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**Annual Performance Report
to the
Office of Naval Research**

Research Abstract

Dr. William W. Kirby-Smith, Principal Investigator

Contract No. N00014-92-J-1982

ONR High School Internship Program - 1993

Duke University, School of the Environment, Marine Laboratory

111 Pivers Island Road

Beaufort, NC 28516-9721

AD-A270 751



The Duke University Marine Laboratory, with funding from the Office of Naval Research, conducts an 8-week summer internship program for rising seniors from two high schools: East Carteret High School and West Carteret High School. The purpose of the program is to expose students to active, on-going research programs so that they may be able to understand what is involved in a career in marine science research.

Groups of interns are preselected by a committee of science teachers at each school and the applications are sent to the Duke University Marine Laboratory (DUML). At DUML, applications are reviewed and rated by a panel of three scientists: one from NOAA-NMFS, one from the University of North Carolina Institute of Marine Sciences, and one from DUML. Three interns are selected from each of the two schools. Interns are matched with research faculty at DUML who then contact the interns in the spring to begin the process of developing a research topic.

Interns arrive at DUML in early-mid-June to begin an intensive 8-week exposure to research under the supervision of a faculty member. The interns develop a project topic and a research plan, carry out the research, including data analysis, write a technical report and give an oral presentation of their research. If appropriate, the interns are encouraged to present their work with their mentor at a scientific meeting and/or develop a journal article.

The exposure to such an active research environment is hoped to encourage students at an early age to consider careers in science, particularly marine science.

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THE 1993 PROGRAM

Advertising for the internship program for the summer of 1993 was conducted in December 1992. In February 1993, the high schools provided a pool of 10 applicants (6 from West Carteret and 4 from East Carteret). A selection committee consisting of Drs. Mark Fonseca (NOAA-NMFS), Richard Luettich (UNC Institute of Marine Sciences), and Joseph Ustach (DUML) reviewed the applications. Three interns were selected from each of the two high schools.

For the 8-week program, interns were allowed to select flexible time-frames within the period from early June to late August. Such flexibility had been encouraged by the participating high schools. The 1993 program spanned the period from June 7-August 20. Because the dates of the individual internships were so varied and resultant scheduling conflicts, oral presentations in a group setting were not conducted. However, all interns submitted a final paper prior to the end of their specific 8-week period. Information sheets for each intern (apprentice) are attached which provide biographical information as well as the name of the mentor, and project title/major tasks performed. Also attached are information sheets on each mentor.

Submitted by: William W. Kirby-Smith, Coordinator
Office of Naval Research High School Internship Program
Duke University, School of the Environment, Marine Laboratory
111 Pivers Island Road
Beaufort, NC 28516-9721
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**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993
Dates: 06/14-08/02

Name:	Tiffany Evon Jenkins
Address:	P.O. Box 745 Beaufort, NC 28516
Phone:	919-728-1769
Address (School, '93-'94):	East Carteret High School Beaufort, NC 28516
Phone:	919-728-3514
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Female
Race/Ethnicity:	African American/Black
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. Celia Bonaventura
Title:	Professor of Cell Biology
Principal Discipline of Research:	Cell biology; physiology; structural biology
Major Tasks Performed:	A study of the effects of reassociating <i>Limulus</i> subunits Vb and four
College of Preference:	East Carolina University
Intended College Major:	Biochemistry

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993

Dates: 06/14-07/09; 07/19-08/13

Name:	Jaime Elizabeth Leonard
Address:	4102 Bonham Street Morehead City, NC 28557
Phone:	919-726-5349
Address (School, '93-'94):	West Carteret High School Morehead City, NC 28557
Phone:	919-726-1176
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Female
Race/Ethnicity:	White
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. William W. Kirby-Smith
Title:	Assoc. Prof. in the Practice of Marine Ecology
Principal Discipline of Research:	Marine ecology
Major Tasks Performed:	The growth and death rate of the common marine mussel and contributing factors
College of Preference:	Elon, St. Mary's, UNC-Wilmington, Peace
Intended College Major:	Undecided

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993

Dates: 06/07-06/18; 06/28-07/09; 07/26-08/20

Name:	Jennifer Nikole Lewis
Address:	33 Graham Road Newport, NC 28570
Phone:	919-223-4143
Address (School, '93-'94):	West Carteret High School Morehead City, NC 28557
Phone:	919-726-1176
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Female
Race/Ethnicity:	White
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. Peter A. Howd
Title:	Assistant Professor
Principal Discipline of Research:	Nearshore geological processes
Major Tasks Performed:	Study of beach cusp formation
College of Preference:	Duke Univ. or Appalachian State Univ.
Intended College Major:	Physical Therapy or Mathematics

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993
Dates: 06/07-07/30

Name:	Julianne Murdoch
Address:	2704 One Iron Street Morehead City, NC 28557
Phone:	919-726-4668
Address (School, '93-'94):	West Carteret High School Morehead City, NC 28557
Phone:	919-726-1176
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Female
Race/Ethnicity:	White
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. Joseph Ustach
Title:	Executive Officer, Duke/UNC Oceanographic Consortium
Principal Discipline of Research:	Marsh ecology
Major Tasks Performed:	Study of the effect of predation by protozoa on the size of bacteria
College of Preference:	Meredith College
Intended College Major:	Biology major; foreign language minor

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993
Dates: 06/14-08/16

Name:	Jason Grant Salter
Address:	Star Route Box 336 Harkers Island, NC 28531
Phone:	919-728-5027
Address (School, '93-'94):	East Carteret High School Beaufort, NC 28516
Phone:	919-728-3514
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Male
Race/Ethnicity:	White
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. Richard B. Forward, Jr.
Title:	Professor of Zoology
Principal Discipline of Research:	Physiology of marine animals
Major Tasks Performed:	Research on the daily abundance of crab larvae
College of Preference:	Duke University
Intended College Major:	Pre-medicine

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1993
Dates: 06/07-07/30

Name:	Lucile Smith
Address:	Rt. 4 Box 73 West Beaufort Road Beaufort, NC 28516
Phone:	919-728-2466
Address (School, '93-'94):	East Carteret High School Beaufort, NC 28516
Phone:	919-728-3514
Last Grade Completed:	Junior
Type of School:	Public
Sex:	Female
Race/Ethnicity:	White
Installation:	Duke University, School of the Environment, Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Mentor:	Dr. Christopher A. Scholz
Title:	Assistant Professor
Principal Discipline of Research:	Marine geology and geophysics
Major Tasks Performed:	Study of the geological aspects of four river deltas in Lake Malawi
College of Preference:	Peace College; then transfer to a major college and go on to graduate school
Intended College Major:	Undecided

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1993
Dates: 06/14-08/02

Name: Celia Bonaventura

**Installation: Duke University, School of the Environment
Marine Laboratory
Beaufort, NC 28516-9721**
Phone: 919-728-2111

Sex: Female

Race/Ethnicity: White

Highest Degree Held: Ph.D.

Principal Field of Research: Cell biology; physiology; structural biology

Number of Years of Mentorship: 4

**Number of Apprentices
this Year (1993): 1**

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1993
Dates: 06/14-08/16

Name:	Richard B. Forward, Jr.
Installation:	Duke University, School of the Environment Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Sex:	Male
Race/Ethnicity:	White
Highest Degree Held:	Ph.D.
Principal Field of Research:	Physiology of marine animals
Number of Years of Mentorship:	5
Number of Apprentices this Year (1993):	1

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Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1993

Dates: 06/07-06/18; 06/26-07/09; 07/26-08/20

Name: Peter A. Howd

**Installation: Duke University, School of the Environment
Marine Laboratory
Beaufort, NC 28516-9721**

Phone: 919-728-2111

Sex: Male

Race/Ethnicity: White

Highest Degree Held: Ph.D.

Principal Field of Research: Nearshore geological processes

Number of Years of Mentorship: 1

**Number of Apprentices
this Year (1993): 1**

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1993

Dates: 06/14-07/09; 07/19-08/13

Name: William W. Kirby-Smith

**Installation: Duke University, School of the Environment
Marine Laboratory
Beaufort, NC 28516-9721**

Phone: 919-728-2111

Sex: Male

Race/Ethnicity: White

Highest Degree Held: Ph.D.

Principal Field of Research: Marine ecology

Number of Years of Mentorship: 10

**Number of Apprentices
this Year (1993): 1**

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

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INFORMATION FOR EACH MENTOR

Year: 1993
Dates: 06/07-07/30

Name: Christopher A. Scholz

**Installation: Duke University, School of the Environment
Marine Laboratory
Beaufort, NC 28516-9721**
Phone: 919-728-2111

Sex: Male

Race/Ethnicity: White

Highest Degree Held: Ph.D.

Principal Field of Research: Marine geology and geophysics

Number of Years of Mentorship: 1

**Number of Apprentices
this Year (1993): 1**

**Duke University, School of the Environment, Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1993
Dates: 06/07-07/30

Name:	Joseph Ustach
Installation:	Duke University, School of the Environment Marine Laboratory Beaufort, NC 28516-9721
Phone:	919-728-2111
Sex:	Male
Race/Ethnicity:	White
Highest Degree Held:	Ph.D.
Principal Field of Research:	Marsh ecology
Number of Years of Mentorship:	4
Number of Apprentices this Year (1993):	1