



Duke University Marine Laboratory

Pivers Island • Beaufort, North Carolina 28516-9721 • Phone (919)728-2111

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October 23, 1991

Dr. B. J. Zahuranec
Scientific Officer
Office of Naval Research
Code 1123B
800 North Quincy Street
Arlington, VA 22217-5000

dist.

Dear Dr. Zahuranec:

Enclosed are two hard copies and a DOS floppy disc in ASCII of an Annual Progress Report for the ONR High School Internship Program for the summer of 1991, Grant No. N00014-87-G-0267 to John D. Costlow, Principal Investigator.

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

If you need additional information, or if you would like this put into a different format, please let me know.

Sincerely,

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

WWK-S:11-w

Enclosures

cc: Grants Administrator, ONR Resident Representative (Atlanta)
Defense Technical Information Center (Alexandria)
J.D. Costlow, Principal Investigator

Annual Progress Report
to the
Office of Naval Research

Research Abstract

Dr. John D. Costlow, Principal Investigator
Contract No. N00014-87-G-0267
ONR High School Internship Program - 1991
Duke University Marine Laboratory
Pivers Island
Beaufort, NC 28516-9721

The Duke University Marine Laboratory, with funding from the Office of Naval Research, conducts an 8-10 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 8-10 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.

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THE 1991 PROGRAM

Advertising for the internship program for the summer of 1991 began in early January 1991. In February 1991, the three high schools provided a pool of 16 applicants (6 from West Carteret, 5 from East Carteret, 5 from NC School of Science and Mathematics). A selection committee consisting of Drs. Charles Manooch (NOAA-NMFS), John Wells (UNC Institute of Marine Sciences), and Richard Forward (DUMI) 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 as well as the fact that the schools had encouraged us to try a more flexible time-frame (length of program) for participating interns, during the summer of 1991 we allowed interns to select a time-frame (minimum of 6 weeks; maximum of 10 weeks). The 1991 program ran from June 10-August 23, with five interns selecting an 8-week period and one intern selecting a 9-week period. The oral presentations by all interns were given on August 2 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. Also attached are information sheets on each mentor.

As a result of their ONR HSIP research experience this summer, two of the interns are expected to contribute to scientific manuscripts and one of these interns also expects to present his ONR HSIP research findings at the American Society of Zoologists (ASZ) national conference in December 1991.

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

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Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991

Dates: 06/10-07/05; 07/22-08/23

Name:	Charles Joseph Craig
Address:	P.O. Box 405 Beaufort, NC 28516
Phone:	none
Address (School, '91-'92):	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 Marine Laboratory Beaufort, NC 28516
Phone:	(919) 728-2111
Mentor:	Ms. Kathy Reinsel
Title:	Graduate Student (Zoology)
Principal Discipline of Research:	Marine ecology
Major Tasks Performed:	Study of the effects of fiddler crab foraging and tidal inundation on microalgal biomass on Bird Shoal

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991

Dates: 06/10-08/02

Name: William Leonard Falls

Address: 2410 Evans Street
Morehead City, NC 28557
Phone: 919-726-2067

Address (School, '91-'92): West Carteret High School
Morehead City, NC 28557
Phone: 919-726-1176

Last Grade Completed: Junior

Type of School: Public

Sex: Male

Race/Ethnicity: White

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

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

Major Tasks Performed: Study of ammonia and chlorophyll
cycles in upper estuarine creeks

Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991
Dates: 06/24-08/16

Name:	Mario Giovanni Ferruzzi
Address:	304 Fairview Drive Beaufort, NC 28516
Phone:	919-728-5154
Address (School, '91-'92):	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 Marine Laboratory Beaufort, NC 28516
Phone:	(919) 728-2111
Mentor:	Dr. Anthony Clare
Title:	Research Assistant Professor
Principal Discipline of Research:	Invertebrate biology; chemical ecology
Major Tasks Performed:	Study of the nature and biosynthesis of the hatching substance of <u>Balanus amphitrite</u>

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991
Dates: 06/10-08/02

Name: Jason Neil Katz

Address: 4704 Beech Crest Place
Charlotte, NC 28269

Phone: 704-596-8556

Address (School, '91-'92): 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: Male

Race/Ethnicity: White

Installation: Duke University Marine Laboratory
Beaufort, NC 28516

Phone: (919) 728-2111

Mentor: Dr. Daniel Rittschof
Title: Associate Professor of Zoology
Principal Discipline
of Research: Chemical ecology

Major Tasks Performed: Study of chemically stimulated
alarm/investigation responses of
hermit crabs as related to shell
fit and size

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991

Dates: 06/17-08/10

Name:	Prerana (Penny) N. Patel
Address:	Rt. 9, Box 264 Hickory, NC 28601
Phone:	704-256-7282
Address (School, '91-'92):	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. Richard Winn
Title:	Postdoctoral Fellow
Principal Discipline of Research:	Aquatic toxicology
Major Tasks Performed:	Study of designer genes: developing a transgenic fish for environmental evaluations

Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH APPRENTICE

Year: 1991

Dates: 06/10-07/20; 07/29-08/19

Name: J. Samuel Taylor

Address: 4 Grady Court
Morehead City, NC 28557

Phone: 919-247-4926

Address (School, '91-'92): West Carteret High School
Morehead City, NC 28557

Phone: 919-726-1176

Last Grade Completed: Junior

Type of School: Public

Sex: Male

Race/Ethnicity: White

Installation: Duke University Marine Laboratory
Beaufort, NC 28516

Phone: (919) 728-2111

Mentor: Dr. John D. Costlow

Title: Professor of Zoology

Principal Discipline of Research: Crustacean development

Major Tasks Performed: Study of in vitro culture of regenerated chelae of the larvae of the crab Rhithropanopeus harrisi

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991

Dates: 06/24-08/16

Name: Anthony Clare

**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: Invertebrate biology; chemical ecology

Number of Years of Mentorship: 2

Number of Apprentices this Year (1991): 1

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991

Dates: 06/10-07/20; 07/29-08/19

Name: John D. Costlow

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:** Zoology

**Number of Years of
Mentorship:** 4

**Number of Apprentices
this Year (1991):** 1

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991
Dates: 06/10-08/02

Name:	William W. Kirby-Smith
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:	Marine ecology
Number of Years of Mentorship:	8
Number of Apprentices this Year (1991):	1

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991

Dates: 06/10-07/05; 07/22-08/23

Name:	Kathleen Reinsel
Installation:	Duke University Marine Laboratory Beaufort, NC 28516
Phone:	(919) 728-2111
Sex:	Female
Race/Ethnicity:	White
Highest Degree Held:	B.A. '86; Ph.D. expected '92
Principal Field of Research:	Marine ecology
Number of Years of Mentorship:	1
Number of Apprentices this Year (1991):	1

Duke University Marine Laboratory
Beaufort, North Carolina

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991
Dates: 06/10-08/02

Name:	Daniel Rittschof
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:	Chemical ecology
Number of Years of Mentorship:	8
Number of Apprentices this Year (1991):	1

**Duke University Marine Laboratory
Beaufort, North Carolina**

Office of Naval Research - High School Internship Program

INFORMATION FOR EACH MENTOR

Year: 1991
Dates: 06/17-08/10

Name:	Richard Winn
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:	Aquatic toxicology
Number of Years of Mentorship:	1
Number of Apprentices this Year (1991):	1