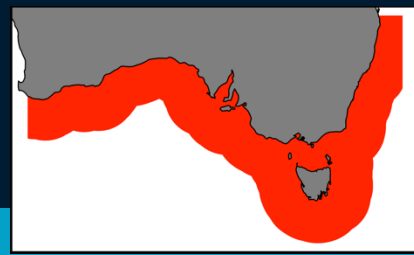




Climate & Ecosystem Status Report

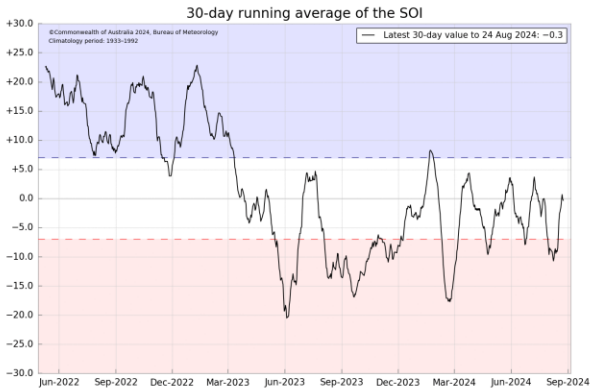
Southern Bluefin Tuna Fishery

September 2024

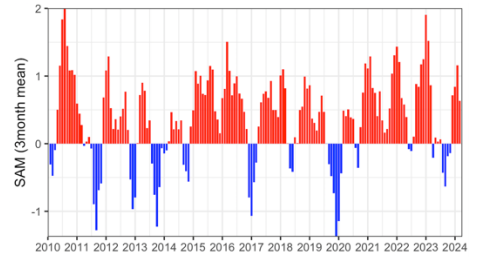


Historical Period

Climate Drivers



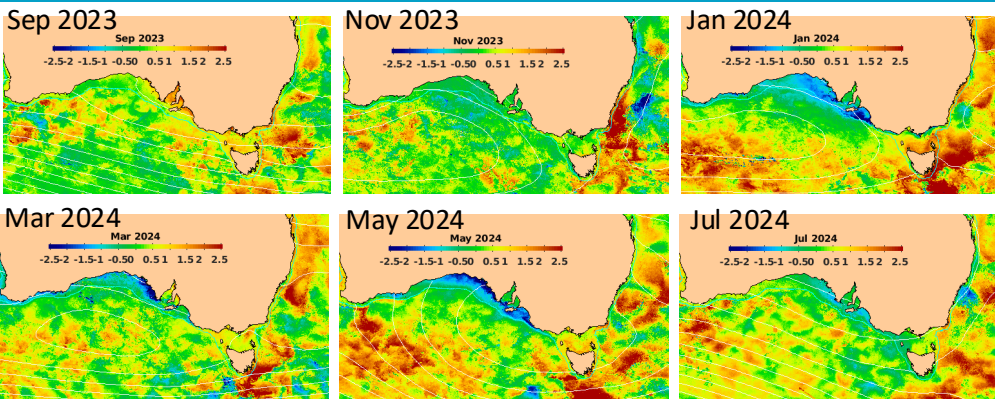
Major climate influences in 2023: switched from La Niña to El Niño; strong positive Indian Ocean Dipole & positive SAM [\(link\)](#)¹.



Southern Annular Mode (SAM) indicates the N-S movement of westerly winds that bring storms to southern Australia. Positive SAM (westerlies contract south) has become more common. Rainfall varies regionally and seasonally within each phase^{1,3} [\(link\)](#).

El Niño can: (1) weaken the Leeuwin Current, leading to a cooler GAB and an increase nutrients from a shallower thermocline; (2) strengthen the EAC, resulting in warmer waters extending further south.

Regional Dynamics: Sea Surface Temperature Anomalies

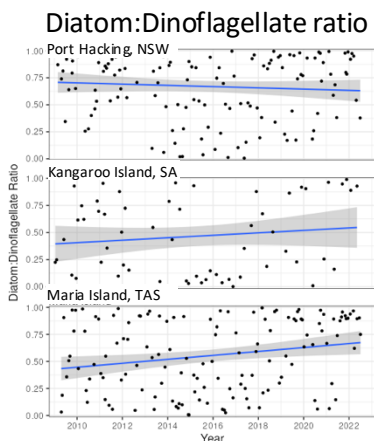


Monthly SSTA (°C) [\(link\)](#)⁴.

Moderate-severe marine heatwaves (MHW) occurred off east-TAS in summer [\(link\)](#)⁵.

Cool water in GAB and strong Bonney upwelling occurred throughout summer.

Ecosystem Observations



Diatoms are part of the base of the food-web for many fished species.

The ratio of diatoms has increased off TAS in the past few years, but has been relative stable in NSW and SA⁴ [\(link\)](#).

Seasonal spring blooms in TAS have become stronger in recent years⁴ [\(link\)](#).

Observations

To be discussed at the MAC.

Observations from last MAC:

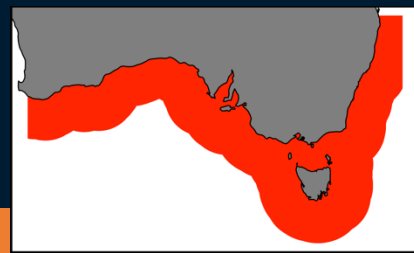
- Year-round recreational SBT catches in TAS
- GAB purse-seiners noted lots of small and few large fish.
- East-coast longline catch was further inshore than previous years.



Climate & Ecosystem Status Report

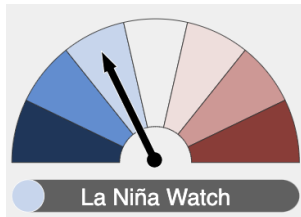
Southern Bluefin Tuna Fishery

September 2024

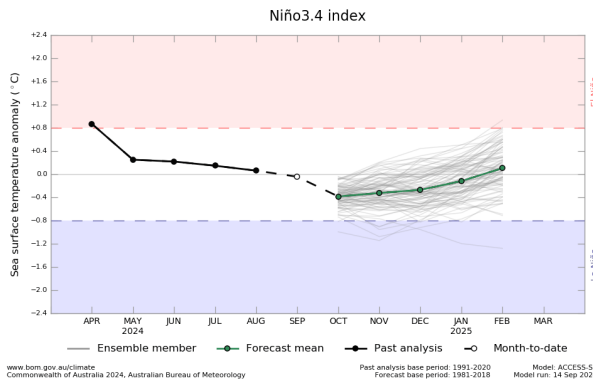


Future Outlook for 2024

Climate Drivers: ENSO



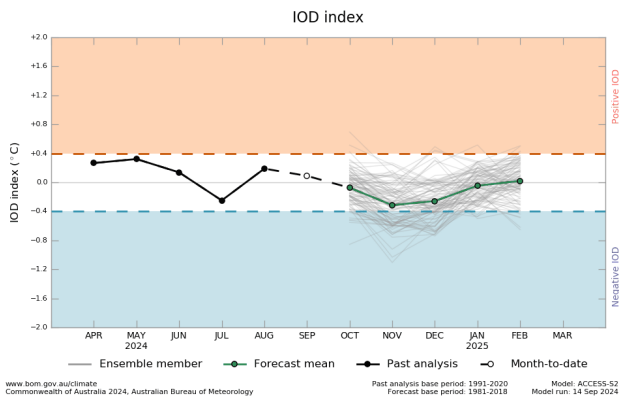
BOM Outlook is La Niña watch (50% chance of La Niña) ([link](#))¹.



ENSO is currently neutral. Some models forecast neutral conditions until Feb, while others forecast La Niña forming from October ([link](#))¹.

La Niña conditions can strengthen the Leeuwin current, leading to warmer waters in the GAB.

Climate Drivers: IOD

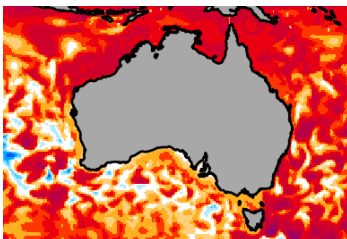


The Indian Ocean Dipole is currently neutral and likely to remain so for the rest of the year ([link](#))¹. The IOD occurs seasonally (May-Dec) and doesn't form during the Australian monsoon season.

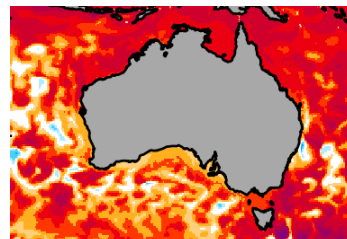
IOD influences SST in the East Indian Ocean (near SBT spawning grounds). There are no clear links between IOD phase, the Leeuwin current, SBT spawning, or commercial catch.

Regional Dynamics

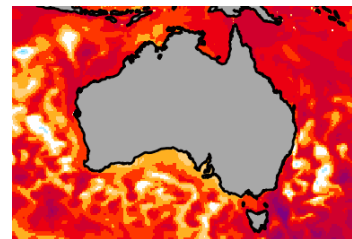
October 2024



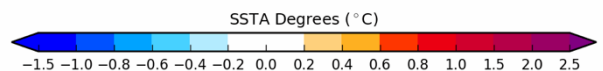
November 2024



December 2024



Forecasts of SST anomalies indicate warmer conditions for most of Australia for the next 3 months. Notably, the south-east is forecast to exceed 1.5°C anomalies, while the GAB is forecast to be 0.5°C warmer than average¹ ([link](#)).



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Model Run: 15/09/2024

Model: ACCESS-S2

Issued: 17/09/24

Base Period: 1981-2018