

## MAJOR MARINE SCIENCES FACILITIES IN THE MONTEREY BAY CRESCENT 2016

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

*Focus:* Marine vertebrate biology, coastal biology, microbiology and environmental toxicology, continental margin tectonics, coastal processes & hazards, ocean processes, paleoceanography, climate change, fisheries and fishery management.

*Researchers/graduate students /staff:* 240

*Annual budget:* State: ~\$7,000,000; 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:* 120

*Budget:* \$7,300,000 NOAA; \$10,000,000 extramural

### **3. Marine Veterinary Care and Research Center-California Department of Fish and Wildlife Office of Spill Prevention and Response**

*Focus:* Oil spill response readiness, sea otter and other marine vertebrate research, investigation of marine pathogens and other sources of pollution.

*Researchers/staff:* 21

*Annual budget:* ~\$950,000 state; ~\$200,000 extramural

### **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:* 375

*Annual budget:* \$3,100,000 state; \$20,000,000 extramural

### **5. Elkhorn Slough National Estuarine Research Reserve**

*Focus:* Ecology, biology, estuarine research, monitoring, education, decision maker training, management and restoration

*Researchers/staff:* 20

*Budget:* \$1,150,000

#### **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:* 12 Land Trust Staff, 15 staff working in support of Reserve Programs

*Budget:* \$1,500,000, extramural funding ~\$2,000,000

### **6. Hopkins Marine Station (Stanford University)**

*Focus:* Ecology, physiology, evolution, cellular biology, biomechanics, molecular biology, and neuroscience of marine organisms.

*Researchers/staff/graduate students:* 100

*Budget:* \$6,500,000

## **7. Monterey Bay Aquarium**

*Focus:* Public Education, marine research, outreach and advocacy related to marine conservation.

*Researchers/staff:* 551 (total staff, not including seasonal staff or volunteers).

*Budget:* \$94,400,000

## **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.

*Researchers/staff:* 200

*Budget:* \$50,000,000

## **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:* 50

*Budget:* Oceanography: \$7,600,000; Meteorology: \$6,400,000

## **10. The Nature Conservancy**

*Focus:* The Nature Conservancy (TNC) has two key programs: Global Oceans Team & Central Science. These programs provide scientific leadership on issues Conservancy-wide in developing new approaches for reducing ecological and social vulnerability around climate adaptation, hazard mitigation, and habitat restoration.

*Staff:* 2 plus affiliated researchers

*Budget:* \$1,000,000+

## **11. National Marine Fisheries Service- 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:* 15

*Budget:* \$2,000,000 Federal; \$1,000,000 extramural

## **12. Naval Research Laboratory, Marine Meteorology Division**

*Focus:* Basic and applied research in air-sea interaction and marine boundary layer processes, especially in the tropics, the arctic, and coastal environments; multi-scale dynamics, including seasonal- to climate-scale oscillations; predictability of chaotic systems; advanced data assimilation/adaptive observing methodologies. Measurement, characterization, and analysis of ocean and land surface characteristics and the state of the atmosphere and its constituents through direct field measurement and through application of remotely sensed observations. Development and transition of operational environmental guidance products such as multi-scale data assimilation/numerical weather prediction and coupled air-ocean prediction systems; aerosol prediction systems; tropical cyclone prediction systems; ensemble/ probabilistic prediction systems; decision aids/risk assessment systems or their environmental databases.

*Researchers/visiting scientists and postdocs/staff:* 110

*Budget:* \$30,000,000

## **13. Fleet Numerical Meteorology and Oceanography Center (USN)**

*Focus:* Operating high-speed computing systems for highest quality, most relevant and timely worldwide meteorological and oceanographic forecasts, products, and services for

the Department of Defense, Coalition forces, other government agencies, universities and the general public.  
*Researchers/staff:* 180  
*Budget:* ~\$20,000,000

**14. National Weather Service Forecast Office (NOAA)**

*Focus:* Issuance of public, aviation, marine and fire weather warnings, watches, advisories and forecasts for the greater San Francisco and Monterey Bay regions. Collection and dissemination of meteorological and climatological observations and data. Education and outreach.  
*Staff:* 26  
*Budget:* \$3,000,000

**15. Monterey Bay National Marine Sanctuary Offices (NOAA)**

*Focus:* Protect natural and cultural resources through comprehensive conservation and management; support and coordinate research on, and monitoring of, marine resources to improve management decision-making; enhance public awareness, understanding, and wise use of the marine environment through public interpretive programs; and facilitate, to the extent compatible with the primary objective of resource protection, multiple uses of the Monterey Bay National Marine Sanctuary.  
*Staff:* 23  
*Budget:* \$ 2,700,000

**16. Seymour Marine Discovery Center at Long Marine Laboratory (UCSC)**

*Focus:* Public marine sciences education for both K-12 and general public focused on interpreting marine research carried out by UCSC and affiliated marine scientists.  
*Staff:* 12.5 (+250 volunteers)  
*Budget:* \$1,150,000

**17. U.S. Geological Survey, Coastal Marine Science Center, Santa Cruz**

*Focus:* Coastal and marine geology of the Pacific region. Studies focus on environmental, and ecosystem science, marine geologic hazards and resources, and coastal change and are conducted in the context of the national programs of the USGS. Purpose is to generate scientific understanding needed for wise decisions concerning stewardship and development of America's coasts and marine regions.  
*Staff:* 100  
*Budget:* \$18,000,000

**18. Division of Science and Environmental Policy-California State University Monterey Bay**

*Focus:* Marine science and watershed characterization & management; includes extramurally funded research programs include the Seafloor Mapping Lab, the Institute for Applied Marine Ecology, the Watershed Institute and NASA Cooperative.  
*Researchers/Technicians/Graduate Students/Staff:* 80  
*Budget:* \$1,800,000 state; augmented with over \$5,000,000 in extramural funding

**19. California Dept. of Fish and Wildlife, Marine Region, Monterey**

*Focus:* Marine resource management and policy: state/federal fisheries, state managed fisheries, habitat conservation and resource assessment.  
*Staff:* 24  
*Budget:* \$2,500,000

**20. NOAA National Marine Protected Areas Center**

*Focus:* Ocean use analysis, building the national system of MPAs, and cultural heritage.  
*Staff:* 3-5 (including fellows, interns and visiting scientists)  
*Budget:* total MPAC budget for FY08 was \$700,000

## **21. Island Conservation**

*Focus:* Prevent extinctions by removing invasive species on islands. Our goal is to prevent extinctions by working where the concentration of both biodiversity and species extinction is greatest—on islands. Over the last 17 years, Island Conservation and local partners have protected 890 populations of 305 species on 48 islands. IC's work to protect island dependent species includes projects in the Southwest Pacific, Chile, Ecuador, Alaska, California, Hawaii, British Columbia, and the Caribbean.

*Staff:* 36

*Budget:* \$6,800,000

## **22. Center for Ocean Solutions**

*Focus:* The Center for Ocean Solutions (COS) is a collaboration among Stanford University (through its Woods Institute for the Environment and Hopkins Marine Station), the Monterey Bay Aquarium, and the Monterey Bay Aquarium Research Institute (MBARI). The Center works to solve the major problems facing the ocean and prepares leaders to take on these challenges. The focal areas COS uses to categorize its work—ecosystem health, climate change, and land-sea interactions—are inextricably linked, and work in one area will inform and advance work in the other areas.

*Staff:* 20 plus 80 affiliated researchers

*Budget:* \$3,000,000

## **23. Center for the Blue Economy-Middlebury Institute of International Studies**

*Focus:* The Center for the Blue Economy promotes ocean and coastal sustainability by providing the best available information to empower governments, NGOs, businesses, and concerned citizens to make educated decisions about the marine environment. The Center produces and disseminates data on a wide range of ocean and coastal values, and conducts original, data-driven analysis for international policy-making and management. The Center's academic program educates the next generation of marine leaders, equipping them with essential interdisciplinary skills to synthesize complex information, manage diverse teams, determine best practices, produce original research, and help shape and direct the agenda for global marine policy and management.

*Staff:* 6

*Budget:* ~\$800,000

## **TOTALS- February 2016**

**Faculty/researchers/staff/graduate students: 2343**

**Budget: \$337,500,000**