subcommittee on Ocean Science and Technology (2007). "Charting the Course for Ocean Science in the United States for the Next Decade."

NSTC Joint Subcommittee on Ocean Science and Technology (2007). "Charting the Course for Ocean Science in the United States for the Next Decade."

Appendix A

MAJOR MARINE SCIENCES FACILITIES IN THE MONTEREY BAY CRESCENT- 2007

1. Institute of Marine Sciences-Long Marine Laboratory (University of California, Santa Cruz)

Focus: Marine vertebrate biology, coastal biology, environmental toxicology, continental margin tectonics, coastal processes, ocean processes & paleoceanography, fisheries and fishery management.
Researchers/graduate students /staff: 265
Annual budget: State: ~$5,000,000; Extramural ~$20,000,000

2. National Marine Fisheries Service –Santa Cruz Laboratory (NMFS/NOAA)

Focus: Conduct research relevant to the conservation and management of west coast groundfish resources, and the restoration and recovery of threatened and endangered anadromous fishes (salmon, sturgeon and steelhead trout) in California.
Researchers/staff: 65
Budget: $7,600,000 federal; $3,000,000 extramural

3. Marine Wildlife Center-California Department of Fish and Game

Focus: Investigation of marine pathogen and chemical pollution, marine ecosystem health and sensitive species research.
Researchers/staff: 23
Annual budget: $1,750,000

4. Moss Landing Marine Laboratories (California State University)

Focus: Open ocean and coastal oceanography (biological, chemical, physical and geological), remote sensing, coastal monitoring, marine ecology, ichthyology, botany, vertebrate and invertebrate biology, fisheries.
Researchers/graduate students/staff: 200
Annual budget: $2,000,000 state; $25,000,000 extramural

5. Elkhorn Slough National Estuarine Research Reserve

Focus: Ecology, biology, estuarine research, monitoring, education, management and restoration
Researchers/staff: 16
Budget: $850,000

Elkhorn Slough Foundation

Focus: Assist in support of ESNERR, serve as a community-supported land trust in the central Monterey Bay area for the acquisition and restoration of key lands and waters in the Elkhorn Slough watershed.
Staff: 9 Land Trust Staff, 15 staff working in support of Reserve Programs
*Budge*t: $1,800,000 plus land acquisition funding

6. Hopkins Marine Station (Stanford University)

Focus: Ecology, physiology, evolution, cellular biology, biomechanics, molecular biology and neuroscience of marine organisms.
Researchers/staff/graduate students: 70
Budget: $19,400,000

7. Monterey Bay Aquarium

Focus: Public Education and marine research related to exhibits and marine conservation.
Researchers/staff: 420.
Budget: $50,000,000

8. Monterey Bay Aquarium Research Institute

Focus: Technology enabled ocean science; deep sea geology and geochemistry, biology and microbiology; upper ocean physics and biogeochemistry. Instrument, sensor and mooring development for fundamental ocean research. Underwater vehicle technologies. Ocean economics.
Researchers/staff: 220
Budget: $40,000,000

9. Naval Postgraduate School

Focus: Graduate education and research in physical oceanography & meteorology.
Oceanography Department concentrations: numerical prediction and data assimilation, coastal and nearshore oceanography, air-sea interaction and ocean turbulence, polar oceanography, acoustical oceanography and geographical information systems.
Meteorology Department concentrations: coastal and mesoscale meteorology, numerical weather prediction, remote sensing, tropical meteorology and climate dynamics, boundary layer meteorology and air/sea interaction.
Researchers/graduate students/staff: 150
Budget: Oceanography: $10,000,000; Meteorology: $6,000,000

10. University of Californa Sea Grant Extension Program

Focus: Fisheries research, coastal and marine resource policy, public education..
Staff: 3
Budget: $200,000

11. Southwest Fisheries Science Center/Environmental Research Division (NMFS/NOAA)

Focus: Research to assess, understand, and predict climate and environmental variability and its impacts on marine fish populations and ecosystems. Provide global science-based environmental data, products, and information to meet research and management needs for a diverse group of stakeholders.
Researchers/staff: 30
Budget: $1,800,000 Federal; $1,100,000 extramural

12. Naval Research Laboratory, Marine Meteorology Division

Focus: Basic and applied research and development for the coastal environment; air-sea interaction and marine boundary layer processes; atmospheric and oceanographic data assimilation; predictability and adaptive observing systems; multi-scale numerical weather prediction and coupled air-ocean models; ensemble prediction; aerosol characterization and prediction; application of remotely sensed data to define the marine atmosphere; development of environmental expert systems; environmental data bases and decision aids; environmental impacts on operational Navy systems; visualization of environmental data; and algorithm development for massively parallel computing systems.
Researchers/visiting scientists and postdocs/staff: 80
Budget: $20,000,000

13. Fleet Numerical Meteorology and Oceanography Center (USN)

Focus: Operational meteorological and oceanographic products and services for Department of Defense, other government agencies, universities and the general public.
Researchers/staff: 220
Budget: ~$20,000,000

14. National Weather Service Forecast Office (NOAA)

Focus: Weather watches and warnings, aviation, marine, fire weather; public forecasts, education and outreach.
Staff: 26
Budget: $3,000,000

Appendix B

Contacts at Major Marine Research and Education Institutions:
Monterey and Santa Cruz Counties

August 2007

1. **Dr. Richard M. Starr**, Marine Advisor
University of California, Sea Grant Extension Program
8272 Moss Landing Road
Moss Landing, CA 95039
(831) 771-4442 and Fax (831) 632-4403
starr@mlml.calstate.edu

2. **Sharon Anderson**, Chair
Division of Science and Environmental Policy
California State University Monterey Bay
6133 Fifth Avenue
Seaside, CA 93955-8001
(831) 582-3915
sharon_anderson@csumb.edu

3. **Becky Christensen**, Reserve Manager
Elkhorn Slough National Estuarine Research Reserve
1700 Elkhorn Road
Watsonville, CA 95076
(831) 728-2822
bchristensen@dfg.ca.gov

4. **Capt. Vic Addison**, Commanding Officer
Fleet Numerical Meteorology and Oceanography Center
7 Grace Hopper Avenue- Stop 1
Monterey, CA 93943-5501
(831) 656-4327

5. **Dr. George Somero**, Director
Hopkins Marine Station
Stanford University
Pacific Grove, CA 93950
(831) 655-6243; fax (831) 375-0793
smero@stanford.edu

6. **Dr. Gary Griggs**, Director
Institute of Marine Sciences
Earth and Marine Sciences A-315
University of California
Santa Cruz, CA 95064
(831) 459-2464
griggs@pmc.ucsc.edu

7. **Mr. Mark Stephenson**, Director
Marine Pollution Studies, California Dept. of Fish and Game
Moss Landing Marine Laboratories
8272 Moss Landing Road

Moss Landing, CA 95039-9647
(831) 771-4177
mstephenson@mlml.calstate.edu

8. **Dr. David Jessup**, Supervisor
California Department of Fish and Game
Marine Wildlife Veterinary Care and Research Center
1451 Shaffer Road
Santa Cruz, CA 95060
(831) 469-1726
djessup@ospr.dfg.ca.gov

9. **Dr. Chris Harrold**, Director
Conservation Research at Monterey Bay Aquarium
886 Cannery Row
Monterey, CA 93940
(831) 648-4934
charrold@mbayaq.org

10. **Patrice Carroll**, Senior Grants and Accounting Specialist
Monterey Bay Aquarium Research Institute
7700 Sandholt Road
Moss Landing, CA 95039
(831) 775-1803
pcarroll@mbari.org

11. **Andrew DeVogelaere**, Director
Monterey Bay National Marine Sanctuary
299 Foam Street, Suite D
Monterey, CA 93940
(831) 647-4213
andrew.devogelaere@noaa.gov

12. **Patrick Coulston**, Manager
Resource Assessment Program
California Dept. of Fish and Game-Marine Region
20 Lower Ragsdale Drive, Suite # 100
Monterey, CA 93940
(831) 649-7193
pcoulston@dfg.ca.gov

13. **Dr. Kenneth Coale**, Director
Moss Landing Marine Laboratories
8272 Moss Landing Road
Moss Landing, CA 95039-9647
(831) 771-4406
coale@mlml.calstate.edu

14. **Dr. Charles Wahle**, Director
National Marine Protected Area Center- Science Institute
National Marine Fisheries Service Laboratory, NOAA
110 Shaffer Road, Santa Cruz, CA 95060
(831) 420-3956

charles.wahle@noaa.gov

15. **Dr. Geoff Wheat**
National Undersea Research Program
P.O. Box 475
Moss Landing, CA 95039
(831) 633-7033
wheat@mbari.org

16. **David W. Reynolds**, Head Meteorologist
NOAA National Weather Service
21 Grace Hopper Ave, Stop 5
Monterey, CA 93943
(831) 656-1710 Ext. 222
david.reynolds@noaa.gov

17. **Dr. Simon Chang**, Superintendent
Naval Research Laboratory
Marine Meteorology Division
7 Grace Hopper Avenue
Monterey, CA 93943-5502
(831) 656-4721
simon.chang@nrlmry.navy.mil

18. **Dr. Mary L. Batteen**, Professor and Chair
Code OC/Bv, Department of Oceanography
Naval Postgraduate School
833 Dyer Road, Room 328
Monterey, CA 93943-5193
(831) 656-2673
mlbattee@nps.edu

19. **Julie Barrett Heffington**, Director
Seymour Center at Long Marine Laboratory
100 Shaffer Road
Santa Cruz, CA 95060
(831) 459-5343
jbheff@ucsc.edu

20. **Dr. Franklin Schwing**, Director
Environmental Research Division
NOAA Fisheries Services, Southwest Fisheries Science Center
1352 Lighthouse Avenue
Pacific Grove, CA 93950-2097
(831) 648-9034
franklin.schwing@noaa.gov

21. **Churchill Grimes**, Director
Southwest Fishery Science Center, NMFS
110 Shaffer Road
Santa Cruz, CA 95060
(831) 420-3931
churchill.grimes@noaa.gov

22. **Dr. Samuel Johnson**, Chief Scientist
United States Geological Survey, Pacific Science Center

400 Natural Bridges Drive
Santa Cruz, CA 95060
(831) 427-4746
sjohnson@usgs.gov

Appendix C

1. Name of Institution		
2. Marine/Watershed/Coastal Division		
3. Year of Data Provided		

*P*referably 2006*

	Undergraduate	Graduate	**Total**
4. Marine/Watershed/Coastal Students			

	Research Staff	Education Staff	Administrative Staff	Technical Staff	Others	**Total**
5. Paid Employees						

Double labeling some employees is acceptable, e.g.* **Research Staff *may* also be **Education Staff**, however *be sure not to double count them in the* ***Total*** *cell.*

6. Total Annual **Wages (Payroll)** of Instituion or Division	$ -
7. Total Annual **Budget (Expenses)** of Institution or Division	$ -

	Federal	State/Local	Industry	Foundations	Other please list		**Total**
8. Annual Funding	$ -	$ -	$ -	$ -		$ -	$ -
						$ -	
						$ -	

* If funding sources cannot be separated, please list **Total** for institution, or division.

** Please list subcontract funds separately below.

Total Funds Subcontracted Out	$ -	$ -

9. Foundations:	Name of Foundation	Dates of Fund.	Amount of Funding
** List five largest sources of funding and amount given.*			$ -
			$ -
			$ -
			$ -
			$ -

Appendix D

Instructions:
NOEP Marine Research and Education Institution Survey

This document serves as instructions for the Excel spreadsheet survey, "Marine Institution Survey." Please print this document to refer to while filling out the spreadsheet. The Marine Institution Survey is setup with eleven categories of input. Response areas are highlighted in yellow. Please complete all sections to the best of your ability. Any information is beneficial, so do not feel all sections need to be complete in order to return the survey. Leave sections blank where data cannot be obtained or fill in "N/A" where question do not apply.

1. **Institution:** The name of the marine research and/or education institution.

2. **Marine/Watershed/Coastal Division**: If entire institution is related to marine/watershed/coastal research or education this category is not necessary to complete. Otherwise name the specific division within the institution involved with marine/watershed/coastal studies. Furthermore, the rest of the survey relates only to the marine/watershed/coastal figures of the institution, if there is such division.

3. **Year:** The **fiscal year** of 2005-2006 is preferred. If any other year is provided please indicate.

4. **Marine Watershed, and Coastal Students:** The number of undergraduate and graduate students studying marine, watershed, or coastal science/policy in the institution or division. These students should be candidates for a degree at the institution. If students are obtaining degree elsewhere they should not be included. This also does not include student employees.

5. **Wage and Salary Employees:** The total number of marine/watershed/coastal employees, as well as the division of these employees between research staff, education staff, administrative staff, and technical staff. Employees may fall into more than one category or perhaps none of the categories. This is acceptable as long as all employees are counted once and only once in the **Total** cell.

6. **Total Annual Wages:** The total amount of annual wages for all employees in the institution or division.

7. **Total Annual Budget:** The total annual budget of the institution or division. This does not include fringe benefits or overhead costs of the institution.

8. **Annual Funding:** The total amount of funding, as well as the division of funding sources between federal, state/local, industry, and foundations. If funding does not fit into these categories list and label it in the "**Other**" category. If funding is subcontracted out to other institutions please list it separately in the space provided. Multiple year funds may be listed here if they apply to the year in question.

9. **Foundations:** The five largest sources of funding, the dates the funds apply to, and those amounts. If funding is awarded for multiple years, be sure to specify when it was awarded and for what time period.

10. **Research Focus:** The number of researchers and amount of budget allotted to different programs or projects for the year. Please attempt to categorize these programs/projects into one of our six themes of ocean research. Label the project by its primary focus. If research does not seem to belong to any category label it 7 for "Other Research," and describe the program/project in number 11.

11. **Description of Other Research:** Area to provide descriptions of the type of "Other Research."