**ACTIVITY: Creating soundscapes**

**Activity idea**

In this activity, a class or group of students create several soundscapes to gain a greater appreciation of how background sound differs from one geographical setting to another.

By the end of this activity, students should be able to:

* understand that background sound differs from one geographical setting to another
* understand that each area of coastline will have its own particular ‘sound signature’
* be able to explain that sound could therefore be used as a navigational cue, for example, for crab larvae to find their way to the reef.

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**Introduction/background notes**

A key idea within this context is that animals can use the sounds of the reef to navigate. Fish and crab larvae floating in currents several kilometres from shore need to find their way back to the reef before they settle and metamorphose into the adult form. We know that smell and light are important in this navigation process but scientists in New Zealand have evidence that sound is also used as a navigational tool.

So, instead of navigating by what they see, crabs can navigate by what they hear. Crab larvae are able to tell a good habitat by what it sounds like. An active and living reef where crabs settle is also home to shrimp, kina and fish. All these animals make sounds that crabs use to navigate towards a reef and a potential habitat.

**What you need**

* Copies of or access to the article [New Zealand reef noise](https://www.sciencelearn.org.nz/resources/565-new-zealand-reef-noise)
* Suitable images of different settings as a stimulus, but these are not necessary

**What to do**

1. As a class, read and discuss the article [New Zealand reef noise](https://www.sciencelearn.org.nz/resources/565-new-zealand-reef-noise).

1. Present the scenario to your students of them being dropped off several kilometres from their home, and pose the question of how they would know where they are and how they would find their way home. The students are likely to suggest that they would use visual clues – streets, buildings, mountains, rivers or perhaps the coastline to orientate themselves and find their way home. Pose the question: “But what if you were under water? Then could you find your way home?”
2. Present the first setting – a city street. Ask students to close their eyes and think of an appropriate background sound. When they have come up with a sound, have them make the sound three times then pause. Keep up a ‘repeat the sound 3 times then pause’ pattern to allow others to join in as they think of a sound to contribute. (It sounds as if it would be chaos, but as long as the students are mindful of each other, it does work wonderfully and builds a growing chorus of the sounds of a city street.)
3. Repeat with different settings of your choice (for example, beach, zoo, noisy café, exciting sporting event). Use stimulus pictures to trigger sound ideas if you choose to.

**Discussion questions**

* How does background sound differ from one setting to another?
* How would sound along one stretch of coastline differ from sound along a different stretch of coastline?
* What cues do larval crabs use to navigate their way back to the reef from many kilometres offshore?

**Extension ideas**

* In what ways could human activity be altering the background sounds of the crabs’ home reef?
* In what ways do you think coastal background sounds have changed over recent decades?
* What biological or commercial applications can you see for artificially imitating the sounds of coastal reefs? (Encourage resettlement in depleted areas of coastline. Encourage settlement of other species for commercial farming.)