

College of Marine Science

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EXECUTIVE SUMMARY

The goal of the College of Marine Science (CMS) is to become the leading marine research institution in the southeastern United States and one of the top ten programs in the country - contributing a significant part of the University of South Florida's (USF) profile as a Research I University. **We thus require incremental resources during a four-year period in six pivotal areas: new and renovated facilities; administrative structure and flexibility; faculty recruitment; graduate student support; technical staff; and postdoctoral fellows.** Specifically, to begin implementation of the College's Strategic Plan over the next year, immediate priority actions in order of importance are:

1. Designation of a new CMS research/teaching building as the top USF PECO need;
2. Renovation of the Marine Science Laboratory (MSL) building to immediately address CMS pressing space needs;
3. Local CMS authority for personnel decisions and staff salary adjustments;
4. State-supported administrative positions for the newly formed College;
5. New faculty to develop a critical mass for advancement to the next level of national/international prominence;
6. Competitive stipends and health benefits for all graduate students, tuition waivers for graduate research assistants, and support to expand present CMS research assistant numbers;
7. A CMS center for State-funded technical/analytical staff to complement the present Center for Ocean Technology (COT);
8. A postdoctoral fellows program;
9. Institutional support for present CMS educational partnership programs; and
10. Assignment of an existing development officer, dedicated to building CMS endowments.

BACKGROUND

On July 1, 2000 the Department of Marine Science was elevated to the College of Marine Science by the Florida Legislature. On May 17, 2000 the College Transition Committee, consisting of twelve Department of Marine Science faculty, staff and student members began the task of creating a Mission Statement and other groundwork upon which this Strategic Plan was based. The College Transition Committee presented its report to USF President Judy Genshaft and Provost David Stamps on October 30, 2000, at which time the faculty was charged to create a Strategic Plan for the College. Consequently, the first Dean's Advisory Council - a group of seven elected faculty, staff, and student representatives - replaced the College Transition Committee, consulted their constituents, and formulated this Strategic Plan, which was approved by the faculty on January 26, 2001.

MISSION STATEMENT

The College of Marine Science is a Center of Excellence in research and graduate education for the University of South Florida and the State University System of Florida. The College is constituted as a graduate-level research program that forms the basis for educational opportunities at the Ph.D. and MS degree levels, and for public service to the State of Florida. The College administratively reports to the Provost of the University of South Florida. The primary mission of the College is to conduct basic and applied research in marine science. Here, marine science is defined as the application of biology, chemistry, geology and physics to the marine environment, and to the interactions between that environment and the adjoining atmosphere and land systems, both presently and throughout the Earth's history. Included in the primary marine science mission is the development of new technologies and tools for exploring the coupled ocean-atmosphere-land system and facilitating economic development. The College expects its faculty to develop outstanding research programs and to engage the national and international scientific communities through the reporting of research results in the most respected oral and written venues and through professional service.

Integral to the marine science research mission is the education of graduate students. The College recruits, trains, and graduates productive, creative scientists at the Ph.D. and MS levels that are prepared to make independent contributions to marine science. The faculty are expected to develop outstanding graduate education programs that will afford students the opportunity to participate in all aspects of interdisciplinary research. The College recognizes that graduate education requires strong mentoring along with classroom instruction. Faculty contact hours are largely determined by individual interactions in the laboratory, office and during field expeditions, in addition to traditional course offerings.

An ancillary but important mission of the College is educational outreach for students at all levels and for society at large. Our outreach programs have significantly expanded our educational responsibilities and they are intended to motivate all generations to become scientifically literate citizens and to understand the environment in which they live. The College will pursue innovative avenues for educational outreach. The College will offer an introductory undergraduate survey course in marine science, and efforts will be made to attract more junior and senior level undergraduates into the marine science core discipline courses and into advanced courses for which undergraduates may have pre-requisites. Historically, this is a way in which students have made career decisions to engage in marine science. In this manner, the College will maintain close ties with the student body at all University of South Florida Colleges and campuses.

Fulfilling our mission requires strong partnerships with Federal, State, County, local, and international agencies, and with the private sector. The College intends to nurture and strengthen scientific, economic, and international partnerships through a combination of increased public awareness, professional service, and excellence in our mission.

STRATEGIC DIRECTIONS

Five themes have been identified by *USF 2000*, the Strategic Plan of the University of South Florida. The goals of the College of Marine Science (CMS) are presented in the context of those themes. Implementation of any of these themes, however, first requires acquisition of sufficient resources to house, operate and staff the newly formed College - as outlined in the report of the College Transition Committee. These requirements are reiterated in the sections on priority actions.

1. Supporting and increasing faculty research, scholarship and creative activities.
Our goal is to become the leading marine research institution in the southeastern United States and one of the top ten programs in the country.
2. Developing a student enrollment profile consistent with a Research I University.
We shall continue to develop our graduate program with the goal of being the marine science program of choice in the southeastern United States.
3. Fostering interdisciplinary research and education.
Interdisciplinary research and education, with an emphasis on the marine realm, are the two primary foci of the mission of the College of Marine Science.
4. Increasing the engagement of the University with the community and the region.
Our "laboratory" is the World Ocean, with applications to the Gulf of Mexico.
5. Enhancing the quality of student life and the intellectual climate to support teaching and learning.
Our goals are to provide our students with adequate financial support and research tools to facilitate their development, and to expand intellectual communication among faculty, staff and students.

1. Supporting and increasing faculty research, scholarship and creative activities.

Discussion: Our goal is to become the leading marine research institution in the southeastern United States and one of the top ten programs in the country.

The College of Marine Science (CMS) is committed to maintaining our trajectory toward increasing distinction as a marine science education and research facility. We are also committed to enhancing the University of South Florida's (USF's) position as a Research I university. The primary mission of CMS is to conduct basic and applied research in fields related to the marine environment. This research furnishes the knowledge base that develops the academic programs.

CMS presently occupies a pre-eminent position within the hierarchy of USF research, scholarship and creative activity. Our strategic goal is to raise our profile nationally and internationally, achieving pre-eminence among southeastern U.S. oceanographic institutions. We will accomplish this through a unifying theme of climate change, adding faculty, students and staff to facilitate a more cohesive, interdisciplinary group of scientists operating on the frontiers of their respective fields.

Oceanography is the application of the basic sciences: biology, chemistry, geology and physics to the study of the oceans and the oceans' role in the Earth system. Most fundamental to the Earth's climate is the thermal inertia of seawater deriving from the ocean's physical chemistry. As the prime recipient of the solar energy, the oceans are responsible for how energy is distributed and balanced around the Earth. Nature accomplishes this through winds and ocean currents derived by ocean physics and ocean-atmosphere interactions. Contained in the circulating seawater are all the elements that comprise planet Earth, including carbon and nutrient compounds responsible for life. These are studied through the ocean's biology and biochemistry. Life science is incomplete, however, without geochemical cycling for maintaining slowly varying chemical budgets and radiation physics for controlling light and temperature. Geology and Geophysics round out Earth systems science by describing the evolution of the planet and the interactions that occur between the oceans and the solid earth. With the oceans essentially in control of everything that humans experience on Earth, including the hydrological cycle and our ability to raise crops and livestock, it is natural that climate change provide a unifying theme for a multidisciplinary CMS.

Presently, CMS has many of the basic ingredients in place for achieving pre-eminence among southeastern U.S. oceanographic institutions. We lack, however, facilities, key positions and critical mass in certain areas necessary to further promote unification and advancement to the next level of national and international prominence. Attention to the following six pivotal issues will aid CMS in achieving that pre-eminence: facilities, administrative structure and flexibility, faculty recruitment, graduate students, technical staff, and postdoctoral fellows.

Facilities: Our progression toward being a world-class research organization with a worldwide presence requires a new building – as the top USF PECO need - **and** renovation of the Marine Science Laboratory (MSL) building. We are challenged to increase faculty, staff and student numbers, because we are fast outgrowing our facilities. Lab space is particularly at a premium for both our faculty and our engineering group, the Center for Ocean Technology (COT). The MSL and the Knight Oceanographic Research

Center (KORC) buildings are insufficient even now to support our existing program; therefore, choosing to renovate the MSL building alone is not enough to meet our current and future needs. We need a new third building, as well as renovation of the MSL building.

Improved facilities in such areas as graphics and computer labs are critical. In addition, we are in need of a larger and better-equipped coastal research vessel.

Administrative Structure and Flexibility: We must first implement an administrative structure for the College. We must then attract and maintain a quality workforce. Salaries for both faculty and staff are low, even in a region of the country where salaries in general are lower than in other areas. It is critical that the College be given the authority to make competitive salary offers, to award bonuses or special pay increases, and to address existing below-market salaries. Organizational communication is always an issue, and as the college continues to grow in size and complexity, we must continually strive to maintain excellent communications with all of our employees.

Faculty Recruitment: Our strategic plan is to fill these new faculty positions with the best scientists, seeking parity among disciplines in ways that will promote our ability to compete on the frontiers of evolving national and international science programs. The added benefit of this approach will be expanded expertise and resources for application to environmental issues of local and statewide importance.

Graduate Students: The education of graduate students is integral to USF's research mission. Interactions between faculty, postdoctoral fellows and students routinely result in advances that are highlighted in high-profile publications, invitations to speak/lead symposia, and awards of research support. Graduate research and education programs are the building blocks for attaining national academic distinction as a Research I University.

Technical Staff: CMS also needs to expand, and create where necessary, technical support groups, staffed by technical specialists who would be responsible for maintenance, training, and method and instrument development for the College's computers, analytical facilities, sea-going equipment, and satellite tracking and remote sensing infrastructure. These technical specialists will provide additional links between CMS faculty research and the College's COT.

Postdoctoral Fellows: Postdoctoral research fellow programs are a long-standing tradition at the best research universities and oceanographic institutes. While it is evident that the quality of faculty/graduate student interactions is integral to intellectual advances, another factor that can provide a most positive stimulus to a graduate education program is the presence of postdoctoral fellows. Postdoctoral fellows are accomplished, knowledgeable and stimulating, and serve as inspirational role models to graduate students who are completing their advanced degrees. These fellows work directly with faculty on new initiatives, and mentor graduate students regarding research topics and career choices. Implementation of a successful postdoctoral research program is pivotal to the success of CMS.

Key Strategies:

Facilities: To achieve our long-term goal of becoming one of the top ten oceanographic groups in the country, we need new and renovated facilities. Specifically, we request that

USF's administration make the construction of a new research/teaching facility (136,000 sq. ft.) for the College USF's top PECO priority. We must also renovate the MSL building to immediately address CMS pressing space needs.

Administrative Structure and Flexibility: CMS must be able to attract and retain diverse, well-qualified and highly motivated employees who deliver quality services in a timely and effective manner, ensuring the efficient operation of CMS. We must sustain a work environment that fosters accountability, open communication, teamwork and professional development.

To accomplish these actions, we must commit the necessary resources and be given the authority to make competitive salary offers to qualified applicants, to award bonuses or special pay increases, and to address existing below-market salaries in an effective manner. All of these options should be open to us as we feel they are warranted. We must also enhance a culture that is built on trust, respect, teamwork, communication and empowerment in an environment that ensures equal opportunity across organizational lines.

Faculty Recruitment: Increase the number of CMS tenure track faculty lines to 40 over the next four (4) years. This expansion should be guided by the principles outlined in this document; although it should be flexible enough to permit deviations from this plan to take advantage of special hiring opportunities. The present faculty positions among disciplines are: Biological (10), Geological (8), Chemical (6), and Physical (5). The strategic objective is to expand each discipline to 10.

Graduate Students: Ensure competitive stipends and the availability of health benefits for all graduate students. Ensure that tuition waivers are available to all graduate research assistants. This is basic to attracting quality graduate students to our program.

Technical Staff: Take a systematic view of CMS technology uses and needs for development. Establish a CMS technical support group to include computer, analytical, sea-going equipment and remote sensing specialists. Many research programs in CMS are dependent on the oceanographic research vessels of the Florida Institute of Oceanography, and we strongly support their legislative initiative for a new coastal research vessel that will serve Florida's State University System.

Postdoctoral Fellows: Establish a CMS Postdoctoral Fellowship Program. The program should consist of eight (8) postdoctoral positions, each having a 24-month duration. The principal objective of the postdoctoral program is to expand the scientific expertise within CMS while promoting interactions between CMS and other pre-eminent oceanographic institutions. We will seek postdoctoral fellows as a balance between synergy with existing programs and expansion into new areas.

Priority Actions:

As recommended by the College Transition Committee, the implementation of our strategic plan will be phased over five years. Implementation includes a new facility and upgrades and additions to existing facilities, a new administrative structure and improved flexibility, recruitment of more faculty, improved support for our graduate students, increased technical staff, and establishment of a postdoctoral fellows program.

The College Transition Committee developed an organizational plan that was presented to the President for approval last fall. This plan required enhancements in resources in order to establish the CMS as a functioning college. To facilitate the process, the Provost's Office identified a portion of CMS overhead money as a source of enhanced resources. The argument was presented that, although CMS would not normally receive this additional returned overhead because it did not have departments, it would be given the funds to smooth the transition from a department to a college. The return of these overhead funds allocated to CMS by the Provost's Office in year one should be replaced with E&G funds over the next two (2) years. Thus, State money would become the funding source of all new or upgraded positions approved during the start-up phase of CMS. Moreover, CMS should be awarded its full return of overhead money in the same proportion as other colleges, regardless of whether or not CMS has departments. Not to do so would put CMS at a distinct disadvantage in bolstering USF's profile as a Research I university.

The transformation of an embryonic department into a prominent scientific organization was made possible because business leaders and private donors were actively involved in supporting our growth. An especially remarkable aspect of our evolution is related to the endowments in the USF Foundation that have helped build our long-standing tradition of scientific excellence. Business, families and individuals built endowments in support of our program because they believed we would develop an understanding of Florida's extensive and valuable marine realm, as well as play a pivotal role in regional economic development. It is especially remarkable that all of the endowments in the College were created without the involvement of a development officer from USF's Foundation. Indeed, Marine Science was never provided a person with fundraising expertise (i. e., a gift officer), and our group (read that as our Department Chair) is distinctive in having had to "make do" on our own. We believe there is good reason (academic and otherwise) to underscore the University's long-term commitment to this program. An existing development officer who is dedicated to building endowments for the College of Marine Science will not only accelerate the College's visibility, but will also provide a tangible reason for business and legislative leaders to support our University.

The five-year implementation, as recommended by the Dean's Advisory Council and approved by the CMS faculty, should follow these guidelines:

Year 1

Facilities:

- Designate a new CMS research/teaching building as the top USF PECO need and renovate the MSL building to immediately address CMS pressing space needs.

Administrative Structure and Flexibility (9):

- Dean.
- Associate Deans (3) – One each for Administrative Affairs, Academic Affairs, and Research.
- Staff Positions (5) – Administrative Assistant to the Dean, Director of Administrative Affairs, Coordinator of Administrative Services, Coordinator for Academic Support Services, and Assistant Director of Budgets and Finance.
- Establish local CMS authority for personnel decisions and salary adjustments.
- Assign an existing development officer, dedicated to building endowments, to the College of Marine Science.

Faculty Recruitment: New Faculty (4)

- Physical Oceanography - A coupled ocean-atmosphere modeler (6 of 10) and a sea-going, ocean experimentalist (7 of 10).
- Chemical Oceanography - An atmospheric chemist for ocean-atmosphere exchange (7 of 10).
- Biological Oceanography – A fisheries ecologist (9 of 10 existing positions).

Graduate Students:

- Five (5) State-funded student assistantships.
- A 50% increase in the current graduate student OPS support, to be competitive with stipends offered at other institutions.
- Ensure that tuition waivers are available to all graduate research assistants.
- Ensure that health insurance coverage is available to all CMS students.

Technical Staff (4):

- A computer support specialist for the CMS computer facilities. This should be a full-time, 12-month salaried, State-funded position.
- An analytical technician for the CMS spectrometry facilities. This should be a full-time, 12-month salaried, State-funded position.
- A marine technician to support sea-going and laboratory equipment. This should be a full-time, 12-month salaried, State-funded position.
- A remote sensing specialist for the CMS satellite tracking and data collection facilities. This should be a full-time, 12-month salaried, State-funded position.

Postdoctoral Fellows (2):

- The two best applicants, without regard to discipline, with the exception that they will represent different disciplines. These should be 24-month appointments.

Educational Outreach (2):

- For Project Oceanography, a Project Coordinator and an Educational Specialist. These should be a full-time, 12-month salaried, State-funded positions.

Year 2

Facilities:

- Receive planning funds for the new College of Marine Science building; and continue renovations of the MSL building.

Administrative Structure and Flexibility (6):

- Executive Secretaries for the Associate Deans (3).
- Coordinator for Computer Support.
- Coordinator for Marine Science.
- Program Assistant.

Faculty Recruitment: New Faculty (3)

- Chemical Oceanography - A global chemical cycles expert (8 of 10).
- Physical Oceanography - An air-sea interaction experimentalist (8 of 10).
- Biological Oceanography - Marine genomics/bioinformatics or global hydrological/biogeochemical cycles (10 of 10 existing positions).

Graduate Students:

- Five (5) State-funded student assistantships.
- A 5% incremental increase in the current graduate student OPS support, to continue to be competitive with stipends offered at other institutions.
- Ensure that tuition waivers are available to all graduate research assistants.
- Ensure that health insurance coverage is available to all CMS students.

Technical Staff (2):

- A computer support specialist for the CMS computer facilities. This should be a full-time, 12-month salaried, State-funded position.
- An instrument maker/designer to support the CMS machine shop. This should be a full-time, 12-month salaried, State-funded position.

Postdoctoral Fellows (2):

- The two best applicants in the subdisciplines not represented in the previous year's selection of postdoctoral fellows. These should be 24-month appointments.

Year 3

Facilities:

- Initiate construction of the new College of Marine Science building; and continue renovations of the MSL building.

Administrative Structure and Flexibility (3):

- Program Assistants (2).
- Office Manager.

Faculty Recruitment: New Faculty (3)

- Geological Oceanography - An earth-system history modeler (9 of 10).
- Chemical Oceanography – A radiochemist (9 of 10).
- Physical Oceanography – A geophysical fluid dynamicist (9 of 10).

Graduate Students:

- Five (5) State-funded student assistantships.
- A 5% incremental increase in the current graduate student OPS support, to continue to be competitive with stipends offered at other institutions.
- Ensure that tuition waivers are available to all graduate research assistants.
- Ensure that health insurance coverage is available to all CMS students.

Technical Staff (2):

- A computer support specialist for the CMS computer facilities. This should be a full-time, 12-month salaried, State-funded position.
- An analytical technician for instrument maintenance. This should be a full-time, 12-month salaried, State-funded position.

Postdoctoral Fellows (2):

- The two best applicants, without regard to discipline, with the exception that they will represent different disciplines. These should be 24-month appointments.

Year 4

Facilities:

- Complete construction of the new College of Marine Science building and instrument the building. Continue with renovations to the MSL building.

Administrative Structure and Flexibility (3):

- Three staff people.

Faculty Recruitment: New Faculty (3)

- Physical Oceanography - An ocean optics experimentalist (10 of 10).
- Chemical Oceanography – A trace metal chemist (10 of 10).
- Geological Oceanography – A remote sensing geophysicist (10 of 10).

Graduate Students:

- Five (5) State-funded student assistantships.
- A 5% incremental increase in the current graduate student OPS support, to continue to be competitive with stipends offered at other institutions.
- Ensure that tuition waivers are available to all graduate research assistants.
- Ensure that health insurance coverage is available to all CMS students.

Technical Staff (2):

- Two technicians to support sea-going research. These should be a full-time, 12-month salaried, State-funded position.

Postdoctoral Fellows (2):

- The two best applicants in the subdisciplines not represented in the previous year's selection of postdoctoral fellows. These should be 24-month appointments.

Year 5 and Thereafter

- Having achieved parity among disciplines in faculty lines, we will continue with our hires consistent with the strategic plan. By this time we may also begin experiencing retirements and rehires within disciplines, based on a reassessment of priorities given the evolution of our respective fields.

For all years, we must also maintain the following priority actions:

- Provide developmental opportunities and training to cultivate administrative proficiency and technical excellence.
- Recognize and reward performance that contributes to achieving the strategic plan.
- Conduct periodic in-house evaluations of CMS to obtain feedback on the extent and quality of administrative and technical support services.
- Continue to maintain competitive graduate student stipends, and ensure that health insurance coverage is available to all CMS students. Ensure that tuition waivers are available to all CMS graduate research assistants.
- Implement a postdoctoral fellowship program with funding from State resources as well as from CMS endowments.

2. Developing a student enrollment profile consistent with a Research I University.

Discussion: We shall continue to develop our graduate program with the goal of being the marine science program of choice in the southeastern United States.

Development of a student enrollment profile consistent with a Research I University calls for increasing enrollment and expanding the percentage of graduate students at USF. The CMS is committed to increasing the enrollment of top-quality graduate students to help achieve this goal. Growth in graduate enrollment is tied to several efforts within the College. First, enrollment growth will be directly linked to new faculty hires. Current student enrollment has previously been maintained in accordance with research funding, grant support, space and facilities.

The addition of new faculty, research fellows, and technical specialists, as outlined in the previous section, will facilitate an increase in the enrollment and caliber of CMS graduate student body. Currently, student enrollment is primarily maintained through external research funding, with little support from the university. Clearly the burden of graduate student support should be shared more equally between CMS and the university. A matching program between CMS and USF for the funding of the highest caliber graduate students would be mutually beneficial.

Recruitment: Improved student recruiting is integral to increasing student enrollment. We must continue to recruit the best available graduate students to allow us to reach the next level of national prominence as an oceanographic institution. CMS intends to focus substantial effort on identifying top USF undergraduate students as well as students from other universities for possible recruitment into our graduate program. An effort will also be made to increase the matriculation of students from groups traditionally under-represented in marine science. These efforts include visits to other college campuses and participating in recruitment events at national meetings and other venues. In addition, a major effort in expanding and maintaining our College website is critical to attracting new graduate students.

Financial Support: One of the major considerations for attracting and retaining top-level graduate students is the level of financial compensation provided by the University. The CMS is committed to making our graduate assistantships nationally competitive for recruiting top-level students. The minimum level of financial support for graduate students must be raised considerably if CMS is to compete for the best and the brightest students. A benchmark level should be established based on the stipend levels at the pre-eminent oceanographic institutions in America. This includes not only the amount of the stipend offered, but also ensuring that the support begins upon matriculation and is guaranteed for the duration of the student's program, contingent upon satisfactory progress. Other benefits, such as tuition waivers for all research assistants and health insurance for all students, provide added incentives to make these stipends highly desirable for student recruiting. Additional graduate student fellowships dedicated to recruiting incoming students will also be sought. Today's graduate students are increasingly pragmatic: they will not come to CMS if the complete financial aid package and its duration are insufficient and noncompetitive.

Potential New Programs: Development of new programs within CMS will also enhance our ability to recruit new students. Several themes to be considered by planning

committees of the Dean's Advisory Council include marine mammals, science journalism, marine science education, and remote sensing.

Key Strategies:

- Increase enrollment of top-quality graduate students.

Priority Actions:

- Enhance recruiting efforts by visits to other universities, participating in recruiting events at national meetings and other venues, and improving the College's website.
- Raise our graduate assistantship stipends to a nationally competitive scale to help attract new students, and ensure that health insurance coverage is available to all CMS students. Ensure that tuition waivers are available to all graduate research assistants.
- Consider development of new programs.

3. Fostering interdisciplinary research and education.

Discussion: Interdisciplinary research and education, with an emphasis on the marine realm, are the two primary foci of the mission of the College of Marine Science.

Many of the compelling issues in marine science are focused on problems that require analysis from multiple perspectives. Linking across each of the academic areas associated with marine science leads to insightful discoveries beyond those normally recognized by individual disciplines.

Excellence in interdisciplinary research, however, must have its basis in frontier excellence within individual disciplines. An obvious corollary pertains to education. Further integration of interdisciplinary programs is a primary goal of CMS. As applied scientists, successful oceanographers must begin with a sufficient training in a given academic area. Solving complex problems involves sharing expertise between individuals, each with strong disciplinary roots. The CMS strategy for fostering interdisciplinary research and education is to promote excellence within disciplines and to foster interactions under the unifying umbrella of climate-related science.

Expansion of current course offerings and integration of faculty from different aspects of marine science for teaching interdisciplinary courses is one avenue for achieving this goal. Further coordination of our existing interdisciplinary curriculum is also planned.

Key Strategies:

- Enhance and expand interdisciplinary research and education in marine science.

Priority Actions:

- Develop new programs, research initiatives and course offerings within CMS.

4. Increasing the engagement of the University with the community and the region.

Discussion: Our "laboratory" is the World Ocean, with applications to the Gulf of Mexico.

As a peninsula of nominal elevation, Florida is highly susceptible to climate change. An increase in the present rate of sea-level rise (about 2mm/year) will exacerbate coastal erosion; and alterations in weather patterns will affect agriculture, hurricane frequency/intensity, and tourism. Moreover, coastal development continually stresses the coastal and offshore ecosystems that make Florida such an attractive place to visit or live. CMS expertise should have bearing upon all of these and related environmental problems.

The CMS has a strong history of interacting with local, regional, national and international communities. These activities are synergistic in that members of our college are sought for their expertise, and the ensuing activities add to CMS research and teaching mission. Our outreach programs have been built around stimulating economic development and educational partnerships.

Economic Development: The CMS presence has added to the economic development of Tampa Bay by attracting and/or working with other marine science organizations such as the USGS Center for Coastal Geology, the Florida Fish and Wildlife Conservation Commission (FFWCC) (in which organization the Florida Marine Research Institute [FMRI] resides), NOAA's National Marine Fisheries Service (NMFS), and the U.S. Coast Guard. Our programs have consistently provided well-trained employees for these and other marine-related agencies and businesses in our community. Proactively, CMS promotes economic development by partnering with area government agencies, businesses and industries, and by encouraging community access to our staff and facilities.

Educational Partnerships: CMS has shown leadership in developing marine science programs that implement our mission to bring science to many sectors of the community. The goals and mission of the College are directly linked with community needs and issues. We have established several educational partnership programs that benefit students and teachers nationwide. These programs include Project Oceanography, the Oceanography Camp for Girls, In-Service Teacher Oceanography Workshops, Making Waves, and Project Tampa Bay.

The educational partnership programs seek to successfully integrate scientific research and education to enhance science learning for students and teachers outside the university. Current programs are interactive and interdisciplinary, providing experimental learning via research cruises, field trips, research projects, live interactive television, lectures and web-based technologies. Educational partnerships provide our graduate student body with opportunities to teach, and our faculty with opportunities for community interaction.

These programs are important enhancements to public education. They have also expanded our relationships with federal research agencies, other research institutions, and with businesses and individuals worldwide. We must both maintain these programs and develop others as a way to educate citizens about issues relating to our water environment.

Key Strategies:

- Continue and expand CMS interactions with local, regional, national and international communities.
- Continue our educational partnership programs and develop others as a way to educate citizens about issues relating to our water environment.

Priority Actions:

- Continue a high level of service and interaction with local, regional, national and international communities. Actively seek out collaborations with government agencies, businesses and industries.
- Develop long-term funding sources for existing CMS educational outreach programs; i.e., Project Oceanography, the Oceanography Camp for Girls, In-Service Teacher Oceanography Workshops, Making Waves, and Project Tampa Bay; and consider new programs.

5. Enhancing the quality of student life and the intellectual climate to support teaching and learning.

Discussion: Our goals are to provide our students with adequate financial support and research tools to facilitate their development, and to expand intellectual communication among faculty, staff and students.

The enhancement of the intellectual climate of USF and CMS is intimately linked with enhancing the quality of student life. This includes the expansion of intellectual communication among faculty, staff and students. Greater participation of graduate students in the resolution of academic issues and the decision-making process greatly enhances the student's role in the College and adds substantially to the camaraderie felt by all members of the College. To promote this, a graduate student representative serves on the Dean's Advisory Council.

Several specific issues have been identified that will enhance the student's life and academic experience during their tenure in our program. Foremost among these is ensuring that stipends paid to the students are competitive and will enable them to meet their living expenses. These stipends should include the availability of tuition waivers for all graduate research assistants as well as health benefits for all CMS students. Improvement in physical facilities, such as increased office and lab space, as well as state-of-the-art graphics and computer facilities, should also enhance student life substantially. The addition of new faculty, postdoctoral fellows and technical specialists will also make CMS a more complete, interactive and multidisciplinary group of oceanographers. Further expansion of our course offerings, development of new programs, and students participating in educational outreach activities will also add to the student's educational experience. Increased funding for student travel and participation in national and international conferences is also a goal of CMS. We further anticipate improving assistance to students in identifying fellowship opportunities, career counseling and job placement.

Key Strategies:

- Nurture and enhance the intellectual climate in CMS.
- Improve the quality of life for current CMS graduate students.

Priority Actions:

- Encourage and foster greater participation of our graduate students in resolving academic issues.
- Increase funding for student travel and participation in national and international conferences.

- Raise our graduate assistantship stipends to a nationally competitive scale and ensure that health insurance coverage is available to all CMS students. Ensure that tuition waivers are available to all graduate research assistants.

SUMMARY OF PRIORITY ACTIONS

The Strategic Plan of USF's College of Marine Science is focused primarily around the permanent establishment of the College. In order to fully flourish and develop into a marine science program of national and international distinction, participation and commitment from USF and the State of Florida are essential. To achieve our research and educational goals, it is important to enhance partnerships within USF to ensure the success of our program. As outlined previously in the individual themes of strategic directions, our required resources over the first four years of the CMS Strategic Plan supports six pivotal issues; specifically, new and renovated facilities; administrative structure and flexibility; faculty recruitment; graduate student support; technical staff; and postdoctoral fellows. We suggest an incremental solution to our needs each year, with the priority of each resource ranked in order of importance to the CMS community.

Year 1

1. Designation of a new CMS research/teaching building as the top USF PECO need;
2. Renovation of the MSL building to immediately address CMS pressing space needs;
3. Local CMS authority for staff salary adjustments;
4. State-supported administrative positions for the newly formed College (9) - Dean; Associate Deans of Research, Academic Affairs, and Administrative Affairs; Administrative Assistant to the Dean; Director of Administrative Affairs; Coordinator of Administrative Services; Coordinator for Academic Support Services; and Assistant Director of Budget and Finance;
5. New faculty (4) - 2 physicists, 1 chemist, 1 biologist;
6. State-supported graduate student assistants (5), a 50% increase in the current graduate student OPS support, availability of tuition waivers for all graduate research assistants, and health insurance coverage available to all CMS students;
7. A CMS center for State-funded technical/analytical staff to complement the present COT. Technical staff (4) - computer, analytical, sea-going and remote sensing specialists;
8. Postdoctoral fellows (2);
9. State-supported educational outreach (2) - Project Oceanography – a Project Coordinator and an Education Specialist; and
10. Assign an existing development officer, dedicated to building endowments, to the College of Marine Science.

Year 2

1. Planning funds for the new College of Marine Science building and funds for MSL renovations;
2. State-supported administrative positions (6) – Executive Secretaries for the Associate Deans (3), Coordinator for Computer Support, Coordinator for Marine Science, and a Program Assistant;
3. New faculty (3) - 1 chemist, 1 physicist, 1 biologist;

4. State-supported graduate student assistants (5), a 5% incremental increase in current graduate student OPS support, availability of tuition waivers for all graduate research assistants, and health insurance coverage available to all CMS students;
5. Technical staff (2) – 1 computer technician, 1 instrument maker/designer; and
6. Postdoctoral fellows (2).

Year 3

1. Initiate construction of the new College of Marine Science building and continue renovations of the MSL building;
2. State-supported administrative positions (3) – 2 program assistants, 1 office manager;
3. New faculty (3) - 1 geologist, 1 chemist, 1 physicist;
4. State-supported graduate student assistants (5), a 5% incremental increase in current graduate student OPS support, availability of tuition waivers for all graduate research assistants, and health insurance coverage available to all CMS students;
5. Technical staff (2) – 1 computer support specialist, 1 analytical technician for instrument maintenance; and
6. Postdoctoral fellows (2).

Year 4

1. Complete construction of new College of Marine Science building and instrument the building. Continue renovations of the MSL building;
2. State-supported administrative positions (3) – staff people (3);
3. New faculty (3) - 1 physicist, 1 chemist, 1 geologist;
4. State-supported graduate student assistants (5), a 5% incremental increase in current graduate student OPS support, availability of tuition waivers for all graduate research assistants, and health insurance coverage available to all CMS students;
5. Technical staff - (2) - sea-going specialists; and
6. Postdoctoral fellows (2).