

Virginia Institute Of Marine Science

- Mission, Size and Organizational Structure
- Research and Educational Programs
- Role in Advisory Service
- Overview of Bay Research
- Budget and Funding Sources
- Federal Partnerships
- VIMS Industry Partnership
- Emerging Challenges and Opportunities



VIMS Mission

Overarching goals... make seminal advances to our understanding of marine systems through research and discovery, translate that knowledge into practical solutions to complex issues, and provide new generations of researchers, educators, and managers with a marine science education of relevance and unsurpassed quality. Unlike most institutes of its kind, VIMS is mandated in the *Code of Virginia* to serve the entire Commonwealth by addressing the three missions of research, education and advisory service.

Strategy For World-class Scholarship In Research And Education

- Address Cutting-edge Scientific Questions
- Develop and Apply Technologically Advanced Approaches
- Communicate Research Results and New Technologies to Both Professional and Public Audiences
- Provide Consultative Assistance to Facilitate the Application of New Knowledge to Practical Problems
- Train Future Generations of Young Scientists to Continue this Tradition

Research

- Nearly Every Sub-discipline of Marine Science is Represented on the Faculty
 - Marine Biology and Ecology
 - Marine Geology
 - Marine Chemistry and Geochemistry
 - Physical Oceanography and Computer Modeling
 - Aquaculture and Genetics
 - Immunology and Toxicology
 - Coastal Management and Policy
- Scale of Research Ranges from Global to Molecular
- 600 Individual Projects, Most Funded by Grants and Contracts

Overview Of Bay Research

- Research on Shellfish and Finfish Diseases
- Development of Water Quality Technology
- Economic Analysis of Fisheries and Multi-species Fish Monitoring
- Aquaculture and Native Oyster Restoration
- Monitoring Wetlands and Submerged Aquatic Vegetation
- Detection, Prediction and Mitigation of Waterborne Hazards
- Autonomous Underwater Vehicle Research
- Numerical Modeling of Storm Surge and Water Quality

Education

- Graduate Mission met Through School Of Marine Science
- 115 Graduate Students (Split Evenly Between Masters and PhD Students; Tuition and Stipend Provided for Duration of Graduate Study)
- 40 Graduate Courses Taught at VIMS each Year
- Participate in Special Federal and State Education Programs
 - *DREAMS*
 - *Hall-Bonner*
 - *Bridge*
 - *Ocean Sciences Bowl*

Role In Advisory Services

- VIMS Established to Serve as the Commonwealth's Scientific Advisor on Natural Resource Issues by the Virginia General Assembly
- VIMS is Identified in 26 Separate Sections of the Code Of Virginia where Mandated Advisory Service is Defined and Outlined
- Constituents Include:
 - State Legislature and Legislative Study Commissions
 - Secretary of Natural Resources
 - VMRC
 - DEQ
 - Virginia Department of Health
 - Municipalities and Planning District Commissions
 - Maritime Industries
 - The Public

VIMS has conducted a trawl survey in support of juvenile fish and crab stock assessment since 1955. These data are Federally mandated in support of the regional fishery management council actions. The survey has been supported by federal and state funds in support of a fishery that returns several hundred million dollars to the Virginia economy on an annual basis.





VIMS is a partner in the National Shark Research Consortium hosted at Mote Marine Laboratory in Florida. The consortium is supported by Federal funds passed through NOAA. VIMS has operated a shark long line survey since 1973, the longest continuous standardized survey of its kind and critical to evaluation of stock status and long term management of this unique resource.



Chesapeake Bay for Restoration of the oyster resource in ecological and commercial purposes remains an enormous challenge. Efforts at this time are diverse and intense, and even include consideration of the introduction of a non-native species. Federal support has played a central role in support of restoration efforts.



Shoreline management, including erosion control, affects terrestrial and aquatic ecology and the economy of the state. VIMS has played a leadership role in public education, project design, and “soft” strategies for managing Virginia’s vital estuarine and ocean shoreline.

Oil and gas development on the continental shelf is a matter of continuing debate as the country struggles with a long term sustainable energy policy. IF and/or WHEN development occurs on the mid- Atlantic continental shelf there is high probability that the ports of Hampton Roads will be the epicenter of support services from exploration to refining.

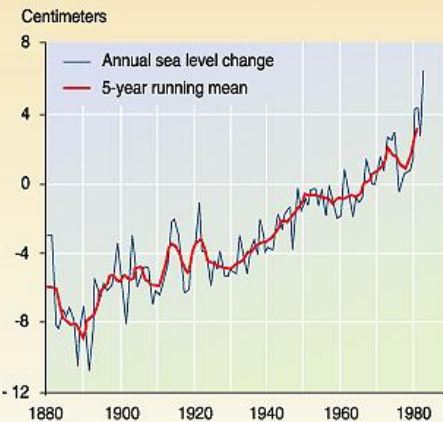




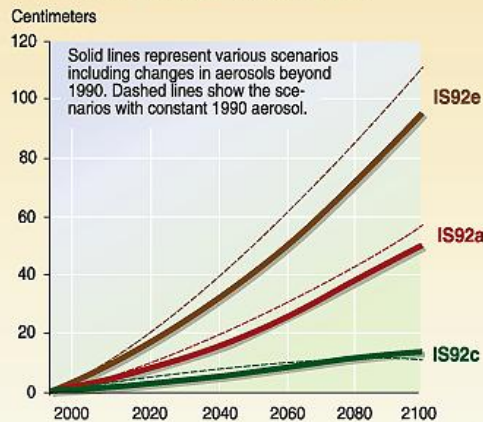
Sea level rise, port infrastructure and citizens at risk - Hampton Roads is home to the biggest naval base in the world, one of the largest and rapidly growing commercial ports serving the entire nation, and approximately one million citizens. They all should be cognizant of the impending long term impacts of sea level rise and storm preparedness.

Sea level rise due to global warming

Sea level rise over the last century

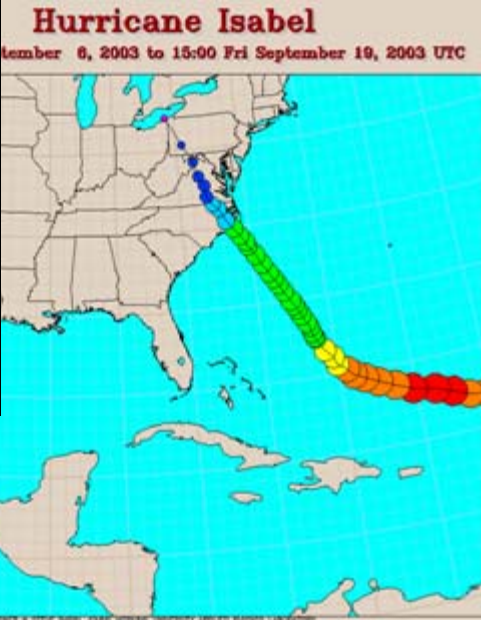
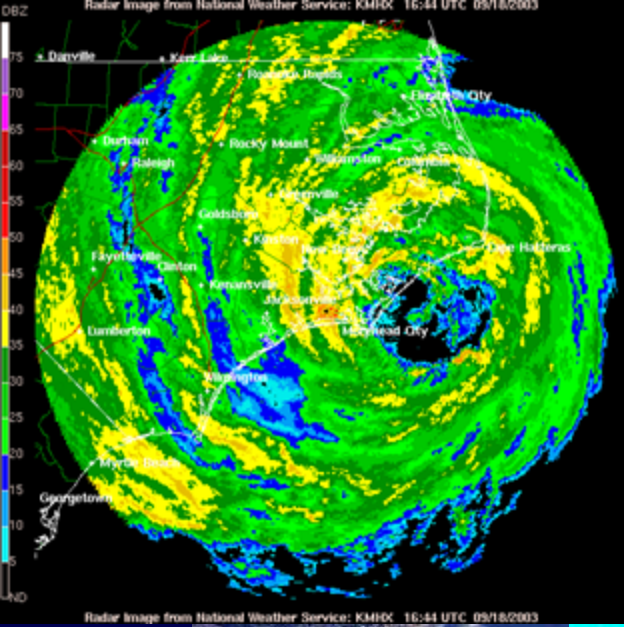


Sea level rise scenarios for 2100

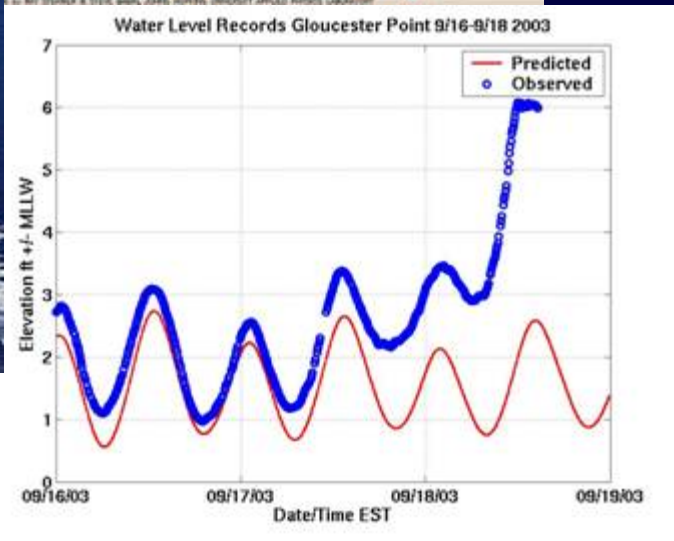


The VIMS data buoy collects real-time data for accurate predictions of ecosystem processes in lower Chesapeake Bay. The predictions help guide management of natural resources, enable planning for extreme events, facilitate maritime operations, support military security and advance science and education.





Storm preparedness is not just a military and shipping issue - it is about public safety and limiting property damage in both the public and private sector

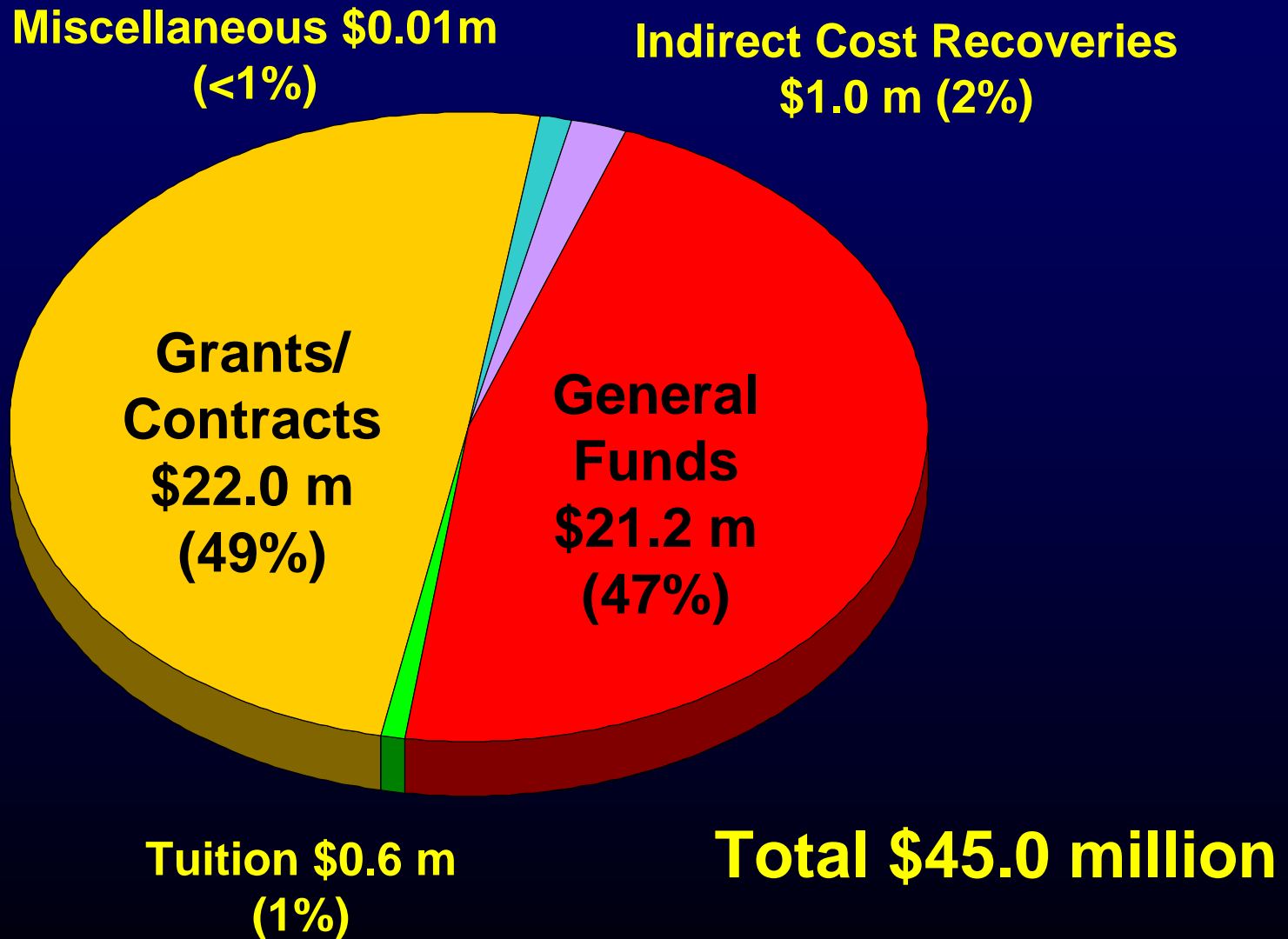


Advisory Services: New Developments

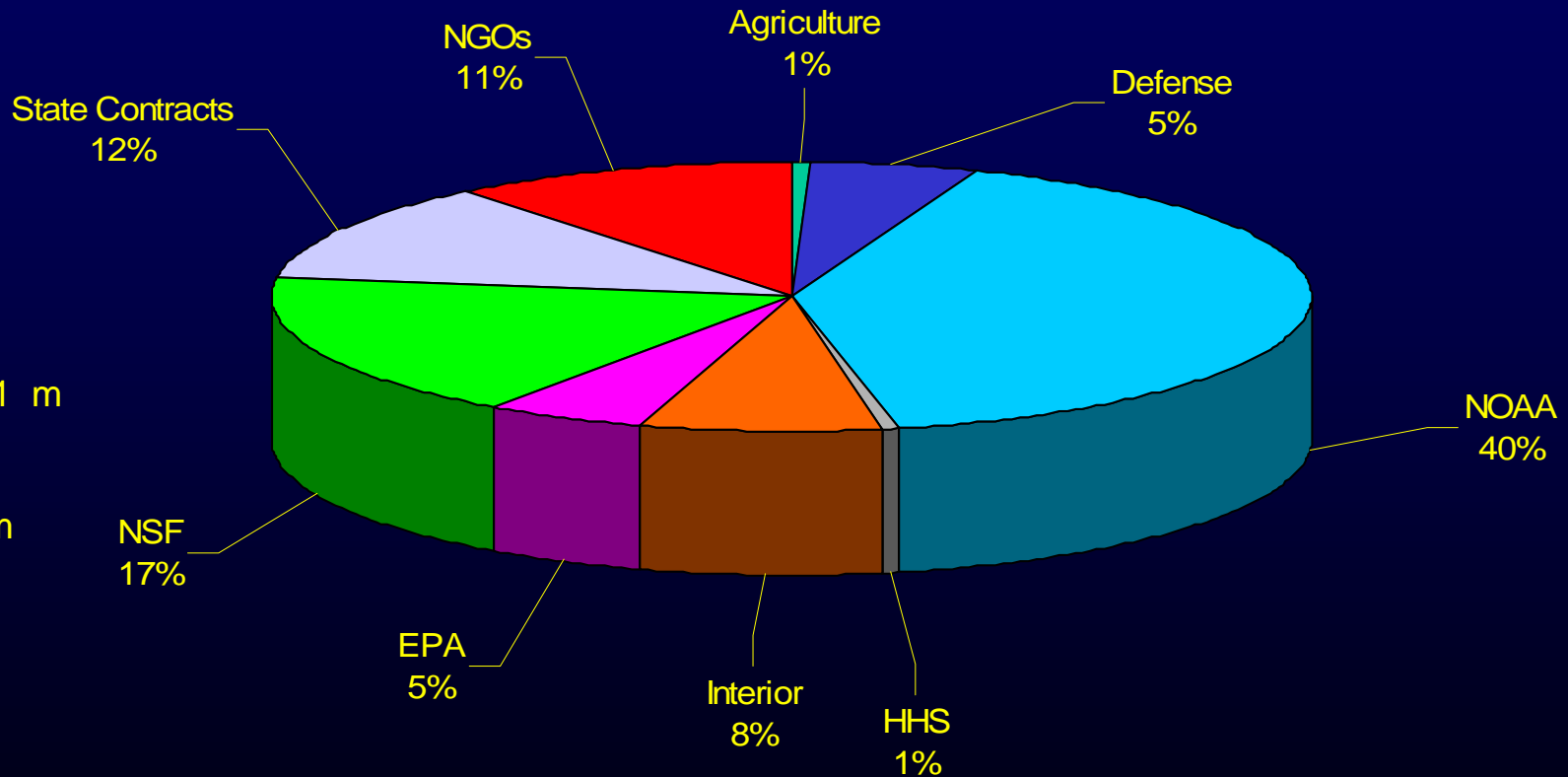


- **Virginia Sea Grant Program at VIMS**
- **White Paper Program**

Sources Of Revenue FY 2008



FY2008 Externally Supported Research Expenditures



Agriculture \$0.11 m

EPA \$1.1 m

Defense \$1.15 m

NOAA \$9.02 m

HHS \$0.13 m

Interior \$1.65 m

NSF \$3.8 m

State Contracts \$2.64 m

Foundations/NGOs \$2.40 m

Total Expenditures \$22.0 m

Federal Partnerships

- Chesapeake Bay National Estuarine Research Reserve In Virginia (CBNERRVA)- Network of Protected Areas for:
 - Long –Term Research
 - Environmental Monitoring
 - Education and Natural Resource Stewardship
- Virginia Sea Grant Program (VaSG)-(Formerly a Consortium Administered at UVA; VIMS now the State's Sea Grant Institution)
- NOAA Chesapeake Bay Program (CBP) (Established in Virginia to give the Chesapeake Bay Office Greater Oversight on Lower Bay Projects)
- Sea Grant Marine Advisory Program (MAP) (Provides Response to the Needs of Marine Industry and the General Public)

VIMS-Industry Partnership

- Foster Relationships that Combine Science, Engineering and Communications Technology.
- Serve as a Clearinghouse for Emerging Collaborative Opportunities
- Expedite Application of New Technology to Practical Problems
- Present Focus on Ocean Observing Systems and Sensor Development
- Linked To
 - Office of Economic Development at W & M,
 - Center for Innovative Technology
 - Secretary of Commerce and Trade

Emerging Challenges and Opportunities



- Climate Change Initiative
- Harmful Algal Blooms
- New Strategic Plan 2009-2012

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Strategic Opportunities At The National Level

- Application of Molecular Biological Tools to Address Vital Questions in Ecological, Biogeochemical and Evolutionary Processes
- Research Initiatives in Understanding Impacts of Sea-level Rise and Long-term Climate Change
- Expansion of our Ability to Process Large Complex Data Sets and Fisheries Models Through Growth of Bioinformatics
- Exploitation of Ocean Observing Systems in Wide Array of Marine and Environmental Sub-fields
- Development and Application of New Tools in Environmental Toxicology and Human Health

Visitors are *always* welcome...

