

OCEAN EXPERT EXCHANGE EDUCATOR RESOURCES

TOPIC - **Engineering with Nature for Climate Adaptation**

FEATURED EXPERT - **Dr. Kelly Kibler of the University of Central Florida**

RELATED LEARNING STANDARDS

OCEAN LITERACY PRINCIPLES -

Principle #2: The ocean and life in the ocean shape the features of Earth

Principle #5: The ocean supports a great diversity of life and ecosystems

Principle #6: The ocean and humans are inextricably linked

NEXT GENERATION SUNSHINE STATE STANDARDS -

SC.4.L.17.4: Recognize ways plants and animals, including humans, can impact the environment.

SC.7.L.17.3: Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

SC.7.N.1.5: Describe the methods used in the pursuit of a scientific explanation as seen in different fields...

SC.8.N.4.1: Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.

SC.912.E.7.3: Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.

SC.912.E.7.8: Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.

SC.912.L.17.4: Describe changes in ecosystems resulting from seasonal variations, climate change and succession.

SC.912.L.17.16: Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gasses, ozone depletion, and surface and groundwater pollution.

SC.912.L.17.17: Assess the effectiveness of innovative methods of protecting the environment.

SC.912.L.17.18: Describe how human population size and resource use relate to environmental quality.

SC.912.L.17.20: Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

SC.912.N.1.1: Define a problem based on a specific body of knowledge; pose questions, conduct systematic observations, examine books and other sources of information to see what is already known...

SUPPLEMENTAL RESOURCES

- o Video - UCF College of Sciences [Lunch on the Coast with Kelly Kibler](#) (Grades 4-12)
- o Resource Library - U.S. Army Corp of Engineers [Engineering With Nature](#) (Grades 6-12)
- o Resource Library - FWC, FDEP, USFWS, et al. [Florida Living Shorelines](#) (Grades 6-12)
- o Resource Library - Environmental Protection Agency [Green Infrastructure: Coastal Resiliency](#) (Grades 9-12)
- o Resource Library - NOAA Office for Coastal Management [Digital Coast: Natural Infrastructure](#) (Grades 9-12)
- o Interactive - Esri [Building Green Infrastructure in the US - A Framework for Sust. Growth](#) (Grades 6-12)
- o Reading - Frontiers for Young Minds [Working with Nature to Solve Societal Problems](#) (Grades 6-12)
- o Reading - The Nature Conservancy [Coastal Resilience: Natural solutions to protect FL's coasts](#) (Grades 6-12)
- o 360 Fieldtrip - Odyssey Earth [Mangrove Fringe 360 video](#) w/ [Field Guide](#) & [Data Sheet](#) (Grades K-12)
- o Video Series - TNC Nature Lab [Coastline Protection - The Amazing Oyster Reef](#) (Grades 4-12)
- o Lesson - TNC Nature Lab [Where's the Beach? Investigating Coastline Erosion Protection](#) (Grades 6-8)
- o Lesson - NOAA Data in the Classroom [Investigating Sea Level](#) (Grades 6-12)
- o Lesson - NOAA NERRS [Score One for the Estuary](#) (Grades 6-12)
- o Lesson - USDOC & NOAA [Beat the Uncertainty: Planning Climate Resilient Cities](#) (Grades 7-12)