

Ships' noise serious problem for whales and dolphins

Level 3 • Advanced

1 Warmer

- Which of these is the largest mammal on earth?
 - blue whale
 - humpback whale
 - killer whale
- Which of these whales is also known as the orca?
 - sperm whale
 - killer whale
 - humpback whale
- What order do whales, dolphins and porpoises belong to?
 - crustacean
 - cetacean
 - marsupial

2 Key words

Fill the gaps in the sentences using these key words from the text.

pollutant
blubber

stranded
forage

rumble
subtle

strait
toxic

prey
knot

- _____ is an animal that is caught by another animal and eaten.
- A _____ is a continuous deep sound.
- If animals _____ for food, they search for it in a large area.
- A _____ sound is not obvious and is therefore difficult to notice.
- A _____ is a narrow area of water that links two larger areas of water.
- _____ is a layer of fat around the body of sea animals such as whales.
- A _____ is a substance that is harmful to the environment.
- A _____ substance is poisonous and harmful to people, animals or the environment.
- A _____ is a unit for measuring the speed of ships, aircraft and wind, equal to one nautical mile per hour.
- If a whale is _____ on a beach, it is stuck there and not able to get back into the water.

3 What do you know?

Decide whether these statements are true (T) or false (F). Then, check your answers in the text.

- Military ships are quieter than commercial ships.
- Increasing the speed of ships by six knots could reduce noise intensity by 50%.
- Ships make as much noise beneath the water as a loud rock concert does through the air.
- Polychlorinated biphenyl chemicals are banned.
- The Puget Sound is on the east coast of the USA.
- Sound is measured in decibels.

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Ships' noise is serious problem for killer whales and dolphins, report finds

Low-frequency noise is known to affect baleen whales but high-frequency din from vessels is harming endangered orcas' ability to communicate and find prey

Oliver Milman in New York
2 February, 2016

- 1 Noise emanating from passing ships may disturb animals such as killer whales and dolphins far more than previously thought, with new research showing that the animals' communication and ability to find prey could be hampered by the underwater din. The low rumble of passing ships has long been connected to the disturbance of large whales. But, US researchers have documented persistent noise also occurring at medium and higher frequencies, including at 20,000Hz where killer whales, also known as orcas, hear best.
- 2 These noise disturbances could be hindering the ability of killer whales to communicate and echolocate – the process of using sound to bounce off objects such as prey and identify where they are. Dolphins and porpoises, which also operate at higher frequencies, may be suffering the same problems. The findings suggest that the noise could well affect the endangered population of killer whales that are found near the shipping lanes. A population of just 84 killer whales forage up the US west coast and into Puget Sound.
- 3 “The main concern relating to this is that even a slight increase in sound may make echolocation more difficult for whales,” said Scott Veirs of Beamreach, who led the research. “That’s worrying because their prey, chinook salmon, is already quite scarce. Hearing a click off a salmon is probably one of the most challenging things a killer whale does. Hearing that subtle click is harder if there’s a lot of noise around you.”
- 4 The researchers used underwater microphones to measure the noise created by about 1,600 individual ships as they passed through Haro Strait, in Washington State. The two-year study captured the sounds made by 12 different types of vessel, including cruise ships, container ships and military vehicles, that passed through the strait about 20 times a day.
- 5 Some ships are quieter than others but the average intensity of noise next to all the ships was 173 underwater decibels, equivalent to 111 decibels through the air – about the sound of a loud rock concert. Whales are not usually located right next to ships and so would be subjected to noise of about 60 to 90 decibels – around the level of a lawnmower or a vacuum cleaner.
- 6 Veirs said scientists have already identified the impact of underwater noise upon baleen whales – a class of fauna containing the largest animals on Earth. But, the new research underlines the threat posed to smaller whales, dolphins and porpoises. “Ships have been thought of as low-frequency sources of noise, like the rumbling of lorries or trains,” he said. “Most noise is at that low frequency but the background noise of the ocean is raised even in the high frequencies. This could be causing a significant problem that we need to look into more.”
- 7 There are several knock-on consequences of a noisy marine environment. Whales may have to group together more closely in order to hear each other. And, should they fail to find prey as effectively, they will need to use up their stores of excess blubber. This is problematic as this blubber often contains manmade pollutants that are toxic to whales if released fully into their systems.
- 8 Veirs said more work needs to be done to identify how badly the noise is affecting whales and also to quieten the ships that pass near the cetaceans. “It should be easy to reduce noise pollution,” he said. “Military ships are quite a bit quieter and there could be straightforward ways of transferring that technology to the commercial fleet. Another way to reduce noise is to slow down. Decreasing speed by six knots could decrease noise intensity by half.”
- 9 While the fortunes of some whale species, such as humpbacks and blue whales, the largest mammal on Earth, have improved as whaling has declined, others are still under threat from a range of factors. The US federal government has recently protected nearly 40,000 square miles of the Atlantic in an attempt to avoid losing the critically endangered North Atlantic right whale, a species with just 500 individuals left.
- 10 In Europe, killer whales are carrying dangerously high levels of banned polychlorinated biphenyl (PCB) chemicals in their blubber. Scientists are still trying to determine whether pollutants caused the

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deaths of five sperm whales that became stranded on the east coast of Britain in January 2016. Meanwhile, around the coast of Australia, whales face an increased threat from ship strikes and oil and gas drilling, as well as Japan's recent pledge to resume whaling in Antarctic waters.

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4 Comprehension check

Choose the best answer according to the text.

- Why is sound from ships a problem for whales and other large marine mammals?
 - It disturbs their sleep.
 - It makes locating prey by echo more difficult.
 - It causes high levels of pollution.
- Why have the fortunes of humpback whales and blue whales improved?
 - because they only live in waters where there are military ships
 - because the US federal government has protected nearly 40,000 square miles of the Atlantic
 - because there is not as much whaling as there used to be
- What will happen if whales fail to find prey?
 - They will have to use up their stores of extra blubber.
 - They will become extinct.
 - They will have to move to the colder waters of Antarctica.
- Why did five sperm whales die on the east coast of Britain?
 - No one knows.
 - because they had high levels of pollutants in their blubber
 - because they were poisoned by PCB chemicals

5 Find the word

Find the following words and phrases in the text.

- two verbs meaning *prevent something from happening or developing normally* (paras 1 and 2)
- a noun meaning *a very loud unpleasant noise that lasts for a long time* (para 1)
- a two-word noun phrase meaning *an official route that ships must follow when they sail from one place to another* (para 2)
- a noun meaning *a short sound made by a dolphin or other animal* (para 3)
- a noun meaning *all the animals that live in a particular area* (para 6)
- a two-word phrasal verb meaning *investigate* (para 6)
- a three-word phrase meaning *an indirect result of something* (para 7)
- a noun meaning *a serious and public promise to do something* (para 10)

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6 Words followed by prepositions

Complete the phrases from the text.

1. subjected _____ noise
2. the impact _____ whales
3. equivalent _____ 111 decibels
4. pollutants that are toxic _____ whales
5. the threat posed _____ smaller whales
6. whales face a threat _____ oil and gas drilling

7 Word-building

Complete the sentences using the correct form of the word in brackets at the end of each sentence.

1. _____ noise is a threat to whales and other sea creatures. [PERSIST]
2. These noise _____ could be hindering the ability of killer whales to echolocate. [DISTURB]
3. The average _____ of noise was 173 underwater decibels. [INTENSE]
4. Using up stores of excess blubber is _____ because the blubber often contains toxic pollutants. [PROBLEM]
5. The North Atlantic right whale is critically _____. [DANGER]
6. In Europe, killer whales are carrying _____ high levels of PCB chemicals. [DANGER]

8 Discussion

Discuss the statements.

- Shipping should be banned completely in areas where whales, dolphins and porpoises feed.
- Why does it matter if whales become extinct? We don't eat whales.
- Whaling is cruel and should be illegal in all countries.

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KEY

1 Warmer

1. a
2. b
3. b

2 Key words

1. prey
2. rumble
3. forage
4. subtle
5. strait
6. blubber
7. pollutant
8. toxic
9. knot
10. stranded

3 What do you know?

1. T
2. F
3. T
4. T
5. F
6. T

4 Comprehension check

1. b
2. c
3. a
4. a

5 Find the word

1. hamper; hinder
2. din
3. shipping lane
4. click
5. fauna
6. look into
7. knock-on consequence
8. pledge

6 Words followed by prepositions

1. to
2. upon
3. to
4. to
5. to
6. from

7 Word-building

1. persistent
2. disturbances
3. intensity
4. problematic/problematical
5. endangered
6. dangerously