

## SUGGESTED REFERENCES

- **Creatures of the Deep: In Search of the Sea's "Monsters" and the World They Live In.**  
Erich Hoyt, Firefly Books Ltd. October 2001.
- **The Eternal Darkness: A Personal History of Deep-Sea Exploration**  
Robert D. Ballard with Will Hively, 314 pp. Princeton University Press, 2000.
- *Exploring the deep ocean floor: Hot springs and strange creatures*  
<http://pubs.usgs.gov/publications/text/exploring.html>
- *Mystic Aquarium - Institute for Exploration*  
<http://www.mysticaquarium.org/index.html>
- *Endangered Sea Dragon*  
<http://www.fish.wa.gov.au/rec/broc/fishcard/dragon.html>

## NATIONAL SCIENCE EDUCATION STANDARDS

### Grades K-4

#### Life Science

The Characteristics of Organisms  
Life Cycles of Organisms  
Organisms and Environments

### Grades 5 - 8

#### Life Science

Structure and Function in Living Organisms  
Diversity and Adaptations of Organisms  
Population and Ecosystems

\*Source: *National Science Education Standards, 1996, National Academy Press*

## CREDITS

### EDUCATOR ADVISORY PANEL

Fred Barch, M.S.  
Rose-Marie Botting, M.S.

Debra A. Murnan, B.A.  
John A. Murnan III, M.S.

### PRODUCTION CREDITS

WRITER/PRODUCER:  
ASSOCIATE PRODUCER:  
EDITOR:  
NARRATORS:

Jon Glassman  
Judi Sitkin  
Jon Glassman  
Cyrilla Baer Pond & Andrew Forman

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tel: 1.800.232.2133 email: [info@ssrvideo.com](mailto:info@ssrvideo.com)  
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# SCIENCE SCREEN REPORT FOR KIDS

VOLUME 17 ISSUE 4

## BIZARRE CREATURES IN THE OCEAN



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## SYNOPSIS

We may know more about the moon than we do about the deepest abysses of the oceans. We are still discovering creatures at extreme depths and learning about their unusual living conditions. It is amazing that some of these ocean creatures are able to withstand the lack of light while locating prey. Creatures of these deep waters are sometimes quite unusual because of their adaptive characteristics. But while there are many strange species in the ocean's depths, there are also plenty of unusual creatures in the shallows.

In this edition, we will explore their environments and see how these bizarre creatures manage to survive through unusual hunting methods, different lines of defenses such as camouflage, and unique mating techniques.

## CURRICULUM UNITS

- BIOLOGY
- ENVIRONMENTAL SCIENCE
- MARINE BIOLOGY
- OCEANOGRAPHY
- ZOOLOGY

## RUNNING TIME

18:12

## BACKGROUND

In deep ocean crevasses, life has adapted to unusual living conditions. Their adaptive nature has allowed them to take amazing measures to disguise themselves within natural environments. The hairy frogfish, for example, has fleshy nodules that help it blend into the rocks and weeds. The leafy sea dragon has long fronds that extend off of and break up the lines of its seahorse-like body, giving it the ability to float hidden among the seaweed. One of the ugliest and deadliest fish in the sea is the stonefish. It is not a large fish, but it is extremely poisonous, and can camouflage itself among the reefs.

Some other unusual creatures can be found in the shallows. The nudibranch, also known as the sea slug, is a unique and very diverse species. The name nudibranch means "naked gill". Some have gills that are displayed on the outside of their dorsal surface. Many species are brightly colored, warning potential predators of distasteful toxins. Some nudibranchs are strongly scented, which is a chemical anti-predator warning. They feed on creatures that contain stinging cells called nematocysts. The nudibranchs block these nematocysts during digestion, and pass them on to special storage sacs. The adopted poisonous cells form part of a defense mechanism against predators. The nudibranch possesses a very unusual mating trait. They are hermaphrodites, containing both male and female sexual reproductive organs. This essentially doubles their opportunities for finding a mate.

Reproduction is atypical in the case of the seahorse. Not only are they devoted couples who pair for life, but there is another quirky twist. It is the male seahorse who takes on the motherly role of pregnancy, which lasts up to three weeks.

The siphonophore, a rare giant of the sea, is a relative of the jellyfish. It is one of the longest creatures in the ocean. The siphonophore grows to a length greater than that of any of the big whales. At around 40 meters, it is a twisting mass of individual animals joined together in one long snake-like colony.

The ocean depths are still a mystery to scientists. We will be discovering new things about our oceans for years to come. Newly designed remotely operated vehicles, or ROV's, and special cameras will enable us to see even further into the deepest abysses.

## ADVANCED ORGANIZERS

Prior to viewing this program, students should have some understanding of the following Benchmarks for Science Literacy, Oxford University Press which are excerpted and, in some cases, abbreviated below. Refer to the Benchmarks for more information.

### Benchmark 5: The Living Environment

#### Section A - Diversity of Life

Know by Grade 8

- Animals and plants have a great variety of body plans and internal structures that contribute to their ability to make or find food and reproduce.

#### Section F - Evolution of Life

Know by Grade 8

- Small differences between parents and offspring can accumulate (through selective breeding) in successive generations so that descendants are different from their ancestors.
- Individual organisms with certain traits are more likely than others to survive and have offspring. Changes in environmental conditions can affect the survival of individual organisms and entire species.

\*Benchmarks can be found at [www.project2061.org/tools/benchol/bolintr.htm](http://www.project2061.org/tools/benchol/bolintr.htm)

## CRITICAL THINKING EXERCISES

- Compare and contrast deep-sea exploration to space exploration.
- Discuss camouflage techniques of the different species mentioned in the program. Compare and contrast them with each other, and then with species that use bright colors to warn off enemies.
- The seahorse is a unique species where the male becomes pregnant. Research different animals where the male takes a more active role in parenting at websites such as:  
<http://www.pbs.org/wgbh/nova/seahorse/superdads.html>

## VOCABULARY

**Abyss** . . . . . A deep, immeasurable space, gulf, or cavity; vast chasm.

**Camouflage** . . . . . To conceal by the use of disguise or by protective coloring that blend in with the surrounding environment.

**Crustacean** . . . . . Any of various predominantly aquatic arthropods of the class Crustacea, including lobsters, crabs, shrimps, and barnacles, characteristically having a segmented body, a chitinous exoskeleton, and paired, jointed limbs.

**Hermaphrodite** . . . . . An individual in which reproductive organs of both sexes are present.

**Morphology** . . . . . The branch of biology dealing with the form and structure of organisms.

**Plankton** . . . . . The collection of small or microscopic organisms, including algae and protozoans, that float or drift in great numbers in fresh or salt water, especially at or near the surface, and serve as food for fish and other larger organisms.

## CAREER POSSIBILITIES

- BIOLOGIST
- DIVER
- ENVIRONMENTAL SCIENTIST
- MARINE BIOLOGIST
- OCEANOGRAPHER
- ZOOLOGIST