

NOAA Fisheries Scientist Conduct Longest-Known Plankton Transect

Project will provide information from unsampled areas

NOAA researcher Dr. Lora Clarke recently set sail aboard NOAA Ship *Okeanos Explorer* to conduct what is believed to be the longest plankton transect on record. Additionally, the transect will take place in a portion of the Pacific where little is known about the diversity of these microscopic organisms at the base of the marine food web.

“This project will provide valuable information on plankton for an area of the world that has been largely unsampled,” said Clarke. “It will provide the necessary baseline data to give researchers the opportunity to examine the relative richness and variety of plankton and how this might influence fish, turtle and mammal species. Understanding patterns of plankton biodiversity will help scientists to understand factors influencing the abundance and diversity of other species worldwide.”

The Many Forms of Plankton

Plankton consists of drifting microscopic plants (*phytoplankton*), animals (*zooplankton*), bacteria (*bacterioplankton*) and viruses (*virio plankton*) that inhabit oceans, seas and bodies of fresh water. They are the most abundant form of life in the ocean. In fact, all other marine life is dependent upon plankton for food.

Phytoplankton are the world’s number one source of oxygen; they are responsible for 90% of all the photosynthesis (the conversion of energy from sunlight into organic compounds) that takes place on earth.

A Landmark in Ocean Exploration

Dr. Clarke began her historic plankton transect on August 23 when the *Okeanos Explorer* set sail for Hawaii from Guam. Samples are collected by towing a continuous plankton recorder, a device that transfers plankton from seawater onto rolling silk screens that can be analyzed in the laboratory.

The plankton recorder, which was supplied by NOAA Fisheries Service’s Narragansett Laboratory, is being towed for 14 days to collect data on the species composition of phytoplankton and zooplankton.

The second leg of the plankton transect will occur as the *Okeanos Explorer* continues on from Hawaii to the West Coast. Together, the two legs of the transect will cover a total of more than 6,450 miles. Once the transect is complete, the plankton samples will be sent to a laboratory in Poland that specializes in plankton analysis. The results will be examined for any potential influence from climate change.

Plankton, an Indicator of Ocean Health

Several studies have shown a strong relationship between larval (newly hatched) fish survival and the timing and production of plankton blooms. The blooms, in turn, depend on water

temperature and nutrient availability. Changes in climate can affect the timing of the seasonal plankton blooms, capable of sending ripple effects throughout the food web. Longer-term changes in climate may even change the composition of plankton species, which can alter the feeding environment of larval fish.

The transect project, led by Michael Ford of NOAA Fisheries Service, is part of the [Comparative Analysis of Marine Ecosystem Organization \(CAMEO\) program](#). CAMEO is a partnership between the NOAA National Marine Fisheries Service and National Science Foundation to strengthen the scientific basis for an ecosystem approach to the stewardship of our ocean and coastal living marine resources.

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