

# **Pennsylvania Sea Grant Strategic Plan**

## **MISSION**

To promote the ecological and economic sustainability of Pennsylvania's coastal resources through research and outreach including science-based extension, education, and communication.

## **VISION**

To become a nationally recognized leader in providing coastal research and outreach programs and services.

## **GUIDING PRINCIPLES**

- Serve as a balanced provider of information and services and not as an enforcer of regulations.
- Incorporate a science-based approach to all program efforts.
- Encourage the use of best available data and management practices.
- Promote educational practices that engage participants in activity-based learning.
- Foster collaboration between stakeholders and programs with mutual interests.

## **STRATEGIC PARAMETERS**

- Take an ecosystem approach to watershed management of the Commonwealth's coastal resources, focusing on the Delaware and Susquehanna rivers and Lake Erie watersheds.
- Capitalize on the intellectual and physical resources of Pennsylvania's colleges and universities.
- Utilize all sources of funding including public and private resources as consistent with the program's mission.
- Carry out the program's goals and objectives for the benefit of the citizens of Pennsylvania under the umbrella of the Penn State University system.

## **GOALS AND OBJECTIVES**

### ***PROGRAM AREA ONE: EXTENSION***

***Goal: To facilitate a balanced public understanding of environmental resources and issues impacting Pennsylvania's coastal communities and ecosystems.***

#### **Sub-Area A: Ecosystem Stewardship**

***Objective 1: Foster effective aquatic invasive species (AIS) prevention and control in Pennsylvania.***

##### ***Action Items:***

- Participate in the Pennsylvania Invasive Species Council's efforts to advance and formulate effective management strategies leading to the development of a comprehensive statewide AIS policy.
- Coordinate AIS Hazard Analysis Critical Control Point Analysis (HACCP) training with the Great Lakes and Mid-Atlantic Sea Grant Networks.
- Participate on the Great Lakes AIS Panel and Mid-Atlantic AIS Panel.
- Participate on the National Sea Grant AIS Theme Team and assist in the development of associated outreach materials.
- Develop outreach programs which address priority AIS such as flathead catfish, round goby, Asian carp, northern snakehead, rusty crayfish, and water chestnut.
- Promote applied research which addresses critical AIS issues.
- Promote outreach and research to prevent and control the spread of AIS to inland waters.
- Serve as a member of the Great Lake's Network Habitattitude campaign.

***Objective 2: Take a lead role in identifying and addressing Great Lakes and Mid-Atlantic coastal environmental issues.***

##### ***Action Items:***

- Expand understanding of disease pathways for avian botulism.
- Take a lead role in the development of assessment standards for fish tumors and other deformities associated with Great Lakes areas of concern (AOC).
- Facilitate the development and implementation of a sediment monitoring plan and delisting criteria for the Presque Isle Bay AOC.
- Participate in the Schuylkill Action Network nutrient remediation effort.
- Initiate outreach related to an increased understanding of atmospheric deposition impacts on aquatic ecosystems.

***Objective 3: Promote the sustainability of Pennsylvania's fisheries and associated species.***

##### ***Action Items:***

- Maintain the Pennsylvania Sea Grant *Trichoptera*, *Dipera*, and *Plecoptera* database developed by Ed Masteller for Pennsylvania.

- Develop a statewide aquaculture research and outreach program in conjunction with Penn State University, University of Pennsylvania, and the U.S. Fish and Wildlife Service Northeast Fishery Center's Fish Technology Center in Lamar, Pennsylvania, and others.
- Support research and outreach that sustains the biodiversity in Pennsylvania waters.

### **Sub-Area B. Coastal Safety and Human Health**

***Objective 1: Improve safety, environmental quality, and human health related to coastal recreation.***

***Action Items:***

- Support the work of the Pennsylvania Fish and Boat Commission and other organizations to promote boater safety.
- Fully develop the Fleet Surgeon program as a resource for coastal medical and safety issues.
- Work with Pennsylvania's Coastal Zone Management (CZM) Program to coordinate the development of Clean Marina and Smart Boating programs in Pennsylvania to prevent pollution and improve water quality.
- Collaborate with related organizations to address human health issues such as microbial contamination, West Nile virus, and botulism.

***Objective 2: Promote seafood and wildlife consumption safety.***

***Action Items:***

- Coordinate the development of easy-to-understand fish consumption advisories with state and local agencies, including multilingual versions.
- Continue research and outreach related to recreational fish consumption issues.
- Initiate and support seafood safety workshops.
- Develop awareness of other wildlife consumption advisories such as snapping turtles and waterfowl.
- Promote HACCP approach to seafood safety.
- Expand understanding of contaminant biomagnification issues.

### **Sub-Area C. Coastal Communities**

***Objective 1: Promote Smart Growth initiatives.***

***Action Items:***

- Encourage efforts to revitalize older urban areas and conserve rural resource areas.
- Support farmland preservation efforts.
- Take a leadership role in the identification and preservation of biodiverse areas.
- Assist municipalities with grant applications to address open space and other land preservation efforts.

***Objective 2: Collaborate with relevant organizations on sustainable land-use development activities.***

***Action Items:***

- Lead the Lake Erie Seaway Trail Scenic Byways initiative toward designation as a National Scenic Byway and as an All-American Road.
- Cooperate with DCNR and others in the development of Erie Bluffs State Park.
- Work with the Lake Erie Heritage Park initiative to develop a coastal park that incorporates industrial, agricultural, and maritime history.
- Work with the Lake Erie Region Conservancy to complete and implement the Lake Erie Watershed Conservation Plan.
- Work with the Great Lakes Sea Grant Network Land Use committee in support of sustainable land-use efforts throughout the region.
- Participate with the Pennsylvania Consortium for Interdisciplinary Environmental Policy organization, which promotes initiatives such as greening colleges and universities and sustainable development.
- Work with the City of Erie Weed and Seed program to encourage the stabilization and revitalization of older neighborhoods.
- Promote Conservation by Design among municipalities and developers.

***Objective 3: Address nonpoint source pollution issues through research and outreach.***

***Action Items:***

- Implement the Pennsylvania Lake Erie Nonpoint Education for Municipal Officials (NEMO) program.
- Develop and disseminate NEMO-Lake Erie outreach materials.
- Explore opportunities to expand NEMO statewide.
- Use Geographic Information Systems (GIS) to model future growth build-out scenarios and other tools to effect change in municipal codes and on-the-ground development.
- Assist municipalities in complying with federal and state stormwater requirements.
- Support stream restoration efforts.

***Objective 4: Support state efforts to develop a statewide water plan.***

***Action Items:***

- Assist in the preparation of the Lake Erie-Genesee basin water plan that will serve as a model for the Commonwealth.
- Support efforts to develop the Delaware River basin water plan.

***Objective 5: Promote coastal-related economies and tourism.***

***Action Items:***

- Implement recommendations of the Erie County steelhead economic impact study.

- Support additional fisheries economic impact studies on Pennsylvania's coastal waters.
- Promote efforts to expand public access for fishing.
- Promote coastal ecotourism such as underwater diving preserves and birding.
- Assist in the development of brownfield sites as a stimulus for economic growth.

## ***PROGRAM AREA TWO: EDUCATION***

***Goal: To enhance teacher and student environmental literacy and understanding of Pennsylvania's coastal ecosystems.***

***Objective 1: Promote the development and delivery of K-12 educational programs and materials.***

### ***Action Items:***

- Develop and implement professional development opportunities for pre-service and in-service teachers.
- Enhance and expand the impact of existing student programs such as Environmental Rediscoveries, Get W.E.T. (Watershed Education Team) program, and others.
- Support educational providers such as the Bayfront Center for Maritime Studies (BCMS), Lake Erie-Allegheny Earth Force, the Partnership for the Delaware Estuary, The Academy of Natural Sciences, and others.
- Support DCNR staff at Presque Isle State Park in the development of educational opportunities at the Tom Ridge Environmental Center at Presque Isle.
- Take an active role in designing and delivering educational programs that reach underserved populations.
- Identify educational materials that can be transferrable to a large audience.
- Identify methods to broaden our audience through methods such as distance education, interactive online activities, and others.

***Objective 2: Promote undergraduate and graduate student education and practicum opportunities.***

### ***Action Items:***

- Promote and nominate candidates for Sea Grant related fellowships: Knauss, Great Lakes Environmental Research Laboratory, and Coastal Management.
- Provide funding for undergraduate internships and graduate research fellowships.
- Develop a formal internship program with colleges and universities.
- Develop additional internship opportunities with other educational providers.
- Support the development of educational opportunities at the Tom Ridge Environmental Center at Presque Isle and with members of the Regional Science Consortium.

***Objective 3: Promote collaboration among environmental educators and scientists.***

***Action Items:***

- Develop Pennsylvania Sea Grant educator portal as an online resource, including curricula, resource materials, and links to other resources.
- Support activities that promote environmental education collaborations such as Lake Erie Environmental Education Partnership and the Delaware Estuary Environmental Network.
- Promote interactions and knowledge transfer between educators and research scientists through the COSEE (Center for Ocean Sciences Education Excellence) Great Lakes project.

***PROGRAM AREA THREE: APPLIED RESEARCH***

***Goal: To enhance science-based management by expanding statewide applied research projects.***

***Objective 1: Develop a fair and equitable process for soliciting, selecting, funding, and evaluating applied research projects.***

***Action Items:***

- Identify gaps in our understanding of coastal issues that focused research can address.
- Establish a statewide research advisory council to encourage scientific collaboration and prioritize research needs of importance to the Commonwealth.
- Incorporate an outreach component in the research to ensure that the research program is relevant to and supportive of outreach.
- Secure additional public and private research funds.
- Ensure that all appropriate Pennsylvania colleges and universities have an opportunity to participate through an equitable request for proposal process.
- Identify Pennsylvania-based researchers with an interest in coastal-related research.

***Objective 2: Support an applied research minigrant program.***

***Action Items:***

- Identify short-term, high priority research projects that directly support staff outreach efforts.
- Develop a process to solicit proposals for the minigrant program.

***Objective 3: Implement the Regional Science Consortium at the Tom Ridge Environmental Center at Presque Isle and explore opportunities to develop a similar consortium to serve the Delaware River Watershed.***

***Action Items:***

- Maintain consortium leadership roles.

- Use the consortium's 7,000 square feet of research laboratories to promote and facilitate research related to the Lake Erie watershed.
- Facilitate acquisition of equipment and supplies for the consortium's laboratory space.
- Identify partners and facility needs for implementation of a regional science consortium in the Delaware River Watershed.

#### ***PROGRAM AREA FOUR: COMMUNICATIONS AND COLLABORATION***

***Goal: To enhance communication and expand collaboration in support of extension, education, and research.***

***Objective 1: Develop and implement a comprehensive communication program.***

##### ***Action Items:***

- Enhance communication with collaborators, environmental practitioners, and governmental agencies through an online newsletter, fact sheets, Web site, and other online resources.
- Enhance communication with general public, tourists, anglers, and other groups through public displays, publications, media outlets, promotional items, Web site, monthly Visiting Scientist lectures offered through the Regional Science Consortium, etc.
- Evaluate and improve Pennsylvania Sea Grant Web site and other communication materials and resources.

***Objective 2: Serve as a local resource to support and disseminate findings and resources of NOAA and other federal partners.***

##### ***Action Items:***

- Work closely with NOAA's Coastal Services Center and Coastal Zone Management Program.
- Coordinate efforts with the NOAA Great Lakes Environmental Research Laboratory.
- Coordinate efforts with Delaware Estuary Program.
- Coordinate activities with the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, U.S. Geological Survey, U.S. Department of Agriculture, and other federal agencies.
- Coordinate activities with regional, national, and international commissions including the International Joint Commission, Great Lakes Commission, Great Lakes Fishery Commission, and Delaware River Basin Commission.
- Coordinate efforts with Sea Grant's Great Lakes Network to promote the Center for Oceans Science Education Excellence (COSEE).
- Work with federal and state agencies to support the Great Lakes Restoration initiative, Great Lakes Fishery Institute, Great Lakes Observing System (GLOS), and Integrated and Sustained Ocean Observing System (IOOS).

***Objective 3: Effectively integrate program elements with statewide resources.***

***Action Items:***

- Strengthen linkages with state agencies such as DEP, DCNR, PA Fish and Boat Commission, and Department of Agriculture.
- Identify and incorporate appropriate Penn State resources such as the Applied Research Lab, Institutes of the Environment, School of Forest Resources, Cooperative Extension, and others.
- Strengthen statewide integration of Pennsylvania Sea Grant resources and expertise.