



Speaker: Nadia Stoker

Master's Student

Dr. Craig Young's Deep-Sea Lab
Oregon Institute of Marine Biology,
University of Oregon

**The U.S. National Science
Foundation's
Advancing Informal Stem
Learning Conference**
February 2026



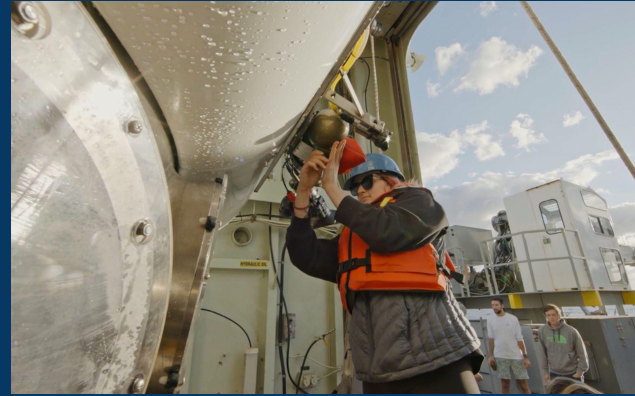
The Stephen Low Company



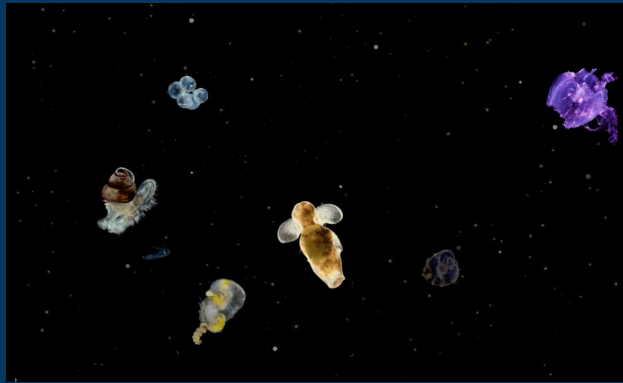
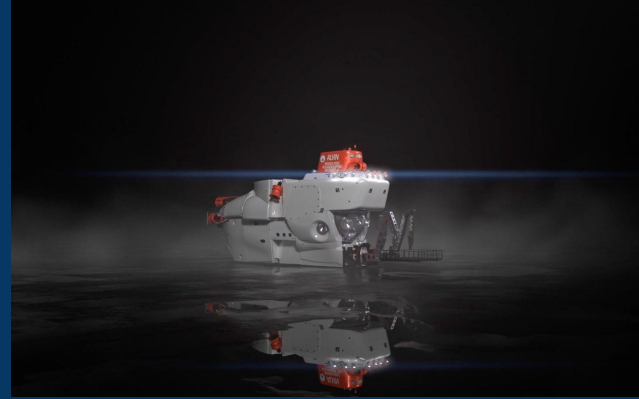
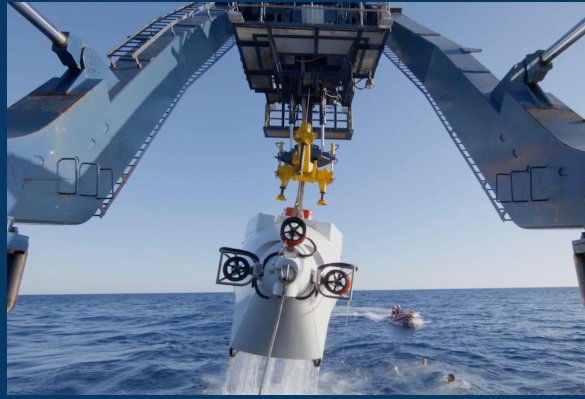
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Photos from *Born in the Abyss* film



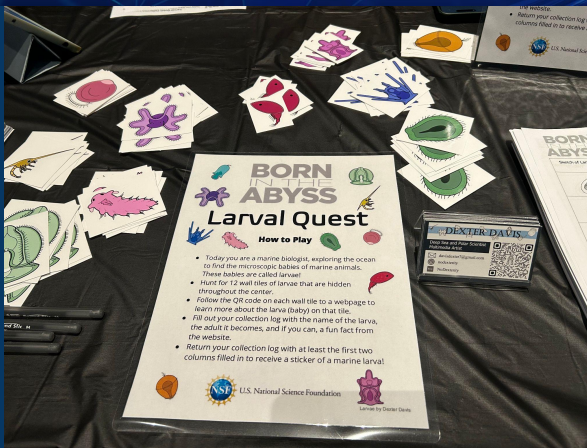
Photos from *Born in the Abyss* film



NSF 75 YEARS OF DISCOVERY & INNOVATION

May 10th, 2025 STEM Day

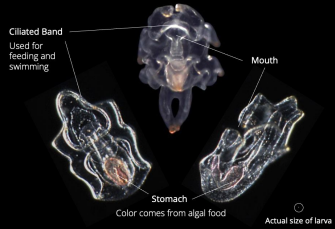
- UO Charleston Marine Life Center (Charleston, Oregon)
- Challenger Learning Center (Tallahassee, Florida)
- Pacific Science Center (Seattle, Washington)
- Oregon Museum of Science and Industry (Portland, Oregon)



Bipinnaria

Sea star larva (baby)

Plural: Bipinnarias

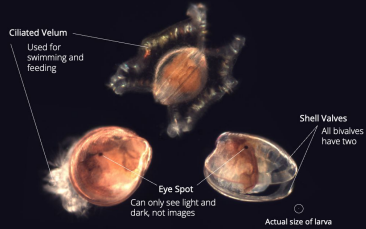


Larvae of two different species shown at 100x magnification

Bivalve Veliger

Clam, mussel, or oyster larva (baby)

Plural: Bivalve Veligers

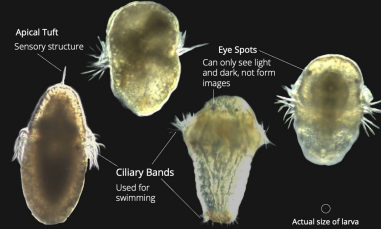


Larvae of the same species shown at 160x magnification

Trochophore

Mollusc or annelid worm larva (baby)

Plural: Trochophores

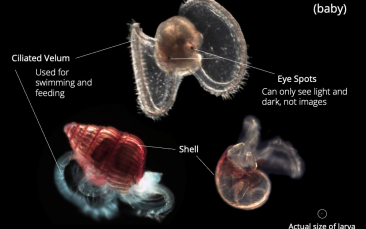


Larvae of two different species shown at 220x magnification

Gastropod Veliger

Sea snail and slug larva (baby)

Plural: Gastropod Veligers

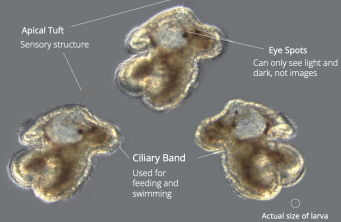


Larvae of three different species shown at 140x magnification

Müller's Larva

Flatworm larva (baby)

Plural: Müller's larvae

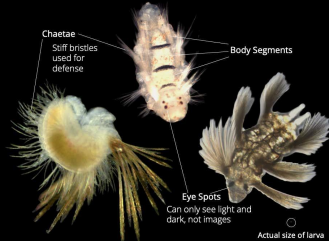


Larvae of the same species shown at 240x magnification

Nectochaete

Segmented worm larva (baby)

Plural: Nectochaetes



Larvae of three different species shown at 200x magnification

Planula

Jellyfish or sea anemone larva (baby)

Plural: Planulae

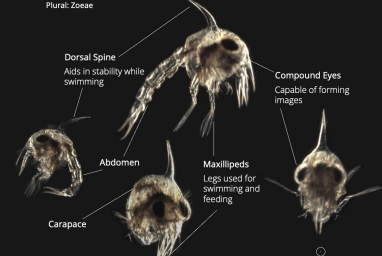


Larvae of the same species photographed at 220x magnification

Zoea

Crab or shrimp larva (baby)

Plural: Zoae

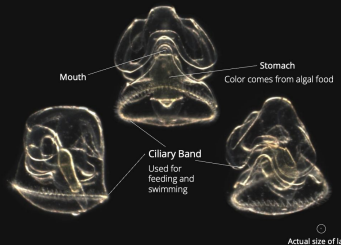


Larvae of the same species shown at 100x magnification

Tornaria

Acorn worm larva (baby)

Plural: Tornariae

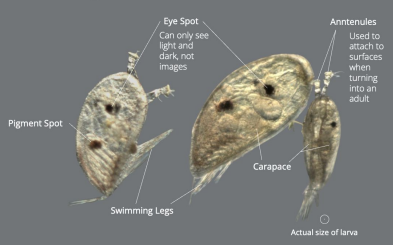


Larvae of the same species photographed at 100x magnification

Cyprid

Barnacle larva (baby)

Plural: Cyprids

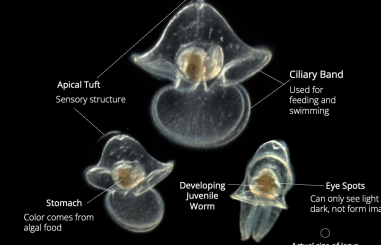


Larvae of the same species shown at 140x magnification

Pilidium

Ribbon worm larva (baby)

Plural: Piliidia

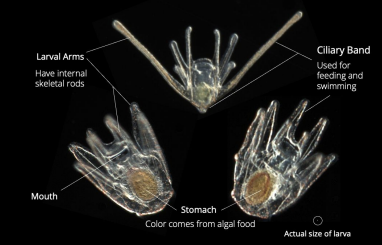


Larvae of the same species shown at 160x magnification

Pluteus

Sea urchin and brittle star larva (baby)

Plural: Plutei

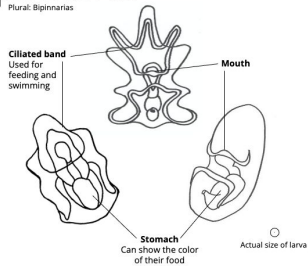


Larvae of two different species shown at 120x magnification

Bipinnaria

Sea star larva (baby)

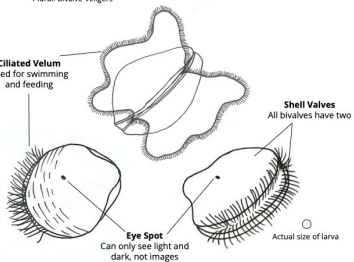
Plural: Bipinnarias



Bivalve Veliger

Clam, mussel, or oyster larva (baby)

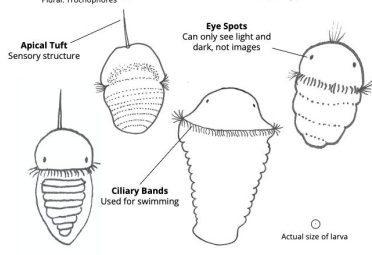
Plural: Bivalve Veligers



Trochophore

Mollusc or annelid worm larva (baby)

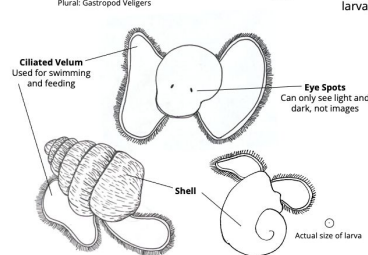
Plural: Trochophores



Gastropod Veliger

Sea snail and slug larva (baby)

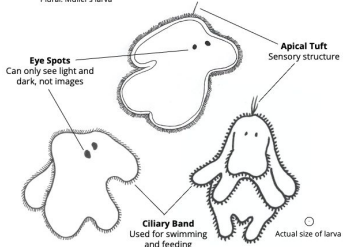
Plural: Gastropod Veligers



Müller's Larva

Flatworm larva (baby)

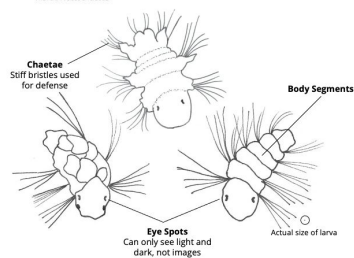
Plural: Müller's larva



Nectochaete

Segmented worm larva (baby)

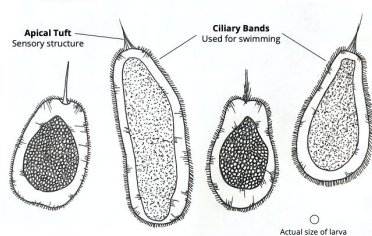
Plural: Nectochaetes



Planula

Jellyfish or sea anemone larva (baby)

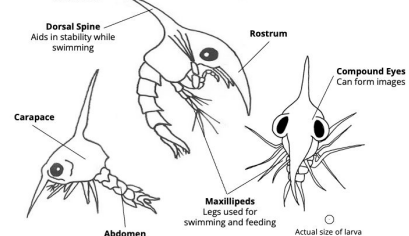
Plural: Planulae



Zoea

Crab or shrimp larva (baby)

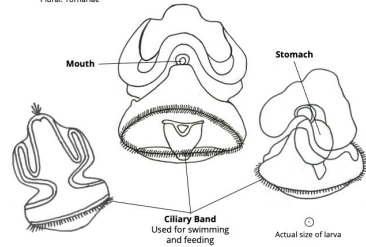
Plural: Zoae



Tornaria

Acorn worm larva (baby)

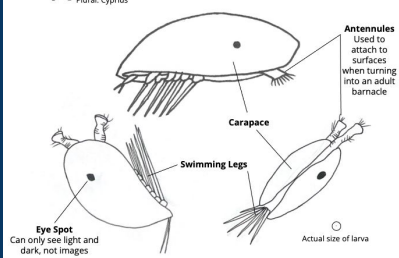
Plural: Tornariae



Cyprid

Barnacle larva (baby)

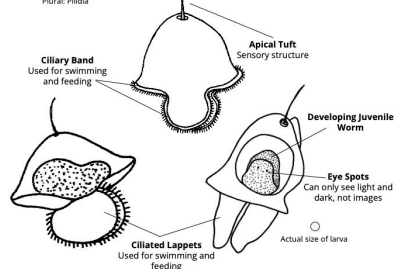
Plural: Cyprids



Pilidium

Ribbon worm larva (baby)

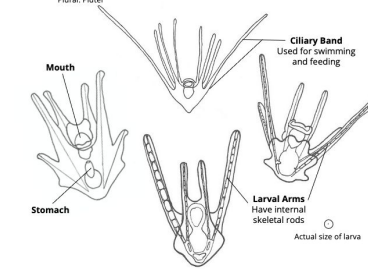
Plural: Pilidia



Pluteus

Sea urchin and brittle star larva (baby)

Plural: Plutei





Larval Quest

How to Play

- Today you are a marine biologist, exploring the ocean to find the microscopic babies of marine animals. These babies are called larvae.
- Hunt for 12 wall tiles of larvae that are hidden throughout the center.
- Follow the QR code on each wall tile to a webpage to learn more about the larva (baby) on that tile.
- Fill out your collection log with the name of the larva, the adult it becomes, and if you can, a fun fact from the website.



Larvae by Dexter Davis



BORN IN THE ABYSS

Larval Quest Collection Log

Today you are a marine biologist, exploring the ocean to find the microscopic babies of marine animals. These babies are called larvae. As you find the images of larvae on the walls, scan each QR code to learn more about each baby and fill out your collection log below.

| Sketch of Larva | Name of Larva | Name of Adult | Fun Fact from Website |
|-----------------|---------------|---------------|-----------------------|
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More on other side!

BORN IN THE ABYSS

Larval Quest Collection Log

Today you are a marine biologist, exploring the ocean to find the microscopic babies of marine animals. These babies are called larvae! As you find the images of larvae on the walls, scan each QR code to learn more about each baby and fill out your collection log below.

| Sketch of Larva | Name of Larva | Name of Adult | Fun Fact from Website |
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More on other side!

Gastropod Veliger

Plural: Gastropod Veligers

Sea snail
and slug
larva
(baby)

Ciliated Velum

Used for
swimming and
feeding

Eye Spots

Can only see light and
dark, not images

Shell

Actual size of larva

Larvae of three different species shown at 140x magnification

**BORN
IN THE
ABYSS**

Coming Soon!

Produced by The Stephen Low Company
in collaboration with
Oregon Institute of Marine Biology
University of Oregon

Main URL



U.S. National Science Foundation
WHERE DISCOVERIES BEGIN

Scan the QR code
to learn more
about this larval
form



Gastropod Veliger

Plural: Gastropod Veligers

"Gastropod" comes from the Greek words "gaster" and "pous," which mean "stomach foot"

"Veliger" is from the Latin words "velum" and "-ger," which together mean "sail carrying"

Parents: Sea snails and slugs, including abalone, whelks, and limpets

Food: Microscopic algae called phytoplankton

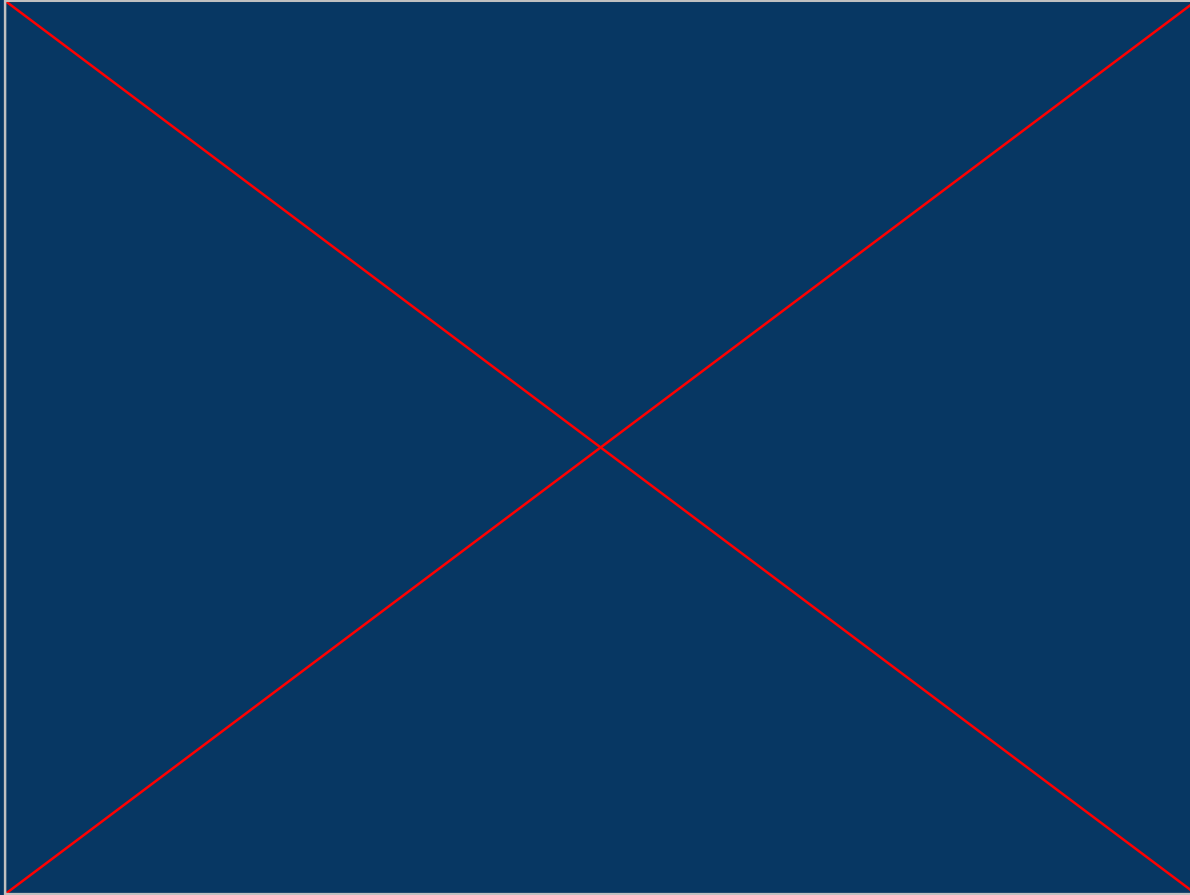
Size: About 500 microns tall = 0.5 millimeters = 0.02 inches



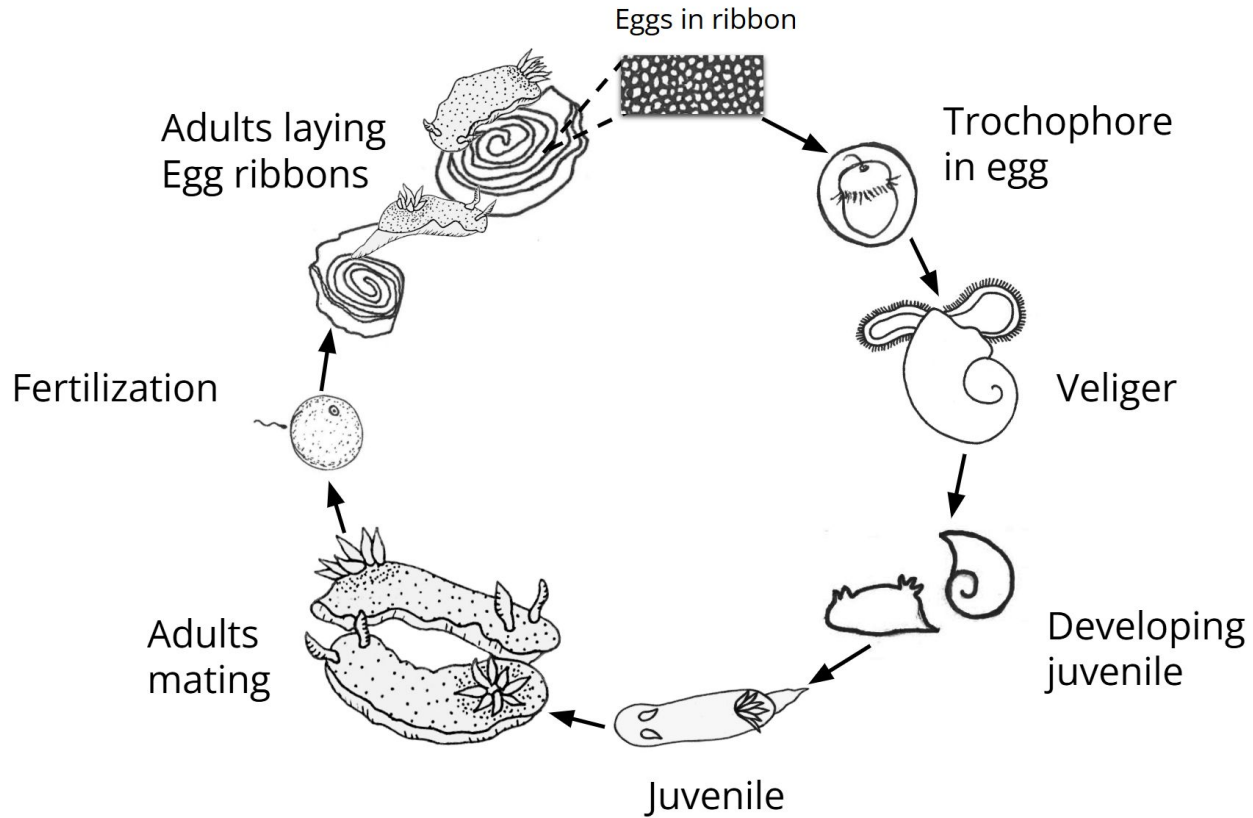
The Oregon Hairy Triton, a large predatory snail. Photo by McKenna Hainey.

Larval Form and Function

Watch this compilation video to learn more about the movement, anatomy, and feeding of the gastropod veliger larva.



Life Cycle of a Sea Slug



About the Film

Born in the Abyss is a giant screen film in production with collaboration from the Oregon Institute of Marine Biology at the University of Oregon, and funding from the U.S. National Science Foundation. The film propels audiences on a submarine adventure to take a unique and immersive look at leading-edge marine biology research focused on larval forms (the microscopic babies) of animals in the deep ocean. Using the famous Alvin submersible, teams of college students visited the deep ocean in the Atlantic, the Tropical Pacific, and the Gulf of Mexico to investigate how virtually invisible larvae renew and sustain life in some of the most extreme conditions on the planet. The film highlights student involvement in collaborative big science and how much is still to be discovered.

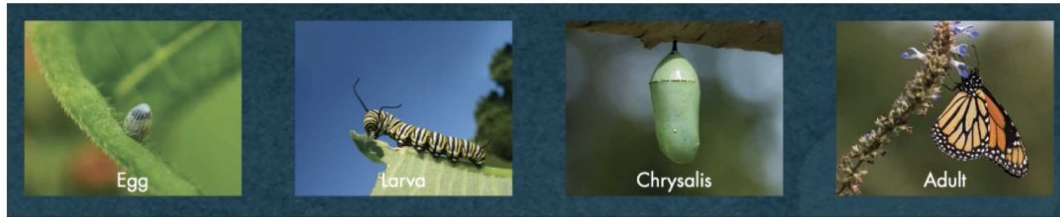


Larval Biology Basics

What is a larva?

The beginning stage, or baby, of many animals that does not look like the adult

Human babies have the same basic features as adults (such as fingers, toes, nose, eyes), but butterflies do not look much like their caterpillar babies. Neither do frogs look much like tadpoles. These animals have indirect development, in which a larval form (baby) undergoes a dramatic change called metamorphosis to take on the adult form. Metamorphosis is Greek for "transformation" and often involves a change in both behavior and anatomy.



Marine larvae are tiny and diverse

Like butterflies and other insects, many marine animals lack backbones and are called invertebrates. The larvae (plural of larva) of marine invertebrates are microscopic, and many are smaller than the period at the end of this sentence.

Larvae are considered plankton which includes any organism not strong enough to swim against the current. For larvae, their size means they are planktonic, living at the whim of the waves. Pictured here are a selection of diverse larvae. Their unique structures and traits allow marine biologists to determine which larval form will metamorphose into which adult.



Larval Quest Activity

How to Play

Today, you are a marine biologist exploring the ocean to find larvae. During your larval quest, you will encounter the unique body forms of larvae and learn about their life before they appear as the animals you may know and love.

At an event location:

- Hunt for 12 wall tiles of larvae that are hidden throughout the center.
- Follow the QR code on each wall tile to a webpage to learn more about that larva.
- Fill out your collection log with the name of the larva, the adult it becomes, and if you can, a fun fact from the website.

Online only:

- Read through the above Larval Biology Basics.
- Use the list below to browse through the 12 larval forms.

Larvae to find:

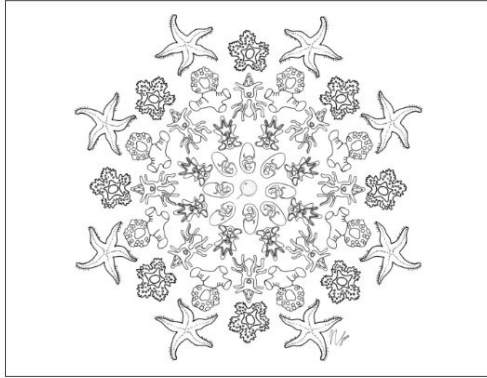
- [Bipinnaria](#)
- [Bivalve Veliger](#)
- [Cyprid](#)
- [Gastropod Veliger](#)
- [Müller's Larva](#)
- [Nectochaete](#)
- [Pilidium](#)
- [Planula](#)
- [Pluteus](#)
- [Tornaria](#)
- [Trochophore](#)
- [Zoea](#)

Suggestions for classroom use:

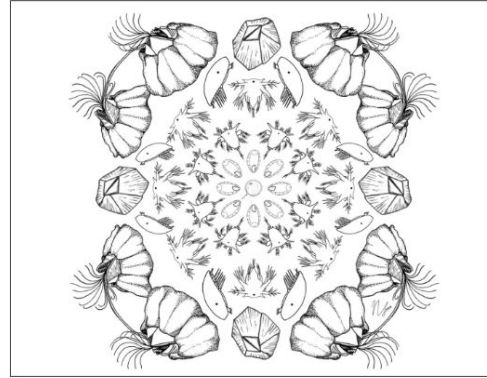
- Printable [Instruction Sheet & Student Collection Log](#)
- Printable larval wall tiles: [photo-quality](#) or [black & white](#)

Larval Development Mandalas

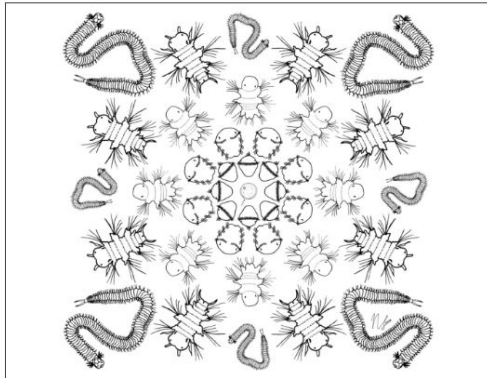
Mandalas are geometric designs used in the practice of meditation. This art form features intricate, repeating patterns that radiate from a central point. Coloring mandalas is a popular modern mindfulness practice to reduce stress and immerse oneself in the present moment. Follow the story of a deep-sea larva's development by coloring this mandala, starting at the point of fertilization in the center, and working outward to watch the larva metamorphose into an adult.



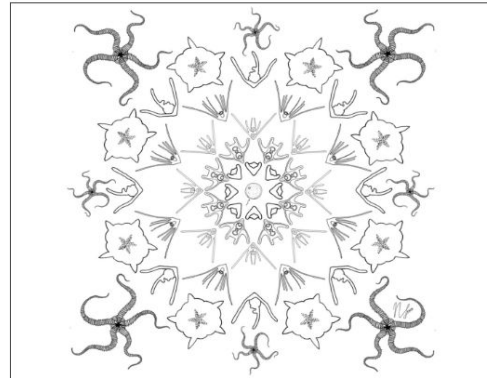
Sea Star



Barnacle



Polychaete Worm



Brittle Star

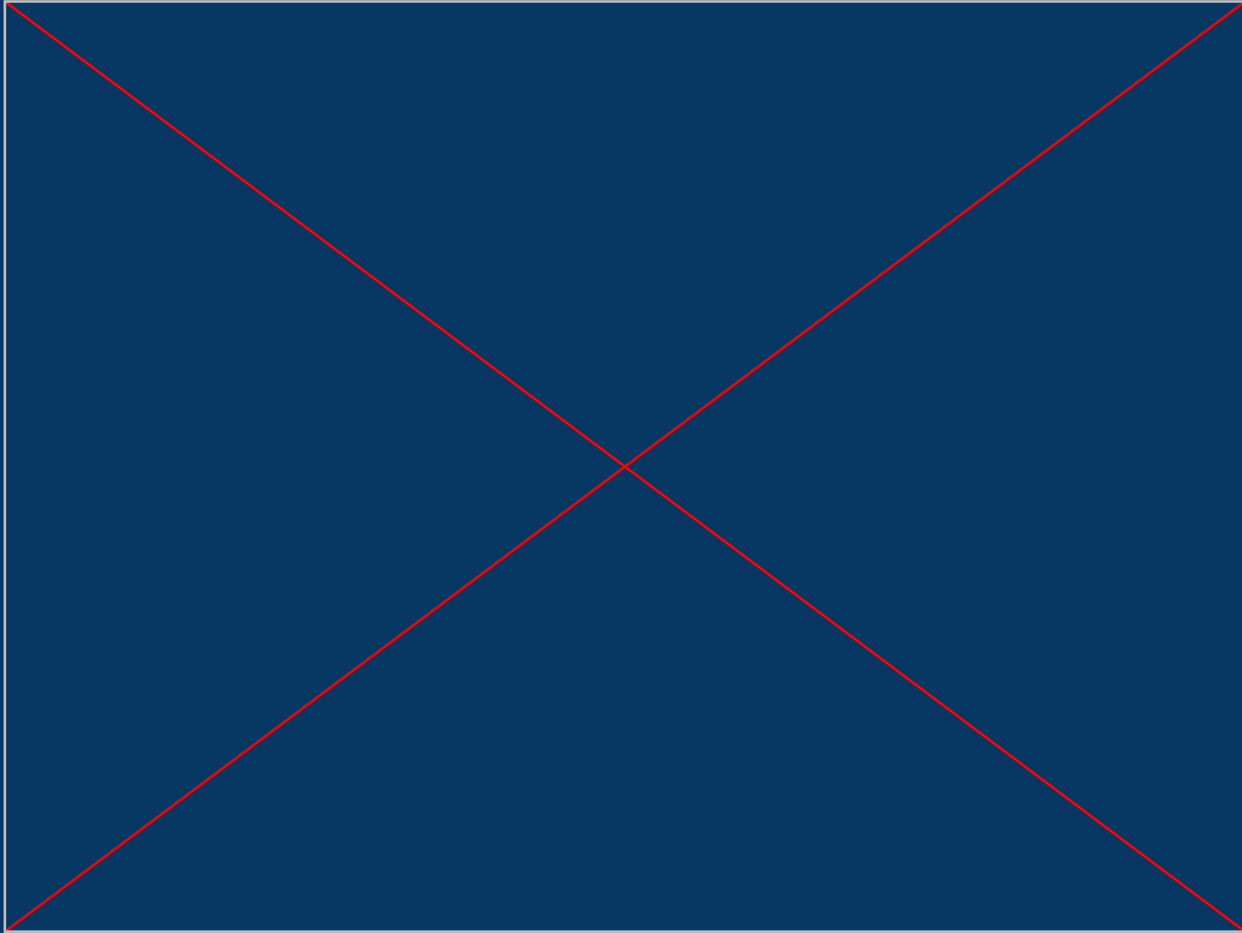
Additional Content

- [Behind-The-Scenes Interviews](#)
- [K-12 Lesson Plans](#)
- [Larval Art](#)

Key Messages

- 1. Deep-sea research is interdisciplinary and collaborative.**
- 2. Marine animals often include a larval stage during which microscopic babies look and act differently than adults.**
- 3. There's still so much for future explorers to discover.**

Stories of Science at Sea



THANK YOU

This material is based upon work supported
by the National Science Foundation under
grant #2215692.



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