

VITAL IMPACTS



Student Speaker Series



FEATURING

Brian Skerry



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All website references in this document are consolidated at
<https://bit.ly/brianskerrymedia>



Brian Skerry



Brian Skerry is a visual storyteller specializing in marine wildlife and underwater environments. Since 1998 he has been a contributing photographer for National Geographic magazine. In 2014 he was named as a National Geographic Society Photography Fellow and named a National Geographic Storytelling Fellow in 2017. In 2017 he was also awarded the title of Rolex National Geographic Explorer of the Year.

Brian has received numerous awards for his photography and is an 11-time winner in the prestigious Wildlife Photographer of the Year competition. In 2010, National Geographic named one of his images among their 50 Greatest Photographs of All Time. He uses his photography to transport people to places they might not easily be able to visit, showcasing animals that many of us have come to love but that we may not ever see in person. His images transport people to open oceans and underwater depths, capturing glimpses of complex whale socialization, a baby seal's first swim, and the mysterious world of dolphin intelligence. Brian uses the power of film and

photography to shine a spotlight on many of the conservation issues facing our planet, bringing these amazing creatures into our homes and minds.

Dive into the epicenter of whale culture with underwater photographer Brian Skerry to experience the extraordinary communication skills and intricate social structures of five whale species: belugas, humpbacks, orcas, and sperm whales. This epic journey shows us how whales are far more complex—and more like us—than we ever imagined.

Visit Brian's website to learn more about him and see some of his amazing photographs.

Learn even more about Brian at Changemaker Talent.

Links to all background materials can be found on the reference page at <https://bit.ly/brianskerrymedia>

Relevant Concepts and Standards



Science concepts related to Brian's content area include:

- Biodiversity, ecosystems, habitat, climate change, marine mammals, aquaculture, animal adaptations, Marine Protected Areas, oceanography, conservation, human environmental impact

Educational standards that may be supported by Brian's content include:

- **5-LS2-1** - Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
- **5-ESS3-1** - Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
- **MS-LS2-1** - Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- **MS-LS2-2** - Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- **MS-LS2-3** - Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
- **MS-LS2-4** - Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
- **MS-ESS3-3** - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- **MS-ESS3-4** - Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Background Information

Articles

The Hidden World of Whale Culture

Are humans the only animals with culture? This feature article challenges that notion with an exploration of the unique social structures, traditions, and preferences of whales. From different sound “dialects” to social rituals, these animals are much more complex than meets the eye. Note: This article requires a National Geographic subscription which may be accessible via certain schools and organizations.

Welch, Craig. “The Hidden World of Whale Culture.” *National Geographic Magazine*, National Geographic Society, 15 Apr. 2021.

Why It’s Important to Save Our Seas’ Pristine Places

Oceans face a variety of challenges, from overfishing to habitat degradation to climate change. Marine Protected Areas act like underwater national parks, limiting human activity in certain areas, and there’s mounting evidence that protecting key areas can even build resilience to climate change. Note: This article requires a National Geographic subscription which may be accessible via certain schools and organizations.

Barnett, Cynthia. “Why It’s Important to Save Our Seas’ Pristine Places.” *National Geographic Magazine*, National Geographic Society, Feb. 2017.

How to Farm a Better Fish

The aquaculture industry is expanding. Learn more about the challenges of fish-farming and how people are finding creative ways to balance the complex negatives and positives of aquaculture to try to build a more sustainable system.

Bourne, Joel. “How to Farm a Better Fish.” *National Geographic Magazine*, National Geographic Society.

It’s Time for a Conversation

Learn more about the incredible intelligence of dolphins, the complexities of their social groups, and how scientists are trying to decipher the myriad of clicks, chirps, and whistles that make up dolphin vocalizations. Note: This article requires a National Geographic subscription which may be accessible via certain schools and organizations.

Foer, Joshua. “It’s Time for a Conversation.” *National Geographic Magazine*, National Geographic Society, May 2015.

The Ultimate Book of Sharks

Dive into the wild world of sharks with this National Geographic Kids book by Brian. The *Ultimate Book of Sharks* features every species of shark on the planet, with awesome photos, fascinating facts, the latest science, and firsthand stories of real-life encounters with these incredible creatures.

Skerry, Brian. “The Ultimate Book of Sharks.” Brian Skerry, 2018.

Links to all background materials can be found on the reference page at <https://bit.ly/brianskerrymedia>

Background Information

Films and Video

Skerry, Brian. “Secrets of the Whales.”

On Disney+, 22 Apr. 2021,

<https://onDisneyplus.disney.com/show/secrets-of-the-whales>

Run time: 49 minutes

In this Emmy-winning documentary starring Brian and produced by James Cameron, dive deep into whale culture to experience the extraordinary communication skills and intricate social structures of five different whale species: orcas, humpbacks, belugas, narwhals, and sperm whales. Note: This video requires a Disney+ subscription which may be accessible via certain schools and organizations.

Nixon, Robert. “Sea of Hope: America’s Underwater Treasures: Disney+.”

On Disney+, Skerry, Brian, 2017,

www.disneyplus.com/movies/sea-of-hope-americas-underwater-treasures.

Run time: 47 minutes

With the help of Brian, notable oceanographer Sylvia Earle ventures into the underwater depths and embarks on a mission to inspire a new generation to create ‘blue parks’ to protect the ocean. Note: This video requires a Disney+ subscription which may be accessible via certain schools and organizations.

Geiger, Adam. “Return of the White Shark: Disney+.”

On Disney+, 2023,

www.disneyplus.com/movies/return-of-the-white-shark.

Run time: 44 minutes

A record number of great white sharks are migrating to New England’s Cape Cod and are hunting in ways not seen before. In this documentary, produced by Brian, follow a team of scientists who are studying this phenomenon to better understand these often misunderstood creatures. Note: This video requires a Disney+ subscription which may be accessible via certain schools and organizations.

Skerry, Brian. “The Ocean’s Glory -- and Horror.”

TED Talk, April. 2010,

www.ted.com/talks/brian_skerry_the_ocean_s_glory_and_horror?

Run time: ~16 minutes

In this great introduction to Brian’s work, learn about a variety of expeditions Brian has been on to capture amazing underwater shots of both beloved and misunderstood marine creatures and hear how he uses that captivating photography to spark change.

“Brian Skerry Showcases Life under the Sea in New Documentary.”

YouTube, uploaded by CBS Mornings, 26 Jun. 2021,

www.youtube.com/watch.

Run time: ~6 minutes

Get to know Brian and learn more about his project documenting the fascinating lives of whales across the ocean.

Page, Nina. Zuhlke, Samantha. “The Mermaid Myth.”

National Geographic Education, National Geographic Society, 12 Jul. 2023,

<https://education.nationalgeographic.org/resource/mermaid-myth>.

Run time: ~2 minutes

Brian gives us a brief glimpse of the underwater world of manatees.

Links to all films and videos can be found on the reference page at <https://bit.ly/brianskerrymedia>
We recommend opening these links to follow along.

Background Information

Websites

NOAA Fisheries

Explore this online encyclopedia of marine species including whales, dolphins, sharks, seals, and more. "Find a Species."

NOAA Fisheries, www.fisheries.noaa.gov.

Sounds in the Ocean: Mammals

Listen to a library of whale, seal, and other marine mammal noises. "Sounds in the Ocean: Mammals."

NOAA Fisheries, 23 June 2023, www.fisheries.noaa.gov/national/science-data/sounds-ocean-mammals.

NOAA: National Marine Sanctuaries Learn more about marine sanctuaries around the US, dive deeper into your local sanctuary, and explore articles, videos, and other education resources.

"Celebrating 50 Years of Ocean Conservation and Stewardship." NOAA Office of National Marine Sanctuaries, 2023, <https://sanctuaries.noaa.gov>.

Exploring by the Seat of Your Pants

Bringing those on the frontlines of science, exploration, conservation, and adventure live into classrooms through virtual guest speakers and field trips.

Home - Exploring by the Seat of Your Pants, 2023, <https://www.exploringbytheseat.com>.

View recordings of their Global Biodiversity Festival presentations.

Global Biodiversity Festival Year 4, Exploring by the Seat of Your Pants, 30 Aug. 2023, https://www.youtube.com/playlist?list=PLwKFsJZmdxpFfbyVWQ0_gCyWoXhGAqY3a.

Global Biodiversity Festival Year 3, Exploring by the Seat of Your Pants, 24 July. 2022, <https://www.youtube.com/playlist?list=PLwKFsJZmdxpGryUYol9hbrpGZZmBhbO3G>.

Global Biodiversity Festival Year 2, Exploring by the Seat of Your Pants, 20 July. 2023, <https://www.youtube.com/playlist?list=PLwKFsJZmdxpEhK9d-PHhHQqQgdM-2Xay0>.

Global Biodiversity Festival Year 1, Exploring by the Seat of Your Pants, 24 July. 2022, <https://www.youtube.com/playlist?list=PLwKFsJZmdxpGLffxa9I5IXsmBoDeRMD0>.

Videos relevant to Brian's work include

"Colin Simpfendorfer | Sharks in the Mangroves." YouTube, Exploring by the Seat of Your Pants, 29 May 2021, <https://youtu.be/bDTCLpjenZE>.

"Rachel Graham | Rewilding the MesoAmerican Reef with Sharks and Other Marine Megafauna." YouTube, Exploring by the Seat of Your Pants, 24 May 2022, <https://youtu.be/AyrS9ukgKkY>.

"Vanessa Pirotta | Whales as Important Monitors of Our Oceans." YouTube, Exploring by the Seat of Your Pants, 23 May 2022, <https://youtu.be/W1jfbSOQO-g>.

Links to all websites can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities

Check out these activities and lessons to prepare your students for the event.

Introduction to Marine Mammals

The Marine Mammal Commission provides an introductory powerpoint on marine mammals for various grade bands. With downloadable powerpoints and full scripts, this resource introduces students to marine mammal identification, biology, adaptations, and human impact.

"Marine Mammal Education Resources." Marine Mammal Commission, 4 May 2020, www.mmc.gov/resources/education-resources.

Saving the Southern Resident Killer Whales

The Project-based learning unit by NOAA is focused on understanding Southern Resident killer whale ecology and conservation. The unit contains nine fully-planned activities that can be used as stand-alone activities or as a complete series. This standards-based unit helps students understand the cultural, economic, and ecological importance of Southern Resident killer whales; connections between individual actions and watershed health; limitations and benefits to different types of action; and the unique power of youth voice and passion for driving change.

"Saving the Southern Resident Killer Whales." NOAA Fisheries, 04 Aug. 2023, www.fisheries.noaa.gov/resource/educational-materials/saving-southern-resident-killer-whales.

A Whale of a Tale

In this lesson by the Monterey Bay Aquarium Research Institute, students will compare DNA sequences and analyze and interpret data in order to solve a whale-related mystery. Marass, Beth. Ricciardi, Jayne. "Earth Lesson Plans: A Whale of a Tale.

"Monterey Bay Aquarium Research Institute, 9 Nov. 2022, www.mbari.org/lesson-plan/a-whale-of-a-tale.

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities

A Picture is Worth a Thousand Words: Interpreting Brian's Photos

Show your students the following photographs of Brian's. Lead them through close looking and interpretation of the photos using the following questions.



- What do you notice in this photograph? Gather observations from students.
- What do you think is going on? Encourage students to make connections and educated guesses. Do you know what species of whales these are? What do you think they are doing?
- What else do you wonder about what's going on in this image?
- *Reveal the context of the photograph: This is a group of sperm whales that Brian photographed. Sperm whales are huge toothed whales that can grow to be about the size of a school bus. It may seem like these whales are diving, and although sperm whales are great at diving to incredible depths of thousands of feet, the whales in this photo are actually sleeping. Sperm whales sleep vertically, resting in groups like this often for less than an hour at a time. Learn more about sperm whales (<https://www.fisheries.noaa.gov/species/sperm-whale>).*

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities



- What do you notice in this photograph? Gather observations from students.
- What do you think is going on? Encourage students to make connections and educated guesses. What do you think are in these cages? What do you think they're in these cages? What is this diver doing?
- What else do you wonder about what's going on in this image?
- *Reveal the context of the photograph: This is a photo of giant Japanese scallops being raised at an experimental farm off Canada's Vancouver Island. These scallops will eventually be on someone's dinner plate! We use the word aquaculture to describe fish and shellfish being raised in captivity rather than caught in the wild, similar to a farm (compare this to the word 'agriculture'). Interestingly, this is an experimental farm, where these scallops are also being raised alongside kelp and a kind of fish called a sablefish. Fish produce a lot of waste, and fish aquaculture can therefore affect nearby environments. Here, however, the waste can provide nutrients for the kelp and the scallops can help filter the water in an example of "Integrated Multi-Trophic Aquaculture". Think about a food web and the ways in which producers and consumers are linked in different trophic levels.*

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities



- What do you notice in this photograph? Gather observations from students.
- What do you think is going on? Encourage students to make connections and educated guesses. What kind of whale do you think this is? What do you notice about its coloration and markings? What do you think the white patches are?
- What else do you wonder about what's going on in this image?
- *Reveal the context of the photograph: This is a photo of a southern right whale. There are three right whale species, the southern right whale (<https://www.fisheries.noaa.gov/species/southern-right-whale>), the North Atlantic right whale (<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>), and the North Pacific right whale (<https://www.fisheries.noaa.gov/species/north-pacific-right-whale>). All three species are endangered. One thing that makes right whales unique is the whitish yellow patches all species have on their heads. Often they are mistaken as barnacles, but actually they are something called callosities. Callosities are rough callus-like patches of skin where an animal known as whale lice live. These whale lice don't harm the animal and actually occur on a variety of whales and dolphins. Each individual right whale has its own unique pattern of callosities, so scientists can use these patterns to identify right whales in the wild.*

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities



- What do you notice in this photograph? Gather observations from students.
- What do you think is going on? Encourage students to make connections and educated guesses. What environment do you think this shark is in? What do you notice about its size? What else is in the background?
- What else do you wonder about what's going on in this image?
- *Reveal the context of the photograph: This is a baby lemon shark. They can grow to be about 10 feet long but right now this one is probably only a couple feet. It's swimming in between mangrove roots. Mangroves provide many ecosystem services and are incredibly important coastal habitats for a huge variety of organisms. Like many animals, lemon sharks use mangrove forests as nurseries. The branching tree roots provide protection to this shark (as well as the other fish in the photo) until it is large enough to venture further out into more open water.*

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>

Activities



- What do you notice in this photograph? Gather observations from students.
- What do you think is going on? Encourage students to make connections and educated guesses. What do you already know about this animal? Do you think this boat is moving or not; what makes you say that? Do you know anything already about how manatees and boats interact?
- What else do you wonder about what's going on in this image?
- *Reveal the context of the photograph: This is a manatee (<https://www.nationalgeographic.com/animals/mammals/facts/manatees>) that Brian photographed off the coast of Florida. Manatees are aquatic mammals (consider reviewing defining traits of mammals, including hair and milk production). Notice how shallow the water is. This boat is not currently moving, it is anchored to the bottom and the propeller isn't spinning, but when they're moving, boats like this can be a hazard to manatees. Because manatees are slow moving, shallow-living creatures, they often can't get out of the way of speedboats like this which can injure or even kill them. Many regulations and protected areas have been put in place in places where manatees live to control boat traffic and prevent these types of injuries.*

All activity links can be found on the reference page at <https://bit.ly/brianskerrymedia>



Activities

Relevant Articles to Read and Discuss - Science Journal for Kids (and Teens)

The Science Journal for Kids (and Teens) shares current peer-reviewed scientific research adapted for students and their teachers. They create articles written at various learning levels that include vocab lists, discussion questions, additional supporting material, and lesson plan ideas.

Articles relevant to Brian's work include:

Elitsa. "How Can We Make Sure to Catch Only the Fish We Want to Eat?" *Science Journal for Kids and Teens*, 14 July 2023, www.sciencejournalforkids.org/articles/how-can-we-make-sure-to-catch-only-the-fish-we-want-to-eat/.

Elitsa. "What Are the Most Dangerous Places for Sharks? - Science Journal for Kids." *Science Journal for Kids and Teens*, 11 July 2023, www.sciencejournalforkids.org/articles/what-are-the-most-dangerous-places-for-sharks/.



The link for this Read and Discuss article can be found at <https://bit.ly/brianskerrymedia>

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All photos by Brian Skerry