

## Ocean Expert Exchange - Educator Resources

TOPIC: *Lionfish Invasion*

FEATURED EXPERT: *Dr. Katherine Galloway of Nicholls State University*

### TARGETED LEARNING STANDARDS:

#### ELEMENTARY SCHOOL NGSSS:

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

**SC.5.L.17.1:** Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.

#### MIDDLE SCHOOL NGSSS:

**SC.6.N.1.5:** Recognize that science involves creativity, not just in designing experiments, but also in creating explanations that fit evidence.

**SC.7.N.1.5:** Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.

**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.

#### HIGH SCHOOL NGSSS:

**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, review what is known in light of empirical evidence, plan investigations...

**SC.912.L.12.1:** Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.

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

**SC.912.L.17.6:** Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.

**SC.912.L.17.8:** Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.

### SUPPLEMENTAL RESOURCES:

- Reading – Florida Atlantic University (FAU) [Small Fish, Big Problem](#) (Middle-High School)
- Reading – FAU [Meet Ph.D. Candidate in Interactive Biology, Kate Galloway](#) (Middle-High School)
- Reading – NOAA Fisheries [Invasive and Exotic Marine Species](#) (Middle-High School)
- Reading – Live Science [Lionfish: Beautiful and Dangerous Invaders](#) (Middle-High School)
- Infographic – Bahamas National Trust et al. [Red Lionfish](#) (Middle-High School)
- Video & Study Guide – Schoolyard Films [Invasion of the Alien Fish – Lionfish](#) (Grades K-12)
- Video – South Florida PBS Changing Seas [Episode 301: Alien Invaders](#) (Middle-High School)
- Resource Library – GCFI et al. [Invasive Lionfish Web Portal](#) (Middle-High School)
- Resource Library – USDA National Invasive Species Information Center [Lionfish](#) (Middle-High School)
- Lesson – Sea Grant [Nab the Aquatic Invader!](#) (Grades 3-12)
- Lesson – Central Caribbean Marine Institute [The Perfect Invader](#), [Lionfish Dissection](#) & [Tutorial](#) (Grades 4-12)
- Lesson – Dauphin Island Sea Lab [Lionfish Invasion! Game](#) & [Lionfish Dissection Activity Materials](#) (Grades 4-12)
- Lesson – CPALMS [Lionfish: Invasive Predators!](#) (Grades 9-10)
- Lesson – HHMI BioInteractive [Lionfish Invasion: Density-Dependent Population Dynamics](#) (High School)
- Reference – NOAA & DOC [Lionfish Dissection: Techniques & Applications](#) (Middle-High School)