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El Nino can have huge impact on marine food chain, study finds

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NEW YORK: El Nino — the climate cycle that develops along the tropical west coast of South America every three to seven years — can have huge impact on the marine food chain with rippling effect on fisheries and the livelihoods of fishermen, says a new Nasa study.

El Nino's mass of warm water puts a lid on the normal currents

of cold, deep water that typically rise to the surface along the Equator and off the coast of Chile and Peru, said Stephanie Uz, from Nasa's Goddard Space Flight Centre in Greenbelt, Maryland.

In a process called upwelling, those cold waters normally bring up the nutrients that feed the tiny organisms, which form the base of the food chain.

These tiny plants, called phytoplankton, are fish food — without them, fish populations drop, and the fishing industries that many coastal regions depend on can collapse.

"An El Nino basically stops the normal upwelling," Uz said, adding that "there's a lot of starvation that happens to the marine food web".

Uz's team used Nasa satellite data and ocean colour software called SeaDAS to find out El Nino's impact on phytoplankton.

From shades of blue and green, scientists calculated the amount of green chlorophyll — and therefore the amount of phytoplankton present.

They found that in December 2015, at the peak of the current El Nino event, there was more blue — and less green chlorophyll — in the Pacific Ocean off of Peru and Chile, compared to the previous year.

After analysing data from the large 1997-1998 El Nino event, the researchers said the green chlorophyll virtually disappeared from the coast of Chile.

In 1997-1998, the biggest ocean temperature abnormalities were in the eastern Pacific Ocean. But this year's event caused a drop in chlorophyll primarily along the equator, the study said.

"We know how important phytoplankton are for the marine food web, and we're trying to understand their role as a carbon pump," Uz said.

Other scientists at Goddard are investigating ways to forecast the ebbs and flows of nutrients using the centre's supercomputers, incorporating data like winds, sea surface temperatures, air pressures and more.

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