



Climate & Ecosystem Status Report

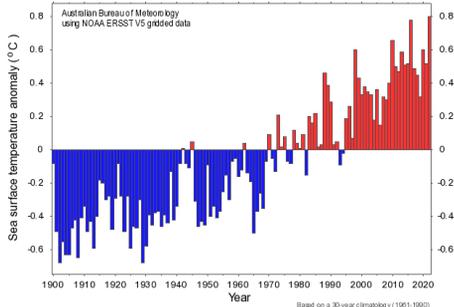
Northern Prawn Fishery

May 2024

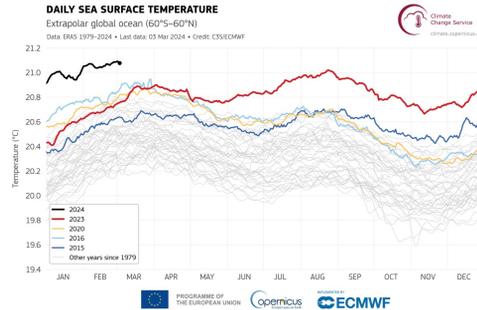


Historical Period

Climate Drivers



Australian waters have warmed significantly over time ([link](#))¹. The last decade has been ~0.5°C warmer than the 1960-1990 mean.



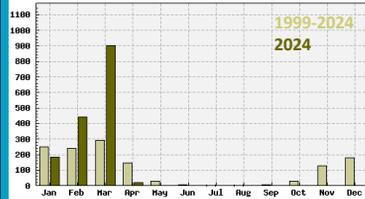
Global SST remains at record highs in 2024 ([link](#))².



In the north, ENSO, IOD, and the MJO can influence prawn CPUE via changes to rainfall, tropical cyclone frequency, trade winds, sea surface height, and air and water temperature ([link](#))¹.

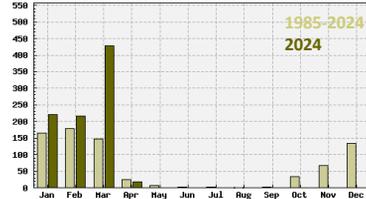
Regional Dynamics¹: Rainfall at Groote Eylandt, Lake Argyle & Weipa

Mean monthly rainfall (mm)



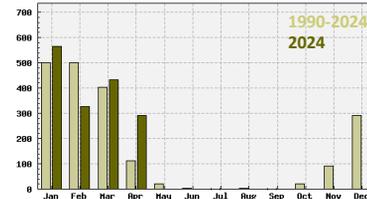
Groote Eylandt had very high rainfall in Feb and Mar '24.

Mean monthly rainfall (mm)



Lake Argyle had above average rainfall in Jan-Mar '24.

Mean monthly rainfall (mm)



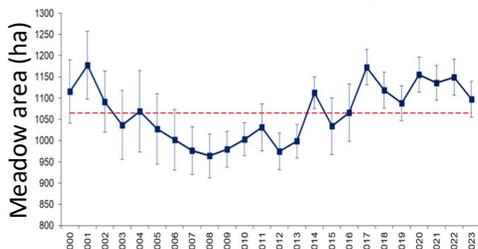
Weipa had above average rainfall in Jan, Mar, & Apr '24.



High wet season rainfall, a river flow proxy, generally indicates good banana prawn recruitment.

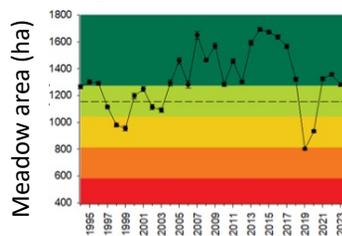
Ecosystem Trends: Area of seagrass

Weipa Intensive Monitoring Area



Intertidal seagrass condition at Port of Weipa was 'satisfactory' in 2023³. Seagrass area was above average.

Alligator Bank, Karumba



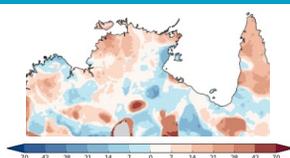
Intertidal seagrass condition at Karumba was 'very good' in 2023⁴, and above average (dotted line).



Seagrass beds are important settlement and nursery areas for juvenile tiger and endeavour prawn spp.

It is not known if these seagrass monitoring sites are representative across GoC or of subtidal areas.

Rainfall Onset



Number of days earlier (blue) or later (red) than the long-term average onset date ([link](#))¹.



Timing of rain onset can influence prawn size during the fishing season.

Observations

- Central-East Gulf banana prawn catches have been anomalously low-to-zero for 2 years.
- Reduced effort (shorter trawls) seem to have less bycatch.
- Additional observations planned for November RAG.



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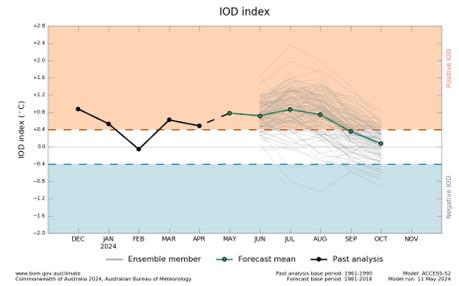
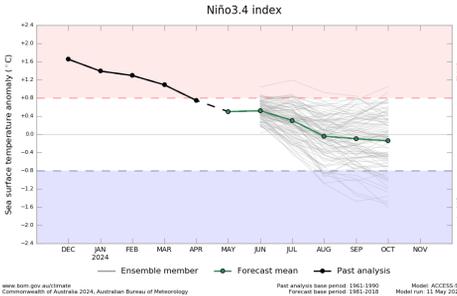
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Future Outlook for 2024

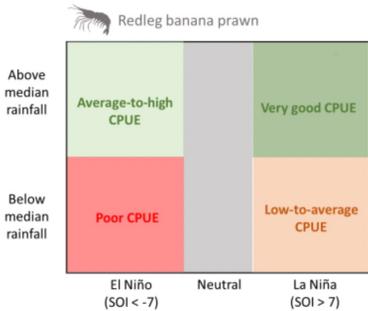
Climate Drivers: ENSO & IOD



ENSO is neutral and expected to remain so until July [\(link\)](#)¹. The Outlook has shifted to La Niña Watch (50% chance of La Niña). During La Niña, we typically see higher rainfall, earlier rain onset, and warmer oceans [\(link\)](#)¹.

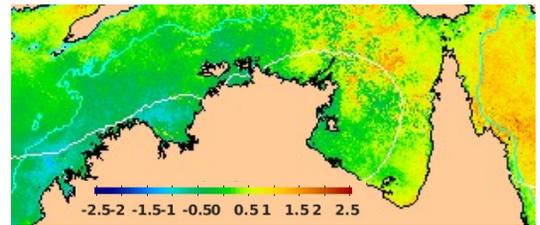
IOD is currently neutral (+0.22°C) [\(link\)](#)¹. IOD is only active May-Dec, and initial development of a positive IOD this year has stalled [\(link\)](#)¹. When positive, we typically see cooler water & air temperatures, and reduced rainfall.

Regional Dynamics



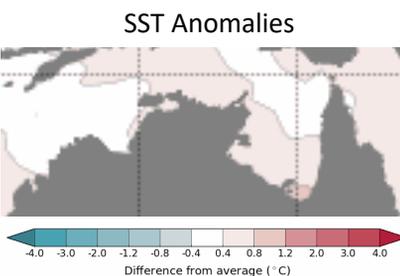
The 2024 Jan-Feb rainfall (438mm) was above the long-term median, and the Jan SOI index was 3.7 (neutral).

Therefore, redleg banana prawn CPUE predictions are uncertain in 2024⁵.

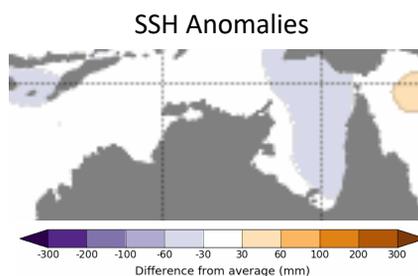


SST anomalies (°C) in March show average conditions (1992-2016), with ~1°C warming along the east-GoC [\(link\)](#). The east-GoC has had a moderate Marine Heatwave since March [\(link\)](#)⁷.

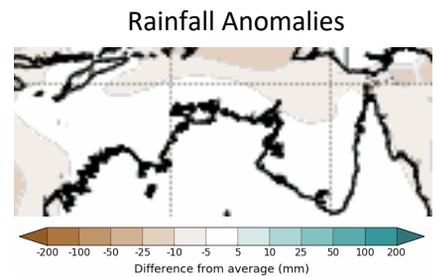
Ocean Forecasts¹: June 2024



Jun 2024: SST is forecast to be warmer than average for the GoC but average in the JBG [\(link\)](#)¹.



Jun 2024: SSH is forecast to be lower than average in the east-Gulf. This can lead to greater exposure of intertidal areas [\(link\)](#)¹.



Jun 2024: rainfall is forecast to be average across most of the North [\(link\)](#)¹.

Forecast uncertainty >1month is high for coastal areas in the north GoC. Forecasts are regularly updated online.

Base period: 1981-
Model: ACCESS-S2

Model run: 20/05/2024
Issued: 22/05/2024