Pre-K Ocean Voyage Group Exploration

Lesson 2: Coral Reef Community

Now, let's welcome a star player in the coral reef community to the stage... the coral polyp! Did you know coral reefs are made up of small animals called coral polyps? The coral polyps create the foundation for coral reefs that house 25% of ocean life. This is like living in a big city but in the ocean! In this lesson we invite students to make observations of coral reefs and the animals that make the coral reef possible: the coral polyps! Students will create their own coral polyp and together they will combine the polyps to create a class coral reef structure.

Goals, Objectives, and Outcomes

Goal:

Students will gain confidence and begin to develop science identity.

Learning Objectives:

In this lesson, students will:

- Make observations of animals, coral reefs, and coral polyps.
- Identify specific body parts of coral polyps: tentacles, mouth, and stomach.
- Create a coral reef polyp displaying its key features.
- Combine coral polyps to create a coral reef community.

Student Outcomes:

After participating in this lesson, students will be better able to:

- Explain the critical role coral polyps play in coral reef communities.
- Understand how living things interact with each other.

Standards

OSSE DC Early Learning Standards:

19. Investigates living things.

Indicators:

- 19a. Compares, using descriptions and drawings, the external body parts of animals (including humans) and plants and explains functions of some of the observable body parts.

28. Explores the visual arts.

Indicators:

- 28b. Uses a variety of materials to create products.

Lesson Preparation

Materials

Whole Group Portion:

- Books about animals that live in coral reefs, coral reefs in general, or how coral reefs form
- Images of coral polyps, coral reefs, and animals that live in coral reefs (attached)
- Diagram of a coral polyp (attached)
- Pom-pom, small ball, or crumpled ball of paper

Art Activity:

- Box covered in brown crumpled paper (or other material as available) to be the base for your class coral reef
    - » Supplies for making coral polyps:
    - » Salt dough or air-dry clay
    - » Pipe cleaners of any color (cut to desired length before activity, approximately 3 inches long)
    - » Pom-poms or little crumpled balls of paper
    - » Adhesive to stick polyps to coral reef base (if necessary)

Set-up

1. Prepare the space where your students will be making their collaborative coral reef display. This can be done by wrapping boxes with brown crumpled paper, a sheet, blanket, etc.

2. Prepare the art supply materials in a way that is best for your classroom and students. Things to prepare ahead of time are the following:
    a. Clay for each student
    b. Pipe cleaners cut to desired length (about 1/4 of a regular pipe cleaner size is the suggested length)
3. Create your own polyp model and test out the best way to attach to your coral reef display.
4. OPTIONAL: Have "Create Your Own Ocean Animal" investigation station set up for students to create animals that live on a coral reef.

Lesson Facilitation

1. **Hook:** Start the lesson by discussing what a community is and how their classroom is a community they are all a part of. Ask students to sit or come together in a circle to start on the floor (if in an area where sitting in a circle is possible).
    a. Say: ***"I am so happy we are all here today as a group to learn together today and every day. We all come together in our special classroom and try new things, take care of each, and share so many laughs. When a group comes together, we can call the group a community. Let's stand up in our circle as a community. Next, hold the hand of the friend next to you. We are all connected right now in our community and are important community members! We can come closer*** (walk circle in) ***or we can also be further apart*** (walk circle back out). ***We can let go of our hands to leave our community for a bit, like we do each afternoon, but we also can join back together! I am thankful for each of you and our community here in our classroom. In a community, different members have different jobs to take care of their group. Here in our community, my role or job as the teacher is to try my best to help you learn new things and help keep us all safe. You as a student and friend also have roles or jobs in our community. One role or job you have in our community is to keep yourself and others safe. What are other jobs do you have in the class?"*** [provide time for students to share responses]
2. **Introduction:** Share with students that today you are going to focus on a community in the ocean that is full of MANY different types of animals: CORAL REEFS!
    a. Say: ***"Thank you for sharing some of your very important roles here in our classroom community! There are different communities all over the***

world, even in the ocean! Communities in the ocean have many different animals that might be a part of the community. One really important community in the ocean that is home to many different animals is called a coral reef! Coral reefs are also very colorful thanks to all of the different animals that live there. Let's look at a picture of some of the most colorful places in the ocean, CORAL REEFS! [Share images of coral reef to students.] ***Do you see any animal community members in these coral reef images?*** [provide time for students to share responses] ***Great observations! Not only are coral reefs home to many colorful animals, but coral reefs are also home to many animals that are different shapes and sizes, too. Some animals are very large, like whales, and some animals can be very tiny. Today we are going to talk about a very tiny animal that has a really big job to do in a coral reef!"***

3. **Read Aloud:** During a teacher or student-chosen read-aloud about coral reefs, ask students to make observations of animals they see in the book. If a book is not available, have students make observations of the coral reef images provided for this lesson.
    a. Say: ***"Let's meet some more of the coral reef community members found in the coral reef and see what colors and shapes we can find, too!"***
    b. Guiding questions to ask when you see an animal in the book:
        i. ***What animals do you see?***
        ii. ***What shapes do you see?***
        iii. ***What colors do you see?***
4. **Coral Polyp Introduction:** Introduce students to coral polyps.
    a. Say: ***"Many different animals can be found living in a coral reef, and one tiny animal is responsible for building the coral reef: coral polyps! Coral polyps are the building blocks of the coral reef community. It takes A WHOLE LOT of these little animals to create something as giant as a coral reef."***
5. **Coral Polyp Diagram:** Take a closer look at a polyp! Using a diagram or image of a coral polyp, highlight key features of the polyp.
    a. Say: ***"Coral polyps are tiny little animals, and even though they do not look like us, they still have some of the same body parts that we do!"***
    b. **Base** - Say: ***"Each coral polyp attaches itself to the base of a larger piece of coral in the coral reef. The base provides a safe place for the polyp. It takes many polyps to build the coral reef, but it all starts with attaching to a base."***

i. **Movement opportunity** – Say: ***"Let's use our body to think about these coral polyp body features. We are going to use our arm to be our coral polyp. Rest your elbow in your other hand. Now your coral polyp or arm has settled."*** Pretend your hand is the top of a coral polyp and your arm is the body that has attached to a surface.

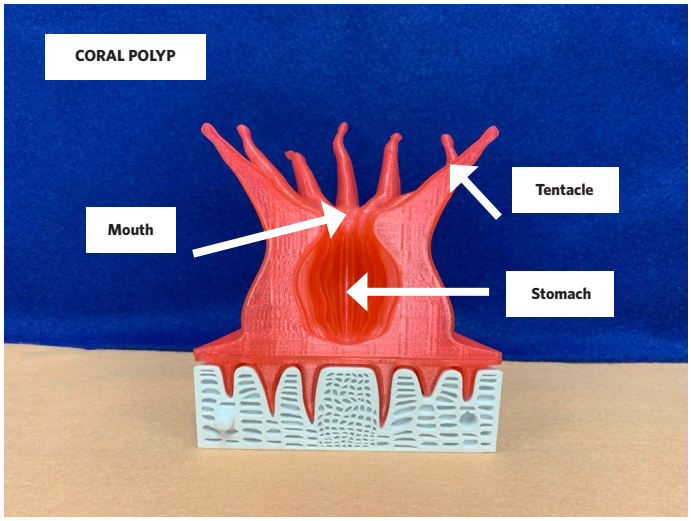

Image Caption: *Sample coral polyp diagram included with the resource.*

c. **Mouth** – Say: ***"Here is the mouth. What do you do with your mouth? What might this animal do with a mouth?"*** [provide time for students to share responses] ***"Coral polyps can get the nutrients they need to live in different ways. One way they can get nutrients is by eating small animals that swim near them. They use their tentacles to catch and sting their prey, and then they can move their newly caught food into their mouth."***

   i. **Movement opportunity** – Say: ***"Let's go back to our arm, or our pretend coral polyp. Pretend your hand is the top of a coral polyp and your arm is the body that has attached to a surface. Your palm is where the mouth of your coral polyp would be!"***

d. **Stomach** - Say: ***"Here is the stomach. What does our stomach do? What might this animal do with a stomach?"*** [provide time for students to share responses] ***"The stomach helps the animal to digest its food just like other animals' stomachs do! Digesting food means breaking down the food into smaller and smaller bits so that the body can take in all the nutrition it needs from the food. Digestion helps to keep the body healthy."***

e. **Tentacles** - Say: ***"Coral polyps can get their energy from eating food that swims by, but how do they catch their food? What do you use to bring food to your mouth? What might this animal do with tentacles?*** [provide time for students to share responses] ***"The tentacles help the coral polyp to grab small animals that they can eat as food. One animal they eat is a very tiny animal floating along in the ocean called a zooplankton. The super small animal will move past the polyp, and the polyp will use its tentacles to catch it and put it in the coral polyp's mouth."***

i. **Movement opportunity** – Say: ***"Let's go back to our arm, or our pretend coral polyp. Our polyp is secure to our base, we have located the mouth as our palm, and now it's time to catch some food! You can open your hand and wiggle your fingers to look for food that might be swimming by, and you can close your hand to bring your tentacles in when not looking for food.*** [Have a pom-pom or small balled up piece of paper ready to go.] ***Now imagine this pom-pom or ball of paper is a small zooplankton floating around in the ocean. Maybe it floats by your polyp! Show me with your coral polyp hand how you might catch it!*** [Move around with pom-pom and feed one coral polyp.] ***Uh oh...this zooplankton is getting close to _[student]_'s polyp...yum! That polyp enjoyed that snack!"***

Image Caption: *Students creating coral polyps during the lesson.*

6. **Coral Polyp Building:** As a group, the class will create their own reef, but first they must start by making the coral polyps that will build their coral reef.
   a. Say: ***"Great job pretending to be a coral polyp! Now it is time to take what we have learned about coral polyps and coral reefs to build our own coral reef for our classroom. To build our coral reef community, we must first start with…CORAL POLYPS! Everyone will help build our coral reef by making a coral polyp. Remember, coral polyps have a mouth, a stomach, and tentacles. Make sure your polyp has all those features to help it survive in the ocean."***
   b. Model making a coral reef polyp or walk students through the process. To create coral reef polyps:
      i. Using salt dough or modeling dough, have students first make the main body area (with the stomach and base) of the polyp. They can do this by making a ball-like shape out of the dough and then using their fingers to smoosh down the sides to flatten out the bottom where the polyp will sit on the table.

ii. Use pipe cleaners to make the tentacles by sticking them in the top of the coral. Tentacles are usually found in multiples of 6, so invite students to add 6 or maybe even 12 pipe cleaner tentacles to their polyp.

iii. Make a hole in the top that goes down the middle of your polyp to show its mouth. Don't go through the entire polyp though! Stop in the middle of your model polyp to represent where the stomach is.

iv. Give students something small, like a pompom, to represent a food for the coral polyp. (optional)

Image Caption: *A student adds their coral polyp to the classroom coral reef base.*

7. **Attach Coral Polyps to Base:** When the polyps are finished, call students over to where your classroom coral reef will be located. Attach them to the base of the coral reef (already made by the teacher – see materials section of lesson plan) using an adhesive if necessary.

   a. Say: ***"Let's attach our coral polyps to our coral reef base!"*** [Provide time for students to attach or place their polyps on the reef.] ***"Great job! Our coral reef is really starting to take shape! The coral reef grows as more and more polyps form. As the coral reef gets larger, many different animals can start to move in and find their home in the coral reef community, too!"***

   b. Share images of other animals that live in the coral reef. Say: ***"Here are images of other animals that can be found in the coral reef. Let's also keep any eye out for any other colors or shapes you see in these animal images, too!"*** [Share other images of coral reef animals from attached materials. Provide time for students to share observations.]

8. **Summary:** Wrap up the lesson with a summary.

    a. Say: ***"Today we learned all about the different colors and animals that live in or build the coral reef! We made observations of different animals, learned about coral polyps and some important body features, and we began to create our own classroom coral reef by making coral polyps. We also reviewed what other animals can be found in a coral reef that we might want to add to our own coral reef, too."***

Images: Lesson 2, Coral Reef Community

Instructions:

Print pages 10–38 to use during the Coral Reef Community lesson (lamination is optional)

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Coral Reef Images

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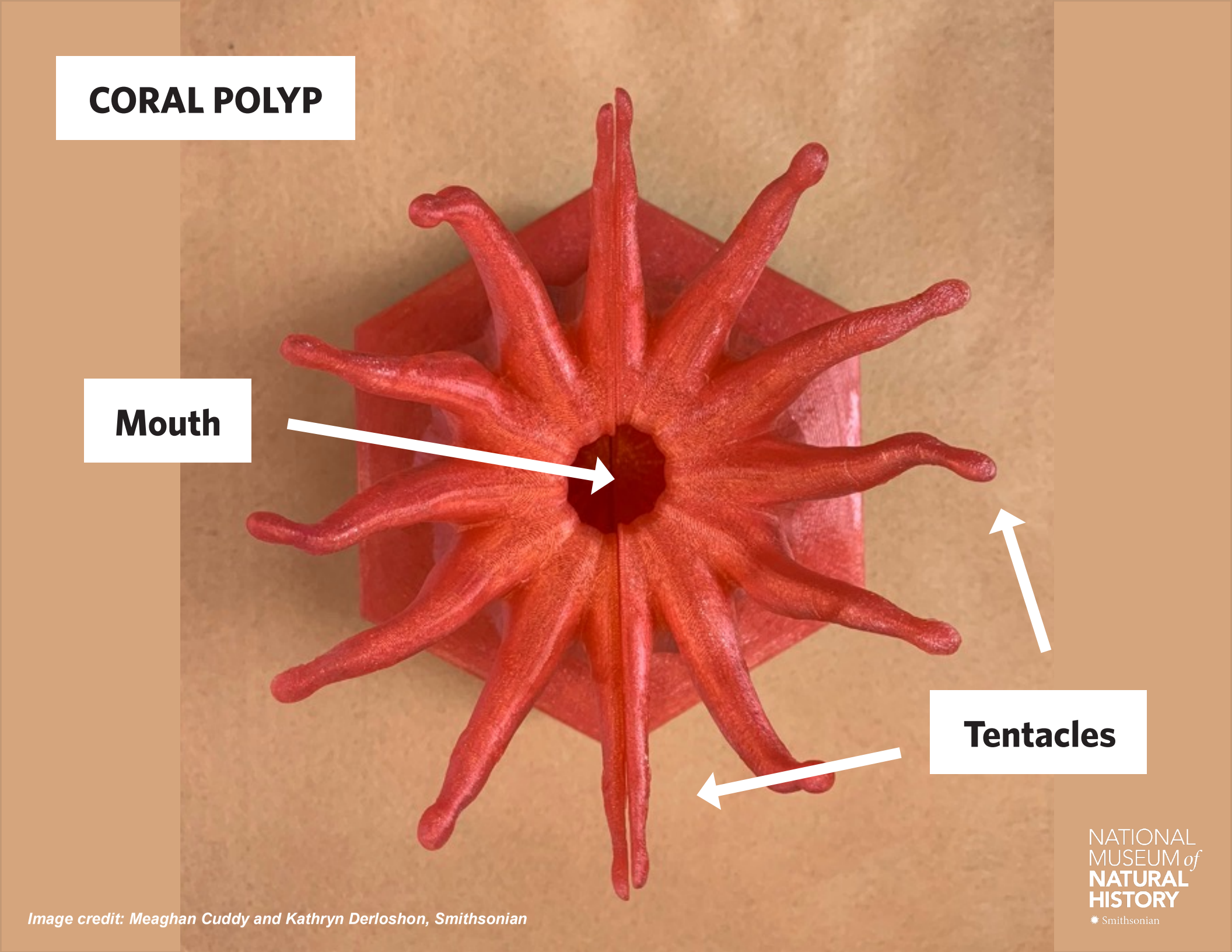
Image credit: USGS (Public Domain)

Coral Polyp Model Diagrams

CORAL POLYP



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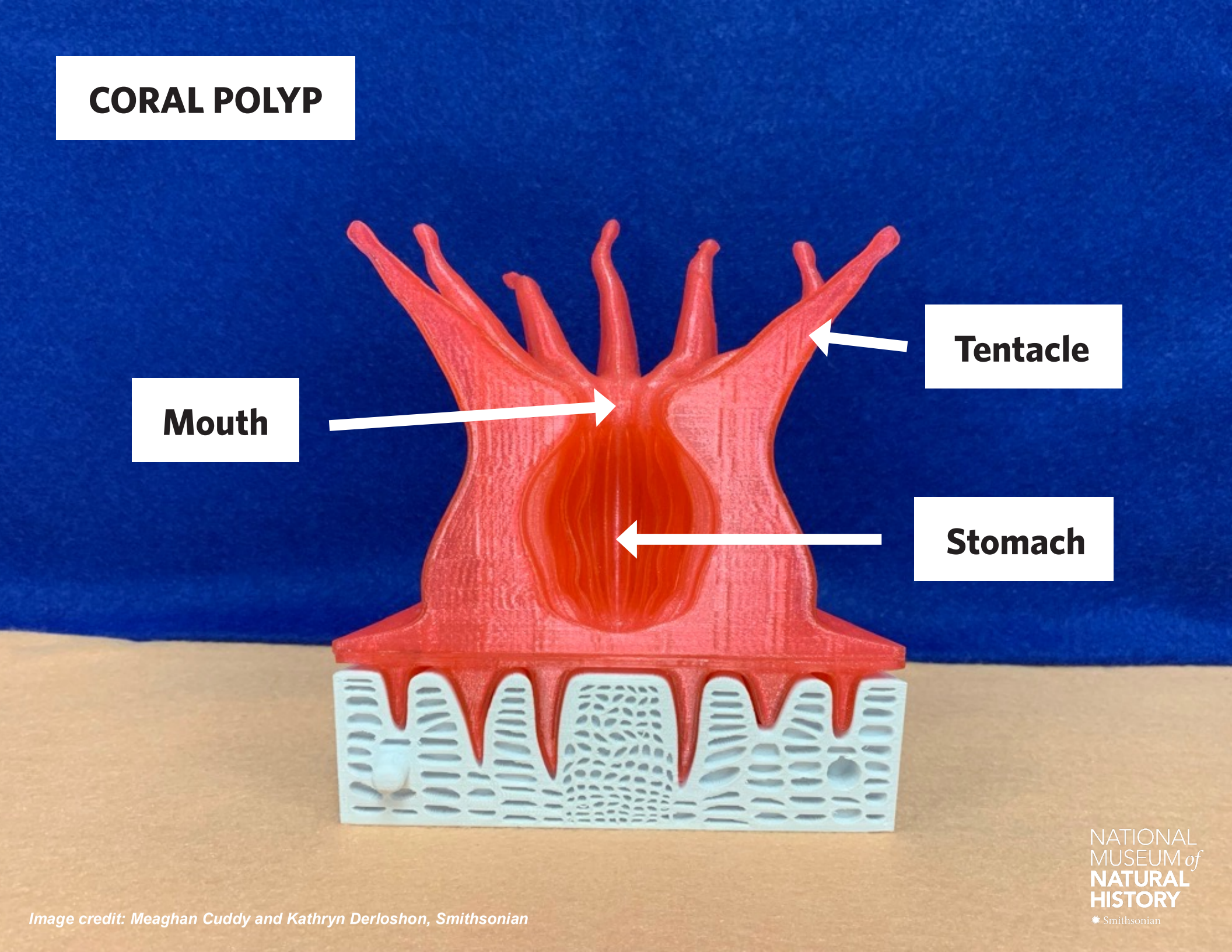
CORAL POLYP
Tentacle
Mouth
Stomach
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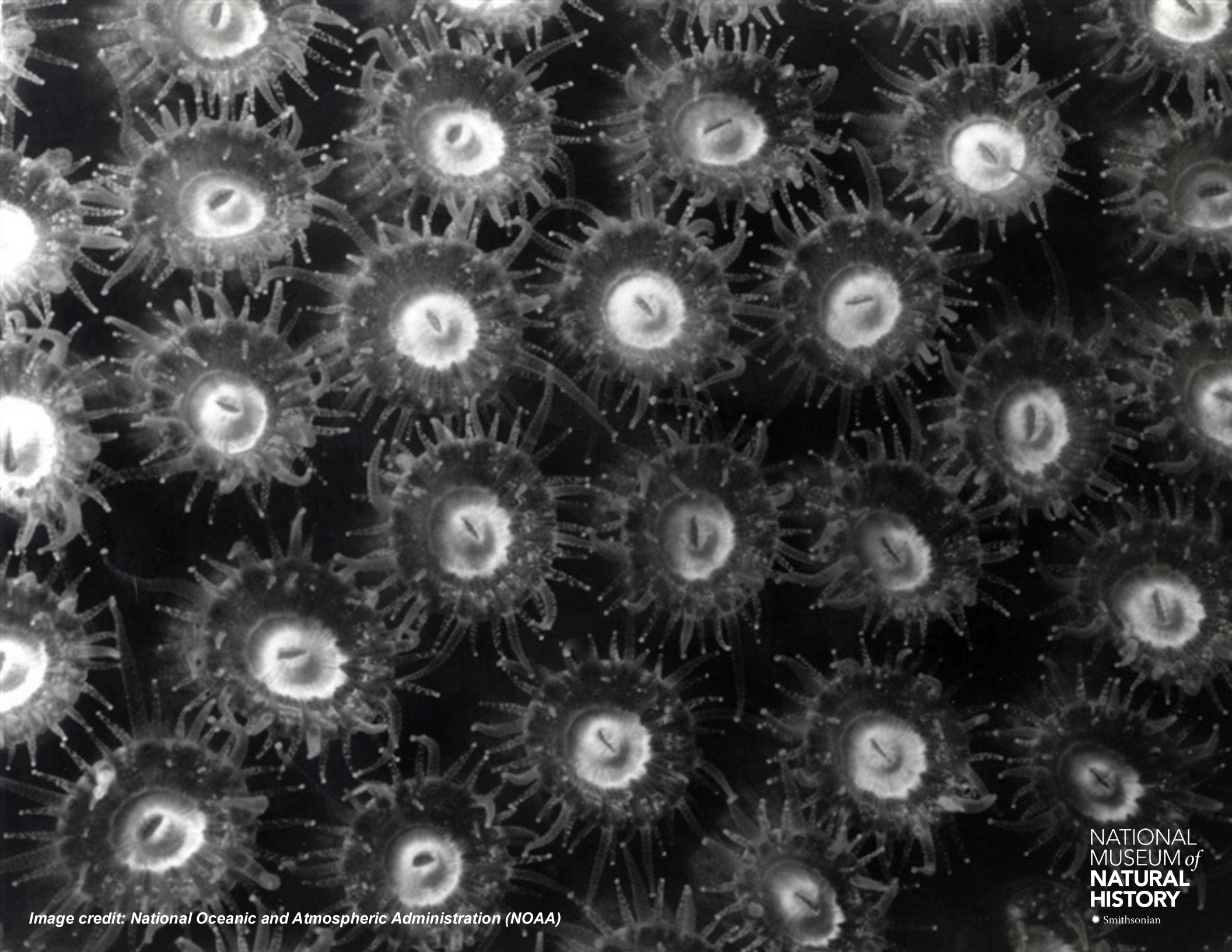
Coral Polyp Close-Up Images



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Coral Reef Animal Images

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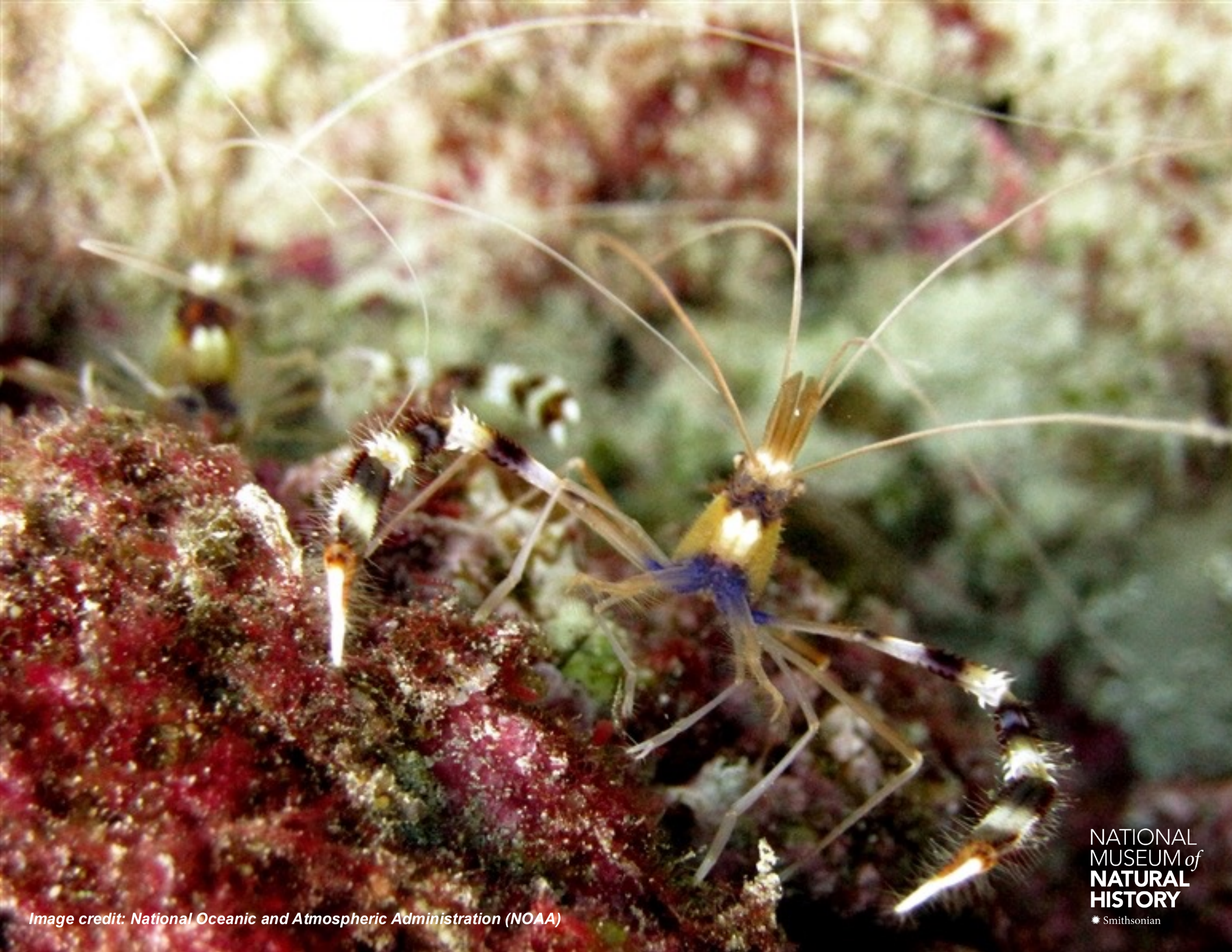

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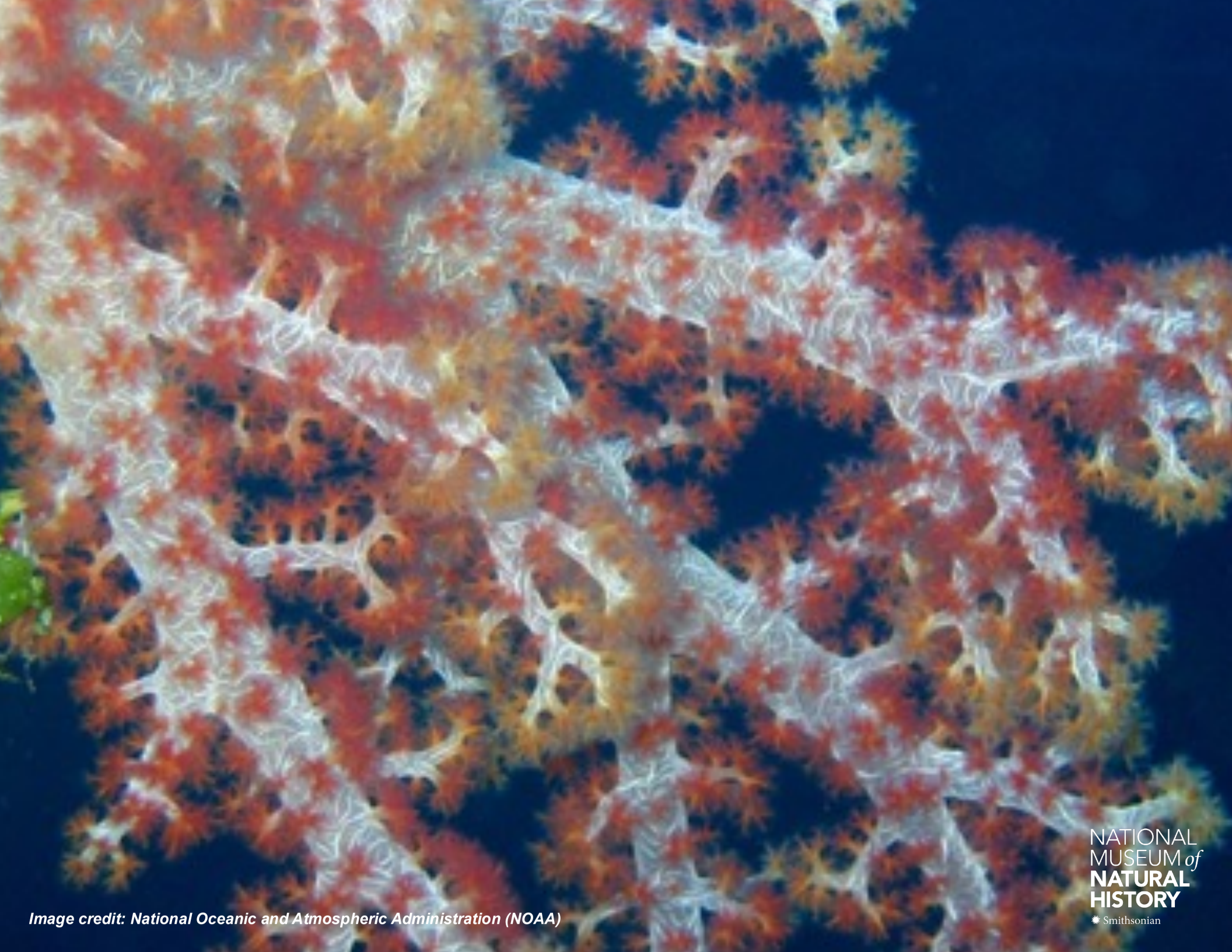

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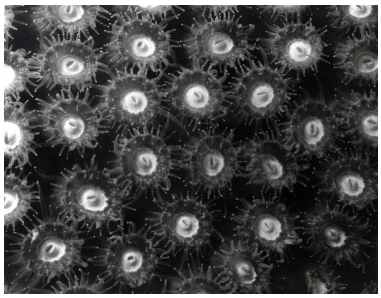
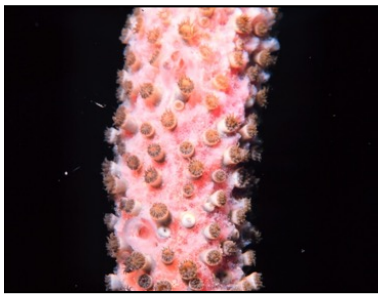
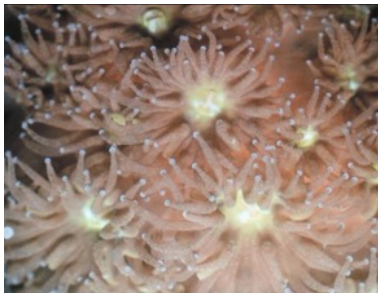


Close-up of coral polyps

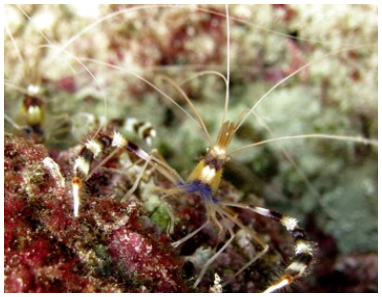


Coral polyps

Coral with retracted polyps



Flower-like clusters of pink polyps make up this coral colony



A shrimp

Emperor angelfish

Manta rays feeding

A cuttlefish cruising along the reef

Large shark near a diver

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A well-camouflaged octopus

Diver with camera over a healthy coral reef

Red jellyfish

Green and purple anemone

A close-up of a grouper in a reef

A blenny

Orange-finned clownfish with sea anemone.

Regal angelfish

Barracuda

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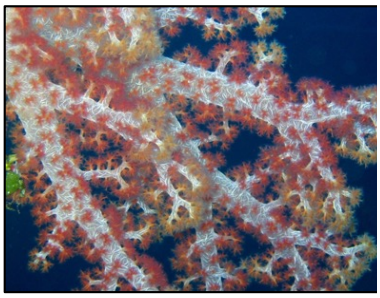
Jellyfish



Soft corals

Tiger cowrie