Climate Report Card

QUEENSLAND

JUNE 2026

SEA CHANGE AUSTRALIA

Australia's Changing Climate

What is climate change?

Increases in greenhouse gases lead to changes in the atmosphere and the physical and biogeochemical ocean environment.

Australia's sea surface temperature (SST) has warmed by over 1 °C since 1900[1]. Ongoing ocean warming contributes to longer and more frequent marine heatwaves. As waters warm, they also become more stratified – altering circulation and currents and reducing nutrient availability in surface waters.

Increased atmospheric CO_2 increases how much is absorbed by the ocean, leading to shifts in ocean chemistry and ocean acidification.

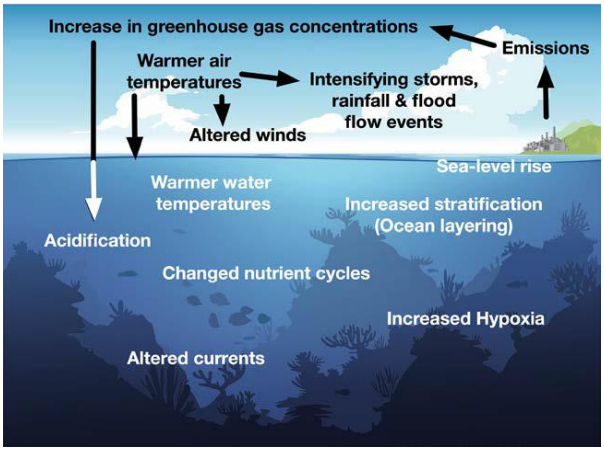

Image credit[2]

What impacts are expected for the seafood sector?

The seafood we eat relies on healthy marine ecosystems. Ecosystem productivity can be impacted through changing nutrient cycles, increasing temperatures, and habitat loss. Shallow coastal and estuarine ecosystems are particularly vulnerable to climate change.

The impact of climate change on the seafood sector will vary by the degree of exposure to physical change and species vulnerability.

How to use this report

Use **page 2** to find information on SST changes over the past year and forecasts for the next two months in your area.

Use **pages 3-4** to learn about potential future ocean conditions due to climate change. These projections are based on a 'business as usual' scenario and show two global warming levels: 1.5°C (expected around 2015-2034) and 2°C (expected around 2030-2049). The Paris Agreement aims to limit global warming to well below 2°C above pre-industrial levels.

Report your climate observations and go 'Fishing for Climate Answers'
Check out the Sea Change Australia website to log potential climate related observations in your area and submit your climate questions. Our team connects your questions with climate and fisheries experts who provide clear, practical answers.

LOOK FOR THIS SYMBOL FOR THE KEY MESSAGES

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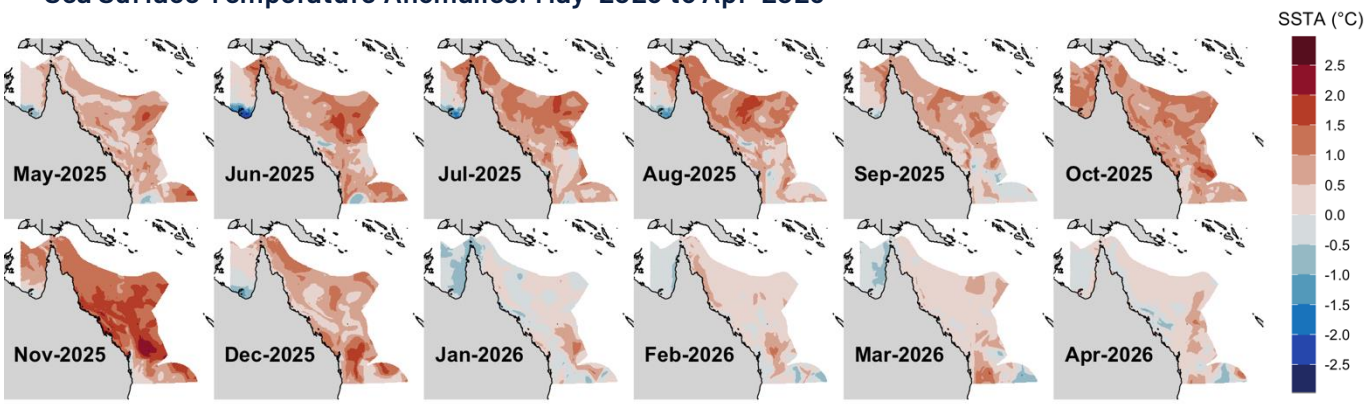
Observed SST anomalies in 2025-26

Sea Surface Temperature Anomalies: May-2025 to Apr-2026



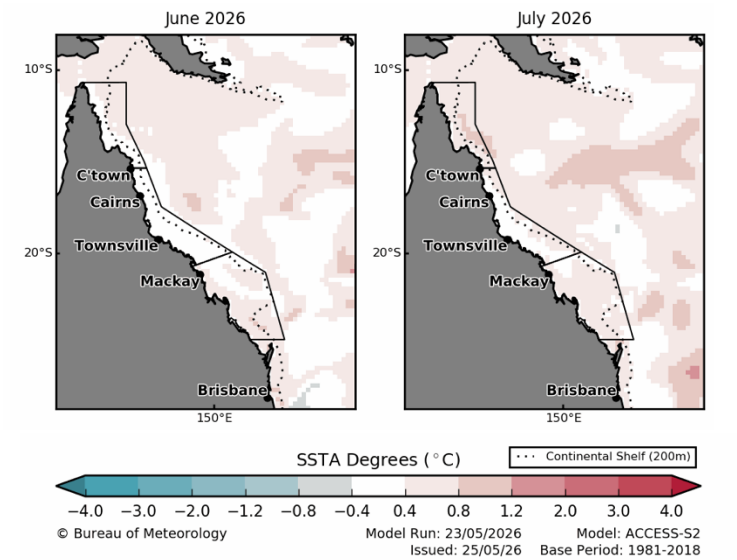
The graphic shows monthly SST anomalies from May 2025 to April 2026 (base period 1993-2016)[3]. East coast surface temperatures were warmer than average for most of the year, with some patches of anomalously cool waters seen in the Gulf of Carpentaria. Nov 2025 had particularly warm waters across all of QLD, which diminished as summer progressed.

Similar SST anomaly maps from BOM can be accessed here.

Waters have been warmer than usual in 2025-2026.

Forecast Conditions: Jun-Jul 2026

Australia Sea Surface Temperature Anomaly Outlook



See BOM for seasonal forecast outlooks for SST

Monthly SST anomalies are forecast to remain anomalously warm from Jun-Jul 2026[4]. Forecasts are updated regularly and can be accessed here.

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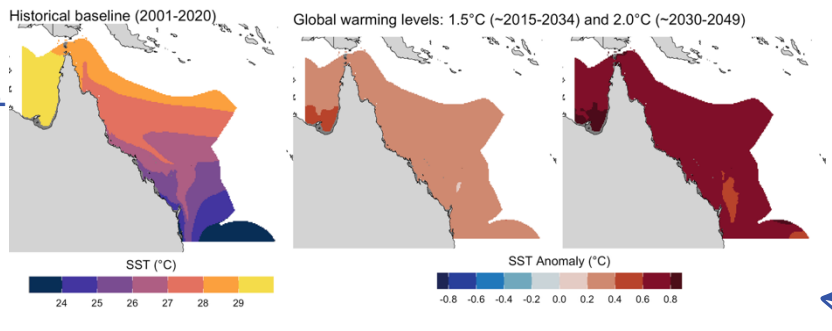
Projected Change: Ocean Warming

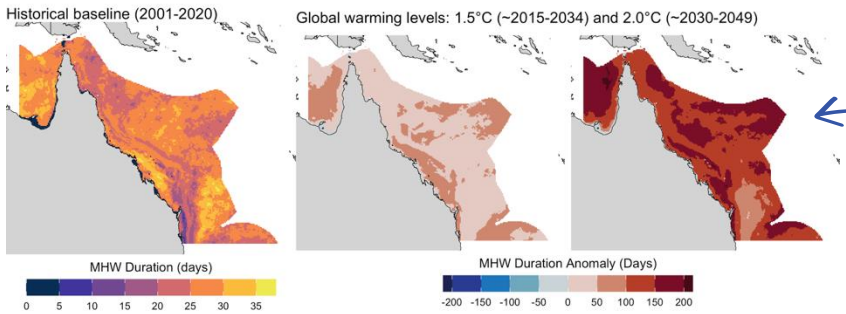
Baseline

Projected

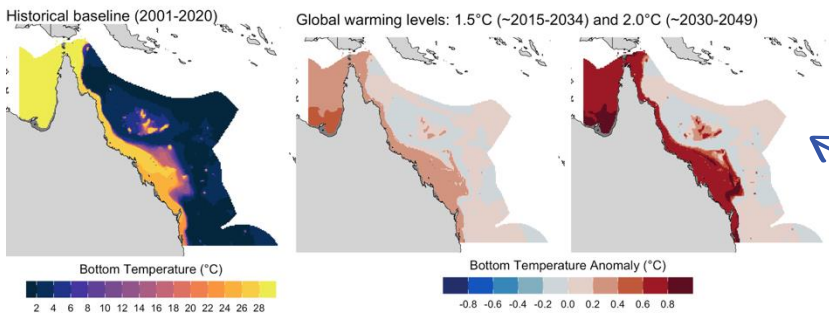
Sea Surface Temperature



Marine Heatwave Duration



Bottom Temperature



Waters are projected to warm, with longer-lasting marine heatwaves.

SSTs are projected to increase under climate change. There is little spatial variation in the amount of warming across QLD waters

Marine heatwaves are projected to increase in duration, and this pattern is highest in the Gulf of Carpentaria and parts of the central-southern coast. Under a 2°C global warming level (~2030-2049), this region is projected to experience marine heatwave conditions for much of the year (relative to the baseline).

Bottom temperatures are projected to increase under climate change. The degree of warming is highest in shallow waters on the continental shelf.

Climate projections are from the Ocean Forecasting Australian Model (OFAM), which is a spatially-downscaled ocean model[5]. Projections are based on a 'business as usual' scenario (CMIP5) and show two global warming levels: 1.5°C (expected around 2015-2034) and 2°C (expected around 2030-2049) relative to a historical baseline (2001-2020).

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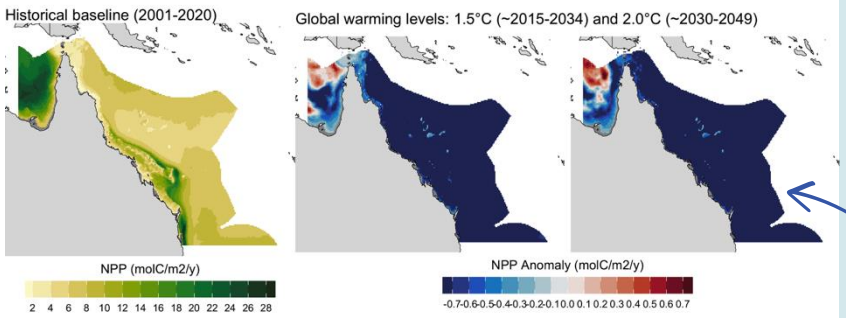
Projected Change: Ecosystem Productivity

Baseline

Projected

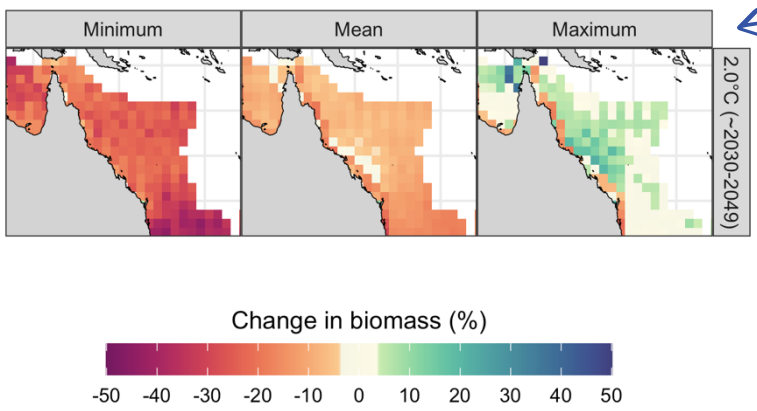
Net Primary Productivity



Productivity is projected to decline but is uncertain.

Projections of **net primary productivity**, the base of the marine food web, show some increases in the Gulf of Carpentaria, and decreases for other regions. Projections are highly uncertain[5].

Exploitable Fish Biomass



Ecosystem models project changes in the biomass available to fisheries (animals 10g - 100kg) under a 2.0°C global warming level.

On average, there is a decline in biomass, but this is uncertain. Minimum and maximum biomass estimates show divergent patterns.

Biomass is estimated from 6 ecosystem models projected under CMIP6[6]. Ecosystem models integrate temperature, oxygen, salinity, acidity, nutrients, & primary productivity, among other variables.

Climate adaptation in action

In Queensland, innovative climate adaptation is happening in the oyster industry. Oyster farming is finding new life in two resilient native species – the Blacklip Rock Oyster (*Saccostrea echinata*) and the newly identified Queensland Sunshine Oyster (*Saccostrea solaris*). Led by QLD Department of Primary Industries and FRDC, the focus is on farming Queensland's own tropical oyster species, which are naturally adapted to thrive in warm, variable waters and resistant to diseases.

Produced by CSIRO in partnership with Sea Change Australia.

Sources: [1]BOM State Of the Climate 2024 [2]Fulton et al., 2021 [3]CMEMS [4]BOM [5]CSIRO [6]Blanchard and Novaglio 2024

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FRDC Fisheries Research and Development Corporation