



# El Nino threat likely to land state's fishermen in a Catch-22 situation

Australian Weather Dept predicts 70 pc chances of El Nino formation; CMFRI scientists say it can adversely impact climatic conditions in Indian Ocean and affect fish availability

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STRUGGLING to wriggle out of the livelihood crisis caused by dwindling catch, fishermen are staring at another catastrophe as the rising temperature, triggered by El Nino, is expected to adversely impact the availability of fish stocks in the Arabian Sea. With the Australian Weather Department predicting 70 per cent chances of formation of El Nino, scientists at the Central Marine Fisheries Research Institute (CMFRI) opine it can impact the climatic conditions in the Indian Ocean adversely. This can influence the South West Monsoon also.

CMFRI senior scientist Grinson George said El Nino can affect pelagic fish species like oil sardine. "Our observations have indicated El Nino impacts Indian Ocean more through atmospheric circulation than ocean currents," he told *Express*. "The atmospheric bridging mechanism connects the Indian Ocean and Pacific Ocean through Walker Circulation. So, if El Nino forms in the Pacific Ocean by December, it will reach the Indian Ocean after four months. A study conducted by the CMFRI has found El Nino has impacted the spawning and recruitment of oil sardines," he said.

Apart from El Nino, another oceanographic phenomenon Indian Ocean Dipole (IOD) has

### Fluctuating oil sardine catch in Kerala

2012 - 3.90 lakh tonnes

2016 - 48,000 tonnes

2017 - 1.27 lakh tonnes

2018 - 79,000 tonnes

### No of in board fishing boats

2007 - 597

2019 - 390

₹40,000

Fuel expense for dawn-to-dusk fishing -

El Nino that formed in the Pacific Ocean in December, 2018, to reach Indian Ocean by April, 2019

### WHAT'S EL NINO AND LA NINA

El Nino and La Nina are opposite phases of the El Nino-Southern Oscillation (ENSO) cycle. The ENSO cycle is a scientific term that describes the fluctuations in temperature between the ocean and atmosphere in the east-central Equatorial Pacific near Peru. La Nina is the cold phase and El Nino the warm phase of ENSO. These deviations from normal surface temperatures can have large-scale impacts not only on ocean processes, but also on global weather and climate.

fluctuations in the cycle. There was an increase in these extreme events in the 1990s and the present decade. However, the period between 2000 to 2010 was relatively calm. We have noticed a -3 to +3 anomaly in sea water temperature in the Indian Ocean during this period," he said.

A study conducted by CMFRI principal scientist E M Abdusamad had highlighted the changes caused by rising temperature have been adversely affecting the spawning and recruitment of oil sardine along the Kerala coast. The oil sardine is a sensitive pelagic fish which migrates when temperature or salinity increases. The climatic changes had resulted in the reduction of size and early maturity among pelagic fish species. According to the fishermen, there is a decrease in egg formation in the sardines.

"The looming threat of El Nino is causing concern among the fishermen. We are facing a fish drought in the Arabian Sea and the government should declare a package to support the fishermen. Under the package, the government should declare the minimum procurement rate, projects for value addition, formation of cooperative societies to support the fishermen and a scheme to write off their loans," said Matsya Thozhilali Aikya Vedita state president Charles George.



also been impacting climatic changes in the region. IOD causes difference in sea surface temperature between two areas - a western pole in the Arabian Sea and an eastern pole in the eastern Indian Ocean south of Indonesia.

It is a significant contributor

to rainfall variability in the region. The stochastic trajectory of succession of these extreme oceanographic events has impacted our climate adversely, said Grinson. "Though the sea surface temperature has been increasing over a period of time, we have noticed annual