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EXECUTIVE SUMMARY

The Department of Biology and Marine Biology contributes importantly to the teaching, research, and public service missions of the University of North Carolina Wilmington (UNCW). The department began offering the Master of Science in Marine Biology in 1980, and the Master of Science in Biology in 1989. In 2002, we established the Doctor of Philosophy in Marine Biology, which was the first Ph.D. program at UNCW. Since the inception of these programs, we have graduated 337 M.S. students and one Ph.D. student, Dr. David Meyer. Four more Ph.D. students are scheduled to graduate by summer 2008. We enjoy continued student interest in our internationally known graduate program, averaging almost 90 applications per year for fall admission. Our program is selective – admitting, on average, 20% of applicants. These high-quality students enter a graduate program that takes very seriously their academic development. This commitment is reflected in the high retention rates of our students: 93.4% for our M.S. students from 2001-2007 and 92.9% for our Ph.D. students from 2002-2007.

Our students join a dynamic department, comprised of highly accomplished and competent faculty, graduate students and staff. Our faculty are university leaders in grant support, bringing $2-3 million in extramural funding to UNCW each year, which is essential to support student research activities, assistantships and summer stipends. This investment in our graduate students is manifested in their prodigious scholarly output. During the review period, graduate students have been authors on 116 peer-reviewed papers and on over 300 presentations at scientific meetings. In the past three years alone, 45 have received honors for their research and teaching, 22 have received independent extramural funding, and many have taken on leadership and service roles to their scientific and university communities. They also complete their graduate program in a timely manner. During the review period, the median time to graduation for our M.S. students was 2.5 years, and the mean time for our five Ph.D. students who will have graduated by summer 2008 is 4.5 years. Ninety percent of our students go onto jobs in their fields or into Ph.D. and professional programs.

The faculty conduct graduate research and educational activities while maintaining a deeply-rooted commitment to undergraduate education, which forms the backbone of our university. The vibrancy of the graduate programs promotes a research environment that is easily accessible to undergraduate students. This commitment means, though, that our faculty have heavy workloads for a Ph.D. granting department. While there are many positive features of our graduate programs, there are also notable weaknesses that threaten their sustainability and further development. Chief among these are the low stipends for M.S. Teaching Assistants, an insufficient availability of tuition remissions and scholarships, and a lack of university supported health insurance. Our M.S. students take on critical educational roles for our university, yet do not earn enough to meet basic costs of living. Because our M.S. students must also pay in-state tuition, they are currently being charged almost 40% of their wages to be enrolled in our program. Although our department has a long history of, and a continued commitment to, supporting graduate students with extramural grants, these financial deficits are so profound that institutional realignment is necessary to ensure the health and competitiveness of M.S. programs at UNCW.

While we have grown our Ph.D. program more slowly than was initially anticipated, that pace has ensured that students received the highest quality education possible with adequate financial support. However, our program has now grown to 12 students, and we have reached a critical juncture, where enhanced university investment, in the form of more Ph.D. TAs, will be required to assure the program’s sustainability and continued growth. Lastly, our strength as a department relies upon our ability to diversify. This goal is of fundamental importance, and our department is taking serious steps to include more historically under-represented groups among our faculty and students. We have much work ahead of us, and one important area where the university can enhance its support of these efforts is to provide targeted funding for increasing diversity. Enhanced financial packages available to both graduate
students and faculty candidates would strengthen our capacity to develop a more diverse university and department.
GRADUATE PROGRAM REVIEW
DEPARTMENT OF BIOLOGY AND MARINE BIOLOGY
2000-2007

1. GENERAL CHARACTERISTICS AND HISTORY

a. DEPARTMENTAL MISSION STATEMENT
The Department of Biology and Marine Biology is a major contributor to the teaching, research, and public service missions of the University of North Carolina Wilmington. We offer a variety of undergraduate and graduate programs that convey a rigorous and up-to-date understanding of the concepts, principles and theories of the biological sciences and provide our students with knowledge of basic investigative skills and methods of biological inquiry. In our research function, we contribute new insights into fundamental biological processes, from general biological principles, to coastal and marine environments, to biomedical sciences. Where possible, we focus on biological phenomena that impact upon the quality of life in our region and the nation. In our public service roles we lend our professional expertise to individuals and organizations working for the improvement of the human condition, especially those agencies committed to the environment.

In a liberal arts education, biology is of fundamental importance. It provides the student with an understanding of living systems from the level of the ecosystem down to the molecule. For both majors and non-majors, the study of biology encourages exploration of personal as well as professional interests. We recognize that our biology classes are particularly important for our non-majors; in their classes we emphasize the biological understanding needed to function successfully as consumers, citizens, and parents in the 21st century.

b. DESCRIPTION OF GRADUATE EDUCATION AND DATES OF NEW PROGRAMS
Graduate education and training in the department began with the establishment of the M.S. in Marine Biology program in 1980. The M.S. in Biology program was instituted in 1989. Since the inception of these programs, we have graduated 337 Master’s students.

In fall 2002, we established the Ph.D. in Marine Biology, which was the first doctoral program at UNCW. In spring 2006, Dr. David Meyer graduated as UNCW’s first Ph.D. student. Four more Ph.D. students are scheduled to graduate in summer 2008.

c. SIGNIFICANT ADDITIONS TO THE FACULTY
Since the last graduate program review (2000), 11 tenure-track faculty members have left the department (8 to retirement, and 3 to resignation). During the same period we have hired 13 new tenure-track faculty and 3 non-tenure-track faculty.

d. MAJOR CHANGES IN THE ORIENTATION OF THE ACADEMIC PROGRAM
Our department regularly reviews both its undergraduate and graduate programs to ensure that our curricula best serve the needs of our students. Following our most recent review, the M.S. curricula were deemed highly effective, although we did enhance the program this year by proposing a new core course, BIO 530: Advanced Topics in Evolutionary Biology. This core course will be taught for the first time next academic year.

Our Ph.D. program was included in this review process, even during the initial implementation of our newly-established curriculum. Although our Ph.D. program had a strong start, we discovered that there were mechanistic challenges to the delivery of the original curriculum, which needed to be
addressed to enhance the educational experience of our diverse Ph.D. student body. We undertook a rigorous review in 2004-2005, with input from both an ad-hoc Ph.D. Curriculum Committee and our Graduate Advisory Committee, and revised our Ph.D. core curriculum as described below. We feel strongly that these changes have enhanced our ability to serve the curricular needs of all of our graduate students.

The original core courses for the Ph.D. curriculum were BIO 601: Oceanography Core and BIO 602: Marine Biology Core (6 credits each). While these courses were designed to offer our Ph.D. students a broad survey of chemical, geological, physical and biological oceanography (BIO 601) and marine biology (BIO 602), they were also made available to all interested graduate students. Implementing these courses, though, presented a number of challenges. The 6 credit format made it difficult for our graduate students to take a core and any other course that may have been required or needed for their degree program. This substantial commitment in terms of time and budget (most other courses are 3-4 credits and tuition increases significantly for students taking more than 8 credits) was impractical for most M.S. students. In a sense, these Ph.D. courses were seen as “competing” against the M.S. core and elective courses for both students and for faculty teaching effort. Because BIO 601 and 602 courses were team-taught, this format required a large investment of departmental teaching power for a modest number of students. Further, BIO 601 required teaching expertise from outside of our department, which was unsustainable.

Following a thoughtful and considered review, the curriculum was revised to embrace the ideal of the core – to expose our Ph.D. students to a broad array of topics in marine biology and oceanography – while merging the Ph.D. and M.S. curricula into a single, integrative graduate program.

The revised Ph.D. program suggested that B.S./B.A. students entering our graduate program simply progress through their M.S. curriculum as it was currently designed. Beyond the M.S. work, the Ph.D. core would be delivered in the format of 2-3 credit “Graduate Seminars in Marine Biology” (catalogue descriptions below). These seminars are designed to cover the breadth of disciplines encompassed in marine biology, and to be inclusive of the teaching power of our entire graduate faculty. Our Ph.D. students are required to take 6 credits of seminar, one of which must be the new BIO 601: Oceanography and Environmental Science. BIO 601 has BIO 564: Biological Oceanography (or equivalent) as a pre-requisite. This requirement was based upon the committees’ belief that any Ph.D. student in Marine Biology must have a solid foundation in oceanography.

This seminar format has permitted all our graduate students to more easily integrate the courses into their schedule, introduced more flexibility and individuality into their curriculum, alleviated competition between current M.S. courses and seminars, reduced the teaching power problem, and supported a more in-depth, graduate treatment of the presented material. Each seminar title can be offered and taken more than once, and are open to all graduate students. This design has also permitted the participation of all interested graduate faculty in teaching 600-level courses, which has broadened and enriched the seminar series. We believe that these changes have enhanced our Ph.D. curriculum, and have helped integrate all of our departmental graduate programs. These changes have also helped serve graduate students in other marine-related programs, such as those in the Master’s of Marine Science program.

2. FINDINGS OF PREVIOUS REVIEWS

Our graduate program underwent a five year review in 2000. The invited external reviewers made 14 recommendations as to how we could enhance our programs. These are listed in italics below, and the department’s subsequent efforts to implement these recommendations follow each suggestion.

Curriculum
Suggestion #1. Schedule graduate classes on an annual basis.
We informally adopted annual scheduling in 2002, and formalized this process in 2006.

Suggestion #2. Strengthen the areas of molecular biology, bioinformatics and genetics; offer more courses in plant science.
Subsequent to the review, the department hired eight new faculty who have strengthened our ability to support more research and coursework in the fields of molecular biology, bioinformatics and genetics. These include Dr. Gregory Chandler (plant evolutionary biologist, specialization in molecular phylogenies), Dr. Heather Koopman (marine vertebrate physiologist, specialization in lipid biochemistry), Dr. Sean Lema (evolutionary endocrinologist), Dr. Richard Satterlie (invertebrate neurophysiologist), Dr. Bongkuen Song (marine microbiologist, specialization in molecular function), Dr. Ann Stapleton (plant physiologist, specialization in molecular genetics and bioinformatics), Dr. Alinson Taylor (cellular physiologist, specialization in marine protists), and Dr. Marcel van Tuinen (vertebrate evolutionary biologist, specialization in phylogenomic techniques).

We have enhanced our plant science offerings through the courses offered by our new botanical colleagues named above, and another new hire, Dr. Steven Brewer (plant terrestrial ecologist). For example, our plant biologists have, in the past ten semesters, offered eight BIO 585: Special Topics in Advanced Biology classes. These courses have offered the opportunity to create in-depth plant courses tailored to meet the curricular and research training needs of our graduate students.

Suggestion #3. Review the cross-listed courses and the graduate component of these courses to ensure standards are kept.
Our department has ended the practice of cross-listing undergraduate and graduate courses.

Graduate Student Life
Recommendation #1. Low wages for graduate TAs.
This recommendation continues to be a primary concern of our program. Since the last review, M.S. Teaching Assistant (TA) stipends have increased to $9,500/academic year. We feel strongly though, as does our Graduate Dean, that we need to continue to strive to increase M.S. stipends. We will address this concern in more detail below.

Recommendation #2. Lack of tuition remissions.
Although the Graduate School has made efforts to make more remissions available to our out-of-state students, no new remissions have been acquired by the department since 2001. This issue, along with the in-state tuition costs that all our M.S. students must pay, are major concerns of our program. We will address these concerns in more detail below.

Recommendation #3: Graduate student training in teaching, especially upper division courses.
Our department has made great strides to enhance the training of our graduate students as teachers. We continue to support a Coordinator for the lower division labs who is dedicated to training our TAs involved in these courses. In some lower and all upper division courses, TAs work directly with the professors teaching the course. Each year, the Graduate Coordinator meets with all Lab Coordinators to ensure that we are using best practices in mentoring our TAs. In addition to the monitoring provided by the Lab Coordinator, each spring, two faculty visit each TA’s lab, and offer their written review of the TA’s performance. We also train new TAs at “TA Boot Camp” during orientation. During this event, seasoned TAs talk to their new colleagues about teaching, and offer practical and philosophical advice about teaching. We also host an afternoon get-together of faculty and graduate teachers each year to discuss our shared mission of undergraduate education, and how best to enhance it. In addition, as a core
requirement for all our Ph.D. students, and as an elective for our M.S. students, we offer *BIO 694: Teaching Practicum*. This course is taught by faculty who have excelled at teaching, and focuses on the theory and practice of education.

We believe that enhancing the teaching experience of our graduate students is of the highest import, and we are pleased that a number of our graduate students have been honored with University Teaching Awards for their efforts (see below).

**Recommendation #4. Assignments to graduate students as soon as practical.**
We continue to strive to get TA assignments to students as soon as is practical.

**Recommendation #5. Graduate faculty member on examination committee to ensure fairness and equitable Oral Comprehensive Exams.**
The Graduate Advisory Committee held meetings with the graduate faculty to re-affirm the guidelines for fair comprehensive exams. Students are also encouraged to meet with committee members to ensure that they are prepared for the scope of questions they may be asked. To continue to assess the fairness and rigor of the M.S. oral exam, student performance is now an element of our formal graduate program assessment process.

**Recommendation #6. Ensure current listings in catalog are realistic, survey students to determine what should be offered.**
We review the catalog each year, and have removed courses no longer taught. We also have established a schedule to ensure the cores are offered in a predictable manner. The Biology Graduate Student Association (BIO GSA) has been asked for their assistance in polling graduate students on a yearly basis to determine which non-core courses are in demand. The Chair and the Graduate Coordinator meet with graduate students each year to assess perceived course needs.

**Recommendation #7. Summer funding to maintain research activities of the students.**
Securing funds for the research activities and summer stipends of graduate students is primarily the responsibility of the faculty mentor. In some cases, such funding is provided by the students, in the way of fellowships and grants, or through their employment agency (*e.g.* N.C. Division of Marine Resources, NOAA). We encourage all graduate faculty and students to seek out extramural support. There are few departmental funds available to support students on TAs because few courses are taught in the summer.

There is a competitive funding opportunity for graduate students through the Center for Marine Science (CMS). For the past two years, CMS has funded 5-10 CMS Graduate Student Summer Research Stipends ($1000). These stipends are competitively available for graduate students working in any marine related discipline. In previous years, CMS also supported the funding of competitive Pilot Projects, which often included summer funding for graduate students.

**Recommendation #8. Continue graduate program administration.**
We have continued to ensure oversight of our graduate program with the Graduate Advisory Committee, which includes two graduate student members, one M.S. and one Ph.D.

**Faculty**

**Recommendation #9: Hire faculty with background in Statistics, Molecular Biology and Plant Biology.**
As detailed in Recommendation #2 above, we have hired eight new faculty with strengths in molecular biology, and three plant biologists.
In addition, we have hired Dr. Fred Scharf, a fisheries biologist, who has team-taught a biostatistics course with colleagues in Mathematics and Statistics. Dr. Stapleton has enhanced our department’s collaborations with our colleagues in Mathematics and Statistics, and other departments, by helping form a multidisciplinary bioinformatics research group. An aim of this group is to create new statistical tools to analyze large bioinformatics datasets.

We have also recently hired Dr. Stuart Borrett, a quantitative ecologist whose expertise will enhance the mathematical modeling skills of our students.

During the open forums with students and faculty that occurred in preparation of this graduate review, it was reinforced that there is, though, still a strongly held sentiment that a biometrics course would be a valuable addition to our department’s graduate curriculum. This suggestion has now gone to the Graduate Advisory Committee for its consideration.

Recommendation # 10. Faculty discussions on the importance of diversity should be a part of recruitment and all aspects of the faculty.

Diversity issues have remained a priority of our department, and we have had success in attracting international colleagues to our faculty. The faculty have discussed strategies for further increasing the diversity of our faculty and our students. This year the topic has gained even more primacy across our campus, and we have created an ad-hoc committee on diversity within our department. This committee has been working closely with the search committees to develop strategies for increasing the diversity of our applicant pools for new hires. We hope that these efforts, and those of the higher administration, will yield greater success in attracting minority faculty to our university and our department.

Recommendation # 11. Junior faculty must be supported and mentored.

Our department strongly believes in the importance of mentoring our young faculty. Below please find our policy on mentoring junior faculty, from our Policies and Procedures document.

Guidelines for mentoring junior faculty

The hiring of each faculty member is an investment in the department’s future. The department hires promising faculty with the expectation that they will successfully complete a probationary period, achieve tenure, continue to develop and be promoted to full professor, and provide the university with years of estimable service. Accordingly, it is in the department’s interest to provide continuous mentoring of its untenured assistant professors (junior faculty) from the time of hiring until a tenure decision is made in an effort to promote a successful early career trajectory.

A central goal of the mentoring process is to ensure that the outcome of a reappointment or tenure decision is not a surprise to either the department or the candidate. The Chair of the Department will describe methods and criteria for assessment and annual review of faculty to all candidates interviewing for tenure-track faculty positions in the department. At the time of hiring, the Department Chair is again obligated to provide junior faculty with clear indications of the criteria necessary for achieving tenure and promotion in the department. During the new faculty member’s first semester, the Department Chair will offer additional advice on the tenure and promotion guidelines in an effort to help the new faculty member effectively construct their Faculty Expectations Worksheet. As part of the annual evaluation process, the chair must give each junior faculty member a candid written assessment of that person’s progress toward meeting the requirements for tenure and promotion, as well as practical guidelines for meeting those requirements. The Chair’s Advisory Committee will also provide written annual assessments for untenured faculty, including an assessment of progress toward tenure. Following faculty senate
guidelines, assessments for all untenured, tenure-track faculty will be made available to all senior faculty.

Each new faculty member will be assigned two faculty mentors by the end of his/her first semester at UNCW, one of whom will not have research interests similar to those of the new faculty member. The Department Chair will carefully select mentors that he/she believes will provide sound advice that is consistent with the general sentiments of the Chair and the senior faculty as a whole. This provides the new faculty member with the opportunity to consult with their mentors about departmental procedures, concerns and approaches to teaching, research progress, RTP expectations of department faculty, and any other concerns they may have. The mentor should encourage junior faculty to solicit advice from other senior faculty members in order to independently garner a sense of the full spectrum of departmental opinions. The mentor/new faculty relationship is meant to provide the new faculty a resource as they become acculturated to UNCW.

Research and Research Infrastructure

Recommendation # 12. Dean of College of Arts and Sciences should supervise CMS director.
Recommendation # 13. Establish an oversight committee to help Director.
Recommendation # 14. Rethink CMS Mission and clarify the 5- and 10-year goals.

The previous external reviewers noted that a lack of resolution on these issues could negatively impact our graduate programs. These recommendations are, though, outside the purview of our department. The Department endorses clarification of the responsibilities of the administrative structure for the marine sciences, noting that the Director already has dean-level rank. The Department also endorses clearer definition of administrative responsibilities, academic governance policies, accountability and assessment mechanisms, and resolution of conflicts of interest for marine science administration.

3. GENERAL PROGRAM CHARACTERISTICS

a. DESCRIPTION OF GRADUATE PROGRAMS

MASTER OF SCIENCE IN BIOLOGY AND MARINE BIOLOGY

The Department of Biology and Marine Biology offers programs of study leading to a Master of Science degree in biology and a Master of Science degree in marine biology. The programs are designed (1) to prepare students for further graduate work leading to the Ph.D.; (2) to provide professional biologists with advanced research and education opportunities; (3) to prepare students as managers of coastal and marine resources, trained to deal with contemporary problems in the environment; or (4) to provide a broad–based graduate program allowing for specialization in the diverse fields of inquiry represented by the faculty of the department. Teachers in secondary schools who wish to obtain graduate level teacher certification should check with the graduate coordinator in the School of Education to determine the current requirements for certification.

Admission Requirements

Applicants seeking admission to the graduate program in biology or marine biology are required to submit the following to the Graduate School:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, analytical writing)
4. Three recommendations by individuals in professionally relevant fields
Scores on the verbal, quantitative, and analytical writing, portions of the Graduate Record Examination (GRE) in the 50th percentile or above are desired. A bachelor’s degree in a field of biology from an accredited college or university in this country or its equivalent in a foreign institution based on a four-year program is required for admission, as well as an average of “B” or better in the undergraduate major. Undergraduate grades, GRE scores, and recommendations are used in concert to determine acceptability.

Degree Requirements
1. The program requires 30 semester hours of graduate study.
2. Six semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to “B” or better.
3. A minimum of 24 semester hours of graduate study must be completed in residence.
4. No more than nine hours of graduate level courses offered by other science departments at UNCW may be applied toward the degree.
5. Undergraduate courses taken to make up deficiencies will not count toward the 30 hours required.
6. All deficiencies must be remedied prior to graduation.
7. The student must successfully complete a comprehensive examination based on prior coursework and an oral defense of the thesis.
8. Each student will present a thesis, based on original research, acceptable to the thesis advisory committee, prior to graduation.
9. Each student must complete an approved course of study within five years of the date of the first registration for graduate study.

Requirements for Master of Science Degrees
Core courses: required of all students seeking a Master of Science degree in biology or marine biology.
BIO 501 Methods in Scientific Research (2)
BIO 599 Thesis (3–6)

Master of Science in Biology
In addition to the core courses listed above, each student, in consultation with his/her thesis advisory committee, shall devise a program of study that meets the requirements below, complements the thesis research, and satisfies individual needs and interests. Select two of the following:

a) BIO 519 Advanced Topics in Cellular and Molecular Biology (4)
b) BIO 534 Advanced Ecology (3) and BIOL 534 Advanced Ecology Laboratory (1)
c) BIO 549 Advanced Topics in Animal Physiology (4)

A minimum of 14 hours of elective credit; at least seven hours of which must come from the following list of electives. Graduate courses: BIO 512, BIOL 512, 519*, 526, 531, 534*, 538, 539, 544, 549*, 550, 551, 563, 575, 577, 578, 579, 580, 585, 590, 591, 594, 596 (*If not taken as a required course above).

Master of Science in Marine Biology
In addition to the core courses listed above, students shall complete the following courses and, in consultation with their thesis advisory committee, select electives to complete a program of study that meets individual needs and interests. Select two of the following:

a) BIO 534 Advanced Ecology (3) and BIOL 534 Advanced Ecology Laboratory (1)
or BIO 549 Advanced Topics in Animal Physiology (4)
or BIO 519 Advanced Topics in Cell and Molecular Biology (4)
b) BIO 560 Estuarine Biology (4)
c) BIO 564 Biological Oceanography (3) and BIOL 564 Biological Oceanography Lab (1)

A minimum of 14 hours of elective credit; at least seven hours of which must come from the following lists of electives. Graduate courses: BIO 534*, 558, 560*, 561, 562, 563, 564*, 566, 575, 577, 578, 579, 580, 585, 590, 591, 594, 596 (*If not taken as a required course above).

**Ph.D. PROGRAM IN MARINE BIOLOGY**

The Department of Biology and Marine Biology offers a program of study and research leading to the doctor of philosophy in marine biology. The program provides students with a broad background and overview of the fields comprising marine biology and make use of the diverse interests of the marine biology faculty within the department. As is generally the case, the Ph.D. program is primarily a research degree. As such, it is intended to serve students with interests in conducting research in academia, industry, and government along with those who intend to become faculty in undergraduate teaching institutions, managers in technology-based industries and policy makers in government. Students will learn the process of identifying, defining and solving an original research problem. The program also includes a teaching practicum with classroom instruction in pedagogical techniques and technologies along with lecture experience under the guidance of a faculty mentor.

**Admission requirements**

Students will be admitted to the Ph.D. program by a majority vote of the Graduate Advisory Committee (GAC) of the Department of Biology and Marine Biology based on eligibility requirements and available resources. Under most circumstances, students admitted to the program will have met the following requirements.

1. Received a M.S. degree or equivalent from an accredited university OR, if entering with a B.S., completed all the requirements for the M.S. biology or marine biology degree at UNCW except submission of the bound thesis.*
2. An overall graduate grade point average of at least 3.0 out of 4.0.
3. A score on the Graduate Record Examination General Test with a target of the 65th percentile or better (average for the verbal, quantitative and analytical writing sections).
4. A score of at least 550 on the paper version (213 on the computer version) of the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English.

*Under certain circumstances, a student may, with the support of his or her faculty advisor, choose to apply to the Ph.D. program before completion of the requirements for the M.S. biology or marine biology degree. Students who choose this path after their first year of core courses and research planning must complete a new application, including letters of recommendation, to enter the Ph.D. program. If accepted, these students would not take their M.S. oral preliminary exam, but would continue on with their study and take the Ph.D. candidacy exam in year three. Students who decide upon a Ph.D. later in their academic career, and who have, thus, already taken their preliminary oral exam, may apply to the Ph.D. program, again with the support of their advisor. Students who choose this path must complete a new application, including letters of recommendation, to enter the Ph.D. program. If accepted, these students may decide to bind a M.S. thesis, or simply continue on with their study and research and take the candidacy exam in year three.

**Documents to be submitted for admission:**

All applicants must submit:

1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, and analytical writing)
4. Three recommendations with accompanying letters by individuals in professionally relevant fields, one from the intended faculty mentor.
5. Official score on the TOEFL (if applicable)
6. Current curriculum vitae
7. Detailed summary of M.S. thesis research (maximum of three pages)
8. Statement of interest for Ph.D. research (maximum of three pages)
9. Reprints or copies of any publications (if applicable)

**Degree Requirements**
1. The program requires 78 post baccalaureate (48 post-M.S.) semester hours of graduate study.
2. The maximum amount of credit that a Ph.D. student may count toward a doctorate from a master’s degree program is 30 semester hours. This applies whether the master’s degree was earned at UNCW or elsewhere. Six post-M.S. semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to “B” or better and must be approved by the Graduate Advisory Committee.
3. A minimum of 24 semester hours of graduate study must be completed in residence.
4. Each student must pass a Candidacy Exam that includes (1) a written exam consisting of essay questions submitted by the student’s Dissertation Committee that are based upon the graduate curriculum and the student’s area of research, and (2) an oral examination based on the student’s dissertation prospectus. The written exam should be administered no more than 30 days prior to the public presentation and defense of the dissertation prospectus. The Candidacy Exam should be taken before the end of the third year of residence.
5. The student must complete and defend a dissertation based on a research program approved by the student’s committee that results in an original, high quality, significant, and substantial body of research.
6. All requirements for the degree must be completed within six years after admission to the Ph.D. program (i.e. post-M.S.).

**Additional requirements for the Ph.D. in marine biology**
1. Must have a master’s degree or must complete courses and research requirements of a master’s degree program as described above.
2. Must complete the following courses:
   Graduate Seminars in Marine Biology (2-3 credit hours each; minimum of three different numbered seminars required) (6)
   
   - BIO 601 Oceanography and Environmental Science* (2-3)
   - BIO 602 Ecology (2-3)
   - BIO 603 Physiology and Biochemistry (2-3)
   - BIO 604 Cellular and Molecular Biology (2-3)
   - BIO 605 Evolution and Biodiversity (2-3)
   
   BIO 690 Seminar (1)
   BIO 694 Practicum in College Biology Teaching (2)
   BIO 699 Dissertation (12)

*Required of all students. Prerequisite: BIO 564 Biological Oceanography or equivalent. In addition to the above requirements, each student, in consultation with his/her dissertation committee, shall select a minimum of 27 hours of elective credit that may include graduate courses and research hours (BIO 698).
Course descriptions of core and elective courses can be found in Appendix 1, and may also be viewed in the on-line catalog at:
http://www.uncw.edu/grad%5Finfo/documents/UNCWGraduateCatalogue2007_08.pdf

b. PROGRAM ENHANCEMENT OF DEPARTMENTAL, COLLEGE AND UNIVERSITY OBJECTIVES

The graduate programs in the Department of Biology and Marine Biology have an extensive and well documented history of promoting the missions of the department, the College of Arts and Sciences, and the University, including but not limited to the seven strategic goals of UNCW. The educational aims of the graduate programs form the foundation upon which all other objectives rest. At the heart of the educational mission is the relationship between the faculty mentor and the graduate student. The mentor provides a research context and support in the form of lab supplies, equipment, and assistantships, as well as training in technical methods, safe laboratory practices, analytical approaches, and critical evaluation of data and the published literature. This intensive learning environment is reinforced by the faculty thesis committee, which offers the student a breadth of knowledge and expertise to draw upon during their thesis research while also promoting academic rigor.

This process yields a number of tangible products. Perhaps the most important contribution our graduate program makes to the University, the state of North Carolina, and society at large, is creating a pool of highly trained alumni who are well prepared to be responsible citizens, and who are positioned to succeed in an increasingly technical work environment. In addition, many of our top students are attracted to our graduate programs from other states, and they often remain in North Carolina after graduation. The multidisciplinary nature of modern biological research means that these graduate students undergo study that encompasses many fields, including biology, chemistry, physics, mathematics and computer science. The high quality of the graduate programs, in turn, helps the department attract top level faculty who reinforce the educational and research missions of UNCW. In addition, the faculty serves as a resource to the community at large by providing professional expertise in a variety of fields, serving on state and federal panels, and conducting research of regional or national interest.

One of the unique properties of our departmental graduate programs is that undergraduates, master’s students, Ph.D. students, post-doctoral trainees and faculty members work together in many labs as an integrated research team. That is, the graduate students not only get the opportunity to work with more experienced scientists, but they also learn leadership and team building skills by mentoring undergraduate students. The graduate students also typically gain extensive experience in a formal teaching setting, usually as a laboratory TA, which further enhances leadership and organizational skills.

c. ACADEMIC PHILOSOPHY REFLECTED WITHIN GRADUATE PROGRAM

Master of Science in Biology and Marine Biology

The program of study for Master’s of Science in Biology and in Marine Biology is built on a strong core of coursework that strives to balance the breadth provided by the required courses with the depth provided by the diverse elective offerings. The core requirements ensure that students achieve the necessary foundation upon which their research will be based, as well as an understanding of biology in areas outside their area of specialization. At the same time, tremendous flexibility is maintained by the broad array of elective courses available (5-10/semester). We feel that this balance facilitates our meeting of the four goals of our M.S. programs (see Section 3.a. above).

One measure of the success of our M.S. program is reflected in the paths taken by students once having completed their program of study at UNCW. Since 2002, for the 65 graduates for whom we have information, 17 (26%) have gone on to pursue additional graduate study (Objective 1), thirty (46%) are currently working as professional scientists (Objectives 2 & 3) and 10 (15%) have become educators themselves, teaching in schools and community.

The ability of our programs to achieve the stated objectives is also assessed at several points
during each M.S. student’s tenure at UNCW. The process begins with the required \textit{BIO 501: Methods in Scientific Research}. This course is designed to prepare students for their graduate careers by covering such topics as experimental methodology and design, funding opportunities, laboratory safety, microscopy, literature search techniques, scientific writing and oral presentation. In addition to orienting students in their first semester, this course requires students to develop a sound research idea, present that idea in the form of a prospectus and substantiate the project with a literature review. In their second semester, they must orally present their research project to the department during the Graduate Student Prospectus Symposium. The breadth of knowledge attained by students in the required core sequence, as well as their depth of knowledge regarding their area of research focus, is evaluated by an oral exam administered during their third semester. A final and more focused oral examination of the depth of a student’s knowledge in their chosen area of specialization takes place at the thesis defense, where students must successfully communicate their research to a broad public audience, and competently handle questions from that audience as well as the focused questions from their thesis committee. The thesis, written in the format of a manuscript to be submitted for publication, represents the formal culmination of each student’s graduate experience within our department.

Another indicator of the success of the program of mentoring students into scientists is the number of students who publish their research in peer-reviewed journals. Since 2000, students have been authors on 116 peer-reviewed papers, and first authors on 78. The ability of our graduate students to undertake, execute and successfully defend their results sufficiently to earn a designation of “acceptable for publication” by the wider scientific community is a true indicator of the success of these graduate programs.

\textbf{Ph.D. PROGRAM IN MARINE BIOLOGY}

The program of study for the doctor of philosophy in Marine Biology is designed to expose our students to a broad array of topics in marine biology and oceanography, and to empower them to identify, define and solve original research problems.

Our Ph.D. curriculum builds upon the strong core curriculum of the M.S. programs and adopts seminar format courses to extend our students’ knowledge base in marine biology. These seminars are designed to permit students to explore, in collaboration with faculty, topics of special interest in the fields of marine ecology, physiology and biochemistry, cell and molecular biology, and evolution and biodiversity. In addition, all students must participate in the seminar on oceanography and environmental science because we feel that it is of paramount importance that Ph.D. candidates earning a degree in Marine Biology have a strong foundation in oceanography. If students have not yet taken a graduate-level course in oceanography, they must do so before they progress to this required seminar. Because of our department’s commitment to education, our Ph.D. students also participate in a teaching practicum with classroom instruction in pedagogical techniques and technologies. At the heart of the Ph.D. program is the student’s development as an independent researcher. We feel that the flexibility offered by the seminar format, as well as the interactive and participatory nature of seminar courses, fosters this development. As stated above (Section 3.a.), our objective in offering this degree is to serve students with interests in conducting research in academia, industry, and government along with those who intend to become faculty in undergraduate teaching institutions, managers in technology-based industries and policy makers in government.

The ability of our program to achieve its objectives is assessed at several points during each Ph.D. student’s tenure at UNCW. During their first year in the program, Ph.D. students develop a dissertation proposal. This proposal, which can be written as an NSF Doctoral Dissertation Improvement Grant or in a more traditional proposal format (\textit{i.e.} including a comprehensive literature review) is critically evaluated by the mentor and dissertation committee and must be approved by the committee before the student can progress. Ph.D. students must also sit for a written candidacy exam, designed to test the breadth and depth of the student’s knowledge in the chosen area of marine biology and supporting disciplines. The
required written candidacy exam may be taken after 30 post-baccalaureate credits have been taken at UNCW or after the completion of at least 16 credits of course work at UNCW post-Master’s degree. Each of the five dissertation committee members submit one or more questions for the student to answer. The committee Chair oversees the design of the exam, and ensures that the number of questions is appropriate and that they are not duplicative. The written exam should be administered over 1-3 days.

After the written exam, Ph.D. students complete their oral qualifying exam. This exam consists of both a (a) presentation of the dissertation proposal as a departmental seminar and (b) committee meeting to permit questioning of the proposal and areas covered in the written candidacy exam. During these events, the student must demonstrate their scholarly authority of, and their ability to competently answer questions on, their research project as well as demonstrate a broader understanding of marine biology. The dissertation, written in the format of a series of manuscripts either already submitted or published, or to be submitted for publication, represents the formal culmination of each Ph.D. student’s graduate experience within our department. To date, one dissertation, by Dr. David Meyer, has been produced within our department. Our Ph.D. students, though, have already published and/or submitted 26 papers from their graduate work here.

4. CERTIFICATION, INTERDISCIPLINARY AND OTHER PROGRAMS

The Department of Biology and Marine Biology does not offer any graduate-level certification programs. The department does participate in the interdisciplinary M.S. in Marine Science program. Over the first nine years of the M.S. in Marine Science program, 16 biology faculty members from our department have directed or co-directed 55 of the 99 total students who have participated in this master’s program. Our program also provides support for selected M.S. Marine Science students in the form of graduate TAs, and we are pleased to have these students contributing to our undergraduate teaching mission. Our BIO 501: Methods in Scientific Research and Presentation services those M.S. Marine Science students who have biology faculty as their advisors and biology graduate courses serve as core and elective courses in the M.S. Marine Science curriculum. We have also participated in the planning of the proposed M.A. in the multidisciplinary Environmental Sciences and the interdisciplinary M.S. in Coastal and Ocean Policy.

In addition to these established M.S. programs, our faculty and students are actively involved in a wide range of interdisciplinary, multi-institutional scientific programs that benefit the community. These include the Coastal Oceans Research and Monitoring Program, the Lower Cape Fear River Program, and until this year, the Tidal Creeks Program. In addition, faculty and students participate in programs with the UNCW Marine Mammal Stranding Program, the Karen Beasley Sea Turtle Hospital, Ft. Fisher Aquarium, and the Aquarius underwater ocean laboratory.

Our students also benefit from their participation in two certificate programs within our College – Applied Statistics and Environmental Studies. These certificate programs enhance the breadth of training of our graduate students.

5. FACILITIES

a. DESCRIPTION OF FACILITIES

The Department of Biology and Marine Biology currently occupies approximately 42,000 ft² of laboratory and office space in two buildings. Dobo Hall, which houses faculty from our department, as well as from the Department of Chemistry and Biochemistry, was occupied in fall 1996. Our department occupies 3,500 ft² of office, 7,900 ft² of teaching, and 11,100 ft² of research space in Dobo Hall. Friday Hall, which is currently undergoing renovations, will provide an additional 3,900 ft² of office, 8,500 ft² of
teaching and 7,000 ft² of research space. Laboratories in both Dobo Hall and Friday Hall, once
renovations are completed, are well equipped with instrumentation needed for a wide range of molecular,
microbial and organismal research: low speed, high speed and ultra centrifuges; ultralow freezers,
refrigerator freezers; analytical and microbalances; liquid scintillation and gamma counters (β and γ
counters); tissue culture facilities including tissue culture hoods and incubators, and laminar flow hood
for tissues culture; spectrophotometers (standard and microplate readers), fluorometers, luminometers;
ELISA readers; thermal cyclers, gel analysis hardware and software, and phosphor imager; numerous
research-grade light microscopes in addition to a multi-user Microscopy Facility (see below); Coulter
counter; flow cytometers including one equipped for cell sorting; a complete nutrient analysis laboratory
(four-channel autoanalyzer, total organic carbon and nitrogen analyzers, elemental analyzer); HPLC, gas
chromatographs, etc.; complete histology core laboratory plus additional individual histology
laboratories; herbarium; animal care facility; Unix and Sun workstations, in addition to personal
computers upgraded every 2-4 years; extensive computer support; computing facilities for the
development of image processing, and analysis software applicable to the imaging of biological
specimens. In addition, the Department of Chemistry and Biochemistry, also located in Dobo Hall,
houses a number of analytical instruments that are available to the Department of Biology and Marine
Biology, including a nuclear magnetic resonance spectrometer and gas chromatographs. This equipment
has been accumulated by a mix of intramural and extramural funding. The department also has an animal
care facility located in Dobo Hall that has both wet lab space for aquaria and laminar flow cage
enclosures. The facility also has a small room which is currently being used for marine mammal
necropsies.

Description of the UNCW Microscopy Facility

The microscopy facility is a dedicated 2,000 ft² laboratory suite located in Dobo Hall expressly
designed to accommodate light and electron microscopes. The entire suite is on a separate slab to
minimize vibrations and main power lines are routed around the suite. Two 15 ft x 15 ft rooms house a
Philips CM12 transmission electron microscope and a Philips XL 30S FEG scanning electron microscope.
The Philips CM12 has a maximum accelerating voltage of 120 kV and is fitted with a goniometer. The
XL30S FEG SEM is a high resolution instrument with secondary and backscattered electron detectors as
well as an integrated EDAX non-dispersive X-ray microanalysis unit with both analytical and mapping
software. The sample preparation area contains two full-sized hoods and ample bench space. A complete
darkroom, adjacent to the transmission electron microscope, also serves the suite. Support equipment for
specimen preparation include: a Polaron Critical Point Dehydration Unit, a Leica Cryocut 1800 cryostat, a
Sorval MT-1 ultramicrotome, a Sorval MT-2 ultramicrotome, a Reichert-Jung Ultracut E ultramicrotome,
an LKB 7800 glass knife maker, a Campden 725M vibrotome, a Denton DV502 vacuum evaporator, a
Cressington 208HR high resolution sputter coater, as well as general histological support equipment
(rotate microtomes for paraffin sections, pH meters, mixers, incubators, balances, ovens, autoclave, etc.).

A separate 10’ x 30’ room houses the light microscopes. The room has high and low pressure air,
positive ventilation, and computer network connections. Vibration free tables house the light microscopic
equipment which includes: an Olympus BX60 microscope with phase, bright field, and epifluorescence;
an Olympus IMT inverted microscope with phase, bright field, epifluorescence and Hoffman modulation
contrast optics; a Zeiss Axioskop polarized light microscope; a Zeiss Stemi SV 6 polarizing dissecting
scope; a Nikon dissecting scope with split prism for recording stereo pairs; and SPOT RT and SPOT
RTek digital cameras. All of these scopes are attached to PC’s with ZIP drives, DVD writers and network
connections. Image Pro Plus image analysis software is installed on computers linked to the microscopes
as well as to a remote station where recorded images can be analyzed. The Olympus Fluoview 1000
Confocal Microscope has three detectors, two channels spectral and one channel with filters. It has lasers
suitable for excitation at 405/458/488/515/543/633 with AOTF control. The spectral detectors have a
400-790 nm range, a resolution of 2nm and a speed of 140 nm/sec. It is housed on an Olympus IX81
inverted microscope with PLAN APO lens, DIC capability and motorized Z axis travel of 10mm with 10nm resolution. This equipment has been accumulated by a mix of intramural and extramural funding.

The microscopy facility has a full-time, university funded microscopy lab technician (Daniel Mark Gay) with over 16 years of experience in electron and light microscopy. In addition, all three major instruments (CM12, XL30S FEG, and FV1000) are under complete service contracts paid by UNCW, which insures minimum down time when equipment failures occur.

Center for Marine Science:

The Center for Marine Science (CMS) at UNCW supports and promotes research and instructional activities involving students and faculty of various departments. In addition CMS hosts one of the National Oceanic and Atmospheric Administration’s National Undersea Research Centers (NOAA-NURC: see below), as well as the North Carolina National Estuarine Research Reserve Program (NC-NERR). CMS provides research laboratories for faculty and students, boats for research and field trips, seawater system (raw and filtered), a machine/instrument shop, and marine engineering services. CMS also operates the *R/V Cape Fear*, which is 63 ft in length and 21 ft in beam, and has a draft of 4.5 ft. It has a cruising speed of 15 knots and a fuel capacity of 1,800 gallons. It has been used for work on benthic and chemical ecology as well as marine geology, marine archeology, and for training students in scientific diving and ship-board methods.

CMS occupies 80,000 sq. ft. building constructed on University property adjacent to the Intracoastal Waterway. This property, located at Myrtle Grove, is about seven miles south east of the main UNCW campus. The facility serves as a marine science center for UNCW, visiting scientists from other campuses of the University of North Carolina system, and for visitors from other universities. Facilities exist to support research in the deep water ocean, near-shore waters, barrier islands and estuaries. This Center also provides space for other related agencies and supports marine research projects conducted in the coastal region of North Carolina, in the southeast region of the U.S.A., and other locations as required. A major goal of this facility is to provide the State of North Carolina with a first class marine science facility with quality space for research and immediate access to good quality seawater.

The Center for Marine Science at Myrtle Grove is divided among the following agencies/disciplines: Marine Biology, Oceanography, Coastal and Estuarine Systems, Marine Geology, Aquaculture, Chemistry, Marine Biotechnology, and Public Service. The largest group of occupants is faculty from the Department of Biology and Marine Biology, but faculty from the departments of Chemistry and Biochemistry, Geology and Geography, Physics and Physical Oceanography are also residents. This integration provides greater opportunities for interaction between faculty and students in marine biology with those in other subdisciplines of the marine sciences. Features of the Center include: group meeting facilities for up to 150 individuals; fully equipped research laboratories, classrooms, and marine science laboratories; a greenhouse with running seawater; a radiotisotope laboratory; computer workrooms, cold rooms, walk-in freezers; temperature controlled rooms; autoclave and media preparation room; darkroom; chemical storage and balance rooms; fireproof vault for data storage; clean room; central analytic facility; sample processing rooms; aquarium room with running seawater; indoor storage; outdoor storage; shower/locker facilities; and outdoor facility for tanks with running sea water, and a 900 foot pier with docking facilities for several coastal research vessels on the Atlantic Intracoastal Waterway. The seawater system provides raw, filtered, and purified seawater at flow rates up to 600 liters/min; tank farm services; and aquarium room services.

Several Core facilities have been established to support particular fields of marine science research. These currently include cores for the cultivation of harmful algae, nutrient analysis, analytical chemistry, spectroscopy and DNA analysis. Each core is directed by a faculty member who with consultation of a core user group, has established procedures governing access and use of these facilities. Support for the acquisition and maintenance of core instrumentation is provided through the efforts of the
Core directors and the user groups who work together to acquire the necessary extramural funding. The Center routinely provides partial support for the maintenance of Core equipment, with the remainder in some cases, coming from modest use fees.

The location of the Center provides easy access to regional marine environments such as: tidal marshes/mud flats/sand flats; tidal creeks; barrier islands and tidal inlets; the Atlantic Intracoastal Waterway; near-shore marine environments; the Gulf Stream; hard bottom communities; sand dunes and maritime forests; and both highly developed and minimally developed estuarine environments.

**National Undersea Research Center at the UNCW:** This program is funded by a grant from the National Oceanic and Atmospheric Administration as part of the National Undersea Research Program (NURP). NURP includes headquarters in Silver Spring, Md., and six regional centers. The Center at UNCW supports undersea research off the southeastern United States, from N.C. to Texas. Center facilities and staff are located at the UNCW's Center for Marine Science as well as a research center in Key Largo, Florida. The Southeast region served by the NURC includes environments that are the main study areas of many UNCW marine biology researchers, and thus the presence of this program at UNCW provides increased opportunities for marine biology graduate students to obtain research resources and participate in projects of regional and national significance. The operations program includes both in-house and leased capabilities. Undersea systems operated by the Center include mixed gas scuba, remotely operated vehicles, the Aquarius undersea laboratory (in the Florida Keys), and support boats (6 to 15 m length) for near-shore work. Center research goals evolve to meet changing national and regional needs. Science initiatives addressed by the Center include research related to hydrocarbon exploration and development; management of fisheries resources; conservation of the Florida Keys' coral reefs; anthropogenic and natural processes that impact coastal resources (e.g., beach erosion) and introduction of excess nutrients to near-shore habitats; detection of present global climate conditions through long-term monitoring and assessment of past changes through geological and paleo-oceanographic studies.

**b. ADEQUACY OF FACILITIES**

The growth of the graduate programs in Biology and Marine Biology would be measurably enhanced by improvements in several broad areas of support. Our students are fortunate to have access to a diversity of state-of-the-art instruments and equipment in support of their research and their educational experiences while at UNCW. Within our department, and at CMS, students have access to these tools both through shared-use facilities (e.g., microscopy lab in Dobo Hall, DNA Analysis Core Facility at CMS) and through individual faculty member labs. There is, though, a continued need to identify new space to locate joint-use laboratory facilities to house equipment purchased by faculty from extramural funding.

Of particular need is an on-campus facility, which is in a preliminary stage of planning, to support extramurally funded, field-based research. There is a large number of faculty and graduate students on main campus who carry out field-based work, including studies on fisheries; marine seabirds, turtles and mammals; terrestrial vertebrates; and environmental and water quality monitoring. A field sampling and research facility is required to support these field studies, and would be of great benefit to support specialized lab needs for graduate courses that require field-sampling, sampling processing, etc. Increases in physical facilities devoted to graduate level research, including machine shop support, would help to ensure the continued growth of the programs.

There are also infrastructural deficiencies for the support of faculty in the administration of grant awards. Each year, the Department of Biology and Marine Biology brings approximately $2-3 million in new extramural funding to the university (see Section 9 below). We are extremely appreciative of the professional efforts of Ms. Kimberly McKoy, Office of Research Services and Sponsored Programs, who oversees grant activity in our department, among others. Faculty, though, often experience substantial increases in administrative workloads associated with the management of extramural funding, particularly
when awards reach the level sufficient to support multiple graduate students. This decentralization of grant administration has reached a level that it may actually discourage some faculty from growing their research programs, which would limit the growth of our graduate programs. Our exemplary staff members, who described in Section 6.c. below, are already working at near capacity to help support the faculty in these matters. We believe that the department would benefit greatly from the addition of a new staff member who could help faculty with the administrative workload (e.g. hiring, budgets, compliance) associated with extramural funding.

The pursuit of extramural funding resources, necessary to investigate new research areas and increase growth in the graduate programs, would also benefit from enhanced support by the university administration. For instance, more opportunities for faculty release time could be afforded that would provide faculty members with adequate time to devote to these pursuits. Because we take very seriously our undergraduate teaching mission, faculty workloads are relatively heavy for a department with such a sustained high level of extramural funding. In fact, our department initiated the Ph.D. program with no change to our faculty workloads. We must find creative ways in which to make workloads manageable to support the Ph.D. program while meeting our teaching responsibilities. There are a number of potential strategies to help alleviate workloads, including hiring more faculty, and increasing the administrative and technical support staff.

Lastly, and most importantly, the program requires more permanent staff for instrumentation operation, maintenance, and student training. Currently, only a single full-time departmental staff member falls under this category, and the duties he performs are invaluable to the success of the graduate program. Additional technical personnel would further enhance graduate student research by providing expertise and training for the sophisticated instrumentation that is increasingly playing a central role in graduate theses projects. There is a clear need for growth in the area of technical support for the Department of Biology and Marine Biology.

c. GRADUATE COURSES

A survey of graduate course offerings from 2003-2007 revealed that our department offered, on average, 15 graduate courses per semester (range 14-24). Thirty-three of our tenured or tenure-track faculty have taught graduate courses in the last five years. Course enrollment varies between 5-24 students.

Graduate courses are taught in Dobo Hall, Friday Hall (once renovations are completed) and at CMS. Laboratory courses take advantage of the diverse array of specialized equipment and instrumentation facilities. Field courses take advantage of the natural laboratories of the coastal and offshore Atlantic, the Intracoastal Waterway and associated estuarine environments, and the Cape Fear River and its tributaries. Currently, many of these teaching activities rely on resources from individual faculty research labs because of the limited resources available to support graduate lab courses. Enhancement of graduate course budgets would benefit our graduate educational mission.
### 6. PERSONNEL

#### a. TENURE TRACK FACULTY

<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Hired</th>
<th>Deg.</th>
<th>Graduating Institution</th>
<th>Research interest</th>
</tr>
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<tbody>
<tr>
<td>Baden, Daniel G.</td>
<td>Prof.</td>
<td>1999</td>
<td>Ph.D.</td>
<td>Univ. of Miami</td>
<td>Toxic marine algae, toxicology</td>
</tr>
<tr>
<td>Bailey, J. Craig</td>
<td>Assoc.</td>
<td>1999</td>
<td>Ph.D.</td>
<td>Louisiana St. Univ.</td>
<td>Molecular phylogeny, phycology</td>
</tr>
<tr>
<td>Ballard, Timothy</td>
<td>Assoc.</td>
<td>1984</td>
<td>Ph.D.</td>
<td>Wake Forest Univ.</td>
<td>Human and comparative physiology</td>
</tr>
<tr>
<td>Brewer, Steven W.</td>
<td>Assist</td>
<td>2005</td>
<td>Ph.D.</td>
<td>Univ. of Cal-Davis</td>
<td>Plant ecology</td>
</tr>
<tr>
<td>Borrett, Stuart R.</td>
<td>Assist.</td>
<td>2007</td>
<td>Ph.D.</td>
<td>Univ. of Georgia</td>
<td>Quantitative ecology, modeling</td>
</tr>
<tr>
<td>Cahoon, Lawrence</td>
<td>Prof.</td>
<td>1982</td>
<td>Ph.D.</td>
<td>Duke Univ.</td>
<td>Biological oceanography</td>
</tr>
<tr>
<td>Clavijo, Ileana</td>
<td>Assoc.</td>
<td>1986</td>
<td>Ph.D.</td>
<td>Univ. of Puerto Rico</td>
<td>Biology of reef fishes</td>
</tr>
<tr>
<td>Dillaman, Richard</td>
<td>Prof.</td>
<td>1981</td>
<td>Ph.D.</td>
<td>Univ. of S. Carolina</td>
<td>Morphology and ultrastructure</td>
</tr>
<tr>
<td>Dodd, Diane</td>
<td>Assist.</td>
<td>1985</td>
<td>Ph.D.</td>
<td>Yale Univ.</td>
<td>Genetics</td>
</tr>
<tr>
<td>Durako, Michael</td>
<td>Prof.</td>
<td>1997</td>
<td>Ph.D.</td>
<td>University of S. Florida</td>
<td>Coastal plant biology</td>
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<tr>
<td>Emslie, Steven D.</td>
<td>Prof.</td>
<td>1988</td>
<td>Ph.D.</td>
<td>Univ. of Florida</td>
<td>Ornithology, paleobiology</td>
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<tr>
<td>Finelli, Christopher</td>
<td>Assist.</td>
<td>2007</td>
<td>Ph.D.</td>
<td>Univ. of S. Carolina</td>
<td>Biological oceanography</td>
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<tr>
<td>Courtney Hackney</td>
<td>Prof.</td>
<td>1980</td>
<td>Ph.D.</td>
<td>Mississippi State Univ.</td>
<td>Estuarine ecology</td>
</tr>
<tr>
<td>Hosier, Paul</td>
<td>Prof.</td>
<td>1973</td>
<td>Ph.D.</td>
<td>Duke Univ.</td>
<td>Barrier island ecology</td>
</tr>
<tr>
<td>Kapraun, Donald</td>
<td>Prof.</td>
<td>1971</td>
<td>Ph.D.</td>
<td>Univ. of Tx-Austin</td>
<td>Phycology</td>
</tr>
<tr>
<td>Koopman, Heather</td>
<td>Assist.</td>
<td>2004</td>
<td>Ph.D.</td>
<td>Duke Univ.</td>
<td>Marine lipid physiology</td>
</tr>
<tr>
<td>Lankford, Thomas E.</td>
<td>Assoc.</td>
<td>2000</td>
<td>Ph.D.</td>
<td>University of Delaware</td>
<td>Ichthyology, fish biology</td>
</tr>
<tr>
<td>Lema, Sean C.</td>
<td>Assist.</td>
<td>2008</td>
<td>Ph.D.</td>
<td>Univ. of Cal-Davis</td>
<td>Evolutionary endocrinology</td>
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<tr>
<td>Name</td>
<td>Title</td>
<td>Year</td>
<td>Degree</td>
<td>Institution</td>
<td>Field</td>
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<td>McCartney, Michael</td>
<td>Assoc.</td>
<td>2000</td>
<td>Ph.D.</td>
<td>SUNY-Stonybrook</td>
<td>Molecular ecology, evolution</td>
</tr>
<tr>
<td>Mintzes, Joel</td>
<td>Prof.</td>
<td>1979</td>
<td>Ph.D.</td>
<td>Northwestern Univ.</td>
<td>Biology education, pedagogy</td>
</tr>
<tr>
<td>Pawlik, Joseph</td>
<td>Prof.</td>
<td>1990</td>
<td>Ph.D.</td>
<td>Scripps Inst. Oceanography</td>
<td>Marine chemical ecology</td>
</tr>
<tr>
<td>Posey, Martin</td>
<td>Prof.</td>
<td>1989</td>
<td>Ph.D.</td>
<td>Univ. of Oregon</td>
<td>Estuarine ecology</td>
</tr>
<tr>
<td>Roer, Robert</td>
<td>Prof.</td>
<td>1979</td>
<td>Ph.D.</td>
<td>Duke Univ.</td>
<td>Biomineralization, osmoregulation</td>
</tr>
<tr>
<td>Satterlie, Richard</td>
<td>Prof.</td>
<td>2004</td>
<td>Ph.D.</td>
<td>Univ. of Ca-Santa Barbara</td>
<td>Neurophysiology</td>
</tr>
<tr>
<td>Scharf, Frederick</td>
<td>Assist.</td>
<td>2003</td>
<td>Ph.D.</td>
<td>Univ. of Massachusetts</td>
<td>Fisheries biology</td>
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<tr>
<td>Shafer, Thomas</td>
<td>Assoc.</td>
<td>1978</td>
<td>Ph.D.</td>
<td>Ohio State Univ.</td>
<td>Developmental biology, biomineralization</td>
</tr>
<tr>
<td>Sizemore, Ronald</td>
<td>Prof.</td>
<td>1981</td>
<td>Ph.D.</td>
<td>Univ. of Maryland</td>
<td>Marine microbiology</td>
</tr>
<tr>
<td>Song, Bongkuen</td>
<td>Assist.</td>
<td>2004</td>
<td>Ph.D.</td>
<td>Rutgers Univ.</td>
<td>Marine microbiology</td>
</tr>
<tr>
<td>Southwood, Amanda</td>
<td>Assist.</td>
<td>2005</td>
<td>Ph.D.</td>
<td>Univ. British Columbia</td>
<td>Animal physiology</td>
</tr>
<tr>
<td>Stapleton, Ann</td>
<td>Assoc.</td>
<td>2001</td>
<td>Ph.D.</td>
<td>Univ. of Chicago</td>
<td>Plant genomics</td>
</tr>
<tr>
<td>Szmant, Alina</td>
<td>Prof.</td>
<td>1999</td>
<td>Ph.D.</td>
<td>Univ. of Rhode Island</td>
<td>Coral reef ecology and nutrient cycling</td>
</tr>
<tr>
<td>Taylor, Alison</td>
<td>Assist.</td>
<td>2007</td>
<td>Ph.D.</td>
<td>Oxford Brookes Univ.</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>Tomas, Carmelo</td>
<td>Prof.</td>
<td>1999</td>
<td>Ph.D.</td>
<td>Univ. of Rhode Island</td>
<td>Marine phytoplankton</td>
</tr>
<tr>
<td>van Tuinen, Marcel</td>
<td>Assist.</td>
<td>2007</td>
<td>Ph.D.</td>
<td>Penn State</td>
<td>Vertebrate evolutionary biology</td>
</tr>
<tr>
<td>Webster, David</td>
<td>Prof.</td>
<td>1977</td>
<td>Ph.D.</td>
<td>Texas Tech</td>
<td>Mammalogy</td>
</tr>
<tr>
<td>Wilbur, Ami E.</td>
<td>Assoc.</td>
<td>1999</td>
<td>Ph.D.</td>
<td>Univ. of Delaware</td>
<td>Shellfish genetics and mariculture</td>
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</table>

b. NON-TENURE TRACK FACULTY
<table>
<thead>
<tr>
<th>Name</th>
<th>Rank</th>
<th>Hired</th>
<th>Deg.</th>
<th>Graduating Institution</th>
<th>Duties/Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mallin, Michael A.</td>
<td>Res. Prof.</td>
<td>1992</td>
<td>Ph.D.</td>
<td>UNC-CH</td>
<td>River, Estuarine Ecology</td>
</tr>
<tr>
<td>Melroy, Diane L.</td>
<td>Lect.</td>
<td>2000</td>
<td>Ph.D.</td>
<td>UC-Berkeley</td>
<td>Plant Biology/Introductory Biology</td>
</tr>
<tr>
<td>Moore, Leslie J.</td>
<td>Lect.</td>
<td>2006</td>
<td>M.S.</td>
<td>UNC-W</td>
<td>Lab Coordinator/</td>
</tr>
<tr>
<td>Plyer, Daniel</td>
<td>Emeritus</td>
<td>1965</td>
<td>Ph.D.</td>
<td>UNC-CH</td>
<td>Plant Genetics</td>
</tr>
<tr>
<td>Potts, Linda F.</td>
<td>Lect.</td>
<td>1998</td>
<td>Ph.D.</td>
<td>UNC-CH</td>
<td>Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>Pyott, Sonja J.</td>
<td>Res. Asst. Prof.</td>
<td>2007</td>
<td>Ph.D.</td>
<td>Stanford</td>
<td>Neurobiology</td>
</tr>
<tr>
<td>Rommel, Sentiel A.</td>
<td>Lect.</td>
<td>2006</td>
<td>Ph.D.</td>
<td>Univ. of Maine</td>
<td>Comparative Vertebrate Anatomy</td>
</tr>
<tr>
<td>Watanabe, Wade O.</td>
<td>Res. Prof.</td>
<td>1997</td>
<td>Ph.D.</td>
<td>Univ. of Hawaii</td>
<td>Finfish Mariculture</td>
</tr>
</tbody>
</table>

**Description of Teaching Roles of Faculty, Part-time Faculty and Faculty Associates**

As of the start of the 2007/2008 academic year, the Department of Biology and Marine Biology had 39 full-time faculty, including five faculty with full or partial administrative reassignments (Hosier, Roer, Webster, Posey, Sizemore) and two with significant administrative research reassignments (Szmant, Satterlie). Two additional faculty were on phased retirement (Kapraun and Padgett), teaching ½ time, and one faculty member (Tomas) is 0.5 FTE within the department, with a split appointment between CMS and our department. We are currently searching for two faculty positions. Four of our full-time faculty are non-tenured lecturers, Dr.’s Potts, Melroy, Hagley and Ms. Moore. Dr.’s Hagley and Melroy teach non-majors undergraduate courses (BIO 246: Microbiology of Human Diseases – a course taken primarily by pre-nursing students; and BIO 105: Concepts of Modern Biology – a freshman level course taken as a basic studies requirement by non-science majors). Dr. Potts assists in the BIO 240-241 sequence (Human Anatomy and Physiology – a sophomore level course with ~50% pre-nursing majors). Ms. Moore serves as our department Laboratory Coordinator for introductory laboratories, working with graduate TAs in the design and implementation of labs for the BIO 105, BIO 204 and BIO 206 courses. The department employs a small number of part-time instructors to fill specific instructional needs. Dr. Steinkraus, a physician at New Hanover Regional Medical Center, teaches a course once per academic year on immunology, providing an active clinician’s perspective. Dr. Weedon, a practicing veterinarian in Wilmington, teaches seminars on epidemiology and animals & society, as well as assisting with our pre-vet club. Dr. Watanabe, Director of the UNCW Aquaculture Center, teaches a course, BIO 486: Advanced Topics in Mariculture once per year and Dr. Mallin, Research Faculty at the Center for Marine Science, teaches a graduate course, BIO 568: River Ecology once per year. We occasionally have research faculty teach introductory laboratories (e.g. Dr. Pyott). In general, the department has followed a philosophy of limited utilization of part-time faculty except as required to fill specific course needs.

**Description of Teaching Roles of Graduate Students**

Graduate students are integral to both the teaching and research missions of our department. Graduate student Teaching Assistants (TAs) teach almost all of our lower division lab courses (BIO 105: Concepts of Modern Biology; BIO 204, 205, and 206: Principles of Biology core courses in cell, plant and
animal biology; BIO 240-241: Human Anatomy and Physiology; and BIO 246: Microbiology of Human Diseases) as well as upper division labs for selected courses (BIO 335: Genetics, BIO 345: Animal Physiology, BIO 362: Marine Biology, BIO 366: Ecology, and BIO 425: Microbiology). Thus, our TAs teach undergraduate students from across our campus, including non-majors, nursing majors, and biology and marine biology majors. During the past three years, graduate TAs have taught an average of 87 (range 85-90) labs in the fall and 61 (range 60-63) labs in the spring. The work-loads of our TAs are heavy – students teach between 2-3 labs each semester, and many also assist with preparing the labs. Our graduate TAs carry this responsibility very well. Their Student Perception of Teaching (SPOT) scores are high, and undergraduates often take the effort to express appreciation for their TA’s interest and enthusiasm.

Our Ph.D. program has added a new benefit to our undergraduate teaching mission. During the past year, two of our senior doctoral students have independently offered 100-level lecture courses. Mr. Tim Henkel (BIO 150: Humans and Ecology) and Ms. Amanda Kahn (BIO 170: Biology of the Sea) each requested the opportunity to develop and teach a course in our undergraduate curriculum. Both students expressed that teaching a full course was “a lot of work”! With equal vigor, they stated that the experience they gained had increased their confidence in their abilities as a teacher, and that this rare experience will be of benefit to them as they apply for academic positions in the future. This collaboration is a win-win – the department gains from our Ph.D. students’ service to the undergraduate teaching mission, and the students gain impressive experience as university teachers. Because we care deeply about both undergraduate teaching and graduate mentoring, our department is very pleased with this additional benefit of our Ph.D. program.

Our graduate students are equally integral to our departmental research mission. It is fair to say that most faculty view graduate student mentoring as a central core of their individual research program. Many faculty include undergraduate Honors and Directed Independent Study students in their research programs as well. Thus, a central mission of the department is to mentor and train research students. This ethic is reflected in the high number of graduate students who are primary or co-authors on peer-reviewed papers. Since fall 2000, 119 M.S. and Ph.D. students have graduated from our program. During this time period, 116 peer-reviewed papers have been published with graduate student authors.

c. STAFF

The Biology and Marine Biology Departmental office is staffed by five superlative individuals: (1) Ms. Carol Russell, Administrative Assistant and Office Manager, (2) Ms. Lori Leitch, Program Assistant, (3) Ms. Debbie Cronin, Office Assistant and travel coordinator, (4) Ms. Eleanor Bussman, part-time Receptionist and purchasing support, and (5) Ms. Tracie Chadwick, Office Assistant and Graduate Secretary. These individuals provide invaluable service to our department and to our graduate program. All budgets, hiring, purchasing, travel, reimbursements, in-departmental mechanics (e.g. issuing keys, processing room requests, supporting computer equipment, mail delivery, etc.), and other graduate student-specific actions (payroll, facilitating graduate hiring requests; maintenance of graduate forms and records, communicating TA assignment requests, maintenance of graduate student mailboxes; seminar notifications) are carried out by these individuals. These tasks are legion for a department of 52 faculty and research associates, 61 graduate students and 615 undergraduate majors and pre-majors. Because our faculty and graduate students are research-active, and these activities add to the level of responsibilities of our departmental staff, the work loads of our staff are high.

Mr. D. Mark Gay is the Laboratory Research Specialist who oversees the operation of the microscopy facility, maintains the departmental teaching microscopes, assists faculty and graduate students with their microscopy research projects, and assists with audiovisual production. Our graduate program relies very heavily upon Mr. Gay’s technical expertise. Ms. Jennifer Abernethy Messer is the Greenhouse Manager, who helps maintain the research and teaching botanical collections, and assists with preparations for the Plant Biology Labs. Ms. Cathy Olson is the departmental Undergraduate
Academic Advisor, and advises all the incoming biology majors and biology transfer students until they are assigned to a faculty member as juniors.

As stated above in Section 6.b., we feel strongly that as we continue to grow our department’s extramurally funded research efforts, which involves and supports both our undergraduate and graduate students, our department would benefit from the addition of both administrative and technical support staff.

7. GRADUATE STUDENTS

a. DESCRIPTION OF GRADUATE STUDENT POPULATION

There are currently 61 graduate students enrolled in our department’s graduate programs, 33 males and 28 females. These include 13 M.S. Biology students, 36 M.S. Marine Biology students and 12 Ph.D. Marine Biology students. Forty-three of these students are currently classified as N.C. residents for tuition purposes. There are five international students (from Peru, Mexico, Singapore, Malaysia and China). Three of our graduate students are African American and one is Hispanic. In addition to the students enrolled our degree programs, four students are currently registered to take graduate classes as non-degree students.

b. ADMISSIONS CRITERIA

MASTER OF SCIENCE IN BIOLOGY AND MARINE BIOLOGY

Admission to our M.S. graduate programs is a two-step process. The first step is an initial screening of the applicant based upon the evaluation of their performance on the General Test of the GRE, undergraduate GPA, letters of recommendation, and research and work experience. An initial decision upon the eligibility of an applicant is based upon a composite numerical score employing a ranking of each of the above criteria. The current protocol is appended as Appendix 2.

The second step in the process is that an eligible applicant must be accepted by a graduate faculty to be admitted to the program. Thus, once an application is deemed eligible, it is made available to the faculty for their consideration. The applicant is also contacted to inform them of their eligible status, and to suggest that they contact faculty with whom they are interested in working, if they have not already done so.

Numbers of applications to the M.S. Marine Biology program have remained relatively stable over the past eight years (mean 70; range 59-89) (Table 1). In 2007, we received the second highest number of applications in the past eight years. These numbers have remained steady and high since the inception of the M.S. in Marine Science in 1999. The number of applicants to our M.S. Biology program has decreased over the past eight years. This trend likely reflects at least two factors. First, the reputation of marine programs at our university continues to grow, and garners the most national attention. Second, most of our faculty carry out marine-related research and most of our recent faculty hires have been in the field of marine biology. After admission, a number of marine biology applicants will transfer to the M.S. in Biology, which is reflected in the higher percentage of graduates in this program relative to acceptances (Figure 1).

Ph.D. PROGRAM IN MARINE BIOLOGY

Admission to our Ph.D. program is also a multi-step process. The first step is, again, an initial screening of the applicant, who must either have an M.S. or be in that process at UNCW. Evaluations of performance include the General Test of the GRE, undergraduate and graduate GPA, letters of
recommendation, and research and work experience. Applicants must also provide a current *Curriculum
Vita*, a detailed summary of their M.S. thesis research, and a statement of Ph.D. research interest. The
second step in the process is that a faculty member must state their willingness to take on an eligible
Ph.D. applicant. Because there are insufficient programmatic funds to support Ph.D. student stipends, the
bulk of their support must come from the faculty and/or student. Thus, it is of critical importance that the
applicant and the faculty have developed a line of communication and are entering into the admission
process as a team. The final step is that students are admitted to the Ph.D. program by a majority vote of
the Graduate Advisory Committee (GAC) of the Department of Biology and Marine Biology based upon
eligibility requirements and available resources.

The number of applications to the Ph.D. program has always been small, ranging from 2-7 (Table
1). We believe that this small number of applicants is due, in part, to the newness of the program, but
mostly due to the above described application process. We have encouraged all students who have
contacted us about the Ph.D. program to contact potential advisors as an integral part of their application
process. Thus, the application numbers below mostly reflect those students who have earned an M.S. (or
are in that process at UNCW) and have an agreed upon relationship with a faculty advisor. We have
received only a small number of applications without any prior communication with the applicant.

At the inception of the Ph.D. program, our department instituted a set of guidelines for faculty
who wished to recruit Ph.D. students. While we did this with the best intention of ensuring the success of
our new Ph.D. program, it did have the consequence of limiting faculty participation. Our department has
since revised these guidelines, so that all graduate faculty are eligible to recruit Ph.D. students, providing
they have sufficient funding. Because the number of faculty who can recruit Ph.D. students is growing,
we expect both the number of applicants, and accepted students, to continue to grow. As described in
Section 7.d below, though, we also believe that continued growth of the Ph.D. program will require
increased programmatic funds to support more Ph.D. TA stipends.

Table 1. Application statistics for the M.S. and Ph.D. Programs for fall 2000-2007.

<table>
<thead>
<tr>
<th>Program</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S. Marine Biology</td>
<td>68</td>
<td>69</td>
<td>89</td>
<td>59</td>
<td>69</td>
<td>68</td>
<td>56</td>
<td>78</td>
</tr>
<tr>
<td>M.S. Biology</td>
<td>21</td>
<td>22</td>
<td>18</td>
<td>15</td>
<td>14</td>
<td>8</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Ph.D. Marine Biology</td>
<td>na</td>
<td>na</td>
<td>na</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>89</td>
<td>91</td>
<td>109</td>
<td>76</td>
<td>88</td>
<td>81</td>
<td>71</td>
<td>92</td>
</tr>
</tbody>
</table>

Figure 1. M.S. Biology and Marine Biology graduates since inception of graduate programs.
Applications to the M.S. Marine Biology come largely from out-of-state (Table 2). The 88% rate for fall 2007 reflects the overall trend of 80-90% out-of-state applications over the past ten years. In contrast, most of our applicants to the M.S. Biology and Ph.D. programs are from in-state. Both these programs recruit heavily from already enrolled students, and from professional and governmental agencies within the region. For example, all three in-state Ph.D. applicants for fall 2007 were UNCW M.S. students. Our out-of-state applicant was a biology professor from Mexico, who had established a line of communication with one of our faculty, and who selected our program for his professional development.

The solid reputation of our program is reflected in the high enrollment rate for accepted students (Table 3). While we do have strong enrollment rates (between 75-100%), these rates are a bit misleading. We have lost a number of high-quality M.S. applicants who would have been accepted into the program, had they not accepted much more lucrative offers from other institutions before our official acceptance procedures had been completed. These students have been very forthcoming, stating that finances played an important role in their decision. We believe that our current recruitment package for M.S. students is severely deficient and that it has and will continue to negatively affect our ability to compete for high-quality students.

Table 2. Completed applications, acceptance and enrollment data for fall 2007.

<table>
<thead>
<tr>
<th></th>
<th>M.S. Marine Biology</th>
<th>M.S. Biology</th>
<th>Ph.D. Marine Biology</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In-State</td>
<td>Out</td>
<td>In-State</td>
<td>Out</td>
</tr>
<tr>
<td>Applications</td>
<td>9</td>
<td>69</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Accepted</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Enrolling</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
The quality of the applicant pool has been consistently high (Table 4). These high-quality students enter a graduate program that takes very seriously their academic development. This commitment is reflected in the high retention rates of our students: 93.4% for our M.S. students from 2001-2007 and 92.9% for our Ph.D. students from 2002-2007.

Table 4. Mean scores for students enrolling in the M.S. and Ph.D. programs for fall 2000-2007.

<table>
<thead>
<tr>
<th>Year (n)</th>
<th>GRE (V)</th>
<th>GRE (Q)</th>
<th>GRE (A)</th>
<th>GRE (AW)</th>
<th>GRE-BIO</th>
<th>G.P.A.</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000 (17)</td>
<td>508</td>
<td>578</td>
<td>592</td>
<td>na</td>
<td>625</td>
<td>3.57</td>
<td>10.9</td>
</tr>
<tr>
<td>2001 (14)</td>
<td>519</td>
<td>659</td>
<td>617</td>
<td>na</td>
<td>628</td>
<td>3.69</td>
<td>12.9</td>
</tr>
<tr>
<td>2002 (19)</td>
<td>467</td>
<td>605</td>
<td>620</td>
<td>na</td>
<td>617</td>
<td>3.37</td>
<td>10.1</td>
</tr>
<tr>
<td>2003 (18)</td>
<td>528</td>
<td>614</td>
<td>658</td>
<td>5</td>
<td>659</td>
<td>3.45</td>
<td>12.5</td>
</tr>
<tr>
<td>2004 (15)</td>
<td>538</td>
<td>639</td>
<td>680</td>
<td>4.5</td>
<td>666</td>
<td>3.47</td>
<td>12.6</td>
</tr>
<tr>
<td>2005 (14)</td>
<td>507</td>
<td>597</td>
<td>585</td>
<td>4.4</td>
<td>644</td>
<td>3.60</td>
<td>13.2</td>
</tr>
<tr>
<td>2006 (15)</td>
<td>556</td>
<td>646</td>
<td>677</td>
<td>4.8</td>
<td>633*</td>
<td>3.41</td>
<td>12.6</td>
</tr>
<tr>
<td>2007 (20)</td>
<td>490</td>
<td>606.5</td>
<td>610</td>
<td>4.45</td>
<td>608*</td>
<td>3.58</td>
<td>12.4</td>
</tr>
</tbody>
</table>

* mean score represents subset of students who applied with scores; some scores still pending

Each year, we tend to have more females enroll than males (Table 5). During this period we have enrolled 10 international students, but our enrollment of under-represented students has been low; only five African-American and two Hispanic students have enrolled in our program. No Native Americans have enrolled. Each year, efforts are made to increase African-American enrollment by sending program information to all McNair Scholars who list biology or marine biology as their prospective graduate...
school majors. The Graduate Associate Dean and Graduate Coordinator for Biology and Marine Biology have also participated in minority student fairs and outreach activities to better publicize our program to minority students.

In October 2007, our Department, in association with Center for Faculty Leadership, the Center for Teaching Excellence, and the Center for Marine Science, hosted a workshop by Dr. Matthew Gilligan of Savannah State University. Dr. Gilligan discussed creating strategies for success in enhancing under-represented student participation in marine biology. This workshop was very thought-provoking and has helped maintain the drive behind our department’s efforts to address this important issue in higher education. Our Chair, Dr. Martin Posey, has also been building collegial relationships with our colleagues at Elizabeth City State University, to bring African-American undergraduates to our campus for summer internships. Such opportunities offer potential future graduate applicants the opportunity to get to know UNCW. There is also a shared desire to explore opportunities for exchange programs for our graduate students and faculty. We believe that there is much promise for enhancing the diversity of our student body, as well as the diversity of research experiences all students receive at UNCW, by such focused efforts with a UNC sister institution. Our ability to diversify the student body would also be greatly enhanced by more attractive recruitment packages for students (see below).

Table 5. Demographics of graduate students enrolling from 2000-2007.

<table>
<thead>
<tr>
<th>Academic Year</th>
<th># female</th>
<th># male</th>
<th># International</th>
<th># African-American</th>
<th># Hispanic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2001-02</td>
<td>9</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2002-03</td>
<td>13</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2003-04</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2004-05</td>
<td>14</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2005-06</td>
<td>6</td>
<td>9</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2006-07</td>
<td>9</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Fall 2007</td>
<td>10</td>
<td>7</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>83</td>
<td>58</td>
<td>10</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

c. ORIENTATION AND ADVISING

As stated above, our department takes very seriously its role of academic mentoring and teaching training. These processes are supported throughout the student’s tenure with a series of planned events. We officially meet our new graduate students during a morning orientation session, where all major facets of their academic life are touched upon (see Appendix 3 for agenda, and a copy of the Student Handbook). The orientation ends with a lunch with current graduate students and faculty. Later that afternoon, “TA Boot Camp”, run primarily by veteran TAs, offers them a supportive but realistic view of their new profession as graduate Teaching Assistants.

In support of their teaching training (1) TAs have weekly meetings with their lab coordinators, (2) the Graduate Coordinator has yearly meetings with all lab coordinators, (3) faculty and students have an annual brown-bag teaching forum, (4) and faculty evaluate all TAs each spring. In addition, BIO 694: Teaching Practicum is offered biennially to permit interested master’s and all doctoral students the opportunity to explore methods and theory of teaching.

There are also a series of events and goals that are planned to support the research training of our students. For our master’s students, these include: meetings each semester with their thesis committee, a
research prospectus that must be defended to their committee and to the department (during the Graduate Student Prospectus Symposium), their oral preliminary exams, and the defense of their thesis. All M.S. students are also encouraged to enroll in the required \textit{BIO 501: Methods in Scientific Research and Presentation} during their first semester in residence. During their tenure, they also meet annually with the Graduate Coordinator. In the early portion of their second semester, this meeting is designed to review the student’s progress towards their prospectus, and in their third semester, to discuss their progress towards thesis completion. For Ph.D. students, these events include: annual meetings with their dissertation committee, a research proposal that must be defended to their committee and to the department (individual departmental seminar), their written and oral comprehensive exams, and the defense of their dissertation. The Graduate Coordinator meets annually, or more frequently, with each Ph.D. student to discuss his or her progress.

d. GRADUATE STUDENT SUPPORT

Graduate Teaching Assistantships and extramurally-funded Research Assistantships

Most of our M.S. students, and all who are not otherwise supported on federal fellowships, are supported with either departmental teaching assistantships (TAs) or faculty-provided research assistantships (RAs) for their entire tenure. Most are also supported on faculty-provided RAs during the summer. A number of our M.S. students have been supported on NSF Graduate Teaching Fellowships and EPA Star Grants, and other fellowships or grants. The department currently has 31 M.S. TAs to award at a level of $9,500 for the nine month academic year (paid in 10 installments). Research assistantships are generally paid at the same level during the academic year, but RAs may be paid at increased levels during the summer months.

In contrast, most of our Ph.D. students are supported on extramurally funded RAs, federal fellowships, or salaried professional positions that they maintain during their tenure. The department currently has 5 Ph.D. TAs to award at $16,000 for the nine month academic year (paid in 10 installments).

Each semester extramurally funded RAs support between 27-37% of all enrolled graduate students, while summer support is almost exclusively fromextramural funds (Table 6).

\begin{table}
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
Year & Spring TAs & Spring RAs & Fall TAs & Fall RAs \\
\hline
2002 & 26 & 15 & 31 & 17 \\
2003 & 31 & 15 & 31 & 15 \\
2004 & 26 & 15 & 25 & 12 \\
2005 & 24 & 11 & 26 & 10 \\
2006 & 23 & 11 & 26 & 12 \\
2007 & 28 & 14 & 32 & 12 \\
\hline
\end{tabular}
\caption{Number of graduate TAs and RAs per semester during 2002-2007.}
\end{table}

Adequacy of Number of Ph.D. Teaching Assistantship

For the first time this year, the number of available Ph.D. TAs limited the number of Ph.D. students who we could invite to join our department. Since fall 2002, our Ph.D. student body has grown from 2 to 12 students (Figure 3). During each of the semesters since the program’s inception, the department has had 5 Ph.D. TAs available. In the first five semesters of the program, when five or less students were enrolled, we utilized maximally 40% of the available TAs (Figure 4). The small number of
enrolled Ph.D. students, and our goal of demonstrating that we could support our Ph.D. students primarily with extramural funding, led to an under-utilization of this programmatic resource. Beginning in the sixth semester, however, the growth of our Ph.D. student body has led to a different pattern. While TA stipends have supported, on average, only 34% (range 25%-50%) of our Ph.D. students, the greater number of students has required the department to utilize a much larger percentage of the available TA stipends. This year, for instance, we utilized all of our Ph.D. stipends, which accounted for only 40% of the financial support for our enrolled students across both semesters.

Our faculty remain committed to continuing their efforts to enhance the extramural funding of our Ph.D. students. However, we believe that we have reached a point where the continued growth of our program will be constrained by the number of available Ph.D. TA stipends. It has become clear that our goal of a Ph.D. program that sustains between 20-30 students each year cannot be attained without at least a doubling of the current number of available TA stipends.
Figure 2. Total number of Ph.D. students enrolled each semester since fall 2002.

Figure 3. Ph.D. student utilization of TA stipends each semester since fall 2002.
Out-of-state Tuition Remissions and Tuition Scholarships

Each year, the Graduate School provides our department with 12 out-of-state tuition remissions, which pays the difference between the in-state and out-of-state tuition costs for 9 credit hours. We use these funds to support 16 out-of-state students, at 6-8 credit hours, to make these extremely valuable remissions extend as far as possible to support our large student body. In addition, we receive support in the form of Graduate Tuition Scholarships that can be used to help defray the costs of in-state tuition for our students.

Unfortunately, both of these resources are now funded at rates that are insufficient for our program, and these deficiencies have become exacerbated by the difference in support that we offer our Ph.D. vs. our M.S. students. To ensure the competitiveness of our Ph.D. program, doctoral students receive full tuition support. Our department, though, received no new out-of-state tuition remissions in support of our new doctoral program. In fact, we currently receive the same number of remissions we received at the time of our previous program review. Because we offer our Ph.D. students full tuition support, and because we are recruiting more international students who will always require such a remission, we require additional remissions to sustain and grow our graduate programs.

In addition, due to the growth of our Ph.D. program during the past four years, we have also lost the ability to use Graduate Tuition Scholarships to offer our M.S. students any in-state tuition support. Instead, we have had to use these funds to support our Ph.D. students’ in-state tuition costs. Although full tuition support is of great import to our Ph.D. students, and helps ensure the competitiveness of this program, it has been, until this academic year, essentially an unfunded mandate. Our Graduate Tuition Scholarships did increase two years ago, but these funds continued to be used in whole to support our Ph.D. students. Thus, the growth of our Ph.D. program has directly and negatively impacted our department’s ability to support our M.S. students.

This year, the Graduate School increased our departmental budget by the addition of a new budget line, termed In-State Graduate Tuition Remissions. This additional source of funding will permit us to offer our M.S. students a modest level of support to help defray their tuition costs. We are extremely grateful for this increased support. We are still very concerned, though, that this benefit will only partially address the severe financial situation that now faces our M.S. students.

Adequacy of Stipend and other forms of support for our M.S. and Ph.D. students

The primary threat to the continued health and vigor of our graduate programs is the severely inadequate support we offer our M.S. students. Our M.S. TA stipends are low, we do not offer these students in-state tuition waivers, and we do not provide them health insurance.

The M.S. TA stipend is $9,500/academic year. This stipend is many thousands of dollars lower than those offered by many of our sister institutions (e.g. NCSU, UNC-CH and Greensboro), and than those schools with which we compete for high-quality students (e.g. University of Maryland, College of Charleston, VIMS, University of Florida) (please see Appendix 4 for comparisons).

From this low stipend, our M.S. students are required to pay in-state tuition. Although the stipend has increased modestly over time, our tuition costs have increased at a faster rate. Thus, in 2001, in-state tuition costs represented 17% of an M.S. stipend while in 2007 these costs represent 35% of their stipend (Figure 4). That is, our M.S. students pay back the University over 1/3 of their earned stipend for tuition. More realistically for our students, their tuition costs represent 39% of their take-home pay (approximately $850/month x 10 months). These students are, during this time, providing the service of teaching our undergraduates – our primary university mission.

In an effort to gauge the financial status of our students, we carried out a voluntary survey this fall, asking for information on monthly living expenses. Students could not include “luxury” costs, but reported only real costs of living. The survey results (based upon 27 responses) were collated by officers of the BIO Graduate Student Association, and reported to the Graduate Coordinator. Unfortunately, the summary results from this year are dire.
Our students’ average monthly cost of living is $1,463; their average monthly take home is $850. Rent (which now averages $569/month) and tuition costs alone represent over 100% of the monthly take-home TA stipend of our M.S. students. This imbalance has resulted in 41% of the respondents taking out loans to meet basic living expenses. This survey also revealed another disturbing fact – most of our graduate students are under-insured and nearly 40% lack health insurance coverage completely. This lack of health insurance is a significant student welfare issue. Ironically, the university requires our students to carry health insurance to participate in selected field work. We do not, though, provide these students sufficient stipend support to purchase this insurance.

In addition, as stated above, because of the growth of our Ph.D. program, we have not, until this year, been able to use Graduate Tuition Scholarship Funds to offer our M.S. students any in-state tuition support.

The woeful support that we offer our M.S. students is financially unsustainable first and foremost for our students, but also for our program and our university. We are asking our students to take on critical educational roles in our university, and we are not paying them enough to meet their basic costs of living. We are also charging them almost 40% of their wages to be enrolled in our program. Although our department has a long history of supporting graduate students with extramural grants, the current federal and state funding climate is not conducive to remedying all of the fiscal deficiencies described above. Further, it is inconsistent and unrealistic to expect the faculty to generate extramural support sufficient to offset these shortfalls while simultaneously committing extensive time and effort to our undergraduate teaching mission. These deficits are so profound that institutional realignment is necessary to ensure the health and competitiveness of M.S. graduate programs at UNCW.

While the Ph.D. stipend is considerably higher than the M.S. stipend, it is not competitive when compared to our sister institutions or aspirant peer institutions (Appendix 4).

Figure 4. Tuition as a percentage of M.S. TA stipend.

Other Graduate and Departmental Support and Competitive Scholarships
The Graduate School provides one New Scholar Award ($1,000) to the department annually to aid in recruiting a highly ranked student. The Department of Biology and Marine Biology also has three endowed graduate fellowships. These are the Dr. James F. and Frances B. Parnell Fellowship ($1,600), for students who are studying some aspect of field oriented terrestrial vertebrate biology; the Mulligan Fellowship ($1,000), for students who have achieved academic excellence and demonstrated exemplary
service; and the Frances Peter Fensel Memorial Fellowship ($3,500), established for the purpose of recognizing merit in the area of Marine Biology at UNCW. There are two other scholarships that can be awarded to either an undergraduate or a graduate student. These are the John Colucci Jr. Memorial Scholarship ($3,500) and the David G. Lindquist Scholarship in Biology ($500) established for the purpose of recognizing merit in the area of Marine Biology at UNCW.

Graduate student travel is funded largely by research grants to individual faculty members. The Graduate School supplements these funds with $400 travel grants to graduate students who are first authors on papers being presented at scientific meetings. The University Graduate Student Association competitively offers students $400 for travel to meetings if they are not eligible for Graduate School funds, and the Biology GSA offers graduate students $90 for registration and other costs. The department supplies very little university or trust funds (<$200 per annum) for support of graduate student travel.

e. GRADUATE STUDENT PERFORMANCE MEASURES

It is a real pleasure to describe the accomplishments of our graduate students. As has been mentioned throughout this document, the scholarly output of our students is prodigious. They have been authors on 116 peer-reviewed papers. (We believe that the high publication rate is due, in part, to our policy that the format of the M.S. thesis and Ph.D. dissertation conform to that of the journal(s) in which the student intends to publish.) Our graduate students have also been authors on over 300 presentations at international, national and regional meetings.

In an effort to better capture the breadth of accomplishments of our graduate students, we initiated a “Graduate Student Annual Report” in 2004. The reports for each of the past three years are included in Appendix 5. The reports reveal that in the past three years, 67 students have presented 107 papers or posters at scientific meetings, and that a number of students have also won awards for their work. For example, Ms. Kristin Hardy was awarded the Best Graduate Student Poster Award from The Crustacean Society at the Society of Integrative and Comparative Biology meeting in 2005. Ms. Carter Esch won the Best Master’s Student Poster Presentation, and Ms. Erin Meagher won the Best Ph.D. Student Oral Presentation, at the Southeast and Mid-Atlantic Marine Mammal Symposium in 2005. Mr. Chris Bentley won Best Student Poster at the Aquaculture America Meeting in 2006. Mr. Ted Wilgis’ poster received 4th place honors at the RAE Conference in 2007. Mr. Clark Gray won the Best Student Poster Award in the Division of Neurobiology, Society for Integrative and Comparative Biology in 2007. Ms. Cally Harper won the Dwight D. Davis Award in the Division of Vertebrate Morphology, Society for Integrative and Comparative Biology in 2007.

During the review period, 45 students have received honors, awards or UNCW scholarships. Twenty-two students have also received extramural funding from a variety of organizations, including NSF, EPA, NIH, NSERC, Sigma-Xi, Lerner-Gray, and NOAA. Our students have received prestigious fellowships, such as the Ruth L. Kirschstein National Research Service Award Pre-doctoral Fellowship, the EPA Star Fellowship, and the Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship.

Our students also take on leadership roles within their scientific community. For example, Ms. Elena Perrineau Gold acted as a Peer Mentor for the Society of Toxicology in 2004. Ms. Amanda Kahn has acted as a student officer for the Southeastern Estuarine Research Society Meetings (SEERS) in 2004-2006, as the Estuarine Research Federation (ERF) Student Member at Large in 2006. Mr. Adam Branson was awarded the National Tutor of the Year Award from the Association of Tutoring Professionals in 2005.

Importantly, many of our graduate students have demonstrated exemplary performance as teaching assistants. The majority of the department’s TAs regularly receives Student Perception of Teaching (SPOT) scores above the university and the departmental averages. In the past seven years, six of our students have received the University Teaching Excellence Award, the highest honor graduate student teachers can attain at UNCW: Ms. Vicki Stegall, 2001; Ms. Amy McElheney, 2002; Ms. Lynne
Williams, 2004; Ms. Cally Harper, 2006; and Ms. Sara Colosimo and Mr. Clay Morris, 2007.

This partial list of achievements demonstrates that our graduate students are active in their science and teaching, and in service to their academic and broader communities. They also complete their work in a timely manner. During the review period, the median time to graduation for our M.S. students has been 2.5 years (Figure 5). For our five Ph.D. students who will have graduated by summer 2008, the mean time to graduation is 4.5 years (range 3-6). We have also enjoyed a high degree of success in placing the graduates of our programs in both jobs in their fields (within and outside of North Carolina) and in Ph.D. programs (Figure 6). As for the graduates of our young Ph.D. program, Dr. David Meyer, our first Ph.D. graduate, continues his professional work at NOAA as a Research Fisheries Biologist at the Beaufort Laboratory. Ms. Erin Meagher-Fougeres, who will be defending her dissertation in January 2008, begins her work at NOAA Southeast Region as the Marine Mammal Health and Stranding Coordinator. Mr. Tim Henkel, Ms. Amanda Kahn, and Ms. Elena Perrineau Gold are currently exploring post-doctoral positions and employment opportunities.

We are also pleased with the high retention rates of our students, as stated above: 93.4% for our M.S. students from 2001-2007 and 92.9% for our Ph.D. students from 2002-2007.

Figure 5. Time to degree for our M.S. students from May 2002-2007.

![Figure 5](image)

**Figure 5.** Time to degree for our M.S. students from May 2002-2007.

Figure 6. Placement of our students from the inception of our graduate program.

![Figure 6](image)
f. ROLE OF TEACHING ASSISTANTS IN GRADUATE PROGRAM

Graduate teaching assistants participate in the undergraduate instructional program primarily as laboratory instructors and through assistance in laboratory preparations. Ph.D. students who have requested to do so have taken on the new role of lecturers in a selection of our 100 level undergraduate courses. Please see Section 6.b above for a more detailed description of the important roles our graduate students play in the educational mission of our department.

8. AFFIRMATIVE ACTION

The low numbers of under-represented students among those enrolled in our graduate programs remains a central concern of our department. A description of our efforts to improve this situation is presented in section 7.b above, and we believe strongly that we must continue to strive to enhance the diversity of our graduate student body. This goal is aligned with our university’s strategic goals.

UNCW Strategic Goal #3: Embrace and enhance diversity throughout the university's constituencies, culture, curriculum and outreach activities. Cultural, racial, ethnic and global diversity are fundamental to the mission of the university and are essential elements of an atmosphere of openness and free inquiry upon which teaching and learning rest. The measure of diversity lies not in maintaining certain percentages of minorities or even in representing the regional population, but rather ensuring a critical mass of historically under-represented groups to promote cross cultural and racial understanding, to break down racial stereotypes, to enliven class discussions, to enable students to understand persons of different backgrounds, and to prepare students with leadership skills for success in an increasingly diverse workforce.

Although we have much work ahead of us, we also have renewed hope that our university’s commitment to enhancing diversity, our Chair’s leadership in seeking out collegial partnerships with one
of our sister institutions, and our small but growing alumni of under-represented students, will help propel us to a more diverse student body and faculty. We believe that the university’s recent efforts to increase its financial commitment to enhancing diversity is of paramount importance to achieving this goal, and we strongly support enhancing this investment at all levels. Our University’s Equal Employment Opportunity Affirmative Action Plan is included as Appendix 6.


INTRODUCTION

The scholarship and research activity of the faculty of the Department of Biology and Marine Biology has grown significantly since the previous program review. External funding, peer-reviewed publications, and presentations at national and international meetings have each increased in recent years. Inclusion of graduate and undergraduate students in scholarship has also risen considerably (see Section 7: Graduate student performance measures).

<table>
<thead>
<tr>
<th>Year</th>
<th>Peer-reviewed papers</th>
<th>Conference presentations</th>
<th># of new awards</th>
<th>Amount ($)</th>
<th>Major funding sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>62</td>
<td>100</td>
<td>34</td>
<td>$1,955,507</td>
<td>NSF, NOAA, NC Sea Grant, ACE</td>
</tr>
<tr>
<td>2001-02</td>
<td>68</td>
<td>134</td>
<td>46</td>
<td>$2,036,169</td>
<td>NSF, SBWA, NOAA, ACE</td>
</tr>
<tr>
<td>2002-03</td>
<td>68</td>
<td>132</td>
<td>30</td>
<td>$2,815,627</td>
<td>NOAA, NC Sea Grant, USDA</td>
</tr>
<tr>
<td>2003-04</td>
<td>72</td>
<td>104</td>
<td>51</td>
<td>$2,751,084</td>
<td>NSF, USDA, NOAA, ACE</td>
</tr>
<tr>
<td>2004-05</td>
<td>54</td>
<td>137</td>
<td>40</td>
<td>$2,854,000</td>
<td>NSF, NOAA, NC Sea Grant, ACE</td>
</tr>
<tr>
<td>2005-06</td>
<td>51</td>
<td>162</td>
<td>38</td>
<td>$1,943,792</td>
<td>NSF, ONR, NOAA, NC Sea Grant</td>
</tr>
<tr>
<td>2006-07</td>
<td>67</td>
<td>178</td>
<td>38</td>
<td>$2,108,401</td>
<td>NSF, NOAA, NC Sea Grant, ACE</td>
</tr>
<tr>
<td>Total</td>
<td>442</td>
<td>947</td>
<td>277</td>
<td>$16,464,580</td>
<td></td>
</tr>
</tbody>
</table>

* Total funding amounts ($) do not include collaborative projects (e.g., the NOAA funded Coastal Ocean Research and Monitoring Program)

a. PUBLISHING

The scholarship of the Department of Biology and Marine Biology is documented, in part, in the summary table above. The faculty, in collaboration with students (see Section 7 above), has maintained a consistent rate of publication in peer-reviewed journals. During the review period faculty members have published in several leading journals of international scope including Science, Nature, Proceedings of the National Academy of Science, Limnology and Oceanography, Applied Environmental Microbiology, Evolution, Journal of Experimental Biology, American Journal of Physiology and Integrative and Comparative Biology. The faculty has also published 7 books and 18 book chapters, in addition to countless technical reports since 2000. Details of faculty scholarship can be found in their CVs, which are included in Appendix 7.

b. FUNDED PROJECTS

Since the previous program review, the department faculty has continued to increase the level of external funding obtained to support research. Total annual funding has averaged $2-3 million during the review period, up approximately 33% from the previous program review. Faculty members have continued to receive financial support from traditional sources that include NSF, NOAA, NMFS, and Sea
Grant, as well as recent awards from NIH, the Office of Naval Research (ONR), and the US Army Corps of Engineers. Notable awards during the review period include funding to initiate studies of the effects of tidal elevation changes in the Cape Fear River (ACE), the evaluation of thermal stress in dolphins associated with pelagic tuna fisheries (NMFS), chemical defenses of Caribbean invertebrates (NSF), biomineralization of the blue crab exoskeleton (NSF), historical occupation and diet of Adelie penguins in the Ross Sea, Antarctica (NSF), the effect of muscle fiber size on metabolic design (NSF), bluefish population dynamics in the western Atlantic (NOAA), funding for the acquisition of a confocal microscope and ABI genetic analyzer (NSF), phylogenetic analysis of watermolds (NSF), and the effects of lipid composition and sound on nitrogen solubility in diving marine mammals (ONR).

c. CONFERENCE PRESENTATIONS
The number of presentations by faculty and students has more than doubled since our last program review (Presentations at scientific meetings numbered 74 in 1999). During the review period UNCW hosted two conferences: The 12th Annual Southeast and Mid-Atlantic Marine Mammals Symposium in March, 2005 and the 28th Annual Southeast Phycological Colloquium in November, 2006.

d. LEADERSHIP ROLES
Faculty members in the department take on active leadership roles within their professions. They have served on numerous advisory boards, hold several editorships, participate in review panels, and act as officers for many scientific societies. Many of the faculty have served in noteworthy leadership positions during the review period, including serving as President of the North Carolina Academy of Sciences, Chair of the North Carolina Coastal Resources Commission, Associate Program Officer for the NSF Biological Oceanography Program, President of the Southeastern Estuarine Research Society, NSF-AAAS BiosciedNet (BEN) Scholar, President Elect of the Society for Integrative and Comparative Biology, and providing testimony before the US House Committee on Resources and the US Senate Commerce, Science and Transportation Committee. A listing of each faculty members current (2006-07) professional leadership activities is provided in Appendix 8.

e. HONORS AND AWARDS
Many of the faculty members in the Department of Biology and Marine Biology have been recognized for their extraordinary contributions to the teaching and research mission of UNCW during the review period. Two faculty, Dr.’s Dillaman (2001) and Pabst (2003) earned the Graduate Mentor Award, recognizing their outstanding contributions to the UNCW graduate program. Dr.’s Posey (2001), Pabst (2002), Dillaman (2005) and Cahoon (2007) each received the Faculty Scholarship Award. Drs. Ballard (2003) and Webster (2005) each earned the Distinguished Teaching Professor Award, and Dr.’s Webster (2005) and Lankford (2007) each received the Chancellor’s Award for Teaching Excellence. Dr. Kapraun (2001) was also recognized by the University of North Carolina Board of Governors with their Award for Teaching Excellence. Several members of the faculty have also been recognized by professional societies and other outside groups for their contributions to their respective fields.

f. COMMUNITY SERVICE
Service to the community has historically been an important goal of the department mission and the orientation towards service demonstrated by many of the faculty and graduate students contributes to the success of the graduate program. Each year, several members of the faculty, as well as numerous graduate students, offer their skills to assist in the education of students from area public schools and integrate public involvement into their research activities. Outstanding examples during the program review period include the roles of both faculty and graduate students in the NSF GK-12 program, regular faculty participation in and organization of local and regional Science Olympiads, the establishment of an
internship program with the Karen Beasley Sea Turtle Rescue and Rehabilitation Center, and the considerable number of volunteers who participate in the Marine Mammal Stranding Program.

10. STRENGTHS, WEAKNESSES, AND FUTURE DIRECTIONS

The graduate programs in the Department of Biology and Marine Biology are a UNCW success story. These programs have directly advanced the educational and research missions of the university, and have also served as a model for the development of graduate programs in other disciplines.

The departmental graduate programs have many strengths that are both tangible and intangible. Most importantly, the programs are comprised of highly accomplished and competent faculty, graduate students and staff. The departmental faculty members are university leaders in grant support, which is essential to support student research assistantships and summer stipends, research supplies and equipment, and travel to field sites and scientific meetings. The research results that are generated by grant support are published in peer-reviewed journals and presented at state, regional, national and international meetings by both faculty members and graduate students. In this area, the Department of Biology and Marine Biology is one of the most prolific at the university, and many of the departmental faculty and graduate students have won awards or fellowships for their scholarship. These products of the graduate programs not only contribute to the advancement of science, but also raise the research profile of the university internationally. Importantly, the departmental faculty members conduct the research and educational activities associated with the graduate programs while maintaining a deeply-rooted commitment to undergraduate education that forms the backbone of our university. In fact, the vibrancy of the graduate programs promotes a research environment that is easily accessible to undergraduate students, and the department has a well documented track record and emphasis on encouraging undergraduate research opportunity.

There are also many less tangible strengths of the graduate programs. New faculty members have been recruited to the department, in part because of the quality of the graduate programs, and they bring with them new research approaches that further enhance the opportunities for graduate research. These newer faculty members, like the rest of the department, share a commitment to both education and research that is central to our university’s mission. Departmental faculty are also exceedingly collegial, which fosters an environment of collaboration and sharing that has been critical to the success of our graduate programs. This positive work environment is particularly evident in the student-centric focus of the department. The well-being of the graduate students and the quality of their education is an overriding concern of the faculty, and the department consistently engages in thoughtful analysis and management of student programs. This attitude extends to the graduate students. The graduate student body is extremely active and collegial, and the students engage in a number of activities, some of which are self-governed, including fund raisers, the biannual graduate student prospectus symposium, and “TA Boot Camp”, which promote the success of the graduate programs.

While there are many positive features of the graduate programs and their home department, there are also notable weaknesses that, if not addressed, threaten the sustainability and further development of these programs. Chief among these weaknesses are the low stipends for M.S. Teaching Assistants, an insufficient availability of tuition remissions and scholarships, and a lack of university supported health insurance. The lack of adequate support in these areas has led to a condition where our M.S. TAs, upon whom we depend to fulfill part of our undergraduate teaching obligations, cannot earn a living wage. This situation must be remedied if the graduate programs are to sustain the high level status that has been attained over the past several decades. Our Ph.D. TA stipend is also not competitive when compared to our sister and peer aspirant institutions. Both stipends must increase annually in the future to meet “market value”. We also require more Ph.D. TAs if we are to sustainably grow our doctoral student body.

A second area of weakness is the relatively noncompetitive start-up packages and salaries that we
offer to potential new faculty members. We have had remarkable success in recruiting most of our top candidates in the past few years. However, we have also failed to recruit our top candidate in a number of cases because our offers were not at market value. The graduate programs are driven by the ability of the faculty to develop novel research programs, attain grants, write papers and mentor students. We therefore must improve our recruitment packages to maintain the vitality of the graduate programs.

Faculty in our department are actively engaged in undergraduate teaching and graduate mentoring, while maintaining high levels of performance in grantsmanship and scholarly output. Thus, our faculty workloads are heavy. The faculty embrace all these missions, but require more infrastructural support to help maintain them. The addition of technical support staff and administrative staff would add immeasurably to our department’s ability to continue to achieve excellence in all these goals.

Lastly, our continued growth and strength as a department relies upon our ability to diversify. We must continue our efforts to invite under-represented students, faculty and staff to join us.

The targeted goals listed below are an effort to address what we identify as our most serious weaknesses, while continuing to build upon our existing strengths.

1) Solicit funds to support the graduate programs. The substandard level of stipends for our M.S. students, the lack of an adequate number of tuition remissions and scholarships, and the lack of student health insurance are the most serious student welfare issues facing our graduate program. The department will continue to request relief in these areas, which have reached the level of crisis. In addition, we will continue to promote the incorporation of these additional student funds in our extramural grants. However, the faculty simply cannot be expected to fully compensate for the current deficiencies through extramural funding, considering the department’s and university’s shared emphasis on the mission of undergraduate education. High quality models for graduate student support plans exist within our state (e.g. North Carolina State University Graduate Student Support Plan, see Appendix 9). Our department would look forward to working with the university to help enhance the level of support for all of our graduate students.

2) Further develop the Ph.D. program. We recognize that we have built our Ph.D. program more slowly than was initially anticipated. From the outset, though, the Ph.D. in Marine Biology was intended to be a moderately sized program to ensure that students received the highest quality education possible. The relatively small size of the program at present results in part from this guiding philosophy and also from the self-limiting initial design of the program described above. However, we have now reached a critical juncture, where enhanced university investment, in the form of more Ph.D. TAs, will be required to assure our young program’s sustainability and continued success.

The department will continue to encourage managed growth both in terms of the number of Ph.D. students and faculty mentor participants. We have already addressed many of the initial restrictions placed on the program that limited the pace of development, and we intend to encourage further participation by reaching out to our colleagues in other departments. The mechanisms for our non-biologist colleagues to mentor Ph.D. students have always been in place, and we welcome their participation. We intend to make a more active effort, though, to include faculty from other departments so that the Ph.D. program can benefit from their expertise and provide valuable support to the students. These efforts will include open discussions with outside faculty members to better define ways in which they may more easily participate.

3) Recruit and retain top level faculty members. The department will continue to recruit new faculty members who will contribute to the graduate and undergraduate programs, solicit extramural funding, and provide research infrastructure for students. To do this, the department will continue to request better start-up packages and faculty salaries. As part of this effort, we will determine market value for biology faculty members by comparison to like departments so that the university administration will have data
upon which to base potential changes in recruitment packages.

(4) Request additional technical and support staff. Recruiting and retaining high-quality technical and administrative staff is of great import to our department. The department would benefit from the addition of at least one research technician and one administrative support staff. These individuals would benefit our graduate program by offering our students direct technical assistance and training, and by ensuring that their administrative needs (hiring, budgets, compliance) were met. These additions would also help address the high workloads of our departmental staff and faculty.

(5) Increase diversity among faculty and graduate students. This goal is of fundamental importance to our department and university. Our department is taking serious steps to include more historically under-represented groups among our faculty and students, including instituting a departmental Diversity Committee, taking a more active role in soliciting minority applicants for faculty positions, and working with the university Department of Human Resources to promote diversity in our hires. We have much work ahead of us, and one important area where the university can enhance its support of these efforts is to provide targeted funding for increasing diversity. Enhanced financial packages available to recruit and retain both graduate students and faculty candidates, would strengthen our capacity to develop a more diverse university and department.
Appendix 1. Biology and Marine Biology Catalogue Course Descriptions

GRADUATE PROGRAM IN BIOLOGICAL SCIENCES
Course Descriptions

BIO 501. Methods in Scientific Research (2) Scientific manuscript preparation and communication techniques: manuscript format, graphics, design of experiments, library use, oral presentation, and writing techniques. Two lecture hours each week.

BIO 512. Electron Microscopy and Cell Ultrastructure (3) Prerequisite: Course in cell biology or permission of instructor. A discussion of the general and specialized techniques of transmission and scanning electron microscopy and their application to the elucidation of the structure and function of cell organelles in plants and animals. Three lecture hours each week.

BIOL 512. Electron Microscopy Laboratory (1) Corequisite: BIO 512 and permission of instructor. Techniques for fixing, embedding and thin sectioning tissue. Students prepare tissue for observation and analysis and examine the tissue with the transmission electron microscope. Three laboratory hours each week.

BIO 519. Advanced Topics in Cellular and Molecular Biology (4) Prerequisite: Upper–level undergraduate or graduate course work in cellular and molecular biology or permission of the instructor. Selected topics in cellular and molecular biology. Includes: cytoskeletal components, membrane dynamics, cellular receptors, metabolism, gene expression, protein structure and function, molecular evolution and extrachromosomal DNA. Three lecture and three laboratory hours each week. May be taken more than once for credit under different instructors.

BIO 526. Advanced Topics in Microbiology (2-4) Prerequisite: Course in microbiology and organic chemistry or permission of instructor. Study of the taxonomy, morphology, metabolism, genetics and ecology of microorganisms. Emphasis is placed on the current microbiological literature. Lecture and laboratory hours each week. May be taken more than once for credit under different instructors.

BIO 531. Population Genetics (3) Prerequisite: Course in genetics. Basic principles of the dynamics of genes within populations. Topics include fitness, polymorphism, genetic equilibrium, and the effects of non–random mating and selection. Three lecture hours each week.

BIO 534. Advanced Ecology (3) Prerequisite: Course in general ecology. Advanced topics in population dynamics, and community ecology. Current ecological theory on population regulation and community dynamics will be examined using a combination of literature readings, class discussion, and formal lectures. Three lecture hours each week.

BIOL 534. Advanced Ecology Laboratory (1) Corequisite or prerequisite: BIO 534. Approaches to analysis and interpretation of ecological data. Using sample and real data sets, various analytical approaches for examining population and community patterns will be examined. Estimation of theoretical parameters from data will also be explored.

BIO 538. Cytogenetic Methodology (2) Prerequisite: Course in genetics. Laboratory course introducing techniques for studying and analyzing the chromosomes of a variety of organisms including plants and animals. Four laboratory hours each week.

BIO 539. Advanced Topics in Population Biology (2–4) Prerequisite: Courses in genetics and ecology or permission of instructor. Study of the ecology, genetics, and evolution of populations. Topics include dynamics of population structure, growth, and regulation; natural selection and the maintenance of genetic variation within populations; differentiation of populations and
speciation; evolution of population strategies. Lecture hours each week. May be taken more than once for credit under different instructors.

**BIO 544. Developmental Biology (4)** Prerequisite: Course in genetics. Concepts of mechanism and control during embryo development and morphogenesis. Topics include differential gene activity, hormones and other growth substances, and cell surface phenomena. Current primary research literature is stressed. Three lecture and three laboratory hours each week.

**BIO 549. Advanced Topics in Animal Physiology (4)** Prerequisite: Permission of instructor. Study of topics in animal physiology for which significant new understanding has been obtained. Consideration is given to those emergent techniques that have permitted the application of scientific methodology to particular physiological problems. Three lecture and three laboratory hours each week. May be taken more than once for credit under different instructors.

**BIO 550. Systematic Biology (3)** Prerequisites: A course in statistics is strongly recommended. A survey of methods used in systematic investigations including phylogenetic, cladistic, and eclectic approaches to the analysis of molecular, allozymic, cytogenetic, morphometric, and discrete plant and animal data sets. Nomenclatorial rules and procedures are discussed. Three lecture hours each week.

**BIO 551. Advanced Vertebrate Biology (2)** Prerequisite: Permission of instructor. Individualized instruction in the identification, classification, and ecology of the terrestrial vertebrates of the coastal zone with emphasis on field methodologies. Designed to fill gaps in each student’s knowledge of the classes of terrestrial vertebrates. Four laboratory hours each week.

**BIO 558. Biology of Recreational and Commercial Fishes (3)** Prerequisite: Course in ichthyology and permission of the instructor. A study of the major groups of fishes and invertebrates utilized in fisheries, with emphasis on the biology, economic importance, and management of selected groups. Topics focus on contemporary management strategies and needs. Two lecture and three laboratory periods each week.

**BIO 560. Estuarine Biology (4)** Prerequisite: Course in general ecology or permission of instructor. An examination of the unique physical, chemical, and biological interactions within estuaries, emphasizing nutrient cycles and energy flows. Three lecture and three laboratory hours each week.

**BIO 561. Barrier Island Ecology (3)** Prerequisite: Course in general ecology or permission of instructor. Survey of vegetation and physiography of barrier islands. Two lecture and three laboratory hours each week.

**BIO 562. Wetlands of the United States and their Management (3)** Prerequisite: Course in general ecology or permission of the instructor. Ecology and management of wetlands and adjacent communities. Examination of methods used to restore and create wetlands. Two lecture and four laboratory hours each week.

**BIO 563. Coral Reef Biology (4)** Ecology and physiology of coral reef organisms, emphasizing processes that contribute to the diversity and complexity of coral reef ecosystems. Reef formation, coral biology and physiology, ecological, interactions, man’s effects, conservation and global change.
Appendix 1. Biology and Marine Biology Catalogue Course Descriptions

**BIO 564. Biological Oceanography (3)** Prerequisite: Permission of instructor. Discussion of the recent oceanographic literature concerning nutrient cycling, distribution and regulation of oceanic productivity, and advances in methodologies used to study oceanic processes and controlling factors. Three lecture hours per week.

**BIOL 564. Biological Oceanography Laboratory (1)** Corequisite: BIO 564. Laboratory and field investigations of oceanographic problems, including instruction in standard analytical techniques, experimental design, and analysis, with an emphasis on biological responses to physical and chemical factors. Three laboratory hours per week.

**BIO 566. Behavioral Ecology of Reef Fishes (3)** Prerequisite: Course in ichthyology or permission of instructor. An ecological and ethological approach to the study of reef fishes, including theories and problems dealing with ecological niche, competition, social systems, and population biology. Two lecture and three laboratory hours each week.

**BIO 568. River Ecology (3)** Prerequisite: course in general ecology or permission of instructor. The biology, ecology, chemistry, and physical nature of streams, rivers, and watersheds. Biodiversity, endangered species, pollutants, the regulatory structure, and river politics will be discussed. Three combined lecture and lab hours per week, plus field trips to local rivers, streams and tidal creeks.

**BIO 575. Taxonomy of Aquatic and Wetland Plants (3)** Prerequisite: Course in plant taxonomy or permission of instructor. Discussion, collection, and identification of vascular plants found in the aquatic and wetland habitats of coastal North Carolina. Extensive field work and individualized instruction in collection and identification techniques. Two lecture and three laboratory hours each week.

**BIO 577. Experimental Mycology (3)** Prerequisite: Graduate status. An accelerated introduction to general mycology with emphasis on the role of fungi as friend and foe in various ecosystems. The use of fungi as experimental tools as well as modern technology useful to their study are considered. Two lecture and three laboratory hours each week.

**BIO 578. Biology of Harmful Algae (3)** Prerequisite: BIO 205, BIO 446, or consent of instructor. Identification (taxonomy), ecology, physiology and toxin production by both marine and freshwater microalgae. Toxin structure and mode of action, effects on humans and public health, environmental damage and possible mitigation/management strategies.

**BIO 579. Advanced Topics in Organismic Biology (2–4)** Prerequisite: Permission of instructor. Advanced study of the ecology, natural history, behavior, or systematics of selected groups of organisms. Lecture and laboratory hours each week. May be taken more than once for credit under different instructors.

**BIO 580. Field Studies in Biology (1–6)** A research experience–oriented field course offered in selected regional locales. Emphasis is placed on distribution, taxonomy, and ecology of animal and/or plant organisms.

**BIO 585. Special Topics in Advanced Biology (1–6)** Designed to deal with selected topics not considered in detail in regular course offerings. More than one topic may be taken for credit.

**BIO 590. Biomechanics (4)** Prerequisite: Course in animal biology. A study of the interactions of
organisms with their physical environment. Concepts from fluid and solid mechanics are applied to biological form and function. Three lecture and three laboratory hours each week.

BIO 591. Directed Independent Study (1–4) May be repeated under different subtitles.

BIO 596. Critique of Scientific Literature (1) Review and critique of grant proposals, manuscripts, and published papers pertaining to biological research.

BIO 599. Thesis (1–6)

BIO 601. Oceanography and Environmental Science (2-3) Prerequisite: BIO 564 or permission of instructor. Topics and methods in biological oceanography and environmental science. Required of all Ph.D. candidates. May be repeated under different subtitles.

BIO 602. Ecology (2-3) Prerequisite: permission of instructor. Topics and methods in marine ecology. May be repeated under different subtitles.

BIO 603. Physiology and Biochemistry (2-3) Prerequisite: permission of instructor. Topics and methods in the physiology and biochemistry of marine organisms. May be repeated under different subtitles.

BIO 604. Cellular and Molecular Biology (2-3) Prerequisite: permission of instructor. Topics and methods in the cellular and molecular biology of marine organisms. May be repeated under different subtitles.

BIO 605. Evolution and Diversity (2-3) Prerequisite: permission of instructor. Topics and methods in the evolution and diversity of marine organisms. May be repeated under different subtitles.

BIO 690. Seminar (1) For resident students, attendance at departmental seminars is required. Candidates are required to present two scientific seminars (dissertation proposal and dissertation defense) at UNCW within four years of residency. Candidates are expected to orally present their research at least once at other institutions or (inter-) national scientific meetings. Credit is awarded during the candidate’s last semester of residency.

BIO 694. Practicum in College Biology Teaching (2) An introduction to theory, research, and practice in college biology teaching. Combines supervised internship in biology teaching with formal classroom instruction. For graduate students who have been awarded teaching assistantships in the Department of Biology and Marine Biology and others with permission of instructor. Ph.D. students will be required to engage in limited formal instruction. Two semester hours per week.

BIO 698. Research (1-6) Credit hours taken by students in pursuing their dissertation research. May be taken more than once for credit.

BIO 699. Dissertation (1-12) Credit hours taken by students in analyzing their research data and writing their dissertation.
Appendix 2. Application Evaluation

BIOLOGY AND MARINE BIOLOGY GRADUATE APPLICANT EVALUATION

Applicant: ________________________________ Term: __________

| Points | GRE Scores: |  |
|--------|-------------|-
|        | Verbal:     |  |
|        | Score _____ | Percent _____ | Points _____ |
|        | Quantitative: |  |
|        | Score _____ | Percent _____ | Points _____ |
|        | Analytical Writing: |  |
|        | Score _____ | Percent _____ | Points _____ | ___ (6) |

| Grade Point Average (GPA): |  |
|---------------------------|-
| Undergraduate |  |
| Overall _____ | Last 60 hours _____ |  |
| Mean of Overall and last 60 hours | _____________________ | ___ (6) |

Recommendations: ________________________________ ___ (4)

| Research and Work Experience: |  |
|-------------------------------|-
| Internships, applied learning experience | _____ | (1) |
| Honors Undergraduate experience | _____ | (1.5) |
| Germaine field/lab research or work experience | _____ | (1.5) | ___ (4) |

Comments:

TOTAL SCORE ___ (20)
Appendix 3. Orientation Agenda and Student Handbook

Department of Biology and Marine Biology
New Graduate Student Orientation
10 am to 12 pm, Tuesday, August 21, 2007
Dobo 131

I. Welcome and Introduction to the Department of Biology and Marine Biology
Ann Pabst, Graduate Coordinator
Martin Posey, Chair
Joan Willey, Professor of Chemistry and Graduate Coordinator for Master of Science in Marine Science Program
Tracie Chadwick, Graduate Secretary

II. Graduate Student Association Representatives
Jessica Burpee, Vice President of the Biology and Marine Biology Graduate Student Association jlb7346@uncw.edu, Dobo Hall 225, 962-7258
Kristin Hardy, Past President of the Biology and Marine Biology Graduate Student Association
Patricia Mason, President of the Graduate Student Association phm3427@uncw.edu

III. Graduate vs. Undergraduate Education

IV. Departmental Policies and Procedures I
Introduction to Office Staff
Eleanor Bussman, Receptionist/Purchasing
Tracie Chadwick, Graduate Secretary
Debbie Cronin, Office Assistant
Lori Leitch, Program Assistant
Carol Russell, Administrative Assistant - Workers’ Compensation

V. Departmental Policies and Procedures II
Safety (handout included in new student packets) – Mark Gay, Laboratory Research Specialist
Animal care and use – Amanda Southwood, Assistant Professor
Payroll – Tracie Chadwick
Insurance – Ann Pabst
TA Parking

VI. Rights and Responsibilities
Salary
Registration
Office Space
Computers, E-mail
Departmental Seminars
Prospectus Symposium
Annual Report

VII. Graduate Student Handbook, Forms (http://www.uncw.edu/bio/grad-forms.html), Bio 501
Tracie Chadwick and Ann Pabst

VIII. Graduate School Assistance - http://www.uncw.edu/grad_info/index.htm
General Fellowships and Awards (list included in packet)
Teaching Award
Summer Research Fellowship
Travel Awards

**IX. Residency for Tuition Purposes** - [http://www.uncw.edu/grad_info/pdf/long_residency.PDF](http://www.uncw.edu/grad_info/pdf/long_residency.PDF)
Procedures and probabilities

**X. Teaching and Research Assistantships**
Leslie Moore, *Lab Coordinator*
Ann Pabst

Center for Teaching Excellence
Help with problems
Annual Review

**XI. Questions & Answers**

**XII. Photographs** – *Mark Gay*

*LUNCH at noon*
Meet faculty and graduate student colleagues.

**CONTACT INFORMATION:**

Department of Biology and Marine Biology
Dobo Hall 102, 962-3487

Graduate Coordinator: Dr. D. Ann Pabst
Dobo Hall 220
962-7266
E-mail: pabsta@uncw.edu

Graduate Secretary: Tracie Chadwick
Dobo Hall 102
962-3536
E-mail: chadwickt@uncw.edu

Graduate School
James Hall, 2nd floor
962-7303
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Graduate Programs

The Department of Biology and Marine Biology offers graduate programs leading to the following degrees: Master of Science in Biology, Master of Science in Marine Biology, and Doctor of Philosophy in Marine Biology. Programs are described in detail below.

Master of Science (MS) degrees

The faculty have designed the Master of Science (MS) degree programs to: (1) prepare students for further graduate work leading to the Ph.D.; (2) provide professional biologists with advanced research and education opportunities; (3) prepare students as managers of coastal and marine resources, trained to deal with contemporary problems in the environment; (4) provide students with a broadly-based graduate program allowing for specialization in the diverse fields of inquiry represented by the faculty of the department; and (5) provide increased avenues for secondary school teachers to pursue graduate studies. All students in the MS degree program should gain an in-depth knowledge of a chosen specialty, knowledge of available resource materials, and basic writing and problem-solving skills.

As you enter the MS degree program in the Department of Biology and Marine Biology, you should discuss your educational and job-related goals with your graduate advisor, committee members, and faculty at large. These individuals can help you in determining the most appropriate instructional and research programs available at UNC Wilmington. For example, if your goals include a continuation of your studies at the Ph.D. level, faculty members will probably advise you to pursue extensive independent research, while minimizing the number of formal courses taken. Conversely, if your employment goal is to work in the private or government sectors, understanding the conduct of research is important, but a breadth of course work may be the most appropriate approach to this goal.

MS Degree Requirements

General Requirements for the Master of Science

1. The program requires 30 semester hours of graduate study.
2. Six (6) semester hours of credit, if approved by your graduate committee and the departmental graduate coordinator, may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to a “B” or better.
3. A minimum of 24 semester hours of graduate study must be completed in residence at UNC Wilmington.
4. No more than nine (9) hours of graduate level courses offered by other science departments at UNC Wilmington may be applied toward the 30 credit hour requirement for your degree.
5. Undergraduate courses taken to make up deficiencies will not count toward the 30 hours required.
6. All deficiencies must be remedied before graduation.
7. You must successfully complete both a comprehensive oral examination and a defense of your thesis.
8. You will present a thesis, based on original research and acceptable to the committee, before graduation.
9. You must complete an approved course of study within five years of the date of your first registration for graduate study.

Coursework Requirements for the Master of Science

Required Courses for both Biology and Marine Biology MS degrees

The following courses are required of all students seeking a Master of Science degree in biology or marine biology:

- BIO 501 Introduction to Scientific Research and Presentation (2)
- BIO 599 Thesis (minimum of 3 and maximum of 6 credits applied toward the 30 credit requirement)
Core courses for each MS degree program

In addition to the required courses for both biology and marine biology degrees listed above, each student, in consultation with his/her graduate committee, shall devise a program of study that meets the requirements below, complements the thesis research, and satisfies individual needs and interests.

MS in Biology students must complete two of the following:

- BIO 519 Advanced Topics in Cellular and Molecular Biology (4)
- BIO 534 Advanced Ecology (3) and BIOL 534 Advanced Ecology Lab (1)
- BIO 549 Advanced Topics in Animal Physiology (4)

and a minimum of 14 hours of elective credit; at least seven (7) hours of which must come from the following list of graduate courses:
- BIO 512, BIOL 512, 519*, 526, 531, 534*, 538, 539, 544, 549*, 550, 551, 563, 575, 577, 578, 579, 580, 585, 590, 591, 594, 596 (*If not taken as a core course above.)

MS in Marine Biology students must complete two of the following:

a) BIO 534 Advanced Ecology (3) and BIOL 534 Advanced Ecology Lab (1) OR
   - BIO 549 Advanced Topics in Animal Physiology (4) OR
   - BIO 519 Advanced Topics in Cellular & Molecular Biology (4)

b) BIO 560 Estuarine Biology (4)

c) BIO 564 Biological Oceanography (3) and BIOL 564 Biological Oceanography Lab (1)

and a minimum of 14 hours of elective credit; at least seven (7) hours of which must come from the following list of graduate courses:
- BIO 519*, 534*, 549*, 558, 560*, 561, 562, 563, 564*, 566, 575, 577, 578, 579, 580, 585, 590, 591, 594, 596 (*If not taken as a core course above.)

Doctor of Philosophy (PhD) degree

The Department of Biology and Marine Biology offers a program of study and research leading to the doctor of philosophy (PhD) in marine biology. The program provides students with a broad background and overview of the fields comprising marine biology and makes use of the diverse interests of the marine biology faculty within the department. As is generally the case, the PhD program is primarily a research degree. As such, it is intended to serve students with interests in conducting research in academia, industry, and government along with those who intend to become faculty in undergraduate teaching institutions, managers in technology-based industries and policy makers in government. Students will learn the process of identifying, defining and solving an original research problem. The program also includes a teaching practicum with classroom instruction in pedagogical techniques and technologies along with lecture experience under the guidance of a faculty mentor.

PhD Degree Requirements

General Requirements for the Doctor of Philosophy

1. The program requires 78 post-baccalaureate (48 post-MS) semester hours of graduate study.
2. The maximum amount of credit that a PhD student may count toward a doctorate from a master’s degree program is 30 semester hours. This applies whether the master’s degree was earned at UNCW or elsewhere. Six post-MS semester hours of credit may be transferred from another accredited institution. Grades earned on transfer work must be equivalent to “B” or better and must be approved by the Graduate Advisory Committee.
3. A minimum of 24 semester hours of graduate study must be completed in residence.
4. Each student must pass a Candidacy Exam that includes (1) a written exam consisting of essay questions submitted by the student’s Dissertation Committee that are based upon the graduate curriculum and the student’s area of research, and (2) an oral examination based on the student’s dissertation prospectus. The written exam should be administered no more than 30 days prior to the public presentation and defense of the dissertation prospectus. The Candidacy Exam should be taken before the end of the third year of residence.
5. The student must complete and defend a dissertation based on a research program approved by the student’s committee that results in an original, high quality, significant, and substantial body of research.
6. All requirements for the degree must be completed within six years after admission to the PhD program (i.e. post-MS).

Additional requirements for all students seeking the PhD in Marine Biology
1. Students must have a master’s degree or must complete course and research requirements of a master’s degree program within the department as described above.
2. Students must complete the following course requirements:

Graduate Seminars in Marine Biology
(2-3 credit hr each; minimum of three differently numbered seminars required)  (6)
BIO 601 Oceanography and Environmental Science*
BIO 602 Ecology
BIO 603 Physiology and Biochemistry
BIO 604 Cellular and Molecular Biology
BIO 605 Evolution and Biodiversity
* Required of all students. Prerequisite: Biological Oceanography (564) or equivalent

Additional required courses:
BIO 690 Seminar         (1)
BIO 694 Practicum in College Biology Teaching      (2)
BIO 699 Dissertation         (12)

In addition to the above requirements, each student, in consultation with his/her dissertation committee, shall select a minimum of 27 hours of elective credit that may include graduate courses and research hours (BIO 698).

For Biology or Marine Biology MS students considering entering the PhD Program

Admission requirements
Students will be admitted to the PhD program by a majority vote of the Graduate Advisory Committee of the Department of Biology and Marine Biology based on eligibility requirements and available resources. Under most circumstances, students admitted to the program will have met the following requirements:

1. Received a MS degree or equivalent from an accredited university OR, if entering with a BS, completed all the requirements for the MS marine biology degree at UNCW except submission of the bound thesis.*
2. An overall graduate grade point average of at least 3.0 out of 4.0.
3. A score on the Graduate Record Examination General Test with a target of the 65th percentile or better (average for the verbal, quantitative and analytical writing sections).
4. A score of at least 550 on the paper version (213 on the computer version) of the Test of English as a Foreign Language (TOEFL) for applicants whose native language is not English.

*Under certain circumstances, a student may, with the support of his or her faculty advisor, choose to apply to the PhD program before completion of the requirements for the MS biology or marine biology degree. Students who choose this path after their first year of core courses and research planning must complete a new application, including letters of recommendation, to enter the PhD program. If accepted, these students would not take their MS oral preliminary exam, but would continue on with their study and take the PhD candidacy exam in year 3. Students who decide upon a PhD later in their academic career, and who have, thus, already taken their preliminary oral exam, may apply to the PhD program, again with the support of their advisor. Students who choose this path must complete a new application, including letters of recommendation, to enter the PhD program. If accepted, these students may decide to bind a MS thesis, or simply continue on with their study and research and take the candidacy exam in year 3.

Documents to be submitted for admission to the PhD Program
All applicants must submit:
1. An application for graduate admission
2. Official transcripts of all college work (undergraduate and graduate)
3. Official scores on the Graduate Record Examination (verbal, quantitative, and analytical writing)
4. Three recommendations with accompanying letters by individuals in professionally relevant fields. For continuing UNCW students, one must be from the intended faculty mentor.
5. Official score on the TOEFL (if applicable)
6. Current curriculum vitae
7. Detailed summary of M.S. thesis research (maximum of three pages)
8. Statement of interest for Ph.D. research (maximum of three pages)
9. Reprints or copies of any publications (if applicable)

**Departmental Policies related to Graduate Study**

**Role of the Graduate Advisor**

You must have a graduate advisor. Your advisor will be determined by mutual consent. Full-time students will not be admitted to the program unless they have obtained the consent of a faculty member to serve as their advisor. Part-time and non-degree students may be admitted without prior consent of an advisor. In such cases, the departmental graduate coordinator will serve as advisor. If you are unable to continue with your original advisor and, in consultation with the departmental graduate coordinator, are unable to obtain a new advisor, you will be ineligible to continue in the program.

The primary role of your graduate advisor is to help you choose a thesis topic and assist you with the design of your research program. Your advisor, therefore, should have expertise in the area of your research and usually will agree to advise only those students wishing to pursue a research topic within his or her range of expertise. Your graduate advisor will also help you in selecting other faculty members to serve on your graduate committee. The committee should be selected during your first year in residence. You should choose your graduate committee members based on their ability to provide you with additional expertise in designing and carrying out your thesis research. Any tenure-track graduate faculty member within the department is eligible to be your graduate advisor and the chair of your graduate committee if he or she provides the needed expertise. If pursuing a PhD, graduate faculty must also be eligible to recruit PhD students.

Under unusual circumstances, you may elect to change graduate advisors during the course of your degree. This process must be accomplished with the knowledge and consent of both your new and current graduate advisor, and in consultation with the departmental graduate coordinator, who will oversee the process and provide the necessary forms that must be completed.

**The Graduate Committee**

**MS**

For the master’s degree programs in Biology and Marine Biology, the student will have a Thesis Committee.

Before the end of the first semester in the MS program, and in consultation with the major advisor, each student will select a Thesis Committee of at least three members.

At least two committee members, including your major advisor, must be graduate faculty of the Department of Biology and Marine Biology.

The third committee member may be (1) a graduate faculty within our department, from another department at UNCW, or from a department at another university, (2) an adjunct graduate faculty member of our department, or (3) a PhD (or equivalent terminal degree) scientist outside of a traditional university setting, which would require a review of the individual’s CV by the GAC, and approval as adjunct graduate faculty by the Graduate School.

A fourth committee member may be any of the above, or any other individual who can contribute to the MS student’s scholarly development, and receives approval as adjunct graduate faculty by the Graduate School.

**PhD**

For the Ph.D. degree program in Marine Biology, the student will have a Dissertation Committee.

Before the end of the first year in the Ph.D. program, and in consultation with the major advisor, each student will select a Dissertation Committee of at least five members.

Three of the committee members, including the major advisor, must be graduate faculty of the Department of Biology and Marine Biology.
The fourth committee member may be (1) a graduate faculty within our department, from another department at UNCW, or from a department at another university, (2) an adjunct graduate faculty member of our department, or (3) a PhD (or equivalent terminal degree) scientist outside of a traditional university setting, which would require a review of the individual’s CV by the GAC, and approval as adjunct graduate faculty by the Graduate School.

The fifth committee member may be any of the above, or any other individual who can contribute to the PhD student’s scholarly development, and receives approval as adjunct graduate faculty by the Graduate School.

For the Ph.D. Dissertation Committee, one member must be from outside the department.

All graduate committees are formally appointed by the department chair. You should submit the appropriate form to notify the chair in writing of your committee choices. The chair will then make the formal appointments.

Your graduate committee will help you in many ways. Members will assist in putting together your degree program and must approve your program of courses. They will also assist you with the development of the research proposal and must approve the research project. They will be prepared to offer you advice and counsel throughout your degree program on any aspect of the program. Each committee member will read, edit, and evaluate your thesis and must approve the final draft. Your committee is responsible for conducting your comprehensive examinations and they will evaluate your performance to determine whether you pass or fail.

It is very important that your committee be carefully chosen and that you maintain close contact with each member throughout your degree program. It is especially important to keep them informed of your progress on research and the writing of your thesis. When they do not know what is being done, they will assume that nothing is happening. To assure that your committee is kept informed about your progress, the department suggests that the student’s M.S. committee be convened at least once each semester, and the Ph.D. student’s committee be convened at least once each year. Forms reporting the outcome of each meeting are provided to all students and must be turned in to the graduate coordinator. The relationship between you, your advisor, and your committee is a critical one. Maintain good working relations, and generally the advisor and committee will be of great help. If the relationship becomes too distant, you will likely lose much of the opportunity to make the most of your time in the graduate program.

**Annual Review of Progress**

Annually, the departmental graduate coordinator will review the progress of each graduate student in the biology and marine biology programs. The review is designed to determine if you are making satisfactory progress toward your degree. Milestones such as completion of identified deficiencies, selection and meeting of your thesis committee, reports of committee meetings, presentation at the prospectus symposium, submission of a signed prospectus, and satisfactory progress in course work will be reviewed. Should your progress be less than satisfactory, the departmental graduate coordinator will meet with you and your faculty advisor to discuss strategies to help your progress.

**MS degree policies**

**MS Thesis Prospectus**

Oversight of your course work and your original research is the responsibility of the university faculty. Failure to monitor these elements may result in considerable strain on the student-graduate advisor-university relationship. To promote a firm understanding of expectations of you in your educational and research program, a prospectus prepared early in your program is essential.

The prospectus should contain three elements: (1) **Program of Course Work**, (2) **Literature Review**, and (3) **Research Proposal**.

**1. Program of Course Work**

You and your graduate committee should develop, by mutual agreement, a course sequence for one to two years based upon projected course offerings.

- a. Your program should reflect the broad aspects of course offerings in biology or marine biology, but should provide some focus concerning your specific research interests.
- b. Your program should reflect your background and your preparation; it should remedy deficiencies from your undergraduate coursework.
- c. Your program should identify required and collateral courses so that all requirements are met.
2. Literature Review
A review of the pertinent primary literature concerning the specific research topic mutually agreed upon by you and your graduate advisor should be completed. The review should be considered a demonstration of your command of the primary literature within your intended field of study.

a. Using conventional or computer-based searching techniques, and/or consultation with persons knowledgeable in the field, you should review major relevant research papers in your area of study.
b. Your review should include broad papers in the field of study and specific papers related directly to the research topic.
c. Your review should show the data gap that your research will address.
d. Your review should be written in scientific style and include a literature cited section written in the format of a major journal in your field of study.

3. Research Proposal
A research proposal, written in narrative form, describing the objectives, hypotheses, methodology, and data analyses, should be completed before you start your thesis research.

a. Your research proposal can be broad-based in nature, especially if the topic or approach is novel.
b. The document should address the significance of the study considering the literature cited.
c. The objectives of your study should be clearly stated. Objectives are measurable or demonstrative accomplishments.
d. Hypotheses and anticipated results should be discussed.
e. Your research proposal should include a timetable for accomplishment of the proposed objectives.
f. The entire document should be considered conditional allowing changes because of circumstances beyond your control.
g. Your methodology for accomplishing each objective should be presented in as much detail is feasible.
h. The kinds of data to be collected and your method(s) of analysis should be clearly stated.
i. Your research proposal can be used to measure your progress and to help develop a schedule for accomplishments.

General Timetable
To ensure the timely submission of the prospectus by the end of the second semester:

a) A copy of the signed prospectus cover sheet must be submitted to the graduate coordinator, who will log the completion of the prospectus (a copy of the prospectus should be submitted directly to the Biology Office for placement in your file).
b) Failure to submit the cover sheet to the graduate coordinator by the end of your second semester will result in a written warning with copies to your graduate advisor and department chair.
c) Failure to submit the cover sheet to the graduate coordinator by the beginning of the third semester will result in a block on your registration for the third semester.
The prospectus will be maintained as a part of your permanent record.

Prospectus Symposium
All MS students are required to participate in a Prospectus Symposium at the end of their second semester in residence. The graduate coordinator will schedule a Symposium at the end of each semester. Symposium presentations will consist of a 10-minute synopsis (with appropriate visual/multimedia aids) of the research question, hypotheses to be tested, research design and statistical analyses to be performed. Each student presentation will be followed by a 5-minute question-and-answer period.

The MS Comprehensive Examination
The comprehensive examination is an oral exam designed to provide you with the opportunity to demonstrate your competence in the field of general biology and/or marine biology as well as in your area of specialization. It will also serve as a diagnostic tool to identify any areas in which your knowledge is deficient and provide avenues for remediation of any such deficiencies.

The scope of the examination should be discussed during an early committee meeting, and should include coverage of general biological knowledge in addition to a command of the specific discipline related to your thesis research. Questions that address biological topics that you should have in focus (based on recent course work) will be considered in developing the examination; however, your entire biological experience will not be neglected. Questions that explore your knowledge in the area of general biology (for example, physiology, genetics, ecology, evolution, morphology, etc.) are appropriate for either biology or marine biology programs.
The comprehensive examination will be conducted by members of your thesis committee. Comprehensive examinations will be usually conducted within the first two weeks of each semester. You should plan to take the examination at the beginning of your third semester. The outcome of the examination will be pass, pass with requirements for remediation, or fail (student may retake the examination at the beginning of the next semester). Failure of the exam for a second time will result in dismissal from the program.

The MS Thesis

Thesis Credit

You are required to register for a minimum of three (3) credit hours of thesis. A maximum of six (6) credit hours may be used toward the master’s degree requirements. Since course work is usually taken during the initial semesters of graduate study, students often elect to register for thesis during their final semesters, although research may be initiated soon after admission. You should register for some thesis credits during any semester in which you are primarily working on your thesis.

Philosophy

Although course work is important, research and the resultant thesis are the unique experiences of graduate study. Consequently, the design of a realistic and well-defined research project should be considered the highest priority by you and your graduate advisor. A detailed prospectus outline helps you achieve this goal by explaining the steps in developing a review of the pertinent literature and a written narrative of the direction the thesis will take. This prospectus can be used by both you and your graduate committee for evaluating and overseeing your research progress.

Directed research can provide you with an opportunity to make a contribution to science, and more importantly, to learn firsthand the objectives, hypotheses, methodology, and data analyses and interpretations used in research. Since graduate students often lack experience in conducting research, it is important that your graduate advisor take an active role as teacher and advisor in the design and completion of your research.

Authorship

It should be the goal of both student and advisor to publish the results of the thesis research. Since there are many possible arrangements between you and your advisor concerning this work, several authorship arrangements are possible. The most common is for you to be senior author and the advisor to be junior author. However, when your research is part of an ongoing research project, authorship may be reversed. Sometimes, your graduate advisor may choose to not share authorship. Recognizing that these and other arrangements are possible and proper, and to avoid misunderstandings between you and your advisor, each student and advisor must complete the Authorship of Publications form when the thesis project is agreed upon. This form will be forwarded to the departmental graduate coordinator and it will become part of your permanent academic record. The chair’s signature indicates that the agreement has been made. If circumstances later dictate that a new authorship agreement is appropriate, the department chair may approve a new arrangement if both parties approve.

Citing the work of others

The writing of a thesis involves both presentation of research findings and evaluation of these findings concerning work done by others. Thus, the incorporation of the body of knowledge existing--relative to the research being reported--is most important. This process involves the frequent and careful citing of work published by others in the body of scientific literature. Such citations should be carefully done and should conform to the principles set forth in the CBE Style Manual\(^1\) and in the journal in which you expect to publish. It is occasionally necessary to cite work not yet published. This is usually done after a personal contact with another researcher and is cited as a “Personal Communication.” To prevent misinterpretation of the unpublished findings of another worker, such citations should be based only on the written transfer of information.

Thesis Format

It is the general policy of the Graduate School and the Department of Biology and Marine Biology that your thesis should be in the format of an article ready for submission to an appropriate scientific journal. The publication “Guidelines for Thesis Preparation” is available from the Graduate School web site: [http://www.uncw.edu/grad_info/grad_publications2.html](http://www.uncw.edu/grad_info/grad_publications2.html)
All instructions for the format of the thesis should follow these guidelines. Detailed presentations of data should be in appendices and should be sufficient to allow future students to repeat the work or to make comparisons between your data and newly gathered information. You should realize, however, that graduate advisors will differ in opinion about what is an appropriate length and style of a thesis. You should discuss this with your advisor before beginning to write and make sure that both of you have an understanding about what format is to be used and how much detail is to be included.

Extensive reviews of literature and methods, of course, are rightfully parts of your prospectus, a document where, by design, you show your mastery of relevant background information before committing to a focused project. However, you should not submit a thesis clogged with pages and pages of material that will never be published in a respectable journal. Students can refer to the following reference for more information on style and content:


Besides the two copies of the thesis required by the Graduate School, you should submit one copy on 100% cotton rag paper for the Department. This copy will be bound, at Departmental expense, and will be kept on file in the Departmental office. The format of your thesis will be discussed in some detail in Biology 501 - Methods in Scientific Research, offered during the fall semester of each year.

Thesis Review by the Graduate Dean

After your graduate advisor and committee have reviewed your thesis and determined that it is in proper journal format and conforms to the thesis guidelines, you should submit one complete copy of your thesis to the Graduate School for format approval. The copy of the thesis must be accompanied by the thesis format form which is available as an interactive/printable form on the Graduate School web site at: http://www.uncw.edu/grad_info/grad_forms2.htm

Because this copy will be subject to edit in the Graduate School, it should be printed on low-grade paper. The thesis must be submitted for format approval before the defense of your thesis can take place.

Following the defense of your thesis and the incorporation of all changes requested by your committee, you should submit three (3) complete copies of your thesis to the Graduate School. These three copies should be printed on 100% rag-content paper. (Note: You do not pay binding fees for these copies.) At this time, submit as many extra copies of your thesis as you wish to have bound. These copies must be printed on white paper with a quality paper of your choice, although 100% rag-content paper is recommended. These are your personal copies and will require a nominal binding fee (contact the Graduate School for current information). Please include a name, address and telephone number where you can be reached to pick up these copies when they are returned from the bindery.

Your thesis does not fulfill the degree requirement until it has been signed by the dean of the Graduate School. The thesis title and date of approval must be filed in the Graduate School before the degree requirement is officially met.

Theses as Public Documents

It is the policy of the Department of Biology and Marine Biology to make all theses available to the public. The William Madison Randall Library of the University of North Carolina Wilmington will be the location where the public may view theses.

Admission to Candidacy

A candidate for a graduate degree is a student who has been approved for graduation at the end of a specific semester, subject to the completion of ongoing courses and/or research as outlined in the application for graduation. You apply for candidacy by filing an application for graduation. Applications for graduation are obtained from the Graduate School. Semester deadlines for submission of these applications are published annually in the university Calendar of Events and posted on the Graduate School website. Your graduate advisor and the departmental graduate coordinator must sign your graduation application. If you apply for candidacy, but fail to meet the deadline for a particular graduation, you must notify the Graduate School, specifying a new graduation date.

Defense of your Thesis

The defense of your thesis administered by the Department of Biology and Marine Biology is designed to provide you with an opportunity to (1) demonstrate your competence in your chosen field of expertise, and (2) display argumentative and persuasive skills augmented with data collected by sound scientific methods. Your thesis defense may be scheduled once you have completed your research and have prepared the final draft of your thesis and submitted it to the Graduate School for format approval.
Format of the defense

The format of the thesis defense will involve a public presentation (departmental seminar) describing the results of your thesis research. The public seminar will be followed by a private thesis defense before your committee. Your thesis committee will take this opportunity to question you on all phases of your research and your written thesis. Normally, the private defense of your thesis will immediately follow your public presentation (departmental seminar); however, under appropriate circumstances and with prior approval of your committee and the graduate coordinator, the date and time of the committee defense may be separate from the date and time of your public seminar. However, in all cases, the public seminar must coincide with or precede the committee defense.

No matter when you schedule your thesis defense, you must make your public presentation between the first day and the last day of classes during the regular fall and spring semesters. To maximize faculty and student participation, no public presentations will be made during semester breaks or examination periods. Students are allowed to defend their theses during the summer (both public and private defenses) with the understanding that faculty participation in the summer is completely voluntary and cannot be required. Your thesis must be completed and final copies submitted to the Graduate School before the end of final examinations in the semester in which you plan to graduate. If the committee defense and the public presentation (departmental seminar) are separated in time, the date of your graduation will be determined by the date of the last action completed.

The examining committee will include a member of the department’s Graduate Advisory Committee or an appointed representative. This additional member will serve as a reader and may participate in your thesis defense. It is your responsibility to ensure a reader has been assigned. See the graduate coordinator at least two weeks before your scheduled thesis defense to arrange for a reader assignment. It is also your responsibility to notify the Graduate School of the time and place of your public seminar and thesis defense before your committee. You must take a copy of your thesis abstract to the Graduate School office no later than 10 days prior to your thesis defense.

Defense Procedure

At least 15 days before you wish to conduct the defense of your thesis, you should submit a request to your graduate advisor who will then schedule your thesis defense. At least one week before the scheduled date of the defense of your thesis, you must submit a copy of your thesis to each committee member and to the appointed departmental reader. This should be a complete copy, as close to final draft as possible. Figures and tables should be of finished quality. Each committee member will study and edit the thesis before your thesis defense. Should the committee determine that your thesis is not sufficient for a defense, they may cancel your scheduled thesis defense and request that it be rescheduled for a future date.

At the conclusion of your thesis defense, the copies of your thesis containing each member’s suggestions for changes will be returned to you. Your committee will inform you whether you have passed or failed your thesis defense after the committee has had an opportunity to deliberate on the quality of your responses to their questions, your oral performance, and the condition of your thesis.

If you pass your thesis defense, you must prepare a final copy of your thesis based on the written and oral comments provided by your committee. Should you fail your thesis defense, your committee will schedule a second defense after what it considers an adequate interval for further study or for revision of your thesis, typically a period of three months.

Appeal of Examination Performance

The burden of proof of unfair treatment always rests with the student making the appeal. Appeals will not be entertained until the student has exhausted existing policy, namely that a second comprehensive examination has been taken after a three-month waiting period has elapsed; excluding:

a. when any form of harassment (sexual, racial, national origin, etc.) is alleged.

b. when the appeal alleges arbitrary or capricious action, including deviations from established procedure that clearly affect the outcome of the examination.

In these instances, the appeals procedure may be initiated without the requirement of having taken a second examination.

If you wish to appeal the decision of the examining committee, you should first present evidence of discrimination or violation of due process to the chair of the department, who may consult with the departmental graduate coordinator and the faculty member(s) involved in evaluating the examination, in seeking resolution of the dispute.

Failing resolution at the departmental level, the student may appeal to the dean of the Graduate School for review and mediation. The appeal must include supporting information, copies of which shall be sent to the departmental graduate coordinator, the chair of the
department, and faculty member(s) involved. The dean of the Graduate School shall request written information about the case from the department, with the intent of resolving the issue through informal consultation. However, failing in that effort, the graduate dean will assemble a formal hearing before the Student Affairs Committee of the Graduate Council, with the exception that no member of the hearings panel may be a member of the faculty of the student’s department. Other members of the Student Affairs Committee also may disqualify themselves should there be a personal or professional conflict of interest. In such cases where a replacement member to the Student Affairs Committee is required, the dean shall appoint another member from the Graduate Council to serve on the panel.

The Hearings panel shall be supplied with copies of the information at hand and after that hold whatever hearings and meetings it deems necessary. The dean of the Graduate School shall chair the meeting, but shall not be involved in any deliberations concerning the outcome of the hearing. All parties involved have the right to appear before the panel, if they wish, but otherwise need not do so. The panel shall forward its recommendation to the graduate dean who, after considering those recommendations, shall notify the student in writing of the final decision, with copies sent to the departmental graduate coordinator and the chair of the department. The matter, as an academic issue, ends at this time.

**PhD degree policies**

**Guidelines for Written Candidacy and Oral Qualifying Exams**

The purpose of the written candidacy exam is to test the breadth and depth of your knowledge in the chosen area of marine biology and supporting disciplines. You will be examined on your grasp of factual information, theories, and ability to apply this information to marine biological problems.

The required written candidacy exam may be taken after 30 post-baccalaureate credits have been taken at UNCW or after the completion of at least 16 credits of course work at UNCW post-Masters. You should meet with your committee at least two months before the written exam to review your preparation, discuss topic areas to be covered, and propose a date for the exam. Each of the five dissertation committee members should submit one or more questions for the student to answer. The committee Chair should oversee the design of the exam, and ensure that the number of questions is appropriate and that they are not duplicative. The written exam should be administered over 1-3 days. Each committee member will grade his/her portion of the exam, and return their grades and comments within five days. A passing vote from four of the five committee members is required to pass the written candidacy exam.

Within 30 days of successful completion of the written candidacy exam, you should proceed to the proposal presentation and oral qualifying exam. A student who fails the written comprehensive exam may, at the discretion of the student’s advisory committee, be permitted to take a second and final written exam within 3-6 months. If a student fails the second exam, those who do not possess a Master’s would have the option of completing their Masters degree; those who already possess a Masters degree would withdraw from the program.

Although a student may pass the written comprehensive exam, the exam may reveal possible deficiencies that can be remedied with further questioning during the oral qualifying exam or by additional coursework. Before proceeding to the oral qualifying exam, you should discuss, with individual members of your advisory committee, any deficiencies that will be addressed during the oral exam. The oral qualifying exam should consist of (a) a presentation of the dissertation proposal as a departmental seminar and (b) a committee meeting to permit questioning of the proposal and areas covered in the written candidacy exam. A passing vote from four of the five committee members is required for passing the oral qualifying exam.

Upon successful completion of both the written comprehensive exam and the oral qualifying exam, you will be admitted to doctoral candidacy, at which time they can enroll in dissertation credits (BIO 699).

**The PhD Dissertation Format**

It is the general policy of the Graduate School and the Department of Biology and Marine Biology that your dissertation should be formatted as a series of three to five chapters, each of which is a manuscript ready for submission to an appropriate scientific journal. Manuscripts that have already been submitted, or have been accepted and/or published may be included. In addition to each of these chapters, the dissertation should include a brief introductory and/or summary chapter(s) that synthesizes the body of work contained within the dissertation.

The publication “Guidelines for Thesis Preparation” is available from the Graduate School web site and these rules will be followed for the dissertation as well: [http://www.uncw.edu/grad_info/grad_publications2.html](http://www.uncw.edu/grad_info/grad_publications2.html).
All instructions for the formatting should follow these guidelines. Detailed presentations of data should be in appendices and should be sufficient to allow future students to repeat the work or to make comparisons between your data and newly gathered information. You should realize, however, that graduate advisors will differ in opinion about what is an appropriate length and style of a dissertation. You should discuss this with your advisor before beginning to write and make sure that both of you have an understanding about what format is to be used and how much detail is to be included. Extensive reviews of literature and methods, of course, are rightfully parts of your prospectus, a document where, by design, you show your mastery of relevant background information before committing to a focused project. However, you should not submit a dissertation clogged with pages and pages of material that will never be published in a respectable journal. Students can refer to the following reference for more information on style and content:


Besides the two copies of the dissertation required by the Graduate School, you should submit one copy on 100% cotton rag paper for the Department. This copy will be bound, at Departmental expense, and will be kept on file in the Departmental office.

The Defense of the PhD

The format, procedure, and appeals process for the defense of the PhD degree are similar to those outlined above for the MS degree.

Graduation and the Awarding of Degrees (MS and PhD)

Graduate degrees are conferred by the university three times each year: May, August, and December. Students that successfully complete their defense will have their degree conferred based upon the date of completion of all requirements (e.g., spring completion = May degree; summer completion = August degree; and fall completion = December degree). You are eligible to participate in either December or May Commencement ceremonies, based on the expected time that your degree will be conferred. If your degree is conferred in August, you can participate in Commencement ceremonies the following December. No diplomas will be given out at any ceremony. Your diploma will be mailed to you. Students receiving graduate degrees in December and May are expected to participate in Commencement ceremonies. All students participating in the Commencement ceremonies must order academic regalia and should make arrangements 2-3 months in advance.

Academic Regulations and Procedures

Transfer of Graduate Credits

You may transfer a maximum of six (6) semester hours of graduate credit from another accredited institution. Under special circumstances, you may transfer additional credit by submission of a petition, endorsed by the chair of the Department of Biology and Marine Biology, to the Graduate Council of the University. You may start this process by indicating your desire to seek additional transfer credits in a written memorandum to the departmental graduate coordinator.

Graduate courses that you have taken while enrolled as an undergraduate are not transferable unless they are approved by the dean of the Graduate School at UNCW before taking the course.

No grade less than B, or equivalent, may be transferred. You obtain graduate transfer credit by having the departmental graduate coordinator submit a request to the dean of the Graduate School. This request must have the approval of the chair of the Department of Biology and Marine Biology and must be accompanied by an official transcript.

A student enrolled in the UNCW graduate program may take up to six (6) hours of credit at another accredited institution. You must have prior approval of the dean of the Graduate School before taking the course.

Deficiencies in coursework

Your graduate advisor and your graduate committee will evaluate your undergraduate program as you enter one of the MS degree programs and may require that coursework deficiencies be remedied. You may fulfill a deficiency by taking one or more undergraduate courses before graduation. In such cases, no graduate credit will be given. You must achieve a passing grade. In many cases, you can receive graduate credit for an undergraduate course by taking the course under the BIO 591 listing. This will require that you meet with the course instructor to agree upon the course listing and credit hours, and the means of evaluating graduate level work in an undergraduate course (graduate students will be expected to perform additional assignments to those of undergraduate students).
Full-Time Status

Graduate–Regular Term
Full-time status requires a minimum enrollment of nine credit hours. However, a graduate student may also be considered full–time when enrolled for less than nine hours if the student: 1) holds a full (20 hour) teaching or research assistantship and is enrolled in five or more hours, 2) holds a partial (less than 20 hours) teaching or research assistantship and is enrolled for seven or more hours, 3) is enrolled for one to three hours of research (BIO 698), thesis (599) or dissertation (BIO 699) work, 4) is enrolled in GRC 600 (continuous enrollment), 5) is enrolled in PSY 598 (Internship), or 6) is enrolled in NSGL 594 (Clinical Practicum) or NSG 595 (Education Residency). Half–time status begins with at least four and a half (4.5) credit hours. A student may not enroll beyond two terms of continuous enrollment (GRC 600). Summer counts as one regular term.

Graduate–Summer Term
A graduate student in good standing, who is pre-registered for the following fall semester, is not required to enroll during the summer to maintain status as a graduate student and retain privileges for access to campus facilities. Full–time status, however, requires a minimum enrollment of four credit hours. A student may also be considered full–time when enrolled for less than four hours if the student: 1) holds a full (20 hour) teaching or research assistantship and is enrolled in two or more hours, 2) holds a partial (less than 20 hours) teaching or research assistantship and is enrolled for three or more hours, 3) is enrolled for one to three hours of research (BIO 698), thesis (599) or dissertation (BIO 699) work, 4) is enrolled in GRC 600 (continuous enrollment), 5) is enrolled in PSY 598 (Internship), or 6) is enrolled in NSGL 594 (Clinical Practicum) or NSG 595 (Education Residency). One to three hours of thesis work may also qualify the student as half–time if approved in writing by the graduate dean. A student may not enroll beyond two terms of continuous enrollment (GRC 600). Summer counts as one regular term.

Directed Independent Study (BIO 591)
Directed Independent Study is designed for MS students to allow students to spend focused time researching or studying a particular topic (often, but not always related to your thesis research). This course designation is also sometimes used to enroll for graduate credit when you participate in an upper level undergraduate course to remedy a deficiency. All Directed Individual Study courses must have approval of the instructor (this will generally be either your graduate advisor or the instructor of an upper level undergraduate course that you are taking), the graduate coordinator, and the dean. You may accomplish this by completing a Directed Individual Study form that can be found on the Graduate School website:
http://www.uncw.edu/grad_info/grad_forms2.htm

Adding and Dropping Courses
You must obtain a form from the course instructor to add or drop courses. Complete the form and obtain the required signatures. The form must be turned in to the Graduate School office during the add/drop period.

Auditing Courses
If you are interested in auditing a course, you should review the requirements in the Graduate Catalogue and speak to the instructor.

Course Waivers and Substitutions
You should consult the departmental graduate coordinator. The coordinator can request that a particular course be waived; however, the request must be approved by the dean of the Graduate School. You should consult your graduate advisor and the departmental graduate coordinator to request a substitution of a course or other degree requirement. The departmental graduate coordinator will complete the substitution form and forward it to the dean of the Graduate School for approval.

Degree Time Limit
You have five years from the date of your initial entrance into the graduate school to complete your MS degree; six years for a PhD if you enter the program with a BS. If you have already completed a MS degree before entering the PhD program, you are expected to finish your degree within four years. When extenuating circumstances warrant, the Graduate School may grant you an extension. Consult the departmental graduate coordinator. You will not be permitted to register beyond five (MS) or six (PhD) years without prior approval of the dean of the Graduate School.
Incomplete (I) Grades

If you do not complete the required materials for a course during the normal academic term (e.g., your field research requires you to miss classes before the semester is completed), you will be assigned a grade of Incomplete (I). Generally, you will have arranged this ahead of time with the course instructor. Once an Incomplete has been assigned, you have a maximum of 12 months to complete the required materials for the course. The instructor may set the maximum allowable period for completion of the course materials at less than 12 months, but the extension can never exceed 12 months. If the time allowed to you is less than 12 months, this information will be transmitted to you in writing, with a copy to the dean of the Graduate School. Once you have completed the course requirements to the satisfaction of the instructor, he/she will re-assign your grade appropriately. If you do not complete the required materials within 12 months (or a shorter time period as assigned by the instructor), the grade of (I) will be converted to a grade of (F). A single grade of (F) renders you ineligible to continue in the graduate program.

Withdrawal from a Course or Graduate School

If you wish to withdraw from a course or from the graduate program, you must complete the withdrawal form obtained directly from the Graduate School. Check the academic calendar each semester for withdrawal deadlines. A grade of (W) is assigned for a course when a withdrawal is processed before the published deadline; after the deadline, a grade of (F) is assigned. See the Graduate Catalogue for details on formal withdrawal from the graduate program.

Grading

Grades for graduate students enrolled in graduate courses are assigned as one of the following:
A (4 quality points) – excellent
A- (3.67 quality points)
B+ (3.3 quality points)
B (3 quality points) - completely satisfactory
B- (2.67 quality points)
C+ (2.33 quality points)
C (2 quality points) - minimally acceptable
F (0 quality points) - failure
S - satisfactory progress (thesis 599 or dissertation 699)
U - unsatisfactory progress (thesis 599 or dissertation 699)
I - work incomplete
W - withdraw passing

Grade Appeals

If you protest a course grade, you must first attempt to resolve the matter with the instructor involved. Failing to reach a satisfactory resolution, you may appeal the grade following the procedures outlined below. Such appeals must be made by the last day of the next regular semester. You must present your appeal in writing to the dean of the College of Arts and Sciences. By conferring with you and your instructor, the dean will seek resolution by mutual agreement. Failing such resolution, the dean will transmit the written appeal to the dean of the Graduate School. The dean of the Graduate School will convene the Grades Appeals Committee.

The Grade Appeals Committee will consist of the graduate dean as chair and five members of the graduate faculty appointed by the dean of the Graduate School. If the committee affirms the instructor’s decision, the graduate dean will notify you, the faculty member, and the dean of the College of Arts and Sciences in writing. If the committee supports your appeal, it shall prescribe the method by which you will be reevaluated. If the reevaluation results in a grade change, the established course grade change procedure will be followed. The grade resulting from the reevaluation is final and may not be appealed further.

Academic Grievance Procedure

Graduate students who have academic or procedural concerns, other than grades, should attempt to resolve those concerns at the lowest academic level as soon as possible, generally no more than 90 days after the event giving rise to the complaint. The first level for redress is with the appropriate faculty member. Within 30 days of failing to reach a satisfactory resolution with the faculty member, the student may appeal to the department chair. Failing resolution at the department level, the student may, within 10 business days, appeal jointly to the dean for the student’s academic area and to the dean of the Graduate School. The deans (or their designees) will conduct interviews with all parties to arrive at a resolution of the issue. The mutually agreed upon decision of the deans will be final and not subject to further appeal. Complaints that fall within the categories of sexual harassment, improper personal relationships, personal discrimination, unlawful workplace harassment, or workplace violence should be filed in accordance with Appendix J of the UNCW
Retention

To remain in good academic standing, you must maintain satisfactory grades and be making substantial progress toward the completion of your thesis or dissertation research. Three grades of C or one grade of F will result in your dismissal from the graduate program. Further, if you fall below a 3.0 GPA at any time, you will be placed on academic probation and have three subsequent courses to bring your GPA up to at least 3.0. In addition, you must have at least a 3.0 GPA to begin any program-specific comprehensive examination and thesis/dissertation research. You must have no less than a 3.0 GPA on all graduate-level courses to graduate. Grades of A, B, C, F, S, U, and W are permanent grades and can be changed only by the dean of the Graduate School in cases of arithmetical or clerical error or because of a grade appeal.

Course Offerings

Graduate courses in Biology and Marine Biology are designated by the prefix BIO or BIOL. Courses designed for MS students are numbered at the 500 level, courses for PhD students are numbered at the 600 level. MS students are encouraged to also enroll in courses at the 600 level, and PhD students may enroll in courses at the 500 level. Specific course listings may be found in the graduate catalogue. Other specialty courses are routinely offered by faculty members and will be advertised in the department.

The department seeks to offer a richly diverse selection of courses each semester; however, the actual offerings will vary depending upon the availability of a specific faculty member. Faculty members are required to teach specific undergraduate courses or may have an altered teaching load resulting from the conduct of a research program or administrative duties. Current graduate students are polled each semester to assess demand for various courses.

Preregistration and Registration

Registration alternate PIN numbers are available from the departmental graduate coordinator or from your graduate advisor a few days before registration. You should seek registration advice from your graduate advisor, and if necessary, from the departmental graduate coordinator before registering. You may register using Seaweb. To assure a seat in the classes you wish to take, you should take advantage of the preregistration process (using Seaweb) available to you following your first term in residence.

Re-enrollment

Should you have a gap in enrollment of either a fall or spring semester (not summer), you must file a re-enrollment form with the dean of the Graduate School. The re-enrollment form is available in the Graduate Office.

Departmental Teaching Requirement

It is a requirement of the department that you gain experience in teaching while pursuing your graduate degree. MS students holding teaching assistantships automatically fulfill this requirement. All other MS students, whether financially supported by the university or not, will be required to gain formal experience in teaching. See your graduate advisor and the department chair to decide the manner in which you may fulfill this requirement. If you do not hold a teaching assistantship during at least one semester, you must submit written verification that you have fulfilled this requirement before admission to candidacy. All PhD students must complete BIO 694 (Practicum in College Biology Teaching), during which they will gain experience in formal classroom instruction. Details are arranged through your graduate advisor and the departmental graduate coordinator.

Departmental Seminars

Each semester the Department of Biology and Marine Biology offers seminars by scientists and students. These seminars are designed to provide intellectual stimulation for both students and faculty, and you are expected to attend. PhD students are required to attend whenever in residence.

Health Insurance

Student Group Health Insurance is available to all graduate students. A copy of the application is included in your orientation packet and contains application information, benefits and cost schedules. However, you are urged to go to the Student Health Center (962-3280) in Westside Hall to obtain an up-to-date brochure and application. They can also answer questions about coverage, etc.
Liability Insurance

Graduate teaching assistants may take advantage of the Teachers’ Liability Insurance offered by the University of North Carolina system.

General Departmental Procedures

The Department of Biology and Marine Biology office staff will provide information and help you in successfully completing your course of study. Below are general procedures that specifically affect you. For information on general office procedures that affect both faculty and graduate students, you should seek information from your graduate advisor.

Mail Service

A mailbox is provided for each full-time graduate student in the Biology and Marine Biology mailroom located in Dobo Hall. You should use your departmental address for all professional correspondence. The Department will provide regular postage for mail that is required by your course of study and is clearly university business. Special postage (overnight shipping, etc.) must be covered by yourself or your graduate advisor.

Telephone Service

The Department cannot provide telephones specifically for graduate students. You are allowed to use faculty and office phones whenever possible and appropriate. You should obtain permission for the use of the telephone from the individual responsible for the telephone. Many faculty provide a phone in their research labs for graduate student use. You should check with your graduate advisor about their specific policies regarding phone use. Telephone messages received by the office staff will be placed in your mailbox. You should check these mailboxes at least once a day for messages and other information.

Office Space

If you are a full-time graduate student or teaching assistant you will be provided office space where materials may be stored and where you may study and work. Office space is generally provided by your graduate advisor within their laboratory space. If such space is not available, the department chair, in consultation with the departmental graduate coordinator, will make alternative office assignments and will notify you of your assigned location.

Departmental Keys

All graduate students will be granted ID card-access to Dobo Hall and other needed keys from the departmental office. You should consult with your graduate advisor to determine the specific keys you will need. A secretary in the Biology and Marine Biology office will issue you the necessary keys. Upon completion of your degree program or if you withdraw from the university, all keys must be returned to the Biology and Marine Biology office before you leave campus.

Use of Departmental Equipment

Most of the equipment in the research and teaching laboratories is university-owned. It is, however, usually assigned to a particular faculty member for use in specific courses and research programs. Often this equipment requires considerable skill and care during use to avoid damage that may be costly to repair and may render the item unusable while parts are ordered or repairs made, or while an item is being repaired elsewhere. Therefore, you should never use a piece of equipment without first requesting its use from the faculty member in charge. If it is not clear which faculty member is in charge, see the department chair. Generally, such use will be granted if the item is not in use and the responsible faculty member is convinced that you know how to use the equipment properly and will give the equipment proper care during its use. There may be times when equipment is in heavy use and will not be available, and there may be certain items that faculty members will not allow others to use. If a project is being planned that may require such items of equipment, discuss their lack of availability with your graduate advisor.

Building Security

You are expected to assist the faculty in maintaining building security. It is the responsibility of any graduate student who is working in
a laboratory during off hours to leave the room secure with lights off and doors locked. On weekends, the outside building doors will be kept locked.

You should also be prepared to deal with emergencies as effectively as possible. You should locate fire extinguishers, fire blankets, exits and emergency lights in the building you are working in. Also, in any lab where you will be teaching or working, you should locate the nearest first aid kit, eyewash station, and shower. If you are working in the building during off hours and an emergency occurs, call the campus police (4911), then call the department chair, and take safety measures that are feasible until help arrives.

**Boat Certification**

UNCW maintains a fleet of small boats that can be used in your research. Anyone operating a university vessel must have a university boat certification. Certifications are obtained upon successful completion of university-sponsored short course in boat handling and water safety. Other boating courses may be acceptable if approved by the boating safety officer. Consult the boating safety officer (962-2310) for certification information. The University requires that all students that use small boats (whether as operator or passenger) for their research must have health insurance.

**Photography and Illustration Preparation**

A darkroom is available, with permission, in Dobo 112 for developing film and printing photographs, as is a separate room for photography and preparation of illustrations.

**Poster Printing**

If you need to print a poster for a presentation at a scientific conference, a large format printer is available in the microscopy lab in Dobo Hall. You will need to make arrangements with Mark Gay for printing. There may be a nominal charge to help defray costs of paper, ink cartridges and maintenance.

**Interlibrary Loan Services (ILL) and the Randall Library**

The William Madison Randall Library provides interlibrary loan services by which faculty members and graduate students may borrow materials that are not available in the Randall Library collections. Although undergraduate students must have their instructor’s approval and the material must be available in North Carolina, no such restrictions have been placed on graduate students. Interlibrary loans can be requested on-line via the Randall Library link from the UNCW homepage (www.uncw.edu), they can also be requested in person by filling out forms at the Library Reference desk. Indicate the maximum cost you are willing to pay to obtain this material. Ordinarily, no charges are incurred in obtaining loans, but there may be a charge for certain materials. Most books will be loaned to you, through the library, for a specified period of time. Requested journals articles are usually scanned and sent to you electronically as pdf files. These items generally incur no cost. If you are unsure about the potential cost of an item, check with Peter Fritzler (Ph: 962-7807; email fritzlerp@uncw.edu), who serves as a liaison between the library and our department. Our library at UNCW is very good and will have many of the resources that you require for your research. The library subscribes electronically to many scientific journals and you can access these from any campus computer through the library website. In addition, the library staff (e.g., Peter Fritzler) are tremendously helpful and you should take advantage of the resource that they provide.

**Financial Aid**

**Teaching Assistantships**

The Department of Biology and Marine Biology offers teaching assistantships to students enrolled in the biology and marine biology graduate programs. Students must apply for these assistantships, and selection will be based on an evaluation of academic records, recommendations, experience, and relevant criteria. In this regard, you should keep your Graduate Student Information sheet as current as possible.

Each teaching assistant will be assigned duties by the department chair and graduate coordinator. Duties will generally involve preparing for and helping in the teaching of two or three 100, 200, 300 or 4000 level laboratories and/or performing preparation work for the laboratory. Other duties may be assigned as appropriate. Teaching assistants are expected to be on campus and available for work assignments by the start of classes, and to remain on campus through the period of final examinations. Arrival delays or early departures must be approved by the department chair. If you have met the 30-hour degree requirement, you can maintain your teaching assistantship by enrolling in GRC 600.
Teaching assistantships are awarded for one academic year. You may normally expect to be continued for a second year if your performance is satisfactory. Continuation of the teaching assistantship past the 4th semester is permissible (but not guaranteed) providing your performance as a teaching assistant is acceptable and that satisfactory progress in your research program has been made. Research assistantships will be counted as support when determining fifth or sixth semester teaching assistant support awards. Students failing to perform their duties satisfactorily may have their assistantship revoked any time.

If you were not awarded a teaching assistantship upon admission, you may be considered for a teaching assistantship as positions become available. You should notify the department graduate coordinator of your interest in being considered for a teaching assistantship.

The graduate secretary in the Department of Biology and Marine Biology will complete form HR 1.35 to initiate payment to you for your teaching assistantship. Valid I-9 and W-4 forms must be completed and forwarded to the dean of the Graduate School before you will receive your paycheck.

Research Assistantships

Research assistantships will be offered by the department through individual faculty who have funds available from research grants or contracts. Selection criteria will be similar to that required for teaching assistantships, but will emphasize the suitability of an applicant for a particular research program. Stipends are generally the same as for teaching assistantships. Duties will be assigned by the faculty member administering the particular research project. Research assistantships are typically awarded for one academic year. However, under certain circumstances, research assistantships are awarded for a given semester or for the summer based on funds available to the faculty member.

Similar to a teaching assistantship, the graduate secretary in the Department of Biology and Marine Biology will complete form HR 1.35 to initiate payment to you for your research assistantship. Valid I-9 and W-4 forms must be completed and forwarded to the dean of the Graduate School before you will receive your paycheck.

Out-Of-State Tuition Remission

Partial out-of-state tuition remissions are available competitively. These remissions are typically offered to out-of-state students for one year. During the first year of residence, the recipients are encouraged to complete the steps to attain the status of North Carolina Resident (see section on Establishing North Carolina Residency below).

Scholarships Available to Graduate Students
(students should refer to the Graduate Catalogue, and the Graduate School and Departmental websites for a complete listing of available scholarships)

Fellowships and Awards specific to Biology and Marine Biology Graduate Students

The F. P. Fensel, Jr. Memorial Fellowship – The F. P. Fensel, Jr. Memorial Fellowship, approximately equal to in-state tuition and fees is available to students entering the graduate program in biology or marine biology. Individuals are selected competitively, based on undergraduate record and honors, recommendations, and standardized examination scores.

The Got-em-on Live Bait Club Graduate Fellowship – This fellowship is intended to provide financial support for a graduate student in Marine Biology whose interest and research is focused on issues affecting fish populations in the water of southeastern North Carolina.

The David G. Lindquist Scholarship in Biology – This scholarship was created in honor of David G. Lindquist, Professor Emeritus of Marine Biology at UNCW. It will be used to assist a biology or marine biology student and will be awarded annually in the amount of $500. The recipient can be either an undergraduate or graduate student.

The Dr. James F. and Frances B. Parnell Fellowship – This fellowship was created by Dr. and Mrs. Parnell in recognition of Dr. Parnell’s long-time tenure and service to the UNCW Department of Biology and Marine Biology. This fellowship is intended to assist graduate students and will be awarded once each year. Preference will be given to a student studying some aspect of field oriented terrestrial vertebrate biology.
General Fellowships and Awards (available to all UNCW graduate students)

The John Colucci, Jr. Memorial Scholarship - This scholarship is awarded to an outstanding graduate student in marine biology. The award will pay all or part of in-state tuition and fees for one year.

The Sylvia & B.D. Schwartz Graduate Fellowship Award - This university-wide scholarship provides an award equal to the current in-state tuition and fees for one year. The criteria for the award are: 1) you must be enrolled full time during both fall and spring semesters, 2) you must have achieved scores of at least 550 on either the verbal or quantitative section of the Graduate Record Examination and at least 450 on the other section, and 3) you must have attained an undergraduate Grade Point Average of at least 3.25 for at least 60 hours of course work. The Department of Biology and Marine Biology may submit one name for consideration of this award, annually in early spring. See the departmental graduate coordinator for additional information.

The Champion McDowell Davis Fellowship - This university-wide fellowship is available to full-time graduate students with at least two full semesters of work to complete before graduation are eligible for the Champion McDowell Davis Scholarship. The Department of Biology and Marine Biology may nominate individuals for this award annually, in mid-spring. The scholarship covers in-state tuition and fees for one year.

Graduate School Summer Research Awards

The dean of the Graduate School annually awards several stipends for summer research during a period when your teaching or research assistantships lapse. The awards are competitive and require a research proposal. Please discuss the conditions and application procedures for this award with the departmental graduate coordinator. The current value of this award is $1,000.

Graduate School Travel Awards

The dean of the Graduate School awards several travel grants to graduate students delivering a paper or poster presentation at a national or regional conference. Your request for support, prepared by you and signed by the chair of the Department of Biology and Marine Biology, must include evidence of acceptance of your presentation, evidence of matching support and an explicit presentation of the use of the funds requested.

Student Loans and Applying for Research Grants

Besides teaching and research assistantships, state and federal loan and work study programs are available to qualified graduate students. Specific information concerning details, applications, changes, and additions may be obtained from the Financial Aid Office in James Hall (910) 962-3177.

You are also encouraged to obtain funding for research by independently seeking grant or scholarship funding. The Office of Research Services and Sponsored Programs can provide assistance with information on sources of funding and with the preparation of application packages. The Office of Research Services and Sponsored Programs is located in King Hall (910) 962-3810.

Establishing North Carolina Residency

Under North Carolina law, legal residence means more than simply living in the state. More specifically, it means maintaining a domicile (permanent home of indefinite duration) as opposed to a temporary residence incident to enrollment in a college, university or technical institute of the state. As a starting point, if you have living parents, your domicile is presumed to be that of your parents but may be changed to qualify for in-state tuition if your required legal residence can be demonstrated. Marriage does not prevent you from becoming a legal resident for tuition purposes, nor does marriage ensure that you will become a resident.

To determine whether you can become a legal resident of North Carolina for tuition purposes, you must demonstrate an intent to make North Carolina your permanent dwelling place of indefinite duration by performing residency acts. These acts should be undertaken immediately upon your arrival to campus and North Carolina (preferably within the first month). The following are some more important residency acts:

1. Convert your automobile registration to North Carolina
2. Obtain a North Carolina drivers license (or NC Identification Card from the Driver’s License office)
3. Register to vote in North Carolina and vote when possible
4. List your personal property at the New Hanover County Tax Office for taxation
5. File a North Carolina tax return as a resident at the next appropriate time
6. Convert your banking, club/organization membership, etc., to North Carolina

Completion of these actions will **begin** a one-year (12 month) waiting period to attain residency.

To become a North Carolina resident you must demonstrate that you are financially independent of your parents or guardian if your parents or guardian are non-residents of North Carolina and demonstrate a visible means of support substantiating the claim of financial independence. If you have not been entirely self-supporting during the last **12 months**, a completed affidavit will be required from your parent(s) to indicate the amount of support provided.

Further and equally important, once you have clearly established the residency intent and financial independence, you must **maintain** North Carolina residence for **12 months** immediately before the semester the in-state status can be made effective. The **only exceptions** to the required 12 months residency period apply in some, but not all, cases to individuals marrying a North Carolina resident who has maintained residency 12 months or longer, and to individuals whose parents have been North Carolina residents 12 months or longer and who are legal dependents of their parents.

If you desire a residence change, you must complete a Residence and Tuition Status Application and submit it to the dean of the Graduate School (Applications can be obtained from the Graduate School). **No status change can be made without submission of this application.** The 12-month residency waiting period must be completed before the first day of the semester in which in-state residency is being requested. Please note that you must submit your application up to 60 days **before** the start of the semester in which your in-state status can be become effective although the entire 12 month residency period may not have been satisfied at the time your application is filed.

In other words, to avoid being billed as an out-of-state resident, you should file for a status change before the tuition bills are due so that the Graduate School will have time to process the application and notify Student Accounts as to your status change. For example, when applying for in-state residency for the fall semester of 2006, students may submit their applications starting June 2006, or 60 days before the semester begins.

A decision on your residency status will be mailed approximately 10 days after being reviewed by the Graduate School. If you are denied North Carolina residency for tuition purposes, an appeal of the decision is possible. At that time, you can, and should, attend to clarify points and to present additional arguments in your favor.

### Biology and Marine Biology Faculty and Staff

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<tr>
<th>Name</th>
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</tr>
<tr>
<td>Ms. Nancy Holland</td>
<td>Graduate Education Assistant</td>
<td>962-4117</td>
</tr>
<tr>
<td>Ms. Donna Lamont</td>
<td>Program Manager</td>
<td>962-3866</td>
</tr>
<tr>
<td>Ms. Kimberly O’Neal</td>
<td>Receptionist</td>
<td>962-7303</td>
</tr>
<tr>
<td>Dr. Robert Roer</td>
<td>Dean</td>
<td>962-3884</td>
</tr>
</tbody>
</table>
## Appendix 4. Teaching Assistant Stipends Comparative Data Table

<table>
<thead>
<tr>
<th>Institution</th>
<th>Stipend Amount Graduate</th>
<th>Stipend Amount PhD</th>
<th>PhD Stipend Restrictions?</th>
<th>Tuition Remissions</th>
<th>Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appalachian State University</td>
<td>$10,000 (2) $8,500 (20)</td>
<td>$8,500</td>
<td>Yes (partial; same as UNCW)</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>College of Charleston</td>
<td>$13,300</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>College of William &amp; Mary (VIMS)</td>
<td>$17,900</td>
<td>$18,600 (+$500 at candidacy)</td>
<td>3 credits for their last two semesters; faculty pay tuition during the remainder of the time</td>
<td>Receive supplement to help pay health insurance costs</td>
<td></td>
</tr>
<tr>
<td>Duke University</td>
<td>$18,250</td>
<td></td>
<td>Full</td>
<td>Health fee paid for students holding teaching assistantship</td>
<td></td>
</tr>
<tr>
<td>East Carolina University</td>
<td>$8,500</td>
<td>$21,000 (fellowship; offered for 2 years)</td>
<td>offered for 2 years, after which faculty to provide an equivalent stipend)</td>
<td>Presently, all PhD student in state tuition is covered by the Graduate School. A small number (5) of out of state tuition remissions are also provided by the Graduate School.</td>
<td></td>
</tr>
<tr>
<td>James Madison University</td>
<td>$8,494</td>
<td></td>
<td>9 credits</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>North Carolina State University</td>
<td>$15,000</td>
<td></td>
<td>Full tuition is paid for by Graduate School. MS students 4 semesters, PhD students- 10 semesters. Students are responsible for paying fees.</td>
<td>All health insurance is paid for by Graduate School. MS students are eligible for this plan for 4 semesters, PhD students for 10.</td>
<td></td>
</tr>
<tr>
<td>Northern Kentucky University</td>
<td>$12.50 to $20/hour (standard rate is $15.70 for 20 hours/week = $12,560)</td>
<td></td>
<td>Graduate assistants receive tuition scholarship for no more than 12 hours per semester of graduate in-state tuitions.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Old Dominion University</td>
<td>$15,000</td>
<td></td>
<td>PhD - receive full tuition; MS - out-of-state students rate reduced to in-state levels (61% reduction). In-state students variable degrees of support most semesters around %50 remission</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

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*Institution Stipend Amount PhD PhD Stipend Restrictions? Tuition Remissions Health Benefits*
## Appendix 4. Teaching Assistant Stipends Comparative Data Table

<table>
<thead>
<tr>
<th>Institution</th>
<th>Stipend Amount Graduate</th>
<th>Stipend Amount PhD</th>
<th>PhD Stipend Restrictions?</th>
<th>Tuition Remissions</th>
<th>Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNC Chapel Hill</td>
<td>$16,500 (salary for Biology TAs increases by 5% every other semester a student teaches; max. $19,577)</td>
<td>$16,000</td>
<td>tuition remission (students are responsible for paying their fees)</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>UNC Charlotte</td>
<td>$10,000</td>
<td></td>
<td></td>
<td>2 full, or 2+ partial</td>
<td></td>
</tr>
<tr>
<td>UNC Greensboro</td>
<td>$13,000</td>
<td></td>
<td></td>
<td>6 to 8 out-of-state tuition waivers each year (same criteria as UNCW); 2 to 3 in-state waivers per year (pays for in-state tuition but not fees)</td>
<td>Yes; Grad School pays insurance premiums</td>
</tr>
<tr>
<td>UNC Wilmington</td>
<td>$9,500</td>
<td>$16,000</td>
<td>full (PhD), partial (MS)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>University of Delaware</td>
<td>$20,000</td>
<td></td>
<td>Full tuition scholarship</td>
<td>Health insurance paid for grad assts.</td>
<td></td>
</tr>
<tr>
<td>University of Florida</td>
<td>$12,000 - $17,000 (Zoology)</td>
<td>$21,000 - $34,000 (depending on experience) (College of Vet Med)</td>
<td>MS - tuition waiver; PhD - 90% of the non-resident tuition and fees and 80% of in-state tuition and fees</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>University of Maryland</td>
<td>*Step I, $17,975.28 **Step II, $18,693.54 ***Step III, $19,160.88</td>
<td></td>
<td>Tuition remission is offered to all students on assistantships and fellowships. Assistants get 10 credits per semester, and fellows, 12 credits per semester. This is enough to cover tuition. Students pay their own mandatory fees.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>University of Miami (RSMAS)</td>
<td>$19,000 (support guaranteed for 10 semesters) (Dept. of Biology)</td>
<td></td>
<td>PhD (Dept. of Biology) - 18-credit tuition waiver</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>University of Wisconsin</td>
<td>$18,480 (based on 40 hour work week)</td>
<td></td>
<td>7-8 hours (based on 2006-07 rates) comprehensive health care (single student)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Carolina University</td>
<td>$7,000 to $10,500</td>
<td></td>
<td>The in-state and/or out-of-state portion of tuition may be waived for some, but not all, assistantships</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 5. Graduate Student Annual Reports

Biological Sciences Graduate Student
Annual Report 2004-05

Presentations

Barbieri, Michelle

Blanding, Carletha
- Blanding, Carletha, Paula Casati, Virginia Walbot and Ann E. Stapleton. Effect of ultraviolet radiation on gene expression in maize revealed through statistical analysis of microarray data. Maize Genetics, Genomics, and Bioinformatics Workshop, CIMMYT International Maize and Wheat Research Center. (El Batan, Mexico), March 7-11, 2004
- Blanding, Carletha, Paula Casati, Virginia Walbot and Ann E. Stapleton. Identification of early expressed genes and genes expressed differently in B73 and Mo17 after UV radiation. 46th Annual Maize Genetics Conference. (Mexico City, Mexico), March 11-14, 2004

Bentley, Christopher
- Intensive rotifer production in a pilot-scale continuous culture recirculating system condensed microalgae, 2005 Aquaculture America

Collier, Chip
- Age, growth, and reproduction of kingfishes in North Carolina (oral). American Fisheries Society Meeting (Madison, WI)

Cowart, Jonathan

Danaher, Mark
- Herpetofaunal diversity in seasonally flooded isolated wetlands of southeastern North Carolina. 2005 NC Herpetological Society Meeting, April 2005

Esch, Carter
- Quantifying stereotype of bottlenose dolphin signature whistles (poster). Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS) (UNCW), March 18-20, 2005

Gold, Elena
- Brevenol, A natural brevetoxin antagonist: Competitive antagonist or allosteric modulator? (poster). Society of Toxicology Annual Meeting, March 6-10, 2005. Abstract #1100
- Brevetoxins and natural antagonists of brevetoxins bind to site 5 of voltage sensitive sodium channels (oral). Women in Science and Math Student/Alumnae Exchange Conference. (Salem College), April 1, 2005
Appendix 5. Graduate Student Annual Reports

Gray, Clark
- Neural Circuitry of Box Jellyfish Eyes. UNCW Interdisciplinary Graduate Student Symposium (Wilmington, NC), 2005

Hardy, Kristin
- Hardy, K. and S. T. Kinsey. Effects of fiber size on post-contractile metabolic recovery in crustacean muscle. Society for Integrative and Comparative Biology (SICB) (San Diego, CA), 2005

Henkel, Timothy

Hulvey, Jonathan
- Hulvey, J. P., Porter, D., Mozeley, S. E. Chytrid fungi of estuarine grasses. Southeastern Ecology and Evolution Conference (poster) (Athens, GA), March 2005

Kahn, Amanda
- Investigating vertical and horizontal trends in the Cape Fear River plume water column: Evidence of buoyancy driven transport. Southeastern Estuarine Research Society Meetings (SEERS), October 2004
- The effect of salinity and ammonium on seed germination of Ruppia maritima L. from Florida Bay. Southeastern Estuarine Research Society Meetings (SEERS), February 2005

Lanier, Jason
- Habitat use and growth rates of age-0 red drum (Sciaenops ocellatus) in the New River Estuary (poster). American Fisheries Society, Southern Division Meeting (Virginia Beach, VA) February 2005

Lutes, Darcy
- Evidence for an indirect link between the Florida Keys spiny lobster fishery and the decline of Acropora palmate (poster). Benthic Ecology Meeting, 2005

McMurray, Steven
- Bleaching of the giant barrel sponge, Xestospongia muta, in the Florida Keys (poster), 34th Annual Benthic Ecology Meeting

Meagher, Erin

Nyack, Albert
- Scaling of post-contractile recovery of phosphocreatine in white muscle of black sea bass (C. striata) (poster). The Society for Integrative and Comparative Biology (SICB) (San Diego, CA), January 4-8, 2005

Shulzitski, Kathryn
- Multilocus microsatellite analysis of species boundaries within the Montastraea annularis coral species complex. The Society for Integrative and Comparative Biology (SICB) (San Diego, CA), January 4-8, 2005
Appendix 5. Graduate Student Annual Reports

Sommer, Kristine

Williams, Lynne
- Individual distinctiveness and long-term comparisons of Florida manatee vocalization. Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS) (UNCW), March 18-20, 2005

Awards

Barbieri, Michelle
- Best Master’s Student Oral Presentation, Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), (UNCW), March 18-20, 2005

Esch, Carter
- Best Master’s Student Poster Presentation at Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), (UNCW), March 18-20, 2005

Gold, Elena
- Peer Mentor, Society of Toxicology
- Article in spring 2005 issue of UNCW Magazine focusing on student’s research
- Article in December 2004 issue of US Airways Attache’ Magazine

Gray, Clark
- Biology Graduate Student Association Treasurer

Hardy, Kristin
- Nominated to attend “A Gathering of Nobel Laureates” at UNC Charlotte, 2005
- Awarded a Best Graduate Student Poster award from The Crustacean Society at the Society of Integrative and Comparative Biology (SICB) (San Diego, CA), (Hardy and Kinsey), 2005
- Received a Charlotte P. Magnum Award (second place) from the Division of Comparative Physiology and Biochemistry in the best student poster competition at the Society of Integrative and Comparative Biology (SICB) meeting, January, 2005

Harper, Cally
- F. P. Fensel, Jr. Scholarship Memorial Scholarship

Hulvey, Jonathan
- Awarded $500 for travel to Chiang, Mai, Thailand to attend International Marine and Freshwater Mycology Symposium (IMFMS)

Kahn, Amanda
- Nominated and appointed as officer in the position of student representative for Southeastern Estuarine Research Society Meetings (SEERS)
- Southeastern Estuarine Research Society Meetings (SEERS) Student Travel Award
- Travel grant from Biology Graduate Student Association for meeting registration
- Who’s Who in American Graduate Students

Lanier, Jason
- Got ‘Em On Live Bait Scholarship 2004-05, Fall 2004

Meagher, Erin
- Best Ph.D. Student Oral Presentation at the Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), (Wilmington, NC), March 18-20, 2005
Appendix 5. Graduate Student Annual Reports

Nyack, Albert
- NSF GK-12 Fellowship

Williams, Lynne
- 2nd Place Best Master’s Student Oral Presentation at Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), (Wilmington, NC), March 18-20, 2005

Zahorodny, Zoey
- Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship
- The John Colucci Jr. Memorial Scholarship from UNCW

Grants Applied For

Cowart, Jonathan
- National Geographic Society Committee for Research and Exploration (Principle Investigator: Dr. Joseph R. Pawlik; Research Assistant: Jonathan D. Cowart and Timothy P. Henkel): Impacts of bleaching on the giant barrel sponge, *Xestospongia muta* in the Florida Keys, $15,000
- EPA Star Fellowship
- American Museum of Natural History’s Lerner-Gray Fund for Marine Research. Bleaching of the giant barrel sponge, *Xestospongia muta*: how are the symbiotic cyanobacteria affected?

Dale, Olivia Reed
- Biology Graduate Student Association travel grant

Hardy, Kristin
- Sigma Xi Grant-in-Aid-of-Research
- Dr. Nancy Foster Scholarship

Hemond, Elizabeth
- EPA STAR Fellowship

Imhoff, Johanna
- Sigma Xi Grant-in-Aid-of-Research (fall and spring)
- EPA STAR Fellowship
- Friends of UNCW
- PADA Foundation
- Project AWARE

Kahn, Amanda
- NOAA grant for research of hurricane impacts; examining *Halophila johnsonii*

Meagher, Erin
- EPA STAR Fellowship

Nyack, Albert
- NSF Graduate Research Fellowship

Shulzitski, Kathryn
- NSF Graduate Research Fellowship

Zahorodny, Zoey
- Sigma Xi Grants-in-Aid-of-Research, October 2004
- Sigma Xi Grants-in-Aid-of-Research, March 2005
Appendix 5. Graduate Student Annual Reports

Grants Received

Blanding, Carletha
○ Maize Genetics, Genomics, and Bioinformatics Workshop Participant (3/2004). National competition for NSF funded workshop in Maize Genetics, Genomics, and Bioinformatics. Fourteen U.S. students chosen to participate along with international students.

Cowart, Jonathan
○ American Museum of Natural History’s Lerner-Gray Fund for Marine Research: $1,564.00, 2004-05

Dale, Olivia Reed
○ Biology Graduate Student Association travel grant

Gold, Elena
○ Noncompetitive Renewal: Ruth L. Kirschstein Minority Predoctoral Access Fellowship, National Institute of Health/National Institute of General Medical Sciences
○ Travel grant from UNCW Graduate School

Meagher, Erin
○ EPA STAR Fellowship

Zahorodny, Zoey
○ Sigma Xi Grants in-Aid-of-Research, March 2005

Publications

Cowart, Jonathan

Henkel, Timothy

Other

Barbieri, Michelle
○ President of the Biology Graduate Student Association
○ Led the organization of the 2005 Interdisciplinary Graduate Student Symposium

Collier, Chip
○ Currently working with NC DMF on the development of a fishery management plan for the kingfishes

Danaher, Mark
○ Herpetofauna study was initiated in July 2003. Sampling continues to this day. As of January 1, 2005, over 4,000 individual reptiles and amphibians have been captured, which represent approximately 55 species. The Brunswick Beacon published an excellent two page article on Mark’s herpetofauna study on August 14, 2003.

Durako, Maris
○ The faculty and staff for the graduate programs for Biology and Marine Biology make the experience here not only incredibly enriching, but also fun and rewarding. You can achieve more if you are surrounded by positive influences such as those found at UNCW.
Gold, Elena

Hardy, Kristin

Hulvey, Jonathan
- Anticipating to have senior authorship of publication based on thesis work

Kahn, Amanda
- Finished Master’s thesis: *Ruppia maritime* seed and *Thalassia testudinum* seedling responses to fluctuations in salinity and ammonium.
- Manuscript pending publication in Bulletin of Marine Science: The effect of salinity and ammonium on seed germination of *Ruppia maritime* L. from Florida Bay
- Received a position for summer 2005 working in conjunction with the Florida Fish and Wildlife Commission and Florida Wildlife Research Institute mapping the benthic flora of Indian River Lagoon Area

Nyack, Albert
- As an extension of the GK-12 fellowship, Al started a science club exploring more diverse topics in more detail than students may normally receive in the classroom. Students also learn scientific equipment, their use, and how to clean/maintain them.
- Coordinated rehearsal times for 2005 Graduate Prospectus Symposium

Williams, Lynne
- Graduated with Master’s degree in May 2005; will be attending Duke University in fall 2005
Presentations

Chris Bentley
- Preliminary investigations on the effects of dietary lipid level on spawning performance and egg quality in black sea bass (poster presentation). Aquaculture America 2006

Jennifer Berting
- Society for Integrative and Comparative Biology, Orlando, FL, January 2006

Adam Branson
- Poster at American Fisheries Society (AFS) Tide Water Chapter
- American Society of Ichthyologists and Herpetologists (ASIH), New Orleans, LA, July 2006

Chip Collier
- South Carolina American Fisheries Society/South Carolina Fishery Workers Association, Charleston, SC

Jonathan Cowart

Olivia Dale
- Detection and Diversity of Anaerobic Ammonium Oxidizing (Anammox) Bacteria in the Chesapeake Bay and the Cape Fear River. 106th Annual American Society for Microbiology, Orlando, FL, May 2006

Carter Esch
- Whistles as potential indicators of stress in bottlenose dolphins (Tursiops truncatus). 16th Biennial Conference on the Biology of Marine Mammals San Diego, CA

Lindsay Faircloth
- Society for Integrative and Comparative Biology (poster presentation), Orlando, FL, January 2006

Kristin Hardy

Elizabeth Hemond
- Development and application of microsatellite markers to determine the impact of restoration of the bay scallop (poster presentation). National Shellfisheries Association Meeting, Monterey, CA
Johanna Imhoff

Amanda Kahn
• *Thalassia testudinum* Banks ex König seedling responses to changes in salinity and nitrogen levels. Estuarine Research Federation Conference, October 2005
• An upcoming study of *Halophila johnsonii*: Examining physiological aspects of hurricane damage. Southeastern Phycolgy Colloquy, November 2005
• Florida Bay seagrass seedling responses to hyposalinity and ammonium fluctuations: A study of *Thalassia testudinum* Banks ex Koenig. Florida Bay Conference and Adjacent Marine Systems Conference, December 2005

Steve McMurray
• 35th Annual Benthic Ecology Meeting

Erin Meagher

Jennifer Randolph
• Molecular determination of seasonal and spatial variations in the diatom communities in Onslow Bay, North Carolina (poster presentation). American Society of Microbiology

Katrina Roman
• Birds vs. Beach-front property: Wrestling against all odds to conserve the featherweight class. Center for Biodiversity and Conservation, American Museum of Natural History, New York City, NY, April 2006

Kristine Sommer
• Genetic identification and phylogeny of the unionid genera, *Lampsilis* and *Elliptio* of the South East Atlantic Slope (poster presentation), National Shellfisheries Association Annual Meeting Monterey, CA, March 2006

Zach Swaim
Zoey Zahorodny

Papers

Jonathan Cowart

Kristin Hardy

Ana Jimenez

Amanda Kahn
- Gonsior, M., Peake, B.M., Cooper, W.J., Young, H., Kahn, A.E., and Kowalczuk, P. Characterization of chromophoric dissolved organic matter (CDOM) in a fjord (Doubtful Sound, New Zealand) and visualization of excitation-emission matrix fluorescence using GRASS-GIS. Aquatic Chemistry.

Awards and Recognitions

Chris Bentley
- Best student poster, Aquaculture America 2006

Adam Branson
- National Tutor of the Year Award from the Association of Tutoring Professionals (ATP)

Jonathan Cowart
- Graduate School Travel Award, UNCW, 2006

Mark Danaher
- Dr. James F. and Frances B. Parnell Fellowship, 2005-06

Kristin Hardy
- Sylvia and B.D. Schwartz Graduate Fellowship, 2005-2006
- Nominated for a graduate student teaching award, 2005-2006
- Lewis/Wiley Alumni Endowed Fellowship for 2006-2007
• Frances Peter Fensel Scholarship for 2006-2007

Cally Harper
• Department of Biology and Marine Biology Teaching Award
• College of Arts and Sciences Graduate Teaching Award

Johanna Imhoff
• John Colucci Memorial Scholarship for 2006-2007

Amanda Kahn
• The Chancellor’s List 2005-2006

Melissa Leslie
• Dr. James F. and Frances B. Parnell

Steve McMurray
• Graduate School Travel Award

Zoey Zahorodny
• Nominated for the Sylvia and B.D. Schwartz Graduate Fellowship

Grants Applied For

Pam Cotten
• Summer Research Program for Graduate Students

Olivia Dale
• Graduate School Travel Grant, UNCW
• Biology Graduate Student Association Travel Grant, UNCW

Kristin Hardy
• Sigma-Xi
• Society for Integrative and Comparative Biology – Fellowship for Student Travel

Cally Harper
• Biology Graduate Student Association Travel Grant
• UNCW Graduate Student Association Travel Grant (2)

Johanna Imhoff
• Fall 2005 Sigma-Xi Grants-in-Aid of Research
• Graduate Student Association Travel Award (for travel to Bimini Biological Field Station)
• Graduate School Travel Award (for travel to Joint Meeting of Ichthyologists and Herpetologists/American Elasmobranch Society)

Amanda Kahn
• Effects of hurricanes on the distribution of Halophila johnsonii (NOAA)
• Experimental investigation of hurricane-related changes in water quality on the photobiology of Halophila johnsonii (NOAA)

Jeff Overton
• National Science Foundation Graduate Research Fellowship
• Sigma-Xi Grants-in-Aid
Zach Swaim
- PADI Foundation, Mountain Equipment Co-op (MEC) Research Grant
- Wildlife Preservation Trust – Canadian Collection
- Graduate Student Association Travel Grant

Zoey Zahorodny
- Natural Sciences and Engineering Research Council of Canada (NSERC) Postgraduate Scholarship PGS-D

Grants Received

Pam Cotten
- Summer Research Program for Graduate Students

Olivia Dale
- Graduate Student Association Travel Grant
- Biology Graduate Student Association Travel Grant

Kristin Hardy
- Sigma Xi Grants-in-Aid of Research: The effects of cell size on the post-contractile depletion of glycogen in the blue crab, *Callinectes sapidus*: measured and modeled

Cally Harper
- Biology Graduate Student Association Travel Grant
- UNCW Graduate Student Association Travel Grant (2)

Johanna Imhoff
- Graduate Student Association Travel Award (for travel to Bimini Biological Field Station)
- Graduate School Travel Award (for travel to Joint Meeting of Ichthyologists and Herpetologists/American Elasmobranch Society)

Amanda Kahn
- Effects of hurricanes on the distribution of *Halophila johnsonii* (NOAA)
- Experimental investigation of hurricane-related changes in water quality on the photobiology of *Halophila johnsonii* (NOAA)

Jeff Overton
- Sigma-Xi Grants-in-Aid of Research: Diffusive Constraints on Aerobic Metabolic Flux in Muscle

Zach Swaim
- Graduate Student Association Travel Grant

Zoey Zahorodny
- Biology Graduate Student Association Travel Grant
- Graduate School Travel Grant
- Graduate Student Association Travel Grant

Other

Adam Branson
- Served on student panel of leadership to the Board of Trustees
- Presented a talk at the North Carolina Supplemental Instruction Conference
Chip Collier
- Appointed Co-Lead of the North Carolina Fishery Management Plan for Kingfish (*Menticirrhus* spp.)

Pam Cotten
- Completed prospectus symposium
- Completed first year as a TA for Human Anatomy and Physiology
- Involved in the Marine Mammal Stranding Network

Maris Durako
- Will be presenting at the Phycological Society of America meeting, July 2006

Lindsay Faircloth
- Received a Research Technician position at the University of Alabama working with Drs. Guy and Kim Caldwell on Parkinson’s research

Amanda Kahn
- On the board of the Southeastern Estuarine Research Society as the graduate student representative

Zoey Zahorodny
- Co-President of the Biology Graduate Student Association
PRESENTATIONS

Chris Bentley
- 2007 World Aquaculture Society Conference, San Antonio, TX

Katie Chartrand
- Oral Presentation - SymbioFest Athens, GA

Chip Collier
- Analysis of Gillnet Selectivity in the North Carolina Kingfish Fishery: Mesh-size Effects on Target and Bycatch Species - Tidewater AFS February 07
- Discrimination Among Sympatric Kingfishes (Menticirrhus spp.) Based on Otolith Morphometry – Tidewater AFS February 07
- Development of Molecular and Morphometric Markers for the Taxonomic Identification of Kingfishes (Menticirrhus spp.) – National AFS August 07
- Development of Molecular and Morphometric Markers for the Taxonomic Identification of Kingfishes (Menticirrhus spp.) – ASIH July 07

Sara Colosimo
- Comparison of Oyster Reef Characteristics Among Tidal Creek Systems in New Hanover County, North Carolina (Poster) International Shellfish Restoration Conference, Charleston, South Carolina, November 2006
- Perkinsus marinus Infection in Oysters from Southeastern North Carolina Tidal Creeks with Varying Water Quality (Talk) Meeting of the National Shellfisheries Association, Monterey, California, March 2006

Pam Cotten
- Poster presentation at Society for Integrative and Comparative Biology (SICB) meeting in Phoenix, AZ, January 2007
- Talk presentation at the Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS) in Beaufort, NC, Spring 2007

Tyler Cyronak
- International Conference on Harmful Algae Blooms, Copenhagen (poster), September 2006
• Southeastern Phycological Colloquium at UNCW, October 2006

**Olivia Dale**

- Anaerobic Ammonium Oxidizing (Anammox) Bacteria in the Cape Fear River Estuary, an oral presentation given in March at the 2007 Graduate Student Symposium at the Gulf Coast Research Lab in Ocean Springs, MS

- Detection, Diversity, and Activity of Anaerobic Ammonium Oxidizing Bacteria (Anammox) in the Cape Fear River Estuary, a poster presentation that Dr. Song will present at the 108th General American Society for Microbiology meeting in Toronto this month

**Erin (Meagher) Fougeres**


**Elena Gold**


**Clark Gray**


**Kristin Hardy**


**Cally Harper**

- Annual Meeting of the Society for Integrative and Comparative Biology (SICB), Spring 2007

- Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), Spring 2007

**Tim Henkel**

- Henkel, TP and Pawlik, JP. 2007. Host Selection by a sponge-dweller *Ophiothrix lineata*. Benthic Ecology Meetings, Atlanta GA.


Johanna Imhoff
- American Society of Ichthyologists and Herpetologists/American Elasmobranch Society Joint Meeting (poster), July 2006
- Duke Marine Lab Graduate Student Mini-Symposium, October 2006
- Annual Meeting of the Tidewater Chapter of the American Fisheries Society (poster), February 2007

Ana Jimenez
- Poster presentation at SICB 2007 (Phoenix, AZ) titled “Tail-flipping in crustaceans: a model for muscle metabolic design.”

Amanda Kahn
- *Halophila johnsonii* responses to hyposalinity and hyper-CDOM conditions: A tidal study. Southeastern Phycology Colloquy November 2006
- Examining hurricane effects on *Halophila johnsonii*: Big storms, little seagrass. UNCW Department of Biology and Marine Biology Seminar, Dissertation Proposal September 2006

Tse-Lynn Loh
- Poster presentation- Investigating the association between the semi-cryptic sponge *Mycale laevis* and scleractinian corals, Benthic Ecology Meeting, Atlanta, GA, 21-24 March 2007.

Cassie Martin
- Tidewater Chapter of AFS, February 2007 (poster)
- Sigma Xi (UNCW) (poster)

Steve McMurray
Corey Novak
- Benthic Ecology Meeting 2007, Atlanta, GA (poster)

Jeff Overton


Mike Polito
- 2006 Duke graduate student mini-symposium, Duke University Marine Lab, Beaufort, NC

Lee Richbourg
- Poster at the 49th Annual Maize Genetic Conference, St. Charles, IL, Spring 2007

Will Smith
- Maturity and harvest mortality of southern flounder: tag-return studies in the New and Neuse Rivers, NC
  - American Fisheries Society, Lake Placid, NC
  - Duke Graduate Symposium, Beaufort, NC
  - Tidewater Chapter of American Fisheries Society, Lewes, DE
  - National American Fisheries Society Meeting, September 2007, San Francisco, CA

Jessica Snoddy
- Spring 2007 Graduate Student Prospectus Symposium

Zach Swaim
- North Atlantic Right Whale Consortium Annual Meeting 2006

- Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), Spring 2007

Christy Visaggi

Ted Wilgis

- Poster presented to the Restore America’s Estuaries 3rd National Conference on Coastal and Estuarine Habitat Restoration 12/9-13/2006 in New Orleans, Louisiana:


PAPERS

Steve McMurray


Mike Polito
- Sander M, Balbao TC, Polito MJ, et al. (2007) Recent decrease in chinstrap penguin (Pygoscelis antarctica) populations at two of Admiralty Bay’s islets on King George Island, South Shetland Islands, Antarctica. Polar Biology 30 (5): 659-661


AWARDS AND RECOGNITIONS

Katie Chartrand
- 2006 CMS Summer Stipend

Sara Colosimo
- Phi Kappa Phi Academic Honor Society, Inducted April 2007

- UNCW Graduate School Teaching Award, Spring 2007

- Department of Biology and Marine Biology, Teaching Assistant Award, Spring 2007

Joe Facendola
- CMS Summer Research Award

Erin (Meagher) Fougeres
- Best Ph.D. student oral presentation: Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMMAMS), Beaufort, NC, March 16-18, 2007

Clark Gray
- Best student poster award (neurobiology division), Society for Integrative and Comparative Biology (SICB), January 2007
Kristin Hardy
- Owen Graham Kenan Scholarship, 2006-2007
- Frances Peter Fensel Scholarship, 2006-2007

Cally Harper
- Best student paper, Division of Vertebrate Morphology, Society for Integrative and Comparative Biology (SICB), January 2007
- Best student presentation, Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS), Spring 2007

Tim Henkel
- Best Poster. 2007 Annual Meeting of UNCW Sigma Xi

Johanna Imhoff
- Department of Biology and Marine Biology Graduate Teaching Assistant Award

Ana Jimenez
- Frances Peter Fensel Memorial Fellowship, 2007-2008

Amanda Kahn
- Who’s Who in American Colleges
- National Chancellor’s list
- Estuarine Research Federation (ERF) Student Member at Large, Member Student Activities Planning Committee
- Southeastern Estuarine Research Society (SEERS) Student Representative
- SEERS student Travel award

Tse-Lynn Loh
- The Tan Kah Kee Postgraduate Scholarship, Singapore, 2006/2007

Adriane Michaelis
- Brauer Fellowship
- Parnell Fellowship

Clay Morris
- Graduate Teaching Excellence Award 2007
- Biology and Marine Biology Graduate Teaching Assistant of the Year Award 2006-07
Mike Polito
- The Lacy C. and Doris L. Sidbury Fellowship
- Runner-up best talk – 2006 Duke graduate student mini-symposium, Duke University Marine Lab, Beaufort, NC

Will Smith
- Estuaries Section of American Fisheries Society travel award
- Skinner Memorial travel award
- Got ‘Em on Live Marine Fisheries Fellowship
- David G. Lindquist Biology Scholarship

Zach Swaim
- Best Oral Presentation by a Masters Student, Southeast and Mid-Atlantic Marine Mammal Symposium (SEAMAMMS) 2007

Christy Visaggi
- Paleobiology Database Enterer of the Month (November 2006)

Ted Wilgis
- Poster at RAE Conference received 4th place honors with $250.00 award in the student poster contest. Award was donated to the NC Coastal Federation.

GRANTS APPLIED FOR

Pam Cotten
- Travel Expense Grant from the Graduate School
- Registration Grant from the Biology GSA
- Student Support Grant from Society for Integrative and Comparative Biology (SICB)

Joe Facendola
- Sea Grant Blue Crab Research Program

Erin (Meagher) Fougeres
- Knauss Fellowship (Sea Grant)

Clark Gray
- Graduate student summer research grant
- Center for Marine Science graduate student summer research grant

Ana Jimenez
- Sigma-Xi

Hillary Lane
• EPA STAR fellowship
• EPA GRO fellowship
• PADI
• Sigma Xi
• CMS Summer Stipend

**Tse-Lynn Loh**
• Sigma Xi Grants in aid of research, March 2007
• CMS Graduate Student Summer Stipend, 2007

**Mike Polito**
• Dr. Ralph W. Brauer Fellowship

**Lee Richbourg**
• Graduate School Research Program

**Jessica Snoddy**
• NC SeaGrant, Fisheries Resource Program (Dr. Southwood applied for it)
• CMS summer grant

**Will Smith**
• 2006 CMS Summer Stipend
• NC Sea Grant Fisheries Resource Grant
• National Marine Fisheries Service – Sea Grant Population Dynamics Fellowship

**Zach Swaim**
• UNCW Department of Biology and Marine Biology Scholarship Awards
• UNCW Biology Graduate Student Association
• UNCW Graduate Student Association
• UNCW Graduate School Travel Fund
• UNCW Graduate School Summer Research Stipend
• CMS Summer Research Stipend
• Sigma Xi
• Canadian Whale Institute
• Mountain Equipment Co-op

**GRANTS RECEIVED**

**Pam Cotten**
• Travel Expense Grant from the Graduate School
• Registration Grant from the Biology GSA
• Student Support Grant from Society for Integrative and Comparative Biology (SICB)

**Stephanie Cummings**
• NSF Research Proposal Grant

**Erin (Meagher) Fougeres**
• Knauss Fellowship (Sea Grant)

**Elena Gold**
• Fourth year on Ruth L. Kirschstein National Research Service Award Predoctoral Fellowship from National Institute of Health/National Institute of General Medical Sciences

**Clark Gray**
• Graduate student summer research grant

**Ana Jimenez**
• Sigma-Xi

**Tse-Lynn Loh**
• CMS Graduate Student Summer Stipend, 2007

**Mike Polito**
• Dr. Ralph W. Brauer Fellowship

**Lee Richbourg**
• $1000 from Graduate School Research Program

**Will Smith**
• 2006 CMS Summer Stipend
• NC SeaGrant Fisheries Resource Grant (*Post-release mortality of sub-legal southern flounder in North Carolina’s gill net fishery*)

**Jessica Snoddy**
• NC SeaGrant, Fisheries Resource Program

**Zach Swaim**
• UNCW Biology Graduate Student Association
• UNCW Graduate Student Association
- UNCW Graduate School Travel Fund
- CMS Summer Research Stipend
- Sigma Xi

**OTHER**

**Brian Balmer**
- Graduating with a MS in biology degree in spring 2007
- Accepted into the PhD in marine biology program at UNCW; will begin in fall 2007

**Katie Chartrand**
- Attended workshop on Light and Photosynthesis on Coral Reefs in Puerto Morelos, Mexico

**Chip Collier**
- Completing a fishery management plan for kingfishes

**Sara Colosimo**
- Will defend thesis in early June. Afterwards, plans to pursue a career in teaching. Currently applying for biology faculty positions at community colleges and small 4-year schools around the country.

**Pamela Cotten**
- Graduating in May 2007

**Stephanie Cummings**
- Applied for graduation in fall 2007. Plans to move to Dallas, Texas, after graduation and teach at a community college for experience.

**Tyler Cyronak**
- Graduating and moving to Charleston, SC into an as of yet unknown job.

**Olivia Dale**
- Graduating in May 2007 and moving to Dubuque, Iowa. Has accepted a position as a medical microbiologist for United Clinical Laboratories, Inc.

**Clark Gray**
- Master student representative of the Graduate Advisory Committee

**Cally Harper**
- Enrolling in the PhD student at Brown University working with Dr. Beth Brainerd in the BioMed Department, Fall 2007

**Johanna Imhoff**
- In December I traveled to the Bimini Biological Field Station in Bimini, Bahamas, to work with a film crew (LooksTV, Germany) who wanted to cover my project.
• I am graduating and will be completing my certification in applied statistics through the Mathematics and Statistics Department while applying to PhD programs.

Ana Jimenez
• Attended the American Physiology Society meeting at Virginia Beach, 2006
• Secretary of the Biology Graduate Student Association (organized Dr. Johnsen’s visit)
• Second publication was accepted in the Journal for Thermal Biology, titled “Metabolic responses of sand fiddler crabs in northwest Florida, *Uca pugilator*, to seasonal temperature change.”
• Accepted into the PhD in marine biology program at UNCW to work under Dr. Kinsey

Amanda Kahn
• Guest lecturer for ecology, plant physiology, marine botany, plant biology

Adriane Michaelis
• Presented *Coastal Sparrow Identification and Ecology* to the Lower Cape Fear Bird Club, April 2007

Will Smith
• Graduating in December

Christy Visaggi
• Ph.D. stipend for 2007-2008 academic year shall be to provide support to the Evolutionary Learning Committee at UNCW as sponsored by the Provost and Academic Affairs

Ted Wilgis
• Completed first season and has started second season of field sampling for: 1) Thesis project evaluating nektom utilization of created oyster reefs compared to natural reference reefs; and 2) UNCW & NC Sea Grant sponsored oyster reef monitoring metrics study applying standardized sampling methods to assess the population, community and functional success of intertidal restoration projects within North Carolina in relation to reference natural reef sites.
THE UNIVERSITY OF NORTH CAROLINA WILMINGTON

EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION PLAN

Part I: Policies and Procedures

As of January 1, 2007

UNC Wilmington Human Resources
601 S. College Road
Wilmington, NC 28403-5960
# Equal Employment Opportunity / Affirmative Action Plan

## Policies and Procedures (Part I)

**January 1, 2007**

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The University of North Carolina Wilmington is committed to and will provide equality of educational and employment opportunity for all persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications or where marital status is a statutorily established eligibility criterion for State funded employee benefit programs.

This affirmation is published in accordance with 41 CFR Part 60 and is implemented in accordance with Title VII and Title IX of the Civil Rights Act of 1964, as amended; Executive Order 11246; the Rehabilitation Act of 1973; the Vietnam Era Veterans' Readjustment Assistance Act of 1974; the Civil Rights Restoration Act of 1988; and NC General Statutes Chapters 116 and 126.

To ensure that equal educational and employment opportunity exists throughout the university, a results-oriented equal opportunity/affirmative action program has been implemented to overcome the effects of past discrimination and to eliminate any artificial barriers to educational or employment opportunities for all qualified individuals that may exist in any of our programs.

The University of North Carolina Wilmington is committed to this program and is aware that with its implementation, positive benefits will be received from the greater utilization and development of previously under-utilized human resources.

STATEMENT ON DIVERSITY IN THE UNIVERSITY COMMUNITY

As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. The university aims to achieve, within all areas of the university community, a diverse student body, faculty, and staff capable of providing for excellence in the education of its students and for the enrichment of the university community. The university defines diversity in the following ways: 1) The representation of populations shaped by historical circumstances and by cultural identities, or a combination of the two; 2) The representation of populations shaped by varying socio-economic circumstances.

UNLAWFUL HARASSMENT, DISCRIMINATION, AND RETALIATION

The University of North Carolina Wilmington affirms that students and employees are entitled to an educational and employment environment free from unlawful harassment or discrimination based on that individual’s race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents,
and expressly prohibits unlawful harassment or discrimination of any individual among the university community engaged in educational or employment pursuits. Further, no student or employee shall be subject to retaliation for bringing a good faith complaint pertaining to unlawful harassment or discrimination or for protesting such behavior directed against another member of the university community.

For more information concerning ways in which our multicultural learning community may be nurtured and protected or complaint resolution procedures, contact the Office of Campus Diversity, the Office of the Dean of Students, the Office of Academic Affairs, or Human Resources.

_____________________
Rosemary DePaolo
Chancellor

1/31/2007
EQUAL EMPLOYMENT OPPORTUNITY / AFFIRMATIVE ACTION PLAN
DISSEMINATION OF THE AFFIRMATIVE ACTION POLICY
[41 CFR 60-2.10]

UNCW makes known its commitment to affirmative action by disseminating broadly its equal employment opportunity policy and information about its affirmative action program. Ultimate responsibility for adequate communication of the institution's commitment rests with the Chancellor and the Equal Employment Opportunity/Affirmative Action (EEO/AA) Officer who must emphasize the importance of continued discussion of the policy and provisions of the affirmative action program at all levels of UNCW. The following specific actions have been instituted and will continue:

Internal Notice and Distribution

1. UNCW's complete EEO/AA Plan is available to university employees and applicants for university employment in the following locations: Human Resources Office, Office of the Provost and Vice Chancellor for Academic Affairs, and the Reserve Desk of Randall Library. The EEO/AA Plan is also published on the Human Resources web site.

2. UNCW's "Reaffirmation of Commitment to Equal Education and Employment Opportunity" is posted on bulletin boards across campus, together with advertisements of vacant positions and other employment notices. The “Reaffirmation of Commitment to Equal Education and Employment Opportunity” is published on the Human Resources web site.

3. UNCW's Equal Employment Opportunity policy is outlined in the Faculty Handbook.

4. UNCW's commitment to equal employment opportunity and affirmative action is emphasized during all orientation programs, supervisory and management training, and with appropriate hiring officials preparatory to undertaking each recruitment effort.

5. The Chancellor publishes an annual EEO report which is distributed to university trustees, vice chancellors, and deans. This report documents UNCW's progress in achieving affirmative action objectives for the previous year and sets forth UNCW's affirmative action objectives for the year. The annual EEO/AA Report is also published on the Human Resources web site.

External Notice and Distribution

1. Affirmative Action / Equal Opportunity Employer (EEO/AA) Statement

All advertisements for vacant positions -- including printed UNCW notices, newspaper classified listings, trade journal vacancy listings, and radio public service announcements include the phrase "Equal Opportunity/Affirmative Action Employer" or the statement, "UNC Wilmington is an equal opportunity, affirmative action employer. Minorities and women are particularly encouraged to apply."

1
A summary of UNCW's EEO/AA policy and recruitment procedures is available on the UNCW Human Resources web site. Printed versions are available in the UNCW Human Resources office.

2. Equal Opportunity / Non-Discrimination Statement

"The University of North Carolina Wilmington is committed to and will provide equality of educational and employment opportunity for all persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications or where marital status is a statutorily established eligibility criterion for State funded employee benefit programs.

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To ensure that equal educational and employment opportunity exists throughout the university, a results-oriented equal opportunity/affirmative action program has been implemented to overcome the effects of past discrimination and to eliminate any artificial barriers to educational or employment opportunities for all qualified individuals that may exist in any of our programs. The University of North Carolina Wilmington is committed to this program and is aware that with its implementation, positive benefits will be received from the greater utilization and development of previously under-utilized human resources."

The preceding equal opportunity / non-discrimination statement (or an approved abbreviation) appears within university publications distributed to the general public. The following publications are suggestive (but not exhaustive) of such publications.

Title of Publication
UNCW Code of Student Life
UNCW Graduate Catalogue
UNCW Undergraduate Catalogue
UNCW Magazine
UNCW Pathways Lifelong Learning Catalog

3. The Assistant to the Chancellor for Marketing and Communications makes a consistent and conscientious effort to publish articles covering activities related to the affirmative action program, including progress reports, promotions and achievements of women, minorities, persons with disabilities, and covered veterans, when appropriate.
4. When photographs of university employees or students are included in publications, the Assistant to the Chancellor for Marketing and Communications ensures that photographs reflect the diversity of UNCW community by including both males and females, minorities and non-minorities, and persons with disabilities in educational, employment, and social settings.

5. Recruiting sources within reasonable proximity to UNCW are informed of UNCW's commitment to equal employment opportunity and affirmative action. These sources are asked to recruit actively for UNCW and to refer minorities, women, persons with disabilities, and covered veterans.

6. The UNCW "EEO/AA" statement or "Equal Opportunity/Non-Discrimination" statement (or a version thereof) is printed or appended to purchase orders and contracts for goods or services in order to communicate UNCW’s status to vendors, suppliers, contractors, and subcontractors.
The University of North Carolina Wilmington is committed to effective implementation of its equal employment opportunity policy and to aggressive affirmative action efforts at all levels of employment as typified in the following policy statements and establishment of responsibilities.

I. POLICY STATEMENT

Equal Employment Opportunity Policy

The University of North Carolina Wilmington is committed to and will provide equality of educational and employment opportunity for all persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications or where marital status is a statutorily established eligibility criterion for State funded employee benefit programs.

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To ensure that equal educational and employment opportunity exists throughout UNCW, a results-oriented equal opportunity/affirmative action program has been implemented to overcome the effects of past discrimination and to eliminate any artificial barriers to educational or employment opportunities for all qualified individuals that may exist in any of our programs. The University of North Carolina Wilmington is committed to this program and is aware that with its implementation, positive benefits will be received from the greater utilization and development of previously under-utilized human resources.

Scope and Application of EEO/AA Policy and Plan

UNCW's EEO/AA policy and plan apply to all employees of UNCW -- including EPA (including faculty) (Exempt from the State Personnel Act) and SPA employees (Subject to the State Personnel Act). The policies and plan apply to all departments of UNCW -- located in Wilmington, North Carolina; the National Undersea Research Center in Key Largo, Florida; or elsewhere.

In furtherance of its Equal Employment Opportunity policies, The University of North Carolina Wilmington will:
1. Recruit, select, hire, place, train, and promote persons in all employment categories regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications.

2. Base selection, hiring, and promotion decisions on valid requirements related to job performance and necessary upon entry to the position.

3. Administer all employment practices including compensation, benefits, promotion, training, educational assistance, termination, transfer, demotion, and reduction-in-force fairly and objectively regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents.

4. Provide, when necessary, reasonable accommodations for applicants' or employees' disabilities within the meaning of federal and state laws and regulations.

5. Not intimidate, interfere with, or retaliate against employees or applicants for employment who make a charge of employment discrimination or who testify, assist, or participate in any manner in a hearing, proceeding, or investigation of employment discrimination.

6. Assure a work environment that is free from discrimination based on race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents.

II. STATUTORY AND REGULATORY AUTHORITY

UNCW's EEO/AA Plan derives from the following statutory and regulatory authorities.

North Carolina Statutes and Policies

- G.S. 126-16 Equal Employment Opportunity Statute
- G.S. 126-17 Prohibits Retaliation
- G.S. 126-36 Establishes Appeal Rights for Applicants
- G.S. 127B-10-15 Discrimination Against Military Personnel
- G.S. 168A-5-11 Handicapped Persons Protection Act

Federal Laws and Regulations (including Amendments)

- Title VII of the Civil Rights Act of 1964
- Title IX of the Educational Amendments of 1972
- Civil Rights Restoration Act of 1988
- Executive Order 11246
Hiring Preferences

Nothing in UNCW EEO/AA plan is to be construed as preventing UNCW's compliance with hiring preferences established by the North Carolina General Assembly for state employees previously reduced in force who are eligible for priority re-employment consideration, current state employees seeking promotion, and veterans (and spouses of veterans) who have served honorably during recognized periods of national conflict.

III. ESTABLISHMENT OF RESPONSIBILITIES [41 CFR 60-2.17]

Chancellor

The Chancellor of The University of North Carolina Wilmington is responsible for implementing UNCW's commitment to equal employment opportunity and affirmative action through leadership, the adoption of EEO and AA policy statements, and setting specific hiring goals for minorities and women.

The Chancellor will report to the Board of Trustees on an annual basis documenting UNCW's progress toward realizing its hiring goals.

The Chancellor shall appoint a director-level employee to serve as UNCW's EEO/AA Officer and shall use the chancellor’s Cabinet as an EEO/AA Advisory Committee.

University EEO/AA Officer

UNCW EEO/AA Officer shall be responsible for:

1. Advising the Chancellor on affirmative action policy and for developing UNCW's EEO/AA Plan and ensuring it is consistent with federal and state laws and regulations and university guidelines.

2. Advising search committees for senior administrative positions on EEO/AA policies, affirmative action preferences in hiring (if appropriate), and the evaluation of "substantially equally qualified" applicants.
3. Reviewing all recruitment processes and exercising approval authority on behalf of the Chancellor for all employment and promotional decisions with respect to ensuring such recruitment processes comply with UNCW's EEO/AA Plan.

4. Coordinating internal responses to employee complaints of personal discrimination.

5. Reporting to the Chancellor annually, documenting UNCW's progress toward realizing its EEO/AA goals.

William Fleming was appointed UNCW's EEO/AA Officer effective June 30, 2004.

EEO/AA Advisory Committee

The chancellor's Cabinet shall constitute UNCW's EEO/AA advisory committee. Sitting as the EEO/AA Advisory Committee, the Cabinet is responsible for reviewing UNCW's EEO/AA Plan and adopting annual good faith hiring objectives.

UNCW's standing Grievance Committees will continue to provide an avenue of redress for employees or applicants who believe they have been discriminated against because of their race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents.

Deans, Department Chairs, Directors, and other hiring authorities

Deans, Department Chairs, Directors, and other hiring authorities are responsible for working toward the balanced representation of minorities and women within the workforce and the elimination of barriers to equal employment opportunity for persons with disabilities. Accountability for compliance with provisions of the EEO/AA Plan will be incorporated in their performance expectations and evaluations.

Department heads and directors are further responsible for:

1. Determining vacancy-specific qualifications required for entry to the position (minimum qualifications) and desired for full-performance in the position (preferred qualifications).

2. Ensuring advertisements for the position reasonably describe principal duties to be performed and cite both minimum and preferred qualifications.

3. Ensuring that the screening and selection process is free from bias related to race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity),
creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide job-related occupational qualifications.

4. Selecting that candidate who is best qualified for the position based on job-related qualifications and complying with UNCW’s Affirmative Action Plan.

5. Documenting hiring decisions.

Qualifications within the meaning of this section shall include training and education, years of related work experience, and other knowledge, skills, and abilities demonstrated in the selection process which bear a reasonable functional relationship to the requirements of the position. While responsibility for screening applications and interviewing candidates may be delegated to subordinate managerial or supervisory personnel or to properly constituted search committees, authority to select an applicant for employment and recommend a hiring salary may not be delegated below the department head or director level and is subject to at least one level of review beyond the decision maker (regardless of level or rank).

All selection decisions and hiring salaries are contingent on approval by the EEO/AA Officer (or designee) for conformance to UNCW's EEO/AA Plan. SPA vacancies require approval by the Human Resources Office. EPA positions require approval by the Provost for faculty positions, and division vice chancellor for administrative, instructional and research positions. Department heads are not authorized to offer positions prior to receiving these approvals.

**Human Resources**

Human Resources is operationally responsible for ensuring that:

1. Recruitment procedures for EPA (including Faculty) and SPA positions comply with UNCW's equal employment opportunity and affirmative action policies.

2. Department heads and directors understand their roles in supporting UNCW's affirmative action hiring objectives.

3. Applicants and employees are provided accurate information about the recruitment process and avenues of redress available to them should they believe they have been discriminated against because of their race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications.

4. Each hiring recommendation and the applicant's qualifications for the position and hiring salary are reviewed and approved before any commitment is extended to a prospective employee for an SPA position.
UNCW's action-oriented programs are designed to identify, prevent, and correct problem areas, and to support the attainment of goals identified in the annual report. UNCW’s programs consist of well-defined recruitment procedures to attract persons to its faculty and staff positions; career planning and professional development programs to increase promotional opportunities; reduction-in-force impact analysis; outreach activities to increase general awareness of UNCW's interest in recruiting minorities, women, persons with disabilities, and veterans; significant initiatives to increase diversity among employees and students, and active human relations efforts including cultural diversity programming.

I. RECRUITMENT PROCEDURES

UNCW has established well-defined recruitment procedures for both EPA and SPA positions which require the public posting or advertising of all vacant positions which may result in benefit-earning appointments. The filling of tenure-track faculty appointments also requires an open recruitment (waivers of recruitment to hire an individual with special skills may be approved by the chancellor). Recruitment procedures do not apply to reclassification of positions or title changes based on changes in work assignments. These typically result from either a reorganization or reallocation of university resources, or changes in work duties which evolve over time.

Increasing the numbers of underrepresented groups of people and achieving diversity on campus are two extremely important goals to UNC Wilmington. Nevertheless, because equal employment opportunity laws prohibit discrimination, even benign discrimination in favor of underrepresented groups, there are certain steps that UNCW cannot take to achieve its goals.

Diversity and affirmative action are related concepts, but the terms have different origins and legal connotations. EEOC has stated that “workplace diversity is a business management concept under which employers voluntarily promote an inclusive workplace.” But while Title VII permits diversity efforts designed to open opportunities to everyone, hiring departments cannot make employment decisions such as whom to interview or select for the position based on the candidate's protected status. Instead, search committee members must carefully examine each applicant's qualifications and experiences to determine which one would best serve UNC Wilmington's interests, as articulated in the position description and vacancy announcement, without regard to the applicant's race, sex, age, or other protected status. The argument that an individual of a particular race or sex will be better suited to the position is generally not legally sustainable because it is based on assumptions about the person's experiences that may or may not be valid. Instead, the committee must rely on tangible evidence of the person's actual experiences and qualifications.
Furthermore, a candidate’s race or sex or disability cannot be used as a tie-breaker. Hiring officials must make their recommendations based on the candidates’ qualifications in relation to the stated requirements for the position, and not based on the person’s protected status.

These concepts remain confusing to many in higher education because legal decisions in the area of student admissions tend to allow some use of a person’s diverse status as a "plus factor." However, the area of student admissions is legally distinct from employment decisions.

A. EPA (including Faculty) Recruitment Procedures

Vice chancellors have oversight responsibility for the recruitment of EPA positions within their respective divisions. The Provost has oversight responsibility for the recruitment and appointment of faculty, though recommendations are made by academic department chairs through the academic deans.

The procedures for recruiting and making appointments to EPA administrative and faculty positions are summarized as follows:

1. The position is defined in terms of duties required, level of appointment, and approximate salary or salary range. Authorization to initiate recruitment is provided by the division Vice Chancellor for EPA administrative positions and by the respective dean for faculty positions.

2. The vacancy is advertised on the UNCW website, which contains official vacancy announcements. In addition, the vacancy may be advertised nationally in appropriate media or in listings with national professional job services or the job listings of professional associations. Administrative appointments, supplemental assignments, and similar opportunities for faculty members are typically advertised internally to UNCW. UNCW's commitment as an affirmative action / equal opportunity employer is noted prominently in all advertisements.

3. Announcements may be made with organizations that are likely to have contact with minority and women candidates. Search committee members for nine month teaching faculty positions are required to contact five colleagues within their discipline from other institutions and ask for nominations of minorities and women who would be competitive for the given position. These individuals, are in turn, contacted by the committee and encouraged to submit their application. Although not required, the same nomination process is strongly encouraged for other EPA positions as well.

4. Applicants are given the opportunity to identify themselves as minority, female, disabled, or veteran on UNCW’s Consensus™ on-line application system.

5. The Dean or Vice Chancellor and the EEO/AA Officer (or designee) are responsible for reviewing and approving the recommended interview pool.
6. As part of each recommendation for a new appointment, a search summary is filed that details the recruiting efforts and explains reasons for the recommended appointment. The EEO/AA Officer exercises final approval authority on behalf of the Chancellor for all EPA and faculty appointments with respect to compliance with UNCW's EEO/AA Plan.

7. During an open recruitment for nine-month teaching faculty, departments may request an additional tenure track position to increase the utilization of women or minorities in job groups with current under-utilization of women or minorities. These requests must be accompanied by written justification and approved by the Provost and the EEO/AA Officer to ensure compliance with EEO/AA policy.

B. SPA Recruitment Procedures

The Director of Human Resources exercises oversight responsibility for the recruitment of SPA staff throughout UNCW. Principal EEO/AA components of the SPA recruitment policy are noted below.

1. Job Structuring

Position descriptions provide a bona-fide definition of position duties and responsibilities and include job-related knowledge, skills, or abilities considered essential to satisfactory job performance. Job descriptions are audited by Human Resources and appropriate classification levels assigned for each SPA position.

UNCW does not permit job factors to be incorporated in position descriptions which discriminate against minorities, women, or persons with disabilities -- except where sex, age, or physical ability are bona fide occupational qualifications.

2. Advertising

Vacancies are advertised on the UNCW website, which contains official vacancy announcements. Vacancies may also be advertised in appropriate electronic or print media. (Some advertisements may apply to two or more vacant positions.) Departments may advertise within UNCW where Human Resources expects a viable applicant pool (with regard to minorities and women) will result. Internal job postings support the State's policy encouraging internal promotion. Where it does not appear that a viable applicant pool will result from an internal job posting, UNCW advertises publicly.

Typically, UNC Wilmington recruits SPA employees within the Wilmington/New Hanover County area. When recruits are unlikely to be available in significant numbers in the local labor market, positions may be advertised regionally, state-wide, or nationally to supplement the UNCW website listing.

The deadline for receipt of applications will be indicated in the vacancy announcement. The deadline will be a minimum of seven work days from the last public advertisement.
When consultants or employment agencies are utilized for recruitment assistance for permanent, temporary, or contract employees, they will be required to refer persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents.

3. Application Processing

UNC Wilmington employs a "job-bid" posting process. Applications must be submitted for a specific position vacancy by job-bid number. Applications are accepted at any time during the posting period. One application is required for each vacancy for which the applicant wishes to be considered. All applications for a given vacancy are filed together to facilitate vacancy pool analysis and administrative review. To be considered for a vacancy, an individual must submit an application that identifies the advertised vacancy.

UNC Wilmington utilizes the State of North Carolina Application for Employment (Form PD 107) which includes a detachable Equal Opportunity Information questionnaire. Applicants are asked to provide date of birth, sex, ethnic group, and disability status on a voluntary basis. This information is used for affirmative action and equal employment opportunity analysis within Human Resources and is not forwarded to the department with the applications.

4. Applicant Screening

a. Qualified Applicant Pool

A member of the Employment Services team in Human Resources screens the total applicant pool for minimum advertised qualifications. Typically, this initial screening focuses only on the number of years of education and experience required -- without a qualitative judgment as to the relatedness of the applicant's education and experience to the position advertised.

Applications which meet minimum advertised requirements are screened forward to form the "Qualified Applicant Pool." The race/sex composition of the qualified applicant pool is reviewed to ensure that our recruitment efforts have resulted in a qualified pool reflective of the targeted labor market.

b. Referred Applicant Pool

Applications from the Qualified Applicant Pool which reflect education, experience, knowledge, skills, or abilities directly related to the position and which have been advertised are selected by a member of the Employment Services team in Human Resources, or a properly constituted search committee to form the "Referred Applicant Pool." Consistent with State policy, only the referred applicant pool is available to the hiring official.
c. Interview Pool and Hiring Recommendation

The "Hiring Official" is the individual charged by the Department Head with responsibility for reviewing the referred applicant pool, determining the interview pool, interviewing candidates, and making the primary hiring recommendation. As noted previously, authority to hire cannot be delegated below the department head level at UNC Wilmington, is subject to at least one level of administrative review (regardless of level), and is contingent on Human Resources approval.

d. EEOC Variance Analysis

The referred applicant pool and the interview pool are subjected to EEOC-defined variance analysis by Employment Services which compares the representation of women and minority applicants at successive stages in the screening, referral, and interview process. If women or minority applicants do not progress to successive levels at a percentage rate consistent with their representation in the total applicant pool, then a second look is conducted to determine if any of the minorities or women no longer under consideration are substantially equally qualified to the least qualified of the applicants still under consideration. If this is the case the minority or woman applicant is added to the pool still under consideration.

This variance analysis alerts the Employment Services Coordinator to the possibility of adverse selection criteria at work in the screening process and provides an opportunity to discuss UNCW's affirmative action objectives with the interviewer or department head to assure appropriate consideration of minority or women applicants.

5. EEO/AA Review and Approval of Hiring Decision

The Director of Human Resources (or designee) reviews the statistical analyses of the applicant pool at the following junctures to ensure compliance with UNCW's Equal Employment Opportunity / Affirmative Action Plan:

- Composition of the referred applicant pool
- Composition of the interview pool
- Selection of the candidate to be hired

UNCW's EEO/AA Officer (or designee) must approve each hiring selection and the salary to be offered prior to any commitment being extended to an applicant. Commitments to prospective employees may only be made by Human Resources and may not be made by the hiring department.

Both EPA and SPA recruitment procedures conform to the Uniform Guidelines on Employee Selection Procedures [41 CFR 60-3.1 through 3.18].
II. CAREER PLANNING AND PROFESSIONAL DEVELOPMENT

Training is a vital tool in achieving equal employment opportunity and in strengthening affirmative action efforts. UNCW is committed to providing opportunities for employees to acquire new skills and to update and enhance existing ones. Faculty and staff employees are provided opportunities for professional development. Special efforts are made to encourage minorities, women, persons with disabilities and covered veterans to engage in professional development activities. The Human Resources Department has responsibility for providing internal training programs for staff. Many of its programs are useful for faculty supervisors.

A. Performance Management

All employees receive annual performance evaluations in accordance with UNCW's Employee Performance Management Program for SPA employees or administrative guidelines for EPA and faculty employees. Effective performance management is the first step in career planning and professional development as it provides an opportunity for employee and supervisor to agree on specific training and developmental courses which will enhance the employee's value to the organization and increase the likelihood of promotion.

Effective performance management encourages job-related coaching, task-defined performance feedback, and periodic performance evaluation -- all on an informal basis. A formal evaluation, however, must be conducted at least annually which includes a summary evaluation and which forms the basis of the State's performance-based pay system. These evaluations must be based on specific job duties and performance standards established by the supervisor at the beginning of the performance review period and discussed with the employee.

Employee performance ratings are reviewed by the rater's supervisor and reviewed by Human Resources for SPA employees.

B. Career Planning and Staff Development

Supervisors and managers are responsible for providing development opportunities for their employees including access to on-campus seminars, courses, and training regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status or relationship to other university constituents.

The State of North Carolina encourages internal promotion when feasible. When evaluating recruitment options and considering internal promotion, managers will evaluate employees regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status or relationship to other university constituents -- except where sex, age or ability represent bona fide educational or occupational qualifications.
C. Management Training

Training is provided to managers in the following areas:
- EEO/AA Plan
- Performance Management
- Supervisory and Management Skills
- Employee Selection
- Managing Diversity
- Sexual Harassment
- Leadership Development
- Competency Assessment

D. Employee Training

UNCW maintains a robust training program for staff employees consisting of skills and development workshops in the following areas. Typical types of workshops include:
- Clerical and Office Management Skills
- Introduction to Supervision
- Office Computer Applications Training
- Communication and Interaction Skills
- Customer Service Excellence
- Valuing Diversity

Examples of training programs with particular EEO/AA benefits include:
- **Employee Exchange Program** which permits employees to trade jobs temporarily with other staff employees to gain job experience outside of their primary position and department.

- **Computer Competency Program** designed to introduce non-computer users to key board skills using self-directed programs to gain competency and confidence. Targeted toward non-clerical staff seeking career progression to positions which require terminal or data entry use.

- **Supervisory Development Workshops** adapted for service and maintenance employees whose work schedules do not permit them to attend traditionally scheduled classroom training.

- **Harassment Awareness Mini-Conferences** targeted to faculty, staff and students beginning spring 2005 and on a regular basis thereafter. These educate and introduce campus community to revised unlawful harassment policy and resolution procedures; raise awareness among employees about responsibility they have in treating others with civility and respect; and increase participants’ understanding of how to respond to/report harassment.
• Equal Employment Opportunity Institute addresses federal and state EEO laws and issues of workplace diversity in state government.

E. Promotional Opportunities

UNCW encourages all employees to seek promotional opportunities, and UNCW’s job posting system provides employees information about vacant positions under recruitment. In accordance with North Carolina law, UNCW extends priority consideration and hiring preference for promotions to SPA positions to internal candidates who are substantially equally qualified to a non-state employee.

Faculty positions allow progression to higher levels of the professorate according to policies published in the Faculty Handbook. Faculty are selected for award of tenure and for promotion to higher rank regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents -- except where sex, age, or ability represent bona fide educational or occupational qualifications. It is the responsibility of the provost, the deans, and department heads to apply nondiscriminatory criteria for promotion and for tenure.

Supervisors of SPA classified positions are asked to monitor the employee’s duties and to seek a classification review if the work changes. Reclassifications are recommended whenever the position study indicates that position duties have changed substantially over time. The reclassification of an SPA position to a higher salary grade (though not subject to competitive recruitment procedures) is construed as a promotion under OFCCP guidelines. Reclassification decisions are based on job content and market considerations, and are made regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents.

III. REDUCTION IN FORCE IMPACT ANALYSIS

When budgetary constraints or changes in operational requirements necessitate, UNCW may abolish positions and separate employees under provisions of its Reduction in Force Policy.

As a matter of university practice, all reasonable means of avoiding a reduction in force will be explored prior to separating permanent employees -- including, for example, reducing non-salary expenditures such as purchasing or travel, reducing salary expenditures by freezing vacant positions, reallocation resources within UNCW, and abolishing vacant positions.

In accordance with current federal case law, reduction-in-force decisions must be made regardless of an employee's demographic category. However, to assess the potential adverse impact on the diversity of the work force, an adverse impact analysis will be performed for the purpose of determining the effects of an impending reduction in force on the demographics of the
University's work force -- with respect to the utilization of minorities and women and the representation of persons with disabilities.

Where reduction-in-force criteria are applied uniformly and lead to the separation of minority or female employees, UNCW will immediately review the race/sex composition of the remaining work force in order to determine whether the current year's affirmative action objectives need to be revised under its federally approved EEO/AA Plan.

IV. OUTREACH ACTIVITIES

UNCW encourages representation by faculty and administrative staff on community councils, boards, and organizations which promote the employment of women, minorities, persons with disabilities, and covered veterans.

In addition, UNCW encourages its members to participate at the state and national level in professional organizations that address issues of minorities, women, and persons with disabilities. University employees regularly participate in conferences sponsored by their professional organizations which focus on issues of campus diversity. Though most of these organizations do not conduct formal job fairs, the contacts made do allow for both specific and general recruitment activities. Some of these organizations offer formal placement centers at national and regional meetings, special training programs, mailing lists of individuals who are in the target groups, and publications which are likely to reach members of those groups.

For all staff job categories, vacancy announcements are sent routinely to the local North Carolina Employment Security Commission; the Office of State Personnel; other specialized agencies which may serve as referral sources for women and minorities; and posted to the UNCW Human Resources web page.

V. DIVERSITY INITIATIVES

The University of North Carolina Wilmington’s (UNCW) Diversity Initiative Plan (September 2004) is a bold attempt to bring about something akin to a culture change. The Plan resulted from a process involving over 200 faculty, staff and community members. It began as one of the initiatives of Chancellor Rosemary DePaolo in October 2003. A Diversity Initiative Planning Committee was charged by Chancellor DePaolo to develop a plan to improve diversity on the campus, taking into consideration the recommendations of the Chancellor’s Task Force on Diversity (April 2003), the Chancellor’s Blue Ribbon Committee (August 2002) and recent concepts of diversity in higher education. The hallmark of the plan is its focus on building relationships and inclusion. This is expressed in seven emergent themes, each with its set of priorities and other action ideas.
Diversity Initiative Plan’s Key Features

A. The UNCW Diversity Initiative Plan has several key features that distinguish it from others. It employs an approach or methodology that is different from the usual plan to address diversity in that its processes are:
   1. relational versus linear;
   2. “grassroots” versus top-down;
   3. integrative of current activities and new initiatives versus an all-new program template.

B. It focuses on seven emergent themes that support the purpose of the plan and the mission of UNCW:
   1. Emergent Theme I: Build a Pool of Prospective Students From Underrepresented Populations and Recruit Them to UNCW to Develop a Rich and Vibrant Learning Environment
   2. Emergent Theme II: Foster Strong Relationships With and Among All Current Students
   3. Emergent Theme III: Enhance Idea Exchange, Engagement and the Range of Learning Experiences Through Outreach Relationships With Other Educational Entities
   4. Emergent Theme IV: Access and Utilize the Intellectual, Cultural and Financial Resources of the Region Through Outreach Relationships With Community and Other Entities
   5. Emergent Theme V: Recruit and Retain a Critical Mass of Diverse Faculty
   6. Emergent Theme VI: Recruit, Develop and Retain a Critical Mass of Diverse Staff and Administrators
   7. Emergent Theme VII: Provide a Curriculum That Is Educationally Compelling In Its Use of Diverse Ideas, Beliefs and Backgrounds

C. It integrates diversity planning with institutional planning and budgeting:
   1. The implementation and impact is phased over multiple years consistent with university planning and budget cycles.
   2. The requirement of administrative departmental diversity plans is integrated in existing departmental planning processes where these currently exist.

Diversity Council

The diversity council was established in October 2006. Its charge is to:
- Develop vision for diversity efforts
- Advise the chancellor and provost on a shared vision that will build on UNCW’s Diversity Action Plan
- Make recommendations that will enable UNCW to foster a campus climate of inclusion
- Identify potential new initiatives that will advance our diversity goals
- Address specific concerns advanced by diversity advocates
- Solicit views of the UNCW community on all aspects of diversity
• Report annually to the chancellor and provost in achieving greater diversity in institutional composition, an inclusive climate, and the richness of the educational environment

VII. HUMAN RELATIONS EFFORTS

The success of any affirmative action based program designed to increase the utilization of women and minorities in the work force must be under-girded and supported by an active program of on-going human relations efforts that promotes the value of diversity among employees and students within our community. The University of North Carolina Wilmington has undertaken a variety of initiatives in this area -- principally centered on cultural diversity training sponsored by the Chancellor and the Human Resources Department and on-going activities of the Diversity Council and the Office of Campus Diversity.

The Office of Campus Diversity (OCD) provides leadership to African American, Hispanic, Native American, Asian American, and other students from other numerically underrepresented groups at the University of North Carolina Wilmington (UNCW). The OCD is involved with issues related to diversity and multiculturalism on campus and encourages students to take advantage of UNCW’s academic, cultural, social, and economic resources. The OCD serves advocacy and ombudsman roles, advising university administrators regarding the impact of policies and procedures that affect the development of a comfortable and reassuring environment in which diverse groups of students can live and learn.

Centro Hispano supports the university’s teaching, research and service community efforts in three areas. First, the Centro creates a responsive educational environment for Hispanic students and others interested in Hispanic cultures. Second, the Centro supports the research, teaching and service components necessary for the training and preparation of global citizens. Third, the Centro informs, guides and champions UNCW’s engagement in the region on issues critical to Hispanic constituencies. These initiatives promote opportunities that expand our cultural understanding and appreciation of the Hispanic world. Its goals are to:

• Recruit and retain Hispanic students, faculty and staff
• Promote a community of scholars that focus on Hispanic issues
• Foster campus-wide curricular development pertinent to Hispanic issues and themes
• Establish local service learning, internship and volunteer opportunities
• Serve as a resource and outreach center for the University and the region
• Foster collaboration between UNCW and community organizations
• Secure corporate and government funding

The Women’s Studies and Resource Center strives to create an interdisciplinary community of scholars working in the areas of sex, gender, and women’s issues. The Center offers research, programming, education, and advocacy to promote gender equality, both locally and globally. The Center also provides information and referrals for a variety of UNCW and community services and resources.
The **Upperman African American** Cultural Center (UAACC) provides students, faculty, staff, and those in the greater Wilmington community with the opportunity to experience the rich heritage of African Americans from artistic, historical, and other perspectives.

In support of this mission, the UAACC maintains a collection of books, videotapes, periodicals, and popular materials for use in the center. Videotapes are also available on a loan basis in the Upperman Center, as well as adult and children’s books. Additionally, a collection of Upperman Center books is maintained in UNCW’s Randall Library.

Located in the University Union, the center also houses exhibits of artwork and artifacts for public viewing. Upperman Center programs and activities such as Heritage School, Upperman Artist presentations, lectures, workshops, and Black History programs are offered to the university and the region. These events are provided to promote a greater appreciation and understanding of African Americans and their cultures.
In compliance with regulations of the Office of Federal Contract Compliance Programs (OFCCP), the federal agency with oversight responsibility for Executive Order 11246, the University of North Carolina Wilmington compiles an annual report of the utilization of women and minorities at UNCW consisting of the following components: Work Force Analysis, Job Group Analysis, Availability Analysis and Utilization Analysis.

In performing these analyses, UNCW uses “AA Planner” software designed and developed by Peopleclick Corporation to facilitate the utilization analysis as specified at 41 CFR 60-2.15. This section of the AA plan will outline the methodology employed in undertaking UNCW's Utilization Analysis and summarize the resulting utilization of women and minorities in our work force.

I. WORK FORCE ANALYSIS [41 CFR 60-2.11]

Data for all permanent and time limited employees are extracted annually from UNCW's Human Resources System. The data represent persons employed at UNC Wilmington on January 1 of each year, and is downloaded to AAPlanner to initiate the work force analysis.

A Work Force Analysis (organizational profile) is then prepared which details each organizational unit of UNCW by listing all positions assigned to the Unit and providing the count and percentage representation of women and minorities for the unit as a whole -- as well as providing subtotals and percentages for each minority group. The Work Force Analysis is included in Part II of the annual EEO report.

II. JOB GROUP ANALYSIS [41 CFR 60-2.12 and 41 CFR 60-2.13]

Job groups for all permanent full-time or part-time employees are determined by reviewing each employee's job and classification to determine: (l) similar content, (2) similar rates of pay, and (3) similar opportunities.

A Job Group Analysis is then prepared which details each job group by total female and total minority representation -- and provides subtotals and percentages for each minority group. In the Job Group Analysis, position titles are listed from the highest individual salary or salary range to the lowest. This analysis is included in Part II of the annual EEO Report. [Note: While the Chancellor's and Chancellor Emeritus’ positions are included in the work force analysis, it is excluded from the job group analysis because hiring decisions for this position are made at the UNC system level rather than at UNC Wilmington.]
III. AVAILABILITY ANALYSIS [41 CFR 60-2.14]

UNC Wilmington uses Factor I (the percentage of minorities or women with requisite skills in the reasonable recruitment area) exclusively for determining race and sex availability for all job groups. Factor II (the percentage of minorities or women among those promotable, transferable, and trainable within the contractor's organization) was considered not relevant due to the lack of specific training programs that prepare employees for promotional opportunities. Furthermore, Factor II was not desirable because of UNCW’s preference that its internal distribution of minorities and women should not influence our goal for the UNCW workforce to look just like the labor market.

Because all of the job groups that recognize staff are composed of job titles with different availability rates, a composite availability figure for the job group must be calculated. UNC Wilmington determines the availability for each job title within the job group by assigning an occupational code from the 2000 census, and then determines the proportion of job group incumbents employed in each job title using the Peopleclick AA Planner software. This software weighs the availability for each job title by the proportion of job group incumbents employed in that job group. The sum of the weighted availability estimates for all job titles in the job group indicates the composite availability for the job group.

UNC Wilmington uses the best available information to determine the percentage of minorities and women in occupations that correspond to UNC Wilmington’s job groups. The best available information for our staff positions and Tier II senior officers is the 2000 federal census. For Tier I senior officers and faculty job groups, UNC Wilmington uses data provided by the US Department of Education. This data indicates the race and sex of employees in educational institutions similar to UNC Wilmington. UNC Wilmington may use nation-wide, state-wide or Wilmington area census data based on the predominate recruitment strategies that we use for vacancies within the job group. The specific availability data is found in Part II of the EEO/AA plan.

IV. UTILIZATION ANALYSIS [41 CFR 60-2.15]

Under-utilization of women or minorities exists in a job group when the actual number of employees is less than the number that would reasonably be expected by their availability. The OFCCP’s definition of under-utilization relies on a standard of reasonableness. Institutions may select among three recognized standards: the any difference test; an 80% test; and a standard deviations test.

The University of North Carolina Wilmington has adopted the most stringent of these standards, the Any Difference Test, to guide our affirmative action planning. The Any Difference Test documents whenever the representation of women or minorities among the UNCW workforce is at least one whole person less than the expected representation of these groups in relation to their availability in the relevant labor market -- by comparing the UNCW workforce percentage to the availability percentage and calculating the number of persons UNCW would need to recruit in
order to bring the representation of women or minorities in the job group into parity with the labor market.

The comparison and analysis of the work force and availability percentages generated in the Job Group Analysis and Availability Analysis, respectively, enable us to develop a clear picture concerning the relative utilization of women and minorities at UNC Wilmington. The final step in the utilization analysis is to compare the work force percentages and market availability for women and minorities by job group. Wherever the work force percentage is equal to or exceeds market availability, women or minorities are "fully utilized" within the UNCW work force. Wherever the work force percentage is less than market availability (and the difference equates at least to one full person), women or minorities are "under-utilized."

To assist administrators in grasping changes in utilization from year to year, we then prepare graphs which show "Availability vs. Work Force Percentages" for women and minorities -- representing UNCW's utilization analysis in visual form. They are particularly compelling in that they show in a clear, concise form the labor market availability and the utilization of women or minorities. Combining availability and work force percentages in a single format shows university administrators both the target and the progress we are making toward full utilization of women and minorities.
The goal of UNCW's Affirmative Action planning is for women and minorities to be represented on our campus to the same extent as they are represented in the appropriate labor market -- or for the work force percentage to equal the availability percentage.

Relying on the current year’s comparison between the UNCW work force percentage and the labor market availability for both women and minorities by job group, UNCW establishes an affirmative action goal wherever the work force percent is less than the availability percent and the difference is at least one whole person. No goals are established for job groups with under-utilization of less than one full person.

**Numeric Goals & Good Faith Hiring Objectives**

While OFCCP guidelines provide that goals should be established in terms of availability percentages (and do not require the setting of numerical goals), UNCW translates the percentage utilization into the number of individuals by which women or minorities are represented at UNCW at or above labor market availability or below labor market availability. This enables University administrators to identify the numbers of women or minorities that would theoretically need to be hired to bring UNCW in line with market availability -- and is typically a more meaningful measure of utilization than the percentage goals.

The university considers a five-year period a reasonable time frame in which to pursue parity with the labor market. Each job group is evaluated to determine if 20% of the current under-utilization resulted in a “whole” person. If so, a numeric goal is set for that job group.
Evaluation by Placements

At the end of each year, UNCW analyzes the number of women and minorities hired into positions within job groups that have numeric goals. This reflects the work administrators have made in their affirmative action efforts.

Evaluation by Comparing Net Change in Utilization

Where workforce counts are below labor market, UNCW establishes a goal to increase the representation of women or minorities to bring their utilization in line with market. Each job group is evaluated against the previous year’s utilization as one means of evaluating the prior year’s goal accomplishment. As a quantitative measure, this picture of UNCW’s goals helps administrators understand where we have made progress in recruiting women and minorities and where we need to make further progress to achieve a fully balanced and diverse workforce.

Evaluation by Utilization Among Job Groups

In compiling Annual Workforce Analysis and Utilization Analysis, UNCW tracks 29 Job Groups. Evaluation by comparing job groups can give administrators a clearer picture of when progress in one area is supported through internal promotions (presenting the picture of losses in a corresponding area).

Evaluation by Analyzing Cumulative Utilization

Finally, UNCW evaluates prior year’s goals by an analysis of net gains and losses in total under-utilization – regardless of whether they are attributable to uncontrollable turnover through voluntary separations, resignations and retirements rather than to lack of recruitment efforts. The analysis of hiring and promotional patterns is intended to assess whether UNCW is retaining a diverse workforce in each job group – once a representative utilization level is achieved.
The University of North Carolina Wilmington is committed to and will provide equality of educational and employment opportunity for all persons regardless of race, sex (such as gender, marital status, and pregnancy), age, color, national origin (including ethnicity), creed, religion, disability, sexual orientation, political affiliation, veteran status, or relationship to other university constituents. The Human Resource Office consistently evaluates impediments to equal employment opportunity by ensuring non-discriminatory practices in personnel activity such as selection, recruitment, compensation, training, and hiring. In addition, the Human Resource Office annually evaluates the utilization of women and minorities by job group. Human Resources monitors all employment activity. Situations that indicate an adverse condition are typically identified early in the recruitment and selection process and the hiring official is advised on corrective actions.
EQUAL EMPLOYMENT OPPORTUNITY / AFFIRMATIVE ACTION PLAN
INTERNAL ACCOUNTABILITY AND REPORTING SYSTEMS
[41 CFR 60-2.17]

Supervisory Accountability for Affirmative Action Efforts

Every supervisor is charged with carrying out the program of equal employment opportunity and affirmative action. Adherence to the policies contained in this plan is reviewed annually by the appropriate supervisor.

Monitoring and Assessment of Good Faith Efforts to Obtain Goals

The affirmative action program is evaluated in two ways:

1. Monitoring UNCW's commitment and good faith efforts, and

2. Comparison of numerical goals and progress toward accomplishing those goals. Both of these functions are the responsibility of the EEO/AA Officer in conjunction with the Chancellor and the affirmative action committee. To evaluate adherence, the EEO/AA Officer requires reports from those involved in the search and selection process and, when necessary, consults with them at important steps in the employment process. Reports and consultations also occur whenever there appears to be an insufficient number of minorities or women in the pool of candidates or whenever a substantial portion of such applicants has been eliminated.

The EEO/AA Officer has published reporting requirements and makes available affirmative action compliance forms for the use of faculty members and administrative officers participating in the hiring process.

1. When the search is initiated, the department must notify the EEO/AA Officer of the type of position and of specific plans for advertising the position.

2. Each applicant for the position is asked to identify himself or herself as minority, female, disabled, or veteran on UNCW’s Consensus™ on-line application system. The results on each search are made available to the EEO/AA Officer who may, in some searches, recommend that the search be extended to reach additional minorities and women in percentages more reflective of availability for the applicant pool.

3. In any search, if the EEO/AA Officer perceives the possibility of deficiencies in the application of the affirmative action process, the officer may request a review by the academic dean of the affected unit, or by the appropriate vice chancellor. If appropriate, the EEO/AA Officer, the division vice chancellor for EPA positions, or the Provost for faculty positions may suspend a search and report the suspension to the Chancellor.
4. Before a search leader extends an offer of employment, if permitted to do so, the EEO/AA Officer shall have received a report which describes the recruiting and advertising efforts; describes the initial group of applicants by race and sex; and states the reason or reasons for preferring the person chosen for the position. This report should include a summary report on compliance with the affirmative action process.

For SPA appointments, the EEO/AA Officer ensures that procedures published by the North Carolina Office of State Personnel are followed. In addition, the EEO/AA Officer requires that a report be filed in the Office of Human Resources describing the selection of one applicant over the other applicants who were interviewed.

In overseeing UNCW's affirmative action program, the EEO/AA Officer makes regular reviews of the work force complement. Those job groups which demonstrate under-utilization are scrutinized carefully. Hiring decisions made in the various units are assessed on an ongoing basis as they relate to the progress toward accomplishing the percentage goal within job groups. The provost and vice chancellors who oversee positions affected by the under-utilization are regularly informed of the progress toward attaining those goals.

Further, the Director of Internal Audit incorporates formal audit procedures into UNCW's ongoing audit protocols to monitor compliance issues with respect to UNCW's EEO/AA program.
EQUAL EMPLOYMENT OPPORTUNITY / AFFIRMATIVE ACTION PLAN
COMPLIANCE WITH GUIDELINES ON DISCRIMINATION
BECAUSE OF RELIGION OR NATIONAL ORIGIN
[41 CFR 60-50]

UNCW has reviewed its employment practices to ensure that members of various religious and/or ethnic groups receive fair consideration for employment opportunities. In addition, UNCW makes reasonable accommodation to religious observances and practices.

COMPLIANCE WITH SEX DISCRIMINATION GUIDELINES
[41 CFR 60-20]

Recruitment and Advertisement

The University of North Carolina Wilmington will continue its policy of equal employment opportunity for members of both sexes. There are no job positions that are BFOQ, i.e., reserved for members of one sex only because sex is a bona fide occupational qualification. UNCW actively recruits both men and women for all jobs and informs its recruiting sources that it has no sex preference. Advertisements for university positions express no sex preference. Print advertisements do not appear under headings labeled "male" or "female."

Job Policies and Practices

Written personnel policies clearly indicate that there shall be no discrimination against employees on account of sex. All employees have equal opportunity for any job for which they are qualified. UNCW makes no distinction based on sex in employment opportunities, wages, hours, benefits, or other conditions of employment and places no restrictions on women's ability to work that are not placed on men's ability in the same setting. There is no distinction between the hiring, employment treatment or termination of a woman or man based on marital status. UNCW does not deny employment to women with young children nor does it treat male and female employees differently as to retirement or termination because of age. Seniority at UNCW is not based in any way on sex. UNCW provides appropriate and comparable physical facilities for female and male employees. There is no distinction based on sex in determining eligibility for any training and development program offered by UNCW. Women are encouraged to participate in such opportunities both within and outside UNCW.

Pregnancy and Medical Conditions

Women are not penalized in their employment because of time spent away for childbearing or related medical conditions. Disabilities resulting from pregnancy are treated like any other temporary disability suffered by an employee. Female employees who are pregnant are not subjected to limitations on their employment rights before childbirth. After a leave for pregnancy or related conditions, entitlements are retained in the same manner as for any employee returning from disability leave. Under UNCW's health insurance coverage and disability programs, a
disability contributed to or caused by pregnancy or related medical conditions is treated the same as a disability contributed to or caused by other medical conditions.

**Sexual Harassment and Undue Favoritism Based on Sex**

Sexual harassment and/or the assignment or suggestion of rewards and punishments on the basis of sex are prohibited. Intimate consensual sexual relations between supervisors and subordinates, and between faculty members and students are discouraged. Those relationships are improper when they influence or could reasonably be expected to influence decisions or actions.

Upon allegations that raise reasonable apprehension of prohibited activity that violates this policy, careful inquiry—with appropriate safeguards insuring individual rights and confidentiality—will be carried out. Appropriate penalties will be meted out under normal procedures ensuring due process. Those who invoke the policy are protected from retaliatory acts. Information concerning complaints arising under it will be treated responsibly. Malicious or frivolous claims of harassment or favoritism are also prohibited and, if substantiated, will result in disciplinary action.

This policy applies to all applicants for employment, or for admission to university programs, to all officers and employees, students, and to persons who serve UNCW as agents and are under the control of UNCW.

The Office of Human Resources and the Dean of Students' Office provide training to faculty and staff on ways to identify and correct sexual harassment. That training focuses especially on relevant state and federal laws, court decisions, grievance and disciplinary procedures, and useful mediation strategies.
The University of North Carolina Wilmington does not discriminate against persons with disabilities and is committed to taking affirmative action to employ and advance in employment qualified individuals with disabilities, disabled veterans and veterans of the Vietnam Era. This affirmative action program applies to the recruitment, employment, compensation, and advancement of persons with disabilities, disabled veterans, and veterans of the Vietnam Era.

**Outreach Activities**

In seeking persons with disabilities, disabled veterans, and veterans of the Vietnam era, UNCW identifies agencies and organizations which may refer applicants. Specifically, UNCW regularly seeks the aid of the following sources in the interest of identifying and giving employment consideration to disabled and Vietnam Era veterans and to persons with disabilities:

- **Director**
  Employment Security Commission  
  717 Market Street  
  Wilmington, NC 28401

- **Unit Manager**
  NC Vocational Rehabilitation Services  
  709 Market Street  
  Wilmington, NC 28402

Employees with disabilities, disabled veterans, and Vietnam Era veterans may appropriately identify themselves as such to facilitate accommodation. An ongoing system for voluntary self-identification is in place for applicants. New employees receive invitations to identify themselves during orientation. Job applicants are advised, during the recruitment process, to contact the UNCW Employment Services Manager if they require an accommodation if called for an interview.

**Personnel Practices**

UNCW makes reasonable accommodation to the physical and mental limitations of an employee or applicant. Information obtained from applicants and employees concerning a physical or mental condition is kept confidential, except that (1) supervisors and managers may be informed regarding the necessity for accommodation or restrictions on work or duties; (2) first aid and safety personnel may be informed, when appropriate; and (3) government officials investigating compliance with equal employment opportunity laws may be informed.
The applications of employees known to Human Resources staff as having disabilities and known disabled veterans are reviewed to ensure that qualified individuals are given equal consideration for opportunities for promotion and transfer.

Employment procedures for faculty and staff (EPA and SPA) include careful attention to evidence of self-identification in these categories and require thoughtful consideration of such applicants for initial employment and promotions and for participation in training opportunities. Periodic reviews of employment procedures allow monitoring of affirmative action activities and responses to these populations. Recruitment staff in the Office of Human Resources address issues involved in placing persons with disabilities in employment and respond to requests for accommodation by such persons. Human Resources routinely offers workshops to supervisors that present affirmative action principles and recruitment policies affecting persons with disabilities and disabled veterans.

So that qualified persons with disabilities are not screened out unnecessarily for UNCW's jobs, the Office of Human Resources reviews job descriptions of positions to ensure that physical and mental job qualifications are job-related, are consistent with business necessity, and will ensure the safe performance of the job.

In offering employment or promotions to individuals with disabilities or covered veterans, UNCW does not reduce the amount of compensation offered because of any disability income, pension, or other benefits the applicant or employee receives from other sources.

Facilities

In 1991, all the buildings were subjected to a compliance review by the Office of Civil Rights of the Atlanta regional office of the U. S. Department of Education and the suggested corrections were made. UNC Wilmington has an ongoing program to improve its facilities and ensure ADA compliance as needs are identified and funding becomes available. In addition, all plans for new construction projects and renovations involving the reorientation of building components are submitted for review and approval by the NC Department of Insurance Fire Fund Division. The NC Department of Insurance reviews the plans for compliance to the NC Building Code, which includes the North Carolina Accessibility Code and meets ADA requirements.
In order to reduce the cost of publishing, the university publishes the EEO/AA Plan in three parts. Part I is distributed to the Office of State Personnel, UNCW Division Directors, and Reserve Desk of Randall Library. Part I is updated as needed and posted to the UNCW Human Resources web site. Part II is produced annually, and posted to the UNCW Human Resources web site. Part II is also distributed to the NC Office of State Personnel, UNCW Division Directors, and UNCW Board of Trustees. Part III is produced annually as supporting tables for Part II and is maintained in the Office of Human Resources. All three parts are available for inspection during regular working hours at 5051 New Centre Drive, Wilmington, NC for a period of three years after they are produced.

**Part I: EEO/AA Policies and Procedures**
- EEO/AA Policy Statement
- Dissemination Of The Affirmative Action Policy
- Implementation Of Affirmative Action Program
- Development and Execution of Action-Oriented Programs
- Utilization Analysis Methodology
- Methodology to Establish Placement Goals
- Methodology to Evaluate Prior Year’s Goals
- Identification of Problem Areas
- Internal Accountability and Reporting Systems
- Compliance with Guidelines on Discrimination Because of Religion or National Origin
- Compliance with Sex Discrimination Guidelines
- Specific Provisions Concerning Persons with Handicapping Conditions,
- Disabled Veterans and Vietnam Era Veterans
- Cost Reduction Mechanisms and Records Availability

**Part II: EEO/AA Annual Report**
- Reaffirmation of EEO/AA Policy Statement
- Executive Summary
- Utilization Observations by Job Group
- Summary Observations by EEO6 Category
- Utilization Analysis
- Placement Goals
- Good Faith Efforts
- Supporting Tables and Graphs

**Part III: EEO/AA Supporting Documentation**
- Factor Availabilities
- Job Group, EEO Codes, and Census Occupation Codes Assigned to Job Titles
- Job Group Analysis
- Work Force Analysis (Organizational Profile)
Name: Troy D. Alphin

Education:
University of North Carolina at Wilmington  Major Marine Biology  M.S. 1998
University of North Carolina at Wilmington  Major Marine Biology  B.S. 1992

Appointments:
2002 Research faculty and part-time instructor Department of Biological Sciences, University of North Carolina at Wilmington.
1998: Senior Research Associate, Center for Marine Science, University of North Carolina at Wilmington.
1993-1998: Research Associate, Department of Biological Sciences, University of North Carolina at Wilmington.
1991-1993: Research Assistant, Department of Biological Sciences, University of North Carolina at Wilmington.

Publications:


Presentations:


Shellfish Restoration Conference (invited).


Grants:

Success in oyster reef restoration: population and ecosystem measures. Co-Pi with Martin Posey) North Carolina Sea Grant. 2006-2008. $64,000.


Biological treatment of effluent from an intensive marine finfish recirculating aquaculture facility by cultivation of microalgae and bivalves. CoPi with Watanabe and Wilbur. CICEET program. 2003-2004. $19,999.

Field assessment of spawning sanctuaries and possible migration corridors for the blue crab

Oyster reefs as fisheries habitat: the influence of edge characteristics and vertical complexity. CoPI with Martin Posey. NC Sea Grant. 2002-2004 $83,200. + graduate stipend.

Evaluation of spatfall in the Cape Fear estuary. Lead PI (with Martin Posey and Ami Wilbur). NC Sea Grant, 2002-2004 $26,048.38.

Evaluation of biological filtration capacity of oyster reefs in small tidal creek systems. Lead PI. NC Sea Grant. 2002-2003 $6,750.00.


Name: Daniel Baden

Education:
Hamline University MN   Chemistry   BA 1973
University of Miami FL   Biochemistry   PhD 1977
University of Miami RSMAS FL  Environmental Toxicology   Postdoctoral 1977-1978

Appointments:
2005-present   William R. Kenan Jr. Distinguished Professor in Marine Sciences
1999-present  Director, Center for Marine Science; Professor of Chemistry (primary); Professor of Biological Sciences (secondary); University of North Carolina Wilmington, NC
1991-1999  Professor of Marine Biology and Fisheries (primary), Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, FL; Professor of Biochemistry and Molecular Biology (secondary), University of Miami School of Medicine, Miami FL
1984-1991  Associate Professor of Biology and Living Resources (primary), Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, FL; Associate Professor of Biochemistry (secondary), University of Miami School of Medicine, Miami FL
1983-1984  Research Associate Professor of Biochemistry (primary) University of Miami School of Medicine, Miami FL; Research Associate Professor of Marine and Atmospheric Chemistry, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, FL
1979-1983  Research Assistant Professor of Biochemistry, University of Miami School of Medicine, Miami FL
1978-1979  Research Assistant Professor of Marine and Atmospheric Chemistry, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami, FL
1977-1978  Post-Doctoral Research Associate, Marine and Atmospheric Chemistry, Rosenstiel School of Marine and Atmospheric Sciences, University of Miami FL

Publications:


3. Benson, JM; Gomez, AP; Statom, GL; Tibbetts, BM; Fleming, LE; Backer, LC; Reich, A; Baden, DG. Placental transport of brevetoxin-3 in CD-1 mice. Toxicon (2006) 48, 1018-1026.


5. Fleming, Lora E.; Kirkpatrick, Barbara; Backer, Lorraine C.; Bean, Judy A.; Wanner, Adam; Dalpra, Dana; Tamer, Robert; Zaias, Julia; Cheng, Yung Sung; Pierce, Richard; Naar, Jerome; Abraham, William; Clark, Richard; Zhou, Yue; Henry, Michael S.; Johnson, David; Van De Bogart, Gayl; Bossart, Gregory D.; Harrington, Mark; Baden, Daniel G.. Initial evaluation of the effects of aerosolized florida red tide toxins (brevetoxins) in persons with asthma. Environmental Health Perspectives (2005), 113(5), 650-657.
6. Backer, Lorraine C.; Kirkpatrick, Barbara; Fleming, Lora E.; Cheng, Yung Sung; Pierce, Richard; Bean, Judy A.; Clark, Richard; Johnson, David; Wanner, Adam; Tamer, Robert; Zhou, Yue; Baden, Daniel G.. Occupational exposure to aerosolized brevetoxins during florida red tide events: Effects on a healthy worker population. Environmental Health Perspectives (2005), 113(5), 644-649.


9. Benson, Janet M.; Hahn, Fletcher F.; March, Thomas H.; McDonald, Jacob D.; Gomez, Andrea P.; Sopori, Mohan J.; Bourdelais, Andrea J.; Naar, Jerome; Zaias, Julia; Bossart, Gregory D.; Baden, Daniel G.. Inhalation toxicity of brevetoxin 3 in rats exposed for twenty-two days. Environmental Health Perspectives (2005), 113, 626-631.


13. Cheng Yung Sung; McDonald Jacob D; Krakco Dean; Irvin C Mitch; Zhou Yue; Pierce Richard H; Henry Michael S; Bourdelaisa Andrea; Naar Jerome; Baden Daniel G Concentration and particle size of airborne toxic algae (brevetoxin) derived from ocean red tide events. Environmental Science & Technology (2005 May 15), 39(10), 3443-9.


15. Fleming Lora E; Kirkpatrick Barbara; Backer Lorraine C; Bean Judy A; Wanner Adam;Dalpra Dana; Tamer Robert; Zaias Julia; Cheng Yung Sung; Pierce Richard; Naar Jerome; Abraham William; Clark Richard; Zhou Yue; Henry Michael S; Johnson David;Van De Bogart Gayl; Bossart Gregory D; Harrington Mark; Baden Daniel G Initial evaluation of the effects of aerosolized Florida red tide toxins (brevetoxins) in persons with asthma. Environmental Health Perspectives (2005 May), 113(5), 650-7.


20. Benson, JM; Stagner, BB; Martin, GK; Friedman, M; Durr, SE; Gomez, A; McDonald, J; Fleming, LE; Backer, LC; Baden, DG; Bourdelais, A; Naar, J; Lonsbury-Martin, BL. J Comp Physiol A Neuroethol Sens Neural Behav Physiol (2005) 191, 619-626.

21. Benson, Janet; Hahn, Fletcher; March, Thomas; McDonald, Jacob; Sopori, Mohan; Seagrave, JeanClare; Gomez, Andrea; Bourdelais, Andrea; Naar, Jerome; Zaias, Julia; Bossart, Gregory; Baden, Daniel. Inhalation toxicity of brevetoxin 3 in rats exposed for 5 days. Journal of Toxicology and Environmental Health, Part A (2004), 67(18), 1443-1456.


Presentations:

Society of Toxicology 2007 (4 posters)
Society of Toxicology 2006 (3 posters)
Society of Toxicology 2005 (5 posters)
Society of Toxicology 2004 (3 posters)
Society of Toxicology 2003 (2 posters)
Society of Toxicology 2002 (4 posters)
Society of Toxicology 2001 (3 posters)

Harmful Algae International Conference 2002 (14 posters)

All referenced by peer-reviewed publications listed above.

Grants:

4/96 to 3/01
National Institutes of Health “Marine and Freshwater Biomedical Sciences Center” $1,497,000. Director and P.I. P30ES 05705 (years 6-10). Supplement of $401,376 for studies of oral and inhalation exposure to Pfiesteria toxins in collaboration with the University of Maryland. [D Baden PI, L Fleming, P Walsh, M Schmale, R Gawley all UMiami]

9/97 to 8/01
National Institutes of Health “Molecular Mechanism of Brevetoxin and Ciguatoxin Insult” $1,050,861, P.I., 2 R01 ES05853-04A2 [D Baden PI, Wolfgang Nonner, University of Miami School of Medicine, and Lynne Fieber, University of Miami RSMAS].

9/98 to 8/01

9/99 to 8/02
NIEHS, “Pfiesteria and Related Organisms in Maryland Waters” U Md, Glenn Morris P.I. $475,000 total subcontract. [subcontract 7 investigators from 3 institutions].

7/99 to 8/01
North Carolina Biotechnology Center, “Recruitment Package for Endowed Professor of Chemistry” $350,000 total award, [D.G. Baden CoPI with Jeffrey Wright].

10/99 to 9/02
Glaxo Wellcome Foundation, “Master’s of Science Training in Oceans and Human Health”
$600,000 total award collaboration with Bermuda Biological Station, [D.G. Baden Co P.I. with
Anthony Knap BBSR].

08/00 to 07/05
NIEHS, NIH, DHHS, “Effects of Inhaled Florida Red Tide Brevetoxins”
$6.08 million P01 ES 10594, [D.G. Baden, P.I., program project involving 2 universities, 3
research institutions, one state agency and one Federal agency].

07/06 to 06/11 (renewal)
NIEHS, NIH, DHHS, “Effects of Inhaled Florida Red Tide Brevetoxins”
$7.53 million P01 ES 10594, [D.G. Baden, P.I., program project involving 2 universities, 3
research institutions, one state agency and one Federal agency].

Honors, Awards, Professional Service Special Achievements:

2007-present Special Consultant in Marine Biotechnology, Sultanate of Oman
2007-present Member, Ocean Leadership Washington DC
2007-present Center of Innovation in Marine Biotechnology North Carolina
2006-present Member SE Regional Biotechnology Consortium
2006-present Ad hoc Committee on Marine Biotechnology North Carolina
2006-present Member, UNC system Marine Sciences Economic Development Task Force
2006-2007 Member, Joint Oceanographic Institutions Washington DC
2005-present William R. Kenan Distinguished Professor of Marine Science
2004-present MARBIONC, Marine Biotechnology in North Carolina
2003 Member, NC Governor’s University Research and Infrastructure subcommittee,
Task Force on Biotechnology
2003 Chair, External Review Group for NIEHS/EPA Superfund Basic Research
Program 15 year review.
2002-2003 NAEHSC Council Centers Sub-Committee
2002-2003 Chair, NAEHSC Oceans and Human Health Working Group
1999-present Member Marine Science Consortium North Carolina
1999-present NAML institutional representative
1999-present SAML institutional representative
1999-2007 Member, CORE Washington DC
1999-2004 Member, NIH Council for Environmental Health Sciences (NAEHSC)
1996-2000 Comparative Medicine Initial Review Group, NCRR, NIH
1996-2000 Arctic Research Commission Academic Advisory Board
1996-2000 Methods Board for Seafood Toxins, AOAC International
1984-2000 Associate Referee for Assessment of Seafood Toxins, AOAC Intl, Panel C
Name: Jeffrey Craig Bailey, PhD

Education:
UNC-Wilmington  Marine Biology  B.S.  1990
College of William and Mary Biology  M.A.  1992
Louisiana State University Botany/Phycology  Ph.D.  1996
Bigelow Laboratory for Ocean Sciences Phycology/Systematics Postdoc 1996-1999

Appointments:
0/805-present Associate Professor and Curator of Algae, Department of Biology and Marine Biology, UNCW
08/99-present Assistant Professor, Department of Biological Sciences, UNCW
06/97-07/99 Post-doctoral Research Associate, Provasoli-Guillard National Center for Culture of Marine Phytoplankton, Bigelow Laboratory for Ocean Sciences
01/97-05/97 Biology Instructor, LSU

Publications:


Bailey JC, Gabel JE, Freshwater DW (2004) Nuclear 18S rRNA gene sequence analyses indicate that the Mastophooideae (Corallinaceae, Rhodophyta) is a polyphyletic taxon. *Phycologia* 43:3-12.


Presentations:


Gabel J, Bailey JC, Freshwater DW (2002) Phylogenetic analyses of nuclear 18S rRNA gene sequences indicate that the Mastophoroideae (Corallinales, Rhodophyta) is a polyphyletic taxon. 56th Annual Meeting of the Phycological Society of America, Pyle Conference Center, Univ. of Wisconsin at Madison, Madison, WI, August 2-7.


McElhinney A, Bailey JC, Andersen RA (2000) Molecular systematics of the Mischococcales and Tribonematales (Xanthophyceae) based upon cladistic analysis of
18S rRNA gene sequences. 22nd Annual Southeastern Phycological Colloquy, Georgetown, SC. October 2000

Grants:


Bailey JC, Shafer TH, Satterlie R, Freshwater DW, Tomas C [CMS Equipment Program, $45,832] A real-time PCR system for quantitative analyses of gene expression. 5/01/04-4/30/05

Bailey JC [NSF DEB-0084197 $60,195] Collaborative research: Species discovery and population dynamics of coccoid algae in Itasca State Park, Minnesota. 09/01/00-08/31/03


Bailey JC [NSF 0121900 / $10,313] Research Experiences for Undergraduates (REU) Supplement for NSF Microbial Observatories grant 0084197. 5/01-8/01

Wilbur AE, Freshwater DW, McCartney MA, Bailey JC, Wright JLC [NC BioTechnology Center / $129,500] An ABI 3100 Genetic Analyzer for the DNA Analysis Core Facility at the Center for Marine Science, University of North Carolina at Wilmington. 07/01-6/02

Bailey JC, Freshwater DW [CMS Pilot Project / $15,583] Isolation and characterization of selected nuclear- and plastid-encoded genes in *Alexandrium tamarense* 6/00-5/01

Szmant A, Bailey JC [CMS Pilot Project / $25,775] Development of molecular markers for the identification of crustose coralline algae that induce reef coral settlement. 6/00-4/01

Bailey JC [Charles Cahill UNCW Faculty Research Grant / $2,500] Characterization and origin of intervening sequences found in the 18S rRNA and *rbcL* genes of chromophyte algae. 1999-2001
Honors, Awards, Professional Service Special Achievements:

Honors:
Luigi Provasoli Award Finalist (1998)
William J. Luke Botany Teaching Assistant Award, LSU, 1995

Professional Service:
Phycological Society of America, Secretary & Executive Committee (2005-present)
Journal of Phycology, Associate Editor & Editorial Board (2005-present)
European Journal of Phycology (Assoc. Editor, Macroalgal Systematics 2001-2005)
Phycological Society of America (Chair, Education Committee, 1998-2001)
Phycological Society of America (G.W. Prescott Award Committee, 1999 & 2001)
Phycological Society of America (Bold Award Committee, 1998 & 2000)
Phycological Society of America
British Phycological Society
American Association for the Advancement of Science
Northeast Algal Society
Society of Systematic Biologists

MS in Biology, Marine Biology or Marine Science Students:
Amy McElhinney, Jennifer Gabel, Ian Misner, Jon Hulvey, Jannine Hunt, Maris Durako, Meghan Chafee
Name: Timothy A. Ballard

**Education:**
Undergraduate Institution(s) Appalachian State Univ. Biology B.S. 1978
Graduate Institution(s) Wake Forest Univ. Anatomy Ph.D. 1983
Postdoctoral Institution(s) Emory Univ. Devl. Biology (1982-83)

**Appointments:**
University of North Carolina Wilmington (1984 – present)

**Publications:** none

**Presentations:** none

**Grants:** none

**Honors, Awards, Professional Service Special Achievements:**
- Chancellor’s Teaching Excellence Award
- Board of Trustee’s Teaching Excellence Award
- Distinguished Teaching Fellow
Name: Stuart R. Borrett

Education:
Austin College, Sherman, TX  Biology  BA 1997
University of Georgia, Athens, GA  Ecology  Ph.D. Ecology 2005
Stanford University, Stanford, CA  Oceanography & Computer Science 2005-2007

Appointments:
2007-present  Assistant Professor, University of North Carolina Wilmington
2005-2007  Postdoctoral Fellow, Stanford University
2005-2007  Postdoctoral Scientist, Institute for the Study of Learning and Expertise
2003-2005  Research Assistant, Skidaway Institute of Oceanography
1999-2003  Research Assistant, University of Georgia
1997-1999  Assistant Staff Scientist, Entrix, Inc.

Publications:

Peer Reviewed


**Book Chapters & Reports**


**Presentations:**


**Grants:**
None

**Honors, Awards, Professional Service Special Achievements:**

**Awards**

2004–2005 University-wide Dissertation Completion Award, Ten months of funding ($15,000) to complete dissertation. University of Georgia, Athens, GA.

2004 University of Georgia Office of the Vice President for Research (OVPR) International Travel Funds for travel to the Fourth European Conference for Ecological Modelling. Bled, Slovenia.

2001 University of Georgia OVPR International Travel Funds for travel to the International Society for Ecological Modelling, European Chapter meeting. Dubrovnik, Croatia.

2001 IDEAS Mini-Grant Program Registration Fee for Vulnerability of Water Quality in Intensively Developing Watersheds. Athens, GA.

2000 University of Georgia OVPR International Travel Funds to present at Ecosummit2000. Halifax, Canada.

1997 *Austin College, cum laude*

1997 βββ, Biology Honor Society
1997  Austin College, M.D. “Bud” Bryant Fellowship, Outstanding Biology Student
1993–1997  Austin College, Trustees Scholarship ($3000 per year)

**Invited Workshop & Conference Participation**

2005  Annual International Meeting, Institute of Biological Engineering. Athens, GA.
2005  University of Georgia Ecological Network Analysis Conference, Athens, GA.
2004  NSF FIBR Workshop, *Microbiological Networks*, Athens, GA.
2001  Warnell School of Forest Resources. *Vulnerability of Water Quality in Intensively Developing Watersheds*. Athens, GA.

**Service & Leadership**

2002–present  Reviewer for *Ecological Modelling*
2006  Judge, Buell Student Award for best presentation, 91st Annual Meeting, Ecological Society of America. Memphis, TN
2003  Faculty Symposium Committee, Chairperson. Institute of Ecology. Athens, GA.
2002–2003  Graduate Student Representative to Faculty. Institute of Ecology. Athens, GA.
2002  Conference Assistant. Lilly Conference on College & University Teaching (South). Athens, GA.
2001  Conference Assistant. Annual Meeting, Ecological Society of America. Madison, WI.
2000–2001  Graduate Student Representative to Quantitative Ecologist Search Committee. Institute of Ecology. Athens, GA.
1999–2001  Graduate Student Representative to Computer Oversight Committee. Institute of Ecology. Athens, GA.
Sep. 2007

CURRICULUM VITAE

LAWRENCE B. CAHOON

EDUCATION:
Postdoctoral Fellowship, Mountain Lake Biological Station, Univ. Virginia, 1981, 1982
Ph.D., 1981, Duke University (Zoology)
B.S., 1975, summa cum laude, Washington & Lee University (Biology)

POSITIONS HELD:
Professor, 1993-
Graduate Faculty, 1991-
Adjunct Graduate Faculty, North Carolina State University, 1991-
Associate Professor, Department of Biological Sciences, UNC Wilmington, 1987-1993
Assistant Professor, Department of Biological Sciences, UNC Wilmington, 1982-1987
Temporary Instructor, Duke University Zoology Dept., 1981-1982
Research Assistant, Duke University Zoology Dept., 1979, 1977
Teaching Assistant, Duke University Marine Laboratory, 1976-1980
Teaching Assistant, Washington & Lee University (Biology), 1975

PUBLICATIONS:


79. Cahoon, L.B., Getting warmer: Global warming is real, and U.S. could - should - lead the effort to slow it. Wilmington Star-News, May 13, 2007


73. Cutting, R.H., L.B. Cahoon, and R.D. Leggette. 2006. Enforcement


CMS #267


The Marine Technology Society, Oceans 2000 Proceedings, Providence, September 11-14. CMS #246


264. Cahoon, L.B. Biological oceanographic research in CORMP: Basic to applied research, presentation to high school science teacher’s group, July 14, 2005.


246. CORMP Basic and applied research, CORMP Teacher’s outreach group, July 26, 2004.
229. Cahoon, L.B. Upscaling primary production estimates: Regional and global scale estimates of microphytobenthos production, “Functioning of microphytobenthos in estuaries”, Dutch Academy of Natural


208. Cahoon, L.B., and J.C. Hales. Analysis of impacts of fecal pollution from different sources in Brunswick County and other coastal regions. SBWSA Board meeting, Nov. 14, 2002.


197. Cahoon, L.B. New Hanover County Municipal Landfill/Leachate Treatment Facility, Town of Lake Waccamaw, April 10, 2002

196. Cahoon, L.B. Local and Regional Environmental Issues, Lutheran Men in Mission, St. Matthew’s Lutheran Church, April 8, 2002


193. MacPherson, T., M. Mallin, and L.B. Cahoon. Seasonal oxygen
depletion in tidal creek study sites, Southeastern Estuarine Society, March 10, 2002.


GRANTS FUNDED (>10 million total)

(2006):
Flushing rate studies at Bald Head Creek, ESP Associates, Inc., $1500
Sediment-water interface processes in Sardinian coastal lagoons: Nutrient exchange, production, and stimulation of microheterotrophs. UNCW Cahill Award, $1,975.
UNCW Research Reassignment, Fall, 2006
Coastal Ocean Research and Monitoring Program, $0.5 million, w/Leonard and many others, NOAA Coastal Services Center

(2005):
Technology to Support Forensic Environmental Science, $4510, with R. Cutting, UNCW Information Technology Systems Division.
Coastal Ocean Research and Monitoring Program, $2.45 million, w/Moss and many others, NOAA Coastal Services Center
“Is there a relationship between phosphorus and fecal microbes in aquatic sediments”, UNC Water Resources Research Institute ($50,000, w/Mallin)
“Effects of sediment phosphorus concentration on fecal pathogen indicators in estuarine sediments”, UNC Sea Grant, ($70,728, w/Mallin)

2004

“Fecal contamination of tidal creek sediments - links to sediment phosphorus?”, New Hanover County Tidal Creeks Program, ($8,008, w/Mallin et al.)
“Response of benthic microalgal biomass to renourishment of ocean beaches”, UNC Sea Grant, ($6,486)

“SE Atlantic Marine Monitoring and Prediction Center: 2003 Coastal Ocean Research and Monitoring Program”, NOAA NOS, ($1,192,000, co-PI w/Moss and many others)
“Taxonomic surveys of benthic diatoms in outer continental shelf habitats”, $26,650, UNCW Center for Marine Science Pilot Project, with R. Laws.
“Fecal contamination of tidal creek sediments”, $8,556, New Hanover County Tidal Creeks Program

2003
“Flushing Rates of Howe and Pages Creeks”, $13,080, New Hanover County Tidal Creeks Program, with J. Hales
“Flushing rate of Hewletts Creek”, $6,731, New Hanover County Tidal Creeks Program, with J. Hales

2002

“Water Quality Monitoring for the Town of Lake Waccamaw”, ($33,300), Town of Lake Waccamaw (EPA 319H grant)
“SE Atlantic Marine Monitoring and Prediction Center: 2001 Coastal Ocean Research and Monitoring Program”, NOAA OAR, ($925,000, co-PI w/Moss and many others)
“Water quality monitoring for the South Brunswick Water and Sewer Authority”, $119,996
“Interactions between nutrient additions and trophic controls: Scaling effects and system variability”, UNC Sea Grant ($82,700, w/Posey and Alphin)
"Sediment recycling: Marsh renourishment through dredged material disposal", CICEET ($126,883, w/Leonard, Posey, Laws, Alphin)

2001

N.C. Fishery Resource Grant: Shrimp and crab trawling impacts on estuarine soft-bottom organisms ($91,840, w/Posey, H. Daniels)

2000

“Sediment phosphorus dynamics in New Hanover County Tidal Creeks”, $7,035
“Water quality monitoring for the South Brunswick Water and Sewer Authority”, $98,107
“Coastal Ocean Monitoring in the South Atlantic Bight”, NOAA ($730,000, Principal Investigator w/many others)
“Stimulation of Estuarine Benthic Microheterotrophs by Organic Loadings”, UNC Sea Grant ($7,944, w/Posey, Alphin)
“Algal, bacterial, and BOD responses to nutrient gradients in coastal plain watersheds”, UNC WRRI, ($39,925, w/Mallin)
“Rapid response to Hurricane Floyd: Shiptime on R/V CAPE HATTERAS”, UNC Sea Grant, $10,000
New Hanover County Tidal Creeks Project ($8,427 to LBC), $60,000 to Mallin et al.
"Forensic Environmental Science: A new approach to environmental studies", EPA Environmental Education Program, ($5,295, w/R. Cutting)

AWARDS, HONORS, etc.

REVIEWER

Proposals: National Science Foundation, National Undersea Research Program, U. Conn. Avery Point, National Undersea Research Center, UNC Wilmington, NC Biotechnology Center, NC Board of Science and Technology,
NC Technological Development Authority, Environmental Protection Agency, National Estuarine Research Reserve, NOAA National Marine Fisheries Service, National Geographic Research Society, "Experiments to Teach Ecology Manual", Ecological Society of America, N.C. Water Resources Research Institute, Univ. So. Cal. Sea Grant, National Undersea Research Center, Mid-Atlantic Bight, UNC Water Resources Research Institute, South Carolina Sea Grant


UNCW Faculty Scholarship Award, 2006-2007
$1 Million Dollar Club, 2000
$5 Million Dollar Club, 2006

**Certified Senior Ecologist, Ecological Society of America, 2002-2012**
A bunch of other stuff.
Name: Dr. Gregory T. Chandler

Education:

B. Sc.  
The Australian National University  
Biology  
1994

B. Sc. (Hons. 1st Class)  
The Australian National University  
Biology  
1995

Ph. D.  
The Australian National University  
Ecology, Evolution & Systematics  
2001

Postdoctoral Associate  
Virginia Commonwealth University  
2001-2002

Appointments:

Assistant Professor, Department of Biological Sciences, The University of North Carolina at Wilmington, USA. January 2003 to present.

Research Assistant in Plant Systematics (ANU Officer, level 5/6), Division of Botany & Zoology, The Australian National University, Canberra, Australia. February 1996 to August 1997.

Publications:


**Presentations:**


**Chandler GT** & Plunkett GM. July 2003. The phylogenetic placement and evolutionary significance of the polyphyletic subfamily Hydrocotyloideae (Apiaceae). *Amer. J. Bot. 90* (Suppl.). Botanical Society of America/American Society of Plant Taxonomists meetings, Mobile, Alabama, USA.


Chandler GT & Plunkett GM. August 2002. Recent advances in the resolution of intraordinal affinities in the Apiales: evidence from 26S rDNA. *Amer. J. Bot. 89* (suppl.). Botanical Society of America/American Society of Plant Taxonomists meetings, Madison, Wisconsin, USA.

**Grants:**

**Chandler, G.T.** 2006. Re/Max Coastal Properties (Ed Wagenseller). *Evaluation of the wetlands at Cypress Point, Pender Co.* [§400]

Honors, Awards, Professional Service Special Achievements:


Manuscript reviewer for the following text books:


Workshops:


Conference Session Chair:

Botanical Society of America/American Society of Plant Taxonomists meetings (2003), Mobile, Alabama, USA. Contributed papers, session 34, “Asterids: Apiales to Asterales.”
Name: Ileana E. Clavijo

Education:
Barry University, Biology Major, BS 1969
Florida Atlantic University, Aquatic Sciences, MS, 1974
University of Puerto Rico, Mayaguez Campus, Biological Oceanography, PhD, 1982

Appointments:
Since August 1986, Associate Professor, University of North Carolina at Wilmington, teach Marine Biology and Fisheries Biology.
October 1983 to July 1986: Fisheries Biologist, Division of Fish and Wildlife, St. Thomas, U. S. Virgin Islands, head of federally-funded program in fisheries with supervision of eight to ten employees.

Publications
Abstracts in the Proceedings of the next 2 poster papers.

Presentations:


Grants:
“Mini-Grant” Funding from Sea Grant to I. Clavijo for research on ornamental marine fishes. $2,500.
Richard M. Dillaman

Education:
University of Virginia       B.A. Biology       June 1970
University of South Carolina Ph.D. Biology       August 1974

Appointments:
Visiting Fellow, School of Biological Sciences, University of New South Wales, Sydney Australia, 1993
Adjunct Faculty, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, 1991
Professor of Biology, UNC-W, 1990
Associate Professor of Biology, UNC-W, 1985
Assistant Professor, Dept. of Biology, UNC Wilmington, 1981
Research Associate, Dept. of Zoology, Duke University, 1979-1981
Research Associate, Dental Research Center, University of North Carolina at Chapel Hill, 1977-1978
Research Associate, Dept. of Zoology, Duke University, 1976-1977
Post Doctoral Research Associate, York University, Downsview, Ontario, 1974-1975
Research Assistant Under National Institute of Dental Research, University of S.C., 1971-1974
Teaching Assistant in Electron Microscopy Laboratory, Electron Microscopy Laboratory, University of S.C., 1971
Teaching Assistant, Dept. of Biology, University of S.C., 1970-1971
Laboratory Technician, Virginia Institute of Marine Science, 1964-1968

Publications:


Presentations:
Record not kept.
Title: **Biomineralization: Gene silencing to determine the roles of crustacean cuticular proteins and their biomemetic potential.**
Investigators: Shafer, T and R. Dillaman
Agency: North Carolina Biotechnology Center
Amount: $74,437 18 months starting September 2007

Title: **“Collaborative Research: Are muscle fibers just the right size?”**
Investigators: Kinsey, S., Dillaman, R., Locke*, B. and S. Grant
Agency: National Science Foundation
Amount: $860,426 ($466,186 to UNCW; 394,240 Florida State University* 8/1/07-7/31/11.

Title: **Acquisition of an Olympus FV500/IX81 Confocal Microscope**
Agency: National Science Foundation
Amount: $310,173 2004

Title: **Ontogeny of the structure and organization of the complex lipids in the mandibles of the bottlenose dolphin (Tursiops truncates): Does a young dolphin possess the same acoustic apparatus as an adult?**
Agency: CMS pilot project
Amount: $21,483 2004

Title: **Inherited Adaptational Responses of Muscle to Hypoxia**
Agency: National Institute of Health
Amount: $144,572 9/01-8/03

Title: **Junenile Blue Crab Use of Low Salinity Areas: Costs and Benefits**
Agency: National Science Foundation
Amount: $842,675 for 9/01- 8/04

Title: **A Digital Library of Reusable Science and Math Resources for Undergraduate Education**
Investigators: UNC Wilmington (Dr.=s C.R. Ward; R.J. Vetter; G.G. Lugo; J.R. Reeves; R.M. Dillaman; and R.L. Herman) and Eduprise.com.
Agency: National Science Foundation
Amount: $1,143,282 9/01-8/03

Title: **Integrating digital libraries and traditional libraries: A model for sustaining**
**NSDL collections**  
Agency: National Science Foundation  
Amount: $425,000 9/03 – 8/05

Title: **The blue crab exoskeleton - A model system for Studying the Control of Biominalization**  
Investigators: R.D. Roer, R.M. Dillaman, M.A. McCartney, and T.H. Shafer  
Agency: National Science Foundation  
Amount: $312,873 for 9/01 – 8/04

**Honors:**

UNCW Graduate Mentor Award - 2001  
UNCW Faculty Scholarship Award - 2005
**Name:** Michael J. Durako

**Education:**
- **Florida Atlantic University**  Biology  B.S., 1975
- **University of South Florida**  Botany  M.A., 1978
- **University of South Florida**  Marine Science  Ph.D., 1991

**Appointments:**
- **Current Position:** Professor (since 8/04), Department of Biology and Marine Biology, UNCW
  8/97- 5/04: Associate Professor, Department of Biology, tenured 8/00
  5/95- 8/97: Senior Research Scientist, Florida Marine Research Institute - Supervisor of Habitat Assessment and Restoration Research Group within Resource Health and Assessment Section. Supervised 5-Full Time Research Scientists (3 Ph.D.'s) and 8-Temporary (OPS) Research Staff employees.
  1/89-2/91 - Biological Scientist IV, Bureau of Marine Research - Botany and Technical Sciences Section.
  11/84- 1/89 - Biological Scientist III, Bureau of Marine Research - Botany and Technical Sciences Section.
  8/82-11/84 - Senior Biologist, Bureau of Marine Research - Botany Section.
- **Publications:**
  - **Belshe, E. F.,** Durako, M. J., Blum, J. E. Submitted. Diel light curves and landscape-scale variation in photosynthetic characteristics of *Thalassia testudinum* in Florida Bay. *Aquatic Botany*.


**Presentations:**


FHAP South Florida - A New Improved Fisheries Habitat Assessment Program. Hall, M. O., Durako, M.J. Merello, M, Berns, D. Ferenc, K., Hall, F., **Belshe, E. F., Landry, J. B.** The Florida Bay and Adjacent Marine Ecosystems Science Conference, Duck Key, FL,
December 11-14, 2005.
Diel light curves’ ability to incorporate temporal and spatial variation of photosynthetic characteristics of *Thalassia testudinum* in Florida Bay. **Belshe, E. F.** and Durako, M.J. The Florida Bay and Adjacent Marine Ecosystems Science Conference, Duck Key, FL, December 11-14, 2005.


Physics to fish: II. Using coastal ocean observations to identify ecosystem conditions, responses, and linkages. Durako, M.J. and 9 co-authors. 2005 ASLO Summer Meeting, Santiago, Spain, June 23, 2005.


Shoot-to-landscape scale approaches to assessing seagrasses in Florida Bay: A perturbed subtropical estuary. Durako, M. J., University of Western Australia, Marine Sciences Seminar Series, June 1, 2004.


Landscape-scale approaches to the assessment of seagrasses in a perturbed subtropical ecosystem. Durako, M.J., Hall, M.O., Merello, M. 17th International Conference of the Estuarine Research Federation, Sept. 14-18, 2003, Seattle, WA.


Seagrass monitoring in the Florida Keys National Marine Sanctuary: seasonal patterns and long-term trends at permanent monitoring sites. Fourqurean, J.W., Rutten, L.M., Escorcia,
Posey, T.D. Alphin and M.J. Durako. 2003 Southeast Coastal Ocean Science Conference, Charleston, S.C
Comparison of radiometric quantities measured in water and above water and derived from SeaWiFS imagery in Onslow Bay and Cape Fear River plume area. Kowalczuk, P., Durako, M. J., Cooper, W. J. Ocean Optics XVI, Santa Fe, NM. Nov 18-22, 2002.
Clonal integration in the threatened seagrass Halophila johnsonii. R. Dean & M. J. Durako. 2001 Phycological Colloquy, October 14, 2001, Wilmington, NC.
Recent Seagrass Dynamics in Florida Bay. Durako, M. J., J. Paxson, J. Hackney, M. O. Hall, and M. Merello. 2001 Florida Bay Conference, Key Largo, FL.
Branching frequency of *Thalassia testudinum* Banks ex König as an indicator of growth potential within ten basins of Florida Bay. Jill C. Paxson and M. J. Durako. 2001 Florida Bay Conference, Key Largo, FL.


**Grants:**

2005-2007  
Florida Fish & Wildlife Conservation Commission. Measuring photosynthetic characteristics of Turtlegrass for the South Florida Fish Habitat Assessment Program. Durako, M. J. PI ($160,000)

2005-2007  

2005-2007  

2005-06  
NOAA/UNCW. Coastal Ocean Research and Monitoring Program. Leonard, L., Moss, M., Durako, M. co-PI ($2,770,694)

2004-2005  
Florida Fish & Wildlife Conservation Commission. South Florida Fish Habitat Assessment Program. Durako, M. J., PI ($106,000)

2004-05  
NOAA/UNCW CORMP. Optical characterization of the waters of Onslow Bay, the Cape Fear River plume and coastal southeastern Carolina. Durako, M. J., PI ($87,667)

2003-04  
Effects of irradiance levels and hydrodynamics on seagrass photophysiology and photochemistry. Charles L. Cahill Award for Faculty Research and Development. Durako, M. J., PI ($2,350)

2002-05  
South Florida Water Management District/FAU. High salinity, nutrient and multiple stressor effects on seagrass communities of NE Florida Bay: Salinity effects on seagrass seedling development. Durako, M. J., PI ($148,863)

2002-03  
NOAA/NMFS. Detecting evidence for sexual reproduction and genetic diversity in flowering populations of *Halophila johnsonii*. Durako, M. J., PI ($24,000)

2002-03  
Durako, M. J., PI ($127,825)

2002-03
NOAA/UNCW CORMP. Optical characterization of the waters of Onslow Bay, the Cape Fear River plume and coastal southeastern Carolina. Durako, M. J., PI ($87,667)

2001-02
NOAA/NMFS. Detailed survey and assessment of the baseline distribution of *Halophila johnsonii* at its southern distributional limit. Durako, M. J., PI ($50,000)

2001-02
NOAA/UNCW CORMP. Optical characterization of the waters of Onslow Bay, the Cape Fear River plume and coastal southeastern Carolina. Durako, M. J., PI ($100,187/$925,000 total CORMP)

2001
USACOE/SeaGrant: Creation of a smooth cordgrass tidal marsh using seedlings optimized for transplantation survival. Padgett, D., Durako, M. J., co-PI ($3900)

2000-02

2000-01
NOAA/NOS. Reproductive biology, population dynamics, dispersal, and genetic diversity of the endangered seagrass, *Halophila johnsonii*. Durako, M. J., PI ($38,106)

2000
NOAA/UNCW Marine Monitoring Program. Optical Characterization of the Waters of Onslow Bay and the Cape Fear River Plume. Durako, M. J., PI ($43,882)

2000

2000
Florida International University: The Statistical Relationship between Benthic Habitats and Water Quality in Florida Bay: An Ecologically Relevant Performance Measure for Responding to the USACOE Restudy. Durako, M. J., PI ($9,015)

**Honors, Awards, Professional Service Special Achievements:**
Visiting Senior Research Fellow - University of Technology, Sydney 1/03-4/04
Appointed to NOAA-funded Recovery Plan for the listed species *Halophila johnsonii*, the only marine plant ever to be listed under the Endangered Species Act. 1999-present
Ecosystems Team Member, USACE Florida Keys Carrying Capacity Study. 1999-2002
Team Leader - Florida Bay Program Management Committee, Seagrass Research Team 1998-present.
Courtesy Professor - University of South Florida, Department of Marine Science and University of South Florida, Department of Biology. Credentialed 4/93, Affiliate membership to Graduate Faculty 12/94, appointed to Courtesy Assistant Professor 8/96.

Adjunct Faculty - Eckerd College, Department of Marine Science, 1/96.


Name: Steven D. Emslie

Education:
University of Colorado, Boulder  Anthropology   B.A.  1975
University of Colorado, Boulder  Anthropology   M.A.  1977
Northern Arizona University, Flagstaff  Biology   M.S.  1982
University of Florida, Gainesville  Zoology   Ph.D.  1987

Appointments:
1998-  Professor, University of North Carolina, Wilmington
1994-1998  Thornton Visiting Scholar and Adjunct Assistant Professor, Western State College, Gunnison, Colorado.
1993-1995  Adjunct Assistant Curator, Florida Museum of Natural History.
1990-1992  Lecturer and Research Associate, Board of Environmental Studies, University of California, Santa Cruz.
1987-1990  Field Director and biologist, Point Reyes Bird Observatory, California

Publications:


**NON PEER-REVIEWED PUBLICATIONS, LETTERS, AND BOOK REVIEWS:**


Presentations:

2007  Climate change and Adelie Penguins in Antarctica, invited speaker Bald Head Island Nature Center, 12 Feb. 2007.


2006  Adélie penguins as climatic indicators in Antarctica since the late Pleistocene, invited paper, Pacific Seabird Group annual meeting, 15-19 February.

2006  Where the birds are: Adélie penguins, 10,000 year-old climate indicators. Odyssey Lecture, CMS, 7 March.


2005  Penguins and climate change in Antarctica. Departmental seminar, UNC-Chapel Hill, 27 April.


2004  Molecular sexing and sex-ratio analysis of Royal Terns nesting on the U. S. Atlantic coast (Meadows, Melissa, S. Emslie, and M. McCartney). Oral presentation, American Ornithologists’ Union annual meeting, Quebec, Canada, 16-21 August.
2004 The late Pleistocene avifauna of Sandia Cave, New Mexico (Brasso, Rebecka and S. Emslie). Oral presentation, American Ornithologists’ Union annual meeting, Quebec, Canada, 16-21 August.

2004 Major shift in Adélie Penguin eggshell isotope values in Antarctica: evidence for diet change ~200 years ago (with W. Patterson, co-author). Oral presentation, American Ornithologists’ Union annual meeting, Quebec, Canada, 16-21 August.


2004 Avian predation at a southern Rockhopper Penguin colony on Staten Island, Argentina (Liljestrom, Marcela, S. Emslie, and A. Schiavini). Poster presentation, Fifth International Penguin Conference, Ushuaia, Argentina, 6-10 Sept.

2004 Major shift in Adélie Penguin eggshell isotope values in Antarctica: evidence for diet change ~200 years ago (Patterson, W., S. Emslie and K. Evans). Poster presentation, Geological Society of America, Denver, CO, 7-10 Nov.


2004 Penguins, isotopes, and climate change in Antarctica. Departmental seminar, Charleston College, SC, 8 Nov.

2003 Presentation on bird migration following the film, ‘Winged Migration’, at Cinematique, Wilmington, 1 Sept.


2003 Birds of Patagonia and Tierra del Fuego, Lower Cape Fear Bird Club, 17 September.


2003 A 1000-yr record of Adélie penguin diets in the southern Ross Sea, Antarctica, poster at Pacific Seabird Group meetings, Parksville, B. C., 13-16 Feb. (with Mike Polito, senior author).

2002 Penguin colonies and environmental change in the Antarctic Peninsula region. Invited speaker, Antarctic Peninsula Climate Variability Workshop, Hamilton College, NY, 4-5 April.

2002 Penguins and climate change in Antarctica. Marine Quest speaker, CMS, 11 April.

2001 Adélie penguins and climate change in Antarctica. Lower Cape Fear Bird Club meeting, 16 Oct.

2001 Abandoned penguin colonies and climate change in Antarctica. Waterbirds meeting, Niagara Falls, Ontario, 8-11 Nov.

2001 Abandoned penguin colonies and climate change in Antarctica. Invited seminar speaker, Murray State Univ., KY, 13 April.

2001 Invited participant, Victoria Land Coastal Program, Byrd Polar Research Center, Columbus OH, 26-29 April.

2001 The ecology and paleohistory of penguins in the Antarctic Peninsula. Invited speaker, Antarctic Challenges, an international symposium to commemorate the 100th anniversary of Otto Nordenskjöld’s expedition to the Antarctic Peninsula, 10-13 May.

2000 Abandoned penguin colonies and climate change in Antarctica. Southern Hemisphere Ornithological Congress, Brisbane, Australia, 27 June - 2 July.


2000 Assessing radiocarbon dates from abandoned penguin colonies in the Antarctic Peninsula. Glaciation of the Weddell Sea Workshop, Abisko, Sweden, 16-19 September.

2000 A preliminary relative sea level curve for the Marguerite Bay region, Antarctic Peninsula. Poster presented at Glaciation of the Weddell Sea, Workshop, with M. J. Bentley, and O. Ingolfsson, senior authors, 16-19 September.


**Grants:**

North Carolina Sea Grant, $3000, to initiate research on Seaside and sharp-tailed sparrows in coastal NC, October 2006, co-PI Jamie Rotenberg.

National Science Foundation, Office of Polar Programs, $5750 supplement from the Research Experiences for Undergraduates (REU) program to support one student for research in Antarctica, July 2004 (OPP-0125098).

North Carolina Sea Grant, $2362 for study of Royal Tern diet and fishery abundance at Fisherman Island, VA, summer 2004.

North Carolina Sea Grant, $2880 for study of Royal Tern diet and fishery abundance at Fisherman Island, VA, summer 2003.
National Science Foundation, Office of Polar Programs, $11,120 supplement from the Research Experiences for Undergraduates (REU) program to support two students for research in Antarctica, June 2002 (OPP-0042786).

National Science Foundation, Office of Polar Programs, $151,086 for research on abandoned penguin colonies and climate change in the Ross Sea region, Antarctica, 2003-2006 (OPP-0125098).

National Geographic Society, $18,940 for research on abandoned penguin colonies in Antarctica, with Dr. David Lambert, Co-PI (New Zealand), 2001/2002 (Grant #7040-01).

National Science Foundation, Office of Polar Programs, $5000 supplement from the Research Experiences for Undergraduates (REU) program to support one student for research in Antarctica, June 2000 (OPP-0042786).

North Carolina Sea Grant, $4200 mini-grant for research on genotoxicity in Royal Terns (Sterna maxima) in coastal North Carolina, May 2000.

National Science Foundation, International Programs, $12,600 to support undergraduate and graduate student travel to the meetings of the Southern Hemisphere Ornithological Congress, Brisbane, Australia, June 2000 (INT-0001323).

National Aeronautics and Space Administration, Ocean Biology and Biogeochemistry Program, $15,375 to continue investigations of high-trophic level ecosystem response to climate change in the Antarctic Peninsula 2000-2001 (NAG5-8114).


Grants and Awards Received by Students:

M. Polito, recipient of Ralph Brauer Graduate Fellowship, $1000, fall 2006
C. Zavalaga, recipient of Ralph Brauer Graduate Fellowship, $1000, fall 2006
A. Michaelis, recipient of Ralph Brauer Graduate Fellowship, $1000, fall 2006
A. Michaelis, recipient of James F. and Frances B. Parnell Fellowship, $500, fall 2006
Carlos Zavalaga, $400 travel award from GSA for thesis research, 2005.
Graduate School Summer Research Program, $1000 to Deniz Aygen for research on Royal Terns in VA, 2004
Graduate School Travel Funds: $375 to Carlos Zavalaga to attend conference in Ushuaia, Argentina, 6-10 Sept., 2004.
Carlos Zavalaga and Marcela Liljesthrom each received at $1333 travel award from NSF to attend the International Penguin Conference, Ushuaia, Argentina, 6-10 Sept. 2004.
Parnell Fellowship: $250 to Marcela Liljesthrom for field research in terrestrial biology, 2004
Waterbird Society, $830 to Carlos Zavalaga for travel funds to attend the annual meeting, Cuiaba, Brazil, Sept. 2003.
Carolina Bird Club, $500 to Deniz Aygen, for research on Royal Terns in VA, 2003

Honors, Awards, Professional Service Special Achievements:

Reviewer for scores of professional journals, grant agencies, and media, 2000-2007
Recognition from 10+ graduating seniors for significant impact, 2000-2007
Service on many faculty and university committees, 2000-2007
Elected to Councilor position, 2002-2004 term, Waterbird Society
Office of Research Adminstration, UNCW, Million Dollar Club recognition for raising over $1 million in grants as a PI or Co-PI while at UNCW, 2000.
Chancellor’s Outstanding Faculty recognition, UNCW, 2000.
Christopher M. Finelli

**Education:**

St. Francis College    Biology    BS, May 1991
Northeastern University    Marine Biology    1990-1991
University of South Carolina    Marine Science    PhD, August 1997
Academy of Natural Sciences    Aquatic Ecology    Postdoctoral Fellow, 1997-99

**Appointments:**

2006 to Present    Assistant Professor, University of North Carolina Wilmington
2005 to 2006    Associate Professor, Louisiana Universities Marine Consortium (LUMCON).
1999 to 2005    Assistant Professor, Louisiana Universities Marine Consortium (LUMCON).

**Publications (Since May 2000):**


Presentations Since May 2000:


Clarke R.D., E.J. Buskey, C.M. Finelli. 2007. Feeding adaptations of two chaenopsid blennies to water motion in different microhabitats. Benthic Ecology Meetings, Atlanta, GA.


Prerost, J.E. and C.M. Finelli. 2005. Going with the flow: The possibility of chemical communication in the Ghost Shrimp underground. Gulf Coast Graduate Student Symposium, Chauvin, LA


Finelli, C.M. 2004. What I Learned in my Senior Year of College: Interdisciplinary Research and Education in Marine Habitats. Benthic Ecology Meeting, Mobile, AL; Special 20th Anniversary Session for East/West Marine Biology Program

Finelli, C.M., J.A. Kastler, R.T. Powell. 2004 FIRST in Louisiana: Inquiry, assessment, and reform in undergraduate science teaching. Louisiana Academy of Sciences, Lake Charles, LA; Special Session for FIRST Program in Louisiana


*Finelli CM. 2003. Too much of a good thing? Hydromechanical control of oxygen flux in corals. University of New Orleans (Department of Biological Sciences)


Finelli CM. 2003. Flow, flux, and the ecology of marine benthos. Louisiana State University, Baton Rouge, LA (Department of Oceanography and Coastal Studies)

Finelli CM. 2003. Flow, flux, and the ecology of marine benthos. University of South Florida, Tampa, FL (Department of Biology)


Finelli CM. 2001. Turbulent mass transfer: An introduction to scaling, measurement, and impacts. Meeting of American Society of Limnology and Oceanography, Special Session on Turbulent Mass Transfer (CM Finelli, Chairman), Albuquerque, NM.


Finelli CM. 2000. Life in a turbulent world: How does water flow constrain ecological processes. Louisiana State University, Baton Rouge, LA (Department of Biological Sciences).


**Grant Funding Since May 2000:**

2006  Entergy Environmental Stewardship Program; Expanding and Enhancing the Bayouside Classroom Science and Stewardship Program. $22,257.

2003-2007  National Science Foundation; Collaborative Research + RUI: The effects of water movement and zooplankton escape behavior on planktivory by coral reef fishes in different microhabitats. $383,724 ($81,243 to LUMCON); Co-PI with Ed Buskey, University of Texas Marine Science Institute and Ray Clarke, Sara Lawrence College

2003-2008  National Science Foundation; Supplement to Career development plan: Interdisciplinary research and education in marine habitats. $44,800; PI: Christopher Finelli

2002-2005  National Science Foundation; Faculty Institutes for Reforming Science Teaching (FIRST) II. $30,000; Team Leader: Christopher Finelli

2002  NOAA/NURC Aquarius Mission Decoupling the effects of mass transfer, water motion and temperature on reef health. $50,000 ($17,318 to LUMCON); Co-PI with David Wethey and Brian Helmuth, University of South Carolina.

2001-2008  National Science Foundation Career development plan: Interdisciplinary research and education in marine habitats. $506,955; PI: Christopher Finelli

2001  Louisiana Board of Regents Support Fund Enhancement of the basic oceanographic analytical capabilities at LUMCON. $110,000; Co-PI with Rodney Powell and Nancy Rabalais, LUMCON.

2000  NOAA/NURC Aquarius Mission
Multiscale measurements of hydrodynamics and nutrient transfer over coral reefs. $30,000; PI: Christopher Finelli.
Courtney T. Hackney

ACADEMIC AND PROFESSIONAL EXPERIENCE

Degrees Earned

Mississippi State University  Ph.D.  1974-1977
Emory University  M.S.  1970-1973
University of South Alabama  B.S.  1968-1970
Florida Keys Junior College  1966-1968

Titles of Dissertation (Ph.D.) and Thesis (M.S.)

- Doctor of Philosophy (Major: Zoology; Minor: Wildlife & Fisheries), Mississippi State University, 1977 "Energy Flux in a Tidal Creek Draining an Irregularly Flooded Juncus Marsh". Dissertation Director: Professor A. A. de la Cruz
- Master of Science (Major: Biology), Emory University, 1972 "Biological and Physical Dynamics of a Georgia Tidal Creek." Thesis Director: Professor W. D. Burbanck

Academic and Professional Posts

- Professor of Biology, Department of Biological Sciences, University of North Carolina at Wilmington, 1988-1992, 1993-present.
- Associate Professor of Biology, Department of Biological Sciences, University of North Carolina at Wilmington, 1984-1988.
- Assistant Professor of Biology, Department of Biological Sciences, University of North Carolina at Wilmington, 1980-1984; Tenure: 1983.
- Assistant Professor of Biology, Department of Biology, University of Southwestern Louisiana, 1978-1980.
- Post-Doctoral Research Associate, Department of Zoology, Mississippi State University, 1977.
- Director of Environmental Education, Youth Conservation Corps for the State of Mississippi, Summer 1976.
Graduate Teaching and Research Assistant, Department of Zoology, Mississippi State University, 1974-1976.

Graduate Teaching Assistant, Department of Biology, Emory University, 1970-1972.

PUBLICATIONS

(Abstracts indicated by an A behind the publication number)

2007

(64A) Hackney, Courtney T., Brooks Avery, David DuMond, Lynn Leonard, Martin Posey, and Troy Alphin. Dynamics of Tidal Swamps in the Cape Fear River Basin Invited presentation to Southeast Estuarine Research Society, Pine Knoll Shores, NC March 2007


2005


2004


2003


2001

Research Federation Conference, St Petersburg, FL. (November)


(59A) Avery, G.B., Jr., C.T. Hackney, and A.N. Clark. Impact of increased salinity on the geochemistry of tidal wetlands: A model for sea level rise. 16th Biennial Estuarine Research Federation Conference, St Petersburg, FL. (November)

(58A) Carrol, D. and C.T. Hackney. Bryophytes as indicators of water level and salinity on the Northeast Cape Fear River, North Carolina. 16th Biennial Estuarine Research Federation Conference, St Petersburg, FL. (November)


2000


**INVITED SEMINARS**

<table>
<thead>
<tr>
<th>Institution</th>
<th>Year</th>
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<tr>
<td>East Carolina University</td>
<td>2006</td>
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<tr>
<td>College of Charleston</td>
<td>1999</td>
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<tr>
<td>East Carolina University</td>
<td>1995</td>
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<td>University of Georgia, Institute of Ecology</td>
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<td>Savannah River Ecology Laboratory</td>
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<td>Coastal Carolina College</td>
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<td>University of Virginia</td>
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<td>Rutgers University</td>
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<td>Emory University</td>
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<td>University of Southern Mississippi</td>
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<td>Tulane University</td>
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NATIONAL AND INTERNATIONAL PROFESSIONAL MEETINGS

2005
Estuarine Research Federation, Biennial Meeting, Virginia Beach VA

2003
Estuarine Research Federation, Biennial Meeting, Seattle, WA
5th Annual Southern and Caribbean Coastal Managers, Charleston, SC

2001
Phragmites Australis – Technical Workshop & Workshop, Vineland, New Jersey
Estuarine Research Federation, Biennial Meeting, St Petersburg, Florida

FUNDED RESEARCH GRANTS AND CONTRACTS


MEMBERSHIP AND SERVICE IN PROFESSIONAL SOCIETIES

- Sigma Xi, full membership
- Ecological Society of America, Southeastern Section, Vice Chairperson, 1985-1987
  Chairperson, 1990-1992
- Association of Southeastern Biologists, Executive Board, 1984-1987
- Society of Wetland Scientists
  President, 1986-1987
  Vice-President, 1985-1986
  Newsletter Editor, 1983-1985
  Program Chairman, 1984-1985, 1981-1983
  North Carolina Estuarine Sanctuary Program Advisory Board, 1983-1992
  Zeke's Island Estuarine Sanctuary Technical Advisory Board, 1983-1984
  Louisiana Evangeline Planning Committee Technical Committee, 1979-1980
Courtney T. Hackney
Page 5

- **ESTUARIES**, Associate Editor, 1978-1983
  Gulf Estuarine Research Society Program Chairman, 1978-1980

**RESEARCH INTERESTS**

All topics in Wetland and Estuarine Ecology, including energetics of salt and tidal marsh/swamp communities, populations, dynamics of wetland fauna, and recovery of wetland communities after disturbance. Impact of sea level rise to coastal wetlands is currently of special interest.
Name: Patricia H. Kelley

Education:
College of Wooster  Geology  B.A., 1975
Harvard University  Geology  A.M., 1977, Ph.D., 1979

Appointments:
University of North Carolina Wilmington: Chair, Dept. Earth Sciences, 1997-2003, Professor, 1997-present
University of North Dakota: Professor and Chair, Dept. Geology and Geol. Engr., 1992-1997
National Science Foundation: Program Director for Geology & Paleontology, 1990-1992
New England College, Instructor, 1979

Publications:


**Presentations:**

*With published abstracts: (Note: only one student in PhD Biology program to date; numerous student coauthors in MS GLY program)*


Presentations without published abstracts:

Darwin Day lecture, “Evolution and Creation: Conflicting or Compatible?” UNCW, public lecture, 2/12/07
Panelist for screening (with film-maker) of *Flock of Dodos* (film on intelligent designing controversy), East Carolina University, 1/16/07.

National Association of Geoscience Teachers Distinguished Speaker engagements:
- “Controversial topics in the classroom: [how] do I dare discuss them?” Valdosta State University, science seminar series, 3/8/07
- “The arms race from a snail’s perspective: evolution of the naticid gastropod predator prey system,” Lafayette College, departmental seminar, 3/5/07
- “Evolution and Creation: Conflicting or Compatible?” Lafayette College, public lecture, 3/5/07
- “Teaching Evolution with Integrity and Sensitivity,” University of Idaho, teacher workshop, 2/23/07
- “Teaching Evolution with Integrity and Sensitivity,” University of Florida, departmental seminar, 2/23/07
- “The arms race from a snail’s perspective: evolution of the naticid gastropod predator prey system,” University of Idaho, departmental seminar, 2/22/07
- “Evolution and Creation: Conflicting or Compatible?” University of Idaho, public lecture, 2/22/07
- “The arms race from a snail’s perspective: evolution of the naticid gastropod predator prey system,” Idaho State University, departmental seminar, 2/21/07
- “Evolution and Creation: Conflicting or Compatible?” Idaho State University, public lecture, 2/20/07

Paleontological Society Distinguished Lecturer engagement:
- “Evolution and Creation: Conflicting or Compatible?” Syracuse University, Keynote Speaker for Central New York Earth Science Student Symposium, 3/1/07

“The arms race from a snail’s perspective: evolution of carnivorous moonsnails and their victims,” School of Earth Sciences and Department of Evolution, Ecology & Organismal Biology, Ohio State University, 11/2/06

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geological Sciences, University of North Carolina, Chapel Hill, 9/14/06

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geological Sciences, University of Alabama, 1/20/06

“Evolution and Creation: Conflicting or Compatible?”, public lecture for University of Alabama ALLELE (Alabama Lectures on Life’s Evolution) series, 1/19/06

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geology, SUNY-Geneseo, 11/10/05
“The arms race from a snail’s perspective: evolution of carnivorous moonsnails and their victims,” Calvert Marine Museum, Solomons, MD, 9/10/05

“Evolution and Creation: Conflicting or Compatible?”, public lecture at Western Washington University, 4/27/05

“Science, Policy, and Evolution”, panel presentation, UNCW Sigma Xi meeting, 4/20/05

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geology, College of Wooster, 4/14/05

“Evolution and Creation: Conflicting or Compatible?” Twenty-Fourth Annual Richard G. Osgood Jr., Memorial Lecture, College of Wooster, 4/14/05

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geology, Georgia Southern University, 3/3/05

“The history of drilling gastropod predation,” Department of Stratigraphy, Paleontology and Marine Geosciences, University of Barcelona, 2/7/05

“The arms race from a snail’s perspective: evolution of the naticid gastropod predator-prey system,” Department of Geology, University of Buffalo, 10/29/04.

“Predator-prey interactions in the fossil record: naticid gastropod drilling in time and space,” CORONA (Coordination of Research on the North Atlantic) meeting, Plymouth, UK, 7/30/04.

“Role of the scientist in influencing the teaching of evolution vs. creationism,” Geological Society of America annual meeting, Seattle, WA, 11/2/03.


“The Fossil Record of Predation: Introduction to the Short Course,” Paleontological Society Short Course at the Geological Society of America annual meeting, Denver, CO, 10/26/02.

“Evolution and Creationism: Conflicting or Compatible?” Kick-off speaker for Darwin Week at the College of Charleston, Charleston, SC, 2/11/02.

**Grants:**

UNCW Center for Teaching Excellence grant for student assistance in developing resources for teaching paleontology -- $250, 2004


UNCW Center for Marine Science, “Potential Coevolution of Predatory Busyconine Gastropods and Dangerous (?) Bivalve Prey” -- $18,125, 2000-2001

National Science Foundation, “Integrating Research and Education in Paleontology and Marine Ecology: An Inquiry-based Grade 6 – 8 Curriculum that Investigates Spatial and Temporal Patterns in Naticid Gastropod Predation,” -- $53,170 (UNCW subcontract), 2000-2001 (collaborative project with Jack Hall and Thor Hansen); $23,672 supplement and extension received through 1/31/03.

Honors, Awards, Professional Service Special Achievements:

Honors:
National Association of Geoscience Teachers Distinguished Speaker, 2006-2007
Elected Centennial Fellow of the Paleontological Society, 2006
Invited Speaker, ALLELE 2005-2006 (Alabama Lectures on Life’s Evolution), 2006
University of North Carolina Wilmington Faculty Scholarship Award, 2005
24th Annual Richard G. Osgood, Jr., Memorial Lecturer, College of Wooster, 2005
Elected Fellow of the American Association for the Advancement of Science, 2004
Association for Women Geoscientists Outstanding Educator Award, 2003
University of North Dakota Elwyn B. Robinson Lecturer, 1996
Elected Fellow of the Geological Society of America, 1995
University of North Dakota Sigma Xi Faculty Award for Outstanding Scientific Research, 1995
Outstanding Faculty Member of the School of Engineering, University of Mississippi, 1989-1990
National Science Foundation Graduate Fellowship, 1976-1979
Salutatorian, College of Wooster, 1975
Sigma Xi, June 1975
Phi Beta Kappa, June 1974

Offices held:
President, UNCW chapter of Sigma Xi, 2006-2007
Past-President and member of Executive Committee, Paleontological Research Institution, 2006-
President, Board of Trustees, Paleontological Research Institution, 2004-2006
First Vice President, Board of Trustees, Paleontological Research Institution, 2003-2004
Board of Trustees, Paleontological Research Institution, 2003-present
Past-President, Paleontological Society, 2002-2004
Associate Editor, Palaios, 2002-present
President, Paleontological Society, 2000-2002
President-Elect, Paleontological Society, 1998-2000
North Dakota EPSCoR Steering Committee, 1997
Chair, Nominating Committee of Geology and Geography Section, American Association for the Advancement of Science, 1996-1997
Chair, North Central Section of the Paleontological Society, 1995-96
Vice-Chair, North Central Section of the Paleontological Society, 1994-95
Member at Large, Executive Committee, North Dakota Academy of Science, 1993-1996
Chairperson, Southeastern Section of the Paleontological Society, 1984-1985
Chairperson-elect, Southeastern Section of the Paleontological Society, 1983-1984
Co-Liaison, Mississippi Committee of Correspondence on Creation/Evolution, 1982-1990
Name: Stephen T. Kinsey

Education:
Old Dominion University  Biological Sciences  B.S., 1987
University of South Florida  Marine Science  M.S., 1991
Florida State University  Biological Science  Ph.D., 1996

Professional Experience:
2003-present  Associate Professor, University of North Carolina Wilmington, Department of Biology and Marine Biology
1997-2003  Assistant Professor, University of North Carolina Wilmington, Department of Biology and Marine Biology
1996-1997  NIH Postdoctoral Research Fellow, National High Magnetic Field Laboratory
1992-1995  Research/Teaching Assistant, Florida State University, Department of Biological Sciences
1988-1991  Research Assistant, University of South Florida, Department of Marine Science
1988-1991  Research Assistant, Florida Marine Research Institute
1987-1988  Research Assistant, Old Dominion University, Department of Biological Sciences

Publications (since 2000):


Presentations (since 2000):


Extramural Funding (since 2000):


*National Science Foundation*: “Collaborative Research: Muscle fiber size as a determinant of metabolic design”, Lead P.I., S.T. Kinsey, B.R. Locke (P.I. at Florida State University) and T.S. Moerland (co-P.I. at Florida State University), $562,377 ($278,577 to UNCW), 8/15/03 - 8/14/07.


*NC Sea Grant*: “Connecting coastal ocean processes and estuarine-dependent fisheries: impacts of the Cape Fear River plume on recruitment”, P.I., T. Lankford, co-P.I.s M. Posey, T. Alphin, A. Wilbur and S. Kinsey, $10,000, 7/1/01 - 6/30/02.


Intramural Funding (since 2000):


UNCW Information Technologies Innovation Grant: “Acquisition of DNA microarray technology in support of investigations of human biologic responses to hypoxia”, P.I., R.D. McCall, co-P.I.’s S.T. Kinsey and D. Frierson, Jr., $26,000, 4/1/00 – 5/31/00.

Honors, Awards and Professional Service (since 2000):
NSF Advisory Panel, Fall 2007 (IOS, Physiological and Structural Systems Cluster, Processes Structure and Integrity Program)
Officer nominating committee, Society for Integrative and Comparative Biology, Comparative Physiology, January 2007.
Secretary, UNCW Chapter of Sigma Xi, 2000-2006
Meeting session chair, Society for Integrative and Comparative Biology, Phoenix, 2007.
Meeting session chair, Society for Integrative and Comparative Biology, San Diego, 2006.
Research Reassignment, UNCW, Spring Semester, 2005
Member, UNCW Institutional Animal Care and Use Committee, 2002-present.
Graduate student won best student poster and runner-up award at the SICB meeting in San Diego (Hardy and Kinsey, 2005)
Graduate student won best student poster award at the SICB meeting in New Orleans (Johnson et al. 2004).
Kinsey and Moerland (2002) paper was highlighted in issue of the Journal of Experimental Biology.
Heather Natalie Koopman

Education:
University of Guelph, Canada  Marine Biology/Biochemistry  B.Sc. 1992
University of Guelph, Canada  Zoology  M.Sc. 1994
Duke University, NC  Environment  Ph.D. 2001

Appointments:
2003-present  Assistant Professor, Biology & Marine Biology, UNCW
2001-2006  Research Associate, NMNH, Smithsonian Institution
1995-present  Senior Biologist, Grand Manan Whale & Seabird Research Station, Canada

Publications:

**2002**


**Presentations:**

**2007**


**2007**


**2007**


**2006**


**2005**


**2005**


**2005**


**2005**


**2003**


**2003**


Grants Received:


2004

**Honors, Awards, Professional Service:**

- Society for Marine Mammalogy 1997 – present (elected Secretary 2006)
- American Physiological Society 2003 – present
- Sigma Xi 2004 – present
- Fisheries Society of the British Isles 2007 – present
- American Oil Chemists’ Society 1998 – 2001

**Reviewer for:**

Anatomical Record
Comparative Biochemistry and Physiology
Endangered Species Research
Environmental Pollution Bulletin
Harbor Branch Oceanographic Institution
Journal of Cetacean Research and Management
Journal of Morphology
Marine Mammal Science
NSF Antarctic Biology
NSF Ocean Sciences
Physiological and Biochemical Zoology
Proceedings of the Indiana Academy of Sciences
Member of: NSF Antarctic Biology and Medicine Panel Review 2004
Name:  Thomas E. Lankford, Jr.

Education:
- University of North Carolina Wilmington  Biology  B.S.  1986
- University of Delaware  Marine Biology  M.S.  1993
- University of Delaware  Marine Biology  Ph.D.  1997
- SUNY Stony Brook  Postdoctoral Associate  1997-1999

Appointments:
- 2006-present  Associate Professor, UNCW Department of Biology & Marine Biology
- 2000-2006  Assistant Professor, UNCW Department of Biology & Marine Biology
- 1997-1999  Postdoctoral Research Associate, SUNY Stony Brook
- 1993-1999  Graduate Research Assistant, University of Delaware

Publications:


**Presentations:**

2007 Report


• Imhoff, J., T.E. Lankford and S. Gruber. 2006. Foraging ecology of juvenile lemon sharks in Bimini, Bahamas: application of ultrasonic accelerometry to monitor feeding events. 86th Annual Meeting of The American Society of Ichthyologists and Herpetologists, New Orleans, LA, 7/06


2006 Report

**Branson, A.C., T.E. Lankford, J.W. Morley and J.A. Buckel.** Fish assemblage structure of ocean surf-zone habitats at Wrightsville Beach, North Carolina. 20th Annual Meeting of The Tidewater Chapter, American Fisheries Society. Atlantic Beach, NC 1/06.


**Collier, W.R.** Influence of gillnet mesh size on bycatch composition in the N.C. coastal kingfish fishery. 2006 SEDAR Meeting, Charleston, SC, 2/06


Alphin, T., M. Posey and T. Lankford. 2005. Assessment of faunal pattern (distribution and composition) in the Cape Fear River Plume. 34th Annual Benthic Ecology Meeting, VA 5/04


Tyner, C.E. and T.E. Lankford. 2004. Development of an otolith-based taxonomic key to common marine fishes of North Carolina for the identification of dietary remains of
piscivorous predators. Contributed Poster. Southern Regional Honors Conference, UNCW. 4/04


Holst, S.L. and T.E. Lankford. Evaluation of the capacity for compensatory growth in black sea bass (Centropristis striata) and southern flounder (Paralichthys lethostigma). Contributed talk. American Fisheries Society 2003 Southern Division Meeting, Wilmington, NC.


Simone, M., T. Lankford, and K. Bruce. 2003. Social interactions based on male size and melanism in Gambusia holbrooki, the eastern mosquitofish. 2003 Sigma Xi Annual Meeting, UNCW Chapter, Wilmington, NC, 3/03.


Lankford, T.E. Fisheries Recruitment in Onslow Bay: Influences of the Gulf Stream and Cape Fear River plume. Presentation to UNCW CORMP Scientific Advisory Board, 2/03.

Simone, M., T. Lankford, and K. Bruce. 2003. Social interactions based on male size and melanism in Gambusia holbrooki, the eastern mosquitofish. Contributed talk. 100th Annual Meeting of The North Carolina Academy of Science, Wilmington, NC. 3/03


Grants:

2007
Recruitment dynamics of bluefish (Pomatomus saltatrix): coastwide patterns of juvenile recruitment. NOAA National Marine Fisheries Service/Rutgers CMER Bluefish Research Program. $90,000. Funded 8/1/06-7/31/08. Co-PI with J. Buckel

2006
2005

2004


Southeast Atlantic Marine Monitoring and Prediction Center: 2003 Coastal Ocean Research and Monitoring Program (CORMP). NOAA $1,200,000 (Co-PI)

Characterizing red drum populations in southeastern North Carolina: definition of estuarine nurseries and contribution to recruitment. UNCW CMS Pilot Project. $24,863 (w/ F. Scharf)


2003


Investigation of the evolution of a relocated tidal inlet and associated shoreline changes: Mason Inlet, NC. UNCW CMS Pilot Project. $40,000. 2002. (Co-PI w/ Cleary, Rogers)

Biochemical, pollutant, and demographic analysis of a mature Atlantic sturgeon (Acipenser oxyrhyncus) from the Cape Fear River. Progress Energy Company. $2,000. 2002. (PI)
Connecting coastal ocean processes and estuarine-dependent fisheries: impacts of the Cape Fear River plume on recruitment. $10,000. NC Sea Grant (co-PI w/ M. Posey, T. Alphin, A. Wilbur, S. Kinsey)

Characterizing red drum populations in southeastern North Carolina: definition of estuarine nurseries and contribution to recruitment. UNCW CMS Pilot Project. $24,863 (Co-PI w/ Scharf)

2002

Evaluation of the capacity for compensatory growth in black sea bass (Centropristis striata) and southern flounder (Paralichthys lethostigma). $33,937. U.S. Environmental Protection Agency STAR Graduate Fellowship (w/ graduate student S.L. Holst)

Investigation of the evolution of a relocated tidal inlet and associated shoreline changes: Mason Inlet, NC. $40,000. UNCW Center for Marine Science Pilot Program.

Marine Science Research Pilot Project (co=PI w/ W.J. Cleary and S.M. Rogers). SE Atlantic Marine Monitoring and Prediction Center: 2001 Coastal Ocean Research and Monitoring Program. $925,000 NOAA (co-PI w/ Bingham, Cahoon, Cooper, Durako, Leonard, Mallin, Moss, Posey)

Connecting coastal ocean processes and estuarine-dependent fisheries: impacts of the Cape Fear River plume on recruitment. $10,000. NC Sea Grant (co-PI w/ M. Posey, T. Alphin, A. Wilbur, S. Kinsey)
CURRICULUM VITAE

Michael A. Mallin

Present Position:
Research Professor, Center for Marine Science, University of North Carolina at Wilmington, 5600 Marvin K. Moss Lane., Wilmington, NC. 28409. Telephone (910) 962-2358 (office), (910) 790-0381 (home).
Email: mallinm@uncwil.edu
Lab website: http://www.uncw.edu/cmsr/aquaticecology/laboratory/

Education:

Professional Experience:
University of North Carolina at Wilmington. Research Professor 2001-present.  
College of Charleston, Adjunct Professor of Environmental Studies, appointed 2003  

Peer Reviewed Articles:


**Book Chapters:**


**Proceedings, Technical Reports and other publications:**


Presentations to Professional Organizations:


Duernberger, K., C. Tobias and M. Mallin. 2007. “Isotopic enrichment levels of an urbanized southeastern tidal creek”. Joint Meeting of the Atlantic Estuarine and Southeastern Estuarine Research Societies, Atlantic Beach, N.C.


Gerhart, R., L.B. Cahoon, J.D. Willey and M.A. Mallin. 2006. “Apatite For destruction: evaluating the ability of organic acids to mobilize P in marine environments”. Meeting of Southeastern Estuarine Research Society, Savannah, GA.


Moss, M., Cooper, W., Durako, M., Leonard, L., Mallin, M., Bingham, F., Posey, M., Lankford, T., Pietrafesa, L. and Spivak, A. 2001. “Coastal ocean research and monitoring project at the University of North Carolina at Wilmington”. SE-COOS Meeting, Miami, Florida.


**Grants Awarded:**


"Stormwater Runoff and Water Quality of Wilmington Watersheds" - $70,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, February 2007.

"Environmental Research in the New Hanover County Tidal Creek System" - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, January 2007.


“Bald Head Creek Environmental Assessment” - $16,000 (P.I.s M.A. Mallin and M.R. McIver), Village of Bald Head Island, August 2006.

“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $70,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, December 2005.


"Environmental Research in the New Hanover County Tidal Creek System" - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, August 2005.


“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $70,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, February 2005.

“Restoring Burnt Mill Creek Watershed” - $45,000 (P.I. Mallin), North Carolina State University / US EPA 319 Program, November 2004.

"Water Quality Analysis of New Hanover County’s Tidal Creeks” - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, October 2004.


“Is There a Relationship Between Phosphorus and Fecal Microbes in Aquatic Sediments?” - $50,000 (P.I.s L.B. Cahoon and M.A. Mallin), North Carolina Water Resources Research Institute, January 2004.

“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $70,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, December 2003.


"Water Quality Analysis of New Hanover County’s Tidal Creeks" - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, September 2003.


“Lower Cape Fear River Program” - $16,400 (P.I.s M.A. Mallin and J.F. Merritt), Town of Carolina Beach, April 2003.

“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $70,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, October 2002.


“Water Quality Analysis of the Mason’s Inlet Relocation Project” – $35,000 (P.I. M.A. Mallin), New Hanover County Engineering Department, January 2002.

“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $68,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, October 2001.

“Water Quality Analysis of New Hanover County’s Tidal Creeks” - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, September 2001.


“Stormwater Runoff and Water Quality of Wilmington Watersheds” - $68,000 (P.I.s M.A. Mallin and J.F. Merritt), City of Wilmington, October 2000.

“Water Quality Analysis of New Hanover County’s Tidal Creeks” - $60,000 (P.I.s M.A. Mallin and J.F. Merritt), New Hanover County, August 2000.

Awards:

UNCW Information Technology Innovation Award 2002, for River Run, An Interactive Web Site for Analyzing River Ecology Data

Name:

**Education:**
Florida State University  Biological Science  B.S., 1981  
Case Western Reserve University  Environmental Health Science  M.S., 1988  
SUNY at Stony Brook  Ecology and Evolution  Ph.D, 1994  

**Postdoctorals**
UC Davis  Center for Population Biology  06/94-08/95  
Smithsonian Tropical Research Inst.  Naos Marine Lab.  01/96-12/98  
Florida State University  Biological Science  01/99-12/99  

**Appointments:**
08/06-  Associate Professor, Department of Biological Sciences and Center for Marine Science, University of North Carolina, Wilmington (UNCW)  
01/00-07/06  Assistant Professor, Department of Biological Sciences and Center for Marine Science, UNCW  

**Publications:**

Slaughter, C., Yund, P. O. and M.A. McCartney (accepted). Gamete compatibility between two blue mussel species in allopatry and sympatry. *Biological Bulletin*. Expected publication date within 3 months.


Presentations:


McCartney, M.A. Finding the causes of adaptive evolution of gamete recognition in sea urchins and hybridizing blue mussels. University of Massachusetts, Lowell, Department of Biological Sciences, Departmental Seminar, April 2006.


McCartney, M.A. The evolution of gamete recognition in sea urchins and hybridizing blue mussels. University of South Carolina, Program in Marine Sciences, Departmental Seminar March 2006.


McCartney, M.A. The Trans-Arctic Interchange and blue mussel hybrid zones. Conference on Research in the North Atlantic, Roscoff, France, August 2005


Sommer, K., Wilbur, A. E. and M. A. McCartney Evaluation of hemolymph DNA extraction as a non-lethal method for PCR-RFLP identification of threatened


McCartney, M.A. What causes the adaptive evolution of gamete recognition proteins? University of Nebraska, Lincoln, School of Biological Sciences, Invited departmental seminar, November 2004.


McCartney, M.A. What drives the rapid evolution of fertilization barriers between marine invertebrate species? University of North Carolina at Chapel Hill, Department of Marine Sciences, Invited departmental seminar, September 2004.


McCartney, M.A. The evolution of gamete incompatibility and speciation of marine invertebrates. Eastern Carolina University, Department of Biology Seminar, January 2004.


McCartney, M.A. The evolution of gamete incompatibility and speciation of marine invertebrates. Appalachian State University, Department of Biology Seminar, September 2003.


Grants:

National Science Foundation, Major Research Instrumentation Grant, “Acquisition of instrumentation to enhance the capabilities for research and teaching of the DNA Analysis Core Facility at the Center for Marine Science,” Bailey, J.C, Freshwater, D.W., McCartney, M.A., Shafer, T.H., Song, B., Wilbur, A., $192,564, 09/01/06 – 08/31/08, major user.

C.H. Cahill Award, UNCW, Massive introgression of gamete recognition genes in hybridizing blue mussels: cellular and molecular evolutionary studies, 11/01/06-12/31/07, $2,496.


NC Genomics Research Support Grants, "Expressed sequence tags for the blue crab," TH Shafer and JL Wright, (McCartney as collaborator), $150,000.

C.L. Cahill Award. "Development of automated amplified fragment length polymorphism (AFLP) - based DNA fingerprinting and applications in biodiversity estimation and fisheries genetics," $2500, 2002.


CH Cahill Award, Cloning and characterization of microsatellite loci for genetic studies of color pattern morphs in coral reef fishes, genus Hypoplectrus. MA. McCartney, $2,463, 2001-2002.

**Honors, Awards, Professional Service Special Achievements:**


- Reviewer of grant proposals for the National Science Foundation (5 different panels: Biological Oceanography, Population and Evolutionary Processes, International Programs, Behavioral Systems, and Polar Programs), for NOAA’s Chesapeake Bay Program, the New Zealand Marsden Fund, National Geographic Society, the Ecology of Harmful Algal Blooms (ECOHAB) program, the National Fish and Wildlife Federation, and the U.K. National Environmental Research Council.

Name: William McLellan

Education:
College of the Atlantic, Bar Harbor Maine Bachelor of Arts 1988

Appointments:
1995-present Biology & Marine Biology, UNC Wilmington.
2001-present Adjunct Scientist, Mote Marine Laboratory
1993-1995 Department of Biology, James Madison University
1992 Marine Mammal Inventory, NMFS, Southwest Fisheries Science Center

Publications:


Grants:

2006  National Oceanic and Atmospheric Administration, Principal Investigator, *Data collection on the seasonal occurrence of north Atlantic right whales along the mid-Atlantic coast*; 1 year study; $437,429.

2006 National Atmospheric and Oceanic Administration, Prescott Stranding Grant, Principal Investigator: *Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia*; 1 year study; $99,986.

2006 National Marine Fisheries Service, Prescott Stranding Grant, Co-Principal Investigator with Principal Investigator W.A. McLellan: *Enhancing response to and necropsy of stranded large whales in North Carolina, Virginia and South Carolina*; 1 year study, $92,830.

2005 National Atmospheric and Oceanic Administration, Prescott Stranding Grant, Principal Investigator: *Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia*; 1 year study; $99,986.

2005 National Atmospheric and Oceanic Administration, Principal Investigator, *Data collection on the seasonal occurrence of north Atlantic right whales along the mid-Atlantic coast*; 1 year study; $393,764.


2005 Earth Tech, Marine protected species baseline and long-term monitoring plan for the East Coast Shallow Water Training Range, $15,412.


2004 Harbor Branch Oceanographic Institution: *Investigating seasonal patterns in thermoregulatory function in bottlenose dolphins (Tursiops truncatus) from Sarasota Bay, Florida*; 1 year study, Principal Investigator; $82,003.

2004 National Institute of Standards and Technology, Principal Investigator, *Cetacean Biomonitoring for National Institute of Standards and Technology*; 2 year study; $15,000.


2003 National Marine Fisheries Service, Prescott Stranding Grant, Co-Principal Investigator with Principal Investigator W.A. McLellan: *Enhancing response to and necropsy of stranded large whales in North Carolina and Virginia*; 1 year study; $93,262.

2002 PI to UNCW National Marine Fisheries Service: Aerial surveys for endangered right whales in the U.S. mid-Atlantic coast; $120,000.


2001  -PI to UNCW National Marine Fisheries Service: *Development of Large Whale Necropsy Protocol*; 6 month study; $24,950


2001  -Co-PI to UNCW National Marine Fisheries Service: *Measuring Surface and Deep Body Temperatures of Dolphins in the ETP: Is thermal stress associated with Chase and Capture in the ETP-Tuna Fishery?*; Equipment grant; $24,440

2001  -PI to UNCW National Marine Fisheries Service: *Mid-Atlantic Right Whale Aerial Survey*; 2 month study; $59,995

2000  -Co-PI to UNCW National Marine Fisheries Service: *Measuring surface body temperatures of dolphins: is thermal stress associated with chase and capture.* $95,000

2000  -Co-PI to UNCW National Marine Fisheries Service: *Infrared thermography: a potential detection tool for right whales.* $15,000


**Honors, Awards, Professional Service Special Achievements:**

2003  NOAA Environmental Hero Award

North Carolina State Stranding Coordinator
Large Whale Mortality Team Leader
Board of Directors, Right Whale Consortium
Member Atlantic Trawl Take Reduction Team
Member, Pelagic Longline Take Reduction Team
Member, Large Whale Take Reduction Team
Member, Mid-Atlantic Take Reduction Team for Harbor Porpoises
Member, Mid-Atlantic Take Reduction Team for Bottlenose Dolphins
Member, NMFS Large Whale Disentanglement Team for mid-Atlantic
Founding Board Member, Atlantic Dolphin Research Cooperative (now SEAMAMMS)

**Critically Reviewed Manuscripts and Grants for:**

Marine Mammal Science
Aquatic Mammals
National Science Foundation
Prescott Stranding Program
Earthwatch Foundation
Diane Louise Melroy

Education:
Iowa State University, Ames IA 50011        Botany
University of Minnesota, St. Paul, MN 55108      Botany and Biochemistry          B.S.  1981
University of California, Berkeley, CA 94720      Botany          Ph.D. 1987
US Dept of Agriculture/ARS, Beltsville MD      Plant Physiology               1987-1990

Appointments:
Lecturer in Biology, University of North Carolina, Wilmington.
601 S. College Rd. Wilmington, NC 28403   8/00 – present
Assistant Professor of Biology, University of North Carolina, Asheville
One University Heights, Asheville, NC  28804.  7/94-7/00
Assistant Professor of Biology, Siena Heights College
1247 E. Siena Heights Dr.  Adrian, MI 49221.  9/90-8/94
Research Affiliate Plant Physiologist, United States Department of Agriculture, Agricultural Research Service,
Beltsville MD 20705.  6/87-7/90
Graduate Teaching Associate, Department of Botany, University of California, Berkeley  1/87-6/87
Graduate Research or Teaching Assistant, Department of Botany, University of California, Berkeley 9/81-12/86

Honors, Awards, Professional Service Special Achievements:
UNCW Lecturer of the Year, 2007

UNCW CTE Teaching Initiative, for proposal “Communicating Science to Children”, 2005
Name: Joel J. Mintzes

**Education:**
University of Illinois, Chicago    Biological Sciences    B.S. 1970  
University of Illinois, Chicago    Biological Sciences    M.S. 1971  
Northwestern University    Science Education    Ph.D. 1974  
(Biology)

**Appointments:**
Professor/Associate Professor UNCW 1979-1987; 1987-Present  
Assistant Professor University of Windsor, Ontario; 1974-1979

- Fulbright-Technion Fellow (2004-5)  
- Education in Technology and Science  
- Technion-Israel Institute of Technology  
- Haifa, Israel

- Visiting Scholar (2004)  
- Department of Ecology  
- Providence University  
- Taichung, Taiwan (Republic of China)

- Visiting Professor (2003)  
- Homi Bhabha Centre for Science Education  
- Tata Institute of Fundamental Research  
- Mumbai (Bombay), India

- Senior Research Fellow (1998-2001)  
- National Institute for Science Education  
- University of Wisconsin  
- Madison, Wisconsin 53706

**Publications:**

**Papers**


**Books/Chapters**


**Presentations:**

I have given dozens of presentations but I don’t have any record of them.

**Grants:**

$7,500 (2001-2004) National Science Foundation. Subcontract through the Harvard-Smithsonian Center for Astrophysics Department of Science Education. PI: Joel J. Mintzes. “Factors Influencing College Science Success”


**Honors, Awards, Professional Service Special Achievements:**

2004-5 Fulbright-Technion Fellow Israel Institute of Technology, Haifa
2004 Visiting Fellow in Ecology, Providence University Taichung, Taiwan
2003 Visiting Professor Tata Institute of Fundamental Research, Bombay
1998-2001 Senior Fellow National Inst Science Education, Madison, WI

Name:
D. Ann Pabst

Education:
University of Maryland   Zoology   BS, 1982
Duke University    Zoology   PhD, 1989

Appointments:
2004-present  Graduate Coordinator &Assistant Chair, Department of Biology and Marine Biology, UNCW
2002-present  Professor, Department of Biology and Marine Biology, UNCW
2002-2007  Adjunct Faculty, Old Dominion University
2001-present  Adjunct Scientist, Mote Marine Laboratory
1998-2002  Associate Professor, Department of Biological Sciences, UNCW
1995-1998  Assistant Professor, Department of Biological Sciences, UNCW
1991-1995  Assistant Professor, Department of Biology, James Madison University.
1994-96  Summer Visiting Instructor, School of the Environment, Duke University Marine Laboratory
1989-1991  Izaak Walton Killam Postdoctoral Fellow, Department of Zoology, University of British Columbia
1987-1989  Cocos Training Grant in Morphology Fellow, Department of Zoology, Duke University
1984-1986  Research Assistant, S.A. Wainwright, Department of Zoology, Duke University

Publications:


Presentations:
2007

2005


2003-2004


2002


2001


Grants:
2006 Geo-Marine Incorporated (through Duke University), Co-Principal Investigator with Andrew Read, Charles Borchers and William A. McLellan: Long-term monitoring of protected species in the USWTR; 1 year study, $295,965.
2006 National Atmospheric and Oceanic Administration, Co-Principal Investigator with Principal Investigator W.A. McLellan: Right whale data collection along the mid-Atlantic coast; 1 year study, $437,849.
2006 National Atmospheric and Oceanic Administration, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia; 1 year study; $98,240.
2006 National Atmospheric and Oceanic Administration, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia; 1 year study; $99,986
2006 National Marine Fisheries Service, Prescott Stranding Grant, Co-Principal Investigator with Principal Investigator W.A. McLellan: Enhancing response to and necropsy of stranded large whales in North Carolina, Virginia and South Carolina; 1 year study, $92,830
2005 National Atmospheric and Oceanic Administration, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia; 1 year study; $98,587
2005 National Atmospheric and Oceanic Administration, Co-Principal Investigator with Principal Investigator W.A. McLellan: Data collection on the seasonal occurrence of north Atlantic right whales along the mid-Atlantic coast; 1 year study; $393,764
2005 Center for Marine Science Equipment Fund, Co-Principal Investigator with Principal Investigator H. N. Koopman: Why wax? Investigation of the influences of phylogeny and ontogeny on wax ester content in the blubber of odontocetes, and comparison of physical properties of blubber containing waxes with blubber containing triacylglycerols; 1 year study; $21,483
2005 NOAA-Fisheries, Office of Protected Resources, Principal Investigator: UNCW Participation in St. Joseph’s Bay bottlenose dolphin bio-monitoring program; 1 year study, $56,823
2005 EarthTech, Marine protected species baseline and long-term monitoring plan for the East Coast Shallow Water Training Range; 1 year study, $15,412
2005 National Marine Fisheries Service, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia; 1 year study; $98,587
2004 Center for Marine Science Equipment Fund, Co-Principal Investigator with Principal Investigator H. N. Koopman: Analysis of marine lipids: a powerful tool for examining health status, physiological adaptations and trophic interactions of marine vertebrates; 1 year study; $31,356
2004 Center for Marine Science Pilot Project, Co-Principal Investigator with Principal Investigator H. N. Koopman: Ontogeny of the structure and organization of the complex lipids in the mandibles of the bottlenose dolphin (Tursiops truncatus): Does a young dolphin possess the same acoustic apparatus as an adult?; 1 year study; $21,483
2004 National Institute of Standards and Technology, Co-Principal Investigator with Principal Investigator W.A. McLellan: Cetacean Biomonitoring for National Institute of Standards and Technology; 2 year study; $15,000
2003 National Marine Fisheries Service, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina and Virginia; 1 year study; $94,046
2003 National Marine Fisheries Service, Prescott Stranding Grant, Co-Principal Investigator with Principal Investigator W.A. McLellan: Enhancing response to and necropsy of stranded large whales in North Carolina and Virginia; 1 year study; $93,262
2003 Harbor Branch Oceanographic Institution: Investigating seasonal patterns in thermoregulatory function in bottlenose dolphins (Tursiops truncatus) from Sarasota Bay, Florida; 1 year study, Principal Investigator; $82,003
2003 Center for Marine Science Pilot Project, co-Principal Investigator with Laela Sayigh: Integrating thermal and acoustic measurements as potential indicators of stress in wild bottlenose dolphins, Tursiops truncatus; 1 year study; $36,272
2002 National Marine Fisheries Service, Prescott Stranding Grant, Principal Investigator: Enhanced tissue collection and health monitoring of stranded marine mammals in North Carolina; 1 year study; $100,000
2002 National Marine Fisheries Service, Prescott Stranding Grant, Co-Principal Investigator with Principal Investigator W.A. McLellan: Enhanced evaluation of human interactions with bottlenose dolphins (Tursiops truncatus) in North Carolina and Virginia; 1 year study; $74,240
2002 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: Development of Large Whale Necropsy Protocol; 6 month study; $15,780 (supplement to 2001 award)
2002 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: Mid-Atlantic Right Whale Aerial Surveys; 6 month study; $120,000
2002 Harbor Branch Oceanographic Institution: Investigating seasonal patterns in thermoregulatory function in bottlenose dolphins (Tursiops truncatus) from Sarasota Bay, Florida; 1 year study, Principal Investigator; $73,900
2002 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: Mid-Atlantic Right Whale Aerial Surveys; 6 month study; $118,348
2001 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: Development of Large Whale Necropsy Protocol; 6 month study; $24,950
2001 National Marine Fisheries Service, Principal Investigator: Measuring Surface and Deep Body Temperatures of Dolphins in the ETP: Is thermal stress associated with Chase and Capture in the ETP-Tuna Fishery?; Equipment grant; $24,440
2001 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: Mid-Atlantic Right Whale Aerial Survey; 2 month study; $59,995
2000 National Marine Fisheries Service, Principal Investigator: Measuring Surface and Deep Body Temperatures of Dolphins in the ETP: Is thermal stress associated with Chase and Capture in the ETP-Tuna Fishery?; 1 year study; $94,889
2000 National Marine Fisheries Service, Principal Investigator: Assessing the Nutritional Status of Gray and Bowhead Whales; 1 year study; $17,600
2000 National Marine Fisheries Service, Principal Investigator: Infrared thermography: a potential detection tool for right whales; 1 year study; $15,000
2000 National Institutes of Health, National Research Service Award Individual Postdoctoral Fellowship, Mentor for Dr. Shelley Etnier: Ontogenetic Variation of Axial Stability in Dolphins; 3 year study; $87,676
2000 North Carolina Sea Grant, Principal Investigator: Assessment of Modified Gillnets as a Means to Reduce Bycatch in Southeastern North Carolina Coastal Waters; 1 year study; $53,105
2000 National Marine Fisheries Service, Co-Principal Investigator with Principal Investigator W.A. McLellan: *Aerial Surveys to Investigate Interactions between Fisheries and Marine Mammals along the Coast of the Mid-Atlantic*; 1 year study; $88,273

**Honors, Awards, Professional Service Special Achievements:**
- 2005-present Member, Dolphin Conservation Center (at Marineland’s) Research Advisory Group
- 2005 Reviewer, NOAA Prescott Stranding Grants
- 2005 Abstract review, 16th Biennial, Society for Marine Mammalogy
- 2005 Co-Host, Southeast Region Biennial Marine Mammal Stranding Meeting
- 2005 Co-Chair, Southeast and Mid-Atlantic Marine Mammal Symposium
- 2004-present Associate Editor, *Marine Mammal Science*
- 2004-present Member, Committee of Scientific Advisors, Society for Marine Mammalogy
- 2004-present Graduate Coordinator, Biological Sciences, UNCW
- 2004 Invited Speaker, European Cetacean Society 18th Annual Conference
- 2004 Reviewer, NOAA Ocean and Human Health Initiative Grants
- 2003 Graduate Mentor Award, UNCW
- 2003 Abstract review, 15th Biennial, Society for Marine Mammalogy
- 2003 Reviewer, NOAA Prescott Grants
- 2001 Faculty Scholarship Award, UNCW
- 2001 Invited Speaker, Mid-Atlantic Student Chapter of the Society for Marine Mammalogy, Smithsonian Institution
- 2001 Abstract review, First Annual Southeast and Mid-Atlantic Marine Mammal Symposium
- 2001 Abstract review, 14th Biennial, Society for Marine Mammalogy
- 2000 Co-Chair, Eighth Annual Atlantic Coastal Dolphin Conference, UNCW
- 1998-2002 Secretary, The Society for Marine Mammalogy
- 1995-present Participant, Southeast Regional Marine Mammal Stranding Program
Name: Joseph R. Pawlik

Education:
Univ. of Minnesota, TwinCities Biology BS, summa cum laude, 1982
UC San Diego, Scripps Inst. of Oceanography Marine Biol. PhD, 1988
U. Alberta, Canada (at Friday Harbor Labs, UW) Postdoc 1988-1990
Woods Hole Oceanographic Institution Postdoc 1990-1991

Appointments:
1998- Professor, Department of Biological Sciences and Center for Marine Science, UNCW
1994-98 Associate Professor, Biological Sciences and CMSR, UNC-Wilmington
1991-94 Assistant Professor, Biological Sciences and CMSR, UNC-Wilmington

Publications:
acid profile, and antifouling activity of two congeneric sponges from Hong Kong and the
86. Pawlik, J.R., McMurray, S.E. and Henkel, T.P. 2007. Abiotic factors control sponge ecology in
Metabolites from the Caribbean Sponge Aka coralliphagum. Journal of Natural Products 70: 504-509.
55: 110-114. PDF
octocoral Pseudopterogorgia americana. Marine Ecology Progress Series, 329: 307-310. PDF
reefs: Sponge metabolites differentially affect coral symbiosis in situ. Limnology and
Oceanography 52: 907-911. PDF
81. Odate, S., and Pawlik, J.R. 2007. The role of vanadium in the chemical defense of the solitary
tunicate, Phallusia nigra. Journal of Chemical Ecology 33: 643-654. PDF
activities and microbial diversity of two congeneric sponges (Callyspongia spp.) from Hong
King and the Bahamas. Marine Ecology Progress Series 324: 151-165. PDF
PDF
Pawluk, J.R., and Qian, P.Y. 2006. Description of Fabibacter halotolerans gen. nov., sp. nov. and
Roseivirga spongocola sp. nov. and reclassification of [Marinicola] seohaensis as Roseiviga
77. Lau, S.C.K., Tsoi, M.M.Y., Li, X.C., Plakhotnikova, I., Dobretsov, S.V., Wong, P.K., Pawlik, J.R.,
and Qian, P.Y. 2006. Stenothermobacter spongiae gen. nov., sp. nov., a novel member of the
family Flavobacteriaceae isolated from a marine sponge in the Bahamas, and emended
description of Nonlabens tegetincola. International Journal of Systematic and Evolutionary
Microbiology 56: 181-185.
metabolites on bacterial surface colonization. Aquatic Microbial Ecology, 40: 191-203. PDF


Presentations:
138. McMurray, S.E. and Pawlik, J.R. 2006. What causes bleaching of the giant barrel sponge,
Xestospongia muta?: Manipulative experiments. *35th Annual Benthic Ecology Meeting*; 8-12 March, Québec City, Canada.


131. Pawlik J.R. 2005. How expensive is bad taste? The chemical ecology of sponges on Caribbean coral reefs. Invited speaker: 21 June, Department of Zoology, Tel Aviv University, Tel Aviv, Israel.


120. **Cowart, J.D.**, Hentschel, U. and Pawlik, J.R. 2004. The effects of bleaching on the cyanobacterial...
community associated with the giant barrel sponge, *Xestospongia muta*. 33rd Annual Benthic Ecology Meeting; 25-28 March, Mobile, AL.


112. Walters, K. and J.R. Pawlik. 2003. Do chemically defended sponges heal wounds at different rates than sponges that are grazed by fishes? *32nd Annual Benthic Ecology Meeting*; 28-30 March, Groton, CT.


108. Pawlik, J.R. 2002. Chemical defenses of marine invertebrates: are they optimized? Invited speaker: UNCW Department of Biological Sciences, 8 November, Wilmington, NC.


**80. McFall, G., Pawlik, J.R.** 2000. Recruitment and mortality of the barrel sponge *Xestospongia muta* in
the Florida Keys. 29th Annual Benthic Ecology Meeting; 9-11 March, Wilmington, NC.
78. Pisut, D., Pawlik, J.R. 2000. Squirts that hurt: Ascidian chemical defenses against predation. 29th Annual Benthic Ecology Meeting; 9-11 March, Wilmington, NC.

Grants:
2006 NOAA/NURP grant, “Ecology of sponges on Florida reefs: Demography and bleaching” $64,502/2yrs. Sole PI.
2006 NSF Biological Oceanography renewal, “Chemical ecology of sponges on Caribbean reefs.” $542,000/4yrs. Sole PI.
2004 NOAA/NURP grant, “Barrel sponges on Florida reefs: Reproduction, mortality and bleaching” $59,774/2yrs. Sole PI.
2002 NOAA/NURP grant, "Ecology of Caribbean sponges" $46,476/2 yrs. Sole PI.
2001 NSF Biological Oceanography renewal, “Assessing the chemical defenses of Caribbean Invertebrates.” $440,000/4yrs. Sole PI.
2001 US-Israel Binational Science Foundation grant "Photosymbiotic relationships in marine sponges" $229,967/3yrs. PI with M. Ilan and S. Beer.
2000 NOAA/NURP grant, "Ecology of deep-water sponges" $33,490/2 yrs. Sole PI.

Honors, Awards, Professional Service Special Achievements:
2003-05 NSF Ex Officio Member, US Coral Reef Task Force
2003-05 NSF Ex Officio Member, Marine Protected Area Federal Advisory Committee
2003-05 Associate Program Director, National Science Foundation, Biological Oceanography Program
2002 Visiting Professor, Dipartimento di Chimica delle Sostanze Naturali, Universita Degli Studi di Napoli Federico II, Naples, Italy.
2002 Visiting Scholar, Hong Kong University of Science and Technology, Hong Kong, China
1998-07 Chief Scientist, NSF UNOLS expeditions to the Bahamas, R/V Seward Johnson
1999 Visiting Professor, Dipartimento di Chimica delle Sostanze Naturali, Universita Degli Studi di Napoli Federico II, Naples, Italy.
1997- Contributing Editor, Marine Ecology Progress Series
1996-97 Government-University-Industry Roundtable, Federal Demonstration Project, UNCW
1995- Adjunct Associate Professor, Curriculum in Marine Science, UNC-Chapel Hill
1995- Adjunct Assistant Professor, Marine, Earth and Atmospheric Sciences, NCSU
1993-95 Adjunct Assistant Professor, Curriculum in Marine Science, UNC-Chapel Hill
1992-95 Adjunct Assistant Professor, Marine, Earth and Atmospheric Sciences, NCSU
1992-93 Guest Investigator, Woods Hole Oceanographic Institution
1992-96 Editorial Advisor, Marine Ecology Progress Series
CURRICULUM VITAE

MARTIN H. POSEY

Department of Biology and Marine Biology
University of North Carolina Wilmington
601 S. College Road
Wilmington, N.C. 28409
(910) 962-3471

EDUCATION:
Ph.D. 1985 Biology, University of Oregon
B.A. 1980 Zoology with highest honors, University of North Carolina, Chapel Hill
A.A. 1978 General Studies, Charles County Community College, LaPlata, Maryland

PROFESSIONAL EXPERIENCE:
2004- Chair and Professor, Department of Biology and Marine Biology, University of North Carolina Wilmington
1998-2004 Professor, Department of Biological Sciences, University of North Carolina at Wilmington
1994-1998 Associate Professor, Department of Biological Sciences, University of North Carolina at Wilmington
1989-1994 Assistant Professor, Department of Biological Sciences, University of North Carolina at Wilmington
Summers 1990-91; Visiting Scientist/Postdoctoral Fellow, Smithsonian Environmental Research Center.
1987-1989 Postdoctoral Research Associate, University of Oregon
1985 Course Assistant, Marine Biological Laboratory, Woods Hole
1980-1985 Graduate Teaching Fellow/Research Assistant, University of Oregon
1980 Natural Heritage Inventory Specialist, State of North Carolina

PUBLICATIONS:


**GRANTS AND AWARDS:**
Elizabeth City State University, 2007-2008, “Biochemistry and Benthic infauna in swamps and Marshes along the NE Cape Fear and Cape Fear Rivers” $46,281.00 (co-P.I.)

Elizabeth City University, 2007-2008 “Service, Maintain and calibrate remote data collection platforms in swamps and channels in the Cape Fear Basin” $43,421. (co-P.I.)


Cape Fear Memorial Foundation, 2005-2006, “Teaching kits for Physiology Laboratories”, $48,000 (co-P.I.)

North Carolina Sea Grant, Blue Crab Research Program, 2005-2006, “Assessment of blue crab distributions in the Cape Fear River estuary”. $47,264 (co-P.I)


North Carolina Sea Grant Program, 2005, “Monitoring and evaluation of settlement and subsequent community development on oyster sanctuaries”, $5232 (co-P.I.)

NOAA Office of Oceanic and Atmospheric Research, 2004-2005, “Coastal Ocean Research and Monitoring Program (CORMP) at the University of North Carolina at Wilmington”, $2,100,000 (co-P.I.)


North Carolina Sea Grant Program. 2002. Evaluation of spatfall in the Cape Fear estuary. NC. $20,053. (co-P.I.)


Florida Sea Grant Program, 1998-2000, "The role of structural habitats in juvenile blue crab recruitment", $105,000 (co-P.I.)

U.S. Army Corps of Engineers - Wilmington District, 1998-2000, "Monitoring of benthic faunal responses to sediment removal associated with the Carolina Beach and vicinity-area south project", $56,000 (lead P.I.)


North Carolina Sea Grant Program, 1995-1998, "Interactive effects of nutrient enhancement and
predation on estuarine community trophic structure", $134,931 (lead P.I.).


Florida Department of Natural Resources, 1990-1995, "Fundamental design parameters for artificial reefs: interactions of patch reef spacing and size", $150,000/year (Associate Investigator).


NOAA Cooperative Institute of Fisheries Oceanography, 1991, "Utilization of oyster patches by
infaunal and epibenthic organisms", $9980.


Coastal Zone Management Program, 1990, "Effects of *Hydrilla verticillata* on bottom communities in the upper Chesapeake Bay", $15,000 (co-P.I.).


Smithsonian Institution Postdoctoral Fellowship, 1987-1989, "The role of a predatory shrimp in structuring an estuarine bottom community", $40,000


**SEMINARS AND PAPERS PRESENTED WITHIN PAST 5 YEARS (italics indicate student authors):**


Wilbur, A., J. Gauthier, T. Alphin and **M. Posey.** 2007. Preliminary investigations into the
occurrence of a novel parasite (Bonamia sp.) in the eastern oyster, Crassostrea virginica. Southeast Estuarine Research Society Meetings.


Sonnier, J., M. Posey and A. Alphin. 2006. Influence of oyster reef vertical complexity in structuring species specific interactions and trophic linkages. 98th annual Meeting of the National Shellfisheries Society.

Colosimo, S., M. Posey and T. Alphin. 2006. Perkinsus marinus infection in oysters from southeastern North Carolina tidal creeks with varying water quality. 98th annual Meeting of the National Shellfisheries Society.


Carnegie, Stokes, Audemard, Burreson, Bishop, Peterson, Wilbur, Alphin and Posey. 2006. Potential impact of Bonamia sp. on Crassostrea ariakensis in Chesapeake Bay and North Carolina. 98th annual Meeting of the National Shellfisheries Society.

port surveys for invasive marine species in the South Atlantic Bight. International Conference on Aquatic Invasive Species.


Alphin, T.D., **M.H. Posey** and A. Wilbur. 2004. Comparison of oyster (*Crassostrea virginica*) growth and survival based on stock origin in North Carolina estuaries. 7th International Conference on Shellfish Restoration


epifaunal utilization of tidal wetlands across an estuarine gradient in response to changing salinity, tidal amplitudes, and flow. Estuarine Research Federation Biennial Meetings.


Alphin, T.D., **M.H. Posey** and J. Hartsell. 2003. Laboratory and field comparison of habitat utilization by *Callinectes sapidus* and *Callinectes similis*. Marine Benthic Ecology Meetings


**Posey, M.H.** 2002. Invited seminar at East Carolina University, Top-down versus bottom-up limitation in benthic infaunal communities: direct and indirect effects.


TEACHING EXPERIENCE:

Course Instructor:

1989-present: Assistant/Associate/Full Professor, University of North Carolina at Wilmington. Ecology (both large, >120 students, and small lectures as well as labs), Advanced Ecology, Marine Ecology, Critique of Scientific Literature, Senior Seminars in Benthic Ecology and Mariculture, lectures in Estuarine Ecology, Coastal Sedimentary Environments, and Honors Seminar, co-taught and assisted with development of BIO 602 (Ph.D. Core course), observer for Tropical Ecology course taught in Ecuador, helped developed and update Ecology Laboratory Manual used by UNCW Ecology courses since 1993.


Course Assistant:
1985: Marine Biological Laboratory, Woods Hole. Marine Ecology
1980-1985: Graduate Teaching Fellow, University of Oregon. Animal Biology,
   Biological Communities, Biology of Cells, Biology of Estuarine Systems,
   Biology of Fishes, Ecology of Marine Vertebrates, Evolution and Ecology,
   Invertebrate Zoology, Marine Biology, Molecular Basis of Life.
1978: Charles County Community College: General Zoology, General Botany.

PROFESSIONAL SOCIETIES AND SERVICE:
Voted 2000 recipient of the UNCW Faculty Scholarship Award
Society Memberships: American Association for the Advancement of Science; Estuarine
   Research Federation; North Carolina Academy of Sciences; Southeastern
   Estuarine Research Society; Sigma Xi (President of local chapter 2000-2001);
   Ecological Society of America; National Shellfisheries Association
Have served on the editorial staff for the journals Marine Ecology Progress Series,
   Journal of Experimental Marine Biology and Ecology, and Journal of Shellfish
   Research.
Adjunct faculty with North Carolina State University, University of North Carolina at
   Chapel Hill, and University of South Alabama.
North Carolina Crustacean Fisheries Advisory Committee (appointed twice)
Advisory Board for Carteret Community College Mariculture Program and Brunswick
   Community College Aquaculture Program
Invited participant in Southeast Atlantic Fisheries Council Ecohab workshop –
   subsequently asked to develop model metrics for benthos
North Carolina Division of Coastal Management Estuarine Biological and Physical
   Processes Work Group
North Carolina Oyster Restoration Steering Committee
North Carolina Division of Water Quality ad hoc work group on coastal swamp
   indicators
Co-organizer of 2000 Benthic Ecology Meetings (UNC-Wilmington; ~700 participants)
Received Research Reassignment Awards from UNCW in 1997 and 2003.
Participant in U.S.A.C.E. National Tidal Fringe Workshop
Received UNCW “Million Dollar Club” and “Five Million Dollar Club” awards for
   grant funding
N.C. Sea Grant Assistant Director search committee
UNCW committees, 1990-2004 (partial list): UNCW Faculty Senate, UNCW Building
   and Grounds Committee, Estuarine and Coastal Systems Program Coordinator,
   Center for Marine Science (CMS) Internal Advisory Committee, UNCW
   Chancellor’s Advisory Committee, Faculty Senate Evaluation Committee, CMS
   Outdoor Space Committee Chair, CMS First Floor Space Committee Chair, CMS
   Seawater Committee, CMS Small Boat Committee, CMS Outdoor Research
   Areas Committee Chair, College of Arts and Sciences Faculty Scholarship
   Selection Committee, Biology Department Graduate Advisory Committee,
   Biology Chair’s Advisory Committee, Biology Equipment Committee, Biology
   Ad Hoc Computer Committee, Biology Curriculum Committee, Biology Ad Hoc
Committee on Ph.D. Curriculum Development, search committees for Dean, Chair and various faculty positions.


GRADUATE THESES DIRECTED (Graduated students):
Craig Dahlgren, M.S. 1994. The effects of bioturbation on the infaunal community adjacent to an offshore hardbottom reef.
  an integrated modeling and field study.
Lindsay Hancock, M.S. 1999. Relationship between marsh patch size and nekton distribution.
Norman Dax Allen, M.S. 2000. Distribution and abundance of the juvenile blue crab (*Callinectes sapidus*) in the Cape Fear River estuary.
M. Posey

reared juvenile flounder.
Meredith Owens, M.S. 2003. Growth, reproduction and survivorship of *Streblospio benedicti* and *Laeonereis culveri* exposed to varying food types.
David Meyer, Ph.D. (first Ph.D. graduate from UNCW). 2006. Comparison of nekton utilization of smooth cordgrass (*Spartina alterniflora*) marsh based on marsh size and degree of isolation from like habitat: do size and site location matter?
Steven Artabane, M.S. 2006. The effects of proximity to a subtidal channel on habitat utilization of intertidal oyster reefs.

UNDERGRADUATE HONORS THESES DIRECTED:
13 Undergraduate Honors Theses completed under my supervision between 1995 and 2007.
CURRICULUM VITAE

Linda Foerst Potts, Ph.D.
Biology Lecturer

PERSONAL:
Work Address: University of North Carolina Wilmington
Department of Biology and Marine Biology
NSB#2 1034F
Wilmington, NC 28403
E-mail: Pottsl@uncw.edu
Webpage: http://people.uncw.edu/pottsl/coursehomepage.html
Phone: Work: (910) 962-3352
Home: (910) 796-9652

EDUCATION:
Ph.D., University of North Carolina at Chapel Hill
Major: Cell Biology and Anatomy

B.S., University of Missouri at Columbia
Columbia, Missouri 1988-1992
Major: Honors Biology

TEACHING AND WORK EXPERIENCE:
Lecturer of Biology
University of North Carolina Wilmington 1999-present
Courses: Bio 105: Concepts of Modern Biology (lecture/lab)
Bio 204: Principles of Biology: Cells (lecture/lab)
Bio 204/Chem 101: Pre-Health Professions
Learning Community
Bio 325: Molecular Biology of the Cell
Bio 325: Molecular Biology of the Cell Laboratory
Bio 495: Senior Seminar- Molecular/Medical Bioethics
Bio 240: Anatomy and Physiology I (lecture/lab)
Bio 241: Anatomy and Physiology II (lecture/lab)

Visiting Assistant Professor of Biology
University of North Carolina Wilmington 1998-1999
Courses: Bio 105: Concepts of Modern Biology (lecture/lab)
Bio 110(204): Principles of Biology: Cells (lecture/lab)

Instructor of Biology at Queens College
Courses: Human Anatomy, Human Physiology, Senior Biology.

Instructor of Biology
The Princeton Review 6/96-8/96
Providence Day School
Course: Fundamentals of Biology in preparation of the MCAT

Teaching Assistant
University of North Carolina-Chapel Hill 1993-1994
Course: Medical Embryology laboratory
TEACHING AND WORK EXPERIENCE CON’T:

Research Intern
Howard Hughes Medical Institute 1991-1992
University of Missouri-Columbia
Project: The role of Fascilin II in spinal cord development

Research Intern
Monsanto Agricultural Company 5/91-8/91
St. Louis, Missouri
Project: Environmental impact of pesticides

Teaching Assistant
Howard Hughes Medical Institute 1/91-5/91
University of Missouri-Columbia
Course: Advanced Biology

RECOGNITIONS, HONORS AND AWARDS:
Lecturer of the Year Award
Center for Teaching Excellence 2006

Recognized every year as UNCW faculty who have had a significant impact on graduating seniors 2000-present

Nominated for Who’s Who Amongst America’s Teachers 2003-2004

Outstanding Tri-Beta Advisor of the Year Award 2004-2005

Teratology Society Young Investigators Travel Award 1995

University of North Carolina-Chapel Hill Research Assistantship 1993-1996

ACTIVITIES, COMMITTEES, AND ORGANIZATIONS:
University of North Carolina Wilmington
Activities:
Faculty advisor to Tri-Beta Biological Honor Society 1998-present

Pre-Health Professions Learning Communities Faculty Leader Fall 2004
Exploring Careers in Health

Faculty Mentor Program for Lecturers 2003-2004

Tri-Beta Southeast District Convention-faculty representative 2001
Traveled with four UNCW students presenting research

Establishment of UNCW Sigma Sigma chapter of Tri-Beta Biological Honor Society 1998-1999

Committees:
Scholarship Committee Chair 2000-present
Honors Thesis Committee for Kathryn Roege 2005-present
Search and Screen Committee for Lab Coordinator Position 2005-2006
Master’s Thesis Committee for Samantha Johnson 2004-present
Honor’s Thesis Committee for Alexis Oldham 2004-2005
Bio 110/205/206 Curriculum Committee 2002-2003
Equipment Committee 2002-2003
Library Committee 1999-2003
Search and Screen Committee for Lecturer position 1999 and 2001
Local Arrangement Committee for ASB meeting 1998-1999

COMMITTEES, ACTIVITIES, AND ORGANIZATIONS CON’T:

Queen’s College: Scholarship Committee 1997-1998
Library Committee 1996-1997

Organizations:
Association of Southeastern Biologists 1999-present
Tri-Beta National Honor Society 1990-present

RESEARCH AND PUBLICATIONS:

Dissertation: The Role of Msx-1, Msx-2, and HNF-3Beta in Inductive Tissue Interactions Important in Craniofacial and Axial Development Using Antisense Oligonucleotide Technology and Mouse Whole Embryo Culture

Publications:


The Role of Msx-1 and Msx-2 in Development Using Antisense Technology with Murine Whole Embryo Culture: L. Foerst Potts and T.W. Sadler. Teratology
REFERENCES:

Martin H. Posey, Ph.D.
Professor and Chairman
Department of Biology and Marine Biology
Dobo Hall 102A
University of North Carolina Wilmington
601 South College Road
Wilmington, NC 28403
(910) 962-3470

Ronald K. Sizemore, Ph.D
Professor Marine Microbiology
Associate Director for Academic Planning
Center for Marine Science
Myrtle Grove 1118
5600 Marvin K. Moss Lane
Wilmington, NC 28409
(910) 962-2304

Dr. Scott Quackenbush, Ph.D.
Associate Dean for Marine Science Programs
Humboldt State University
Telonicher Marine Laboratory
P.O. Box 690
570 Ewing St.
Trinidad, CA 95570
(707) 826-3671
SONJA J. PYOTT

EDUCATION:

Penn State University  Biochemistry and Molecular Biology  B.S.  May 1999
Stanford University  Neuroscience  Ph.D. Jan 2006
Johns Hopkins University  Otolaryngology Postdoctoral Fellow  Aug to Dec 2006

APPOINTMENTS:

Research Assistant Professor (Jan 2007 – Present)  
University of North Carolina Wilmington  
Department of Biology and Marine Biology  
Wilmington, NC 28403

Postdoctoral Fellow (Aug 2006 – Present)  
Johns Hopkins School of Medicine  
Department of Otolaryngology Head and Neck Surgery  
Baltimore, MD 21209  
Laboratory of Dr. Elisabeth Glowatzki

Postdoctoral Researcher (Jan 2006 – Feb 2006)  
Graduate Student (Jan 2001 – Dec 2005)  
Stanford University School of Medicine  
Department of Molecular and Cellular Physiology  
Stanford, CA 94305  
Laboratory of Dr. Richard Aldrich  
Graduate Thesis: “Characterization of BK Channels in Mouse Cochlear Hair Cells”

Max Planck Fellow (July 2000 – Dec 2000)  
Max-Planck-Institute for Biophysical Chemistry  
Department of Membrane Biophysics  
Goettingen, Germany  
Laboratory of Dr. Christian Rosenmund

Undergraduate Research Assistant (Jan 1997 – Aug 1999)  
Penn State University  
Department of Chemistry  
University Park, PA 16802  
Laboratory of Dr. Andrew G. Ewing  
**SONJA J. PYOTT**

**Undergraduate Research Assistant** (Jan 1996 – Aug 1999)
Penn State University
Department of Biology
University Park, PA 16802
Laboratory of Dr. S. Blair Hedges

**PUBLICATIONS:**


**GRANTS:**

- Deafness Research Foundation Research Grant June 2007 – June 2008
- Association for Research in Otolaryngology Travel Grant Feb 2005
- Linda McCormick Travel Grant Nov 2003
- NSF Graduate Research Fellowship Sep 2002 – Sep 2005
- Max Planck Fellowship July 2000 – Dec 2000

**Professional Memberships:**

- Society for Neuroscience
- Biophysical Society
- Association for Research in Otolaryngology
- American Academy of Audiology
- American Society for Biochemistry and Molecular Biology
CURRICULUM VITAE
Robert D. Roer

EDUCATION:

Brown University  Aquatic Biology  Sc.B.  1974
Duke University  Zoology  Ph.D.  1979

ACADEMIC AND PROFESSIONAL EXPERIENCE:

Dean of the Graduate School and Research, 2002-present.
Professor, Department of Biology and Marine Biology, University of North Carolina Wilmington, 1990-present.  Assistant Chair for Graduate Studies, 1994-2002.
Assistant Professor and Associate Research Physiologist, 1979-1985; Associate Professor, 1985-1990.  Assistant Director of the Institute for Marine Biomedical Research, University of North Carolina Wilmington, 1981-1986.
Visiting Scientist, Zoology Department, University of Reading, England, 1975.

PUBLICATIONS (Since 2000):


**PRESENTATIONS (since 2000):**


**GRANTS (since 2000):**


UNC General Administration and Sloan Foundation, “Implementation of a Professional Master’s
Degree Program in Environmental Science”. Robert Roer – PI, Jeff Hill, co-PI. $29,500 from October 2006 - June 2007.
Name: Sentiel A. Rommel

Education:
U.S. Naval Academy, Annapolis, MD  Physics  1966. B.S.

University of Maine, Orono, ME  Electrical Engineering  1970.  M.S.
University of Maine, Orono, ME  Biological Oceanography  1972.  Ph.D.


Appointments:
Aug 2006 to present. Lecturer, Department of Biology and Marine Biology, University of North Carolina Wilmington, Wilmington, NC.

Jul. 2001 to Aug 2006. Research Director, Marine Mammal Pathobiology Lab, Fish and Wildlife Research Institute, Florida Fish & Wildlife Conservation Commission, St. Petersburg, FL.

Jul. 1996 to Jul 2001. Research Staff, Marine Mammal Pathobiology Lab (MMPL), Florida Marine Research Institute, Florida Department of Environmental Protection, St. Petersburg, FL.


Sep. 1994 to present. Adjunct Faculty and Research Associate, Department of Biology and Marine Science, Eckerd College, St. Petersburg, FL.

Jan. 1999 to present. Adjunct Faculty, The Department of Biology and Marine Biology, University of North Carolina Wilmington.

Mar. 1999 to present. Adjunct Scientist, Mote Marine Laboratory, Sarasota Florida. Conduct studies on the gross anatomy of marine mammal skeletons and investigate the physiological aspects of thermoregulation and buoyancy in Florida manatees.


Sep. 1992 to Sep. 1995. Visiting Scientist, Department of Biology, James Madison University, Harrisonburg, VA.

Jun. 1987 to Aug. 1987. Summer Faculty, Graduate School of Education, University of Maine, courses offered in Bar Harbor, ME.
Sep. 1977 to Sep. 1986. Faculty Member, College of the Atlantic, Bar Harbor, ME.

Sep. 1979 to Sep. 1985. Director, Natural History Museum, College of the Atlantic, Bar Harbor, ME.


Sep. 1976 to Aug. 1977. Research Associate in Zoology, University of Maine, Orono, ME.

Apr. 1975 to Aug. 1976. Research Associate in Psychiatry, Yale School of Medicine, New Haven, CT.


Jun. 1966 to Nov. 1967. Ensign U.S. Navy (USS Kepler, DD 765): Gunfire Control Officer, Squadron Diving Officer, Public Relations Officer (in September 1966 transferred to U.S. Naval Base, Yokosuka, Japan, because of a spinal injury during storm at sea) while at Yokosuka I was the Assistant Athletic Director. Responsible for the $100,000 yearly athletic equipment budget, assisted in the general management of the athletic facilities, head basketball coach, and assistant coach in wrestling and football.

Publications:


Presentations:


Haubold, E., and Rommel, S.A. 2005. Implications of disease outbreaks, brevetoxin mortality, and cold stress on Florida manatee (Trichechus manatus latirostris) population dynamics. IAAAM Seward, AK

Rommel, S., Costidis, A., Pitchford, T., Lightsey, J., Haubold, E. 2005. Forensic Methods for Characterizing Watercraft Components from Watercraft Induced Wounds in Florida Manatees
IAAAM Seward, AK


**Grants:**

n/a

**Honors, Awards, Professional Service Special Achievements:**
- US National Marine Fisheries Service, Bottlenose Dolphin Take Reduction Team
Name: Richard Satterlie

Education:
Sonoma State University (California)  B.A.  1973
University of California, Santa Barbara  Ph.D.  1978
University of Alberta (Canada)  Post-Doc  1978-1980

Appointments:
UNCW - Frank Hawkins Kenan Distinguished Professor of Marine Biology  2004 – present
Arizona State University  Professor  1991 – 2004
Arizona State University  Associate Professor  1985 – 1991
Arizona State University  Assistant Professor  1980 – 1985
University of Alberta  Lecturer  1979 – 1980

Publications:

Presentations:
2007 Poster Presentations – 2007 annual meeting of the Society for Integrative and Comparative Biology (Phoenix, AZ)
   • Gray, G.C. and R.A. Satterlie. – Ultrastructure of Invaginated Synapses in the Retina of Cubomedusan Complex Eyes
   • Hayward, R. and R.A. Satterlie - Pacemaker coordination in Scyphozoan Jellyfish
   • Jacobson, B. and R.A. Satterlie - Structure and Function of Rhopalial Stalk Musculature in Cubomedusae
2006 Invited Seminar – University of South Carolina – “Neural Control of Locomotory Speed Control in a Flying Mollusk”
2006 Poster presentation - Annual meeting, SICB: Szymik, B, and R.A. Satterlie. Kinematics of Pteropod Swimming from Tethered and Freely Swimming Animals.”
2005 Poster Presentations – 2005 annual meeting of the Society for Integrative and Comparative Biology
   • Thomas, K.S. and R.A. Satterlie. “How do Jellyfish Turn? Neuromuscular Considerations”
   • Szymik, B.G. and R.A. Satterlie. “A Three-Dimensional Analysis of Pteropod Swimming at Different Speeds”

Grants:
1999 National Science Foundation – (Co-PI) “IGERT: Musculo-Skeletal and Neural Adaptations in Form and Function” – 5 years, $2,699,999.
2000 NIH – RO1 – “Neural Control of a Ballistic Startle Response” 3 years, $471,529
2001  John Simon Guggenheim Memorial Foundation Fellowship – “Modular and Multifunctional Nature of Arousal Systems” - 1 year, $26,161

2004  National Science Foundation – “Acquisition of a Confocal Microscope” (co-PI) 3 years, $310,173

Honors and Awards:
2002  John Simon Guggenheim Memorial Foundation Fellowship (Academic Year 2002-03)

Other Creative Activities:
Novels published and under contract:

*Phoenix*  Historical Fiction  Whiskey Creek Press, July 2006

*Something Bad*  Horror  Medallion Press, October 2007

*Agnes Hahn*  Psychological Suspense  Medallion Press, Due out August 2008

*Imola*  Psychological Suspense  Medallion Press, Due out in 2009


Name: Frederick S. Scharf

Education:
2001  Ph.D., Wildlife and Fisheries Conservation, University of Massachusetts, Amherst.
1997  M.Sc., Wildlife and Fisheries Biology, University of Massachusetts, Amherst.
1994  B.Sc., Biology major/Marine Sciences minor, State University of New York at Stony Brook.

Appointments:
Jan 2003 – Present    Assistant Professor, Department of Biology and Marine Biology, University of North Carolina at Wilmington, Wilmington, NC
August 1998 – August 2001 Graduate Research Assistant, Department of Natural Resources Conservation, University of Massachusetts, Amherst
July 1997 - August 1998 Fisheries Biologist, Coastal Fisheries Division, Texas Parks and Wildlife Department
August 1994 - July 1997 Graduate Research Assistant, Department of Forestry and Wildlife Management, University of Massachusetts, Amherst
January 1993 - August 1994 Research Assistant, Marine Sciences Research Center, State University of New York at Stony Brook

Publications:
Scharf, F.S., J.A. Buckel, and F. Juanes. In review (submitted April 2007). Contrasting patterns of resource utilization between juvenile estuarine piscivores: the influence of relative prey size and foraging ability on the ontogeny of piscivory. Canadian Journal of Fisheries and Aquatic Sciences


Presentations: (presenter is underlined; students are in bold)


Smith, W.E. and F.S. Scharf. Harvest mortality and maturity of southern flounder based on a tag-return


Ostrowski, A.D. and F.S. Scharf. Backcalculation of birth date distribution and early growth of juvenile southern flounder (*Paralichthys lethostigma*). Oral presentation at the Larval Fish Conference (held jointly in 2006 with the annual AFS meeting), Lake Placid, NY, September 2006.


Stewart, C.B. and F.S. Scharf. Spatial and temporal variability in recruitment timing and relative
abundance of juvenile red drum (*Sciaenops ocellatus*) in southeastern North Carolina. Oral presentation given at the Tidewater Chapter (AFS) annual meeting, Atlantic Beach, NC, February 2006.


**Foster, C.R.** and F.S. Scharf. Ontogenetic and seasonal variation in the diet of juvenile red drum (*Sciaenops ocellatus*). Poster presented at the AFS Southern Division mid-year meeting, Virginia Beach, VA, February 2005.

**Scharf, F.S., J.A. Buckel, F. Juanes, K.A. Rose, and J.H. Cowan, Jr.** Impact of prey dynamics on growth of age-0 estuarine bluefish: an individual-based modeling approach. Annual Meeting of the American Fisheries Society, Quebec City, Quebec, August 2003

**Scharf, F.S., J.P. Manderson, and M.C. Fabrizio.** The effects of seafloor habitat complexity on survival of juvenile fishes: species-specific interactions with habitat. Poster presented at the Annual Meeting of the American Fisheries Society, Quebec City, Quebec, August 2003


**Scharf, F.S., J.A. Buckel, and F. Juanes.** Susceptibility of juvenile fishes to estuarine piscivores: are all forage species created equal? Presented at the Southern New England Chapter (AFS) Summer Meeting, Hadley, MA, June 2001. *Southern New England Chapter Best Student Paper Award*

**Scharf, F.S., J.A. Buckel, and F. Juanes.** Susceptibility of juvenile fishes to estuarine piscivores: are all forage species created equal? Presented at the Annual Meeting of the American Fisheries Society-Early Life History Section, Gulf Shores, AL, November 2000. *Honorable Mention - Sally Richardson Best Student Paper Award*


**Grants:**

NOAA Cooperative Research Program: Batch fecundity and spawning frequency as a function of size, age, and season for black sea bass and red porgy in the US South Atlantic
Scharf, F.S. (co-lead PI w/Baker), Baker, M.S., Wyanski, D., Burgess, T., and Shertzer, K.  
Funded at $222,716 for 8/1/07 – 7/31/09

North Carolina Sea Grant: Predation by red drum on juvenile blue crabs: estimation of daily ration and seasonal and ontogenetic variation in the contribution of blue crab to the diet  
Scharf, F.S. (sole PI)  
Funded at $46,041 for 8/1/07 – 7/31/09

North Carolina Sea Grant: Catch potential and condition of shrimp and bycatch associated with a new RCGL shrimp trap design, and evaluation of commercial traps in different regions of SE NC  
Thorpe, T.E. and Scharf, F.S. (co-PI)  
Funded at $15,416 for 6/1/06 – 12/31/07

North Carolina Sea Grant: Post-release mortality of sub-legal sized southern flounder in the North Carolina gill net fishery  
Smith, W.E., Sullivan, F., and Scharf, F.S. (co-PI to help with design and analysis)  
Funded at $21,365 for 6/1/07 – 8/1/08

North Carolina Sea Grant: Estimating mortality of age-0 red drum: an educational partnership to examine factors affecting recruitment  
Scharf, F.S. (lead PI) and Harrill, P.  
Funded at $64,071 for 8/1/06 – 5/31/08

North Carolina Sea Grant: Exploitation rate and demographics of southern flounder in the New River gillnet fishery  
Scharf, F.S. (lead PI) and Sanderford, B.R.  
Funded at $78,325 for 5/1/05 – 4/30/07  
Received supplement of $8,360 in March 2007 for 5/1/07 – 10/30/07

North Carolina Sea Grant: Post-settlement growth and winter distribution of juvenile red drum  
Scharf, F.S. (sole PI)  
Funded at $5,000 for 10/1/04 – 12/31/05

North Carolina Sea Grant: Relative abundance of early juvenile and sub-adult red drum in the Cape Fear River estuary: an evaluation of the contribution of a southeastern North Carolina estuary to fishery recruitment  
Scharf, F.S. (lead-PI) and Beresoff, D.A  
Funded at $41,150 for 4/1/04 – 12/31/05

**Honors, Awards, Professional Service Special Achievements:**

**Awards:** Received the Conference of Southern Graduate Schools 2005 Achievement Award for New Scholars in Life Sciences

Reviewed proposals for: Bluefish-Striped Bass Dynamics Research Program (NOAA), Cooperative Marine Education and Research Program (NOAA), National Science Foundation (NSF), Texas Sea Grant, Georgia Sea Grant, Hudson River Foundation

Society Memberships: American Fisheries Society, Early Life History Section (AFS), Tidewater Chapter (AFS), North Carolina Chapter (AFS), Southern Division Representative for Marine Fisheries Section (AFS), North Carolina Member at Large, Tidewater Chapter (AFS).

Committees: North Carolina Division of Marine Fisheries Southeast Regional Advisory Committee, North Carolina Division of Marine Fisheries Red Drum Advisory Committee, Cape Fear Community College Marine Technology Program Advisory Committee, AFS Early Life History Section Student Travel Awards Committee

List of students graduating since 2000:

Jason Lanier (MS degree in 2006): employed with PPD Pharmaceuticals, Inc., Wilmington, NC

Chris Stewart (MS degree in 2006): employed with North Carolina Division of Marine Fisheries, Wilmington, NC

Stephanie McInerny (MS degree in 2007): employed with National Oceanic and Atmospheric Administration, Beaufort, NC
Name: Thomas H. Shafer

Education:

Duke University Botany B.S. 1970
Ohio State University Forest Science (Genetics) M.S 1973
Ohio State University Developmental Biology Ph.D. 1975
Ohio State University Post-doc in plant molecular biology 1975-76

Appointments:

Professor University of North Carolina Wilmington 2007-present
Associate Professor University of North Carolina Wilmington 1992-2007
Assistant Professor University of North Carolina Wilmington 1978-1992
Visiting Assistant Professor University of Illinois 1977-78
Visiting Assistant Professor Denison University 1976-77

Publications:


Coblentz, FE, DW Towle and TH Shafer. 2006. Expressed sequence tags from normalized libraries prepared from gill and hypodermal tissues of the blue crab, Callinectes sapidus. Comp. Biochem. Physiol., Part D (Genomics and Proteomics) 1:200-208. (available on Science Direct)


Presentations:


Shafer, TH. 2006. Expressed sequence tag sequencing to identify genes involved in exoskeleton calcification in the blue crab. (invited Symposium presentation) Society for Integrative and Comparative Biology, Orlando, FL.


Shafer, TH. 2005. Genes that Make Crabs Hard (or not): A Transcriptome Approach. Department of Biological Sciences, Auburn University, Auburn, AL.


Roer, RD, TH Shafer, DW Towle and KH Powell. 2004. Localization and partial sequence of a postmolt cuticular glycosidase from *Callinectes sapidus*. Society for Integrative and Comparative Biology, New Orleans, LA.

Kennedy, PJ and TH Shafer. 2004. Cloning of a cDNA encoding a protein potentially associated with calcification of the cuticle from the blue crab, *Callinectes sapidus*.


Shafer, TH. 2002. Mineralization of the cuticle of the blue crab, *Callinectes sapidus*: Biochemistry and molecular genetics. Symposium: Current Topics on Marine Invertebrates, Graduate School of Life Sciences, Tohoku University, Sendai, Japan and School of Fisheries, Kitasato University, Sanriku, Japan.

Shafer, TH. 2002. The Blue Crab Exoskeleton as a Model System for Mineralization. Biology Department, College of William and Mary, Williamsburg, VA.


**Halbrook, KE**, RD Roer, TH Shafer, **DC Pierce** and KD Butler. 2001. Partial purification of a postmolt cuticular glycosidase from *Callinectes sapidus* and its putative role in mineralization. Society for Integrative and Comparative Biology, Chicago, IL.

**Grants:**


UNC Office of the President, Genomics Research Initiative Grants – Shafer, TH.
"Expressed Sequence Tags for the Blue Crab" $450,000 for four years beginning July 2002

National Science Foundation – Roer, RD, Shafer, TH, Dillaman, RM McCartney, MA. "The Blue Crab Exoskeleton: A Model System for Studying the Control of Biomineralization" $312,872 for four years beginning September 2001
CURRICULUM VITA

RONALD KELLY SIZEMORE

Education:
- Wake Forest University, B.S. Biology, 1969
- University of South Carolina, M.S. Biology, 1971
- University of Maryland, Ph.D. Microbiology, 1975

Appointments:
2002-present  **Associate Director for Academic Planning**, Center for Marine Science, UNCW
1989-present  **Professor**, Department of Biological Sciences, UNC Wilmington
1989-1998  **Chair**, Department of Biological Sciences, UNC Wilmington
1990-1998  **Interinstitutional Member of Graduate Faculty**, North Carolina State University
1984-1989  **Associate Professor**, Department of Biological Sciences, UNC Wilmington
1981-1984  **Assistant Professor**, Department of Biological Sciences, UNC Wilmington
1975-1981  **Assistant Professor**, Department of Biology, University of Houston
1973-1975  **Graduate Research Assistant**, Department of Microbiology, University of Maryland
1972-1973  **Graduate Teaching Assistant**, Department of Microbiology, University of Maryland
1971-1972  **Graduate Fellow**, Department of Biology, Georgetown University
1970-1971  **Belle W. Baruch Research Fellow**, Belle W. Baruch Coastal Research Institute, University of South Carolina
1969-1970  **Graduate Teaching Assistant**, Department of Biology, University of South Carolina

Publications:


Presentations:


2003  **Bost, A** and R. K. Sizemore “Isolation and characterization of bacteriocins from *Vibrio* spp and *Pseudomonas* spp. Attached to aquatic particulate material “ American Society for Microbiology, Washington DC

2003  **Arp, J** and R. K. Sizemore “Planktonic microbial community composition in estuarine waters of southeastern North Carolina as determined by fluorescent in situ hybridization” American Society for Microbiology, Washington, DC

2002  **Arp, J. R.** and R. K. Sizemore “Abundance and distribution of planktonic Archaea in the Cape Fear river estuary in southeastern North Carolina as determined by fluorescent in situ hybridization” American Society for Microbiology, Salt Lake City, Utah

2002  **Cummins, B. A.** and R. K. Sizemore “Occurrence and distribution of *Vibrio cholerae* in the Lower Cape Fear River in Southeastern North Carolina” American Society for Microbiology, Salt Lake City Utah

2000  **Shehane, S** and R. K. Sizemore “Isolation and characterization of bacteriocins against *Vibrio vulnificus*” American Society for Microbiology, Los Angeles

Grants:

2007  “Planning Funds for the Masters Degree in Coastal and Ocean Policy” UNC General Administration. $28,000

2004  “Math and Science Professional Development Network”. (Renewal). UNC Division of University-School Programs. $148,994 Dr. K. Wetherill CoPI

2002  “Isolation and Characterization of Bacteriocins from *Vibrio* spp Attached to Estuarine Particulate Material.” CMS Pilot Project $22,520. J. Wright CoPI.

2002  “Funding for the Blue Heron Bowl” CORE $15,000


2000  “Bacterial Counts of Ships Ballast Water” Nutech-03. $3,150

2000  “Study of Alumina Formation” Apyron Technologies. $30,000. J. Tyrell and W. Cooper CoPIs
Honors, Awards, Professional Service Special Achievements:

- Leader, External Review Team for the Department of Biology, UNCC (2007)
- Fellow, American Association for the Advancement of Science (1996)
- Fellow, American Academy of Microbiology (1990)
BIOGRAPHICAL SKETCH

Bongkeun Song
Assistant Professor
Department of Biology and Marine Biology
University of North Carolina at Wilmington
601 S. College Road, Wilmington, NC 28403-5915
(910) 962-2326
(910) 962-4066 FAX
email: songb@uncw.edu

A. EDUCATION
1994  B. S., Agriculture Biology, Donggook University, Seoul, Korea.
1997  M. S., Environmental Science, Rutgers the State University of New Jersey, New Brunswick, New Jersey.
2000  Ph.D., Environmental Science, Rutgers the State University of New Jersey, New Brunswick, New Jersey.

B. APPOINTMENTS
2004 -  Assistant Professor, Department of Biological Sciences, University of North Carolina at Wilmington.
2002 - 2003 Visiting Scholar, Department of Geosciences, Princeton University.
2000 - 2001 Research Associate, Department of Geosciences, Princeton University.
1996 - 2000 Graduate Research Assistant, Department of Environmental Science, Rutgers the State University of New Jersey, New Brunswick, New Jersey.

C. PUBLICATIONS


**D. PRESENTATIONS**

*Invited seminars and lectures:*


Song, B. 2006. Molecular detection and quantification of arsenate reducers in estuarine sediments. 231st American Chemistry Society National Meeting, Atlanta, GA.

Song, B. 2006 Molecular characterization of uncultured dissimilatory arsenate respiring bacteria (DARB) in the environment. Rutgers University, New Brunswick, NJ.

Song, B. 2006 Molecular characterization of uncultured dissimilatory arsenate respiring bacteria (DARB) in the environment. Columbia University, New York, NY.

Song, B. 2006 Exploring genetic systems involved in anaerobic hydrocarbon degradation. DuPont Inc, Wilmington, DE.


Song, B. 2005. Molecular detection and quantification of microbes involved in arsenic cycle. Department of Chemistry and Biochemistry, University of North Carolina Wilmington, Wilmington, NC.

Song, B. 2005. Biogeography of denitrifying bacteria capable of degrading aromatic compounds. Department of Biology and Marine Biology, University of North Carolina Wilmington, Wilmington, NC.
Song, B. 2004. Implication of functional gene diversity and regulation in microbial ecology: arsenic transformers and marine diatoms. School of Biology, Georgia Institute of Technology, Atlanta, GA.

Song, B. 2004. Molecular approaches to understand bioremediation of aromatic compounds and toxic metals: metagenome and quantitative detection. Department of Environmental Toxicology, University of California at Santa Cruz, Santa Cruz, CA.

Song, B. 2004. Implication of functional gene diversity and regulation in microbial ecology: arsenic transformers and marine diatoms. School of Life Sciences, Arizona State University, Phoenix, AZ.

Song, B. 2003. Anaerobic metabolisms in denitrifying bacteria. Department of Biology, Purdue University, West Lafayette, IN.

Song, B. 2003. Microbial ecology of denitrifying bacteria and marine phytoplankton: anaerobic carbon degradation vs. nitrogen assimilation. Department of Microbiology, University of Tennessee, Knoxville, TN.

Song, B. 2003. Molecular characterization of nitrate assimilation in marine phytoplankton and functional genes encoding anaerobic biodegradation in denitrifying bacteria. Department of Biology, University of South Florida, Tampa, FL.

Song, B. 2002. Denitrifying bacteria capable of degrading aromatic compounds. Department of Environmental Sciences, University of Texas at San Antonio, San Antonio, TX.

**Contributed Oral Presentation**


Song, B. 2005. Molecular detection and quantification of arsenate reducers in the environments. 10th arsenic study group meeting, Mooresville, NC.


**Poster presentation**


Dale, O. R. and B. Song. 2006. Detection and diversity of anaerobic ammonium oxidizing (ANAMMOX) bacteria in the Chesapeake Bay and the Cape Fear River. 106th American Society for Microbiology General Meeting, Orlando, FL.


Song, B. and B. B. Ward. 2001. Benzoyl-CoA reductase and nitrite reductase genes in the aromatic compound degrading genera Azoarcus and Thauera. 9th International Conference on Microbial Genomes, Gatlinburg, TN.


Pavlik-Amato, E. J., B. Song and M. M. Häggblom. 2001. Dehalogenation by the denitrifying bacterium Thauera chlorobenzoica strain 3CB-1. 101st American Society for Microbiology General Meeting, Orlando, FL.


Song, B., L. J. Kerkhof and M. M. Häggblom. 2000. Characterization of denitrifying consortia utilizing 4-chlorobenzoate and 4-bromobenzoate as carbon sources. 100th American Society for Microbiology General Meeting, Los Angeles, CA.

E. GRANTS

2007 University of North Carolina Wilmington
Ahuja Academy of Water Foundation Fellowship: $5,000. PI: B. Song

2006-2008 NOAA;
North Carolina Sea Grant: Microbial nitrogen cycling in the Cape Fear River Estuary: attenuation vs. recycling and the effects of a variable freshwater-saltwater boundary. $136,164 ($38,000 for Song). Co-PI with Craig Tobias, UNCW.

2006 University of North Carolina General Administration;
UNCW Undergraduate Research and Travel Awards: $4,500. PI: B. Song

2006-2007 National Science Foundation;
Starter Grants for Postdoctoral Fellows in Microbial Biology: Molecular detection of diverse arsenic transforming prokaryotes and their activities in anaerobic estuarine sediments. $49,940. PI: B. Song.

2005-2009 National Science Foundation;

2005 University of North Carolina Wilmington;
Summer Research Initiative: *Molecular approaches to discover novel natural products from uncultured marine microbes.* $2,500. PI: B. Song.

2005

University of North Carolina Wilmington;

Marine Science Equipment Pilot Projects: *High throughput robotic instrument for genomic and proteomic research.* $20,000. PI: B. Song.

2001-2002

National Science Foundation

Postdoctoral Fellowship in Microbial Biology: *Genetic diversity of 16S rRNA, nitrite reductase and benzoyl-CoA reductase from benzoate degrading denitrifying bacteria and environmental clones.* $100,000. PI: B. Song.

F. STUDENTS ADVISED

Olivia R. Dale (MS student, UNCW Marine Biology, Completed Spring 2007)

Holly Oates (MS student, UNCW Marine Science, Completed Summer 2007)

Jennifer R. Randolph (MS student, UNCW Marine Biology, On-going)

Jennifer Bagwell (MS student, UNCW Marine Science, On-going)

T. Brian Shirey (MS student, UNCW Marine Biology, On-going)

Matthew Hirsh (MS student, UNCW Marine Science, On-going)

Haewon Park (PhD student at Dr. Morel, Princeton University, On-going)
Name: Amanda L. Southwood

Education:
Auburn University    Marine Biology    B.Sc. 1993
University of British Columbia    Zoology    M.Sc. 1997, Ph.D. 2002
NOAA Fisheries    Marine Biology    Post-doc, 2003-2004

Appointments:
2005- present    Assistant Professor, Department of Biology and Marine Biology
                 University of North Carolina at Wilmington
2004 – 2005    Associate Researcher (Advisor – Dr. J. Yonat Swimmer)
                 NOAA Fisheries & The Joint Institute for Marine and Atmospheric
                 Research, University of Hawaii
2003-2004    Post-Doctoral Fellow (Advisor – Dr. J. Yonat Swimmer)
                 NOAA Fisheries & The Joint Institute for Marine and Atmospheric
                 Research, University of Hawaii
1994-2002    Graduate Research Assistant (Advisor – Dr. David R. Jones)
                 Department of Zoology, University of British Columbia
1993-1994    Principle Laboratory Technician (Supervisor – Dr. Charles Mactutus)
                 Tobacco and Health Research Institute, University of Kentucky
                 Research Experience for Undergraduates Grant (NSF), Department of
                 Biology, Auburn University
1990    Assistant Laboratory Technician (Supervisor – Dr. James Wojciehowski)
                 Environmental Health Research and Testing, Lexington, KY

Publications:
(All publications except Southwood et al. 2006 and Jones. et al. 2004 are available at
http://people.uncw.edu/southwooda/publications.htm )

Southwood, A.L., Higgins, B.M., Brill, R.W., Swimmer, J.Y.  2006.  Chemoreception in
loggerhead sea turtles.  In Sea Turtle and Pelagic Fish Sensory Biology: Developing
Techniques to Reduce Sea Turtle Bycatch in Longline Fisheries. (Eds. Y. Swimmer and
R. Brill). U.S. Department of Commerce, NOAA Technical Memorandum, NOAA-
NMFS-PIFSC-7: p41-56.

Seasonal metabolism of juvenile green turtles at Heron Island, Australia.  Can. J. Zool.


Presentations:

2007 A.L. Southwood. “Physiology and Behavior of Migration in Reptiles”. 7th International Congress on Comparative Biochemistry and Physiology, Salvador, Bahia, Brazil.


2006 A.L. Southwood. “Thermoregulation in leatherback turtles: to be hot or not?”. Duke University Marine Laboratory, Beaufort, NC, USA

2005 A.L. Southwood, D.R. Jones. “Seasonal effects on metabolism and behavior of green sea turtles”. Pacific Islands Fisheries Science Center, NOAA Fisheries, Honolulu, HI, USA

2004 A.L. Southwood. “Thermal ecology of sea turtles: acclimatization, thermoregulation, and everything in between”. Department of Zoology, University of Hawaii, Honolulu, HI, USA

turtles: implications for interactions with fisheries”. Western Pacific
Fisheries Council, Honolulu, HI, USA
2002  A.L. Southwood, D.R. Jones. “Seasonal changes in metabolism and
behavior of green sea turtles”. The Power of Comparative Physiology:
Evolution, Integration, and Application, San Diego, CA, USA
considerations and international law”. Canadian Committee on Animal
Care, Vancouver, BC, Canada
2001  A.L. Southwood, D.R. Jones. “Effects of seasonal temperature variation
on metabolism, heart rate, and blood flow distribution in green sea
turtles”. 21st Annual Symposium on Sea Turtle Conservation and Biology,
Philadelphia, PA, USA

Grants:

2007  “Physiology and Behavior of Migration in Reptiles”. Southwood, A.L.
Faculty International Travel Grant. Funded in the amount of $1,000.
2007  “Upgrade to Animal Physiology Laboratory”. Koopman, H.N., Southwood A.L.
UNCW Biology and Marine Biology Equipment Committee. Funded in the
amount of $2,669. 2007.
2007  “Sea Turtle Nesting Activity on Masonboro Island, NC”. Southwood, A.L. North
Carolina Coastal Reserve (NERR). Funded in the amount of $5,595. 2007.
2006  “Biochemical profiling of sea turtles incidentally captured during commercial
longline fishing operations”. Southwood, A.L. NOAA Pacific Islands Fisheries
Science Center. Funded in the amount of $18,470. 2006-2007
2006  “Health status, post-release behavior, and survivability of sea turtles incidentally
captured in the gillnet fishery of the Lower Cape Fear River”. Southwood, A.L.
and Wolfe, J. North Carolina Sea Grant (FRG). Funded in the amount of
$100,418. 2006-2007
2006  “Leatherback turtle foraging habitat in the North Atlantic Ocean: Implications for
fisheries interactions”. Southwood, A.L. and Kirby, D. Large Pelagics Research
Center (UNH). Funded in the amount of $178,032. 2006-2008
2006  “Refining mortality estimate for sea turtles captured in fishing gear: an
assessment of the physiological and behavioral consequences of entanglement”.
Southwood, A.L. UNCW Summer Research Initiative. Funded in the amount of
2006  “Analysis of heat shock proteins as indicators of oxidative stress in sea turtles”.
Southwood, A.L. UNCW Cahill Award. Funded in the amount of $2,500. 2006.
2006  “Sea Turtle Nesting Activity on Masonboro Island, NC”. Southwood, A.L. North
Carolina Coastal Reserve (NERR). Funded in the amount of $5,000. 2006.
2006  “Upgrade to Animal Physiology Laboratory”. Koopman, H.N., Southwood A.L.
UNCW Biology and Marine Biology Equipment Committee. Funded in the
amount of $3,721. 2006.
Honors, Awards, Professional Service, Special Achievements:

2007  Featured in article on sea turtle biology in “Coastwatch” magazine
2007  Volunteer for Spring 2007 AP Biology Review Session
2007  Session Chair (Population Biology – Water) at the 2007 Annual Symposium on Sea Turtle Biology and Conservation
2007  Student presentation judge at the 2007 Annual Symposium on Sea Turtle Biology and Conservation
2006-2007  Coordinated student and community volunteers (N=17) to monitor nesting activity of sea turtles on Masonboro Island
2006-2007  Faculty coordinator for the Karen Beasley Sea Turtle Rescue and Rehabilitation Center internships
2006-2007  Alternate Member, Institutional Animal Care and Use Committee
2006  Mentor for 2006 Minority Travel Fellows at the APS Intersociety Meeting on Comparative Physiology in Virginia Beach, VA
2006  New Faculty Orientation Mentor
Ann E. Stapleton

Professional Preparation
University of Michigan-Ann Arbor, B.S. (Biology) 1983
University of Chicago, Ph.D. (Genetics) 1990
Postdoctoral Research: UNC-Chapel Hill Maize Pollen Biology 1990-91
Postdoctoral Research: Stanford University Maize Ultraviolet Radiation Responses 1991-1996

Appointments
8/01-present Assistant then Associate Professor, Department of Biological Sciences, University of North Carolina at Wilmington, Wilmington, NC
10/98 and 10/00 International Visiting Professor, taught graduate course on "Plant Molecular Responses to Ultraviolet Radiation", University of Buenos Aires, Buenos Aires, Argentina
8/96-7/01 Assistant Professor, Department of Biological and Environmental Sciences, University of Tennessee at Chattanooga, Chattanooga, TN

Publications


Simmons, S. J. and Ann E. Stapleton (2006) Bayesian hierarchical models to detect quantitative trait loci. Chance


Presentations

Ann E. Stapleton, Susan J. Simmons, Leilani A. Robertson, and James B. Holland Mapping when phenotype measurements are not well behaved: comparison of recursive partitioning with composite interval QTL mapping. 48th Annual Maize Genetics Conference, Lake Geneva, WI 11-14 March 2005


Carletha Blanding, Paula Casati, Virginia Walbot, and Ann E. Stapleton Identification of early expressed genes and genes expressed differently in B73 and Mo17 after UV radiation. 47th Annual Maize Genetics Conference, Mexico City, Mexico 11-14 March 2004


Richbourg, H. L., Morrison, K., Simmons, S. and A. E. Stapleton UV modulation of nitrate reductase activity is controlled by multiple interacting genes. 49th Annual Maize Genetics Conference, St. Charles, IL 22-25 March 2007
Stapleton, A. E., Simmons, S. J., and Kruger, N. Recursive partitioning provides simple and powerful identification of loci and epistasis in recombinant inbred lines. 9th Annual Plant Sciences Symposium Epistasis: Predicting Phenotypes and Evolutionary Trajectories May 31-June 3 1007


Grants Received

CMS Pilot Project “A multi-investigator request for computer software and hardware enhancement of the CMS DNA analysis core facility”

Merck/AAAS Undergraduate Research Grant for Chemistry and Biology, with Dr. Wendy Cory

NSF International: Plant Genetic Control of Phyllosphere Microbial Diversity $20,000

NSF IOB SGER: Characterization of an Arabidopsis thaliana UV-B photoreceptor candidate gene. $16,000.

NSF Plant Genome Research Program A Modular System That Makes Genomic-Scale Analysis Accessible to Biologists $91,882 completed

NSF/AAAS WISC Program Whole-Genome Mapping of UV-B Photoreceptor Loci in Arabidopsis $4,000 completed

UC Foundation Research Associate Award Spring 2000, release time for two classes.

UNC Office of the President: Fostering Undergraduate Research Partnerships through a Graphical User Environment for the North Carolina Grid Ron Vetter, Project Director co-PIs Jeffrey L. Brown, Clayton Ferner, Ned Martin, Ann E. Stapleton at UNCW, collaborative project with six universities, I am the bioinformatics lead $557,634

UNCW Charles Cahill Research Grant 2001-2002

UNCW Summer Research Award 2002

USDA CSREES NRI Genetic Analysis of Ultraviolet Radiation Responses in Zea mays $130,000 current

USDA Resolving Gene-Specific Expression Patterns after RNA Profiling on cDNA Microarrays collaboration with Dr. Virginia Walbot, Stanford University; 5% of my time; co-wrote the proposal and included some of my preliminary data. $341,327 to Stanford (no subcontract allowed) completed

UTC Faculty Research Grant 2000 "Development of an Efficient DNA Analysis Strategy for Phylogenetics Using Stoneflies (Plecoptera)"

Wheeler Odor Research Foundation Grant 2000-2003 "Bioinformatics-Based Discovery and Molecular Analysis of G-Protein Coupled Receptors for Semiochemicals in Maize"
Honors, Awards, Professional Service

Panel Manager for $10 million 2006/2007 CAP Applied Genomics Program USDA CSREES

Mentored under-represented minority student Carletha Blanding in her MS project on time course microarray statistical analysis; she graduated with her MS in Biology in 2005 and is employed as a biostatistician in clinical research at PPD. Carletha was featured as a success story in the UNCW Research magazine.

Jointly taught graduate Bioinformatics class with CS faculty member Thomas Hudson Spring 2006; both CS and Bio graduate students enrolled and worked in cross-disciplinary teams.

Nominated for 1998 UT National Alumni Association Outstanding Teacher Award.

Grant reviewer for USDA NRI Competitive Grants Programs, NSF Division of Undergraduate Education, NSF Eukaryotic Genetics, DOE Basic Biosciences Division


Name: Alina M. Szmant

Education:
University of Puerto Rico, Rio Piedras, PR., Biology B.S. 1966
University of California San Diego, CA, Marine Biology M.S. 1970
University of Rhode Island, Kingston, RI., Biological Oceanography Ph.D. 1980

Appointments:
University of North Carolina Wilmington, Professor, 1999-present
University of Miami, Rosenstiel School of Marine and Atmospheric Science, Professor, 1997-1999; Associate Professor, 1992-1997; Assistant Professor, 1986-1992; Research Assistant Professor, 1983-86
Florida State Univ., Dept. of Oceanography, Research Associate and Adjunct Assistant Professor, 1980-83
Univ. of Rhode Island School of Oceanography, Graduate Research Assistant, 1977-79
Univ. of Rhode Island School of Oceanography, Research Associate, 1974-75
Univ. of Puerto Rico, Dept. of Marine Sciences, Research Associate, 1970-73
Scripps Institution of Oceanography, Research Assistant, 1966-70

Publications:


**Presentations:**


Szmant, A.M. “Factors affecting settlement and survivorship of reef corals: Chemical cues and scary predators” Department of Biology and Marine Biology Seminar, April 27, 2007


Szmant, A.M. Invited Presentation: “Reproductive ecology and larval biology of reef corals” SECore Workshop, La Parguera PR, August 2006


Szmant, A.M. and **B. Mason.** Spatial and seasonal patterns of algal community structure and productivity on Key Largo, FL USA, coral reefs: Do patterns suggest nutrient enrichment is a factor? POSTER 10th Int Coral Reef Symp. Okinawa, Japan, July 2004


Campbell J. E. and A. M. Szmant. Nutrient enrichment and reduced grazing effects on epilithic turf on three Florida coral reefs: its never that simple. POSTER 2002 Benthic Ecology Meetings, Orlando Fl, March 2002

Fogarty N. and A. M. Szmant. Life-history observations of newly settled corals (*Montastraea annularis* species complex) over the first half-year post-settlement. POSTER 2002 Benthic Ecology Meetings, Orlando Fl, March 2002

Szmant, A. M., M. W. Miller, T. Capo, K. Nedimyer, N. Fogarty, K. Morrow and C. Fasano. Experimental evidence that recovery of *Diadema antillarum* populations on Florida reefs is in part predation-limited at the juvenile stage. 2002 Benthic Ecology Meetings, Orlando Fl, March 2002


Szmant A.M. Museum of Coastal Carolina on November 14, 2000 Research for the rescue of coral reefs.


Szmant. A.M. Invited speaker, AAUW Southeast NC Chapter: Research at UNCW for the restoration of coral reefs. May 2001


Grants:

Connectivity of reef corals. Coral Reef Targeted Research and Capacity Building for Management. Large international program duration 5 years. UNCW portion, $43,000 for Yrs 1 and 2; $65k for year 3. World Bank and GEF. Start date 10/1/04 to 5/1/08

Szmant, A.M. Ecological restoration of Florida coral reefs. NOAA via subcontract from Univ of Miami. $73,403 6/1/05 to 6/30/07


Szmant, A.M. NSF SGER Magnetic particles for tracking coral larvae. $23,800 7/1/04 – 6/30/06

Szmant, A.M. Coral settlement and early post-settlement survivorship: Experimental studies of factors that affect recruitment success. NOAA, $120,000. 7/1/05 to 7/31/07. NOAA CCRI as subcontract from University of Puerto Rico proposal. 2 months effort

Szmant, A.M., B. Ruddick, C. Taggart and B. Dixon. Recruitment of Montastraea annularis (species complex): Where are all the larvae going? EPA and NOAA. $94,000. 10/01/03 - 12/31/04.

Szmant, A.M. Recruitment of Montastraea annularis (species complex): Factors that affect post-settlement survivorship. EPA and NOAA. $99,080. 10/01/03 - 12/31/04.
Collaborative Proposal: Coral Reef Genomics: A genome wide approach to the study of coral symbiosis. NSF Special Announcement. Total project $1.14 M for 5 years. co-PI $380,196 to UNCW. 10/01/03 - 6/30/08.

Szmant A.M. and M. W. Miller. Seeding of Wellwood Restoration Site with Larvae of Montastraea faveolata and Monitoring of Spat Survivorship. Response to NCNDD6000-3-00005. NOAA. $70,791. 6/01/03 to 12/31/03.


Szmant, A.M. EPA funded National Center for Caribbean Coral Reef Research at University of Miami: subcontract for: Research on Nutrient Dynamics, Algal Community Structure and Algal Productivity. $189K for 4/1/00 to 4/31/02; additional $92K for 4/31/02 to 12/31/03.


Honors, Awards, Professional Service Special Achievements:

Honors student, Carly Randall, awarded Plotz Award by National Association of Honors Programs, and Honor’s thesis selected as best of year by UNCW (June, Aug 2007)

Member of AAAS selected team to review State of RI NSF EPSCoR Program (January 2007)

Science Advisory Committee for Univ of the Virgin Islands EPSCoR BCCR program (2004 to present)

Doctoral Dissertation Examiner/Disputant for Ingrid Nordemar, Stockholm University, October 2004

External Examiner Doctoral Dissertation for Luis Marquez, James Cook University (2003)
Name: Dr Alison R. Taylor

Education:
Leicester University, UK Biology BSc (Hons) 1985
Brockes University, Oxford, UK Neurobiology PhD 1991
Marine Biological Association, UK Algal Cell Biology PDRA 1990-1996
Harvard University, USA Stomatal Cell Signaling PDRA 1993
UC Davis, USA Root Cell Physiology PDRA 1996-1998
Marine Biological Association, UK Phytoplankton physiology PDRA 1998-1999

Appointments:
Jan 2007- Assistant Professor, Department of Biology and Marine Biology, University of North Carolina, Wilmington, USA
Aug 2006-Dec 2007 Adjunct Assistant Professor, Department of Biology and Marine Biology, University of North Carolina, Wilmington, USA
Aug 2001-Dec 2006 Research Fellow & Senior Research Fellow, Marine Biological Association, UK.
Aug 1999-Jul 2001: Leverhulme Special Research Fellow, Marine Biological Association,

Publications:
*Note: seven non-UNCW graduate students are co-authors on 6 of these publications.


**Published Abstracts**


**Presentations:**

*Note: Ten presentations are co-authored by non-UNCW graduate students.*

1) Taylor A.R ‘Calcification Mechanisms in Coccolithophores’ invited speaker at the *Emiliania huxleyi* pre-annotation discussion meeting, Station Biologique, Roscoff, France. March 19th-20th 2007


**Grants:**
*Note: Dr Taylor’s research program prior to arriving at UNCW has supported 5 Postdoctoral Researchers, 6 PhD students (as co-supervisor) and 2 Masters students (as primary supervisor).*

1) Brownlee C. and Taylor A.R. ‘Understanding the cellular mechanisms and constraints of coccolithophore calcification in relation to ocean pH. Natural Environmental Research Council (NERC UK) £360,000/ $720,000, September 2007-August 2010, not transferable to UNCW.

2) Taylor A.R. Visiting Senior Fellowship, Marine Biological Association, UK. $43,400, June 2007-May 2011, awarded to Dr Taylor at UNCW.


**Honors, Awards, Professional Service Special Achievements:**

- Editorial Board Member (Physiology and Development) for the *New Phytologist* 2007-
- Invited Speaker, International Phycological Congress, Durban, South Africa (2005)
- Senior Fellow of the Marine Biological Association (2004 - 2006)
- Honorary Editor of *The Phycologist* (January 2003–April 2006).
- Invited Participant, Gordon Research Conference, Chemical Oceanography, Queens’s College, Oxford University (2002).
- Fellow of the Marine Biological Association (2001- 2004)
- Grant Reviewer for Natural and Environmental Research Council (UK), Biology and Biotechnology Research Council (UK) and Marsden Foundation (Royal Society, New Zealand)
Name: Carmelo R. Tomas

Education:

American International College          Biology   B.A.  1964
University of Rhode Island  Botany   M.S.  1971
University of Rhode Island  Biological Sciences      Ph.D. 1977

Appointments:

1999 – present – Associate/Full Professor, Dept. of Biology and Marine Biology, UNCW
1986-1999 – Administrator/Research Scientist, Florida Marine Research Institute, St. Petersburg, FL (Florida Department of Environmental Protection.)
1982-1986 – Head of Marine Botany, Zoological Station of Naples Italy.
1980-1982 – Marine Scientist, Graduate School of Oceanography, University of Rhode Island (Post Doctoral).
1977-1979 – Research Scientist (Post Doctoral), Graduate School of Oceanography, University of Rhode Island.
1971-1977 – Doctoral Student, Graduate School of Oceanography, University of Rhode Island.
1969-1977 – Masters Student, Department of Botany, University of Rhode Island
1964-1977 High School Instructor of Biology (Warwick, RI and Lenox, MA).

Publications:


Special Publications:


Presentations and conference proceedings:

2002 Localization of the production/storage sites of brevetoxins in *Karenia brevis*. Bryan Bishop, Jerome Naar, Paula Scott, Carmelo Tomas and Daniel Baden. Xth International Conference on Harmful Algae, St. Petersburg, FL.

2002 Comparison of Regional Clones of the Genera *Chattonella* and *Fibrocapsa* for growth characteristics and potential for toxin production. Amanda Bridgers, Ellen McConnell, Jerome Naar, Allison Weidner, Lucille Tomas and Carmelo Tomas. Xth International Conference on Harmful Algae, St. Petersburg, FL.

2002 The production of brevetoxin and brevetoxin-like compounds during the growth phases of *Karenia brevis*. Xth International Conference on Harmful Algae, St. Petersburg, FL.

2002 Blooms of the ichthyotoxic flagellate *Prymnesium parvum* in U.S. Coastal Waters. An emerging problem? Xth International Conference on Harmful Algae, St. Petersburg, FL.

2002 Analysis of nitrogen substrates utilized for growth by the organism *Karenia brevis*. Michelle B. Gomperts, Carmelo Tomas, Daniel G. Baden and Joan D. Willey. Xth International Conference on Harmful Algae, St. Petersburg, FL.


2002 Chemical Characterization of marine biotoxins involved in an epizootic event of the zoo animals in Newport, Kentucky. Jerome Naar, Julia Kubanek, Andrea Bourdelais, Don Richard, Carmelo Tomas, Daniel G. Baden and Jeffrey L.C. Wright. Xth International Conference on Harmful Algae, St. Petersburg, FL.


2006 Ecological, morphological and toxicological analysis of an unusual dinoflagellate *Amphidinium massartii*. Tyler Cyronak and Carmelo Tomas. 12th International conference on Harmful Algae, Copenhagen, Denmark, 4-8 September.

2006 Biology and seasonal distribution of *Hermesinum adriaticum* in the New River of North Carolina. Reger,
Robert and Carmelo Tomas. 12th International conference on Harmful Algae, Copenhagen, Denmark, 4-8 September.

2006  Effects of varying salinity and N:P ratios on growth and toxicity of *Karenia brevis*. Danelle Lekan and Carmelo Tomas. 12th International conference on Harmful Algae, Copenhagen, Denmark, 4-8 September.

Grants and Awards:

2005  National Institute of Health, Diverse Chemical Libraries from Photosynthetic Marine Microalgae. $450,908 for 05/06 with total of $1,352,714 for the 3 year grant period.  J. Wright, D. Baden and C. Tomas Co-PI.

2005  North Carolina Biotechnology Center, Grant for Development of Infrastructure, $76,800 with matching funds from UNCW (CMS and Biology) to equal $99,680 for the purchase of a Zeiss Axio Z1 Imager Fluorescence Microscope with Image Processing Computer and Software. Tomas, PI.

2003-2007  North Carolina Department of Health and Human Services and National Center for Disease Control and Prevention.  Screening Methodology for HAB Toxins in Natural Waters. $140,000 for each of 3 years - $420,000 Total. Tomas, PI.

2003-2004  North Carolina Sea Grant. Identification Series – Sheets 4-8. $10,000. Tomas, PI.


2001  North Carolina Sea Grant.  Planning Funds for an Ecology of Harmful Algal Blooms – Joint IOC/UNESCO/Sea Grant Course. $10,000. Tomas, PI.

2000-2002  National Institute Environmental Health Science, Pfiesteria in MD.  Project Total $1.6 million dollars, component to UNCW $65,000. D. Baden, J. Wright and C. Tomas, Co-PI.


2000  International Programs, UNCW Travel Award.  To attend International Course in Copenhagen, Denmark. $900. To C. Tomas.


Honors, Awards, Professional Service Special Achievements:

Editorial Board Member:  Harmful Algae, Transitional Waters, Journal of Phycology

Journal Reviewer


Society membership:

American Association for the Advancement of Science;  American Society for Limnology and Oceanography;  International Phycological Society;  International Society for the Study of Harmful Algae (ISSHA);  Phycological Society of America;  The New York Academy of Sciences;  Society of Sigma Xi.
Name: Marcel van Tuinen

Education:
Rijksuniversiteit Groningen, The Netherlands Biology, M.Sc. 8/97
Penn State University, Biology, Ph.D. 12/00
Stanford University, Ecology and Evolution, postdoctorate from 1/01-12/04.
Stanford University, Ecology and Evolution, research associate from 1/05-7/06.

Appointments:
Assistant Professor, Department of Biology and Marine Biology (Jan 2007-present)
University of North Carolina at Wilmington
Visiting Scientist, Department of Ecology and Evolution (June 2007) Uppsala University, Uppsala, Sweden
Adjunct Faculty, Department of Biology and Marine Biology (Sep 2006-Dec 2006)
University of North Carolina at Wilmington
Short-term Postdoctoral Scholar, Department of Ecology and Evolution (June 2006; Nov 2006) Uppsala University, Uppsala, Sweden
Research Associate, Department of Biological Sciences (2005-July 2006) Stanford University, Stanford, CA
Research Associate, Mammalogy and Ornithology Division (2001-2006) California Academy of Sciences, San Francisco, CA
Visiting Research Fellow, Department of Biology (1997-1998) Penn State University

Publications:
1. van Tuinen, M., O’Keefe, K., Ramakrishnan, U., and E. A. Hadly. Museum Collections as Phylogeographic Archives: Contributions and Limitations from a common Rocky Mountain Mammal (Spermophilus armatus), Molecular Ecology, in revision (likely accepted in 2007).
http://www.pnas.org/cgi/content/abstract/0610986104v1
http://mbe.oxfordjournals.org/cgi/content/abstract/24/1/338
http://www3.interscience.wiley.com/cgi-bin/abstract/112708506/ABSTRACT


**Presentations:**
Van Tuinen, M.; Genomes, Evolution and Bioinformatics (GEB) Conference, may 24-28 2006, Arizona State University, Tempe, AZ, USA.
Van Tuinen, M., K. O’Keefe and E. A. Hadly; Conservation Genetics Symposium, oct 2005, Asilomar, CA, USA.
Van Tuinen, M.; Department of Geology and Geophysics, feb 2005, University of Wyoming, Laramie, WY, USA.
Van Tuinen, M.; California Academy of Sciences, 2004, San Francisco, CA, USA.
Van Tuinen, M.; Department of Ecology and Evolution, 2003, University of Michigan, Ann Arbor, MI, USA.
Van Tuinen, M.; American Museum of Natural History, 2002, New York, NY, USA.

**Grants:**
Friends of Wilmington $850 (2007)
Cahill Award & UNCW Darwin Scholar $2500 (2007)
NSF Biological Oceanography (2006-2007, PI Hadly, co-wrote as research associate, some funding transferred to UNCW)
NWO Talent postdoctoral Fellow $36000 (2001-2002)
Ben Hill Graduate Student Award &1000 (2000)
Name: Wm. David Webster

Education:
University of North Carolina Wilmington, B.S. in Biology, 1976
Michigan State University, M.S. in Zoology, 1978
Texas Tech University, Ph.D. in Zoology, 1983

Appointments:
Associate Dean, College of Arts and Sciences, UNCW, 2006-present
Professor, Director of the Vertebrate Collections, and Curator of Mammals,
  Department of Biology and Marine Biology, UNCW, 1993-present
Adjunct Associate Professor, Department of Marine, Earth, and Atmospheric
  Sciences, North Carolina State University, 1991-1994
Coordinator, Environmental Studies Program, UNCW, 1990-1995
Associate Professor and Curator of Mammals, Department of Biology and Marine
  Biology, UNCW, 1989-1993
Assistant Professor and Curator of Mammals, Department of Biology and Marine
  Biology, UNCW, 1983-1989

Publications:
  A land managers guide to mammals of the South (M. K. Trani Griep, ed.). The
  Nature Conservancy, Durham, NC.
  A land managers guide to mammals of the South (M. K. Trani Griep, ed.). The
  Nature Conservancy, Durham, NC.
  land managers guide to mammals of the South (M. K. Trani Griep, ed.). The
  Nature Conservancy, Durham, NC.
  land managers guide to mammals of the South (M. K. Trani Griep, ed.). The
  Nature Conservancy, Durham, NC.
  134-137. In A land manager’s guide to mammals of the South (M. K. Trani
  Griep, ed.). The Nature Conservancy, Durham, NC.
  Pagels, and J. F. Merritt. 2006. Influence of elevation and forest type on shrew
  community assemblage and species distribution in the central and southern


**Presentations:**


Webster, D., S. Hutchinson, and A. Cherry. 2007. A new long-tailed shrew of the genus *Sorex* from eastern North Carolina. 104th Annual Meeting, N.C. Academy of Science, Greenville, N.C.


**Roman, K. M. C.**, and W. D. Webster. 2006. Birds vs. beach front property: wrestling against all odds to conserve the featherweight class. Conserving Birds in Human-Dominated Landscapes, Center for Biodiversity and Conservation Symposium, American Museum of Natural History, New York.


Webster, W. D., and **K. Roman**. 2004. Piping Plover utilization of the Mason Inlet area before, during, and after the relocation project. 101st Annual Meeting, N.C. Academy of Science, Salisbury, N.C.

Webster, W. D., and K. Roman. 2003. Bird utilization of the Mason Inlet area before, during, and after the relocation project. Annual Meeting, N.C. Shoreline and Beach Preservation Association, Carolina Beach, N.C.


Shipp-Pennock, M. A., B. Simmons, and W. D. Webster. 2001. Avian species richness in two wetland restoration mitigation sites in Wilmington, North Carolina. 98th Annual Meeting, N.C. Academy of Science, Greensboro, N.C.


**Grants:**

Figure ‘8’ Beach Homeowners’ Association. 2007. $14,674 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina – Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

New Hanover County, NC. 2006. $25,562 for: Piping Plovers, nesting colonial waterbirds and shorebirds, and seabeach amaranthus in Year 4 of the Mason Inlet relocation project.
Figure ‘8’ Beach Homeowners’ Association. 2006. $14,674 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina – Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

Duke Power and Light Company. 2005. $4,675 for: Rare, threatened, and endangered mammals of the Catawba River Project and Great Fall Bypass regions of North and South Carolina.

New Hanover County, NC. 2005. $30,893 for: Piping Plovers, nesting colonial waterbirds and shorebirds, and sea beach amaranthus in Year 3 of the Mason Inlet relocation project.

Figure ‘8’ Beach Homeowners’ Association. 2005. $14,674 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina – Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.


Duke Power and Light Company. 2004. $21,467 for: Rare, threatened, and endangered mammals of the Catawba River Project and Great Fall Bypass regions of North and South Carolina.

Figure ‘8’ Beach Homeowners’ Association. 2004. $14,674 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina – Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

New Hanover County, NC. 2004. $27,567 for: Piping Plovers, nesting colonial waterbirds and shorebirds, and sea beach amaranthus in Year 2 of the Mason Inlet relocation project.

National Park Service. 2003. $6,139 for: Bat diversity at Cape Hatteras National Seashore, Cape Lookout National Seashore, and Moore’s Creek National Battlefield.

Figure ‘8’ Beach Homeowners’ Association. 2003. $14,674 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina – Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

New Hanover County, NC. 2003. $31,813 for: Effects of the Mason Inlet relocation project on endangered Piping Plovers, nesting productivity in colonial waterbirds and shorebirds, and sea beach amaranthus.


New Hanover County, NC. 2002. $5,621 for: Mason Inlet relocation project: colonial waterbird and shorebird nesting productivity.
Figure ‘8’ Beach Homeowners’ Association. 2002. $16,474 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina—Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

New Hanover County, NC. 2002. $50,134 for: The effects of the Mason Inlet relocation project on endangered Piping Plovers.

Figure ‘8’ Beach Homeowners’ Association. 2001. $16,474 for: Survey for endangered plants and animals on Figure Eight Island, North Carolina—Piping Plovers, sea turtles, sea beach amaranth, and marine mammals.

U.S. Fish and Wildlife Service. 2001. $4,000 for: Distributional status of the Buxton Woods white-footed mouse (Peromyscus leucopus ssp. nov.).


Figure ‘8’ Beach Homeowners’ Association. 2001. $8,271 for: Effects of beach renourishment and tilling on nest site selection, nesting success, and sex determination in the loggerhead sea turtle, Caretta caretta, on Figure Eight Island, North Carolina.


Figure ‘8’ Beach Homeowners’ Association. 2000. $6,980 for: Effects of beach renourishment and tilling on nest site selection, nesting success, and sex determination in the loggerhead sea turtle, Caretta caretta, on Figure Eight Island, North Carolina.


**Honors, Awards, Professional Service Special Achievements:**

- UNCW Distinguished Teaching Professor Award, 2006
- UNCW Chancellor’s Teaching Excellence Award, 2005
CURRICULUM VITAE

ANDREW JOHN WESTGATE

Research Assistant Professor
Biology and Marine Biology
University of North Carolina Wilmington
Wilmington, NC 28403

Senior Field Biologist
Grand Manan Whale and Seabird Research Station
Grand Manan, NB, E5G 1A1

Born: July 4, 1963, Edmonton, Alberta, Canada.

Education:

Professional Experience:
1992 - Present Design of telemetry and data logger packages for use on marine vertebrates.
1993 - Present Monitoring the movements and status of marine vertebrates using telemetry and data loggers.
2000-Present Studying the ecology and life history of pelagic dolphins in the western North Atlantic.
2004-Present Studying the foraging ecology and migration patterns of Greater and Sooty shearwaters from the Bay of Fundy, Canada.
2005-Present Studying the relationship between lipid and gas composition in the blubber and acoustic tissues of marine mammals.

Employment:
2007 Assistant Research Professor in the Department of Biology and Marine Biology, University of North Carolina Wilmington.
2006 Postdoctoral Investigator at the Mote Marine Laboratory, Sarasota Florida.
2003-present Adjunct faculty member in the Department of Biology and Marine Biology, University of North Carolina Wilmington.
Fall 2003 Visiting investigator Woods Hole Oceanographic Institution
2003 Instructor Duke University Marine Lab, Beaufort, NC
2001 Teaching Assistant Duke University Marine Lab, Beaufort, NC.
1996 - 1999 Research Technician Duke University Marine Lab, Beaufort, NC.
1995  Research Associate  Department of Zoology, University of Guelph.
July 1995  Co-ordinator of radio telemetry component of the National Marine Fisheries Service 1995 bottlenose dolphin health assessment, Beaufort, NC.
1992 - Present  Senior Research Biologist  Grand Manan Whale and Seabird Research Station.
1990 - 1992  Teaching Assistant  Department of Zoology, University of Guelph.
1989  Research Assistant  Department of Zoology, University of Guelph.

Publications:


**Chapters**


**Technical reports:**


Presentations:


temperature from spotted dolphins in the Eastern Tropical Pacific. 17th annual conference of the
European Cetacean Society, Gran Canaria, Spain, March 9-12, 2003.

Measuring temperature and heat flux from dolphins in the Eastern Tropical Pacific: Is thermal stress
associated with chase and capture in the tuna purse-seine fishery? The Physiologist. 45(4):353. The
American Physiological Society’s Intersociety Meeting on “The Power of Comparative Physiology”,

T. Williams. Some like it hot: Measuring heat flux and skin temperature from wild bottlenose
Columbia.

and heat flux across the dorsal fin in wild Bottlenose dolphins, Tursiops truncatus. Annual Meeting for

Cork, Ireland.

1999  Westgate, A.J., Pabst, D.A., Mclellan, W., Scott, M.D., Wells, R.S., Rowles, T.K., Rommel, S.A., and
T. Williams. A new instrument to record heat flux and temperature from wild dolphins. 13th Biennial

attitudes, changes in latitudes: monitoring a rehabilitated harbour porpoise. Atlantic Coastal Dolphin
Conference. 1997. Wilmington NC.

D.A., Potter, C., Swingle, M., Thayer, V.G., Touhey, K.M., and A.J. Westgate. All that remains:
Documenting fisheries bycatch from stranded harbour porpoises. Atlantic Coastal Dolphin
Conference. 1997. Wilmington NC.

1995  Westgate, A.J. and A.J. Read. Monitoring the movements of harbour porpoises using satellite

contaminants in western North Atlantic harbour porpoises, (Phocoena phocoena). 11th Biennial

1993  Westgate, A.J., Read, A.J. and D.E. Gaskin. Diving behaviour of harbour porpoises in the Bay of


Harbour Porpoises and Gill Nets in the Bay of Fundy Symposium on the Mortality of Cetaceans in
Passive Fishing Nets and Traps. 1990. La Jolla, California.
Funding

Funded proposals –


Pending proposals –


Awards and Fellowships

2002 Graduate student award for International travel, Duke University.


2001 Graduate student fellowship National Museum of Natural History, Smithsonian Institution, Washington D.C.

Reviewer for: Fishery Bulletin  
Marine Mammal Science  
Environmental Pollution  
Journal of Zoology, London  
Acta theriologica  
Canadian Journal of Zoology

Memberships:

American Society of Mammalogists  
National Geographic Society  
Society for Marine Mammalogy
Name: Ami Elizabeth Wilbur

Education:
University of North Carolina-Wilmington  B.S. Biology  1985
University of South Carolina     M.S. Biology  1987
University of Delaware    Ph.D. Marine Biology  1995
University of Delaware    Postdoctoral fellow  1996
Florida Institute of Marine Science    Postdoctoral fellow  1997-1999

Appointments:
Associate Professor, 2005- , Dept of Biology and Marine Biology, UNC-Wilmington
Assistant Professor, 1999-2005 Department of Biology, UNC-Wilmington
Postdoctoral fellow, 1997-1999 Florida Marine Research Institute
Research Associate, 1995 University of Delaware
Graduate Teaching Assistant, 1994 University of Delaware
Assistant Professor, 1993-1994 Department of Biology, Salisbury State University
Research Assistant, 1989-1993 University of Delaware
Research Technician, 1988-1989 Baruch Institute of Marine Science
Graduate Research Assistant, 1986-1987 University of South Carolina
Graduate Teaching Assistant, 1985-1986 University of South Carolina

Publications:


**Presentations:**


Gauthier JD, CRMiller & AEWilbur. Taqman® MGB real time PCR approach to the quantification of *Perkinsus marinus* and *Perkinsus* spp. in oysters. Florida Marine Biotechnology Summit V, Gainesville FL. Nov 14-15, 2006


Gauthier JD, CRMiller & AEWilbur. TaqMan MGB Real-Time PCR approach to quantification of *Perkinsus marinus* and *Perkinsus* spp. in oysters. National Shellfisheries Association Meeting, Monterey CA. March 26-31, 2006


Carnegie RB, NAStokes, CAudemand, EMBurreson, MJBishop, CHPeterson, AEWilbur, & TDAphin. Potential impact of *Bonamia* sp. on *Crassostrea ariakensis* in Chesapeake Bay. National Shellfisheries Association Meeting, Monterey CA. March 26-31, 2006


Truesdale SG, WOWatanabe, AEWilbur, TMLosorda and CRTomas. Characterization of the effluent from an intensive marine recirculating system for southern flounder and studies on effluent-based culture of microalgae. Aquaculture America, Las Vegas NV. February 13-16, 2006


Wilbur AE. Estimating the Impact of Bay Scallop Restoration Efforts Using Genetic Data National Shellfisheries Association Meetings, New Orleans LA. April 13-17, 2003


Collier WR, TELankford, AEWilbur, FRhode & JSchoolfield A molecular genetic marker for the trophic advantage hypothesis” American Fisheries Society SED meeting, Wilmington NC. February 12-16, 2003

Hoffman GG & AEWilbur. A single-step multiplex PCR identification assay to distinguish megalopae of *Callinectes sapidus* from *Callinectes similis* in plankton samples. Society for Integrative and Comparative Biology, Anaheim CA. January 2-6, 2002


Wilbur AE. What’s doin’ in Wilmington: update on oyster genetics research at UNCW. WRCC Molluscan Broodstock Meeting April 13, 2002

Hoffman GG, AEWilbur, MHPosey & TDAAlphin. A single-step multiplex PCR identification assay to distinguish megalopae of *Callinectes sapidus* from *Callinectes similis* in plankton samples. National Shellfisheries Association meetings, Mystic CT. April 14-18, 2002

Sackett RE, RPeterson, JSwartzenberg & AEWilbur. Evaluating the contribution of commercial oyster aquaculture to recruitment. National Shellfisheries Association meetings, Mystic CT. April 41-18, 2002


Arnold WS, SSeyoum, AEWilbur & TMBert. Metapopulation dynamics of the bay scallop (*Argopecten irradians*) in Florida, USA” 13th International Pectinid Workshop, Coquimbo Chile. April 18-24, 2001


Extramural grants awarded:

North Carolina Sea Grant. AEWilbur UNCW, JDGauthier UNCW, TDAlphin UNCW & MHPosey UNCW. “Preliminary investigations into the occurrence and impacts of a novel parasite (Bonamia sp.) in the eastern oyster, Crassostrea virginica. $5998. 11/06-11/07

NSF Research Opportunity Award (ROA). DWFreshwater UNCW & AEWilbur UNCW “Microsatellite analysis of an invasive species: the case of the Lionfish Pterois sp. in the western Atlantic” $22,362. 4/07-10/08

NSF DBI-Major Research Instrumentation. DWFreshwater UNCW & AEWilbur UNCW. “Acquisition of instrumentation to enhance the capabilities for research and teaching of the DNA Analysis Core Facility at the Center for Marine Science” $192,564. 9/06-9/07

North Carolina Sea Grant, Fisheries Resource Grant. AEWilbur UNCW & DLSchmidt “A test of larval releases for the restoration of bay scallops in Bogue Sound, NC” $45,609. 6/06-12/07

National Marine Fisheries Service Saltonstall-Kennedy Program. WSArnold FMRI, SGeiger FMRI, NJBlake USF AEWilbur UNCW “Bay scallop (Argopecten irradians) population restoration on the west coast of Florida” $296,340 ($59,074 to AEW) 9/04 – 2/06


North Carolina Department of Transportation AEWilbur UNCW & MAMcCartney UNCW “An Evaluation of Hemolymph Extraction as a Non-lethal Sampling Method for Genetic Identification of Freshwater Mussels Species in Southeastern North Carolina” $67,056 07/03 – 06/05

North Carolina Sea Grant Fishery Resources Grant TDAphins UNCW, AEWilbur UNCW, MHPosey UNCW, JJSwartzenberg J&BAquafood “Exploration of Stock Differentiation of the Eastern Oyster (Crassostrea virginica) in North Carolina Part 2” $48,350. 04/03 – 09/04

CICEET. WWatanabe UNCW, AEWilbur UNCW & TDAphin UNCW. “Biological Treatment of Effluent from an Intensive Marine Finfish Recirculating Aquaculture Facility by Cultivation of Marine Microalgae and Bivalves” $19,999. 04/03 – 03/04

National Marine Fisheries Service Saltonstall-Kennedy Program. WSArnold FMRI, SGeiger FMRI, NJBlake USF & AEWilbur UNCW “Bay scallop (Argopecten irradians) population restoration on the west coast of Florida” $206,753 ($53,491 to AEW) 7/02 – 10/04

National Fish and Wildlife Foundation. AEWilbur UNCW, DOConover SUNY-SB, WLoftus FIU & BLockwood FWS “Taxonomic status of the potentially endangered Key silverside (Menidia conchorum) in southern Florida, with recommendations for conservation” $31,538 06/02 – 08/04

North Carolina Sea Grant Fisheries Resource Grant. TDAphin UNCW, AEWilbur UNCW, MHPosey UNCW & JJSwartzenberg J&BAquafood “Evaluation of spatfall in the Cape Fear estuary” $26,048 03/02 – 12/02

NC Biotechnology Center. JLCWright UNCW, AEWilbur UNCW, DWFreshwater UNCW, MAMcCartney UNCW & JCBailey UNCW “An ABI 3100 Genetic Analyzer for the DNA Analysis Core Facility at the Center for Marine Science, UNCW” $130,000 07/01 – 06/02

North Carolina Sea Grant. AEWilbur UNCW MHPosey UNCW, TDAphin UNCW & TELankford UNCW “A new method for the evaluation of spatial and temporal dispersal patterns of blue crab (Callinectes spp.) larvae in the Cape Fear River Plume” $31,989. 07/01 – 01/03

North Carolina Sea Grant. TELankford UNCW, AEWilbur UNCW TDAphin UNCW, MHPosey UNCW & SKinsey UNCW “Connecting coastal ocean processes and estuarine-dependent fisheries: Impacts of the Cape Fear Plume on Recruitment” $10,000. 07/01-06/02

North Carolina Sea Grant Fishery Resources Grant. AEWilbur UNCW & JJSwartzenberg J&BAquafood. “Evaluating the reproductive output of oyster aquaculture: do commercial grow out operations contribute to local recruitment” $40,198. 04/01 – 09/02
Maryland DNR. AEWilbur UNCW “Genetic characterization of a recovering bay scallop population in Chincoteague Bay: evaluating the effects of enhancement” $7,380. 09/00 – 04/01

North Carolina Sea Grant Fishery Resource Grant. TDAlphin UNCW, AEWilbur UNCW MPosey UNCW. “Exploration of stock differentiation of the Eastern Oyster (Crassostrea virginica) in North Carolina: geographic and water quality considerations for production” $52,800. 09/00 – 03/02

Mote Marine Laboratory. AEWilbur UNCW. “Development of bay scallop stock enhancement technologies: genetic assessment” $30,000. 02/00 – 07/01

Florida Marine Research Institute. AEWilbur UNCW. “Development and application of genetic tags as tools for the assessment of bay scallop enhancement” $70,943. 10/99 – 06/01
Appendix VIII. Examples of faculty professional leadership activities during 2006-07.

<table>
<thead>
<tr>
<th>Faculty name</th>
<th>Professional leadership activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig Bailey</td>
<td>Secretary of the Phycological Society of America [PSA] (2006-2009); PSA Executive Committee Member; Associate Editor for Microalgal Systematics, <em>Journal of Phycology</em></td>
</tr>
<tr>
<td>Steven Brewer</td>
<td>Member, Coastal Advisory Leadership Committee, North Carolina Cooperative Extension Service, New Hanover County; Scientific advisor and Board Member of the Belize Foundation for Research and Environmental Education</td>
</tr>
<tr>
<td>Lawrence Cahoon</td>
<td>Member, EcoEdNet Advisory Board; Managing Editor, <em>Journal of the North Carolina Academy of Science</em>-Edited four issues of JNCAS; Session Chair, NCAS Annual Meeting 2007</td>
</tr>
<tr>
<td>Greg Chandler</td>
<td><em>Australian Systematic Botany</em>, Editorial Advisory Committee, corresponding member for North America</td>
</tr>
<tr>
<td>Ileana Clavijo</td>
<td>Provided fish specimens collected in St. Croix, U.S. Virgin Islands to the U. S. Geological Survey, Florida Integrated Science Center</td>
</tr>
<tr>
<td>Richard Dillaman</td>
<td>President, UNCW chapter of Sigma Xi; Review panel for Grants in Aid of Research (GIAR) proposals for Sigma Xi</td>
</tr>
<tr>
<td>Diane Dodd</td>
<td>Senate Ad Hoc Committee on Basic Studies</td>
</tr>
<tr>
<td>Michael Durako</td>
<td>National Marine Fisheries Service species recovery team for threatened seagrasses; Meeting Chair for the 28th Annual Southeast Phycological Colloquium; <em>Marine Ecology Progress Series</em> Review Staff</td>
</tr>
<tr>
<td>Steven Emslie</td>
<td>Programs Officer, Lower Cape Fear Bird Club; Consultant for National Geographic Traveler</td>
</tr>
<tr>
<td>Christopher Finelli</td>
<td>Reviewer for NSF GEO (Biological Oceanography) and BIO (Integrative and Organismal Systems) Programs</td>
</tr>
<tr>
<td>Courtney Hackney</td>
<td>Chairman, Coastal Resources Commission for the state of North Carolina; Vice-Chairman of the Environmental Advisory Board to the Chief of the U. S. Army Corps of Engineers; Member of the Coastal Habitat Protection Plan Oversight Committee</td>
</tr>
<tr>
<td>Stephen Kinsey</td>
<td>Officer nominating committee, SICB Division of Comparative Biochemistry and Physiology; Session Chair, “Muscle Function”, Society for Integrative and Comparative Biology Annual Meeting</td>
</tr>
<tr>
<td>Heather Koopman</td>
<td>Secretary of the Society for Marine Mammalogy; Board member of Grand Manan Whale &amp; Seabird Research Station, New Brunswick, Canada; Member, Student paper judge at the 2007 SEAMAMMS meeting</td>
</tr>
<tr>
<td>Thomas Lankford</td>
<td>Co-Chair, North Carolina Division of Marine Fisheries Kingfishes Advisory Committee; Member, North Carolina Marine Fisheries Commission Strategic Habitat Advisory Committee; Advisor, North Carolina Marine Fisheries Commission Spiny Dogfish Compliance Panel</td>
</tr>
<tr>
<td>Michael McCartney</td>
<td>Census of Marine Life Marine Biodiversity Working Group; Consultant on freshwater mussel systematics and conservation for NCWRC and NC Museum of Natural Sciences</td>
</tr>
<tr>
<td>Joel Mintzes</td>
<td>Science advisor to Pender County Schools and assist with applications</td>
</tr>
</tbody>
</table>
Appendix VIII. Examples of faculty professional leadership activities during 2006-07.

<table>
<thead>
<tr>
<th>Name</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Ann Pabst</td>
<td>Associate Editor for <em>Marine Mammal Science</em>; Member, Committee of Scientific Advisors, Society for Marine Mammalogy</td>
</tr>
<tr>
<td>Joseph Pawlik</td>
<td>Contributing editor for <em>Marine Ecology Progress Series</em>; REU panel member for NSF</td>
</tr>
<tr>
<td>Martin Posey</td>
<td>Editorial Board for the <em>Journal of Shellfish Research</em>; Editorial staff for the <em>Journal of Experimental Marine Biology and Ecology</em>; Member of the North Carolina Oyster Steering Committee</td>
</tr>
<tr>
<td>Richard Satterlie</td>
<td>Editorial Board Member – <em>Integrative and Comparative Biology</em>; President Elect, Society for Integrative and Comparative Biology; Program Officer, Division of Neurobiology, Society for Integrative and Comparative Biology</td>
</tr>
<tr>
<td>Frederick Scharf</td>
<td>Member, Southeast Regional Advisory Committee, North Carolina Division of Marine Fisheries; Co-chair, Red Drum Advisory Committee, North Carolina Division of Marine Fisheries; Southern Division Representative, Marine Fisheries Section of the American Fisheries Society</td>
</tr>
<tr>
<td>Thomas Shafer</td>
<td>Student Support Committee - Society for Integrative and Comparative Biology; Reviewer for NSF – Functional and Regulatory Systems</td>
</tr>
<tr>
<td>Ronald Sizemore</td>
<td>Member NC Coastal Studies Institute, Science Coordinating Committee; Member American Society for Microbiology</td>
</tr>
<tr>
<td>Bongkeun Song</td>
<td>Member of North Carolina arsenic study committee; Reviewer for NSF Environmental Genomics</td>
</tr>
<tr>
<td>Amanda Southwood</td>
<td>Session Chair (Population Biology – Water) at the 2007 Annual Symposium on Sea Turtle Biology and Conservation; Mentor for 2006 Minority Travel Fellows at the APS Intersociety Meeting on Comparative Physiology</td>
</tr>
<tr>
<td>Ann Stapleton</td>
<td>Member USDA NRI Plant Response to the Environment review panel; Reviewer for the UNEP EEAP assessment report on stratospheric ozone depletion</td>
</tr>
<tr>
<td>Alina Szmant</td>
<td>Member, Scientific Advisory Panel for the University of the Virgin Island’s EPSCoR Biodiversity of Coral Reefs program; AAAS Review panel for Rhode Island’s EPSCoR program</td>
</tr>
<tr>
<td>Alison Taylor</td>
<td>Editorial Advisory Board for <em>New Phytologist</em>; Participated in the <em>Emiliania huxleyii</em> International Genome Annotation Consortium</td>
</tr>
<tr>
<td>Carmelo Tomas</td>
<td>US EPA Experts Panel on Estuaries; Editorial Board Member for <em>Journal of Phycology: Transitional Waters; and Harmful Algae</em></td>
</tr>
<tr>
<td>Marcel van Tuinen</td>
<td>Reviewer for NSF Systematic Biology and Geosciences programs; Member Society of Molecular Biology and Evolution; Member Society of Avian Paleontology and Evolution</td>
</tr>
<tr>
<td>Ami Wilbur</td>
<td>Chair, Bay scallop Advisory Committee, NC Division of Marine Fisheries; Co-Chair, NSA student awards committee; Member, NC Hatchery Planning Committee; Member, Brunswick County Community College Aquaculture Advisory Committee</td>
</tr>
</tbody>
</table>
NC State University
Graduate School
Graduate Student Support Plan
(GSSP) Handbook

Who should read this Booklet?

If you are a graduate student on a graduate research assistantship, teaching assistantship, extension assistantship or primary fellowship, you should read this booklet. If your assistantship or fellowship meets the minimum aggregate stipend level of $667 per month and you are registered for the minimum required hours during fall and spring semesters you are automatically eligible for health insurance and tuition benefits under the GSSP.

Health insurance benefits are provided at no cost to you for as long as you meet the assistantship / fellowship and registration requirements. Tuition benefits are provided for a limited number of fall and spring semesters. The time limit for tuition benefits depends on your graduate classification and any graduate degrees you may have obtained prior to your admission into the Graduate School at NC State.

In this booklet you will find explanations on eligibility and length of benefits and what you need to do to continue your health insurance coverage when your assistantship or fellowship appointment terminates or when you have a break in graduate appointments.

This booklet provides a general overview of the GSSP. For more detailed information visit http://www.fis.ncsu.edu/grad_financialService/.
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   B. Requirements/Benefits at a Glance

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    A. Automatic Enrollment
    B. Effective Dates
    C. Dependent Enrollment
    D. Declining Insurance Plan Enrollment

III. On-line GSSP Resources

IV. Plan Requirements
    A. Registration Requirement
    B. Stipend level Requirement
    C. Tuition Support Limits

V. Plan Benefits
    A. Health Insurance
    B. Tuition

VI. Deadlines
    A. Registration Deadline
    B. Assistantship/Fellowship appointment Deadline
    C. Deadline to pay Student Fees

VII. What happens when your appointment is terminated?

VIII. Contacts
    A. Questions concerning eligibility for GSSP
    B. Questions concerning insurance coverage

**I. Introduction**

**A. Purpose Statement**

The Graduate Student Support Plan (GSSP) is a highly competitive support package used to attract top graduate students to NC State. Under this plan, students supported on a teaching, research, or extension assistantship or a fellowship of at least $666.67 per month who meet the minimum registration requirements, receive (at no cost to the student) health insurance and (for a limited number of semesters) fall and spring semester tuition.
### B. Requirements/Benefits at a Glance

#### II. Insurance Enrollment and Effective Dates

##### A. Automatic Enrollment

You will automatically be enrolled in the health insurance plan if you meet the minimum requirements shown on the Requirements/Benefits at a Glance chart in section I.B.

##### B. Effective Dates

The effective date of insurance is based on the effective date of the student's qualifying assistantship or fellowship and will always be the 16th of the month. Insurers begin the new coverage for those students on the 1st of January. Insurance premiums for graduate student coverage are paid by the GSSP on a monthly basis. Terminations in coverage are normally effective on the 16th of the month.

You will automatically be enrolled in the health insurance plan if you meet the minimum requirements shown on the Requirements/Benefits at a Glance chart in section I.B.

#### C. Dependent Enrollment

Upon automatic enrollment, the insurance company will mail you a membership card and information on benefits, filing claims and company will mail you a membership card and information on benefits, filing claims and
enrolling dependents. You must pay the cost of dependent coverage.

**D. Declining Insurance Plan Enrollment**

Some students may decline enrollment in the insurance offered under the GSSP by sending a letter to the Student Financial Support Services Manager in the Graduate School. The letter must state that you have comparable coverage from another source (i.e. under a spouse’s policy) and therefore wish to decline coverage. The graduate student must sign this letter.

**Note:** International students may not decline enrollment in this plan.

**III. On-line GSSP Resources**

Graduate Student Support Plan (GSSP) web site:

http://www.fis.ncsu.edu/grad_financialService/

Insurance Company (Hill, Chesson and Woody) web site:

http://www.hillchesson.com

**IV. Plan Requirements**

If you meet the following requirements you are automatically enrolled in the Graduate Student Support Plan (GSSP).

**A. Registration Requirement**

You must register by 5pm on census date each fall or spring semester for no fewer than the minimum credit hours indicated by the chart in section I.B. Census date is the 10th day of classes each fall or spring semester. This date is publicized well in advance on the GSSP web site and Graduate School web site calendar. It is normally the same day that the TRACS registration system closes for the semester. It is also the last day to register for, add, or drop a course, or to change from credit to audit with a tuition adjustment.

**Notes Regarding Registration**

- Credit hours attributed to audited classes do not count toward minimum semester credit-hour requirements for the GSSP. Tuition charges related to audited courses are not reimbursed by the GSSP.
• Credit hours attributed to distance education courses do count toward the minimum registration requirement but GSSP will not pay for more than the on-campus rate for the total hours registered.

• Summer registration is not required for GSSP. However, unregistered students are required to pay a special fee to use the Student Health Center.

B. Stipend Level Requirement

You must have an official graduate research, extension, and/or teaching assistantship or primary fellowship that provides a minimum stipend of $667 per month. The stipend must be paid through the university payroll system.

For an assistantship or fellowship to be counted towards the eligibility requirements, its ending date must be on or after August 31 for Fall appointments or on or after January 19 for Spring appointments.

Note: Supplemental fellowships (B256, or B258) and Graduate Services Assistantships (A198) are not eligible for the Graduate Student Support Plan and therefore do not contribute toward the minimum stipend requirement. A definition of graduate teaching, research, and extension assistants, graduate services assistants, and fellowships can be found in Section 4.2B of Chapter 4 of the Graduate Administrative Handbook (http://www.fis.ncsu.edu/grad_publicns/handbook).

Note: If a student has a primary graduate fellowship (B156 or B158) and an assistantship (A138, A148, A178, A428, A438, A448, or A478), the assistantship is disregarded in determining eligibility. In these cases, eligibility is based solely on the primary fellowship and benefit costs are charged only to the fellowship.

C. Tuition Support Limits

To receive tuition benefits you must have been enrolled as a graduate student for no more than the maximum allowed number of semesters from initial graduate enrollment to the current semester according to the chart in section I.B. Initial enrollment refers to initial enrollment in Graduate School at N. C. State and includes those who go from a Master’s degree to a Ph.D.

Tuition support for those taking distance education courses is limited to the on-campus rate for the total hours registered.
V. Plan Benefits

If you meet the above requirements, you will receive the following benefits.

A. Health insurance

The NC State Graduate Student Health Insurance plan covers all eligible students under the following terms and conditions:

- The annual coverage period is August 16 - August 15. An eligible student solely supported by a Teaching Assistantship appointment (Job Code A138) that is in effect through May 15 will continue to receive coverage through the end of the coverage period even if not supported on a graduate assistantship or fellowship in the summer sessions.
- Students supported on a graduate research or extension assistantship, or primary graduate fellowship will only continue to receive coverage in the summer as long as their appointment does not have an effective termination date prior to July 21.
- For students supported on both a teaching assistantship and a research assistantship, summer coverage will be based on the RA if the RA meets the minimum annualized stipend at the time summer premiums are paid in April. If the RA is subsequently terminated or its stipend reduced below the minimum annualized stipend, it will be necessary to contact the Student Financial Support Services Manager in order for the student to maintain insurance coverage based on the TA.
- Students supported on combination appointments that include a teaching component will be treated like research assistants. They will not be eligible for prepaid summer insurance if their appointment expires at the end of the spring semester.
- There is no limitation on the number of semesters one may receive health insurance coverage.
- Eligible-student coverage is at no cost to the student.
- Spouse coverage is available for purchase by the student.
- Child coverage is available for purchase by the student.
- A student who loses/terminates their assistantship or fellowship mid-year has the option of purchasing the same insurance for an additional 18 months according to the federal COBRA statutes.

In addition, a student who loses/terminates their assistantship or fellowship but remains a degree
seeking student at the University, may choose to purchase health insurance through the NC State Student Preferred Care Medical Plan for the remainder of their tenure as a degree seeking student or until they again become eligible for the GSSP.

The coverage provided by the GSSP is equal to or better than the NC State Student Preferred Care Medical Plan. For details on insurance benefits visit the following web site.

http://www.hillchesson.com

B. Tuition Support

In-State Tuition - Called an in-state tuition award or ISTA, this benefit is provided to all eligible students for the following periods:

For Master's Students -- 4 Semesters from initial enrollment in the Graduate School at NC State.

For Doctoral Students

• With a Master's Degree in the same or a related field upon initial admission to the Graduate School at NC State – 8 Semesters from initial enrollment in the Graduate School at NC State.

• Without a Master's Degree in the same or a related field upon initial admission to the Graduate School at NC State - 10 Semesters from initial enrollment in the Graduate School at NC State. The 10 semesters may include up to 4 semesters in a master's classification at NC State as long as they are the first 4 semesters of graduate study at NC State.

Out-of-State Tuition - Called tuition remission or TR, this benefit is available under the same terms and conditions as ISTA, detailed above. Students who qualify to establish North Carolina tuition residency are expected to do so at the earliest possible date.

Notes regarding Tuition Benefits

• Students eligible for tuition under GSSP will need to complete the online notice of sponsorship form indicating GSSP as their sponsor. See section VI C.

• The University is committed to providing this benefit to all eligible students for the time periods specified. Colleges and/or departments
may elect to extend this benefit for longer periods of time at their discretion.

- This benefit applies only to tuition charges and **not student fees**. You must pay required fees unless the source of your stipend provides funds specifically earmarked to pay this cost. Such special arrangements will be handled outside the GSSP through your home department.

- GSSP tuition benefits are available for the spring and fall semesters only. **Summer session tuition is not covered**.

- If the qualifying assistantship or fellowship terminates prior to the end of the semester, then the tuition award amount will be prorated according to the number of calendar days during the semester you are supported. Assistantships or fellowships that begin after November 30 for Fall or April 30 for Spring will not be considered in the proration.

- If the effective date of the qualifying assistantship or fellowship appointment is after census date for a given semester, you will **not** be eligible for the tuition award for that semester.

- If the effective date of the qualifying assistantship or fellowship appointment is more than 2 weeks after the 1st day of classes but on or before census day, the tuition award will be prorated.

- If the qualifying assistantship or fellowship appointment does not run for at least 30 days beyond the first day of class no tuition benefits will be provided.

- The GSSP clock for determining eligibility for tuition benefits starts with the first semester of enrollment in Graduate School and does not stop when the student is on a leave of absence.

**VI. Deadlines**

**A. Registration Deadline** – is 5pm on census day of the given fall/spring semester.

You must be registered for at least the minimum required hours as indicated by chart in section I.B to be eligible for any benefits under the GSSP.

**B. Assistantship/Fellowship Appointment Deadline** – Campus academic departments must create your qualifying graduate research, teaching, or extension assistantship, or primary
fellowship appointment effective no later than census day of each fall/spring semester for you to be eligible for any tuition benefits under the GSSP.

**Note:** Assistantship or fellowship appointments created before, but approved at the college level after census date will cause significant delays in tuition and health insurance payments.

**C. Deadline to Pay Student Fees** – You must submit payment of fees by the deadline indicated on your tuition bill or your registration may be cancelled. If registration is cancelled and not reinstated by census date of the given semester, you will not be eligible for benefits under the GSSP.

The billing statement you receive from the University Cashier's Office may contain tuition charges that will be covered by the GSSP. If such charges appear and you are certain that you qualify for the GSSP, go to the Cashier’s Office website [http://www.fis.ncsu.edu/cashier/forms/sponsor.asp](http://www.fis.ncsu.edu/cashier/forms/sponsor.asp) and complete the **Notice of Sponsorship** form by the deadline indicated. You should indicate GSSP as the third party sponsor for tuition only and for “amount” enter the on-campus tuition rate for the total hours registered. For a list of on-campus tuition rates, see [http://www.fis.ncsu.edu/cashier/gradtution/gradtuitio.n.asp](http://www.fis.ncsu.edu/cashier/gradtution/gradtuitio.n.asp)

Also, you must submit payment for any student fees by the deadline indicated.

Students who have multiple sponsors must complete a form for each sponsor.

Visit the web site below for fee payment due dates. [http://www.fis.ncsu.edu/cashier/billing/billsched.asp](http://www.fis.ncsu.edu/cashier/billing/billsched.asp)

**VII. What Happens when Your Appointment is terminated?**

If you have a break in, or termination of your graduate assistantship or fellowship appointment and lose eligibility for insurance you will receive a letter from the insurance company indicating that you have become ineligible for the health insurance under the GSSP. This letter will inform you of your option to continue coverage under the federal COBRA statutes for up to 18 months by completing and mailing the accompanying COBRA form. If you are to remain a degree seeking NC State student after the termination you also have the option of enrolling in the voluntary NC State Student

You have **60 days** from the date of this letter to enroll in COBRA and **10 days** to enroll in the voluntary NC State Student Insurance Plan. If you elect to continue coverage, any claims incurred on or after the date of lost eligibility under the GSSP will be eligible for coverage subject to the terms and conditions of the plan you choose.

**VIII. GSSP Contacts are available to help you!**

For questions concerning eligibility for insurance and tuition benefits under the GSSP, contact the Student Financial Support Services Manager at (919) 515-4472 or e-mail ncstategssp@ncsu.edu.

All written correspondence should be directed to:

Graduate Student Support Plan  
c/o Student Financial Support Services Manager  
Campus Box 7102  
NC State University Graduate School  
Raleigh, NC 27695

For questions concerning insurance coverage, contact Hill, Chesson & Woody at (919) 645-0240.

Hill, Chesson & Woody  
P.O. Box 9565  
Chapel Hill, NC 27515-9565  
Fax: (919) 313-2020  
E-mail: email@hillchesson.com  
Web: http://www.hillchesson.com

For questions concerning your graduate assistantship or fellowship appointment, contact the graduate secretary or the director of your graduate program. For a list of graduate program directors and graduate secretaries visit the web sites below.

http://www.grad.ncsu.edu/Labels/dgplist.htm  
http://www.grad.ncsu.edu/Labels/gradsec.htm
Review of the Graduate Programs of the Department of Biology and Marine Biology at the University of North Carolina Wilmington, March 10-11, 2008

Submitted to: Dr. Robert Roer, Dean of the Graduate School, April 16, 2008

Introduction

We were extremely impressed by the quality of the Department, its faculty and its students. As a group, the faculty is outstanding, and can easily stand within the ranks of significant research oriented departments of Biology and Marine Biology nationwide. The record of research productivity, training, and external support is impressive. The faculty’s dedication to teaching is unusual and sincere, the students are strong, and the level of collegiality and departmental culture is truly exceptional.

It is clear that the University recognizes the high quality of this Department, with all Academic officers interviewed praising the Department’s accomplishments and character. The fact that the Department holds the first doctoral-level program granted to the University confirms its high standing and regard within the institution.

Strengths and weaknesses

No significant weaknesses were apparent within the Department or its Graduate Program. Instead, we believe that the major issue facing the Department (and the University) is the significant mismatch between the University’s mission and its general level of support for the Department and the Department’s mission and level of performance. The Department’s high performance is one that would be expected in a Research University; it exists within the context of a Master’s University (to use the terms of the Carnegie Classification). Although the University has supported the Department well within its normal context, we do not see the level of support that truly recognizes the standing, needs, and potential of this particular Department. This mismatch has significant consequences for the future growth and development of the Department.

Indeed, the most critical question in our eyes is whether the University, after supporting the development of a national research and graduate training program in Biology and Marine Biology, will increase support for the Department to allow it to function at this level. Areas in need of attention include: (1) teaching load (in recognition of the fact that doctoral training, research and external funding place significant time demands on faculty beyond what might be seen in a typical Master’s level department), (2) basic space, including laboratories, student offices, and areas for collaboration and informal interaction (which are critical to the scientific enterprise), and (3) basic infrastructure support including personnel to manage the accounting and regulatory demands placed on
active, well-funded researchers. Although the third problem is not unique to UNC Wilmington, it has never made sense to devote relatively expensive faculty time to basic accounting and regulatory paperwork, when it could easily and less expensively be supported by proper support staff.

While the mismatch between the Department’s needs and the University’s support is the most significant issue, we raise a few additional items for consideration. While we believe the Department is quite sensitive to many of these, we raise them to highlight the need to make some changes over the next 5 years.

Potential issues for attention

We got the distinct impression that the ability of the Department to function at a very high level is in part due to the skills and dedication of the current Department Chair. He obviously does a tremendous amount to keep the morale high by rewarding achievement and balancing requirements with faculty effort within his own budgetary and policy constraints. One particularly notable comment from several faculty members was that “we do a lot, but we know it is appreciated”. Additionally, it is clear that the current Director of Graduate Studies does an excellent job with faculty and students. While these individuals have contributed much to the success of the Department, it is risky and unrealistic to rely so much on their sustained individual efforts very far into the future.

We perceived a difference of opinion among Department faculty as to whether the current stage of evolution should be an endpoint or a step towards the further development of a world-class department. This issue must be resolved within the Department; however, we feel the Department is stretched thin and would need a considerable addition of resources from the University in order to move ahead.

Based on the experiences of other Universities, we see potential difficulties arising from the fact that only some faculty members are eligible to take Ph.D. students (Marine Biology faculty may have, but other Biology faculty do not have access to Ph.D. students). While no faculty expressed this as a concern to us, this could become a divisive issue in planning the future of the graduate program and other Department functions. It would be highly unfortunate if something like this damaged this deeply collegial group.

We are somewhat concerned about the “two class” system of Ph.D. and Master’s students, particularly in the area of financial support, and comment on this further below. Finally, we have some concern about the size of the program. Issues of critical mass were raised by faculty and students, and we agree. However, without significant additional resources we see no easy solution.
Major recommendations

PhD Program expansion, support and requirements

As the model for other PhD programs at the University, the growth and development of the Marine Biology degree program needs to be carefully cultivated. While the enlargement of the PhD program would expand the national and international recognition of the University, we do not believe that enlargement should be encouraged unless significant internal changes (e.g. faculty workloads, increase in RA stipends available) are made and new resources (especially more TAs, office and lab space) are provided. In addition, we realize that the external recognition of the strength of the graduate program is (historically) associated with the MS program, and, therefore, there is a need to determine the best balance in numbers of MS relative to PhD students. Among the many factors that will need to be considered is the distribution plan for TAs and scholarships, the selection and scheduling of courses, adjustments of faculty loads, and the determination of an ideal critical mass for students at both levels. Finally, we note that there is often a general view that departments that admit a high percentage of their own MS students are not as strong as ones that select from a broad applicant pool. With these general points in mind, we recommend that the Department:

1. Revisits the requirement that PhD students need to have a MS degree before pursuing the PhD.
2. Considers flexibility in the number of courses required to complete the PhD degree. A process could be established to excuse students who will not likely benefit from taking those one or two additional courses, requiring more effort on research instead.
3. Revisits the decision to substitute special topics seminar courses for the once required core courses for the PhD students. Some students expressed a desire for more structured learning. Consider creating a lecture course that provides a high level synthesis of the broad (interdisciplinary) aspects of marine science, a course that provides more than the basic principles taught in the original core courses and exposes advanced graduate students to aspects of marine science beyond their immediate area of research. This suggestion is prompted by the students’ reports that the current seminar course topics are usually too specific and self taught. However, students indicated that they liked the scheduling flexibility and saw value in the seminars. Perhaps supplementing the seminar courses with a new core course would be the best alternative.
4. Considers a formal requirement that all graduate students have a course-related teaching experience before graduating. Ideally, this could be done by providing every student with a TA for at least one semester.
5. Encourages faculty to interact more with the TA’s that teach the lab sections of their courses. Some students feel the need for more mentoring, evaluation, and appreciation for their efforts.
6. Recognizes that graduate student workloads are high. In making adjustments to the program, the faculty should recognize that their high expectations of students
involved in teaching can significantly impact the student’s success with their research projects.
7. Makes primary (and often expensive) software necessary for research available without cost to all graduate students.

Student Financial Aid

We see the issue of student financial aid as being one of the major obstacles to overcome as the Department moves towards a nationally competitive Ph.D. program. The Department frequently looses its best applicants to other institutions because of low TA stipends and associated benefits. The faculty finds this demoralizing, and it probably decreases the quality of student body. In particular, Master’s level TA stipends are way behind peer institutions. We strongly recommend three target actions.

1. Raise the Master’s stipend to $15k as soon as possible. The MS level should be raised faster than PhD level ($18k) to reduce the large gap between the two programs.
2. Provide full tuition remissions for all in- and out-of-state students (both MS and PhD)
3. Require health insurance for all graduate students and provide a stipend supplement to defray the cost of the University base policy.

In addition, we suggest that the Department:

1. Recognizes that TA stipend levels are low across the University and leads a joint effort of all schools and departments to appeal to the higher administration for funds necessary to raise all stipends to a level comparable to those at peer institutions.
2. Identifies existing on-campus sources for summer assistance and create new ones for graduate students, especially for international students who cannot afford to go home to work for a few months.
3. Encourages graduate student attendance at regional and national scientific conferences by increasing travel support for those not on research assistantships.

Space

As discussed above, the space available is not adequate to maintain a high level research environment. We suggest that the Department and University:

1. Identify new common meeting space for faculty and student groups. There is a clear need for dedicated room(s) to be available to the Department for formal gatherings as well as for informal discussions. These should comfortably seat 20-40 individuals.
2. Identify a dedicated student lounge area to promote more interaction among graduate students (and undergraduate students participating in research programs).
3. Create new office space for graduate students. The placement of multiple students at desks in laboratories is counterproductive from the standpoint of distractions, but it also presents potential safety hazards. A plan to place every student in a low traffic, hazard free office should be a high priority.
4. Create new laboratory and office space for new faculty. The availability of suitable space for faculty has improved with recent renovations, but more space must become available before additional faculty members are added to the expanding Department.

Additional issues for further consideration

Above we present our main recommendations for the Graduate Program. We believe there are a number of additional areas deserving consideration by the Department and the University administration. These include:

Faculty Workload

One of the most striking features of the Department is the exceptional dedication to teaching at a very high level. Research and graduate training among the faculty are also very impressive. However, as noted by many, faculty members may be stretched far too thin to sustain this high level of service. In recognition of this, we suggest that the Department and University consider a number of possible solutions. In particular, we believe that with support from the University, the Department needs to identify mechanisms leading to a reduction in teaching workload and the introduction of significant flexibility in distributing the teaching load. We realize that given the budgetary constraints not all solutions are possible, but we suggest the Department:

1. Establishes more flexibility in the teaching load to allow faculty to pursue research and other scholarly interests. This could include permission to double up teaching loads some semesters so that faculty could be course-free for another one. Another possibility might be to create a department level competition for teaching relief with a circulating slot that provides for one semester without teaching a course.
2. Assures teaching relief to young faculty during their first year at the University. Not only is this important for faculty expected to establish well-funded research programs, but it will make the University more competitive for the best young faculty.
3. Offers fewer courses by culling unpopular, overlapping, and obsolete courses from the roster.
4. Deletes lab sessions from some courses. Note that this should not be done at the expense of losing TA positions.
5. Levels the playing field with respect to what tasks faculty members get credit for doing. For instance, more credit should be given for mentoring undergraduates involved in research.
6. Adds new faculty to relieve overall workloads and increase the breadth of the program. No specific voids were identified beyond the multiple slots currently set for refilling, but a long-term plan needs to be developed.
7. Considers creating post-doctoral teaching positions to expand the intellectual climate and provide faculty teaching relief especially for lower-division courses. Such positions could be helpful for short-term sabbatical replacements and providing release time for new research-oriented faculty hires.
Staff

Additional departmental or university-level office staff members are needed to provide assistance to faculty who are increasingly distracted by aspects of grant and research administration. Sponsored program administration, animal care, and health/safety are some of the areas where relief is needed. We suggest adding one or more inter-department (shared) office staff members who can serve the needs of faculty in all science departments.

In addition, technical staff positions are needed to maintain equipment and supplies, help TA’s and faculty prepare for labs and field trips, and schedule use of common equipment and space. This is a different position than the staff coordinator of lab courses; it would supplement the efforts of the single technical staff member who works primarily with the microscope facility.

Diversity

The issues that the Department faces with the attraction of minority applicants to its programs are generally faced by all departments. Recent efforts are recognized as strong; however, innovative, new efforts are necessary to increase minority participation in the faculty and graduate student programs.

Relationships with the Center for Marine Science

We recognize the high value of the CMS facility to graduate students and faculty in the Department; however, many also report a somewhat strained co-existence and ongoing (though reduced) tension. That appears counter-productive and worthy of attention by the University. In part, this might arise from the difference in the administrative rank of the Department and CMS heads, which appears to result in more inequity in the distribution of resources than might be healthy for the maintenance of strong collaborations and high productivity. More effort is needed to coordinate and more evenly support all marine science programs at the University. We believe that opportunities for undergraduate participation at CMS should be expanded. Finally, although the distance between the main campus and the field laboratory is short compared to that between paired facilities at most other institutions, bridging those nine miles appears to be a disproportionately large obstacle to having a more complete integration of the programs. Extra efforts need to be made by faculty and staff at both locations to organize and attend jointly supported activities at both sites.

Closing Remarks

We applaud the Department of Biology and Marine Biology for its excellent efforts and accomplishments in developing and maintaining its Graduate Program. We have every expectation that the Department will sustain those efforts and make adjustments that will result in the improvement and expansion of the Graduate Program. We also recognize the generally good level of support provided by the Graduate School and higher administration, but strongly
encourage them to increase the level of financial (especially TA) and other support necessary for the University’s flagship Graduate Program to fully achieve its potential.

Sincerely,

Dennis M. Allen
Research Professor, Baruch Institute for Marine and Coastal Sciences,
University of South Carolina

Kathleen Smith
Professor of Biology,
Duke University
27 August 2008

Dear Dr. Roer,

This correspondence conveys to you our Department’s response to the external review of the Graduate Programs in Biology and Marine Biology, submitted to you by Dr.’s Dennis Allen and Kathleen Smith.

The entire review process provided our department the important opportunity to be both introspective and forward-thinking. Our self-review, and our guests’ external review, have helped identify our current strengths as well as the challenges we face as we continue to grow and enhance our graduate programs.

Our department found the external review to be a substantive and accurate report, which commended the overall high quality of our faculty and graduate students. It correctly, we believe, identified that while our faculty functions at the level of a department at a Research Institution, we are also genuinely passionate about our teaching. This passion is shared by our graduate students, who are important contributors to our undergraduate teaching mission. The report also noted the deeply collegial atmosphere within the department, which we feel is an intangible quality that strengthens all of our academic programs.

The report clearly identified strengths, weaknesses and requirements for continued growth of our graduate programs. We have responded to those suggestions/comments that are within the purview of the department (see below). The external reviewers did, however, bring up a broader, over-arching concern, that requires the thoughtful input and action of the administrative leadership of our University.

The external report notes the following:

“No significant weaknesses were apparent within the Department or its Graduate Program. Instead, we believe that the major issue facing the Department (and the University) is the significant mismatch between the University’s mission and its general level of support for the Department and the Department’s mission and level of performance. The Department’s high performance is one that would be expected in a Research University; it exists within the context of a Master’s University (to use the terms of the Carnegie Classification). Although the University has supported the Department well within its normal context, we do not see the level of support that truly recognizes the standing, needs, and potential of this particular Department. This mismatch has significant consequences for the future growth and development of the Department.

Indeed, the most critical question in our eyes is whether the University, after supporting the development of a national research and graduate training program in Biology and Marine Biology, will increase support for the Department to allow it to function at this level. Areas in need of attention include: (1) teaching load (in
recognition of the fact that doctoral training, research and external funding place significant time demands on faculty beyond what might be seen in a typical Master’s level department), (2) basic space, including laboratories, student offices, and areas for collaboration and informal interaction (which are critical to the scientific enterprise), and (3) basic infrastructure support including personnel to manage the accounting and regulatory demands placed on active, well-funded researchers. Although the third problem is not unique to UNC Wilmington, it has never made sense to devote relatively expensive faculty time to basic accounting and regulatory paperwork, when it could easily and less expensively be supported by proper support staff.”

Our department is appreciative of those administrative actions (identified in the responses below) that have already been taken to address some of the concerns raised last spring. However, it is our opinion that this assessment made by the external reviewers is accurate, and that the future of our graduate programs depends upon continued attention and enhanced support by our University. We look forward to working with the administration to find solutions that will ensure that our graduate programs continue to excel.

Below, we address each specific comment raised during the external review.

Potential Issues for Attention

In this section of the external review, Dr.’s Allen and Smith identified five issues of import to the future of our graduate programs, two of which are solely within the purview of the department. These two issues are the (1) “perceived difference of opinion” among faculty of the future of our department, and (2) concern that some faculty, whose research lies outside of the marine environment, may not be able to fully participate in the Ph.D. program. Although the last concern was not raised during the review by any departmental faculty, both of these points are of import. These two issues were addressed in focused discussions during our Fall 2008 Faculty Retreat. The faculty reaffirmed our commitment to offering high quality undergraduate education, mentoring research students, and maintaining excellence in our scholarship. We also reaffirmed the ideal that our Ph.D. program is a “big tent” program. That is, that we invite all graduate faculty to participate if it is of benefit to their student, and if they have the requisite funding to support that student. We found these introspective discussions to be valuable as we embark upon a new academic year. As we move forward with our graduate programs, we will continue to be cognizant of these important philosophical questions.

The three other issues raised that lie, in part, outside of the purview of the department are that (1) the success of the department to function at such a high level within budgetary and policy constraints relies heavily upon the talents and dedication of the department’s current leadership, (2) the assistantship stipends for Ph.D. and M.S. students creates a ‘two-class’ financial system, and (3) there is some concern about the Ph.D. program size – with the idea that an appropriate “critical mass” is needed to further foster the intellectual development of our graduate students. These concerns, to a large degree, are related to the availability of program resources. While the department continues to bring new resources to the University in the form of an ever increasing number of grants and contracts, we believe that solving these important issues will require the attention and support of the administration.

Major Recommendations

Ph.D. Program expansion, support and requirements

The external review recommends that the Department:

1. Revisits the requirement that Ph.D. students need to have an M.S. degree before pursuing the Ph.D.
Our program already permits students who are enrolled in our M.S. program to enter the Ph.D. program before they complete their M.S. degree. This process is predicated upon the student’s excellent progress, the mentor’s willingness to take on a doctoral student, and the mentor’s ability to support the bulk of the financial costs (including student stipend) to do so.

We currently do, though, require students who apply from other institutions to our Ph.D. program to have their M.S. degree. This step was put into place as we developed our Ph.D. program based on the recognition that funds available to support our new program were limited. For example we have had only 4-5 Ph.D. Teaching Assistantships (TAs) available annually to support the recruitment of new Ph.D. students. With such limited funds, we believed the success of our new program would be enhanced by attracting and recruiting students who had already established their interest, and their ability to achieve excellence, in graduate work. In our 2008-09 departmental graduate budget the number of Ph.D. TAs has increased to 6, and we are grateful for this enhanced investment in our Ph.D. program.

As with a number of the suggestions raised by our external reviewers, this recommendation will be considered by the department’s Graduate Advisory Committee (GAC) this fall, and any action proposed by that committee will be brought to the faculty for their consideration.

2. Consider flexibility in the number of courses required to complete the Ph.D. degree.

This recommendation was considered when we revised our original Ph.D. curriculum, with the view that the coursework plan of each Ph.D. student should be the result of the considered judgment of the student’s dissertation mentor and committee. The program currently requires that each student only takes three graduate seminars (choosing from five different courses, BIO 601-605, for a total of 6 credits), and BIO 694: Practicum of College Biology Teaching (2 credits). The department feels strongly that BIO 694 promotes our shared values in teaching and scholarship, and also offers our Ph.D. students a competitive edge when applying for academic positions.

Thus, of the total 48 post-M.S. credit hours, only 8 are in formal seminar or practicum courses. The other required courses are BIO 690: Seminar (1 credit), which is given in recognition of the student’s successful completion of two required departmental seminars and participation in national and/or international meetings, and BIO 699: Dissertation (12 credits), which is given in recognition of the student’s successful dissertation research and writing. No other courses are required, although more courses may be selected by the student and his or her dissertation committee. BIO 698: Research can be taken, in recognition of the student’s research efforts, to fulfill a portion of the required credits. The department does see the revised Ph.D. curriculum as being very flexible. It is, though, also newly implemented, so it is possible that the reviewers were responding to comments made by students who had experienced the previous curriculum.

3. Revisit the decision to substitute special topics seminar courses for the once required core courses of the Ph.D. students.

The external review states that this suggestion is based upon some students’ desire for more “structural learning”, and the concern that some of the seminar courses may be too specific in nature. The report also states, though, that the students appreciate the flexibility in the seminar format (see #2 above), and the report suggests that “perhaps supplementing the seminar courses with a new core course may be the best alternative.”

This last suggestion demonstrates, we believe, the normal tensions found within a Ph.D. program between offering a solid discipline-based curriculum and the recognition that the Ph.D. is fundamentally a research-based graduate experience. During our rigorous self-review in 2004-
2005, we revised our original curriculum to address these needs and we will address them again in response to this external review.

One of our department’s goals in revising its Ph.D. curriculum was to build a seamless graduate program, rather than two separate, and at times, competing graduate programs. The GAC will revisit both core curricula this fall, to determine the best approach to addressing suggestions 2 and 3, and to ensure the development of the most integrated and challenging graduate curriculum possible.

4. Considers a formal requirement that all graduate students have a course-related teaching experience before graduating.

   Given our department’s strong commitment to both teaching and research, we embrace the ideal of this suggestion. Most of our students do TA for at least one semester, and all of our Ph.D. students participate in BIO 698: Teaching Practicum (this course is also open to our M.S. students as an elective). All of our students must present their research in two academic forums, and many students participate in other public presentations (e.g., regional community science meetings, public school programs, Marine Quest, Science Bowl, etc.).

   We do not, though, require that our graduate students take on a formal TA. The mission of our graduate program includes providing academic support for the professional development of scientists working in the region. For example, our current students include full-time employees of NOAA, NC Division of Marine Fisheries, and the Army Corps of Engineers. We do not wish to require these individuals to take on a 20 hour per week TA assignment, in addition to their full-time employment.

   *We will continue to strive to ensure that all our graduate students have meaningful teaching experience, while retaining the flexibility to ensure the participation of professional scientists in our graduate programs.*

5. Encourages faculty to interact with the TAs that teach the lab sections of their courses.

   All faculty are encouraged to meet with the TAs assigned to the lab portion of their course(s) during orientation or at the first lab teaching meeting. To facilitate this measure, the lecture and laboratory portions of BIO 201 (which is taught by more than one faculty each semester) are linked. Thus, each faculty can interact directly with those TAs assigned to their lab sections of the course. *We will continue to request this important level of participation of faculty in TA mentoring.*

   The external review also suggests that some students require more “mentoring, evaluation, and appreciation of their efforts.” We strongly endorse offering our TAs the very best mentoring and feedback that we can. We have designated Laboratory Coordinators for all of our TA-taught labs to ensure that each student receives the formal mentoring that they require. The Graduate Coordinator meets with all Lab Coordinators annually to ensure that best practices are being used in all labs. We also undertake formal faculty visitations to all TAs labs each spring to provide independent faculty evaluations of teaching for our TAs. New TAs also participate in “TA Boot Camp” each fall, in which veteran graduate students and the Graduate Coordinator offer specific suggestions and training. We also plan an afternoon get-together each year of faculty and graduate student teachers to discuss our shared mission of undergraduate education.

   *To ensure that all student input is solicited in the important matter of TA mentoring, the Graduate Coordinator will meet with students during a designated Biology and Marine Biology Graduate Student Association (BIO GSA) meeting in early fall 2008.*
6. Recognizes that graduate student workloads are high. In making adjustments to the program, the faculty should recognize that their high expectations of students can impact the student’s success with their research projects.

We are appreciative of this viewpoint, and wish to state emphatically that we do take student teaching workloads very seriously. During the past three years, graduate TAs have taught an average of 87 (range 85-90) labs in the fall and 61 (range 60-63) labs in the spring. The number of these labs is the minimum to meet university and departmental curricular needs and cannot easily be reduced under present undergraduate enrollment and curricular pressures without negatively impacting those programs. The work-loads of our TAs are heavy – students teach between 2-3 labs each semester, and many also assist with preparing the labs. Our goal is to minimally maintain, and hopefully decrease the course-load of our TAs.

7. Make primary (and often expensive) software necessary for research available to all graduate students.

We agree that if a software product is required to complete the work of a graduate student, efforts should be taken to make that software available at no cost to the student. Many software programs are available to graduate students through University, and more specialized software systems should be made available, if required for the work at hand, by the student’s mentor. Because this concern has not yet been articulated to the Graduate Coordinator or Chair, the Graduate Coordinator will ask students for more details about this issue during an early fall BIO GSA meeting. Specific actions to be taken will be in response to information gathered at that meeting. One potential option may be the acquisition of Department licenses for some widely used software products that are currently unavailable through the University.

Student Financial Aid

The external review correctly identifies, in our view, “student financial aid as being one of the major obstacles to overcome as the Department moves towards a nationally competitive Ph.D. program.” The solutions that are offered require, in large part, enhanced investment by the University. These include the following:

1. Raise the Master’s stipend to $15k as soon as possible. The MS level should be raised faster than PhD level ($18k) to reduce the large gap between the two programs.

Our Department strongly supports this recommendation. The Graduate School increased both the M.S. (now $10,000) and Ph.D. (now $18,000) student stipends for 2008-09, for which we are very appreciative. Unfortunately, though, because of the larger increase in Ph.D. stipends, our M.S. students are now earning only 55% of what their Ph.D. colleagues earn. We are worried that this disparity will contribute further to the reviewers’ concern of a ‘two-class’ student financial system. While we acknowledge that the stipend of the more senior Ph.D. student should be higher than that of a M.S. student, the current gap between the levels of support offered these two student groups is, we believe, unhealthy for our program. Thus, we strongly support that M.S. student stipends are raised to the suggested $15,000 as soon as possible. For our program, which receives 31 MS TA stipends a year, this request requires $155,000 more from the University.
2. Provide full tuition remissions for all in- and out-of-state students (both MS and PhD).

   Our Department strongly supports this recommendation. While individual faculty can and do assist in the support of some student’s tuition costs, the department simply does not have sufficient programmatic funds to provide similar support for all students. We are concerned that this inability threatens the continued vigor of our M.S. programs and the growth of our Ph.D. program. As we indicated in our self-review, the limited nature of our departmental resources for graduate tuition remissions and the required commitment to provide tuition support for our Ph.D. students has constrained the expansion of the Ph.D. program and has directly and negatively impacted our ability to provide support for our M.S. students. This situation requires enhanced University support for tuition remissions and, perhaps, also the identification of innovative ways to decrease tuition costs for our students.

3. Require health insurance for all graduate students and provide a stipend supplement to defray the cost of the University base policy.

   Our Department strongly supports this recommendation. As stated in our self-review, a survey of our graduate students revealed that most of our graduate students are under-insured and nearly 40% lack any form of health insurance. This lack of health insurance is a significant student welfare issue. The university requires our students to carry health insurance to participate in selected field work, but does not provide sufficient stipend support to purchase insurance.

The external review also suggests that, in an effort to enhance student financial support, the Department:

1. Recognizes that the TA stipend levels are low across the University and leads a joint effort of all schools and departments to appeal to the higher administration for funds necessary to raise all stipends to a level comparable to those at peer institutions.

   Our Department recognizes that TA stipends are universally low at UNCW and agrees that we should take on such a leadership role. The Graduate Coordinator has already called a meeting of the coordinators of the science graduate programs to discuss financial, as well as other issues, facing our programs. This topic will be discussed at our Department’s 2008 Faculty Retreat. The Chair and Graduate Coordinator will, with the faculty’s input, plan on focused meetings with other departments to discuss how best to bring this concern to the administration.

2. Identifies existing on-campus sources for summer assistance and create new ones for graduate students, especially for international students who cannot afford to go home to work for a few months.

   Our Department’s website has a dedicated grants and fellowships page, which supplies information on most, but not all on-campus funding opportunities. We will ensure that this site is updated to provide links to all those pages.

   This year, a new award (one student/year) was made available through the Division for Public Service and Continuing Studies at UNCW. This fellowship is aimed at enhancing marine science education and awareness in the local community, by the active involvement of our graduate students. Each Fellowship will provide $2500 for 40 hours of outreach activities, including a reasonable amount of preparation time.

   While University resources are valuable to enhance student support, the primary responsibility for summer graduate student support rests with the graduate mentor. We will continue to advocate that faculty seek out extramural support to provide summer stipends for
their students. We will also continue to work with University Advancement to identify potential support for endowed graduate fellowships.

3. Encourages graduate student attendance at regional and national scientific conferences by increasing travel support for those not on research assistantships.

Graduate students currently have access to the following travel funds:
- $400/year from the Graduate School if presenting at a meeting
- $100/year from BIO GSA if presenting; $75/year if not
  (the above two funds can be combined)
- $250/year from GSA (cannot be used in combination with Graduate School Award)

Our department does not yet have a professional development fund for graduate students to support their travel to scientific meetings. The GAC will discuss this possibility this fall, and bring its views to the faculty for their consideration. The travel funds made available to graduate students from the Graduate School have also been constant for the past several years, thus, we will encourage the administration to provide for modest increases to these funds on a continual basis.

**Space**

The external review concludes that the space available to the department is not adequate to maintain a high-level research environment. The report states that the Department and University should:

1. Identify new common meeting space for faculty and student groups. There is a clear need for dedicated room(s) to be available to the Department for formal gatherings as well as informal discussions.

   Our Department strongly supports this recommendation. Conference rooms in both Dobo and Friday Hall are excellent for meeting this important program need. Currently, though, all room scheduling is controlled through a central university system. We will explore the possibility of taking autonomous scheduling control of these rooms to provide space for both formal and informal research meetings. We will work with the CMS administration to explore options at CMS that may provide meeting space for faculty and students housed at that facility.

2. Identify a dedicated student lounge area to promote more interaction among graduate students (and undergraduate students participating in research programs).

   Our Department will investigate the possibility of retro-fitting the current graduate student computer lab in Dobo Hall to enhance its suitability as a graduate student meeting place, taking into consideration the varied space needs faced by our students, faculty, and academic programs (some of which are indicated in this report). We will also investigate such opportunities in Friday Hall and at CMS. We will also work with the Graduate Dean, and the University GSA to determine whether a University-wide graduate student meeting space can be created.
3. Create new office spaces for graduate students.

The external review correctly points out that having graduate student desk space within the research laboratories can be counterproductive because of distractions and also poses potential safety hazards. This problem is an acute one for students housed in Dobo Hall. The newly renovated Friday Hall has dedicated graduate student offices, as does CMS. Thus, the Chair and the GAC will investigate options for creating graduate student office space for those students currently housed in Dobo Hall.

4. Create new laboratory and office space for new faculty.
We currently do not have sufficient office space for anticipated faculty replacement hires. With changes in faculty space assignments at CMS, replacement of non research-active faculty with research-active faculty, and the need to upgrade existing labs, there will also be a shortage of adequate research space. The department will work with the College of Arts and Sciences and CMS to address these needs.

**Additional issues for further consideration**

The external review notes that while the above are the major recommendations for our Graduate Program, there are a number of other important issues that our Department and the University should consider.

**Faculty Workload**

The external review correctly identifies our faculty’s real dedication to teaching at a high level while maintaining high research output and excellence in graduate student mentoring. The review suggests that the Department and University strive towards the following goals.

1. Establish more flexibility in teaching loads to allow faculty to pursue research and other scholarly interests.

   *Our Department strongly supports this recommendation.* Where possible, the Chair already permits faculty whose research schedule requires it to increase their teaching loads in one semester in order to have a reduced teaching load in semester. We are also grateful to the Dean of CAS for his support of teaching releases, including one 2-course release per semester in support of research efforts and the graduate program.

2. Assure teaching relief to young faculty during their first year at the University.

   *Our Department strongly supports this recommendation.*

3. Offer fewer courses by culling unpopular, overlapping and obsolete courses from the roster.

   Our Department routinely reviews its curricula to ensure that its course listings are current and are meeting our educational mission. *Our Undergraduate Curriculum Committee and GAC will review their curricula this upcoming academic year to remove any unnecessary courses.*

4. Delete lab sessions from some courses.

   Most of the laboratories in which our graduate TAs participate are either basic studies science courses or introductory and core discipline courses. Deletion of lab sections for these
courses would have significant curricular and training implications and is not considered a viable option. However, many upper division courses have labs that require instruction by faculty. Deletion or consolidation of some of these labs may help alleviate faculty workload concerns and possibly have indirect positive impacts on the number of labs that must be taught by TAs. The department will review its upper division offerings to ensure that where labs are required they are a desired part of the course needs.

5. Level the playing field with respect to what tasks faculty members get credit for. For instance, more credit should be given for mentoring undergraduates involved with research

   
   The department will continue to work with the CAS to fully recognize the time commitment involved with individual student instruction and other activities and will periodically review its own annual evaluation procedures to ensure these activities are given full recognition.

6. Adds new faculty to relieve overall workloads and increase the breadth of the program.

   The department will continue to work with the CAS to hire additional faculty lines needed to meet overall workload concerns and program breadth.

7. Considers creating post-doctoral teaching positions to expand the intellectual climate and provide teaching relief for lower-division courses.

   This option is a very interesting one. The creation of one or more prestigious post-doctoral fellowships that include both teaching and research components would contribute greatly to both teaching and scholarship within the Department. The idea will be brought to the faculty for their consideration at its 2008 Faculty Retreat.

**Staff**

The external review states that “additional departmental or university-level office staff members are needed to provide assistance to faculty who are increasingly distracted by aspects of grant and research administration. Sponsored program administration, animal care, and health/safety are some of the areas where relief is needed. We suggest adding one or more inter-department (shared) office staff members who can serve the needs of faculty in all science departments.”

   Our Department strongly supports this recommendation.

The review continues that “in addition, technical staff positions are needed to maintain equipment and supplies, help TA’s and faculty prepare for labs and field trips, and schedule use of common equipment and space. This is a different position than the staff coordinator of lab courses; it would supplement the efforts of the single technical staff member who works primarily with the microscope facility.”

   Our Department strongly supports this recommendation.

**Diversity**

The external review states that although recent efforts to address diversity issues within our department have been strong, that innovative efforts are still necessary to increase minority participation in the faculty and graduate student populations.
Our Department strongly supports this recommendation. We look forward to continued work within the College and the University to enhance minority participation within our department.

Relationships with the Center for Marine Science

The external review states that “We recognize the high value of the CMS facility to graduate students and faculty in the Department; however, many also report a somewhat strained co-existence and ongoing (though reduced) tension. That appears counter-productive and worthy of attention by the University. In part, this might arise from the difference in the administrative rank of the Department and CMS heads, which appears to result in more inequity in the distribution of resources than might be healthy for the maintenance of strong collaborations and high productivity. More effort is needed to coordinate and more evenly support all marine science programs at the University. We believe that opportunities for undergraduate participation at CMS should be expanded. Finally, although the distance between the main campus and the field laboratory is short compared to that between paired facilities at most other institutions, bridging those nine miles appears to be a disproportionately large obstacle to having a more complete integration of the programs. Extra efforts need to be made by faculty and staff at both locations to organize and attend jointly supported activities at both sites.”

Our Department strongly supports these recommendations.

In summary, we look forward to working with the Graduate School and University to address the recommendations provided by Dr.’s Allen and Smith regarding our graduate programs. Please let us know if there is any other information that we may provide to you at this time.

Sincerely,

Martin Posey
Chair

Ami Wilbur       Fred Scharf       Steve Kinsey       Ann Pabst
Members, Graduate program Review Committee