

Name: _____ Class: _____

Bowhead Whales with Talent!

Scientists discovered an Arctic whale's complex songs.

By Laura Lane
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In this informational text Laura Lane discusses why scientists record and study singing bowhead whales. As you read, take notes on the characteristics of bowhead whales that make them unique.

- [1] In the dark, icy waters of Fram Strait, between Greenland and Norway's Svalbard islands, the bowhead whales are singing. They shriek like cats. They trumpet. They make low *woo woo* noises.

"It doesn't sound like anything you would attribute¹ to a whale," says Dr. Kate Stafford, an oceanographer² at the University of Washington. Scientists say bowhead whales sing with two voices because they can make both high-pitched and low-pitched sounds at the same time.



"Their songs revealed an important winter habitat." by Phyllis Saroff is used with permission.

Of the world's four bowhead-whale populations, the group that lives near Spitsbergen (one of the Svalbard islands) is the smallest and is critically endangered.³ To find some of those whales, Dr. Stafford and her co-workers used underwater microphones, called hydrophones, to record whale sounds in Fram Strait for a full year. They used the recordings both to count the number of singing bowheads and to study their songs.

Lost Whales... Found!

They discovered a chorus of bowhead songs taking place in Fram Strait during the winter and spring. "We know there are a minimum of 66 singers. Considering the current population estimate is unknown but thought to be 'in the tens' (fewer than 100), this is important," Dr. Stafford says. "Also the diversity⁴ of songs sung in a single winter is greater than has ever been reported for a whale species."

- [5] Scientists think the loud, continuous singing of complex songs means the whales are gathering in those cold waters.

The discovery is a step toward saving the endangered Spitsbergen bowheads. This group was thought to be extinct⁵ until rare sightings began to increase in the 1980s. Until now, scientists knew almost nothing about where these whales spent the winters. The songs have revealed an important winter habitat. Fram Strait may even be a mating ground.

1. **Attribute (noun)** a quality or feature that is a necessary part of something
2. someone who studies the physical and biological aspects of the ocean
3. at risk of an entire species dying off
4. **Diversity (noun)** the condition of being made up of different elements or qualities
5. having no living members

Cold-Water Whale

With a layer of insulating⁶ fat, or blubber, up to 11 inches thick under its skin, the bowhead is the only baleen whale that can live in the Arctic all year round. It stays under the ice during the winters, using its huge head to break breathing holes through eight-inch-thick ice whenever necessary. It spends the summers swimming through areas of broken and melting ice.

Like the humpback and other baleen whales, the bowhead has no teeth. Instead, its mouth has a filter made of hard material called baleen. The whale swims along with its mouth open, catching large numbers of tiny crustaceans⁷ along with some fish. Then it swallows its catch.

People once used the whale's blubber and baleen to make many products, from lamp oil to buggy⁸ whips. As early as the 17th century, whalers hunted several types of whales, especially bowheads, bringing them to near extinction.

- [10] Beginning in 1946, nations began working together to protect whales from commercial fishing. In some areas, the Inuit⁹ and other native peoples are still permitted to hunt a limited number of bowheads.

Singing in the Dark

When Dr. Stafford and her team recorded the whales, they expected them to make simple grunts and moans. The researchers were amazed by the complex songs, much like birds' melodies. Under the ice of western Fram Strait, the bowheads sang daily, often hourly, from November to April.

Dr. Stafford says the whales have different call types for different purposes. For example, they make simple sounds called "upsweeps" and listen for the echoes to help them navigate through dark, icy waters.

The almost nonstop singing of complex songs likely comes from male bowheads, just as most birdsongs and frog calls are made mainly by males. "It's a big mystery as to how it plays out in mating," says Dr. Stafford. "It may be males showing off to one another, or it may be a display to attract females."

Through her work to answer questions about bowheads, Dr. Stafford has come to appreciate the beauty and majesty of the whales and their environment. "One of the things that strikes me is how dynamic¹⁰ the Arctic is," she says. "It's constantly changing. The ice is moving, and the animals that live in it have to adapt all the time."

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6. **Insulation** (*noun*) a material or substances that is used to stop heat from escaping
7. a group of aquatic animals that have a hard shell or crust
8. a small horse drawn vehicle
9. a member of a group of people native to northern Canada and parts of Greenland and Alaska
10. **Dynamic** (*adjective*) characterized by constant change, activity, or progress

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which statement identifies the central idea of the text?
 - A. The complex songs that bowhead whales sing prove to the scientists that the whales are smarter than we originally thought.
 - B. Many populations of people would be affected if bowhead whales went extinct, as they rely on their blubber and baleen.
 - C. Scientists hope that people will be more motivated to preserve bowhead whales if they hear their beautiful song.
 - D. By listening to bowhead whales' songs, scientists can learn more about them and help preserve their species.

2. PART B: Which detail from the text best supports the answer to Part A?
 - A. "Scientists say bowhead whales sing with two voices because they can make both high-pitched and low-pitched sounds at the same time." (Paragraph 2)
 - B. "Also the diversity of songs sung in a single winter is greater than has ever been reported for a whale species." (Paragraph 4)
 - C. "Until now, scientists knew almost nothing about where these whales spent the winters. The songs have revealed an important winter habitat." (Paragraph 6)
 - D. "People once used the whale's blubber and baleen to make many products, from lamp oil to buggy whips." (Paragraph 9)

3. Which of the following describes how bowhead whale songs are introduced in the text?
 - A. They are described as being necessary for the whale's survival.
 - B. They are described as consisting of different types of sounds.
 - C. They are described as involving primarily unpleasant sounds.
 - D. They are described as being important to whale hunters.

4. How does paragraph 7 contribute to the development of ideas in the text?
 - A. It reveals why bowhead whales are considered valuable.
 - B. It emphasizes how bowhead whales are able to survive cold conditions.
 - C. It proves how important the whales' songs are to their survival.
 - D. It explains how bowhead whales are able to avoid extinction.

5. What is the relationship between learning more about bowhead whales and saving them from extinction?

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. In the text, scientists are able to learn a lot about bowhead whales just by listening to them. In what other instances can listening help us learn about the world? Cite evidence from this text, your own experience, and other literature, art, or history in your answer.
2. Humans are in part responsible for the bowhead whale's endangerment. How do humans contribute to the endangerment of the bowhead whale? How are humans capable of both helping and hurting the environment? What is something that you could do for the environment to help?