

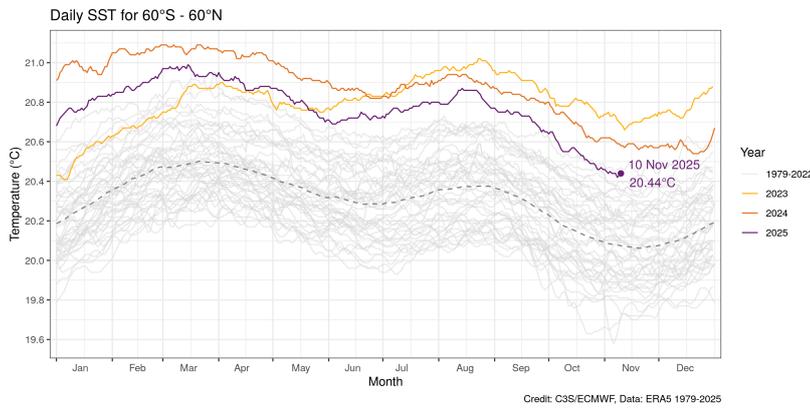
Southern & Eastern Scalefish & Shark Fishery



November 10, 2025

Historical Period

Climate Drivers: Sea Surface Temperature (SST)



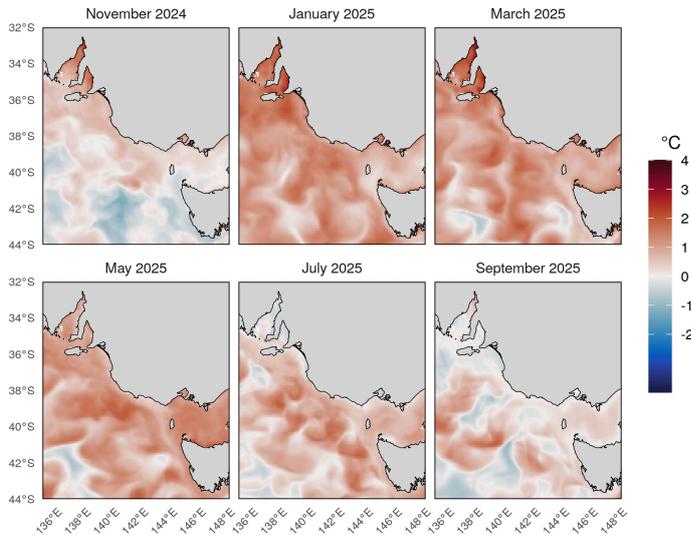
Climate Drivers: Nino3.4



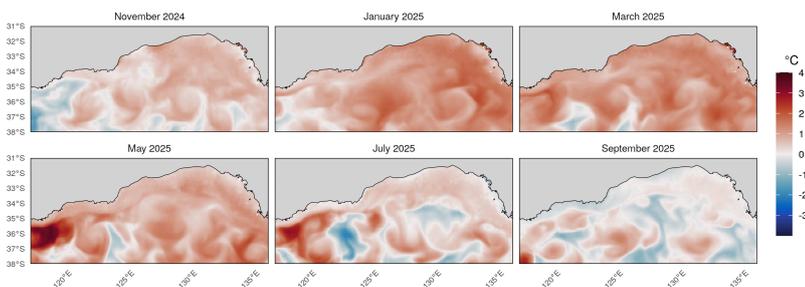
Global Sea Surface Temperatures (SST) from 2023-2025 have been at record highs (*Copernicus*)².

ENSO is currently neutral. The relative Niño3.4 index (a new index) measures the oceanic component of ENSO. Recently, BOM has revised Niño3.4 to account for changes in global SST from global warming. As such, conditions during the 2024/2025 summer have been reclassified as La Niña (*BOM*)¹. La Niña conditions can strengthen the Leeuwin current, leading to warmer waters in the GAB.

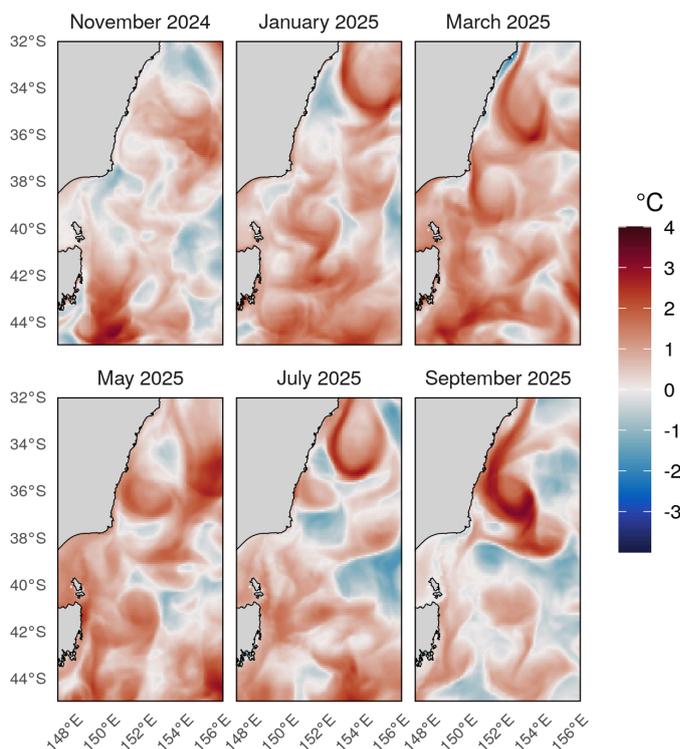
Regional Dynamics: SST Anomaly



Source: CMEMS



Source: CMEMS



Source: CMEMS

Bi-monthly maps of SST anomalies, relative to 1993-2016³. Marine heatwaves (sustained anomalously warm water), occurred across much of the region (*MHWtracker*)⁴. The impacts to the SESSF are not known.

South region:

- Anomalously warm water occurred across the region, with some coastal waters cooling in Jul and Sep.
- Waters in the Bass Strait and off west TAS remained warmer than average.
- SA waters experienced a significant Harmful Algal Bloom in late summer 2025. A marine heatwave combined with nutrients from strong upwelling in 2023-24 contributed to this bloom. This event is ongoing and has a dedicated website <https://www.algalbloom.sa.gov.au/>.

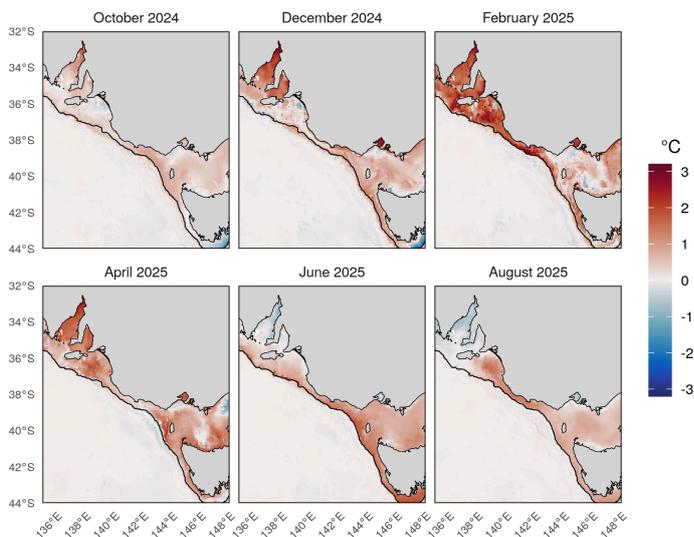
West region:

- Waters were warmer than average over most of the year.
- Cooler than average waters were present along the coast in Nov and Sep.

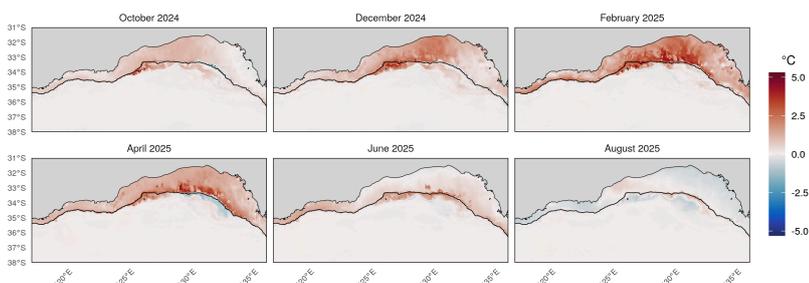
East region:

- Patches of anomalously warm and cool water south of Sydney reflect the dynamic eddy field that is characteristic of this region.
- Notable temperature anomalies include TAS in Mar-May and NSW in Sep.

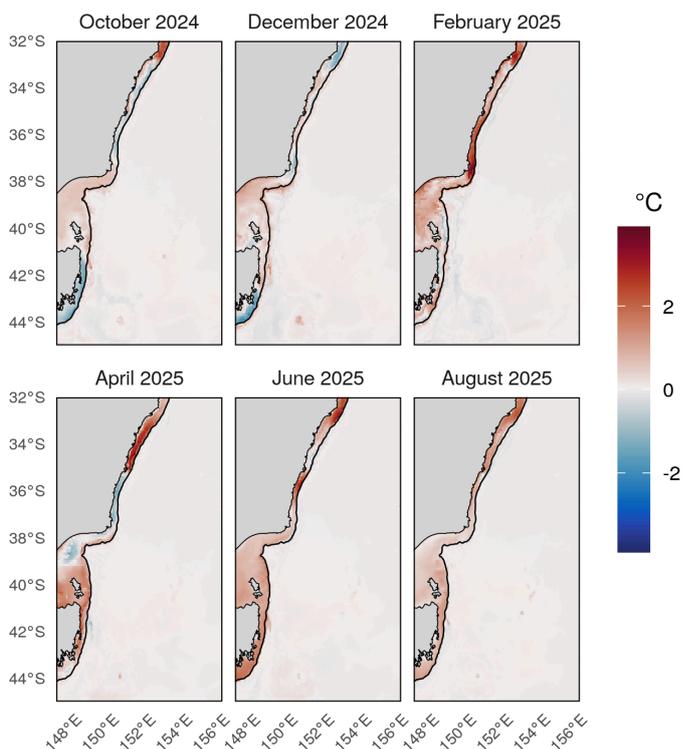
Regional Dynamics: Bottom Temperature Anomaly



Source: CMEMS, Climatology: 1993-2016



Source: CMEMS, Climatology: 1993-2016



Source: CMEMS, Climatology: 1993-2016

Bi-monthly maps of bottom temperature anomalies, relative to 1993-2016, with the 500 m contour shown in black³. Anomalies are from an ocean model and subject to error.

Most of the continental shelf region has seen average to anomalously warm waters across the domain over the past year.

South region:

- Bottom temperatures off the Bonney coast were warmer than average, particularly during Feb.
- High bottom temperature anomalies in SA gulfs in Dec-Apr.

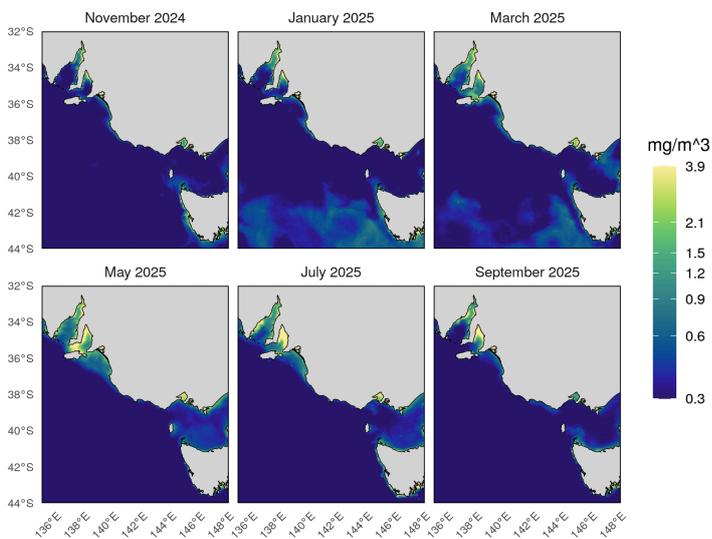
West region:

- Elevated temperatures have persisted in the region all year, with summer having notably high anomalies.
- Shelf waters switched to cooler than average in Aug.

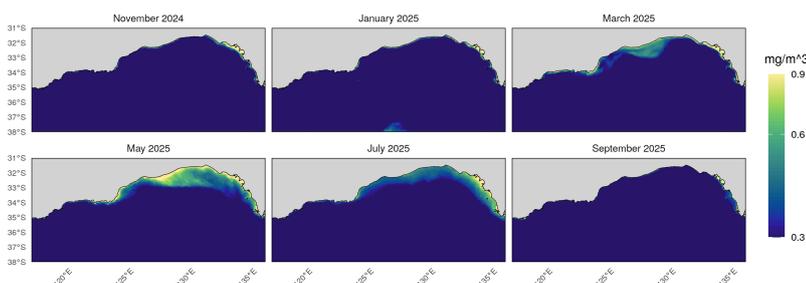
East region:

- Patches of anomalously cool temperatures off the east coast of TAS in Oct-Dec, and south NSW in Apr.

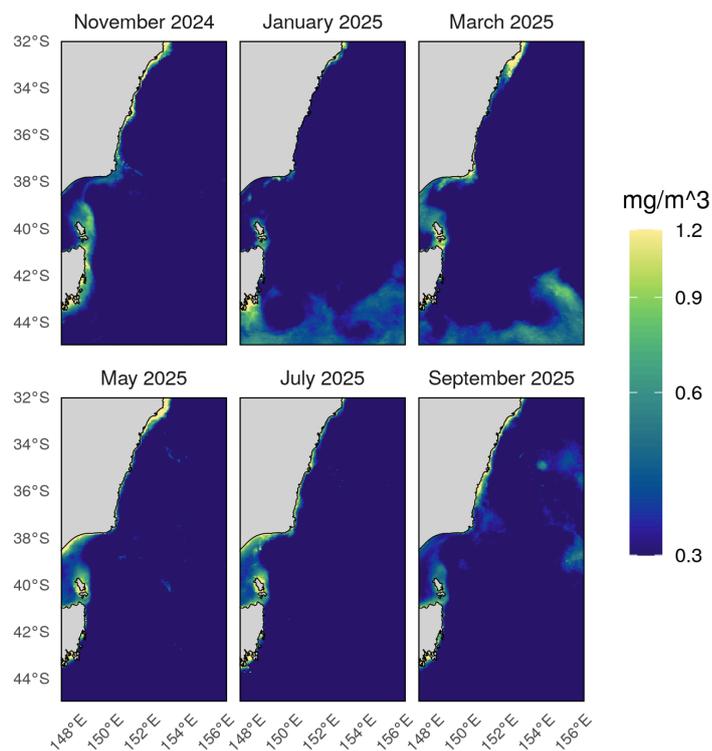
Regional Dynamics: Chlorophyll-a



Source: CMEMS



Source: CMEMS



Source: CMEMS

Bi-monthly maps of surface chlorophyll-a (log scale; mg/m^3). Surface chl-a is a proxy for ecosystem productivity.

Higher chl-a along the coastal margin and continental shelf.

South region:

- Higher surface chl-a in SA gulfs reflect the algal bloom. Fish kills and fishery closures have occurred, but the impact to the SESSF is not known.
- Chl-a blooms off West TAS and Bonney coast in summer.

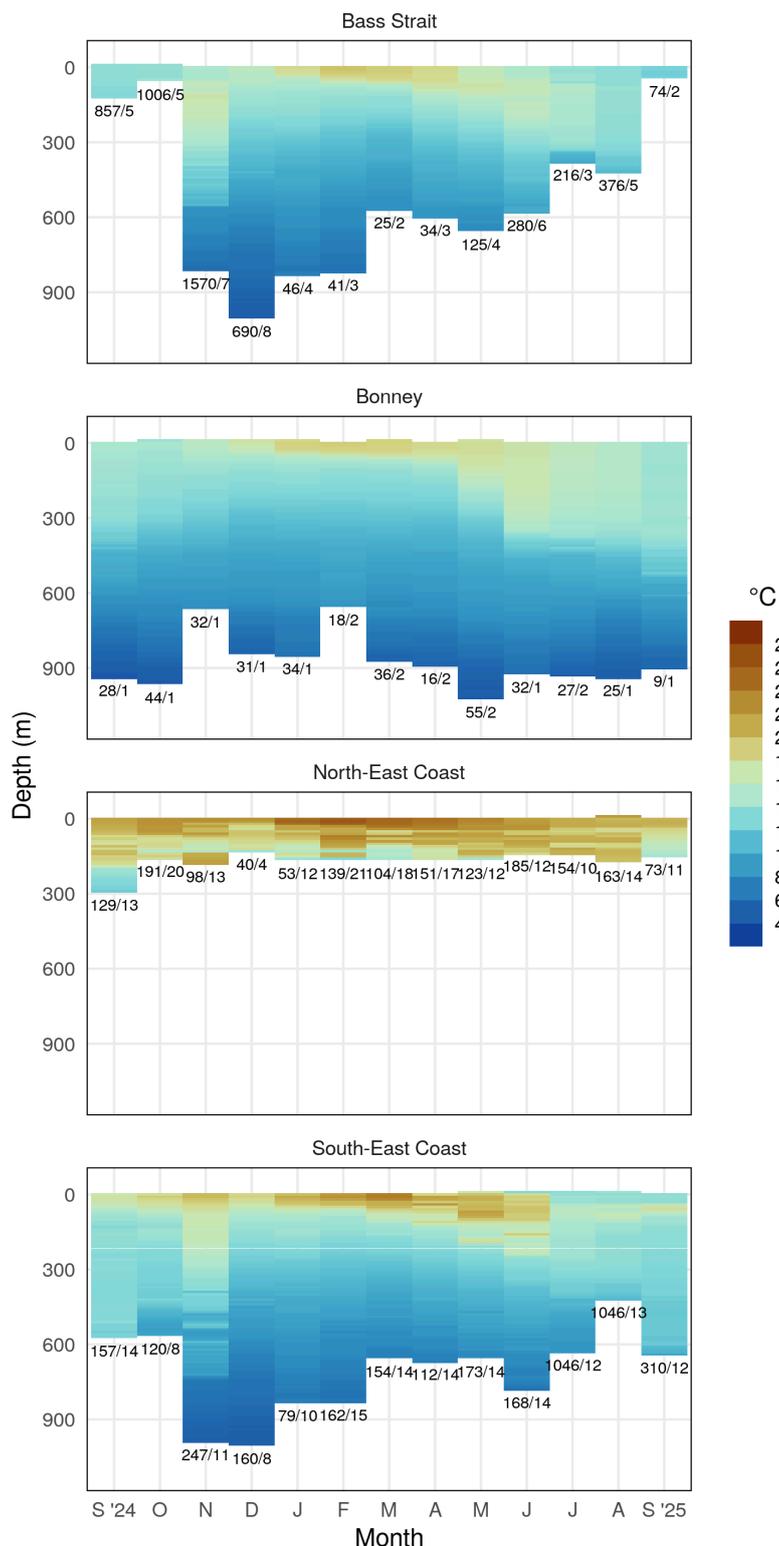
West region:

- Higher surface chl-a is notable across the continental shelf in Mar-Jul.

East region:

- Higher surface chl-a along the coastal margin, with summer blooms notable off TAS.

Regional Dynamics: FishSOOP Temperature-Depth Profiles

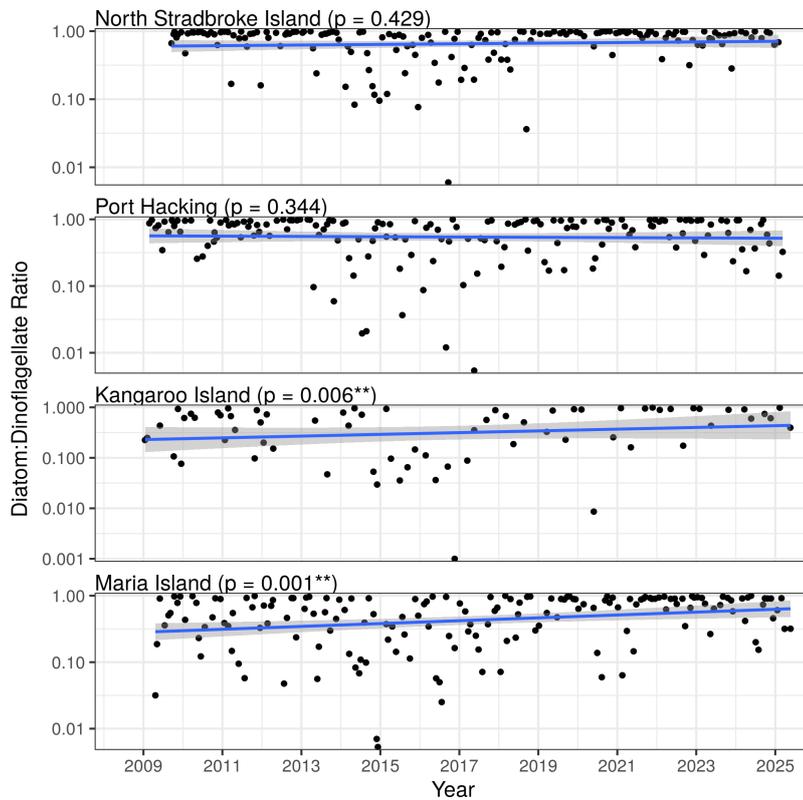


Credit: IMOS, Annotation: (max number of profiles for month)/(max number of instruments for month)

Average temperature at depth bins for each month over the past year, as sampled by instruments deployed on fishing vessels (*IMOS FishSOOP*)⁵. Bonney, Bass strait, north-east (north of Sydney) and south-east (Sydney to southern TAS) regions are shown.

Warmer water near the surface and cooler water at depth is most notable during summer, and breaks down over winter - a process known as seasonal stratification.

Ecosystem: Diatoms



Diatoms are part of the base of the food web for many fished species. Over the past 15 years, the ratio of diatoms (fish food) to dinoflagellates (not fish food) has generally increased off TAS and SA while remaining relatively stable in NSW and QLD, as measured at the IMOS National Reference Stations⁶ (*IMOS BOO*).

This ratio is seasonally variable, and limited to the environment around the reference stations. This means it can miss events happening elsewhere in the region, such as the algal bloom in SA.

Observations

Observations are drawn from stakeholder discussions at meetings of AFMA's resource assessment groups (RAGs) and management advisory committees (MACs). Further details are provided in meeting minutes on the AFMA website.

2025 observations

- Fisheries targeting species in shallower waters noticing more changes compared to those fisheries targeting species in deeper waters.
- Increasing evidence that school shark are not just pupping in shallow embayments with seagrass, but also deeper areas (100m) on hard ground (rocky/coral). Some previous seagrass areas have been affected by higher salinity and may no longer be optimal habitat.
- School shark nursery habitat productivity declined by 60-90% since 1950s baselines.

SE-RAG

- GAB trawls noted water was warmer on the bottom than the surface.
- Redfish typically caught in east-GAB during Feb-May. This year redfish were caught across entire GAB with catches sustained through winter.
- More fishing in west-GAB because catches were sustained through winter (attributed to warm water).
- No noted impacts from HAB (which is localised to coastal areas).

2024 observations

- Cold-water upwelling in the GAB seems to have supported higher juvenile fish catch.
- Catch rates for flathead and redfish were some of the best, sustained until June.

2023 observations

- Species have been moving deeper in the GAB (e.g. flathead) and caught later in the season (e.g. redfish).
- Some species in the GAB are more dispersed when upwelling events are weak and when temperatures are more uniform, which results in lower catchability.
- The fishery (location and catch) varies from El Niño to La Niña.

SE-RAG

- Warmer waters in winter; upwelling events are being seen later each year.
- Strong currents observed in winter, but missing pockets of cold water.

GAB-RAG

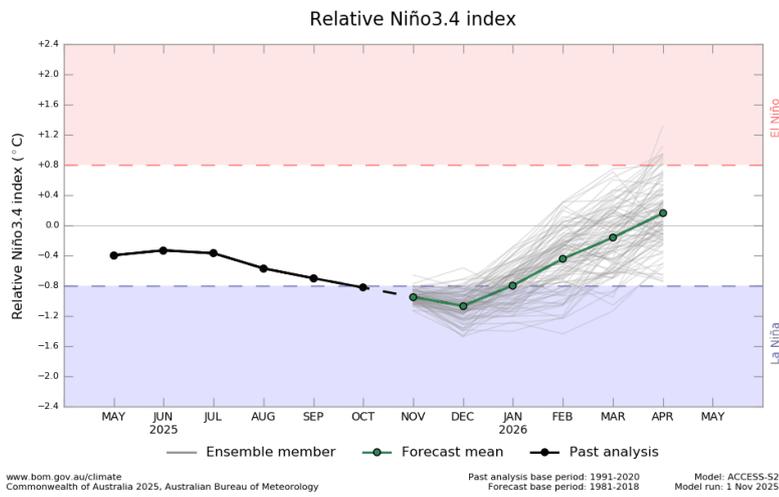
- Deepwater flathead catches were higher in Sep-Oct in the central GAB, which is earlier than normal.
- 2023 has been cooler in the GAB.
- Increase in redfish catch.

Shark-RAG

- Last 3 years have had strong tides/currents in Bass Strait but reduced current on the TAS east coast shelf.
- Lots of draughtboard sharks on edge of TAS shelf, and larger school shark catch on TAS east coast.
- More bronze whalers in GAB.
- Smaller school sharks seen earlier in the season in north Bass Strait.
- In Bass Strait, more draughtboard sharks, bronze whalers, port jackson sharks, and a change in fish composition.

Future Outlook

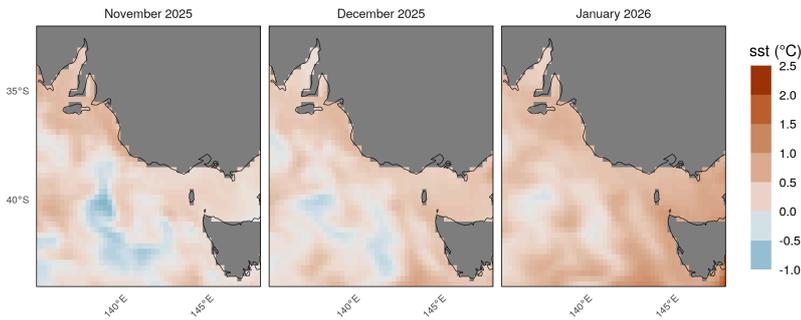
Climate Drivers: Niño3.4



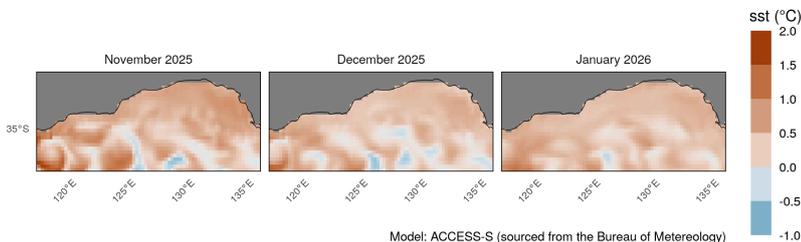
ENSO is currently neutral, with La Niña levels forecast to be met before returning to neutral levels ([BOM ENSO](#))⁷.

Regional Dynamics: SST Anomaly

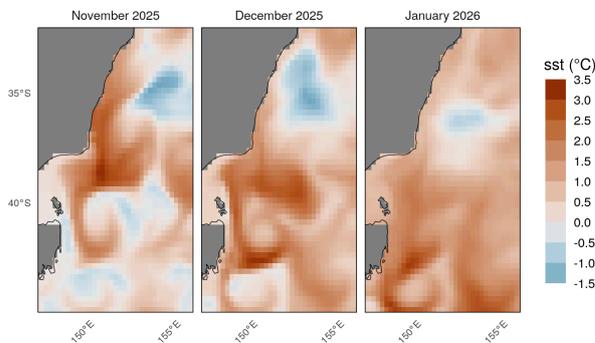
Forecasts of SST anomalies for the next three months indicate anomalously warm conditions across the region, with elevated temperatures particularly notable for the east coast (*BOM OceanT*)⁸. Forecasts are updated regularly.



Model: ACCESS-S (sourced from the Bureau of Meteorology)



Model: ACCESS-S (sourced from the Bureau of Meteorology)



Model: ACCESS-S (sourced from the Bureau of Meteorology)

Sources:

- (1) <https://www.bom.gov.au/climate/enso/indices.shtml?bookmark=nino3.4>
- (2) <https://pulse.climate.copernicus.eu/>.
- (3) Copernicus Marine Service.
- (4) <https://www.marineheatwaves.org/tracker.html>.
- (5) <https://imos.org.au/facility/ships-of-opportunity>.
- (6) <https://shiny.csiro.au/BioOceanObserver/>.
- (7) <http://www.bom.gov.au/climate/ocean/outlooks/?index=nino34>
- (8) <http://www.bom.gov.au/oceanography/oceantemp/sst-outlook-map.shtml>.