

Gulf of Maine: Dare to Care

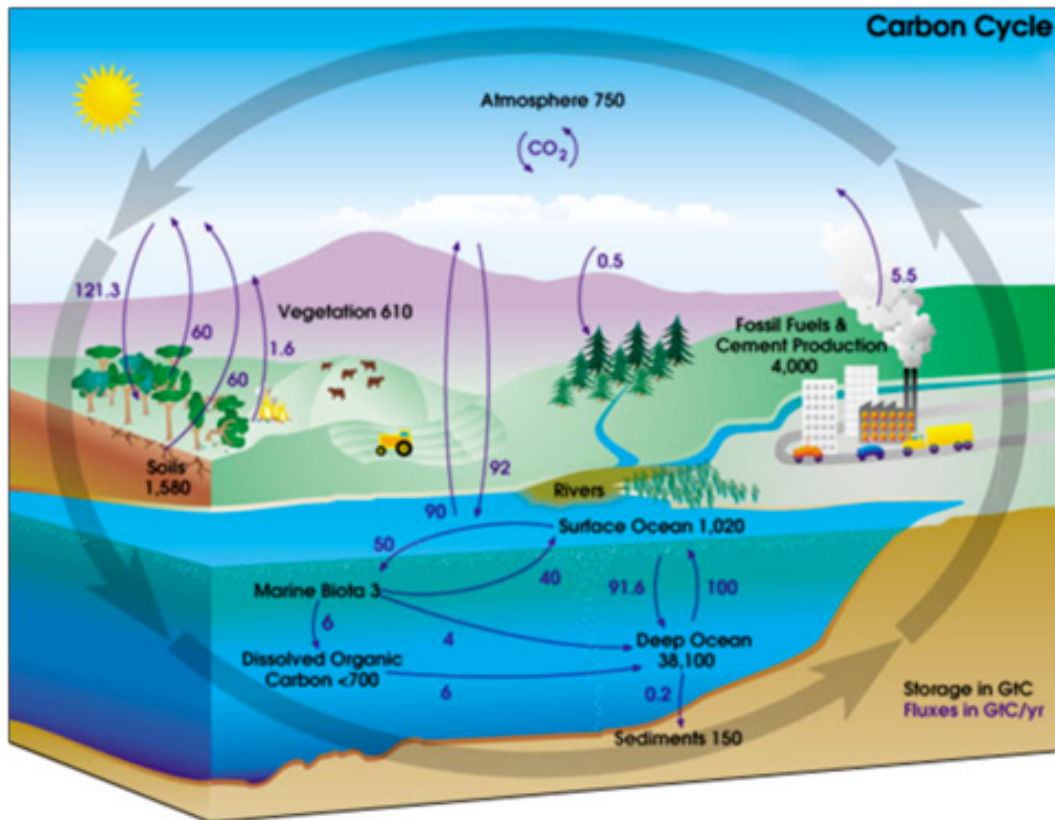
An Endangered Species Explorations: Art Plus Ecology

Created by Krisanne Baker, a Maine ecoartist and educator (CC)

<http://www.krisannebaker.com>

Krisanne will be available as a visiting artist to your classroom in 2023-2024 school year.

"Individually, we are one drop. Together, we are an ocean" - Ryunosuke Satoro



All grade levels: Watch: *Sylvia Earle : How to Protect the Oceans*

<https://www.youtube.com/watch?v=43DuLcBFxoY> and weekly

World Ocean Radio podcasts: <https://worldoceanobservatory.org/world-ocean-radio>

For grades 7 --12: watch the movie *'Racing Extinction'* (you can find it for free on Youtube) and discuss the questions listed below.

For grades 3 – 6:

Preview a selection of *How to Protect the Oceans* or other videos on the next page, and have conversations about why the ocean is important to us, to this planet. Possibly have an ice-breaker writing exercise first. Compare their answers from the start, to how they feel at the end of the project.

Essential Questions:

What is the 'Anthropocene'?

What is a 'carbon footprint'? How does the ocean absorb carbon? – the sequestration cycle; how does what we do on a daily basis contribute to the carbon cycle? What is Phytoplankton and why are they so important? What are some ways that we can reduce our carbon footprints?

¹ https://www.climateemergencyinstitute.com/teacup_griffin.html

What does the Gulf of Maine look like on GoogleEarth?

Choose an endangered species from the list provided and research where it migrates (if it migrates), what it eats, and in what part of the ocean food pyramid does this creature play a role? ie: why are sharks important? what is their job in the ocean? what if they went extinct? how long has this species been on the planet? what human stressors are causing this species to be endangered? Write out the scientific name of your chosen species and draw the shape of it as though you are swimming along side it in the ocean (a side view). Note the proportions and shape of the creature. Note where the fins, etc. are placed along the body. Note any camouflage of your species – look for lights and darks first. Where are the lights? Below? On top? Why do you think the lights and darks are placed where they are? Now notice any patterns? How do the patterns relate to how sunlight might look on their body surface?

Scientific Illustrations: Draw your creature within a compositional box using a good part of your drawing page. Once you have the outline and basics, begin to add in any pattern and detail using watercolor pencils. When your drawing is finished, create an area on the same page where you will neatly write the name of your species and the scientific name in large letters. Below that, write any of the research information you have discovered. How many of your species are left in the ocean? Extra tech: Create QR codes for all info.

(Teachers: please provide the students with template papers that are suitable for use with colored pencil, or watercolor pencils)

Other Gulf of Maine: Dare to Care projects available:
large outdoor or indoor murals of endangered ocean creatures;
recycled glass silhouettes for window hanging;
ceramic installations of endangered ocean creatures for hallways or cafeterias;
Email Krisanne for more image examples, if you are interested.

NOAA videos:
Introduction Suitable for all grade levels.
<https://oceanservice.noaa.gov/facts/>
<https://youtu.be/eYzGaRA5xJk>

North Atlantic Right Whales <https://www.youtube.com/watch?v=6-eMsleJUQ0>

Sea Turtles <https://www.youtube.com/watch?v=p0AwRBZzjdY>

Sharks <https://www.youtube.com/watch?v=dMwSkuhRAUU>

Other video clips suitable for grades 3-6 and up
<https://www.facebook.com/BalanceForEarth/videos/vb.971746016240570/10155831170954659/?type=2&theater>

Brian Skerry National Geo Photographer Whale Encounter
<https://www.youtube.com/watch?v=G2GD8mm78Fk>

On Climate Change for a carbon footprint discussion:
<https://www.theguardian.com/science/2017/nov/18/nasa-map-of-earths-seasons-over-20-years-highlights-climate-change>

<http://e360.yale.edu/features/as-oceans-warm-the-worlds-giant-kelp-forests-begin-to-disappear>

Endangered Ocean Species continued

Stressors of Endangered Ocean Creatures

Overfishing activity, ship strikes, offshore chemical dump sites, population density, percentage of land in Agriculture runoff, and EPA Toxic Release Inventory (from Kraus and Rolland 2007), the effects of ocean acidification from excess CO₂, warming oceans and changing currents changing feeding patterns of many species, sound pollution from oil drilling and ocean mining, oil and gas pollution, not to mention plastic pollution, etcetera, etcetera.

Goal:

To integrate art plus marine ecology in a community-based learning experience and foster stewardship of the ocean and creatures that inhabit the ocean that sustains our lives.

Objectives:

Students will learn about what is a carbon footprint and what is the Anthropocene;
Students will understand stressors of various marine creatures;
Students will learn about methods for lessening these stressors;
Students will be able to discuss climate change effects upon our marine environment and how we are all connected through biodiversity;
Students will create a scientific illustration and silhouette of a chosen endangered Gulf of Maine species; or will create from any of the art activism activities listed.
Students will also create and exhibit recycled glass endangered creature 'silhouettes' to raise awareness on behalf of their chosen marine species and the ocean in general;
Students will be involved citizens and stewards of the ocean;
Students will be ocean art activists!

List of Gulf of Maine species from 'Species at Risk' pdf²

FISH

- Shortnose Sturgeon (expanded information)

(*Acipenser brevirostrum*)

listed because of previous overharvesting in many estuaries and rivers along the U.S. seaboard from Florida extending north to New Brunswick. Pollution and river system habitat destruction (dams, weirs, bridge construction, etc.) are of major concern (NMFS 1998).

- Atlantic Sturgeon (expanded information)

(*Acipenser oxyrinchus*)

with a large latitudinal range from the Gulf of Mexico to Labrador. Commercial fishing and pollution have reduced populations, as has river system habitat destruction (COSEWIC 2011).

- Atlantic Salmon

(*Salmo salar*)

² Dan Walmsley, State of the Gulf of Maine Report: Species at Risk, May 2013

not listed for the whole of the Gulf of Maine as populations in the Inner Bay of Fundy and Maine rivers are the focal areas of the endangered listing. Populations south of Maine have been extirpated, although there have been efforts to reintroduce salmon.

- Great White Shark (*Carcharodon carcharias*)

a more and more frequent visitor to the Gulf of Maine because of changing ocean temperatures and following food sources like seals -- considered by the IUCN to be globally vulnerable
General worldwide shark populations are down by 90%

- Bluefin Tuna

(*Thunnus thynnus*) Population down by 82% since 1960.

Cetaceans

Blue whale

(*Balaenoptera musculus*)

Fin whale

(*Balaenoptera physalus*)

Humpback whale

(*Megaptera novaeangliae*)

North Atlantic Right whale (critically endangered!)

(*Eubalaena glacialis*)

Sei whale

(*Balaenoptera borealis*)

Sperm whale

(*Physeter macrocephalus*)

Reptiles

Kemp's Ridley sea turtle

(*Lepidochelys kempii*)

Leatherback sea turtle

(*Dermochelys coriacea*)

Loggerhead sea turtle

(*Caretta caretta*)

Hawksbill sea turtle

(*Eretmochelys imbricata*)

Green sea turtle

(*Chelonia mydas*)

Birds

Arctic Tern

(*Sterna paradisaea*)

Atlantic Puffin

(*Fratercula arctica*)

Bald Eagle

(*Haliaeetus leucocephalus*)

Barrow's Goldeneye Eagle

(*Bucephala islandica*)

Black-crowned Night Heron

(*Nycticorax nycticorax*)

Common Tern

(*Sterna hirundo*)

Great Cormorant

(*Phalacrocorax carbo*)

Harlequin Duck

(*Histrionicus histrionicus*)

Least Bittern

(*Ixobrychus exilis*)

Least Tern

(*Sterna antillarum*)

Peregrine falcon

(*Falco peregrinus*)

Piping Plover

(*Charadrius melodus melodus*)

Razorbill

(*Alca torda*)

Red Knot

(*Calidris canutus rufa*)

Roseate Tern

(*Sterna dougallii*)

Endangered species listed by North East Atlantic areas:

Massachusetts

Massachusetts Division of fisheries and Wildlife

http://www.mass.gov/dfwele/dfw/nhesp/species_info/esa_list/esa_list.htm

New Hampshire

New Hampshire fish and Game

http://www.wildlife.state.nh.us/Wildlife/nongame/endangered_list.htm

Maine

Maine Department of fisheries and Wildlife

http://www.maine.gov/ifw/wildlife/species/endangered_species/state_federal_list.htm

Canada Federal

Government of Canada: Species at Risk Public Registry

http://www.sararegistry.gc.ca/sar/index/default_e.cfm

New Brunswick

New Brunswick Department of natural Resources

http://www2.gnb.ca/content/gnb/en/departments/natural_resources/wildlife/content/SpeciesAtRisk.html

Nova Scotia

Nova Scotia Department of natural Resources

<http://www.gov.ns.ca/natr/wildlife/biodiversity/species-list.asp>