A Vision for SoMAS Science, Education, and Outreach Leadership, 2019-2024
Message from the Dean

This Strategic Plan, "A Vision for SoMAS Science, Education, and Outreach Leadership, 2019-2024," provides guiding principles, goals, objectives, and strategies for SoMAS’ success for the next five years and beyond. Since joining SoMAS in July of 2018, I have been continually impressed by the complementary skills, ideas and enthusiasm of the SoMAS faculty and staff, covering great breadth and strength in marine sciences, atmospheric sciences, and sustainability. The last discipline in that list can be thought of as an intellectual glue binding the School together in a shared mission. Indeed, SoMAS faculty and staff have always had a passion to do science in service to society. As our unofficial motto states, we are "Making Scientific Research Count."

Challenges
We consider ourselves passionate stewards of a natural and sustainable Earth, at a time when we face a great many challenges. Climate change and all its impacts, e.g. new weather extremes, "wetter" tropical cyclones, sea level rise, more severe storm surge, coastal erosion, ocean acidification and its impacts, sea ice loss and associated loss of habitats, along with a host of other challenges related to human activities—species diversity and conservation, ecosystem threats, fisheries sustainability, microplastics, nutrient runoff, food security, waste management issues, and air quality, are issues we must all confront. Many of these impacts are most acute in coastal environments where the atmospheric, marine and terrestrial environments meet and interact. We are humbled by the magnitude and urgency of these challenges, yet energized to make lasting contributions through meaningful solutions using our combined talents.

For SoMAS, our focus on coastal resiliency issues is important because 57% of global population lives in urban environments, 40% lives within 100 km of an ocean, and 70% of greenhouse gases are emitted in urban environments. Our unique access to important coastlines and estuaries and a nearby living laboratory in one of the world’s great megacities, New York City, affords us an exceptional opportunity to address these issues.

Aspirations
The SoMAS strategic plan is our blueprint for greatness. Certain aspirations should be highlighted:
1. The pursuit of excellence in all of our undertakings.
2. Significantly increasing the size and impact of our research enterprise.
3. Building new state-of-the science facilities.
4. Reaching more students, and providing experiences that build character and leadership potential.
5. Developing and supporting a diverse student, staff, and faculty complement that supports understanding, and wide-ranging problem-solving.
6. Developing and fostering functional and intellectual connection among disciplines across the Stony Brook University (SBU) campus, enabling us to lead in pursuit of global, regional, and local grand challenges.
Commitments
This Strategic Plan articulates our commitments to SoMAS faculty, staff, students, and to the University as a whole. Foremost is our commitment to excellence in scholarship, teaching, and mentoring of our students, faculty, and staff. Our vision of excellence translates into leadership in the university and in our communities. That leadership necessarily should translate into impacts for our stakeholders, which in turn strengthens our reputation and stature. We are committed to the highest quality educational experiences for our students that will transform the way they think about their potential careers and life options. Part of the student experience involves exposure to a diversity of viewpoints and approaches for problem solving, which is key to scientific productivity. We also commit to effective outreach with our stakeholders, regarding our efforts to ensure a substantial return on investment in SoMAS, and its faculty, staff, and students. It is a privilege to serve Long Island, the State of New York and the nation in the many ways we do, and we commit to regular and effective communication regarding our efforts and impacts and our students’ successes.

Opportunities
Climate change involves and connects (through exchanges of carbon, water, mass, and energy) the oceans, the atmosphere, and the many components of the Earth’s biosphere and the near-surface of the continental environments. In order to lead efforts to understand the connectedness and changes in these Earth components and manage the built environment, we must connect scientists, engineers and social scientists whose scholarship touches on those components. Thus, SoMAS has a responsibility and great opportunity to define new paths within SBU for collaboration and education regarding all components of Earth’s systems.

Spirit
The SoMAS family is a great group of people. Our future success lies in upholding our spirit of collegiality and excitement of shared purpose for meeting the challenges currently facing the Earth and its inhabitants. We embrace the values of diversity, equity and inclusion, striving to provide a safe, respectful, welcoming and intellectually stimulating environment for everyone. We will lead by example, nurturing the next generation of global leaders in a culture in which we lift each other up and celebrate each other’s successes.

Paul Shepson, Dean

The School of Marine and Atmospheric Sciences (SoMAS) was originally established in 1965 as the Marine Sciences Research Center (MSRC) of New York State to serve as the SUNY-wide center for research in marine sciences. We have since contributed to the establishment of New York’s Sea Grant (NYSG) program in 1971 and more recently expanded the scope of our efforts to include atmospheric sciences and sustainability studies. Looking forward, this Strategic Plan was written by a committee with input from all SoMAS faculty and staff to articulate our ambitions and guide our actions over the next five years. We will evaluate our progress annually and revise our strategic plan every five years as our goals are met, as our School evolves, and as new challenges continue to emerge between society, the sea, and the sky.

SoMAS embraces and promotes the values of diversity, equity and inclusion. We strive to provide a safe, respectful, welcoming and intellectually stimulating environment for students, staff and faculty of all backgrounds and identities including but not limited to sex, race, religion, creed, socioeconomics, ethnicity, age, geographic origin, ancestry, sexual orientation, gender identity, gender expression, marital status, familial status, disability, political philosophy and veteran status. We believe firmly that these values are not only moral and ethical imperatives, but also foundational elements of holistic problem-solving that engages and values multiple perspectives and opinions leading to the pursuit and creation of the best science and the most innovative solutions to pressing environmental and societal challenges.
Vision

Be a world-class integrative program in marine, atmospheric and sustainability research and education, committed to a culture that promotes academic excellence, diversity, equity and inclusion.
Mission

To advance knowledge and solve critical global and regional problems through the study of human and natural systems.

Our strategic plan to fulfill this mission is centered around three main goals:

Goal 1: Double the SoMAS research enterprise and pursue excellence through disciplinary and interdisciplinary research.

Goal 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

Goal 3: Lead efforts to understand, mitigate and adapt to climate change and other environmental problems at regional and global scales.
An experimental aircraft used by Dr. John Mak
GOAL 1: Double the SoMAS research enterprise and pursue excellence through disciplinary and interdisciplinary research.

Our approach to excellence is based on three strong interconnected pillars in Marine, Atmospheric, and Sustainability research. Our research encompasses grand topics that directly engage society, such as climate change, air and water pollution, sea level rise, storm surge, extreme weather, radar meteorology, waste management, ocean acidification and deoxygenation, environmental and public health, sustainable fisheries, and coastal resilience. The intersection of these areas of research will become increasingly integrated. The coast, for instance, is where the oceans, atmosphere, land, and society intersect, where climate-related changes are most acute, and where our research will have increasing relevance. The responsibility of our research is to guide balanced development and operating practices that do not jeopardize the life-supporting systems of the Earth and the quality of life for future generations. Our collective expertise addresses these challenges in a variety of ways. To secure the resources to make a significant difference addressing these issues, we will work to double our research enterprise over the next five years.

OBJECTIVE 1.1: Grow the SoMAS research enterprise by strengthening and facilitating interaction among the three pillars to maximize our effectiveness.

STRATEGIES

- Ensure that the three pillars of Marine, Atmospheric, and Sustainability research have consistent organizational structure, leadership and strength, and promote interaction. Appoint a Director of Marine Sciences and increase the number of tenure-track faculty in Sustainability.
- Identify and foster collaborations that explore interconnections among ocean, atmosphere, land, and society.
- Regularly evaluate and discuss ongoing research, funding opportunities, strategic initiatives, and future projects.
- Bolster our research enterprise by actively pursuing interdisciplinary research projects and grant opportunities and building relationships with the private sector and other non-federal organizations.
- Enhance Geographic Information Systems (GIS) and geospatial analysis, an integrative field with relevance to Marine, Atmospheric, and Sustainability research.
OBJECTIVE 1.2: Enhance the impact of research through innovative engagement outside SoMAS.

Our research can only be more impactful when we communicate effectively. Effective communication depends as much on active listening as it does on relatable and articulate speaking across a variety of platforms. To increase the impact of our research, we will enhance the dialogue among faculty, students and staff with the community, state, nation, and world.

STRATEGIES

- Stimulate interdisciplinary research collaborations with other schools, colleges, and departments within Stony Brook University.
- Establish a task force to develop more collaborative research programs with Brookhaven National Lab and Stony Brook Medicine.
- Continue to raise the national and international profile of faculty members by leading large-scale collaborative projects.
- Encourage faculty to participate in relevant national/international panels, advisory boards, and in the organization of national and international conferences, workshops, and symposia.
- Form partnerships with (inter)national organizations, universities and the private sector.
- Encourage faculty to seek international collaborations and sabbaticals to seek new perspectives and enhance visibility.
- Host short courses and certifications in areas of our expertise that attract international participants.
- Engage with alumni more effectively by hosting and participating in alumni events to enhance the visibility of SoMAS.
- Highlight content on the SoMAS webpage and social media channels for the local community to find guest speakers on a variety of topics and information of general interest.
- Host and make a concerted effort to participate in campus-wide events, like Club Red and the University Senate, to foster interactions with other colleagues at Stony Brook.
- Utilize a public relations staff member to help with communicating SoMAS research to the outside world.
- Develop a promotional video using resources in the School of Journalism.
- Enhance interactions with other federal and state organizations (e.g., NOAA-National Weather Service, NYS DEC).

GOAL 1: Double the SoMAS research enterprise and pursue excellence through disciplinary and interdisciplinary research.
OBJECTIVE 1.3: Integrate our pillars of strength to become the leader on coastal challenges.

SoMAS is internationally recognized for its leadership in Earth system sciences, where the greatest advances in science happen at the intersection of multiple disciplines. Nowhere is this more true than in coastal research.

STRATEGIES

- With the guidance of the Associate Dean for Research, create working groups to investigate integrative research questions and environmental solutions, and identify funding opportunities to support such endeavors.
  - Target large, multi- and trans-disciplinary funding opportunities.
  - Develop institutes and/or centers of excellence in areas such as Human Health and the Environment, Climate Change Research and Solutions, and Fisheries Science and Management.
  - Convene workshops within SoMAS around broad integrative research themes for which research faculty meet regularly (e.g., GIS, human health).
- Encourage increased interactions among our diverse range of faculty by supporting informal brown bag discussions, creating new social spaces (such as an area in MASIC), and providing other opportunities that bring the community together.

OBJECTIVE 1.4: Establish a strategy to coordinate and promote faculty and staff hiring in order to reinforce areas of historic strength, develop new capabilities and strengths in emerging areas, and build connections among existing and future areas of strength.

The research areas of SoMAS have changed over the last 50 years and many of our world-renowned faculty will be retiring in the next few years. It is critical to have a strategy to hire the next generation of faculty and staff to ensure that we advance the goals of the SoMAS mission including SoMAS and Stony Brook University's common mission of diversity and inclusion.

STRATEGIES

- Establish a standing strategic hiring committee, whose first task will be to develop and implement a staff and faculty hiring plan for the next five years. The charge of this committee will be to ensure that the hiring plan is faithful to the strategic plan as our workforce evolves. The committee will identify growth areas in research, and evaluate the current makeup of SoMAS personnel, SBU more broadly, and the Brookhaven National Lab in order to identify critical gaps in expertise and opportunities for research, collaboration and growth. A major goal of this committee will be to identify the proper balance of hiring staff and faculty in order to provide support new capabilities, provide "connective tissue" among existing areas of expertise, and to realize the goals of the strategic plan.
  - Current priorities for faculty hires include the following areas: Conservation Ecology, Geological Oceanography, Physical Oceanography, Environmental Economics, Environmental Justice, Ecosystem Modeling, Aquaculture and Food Security, Public policy, and Fisheries Science. Within these fields, scientists with expertise in GIS and geospatial analysis and those with expertise in statistics, and integrative fields with relevance to marine science, atmospheric science and sustainability, should be priorities. In addition, experts in marine conservation, policy and management within these fields should be pursued to support the Marine Conservation and Policy MA program.
  - Priorities for staff hires include experts in public relations, outreach, and online teaching support in order to help scientists in SoMAS reach broader audiences and to effectively communicate their research to the general public.
- Target faculty across the country with superlative credentials and aggressively recruit them.
- Increase financial support of existing staff to reduce internal rates for cost centers.
- Develop a mentoring program for staff in order to provide improved opportunities for learning and professional development and to develop leadership, communication, critical thinking and professional skills that are central to goals of the Strategic Plan.
- Train search committees to reduce unconscious bias in recruitment.
- Consciously and actively seek diversity hires.
- Evaluate faculty teaching assignments and teaching loads at both the undergraduate and graduate levels to ensure that our human resources are being used as effectively as possible.
GOAL 1: Double the SoMAS research enterprise and pursue excellence through disciplinary and interdisciplinary research.

OBJECTIVE 1.5: Develop the facilities needed to enhance our leadership on coastal challenges.

SoMAS is internationally recognized in all areas of coastal issues. However, our continued growth depends upon having facilities that enhance our capabilities, foster our collaborative spirit, remove limitations to large multidisciplinary projects, and inspire creativity to address the most important problems of our time. The core of this endeavor is to revitalize our research platforms.

STRATEGIES

- Ensure research vessels and facilities provide a safe and efficient work environment for faculty, staff and students.
- Conceptualize a new building on the main Stony Brook University campus that maximizes productive interactions between faculty and staff in SoMAS, is equipped with facilities that enhance research (e.g., environmental chambers), is designed with the most advanced LEED-certified sustainable techniques and is strategically placed to facilitate interactions with other departments.
- Evaluate research vessel needs to accommodate our growing research enterprise and fundraise, plan and design as appropriate.
- Leverage our own computing facilities with those offered through Stony Brook University (e.g. at the Institute for Advanced Computational Science) and federal agencies.
- Improve the affordability of technical services.
- Improve Flax Pond scientific infrastructure to increase use by our faculty, and by surrounding high schools, universities and community colleges.
- Maximize use of Southampton research facilities.
- Enhance and modernize the existing SoMAS Teaching Laboratory to provide an even better experience for our undergraduates through fundraising. Revise the course fee structure of each class that uses the lab to maintain the quality of the facility.
- After increasing the research enterprise, establish a small competitive grant to fund technical services with preference shown for early career faculty.
OBJECTIVE 1.6: Strengthen our support and mentoring program for faculty.

We seek to nurture a culture of inclusiveness that retains all faculty, and supports women and under-represented groups. We also want our early-career faculty to do more than achieve tenure; we want them to be efficiently promoted to full professor and grow into distinguished professors. While our mentoring program focuses on incoming faculty during the critical time in which they strive to achieve tenure, mentorship does not end there. Continuing to mentor faculty as they aim to achieve the rank of full professor is no less important to growing our research enterprise and impact. Strengthening our mentoring program is critical to being a world-class institution.

STRATEGIES

- Solve financial barriers for new hires by supporting spousal hires, providing competitive salaries and working with Stony Brook University to find creative ways to help new faculty with housing costs.
- Institute written (in compliance with University-wide policy) family-leave guidelines for faculty.
- Formalize a mentoring program for all levels of faculty and train the mentors, leveraging resources, and consistent with mentoring guidelines within the Office of the Provost.
- Provide a guidebook for new faculty on successfully navigating the promotion and tenure process at Stony Brook University and SoMAS.
- Provide funding for graduate student support for assistant professors as part of their startup, so junior faculty can begin quickly, focus on research, and have a graduated student at tenure evaluation.
- Encourage faculty to write early career award proposals (e.g., NSF CAREER, DOE Early Career Research Program) within the first three years of their arrival. Not only are such awards prestigious, but such proposals require new faculty to outline a strategy for their research program early in the tenure process.
- In the interest of enhancing visibility, actively encourage junior faculty to present their research at high profile inter/national conferences and provide travel funding within the first four years of their arrival on a competitive basis.
- Provide funds and actively encourage new faculty to travel to meet with project managers at various funding agencies.
- Help arrange/encourage one-on-one meetings within their first year between new faculty and senior faculty in SoMAS, relevant faculty in other departments, and other local agencies such as NYS Department of Environmental Conservation and NY Sea Grant.
OBJECTIVE 1.7: Lead efforts to organize and develop a high-impact University-wide Center in Earth Systems Research, Education, and Outreach at Stony Brook University.

Stony Brook University scholars address the most urgent questions of our time in human health, environmental change, sustainability, materials science, energy management, engineering, economics, geopolitical stability, planetary evolution, and the origins of life. They have expertise in theory, instrumentation and observations, communication, and practical applications and solutions for society. And they individually explore problems that inextricably contribute to and depend upon the state of our planet. There is a need to create a hub that will synergistically facilitate key discoveries at the intersections of all of these fields by better engaging the broader community of scholars at Stony Brook University, Stony Brook Medicine, and Brookhaven National Laboratory in our environmental research and education enterprise. We seek to invest in a deliberate set of research and education activities that will connect those who share our vision to recruit and involve students, and connect students, staff, and faculty with decision-making for a sustainable future. We aim to immediately pursue the development of a Center for Earth Systems Research and Solutions that would bring together collaborators across campus, to build capacity and success, develop productive partnerships, and enable this vision to develop in the most constructive way. An intended ultimate potential outcome for the Center is the development of a new cross-campus College that serves as a crucible for interdisciplinary research efforts on Earth system problems, as well as a home for new cross-campus education programs, nominally, a College of Earth Systems.

STRATEGIES

- Develop and nurture a campus-wide (or larger) Center for engaging all relevant and interested individuals and units in a holistic program for the study of all Earth systems and their interactions and processes, human and ecosystem impacts, and pursuit of potential solutions to related challenges, along with integrated educational programs. We will start this process of campus-wide engagement on such a Center through an appropriate scoping workshop that we will lead.
- Begin the effort by identifying specific new opportunities for collaborative grants, e.g. those being pursued with the NSF "CoPe" or STC opportunities as targets of opportunity, as part of such a Center.
- Lead and develop other concepts for new cross-School/College research endeavors.
- Reserve several SoMAS seminars each semester for relevant colleagues from Stony Brook University, Stony Brook Medicine, and Brookhaven National Laboratory.
- Host social events that foster new relationships and creative exchanges with prospective colleagues from other campus units and institutions.
- Host workshops with the goal of writing a special issue in a journal focused on the interdisciplinary state of knowledge of the most important problems/questions in contemporary studies of the Earth (see list in paragraph above).
- Fundraise for new seed grants to explore high-risk high-reward collaborations across campus that could lead to larger-scale proposals to major funding sources.
- Create cross-school undergraduate programs (e.g., Environment and Human Health; Pathways to Sustainable Urban Systems).
- Create cross-school certificate programs for MS and PhD students to develop interdisciplinary skills and advance the professional careers of our students.
- Find ways to co-advise students across relevant academic units.
Students in Experimental Marine Biology Lab onboard the R/V Peconic
GOAL 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

We strive to create a community of compassionate, creative and globally aware citizens and scientists. Education lies at the core of both our mission and our scientific enterprise. Students represent our greatest resource and contribution to society and ultimately define our legacy. We seek to foster intellectual growth and societal betterment that result from the respectful sharing of diverse viewpoints, inclusion and respect for diverse backgrounds, and valuing the variety of methods used to create knowledge. Our mission to solve societal problems requires motivated, informed, and problem-solving students. Their success is the ultimate measure of the success of SoMAS and our ability to make the world a better place.

OBJECTIVE 2.1: Inspire undergraduate students by more fully integrating them into our research enterprise.

By more fully integrating our research and educational enterprises, we can include a broader array of people in our research and inspire students to address societal problems. In addition to existing independent research and field study courses, we will increase research opportunities for all students in such a way that it benefits ongoing projects, further strengthening our research enterprise and teaching our students to solve problems using a scientific approach.

STRATEGIES

- Redesign existing lab/field courses to shift from instructor-directed laboratory exercises toward dynamic discovery-focused activities.
- Design and offer undergraduate courses in quantitative methods, statistics and modeling.
- Expand our 1-3 credit hands-on research courses where students assist in current field, lab, and analysis activities under the direction of a faculty member or advanced graduate student. Research courses provide opportunities for graduate students to gain experience outside their immediate field of interest and provide a formal system to allow graduate students to mentor new graduate cohorts and undergraduates.
GOAL 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

OBJECTIVE 2.2: Increase the number, strength, and diversity of undergraduate students to better reflect the nation’s demographics.

SoMAS has a wide variety of undergraduate programs and an ethic to train responsible global citizens. We can improve recruitment of undergraduates by strengthening and expanding our 100- and 200-level course offerings, with the aim to make prospective majors and minors aware of the wide range of degree programs in SoMAS. Recruitment efforts, especially from underrepresented groups, also need to begin sooner, i.e., as high school students discuss their future with their guidance counselors and before a student in a community college transfers to Stony Brook University. SoMAS should develop early connections with prospective students and their counselors and families through our outreach efforts, where they have an opportunity to meet our faculty, staff and current students. This relationship would establish a pipeline of high-quality students to our undergraduate and eventually our graduate programs.

STRATEGIES

- Strengthen ties to high schools with a variety of activities such as inviting high school counsellors to SoMAS for a workshop or incentivizing current students to reach out to high schools.
- Form new and expand existing relationships with high schools with a high proportion of underrepresented students.
- Expand and strengthen credit-bearing summer (or winter) course offerings for high school students. This can be a powerful recruitment tool to both SoMAS and SBU.
- Bring more prospective students and their families to visit the Southampton labs and a revitalized Flax Pond Marine Lab.
- Develop new articulation agreements with community colleges outside Suffolk and Nassau Counties.
- Develop Continuing Education courses for current high school science teachers during the summer or winter. For example, a residential summer course at Southampton or Main Campus would draw from all over the state, expanding our recruitment impact.
- Work more closely with the Undergraduate Admissions Office on recruiting undergraduates.
- Increase participation (both within SoMAS and outside) in large events, e.g., SUBMERGE, BENEATH THE SEA, CommUniversity Day, Bay Scallop Bowl, through better social media presence and increasing sponsorship of such events.
- Formally evaluate the effectiveness of outreach events in increasing the number, strength, and diversity of students.
OBJECTIVE 2.3: Connect with undergraduate students early and often.

We will continue to innovate the way that undergraduates are integrated into the SoMAS intellectual community through early and consistent exposure to a variety of faculty members and areas of inquiry, through consistent mentoring and through a variety of learning styles. We will engage undergraduates earlier and help them feel part of our community immediately, as they progress through their academic careers, and after graduation.

STRATEGIES

- Develop 100/200-level course(s) for majors that integrate areas of SoMAS, in particular, a field course to increase recruitment to our undergraduate programs, perhaps as part of residential college courses.
- Have faculty introduce their research/labs in 100/200-level courses (<five minutes at the beginning of each class), many of which target non-majors.
- Introduce internship, study-abroad, tutoring, scholarship and other possible opportunities to students in 100/200-level courses.
- Create an online database of current openings for undergraduate researchers to volunteer and/or work in laboratories.
- Create opportunities for students to visit research labs.
- Expand the current practice in Sustainability to hold networking events for alumni and current students.
- Have training events to help students learn how to gain research experience in a lab, how to write a professional resume, and how to be successful in their graduate school search.
- Maximize faculty participation in recruiting events.

OBJECTIVE 2.4: Strengthen the undergraduate student experience.

Undergraduate students require an increasingly rigorous course of study that prepares them for success in graduate school and the highly competitive employment market. Students will be exposed to field work, primary research, and experiential learning opportunities throughout their undergraduate careers and will take courses that are carefully designed to develop integrative scientific understanding and problem-solving, as well as necessary fundamental skills in critical thinking, effective communication, quantitative literacy, and responsible conduct of research.

STRATEGIES

- Reduce redundancies in the current major offerings and develop attractive new or redesigned majors guided by current needs of society.
- Invest in faculty (lecturers or tenure track) and staff (e.g., undergraduate advisor position) tasked specifically with strengthening the undergraduate experience via course offerings, advising, and other activities.
- Create more opportunities for students to engage in experiential learning, e.g., research, internships, and related professional practices. Focus these activities on the development of writing, quantitative literacy, interpersonal skills, and other in-demand skills for an ever-evolving job market.
- Increase the number of undergraduates graduating with honors (via a research project).
- Increase funding to provide financial support for undergraduate students to do research or internships (e.g., REU supplements for NSF-funded projects).
- Provide training in the practice of science, including critical thinking and analysis of real datasets in classes, and responsible conduct of research and scholarship.
- Include more projects in lab courses and more hands-on field experiences. Expand on scalable models for undergraduate research, like the Earthworm Toxicology Lab.
- Offer big data, cloud computing, statistics, and supercomputing courses with applications in multidisciplinary topics addressed by SoMAS.
- Offer more online courses to offer students flexibility for degree completion.
- Enhance in-class engagement through interactive technologies.
- Every undergraduate student should complete a senior project or a capstone course. These could also act as a bridge to our five-year BS/MS program.
- Create spaces where undergraduate students can mingle, relax, and interact.
- Recognize and support students who are seeking careers in education, policy-making, organizational leadership, and business.
- Create a scholarship fund (~$5,000 - 10,000 per annum) to support high profile undergraduate research activity.
GOAL 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

OBJECTIVE 2.5: Recruit a larger, stronger, more diverse applicant pool for graduate programs.

Increasing the size, quality and diversity of the SoMAS graduate student population will bring new perspectives to the classroom and to our research enterprise. It will also help us understand how environmental issues affect a wide variety of people and communities. This, in turn, will strengthen the ability of SoMAS to produce transformational science and train future leaders and problem-solvers. This effort will focus on student groups traditionally underrepresented in STEM fields.

STRATEGIES

- Publicize the careers of our many successful PhD, MS and MCP graduates on our website.
- Develop new integrative graduate and certificate programs that channel existing strengths, particularly in Sustainability research.
- Provide assistance in writing NSF graduate fellowship proposals to identified excellent prospective students.
- Increase web and social media presence and quality with an interactive web page and online blog page.
- Train faculty on how to prevent unconscious bias in the graduate admissions process.
- Offer more fellowships to underrepresented students.
- Hire a community engagement or outreach staff member to highlight the accomplishments of our graduates.
- Have interactive social events at national and international meetings to attract potential graduate applicants.
- Work more closely with the Graduate School to promote SoMAS visibility.
- Submit proposals to support this effort (e.g., NSF, NSF-NRT, NSF GeoPATHs, NASA).
GOAL 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

OBJECTIVE 2.6: Strengthen the graduate student experience.

A strong graduate program starts with an active, intellectual and well-funded faculty. We then provide high quality support for our graduate students, beginning at recruitment. We will continue to grow and strengthen our world-class PhD program. We will improve the support structure for graduate students and provide more certainty and longevity in funding, including opportunities created through the development of new, large, introductory undergraduate courses that require TAs, fundraising for fellowship opportunities, and support for students who are completing their dissertations. The work completed during their graduate careers will provide our students with the content, knowledge, and skills they need to succeed in their current research and in their chosen career path. We will provide mentorship and professional development that guide the students to succeed in their chosen careers, and this will be the legacy of SoMAS.

STRATEGIES

- Follow up on the recommendations from a recent in-depth curriculum survey to establish a curriculum that provides flexibility in PhD degree and candidacy requirements, ensures content knowledge, and provides skills to succeed in transdisciplinary research.

- Make strategic hires that will increase the number of quantitative courses available to students and encourage faculty to revise existing courses to include a strong quantitative component.

- Increase external support for graduate students to provide more certainty and longevity in funding for incoming students. Allow for more competitive offers (five years of guaranteed support for PhD students) to attract the best graduate students.

- Bring graduate student stipends to parity within SoMAS and with other institutions with lower costs of living.

- Subsidize university fees that have increased for graduate students by paying them on grants when allowable or by raising salaries to compensate for fees. Fundraise to provide more scholarships for graduate students including ones to support students at the end of their graduate program who are writing their dissertations.

- Write research grants (e.g., NSF NRT) to obtain fellowships and increase external support for graduate students.

- Develop projects where graduate students from programs across campus are admitted as teams, thus exposing students to fields outside their immediate discipline, promoting transdisciplinary training, and expanding funding opportunities.

- Provide professional development seminars on topics such as work-life rhythm, leadership, negotiation, and organization skills.

- Allow for more teaching/mentoring opportunities for those students interested in a career in teaching.

- Develop programs where students identify mentors other than their academic advisor who will help them achieve their career goals that might be in professions other than academia and/or in fields different from their major advisor.

- Provide a variety of seminars that expose graduate students to emerging research areas and innovative research techniques.

- Since more than half of STEM PhD students do not go into academia, expose students to non-academic career opportunities and provide the knowledge and skills to succeed in non-academic work environments.
Participants in GIS Day, a series of workshops hosted by the Geospatial Center
GOAL 2: Develop the next generation of leaders to address interwoven environmental, technical, social, economic, political and ethical challenges.

OBJECTIVE 2.7: Digitally transform SoMAS.

SoMAS has entered the digital transformation era where using technology and data to better meet our students’ and collaborators’ needs is essential. SoMAS is designing and delivering digital content for our prospective students. We will increase our online course offerings significantly, especially through our Geospatial Center, and we will continue to convert other courses online to increase learning outcomes, recruitment, retention and graduation rates, employment opportunities, and salaries for our students. Through digitization of physical materials, we will continue to build our collection of online educational resources. Prospective students are targeted through social media, direct emails, and through artificial intelligence and virtual reality technologies that bring our spaces to life through the Internet.

STRATEGIES

- Hire a staff member to help bring prospective online courses up to speed, and to develop high-quality in-house expertise.
- Educate faculty on the benefits of digital transformation through seminars.
- Provide compelling incentives and support for faculty to develop online course offerings.
- Continue to build our online educational resources for other than full courses.
- Increase the use of AI, VR and augmented reality (AR) in SoMAS courses, and in research.
- Expand and improve virtual tours of our facilities (http://somas.stonybrook.edu/tour).
- Enable two-way teleconference capability to Endeavour 120 and all of our conference rooms to facilitate communication with the Southampton campus.
Superstorm Sandy Approaching New York
GOAL 3: Lead efforts to understand, mitigate and adapt to climate change and other environmental problems at regional and global scales.

Making Scientific Research Count is the unofficial motto of SoMAS since the inception of the Marine Sciences Research Center for New York State. Over the last 50+ years, the scope of our research and education efforts has broadened, especially with the inclusion of Atmospheric and Sustainability Science, but our commitment to studying environmental issues and solutions has only strengthened. A SoMAS faculty member was involved in the creation of the Environmental Defense Fund (https://www.edf.org/about/our-history) and banning DDT in the U.S. We are developing technologies to preserve groundwater quality, improving prediction and planning for urban environments impacted by rising sea levels, and incorporating climate predictions and projections into the management of marine resources. We are proud of our 50+ year tradition of conducting science to solve societal problems. Going forward, we will continue to address the most pressing environmental challenges. Many of the barriers to implementing solutions are institutional, political, and socioeconomic in nature. As such, we will partner with governmental agencies, non-governmental organizations (NGOs) and the private sector on shared research, education, and community engagement goals.

OBJECTIVE 3.1: Strengthen relationships with local, state and federal agencies.

SoMAS already has close relationships with NOAA, the NYS DEC, the NYS Department of State, NY Sea Grant and other government agencies. However, we can make these relationships more effective and mutually beneficial.

STRATEGIES

- Develop formal cooperative agreements that facilitate research to implement solutions to environmental problems.
- Host conferences and meetings to engage and communicate findings to stakeholders.
- Facilitate engagement between agencies and stakeholders (e.g., via NY Sea Grant) to work toward solutions to societal problems.
- Incorporate offices of agencies (such as NOAA NWS, DEC, USGS, Sea Grant) into a new building to strengthen relationships.
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OBJECTIVE 3.2: Partner with NGOs and the private sector on shared research, education and community engagement goals.

STRATEGIES

- Develop a task force to identify potential private sector needs and collaborations, to strengthen relationships and better engage with NGOs, and to take further advantage of funding from private foundations.
- Establish an ongoing relationship with Stony Brook University's Advancement Team with the goal of establishing specific benchmarks for fundraising activities to gain private philanthropic support for students, faculty and researchers of SoMAS from individuals, foundations and charitable institutions, and to launch creative fundraising efforts, such as through social gatherings and topical colloquiums at Stony Brook Southampton Marine Station.
- Foster research relationships in order to identify and develop internship and employment opportunities for students.
- Expand paid internships at NGOs to attract and retain the best students.

OBJECTIVE 3.3: Engage mass media and the public directly.

STRATEGIES

- Train faculty and graduate students to communicate and frame their scientific message effectively.
- Work closely with the University's Communications Office to promote key research findings and initiatives outside the university.
- Widely promote our outreach events (e.g., Bay Scallop Bowl) and develop mechanisms to measure their success.
- Ensure that outreach and engagement activities are more tangibly recognized in the tenure and promotion process.
- Establish an award that is designed for leaders in conservation or environmental work.
- Strengthen the “Friends of Flax Pond” public lecture series to communicate the ongoing research at SoMAS especially research occurring at the Flax Pond Marine Lab.
- Expand SoMAS's presence in the media, e.g., through frequent letters to the editor, guest columns, etc., for major newspapers.
- Do work that is of the highest quality and that has important societal impact.
SoMAS Strategic Planning Committee
This document was written in the Fall of 2018/Spring of 2019 by a Strategic Planning Committee consisting of Mark Lang (co-chair), Janet Nye (co-chair), Katherine Aubrecht, Steven Beaupré, Robert Cerrato, Ginny Clancy, Donovan Finn, Hyemi Kim, Daniel Knopf, Kamazima Lwiza, and Lesley Thorne. The document is based on input received from all faculty and staff at SoMAS.

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