

Whale communication

A It is only comparatively recently that we have become aware of the hauntingly beautiful sounds made by humpback whales. The hydrophone, a microphone that can be used in water, was developed by the British scientist Ernest Rutherford, and is particularly good at detecting the presence of submarines underwater. During the Cold War, a Bermudian, Frank Watlington was working for the US government, and it was his job to use hydrophones to listen out for Russian submarines. While he was doing this, Watlington noticed that humpback whales appeared to 'sing'. Later, Watlington's work was taken up by two other researchers, Roger Payne and Scott McVay, who studied the nature of these humpback whale 'songs'. They found that the various sounds produced by the whale formed a song which lasts for about 30 minutes and is then repeated by the whale for hours or even days.

B Scientists believe there are two main reasons for whales to make sounds: echolocation, so that the whales know what objects (and perhaps food) are around them; and communication. Whales are capable of communicating to other whales over huge distances. Sound waves travel faster through water (around 1.5 kilometre per second) than through air, and the sound of a whale can travel thousands of kilometres through the oceans.

C Many different species of whale are capable of making noises and some of them (as well as dolphins and porpoises) are believed to use echolocation. Some whales look for food, such as squid, down to a depth of 1.5 kilometres, and at that depth there is virtually no light at all. Without being able to locate their food, the whales are going to go hungry. The whales send out series of clicks and listen out for the echo of the sound. From this, the whale is able to work out what is around it and can respond accordingly. The system whales use is highly complex, but it is similar to the way that you can tell direction of sound. You have two ears and when a sound is made, the sound reaches one ear a fraction of a second before the other. From this information, your brain can work out the direction of the sound.

D In addition to echolocation, some whales, most notably the humpback whale, are capable of producing a range of notes which appear to be a form of communication. Humpback whales in one school (as groups of whales are known) tend to sing virtually the

same song. Perhaps like football supporters they are demonstrating group identity, showing that they belong to the same school. Other schools, particularly those found in other oceans, sing songs which are quite different. It is also quite likely that the songs play a role in courtship. It is generally the males that sing, so perhaps they are also trying to attract females.

E For millions of years, whales have swum in the great oceans of the world and only recently have they had to contend with a predator: man. In the 18th and 19th centuries, many countries had fleets of ships which set out to bring back whales. The 20th century saw the development of factory ships which were capable of killing and processing thousands of whales. In the 1930s, over 50,000 whales were killed annually. It wasn't until 1986 that a moratorium was agreed to stop whale hunting, and scientists hope that the number of whales will recover. So can the whales of the world now cruise about without a care in the world? Sadly not. The growth of trade in the world has meant that there are now more ships, particularly large container ships, than ever before. In fact, the Worldwide Fund for Nature (WWF) says that large numbers of northern right whales are killed in collision with ships. But it is not only the physical danger that ships present. The loud noises of ships' engines are very likely to disturb the whales, and the WWF have called for shipping restrictions in certain areas.

F In recent years, there have been many cases of whales dying on beaches. Could the reason for these tragedies have something to do with the noise pollution that these majestic creatures have to live with? There is no definite answer to the question, but it has attracted considerable research, and findings seem to point to man's industrial activities in the ocean. With an ever-growing need for oil, more and more drilling takes place offshore. To assess the likelihood of the presence of oil, seismologists use sonar to work out the underlying geology. The sounds used in such tests are believed by some people to have a highly damaging effect on whales, either simply disrupting their method of communication, or, some scientists believe, actually killing them. With an ever-increasing human population and dwindling resources, whales face an uncertain future. While it is unlikely that we will ever know exactly why whales producing their whale songs, the world will be a much poorer place without them.

Source: IELTS Advantage - Reading skills

The text has six untitled paragraphs A-F. Choose the correct heading for each paragraph from the list of headings below (i-ix).

Questions 1-6:

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|------------------------------|---------------|
| i Musical futures | 1 Paragraph A |
| ii Sad mystery to solve • | 2 Paragraph B |
| iii Surprising discoveries | 3 Paragraph C |
| iv The inventiveness of song | 4 Paragraph D |
| v Singing effects | 5 Paragraph E |
| vi Threats to survival | 6 Paragraph F |
| vii Singing for supper | |
| viii Varieties of song | |
| ix The significance of song | |