

2016 Six-Year Plan – Part II

A. Institutional Mission – no planned changes

The Virginia Institute of Marine Science has a three-part mission of research, education and advisory service, each encompassed within an overarching goal of achieving and maintaining a national and international position as a premier coastal marine science institution. This mission involves making seminal advances to our understanding of marine systems through research and discovery, translating that knowledge into practical solutions to complex issues of societal importance, and providing new generations of researchers, educators, problem solvers, and managers with a marine science education of relevance and unsurpassed quality.

Meeting this mission requires that VIMS: (1) address cutting edge scientific questions, (2) develop and apply technologically-advanced approaches to these questions, (3) communicate research results and new technologies to both professional and public audiences, (4) provide consultative assistance to facilitate the application of new knowledge to practical problems, and (5) train future generations of young scientists to continue this tradition.

B. Strategies – Updated

Support Graduate Financial Aid. This proposal requests \$245,000 in Graduate Financial Aid to support the graduate program of the School of Marine Science, including the highly successful GK-12 “scientist in residence” program at VIMS. The high priority we have given this request reflects the high value of the graduate program to VIMS. This request might seem large at first glance; however, standard funding formulas end up disadvantaging the Institute. For example, during the 2012-14 biennium, VIMS received \$3,000 out of \$1.8 million distributed for Graduate Financial Aid, and had the 2016 General Assembly not included an additional \$150,000 for the 2016-18 biennium, the formula for VIMS would have included only \$10,200 out of the \$10 million distributed.

Support of this request is consistent with numerous goals of the Virginia Plan for Higher Education and will help to ensure that VIMS continues to provide advanced science and science-informed advisory service to the Commonwealth. Without this financial commitment, VIMS will be far less competitive for top-tier students and for recruiting and retaining top-tier faculty who are attracted to VIMS, in part, because of the opportunity to work with talented graduate students. It is critical to note that virtually all graduate programs in marine science with which VIMS competes for top students provide full financial assistance (tuition, stipend, and many also provide health insurance coverage). This is the norm in graduate level science education in the U.S. and is a model that has been widely emulated worldwide because it is a proven path to innovation and impact. It also ensures that top science students have access to graduate education without accruing significant debt, which is an increasingly important factor influencing student decision-making during the recruitment process.

The VIMS graduate program has awarded over 1,000 degrees since it was founded 75 years ago and is a top producer of marine science advanced degrees in the nation. VIMS alumni are leaders in areas such as aquaculture, fisheries management, storm surge modeling, water quality research, and environmental management and restoration approaches for coastal and estuarine environments. Our highly employable graduates serve in academia, federal and state agencies, K-12 education (formal and outreach), non-profits, and marine-related business opportunities within the private sector. The graduate program provides essential capacity in support of our research mission, including research mandated in the *Code of Virginia*. Our successful competition for external funding, which expands our ability to address critical issues of importance to the Commonwealth, and brings jobs to Virginia, would be significantly compromised without a vibrant graduate program. The research of VIMS graduate students underpins much of our advisory service to state and regional management agencies and provides a foundation for policy development. Our graduate students provide essential support to our education mission by serving as Teaching Fellows and Teaching Assistants for W&M’s undergraduate marine science minor program. They also serve as mentors for a growing number of regional high school students and W&M undergraduates who conduct research at VIMS, as outreach educators working alongside our marine educators, and in regional classrooms as “scientists in residence.”

VIMS faculty currently provide more than \$2 of non-general funding from external grants and contracts for every \$1 of general funds used to provide direct support to graduate students. While the faculty will continue to aggressively pursue external grants and contracts to assist in meeting the financial needs of graduate students, traditional fund sources are virtually saturated, and in some instances, being reduced. We are increasingly concerned that, despite the successes of our faculty, we will be unable to maintain graduate program enrollment at capacity due to our very high reliance on competitive federal grants for graduate student support. Increased state graduate financial aid of \$275,000 would enhance program stability, competitiveness for the most highly-qualified applicants, retention of enrolled students, and reduce “time to degree” that can be associated with gaps in financial aid that result from downturns in federal funding cycles. We would use a portion of the funding to provide support for the continuation of the GK-12 program, which supports enhanced STEM education among middle and high school students in regional schools.

The Virginia Institute of Marine Science’s [GK-12](#) PERFECT (*Partnership between Educators and Researchers for Enhancing Classroom Teaching*) program is a unique and highly successful partnership program with the region’s middle and high school divisions, including schools in areas with traditionally underserved populations. This proven program has brought marine and environmental science to over 7,500 middle and high school students in Tidewater Virginia, while growing the professional expertise of 16 teachers and over 50 Graduate Teaching Fellows. It has yielded demonstrable improvements in STEM education centered on Virginia’s valuable marine and coastal resources, helping to cultivate a local populace of young people and future decision-makers who are scientifically literate and environmentally concerned. At the same time, it has effectively honed the communication skills of Virginia scientists and strengthened their commitment to public service. From its outset, GK-12 PERFECT deliberately sought to serve a diverse student audience, drawn from suburban to rural settings, both middle and high school,

and including gifted students, economically disadvantaged students, minorities, and groups that have been underrepresented in science professions. Due to a change in federal funding priorities, the National Science Foundation funding for this program was halted in 2014. We have been continuing the program on a very limited basis with support from a private trust. We propose to use \$120,000 of the requested funding to provide support for 6 graduate student Fellows annually.

Utilize Advanced Modeling and Assessment Technologies for Chesapeake Bay Water Quality Improvement. The need to assess and verify the effectiveness of public fund expenditures to restore water quality in Chesapeake Bay is critically important. Historically, the Commonwealth was largely dependent upon the EPA Chesapeake Bay Program model and monitoring data to assess progress towards meeting Bay water quality goals. In recent years VIMS, in collaboration with DEQ, has employed more advanced water quality modeling and assessment technologies in Virginia’s tributaries to support efforts by the state and local governments to meet water quality goals. The EPA has now recognized the value of the higher spatial and temporal resolution provided by these technologies and has indicated their willingness to allow states to adopt a more focused approach towards meeting and assessing water quality goals, potentially resulting in significant savings to local governments and the state. VIMS is uniquely positioned with its expertise, state-of-the-art modeling capabilities, advanced assessment technologies and mandated role as the scientific advisor to the Commonwealth on marine and coastal natural resource issues to provide this critical need. The proposed program would build on these strengths to further develop and utilize models that more accurately represent conditions in Virginia waters and to couple these models with real-time water quality data to provide a comprehensive, high-resolution view of water quality that far exceeds the spatial extent, temporal coverage, and accuracy of the current monitoring program. Such information would furnish decision makers with the information necessary to make more informed decisions related to Bay restoration and TMDL (Total Maximum Daily Load) implementation.

Advanced water quality assessment can be most effectively achieved with a Commonwealth Chesapeake Bay Observing System comprised of a network of buoys that can remotely obtain water quality data and transmit it to a central location for analysis. This system would expand and integrate VIMS’ current technologies to produce a unified, state-of-the-art system. The system would integrate water quality and weather to allow for near real-time responses in support of environmental management with public health and economic consequences, such as harmful algal blooms and fishery impacts, as well as statewide tidal water quality assessments. As an example, Virginia’s rapidly growing oyster aquaculture industry would benefit greatly from an advanced water quality assessment and early warnings of harmful algal blooms.

This program would build on our collaborative relationship with ODU and complement their plan to develop and customize large datasets from Chesapeake Bay and Hampton Roads to build a virtual laboratory within which HUD-funded Accelerator business clients can prototype and test their technologies, and to provide credentialed “green workforce” training.

Increase Base Operating Support. This request supports much needed base operating funds at the Institute given that the normal formulas the state uses to assess and supply base operating support to higher education institutions do not readily apply to VIMS and, thus, disadvantages the Institute. Specifically this request includes vital support for 1) service contracts for high tech scientific equipment purchased through the Equipment Trust Fund, 2) inflationary increases in general operating expenses, and 3) modernizing and expanding the 15 year-old campus data network.

Management of Marine Diseases. Recent outbreaks of disease have damaged economically important and ecologically sensitive marine resources in the Commonwealth and nation. Examples include mycobacteriosis in striped bass, dermo and MSX in oysters, *Hematodinium* in blue crabs, and morbillivirus in dolphins, to name just a few. These outbreaks have resulted from an increase in environmental stressors such as increasing water temperature, fishing pressure, aquaculture activities, and other anthropogenic effects. Often the pathogens responsible for these outbreaks are not well known, their risks to marine life and risk of spread remain understudied, and their full ecological impacts have been difficult to assess. To meet the challenge of the increasing emergence and establishment of diseases in marine systems, we propose an initiative to provide science-based guidance on the management of existing and emerging disease threats to critical fishery and aquaculture resources in the marine and estuarine waters of the Commonwealth.

We propose to leverage our considerable expertise and long involvement in the study of diseases of marine organisms to establish the Management of Marine Diseases Initiative which would (1) establish state and regional surveillance and response protocols to facilitate identification, assessment, and prediction of emerging pathogens in important fisheries and aquaculture stocks, (2) serve as a clearinghouse for information to policy makers and industry to mitigate the effects of disease outbreaks in our marine resources, and (3) enhance graduate and public education related to the interactions between environmental health and marine animal health.

The VIMS strategic plan includes strategies to promote sustainable fisheries and aquaculture, enhance coastal economies, and advance our understanding of the effects of climate change on coastal and marine resources. Three examples show how the Management of Marine Diseases Initiative would advance these strategic goals. First, shellfish aquaculture is a rapidly expanding economic sector that relies heavily on certification of pathogen-free seed that is shipped regionally and nationally. We work closely with industry in this certification process, but the optimization and validation of newer molecular protocols is needed for rapid assessments, surveillance, and quality assurance required for continued growth in this industry. Second, despite improved management, blue crab stocks remain below historical levels and the effects of observed disease outbreaks in juvenile crabs remains unknown. Lastly, striped bass are susceptible to mycobacterial infections that show strong associations with increasing water temperature and estimates indicate a 16% increase in mortality due to mycobacterial infections alone. The increased mortality due to disease must be factored into management plans for crabs and striped bass. The health of marine resources such as these is fundamental to the growth of the Virginia seafood industry and the revitalization of coastal communities dependent upon this industry. This initiative will

provide guidance on the management and mitigation of existing and emerging disease threats to vital fishery and aquaculture resources in the Commonwealth.

Monitoring Bay Grasses. Submerged bay grasses are a critical living resource in Chesapeake Bay that supports valuable fish and crab resources. Because bay grasses are dependent on good water quality they are being used as key indicators of water quality improvement in Chesapeake Bay by the Virginia Department of Environmental Quality. VIMS has conducted a bay-wide annual survey of bay grasses since 1987, with considerable support from EPA, NOAA and the state of Maryland. That support has declined in recent years as costs have risen. We are seeking to establish a stable funding base for maintaining the Virginia portion of this valuable survey.

The results of the annual survey are important to the Commonwealth for a number of reasons. (1) Bay grass acreage is embodied in Virginia’s water quality standards; (2) the Virginia Secretary of Natural Resources must report annually to various Virginia House and Senate Committees on the status of bay grass abundance from the annual surveys (*Code of Virginia* §2.2-220); (3) bay grass acreage is an important component the blue crab fisheries management plan (*Code of Virginia* §28.2-203.1); (4) bay grass survey maps are used by the Virginia Marine Resources Commission in evaluating aquaculture lease applications; and (5) bay grass acreage is used as a metric for attainment of the restoration goals established by the Chesapeake Bay Program and its partners, including the Commonwealth of Virginia.

VIMS is uniquely qualified to provide this service, not only because of its experience in conducting the surveys, but because it has pioneered restoration techniques for bay grasses that are now used worldwide and is widely recognized for its scientific leadership in bay grass restoration.

Implement a post-graduate Commonwealth Coastal and Marine Fellowship program in collaboration with the Virginia Sea Grant (VASG) program that has been housed at VIMS since 2008. This proposed program would be modeled after the highly successful national Sea Grant Knauss Marine Policy Fellowship and similar state fellowship programs operated by state Sea Grant programs in Washington and California. To start the program, four Commonwealth Fellows would be placed with host offices in relevant state coastal and marine resource agencies in Virginia, such as the VMRC and DEQ. The Commonwealth Fellowship would provide host offices with highly trained professionals to help advance the state agency mission, and would serve a workforce development and retention benefit. The program would provide Fellows with “on the job” experience in the integration of coastal and marine resource science, policy and management. By building a network of current Fellows and alumni (after a couple years), the Commonwealth Fellowship program will cultivate Virginia’s network of scientists and resource managers, expand opportunities for state agencies to collaborate with universities, and improve our ability to address emerging coastal and marine resource issues and needs through innovative cross-institutional, multi-disciplinary responses.

VASG would conduct the recruitment and pre-screening of Fellows and host offices, fiscal management, matching procedures to link host offices with pre-qualified Fellows, and Fellow oversight and technical assistance throughout the year. Qualified candidates would apply through VASG and could come from

any of our university partner institutions. The host office would develop and oversee the Fellow's job tasks and activities, contribute modest funding toward the stipend to demonstrate commitment to the fellowship, and participate in the matching process.

Develop and support new management and policy approaches at state and local government levels.

Throughout its history VIMS has provided critical, science-based advice to aid state and local governments in managing vital coastal resources from resource-specific to system-level perspectives with a long-term vision that includes economic considerations. As coastal decision-makers in Virginia have become ever more dependent upon this advice, VIMS finds its support for this activity to be insufficient to meet demands. Enhanced support from the Commonwealth would permit us to meet the increasing demand for this critical assistance, and to do so in the most proactive manner possible.

Systematic Survey of Virginia Seafloor for Energy and Mineral Resource Interests. Offshore Virginia waters host a wealth of energy and mineral resources with enormous economic potential for the State's future. Offshore activities such as the construction of wind farms, the mining of sand for beach renourishment and for heavy minerals, and future possible oil and gas exploration all have a common need to understand the surface and shallow underlying seafloor to assess potential sand resources and/or for environmentally sound management practices. Yet, despite this common need, no systematic mapping and characterization of the shallow seafloor offshore Virginia (state and federal) waters currently exists. This contrasts with neighboring states along the eastern seaboard (including our nearest neighbor North Carolina), which have conducted a thorough assessment from the coastline to the edge of the continental platform. We propose a center of excellence for seafloor mapping and analysis at VIMS that will systematically collect a suite of geophysical survey data and physical samples, with the goals of creating a complete picture of the shallow character and sand/mineral resource potential offshore Virginia and providing this information to the public and private sector as Virginia seeks to responsibly develop its offshore energy and mineral resources. The center would house a complete digital library of seafloor characteristics, including 3-D visualizations of surface and shallow subsurface attributes in a GIS database for easy public access. This information will also support future assessments of fish and shellfish habitat that is of critical economic importance to the Commonwealth. This initiative is timely, not only because of the intense interest in offshore energy and mineral resources, but also because VIMS is currently in the process of acquiring a state-of-the-art research vessel that will be uniquely positioned to serve as a platform for the collection of these data. We have also expanded our fleet of Autonomous Underwater Vehicles that enhance our capacity for mapping and visualizing seafloor off Virginia's coast.

Expand Institutional Collaborations. VIMS also has numerous well-established collaborations with other institutions within the Commonwealth, across the nation and internationally. During the 2012-2014 biennium VIMS had active collaborations with ten other Virginia institutions of higher education (UVA, VA Tech, ODU, VCU, GMU, JMU, Liberty, Randolph Macon, Washington and Lee, VA Wesleyan), 78 other US colleges and universities, and 63 international universities and institutes. Some recent additions to

these include collaborations with Old Dominion University on sea level rise adaptation in Hampton Roads, Virginia Commonwealth University on sturgeon restoration, NASA on remote sensing of harmful algal blooms, the William & Mary Virginia Coastal Policy Center on legal and policy issues affecting coastal resilience, and National Cheng Kung University in Taiwan addressing areas of shared interest in research and education.

In addition to the above, VIMS is currently exploring the potential to offer a joint degree program with the W&M Business School to provide the training professionals need in careers that support marine-resource based economic development within the state (e.g. aquaculture, fisheries, minerals). Also, through the Virginia Council of Graduate Schools, we are contributing to an effort to enhance the participation in graduate programs of students from under-represented racial and ethnic groups in all fields, but especially STEM, with the ultimate goal of increasing their access to careers in higher education and other advanced professions within the Commonwealth.

Continue to operate as a year-round facility. As an independent state agency that is heavily involved in research and graduate education, VIMS also provides advisory service to the Commonwealth in the form of expert scientific advice on marine-related issues throughout Chesapeake Bay and the coastal ocean. All three of our missions, the graduate program, research and advisory programs, are heavily operational for the entire 12-month calendar year. Field research is most active between April and October, but most other activities occur equally throughout the year. For example, throughout calendar year 2015, VIMS offered a total of 348 outreach programs reaching more than 21,500 citizens. More than 200 of those programs were held on VIMS' main campus. These were in the form of campus tours, after hours lecture series, discovery labs, summer camps for children in grades 1-8, workshops, training programs, and more. VIMS always has been, and will continue to be, a year-round operation.

C. Financial Aid – Not Applicable

D. Evaluation of Previous Six-Year Plan Strategies – Updated to reflect 2016 General Assembly Action

Support Graduate Financial Aid. Governor McDonnell's outgoing budget in 2014 included \$355,000 in Graduate Financial Aid for VIMS. This support remained throughout nearly all of the 2014 General Assembly session until the entire budget crashed due to the inability of the legislature to agree on Medicare expansion. This was an enormous loss for VIMS. Nonetheless, VIMS faculty continue to aggressively pursue grant support from federal agencies and recognize that meeting the need for graduate financial aid will require multiple sources of funds. For example, the VIMS administration made an internal reallocation of \$175,000 to graduate student support beginning in Fall 2013 and William & Mary's Provost allocated up to six new multi-year tuition waivers annually beginning in Fall 2014 for enrollment of top doctoral program students. In addition, the state awarded just under \$80,000 for Graduate Financial Aid beginning in FY17. These efforts have halted a trend of decreasing enrollment in our doctoral program. additional state support is a critical element if we are to maintain our historic

leadership in graduate education in marine science and take advantage of our long-term institutional goal of finding ways to increase enrollment.

Create the Center for Sea Level Rise and Coastal Resiliency. VIMS, in partnership with the College of William & Mary's Virginia Coastal Policy Center (VCPC) and Old Dominion University (ODU), sought and received support in the FY16-17 biennium seeks to create the Commonwealth Center for Sea Level Rise and Coastal Resiliency. The central purpose of this Center is to *provide a proactive means for adapting current coastal zone planning to sea level rise* as well as assuring prospective investors, businesses, and residents that coastal Virginia is a viable long-term location *for continued economic expansion*.

This Center will couple VIMS' expertise in research on sea level rise and state-of-the-art storm surge modeling, with VCPC's expertise in legal and policy issues surrounding adaptation to sea level rise and ODU's expertise in modeling socioeconomic impacts of recurrent flooding, to create a synergy that is unique in the nation in addressing the complicated factors surrounding sea level rise and coastal resiliency. The Center's mission is to provide integrated data, predictive modeling, and policy and legal advice to address the needs of the Commonwealth, local governments, federal facilities, industry and citizens in Virginia's coastal communities to build resiliency and support economic growth in the face of sea level rise and recurrent flooding.

In advance of the establishment of this Center on July 1, 2016, VIMS has worked closely with the VCPC and ODU over the past several months to:

- A. establish an inter-institutional coordinating structure for running this virtual center;
- B. work with local government officials to establish some their highest priority flooding resiliency issues;
- C. identify important initial projects that the Center will undertake that meet the needs of local governments and integrate unique capabilities of VIMS, VCPC and ODU in this area;
- D. begin integrating federal, state and local data sources on sea level; and
- E. initiate the development of a Center website and a data portal that will serve as an integrated, one-stop-shop for information on flooding resiliency.

Improve Longevity of Highly-Sophisticated Research Instrumentation. VIMS has had this initiative on its Six Year Plan for several years, primarily because the Institute does not receive base adequacy funds to support such maintenance and operating requests. The Higher Education Equipment Trust Fund (HEETF) allocations to VIMS over the past five years have been approximately \$2.5 million – a significant investment by the Commonwealth. It is highly unfortunate that the associated service/maintenance contracts on these pieces of equipment cannot be purchased through the HEETF. Annual service contracts can range from \$2,000 to more than \$25,000 for certain pieces of equipment. Failure to maintain manufacturer dependent service compromises the full appreciation of the investment by the Commonwealth, increases expenses by having ad hoc service calls, and importantly, can extend the

research downtime thus delaying grant and contract deliverables and advisory service responses to the Commonwealth and other state agencies.

This initiative has been removed from VIMS’ 2016 Six Year Plan in recognition that it is highly unlikely the Commonwealth will invest funds for this purpose. VIMS Administration has been utilizing indirect cost recoveries to fund maintenance contracts for targeted pieces of scientific equipment. While indirect cost recoveries are certainly appropriate to utilize for maintenance contracts on equipment purchased by external grants and contracts, we are convinced that the cost of this initiative to the Commonwealth would be easily offset by the benefits.

Enhance High Performance Computing (HPC) Technology. The need for HPC technology at VIMS has significantly increased with the addition of new faculty, and several current faculty, whose research requires high speed data transfer for real-time forecasting and generating prediction models for storm surge, or analyzing fish DNA data points, as examples. Given the significant increase in HPC needs and VIMS’ lack of resources to support those needs, during the 2014-15 academic year VIMS entered into an MOU with W&M’s IT department to provide support for VIMS researchers. Specifically, the HPC group at W&M assists the VIMS IT department in defining hardware specifications, installing said hardware, assisting with troubleshooting, and being consultative to ensure that VIMS has successful HPC capabilities that meet the needs of the researchers on its campus. Given this partnership, VIMS has removed the HPC initiative from the 2016 Six Year Plan.

E. Capital Outlay – No changes to this section from last year

VIMS has 10 proposed capital projects over the Six-Year Plan period; however, there are three projects that are the top priorities for VIMS in the upcoming biennium. They are (1) Relocate and Construct an Oyster Research Hatchery, (2) Construct an Administration and Education Complex at the Eastern Shore Campus, and (3) Expand and Renovate Watermen’s Hall.

Relocate and Construct an Oyster Research Hatchery. The current hatchery is nearly four decades old and was originally designed as a production facility for planting large numbers of seed oysters in the Chesapeake Bay. The new hatchery will be 22,000 square feet and constructed on the north side of campus, out of the flood plain, and be specifically purposed for oyster restoration, industry and economic development, and educational and training space. This research hatchery supports the Statewide Strategic Plan Goals 3 and 4 and *TJ 21 Objectives E7, E8, E11, and E12*. VIMS’ Aquaculture Genetics and Breeding Technology Center (ABC) will be housed in the new hatchery. The 1997 General Assembly established ABC in recognition of the role that genetic research and selective breeding play in aquaculture development. ABC is the first genetics program to focus on oysters and one of the first dedicated Centers for breeding marine species. ABC’s mission is to continuously improve oyster aquaculture through the manipulation and control of the genetics and culture of the oyster. These improvements, through application of cutting edge research, have and will continue to have regional impact and worldwide application. Most importantly, aquaculture is one of the leading economic development opportunities for Chesapeake Bay. ABC addresses industry requirements for a more

profitable enterprise by running a breeding and applied research program, which comprises a research hatchery, labs, and farms that are staffed with technicians, students, and trainees. ABC does not sell seed or larvae, but enables industry to meet this demand by providing the best available brood stock.

Construct Eastern Shore Administration and Education Complex. This project consists of constructing four new buildings and demolishing two outdated buildings at the Eastern Shore Laboratory (ESL) in Wachapreague that total 10,200 square feet. The buildings are 1) a new 3,500 square foot Education Center that will house classrooms with distance learning capabilities, convertible meeting rooms, and a teaching laboratory, 2) a replacement 3,500 square foot Administration building that will house staff offices and public outreach space, 3) a replacement 1,700 square foot maintenance shop that will have a high bay and drive through access to properly support the work conducted on small vessels and trucks, and 4) a new 1,500 square foot storage building. In November 2010, VIMS lost Seaside Hall (the ESL Research building) due to fire. With insurance proceeds, VIMS replaced it with a new, modern facility. The proposed buildings will be designed to complement the new Seaside Hall architecturally and present a public face for the Laboratory.

The ESL serves as much more than a field station for VIMS. It also serves as an important site for undergraduate and graduate education, as well as public education and outreach to the K-12 community. Over two-dozen colleges and universities regularly use the ESL for educational activities, with more than half coming from Virginia schools. The ESL also serves as a site for providing summer classes for Virginia secondary school teachers and plays an important role in international educational exchange programs. With the establishment of an undergraduate minor in marine science at W&M, the educational programs at the ESL will require further expansion. Along with the educational program, the research and advisory roles of the ESL have expanded dramatically in recent years. The facility now regularly hosts meetings and conferences with state and federal regulatory agencies, as well as outreach programs for the local aquaculture industry and the public. The dramatic increase in use of the facility over the past few years has outpaced the infrastructure. This project supports the Statewide Strategic Plan Goals 2, 3 and 4 and *TJ 21 Objectives B, C, E6, E8, E10, and E12.*

Expand and Renovate Watermen’s Hall. This project consists of expanding and renovating the 1984 vintage Watermen’s Hall. This renovation and expansion is critical to meeting the programmatic, technological, and instructional needs of graduate marine education and public outreach at VIMS. The project includes renovation of existing classrooms, and an 11,800 square foot addition for an educational center with classrooms, conference rooms, convertible meeting rooms, and an informal lounge.

Watermen’s Hall is a multipurpose building that houses the Institute’s administration, advisory services, main research library, classrooms, and an auditorium. Not only does Watermen’s Hall provide essential functions and act as the nerve center for the Institute’s faculty, staff, and students, but it is the main building where the Institute and the public interface. The building has been well maintained and improvements have included a handicapped accessibility project, re-roofing project, and partial face lift to the McHugh Auditorium, and mechanical equipment replacement as part of an energy performance contract. However, the building is 31 years old, has never been renovated, and is showing its age.

Moreover, VIMS is unable to host regional and national conferences due to lack of proper facilities and class scheduling conflicts. The proposed addition would allow VIMS to hold workshops for 50-100 people with breakout rooms for small discussion groups and improve VIMS' ability to provide advisory services to state and local governments and the general public through outreach training workshops. This project supports the Statewide Strategic Plan Goals 2, 3 and 4 and *TJ 21 Objectives B, E6, E8, and E10*.