

How do el niño southern oscillation (ENSO) events impact on fish catch in Sarawak water?

ABSTRACT

The response of chlorophyll to climate variability plays an important role in regulating the regional marine ecological environment and carbon cycle. This study focuses on the impact of changes in chlorophyll on the catches of deep-water fish and offshore fish. The chlorophyll factors from satellite image MODIS were analyzed during La Niña in 2008/2011 and El Niño in 2015/2016. The results found that the fish catch during El Niño is higher at 295572 metric tons compared to during La Niña which is 255783 metric tons. The El Niño event was found to have experienced a decline in catch of 29789 metric tons. This is due to the influence of the change in the mean value of the concentration in the study area of 0.31 mg-3 during La Niña compared to during El Niño 0.4 m mg-3. A decrease in the average value concentration of -0.09 mg-3 resulted in a decrease in the number of catches. In addition, the maximum value of chlorophyll concentration was also found to be high during El Niño which is 22 m mg-3 compared to during La Niña which is 18 m mg-3. The high distribution of chlorophyll-a is in the coastal areas of Sarawak, which explains why the coastal fish catches are higher than in the deep sea. It is concluded that the distribution of chlorophyll concentration is different during the occurrence of ENSO. This may result in different fishing rates in the study area. Remote sensing technology successfully explains why fish catches during El Niño are higher than during La Niña based on different chlorophyll dispersions. The provision of information in this space is very important to fishermen to reduce operating costs.