Visibility

Imagine yourself in a wide-open field with your family all around you. Now imagine that a fog bank rolls in and you can only see seven meters all around. You are alone in a world of white you strain your ears to try and find your family, from your left you hear your sister calling telling you her location and that she is fine. Then from your right your father and aunt call letting you know that you are trailing behind the others. Then, directly ahead, you hear something delicious moving in front of you. This is the world of Killer Whales.

The Northern Pacific is rich with life; zooplankton and phytoplankton fill the water, and in spring algae blooms make the water even more vibrantly alive. While this is wonderful for the amazingly diverse ecosystem that depends on these creatures, it means that visibility in the water is very poor. On a good day you can see about 7 meters (about 21 feet). Because of this low visibility the animals that live in these waters need to use senses other than sight to ‘see’.

Killer whales survive so well in this kind of environment because they use sound, much like bats, to navigate, keep in contact with their family group and to hunt. While traveling they use sound to orient themselves, both to each other and the their location, as well as to see their path ahead. Motor noise masks (covers up) this ability so NOAA is proposing that boats stay at least 400m from the whales when in their path so the whales can clearly ‘see’ where they are going.

Obstacles ahead of orca, especially noisy ones, can disrupt their travel patterns and make them expend much more energy than necessary changing course to travel around the noise source. This kind of noise can also be very stressful which can cause overall health decline. Not only large noisy boats but even small quiet boats like kayaks and rowboats can disrupt orca travel patterns simply by being in their path and are especially hazardous to orca’s health when they are engaged in activity, like nursing or resting, that make them much more vulnerable.

When killer whale habitat is filled with motor noise it makes communicating and traveling very difficult, a little like playing Marco-Polo during a rock concert.

The black and white disk is called a Secchi Disk. It tests how far the visibility is in water. Each knot is 1 meter, try and count how far down you can see the white triangles on the disk.

This is a video taken with an underwater camera off the rocky shore of Lime Kiln. The camera was equipped with a flashlight so it could see properly in dim conditions.