1) NOAA: Fisheries Oceanography in the Northeast U.S. Continental Shelf Large Marine Ecosystem (RI)

**Summary / Description**
The Oceans and Climate Branch in Narragansett Rhode Island 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 Oceanography: map distributions and abundance of eggs, larvae and adults; age larvae and study relation between environment and fish growth
- Larval fish taxonomy: sort plankton samples and identify larval fish to answer distribution and abundance questions
- Oceanography 101: sail on a cruise, hands on learning of oceanographic techniques; cruise dates are 15 May – 01 June 2017, 02 – 22 June 2017, and 13 – 25 August 2017

Previous interns have: used genetics to identify young fish, gone on an ecosystem survey aboard a NOAA Research vessel, used otoliths to age young fish, studied phytoplankton in Narragansett Bay, and analyzed fish distributions relative to climate change. The NOAA Laboratory is located adjacent to the University Rhode Island Graduate School of Oceanography and the EPA Atlantic Ecology Division – interactions between these other institutions is encouraged (e.g., attend seminars, attend a scientific meeting, work with other scientists).

Depending on the specific activity, the interns will work with organizing, analyzing, and making available oceanographic data collected by fisherman and research vessels. There will be laboratory opportunities to work with microscopes and image analysis equipment. The intern(s) will gain experience with data entry and data analysis. The intern(s) 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 to learn more about how oceanography affects fisheries and ecosystem dynamics. Computer experience with programs like Microsoft Word and Excel. Web page, GIS, and computer programming experience (R, MatLab, python) helpful depending on interests.

**Internship Location:** NOAA Narragansett Laboratory
28 Tazwell Drive
Narragansett, RI 02882

**Intern Supervisor:** Katey Marancik

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2) NOAA: Assessing Loggerhead sea turtle nesting activity at Cape Romano (FL)

**Summary / Description**
Located along the southwest coast of Florida, the Rookery Bay National Estuarine Research Reserve encompasses 110,000 acres. There are several species of sea turtles that inhabit the estuary waters within the Reserve but only two species nest along our beaches. Loggerhead sea turtles (*Caretta caretta*) are the most prevalent and green sea turtles (*Chelonia mydas*) are the least common. The Reserve has been partnering with Collier County Parks and Recreation staff to monitor sea turtle activity in the Cape Romano complex since 2005. Reserve interns and volunteers walk remote island beaches to document sea turtle nesting and hatching activity. The beaches are only accessible by boat. The long-term data are used to guide the sea turtle program and management of important nesting beach habitat.

**Intern Responsibilities**
Collecting field data and entering it into Excel  
Caging sea turtle nests to protect the eggs from predators  
Excavating nests to evaluate hatching success  
Training volunteers  
There may be opportunities to assist with other ongoing projects in the Rookery Bay Reserve.

**Skills Required**
The intern must be physically able to work in summer outdoor conditions that include extreme heat and humidity, biting insects, and thunderstorms. Good field observation, meticulous data collection, good communication and people skills are required. Experience boating is preferred.

**Other Information**
Rustic housing is provided.

**Internship Location:** Rookery Bay National Estuarine Research Reserve is located in Naples, Florida. The main office is located at 300 Tower Road, Naples, FL 34113. The field station where interns are housed is located in Goodland (on Marco Island, 15 minute drive).

**Intern Supervisor:** Jill Schmid

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3) NOAA: Distribution, abundance, and mortality of marine species in the Northern Gulf of Mexico (MS)

**Summary / Description**
You will join a collaborative group of research biologists and fisheries gear specialists who study marine and biological conditions as they relate to marine or aquatic ecosystems, associated fisheries issues, and associated environmental sampling techniques. Mississippi Laboratories offers biological and valuable hands-on experience in fisheries research, management, conservation and education.

**Intern Responsibilities**
Responsibilities include ship-based surveying, photographing and identifying targeted marine life and gear integration and implementation. Duties may include at-sea or aerial support of surveys, environmental data collection, participation in the local marine mammal and sea turtle stranding network, gear testing and implementation, participation in the local outreach program to educational institutions including continuing the mentor program with local colleges and high school biology classes, and providing general support for all activities conducted by NOAA Fisheries Mississippi Laboratories.

**Skills Required**
Willingness to work outdoors, participate in research surveys aboard a NOAA Research Vessel, as well as review and identify organisms using a microscope. General laboratory skills are helpful. Ability to work as part of a research team. Ability to pay attention to details, yet have an interest in broad scale ecological processes.

**Internship Location:** NOAA Fisheries, Southeast Fisheries Science Center, Mississippi Laboratories, Pascagoula, MS.

**Intern Supervisor:** Andre DeBose

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4) NOAA: Shellfish aquaculture vs. eelgrass habitat for marine communities (WA)

**Summary / Description**
You will participate in a study that compares the ecological functions (e.g., food availability, protection from predators) provided by shellfish aquaculture sites versus natural eelgrass sites in Puget Sound, WA.

**Key science questions:**
1) Can underwater GoPro cameras be used to compare the use of shellfish and eelgrass habitats by invertebrates and fishes?

2) Do fish and large invertebrate communities differ between eelgrass and shellfish aquaculture habitats?

**Intern Opportunities & Responsibilities:**
This internship provides an opportunity for an applicant to participate in an applied study related to the aquaculture industry. You will explore new underwater video technology to determine how invertebrates and fish use shellfish aquaculture and eelgrass habitats.

You will develop, implement, and evaluate the use of GoPro cameras to address nearshore habitat use. The intern will evaluate locations, deploy and retrieve GoPro cameras, and record marine data from selected sites around Puget Sound. At the lab, you will analyze video footage (identifying fish and invertebrates), develop protocols to improve the application of this technology, and evaluating the benefits and limitations of this technology. In addition, students can design their own project as part of the larger study if interested.

**Skills Required**
Readiness to work in the field, and to learn about nearshore fish and invertebrate communities of Puget Sound, GoPro camera technology, video analysis, and the aquaculture industry. Ability to work as part of a research team.

**Internship Location:** Northwest Fisheries Science Center (Seattle, WA) (Project base)
Puget Sound, WA (Field Work)

**Intern Supervisor:** Dr. Beth Sanderson

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5) NOAA: Assessing changes in reproductive biology of marine fishes (WA)

**Summary / Description**
You will join the FRAM (Fishery Resource Analysis and Monitoring) program at the Northwest Fisheries Science Center. We are responsible for researching and managing over 90 species of West Coast groundfish. We provide evaluations of current and historical population trends to the Pacific Management Council and NOAA Fisheries. These are used to set Annual Catch Limits. Understanding the life history of these species, and continually monitoring changes in their biology is essential for effective management. Most of all, these changes can be brought about by changing environments and anthropomorphic effects.

Changes in size/age at maturity and issues related to annual variation in abortive maturation, skip spawning and batch spawning are critical to make accurate predictions of stock recruitment relationships. Therefore in 2009, fisheries managers identified a need for new maturity information in multiple marine fishes. Since this time FRAM has been working to collect ovaries from over 36 fish species.

**Intern Responsibilities**
You will help us assess changes in fish reproductive biology by histologically examining microscopic sections of fish ovaries, and assist with other pertinent lab duties. You’ll be using a Leica DM1000 binocular microscope coupled with imaging software so that all images are displayed directly on a computer monitor are used for histology analysis. Research would include preparing ovaries in the laboratory, determining maturity, staging oocytes, identifying cellular structures, and measuring oocytes and ovarian wall widths. Several species will be available for analysis and the you will be able to choose a particular species to examine based on his/her interests. Training will be provided to conduct these analyses. We just ask that you are willing to learn. Field work may also be available, you are interested. In addition, post lab analysis of the data may be available, with publication possibilities.

**Skills Required**
Our ideal intern has the desire to conduct research that will help fisheries managers make better decisions for the future of our oceans. Willingness to work in a laboratory setting, often independently, coupled with basic knowledge of how to use a microscope is essential. A hard working intern familiar with histology and/or microscope use would be great, but we are willing to teach you. The ability to use Microsoft Excel is required. A basic understanding of fish reproductive biology and/or histology would be helpful.

**Internship Location:** The Northwest Fisheries Science Center located at 2725 Montlake Blvd E., Seattle, WA 98112.

**Intern Supervisor:** Melissa Head

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6) NOAA: Investigating blue carbon in eelgrass meadows of the Pacific Northwest (WA)

Summary / Description
Have you ever wondered how much carbon dioxide can be absorbed and stored in coastal seagrass beds? Ever wanted to walk amidst 8000 acres of lush eelgrass meadows at low tide? If so, come join our research team in assessing existing carbon stocks and determining carbon sequestration potential in the eelgrass meadows of Padilla Bay National Estuarine Research Reserve. This project will provide the opportunity to identify standing stocks of carbon in eelgrass habitat and explore how carbon storage and sequestration potential varies among different habitats found within Padilla Bay. This project – along with the student who conducts this work – will help advance our understanding of the important role that eelgrass play in the sequestration and storage of atmospheric carbon and help elucidate the valuable services associated with these ecosystems.

Why Padilla Bay?
Padilla Bay is home to one of the largest contiguous eelgrass meadows in North America (>9000 acres) and serves as a natural system to explore carbon sequestration potential of SAV. The system is also unique in that both the native eelgrass (Zostera marina) and non-native Japanese eelgrass (Zostera japonica) coexist across broad expanses of the intertidal. In recognition of the important ecosystem services associated with eelgrass, Washington State Department of Ecology recently initiated the 2015 Puget Sound Eelgrass Recovery Strategy, which seeks to increase the extent of eelgrass habitat within the Puget Sound by 20% by the year 2020.

The capacity of coastal, estuarine and marine habitats to serve as a sink for atmospheric carbon (i.e. blue carbon) has added a new dimension to the suite of services associated coastal ecosystems. This has also led coastal managers and planners to include carbon sequestration when prioritizing restoration needs and considerations. Current research indicates that submerged aquatic vegetation (SAV) may provide tremendous potential for sequestering carbon – in addition to the numerous other ecosystems services it already offers. However, standing stocks, rates of carbon sequestration, and the capacity of SAV to serves as a long-term sink of atmospheric CO₂ is not well constrained. This is particularly evident when SAV habitat in waters of the Pacific Northwest (PNW) are considered.

Skills Required
The field work associated with this project will take the intern across the extensive eelgrass meadows of Padilla Bay and can at times strenuous. The ability to walk through marsh and mudflats carrying a light pack is essential. A basic knowledge of field ecology, sampling design and statistical analyses is helpful. All other skills will be developed on site, although previous experience with any of the following will be valuable: identifying plant density using quadrat sampling, taking sediment cores, determining sediment carbon content, and processing sediment core samples. The student is expected to work collaboratively as part of the Padilla Bay NERR Research Team and pursue an independent research project that can be linked to ongoing eelgrass monitoring, carbon stock assessments, and eelgrass community composition studies at Padilla Bay.

Internship Location: Padilla Bay National Estuarine Research Reserve
10441 Bayview-Edison Road
Mount Vernon, WA

Intern Supervisor: Dr. Jude Apple
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7) NOAA: Bottlenose Dolphins – Where Do They Go? (NC)

**Summary / Description**

Bottlenose dolphins (*Tursiops truncatus*) along the US Atlantic coast exhibit a complicated structure, consisting of overlapping coastal migratory and estuarine resident stocks. Determining stock structure is challenging due to that complexity and because getting adequate sample sizes for genetic analyses is difficult. As a result, we search for other ways of identify stocks. One possible proxy for stock is presence of the commensal barnacle *Xenobalanus globicipitis*. This barnacle exclusively attaches to cetaceans, including bottlenose dolphins, where it is found particularly on the dorsal fin and flukes.

Preliminary studies suggest that the presence of this barnacle is an indicator of where bottlenose dolphins along the east coast have spent their time. For example, the relative number of barnacles differs among sub-groups of bottlenose dolphins in New Jersey. Also, the barnacle seems to be absent or minimally present in the low salinity of estuarine waters. Thus, it may help differentiate stocks by providing information about where a dolphin has been. The primary goal of this project is to use the presence and load (light, medium, heavy) of the barnacles to help differentiate stocks and provide information their spatio-temporal distributions.

**Intern Responsibilities**

- Evaluating dorsal fin photos of bottlenose dolphins for presence and abundance of *Xenobalanus globicipitis*
- Maintaining the database on *Xenobalanus* findings
- Participating in occasional field work from small boats for bottlenose dolphin photo-ID surveys

You will also have opportunities to participate in other research, such as necropsies of marine mammals and sea turtles conducted by our partner organizations. Besides marine mammals and turtles, NOAA Beaufort Lab scientists also conduct research on effects of sea-level rise, fish biology, fish aquaculture, and more. We encourage interns to take advantage of these opportunities, as possible. This research is a project in the Protected Resources Branch of the National Marine Fisheries Service.

**Skills Required**

Ability to be a dependable, independent and a team worker. Ability to pay attention to details, be organized and have an interest in the broad scale context of the project. Proficiency in Microsoft Excel is needed; experience with ArcGIS and Microsoft Access is helpful.

**Internship Location**: NOAA Fisheries, Southeast Fisheries Science Center field station at the Beaufort Laboratory, Beaufort, NC; 101 Pivers Island Rd., Beaufort, NC 28516

**Intern Supervisor**: Aleta Hohn
8) NOAA: Extreme weather event impact on the Chesapeake Bay (MD)

**Summary / Description**
The NOAA Chesapeake Bay Office provides science, service, and stewardship to protect and restore the Bay. The Office works to ensure that NOAA’s resources and capabilities are aligned with the current and future needs of the Bay, constituents, and partners. Efforts in these programs are focused on the work NOAA undertakes in the Bay area in key topic areas including Fisheries, Habitats, Observations, and Education, as well as climate and a geographically focused effort in the Choptank River watershed. Together, the Office’s programs represent an integrated approach to ecosystem management, enabling scientists and resource managers to examine some of the interconnected elements of the Bay ecosystem and ensuring that Bay residents have a holistic understanding of the resource.

The physical state of the Chesapeake Bay is strongly controlled by atmospheric conditions. Water levels are strongly controlled by wind patterns. Seasonal heat content is controlled by insolation, air temperature, and wind-driven circulation. Salinity is controlled by wind-driven circulation, watershed precipitation, and local evaporation. These signals are pronounced in the wake of extreme weather events.

This project is intended to use data from the Chesapeake Bay Interpretive Buoy System, the EPA Chesapeake Bay Program, the United States Geological Survey, the National Weather Service, and the National Ocean Service to identify signature responses to extreme weather events. The project will specifically investigate the impact of Hurrican es Irene and Sandy on temperature, salinity, and water levels in the Chesapeake Bay. The goal of the project is to draw conclusions from statistical relationships of observations during and after these storms to extend our understanding of how extreme weather events impact the Chesapeake Bay. The project will be conducted in an office environment, but an opportunity to participate in field work on the bay will be available if that is of interest to the student.

**Skills Required**
The student should come to the project with a working understanding of basic statistics and data analysis. The project will require familiarity with a program for numerical analysis (examples include R, python, Matlab, and others. MS Excel may be acceptable if the student has considerable expertise in the software). The project will also require familiarity with document preparation software to complete a project report.

**Internship Location**: NOAA Chesapeake Bay Office
410 Severn Ave Suite 207A
Annapolis, MD 21403

**Intern Supervisor**: Byron Kilbourne
9) NOAA: Climate and Anthropogenic Impacts on Critical Reserve Habitats: The Chesapeake Bay National Estuarine Research Reserve Sentinel Site Program (VA)

Summary / Description
The Chesapeake Bay National Estuarine Research Reserve in Virginia (CBNERR-VA; www.vims.edu/cbnerr) is engaged in understanding the vulnerability of critical emergent wetland habitats and submerged aquatic vegetation within the York River estuary to anthropogenic and climate related stressors. These habitat types are stressed by a number of factors, including elevated summer temperatures, nutrients and suspended sediments in the case of SAV, and elevated sea level rise rates and salt intrusion in the case of meso-polyhaline emergent wetlands.

The Reserve is also focused on critical “ecotones” (e.g., water-marsh edge and marsh-maritime forest interface) and the implications for either the loss or gain of ecosystem services in these transitional environments. Through implementation of a NERRS-approved Sentinel Site monitoring program combined with historical shoreline and wetland/SAV change analysis based on aerial imagery, CBNERRVA is attempting to understand the physical conditions driving changes in wetland/SAV habitat type and develop strategies to increase adaptive capacity of these vulnerable critical habitats.

Intern Responsibilities
Intern will contribute to the installation of and measurements from observational infrastructure which includes emergent marsh and underwater SAV transects to monitor changes in spatial distribution and community composition of vegetated habitats; Surface Elevation Tables (SETs) co-located with vegetation transects to monitor surface elevation changes over time; groundwater monitoring to evaluate salt intrusion and water table and flooding dynamics; multiple NERRS System-Wide Monitoring Program (SWMP) water quality stations, multiple local meteorological stations, and local geodetic control networks tied to the National Spatial Reference System (NSRS) and monitoring infrastructure so measurements are collected on the same vertical datum.

There will also be opportunities to contribute to Reserve efforts to develop baseline habitat maps using ArcGIS and better understand tidal marsh forecasted response to accelerating sea level rise and changes in sediment supply through running a Marsh Equilibrium Model (MEM). Intern may (if interested) work with the CBNERR Education and Outreach Program through its Discovery Labs, an evening program that provides family-friendly learning through expert presentations and hands-on laboratory activities and exhibits; and the summer camp programs for students in grades 1-8 focused on Bay habitats, natural resource sustainability and stewardship.

Skills Required
Enthusiastic team-oriented worker with comfort conducting field work in a variety of challenging coastal habitats. Much of the field work will be conducted using small boats with a range of different types of field equipment. Although a marine science background is not required, applicant must be dependable, willing to learn, and at times show the ability to work independently.
**Internship Location:** Internship Location: The Chesapeake Bay National Estuarine Research Reserve of Virginia (CBNERR-VA) is located at the Virginia Institute of Marine Science (VIMS) in Gloucester Point, Virginia. The campus is directly on the York River estuary, a tributary of the Chesapeake Bay.

The work will take place on the VIMS campus with visits to all four components of our Reserve which are located along the York River and include: (1) Goodwin Islands which is approximately 22 km down the York River from VIMS in the region of highest salinity, (2) Catlett Islands located approximately 7 km upriver from VIMS, (3) Taskinas Creek which is approximately 24 km upriver from VIMS within the boundaries of York River State, and (4) Sweet Hall Marsh, which is located 65 km upriver from VIMS in the tidal freshwater-oligohaline transitional zone of the Pamunkey River, one of two major tributaries of the York River.

**Intern Supervisor:** Scott Lerberg

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10) NOAA: Statistical Analytics at NOAA Fisheries Greater Atlantic Region (MA)

Summary / Description
We are seeking an intern to assist our Analysis and Program Support Division. Our office, NOAA Fisheries Greater Atlantic Regional Fisheries Office (https://www.greateratlantic.fisheries.noaa.gov/index.html), is responsible for the stewardship of the nation’s ocean resources and their habitat. The Monitoring and Analysis Section of the Analysis and Program Support Division has an internship opportunity to conduct spatiotemporal statistical analyses of fishery-dependent data to monitor and measure regional fisheries performance and support catch monitoring activities as required by the region’s fishery management programs.

The intern will be closely supervised by a designated mentor and may be involved in any of the following activities: analyzing data according to established procedures; preparing reports, diagrams, charts, and graphs, as needed; and developing software to improve the accuracy or efficiency of data analysis.

Depending on interest (of the intern and other programs), the internship maybe a shared position. As an example, spatial statistical mapping and summary of Marine Protected Areas and exploring fishing activity in or near the areas to facilitate mapping or data exploration related to Marine Mammal Protection Act issues explored within the Protective Resources program.

Intern Responsibilities

- Explore fisheries catch data to uncover spatiotemporal patterns relevant to fisheries management in the Greater Atlantic Region (e.g., species bycatch)
- Work with statisticians and specialists in GARFO to identify pressing issues that may be addressed with exploratory analyses

The intern will gain

- Appreciation of the complexity of fisheries data.
- Experience examining different types of information and learning how they relate.
- Skills in fisheries, gear, areas and seasons that may be of concern for protected species issues.
- An appreciation of the tradeoffs, process and protections made in management between the fishing industry and the provisions of the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and the National Environmental Policy Act (NEPA).

Skills Required
Strong quantitative and computer skills, strong technical skills, including familiarity with a programming environment such as R or Matlab and training in mathematical modeling and/or statistics. Detail oriented self-starter with strong organizational skills and a proven ability to work well independently and in teams.
- Proficient in Microsoft Office
- Experience with applied statistics and ecological modeling
- Experience with statistical programming language (R, SPSS, MATLAB)
- Knowledge of SQL and relational databases a plus
- Experience/Exposure with Geographic Information Systems
- Competency in core probability and statistical methods
- Interest in quantitative ecology, marine conservation, and/or wildlife and fisheries management

**Internship Location**: Greater Atlantic Regional Fisheries Office, Gloucester, MA

**Intern Supervisor**: Michael Lanning

11) NOAA: Rapid bathymetry for safer navigation: Developing an automated process to get water depth from satellite (MD)

**Summary / Description**
Knowing water depth or bathymetry is critical for coastal navigation and management. Hurricanes and winter storms can move channels and shoals, posing a risk to navigation. Many remote areas of the U.S. and the world have limited or extremely old surveys. Satellite data can offer a rapid way to provide an assessment of water depth for these places. We are working on automating the process to obtain water depth from satellite in order to complement tradition surveys (from LIDAR or from sonar). This project will evaluate the results of the satellite products in order to help determine which approaches provide the best estimates of bathymetry. Water quality products will also be examined, as water clarity affects our ability to “see” the bottom with satellite.

**Intern Responsibilities**
You will evaluate satellite data with existing LIDAR and other water depth using ArcGIS and appropriate statistics and graphing packages. You’ll produce image products, graphs, and simple statistical analyses to report on how these will work. The data sets will include such satellite data sets as Landsat, MODIS, and OLCi (Sentinel-3). Other data sets will be used. Turbidity and water quality products will also be examined. You will get substantial hands-on experience with GIS software, and see a variety of satellite data sets. You’ll also have the opportunity to discover more about surveying, and uses of satellite data and how the ocean looks in a broad scale, useful for ecological studies. You’ll be joining a team of 8 people with a range of skills. The mentor will provide the oversight, guide strategy for doing the work and review it, and will also guide you to the person who can best help with specific tasks.

**Skills Required**
We’re looking for someone with experience with GIS, preferably ArcGIS. Basic statistics and graphing skills are needed. Any experience with python will be a benefit.

**Internship Location**: 1305 East West Highway, Silver Spring, MD 20910

**Intern Supervisor**: Rick Stumpf
Summary / Description
The main goal of this project is to model variation in walleye pollock (Gadus chalcogrammus; hereafter referred to as pollock) distribution in the 3D environment of the eastern Bering Sea (EBS) shelf. Pollock are a dominant species with important commercial and ecological roles in the North Pacific. Pollock account for ~5% of global fish harvest, with annual harvests ranging from 4-7 million metric tons, and were ranked second in the world among marine species in capture production in 2008. Pollock are also considered a semipelagic species, with a fraction of the population in midwater, and the reminder associated with the bottom.

Both pollock spatial and vertical distribution will be modeled using data from bottom trawl and acoustic surveys conducted in the EBS. Single-species analysis using Vector Autoregressive Spatio-Temporal (VAST; FishStats software; https://james-thorson.github.io/) models will be used to model spatial distribution in relation to environmental covariates. Vertical distribution will be modeled using ordinal regression models such as ordered logistic regression or ordered generalized additive models (GAM).

Model results will be used to visualize predicted (spatial and vertical) distributions over the EBS shelf under different environmental conditions. 2D, 3D visualizations and animations are desirable to present changes in pollock distribution in changing environment. Visualization of seasonal changes and future projections under climate change scenarios in the EBS will be important part of this project.

Skills Required
Proficiency in R. Proficiency in statistical modelling. Familiarity in visualization of spatial data

Internship Location: NOAA, Alaska Fisheries Science Center
7600 Sand Point Way NE, Bldg 4
Seattle, Washington 98115

Intern Supervisor: Stan Kotwicki /
13) SHOALS MARINE LAB: Marine Mammal Internship (ME/NH)

Summary/Description
Marine Mammal Interns study the large colony of harbor and gray seals on Duck Island and surrounding ledges. Specific questions include numbers of each species estimated through photographic mark-recapture studies, incidence of entanglement and injuries, and distributional and behavioral interactions of the two species.

Intern Responsibilities
Interns conduct weekly boat-based surveys of the seal colony by photographing all seals in the colony, then analyze and catalog the digital photos in the laboratory.

Skills Required
Ability to work from a small boat. Attention to detail and database management skills are essential. Ability to live on a 95-acre island for 10 weeks, with other marine science students and faculty, nesting sea bird colonies and limited off-island access.

Other Information
Dormitory housing, meals, and wifi provided. The lab is affiliated with the University of New Hampshire and Cornell University.

Supervisors: Dr. Nadine Lysiak (UMass Boston), Dr. Andrea Bogomolni (WHOI), Lisa Sette (Center for Coastal Studies)

Internship Location: Shoals Marine Lab is approximately 7 miles off the coast of Portsmouth, NH.

Dates: May 29-August 8, 2017 (10 weeks)
14) SEA TURTLE CONSERVANCY: Green Turtle Program Research Assistant Position (Costa Rica)

**Summary/Description**
Research and monitoring of critically endangered green sea turtles in Tortuguero, Costa Rica was initiated in the 1950’s by legendary sea turtle researcher Dr Archie Carr. Dr Carr continued his work in Tortuguero until his passing away in 1987 and each year from June – November Sea Turtle Conservancy (STC) conducts the Green Turtle Program, continuing the work started by Dr Carr. STC works closely with Costa Rican authorities, the Tortuguero community and other sea turtle conservation organizations in the country. Information collected during the annual Green Turtle Program plays a key role in developing effective management strategies for sea turtles in the area. The RA team will be made up of individuals from several countries from around the world, with emphasis on Latin America and the Caribbean.

**Intern Responsibilities**
The primary responsibilities of the RAs will include nightly tagging patrols, morning track surveys, nest monitoring and excavation. RAs are responsible for tagging nesting turtles, collecting biometric data from females, recording nesting activity during track surveys, and other pertinent data collection.

RAs are also involved in training short-term paying volunteers in all aspects of the monitoring protocol and supervising volunteer groups during beach patrols. The RAs will also be required to develop and participate in various environmental awareness and educational activities with members of the Tortuguero community, and to assist in the STC Visitor Center to provide information about the work of STC to members of the public.

**Skills Required**
Monitoring activities during the Green Turtle Program are carried out along 8 km (5 miles) of nesting beach. RAs can expect to work very long hours, throughout the day and night, often with little sleep. Beach patrols require walking many kilometers in extremely soft sand and in very extreme weather conditions; therefore an excellent physical condition is a requirement for the RA positions. Basic Spanish language skills helpful.

**Location:** STC Field Station, Tortuguero, Costa Rica  
**Dates:** June 6 – August 13, 2017
15) NATIONAL AUDUBON SOCIETY SEABIRD RESTORATION PROGRAM and UMASS-AMHERST: Effects of climate change on sea bird diet (MA and ME)

Summary/Description
Since 1987, we have been recording diet or chick provisioning (feeding) data for Arctic Terns at several seabird colonies in Maine. The data generated from our provisioning studies has provided valuable insight into keystone prey species for Maine seabirds, has been the subject of peer-reviewed papers, is the subject of ongoing research using new technologies and has contributed to policy decisions for Gulf of Maine fisheries. We are looking for an intern to begin a new phase of this study: looking at climate data in relation to seabird diets.

Intern Responsibilities
The intern will be based at the University of Massachusetts in Amherst, MA, working with chick provisioning and growth data from the Seabird Restoration Program as well as environmental and climate data from the DOI Northeast Climate Science Center. The intern will also conduct laboratory work processing tissue samples for stable isotope and other analyses. Between mid-June and mid-July, the intern will go to a Maine island field camp for 2-3 weeks (rustic living conditions) to learn how seabird data is collected and be trained in seabird conservation techniques, working with the island supervisor and other team members. Field projects the intern will be involved with include bird banding, monitoring chick growth and survival, and conducting tern diet studies. Additional duties may include bird counts and weather data collection, invasive plant control, and interacting with island visitors.

Skills Required
Good data management and quantitative analysis skills (e.g., proficiency in Excel; basic statistics are a plus); good organization skills and attention to detail, and the ability to live on an island with a small group of people and conduct field work in changing weather conditions with rustic accommodations (sleep in a tent, no running water, limited solar electricity, etc.).

Supervisors:
Paula Shannon, Seabird Sanctuary Manager, National Audubon Society Seabird Restoration Program
Michelle Staudinger, Science Coordinator, DOI Northeast Climate Science Center, University of Massachusetts-Amherst