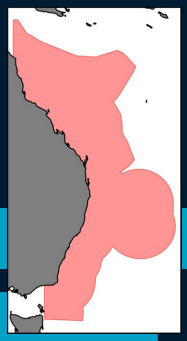
Climate & Ecosystem Status Report

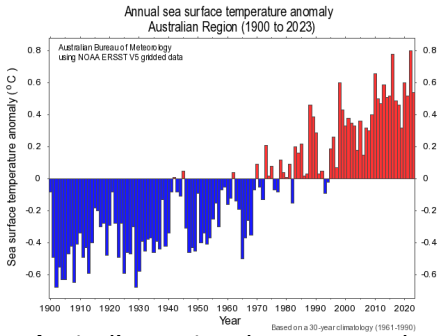
Eastern Tuna and Billfish Fishery

June 2024

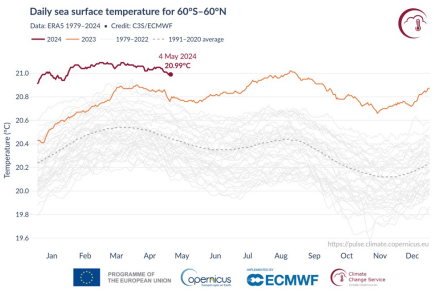


Historical Period

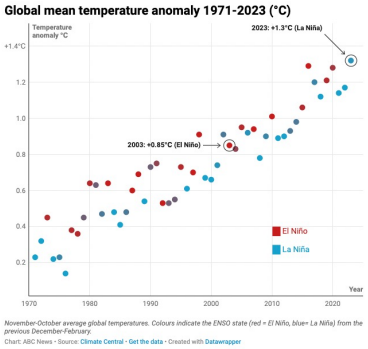
Climate Drivers



Australian waters have warmed significantly over time (link)[1]. The last decade has been ~0.5°C warmer than the 1960-1990 mean.

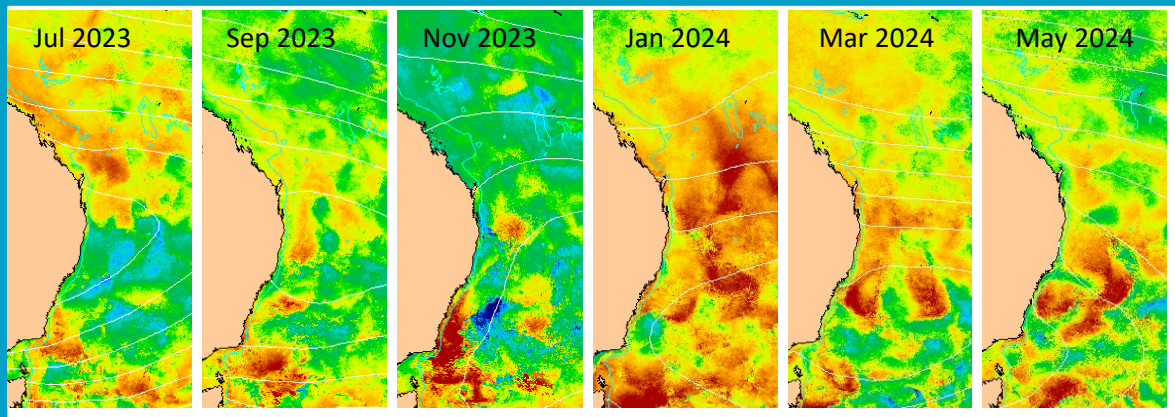


Global Sea Surface Temperature (SST) remains at record highs in 2024 (link)[2].



ENSO interacts with long-term warming. E.g. La Niña brings cooler conditions, but recent La Niña's have been warmer than historical El Niño's.

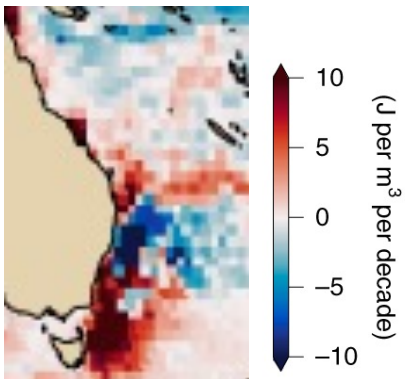
Regional Sea Surface Temperature



East coast waters had elevated temperatures throughout 2023-24, with the location and timing variable (link)[3].

Moderate to severe marine heatwaves occurred throughout summer, but the impact to the ETBF is unknown (link)[4].

Ecosystem Trends



Trends in eddy kinetic energy from 1993-2020 show that eddy activity has intensified and extended further south[5].

Mesoscale ocean features, like eddies, are important foraging hotspots for tunas. Regions with more eddy activity have higher YFT catch.

Observations

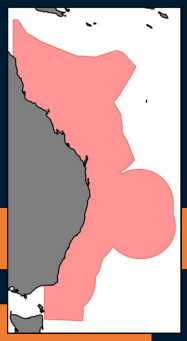
- Juvenile black marlin recruitment event observed in recreational sector.
- Albacore tuna appeared later.
- Yellowfin tuna arrived with pulse of warmer water in June, which coincided with southern bluefin season.
- Strong southern bluefin tuna season.
- Lots of spearfish caught off Sydney in winter.

Sources: BOM[1] Copernicus[2] IMOS[3] MHW Tracker[4] Martínez-Moreno et al., 2021[5]

Climate & Ecosystem Status Report

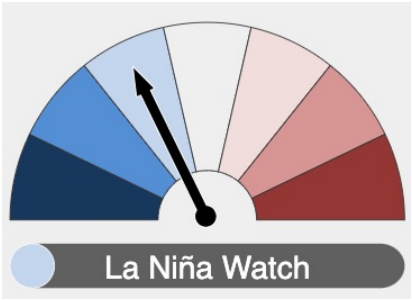
Eastern Tuna and Billfish Fishery

June 2024

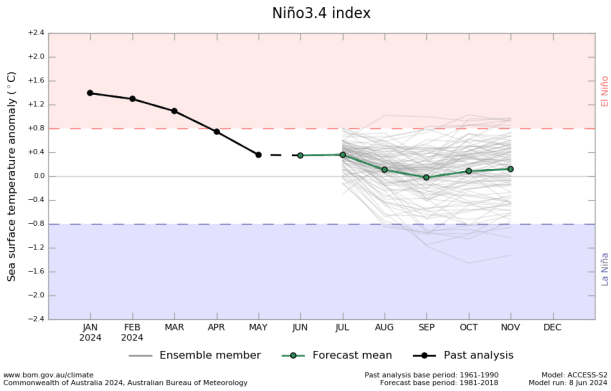


Future Outlook for 2024

Climate Driver Forecast



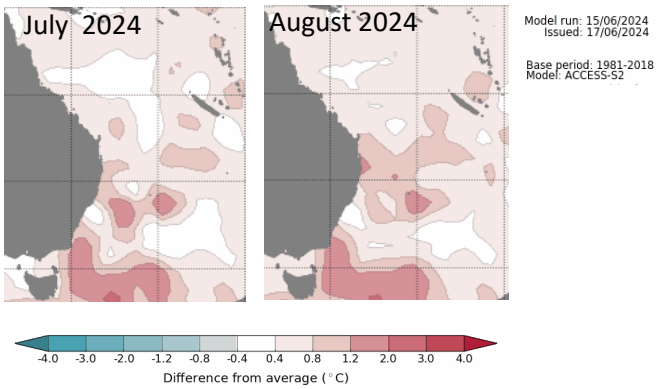
BOM Outlook is La Niña watch (50% chance of La Niña) (link)[1].



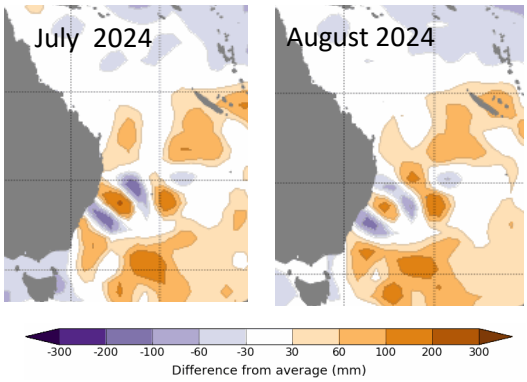
ENSO is currently neutral (link)[1]. It is uncertain whether La Niña will form.

ENSO influences catch rates of YFT, BET, ALB, & STM in the Western Central Pacific[6]. Catches are typically higher during El Niño.

Monthly Forecasts

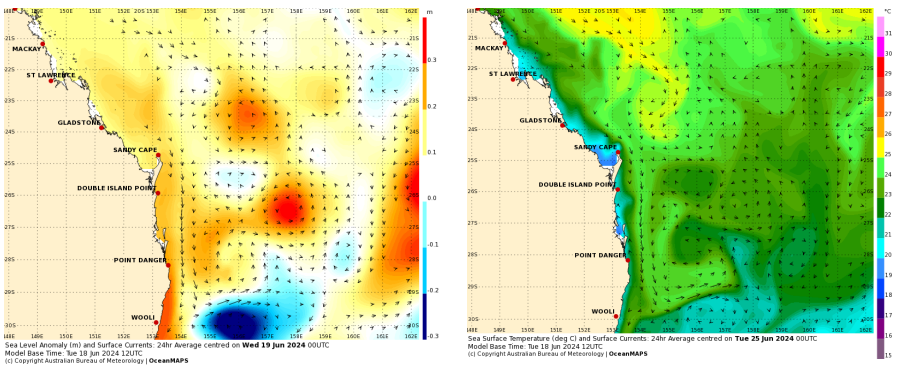


Forecasts of SST anomalies for July and August indicate warmer conditions off most of the east coast[1] (link).



Forecasts of sea surface height anomalies can indicate eddies (link)[1]. Exact location of forecast eddies is uncertain.

Daily Forecasts



10-day forecasts of SST, SSH, and currents around Australia are available (link)[1].

This product may be helpful for fishing operations when targeting eddies or certain temperature features.

Entire east coast region is available (only QLD shown here).

Sources: BOM[1] Copernicus[2] IMOS[3] MHW Tracker[4] Martínez-Moreno et al., 2021[5] CSIRO[6]