

SHARKWATER

A TEACHERS' GUIDE FOR SHARKWATER

(SECONDARY SCHOOLS)



Bruce Kirkland, *Toronto Sun*: “Compelling...part gorgeous, ethereal swim with the sharks...part message movie about the slaughter of the innocents.”

By Dr. Douglas Baldwin

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MOVIE REVIEW

Ron Foley, Atlantic Film Festival: “A simple – but ravishingly beautiful – natural history film a la ‘March of the Penguins. ... A politically charged, edge-of-your seat environmental thriller... Like ‘An Inconvenient Truth’, it rates as utterly essential viewing for anyone who cares about the state of the environment and the future of the world as a whole.”

PRELIMINARY PREPARATIONS

FOCUS QUESTIONS

One way to begin a discussion of this topic is to have the class brainstorm the topic “sharks.” Ask students what comes to mind when they hear the word sharks.

To prepare students for *Sharkwater*, provide them with a brief synopsis of the movie (see “Sharkwater: A Synopsis” below or go to www.sharkwater.com). Ask the class to hypothesize why Stewart’s documentary became a matter of life and death.

Next, ask them to complete SECTION A: EXISTING KNOWLEDGE. These questions can serve as (1) a jumping-off point for a general class discussion on sharks, and (2) a way to measure how effective the movie was in teaching them about sharks, the need for conservation, and the extent to which it changed their earlier views and biases.

Have students locate on a map the areas that will be discussed in *Sharkwater*: Cocos Island, Guatemala; Costa Rica; Galapagos Islands, Ecuador.

Distribute SECTION B: QUESTIONS FOR THE MOVIE. These questions are designed to direct the students’ attention to the more important topics in the movie and to assist them in following the storyline. Students should read them over prior to watching the movie and complete them afterwards.



IMMEDIATE FOLLOW-UP DISCUSSION

In a general class discussion have the students complete the questions for the movie (the answers are provided below). As a concluding exercise for this section, distribute SECTION C: INITIAL REACTIONS TO SHARKWATER and initiate a class discussion on the theme of the movie.

- Was *Sharkwater* worth seeing?
- What is the movie's message?
- To what extent should sharks be protected?
- What should be done regarding long lining?
- What can I do?



SHARKWATER

A SYNOPSIS

In the process of learning about sharks, Toronto filmmaker Rob Stewart, becomes concerned about their possible extinction and is thrown into several life and death adventures. *Sharkwater* explores the world of sharks and provides a different view of these creatures than is usually portrayed in the media.

Stewart teams up with conservationist Paul Watson for a four-month expedition to Costa Rica and Ecuador to prevent illegal shark fishing. Stewart's documentary on declining shark populations soon transforms into a matter of life and death—his—as he becomes involved in a sea battle with shark poachers in Guatemala, boat rammings, gunboat chases, mafia, espionage, corrupt court systems, and charges of attempted murder. Forced to flee for this life from Costa Rica, Stewart later returns to fight for his cause. As a backdrop to these perilous adventures, *Sharkwater* explores shark life in stunningly beautiful underwater settings off Guatemala, Costa Rica and the Galapagos Islands.

“When I set out to make *Sharkwater*,” Stewart later stated, “I wanted people to see what I saw, an incredible undersea world that is so foreign to most of the planet. I had no idea that it would become a human drama that would take over four years, span 15 countries and nearly end my life... I wanted to make a film that shows sharks the way they really are, as beautiful and magnificent creatures that don't want to hurt humans, and to show how our fear has blinded us to the fact that their populations have been reduced by 90 per cent over the last 50 years.”

Ultimately, Stewart's remarkable journey of courage and determination is about our environment and what we are doing to it. *Sharkwater* calls on us to protect and conserve.

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SECTION A: EXISTING KNOWLEDGE

What do you know about sharks? The following are opinion questions. There are no right or wrong answers.

Have you or someone you know had a shark “experience”? If so, briefly describe it.

Name three different kinds of sharks:

What countries have laws regulating shark fishing:

How old are sharks:

What is long-line fishing:

Approximately how many people are killed by sharks each year:

Why are sharks fished:

Approximately how many sharks are killed each hour:

Of what value are sharks for the oceans:

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SECTION B: QUESTIONS FOR THE MOVIE

Who filmed and directed the movie?

How much of the earth is made of water?

How old are sharks?

How much of life is in the oceans?

How did the 1964 US Air Force Training Film present sharks?

What is long line fishing?

Why is it harmful?

What event changed Stewart's life?

How many people are killed by sharks each year?

Who is Paul Watson?

Why is he called a renegade of the conservation movement?

What are his objectives?

Why is nothing done to stop poachers?

Why are sharks fins taken?

How valuable is the shark fin industry?

What did Stewart discover in Costa Rica?

Why did Ecuador change fish quotas and the long-lining regulations in the Galapagos?

What stopped Stewart from continuing with Watson?

By what percent has the shark population decreased?

How has most social change been effected in the past?

Why wasn't Stewart caught when he returned to Costa Rica?

How many sharks died while the movie was being shown?

How many countries have banned shark finning?



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SECTION B: ANSWERS

Who filmed and directed the movie? *Rob Stewart*

How much of the earth is made of water? *66%*

How old are sharks? *more than 400 million years. One of the oldest living things*

How much of life is in the oceans? *more than 80%*

How did the 1964 US Air Force Training Film present sharks? *enemies of man, wicked, unpredictable*

What is long line fishing? *a long line baited with hooks*

Why is it harmful? *Cruel, catches all kinds of fish, turtles, wasteful*

What event changed Stewart's life? *finding all the dead sharks and fish on the long-lines*

How many people do sharks kill each year? *five*

Who is Paul Watson? *Captain of the Ocean Warrior and founder of the Sea Shepherd Conservation Society*

Why is he called a renegade of the conservation movement? *uses force, violence*

What are his objectives? *to make people think, rock the boat, enforce international regulations*

Why is nothing done to stop poachers? *no one in charge of the oceans*

Why are sharks fins taken? *soup for status, healing power*

How valuable is the shark fin industry? *rivalled only by illegal drug industry. One large whale shark fin is worth \$10,000*

What did Stewart discover in Costa Rica? *that the Taiwanese mafia was illegally finning and was ignoring the government*

Why did Ecuador change fish quotas and the long-lining regulations? *fishermen rioted, took hostages, threatened to kill last giant tortoises*

What stopped Stewart from continuing with Watson? *flesh-eating disease (staphylococcus)*

By what percent has the shark population decreased? *90*

How has most social change been effected in the past? *by a small group of passionate individuals*

Why wasn't Stewart caught when he returned to Costa Rica? *the publicity had awakened the Costa Ricans and they were demanding change*

How many sharks died while the movie was being shown? *more than 15,000*

How many countries have banned shark finning? *16*



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SECTION C: INITIAL REACTIONS TO SHARKWATER

The following are opinion questions. There are no right or wrong answers. Circle the more correct answer.

I learned a lot about sharks. Yes. No.

Overall, I liked/disliked the movie.

I agree that sharks need protection. Yes. No.

I agree that long-line fishing should be illegal. Yes. No.

To what extent did your views on sharks change after watching *Sharkwater*?

When Stewart was asked what he hoped people would take away from his film, he replied, "I hoped they would view sharks differently. They're not dangerous. They're not mindless killers. They don't eat people... The other thing is that we've been in this few thousand-year trend of destruction. It hasn't been cool to conserve, to promote sustainable use the environment, of the oceans. But I think people are going to start realizing that if we're going to survive on this planet as a species, we need to conserve it and protect the environment." Did Stewart succeed in his goals as far as you are concerned? Yes. No.

As it relates to sharks, finish this sentence, The United Nation should

FOLLOW-UP ACTIVITIES

LESSON PLAN IDEAS

GEOGRAPHY:

Have students locate the countries and places mentioned in the movie. As a research topic, assign students one of the 375 types of sharks and ask them to map their major habitats.

A good site for this research is: www.flmnh.ufl.edu/fish/Education/bioprofile.htm

BIOLOGY

Distribute “SHARK FACTS” and compare sharks to fish and humans.

Discuss the concepts of “ecosystems” and “food chain.”

What did the movie mean when it stated, “sharks are architects of our world;” “we can’t live without them,” and “predators shape their prey?”

Brainstorm what might happen if sharks are fished to extinction.

Have students research what other fish and animals are not extinct.



DEBATES

Although Greenpeace and the Sea Shepherd are environmentalist organizations, they are often hostile to each other. One major source of disagreement is the use of violence. As *Sharkwater* illustrated, Paul Watson and the Sea Shepherd believe that violence is sometimes the only option. Research both positions and debate this topic. For the Sea Shepherd Conservation Society visit: www.seashepherd.org. For Greenpeace, visit: www.greenpeace.org/canada/en/about-greenpeace

Are sharks dangerous? Use the material in NOTHING TO FEAR FROM SHARKS as the basis for a debate.

Will future generations consider us to be barbarians?

DISCUSSION QUESTIONS

What role did the movie *JAWS* play in people's fear of sharks?

Is the media irresponsible in the way it portrays sharks?

How have movies depicted sharks? Have students review the following movies and report on their accuracy and biases:

Jaws series (1975, 1978, 1983, 1987)

Tintorera (1977)

Great White (1980)

Cruel Jaws (1995)

Deep Blue Sea (1999)

Shark Attack series (1999, 2001, 2002)

Open Water (2003)

Red Water (2003)

Shark Tale (2004)

AN INTERVIEW WITH ROB STEWART



JAWS perception upset you?

It really pisses me off. You understand where they're coming from because a dangerous shark makes money and sells papers. If they tell you a shark is beautiful and perfect and wonderful and won't attack you that's only going to make news once. But if they tell you "Shark attack. Shark attack," that's news every time. It's ridiculous, but you know they are doing it just to play off people's fears. The reality is totally different. Half the time it is a small shark that accidentally bites someone's foot. You could have gotten the same injury from stepping on a piece of glass. It's crazy how the media approaches it and they've given sharks such a bad rap. It's ludicrous because so few people get bit.

What did Bertrand Russell mean when he said: "He who fears an animal will only see its threatening behaviour."

Do you agree with the saying: “When we know something well enough, we will no longer fear it?”

Use the material SHARK FACTS as the basis of a discussion.

In SHARKWATER, Stewart fled Costa Rica, outrunning the coast guard. Do you think this was the best option? Brainstorm what other choices he had and what might have been the possible outcomes of each.

Would you have gone back to Costa Rica?

What five adjectives best describe Stewart and Watson?

BIO: ROB STEWART



Born in Toronto, Rob Stewart began photographing underwater when he was 13. He became a certified scuba instructor trainer at age 18, and holds a Bachelor of Science degree in Biology from the University of Western Ontario. He has studied Marine Biology and Zoology at universities in Kenya and Jamaica.

Stewart spent four years traveling the world as the chief photographer for the Canadian Wildlife Federation magazines, and has logged thousands of hours underwater, using the latest in camera technologies.

His work underwater and on land has appeared in nearly every media form worldwide, from *BBC Wildlife*, *Asian Diver*, *Outpost* and *GEO* magazines to the Discovery Channels, ABC, BBC, night clubs and feature films.

Why is it difficult to protect and conserve fish and other ocean creatures (compared to land animals)?

Paul Watson stated that in the past, social change has come from a small passionate group. Have students provide examples (civil rights, 1917 Bolshevik Revolution, etc.) and discuss whether this is still the case.

Brainstorm how shark fin soup could be banned.

BIO: PAUL WATSON

Paul Watson is the founder of the Sea Shepherd Conservation Society—an organization dedicated to research, investigation and enforcement of laws, treaties, resolutions and regulations established to protect marine wildlife worldwide.

His resumé includes:

- Co-founder of Greenpeace in 1972 and Greenpeace International, 1979
- Founder of Sea Shepherd Conservation Society, 1977
- Field Correspondent for Defenders of Wildlife, 1976 to 1980
- Field representative for the Fund for Animals between 1978 to 1981
- Representative for the Royal Society for the Protection of Animals, 1979
- Co-founder of Friends of the Wolf, 1984
- Co-founder Earthforce Environmental Society, 1977.
- Director, National Board of the Sierra Club USA, 2003 to present

Watson majored in communications and linguistics at Simon Fraser University in British Columbia. He has lectured extensively at universities around the world, and was a professor of Ecology at Pasadena College of Design from 1990 to 1994. He was also an instructor in UCLA's Honors Program in 1998 and 1999. In 2000, Watson was chosen by *Time Magazine* as one of the environmental heroes of the 20th Century.

CLASS PROJECT

Conduct a general discussion on long-line fishing. See LONG-LINE FISHING below. Brainstorm methods to stop it. Assign students into the groups such as the following to stop long-lining.

- Letters to the editor
- Contact with Wild Aid, the Sea Shepherd, and other groups
- Posters
- Art work
- Contact appropriate politicians and government agencies
- Speeches/presentations to other classes
- Further research. A good place to start is:

www.sharktrust.org

www.sharkproject.org

www.flmnh.ufl.edu/fish/

www.iemanya.org/whysharks.htm

www.adoptashark.com

www.sharks.org/expeditions.htm

www.sharkwater.com

AN INTERVIEW WITH ROB STEWART



Why save sharks? What makes them so important?

Species evolving in the oceans over the last 400 million years have been shaped by their predators, the sharks, giving rise to schooling behaviour, camouflage, speed, size and communication. They have survived five major extinctions and now they are being fished out. Many countries have no sharks left because they are being illegally harvested for their fins and poachers are now fishing sharks from other countries, countries that depend on sharks for food. But no one wants to save sharks, people are afraid of them.

FOOD TO AVOID: The Monterey Bay Aquarium's *Seafood Watch Guide* for 2006 lists the following seafood to avoid because they come from sources that are overfished and/or caught or farmed in ways that harm other marine life or the environment.

Chilean Seabass

Cod

King Crab

Dogfish

Pacific Roughy

Caribbean Lobster

Monkfish

Orange Roughy

Rockfish

Salmon: farmed and Atlantic

Sharks

Sturgeon Caviar

Swordfish

Bluefish Tuna

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NOTHING TO FEAR FROM SHARKS

In 2006 the International Shark Attack File reported that there had only been four fatal deaths due to unprovoked shark attacks (Australia, Brazil, La Reunion, and Tonga). These worldwide numbers are incredibly small given the millions of humans who enter the water. You have a better chance of dying from a bee sting, a dog or snake bite, or lightning than from a shark attack.

No shark attacks have been reported in Canadian waters for decades. For additional information on the paucity of shark attack, visit the Florida Museum of Natural History's shark research web site at: www.flmnh.ufl.edu/fish/Sharks/sharks.htm



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SHARK MYTHS

Sharks have no value - No Way!

Sharks are a critical part of marine ecosystems and a source for knowledge to help the human condition.

Sharks have poor vision – Not True!

Sharks' eyes, which are equipped to distinguish colours, employ a lens up to seven times as powerful as a human's. Some shark species can detect a light that is as much as ten times dimmer than the dimmest light the average person can see. Vision varies among species of sharks due to differences in the size, focusing ability, and strength of the eyes.

All sharks have to swim constantly - No!

It was once believed that all sharks had to swim constantly in order to breathe and could not sleep for more than a few minutes at a time. Oxygen-rich water flows through the gills during movement allowing the shark to breathe. While some species of sharks do need to swim constantly, this is not true for all sharks. Some sharks such as the nurse shark have spiracles that force water across their gills allowing for stationary rest.

The Great White shark is a common, abundant species found off most beaches. No!

Great Whites prefer cooler waters. In some parts of their range, Great Whites are close to being endangered.

Most sharks are harmful to people - Untrue!

Of the more than 375 shark species, about 80% are unable to hurt people or rarely encounter people.

A shark is a shark is a shark - No!

There is no "typical" shark. The more than 375 species all differ in habitat, lifestyle and body form.

Sharks are hard to kill - Off Base!

The stress of capture weakens a shark, and so some sharks are easily killed in hook-and-line or net fishing.

Consuming shark fins makes people strong and healthy. Wrong!

Sharks have peanut-sized brains. No!

Sharks' relatively large and complex brains are comparable in size to those of advanced animals like mammals and birds. Sharks can be trained.

Most sharks cruise at high speed when they swim - Invalid!

Most sharks swim very slowly at cruising speeds of less than 5 knots (10 km per hour).

Sharks are not found in freshwater - No!

A specialized system enables the bull shark to cope with dramatic changes in salinity—from the freshwaters of some rivers to the highly saline waters of the ocean.

Sharks are not discriminating eaters and scavenge the sea - Wrong!

Most sharks prefer to eat certain types of invertebrates, fish and other animals. Some sharks eat mainly fish. Others eat other sharks or marine mammals. Some sharks are even plankton-eaters.

The biggest enemy to sharks are humans - Absolutely! That's why humans must now do all they can to preserve them.



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SHARK FINNING

The finning of sharks is one of the cruelest practices that humans engage in against any species of animals. In the long-term this cruel and wasteful practice will not benefit anyone.

- Shark finning refers to the removal of shark fins and the discarding of the rest of the shark.
- The shark is most often still alive when it is tossed back into the water. Unable to swim, and bleeding to death, the shark suffers a slow death.
- 95 per cent of the animal is wasted.
- Shark finning takes place at sea.
- Shark meat is considered low value and therefore not worth the cost of taking the bulky shark bodies to market.
- Long lines are the most widespread method of fishing for sharks.
- Shark finning is largely unmanaged and unmonitored.
- Shark finning has increased over the past decade due to the increasing demand for shark fins (for shark fin soup and traditional cures) and improved fishing technology.
- Shark specialists estimate that more than 100 million sharks are killed for their fins annually.
- Shark finning threatens the stability of marine ecosystems.

LAWS AGAINST SHARK FINNING

- Each country with a coastline is responsible for laws and regulations pertaining to fishing in their waters.
- Some countries have shark-finning legislation. Many stipulate that fins must arrive in a 5 per cent weight ratio of the shark carcasses onboard. Only a few countries demand that sharks arrive in port with fins attached.
- According to some experts, the easiest way to implement a ban is to require that shark carcasses be landed with fins attached. The possession of fins alone on vessels would thus be illegal.
- Shark finning violates the United Nations Food and Agriculture Organization's Code of Conduct for Responsible Fisheries and its Plan for the Conservation and Management of Sharks.
- The United Nations Convention on the Trade of Endangered Species of Flora and Fauna lists the whale shark, basking shark, and Great White shark as species that could become threatened if trade is not controlled. To date, 169 countries have agreed to be legally bound by this convention.

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SHARK FACTS

The largest shark, and also the largest fish in the ocean is the Whale Shark, which can grow to be 15 m long. The second biggest fish and shark is the Basking shark (12.3 m). The Great White shark grows to 6.4 m.



Fossil records indicate that ancestors of modern sharks swam the seas over 400 million years ago, making them older than dinosaurs! Throughout time sharks have changed very little.

The smallest shark is a deepwater Dogfish shark. This species which is found in the Caribbean Sea is mature at under 20cm.



The fastest swimming sharks are the Mako sharks and Blue sharks, which can leap out of the water. They might also be the fastest fish. Estimates of their speed vary between 97 kph and 35 kph.

The Blue shark has been known to migrate from 2,000 to 3,000 km in a seasonal journey from New York State to Brazil.

Sharks that swim in open water have a colour pattern called “countershading.” The upper portion of the shark is dark in colour to make it difficult to see the shark from above against the dark ocean water. The underside of the shark is light in colour so it blends well with the lighter water near the surface when viewed from below. Countershading makes it difficult for predators and prey to see sharks.

Sharks have an excellent sense of hearing with ears located inside their heads on both sides rather than external ears like humans. Sharks can hear best at frequencies below 1,000 Hertz which is the range of most natural aquatic sounds. This sense of hearing helps shark locate potential prey swimming and splashing in the water. Sharks also use their lateral line system to pick up vibrations and sounds.

Sharks have lots of teeth arranged in layers so if any break off, new sharp teeth can immediately take their place. Sharks can lose thousands of teeth during their life. Sharks' teeth can be found washed onto beaches.

