Best Available Copy
INTRODUCTION

During the past ten years (1982-1991) the Office of Naval Research (ONR) has sponsored a research program for high school students at the Duke University Marine Laboratory. Fifty-seven rising seniors from three North Carolina high schools have been provided the opportunity to do original research working under the direct supervision of the academic staff of the Duke Laboratory. The program lasts for 8-10 weeks each summer and at the end of that period each participant presents an oral report and submits a written report on their research activities. In addition five participants have been given the opportunity to present papers at a national scientific meeting and nine are coauthors of publications.

The staff of the Duke University Marine Laboratory is very pleased with the results of the program and is interested in continuing to have these high quality students work with them on appropriate research projects. The following proposal to continue the ONR Summer High School Intern Program (HSIP) reviews the program accomplishments through the summer of 1991 and requests funding for an additional five-year period, 1992-1997.

SUMMARY FOR 1982-1991

The ONR-HSIP at the Duke University Marine Laboratory has evolved as a regular part of our annual research and teaching program. Students are selected from three high schools: East Carteret High School, West Carteret High School, and the North Carolina School of Science and Mathematics. The Duke Laboratory is located in Carteret County, NC, and thus feels a special responsibility to provide encouragement for Carteret County students who may be interested in a career in science. The North Carolina School of Science and Mathematics is a special public boarding school of the State of North
Carolina located in Durham, NC, which was established to allow talented high school juniors and seniors from all over the state an opportunity to further their career interests in science and mathematics. The NCSSM provides much more intensive science education than that available in most local public school districts.

The process of selecting interns for the Duke Laboratory summer program begins early to ensure that interns are selected from the largest pool of qualified applicants. In January of each year announcements for the program are sent to a specific counselor at each school. These counselors are responsible for advertising the program within their school by posting notices and announcing the program to junior students in science classes. The counselors receive applications from students, evaluate them and by the end of February they forward, from each school, a group of five applications to the Duke Laboratory. These applications consist of a letter of interest written by the student, a transcript and two letters of recommendation from science teachers who know the student. The applications are then rated by a group of three research scientists from Carteret County: one from the Duke Laboratory, one from the Institute of Marine Sciences of the University of North Carolina and one from the National Marine Fisheries Service, NOAA. Using these ratings the coordinator of the program at the Duke Laboratory selects the two top-ranked students from each school and notifies them by March 31. This early notification ensures that the best potential interns will not have already committed themselves to summer employment elsewhere.

During April of each year the research staff of the Duke Laboratory are asked about their interest in having an intern work with them during the summer months. Insofar as possible the coordinator pairs the expressed interests of the interns with the fields of expertise of the staff of the
Laboratory. The staff who have an intern assigned to them then contact that intern and begin the process of apprenticeship by mail or phone.

The High School Intern Program occurs during an extremely active time of year at the Marine Laboratory. The program overlaps with summer teaching programs, a visiting scholar program and summer seminar programs. The program begins in June the week following the start of summer vacation of the interns. The first day is spent in an intensive orientation to the physical plant, the people, and programs of the Laboratory. Each intern is then turned over to their advisor to begin their research project. The coordinator has frequent contact with both the interns and their advisors to ensure that no problems develop or to solve those that do before they become significant. Local interns spend the day at the laboratory and return home in the evening but are encouraged to return for evening seminars and other Laboratory activities. Interns from out of town live in the dormitories together with undergraduate college students who are taking course work.

The official program ends, after 8-10 weeks, in August. Each intern must present an oral report of their summer's work at a program announced to the whole Marine Laboratory community. In addition a written report is a requirement of all participants. Participants whose work warrants it and whose advisors are interested are encouraged to submit their work for publication and to present their results at a scientific meeting. Over the years several participants have taken advantage of such opportunities.

The results of the past ten years of the ONR/Duke Marine Laboratory HSIP are summarized in a series of appendices to this proposal. Appendix 1 lists the names and addresses of past ONR-HSIP participants along with the title of their research project and the name of their Duke Laboratory advisor. The titles of the projects reflect the broad range of interests of the staff of the Duke Laboratory. In the past, the Marine Laboratory was an
interdepartmental facility of the University with staff from the departments of Zoology, Botany, Geology, Biochemistry and Physiology. In 1991 the facility and its academic staff became a part of the newly created Duke University School of the Environment. The Laboratory plans in 1992 to become a Center of Ocean Sciences within the School. The research programs are as diverse as the staff and this is reflected in the variety of activities of the ONR interns.

Appendix 2 is a cross-referencing of information from Appendix 1 listing the staff members and the names of their interns. To date nineteen of the research staff have participated in the program, as well as two graduate students.

Appendix 3 is a summary of the publications and papers presented by ONR interns from 1982-1991. The list confirms the seriousness with which both the interns and the Laboratory staff view the program. It is very unusual for a high school student to be involved in either the publication of a scientific paper or the presentation of research results at meetings where almost all papers are by professional scientists and their graduate students. Eighteen percent (10 of 57) of the interns have participated in these post-program activities.

Appendix 4 presents the results of a two-page questionnaire which was mailed to 1982-1985 interns in 1986 and to 1987-1990 interns in 1991. The questionnaire was designed to learn what the former interns were doing and how the program may have influenced them. Replies were from twelve of the twenty interns ('82-'85) and thirteen of the thirty-one interns ('86-'90). The comments were retyped to improve their legibility but were not significantly edited. Of particular interest are the comments found on the second page (opposite side) of each questionnaire which indicate how the participant feels.
that the program has influenced their post-program activities. Most interns indicated that the program provided them an opportunity to understand much more clearly what a career in scientific research involved. Many said that it encouraged or reinforced their interest in science and mathematics while several indicated that the experience was valuable in a decision not to pursue a career in scientific research.

Appendix 5 lists the post-program educational activities of the 1982-1991 interns insofar as we have been able to determine them from the questionnaire or conversations with high school counselors. Most are attending or have graduated from colleges in North Carolina with the greatest number majoring in biology or mathematics. Career plans are not clear for the most recent interns although medicine (practice or research) heads the list for those who have decided.

PROPOSAL FOR 1992-1997

Plan

The Duke University Marine Laboratory is an ideal place to expose selected high school students to research in the various fields of marine science. The Laboratory combines the academic atmosphere of a teaching institution with the intellectual intensity of a highly successful research institute. Exposing students to basic research in an academic environment ensures that they are taught rather than used as an extra pair of hands. The past five years have been a benefit to the interns and to the Laboratory and the staff is enthusiastic about continuing the program in the future.

The plan for the HSIP is to continue much as we have for the past ten years. During the first two years the program evolved toward the structure which is described above in the summary of our results to date. The number of interns, timing of the program and administrative structure is such that the
program runs very smoothly and fits well with other Marine Laboratory activities.

Timing

Timing of the program is such that the Laboratory must have a commitment of funds for the year by March 31 so that we may notify interns by the first of April. This is necessary because often the best students are those who make summer work plans and commitments early and these are the students which we most like to have in our program.

In response to suggestions from former interns the program was modified in 1991 to allow flexibility in program dates because of conflicts with school and activity schedules. We reduced the time from 10 weeks to 8 weeks for several of the interns and allowed interns to select their own beginning and ending program dates. The reduced time allowed interns to participate in other school related activities (e.g. sports camps, academic camps) or, in the case of NGSSM interns, to have a two-week visit with family before returning to boarding school. For 1992-1997, as a result of our 1991 experience, we are proposing to offer four 8-week internships and two 10-week internships.

Personnel

The Principal Investigator and Coordinator of the program will be Dr. William Kirby-Smith who has served in that capacity for the past eight years. Dr. Kirby-Smith is a Research Associate Professor who teaches in the regular academic program as well as being principal investigator on several sponsored research programs. His more than twenty-five years' work at the Laboratory ensures that the interns have an experienced mentor to help them and also ensures that the program is well managed.
Funds Requested

The attached budget proposal lists the funds requested for the program by major category. These funds include one month salary for the coordinator, stipends for the interns, living expenses for the interns (room and board for those from out of Carteret County and lunch in the Duke dining hall for those from the County), minor equipment and supplies for the research projects, postage, copying, telephone, and travel to cover anticipated expenses for intern(s) to present a paper at a scientific meeting and for local travel involved with the research projects.

Reporting

An annual technical report will be submitted to the contract officer by November 30 of each year. The report will describe the results of the previous summer's program.
CURRICULUM VITAE

William W. Kirby-Smith

Personal

Born November 5, 1942, Sewanee, Tennessee

Education

1964 A.B. Biology, University of the South, Sewanee, Tennessee
1970 Ph.D. Zoology, Duke University, Durham, North Carolina

Positions

1970 - 1975 Research Associate Duke University Marine Laboratory
1970 - present Director of the Duke University Marine Laboratory
Natural History Resource Center
1975 - 1982 Research Scientist, Duke University Marine Laboratory
1982 - present Research Associate Professor, Duke University
Marine Laboratory

Societies

American Association for the Advancement of Science
American Institute of Biological Scientists
American Society of Limnology and Oceanography
Ecological Society of America
Estuarine Research Federation

Activities

1973 Research Expedition to the Fiji Islands (10 weeks)
1976 National Science Foundation/Harbridge House
Review of the International Decade of Ocean Exploration
1975 Visiting lecturer and advisor for the staff of the Biology Department of the University of Bahia, Salvador, Brazil (7 weeks). Rockefeller Foundation.
1976 National Science Foundation Workshop on Secondary Production
1978 - 1979 NOAA R/V ALVIN Scientific Review Program Committee
1978 - 1991 Member of the Coastal Resources Advisory Council of the State of North Carolina
Activities (cont'd)

1978 Research Advisor at the Naval Oceanographic Institute, Guayaquil, Ecuador (8 weeks).

1979 Environmental Protection Agency Workshop on Nutrient Enrichment in Estuaries

1980 National Science Foundation Review Panel for the Undergraduate Research Participation Program

1981 - 1982 National Academy of Sciences. Consultant to the Marine Board on the fate and effects of drilling muds and cutting on the OCS.

1982 Co-organizer (U.S., Canada, and European Participation) of the "International Symposium on Utilization of Coastal Ecosystems," held at the University of Rio Grande, R.S. Brazil. (N.O.A.A. and the Rockefeller Foundation)

1983 - 1986 Editor for Proceedings of International Symposium on Utilization of Coastal Ecosystems

1985 - present Technical Advisory Committee to the N.C. National Estuarine Research Reserve Program

1988 Vice Chairman, Coastal Resources Advisory Council

Research


1970 - 1979 Phytoplankton/detritus concentrations and their effects on the growth of suspension feeding animals.

1974 - 1979 Water quality ramifications in estuaries of converting forest to intensive agriculture. (with R.T. Barber) North Carolina Water Resources Research Institute

1975 - 1980 Effects of thermal additions on the dynamics of the fouling communities at Beaufort, North Carolina. Environmental Protection Agency

William W. Kirby-Smith
Curriculum Vitae: 3

Research (cont’d)

1978 - 1979 Description of benthic communities near the discharges from Weyerhaeuser pulpmills in North Carolina. Weyerhaeuser Corporation


1985 - present The effects of open marsh water management on invertebrate, fish and bird populations. N.C. Dept. of Human Resources, Division of Health Services.


1989 - present Benthic ecology of Isaac Creek. Weyerhaeuser Company

1989 - present Water quality and estuarine circulation. Weyerhaeuser Company

Teaching

Current

Spring Term
B296S Natural History of Coastal Marine Systems (2 s.h.)
B192 Independent Study (3-4 s.h.)
MBS100 Marine Environment (6 s.h.)

Summer Term I
B176 Marine Invertebrate Zoology (6 s.h.)

Fall Term
B176 Marine Invertebrate Zoology (4 s.h.)
B192 Independent Study (3-4 s.h.)

Past

1973 - present MRS100 The Marine Environment (Cooperative Undergraduate Program in Marine Science)
A 6-week intensive program in Oceanography, Marine Biology and Independent Study for non-Duke students (6 s.h. April-May)

1983-1987 Bio 10L Marine Biology (4 s.h. Summer Terms 1 and 3)
Teaching (cont'd)

1986-1988
Zoo 76L Marine Invertebrate Diversity (4 s.h. - Fall Term)

1988 - present
Zoo 176L Marine Invertebrate Zoology (4 s.h. - Fall and Summer Term)

1972 - present
Bio 191, 192 Independent Study (3-4 s.h. Fall and/or Spring Term)

1981 - present
Bio 296S Natural History of Coastal Marine Systems (2 s.h. Spring Term)

1984 - present
Office of Naval Research: High School Intern Program (Summer, 6 participants, 8-10 weeks)

1984
Bio 167 Analysis of Marine Ecosystems (4 s.h. Fall Term)

1983
Bio 169 Organization of Marine Communities (4 s.h. Fall Term)

1978
Coordinator for NSF Undergraduate Research Participant Program and Advisor for NSF Student Originated Studies Program

1971 - present
Curator/Director, Natural History Resource Center. Provides advice and facilities for undergraduate/graduate students in residence at DUML.

Field of Expertise

Ecology and feeding physiology of marine animals
Taxonomy of marine invertebrates
Distribution and abundance of marine invertebrates
Ecology of fouling communities
Effects of thermal additions (thermal pollution)
Effects of land alterations on water quality in estuaries
Ecology of epibenthic communities on the Continental Shelf
Effects of agrochemical runoff in estuaries
Ecology of fecal coliform bacteria
### Publications

<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
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William W. Kirby-Smith
Curriculum Vitae: 6

Publications (cont'd)


William W. Kirby-Smith
Curriculum Vitae:  

Publications (cont’d)


Technical Reports


## Proposed Budget for Sponsored Research

To Office of Naval Research

Effective dates: May 1, 1992 through April 30, 1997

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<td>M. Kirby-Smith, Coordinator (1 mo)</td>
<td>4,356</td>
<td>4,617</td>
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<td><strong>Total Personnel</strong></td>
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<td>5,665</td>
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<td>4 for 8 weeks, 2 for 10 weeks, $240/wk</td>
<td>12,480</td>
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<td>2 NCSSN Interns (8 weeks)</td>
<td>4,220</td>
<td>4,430</td>
<td>4,652</td>
<td>4,884</td>
<td>5,128</td>
<td>23,314</td>
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<td>4 Carteret County Interns (2 for 8 wks, 2 for 10 wks)</td>
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<td><strong>Other Direct Costs</strong></td>
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<td>Supplies and materials ($600/intern)</td>
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<td>Telephone, FAX, postage, copies</td>
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<td>Travel</td>
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<td><strong>Total Direct Costs</strong></td>
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<td>(52% NTDC)</td>
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<td>15,358</td>
<td>15,684</td>
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<td><strong>Cost/student</strong></td>
<td>7,054</td>
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<td>7,332</td>
<td>7,482</td>
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## Appendix 1. OMR HSIP Participants, 1982-1991

### 1982

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<th>Participant</th>
<th>School</th>
<th>Advisor</th>
<th>Research Topic/Paper Title</th>
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<tr>
<td>Mr. Robin J. Cunningham</td>
<td>NC School of Science &amp; Mathematics; Durham, NC 27707</td>
<td>Dr. J. Bonaventura (Protein structure and function)</td>
<td>Leghemoglobin isolation from soybean root nodules</td>
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<tr>
<td>Ms. Margaret (Meg) Getling</td>
<td>NC School of Science &amp; Mathematics; Durham, NC 27707</td>
<td>Dr. J. Rasm (Algal ecological physiology)</td>
<td>The effect of nitrogen pulses on chlorophyll levels in natural assemblages of marine phytoplankton</td>
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<tr>
<td>Ms. Carla Humphrey</td>
<td>West Carteret School; Morehead City, NC 28516</td>
<td>Dr. R.B. Forward (Physiology of marine animals)</td>
<td>Asymmetrical tidal behavior in the fiddler crab <em>Uca pugnax</em></td>
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### 1983

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<th>Participant</th>
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<th>Advisor</th>
<th>Research Topic/Paper Title</th>
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<tr>
<td>Mr. Eric Banzhaf</td>
<td>West Carteret High School; Morehead City, NC 28557</td>
<td>Dr. D. McClay (Developmental biology)</td>
<td>Effects of antibodies on the development of <em>Lytechinus variegatus</em> and <em>Arbacia punctulata</em> from fertilization to pluteus</td>
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1983 (con't)

Ms. Amy Betts
210 Vine Street
Beaufort, NC 28516

School:
East Carteret High School; Beaufort, NC 28516
Advisor:
Dr. E. Hooper (Chemical communication)
Dr. D. Rittschof (Chemical ecology)
Research Topic/Paper Title:
Inhibition of barnacle settlement by natural products from a sponge

Ms. Laine E. Doggett
P.O. Box 1016
Rutherfordton, NC 28139

School:
NC School of Science & Mathematics; Durham, NC 27707
Advisor:
Dr. R.T. Barber (Biological oceanography)
Research Topic/Paper Title:
Nutrient ratios and nutrient temperature relationships in the eastern tropical Pacific during 1982-1983 El Nino

Mr. Vincent Knight
Rt. 3, Box 317
Mt. Gilead, NC 27306

School:
NC School of Science & Mathematics; Durham, NC 27707
Advisor:
Drs. C. and J. Boneventure (Protein structure and function)
Research Topic/Paper Title:
The effect of salinity on the occurrence of hemocyanin as hexamers and dodecamers in the blue crab (Callinectes sapidus)

1984

Ms. Rebecca Heath Cole
200 E. 34th Street
Southport, NC 28583

School:
West Carteret High School; Morehead City, NC 28557
Advisor:
Dr. R.R. Forward (Physiology of marine animals)
Research Topic/Paper Title:
Hatching rhythms in the shrimp Palaeomonetes pugio

Mr. Robert F. Fink
P.O. Box 13
Gloucester, NC 28528

School:
East Carteret High School; Beaufort, NC 28516
Advisor:
Dr. J. Ramsa (Algal ecological physiology)
Research Topic/Paper Title:
Speciation in the seaweed Gracilaria
Mas. Ivy L. Gates
Rt. 2, Box 596
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. J.B. Costlew (Marine invertebrate embryology and experimental zoology)
Dr. D. Rittschof (Chemical ecology)
Research Topic/Paper Title:
Biological effects of natural products from a colonial tunicate, Aplidium castellatum

Mr. J. Kevin Jones
302 Virginia Avenue
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. U. Kirby-Smith (Marine ecology)
Dr. J. Ustach (Marine biology)
Research Topic/Paper Title:
The distribution and abundance of the clam, Raphana simplex, in the upper Neuse River estuary

Ms. Miriam Katie Lofve
9201 Sandburg Avenue
Charlotte, NC 28213

School: NC School of Science & Mathematics; Durham, NC 27707
Advisor: Drs. C. and J. Bonaventura (Protein structure and function)
Research Topic/Paper Title:
(1) Active site heterogeneity in subunits and oxygen binding domains of hemocyanin; (2) Quantification of novel materials for iron chelation; (3) A search for an alternative bait for the blue crab, Callinectes sapidus

Mr. Brian T. Rice
610 Leander Street
Shelby, NC 28150

School: NC School of Science & Mathematics; Durham, NC 27707
Advisor: Dr. R.T. Barber (Biological oceanography)
Research Topic/Paper Title:
The pattern of temporal variability of selected oceanographic properties in the Galapagos Islands during the 1982-83 El Nino

1995

Ms. Laura Susan Barlow
598 Trent Acres
Pawleysville, NC 28573

School: NC School of Science & Mathematics; Durham, NC 27707
Advisor: Dr. D. Rittschof (Chemical ecology)
Research Topic/Paper Title:
Chemoreception in land hermit crabs
No. Amy Jo Gillespie
115 Gulf Harbor Drive
Newport, NC 28570

School:
Adviser:
Research Topic/Paper Title:
West Carteret High School; Morehead City, NC 28557
Dr. T. Johnson (Geological oceanography)
Organic carbon analysis of Lake Turkana sediments

Mr. Bobby Brown Goodwin, Jr.
Rt. 1, Box 38
Beaufort, NC 28516

School:
Adviser:
Research Topic/Paper Title:
East Carteret High School; Beaufort, NC 28516
Dr. V. Kirby-Smith (Marine ecology)
Habitat maps of the Rachel Carson Estuarine Sanctuary using aerial photographs

No. Martha Pilar Sanderson
Rt. 3, Box 26
Beaufort, NC 28516

School:
Adviser:
Research Topic/Paper Title:
East Carteret High School; Beaufort, NC 28516
Dr. R.T. Barber (Biological oceanography)
Temperature-nutrient relationships in the upper layers of the equatorial Pacific

No. Melissa Anne Venable
213 Hodges Street
Morehead City, NC 28557

School:
Adviser:
Research Topic/Paper Title:
West Carteret High School; Morehead City, NC 28557
Dr. J. Ramus (Algal ecological physiology)
Frequency of nitrogen fertilization in Ulva curvata and Codium decorticatum

No. Pamela Lynn Yount
Rt. 5, Box 100
Nickle, NC 28501

School:
Adviser:
Research Topic/Paper Title:
NC School of Science & Mathematics; Durham, NC 27707
Dr. D. McClay (Developmental biology)
Comparison of antigen expression in the sand dollar and sea urchin

*No formal paper required insofar as product of research effort resulted in a group of habitat maps.
1994

Mr. Jim Curtis
110 S. Yapun Terrace
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. J. Ramos (Algal ecological physiology)
Research Topic/Paper Title: Horizontal water structure of Newport estuarine waters

Ms. Sarah Potter
107 Pleasant Drive
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. R.T. Barber (Biological oceanography)
Research Topic/Paper Title: The concentration of nutrients and the relationship between the physical properties in the Galapagos region of the Pacific during the 1982-83 El Nino

Ms. Ellen Safrit
1760 Parker Lane
Randleman, NC 27346

School: NC School of Science & Mathematics; Durham, NC 27707
Advisor: Dr. J. Ramos (Algal ecological physiology)
Research Topic/Paper Title: The vertical structure of the water column in estuarine waters

Mr. Matt Macowitak
9025 Holleagat Road
Charlotte, NC 28215

School: NC School of Science & Mathematics; Durham, NC 27707
Advisor: Dr. D. Kitzschof (Chemical ecology)
Research Topic/Paper Title: The ability of ghost crabs (Ohyodes quadris) to locate food using olfaction

Mr. David Vey
P.O. Box 214
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. J. Ustach (Marsh ecology)
Research Topic/Paper Title: Sea squirt (Styela plicata): Can they filter bacteria?

Ms. Ann-Marie Willis
P.O. Box 1716
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. W. Kirby-Smith (Marine ecology)
Research Topic/Paper Title: Habitat mapping of the Rachel Carson Estuarine Sanctuary
1987

Ms. Sarah A. Boone
111 Sandpiper Drive
Newport, NC 28570

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. J. Bacon (Algal ecological physiology)
Research Topic/Paper Title: Vertical optical properties within the water column of the Newport River estuary

Ms. Laurel P. Falls
2410 Evans Street
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. W. Kirby-Smith (Marine ecology)
Research Topic/Paper Title: Diurnal variability in nutrients and phytoplankton biomass in the South River

Ms. M. Leslie Hill
1507 Front Street
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. D. Rittschof (Chemical ecology)
Research Topic/Paper Title: The vertical and horizontal movements of hard clams Mercenaria mercenaria

Mr. Hugh M. Howard
426 Scott Avenue
Jacksonville, NC 28540

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. J.D. Costlow (Crustacean development)
Research Topic/Paper Title: Effects of the pesticide Diazinon on regeneration of the mud crab, Rhithropanopeus harrisi

Mr. Mark D. Ollis
2 Fourridge Road
Chapel Hill, NC 27514

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. R.T. Barber (Biological oceanography)
Research Topic/Paper Title: Nutrient studies during the Coastal Transition Zone Pilot Program
1997 (cont'd)

Mr. Duncan S. Parks
1609 Oaklawn Avenue
Greenville, NC 27834

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. J. Ramsa (Algal ecological physiology)
Research Topic/Paper Title: Factors affecting the horizontal distribution of algae in the Newport River estuary: irradiance, turbidity, nutrient availability, and tidal action

Ms. L. Paige Pence
P.O. Box 1511
Morehead City, NC 28557

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. T. Johnson (Geological oceanography)
Research Topic/Paper Title: Geological study of Lake Malawi - silicon analysis

1998

Ms. Jennifer N. Bennett
P.O. Box 1659
Atlantic Beach, NC 28512

School: East Carteret High School; Morehead City, NC 28557
Advisor: Dr. J.P. Sutherland (Marine ecology)
Research Topic/Paper Title: The effects of flow and feeding by Styela plicata on the larval settlement in a subtidal community

Ms. Marielke J. Brown
134 Charles Street
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. W. Kirby-Smith (Marine Ecology)
Research Topic/Paper Title: The effect of school size on the efficiency of predation

Ms. Regan A. Ruff
100 Kirkwood Drive
Chapel Hill, NC 27514

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. D. Mottchof (Chemical ecology)
Research Topic/Paper Title: Attraction of the hermit crab Eillemarius vittatus to a chemical in wounded gastropod flesh
1998 (cont'd)

Ms. Celeste Posey
920 Cornouaire Circle
Cary, NC 27511

School:        NC School of Science & Mathematics; Durham, NC 27705
Advisor:       Dr. R.E. Forward (Physiology of marine animals)
Research Topic/Paper Title: Determining who controls larval release in fiddler crabs through shifted light-dark cycles and effects of ablat ing vigorous females on larval release

Mr. Dewey M. Sasser
Rt. 2, Box 604
Beaufort, NC 28516

School:        East Carteret High School; Beaufort, NC 28516
Advisor:       Dr. W. Kirby-Smith (Marine ecology)
Research Topic/Paper Title: A comparison between the effects of forest runoff and farm runoff on the South River estuary

Mr. Joseph C. Taylor
112 Midyette Avenue
Havelock City, NC 28557

School:        West Carteret High School; Morehead City, NC 28557
Advisor:       Dr. T. Johnson (Geological oceanography)
Research Topic/Paper Title: Sedimentological studies of Lake Turkana (Kenya)

1989

Ms. Eun Joo Cho
7820 Lawyers Road
Charlotte, NC 28212

School:        NC School of Science & Mathematics; Durham, NC 27705
Advisor:       Dr. T. Johnson (Geological oceanography)
Research Topic/Paper Title: Development of a cost efficient remote sensing system

Mr. W. Jay Cuthrell
1611 Mulberry Street
P.O. Box 881
Beaufort, NC 28516

School:        East Carteret High School; Beaufort, NC 28516
Advisor:       Dr. R. Ortega (Benthic marine ecology)
Research Topic/Paper Title: Spatial and temporal variation in oyster larval availability
1989

Ms. Alice Dawn Ingram
905 Russell Street
Greenville, NC 27834
School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. W. Banley (Algal ecophysiology)
Research Topic/Paper Title: Determination of the susceptibility of *Hypnea*, *Dictyota*, and *Gracilaria* to photoinhibition through analysis of growth rates, photosynthesis, and fluorescence

Ms. Carrie L. Kappel
P.O. Box 94
Gloucester, NC 27834
School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. P. Brouwer (Role of metal ions in biological systems)
Research Topic/Paper Title: Studies of the effects of hypo-osmotic conditions on hemocyanin synthesis, oxygen binding properties, and subunit composition of *Callinectes sapidus* hemocyanin

Mr. Chris Martin
P.O. Box 367
Atlantic Beach, NC 28512
School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. W. Kirby-Smith (Marine biology)
Research Topic/Paper Title: Studies of the physical effects of forest runoff on Isaac Creek

Ms. Allison N. Smith
P.O. Box 116
Salter Path, NC 28575
School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. J. Rasmuss (Algal ecological physiology)
Research Topic/Paper Title: Studies of time scales of variability and whether they influence phytoplankton and fisheries

1990

Mr. John R. Carlson
1105 Ann Street
Beaufort, NC 28516
School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. J. Lettach (Marsh ecology)
Research Topic/Paper Title: Effects of the benthic mollusk population on the South River
1990 (cont'd)

Ms. Julie K. Cheu
4205 Boxwood Road
Raleigh, NC 27612

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. D. Kittschof (Chemical ecology)
Research Topic/Paper Title: Peptide induced behavior of Paspuris longicornus in the lab and in the field

Ms. Karen S. Chou
8849 Wildwood Links
Raleigh, NC 27613

School: NC School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. A. Clare (Invertebrate biology)
Research Topic/Paper Title: The hatching substance of the barnacle, Balanus amphitrite

Ms. Zoey A. Forward
414 Ann Street
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. W. Kirby-Smith (Marine ecology)
Research Topic/Paper Title: Sediment profiles of the South River estuary

Ms. Elizabeth A. Oliver
95 Holly Court
Morehead City, NC 28557

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. R.R. Forward (Physiology of marine animals)
Research Topic/Paper Title: Effects of salinity and peptides on crustacean larval development

Ms. Susan D. Talley
4003 Leslie Lane
Emerald Isle, NC 28594

School: East Carteret School; Beaufort, NC 28516
Advisor: Mr. J.R. Kingston (Benthic microalgae)
Research Topic/Paper Title: Effects of groundwater flow on microalgal patchiness

1991

Mr. Charles J. Craig
P.O. Box 405
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Ms. K. Reinsel (Marine ecology)
Research Topic/Paper Title: Effects of fiddler crab foraging and tidal inundation on microalgal blooms on Bird Shoal
Mr. William L. Fells
2410 Evans Street
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. W. Kirby-Smith (Marine ecology)
Research Topic/Paper Title: Ammonia and chlorophyll cycles in upper estuarine creeks

Mr. Mario G. Ferruzzi
304 Fairview Drive
Beaufort, NC 28516

School: East Carteret High School; Beaufort, NC 28516
Advisor: Dr. A. Clare (Invertebrate biology; chemical ecology)
Research Topic/Paper Title: Studies of barnacle hatching and settlement pheromones and signal transduction

Mr. Jason H. Katz
4704 Beech Crest Place
Charlotte, NC 28269

School: NC High School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. D. Rittschof (Chemical ecology)
Research Topic/Paper Title: Chemically stimulated alarm/investigation responses of hermit crabs as related to shell fit and size

Ms. Prerana (Penny) N. Patel
Rt. 9, Box 264
Hickory, NC 28601

School: NC High School of Science & Mathematics; Durham, NC 27705
Advisor: Dr. R. Winn (Aquatic toxicology)
Research Topic/Paper Title: Designer genes: developing a transgenic fish for environmental evaluations

Mr. J. Samuel Taylor
4 Grady Court
Morehead City, NC 28557

School: West Carteret High School; Morehead City, NC 28557
Advisor: Dr. J.D. Costlow (Crustacean development)
Research Topic/Paper Title: Culture of regenerated chela of the larvae of the crab *Rhithropanopeus harrisi*
Appendix 2.  OWR HSIP Advisors and Interns, 1982-1991

Dr. Richard T. Barber
1983  Laine E. Doggett  NC School of Science and Mathematics
1984  Brian T. Rice  NC School of Science and Mathematics
1985  Marta P. Sanderson  East Carteret High School
1986  Sarah E. Potter  East Carteret High School
1987  Mark D. Ollis  NC School of Science and Mathematics

Drs. Celia and Joseph Bonaventura
1982  Robin J. Cunningham  NC School of Science and Mathematics
1983  Vincent Knight  NC School of Science and Mathematics
1984  M. Katie Leiva  NC School of Science and Mathematics

Dr. Marius Brouwer
1989  Carrie L. Kappel  East Carteret High School

Dr. Anthony Clare
1990  Sharon S. Chow  NC School of Science and Mathematics
1991  Mario G. Ferruzzi  East Carteret High School

Dr. John D. Costlow
1982  Carla Humphrey  West Carteret High School
1984  Ivy L. Gates  East Carteret High School
1987  Hugh M. Howard  NC School of Science and Mathematics
1991  Samuel J. Taylor  West Carteret High School

Dr. Richard B. Forward, Jr.
1982  Linda Taylor  East Carteret High School
1984  R. Heath Cole  West Carteret High School
1988  S. Celeste Posey  NC School of Science and Mathematics
1990  Elizabeth A. Oliver  West Carteret High School

Dr. William J. Hamley
1989  A. Dawn Ingram  NC School of Science and Mathematics

Dr. Irving Hooper
1983  Amy Betts  East Carteret High School

Dr. Thomas C. Johnson
1985  Amy J. Gillespie  West Carteret High School
1987  L. Paige Pence  East Carteret High School
1988  Joseph C. Taylor  West Carteret High School
1989  Eun Joo Cho  NC School of Science and Mathematics

Dr. Bruce R. Kenney
1989  Allison H. Smith  West Carteret High School

Mr. Michael B. Kingston
1990  Susan D. Talley  West Carteret High School
### OMR HSIP Advisors and Interns, 1982-1991 (cont'd)

#### Dr. William W. Kirby-Smith
- 1984: J. Kevin Jones, West Carteret High School
- 1985: B. Bryan Goodwin, Jr., East Carteret High School
- 1986: Ann-Marie Willis, West Carteret High School
- 1987: Laurel P. Falls, West Carteret High School
- 1988: Marijke J. Brouwer, East Carteret High School
- 1989: Chris Martin, West Carteret High School
- 1990: Soey A. Forward, East Carteret High School
- 1991: William L. Falls, West Carteret High School

#### Dr. David McClay
- 1983: Eric Bemish, West Carteret High School
- 1985: Pamela L. Yount, NC School of Science and Mathematics

#### Dr. Sonia Ortega
- 1989: W. Jay Cuthrell, East Carteret High School

#### Dr. Joseph S. Ramus
- 1982: Margaret Gatling, NC School of Science and Mathematics
- 1984: Robert F. Pink, East Carteret High School
- 1985: Melissa A. Venable, West Carteret High School
- 1986: Jim Curtis, West Carteret High School
- 1987: Ellen Safrit, NC School of Science and Mathematics
- 1987: Sarah A. Boese, West Carteret High School
- 1989: Duncan S. Parks, NC School of Science and Mathematics
- 1989: Allison H. Smith, West Carteret High School

#### Ms. Kathy Reinseel
- 1991: Charles J. Craig, East Carteret High School

#### Dr. Daniel Wittschof
- 1983: Amy Betts, East Carteret High School
- 1984: Ivy L. Gates, East Carteret High School
- 1985: Laura S. Barlow, NC School of Science and Mathematics
- 1986: Matt Wachowisk, NC School of Science and Mathematics
- 1987: M. Leslie Hill, East Carteret High School
- 1988: Regan A. Huff, NC School of Science and Mathematics
- 1990: Julia K. Cheu, NC School of Science and Mathematics
- 1991: Jason N. Kats, NC School of Science and Mathematics

#### Dr. John P. Sutherland
- 1988: Jennifer M. Bennett, West Carteret High School

#### Dr. Joseph Ustach
- 1984: J. Kevin Jones, West Carteret High School
- 1986: David Way, East Carteret High School
- 1990: John B. Carlson, East Carteret High School

#### Dr. Richard Winn
- 1991: Prerana N. Patel, NC School of Science and Mathematics
Appendix 3. OMR RSIP Summary of Publications and Papers Presented

Laura S. Barlow (1985)
Dr. D. Rittschof
3. Data presented in talk by D. Rittschof at the International Society of Chemical Ecology Meetings, San Francisco, California, June 1986

Amy Betts (1983)
Dr. R.E. Hooper and D. Rittschof
Paper entitled, "Inhibition of barnacle settlement by natural products from a sponge," published in EASE Journal of Science and Technology, University of California - Berkeley, June 1984

Rebecca Heath Cole (1984)
Dr. R.E. Forward

Laine E. Doggett (1984)
Dr. R.T. Barber

Mario G. Ferrusii (1991)
Dr. T. Clare
Contributing author to upcoming manuscript which will be submitted for publication

N. Leslie Hill (1987)
Dr. D. Rittschof

Jason N. Katz (1991)
Dr. D. Rittschof
Marta P. Sanderson (1985)
Dr. R.T. Barber
2. Paper (see above) presented at the Ocean Sciences Meeting of AGU and ASLO, New Orleans, Louisiana, January 1985

Melissa A. Venable (1985)
Dr. J. Ramus
2. Junior author of paper entitled, "Seaweed life form, growth rate and the variable environment"; published at later date

Matt Wachowiak (1986)
Dr. D. Rittschof
Appendix 4a. OMR HSIP Post-Internship Information (1982-1985)
Duke University Marine Laboratory
Beaufort, North Carolina

OUR HIGH SCHOOL INTERNSHIP PROGRAM
POST-INTERNSHIP INFORMATION

NAME: [Name]
NOTE: Use this form to provide information regarding your post-internship plans.

I. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (if you have not yet graduated, please note your expected year of graduation): [Year]

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: [Name of University]

Presently attending (X); Anticipated attendance ( ;

MAJORS: [List of Majors]

DEGREE SOUGHT: Bachelor of Science

EXPECTED DATE OF GRADUATION: [Date]

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: [Name of School]

ANTICIPATED MAJOR: [Major]

DEGREE SOUGHT: [Degree]

II. HONORS (high school and college or university):

National Merit Scholar

Horace Scholarship recipient at [University or College]

Member of Phi Beta Kappa Society at [University or College]

III. PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

IV. EMPLOYMENT OR PROFESSIONAL PLANS:

I hope to attend medical school.

V. LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work):

As part of the Horace Summer Program, I worked in Seattle, Washington, the summer of '86 with the Police Department and with the City Department. Last summer I worked with NASA in Huntsville, Alabama. This summer I'm studying French culture at the University of Tours in Tours, France, for 4 weeks. During the first two weeks in August I will study under a violin teacher at Oxford, England, who developed the method under which I have been studying at Chapel Hill.

(PLEASE COMPLETE REVERSE ALSO)

Note: Original form completed by [Name], subsequent editing by KUMI administrative personnel.
NAME: Robin J. Cunningham ('82)  
HOME ADDRESS (If your home address has changed, please note new address):

I.  EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (if you have not yet graduated, please put expected year of graduation): 1982

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: UNC at Chapel Hill
Presently attending (X); Anticipated attendance ( )

MAJOR: Applied Mathematics  DEGREE SOUGHT: Bachelor of Science
EXPECTED DATE OF GRADUATION: May 1987

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: Berkeley
ANTICIPATED MAJOR: Mathematics  DEGREE SOUGHT: Ph.D.

HONORS (high school and college or university): National Merit Scholar, Westinghouse Scholar
Phi Beta Kappa Honor Fraternity - Freshman & sophomore
Phi Beta Kappa President of UNC Chapter of Pi Mu Epsilon - the National Mathematics Honor Fraternity

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED: ---

III:  EMPLOYMENT OR PROFESSIONAL PLANS:

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work): Precollege Instructor at Duke's Talent Identification Program during the summers; Mathematics grader at UNC during the school months.

(PLEASE COMPLETE REVERSE ALSO)

Robin J. Cunningham ('82)

III: IN YOUR OPINION, WHAT EFFECT HAS THE OUR HIGH SCHOOL INTERNSHIP PROGRAM HAD UPON YOUR ACADEMIC AND/OR CAREER CHOICES OR PLANS AS WELL AS ACTUAL ACADEMIC OR JOB-RELATED ACTIVITIES OR PURSUITS? LIST ANY OTHER EFFORTS, INCLUDING PROS AND CON'S OF PROGRAM EXPERIENCE. (INCLUDE ANY RECOMMENDATIONS OR SUGGESTIONS FOR FUTURE OUR HIGH SCHOOL INTERNSHIP PROGRAMS.)

The OUR research internship program enhanced my interest in the possibility of a career in research. My experience at the Marine Lab probably contributed to my decision to proceed directly to graduate studies next fall.

The Marine Lab program gave me an excellent chance to see and do experimental research firsthand. My work there took a lot of the mystery out of scientific research and made it seem a much more attainable field.

The internship was also my first living and working experience away from home, exposing me to the research responsibilities and a chance to feel independent.

The program was overall a very positive enriching experience. I wouldn't trade it.

The only shortcoming the program had was that there was only one other person my age (16) living on the island, one of the other interns.
Duke University Marine Laboratory
Beaufort, North Carolina

ONE HIGH SCHOOL INTERNSHIP PROGRAM
POST-INTERNSHIP INFORMATION

NAME: Linda Paylor ('82)
HOME ADDRESS (If your home address has changed, please note new address):

I. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (If you have not yet graduated, please put expected year of graduation): 1983

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: East Carolina University
Presently attending (X): Anticipated attendance ( )
MAJOR: Math (Business minor)
DEGREE SOUGHT: Bachelor of Arts
EXPECTED DATE OF GRADUATION: May 1987

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: 
ANTICIPATED MAJOR: 
DEGREE SOUGHT: 

HONORS (high school and college or university): Health A.P.E. Award; Spanish Award; National Honor Society; Student Government (Pres./V.P.); Band Officer (Tuba-Suc. President); Senior Award; John Phillips House Award (junior); Jr. Women's Socialite Scholarship; Seaplane Bay Award; Worthing Scholarship; District Science and Math representative at E.C.U. (recreational, reclamation of fl's Lodge Scholarship); Key Officer; Freshman and Sophomore Class Favorite; Senior Superlatives (most likely to succeed; most talented)

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:
Prepared a scientific manuscript: "Asymmetrical Tidal Patterns of Reproduction in Fiddler Crabs"

II. EMPLOYMENT OR PROFESSIONAL PLANS: I plan to pursue a career in a math and/or business oriented field.

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work): Waitress at Sanitary Restaurant, Morehead City, NC: greets and serves patrons and at various times assigning specific duties to my co-workers.

(Please complete reverse also)
NAME: Amy Batts ('83)

HOME ADDRESS (if your home address has changed, please note new address):

1. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (if you have not yet graduated, please put expected year of graduation): June 1983

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: North Carolina State University

Presently attending ( ); Anticipated attendance ( )

MAJOR: Metallurgical Engineering

DEGREE SOUGHT: Bachelor of Science

EXPECTED DATE OF GRADUATION: May 1987

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND:

ANTICIPATED MAJOR:

DEGREE SOUGHT:

HONORS (high school and college or university):

Girl's State, English & Science Awards, Valmeyerian, Junior Science and Honorary Summum, national level; Dean's List, NC State; NC State Tutor Program; Honors English Club

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

"Inhibition of Bacterial Growth by Natural Products from a Marine" published in June 1983 in the Journal of Science and Technology, University of California - Berkeley

2. EMPLOYMENT OR PROFESSIONAL PLANS:

INDUSTRIAL WORK FOR THE STEEL INDUSTRY

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work):

Group Job at the Naval Air Base Facility, Cherry Point, NC - High Palmer Branch, Naval Engineering Support Office; Frank Russo, Supervisor

(Please complete reverse also)

Amy Batts ('83)

In your opinion, what effect has the Duke High School Internship Program had upon your academic and/or career choices or plans as well as actual academic or job-related activities or pursuits? List any other effects. Include Pros and Cons of Program Experience. (Include any recommendations or suggestions for future Duke High School Internship Programs.)

My experiences at Duke were certainly a major factor in my career decision. After the summer I spent there, I knew I could never pursue any vocation where I wouldn't be in a laboratory. I developed a strong love for science and technology that summer that I have never lost.

But science wasn't all I experienced while at Duke. I met people from all over the world and developed friendships that broadened my social horizons unbelievably.

My DHIP job was my favorite of all the jobs I've ever held. Many is the time I've wanted to go back. I wish everyone could have a job they enjoyed so much. I hope the DHIP program will continue to exist and instill in its employees an undying devotion to science like it has in me.
NAME: Vincent Knight ('83)

ADDRESS (If your home address has changed, please note new address):
Rm. 3, Box 317
N.C. State, NC 27695

1. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (If you have not yet graduated, please put expected year of graduation): 1983

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: Davidson College
Presently attending (X ); Anticipated attendance ( )
MAJOR: Mathematics DEGREE SOUGHT: Bachelor of Arts
EXPECTED DATE OF GRADUATION: May 1985

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: undecided
ANTICIPATED MAJOR: Medicine DEGREE SOUGHT: M.D. / Ph.D.

MOTIVES (High school and college or university):
- Edward Clinekendt Scholarship to attend Davidson College
- Malcolm Mays 1-year Scholarship
- National Achievement Scholarship
- Accepted into Brown University's 7-year Medical Program; awarded the
  Brown University Honor's Scholarship

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

II: EMPLOYMENT OR PROFESSIONAL PLANS: Planning to specialize in obstetrics.
Gynecology or pediatrics

III: IN YOUR OPINION, WHAT EFFECT HAS THE OR HIGH SCHOOL INTERNSHIP PROGRAM HAD
UPON YOUR ACADEMIC AND/OR CAREER CHOICES OR PLANS AS WELL AS ACTUAL ACADEMIC
OR JOB-RELATED ACTIVITIES OR PURSUITS. LIST ANY OTHER EFFECTS. INCLUDE
PAS OR CONS OF PROGRAM EXPERIENCE. (INCLUDE ANY RECOMMENDATIONS OR SUG-
GESTIONS FOR FUTURE OR HIGH SCHOOL INTERNSHIP PROGRAMS.)

The Internship Program at Beaufort offered the great opportunity to
actually live the life-style of a researcher. This is great because before
this experience, I didn't know whether or not my interest would lie in
research or practicing medicine. Now I can only see myself as a part-time
researcher instead of full-time. This gave me some direction. Furthermore,
It has given me the desire to pursue summer employment in the practical field
of medicine. Therefore, for the summer of '87, I am pursuing the position of
a intern at the Creigh Baptist Hospital in the Cameron Hospital in West
Africa.

I feel the program was very well organized. Having had the chance to
actually live on Piver's Island gave me an extended opportunity to see
researchers at work during all parts of the day. The guidance for the
students' research was great. My help came mostly from Gerald and Bruce,
who taught me the uses of the various instruments and lab techniques.
Lectures were informative, when they involved a related field to one's area
of study.

My specific program was divided into 4 weeks of introduction and 4
weeks on an independent project. I feel that less time is needed in
the introduction, and more time should be devoted to your specific project. I
suggest that the program be lengthened, with or without a pay increase, or
more of the time be allotted to the independent project.

(PLEASE COMPLETE REVERSE ALSO)
NAME: Rebecca Heath Cole (84)

NAME ADDRESS (If your home address has changed, please note new address):

I. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (If you have not yet graduated, please put expected year of graduation): 1985

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: St. Mary's College (1984-85)

Presently attending (X); Anticipated attendance ( )

MAJOR: Chemistry

DEGREE SOUGHT: Bachelor of Science

EXPECTED DATE OF GRADUATION: 1988

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: not sure—medical school

ANTICIPATED MAJOR: Pediatrics

DEGREE SOUGHT: M.D. and/or M.D.-Ph.D.

HONORS (high school and college or university):
Phi Theta Kappa (Honor Society)—honor society (high school) at St. Mary's College in Raleigh
Alpha Chapter Delta (Texas Honor Society) at ETSU—James McDaniel Award (most outstanding pledge to AED)

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED: March 1985 I presented a paper, "Matching Rhythms in Grass Shrimp" (the one I worked on during the summer at Duke in 1984) at the North Carolina Science Academy meeting at Guilford College

II: EMPLOYMENT OR PROFESSIONAL PLANS: After 4 years of undergraduate study, I plan to attend medical school and obtain an M.D. or M.D.-Ph.D. — plan to specialize in pediatrics and carry on research as well

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work): Waitress during the summer at various restaurants

The Steak, The Bar House, Donna Byrd, The Gourmet Salad Cafe; during the school year I tutor

(please complete reverse also)

Rebecca Heath Cole (84)

III: In your opinion, what effect has the Duke High School Internship Program had upon your academic and/or career choices or plans as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of program experience. (Include any recommendations or suggestions for future Duke High School Internship Programs.)

The Internship Program affected my career choices immensely! I now wish to go into research as well as medicine (thus I plan to obtain a M.D.-Ph.D. degree). I was able to see research first-hand and realized how much I enjoyed the challenge of the unknown. The program also made me think about why certain things happen the way they do (cause and effect).

I think applicants should be chosen on a basis of interest (not mainly academic or financial need). This is because the program would reinforce their career goals as a biologist. This program would not be as effective if applicants were chosen in order to try to begin students thinking about being biologists.

I enjoyed this program and highly recommend its continuation.
Brian T. Rice ('83)

III: In your opinion, what effect has the High School Internship Program had upon your academic and/or career choices or plans as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of program experience. (Include any recommendations or suggestions for future High School Internship Programs.)

It's hard to say. My academic and career plans were nebulous then and they're equally nebulous now. Nonetheless, I found the program valuable for the following reasons:

It gave me an opportunity to participate in actual ongoing research. I have always been attuned to the scientific viewpoint, and this experience intensified that.

My work with computers has proved very valuable. I have used the statistical and data management skills I learned on several occasions.

The fact that I was independent in almost all respects while in the program made a difference in my personal development.

(Please complete reverse also)
Laura S. Barlow ('85)

III: IN YOUR OPINION, WHAT EFFECT HAS THE OUR HIGH SCHOOL INTERNSHIP PROGRAM HAD UPON YOUR ACADEMIC AND/OR CAREER CHOICES OR PLANS AS WELL AS ACTUAL ACADEMIC OR JOB-RELATED ACTIVITIES OR PURSUITS? LIST ANY OTHER EFFECTS. INCLUDE PROS AND CONS OF PROGRAM EXPERIENCE. (INCLUDE ANY RECOMMENDATIONS OR SUGGESTIONS FOR FUTURE OUR HIGH SCHOOL INTERNSHIP PROGRAMS.)

(No response to this question.)
NAME: Amy Jo Gilleipple (85)  HOME ADDRESS (If your home address has changed, please note new address):

I. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (If you have not yet graduated, please put expected year of graduation): 1986

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: East Carolina University
Presently attending (X); Anticipated attendance ( )

MAJOR: Medical Technology  DEGREE SOUGHT: Bachelor of Science

EXPECTED DATE OF GRADUATION: 1990

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: none, as of present

ANTICIPATED MAJOR:  DEGREE SOUGHT:

HONORS (high school and college or university):
- N.C. State Scholars Award
- Presidential Academic Award
- National Honor Society Outstanding Member Scholarship

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED: None

II. EMPLOYMENT OR PROFESSIONAL PLANS: I plan to get a degree in Medical Technology and then I would like to work in a medical research lab.

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (Include employer, position held, and type of work):
- McDonald's--cashier (taking orders & money)
- Duke Marine Lab--research assistant (research & lab skills)
- Western Steer--line girl (taking food orders)
- Golden Corral--waitress (waiting on customers)

Amy Jo Gilleipple (85)

III. IN YOUR OPINION, WHAT EFFECT HAS THE OUR HIGH SCHOOL INTERNSHIP PROGRAM HAD UPON YOUR ACADEMIC AND/OR CAREER CHOICES OR PLANS AS WELL AS ACTUAL ACADEMIC OR JOB-RELATED ACTIVITIES OR PURSUITS? LIST ANY OTHER EFFECTS. INCLUDE PROS AND CONS OF PROGRAM EXPERIENCE. (INCLUDE ANY RECOMMENDATIONS OR SUGGESTIONS FOR FUTURE OUR HIGH SCHOOL INTERNSHIP PROGRAM.)

Being in the Our High School Internship Program provided me with invaluable knowledge and opportunities. I was able to learn how to operate expensive and sophisticated laboratory machinery that I never would have dreamed of before. Another important lesson learned concerns the employment of the scientific method. In high school the importance of the scientific method was never really stressed. However, at the lab it proved to be the basis of all that happened. I soon learned that without strict procedure and organization nothing would get done in experiments. From my experience, I learned that science and scientists are not mythical creatures that can do no wrong, instead science is hard work. It requires patience, persistence and a certain inner discipline.

Thus, from my summer in the Our Program, I decided that research science was what I really wanted to do. I plan to get a Bachelor of Science degree in the field of Medical Technology so that I can get a job in a medical research institute.

The only bad thing I can say about the Our Program would be that I think the students and their research projects should be matched together more carefully. I think the students should be able to see a list of proposed projects and let them pick something that interests them or something they know a little about.

In closing, I want to say that I think the program is FANTASTIC and I want to thank all the wonderful people at the lab that helped me to learn so much!
Duke University Marine Laboratory
Beaufort, North Carolina

OUR HIGH SCHOOL INTERNSHIP PROGRAM
POST-INTERNSHIP INFORMATION

NAME: Bobby Bryan Goodwin, Jr. (85)

HOME ADDRESS (If your home address has changed, please note new address):
Bobby Bryan Goodwin
201 Connor
UNC-Chapel Hill
Chapel Hill, NC 27514

1. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (If you have not yet graduated, please put expected year of graduation): 1985

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: UNC-Chapel Hill

Presently attending (X); Anticipated attendance ( )

MAJOR: undecided

DEGREE SOUGHT:

EXPECTED DATE OF GRADUATION: Spring 1990

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND:

ANTICIPATED MAJOR:

DEGREE SOUGHT:

HONORS (high school and college or university):

A.P. English
Beta Club

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

All those dealing with my employment in the Duke High School Internship Program

EMPLOYMENT OR PROFESSIONAL PLANS:

Undecided

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work): Our High School Internship Program/Duke University

(Please complete reverse also)

Bobby Bryan Goodwin, Jr. (85)

III: In your opinion, what effect has the Duke High School Internship Program had upon your academic and/or career choices or plans as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of program experience. (Include any recommendations or suggestions for future Duke High School Internship Programs.)

I regard my summer of work at Duke Marine Laboratory as a very educational and rewarding experience. I am currently attending UNC-Chapel Hill and I am still very undecided about my career pursuits. I definitely look back at my summer at Duke as a learning experience. I truly believe that further exposure and job related experience will help me to decide whether or not I wish to pursue a career in the field of marine biology.
Duke University Marine Laboratory
Beaufort, North Carolina

OHR HIGH SCHOOL INTERNSHIP PROGRAM
POST-INTERNESHIP INFORMATION

NAME: Melissa Anne Venable (85)
HOME ADDRESS (if your home address has changed, please note new address):

I. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (if you have not yet graduated, please put expected
year of graduation): 1986

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: Wake Forest University
Presently attending ( ): Anticipated attendance (X)
MAJOR: Biology; DEGREE SOUGHT: Bachelor of Science
EXPECTED DATE OF GRADUATION: May 1990

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: Not known
ANTICIPATED MAJOR: Not known; DEGREE SOUGHT:

HONORS (high school and college or university):
National Honor Society - 11 & 12
Beta Club - 9 & 10
South Carolina Business Week - 11
High School rank - top 1/10
Varsity Softball - Letter - 10

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

III: In your opinion, what effect has the Duke High School Internship Program had
upon your academic and/or career choices or plans as well as actual academic
or job-related activities or pursuits? List any other effects. Include
page and code of Program experience. (Include any recommendations or sug-
gestions for future Duke High School Internship Programs.)

The Duke Internship Program has definitely influenced my career plans
and academic pursuits. I have always wanted to enter a science-related
field, and the program at DUM has led me toward marine science. I want
to pursue a career in research, but I'm still not sure whether to go into
botany, geology, or chemistry. When I enter college in the fall, I plan
to experience these areas, and more, in order to decide which one is best
for me.

One thing that I really enjoyed about the program was the atmosphere
of Duke Marine Lab. I was readily taken in, by the students and the faculty,
as a part of the Lab itself. I was also given a lot of independence by my
advisor, Dr. J. Ramos. This helped me to begin to call on my own reasoning
and resources. My advisor and the people in his lab have also helped me out
in many ways since last summer. Among other things, they allowed me to
return last January, and helped me with a small project for a high school
class.

(please complete reverse also)
FEMALE LYNN YOUNT (85)

1. EDUCATION

YEAR OF HIGH SCHOOL GRADUATION (if you have not yet graduated, please put expected year of graduation): 1985

NAME OF UNDERGRADUATE COLLEGE OR UNIVERSITY: Duke University
Presently attending ( ) ; Anticipated attendance ( x )
MAJOR: Pre-med DEGREE Sought: Bachelor of Science
EXPECTED DATE OF GRADUATION: 1985

NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: Medical school
ANTICIPATED MAJOR: DEGREE Sought: Ph.D.

HONORS (high school and college or university):
- Atended R.C. School of Science and Mathmetics
- Atended R.C. Governor's School
- Selected S.S.E. for summer RE research from the Engineering Club

PUBLICATIONS, PAPERS PRESENTED, PROFESSIONAL MEETINGS ATTENDED:

II: EMPLOYMENT OR PROFESSIONAL PLANS: Doctor/Research Scientist

LIST ANY FULL-TIME OR PART-TIME EMPLOYMENT (include employer, position held, and type of work):

(PLEASE COMPLETE REVERSE ALSO)
Appendix 4b, OMFP Post-Internship Information (1986-1990)
III. In your opinion, what effects has the CER High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or prepared you? List any other effects. Include pros and cons of your CER REIP program experience. (Include any recommendations or suggestions for future CER High School Internship Programs.)

The CER REIP had a great effect on my academic and career directions. It is safe to say that I would not be doing what I am now doing if not for the REIP. As an intern, I worked with Dr. Ritschel on location of odor cues by ghost crabs. I attended a professional meeting and was another of a paper as a direct result of this work. More importantly, though, the experience sparked my interest in chemoreception and behavior. I have continued to pursue this interest, and am now starting graduate work on odion in labors. Because of my early experience in this field as a high school intern, I was able to take advantage of many subsequent opportunities, such as working in various labs and attending meetings. This has given me a great head start in my pursuit of an academic research career.

Suggestions for future: Better orientation for new interns; more encouragement to follow up projects, either as continued research or by attending meetings.
ILLUS, Ann-Marie (1986)

III. In your opinion, what effects has the OHS High School Internship Program had upon your academic and/or career choices or plans, as well as on your academic or job-related activities or pursuits? List any other effects. Include pros and cons of your OHS HIP program experience. (Include any recommendations or suggestions for future OHS High School Internship Programs.)

As a result of my OHS Internship, my initial major at NGU was science education (secondary school). My concentration was to be in biology with a second major in math. The level of secondary school changed my mind. However, I am still interested in science on the elementary school level, and in even pursuing a degree in marine biology in a few years. I learned through my experience at Duke Marine Lab how important science is in our society, and I hope to teach my students (even at a young age) to appreciate it.

My experience at the Lab was positive. I still hold great pride for the map I helped construct. Working with Dr. Kipper-Smith is something I will never forget. It is very exciting for a high school student to work alongside a college professor. It was also quite a learning experience. It firmly set me very excited about science and I hope to transfer my excitement to my students. It is important in our society for young people to care about science. Programs, such as OHS HIP, help spread knowledge about science and excitement about the field. Please help continue this excitement for our young people.

NAME: Ann-Marie Willis

PERMANENT ADDRESS: P.O. Box 1916
Borough City, NC 28827

YEAR OF INTERNSHIP: 1986

I. EDUCATION
A. YEAR OF HIGH SCHOOL GRADUATION (or expected year of graduation): 1987

B. NAME OF UNIVERSITY OR COLLEGE: N.C. State University
Presently attending ( )
Anticipated attendance ( )

MAJOR: Psychology
DEGREE AWARDED: B.A. May 1991

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL
YOU PLAN TO ATTEND:
Meredith College

ANTICIPATED MAJOR: K-6 Teacher Certification, December 1991

D. HONORS RECEIVED (high school and college or university)

E. PUBLICATIONS (scientific):

F. PAPERS PRESENTED (scientific):

PROFESSIONAL MEETINGS ATTENDED (scientific):

II. EMPLOYMENT OR PROFESSIONAL PLANS:
Teach elementary school and continue education in field of education

LIST FULL-TIME OR PART-TIME EMPLOYMENT:

Head, pre-school, teacher.
Sara A. Deese

Post-Internship Information

Do you think that the GSR High School Internship Program has enhanced your academic or job-related activities or projects? List any other effects. Include peer and non-peer recommendations or suggestions for future GSR High School Internship Programs.

Even though I have chosen Psychology as my major, the scientific aspects of the internship made an impact on my choice of science classes in college and how much easier they were to understand and make use. Dr. Deese taught not only how to use many types of equipment, but also how to take and analyze data. This particular aspect has significantly helped me in understanding probability and trends in psychological research.

The experience of working at the Marine Lab will never be forgotten. I learned so much about marine life, science, testing samples, and learning by trial and error.

I have so many complaints about that never once I request - make sure the intern understands completely what is expected and how to go about completing the data. There were many times I found myself confused and lost.

Thank you for giving me the opportunity to assist on my internship. The experience is something I will value for a long time.
Duke University Marine Laboratory
Beaufort, North Carolina

OCEAN HIGH SCHOOL INTERNSHIP PROGRAM

POST-INTERNSHIP INFORMATION

NAME: Laurel P. Falls

PERMANENT ADDRESS: 2410 Evans Street
Henderson City, NC 27537

YEAR OF INTERNSHIP: 1997

I. Education

A. YEAR OF HIGH SCHOOL GRADUATION (or expected year of graduation): 1998

B. NAME OF HIGH SCHOOL OR UNIVERSITY: UN-Chapel Hill

C. ANTICIPATED MAJOR: Journalism

D. ANTICIPATED DEGREE: B.A.

II. HONORS RECEIVED (high school and college or university)

A. HONORS RECEIVED: High School: National Honor Society, Academic Achievement Awards

B. PROFESSIONAL HONORS ATTAINED: None

III. Publications (scientific):

A. PAPERS PRESENTED (scientific): None

B. PROFESSIONAL MEETINGS ATTENDED (scientific): None

IV. Employment or Professional Plans:

A. WRITING FOR A NEWSPAPER: "Cartersville County News-Times, general reporter - summer"

Although my chosen major is not in a scientific field, my internship has been a positive influence in my studies. I learned a great deal about scientific research during the program and am planning to use that information in my writing to focus on scientific journalism.

My internship gave me a different perspective on a number of my science courses at UN-Chapel Hill because I already knew what took place outside the classroom.

My experience in the program was most definitely an overall positive thing. One suggestion I can make is to give students more background about their project and how it relates to their mentor's research.
Duke University Marine Laboratory
Beaufort, North Carolina

OUR HIGH SCHOOL INTERNSHIP PROGRAM

POST-INTERNSHIP INFORMATION

NAME: Jennifer M. Bennett

PERMANENT ADDRESS:
P.O. Box 1639
Atlantic Beach, NC 28512

YEAR OF INTERNSHIP: 1989

1. EDUCATION

A. YEAR OF HIGH SCHOOL GRADUATION
   (or expected year of graduation):
   1989

B. NAME OF UNDERGRAD COLLEGE OR UNIVERSITY:
   U.S. Military Academy
   Anticipated attendance: ( )

   MAJOR:
   Philosophy (PHI)
   B.A.

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL
   YOU PLAN TO ATTEND:
   Duke University

   ANTICIPATED MAJOR:
   Medicine
   M.D.

D. HONORS RECEIVED (high school and
   college or university)
   National Honor Society
   Academic Achievement Awards

E. PUBLICATIONS (scientific):
   None

   PAPERS PRESENTED (scientific):
   None

   PROFESSIONAL MEETINGS ATTENDED (scientific):
   None

II. EMPLOYMENT OR PROFESSIONAL PLANS:
   Army, medical school

III. In your opinion, what effects has the OMR High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of your OMR HIP program experience. (Include any recommendations or suggestions for future OMR High School Internship Programs.)

The OMR High School Internship Program was very valuable to me as an individual and as a student. The OMR program gave me the opportunity to "stand out" among my peers in my college application procedures. With the OMR program, I was able to experience the college research atmosphere that many college age students do not get to experience. The program let me be creative and it let me implement my creativity with actual research and a project.

I felt lucky to have so much available for me at the Marine Laboratory. In fact, I wish that I had been more proactive and confident in my research. In order to make full use of my resources and to gain the biggest educational benefit, I could have used more professional guidance and instruction. This may seem to take away from the "creativity and initiative of the individual", but I believe it would be an improvement for the intern in future programs.

Finally, one of the biggest benefits of the internship program is actually associating with college professionals and getting a taste for the experience of higher education. The program at the Marine Lab inspired my creativity and my willingness to complete a project through every step and method and to gain a sense of accomplishment upon its completion.
NAME:
Sharon Callee Poosy

PERMANENT ADDRESS:
920 Carnacott Circle
Cary, NC 27511

YEAR OF INTERNSHIP:
1988

1. EDUCATION
A. YEAR OF HIGH SCHOOL GRADUATION
(or expected year of graduation):
1989

B. NAME OF INSTITUTION COLLEGE OR UNIVERSITY:
Duke University

PERSONAL ATTENDANCE (X) Anticipated attendance ( )

MAJOR:
Biology; molecular/concent.

B.S.

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND:

ANTICIPATED MAJOR:
Immunology

P.D.; possibly M.D./P.D.

DEGREE SOUGHT:

D. HONORS RECEIVED (high school and college or university):

5th place 1989 Westinghouse Science Talent Search

IBM Watson Scholarship

Proven Award for Special Merit (full tuition scholarship to Duke U.)

Award for Latin/Univ Contest Only Dean's List with Distinction, all 4 semesters

Barry M. Goldwater Scholar

2. PUBLICATIONS (scientific):
None

PAPERS PRESENTED (scientific):
None

PROFESSIONAL MEETINGS ATTENDED (scientific):
None

3. EMPLOYMENT OR PROFESSIONAL PLANS:
Career in medical research

4. LIST FULL-TIME OR PART-TIME EMPLOYMENT:

89/90 SUMMER - CHRY-CHRY
Intern: 91 Summer - Admin.
Asst. at IBM

Poosy, Sharon Callee (1988)

III. In your opinion, what effects has the GMH High School Internship Program had on your career choice or plans, as well as your academic or job-related activities or pursuits? List any other effects. Include pros and cons of your GMH High School Internship Program experience. (Include any recommendations or suggestions for future GMH High School Internship Programs.)

To me, the study of biology can be divided into two distinct areas - small-thing biology (molecular biology, genetics, cell biology, microbiology, etc.) and large-thing biology (ecology, population studies, physiology, and most marine sciences). I had taken a course in high school (HDS) which allowed me to do independent research in small-thing biology, and I wanted an opportunity to experience large-thing biology. The GMH High School Internship Program gave me this opportunity. I was trying to narrow down and sort out what kind of career I wanted - after my experience with the research into E. coli manipulation in high school, I knew I wanted a career in research. My problem then became one of determining what sort of research. My internship at the Martin Lab enabled me to discover that I am more interested in biology at the cellular/subcellular level than at the physiology/ecology level. In other words, to return to my original distinction, I am a small-thing biologist at heart.

[Don't get me wrong - I thoroughly enjoyed my summer at UNC. But I do prefer working with things that grow in pots dishes working with circuits that run around on 8 legs who have no comprehension about plumbing one's thumb.]

Participating in the GMH High School Internship Program gave me great experience in general research techniques, techniques as simple as keeping a notebook, working with a budget, and writing and presenting a scientific report. The presentation I gave at the end of the summer outlining my work was my first real presentation to researchers/professors/colleagues who were experts in the field of the paper I presented - a frightening and educational experience.

Other Effects: 1) Although the research project I worked on in the 1989 Westinghouse Science Talent Search was the project which I worked on at GMH, I didn't use some of my E. coli experiences in some parts of the application. 2) It's hard for me to separate out the effects of the GMH High School Internship Program from the effects of stuff I did at HDS; however, I am sure the GMH High School Internship Program has had a significant role in obtaining both the scholarships and the job offers (in research) I have received. Pros: Covered above; I believe. I also learned more about times and tidier work than I could have dreamt possible. Cons: Don't work as hard, for a week to check on results in E. coli project. Seriously, I can't think of anything that definitely needs changing. I would support however, that internships are planned with professors and graduate students who completely have projects designed for interns. I was fortunate in that the professor I worked for (well, his grad student, actually) had a project for me. I could really get into it and take off with some of the interns I knew were stuck with projects that were repetitive drudge work - projects that are not educational. If I think of doing something interesting, I think of doing something interesting. At its core, research is learning how to ask questions, and I think interns ought to learn how to ask questions and be able to design ways to answer them. I was able to do this with my project; others interns I knew haven't.]
III. In your opinion, what effects has the CNS High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of your CNS HSEP program experience. (Include any recommendations or suggestions for future CNS High School Internship Programs.)

The CNS HSEP had no real effect on my career plans, but it gave me a greater understanding of what ecology is and its impact on our natural resources. I know that I studied oysters (Pomonosoma viridis) and I learned a great deal about what goes on at the lab and I am grateful for the opportunity.

The pros were excellent hours, good working companions, meaningful work and good pay. The cons were lack of time to prepare for entry into what to study for the summer and little exposure to studies other than the one assigned.
NAME: Chris Martin

PERMANENT ADDRESS: P.O. Box 397
                        Atlantic Beach, NC 28512

YEAR OF INTERNSHIP: 1989

I. EDUCATION

A. YEAR OF HIGH SCHOOL GRADUATION (or earliest year of graduation):
   1990

B. NAME OF UNDERGRAD COLLEGE OR UNIVERSITY:
   UNCG-Chapel Hill

   Majors attending (x)
   Anticipated attendance (_)

   MAJOR: Biology
   DEGREE SOUGHT: B.S.

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND:

   MAJOR: Marine Biology
   DEGREE SOUGHT: Ph.D.

D. HONORS RECEIVED (high school and college or university)

   High School:
   National Honor Society
   Most Outstanding Graduating Student
   Class Valedictorian
   UNCG Math Award
   Science Club Award
   National Science Scholar
   Academic Achievement Award
   College:
   Dean's list

II. PUBLICATIONS (scientific):
   None

   PAPERS PRESENTED (scientific):
   None

   PROFESSIONAL MEETINGS ATTENDED (scientific):
   None

III. In your opinion, what effects has the UNCG High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of your UNCG HIP program experiences. (Include any recommendations or suggestions for future UNCG High School Internship Programs.)

   The internship has assured me that I want to go into Marine Biology as a course of study in college as well as a profession out of college. The internship has also given me a chance to see what it is like to work as a marine scientist. It has also given me a job at the Marine Lab. I enjoyed the internship and highly recommend it for the future.

   Martin, Chris (1989)

   DUG Lab Technician for
   Dr. W. Kirby-Smith
Rhode Island School of Ophthamology, North Carolina

**NAME:** Allison Smith

**PERMANENT ADDRESS:** P.O. Box 116
Salt Lake City, UT 39378

**YEAR OF INTERNSHIP:** 1989

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### I. EDUCATION

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<th>A. YEAR OF HIGH SCHOOL GRADUATION</th>
<th>1990</th>
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<tr>
<td>B. NAME OF UNDERGRAD COLLEGE OR UNIVERSITY</td>
<td>East Carolina University</td>
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<td>Presently attending (x)</td>
<td>Anticipated attendance</td>
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<td>MAJOR:</td>
<td>Elementary Education Teaching Degree</td>
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<td>DEGREE SOUGHT:</td>
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### II. EMPLOYMENT OR PROFESSIONAL PLANS

| Teacher (grades K-6) |
| working in Carteret County |

**LIST FULL-TIME OR PART-TIME EMPLOYMENT:** Asst. Deli Manager

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### III. In your opinion, what effects has the OHR High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of your OHR HIP program experiences. (Include any recommendations or suggestions for future OHR High School Internship Programs.)

The effects of the OHR High School Internship Program were positive on me. I thought I wanted to be a marine biologist until I worked at the lab. No offense, I thought it would be like Jacques Cousteau, but it wasn't. I saw the way it really was—time outside in the field, three times more research in the lab. When I found out how it was, I decided that I wasn't cut out to be a marine biologist. There were more pros than cons to my program experience. I learned time-management skills, how to use the IBM computer, and how to work and learn from other people who knew a lot more than I did.

The cons were that my "instructor" had a real bad time relating to me and speaking in "layman" terms so that I could understand what he was talking about. He also would not show up for work, maybe on a trip or work to Wilmington or something with his class, and he would leave me a note on his door telling me to go home. That was no problem, except that I lived 30 minutes away.

All in all, my experience was very enlightening.
III. In your opinion, what effects has the CHR High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other effects. Include pros and cons of your CHR HSIP program experience. (Include any recommendations or suggestions for future CHS High School Internship Programs.)

I have always been interested in biology, so I can't say CHR HSIP opened that door for me. Participating in the Internship program did, however, make me much more aware of marine life than I had ever been before. In biology textbooks, marine life never seemed interesting -- after all, it was grouped with all the rest of primitive life, like insects, for example. Working at the Marine Lab, I found it hard to ignore marine animals since I virtually lived with them. I discovered that organisms actually lived in the same small area used to make necklaces and earrings. My professor, Dr. Doe, stressed, made it a special point to take me out at night to see bioluminescence and beaches coated with crabs. I learned all the weird things animals did to survive. Now, I have a new respect for animals; even insects seem rather intelligent with all the fancy equipment they've developed to kill and avoid being killed.

Not yet an undergraduate, I can't say what effect CHR HSIP has had on my job-related activities or pursuits. Being a person of many interests, I don't even know if I'll go into science. Getting a chance to do my own research, however, did make science look a lot more appealing. My job at CHR was a lot more exciting than the two boring technician type lab jobs I had held before.

I'm a rather social person, but my roommate during my summer at CHR wasn't necessarily. I think we had different experiences at CHR because of that. Many of the high school students outside of Carteret County tend to be the only people their age on the Island, maybe CHR could make some effort to introduce them to students in the area. Having use of a bicycle really helped me feel like I could "get away from it all" whenever I really wanted to. So, I hope CHR keeps that for it's students.
III. In your opinion, what effects has the ONR High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or permits? List any other effects. Include new and some of your ONR-on program experiences. (Include any recommendations or suggestions for future ONR High School Internship Programs.)

My senior year at ROSS, I enrolled in the Research in Biology course. I was interested in chemical extraction and chromatography techniques I had learned to use in my marine project (ONR HP) the summer before. I worked on a project studying the compounds in mussel wall of the North American mussel, *Mytilus californianus*. The previous practice made the lab work more time efficient, but my lab project was a lot more frustrating. It was very convenient that Dr. Clare (ONR HP mentor) was my supervisor, and had already been working with the mussel for a while. He supplied me with introductory material and explained the basic chemistry involved in the synthesis of mussel hatching substance. I didn’t fully realize or appreciate this advantage until my mussel project and I had to find information and equipment on my own and without much direction.

I enjoyed research work: it was outdoors, relaxed and informal.

I don’t know what I’m going to major in at UNO-Chapel Hill. I am interested in art. There is really no connection. I plan to follow the premedical track.

One thing that always come to mind when thinking about the summer of 1990, was how shocking the living experience was to me. Four or five years of age really makes a difference between same individuals, and age isn’t a necessary factor in one’s level of maturity.

I hope ONR will continue to offer this program ... It is a very special opportunity that can be very fulfilling. I would suggest a short break in the middle of the 10 weeks.

Sharon Chow (1990)
NAME: Sevy A. Forward

PERMANENT ADDRESS: 414 Ann Street
Beaufort, NC 28516

YEAR OF INTERNSHIP: 1990

I. EDUCATION

A. YEAR OF HIGH SCHOOL GRADUATION (or expected year of graduation): 1991

B. NAME OF BASED COLLEGE OR UNIVERSITY: Duke University

PRESENTLY ATTENDING ( )

ANTICIPATED ATTENDANCE (fall '91)

MAJOR: Biology (Pre-vet)

DEGREE SOUGHT: B.A.

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND:

N.C. State Univ. College of Veterinary Medicine

ANTICIPATED MAJOR: D.V.M.

DEGREE SOUGHT:

D. HONORS RECEIVED (high school and college or university):

Overall English, Math, and Science awards
Top Twenty (4 years)
Science Fair award
Presid. Acad. Fitness Award
Governor's School 1990
Scholar Athlete Awards
Principal's List
Valedictorian
Chief Marshall grad. 1990
H.S. Math Competition partis
Quiz Bowl & Science Olympiad

E. PUBLICATIONS (scientific): None

PAPERS PRESENTED (scientific): None

PROFESSIONAL MEETINGS ATTENDED (scientific): None

II. EMPLOYMENT OR PROFESSIONAL PLANS:

Veterinarian

III. In your opinion, what effects has the OER High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuit? List any other effects. Include pros and cons of your OER HSIP program experiences. (Include any recommendations or suggestions for future OER High School Internship Programs.)

The OER HSIP was a wonderful experience that I look back on and wish was never ending.
NAME: Elizabeth L. Oliver

PERMANENT ADDRESS: 95 Holly Court, Morehead City, NC 28557

YEAR OF INTERNSHIP: 1990

I. EDUCATION

A. YEAR OF HIGH SCHOOL GRADUATION (or expected year of graduation): 1991

B. NAME OF UNDERGRAD COLLEGE OR UNIVERSITY: UNCW-Chapel Hill

C. NAME OF GRADUATE OR PROFESSIONAL SCHOOL YOU PLAN TO ATTEND: Unknown

D. HONORS RECEIVED (high school and college or university)
    Jr. Class Secretary
    Sr. Class Vice President
    National Honor Society
    North Carolina Scholar
    Presid. Acad. Fitness Award
    Tandy Acad. Enroll. Award

II. PUBLICATIONS (scientific): None

PAPERS PRESENTED (scientific): OHR HEP paper

PROFESSIONAL MEETINGS ATTENDED (scientific): None

III. In your opinion, what affects has the OHR High School Internship Program had upon your academic and/or career choices or plans, as well as actual academic or job-related activities or pursuits? List any other affects. Include your and some of your OHR HEP program experiences. (Include any recommendations or suggestions for future OHR High School Internship Programs.)

The OHR HEP was beneficial for me in that it exposed me to the work involved in actual scientific research. Without this program, I would not have gained this knowledge. It has shown me that though research may be tedious and slow, it can be rewarding when the end results are discovered. The rewarding aspect of research has helped me in possibly majoring in science in college. I would recommend this program to anyone with an interest in science.

I thought the program was very well organized and had no problems with it. It was very helpful that the hours were flexible so other activities could be pursued through the summer.

I think it is important that this program be renewed because it gives high school students a valuable experience in scientific research which they cannot get elsewhere. Personally, I think it is the best job opportunity for a high school student in Carteret County.

EMPLOYMENT OR PROFESSIONAL PLANS: Sells girl at Galley Shack.
Appendix 5. OMR E1P Summary of Participants' Post-program
Higher Education & Career Plans/Fields
1982 - 1990

**EDUCATION**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornell University (Ithaca, NY)</td>
<td>1</td>
</tr>
<tr>
<td>Davidson College (Davidson, NC)</td>
<td>1</td>
</tr>
<tr>
<td>Duke University (Durham, NC)</td>
<td>9</td>
</tr>
<tr>
<td>East Carolina University (Greenville, NC)</td>
<td>4</td>
</tr>
<tr>
<td>Iowa State University (Ames, IA)</td>
<td>1</td>
</tr>
<tr>
<td>Massachusetts Inst. Technology (Cambridge, MA)</td>
<td>1</td>
</tr>
<tr>
<td>New York University (New York, NY)</td>
<td>1</td>
</tr>
<tr>
<td>North Carolina State University (Raleigh, NC)</td>
<td>3</td>
</tr>
<tr>
<td>North Carolina, University of (Chapel Hill, NC)</td>
<td>14</td>
</tr>
<tr>
<td>North Carolina, University of (Wilmington, NC)</td>
<td>1</td>
</tr>
<tr>
<td>Oberlin College (Oberlin, OH)</td>
<td>1</td>
</tr>
<tr>
<td>Tulane University (New Orleans, LA)</td>
<td>1</td>
</tr>
<tr>
<td>U.S. Military Academy (West Point, NY)</td>
<td>1</td>
</tr>
<tr>
<td>U.S. Naval Academy (Annapolis, MD)</td>
<td>2</td>
</tr>
<tr>
<td>Wake Forest University (Winston-Salem, NC)</td>
<td>1</td>
</tr>
<tr>
<td>Wofford College (Spartanburg, SC)</td>
<td>1</td>
</tr>
<tr>
<td>Yale University (New Haven, CT)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Major Departments**

- Biology: 10
- Biomedical Engineering: 2
- Biomedical Science: 2
- Chemistry: 2
- Computer Science: 1
- Education: 2
- Engineering: 2
- Journalism: 2
- Mathematics: 3
- Medical Technology: 2
- Military Science: 1
- Philosophy: 1
- Premedicine: 1
- Preveterinary Medicine: 1
- Psychology: 2
- Zoology: 1

**Undeclared**: 5
Summary of Participants' Post-program Higher Education & Career Plans/Fields (cont'd)

CAREER PLANS/FIELDS

| Education                      | 2 |
| Engineering, Biomedical        | 1 |
| Engineering, Industrial        | 2 |
| Environmental Science          | 1 |
| Journalism                     | 2 |
| Marine Research                | 1 |
| Math/Business                  | 1 |
| Medical Practice               | 6 |
| Medical Research               | 4 |
| Navy, U.S.                     | 1 |
| Neuroscience                   | 1 |
| Psychology, Child              | 1 |
| Science (unspecified)          | 1 |
| Veterinary Medicine            | 1 |
| Undecided                      | 7 |
Throughout this statement the masculine pronoun is intended as a comprehensive word to indicate both males and females.

CONTINGENT FEE

(a) He ___ has, ___ has not, employed or retained any company or persons (other than a full-time bone fide employee working solely for the offeror) to solicit or secure this contract, and (b) he ___ has, ___ has not, paid or agreed to pay any company or person (other than a full-time bona fide employee working solely for the offeror) any fee, commission, percentage, or brokerage fee contingent upon or resulting from the award of this contract; and agrees to furnish information relating to (a) and (b) above, as requested by the Contracting Officer. (Interpretation of the representative, including the term, "bona fide employee," see Code of Federal Regulations, Title 41, Subpart -1.5.)

EQUAL OPPORTUNITY

(a) He ___ has, ___ has not, participated in a previous contract or subcontract subject either to the Equal Opportunity clause herein or the clause originally contained in section 301 of Executive Order No. 10925; or the clause contained in Section 201 of Executive Order No. 11114; that he ___ has, ___ has not, filed any required compliance reports, signed by proposed subcontractors, or it will be obtained prior to subcontract awards. (The above representation need not be submitted in connection with contracts or subcontracts which are exempt of the equal opportunity clause.)

(b) The bidder (or offeror) represents that (1) he ___ has developed and has on file, ___ has not developed and does not have on file at each establishment affirmative action programs as required by the rules and regulations of the Secretary of Labor. [The above representation shall be completed by each bidder (or offeror) whose bid (offer) is $50,000 or more and who has 50 or more employees.]

STATEMENT REGARDING ACQUISITION OF FACILITIES

The contractor, represented by an executive corporate official, or his equivalent in non-corporate entities, either expresses in writing his unwillingness or financial inability to acquire the necessary facilities with his resources.

EQUIPMENT PURCHASING

Duke University cannot and will not purchase any equipment requested in this proposal.

I hereby agree with the above statements:

[Signatures]

Diane R. Gagnon
Business Manager