



Teacher Resource

# Ocean Noise Pollution

## Focus Questions

Discuss the BTN story as a class and record the main points of the discussion. Students will then respond to the following:

1. Before watching the BTN story predict what you think it will be about.
2. What type of noise do humans make in the ocean? Give 2 examples.
3. Sounds travels faster in water than in air. True or false?
4. How do shrimp use sound to survive?
5. What is echolocation?
6. What marine animals use echolocation? Give one example.
7. How does underwater noise pollution impact on whales?
8. What is a solution to underwater noise pollution?
9. What was the main point of the BTN story?
10. What was surprising about this story?

## Activity: Class Discussion

Before watching the BTN Ocean Noise Pollution story hold a class discussion, using the following discussion starters. Brainstorm ideas in small groups and then students will report their group's responses to the class.

- Do you think the Earth's oceans are silent? Why or why not?
- What do you think causes ocean noise pollution?
- What impact do you think ocean noise pollution has on marine animals?
- How do you think increased noise levels would impact you in your environment (for example at school or home)?

After watching the BTN story, students will respond to the following questions:

- What did you SEE in this video?
- What do you THINK about what you saw in this video?
- What did you LEARN from this story?
- What was SURPRISING about this story?



### EPISODE 3

16th February 2021

#### KEY LEARNING

Students will investigate the impact of ocean noise pollution on marine animals.

Students will explore why sound is important to marine animals.

#### CURRICULUM

##### Science – Year 4

Living things depend on each other and the environment to survive.

Science knowledge helps people to understand the effect of their actions.

##### Science – Year 5

Living things have structural features and adaptations that help them to survive in their environment.

##### Science – Year 5 & 6

Scientific knowledge is used to solve problems and inform personal and community decisions.

##### Science – Year 6

The growth and survival of living things are affected by physical conditions of their environment.

##### Science – Year 7

Classification helps organise the diverse group of organisms.

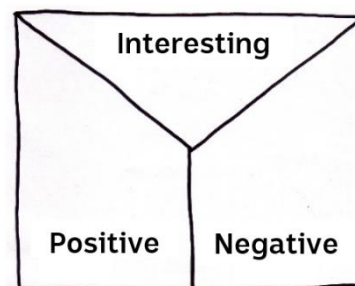
Scientific knowledge has changed peoples' understanding of the world and is refined as new evidence becomes available.

Interactions between organisms, including the effects of human activities can be represented by food chains and food webs.

## Activity: Note taking

Students will practise their note-taking skills while watching the BTN Ocean Noise Pollution story. After watching the story, ask students to reflect on and organise the information into three categories. What information in the story was...?

- Positive
- Negative or
- Interesting



## Activity: Glossary

Students will brainstorm a list of keywords that relate to the BTN Ocean Noise Pollution story. Here are some words to get them started. Students will create their own class glossary of keywords and terms. Students can use illustrations and diagrams to help explain each keyword.

OCEANOGRAPHER	MARINE LIFE	FOOD WEB
PREY	MARINE ECOSYSTEMS	OCEAN NOISE POLLUTION

### Further investigation: Tricky words

Students will choose an additional keyword to add to their class glossary that is tricky. Students will find a definition and explain to their classmates what the keyword means.

ECHOLOCATION	BIOACOUSTICS	ACOUSTIC TRAUMA
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## Activity: Inquiry based-learning

The KWLH organiser provides students with a framework to explore their knowledge on the topic of ocean noise pollution and consider what they would like to know and learn.

<i>What do I <u>k</u>now?</i>	<i>What do I <u>w</u>ant to know?</i>	<i>What have I <u>l</u>earnt?</i>	<i><u>H</u>ow will I find out?</i>

### Questions for inquiry

Students will develop their own question/s for inquiry about ocean noise pollution. Students will collect and record information from a wide variety of sources. Students may develop their own question for inquiry or select one of the questions below.

- What is ocean noise pollution? Include as many of the following terms in your explanation: ecosystem, habitat, biodiversity, noise pollution, echolocation.
- What is the difference between ocean noise pollution and other types of pollution? Compare and contrast. Find a simple definition for each and then explain to a classmate.
- Why is sound important to marine animals?
- How do marine animals use sound to navigate?
- Who do you think should be responsible for looking after the health of marine animals affected by ocean noise pollution? Explain.
- What are some solutions to underwater noise pollution? Make some recommendations.
- What marine animals use sound to survive? Make a list of marine animals that use sound to survive and then choose one to explore in more detail. Create a 3D model of the animal and display in the classroom. Think of a way to include a sound file to illustrate the sound that the animal makes.
- What is the difference between whales and dolphins? Explore the taxonomy of the animals and categorise the information you find using the classification system. Compare the sounds they make.
- How does sound travel through water? In your explanation use words like low frequency, high frequency and speed of sound.

## Activity: Species profile

Students will choose one marine animal that relies on sound for its survival and create a profile about the animal. Below are some examples of marine animals that use sound.

- Oyster toadfish
- Barred grunt
- Smooth claw snapping shrimp
- Baleen whales
- Dolphin
- Clownfish
- Seals

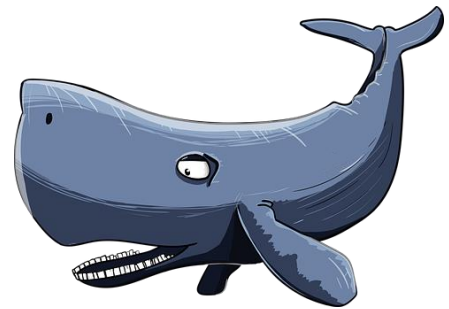
Students will research the following and then share their research findings with the class or create a display in the classroom.

- Biological illustration or photo
- Name (common and scientific name)
- Classification (class, family, genus)
- Description
- Describe the sounds they make. Why do they make these sounds? What frequency are the sounds?
- Habitat
- Conservation status
- Threats

Students will then choose one of the following activities to complete:

- **Model** – Create a 3D model of the marine animal using recycled materials. Display your model in the classroom. Find a sound recording online to illustrate the sounds that the animal makes.
- **Campaign** – Design a public education campaign to raise awareness about a marine animal affected by underwater noise pollution. Think about your campaign’s aim, your target audience, and the value of raising awareness. Create a poster using [Canva](#).

- **Haiku** – Write a haiku poem which focuses on one or more of the themes explored in the BTN Ocean Noise Pollution story.
- **Children’s book or comic** – Write and illustrate either a children’s book or comic which tells the story of a marine animal affected by underwater noise pollution.
- **Reporter for a day** – Investigate the issues highlighted in the BTN Ocean Noise Pollution story. Write a newspaper article or online news report for kids explaining how underwater noise pollution affects marine animals.



## Activity: Why do whales sing?

Whale songs are one of the most sophisticated communication systems in the animal kingdom. Watch this TedEd video [Why do whales sing?](#) and answer the following questions.

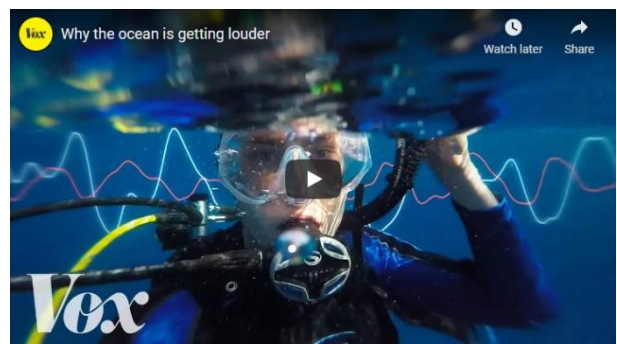
- Which species of whale are known to sing?
- How long can whales sing for?
- Why do they sing?
- What impact can noise pollution have on whales?
- Write down three interesting facts you learnt watching the video.



## Activity: Why the ocean is getting louder

We often think of the ocean as a totally silent place, muffled under the water’s surface and full of animals that don’t make a lot of noise. But that’s not really the case. Watch this TedEd video [Why the ocean is getting louder](#) and answer the following questions.

- Why does sound travel farther and faster in water than air?
- Why is the sound of boats and ships a problem for marine animals that use sound?
- What is seismic surveying?
- How have underwater noise levels changed since the 1950s?
- How did this video make you feel?



## Useful Websites

- [Noise pollution is penetrating further into our oceans, endangering marine animals](#) – ABC Science
- [Whales, Dolphins and Sound](#) – Department of Agriculture, Water and Environment
- [Audio Gallery Marine Mammals](#) – University of Rhode Island
- [Underwater Research](#) – BTN
- [Deep Sea Exploration](#) – BTN
- [Investigating Sound and Hearing](#) – Victoria State Government