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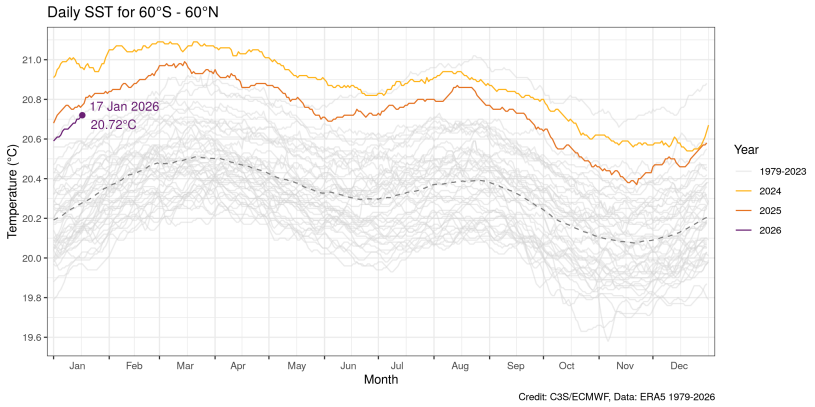
Torres Strait Finfish Fishery

January 20, 2026

Historical Period

Climate Drivers: Sea Surface Temperature (SST)



Global Sea Surface Temperatures (SST) from 2023-2025 have been at record highs (*Copernicus*)[1]. Warmer waters can intensify extreme weather and disrupt marine ecosystems.

Climate Drivers: Nino3.4

The relative Niño3.4 index (a new index) measures the oceanic component of ENSO. La Niña conditions have occurred since ~mid-late Sep 2025 (*BOM*)[2].

In the TS during La Niña conditions, trade winds strengthen, sea levels rise, rainfall and cloudiness increases, and waters can be warmer. These changes can influence habitat condition (e.g. seagrass and coral), but it is unclear how such conditions influence finfish dynamics.

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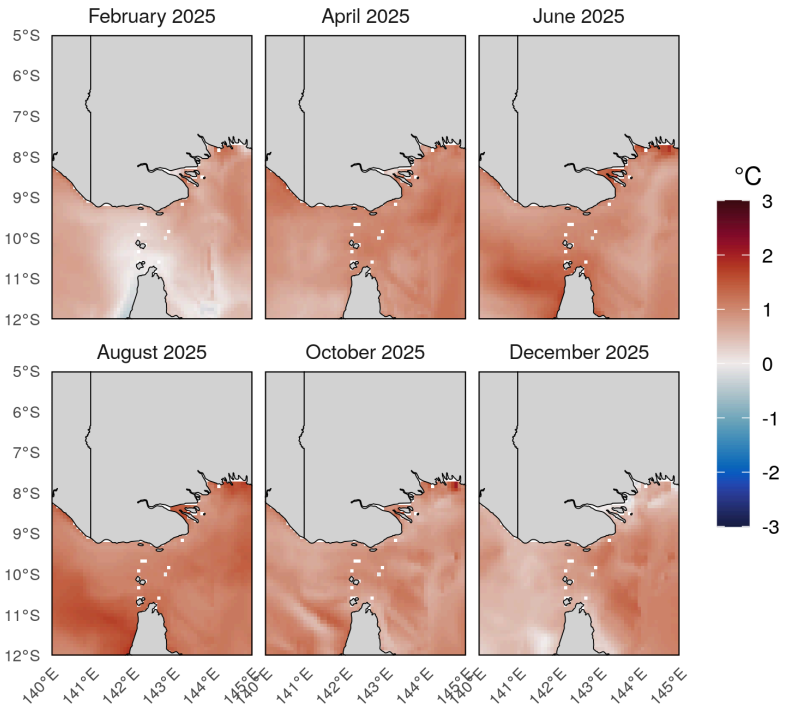
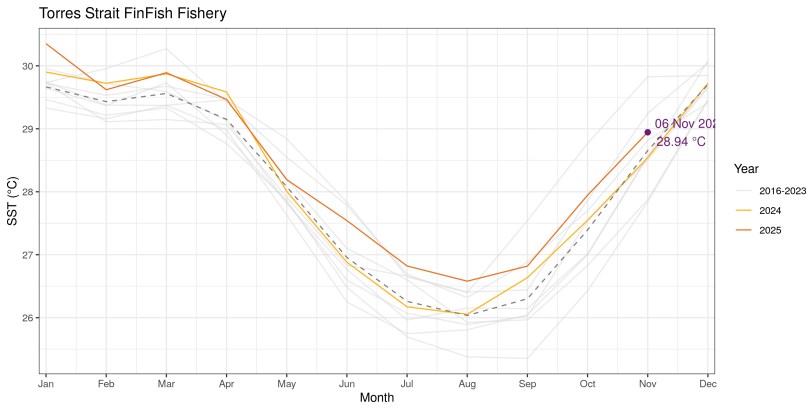
Regional Dynamics: SST Anomaly



Source: CMEMS

Bi-monthly maps of SST anomalies, relative to 1993-2016[3]. SST has been above average in 2025 across the TS. Coral bleaching occurred in 2024/2025, with 22% of the 23 TS reefs surveyed had medium bleaching or higher (*AIMS*)[4]. Coral trout require reef structure for habitat and remain on bleached reefs.

Regional Dynamics: SST monthly timeseries



Timeseries of monthly averaged SST for example years 2016-2025[3]. Jan 2025 was the hottest SST in this time period, with temperatures across most months in 2025 higher than those seen in 2023 and 2024. Winter months in 2025 experienced some of the hottest temperatures seen in this time period. Warmer temperatures at this time can increase growth rates of species. Early onset of seasonal temperature rise may also induce early spawning in coral trout and Spanish mackerel.

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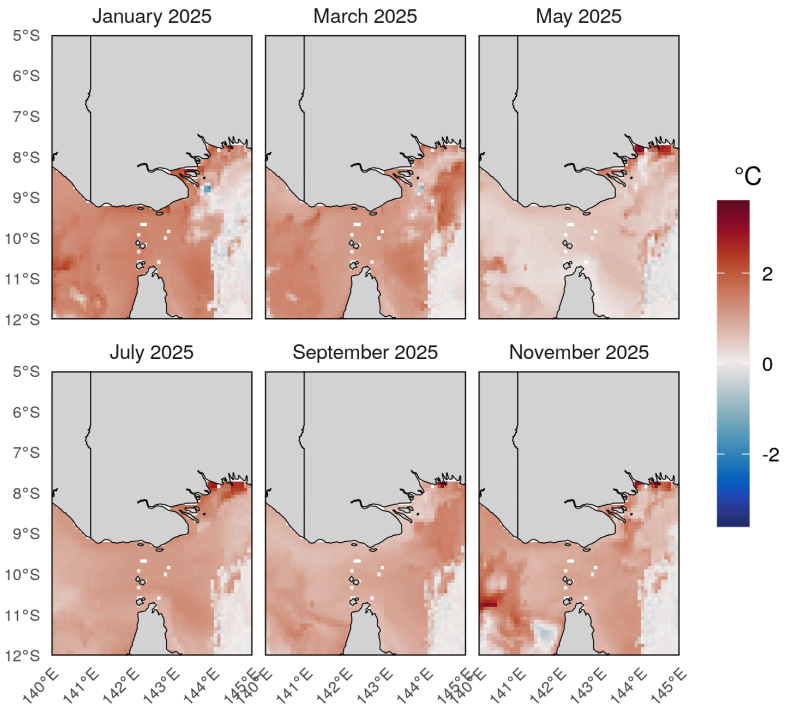
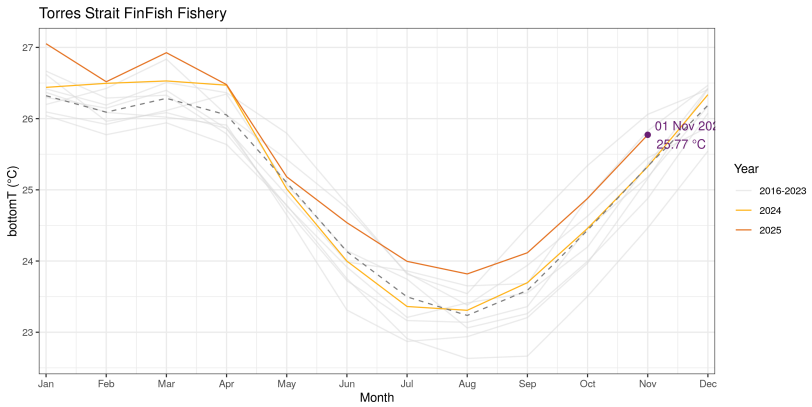
Regional Dynamics: Bottom Temperature Anomaly



Source: CMEMS, Climatology: 1993-2016

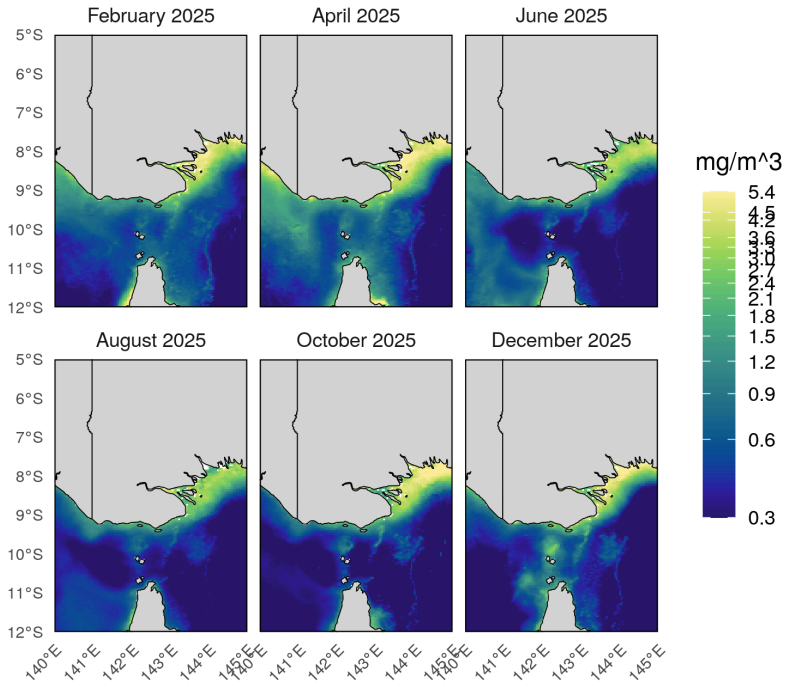
Bi-monthly maps of bottom temperature anomalies. The TS region has seen average to anomalously warm waters across the domain in 2025. Anomalies are relative to 1993-2016, and are from an ocean model which is subject to error. Patches of average and anomalously cool water can be seen in the Gulf of Papua and off the continental shelf. Bottom temperatures better reflect the conditions that benthic habitats and demersal fish experience.

Regional Dynamics: Bottom temperature monthly timeseries



Timeseries of monthly averaged bottom temperature for example years 2016-2025[3].

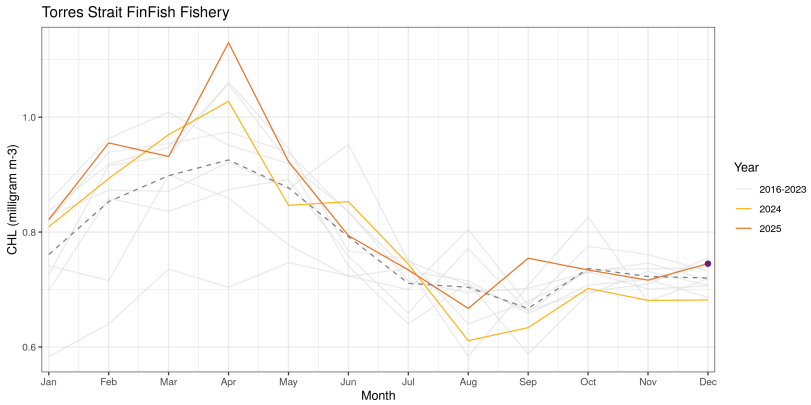
Regional Dynamics: Chlorophyll-a



Source: CMEMS

Bi-monthly maps of surface chlorophyll-a (log scale; mg/m3)[3]. Surface chl-a is a proxy for ecosystem productivity. Elevated surface chl-a persists along the coastal margin, particularly in the Gulf of Papua which likely reflects the Fly river outflow. The Fly river experienced significant flood events during 2024 and 2025[5]. Fly river outflow typically only influences the northern regions of the TS, and can impact waters around Bramble Cay - a key spawning site for Spanish mackerel. Peaks in surface chl-a are notable during summer months, and also notable during April 2025.

Regional Dynamics: Chl-a monthly timeseries



Timeseries of monthly averaged chl-a for example years 2016-2025[3]. Chl-a has been above average for all months over the past year, with a notable peak in April 2025. Elevated chl-a can indicate increased food availability for finfish.

Observations

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

2025-2026 observations

- to be sourced from the RAG.

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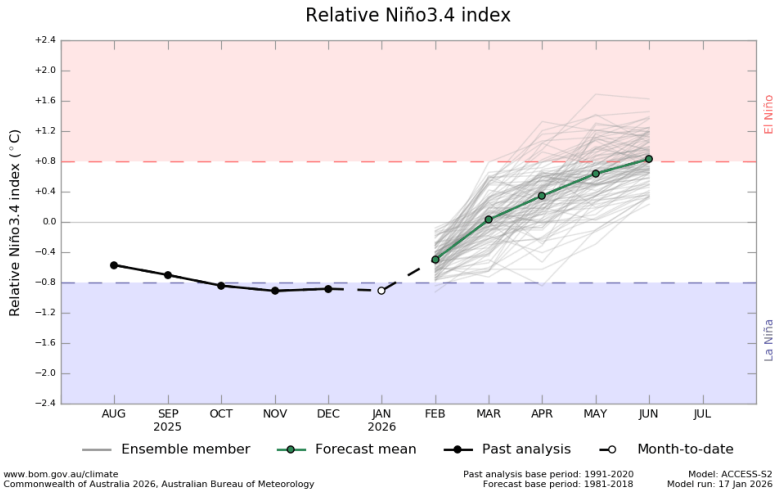
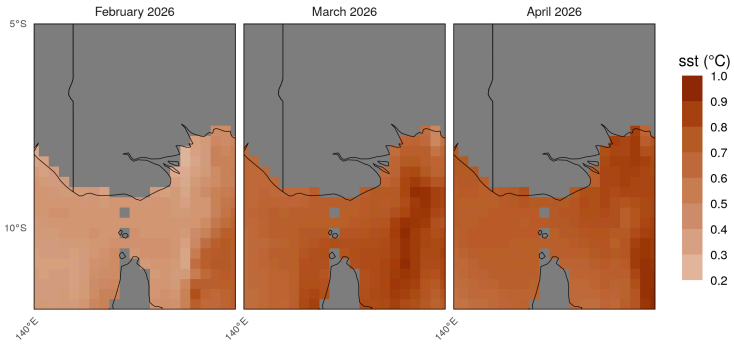
Future Outlook

Climate Drivers: Nino3.4



Currently La Niña conditions with forecasts indicating a return to neutral levels in summer (*BOM ENSO*)[6].

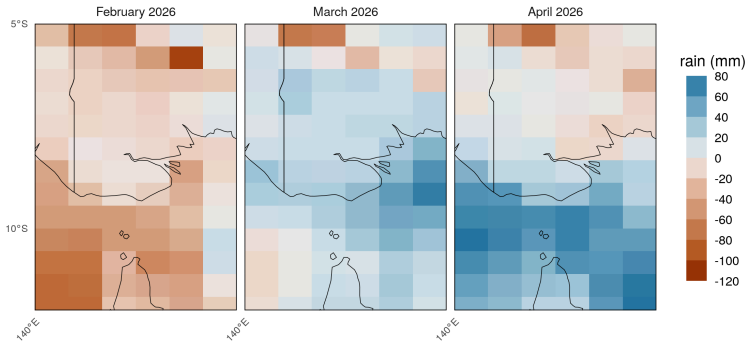
Regional Dynamics: SST Anomaly



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

Forecasts of SST anomalies for the next three months indicate anomalously warm conditions across the region, with anomalies intensifying from Feb-Apr (*BOM OceanT*)[7]. Forecasts are updated regularly.

Regional Dynamics: Rainfall Anomaly



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

Forecasts of rainfall anomalies for the next three months indicate reduced rainfall in Feb and increased rainfall in Mar-Apr (*WMO*)[8]. Forecasts are updated regularly.

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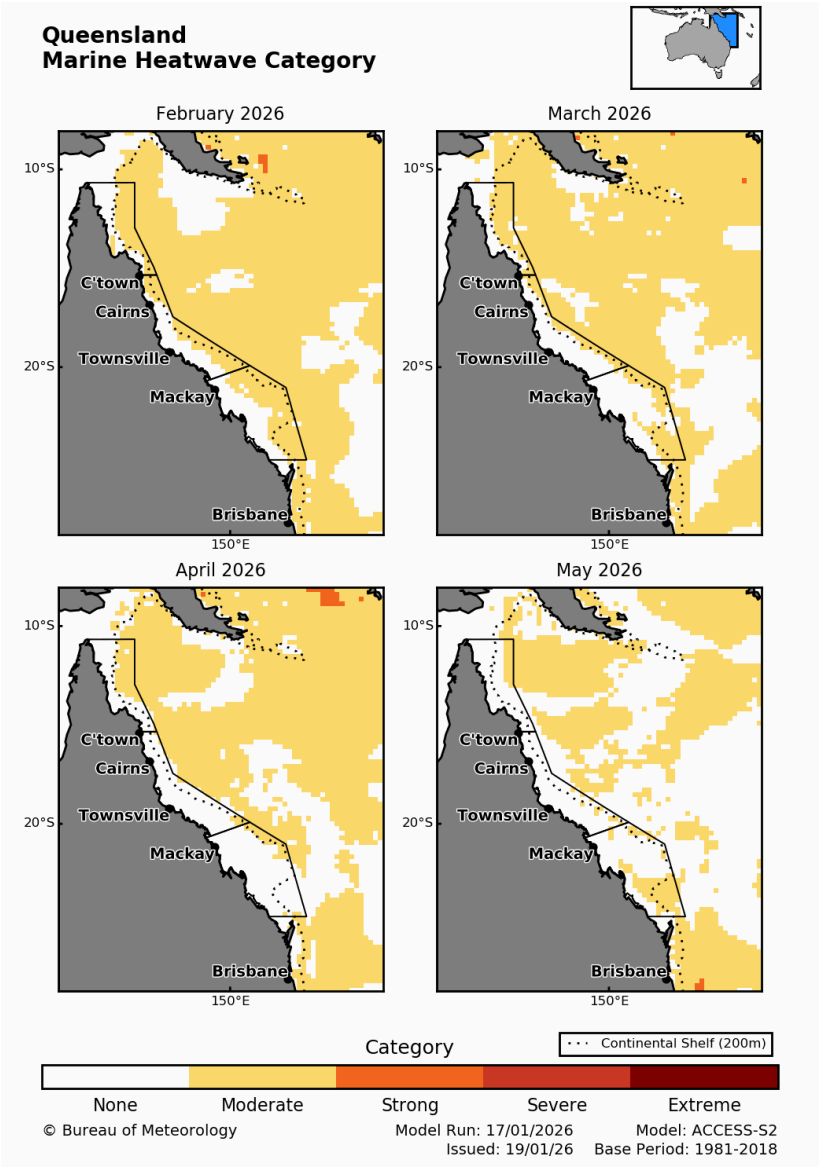
Regional Dynamics: Marine Heatwave Forecast



BOM now produces forecasts of Marine Heatwaves (MHW). Moderate MHWs are forecast for off-shelf waters for most of QLD and parts of the Gulf of Papua in March, but not Torres Strait waters (*BOM OceanT*)[7]. Forecasts are updated regularly.

Sources:

(1) https://pulse.climate.copernicus.eu/.

(2) https://www.bom.gov.au/climate/enso/indices.shtml?bookmark=nino3.4

(3) Copernicus Marine Service.

(4) https://www.aims.gov.au/research-topics/environmental-issues/coral-bleaching/coral-bleaching-events

(5) https://floodobservatory.colorado.edu/wiki/Discharge:Station_000022

(6) http://www.bom.gov.au/climate/ocean/outlooks/?index=nino34

(7) http://www.bom.gov.au/oceanography/oceantemp/sst-outlook-map.shtml.

(8) https://access-s.clide.cloud/