There are some animals that actually use this concept to help them move around safely, especially those living underwater. Think back to the last time you went swimming. Were you able to see a lot of detail in the water? Probably not, as it is usually very murky! Sea creatures like dolphins have the same problem. You may wonder how they can **navigate**[4] through the ocean without bumping into a rock or shark. The answer is through sound waves! As a dolphin swims through the water, it makes noises to send out sound waves. When the dolphin hears an echo coming from its left side, it knows the sound wave must have bounced off

Sailors use sonar to locate icebergs that are hidden underwater.

a hard object. *Aha!* the dolphin thinks to itself. *There must be an* **obstacle**[5] *over there! Let me make a right turn instead.* They also use this idea to help them spot food. Because dolphins use echoes to figure out the locations of objects, the technique is called **echolocation**[6].

Sonar

Scientists always take ideas from nature and think of ways to **adapt**[7] them to be useful for us. When they discovered that animals use **echolocation** to figure out their surroundings, they asked themselves, "How can we turn this idea into a helpful invention?" This led them to invent sonar, which uses exactly the same idea as echolocation.

The term "sonar" is an **acronym**[8] for "**SO**und NAvigation and **R**anging." Sonar uses sound waves to figure out the locations of objects. Although

Echolocation in the Dark

Other animals that use echolocation are bats. Bats are almost completely blind in the dark, and you may wonder how they can navigate through the twists and turns of a cave without bumping into the walls. The answer is through sound waves, which bounce off the walls of the cave, telling them in which direction to travel.

4 **navigate** – find their way
5 **obstacle** – an object blocking the way
6 **echolocation** – a technique that uses sound waves to map out one's surroundings
7 **adapt** – change; make more useful
8 **acronym** – a word that stands for a longer phrase