Vessel Speed Reduction (VSR) Incentive Trial Program Factsheet

Slowing ships down for cleaner air and whale protection

What is the Vessel Speed Reduction trial?

This is a new program in the Santa Barbara Channel that incentivizes container ships to slow down to speeds at or below 12 knots, thereby reducing air pollution and enhancing protection of endangered whales. The Trial, developed and implemented by the Santa Barbara County Air Pollution Control District, NOAA's Channel Islands National Marine Sanctuary, and the Environmental Defense Center, is modeled after successful speed reduction incentive programs at the Ports of Long Beach and Los Angeles.

What are the goals?

- To assess potential air quality and whale protection benefits from a voluntary speed reduction program in the Santa Barbara Channel
- To test the shipping industry's willingness to participate in this kind of a program
- To refine data collection and tracking mechanisms
- To lay the foundation for establishing a larger-scale program in the future

When and where will the Trial take place?

The Trial is taking place from July 1 through October 31, 2014 to coincide with the busiest whale season and the prime period for high levels of air pollution. Participating vessels agree to maintain speeds at or below 12 knots from Point Conception, Santa Barbara County to the boundary of the Ports' VSR zone, located 40 nautical miles from Point Fermin in Los Angeles County (see map).

How many shipping lines are participating?

Six global shipping companies, COSCO, Hapag-Lloyd, K Line, Maersk Line, Matson, and United Arab Shipping Company are participating in the speed reduction incentive program.

Why is the Santa Barbara Channel the location?

Large container ships, approximately 2500 ships per year, going to and from the Ports of LA and Long Beach, travel in the designated shipping lanes through the Channel. These ships have huge engines that emit large amounts of air pollutants that can impact onshore air quality. Ship emissions off the coast of Santa Barbara County account for over 50% of smog forming nitrogen oxides (NOx) in the County. Smog contains ozone, which causes respiratory problems and affects lung development in children. The Channel is also a seasonal feeding ground and migration path for endangered whale species, including blues, fins, and humpbacks, which feed and travel in and around the shipping lanes, making them vulnerable to ship strikes.

Why is 12 knots the target speed?

Slowing ships down reduces engine load and fuel consumption, substantially lowering the amount of air pollution. A UC Riverside study published in 2012, titled "Greenhouse Gas and Criteria Emission Benefits through Reduction of Vessel Speed at Sea," demonstrated through measurements approximately a 50 % reduction in emissions when speeds slowed down to 12 knots from regular cruising speeds.

The 12 knot limit is also consistent with a slow speed incentive program around the Ports of LA and Long Beach, so the ships can maintain a constant speed to/from the Ports to/from Pt. Conception.

This slower speed also greatly reduces the chances that a ship strike on a whale will kill the whale.

What is the current range of speeds and average speeds of ships in Channel?
Ship speeds in the Channel typically range from 12 to 18 knots. Average speed is just over 14 knots.

Has moving the shipping lanes helped?
The shipping lanes were adjusted in the Santa Barbara Channel and outside the ports of LA, Long Beach and San Francisco to reduce the overlap of endangered whales and ships, and to maintain safe navigation. While moving the lanes is expected to have a positive effect, by itself it is not expected to completely reduce the threat of ship strikes because the whales go where their food is, and if the krill are in the shipping lanes then the whales may end up in harm's way.

How many whales are hit each year?
The number of whale strikes each year in the Channel region and California is difficult to determine. The large whales are negatively buoyant, which makes them great divers, but when they die from natural causes, ship strike or other factors, they may sink or drift away out of sight. Even when whale carcasses are discovered the cause of death may be indeterminate, unless we are able to do a necropsy (an autopsy on animals).

Over the last 10 years an average of 3 to 5 whales a year are found dead, but this number varies year to year. The cause of death is not known for all of them, though ship strikes are a determined factor in approximately 1 to 3 whales a year, again with year to year variations. It is very likely that more whales are hit by ships and we never know about them.

What is a ship strike? What happens when a whale is struck by a ship?
The term "ship strike" refers to the act of a boat or ship hitting, or striking, a marine mammal. Ship strikes often go undetected by the crews of large ships, and some whale species sink immediately after they die. Ship strikes by these large vessels are likely underreported.

Are ship strikes a serious problem for whales?
Ship strikes are obviously a problem for the individual whales that are struck, as they may be killed. Ship strikes may also be a problem for certain populations of whales. Some whale species are seriously threatened with extinction, and ship strikes may be affecting the ability of the populations to recover. To learn more about the most seriously impacted species, the North Atlantic right whale, visit: http://www.nmfs.noaa.gov/pr/shipstrike

What can I do to help?
Raise awareness. If your friends or family enjoy boating on the ocean, remind them to keep watch for marine mammals and to steer clear of them. Never drive in front of a whale's path and stay at least 300 feet away from any marine mammal to avoid disturbing them.

What should I do if I find a sick or dead animal?
Please report any collisions with whales or any observed injured or dead whales to NOAA at 877-SOS-WHALe (877-767-9425) or to the U.S. Coast Guard on VHF Channel 16.

NOAA is asking for the public's help in tracking whales. If you see whales, please record the date and location, the number of whales, the species (if known) and a description of the animals. Please email

to whales@noaa.gov. NOAA will be releasing an App to make it easy to report sightings – stay tuned for WhaleAlert!

What species of marine mammals live near Santa Barbara?
About 30 species of cetaceans have been observed in the sanctuary and 18 of these are considered residents.

Map of Vessel Speed Reduction Zone