



Save Our Seas: NAMEPA's Parent Survival Series - Week 4

Congratulations on your stamina and resiliency!! Thanks to you, the impact of the disruptions to your students' lives is mitigated. While none of us is untouched by the pandemic, HOW we address it will impact our recovery, both as individuals, families, businesses and society as a whole.

Let's strive for success as we approach the weeks ahead by embracing the resources being offered. We have Week 4 of the Parents Survival Series below, and links to additional materials. Why not engage your learners AND Save Our Seas??

Be well and safe,

Best always,

Carleen

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Parent Survival Series

Lesson Plan Week 4

Ocean Literacy Principle 4 – *The ocean made Earth habitable*

Specific Learning Outcome

After Week 4, your child will know how our oxygen is replenished in the atmosphere, how important algae is to the overall marine and atmospheric ecosystems and how estuaries play an important role for photosynthetic plants while providing water, oxygen, nutrient conversion and moderation of the climate needed for life on earth.

Guiding questions: Ask your kids...

1. Do you know what Algae is?
2. Is algae large or small? What color is algae?

Day 1: Algae

Read with your child:

We have some of the coolest plants living in our oceans! Marine algae is actually a photosynthetic plant (changes the sun's light energy to usable energy) like the grasses and trees we see on land BUT do not have roots and leaves. Algae can be small, called phytoplankton or large, called macroalgae (seaweed). Did you know that algae can be RED, GREEN or BROWN? Here you will see examples of red, green and brown algae and learn a little about the difference in each. Keep in mind that algae ARE the main primary producers at the base of the ocean food web and support all marine life by providing the oxygen and food required by animals to exist.

Red Algae: Red algae is the largest of the three groups and consist of mostly multicellular, marine algae. While most red algae are found in the marine environment, some do exist in freshwater. Red algae have more species than any other algae, more than 7,000 species. This is mainly due to their ability to live in diverse climates and waters from the arctic to the tropics. Red algae can absorb blue light,



which can penetrate to the deeper parts of the ocean, so they can live in deep colder waters as well as shallow warmer waters, coral reefs.

Green Algae: Green algae are found in temperate or tropical waters. They require a lot of light to photosynthesize which is why they are generally not found too deep. Green algae can be seen when you are walking along the coast, tide pools, rocky coasts or shallower parts of fresh water. Algae is food for many marine species...shrimp, sea turtles, manatee to name a few.



Brown Algae: Brown algae are found in colder water (colder than green algae). Many brown algae are large -think kelp size- and provide food for many animals BUT also provide a habitat for smaller adult animals and protection for many juvenile animals. Some brown algae are edible and used or eaten for many medicinal reasons such as stress, fibromyalgia, arthritis, weight loss, heart disease and high cholesterol.



Activity: Color

Principle 4: *The ocean made Earth habitable*

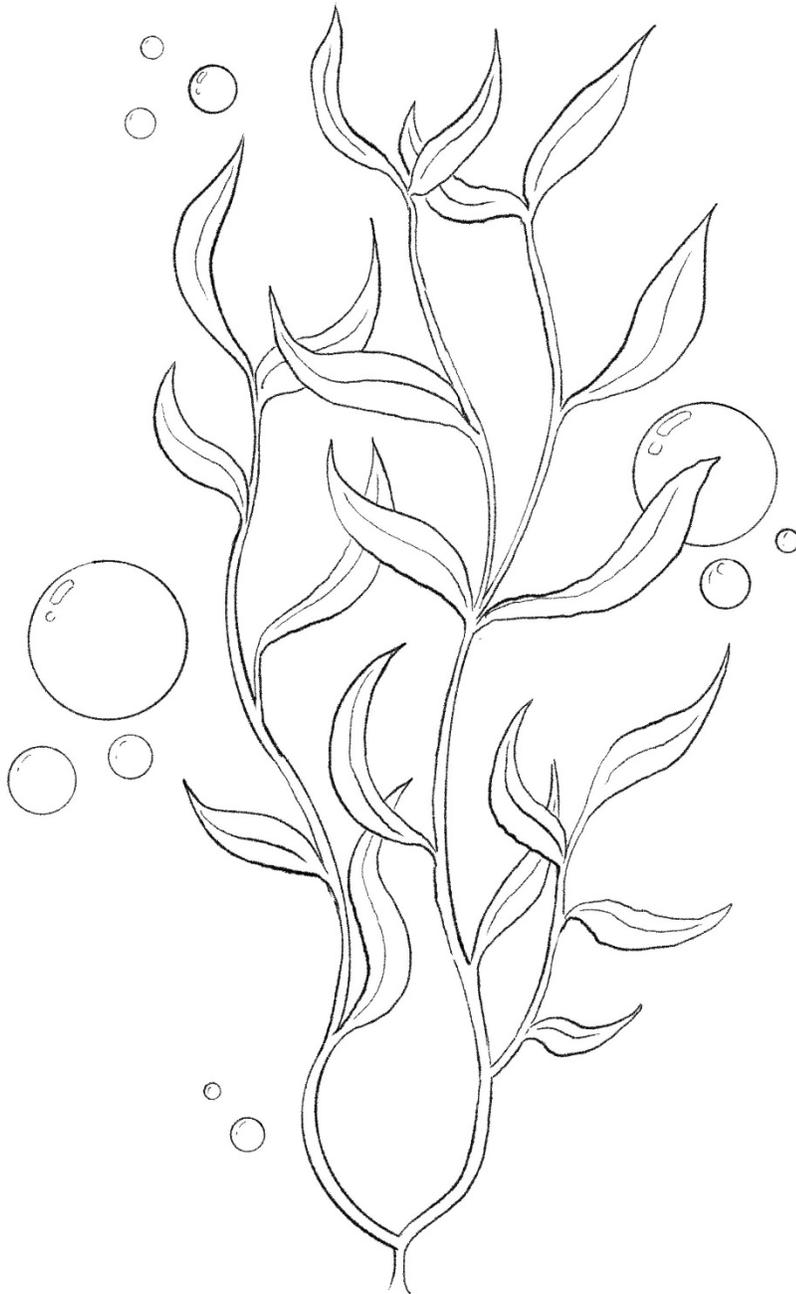
Print out these coloring pages to create your own Algae!

Follow up questions:

1. Have you ever seen Red, Green or Brown algae?
2. Have you ever eaten any?
3. Can you list three or four uses for Brown algae?
4. What type of Algae would you most likely find on the Great Barrier Reef?



For more free resources, visit www.NAMEPA.net/Education or email education@namepa.net





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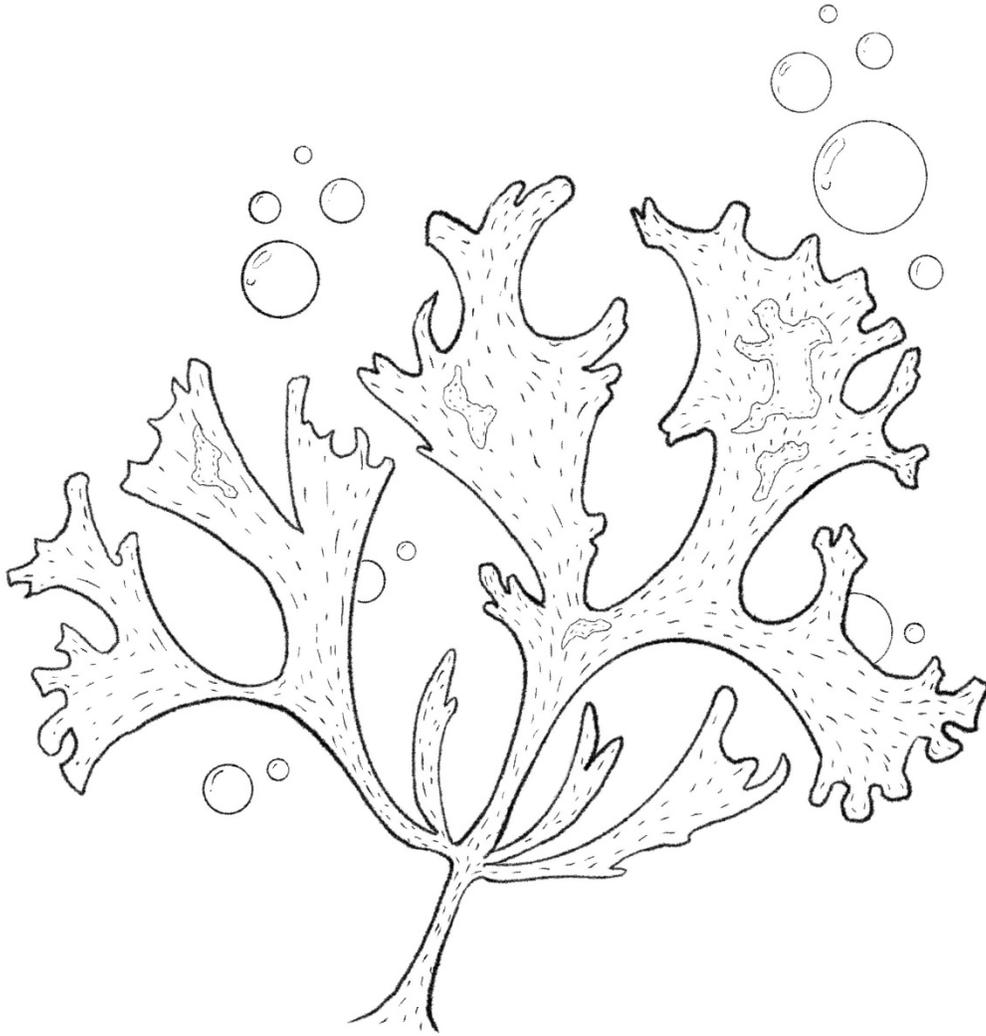
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Day 2: Estuaries

Guiding questions: Ask your kids...

1. What is an estuary, a marsh, a fjord?
2. Can you name one plant or animal that lives in the above mentioned?

Read with your child:

Estuaries provide important and productive nursery areas for many marine and aquatic species. An estuary is a semi-enclosed body of water where seawater and freshwater mix. Water from the ocean is mixed with fresh water inputted from rivers and streams. This makes for a unique environment! When we talk about transition zones from freshwater streams to the or mangrove areas. Estuaries are important habitats for a variety of species, are nurseries for juvenile organisms and provide ecosystem services to humans such as water filtration and shoreline protection from storms.

The ocean provided and continues to provide water, oxygen and nutrients, and moderates the climate needed for life to exist on Earth. Estuaries and wetlands are areas that clean or filter the water in tidal zones. Tidal zones or waterfront property is also highly desirable for developers for housing, apartments, restaurants and more. As the human population continues to increase and more people moving to the coast, there is an increased need for development of this land. Filling in wetlands and developing land close to estuaries can lead to runoff, pollution of rivers and oceans, habitat loss and sedimentation ultimately harming the plants and animals that live or breed in these areas.

Activity: Property Water Projects

Principle 4: *The ocean made Earth habitable*

Looking at the three scenarios below, talk or discuss what each water area is and what would happen if the land/water was developed. Guide your child and see if they can come up with how the proposed development would change the existing land and if the benefit would be worth it. Ask the following questions:

1. How did the development change the land? Water?
2. Was this beneficial to either the land or water?
3. What animals may have lived there that can no longer live in the newly developed area?
4. How did the development affect humans living in the area?
5. Was there an alternative to that particular development?

Need More: Before going over the follow up questions, have your child draw the before and after pictures of each scenario then guide them through the questions.

Follow up questions:

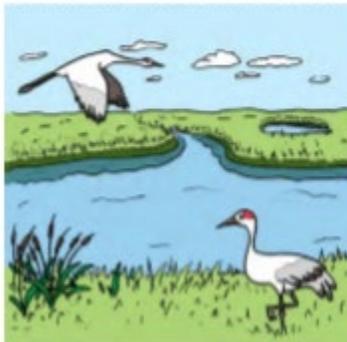
1. What is the largest estuary in the United States?
2. Do you live near an estuary? If so, what steps can you take to reduce your impact on the estuary?



PROPERTY #1

Proposed Project: Port

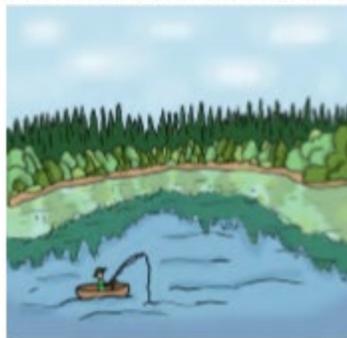
- Farthest upstream on river
- Close to local community
- Partly forested
- Important habitat for river otters



PROPERTY #2

Proposed Project: Dam

- Marsh
- Seasonal Flooding
- Important habitat for migratory birds
- Helps with groundwater recharge for reservoir
- Recreational fishing area



PROPERTY #3

Proposed Project: Housing Development

- Downstream on river
- Mostly forested
- Adjacent to lake
- Recreational fishing area
- Beaver Habitat