

# You Otter Hear This

by Kirsten W. Larson

**C**HARLIE DOES A few barrel rolls in the pool to fluff his fur. Then he flips onto his back. The trainer points and tells Charlie to dive to his underwater listening station. When he hears something, Charlie swims to the surface and pushes a pad with his nose.

“I heard it,” he seems to say. The trainer rewards him with a “good boy” and a tasty shrimp snack.

A sea otter hearing test may seem unusual, but it’s all in a day’s work for research specialist Asila Ghouel of UC Santa Cruz’s Long Marine Lab in California. Before Asila began her studies, nobody understood how well sea otters hear above and below the water. Asila and her team wanted to know how noises people make might affect otters like Charlie.



Charlie dives down to the listening station in his pool at the Long Marine Lab. During his hearing test, he waits here to hear a beep.



(Left) A wild sea otter wraps herself in kelp so she won't float away while she naps.  
 (Right) These otters hold hands while they snooze. A group of floating otters is called a raft.

In the wild, sea otters like Charlie spend half their time resting on their backs, either alone or in groups called rafts. Sometimes they use kelp like an anchor to help them stay put while they sleep. While napping, otters build up energy to dive for food and escape from predators. Loud sounds like boat engines, oil drilling, and fireworks scare them and send them scurrying for safety, wasting precious energy.

How would you feel if a fire alarm woke you up in the middle of the night? You would be tired, grumpy, have a hard time concentrating, and maybe even fall asleep at school the next day. If loud noises disturb otters

over and over again, they might not have the energy they need to survive.

No one knew how sensitive otter hearing was yet. Asila's solution? Ask the otters. Training Charlie and Odin for the hearing tests took several months. Asila and her team taught them to touch a pad with their noses when they heard a sound and to sit still when they didn't.

Charlie and Odin listened intently for sounds, starting with low ones, like an earthquake's rumble, and then higher ones, like a whistle. Asila tested quiet sounds, loud sounds, and even "white noise" like radio or television static. The static was

Study time! Asila helps Charlie get ready for his hearing tests. She trains him to sit still, listen carefully, and push a pad when he hears something.

similar to background noise sea otters might hear from crashing ocean waves. White noise could hide loud sounds that might surprise the otters or hide quieter sounds.

The hearing test Charlie and Odin took was a lot like one you might take in school or at the doctor's office. "We ask the otters 'Did you hear this sound?' They really enjoy it because it is like a game where they can win lots of shrimp," Asila said.

With Charlie and Odin's help, Asila learned that . . .

 Sea otter hearing is similar to other land mammals like weasels and ferrets.

 Sea otters have a hard time detecting low-pitched sounds, but their ears do pick up sounds like people shouting, fireworks, car horns, and boat engines. All of these sounds could interrupt their energy-storing naps.



### Otter Chatter

*Sea otters have at least ten types of calls. Most are low and quiet. Pups coo to their mothers. Grownups growl or hiss when there's danger. The most frequent call, and the loudest, is the scream-like call mothers and pups use to find each other.*

*Sea otter mothers must constantly leave their pups to dive for food. Before a mother otter dives, she ties her pup to kelp to keep the baby from floating away. When the mother resurfaces, she and the pup scream to find each other, like a game of Marco-Polo.*

🐟 Seals and sea lions have better underwater hearing than sea otters, so loud noises may bother them more.

🐟 Continuous background noise, like boat engines or traffic, can keep sea otters from hearing other important sounds, like the calls of their pups.

Asila hopes her research will help protect sea otters. “The more we understand about sea otter hearing, the more we will know what sounds might harm them,” Asila said. Saving sea otters means everybody must work together to learn about them. 🐌



What's in the silver bucket? Shrimp! Charlie always gets a reward for following Asila's directions.



## Save the Sea Otters!

*Southern sea otters need all the help they can get. Three hundred years ago, 20,000 sea otters lived on California's coast. Because of hunting, over fishing, oil spills, and pollution, only 3,000 sea otters are left near California. Today, scientists like Asila scramble to learn all they can about sea otters to save them.*



# THE SAILOR

by Lana Krumwiede  
Art by Chad Cameron

Once I housed a lovely creature,  
But it has long since left me.  
Once I roamed the ocean deep,  
But now the land has kept me.

Still I sing the ocean's song,  
If you will lend an ear.  
I'll tell my stories of the sea  
To anyone who'll hear.

What am I?

Answer: Seashell

