FIVE COLLEGE COASTAL & MARINE SCIENCES
NOAA INTERNSHIP OPPORTUNITIES
SUMMER 2012

1. Fisheries Oceanography of the Northeast U.S. Shelf Ecosystem, RI
2. Estuary Conservation Science at Elkhorn Slough, CA
3. Impacts of Stormwater Detention Ponds on Coastal Water Quality, SC
4. Monitoring of eelgrasses in Padilla Bay National Estuarine Research Reserve, WA
5. Harmful Algal Blooms: Sampling, detection, and outreach, WA
6. Assessing the Impact of Potential Marine Protected Areas on 'For Hire' Diving and Fishing in the Gulf of Mexico, MD
7. Science Communication, MD
8. Measuring Salt Marsh Response to Sea Level Rise and Shoreline Stabilization, NC
9. Long-term Monitoring: Hands-on-learning about the plants and fauna of tidal freshwater wetlands and salt marshes of the Chesapeake Bay, MD
10. Characterizing Sea Spray Emissions to the Atmosphere, WA + Bermuda Cruise
11. Atmosphere-Biosphere Interactions: Ammonia's journey between the air and the earth's surface, TN
12. Understanding the Importance of Marine Resources to Alaskan fishing Communities, WA
13. Pacific Salmon Recolonization of Cedar River, WA
14. Climate Change Effects on Fish Early Life Processes, NJ
15. Improving Seagrass Restoration Techniques, NC
16. Marine Science Outreach and Education, AK
17. Assessing the Influences of Sea and Land Level Changes on Coastal Habitats for Better Informed Decision-Making, AK
18. Science Communications in the Great Lakes, MI
19. Fatty Acid Chemistry As a Key to Fisheries Food Webs, Sandy Hook, NJ
20. Antibiotic Resistance in Surface Water Bacteria, MD
21. Policy Support and Communication for the National System of Marine Protected Areas, MD
22. Marine Mammal Health & Toxicology, SC
23. Connecting Climate Information and Decision-Making, MD
24. Help Build the Economics: National Ocean Watch (ENOW), SC
25. Coastal Ecology Research supporting Ecosystem-Based Management, ME
26. Ecosystem Services provided by Habitat Restoration in an Urban, Densely Populated Location, NJ
27. Biology of Invasive Lion Fish in the Southeastern U.S., NC
28. History of Marine Aquaculture in the Southeastern U.S., NC
29. The Importance of Pacific Salmon and their Marine Derived Nutrients in Salmon River Basin Streams, ID
30. Fishing for Profit?: Socioeconomic analysis of a decade's (2001-2011) worth of cost and earnings surveys in the US South Atlantic, FL
31. Outreach Specialist and Heritage Walkway, Lake Michigan Field Station, MI
32. Molecular Analysis of Environmental Samples and Microbial Isolates, CA
33. Sea Turtle Nest Monitoring in Rookery Bay NERR, FL

1. FISHERIES OCEANOGRAPHY OF THE NORTHEAST U.S. SHELF ECOSYSTEM, NARRAGANSETT RHODE ISLAND

Project Description: The Oceanography Branch monitors the oceanographic conditions on the Northeast U.S. shelf and applies this information to regional fisheries and ecosystem assessments. In addition, the Branch conducts research into the relation between oceanography and fish population dynamics. The interns will participate in the activities and depending on the interns' interest, there are numerous possible activities.

- Fisheries (mapping distributions and abundance of eggs, larvae and adults, age larvae, study relation between environment and fish growth, larval fish biochemistry)
- Physical Oceanography (studying ocean temperature and currents, comparing past conditions to current conditions)
- Oceanography 101 (participating in a cruise, learning a variety of oceanographic techniques; cruise dates are not set yet, but will likely be first 3 weeks of June and first 3 weeks of August)
- Chemical Oceanography (work with ocean nutrient databases and ocean acidification monitoring, perform chemical analyses)
- Biological Oceanography (study phytoplankton and zooplankton, use new underwater video technologies to understand plankton distribution and abundance)

Depending on the specific activity, the interns will work with organizing, analyzing, and making available oceanographic data collected by fisherman, research vessels and merchant vessels. There will also be laboratory opportunities to work with microscopes and analytical chemistry equipment. The intern will gain experience with data analysis and the distribution of oceanographic data via the internet. The intern will also receive mentoring on scientific writing and presenting. A scientific talk will be prepared and practiced and a scientific poster will be completed.

Skills Required: Ability to work as part of a research team. Interest in learning more about oceanography. Computer experience with programs like Microsoft Word and Excel, Web page, GIS, and computer programming experience helpful, depending on interests.

Location: Northeast Fisheries Science Center, Narragansett Laboratory, Narragansett RI

Internships Available: 2

2. ESTUARINE CONSERVATION SCIENCE AT ELKHORN SLOUGH, CALIFORNIA

Project description: You will get muddy while collaborating with our interactive team of interdisciplinary scientists at Elkhorn Slough, a small estuary in the Monterey Bay region. Estuaries are rare and highly impacted on the Pacific coast, and at Elkhorn Slough NERR we try to understand critical estuarine ecosystem services, threats to them, and the best ways of decreasing threats and conducting restoration. We are a team of five estuarine conservation scientists, and you would work with each of us on a different day of the week. Your work will include:

- *Water quality monitoring*: field data collection, lab analysis, and data entry and analysis
- *Eutrophication impacts on estuarine ecosystem services*: you would participate in an experiment to determine how critical estuarine species are affected by nutrient pollution
- *Oyster restoration science*: building and deploying artificial reefs to support threatened native oysters and monitoring oyster recruitment

- *Salt marsh-upland ecotone experiments*: studies to examine the factors that set the boundaries of the fragile and rich transition zone between marsh and uplands, and to determine the ecosystem services this zone provides
- *Threatened amphibian conservation*: field monitoring and freshwater habitat management to support listed California red-legged frogs and Santa Cruz Long-toed salamanders

Elkhorn Slough is a rich estuary, hosting large populations of threatened sea otters, providing an important stopover for migratory shorebirds, and teeming with diverse plant, invertebrate, and fish life. You would become intimately familiar with a diversity of landscapes and species in coastal California. By participating in a variety of on-going research projects and receiving mentoring from different members of our interdisciplinary team, you will gain experience with numerous techniques in experimental design and long-term monitoring, and in both field and laboratory protocols. The internship is thus an excellent opportunity for building your resume and for trying out different types of research that you might consider pursuing in graduate school.

Skills Required:

Willingness and sufficient physical fitness to wade through knee-deep, sticky mud. Curiosity and engagement – we are seeking someone who will ask good questions and will immerse themselves in the projects. Attention to detail and ability to follow field and lab protocols carefully. Collaborative team player.

Location: Elkhorn Slough National Estuarine Research Reserve, central California.
You would likely rent a room in one of the nearby college towns (Santa Cruz, Marina, Monterey) and thus would need your own or a leased car to drive in to the Reserve each day.

Internships Available: 1

3. IMPACTS OF STORMWATER DETENTION PONDS ON COASTAL WATER QUALITY, SOUTH CAROLINA

Project Description: One manifestation of urbanization is the dramatic increase in surface runoff from impervious surfaces. As a result, stormwater wet detention ponds have become an increasingly common feature of the suburban and urban landscape. The North Inlet – Winyah Bay National Estuarine Research Reserve is conducting research that addresses how stormwater ponds function as ecological systems, how they respond to nutrient enrichment associated with varying degrees of coastal development, and the impacts of ponds as sources of coastal water quality impairment. This research is critical to: 1) understanding how the proliferation of stormwater ponds alters biogeochemical linkages that couple terrestrial and aquatic ecosystems in urbanizing landscapes; and 2) providing information necessary to improve stormwater management practices aimed at mitigating non-point source pollution impacts on coastal water quality.

The specific project you will be a part of involves assessing the impacts of organic matter discharges from coastal stormwater ponds on key ecosystem processes that contribute to eutrophication and hypoxia in coastal receiving waters. This will entail a series of controlled experimental manipulations that quantify time-course changes in organic matter concentrations and forms, and biological responses of autotrophic and heterotrophic microbial communities, as pond-derived organic matter is introduced into receiving waters. As a result, you will gain experience with a number of analytical techniques, including analyses of inorganic and organic nutrients, dissolved and particulate organic

carbon, and chlorophyll, as well as photosynthesis and bacterial production measurements via radioisotope (^{14}C and ^{3}H) tracer techniques.

Skills Required: You should be interested in, and have some basic knowledge of, biology, chemistry and aquatic ecology. Inclination to work in a laboratory setting using precision analytical instrumentation and attention to detail is important. Previous laboratory experience is a plus. Motivation to work independently as well as part of a small research team. You will be taught all protocols and methodologies necessary for the project. Hands-on use of radioisotopes is contingent upon successful completion of formal Radiation Safety Training.

Location: North Inlet – Winyah Bay National Estuarine Research Reserve; located at the University of South Carolina's Baruch Marine Field Laboratory, Georgetown, South Carolina.
On-site housing will be provided in BMFL dormitories.

Internships Available: 1

4. MONITORING OF EELGRASSES IN PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE, WASHINGTON

Project Description: Padilla Bay National Estuarine Research Reserve is initiating a long-term eelgrass monitoring study. Padilla Bay contains one of the largest contiguous eelgrass (*Zostera marina*) meadows in the Pacific Northwest (more than 3000 hectares). You will participate in the long-term monitoring project and help with other field studies being conducted in Padilla Bay. Work will involve measurement of vegetative characteristics of eelgrass in the field, laboratory processing of eelgrass samples, data entry, assisting in annual rocky intertidal monitoring project, and assisting long term water quality monitoring in Padilla Bay.

The internship will provide you with field and laboratory experience collecting basic vegetative data on eelgrasses, familiarity with multi-parameter water quality instrumentation and water quality sampling, and working with a small research and monitoring team.

Skills Required: Willingness to work in the field in sandy and muddy intertidal habitats, walking up to 4 km from shore. Ability to pay attention to detail under inclement conditions. Ability to work as part of a team. Basic knowledge of biology and some basic laboratory experience helpful.

Location: Padilla Bay National Estuarine Research Reserve near Mount Vernon, Washington. Padilla Bay National Estuarine Research Reserve is located in a rural setting, about 15 to 20 minutes from population centers where housing would be available. You would need to have some form of transportation to the Reserve. (We are also located 1 to 2 hours from back country hiking in the Cascade Mountains.)

Internships Available: 1

5. HARMFUL ALGAL BLOOMS: SAMPLING, DETECTION AND OUTREACH, WASHINGTON

Project description: You will join a collaborative group of scientists who study marine phytoplankton, particularly those known to produce toxins found in harmful algal blooms. This summer we are studying a new type of toxic syndrome that poisoned three people after they ate shellfish from Sequim Bay, Washington, called diarrhetic shellfish poisoning. Work will involve sampling phytoplankton and shellfish at several locations in Puget Sound, using microscopy to identify and photograph these organisms, and could include enzyme-linked immunosorbent assays (ELISA) to analyze for toxins.

Skills Required: Willingness to work outdoors, as well as at a microscope and in the laboratory. General laboratory skills are helpful. The candidate will have the ability to work as part of a research team. He or she will have the ability to pay attention to details, yet have an interest in broad scale ecosystem effects and communicating knowledge to the general public and other scientists.

Location: NOAA Fisheries, Northwest Fisheries Science Center in Seattle, Washington.

Internships Available: 2

6. ASSESSING THE IMPACT OF POTENTIAL MARINE PROTECTED AREAS ON 'FOR HIRE' DIVING AND FISHING OPERATIONS IN THE GULF OF MEXICO, MARYLAND

Project description: This project is a critical component of a wider effort to determine how possible changes in management at the Flower Garden Banks National Marine Sanctuary could improve stewardship of marine resources without significantly impacting the livelihoods of people. You will work with a team of social scientists to process and analyze socioeconomic data collected from 'for hire' diving and fishing operations along the coast of Texas. This research will help resource managers understand the economic activities and reliance of operators on specific marine spatial geographies in the Gulf, as well as shed light on the knowledge, attitudes and perceptions that operators have regarding regulations, management strategies, and decision-making processes. You'll be in charge of data entry and cleaning, and the economic and spatial analysis. If you are looking for a social science research experience with important real-world application, then this project is an excellent option for you.

Skills Required: Ideally, you are well organized and have outstanding attention to detail. You can work as a part of a research team, but also have the ability to complete directed tasks independently. Proficiency with Microsoft MS Word and Excel is required. Familiarity with SAS, SPSS or ArcMap would be helpful, but is not necessary - we are willing to train the right candidate. However, an eagerness and ability to quickly learn new software and analytical techniques is required. A basic understanding of economic theories, quantitative social science research methods, and social statistics would be ideal.

Location: Silver Spring, MD at the main NOAA Campus. The collaborating offices are the NOAA Office of National Marine Sanctuaries (ONMS) and NOAA National Centers for Coastal Ocean Science (NCCOS)-Center for Coastal Monitoring and Assessment-Biogeography Branch.

Internships Available: 1

7. SCIENCE COMMUNICATIONS, MD

Project Description: NOAA National Centers for Coastal Ocean Science is seeking a communications or science student interested in understanding the process of publicizing research beyond publication in peer-review journals. You will work with scientists involved with a variety of coastal and ocean research projects currently taking place across the NOAA Center for Coastal Monitoring and Assessment (CCMA: http://ccma.nos.noaa.gov/) and will collaborate directly with the communications and marketing specialist. Projects could include the management of scientist contributions to the NOAA ocean science blog, working with researchers to develop ways to publicize their findings, and overall exposure to communications activities associated with highlighting science in the government sector.

Skills required: We're looking for someone with a science or communications background. You should be interested in understanding how science is translated into policy development and planning through government communications activities. You can work independently as well as within a team setting. No experience in communications is required.

Location: NOAA/NCCOS Center for Coastal Monitoring and Assessment, Silver Spring MD.

Internships Available: 2

8. MEASURING SALT MARSH RESPONSE TO SEA LEVEL RISE AND SHORELINE STABILIZATION, NORTH CAROLINA

Project Description Salt marsh habitats are vulnerable to erosion and sea level rise, and coastal development brings additional pressure, as bulkheads and other structures built to prevent erosion can result in loss of marsh habitat. However, marshes can also be incorporated into shoreline stabilization projects, in what are known as 'living shorelines'. We have several projects in eastern North Carolina investigating the ability of marshes to keep up with sea level rise, the impact of shoreline stabilization structures on marsh habitat, and the effectiveness of living shorelines. We use 1) Surface Elevation Tables and horizon markers to measure sediment accretion and marsh surface elevation change, 2) RTK GPS, laser surveying and GIS to develop digital elevation models of shoreline habitats, 3) vegetation plots to monitor changes in plant biomass and species distribution and 4) laboratory analysis of sediment and plant chemistry to identify factors affecting marsh production. Research sites include bulkheaded shoreline sites in central and northern North Carolina, fringing marshes in Carteret County, and barrier island sites on Marine Corps Base Camp Lejeune.

You will work with a team of scientists and technicians in the field and the lab, including some work from small boats. Fieldwork can be hot, wet, and muddy and provide moderate physical challenges, including walking on narrow boardwalks with sampling gear.

Opportunity: This project provides the opportunity to learn how to plan, stage, and conduct field research as part of a team. You'll become familiar with coastal plant and animal species, and learn field survey and monitoring techniques and protocols. Laboratory protocols and instruments used include particle-size and organic matter analysis of plants and sediment, CN analysis of plant material with elemental analyzer, and chlorophyll analysis using spectrophotometers. You will be involved in the design of experiments to develop new protocols for measuring belowground plant biomass, and will have the opportunity to become familiar with the policy and scientific issues surrounding shoreline

stabilization. You may also be involved in entering data, GIS analysis, instrument calibrations and gear maintenance.

Skills required: No specific skills are required. The ability to work as part of a team and follow detailed instruction is important, as is the willingness to work outdoors and in the laboratory.

Location: NOAA Center for Coastal Fisheries and Habitat Research, Beaufort, NC.

Internships Available: 1 or 2

9. LONGTERM MONITORING: HANDS-ON-LEARNING ABOUT THE PLANTS AND FAUNA OF TIDAL FRESHWATER WETLANDS AND SALT MARSHES OF THE CHESAPEAKE BAY, MARYLAND

Project Description:

The Chesapeake Bay National Estuarine Research Reserve in Maryland (CBNERR-MD) reflects the diversity of estuarine habitats found within the Bay. You'll join our team in monitoring the habitats and fauna found within the Reserve's three components: Otter Point Creek on the Bush River, Jug Bay on the Patuxent River, and Monie Bay on the lower eastern shore. Our biomonitoring helps us understand the response to and impacts of climate and land use change on the wetland communities of the largest estuary of the United States, the Chesapeake Bay.

You'll become experienced in monitoring: wetland vegetation; submerged aquatic vegetation or aquatic grasses; invasive species; barn owls; fish; water quality; and groundwater in wetland systems. You will participate and be a guide, along with our staff, in a one-week teen paddle experience along the Patuxent River.

You'll learn and implement field techniques including plant transects, oyster tong sampling of aquatic grasses, invasive species control techniques, seining, trawling, ground water and surface water quality sampling techniques. We'll teach you how to use handheld and automated YSI data loggers, level troll instruments to monitor groundwater levels, and to collect data from canoes, kayaks, and small boats. In addition to field work, you'll process and analyze data. You'll be invited to give a talk to our extended staff about your contributions. By the end of the internship, you'll have had a lot of fun while learning about the Chesapeake Bay, field work, and data analysis.

Skills Required: Willingness to learn, work, and have fun outdoors, often under harsh conditions typical of wetland systems. Tolerance and flexibility for a fair amount of local travel and doing work aboard small boats would be helpful.

Location: NOAA/NERR: Maryland Chesapeake Bay National Estuarine Research Reserve, Annapolis, Maryland. The work will take place at all of the three components of our Reserve: (1) Otter Point Creek on the Bush River in Harford County, (2) Jug Bay along the Patuxent River, and (3) Monie Bay located off Tangier Sound on the lower eastern shore.

Internships Available: 1

10. CHARACTERIZING SEA SPRAY EMISSIONS TO THE ATMOSPHERE, WASHINGTON + BERMUDA CRUISE

Project description: Bubble bursting at the ocean surface results in the production of sea spray particles composed of inorganic sea salt and organic matter. This process of wind-driven particle production is one of the largest global sources of primary atmospheric aerosol particles. These particles affect Earth's radiation balance both directly by scattering solar radiation and indirectly through aerosol-cloud interactions that modify cloud properties. Accurately characterizing sea spray emissions is critical to global climate models. In August 2012 we will conduct a 9 day cruise from Boston to Bermuda to characterize the processes controlling and chemical, physical, optical and cloud nucleating properties of sea spray particles. We will spend most of the summer working on the instruments that will be used on the cruise. On the cruise we will be sampling surface seawater and sea spray particles generated by a bubbler deployed from the ship. You will participate in instrument testing, and join us on the cruise where you'll help collect samples. For more information, read: Quinn, P.K. and T.S. Bates, The case against climate regulation via oceanic phytoplankton sulfur emissions, *Nature,* 480, 51-56, doi:10.1038/nature10580, 2011.

Skills Required: Willingness to work outdoors and at sea. General laboratory skills. Ability to work as part of a research team. Ability to pay attention to details.

Location: NOAA Pacific Marine Environmental Laboratory, Seattle, WA. The cruise is currently scheduled for the third week of August.

Internships Available: 1

11. **ATMOSPHERE-BIOSPHERE INTERACTIONS: AMMONIA'S JOURNEY BETWEEN THE AIR AND THE EARTH'S SURFACE, TENNESSEE**

Project description: You will join an active division of NOAA that has 50+ years of experience studying atmosphere-biosphere interactions. We study the processes – environmental, chemical, physical, and meteorological – that control how different atmospheric compounds cycle between the air and the land. This summer we will deploy a state-of-the art analyzer to determine atmospheric ammonia levels over fertilized crops. Work will involve experimental design, laboratory analysis including ion chromatography, field measurements using a cavity ring-down spectrometer, and data management. Depending upon the project, work could also involve field measurements in the nearby Walker Branch Watershed in East Tennessee and possibly an opportunity to publish results.

Skills Required: Willingness to work in a laboratory setting and outdoors. Willingness to learn and assist with instrument deployment in the field. General laboratory skills and safety training are helpful. Ability to work as part of a research team. Ability to manage data files using basic Windows and/or Linux- based programs.

Location: NOAA ARL Atmospheric Turbulence and Diffusion Division, Oak Ridge, Tennessee.

Internships Available: 1

12. UNDERSTANDING THE IMPORTANCE OF MARINE RESOURCES TO ALASKAN FISHING COMMUNITIES, WASHINGTON

Project description: You will join a small group of social scientists who study how communities around Alaska are dependent on and engaged in fishing. We are involved in several projects and will work with you to create an experience that best matches your interests and skills. Some possibilities are:

1) Creating a database of Alaska Native language words for species of fish and marine animals present in the North Pacific. Work could include compiling Alaska Native language words for species of fish and marine animals present in the North Pacific; checking and ensuring the accuracy of the Native words with Alaska Native groups and other researchers; contributing to a report for use by fisheries biologists which demonstrates the appropriate use of Native Alaskan words in publications; and designing a poster to be used in AFSC's education and outreach efforts in Alaska.
2) Finalizing community profiles for Alaskan communities that document their history and involvement in Alaskan fisheries. Work could include obtaining community input to ensure accuracy of the profiles; assisting in the final publication of the profiles both online and hard copy; creating GIS maps out of our extensive fisheries database; and working with our webmaster to find creative ways to display and distribute the profiles.
3) Assisting with the creation of a database of social indicators of fishing community vulnerability and resilience. Work could include literature research on how vulnerability and resilience can be determined; identification, collection, and assembly of data needed to calculate the indicators; assist with the development vulnerability indicators for use with Alaskan communities; and undertaking a rapid assessment of the overall well-being of Alaskan fishing communities.

Skills Required: Ability to work as part of an interdisciplinary research team. Ability to pay attention to details. Readiness to learn and apply computer skills, assemble background research. Interest in social sciences, for example anthropology, linguistics and economics. Computer experience with programs like Microsoft Word and Excel. GIS experience helpful.

Location: NOAA Fisheries, Alaska Fisheries Science Center in Seattle, WA.

Internships Available: 1

13. PACIFIC SALMON RECOLONIZATION OF CEDAR RIVER, WASHINGTON

Project description: We are seeking independent, motivated interns that will be key members of a research team including scientists from the Northwest Fisheries Science Center, Seattle Public Utilities, and the University of Washington as we continue our long-term study (started in 2000) quantifying the recolonization of the Cedar River, WA by Pacific salmon. The Cedar River is a protected watershed providing drinking water for Seattle and is about 90 km east of the City. Interns will assist us in field and laboratory work. Fieldwork includes habitat and fish surveys (using electrofishing and snorkel surveys); and water, algae, and invertebrate sampling. Laboratory work includes processing water, algae, and invertebrate samples and data entry.

Opportunity: This internship provides a unique opportunity to collaborate in a large-scale, long-term ecological research project critical to the conservation of Pacific salmon. The interns will gain valuable experience in field techniques for surveying stream habitat, invertebrates and fish. Interns will gain valuable experience in conservation biology, ecology, fish ecology, stream ecology, and taxonomy.

Skills required: Interns must be willing to work under potentially physically demanding conditions and be comfortable working in streams and rivers. Experience with snorkeling a plus. We are also looking for someone that is positive and a good communicator; detail oriented; and works well as part of a research team. Coursework in ecology and zoology helpful as is basic experience in collecting field data and laboratory procedures.

Location: NOAA/National Marine Fisheries Service, Northwest Fisheries Science Center
Cedar River, Washington (field work), Seattle, WA (laboratory work, field coordination),
http://www.nwfsc.noaa.gov

Internships Available: 1-2

14. CLIMATE CHANGE EFFECTS ON FISH EARLY LIFE PROCESSES, NEW JERSEY

Project Description: You'll help us evaluate potential effects of climate change on fish populations. Fishes are expected to exhibit increases in metabolic, ontogenetic, and ecological rates as water temperatures increase. Beyond this general expectation, we must refine details on relationships between water temperature and key processes in fish life cycles, and on indirect effects on the ecology of these species. In addition, the effects of an increased level of ocean acidification – which is rising as a consequence of CO_2 emissions – on fish are largely unknown and represent an exciting research front. We're using a combination of field, laboratory, and experimental data to address these topics with respect to resource fish species of the northeastern USA.

You'll be directly involved in field monitoring, laboratory experiments, and/or analyses of archived data in addressing a component of this larger research effort. Among other activities in 2012, we expect to be conducting laboratory experiments on the direct and interactive effects of water temperature and CO_2 / acidity on embryos and larvae of fish species representative of our local fish fauna. As part of our research team, the intern's duties and responsibilities will include: 1) Participate in lab-wide open house for public (May 20, 2012) at which the student will join the group in providing oral summaries to public about the group's research and the student's expected role in lab research; 2) Participate in weekly internship discussions on topics pertinent to research, graduate school, and careers in science among others; 3) Acquire spawning fish and/or fertilized fish eggs; 4) Implement and maintain laboratory experiments on the joint effects of water temperature and acidity on early life features of experimental fish including their growth, development, and survival; 5) Collect, reduce, and summarize data from direct observation and from digital images of embryonic and larval fish; and 6) Support role in ongoing laboratory experiments and analyses. You will work among other undergraduate and graduate students, research associates, and career NOAA research scientists.

Skills required: The student must be willing to work outdoors, on small boat (including overnight cruises), and in the laboratory. He/she must be detail oriented, organized, and a history of completing assignments; comfortable working with a team; and listen and communicate well. Working familiarity with MS Office (Word/Excel/PowerPoint) is expected.

Location: NOAA Fisheries Northeast Fisheries Science Center, Highlands, New Jersey

Internships Available: 1

15. IMPROVING SEAGRASS RESTORATION TECHNIQUES, NORTH CAROLINA

Project Description: You'll work to improve seagrass (underwater marine plants) restoration techniques using manipulative experiments both in the lab and the field. The work involves transplanting and monitoring of seagrass survival, expansion and size across environmental gradients as well as examining morphological responses of seagrass transplanted under laboratory conditions to various stressors.

Opportunity: You will participate in an interdisciplinary research team involving research ecologists in a study designed to help mitigate injuries to coastal resources, particularly seagrass ecosystems. You'll learn about seagrass biology, landscape ecology, population growth, experimental design, monitoring techniques, measuring physical parameters, plant health and field study methods in general. Field work will be mostly conducted on the Carolina coast near Beaufort, NC.

Skills Required: Readiness to learn and apply monitoring skills, build apparatus, use electronic sampling equipment, collect and enter data, work as part of a research team. Basic laboratory and field data collection experience would be helpful but not requisite. Willingness to work on small boats, go in the field and get wet – often a lot – snorkeling skills helpful but not required.

Location: NOAA/ National Centers for Coastal Ocean Science/ Center for Coastal Fisheries and Habitat Research, 101 Pivers Island Road, Beaufort, NC 28516

Internships Available: 1-2

16. MARINE SCIENCE OUTREACH AND EDUCATION, ALASKA

Project description: You'll enhance the experience of visitors to Homer, AK through interpretation, one-on-one assistance, and hands-on demonstration related to a variety of marine / coastal environment themes at KBNERR Discovery Labs, outdoor Estuary Hikes, and special events.

Skills Required: You must have a science or natural history background; be enthusiastic, self-motivated, willing to learn, and have great verbal communication skills; be comfortable communicating with a diverse group of visitors and to people of all ages; be dependable, independent, and a team worker. Current CPR & 1st Aid certification preferred.

Location: Kachemak Bay National Estuarine Research Reserve, Homer, Alaska
Dormitory-style housing provided, as well as a bicycle for the 1.5 mile commute to the education center.

Internships Available: 1-2

17. ASSESSING THE INFLUENCES OF SEA & LAND LEVEL CHANGES ON COASTAL HABITATS FOR BETTER-INFORMED DECISION-MAKING, ALASKA

Project description: You'll help with a large collaborative study looking at sea and land level changes in Alaska by conducting community-monitoring field work; collecting data and doing field work in the Kachemak Bay National Estuarine Research Reserve, and helping communicate our research and results to the general public.

Skills Required: You must have a science or natural history background; be enthusiastic, self-motivated, willing to learn, and have great verbal communication skills; be comfortable communicating with a diverse group of visitors and to people of all ages; be dependable, independent, and a team worker; and be comfortable conducting field work in a variety of weather conditions. Current CPR & 1st Aid certification preferred.

Location: Kachemak Bay National Estuarine Research Reserve, Homer, Alaska
Dormitory-style housing provided, as well as a bicycle for the 1.5 mile commute to the education center.

Internships Available: 1-2

18. SCIENCE COMMUNICATIONS IN THE GREAT LAKES, MICHIGAN

Project Description: You will support communications and outreach activities for the Great Lakes Environmental Research Laboratory (GLERL) including: 1) Developing and writing short summaries of GLERL research activities for websites, press releases, and newsletters; 2) Supporting and organizing outreach events such as laboratory open houses, tours, tabling events, seminar presentations, and related activities; 3) Supporting development of web-based outreach products and promoting NOAA in the Great Lakes activities.

Skills: *Required* Organized self-starter, comfortable working with a diverse team, ability to multi-task, strong writing skills. *Desired* Experience in journalism and/or communications with coursework in the sciences; Great Lakes or marine science preferred.

Location: Great Lakes Environmental Research Lab (NOAA-GLERL) at 4840 South State Road, Ann Arbor, MI 48108.

Internships Available: 1

19. FATTY ACID CHEMISTRY AS A KEY TO FISHERIES FOOD WEBS, NEW JERSEY

Project description: You'll join us in the organic analytical laboratory, synthesizing and analyzing fatty acid picolinyl esters. We use fatty acid fingerprints as tracers to map fisheries food webs. Understanding food webs is critical to fisheries and ecosystem management, and also to predicting how fisheries will fare with changes in climate and water quality. We use gas chromatography to identify the fatty acids. The conventional approach to processing samples for analysis involves converting the fatty acids into methyl ester derivatives (esters are more stable). However, as the double bonds in the unsaturated fatty acids migrate under the high energy conditions of the mass spectrometric analyses, the assignment of exact location of the double bonds and the identification of a particular fatty acid isomer is very difficult. We think that picolinyl esters will stabilize the position of the double bond and help us more accurately assign the double bond positions (this is key for identification). You'll help us test this new approach, learning how to synthesize methyl and picolinyl esters of fatty acids, purify the derivatized compounds, and run chromatographic analyses. You'll end the summer with solid knowledge of fatty acid chemistry, an understanding of foundational lab techniques, and experience with using high-tech equipment to answer a critical question.

Skills Required: Interest, diligence, and willingness to work in a chemistry laboratory setting.

Location: NOAA Fisheries, Northeast Fisheries Science Center, James J. Howard Marine Sciences Laboratory at Sandy Hook, New Jersey

Internships Available: 1

20. ANTIBIOTIC RESISTANCE IN SURFACE WATER BACTERIA, MARYLAND

Project description: You will be part of a research project examining the potential impacts of bacterial pollution in Chesapeake Bay waters. The research focuses on potential pharmaceutical and metal introduction, and antimicrobial resistance associated with runoff from farms. You will be working in a microbiology lab isolating bacteria and testing them for resistance to a number of different antimicrobials. You will also be involved with data management and lab maintenance.

Skills Required: Willingness to work in a microbiology lab. General laboratory skills are helpful. Ability to work as part of a research team. Ability to pay attention to details and be well organized.

Location: NOAA Cooperative Oxford Laboratory, Oxford, MD (housing typically found in Easton or Cambridge)

Internships Available: 1

21. POLICY SUPPORT AND COMMUNICATION FOR THE NATIONAL SYSTEM OF MARINE PROTECTED AREAS, MARYLAND

Project Description: You'll help us support policy initiatives and communicate the benefits of a National System of Marine Protected Areas (MPAs) and MPAs in general to the public and specific stakeholder groups. You'll supporting the National MPA Center Director and staff in providing technical assistance and scientific information to federal and state MPA programs, drafting stories for the National MPA Center's electronic newsletter and other external newsletters, updating the MPA Center's webpage, www.mpa.gov, drafting press releases and press advisories about MPA Center projects, assisting with multi-media communication projects (videos, podcasts, social media, etc.), and assisting with external stakeholder engagement.

This internship provides an opportunity to participate in a national level conservation effort, and work with multiple partners and stakeholders, including world-renowned scientists and managers.

Skills Required: Strong writing skills, understanding of marine conservation issues, ability to work as part of an interdisciplinary team. Experience with multi-media communications is desired, but not required.

Location: NOAA's National Marine Protected Areas Center, Silver Spring, Maryland

Internships Available: 1

22. MARINE MAMMAL HEALTH & TOXICOLOGY, SOUTH CAROLINA

Project Description**:** Our marine mammal toxicology research is focused on investigating environmental and anthropogenic factors that influence the health and diseases of marine mammals. Research focuses are: 1) determine impacts and toxicological effects of environmental contaminants on marine mammal health; 2) define molecular and cellular perturbations associated with environmentally-induced diseases and explore mechanisms on how marine mammals defend themselves against constant threat of pathogens, toxins, and contaminants, 2) detect, assess, and evaluate of the health effects of hazardous biological and chemical agents in concert with novel genomic and proteomic tools, 3) using *in vitro* systems, animal models, and gene expression systems for evaluating compounds and mixtures of chemicals at concentrations found in marine mammal tissues and in their environment. This research will further the development of models and risk assessments to assess potential detrimental anthropogenic and environmental impacts that affect marine mammals and to develop predictive models to evaluate management strategies for resource conservation.

Opportunity: You will prepare sampling supplies for dolphin health assessment studies and learn research techniques and skills involved with toxicology studies using *in vitro* methodologies. We'll be conducting health assessments and evaluating the toxicological effects of contaminants in the environment and their effects on marine mammals. You'll gain skills in cell culture and conduct experiments using *in vitro* cell exposure techniques and cytotoxicity assays. Opportunities may also be available for field research involving health assessment of bottlenose dolphins and providing support for sample collection. Training from this opportunity will provide valuable hands-on experience for laboratory-based protocols involved in assessing the toxicological effects of contaminants.

Skills Required: You be interested in and have some basic knowledge of cells and cellular processes, general biology, chemistry and toxicology; be creative, self-motivated, and able to work well with others. Basic laboratory and data collection experience is helpful. Good organizational and communication skills desired along with a working knowledge of Microsoft Word, Excel and PowerPoint. You'll be taught lab and field methodologies and protocols.

Location: NOAA/ National Ocean Service, Center for Coastal Environmental Health and Biomolecular Research, Charleston, South Carolina, http://www.chbr.noaa.gov

Internships Available: 1

23. CONNECTING CLIMATE INFORMATION AND DECISION MAKING, MARYLAND

Project Description: NOAA is a leading provider of weather, water, and climate information and services to the Nation and the world. Our office, the NOAA Climate Program Office (CPO), supports and coordinates information to enhance society's ability to plan for and respond to the impacts of climate change. CPO manages a diversity of climate activities and partnerships across NOAA, as well as with other Federal agencies and non-Federal partners. This is an exciting opportunity for an intern interested in climate change to become an integral part of our interdisciplinary and collaborative team. Depending on your interests and our needs, we anticipate that you'll work on one of the following:

- *Integrating climate change into coastal and ocean management* – Foster cross-NOAA and interagency partnerships and projects related to incorporating climate information into coastal and marine planning and management.

- *Strengthening regional coordination of climate science and services* – Identify and communicate Federal climate science and services capabilities, coordination mechanisms, and information needs emerging across regions of the United States.
- *Advancing understanding of and response to extreme events* – Enhance the utility and integration of information related to extreme events through identifying the needs and risk management practices of key decision makers.

You will gain invaluable experience working with NOAA and its Federal and non-Federal partners, communicating science to diverse audiences, and interacting with leading experts on climate change, oceans, water, and international issues. You will also gain unique insight into how science informs policy and management. The products from your project could include a final written report (or publishable journal article), a seminar, a briefing memo, and/or a website article.

Skills Required: Research and/or educational experience in any field of social, natural, or physical sciences. Strong written and oral communication abilities, as well as problem-solving skills. Ability to work both independently and as part of a highly collaborative team.

Location: NOAA Climate Program Office, Silver Spring, MD

Internships Available: 3

24. HELP BUILD THE ECONOMICS: NATIONAL OCEAN WATCH (ENOW), SOUTH CAROLINA

Project Description: You'll help us interpret and apply new, nationally consistent time-series data from NOAA's Economics: National Ocean Watch (ENOW) database. These data describe six economic sectors that depend on the oceans and Great Lakes: living resources (e.g., commercial fishing, fish processing); marine construction; marine transportation; offshore mineral resources; ship and boat building;, and tourism and recreation.

We'll work with you to tailor the research to address the topics and coastal management issues that are of greater interest to you. Examples include:

- integrating employment statistics and data on the self-employed to provide a more complete picture of the living resources sector
- analyzing and interpreting geographic patterns in the ocean economy—observing where the various economic activities take place and understanding why this matters
- studying the relative importance of price changes in real GDP (e.g., the effect of significant price swings in oil and gas)
- examining the spatial distribution of and relationship between sectors that depend on ecological health (e.g., living resources), those that don't, and those with the potential to affect ecological health negatively (perhaps consider the implications of policies that differ among multiple political entities within the same ecological system)

Skills Required: Strong computer skills, especially in computational software like spreadsheets; critical thinking and analytical skills; ability to find and summarize relevant research; curiosity about the causes and effects of economic phenomena, command of economic principles.

Location: NOAA/ National Ocean Service / Coastal Services Center/ Human Dimensions Program, 2234 South Hobson Avenue, Charleston, South Carolina

Internships Available: 1

25. COASTAL ECOLOGY RESEARCH SUPPORTING ECOSYSTEM-BASED MANAGEMENT, MAINE

Project descriptions: The Wells National Estuarine Research Reserve (Wells NERR) is part of the NOAA NERR system. We do and promote research, education and stewardship to support ecosystem-based restoration and management of estuarine and coastal watershed resources. We are seeking interns (up to 4) to work as research team members during the 2012 field season. Interns may choose to focus on one or two projects, in consultation with Wells NERR Research staff prior to their arrival. You'll have opportunities to participate in other projects too, depending on your interests and project needs.

1) *Nekton Larval Community Dynamics* - ongoing monitoring of larval fish and macroinvertebrate species abundance in the Reserve's Webhannet River estuary, with weekly large plankton collections, sample processing, and species identification.
2) *Wading Bird Salt Marsh Indicator Survey* – ongoing monitoring of top-predator large wading birds as indicators of salt marsh ecological state; individual birds (herons, egrets, ibis) are identified and mapped at high tide throughout the Reserve's salt marshes 2-4 times weekly.
3) *Trophic Transfer of Energy and Methyl mercury through a Marsh-Estuarine Food Web* – experimental field (e.g. field enclosures) and lab work (e.g. environmental chamber), testing hypotheses regarding the effects of the invasive green crab on the movement of energy (using stable isotopes) and methyl mercury through benthic and epibenthic invertebrates and small fish.
4) *Habitat-Mediated Interactions between Native and Invasive Herbivores and Predators* – experimental field and lab work to compare the influence of salt marsh and rocky intertidal habitat structure on invasive – native species interactions (native and non-native snails, non-native green crab, small fish).
5) *Fisheries and Habitat Assessment of Select Southcoast Maine Estuaries* and *Watersheds* – we will be assessing fish restoration following dam removal for Shoreys Brook and fish restoration potential for fish passage improvement on the Branch Brook, using standard stream survey techniques and electrofishing; fish usage of salt marsh habitat in the Saco River estuary to assess land use effects on ecological integrity, using fyke nets.
6) *Value of shoreland/riparian buffers for stream habitats* – we will be measuring nutrient runoff, fish and invertebrate abundance and stream habitat quality related to the presence/absence of riparian buffers in the Little River watershed.

Opportunity: Interns will become proficient in project-specific field and lab procedures, which may include: plant, bird, and invertebrate and fish surveys/ collection /identification; sediment and soil core collection and lab processing; construction of field enclosures; use of gps and survey station instrumentation; use of water level, salinity, temperature data-loggers; quantitative stereomicroscopy.

Skills required: Academic background should be in natural science (i.e. biology, chemistry or allied discipline). We expect earnest interest and basic scientific skills (independent thinking, following protocols, attention to detail, and ability to collect, document and manage data) but no specific training for these internships. Interns must be prepared for the modest physical challenges of field work in marsh-estuarine, rocky intertidal, and stream habitats.

Location: NOAA/Wells National Estuarine Research Reserve, Wells, Maine. We are located on the Southcoast of Maine (www.wellsreserve.org), not far from Portsmouth, NH and Portland, ME. Our 200-acre campus is located adjacent to 2000 acres of protected salt marsh and estuary, and 67 square miles of coastal watershed (Little, Webhannet, Ogunquit Rivers), that provide many of our study sites. Comfortable on-site accommodations with cooking, dining, common and study space are available free of charge.

Internships Available: 4

26. ECOSYSTEM SERVICES PROVIDED BY HABITAT RESTORATION IN AN URBAN, DENSELY POPULATED LOCATION, NEW JERSEY

Project Description: Habitat restoration activities can have a range of economic impacts and benefits, including job creation, recreational use, and enhancement/preservation of ecological services. Some of these benefits are more readily quantified in monetary terms than others; it may be more straightforward, for example, to quantify the increased number of visitors to a restoration site and model their expenditures than to enumerate the monetary value of increased nutrient cycling or water filtration in a restored salt marsh. Determining and quantifying the full economic benefits (both recreational and ecological) of coastal and wetland restoration is an important area of investigation. Analysis of changes in ecosystem services, or the benefits that nature provides to humans, provides one framework for evaluating the changes in a given location from habitat restoration.

You will assist in the evaluation of ecosystem services benefits that result from restoration in a highly urbanized watershed in Jersey City, New Jersey. The project research questions include: (1) What is the set of ecosystem service values generated by restoration in an urban setting? (2) What metrics correlate well with recreational, aesthetic, and ecological values created by restoration? (3) What techniques can be evaluated for use at other coastal and urban restoration sites in a cost-efficient manner? You'll review the environmental economics literature, ecological monitoring data (as available), investigation of existing socioeconomic data in the surrounding communities, and evaluation of recreational data gathered at the study site. The project is focused on applicability of metrics and techniques across restoration sites, and you will likely collect, review, and analyze data related to other coastal restoration projects.

Opportunity: This internship offers an opportunity to work at the interface of ecology and economics. You will learn about current approaches to evaluate economic benefits of environmental goods and services and the challenges associated with attempting to quantify the value of "natural capital."

Skills Required: We require an ability to review available economic literature and familiarity with economic concepts and environmental science. You should also be familiar with strategies for searching scientific and economics literature for relevant studies, have solid writing skills, and be comfortable analyzing data. Working knowledge of statistical techniques and ability to manipulate datasets using statistical software would be beneficial.

Location: NOAA National Marine Fisheries Sandy Hook Laboratory, 74 Magruder Road, Highlands, NJ 07732

Internships Available: 1

27. BIOLOGY OF INVASIVE LION FISH IN THE SOUTHEASTERN U.S., NORTH CAROLINA

Project Description: You'll help us answer questions about the ecological impacts of invasive species, particularly lionfish, in U.S. and Caribbean habitats. Projects will include laboratory studies on lionfish morphology, behavioral studies targeting feeding and bioenergetics, and modeling physiological processes. A variety of laboratory and field work will offer a broad perspective on the issue of how non-native species can impact the environment.

Opportunity: You'll learn scientific research techniques used to study the ecology of invasive species. Insights will be gained into how science is conducted and applied to inform resource management objectives. Students will be involved in all steps of research – designing and conducting experiments, collecting and entering data, and will gain lab and field experience.

Skills Required: We are looking for enthusiastic students willing to work hard and independently. An interest in marine or fish ecology and experience in basic lab techniques, fish husbandry, dissection, data collection are preferred.

Location: NOAA/ National Ocean Service / National Centers for Coastal Ocean Science
Center for Coastal Fisheries and Habitat Research, 101 Pivers Island Road, Beaufort, NC 28516

Internships Available: 1-2

28. HISTORY OF MARINE AQUACULTURE IN THE SOUTHEASTERN U.S., NORTH CAROLINA

Project Description: Little is known about the early history of aquaculture in the southeastern US. This internship will provide a student the chance to initiate original research in the field of cultural anthropology, and early (pre-colonial) American history in this region. The purpose of this position would be to compile local library resources and contact experts to investigate the materials available to inform scholarship on the history of aquaculture in this region.

Opportunity: This is a great way to learn about research in cultural anthropology or early colonial history. The North Carolina coastal community has a rich fishing heritage, but the topic of historical aquaculture is not well documented to our knowledge. This internship offers a unique opportunity to explore a novel area of academic historical research.

Skills Required**:** The ideal candidate for this project is an independent, self-motivated scholar interested in pursuing original historical or anthropological research. Advanced experience in library or museum research techniques is important and the applicant must be able to conduct research and collection of historical materials with little oversight. Strong written and communication skills are critical.

Location: NOAA/ National Ocean Service / National Centers for Coastal Ocean Science
Center for Coastal Fisheries and Habitat Research, 101 Pivers Island Road, Beaufort, NC 28516

Internships Available: 1-2

29. THE IMPORTANCE OF PACIFIC SALMON AND THEIR MARINE DERIVED NUTRIENTS IN SALMON RIVER BASIN STREAMS OF IDAHO

Project Description: Thousands of rivers and streams dissecting the coastal lands surrounding the North Pacific Ocean once supported major populations of Pacific salmon and anadromous trout. Today, however, these once plentiful species are greatly reduced in both abundance and distribution. Recent work has highlighted that the importance of returning salmon goes far beyond the clear need for reproducing adults. Because more than 95% of the body mass of salmon is accumulated while fish are in the sea, the return of adults represents a transfer of nutrients from marine to freshwater and terrestrial habitats. The nutrients derived from adult salmon (marine-derived nutrients) are now recognized to play an important role in the ecology of the Pacific Northwest (Gresh et al. 2000).

You'll participate in a study on the importance of returning adult salmon as sources of nutrients (i.e., fertilizer) to streams in the Salmon River Basin in Idaho. We're asking two questions: 1) Has the decline in the number of salmon returning to natal streams over the last 150 years changed the ability of streams to support healthy salmon populations? 2) How do the physical, chemical, and biological features of stream's habitat influence juvenile Chinook growth and survival? You'll assist with laboratory analyses and field research, processing stable isotope and benthic invertebrate samples in Seattle and participating in summer field work in salmon streams in Washington, Oregon and/or Idaho. There may also be an opportunity to do field work in eastern Washington in July for a project looking at walleye.

Opportunity: You'll participate in a large-scale ecological study designed to benefit endangered salmonids. You will gain knowledge of Pacific salmon and their impacts on several aspects of stream ecology through field and laboratory work (water nutrients, primary productivity, aquatic invertebrate assemblage, avian composition, physical stream habitat, resident fish behavior, nutrient limitation experiments, stable isotope ratios, and more).

Skills Required: We require a willingness to work in a laboratory setting and an ability to pay attention to detail. Also needed are flexibility and desire to work as part of a research team. Basic laboratory, field, and outdoor know-how experience are helpful but not required.

Location: Northwest Fisheries Science Center (Seattle, WA). Field work in remote areas of Idaho and/or Washington

Internships Available: 1

30. FISHING FOR PROFIT? : SOCIOECONOMIC ANALYSIS OF A DECADE'S (2002-2011) WORTH OF COST AND EARNINGS SURVEYS IN THE US SOUTH ATLANTIC, FLORIDA

Project Description: NOAA Fisheries requires vessels participating in the snapper grouper, dolphin-wahoo and coastal migratory pelagic fisheries in federal waters of the south Atlantic to submit a logbook record for each commercial trip to the Southeast Fisheries Science Center in Miami, FL. Required information includes the gear used, fishing effort, location, depth, pounds of each species landed, departure and offloading ports and dates, and dealer information. In 2002, variable cost and input usage questions were added to the logbook trip form. Approximately 25% of federal permit owners were selected each year by a stratified random sample based on primary gear used and

primary region of landing to report this economic information for each trip with volunteer submissions accepted as well. Additionally, selected vessels were required to complete an annual expense survey that focused on fixed costs.

This project will be a start to finish socioeconomic analysis (primarily descriptive statistics and trend analysis) of the cost and earnings data collected in the US south Atlantic from 2002-2011. These fisheries are multispecies in nature, and vessels frequently switch gear as well as target species. Species include snappers and groupers, mackerels and dolphin-wahoo. You'll help us with data verification and organization, statistical analysis, interpretation of results and writing a formal research report. This is a very good opportunity for a student to participate in an applied socioeconomic analysis from the beginning planning and data cleaning stages through the final write-up (and the data has already been collected!). This experience should prove useful for students planning to pursue graduate programs that require a thesis or student paper.

Skills Required: Ability to use a variety of data management software, such as spreadsheets, relational databases, etc. and strong writing skills. Ideally, you'll have some applied statistical experience equivalent to a first year undergraduate statistics course. Previous economics experience is not needed.

Outcomes: Significant progress towards a final report that will serve as a ten-year review of the economic data collection in the south Atlantic. The final report will be submitted to *Marine Fisheries Review* for publication, and assuming satisfactory performance the interns will be listed as contributing authors.

Location: NOAA Fisheries Southeast Fisheries Science Center, 75 Virginia Beach Dr., Miami, FL 33149. Our lab sits directly on Biscayne Bay and is minutes from Downtown Miami and Key Biscayne.

Internships Available: 2

31. OUTREACH SPECIALIST AND HERITAGE WALKWAY, LAKE MICHIGAN FIELD STATION, MICHIGAN

Project Description: You will support communications and outreach activities for the Great Lakes Environmental Research Laboratory (GLERL) Lake Michigan field station. Your primary task will be the completion of a heritage walkway tour in and around on the Muskegon Pier next to the field station This will include writing interpretive text, coordinating with the NOAA/GLERL graphics specialist and writer/editor (who is based in Ann Arbor), and working with the field station manager to get signage mounted You will also plan and support Musekgon based outreach events such as field station open houses, educational You may be called upon to support large scale special events in other locations in the Great Lakes.

Skills: You must be an independent self-starter, comfortable interfacing with the public, ability to take direction remotely, project management skills, strong writing skills. Ideally (but not required), you'll have experience in photography, graphics, videography with coursework in history, anthropology, Great Lakes or marine science preferred.

Location: NOAA-GLERL Lake Michigan Field Station, 1431 Beach St. Muskegon, MI 49441-1098 MI 48108.

Internships Available: 1

32. MOLECULAR ANALYSIS OF ENVIRONMENTAL SAMPLES AND MICROBIAL ISOLATES, CALIFORNIA

Project Description: You will perform PCR, qPCR, and sequencing analysis from a variety of environmental samples and microbial isolates. Samples include bacteria isolated from beach sand, seawater, skin biopsies of marine mammals, and marine sediments. Work on metagenomics may be available, funding permitting.

Skills Required: Basic knowledge of standard microbiological practices, such as sterile technique. Familiarity with standard molecular biological practices, such as pipetting. Some familiarity with molecular biology. Willingness to work outdoors and in a BSL-2 area. Ability to work as part of a research team.

Location: NOAA's Southwest Fisheries Science Center, La Jolla, California

Internships Available: 1

33. SEA TURTLE NEST MONITORING IN ROOKERY BAY NERRS, FLORIDA

Project Description: Located at the northern end of the Ten Thousand Islands on the gulf coast of Florida, the Rookery Bay Reserve represents one of the few remaining undisturbed mangrove estuaries in North America. It is home to three species of sea turtle - Kemp's ridley Lepidochelys kempii) and Atlantic green (Chelonia midas) turtles are both listed as Endangered species, and the loggerhead (Caretta caretta) is listed as a Threatened species. The loggerhead is the most common species of sea turtle seen along Reserve beaches. Rookery Bay Reserve resource management specialists work in cooperation with U.S. Fish & Wildlife Service Collier County Natural Resources and the Conservancy of SW Florida to preserve this threatened species. Reserve staff and volunteers patrol the beaches to locate and cage nests, protecting them from predation by raccoons. We then document the number of hatched eggs to get a better understanding of nesting success.

You will help us monitor nest establishment and hatch rate, contributing to a multi-year data set on sea turtle nesting and hatching. You will also conduct and present the results of a project related sea turtle nest monitoring in Rookery Bay NERR.

Skills Required: Must be competent in basic boating skills including: navigation in estuarine/ocean tidal setting, basic boat and engine maintenance, and boating safety. Must have a valid driver's license, be able to swim, and have basic First-Aid skills. Good field observation and data gathering skills are required, as are good people skills. Physically able to work in outdoor conditions that include summer heat and humidity, biting insects, and rain. Finally, GIS and GPS skills are a plus but not required.

Location: Rookery Bay National Estuarine Research Reserve, Naples, FL
On-site housing provided.

Internships Available: 1