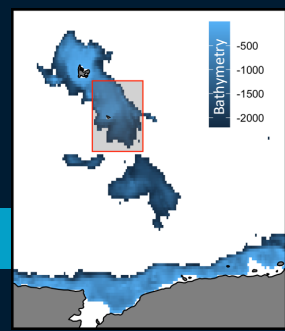




Climate & Ecosystem Status Report

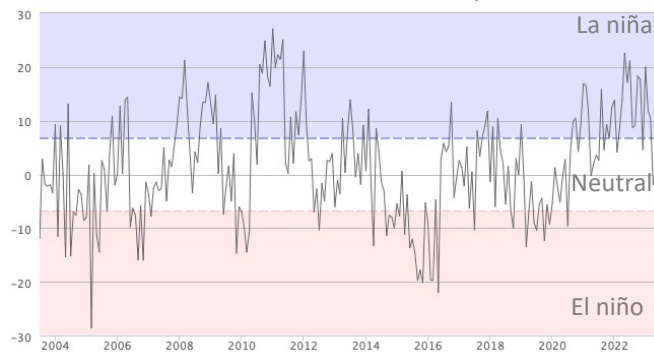
Heard Island and McDonalds Islands Fishery

August 2023

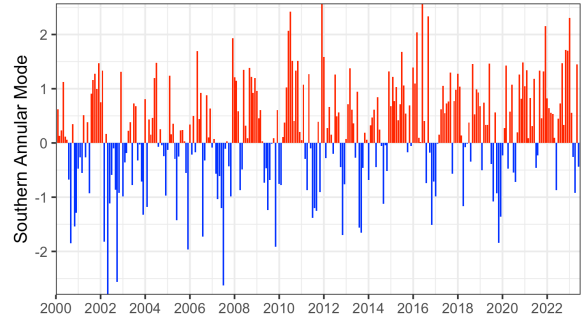


Historical Period

Climate Drivers

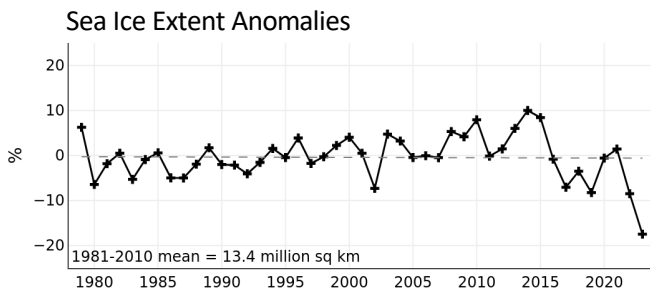


Monthly Southern Oscillation Index¹ ([link](#)).



Southern Annular Mode¹ ([link](#)). Positive phases have become more common, where westerlies move south & are associated with increased sea ice extent.

Regional Dynamics

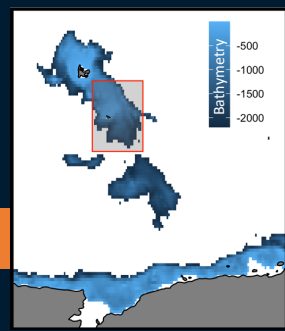


Recent years have had very low sea ice extent².

Ecosystem and Fishery

Observations

- Catches have been unremarkable, but in-line with the past few years.
- Two size classes of toothfish in catches.
- Small increases in fish size compared to last year.
- Increased interference from sea lice (depredation or eating bait).
- Killer whales observed, and the 90-mile move-on rule worked effectively.
- Sea ice observed to clear faster this year. No obvious signs of the impact of low sea ice extent.

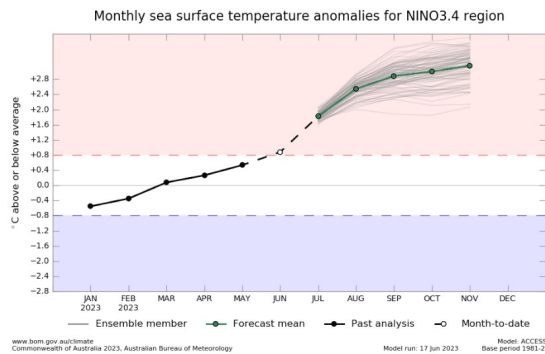


Future Outlook for 2023

Climate Drivers

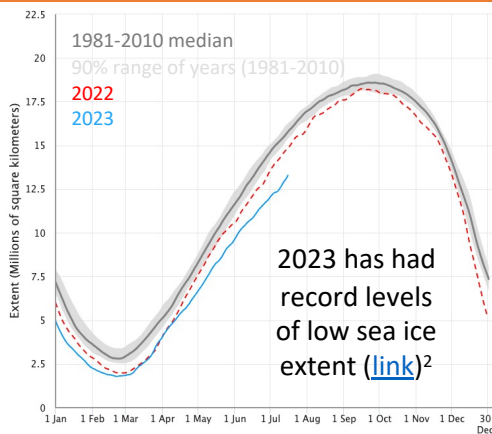


Currently transitioning to El Niño¹ ([link](#))

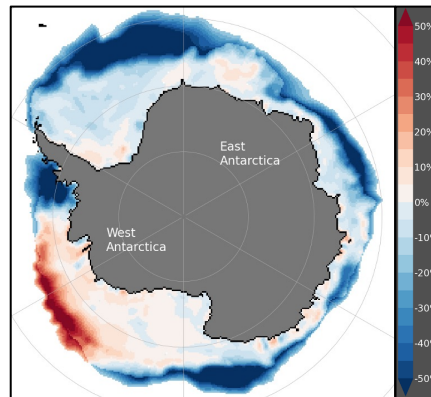


El Niño is predicted. During El Niño, the Southern Annular Mode tends to shift to negative phases, where westerly winds move north and result in weak circumpolar westerlies. ([link](#)).

Regional Dynamics



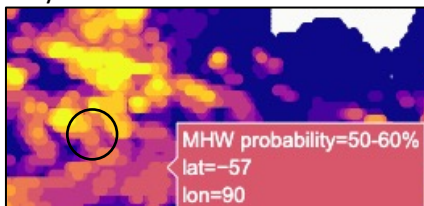
Sea Ice Concentration anomalies: June 2023



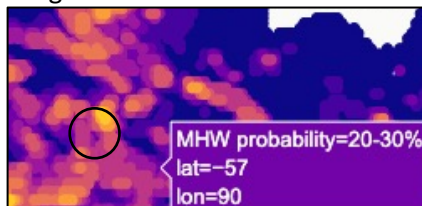
Spatial map of sea ice anomalies show low concentrations in East Antarctica ([link](#))².

Marine Heatwave Forecast

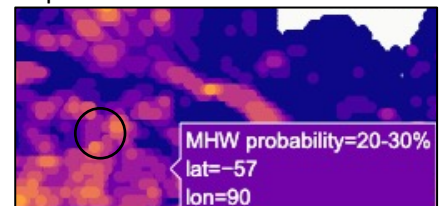
July 2023



August 2023



September 2023



There is a high probability of marine heatwaves in the HIMI region through July and decreasing through September ([link](#))⁵. Forecasts are 1° spatial resolution and have the influence of long-term warming in the region removed⁵. Black circle is centered on HIMI.

