Dear Dr. Zahuranec:

Attached is a Technical Progress Report for the ONR High School Internship Program for the summer of 1990, Grant No. N00014-87-G-0267.

As in previous years, this year's program ran smoothly and was a benefit to both the participants as well as our laboratory.

I would like you to know that one of our interns, Zoey Forward, was also winner of the U.S. Navy Distinguished Achievement Award in the N.C. District Science Fair in Wilmington, N.C. in the spring of this year.

If you need additional information, please let me know.

Sincerely,

William W. Kirby-Smith
Coordinator, ONR High School Internship Program

WWK-S:11-w
Enclosure
cc: Grants Administrator, ONR Resident Representative (Atlanta)
    Defense Technical Information Center (Alexandria)
INTRODUCTION

The Duke University Marine Laboratory, with funding from the Office of Naval Research, conducts a ten-week summer internship program for rising seniors from three high schools: East Carteret High School, West Carteret High School and the North Carolina School of Science and Mathematics. 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. Two interns are selected from each of the three 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 10-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.
THE 1990 PROGRAM

Advertising for the internship program for the summer of 1990 began in early December 1989. In February 1990, the three high schools provided a pool of 12 applicants (7 from West Carteret, 3 from East Carteret, 2 from NC School of Science and Mathematics). A selection committee consisting of Drs. Susan Huntsman (NOAA-NMFS), Jan Kohlmeyer (UNC Institute of Marine Sciences), and Joseph Ustach (DUML) reviewed the applications. There were two interns selected from East Carteret High School, two from West Carteret High School and two from the North Carolina School of Science and Mathematics.

Because of a difference in the schedules of NCSSM and the Carteret County high schools, the program began on June 4 and concluded on August 10 for NCSSM interns and began on June 11 and concluded on August 17 for Carteret County high school interns. The oral presentations by all interns were given on August 1 to accommodate the difference in schedules. Information sheets for each intern are attached which provide biographical information as well as the name of the mentor, and project title/major tasks performed.

Prepared by: William W. Kirby-Smith, Coordinator
Office of Naval Research High School Internship Program
Duke University Marine Laboratory
Beaufort, NC 28516
(919) 728-2111
Year: 1990
Dates: 06/11-08/17

**Name:**
John Brent Carlson

**Address:**
1105 Ann Street
Beaufort, NC 28516
919-728-7038

**Address (School, '90-'91):**
East Carteret High School
Beaufort, NC 28516
919-728-3514

**Last Grade Completed:**
Junior

**Type of School:**
Public

**Sex:**
Male

**Race/Ethnicity:**
White

**Installation:**
Duke University Marine Laboratory
Beaufort, NC 28516
(919) 728-2111

**Mentor:**
Dr. Joseph Ustach

**Title:**
Research Staff

**Principal Discipline of Research:**
Marsh ecology

**Major Tasks Performed:**
Study of mollusks in the South River estuarine system
Year: 1990
Dates: 06/04-08/10

Name: Yukiyo (Julie) Kasama Cheu
Address: 4205 Boxwood Road
         Raleigh, NC 27612
Phone: 919-781-9073

Address (School, '90-'91): NC School of Science & Mathematics
                          P.O. Box 2418
                          1219 Broad Street
                          Durham, NC 27705
Phone: 919-286-3266

Last Grade Completed: Junior
Type of School: Public
Sex: Female
Race/Ethnicity: Asian
Installation: Duke University Marine Laboratory
              Beaufort, NC 28516
Phone: (919) 728-2111

Mentor: Dr. Daniel Rittschof
Title: Assistant Professor of Zoology
Principal Discipline of Research: Chemical ecology
Major Tasks Performed: Study of chemical and behavioral ecology of hermit crabs
Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1990
Dates: 06/04-08/10

Name: Sharon Sharn Chow

Address: 8849 Wildwood Links
Raleigh, NC 27613
Phone: 919-870-8516

Address (School, '90-'91): NC School of Science & Mathematics
P.O. Box 2418
1219 Broad Street
Durham, NC 27705
Phone: 919-286-3366

Last Grade Completed: Junior

Type of School: Public

Sex: Female

Race/Ethnicity: Asian

Installation: Duke University Marine Laboratory
Beaufort, NC 28516
Phone: (919) 728-2111

Mentor: Dr. Anthony Clare
Title: Research Associate
Principal Discipline of Research: Invertebrate biology

Major Tasks Performed: Studies of the hatching substances in Balanus amphitrite; extraction and purification of the hatching substance
Name: Zoey Allegra Forward

Address: 414 Ann Street
Beaufort, NC 28516
919-728-2633

Address (School, '90-'91): East Carteret High School
Beaufort, NC 28516
919-728-3514

Last Grade Completed: Junior

Type of School: Public

Sex: Female

Race/Ethnicity: White

Installation: Duke University Marine Laboratory
Beaufort, NC 28516
(919) 728-2111

Mentor: Dr. William W. Kirby-Smith
Title: Research Associate Professor
Principal Discipline of Research: Marine ecology

Major Tasks Performed: A study of the sediments in various South River creeks; comparison of creeks which are used to drain the farm to creeks that drain the forest
Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1990
Dates: 06/11-08/17

Name: Elizabeth Anne Oliver

Address: 95 Holly Court
          Morehead City, NC 28557
          919-726-8177

Address (School, '90-'91): West Carteret High School
                           Morehead City, NC 28557
                           919-726-1176

Phone:

Last Grade Completed: Junior

Type of School: Public

Sex: Female

Race/Ethnicity: White

Installation: Duke University Marine Laboratory
             Beaufort, NC 28516
             (919) 728-2111

Phone:

Mentor: Dr. Richard B. Forward

Title: Professor of Zoology

Principal Discipline of Research: Physiology of marine animals

Major Tasks Performed: Study of crustacean larval biology
Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1990
Dates: 06/11-08/17

Name: Susan Dianne Talley
Address: 4003 Leslie Lane
         Emerald Isle, NC 28594
         919-354-2718

Address (School, '90-'91): West Carteret High School
                          Morehead City, NC 28557
                          919-726-1176

Last Grade Completed: Junior
Type of School: Public
Sex: Female
Race/Ethnicity: White

Installation: Duke University Marine Laboratory
             Beaufort, NC 28516
             (919) 728-2111

Mentor: Mr. Michael Kingston
Title: Graduate student
Principal Discipline
       of Research: Benthic microalgae

Major Tasks Performed: Effects of groundwater flow on
                       microalgal patchiness
Duke University Marine Laboratory  
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1990  
Dates: 06/04-08/10

<table>
<thead>
<tr>
<th>Name:</th>
<th>Anthony Clare</th>
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</thead>
</table>
| Installation:    | Duke University Marine Laboratory  
Beaufort, NC 28516  
(919) 728-2111 |
| Phone:           |               |
| Sex:             | Male          |
| Race/Ethnicity:  | White         |
| Highest Degree Held: | Ph.D.         |
| Principal Field of Research: | Invertebrate biology |
| Number of Years of Mentorship: | 1 |
| Number of Apprentices this Year (1990): | 1 |
Year: 1990
Dates: 06/11-08/17

Name: Richard B. Forward, Jr.
Installation: Duke University Marine Laboratory
Beaufort, NC 28516
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: 4
Number of Apprentices this Year (1990): 1
Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1990
Dates: 06/11-08/17

Name: Michael B. Kingston
Installation: Duke University Marine Laboratory
            Beaufort, NC 28516
            (919) 728-2111
Phone: Male
Sex: White
Race/Ethnicity: M.S.
Highest Degree Held: Benthic microalgae
Principal Field of Research:
Number of Years of Mentorship: 1
Number of Apprentices this Year (1990): 1
Year: 1990  
Dates: 06/11-08/17  

Name: William W. Kirby-Smith  
Installation: Duke University Marine Laboratory  
Beaufort, NC 28516  
Ph: (919) 728-2111  
Sex: Male  
Race/Ethnicity: White  
Highest Degree Held: Ph.D.  
Principal Field of Research: Marine ecology  
Number of Years of Mentorship: 7  
Number of Apprentices this Year (1990): 1
Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1990
Dates: 06/04-08/10

Name: Daniel Rittschof
Installation: Duke University Marine Laboratory
             Beaufort, NC 28516
             (919) 728-2111
Phone:
Sex: Male
Race/Ethnicity: White
Highest Degree Held: Ph.D.
Principal Field of Research: Chemical ecology
Number of Years of Mentorship: 7
Number of Apprentices this Year (1990): 1
INFORMATION FOR EACH MENTOR

Year: 1990
Dates: 06/11-08/17

Name: Joseph Ustach
Installation: Duke University Marine Laboratory
Beaufort, NC 28516
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: 3
Number of Apprentices this Year (1990): 1