

Jewel Linzey  
NOAA's Educational Partnership Program  
1315 East-West Highway  
SSMC 3, Room 10600  
Silver Spring, MD 20910

Dear Jewel Linzey:

Attached is a semi-annual performance report for the grant number NA03OAR4810134 to Elizabeth City State University. This grant supports the work described in the proposal entitled "Conservation and Biology of Protected Species Using Remote Sensing Capabilities at ECSU. The grant was dated April 17, 2003 with revision(s) dated June 23, and July 18, 22 2003.

The major activities of this award involve selection of students who will receive scholarships and academic year training in satellite imagery. Students participate in a shadow day with the Beaufort scientist under which they will study during the summer. The NOAA Center for Coastal Fisheries and habitat research in Beaufort, NC works collaboratively with ECSU. The project gives students hands-on training and a unique opportunity to learn what NOAA Researchers do on a day-to-day basis.

#### 2003-2004 Program Highlights

- \* Four students received scholarships through the EPP program during 2003-2004.
- \* Forty students participated in the NOAA EPP Entrepreneurship Seminar on Jan 22, 2004 featuring Mr. Wauna Dooms of the North Carolina Small Business and Technology Development Center.
- \* NOAA Beaufort Laboratory Point of Contact was assigned to be Jon Hare, 101 Pivers Island Road, Beaufort, NC 28516 (252) 728-8732 phone (252)728-8619 email: jon.hare@noaa.gov
- \* Shadow Day for Beaufort Interns was April 5, 2004.
- \* Participants received weekly academic year training in remote sensing through the Center of Excellence in Remote Sensing Education and Research on the campus of ECSU.
- \* Participants were enrolled in GEOL 365 Introduction to Remote Sensing course during the Fall of 2003.
- \* Summer Internships at Beaufort Lab is scheduled for May 19- July 9, 2004. Abstracts are included below.

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**The Effects of Wind Speed and Direction on Both Sea Surface Temperature and Strandings of Harbor Porpoise**

Dr. Aleta Hohn  
NOAA Beaufort Laboratory  
101 Pivers Island Road  
Beaufort, NC 29815  
Tel: 252-728 8797 or 8732  
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Interns for the summer of 2004 will assist with determining whether an unusually high number of strandings of harbor porpoise during the winter of 1999 was due to an unusual juxtaposition of oceanographic features in the western the mid-Atlantic. The goals are to investigate whether a narrow band of cold water near shore followed by a strong warm-water front results in higher numbers of stranded harbor porpoise than when the front is further offshore. Further, interns will examine the effects of wind speed and direction on both sea surface temperature and strandings. Positive results may allow for development of a model that predicts relative numbers of harbor porpoise strandings. This question has been a concern because an alternative explanation for unusually high numbers of strandings is entanglement of porpoises in gillnets along the mid-Atlantic coast.

The interns will work on compiling extracted sea surface temperature (SST) and wind data, creating graphs and GIS plots, and assisting with analysis of the data. Only one other episode of alarming numbers of strandings of harbor porpoise in North Carolina has occurred in recent times and that was in 1977. Interns will use SST and wind data for years when it was available to ensure that the convergence of oceanographic events seen in 1999 did not occur in other years when high numbers of strandings also did not occur. Although comparable data do not exist for the 1970's, oceanographic sampling cruises did collect data that may be useful. Access to these results will require a literature search.

Required skills: Interns should have a background in the natural sciences (biology, geology, oceanography) and statistics, with knowledge of Geographic Information System (GIS). An interest in applying remotely-sensed data to studies of marine mammal strandings in also valuable. In addition, the interns will have the opportunity to participate in field activities including small boat surveys for bottlenose dolphins and stranding responses.

A strong background in computers with experience using GIS is preferred, but not essential. All necessary training to complete the tasks will be available for the duration of the internship. Interns should be familiar with remotely sensed data including sea surface temperature and wind. Familiarity with statistical and numerical software packages such as MatLab, SAS, and SYSTAT would be beneficial.

## **Determining the Maximum Depth of Seagrass Beds along the Southern Outer Banks**

Dr. Jud. Kenworthy or Dr. Patrick Biber  
NOAA Beaufort Laboratory  
101 Pivers Island Road  
Beaufort, NC 29815  
Tel: 252-728 3595

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Interns for the summer of 2004 (May-Aug) will assist in determining the maximum depth of seagrass beds along the Southern Outer Banks. Interns will be responsible for assisting scientists at the NOAA Beaufort Laboratory with this project. The interns will work on georeferencing existing aerial photography, selecting sampling sites using this imagery placed in a GIS, and then going in the field to assist with ground-truthing activities.

The goals of this project are to develop a long-term record of seagrass bed extent, focusing primarily on the historical changes that have occurred to the deep-edge, and tie this in with historical changes in water-quality. The data gathered from this internship project will be used to calibrate a model of light-attenuation for seagrass habitat requirements. This model is being developed as a tool to assist managers with monitoring water-quality to protect seagrasses, a critical estuarine habitat in North Carolina. Future developments for this model aim to include remote-sensing information in near-real time to enable timely and appropriate management actions to be made.

Required skills: Interns should have a background in the natural sciences (biology, geology, oceanography) or engineering, with knowledge of how a Geographic Information System (GIS) functions. An interest in water-quality or natural resources will be important for this project. In addition, the interns will be required to assist scientists with field work from small boats, including assistance with gathering GPS positions and determining the depth of seagrasses, either snorkeling or on SCUBA. A willingness and ability to work long hours outside in summer conditions is necessary to complete the field portion of this project

Additional skills: A strong background in computers with experience using GIS is preferred, but not essential. All necessary training to complete the tasks will be available for the duration of the internship.

Respectfully submitted,

Dr. Linda Bailey Hayden, Principal Investigator  
Conservation and Biology of Protected Species Using Remote Sensing Capabilities at ECSU (grant number NA03OAR4810134)