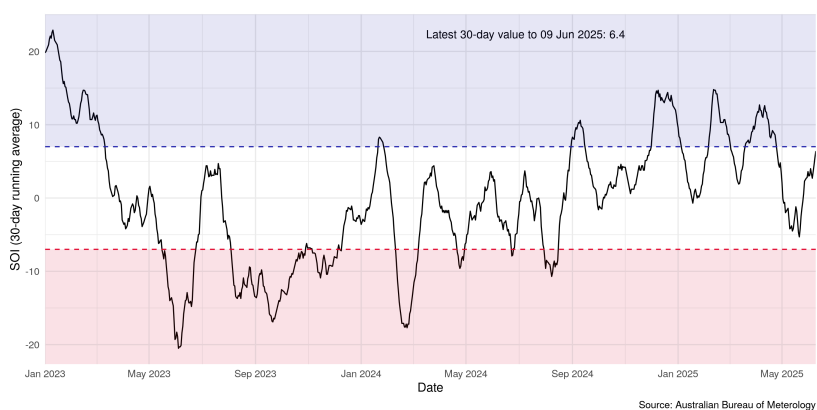


Bass Strait Scallop Fishery

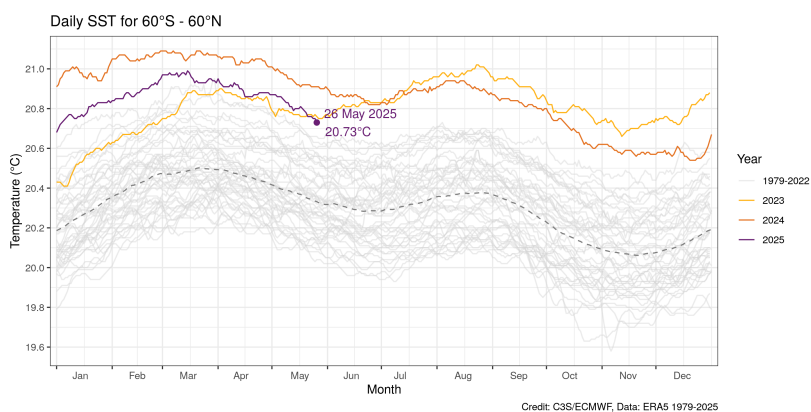
June 23, 2025

Historical Period

Climate Drivers: Southern Oscillation Index (SOI)



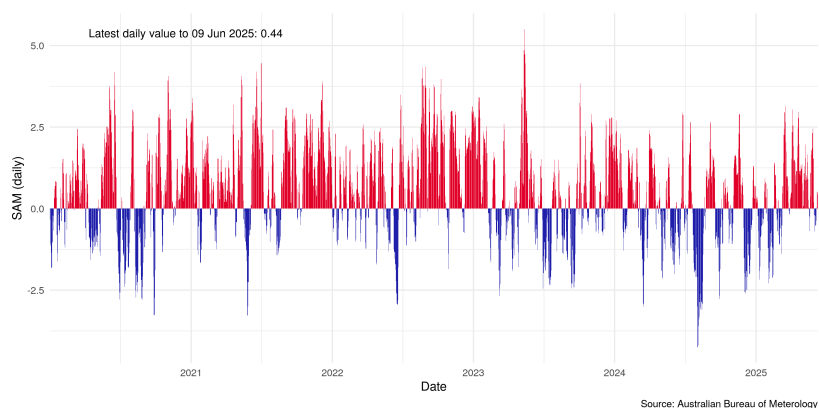
Climate Drivers: Sea Surface Temperature (SST)



SOI reflects atmospheric conditions of ENSO by comparing air pressure between Tahiti and Darwin; sustained values below -7 indicate El Niño, while values above $+7$ indicate La Niña. ENSO is currently neutral and has been neutral since April 2024. (*BOM SOI*)¹. <http://www.bom.gov.au/climate/enso/#tabs=Pacific-Ocean&pacific=SOI>.

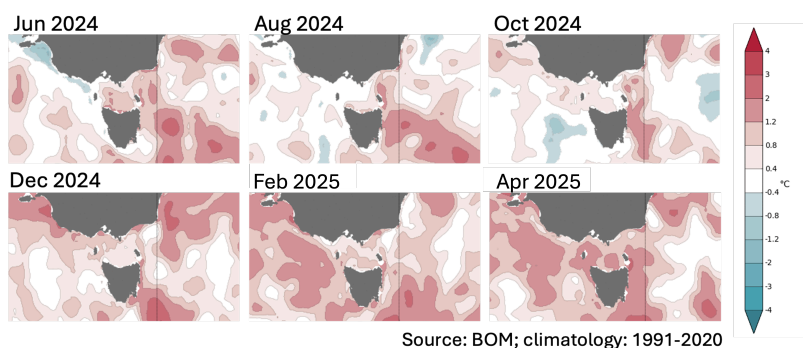
Global Sea Surface Temperatures (SST) have remained at record highs in 2025 (*Copernicus*)². <https://pulse.climate.copernicus.eu/>.

Climate Drivers: Southern Annular Mode (SAM)



Southern Annular Mode (SAM) indicates the N-S movement of westerly winds that bring storms to southern Australia. Positive SAM (westerlies contract south) have become more common over time. Rainfall varies regionally and seasonally within each phase^{1,3} ([BOM SAM](http://www.bom.gov.au/climate/sam/)): <http://www.bom.gov.au/climate/sam/>. Negative SAM phases shift westerly winds further north, which have been proposed to favour good scallop recruitment ([Harris et al., 1988](https://www.nature.com/articles/333754a0)): <https://www.nature.com/articles/333754a0>.

Regional Dynamics: SST Anomaly

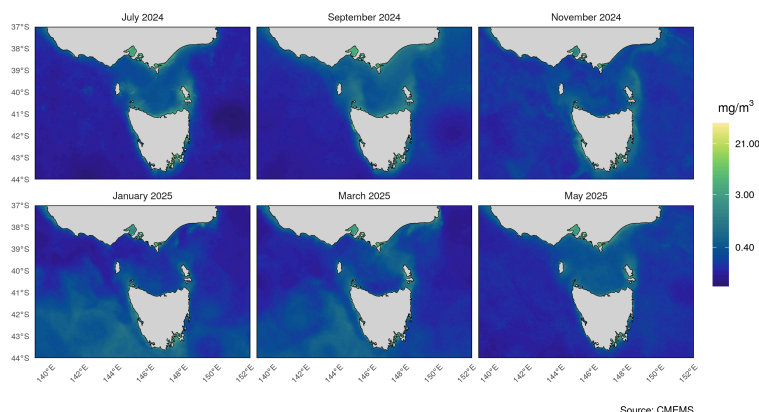


Source: BOM; climatology: 1991-2020

Bi-monthly maps of SST anomalies (°C) show the Bass Strait has been average or anomalously warm for the last year. ([BOM](http://www.bom.gov.au/climate/ocean/sst/#/anom/australia/monthly/20250401))⁴. <http://www.bom.gov.au/climate/ocean/sst/#/anom/australia/monthly/20250401>.

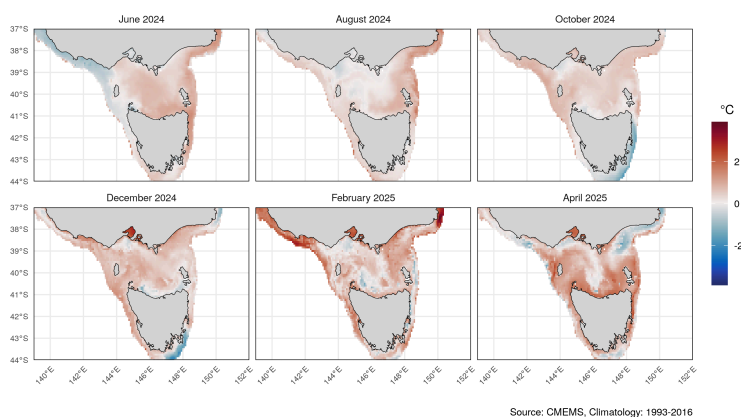
Moderate marine heatwaves (MHW) have occurred in the Bass Strait since January 2025 ([MHWtracker](https://www.marineheatwaves.org/tracker.html))⁵. <https://www.marineheatwaves.org/tracker.html>.

Regional Dynamics: Chlorophyll-a



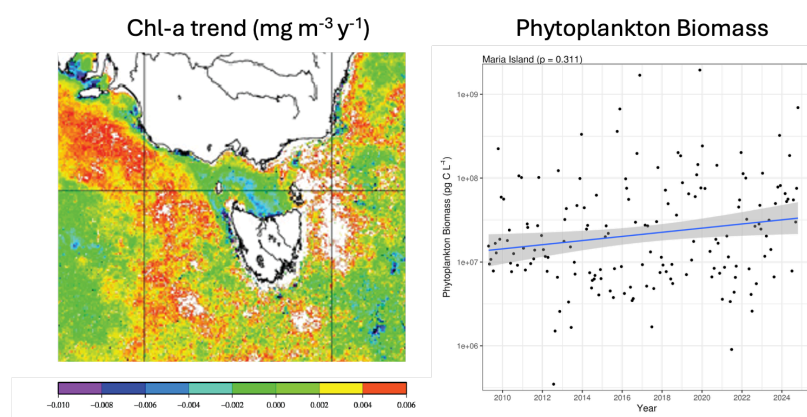
Bi-monthly maps surface chlorophyll-a (log scale; mg/m^3)². Surface chl-a is a proxy for ecosystem productivity. Elevated surface chl-a persists in the east throughout the year, while the west showed some decreases during summer.

Regional Dynamics: Shelf Bottom Temperature Anomaly



Bi-monthly maps of bottom temperature anomalies (<500 m) ($^{\circ}\text{C}$)², relative to 1993-2025. Bottom temperatures in the Bass Strait were anomalously warm for most of the year. Some anomalously cool waters were seen in the west in July, and off the east coast of Tasmania in spring. Note: Bottom temperature is from an ocean model and subject to error.

Ecosystem Productivity



Trends (2003-2009) in surface chl-a are spatially variable, with increases seen in the east and decreases in the central Bass Strait region (*IMOS Chl-a*)⁴. <https://www.imosoceanrep.ort.org.au/time-series/productivity/chlorophyll-a/>.

Maria Island National Reference Station has recorded increasing trends in ecosystem productivity.⁴ (*IMOS BOO*). <https://shiny.csiro.au/BioOceanObserver/>.

Observations

2025 Observations

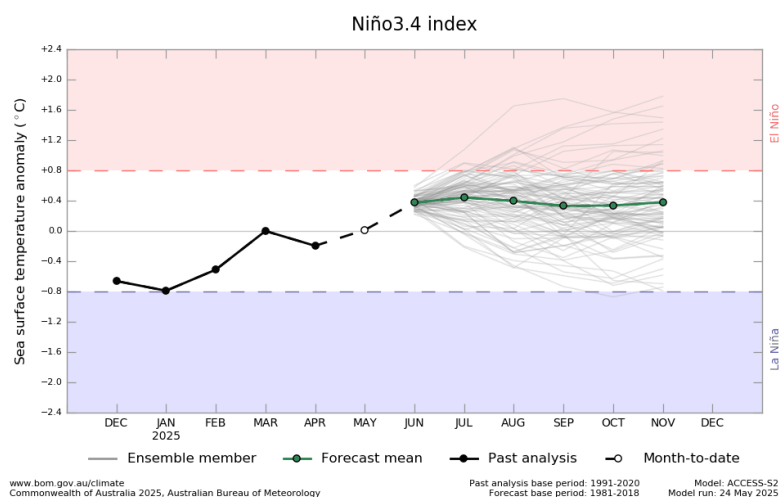
- Eleven-arm sea star seen in very high numbers. It is thought that high predation pressure is resulting in broadscale reduction in scallop numbers. A poor fishing season is anticipated.
- Survey biomass dropped by roughly one third since 2024.

2024 Observations

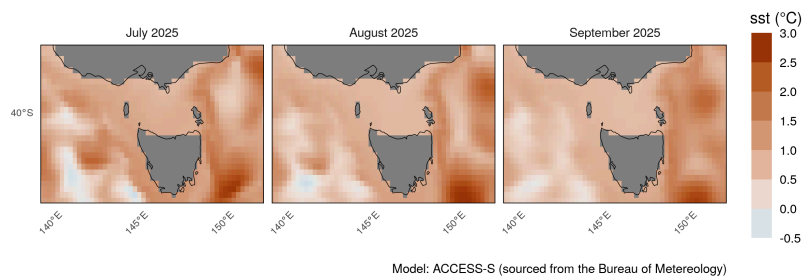
- Most catch in Bass Strait & off King Isl.
- Catch rates were high but meat quality declined from Oct-Dec.
- Some die-offs in western bass strait observed during the season.
- Anecdotal reports of meat quality recovering in Jan 2024.
- Some observations that cool waters, presumed to be nutrient rich, help meat quality recover quickly.
- Transparent shells noted.

Future Outlook

Climate Drivers: Nino3.4



Regional Dynamics: SST Anomaly



Sources: [BOM](#)¹ [Copernicus](#)² [NOAA](#)³ [IMOS](#)⁴ [MHWTracker](#)⁵

ENSO is currently neutral and forecast to remain neutral until November. ([BOM ENSO](#))¹. <http://www.bom.gov.au/climate/enso/#tabs=Pacific-Ocean>.

Forecasts of SST anomalies for the next three months indicate anomalously warm conditions across the Bass Strait ([BOM OceanT](#))¹. Forecasts are updated regularly. <http://www.bom.gov.au/oceanography/oceantemp/sst-outlook-map.shtml>.