- **$3.4 million grant award –Dept. of the Interior / National Fish and Wildlife Foundation**
- **Funded by the Hurricane Sandy Coastal Resiliency Competitive Grant Program**

PARTNERS

NFWF

RUTGERS
Edward J. Bloustein School of Planning and Public Policy

STEVENS

NEW JERSEY AUDUBON

Sea Grant
NJ Sea Grant Consortium

BARNEGAT BAY PARTNERSHIP

Overall Grant Goals

- Develop ecological solutions guidance materials
- Provide outreach and assistance to municipalities dealing with coastal community hazards
- Manage 10 projects that address coastal risks using ecological solutions
- Monitor projects to evaluate ecological solutions
- Develop citizens monitoring program
- **Connect people to nature and inspire action in the Coasts and Wetlands landscape.**
  - **Create educational framework, lessons and activities that highlight student-led ecological solutions to community hazards (i.e. flooding, erosion, habitat loss, etc.)**
  - **Integrate aspects of ecological monitoring into existing curricula to gather baseline data for coastal communities.**
  - **Create examples of best practice from 7 schools to share.**


Partners
Projects
Wetlands
Tools
Monitoring
Students
Planning
Engineering
Funding

Students and teachers,

Building Ecological Solutions for Coastal Community Hazards

Begins here - where land, water, weather and
human activity meet…over and over again.

No matter where your classroom is located - inland or along the coast,
in a city or in a suburb, students can experience and explore
Building Ecological Solutions for Coastal Community Hazards

Team Leaders

- New Jersey Department of Environmental Protection
- New Jersey Audubon
- National Wildlife Federation
- New Jersey School Boards Association
- Science Education Consultant
- Sustainable Jersey

Team Members

Cape May County Technical School,
Cape May County Technical School District

Ocean City High School, Ocean City School District

Pennsville Memorial High School, Pennsville School District

Marine Academy of Math and Science,
Monmouth County Vocational School District

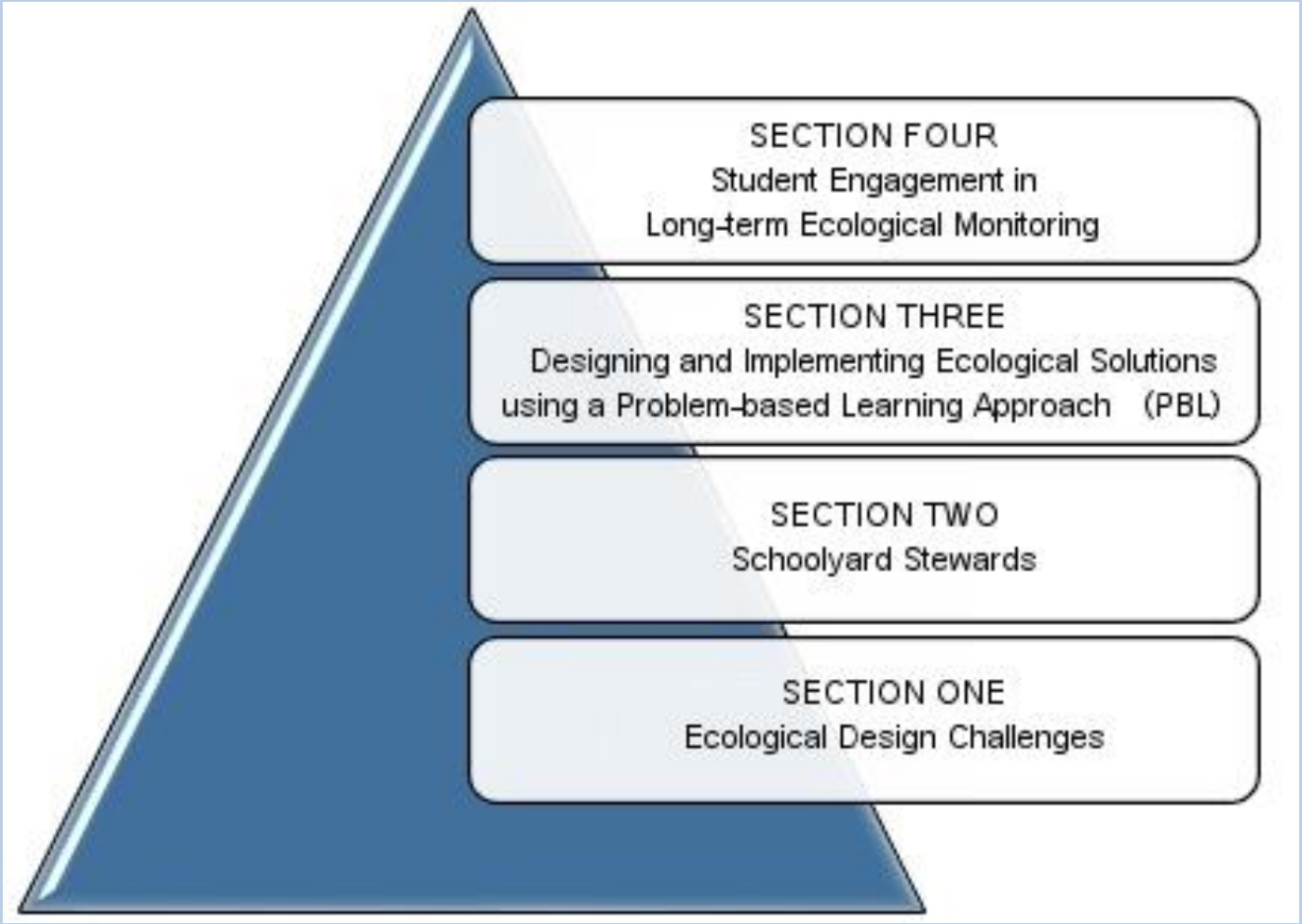
Frog Pond Elementary School, Little Egg Harbor School District

Egg Harbor Township High School, Egg Harbor School District

Memorial Middle School, Eatontown School District

Goal of Module

- Provide options for students to use real-life scenarios to identify environmental problems, have them design their own ecological solutions, then compare them with on-site solutions (ONE);
- Provide examples of how students can carry out an ecologically based project that protects or enhances a shoreline or watershed (TWO);
- Provide PBL lessons about ecological solutions (THREE); and
- Provide guidance for long-term ecological monitoring (FOUR).


SECTION FOUR
Student Engagement in
Long-term Ecological Monitoring
SECTION THREE
Designing and Implementing Ecological Solutions
using a Problem-based Learning Approach (PBL)
SECTION TWO
Schoolyard Stewards
SECTION ONE
Ecological Design Challenges

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

SECTION ONE: Ecological Design Challenges

Provide options for students to use real-life scenarios (six municipalities) to identify environmental problems, have them design their own ecological solutions, then compare them with on-site solutions.

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

SECTION TWO: Schoolyard Stewards

Provides lessons conducted by five schools that were challenged to carry out an ecologically-based project that protects a shoreline or watershed and is on their school grounds or in their community.

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

SECTION THREE: Designing and Implementing Ecological Solutions using A Problem-based Learning Approach (PBL)

Features PBL units used by two high schools to design and implement ecological solutions for a nearby marsh, shoreline or water body. The units highlight cross-disciplinary collaboration and challenge students to create solutions to problems that they have identified on or near their school grounds, by using an ecological monitoring component.

Cape May Technical School

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

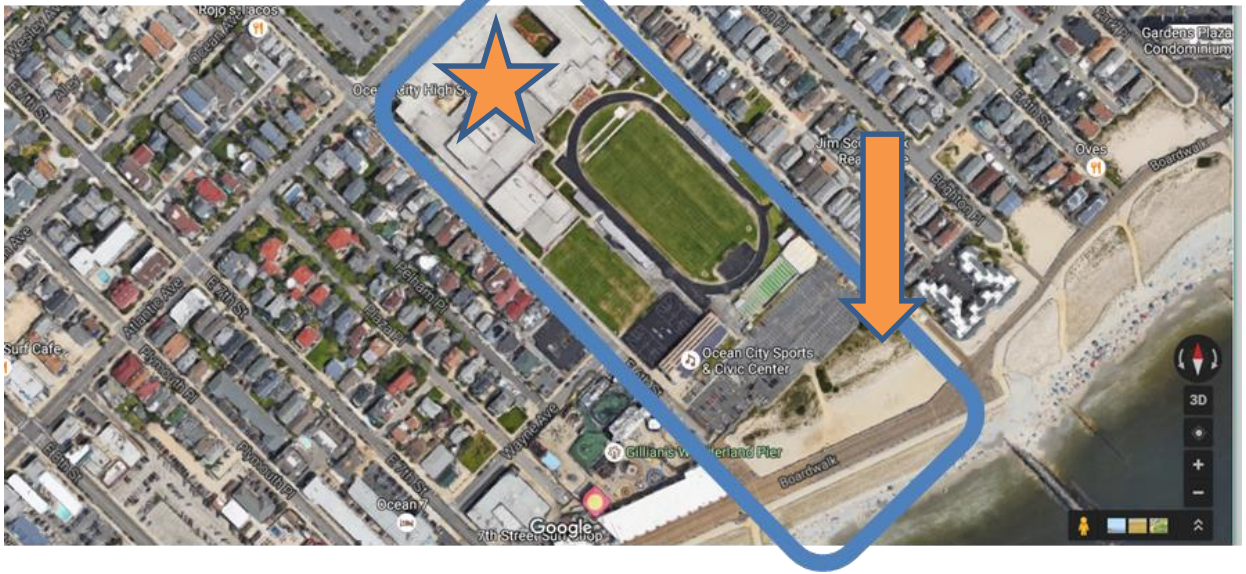
Focus:
Salt Marsh and Maritime Forest

1. What would changes in sea level impact in your life (social, economic, political, natural)?
2. How can we create models that depict current and past conditions of local environments?
3. How do we identify areas that could be considered at risk to sea level increase?
4. What are sustainable/resilient ecological engineering solutions to these high risk areas?
5. How do we communicate/educate the community and stakeholders about the high risk area?

How can we monitor coastal environmental conditions?

Ocean City High School

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)



Focus:

Beach and Dunes

1. What is the structure and function of our barrier island beaches?
2. What is the general trend of beach erosion in our area?
3. How do barrier islands affect the local economy?
4. In what ways can dunes be enhanced to better serve the local community?
5. What are the effects of storms on our dune systems and communities?
6. Why is there a growing concern about shoreline communities and shoreline stabilization?

How can we address shoreline stabilization and increase wildlife habitat in our community?

BUILDING ECOLOGICAL SOLUTIONS TO COASTAL COMMUNITY HAZARDS (BESCCH)

SECTION FOUR: Student Engagement in Long-term Ecological Monitoring

Students and schools can "adopt-a-site" for ecological monitoring and contribute data as part of a citizen science monitoring network. This section provides the basics of ecological monitoring and features resources for monitoring local saltmarshes, wetlands and shorelines.

NEXT STEPS Include:

1. In New Jersey, celebrating STEM Month and World Water Monitoring Day by promoting use of this module to NJ secondary schools (March);
2. Celebrate Earth Day and Environmental Education Week by promoting use of this module to secondary schools and teachers (April);
3. Circulate flier to NJ independent and charter schools as well as science teacher associations, green teams, school boards and AP science networks; and
4. Circulate flier nationally to schools through Eco-schools USA network.

ECO-SCHOOLS USA
NATIONAL WILDLIFE FEDERATION

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