



Protect
Grow
Innovate



20 November 2025

Forum for Operational Oceanography 2024/25 Marine Heatwave Event Response

DPIRD MHW Response Team

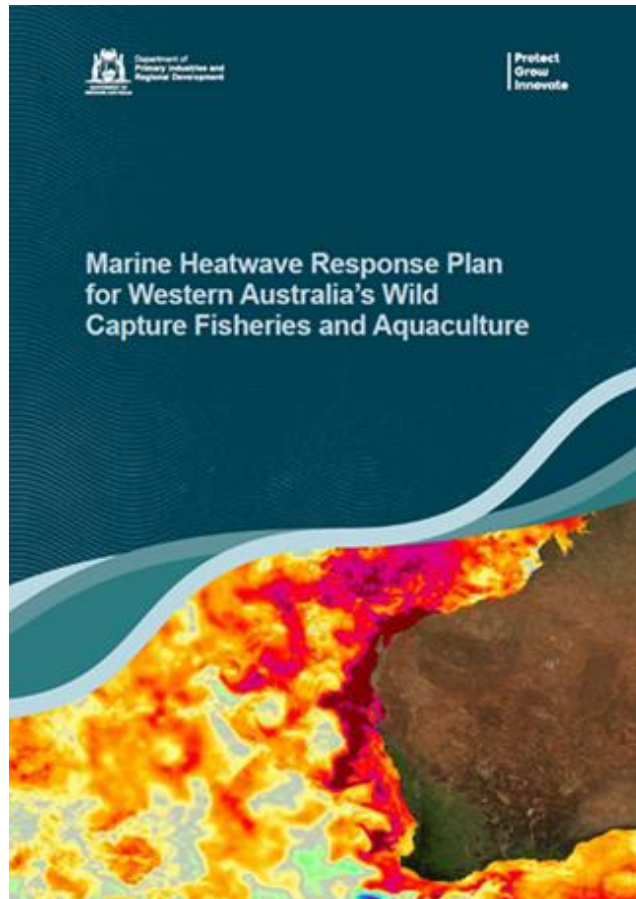
Climate Change

Fisheries and Sustainability

marineheatwave@dpird.wa.gov.au

Marine Heatwaves - Hazard Event Response

This plan outlines DPIRD's approach for **monitoring**, **detecting** and **responding** to the hazard of a **marine heatwave (MHW)** on wild catch **fisheries** (commercial, recreational, charter and customary) and **aquaculture** resources within **WA state waters**.



Preparedness

Planning

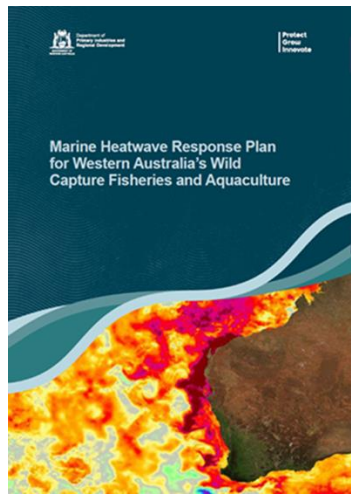
Forecasting & monitoring

Response

Recovery

(Awaiting ministerial approval for public release)

WA MHW Response Plan – *Operational guidelines*



PHASE 1

OCEAN MONITORING

MHW season preparedness



Pre- conditioning



Climate driver outlook
(ENSO/IOD)

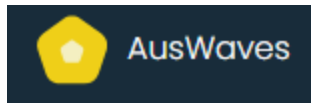


Leeuwin Current

PHASE 1

MHW Risk Assessment

Location, season, spatial footprint, sub-surface, currents, climate drivers



Community of Practise



Event based
Sampling
Reference
Group



WA Coral
bleaching
group



JTSI/WAMSI
MHW Project
team



National MHW
Advisory Group

Seasonal Climate
Outlook Newsletter



DPIRD Climate webpage



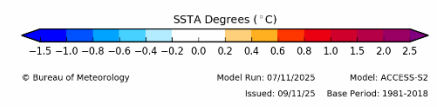
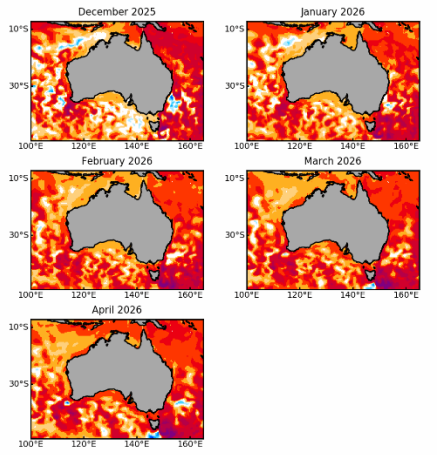
Ministerial briefing on
seasonal outlook for WA

Seasonal (3-6month) MHW Outlook

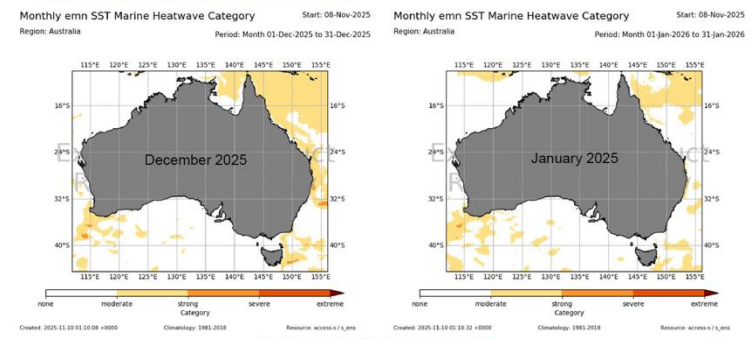


BoM Seasonal SST Outlook

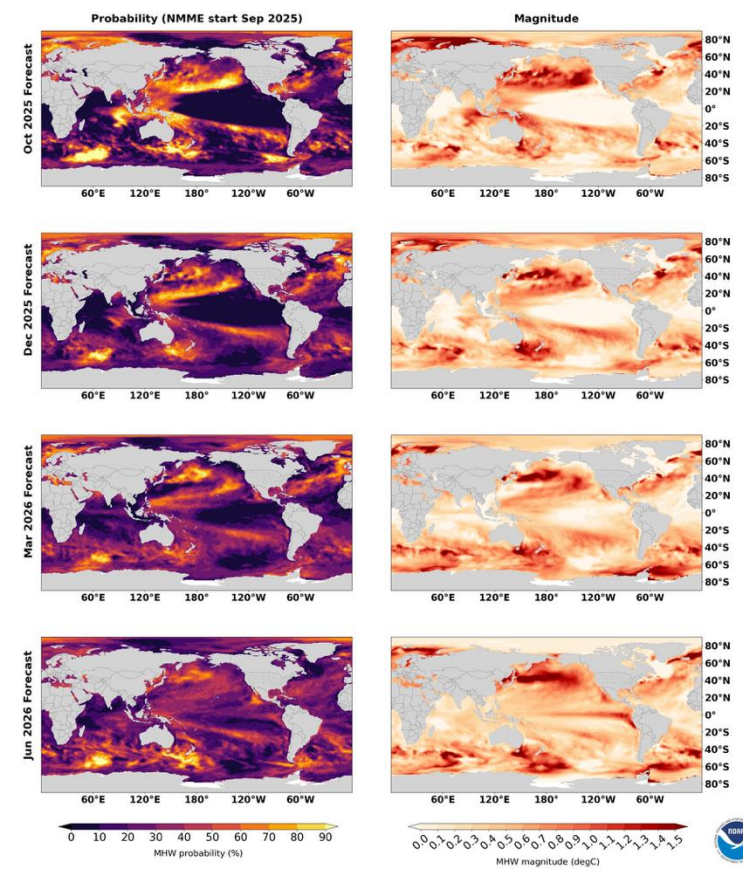
Australia
Sea Surface Temperature Anomaly Outlook



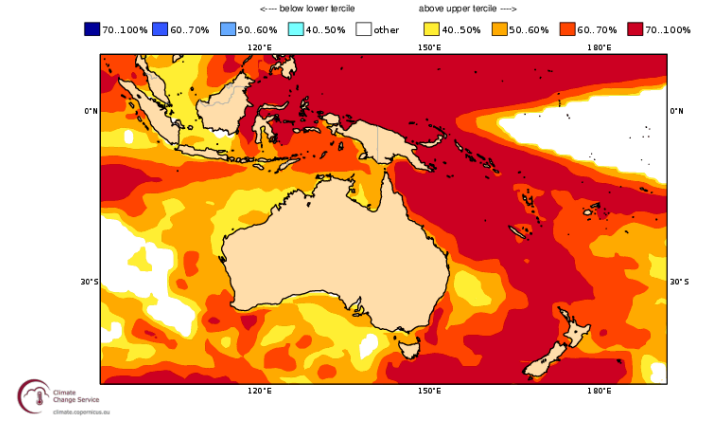
Trial marine heatwave outlook



MHW Outlook (experimental product)



C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECMCC/BOM
Prob(most likely category of forecast SST)
Nominal forecast start: 01/11/25
Unweighted mean

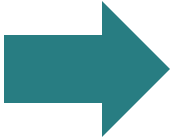


Fisheries Climate Briefing

Presented by
Dr Alistair Hobday
Research Director & Senior Principal Research Scientist | CSIRO

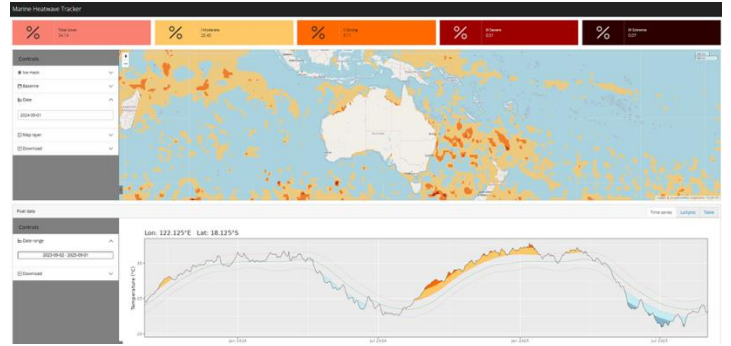
Dr Claire Spillman
Principal Research Scientist
Seasonal and Marine Applications Team Leader | BoM

36:17

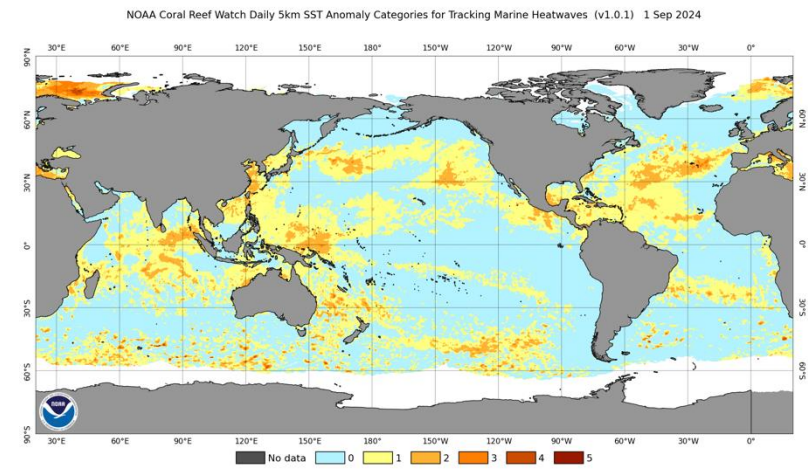


Tracking daily MHW Conditions & ocean conditions

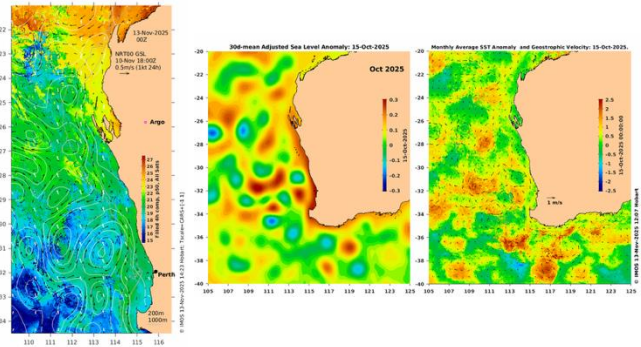
MHW Tracker web portal



NOAA Coral Reef Watch (5 Km)

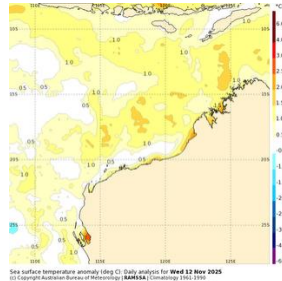
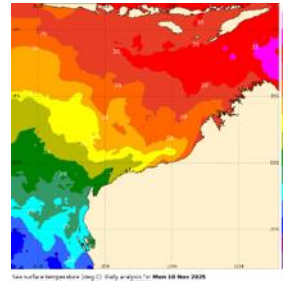


IMOS Ocean Currents

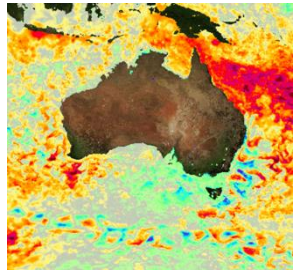


Australian Government
Bureau of Meteorology

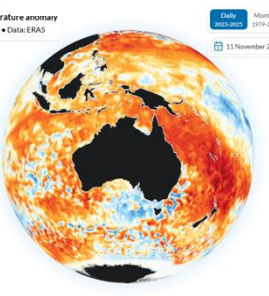
BoM SST Maps



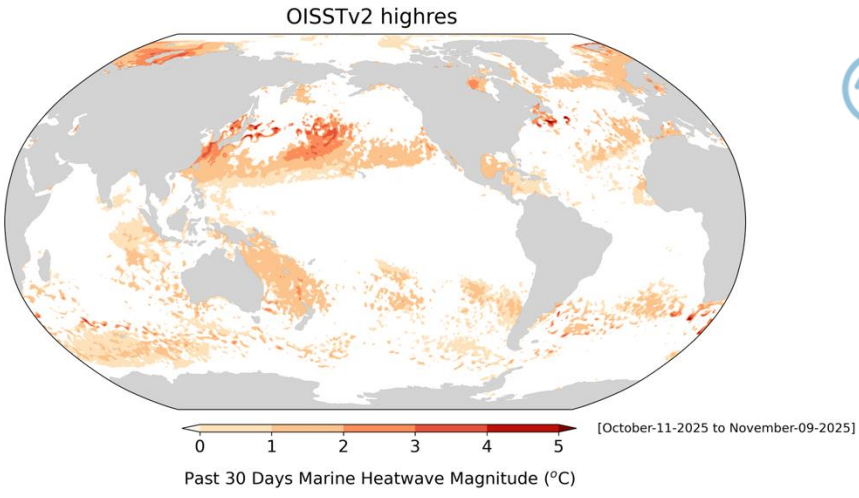
SOTO by Worldview



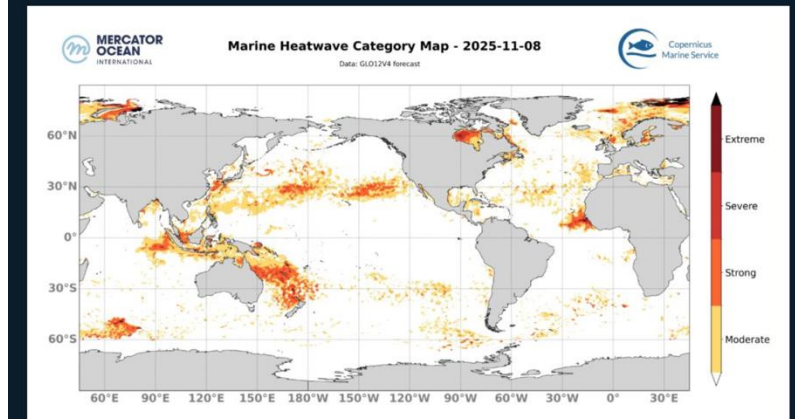
Copernicus Climate pulse



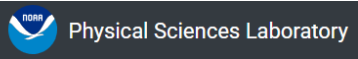
30 day - aggregated heat stress metric



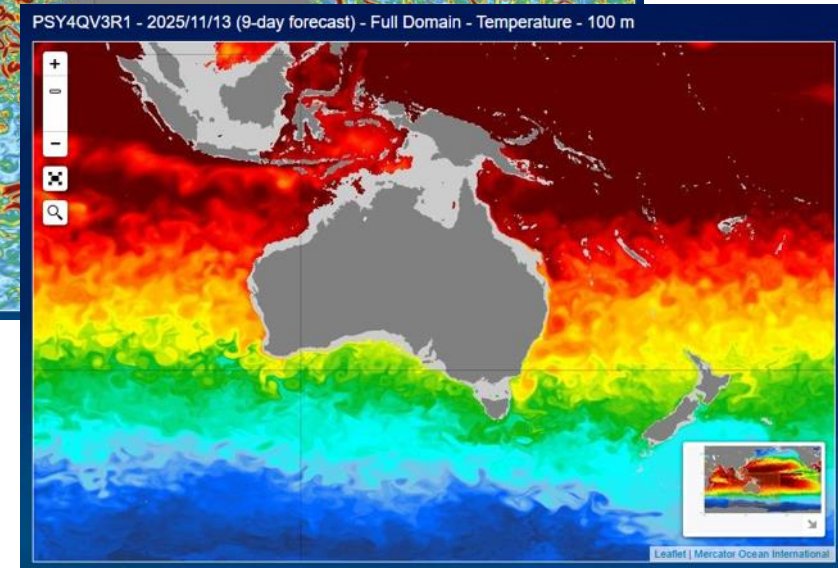
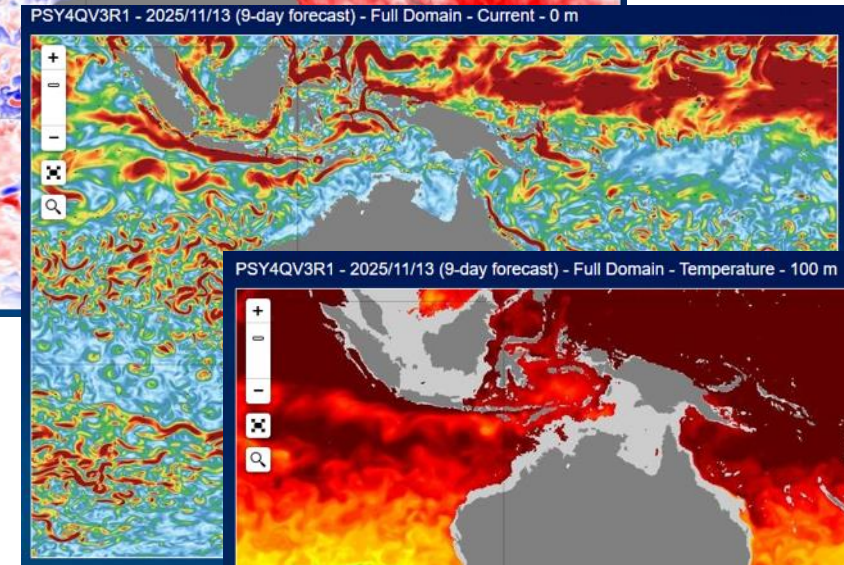
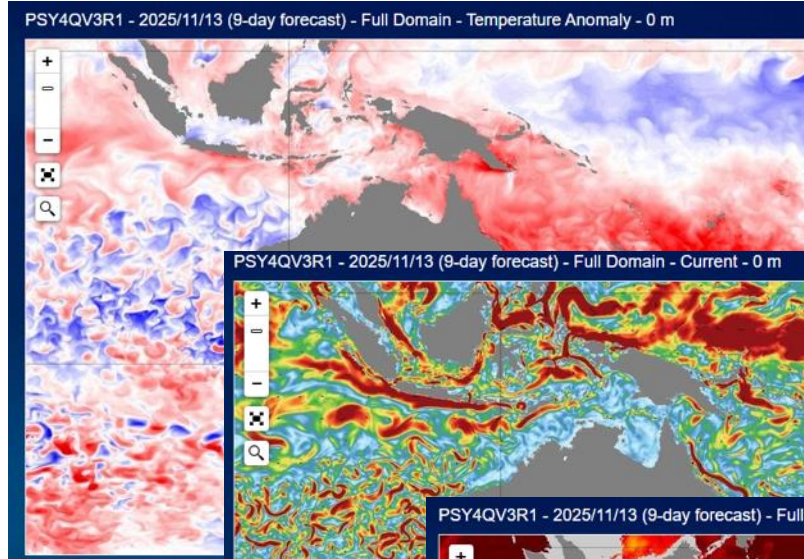
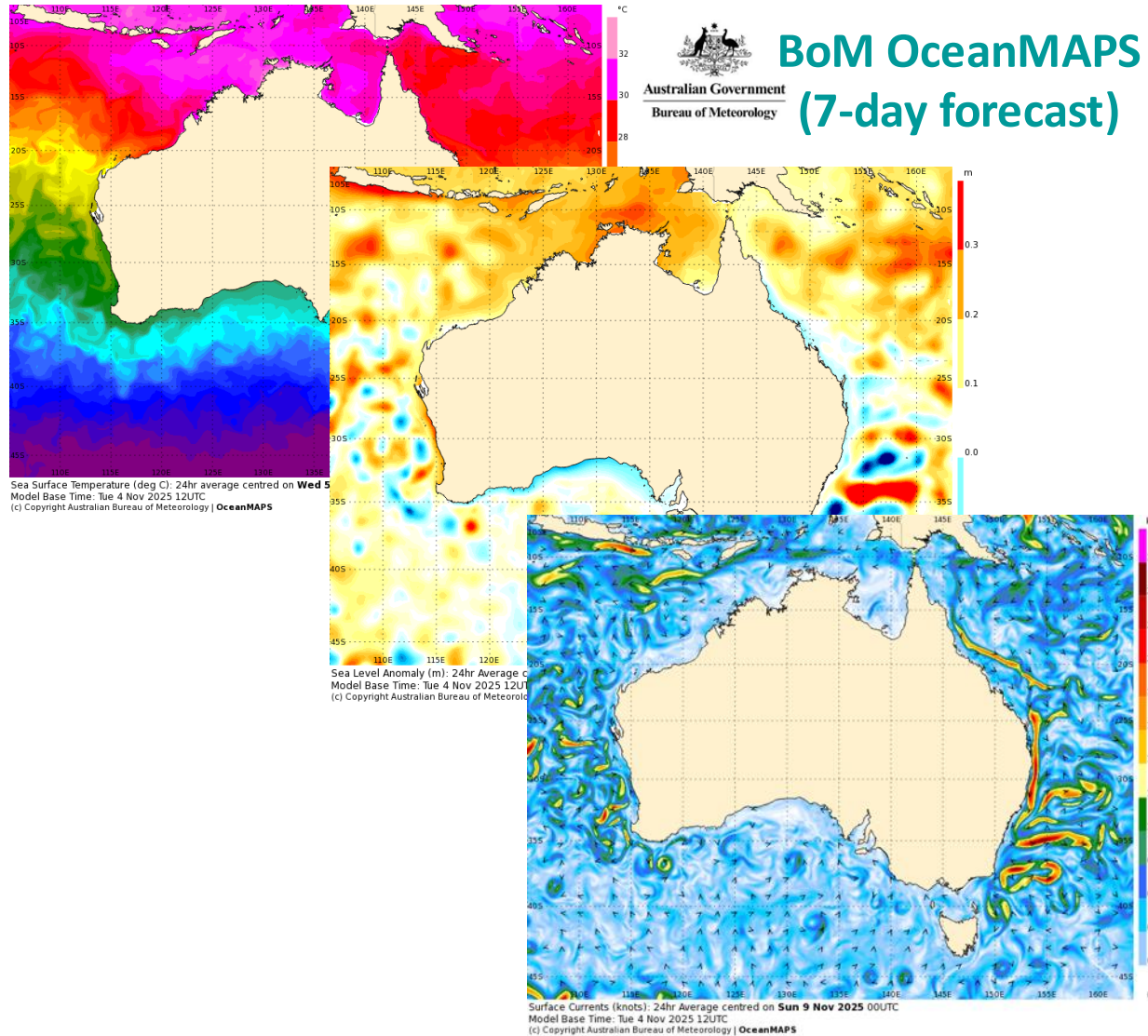
Weekly MHW outlook



Marine heatwave categories forecast for 8 November, 2025. Global Ocean. Credit: Mercator Ocean International

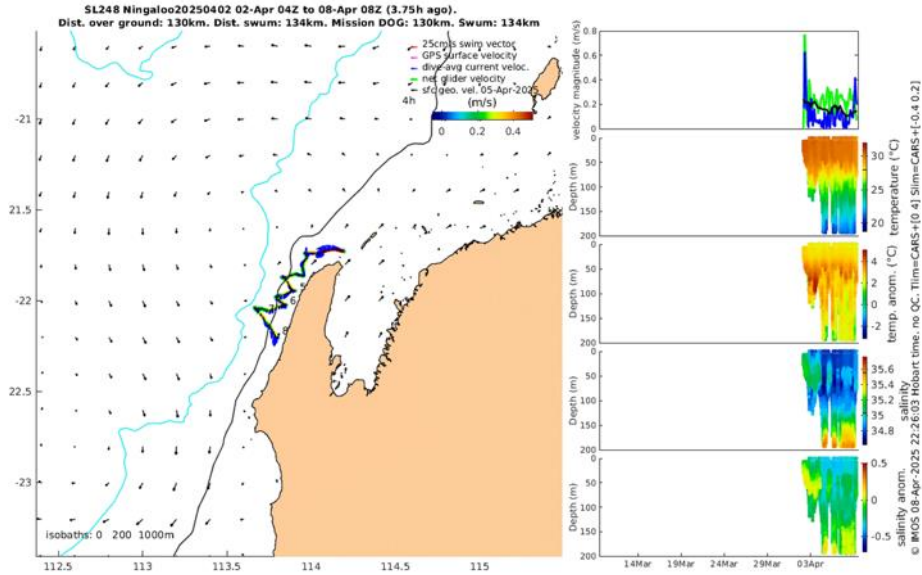


Weekly MHW monitoring & forecasts



MERCATOR OCEAN INTERNATIONAL
(9-day forecast)

Monitoring subsurface heat conditions



IMOS Ocean Glider deployments (event-based monitoring of ocean extremes) :

Temperature anomalies of 3-4 C off Onslow during January down to 150m depth

<https://oceancurrent.aodn.org.au/gliders/index.php>



Network of nearshore **SMART buoy** provides near-real time top and bottom temp data along the WA coast

<https://wawaves.org/>



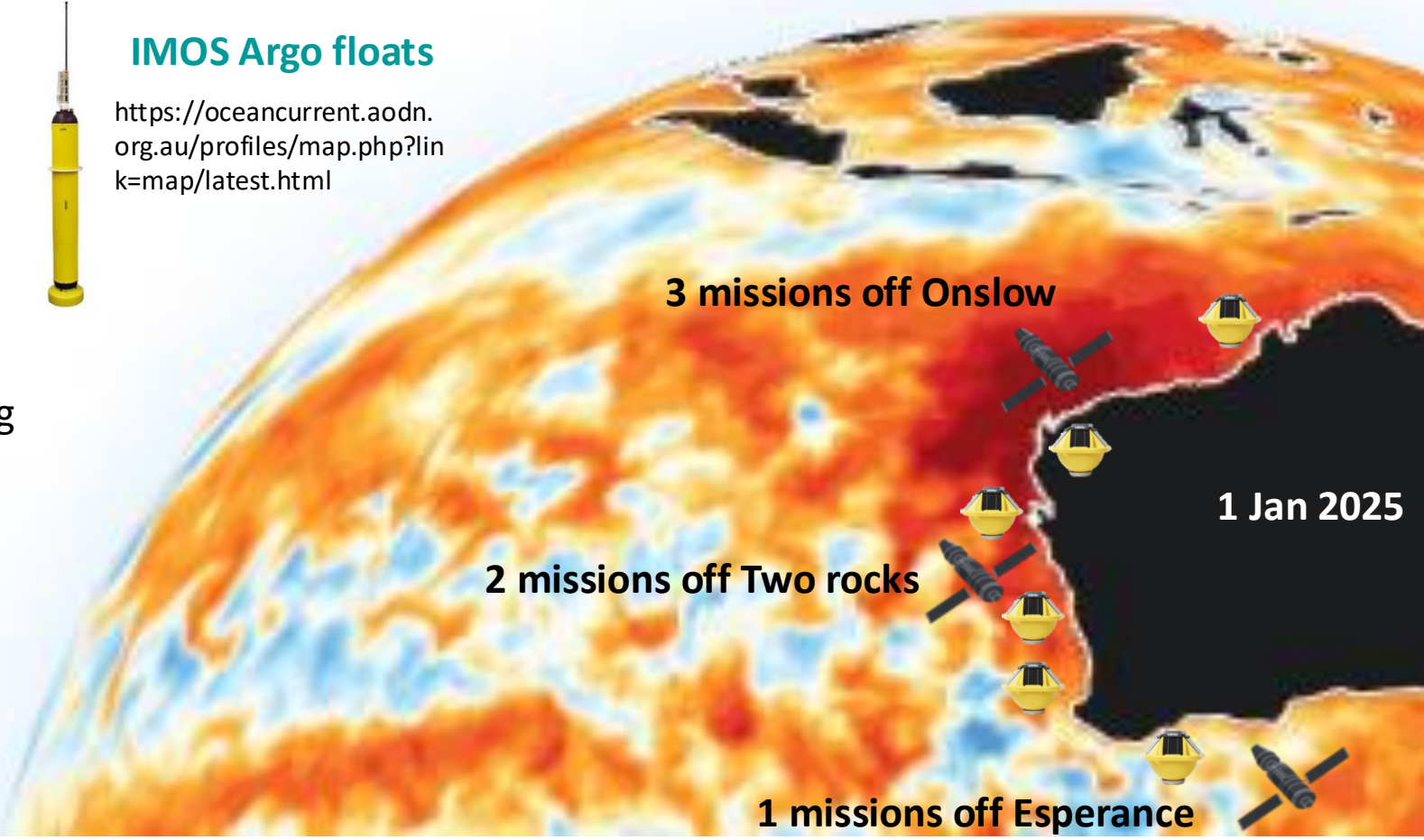
IMOS Argo floats

<https://oceancurrent.aodn.org.au/profiles/map.php?lin=k=map/latest.html>



Network of offshore **Fish Aggregation Devices (FADs)** with temp loggers on **bottom** along the WA coast

<https://recfishwest.org.au/fads/>



WA MHW Response Plan – Operational guidelines



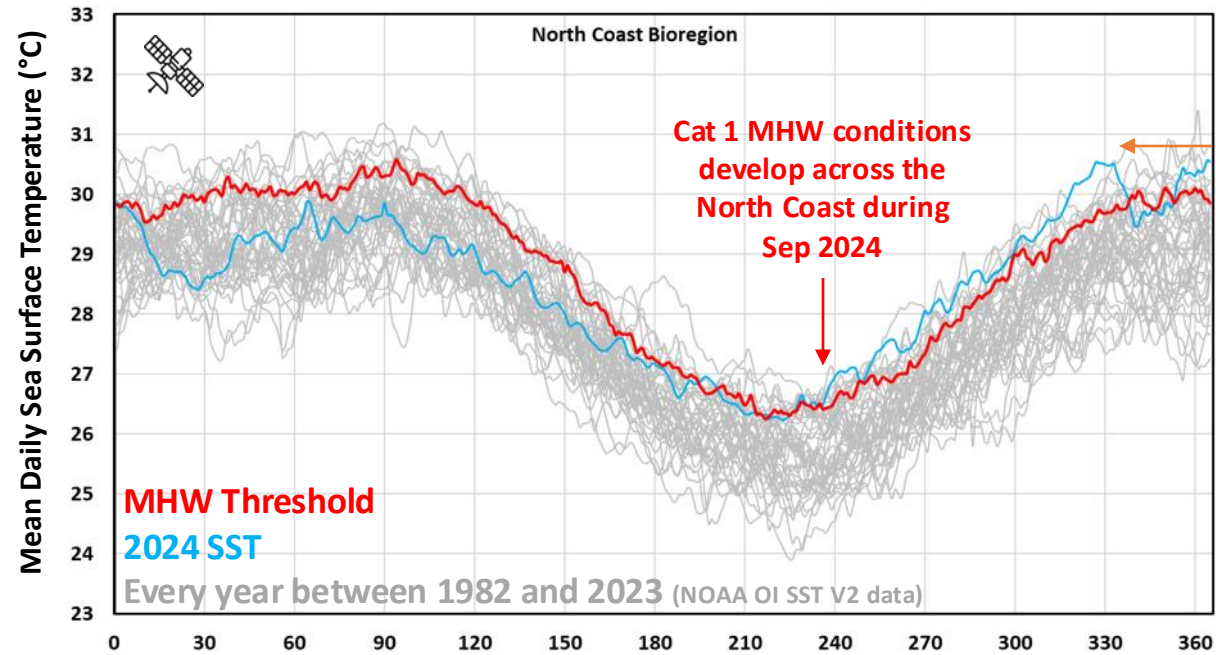
PHASE 2

Event detection and monitoring

DPIRD & Stakeholder briefing



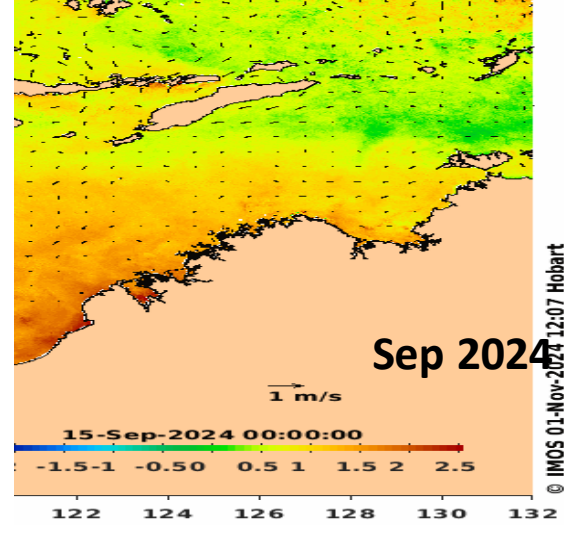
DPIRD MHW Response Team



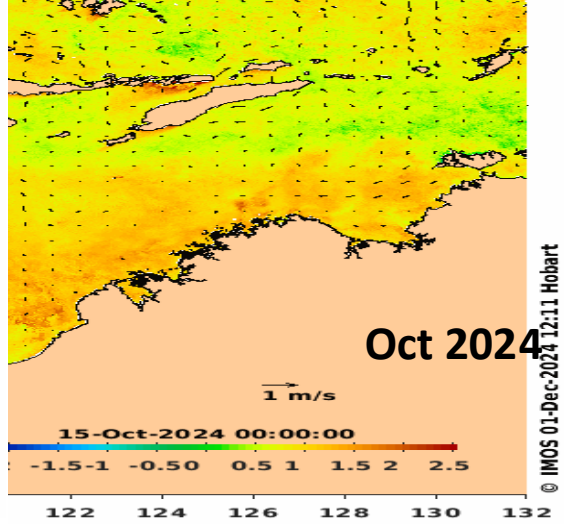
MHW conditions intensify during late Nov/ Dec 2024 – SSTs up to 2 deg C above mean



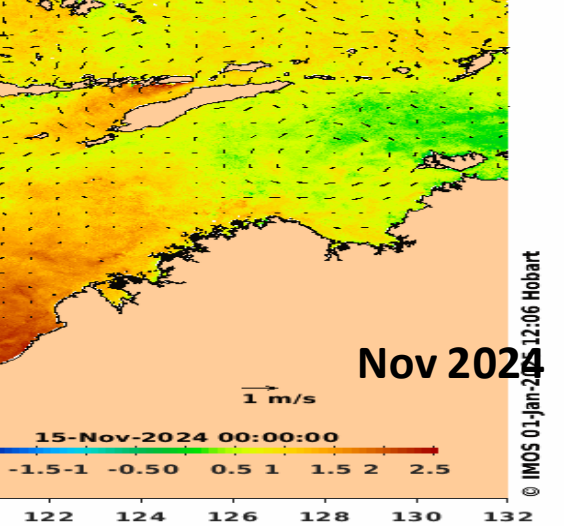
d Geostrophic Velocity: 15-Sep-2024.



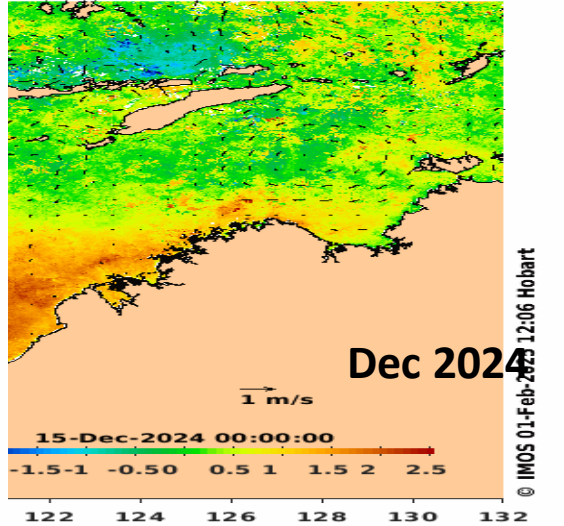
d Geostrophic Velocity: 15-Oct-2024.



Geostrophic Velocity: 15-Nov-2024.



Geostrophic Velocity: 15-Dec-2024.



WA MHW Response Plan – MHW Notifications



PHASE 3

Event declaration and briefings



Social media



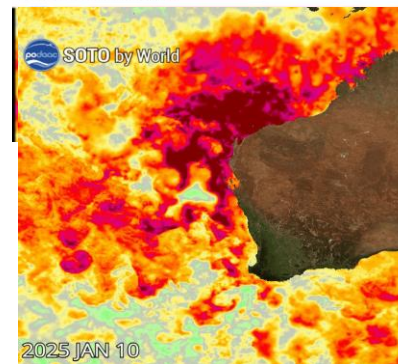
Fisheries WA
 23 Jan · 🌐

A marine heatwave is currently underway in the North and Gascoyne Coast bioregions 🌡️

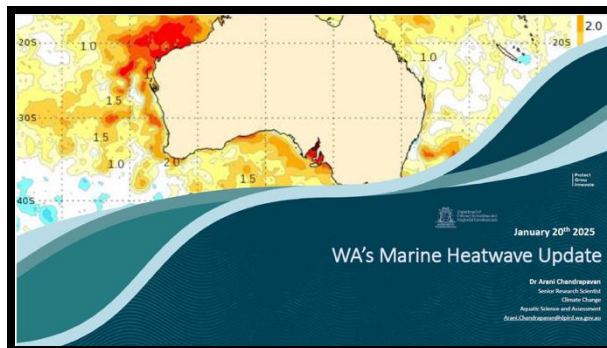
⚠️

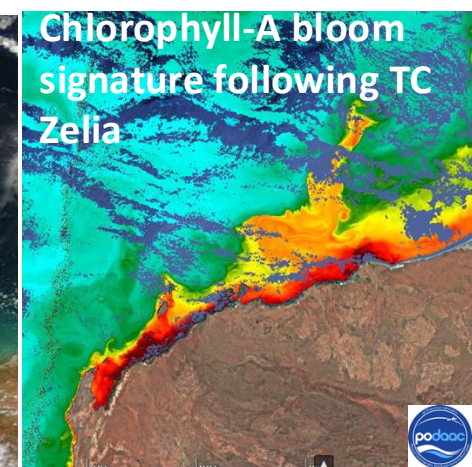
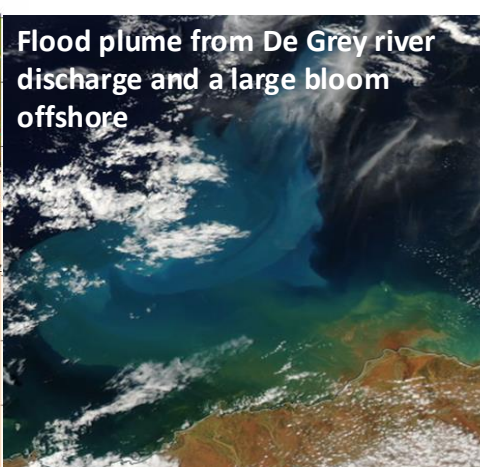
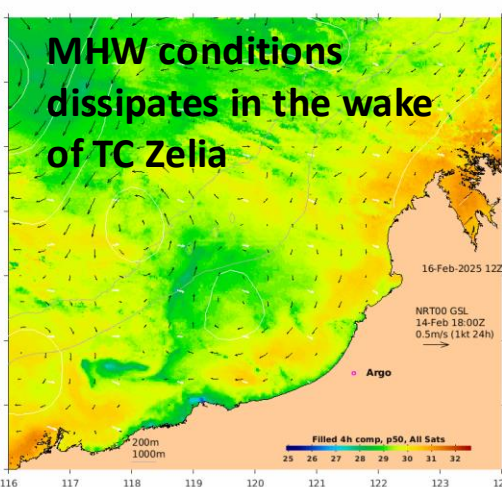
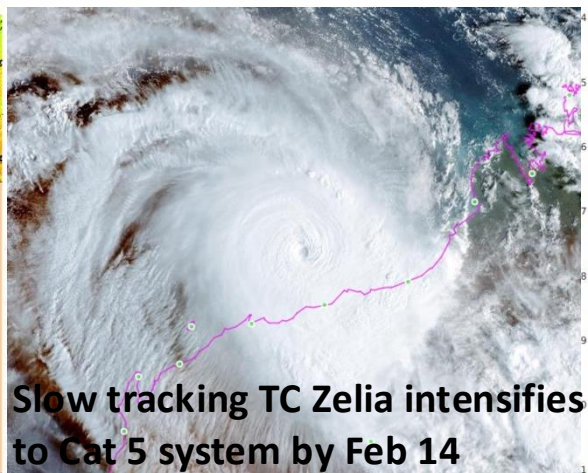
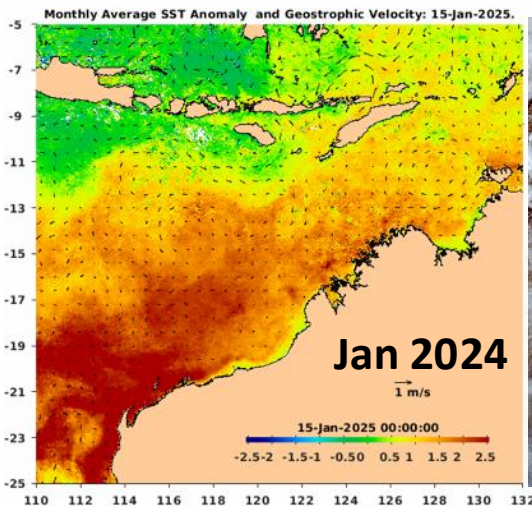
In the North Coast bioregion, sea surface temperatures are 4-5°C above the long-term average and in the Gascoyne bioregion they're 2-3°C degrees above the long-term average.

Our research team is working to monitor the situation to understand what this means for key fisheries. During the marine heatwave, please report anything unusual to our 24/7 FishWatch hotline.

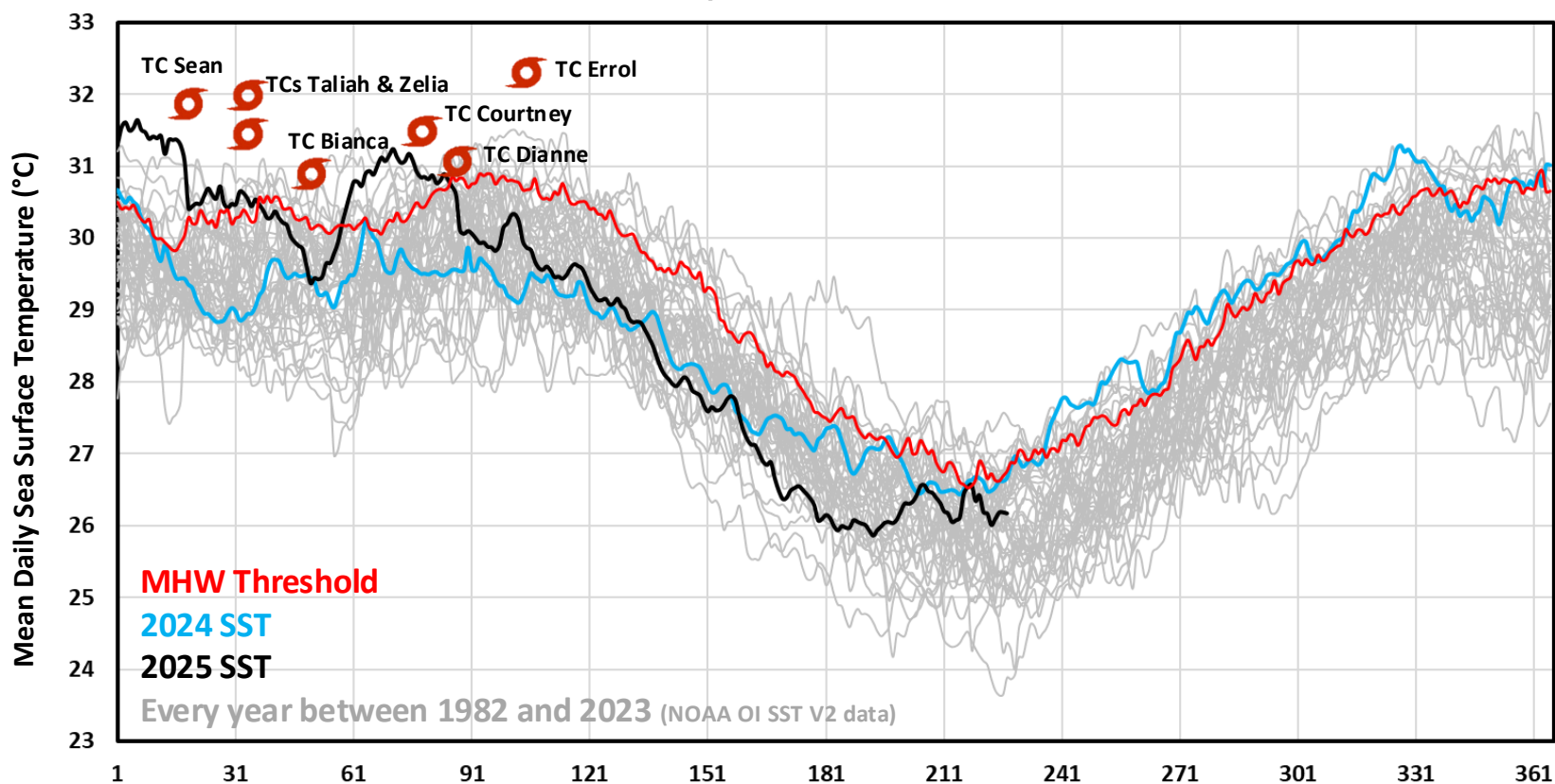


- Event overview **summary**
- Regional summaries (at bioregional scale if statewide)
- **Forecast**
- Recommended **actions** for stakeholders
 - Fishers
 - Aquaculture operators
 - Sector bodies and managers
- Observed **impacts**
- Reporting and **support**
- Future updates
- Further information and **feedback**
- **Please subscribe** to mailing list for updates





Daily SST at North Coast

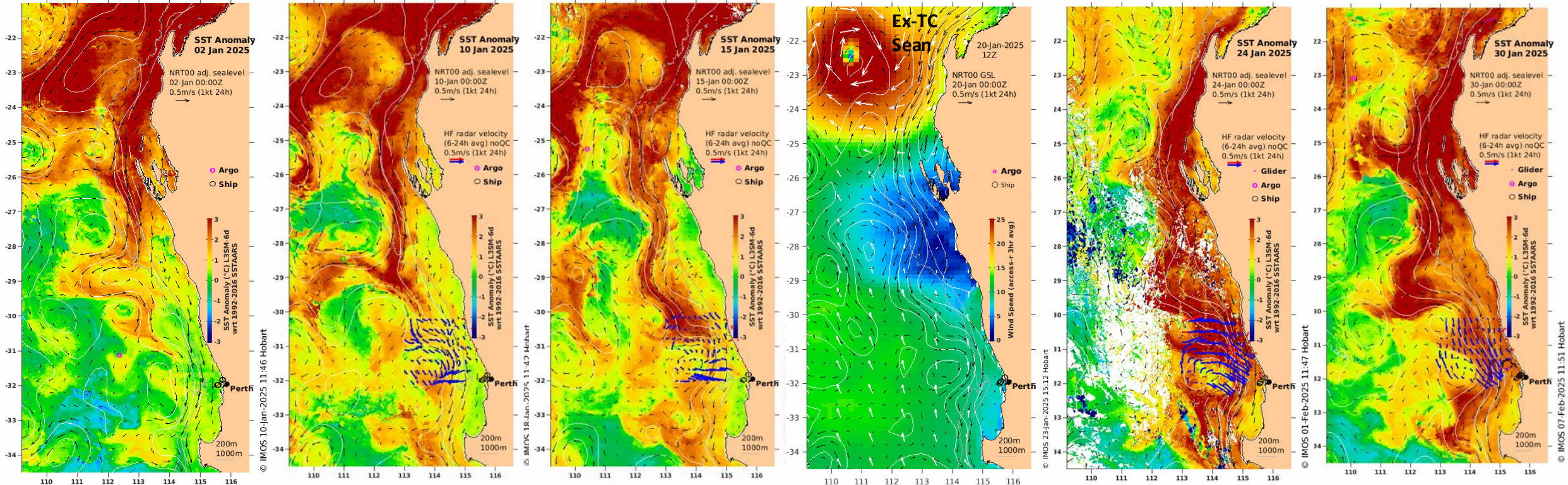
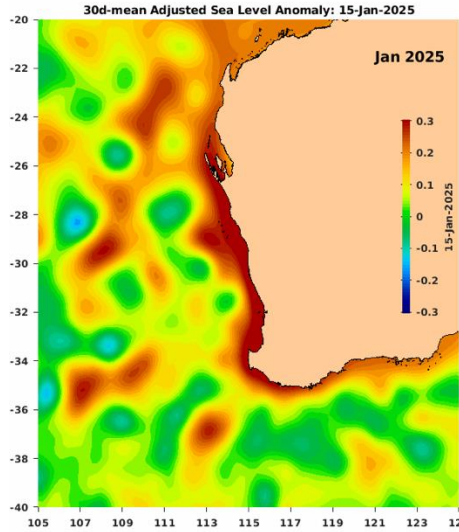
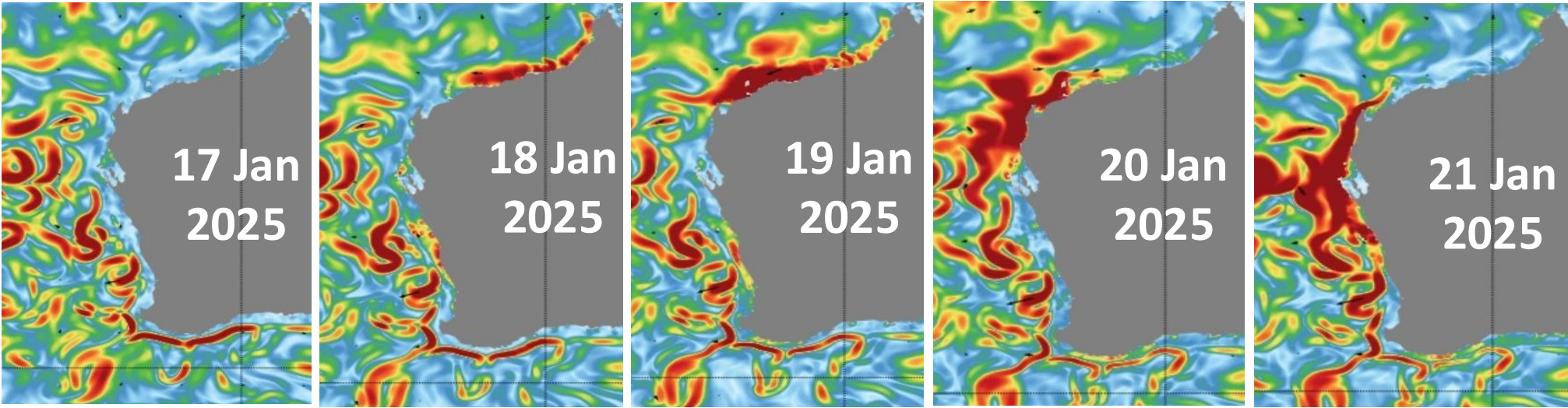


Communicating concurrent extreme events – compounding impacts

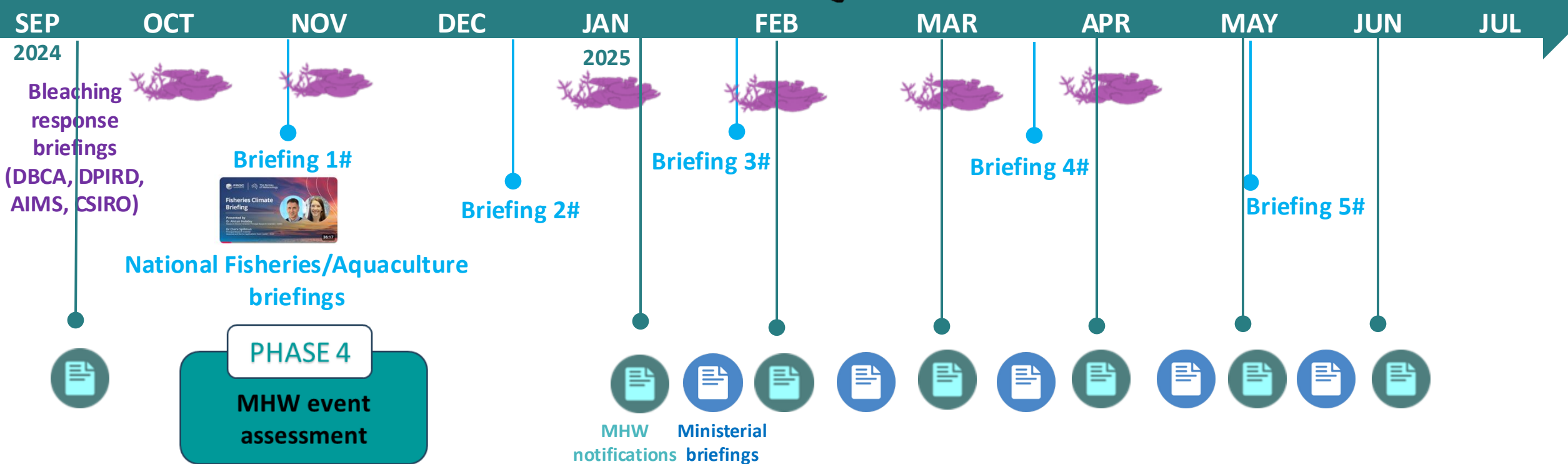
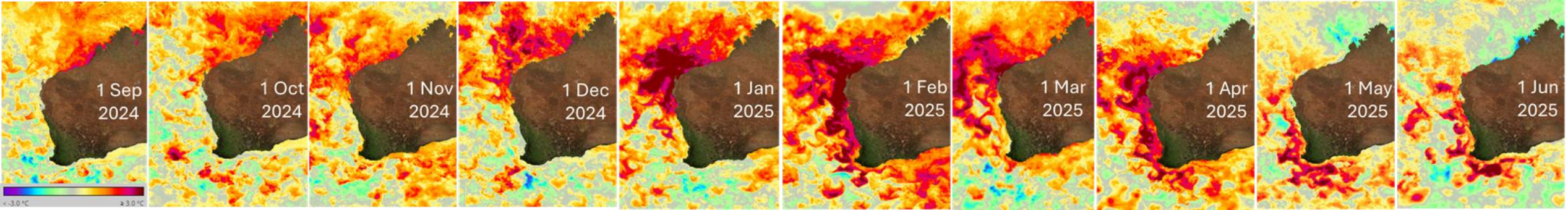
The 2024-25 summer experienced the latest monsoon onset on record with 7 Feb declared the official onset date.

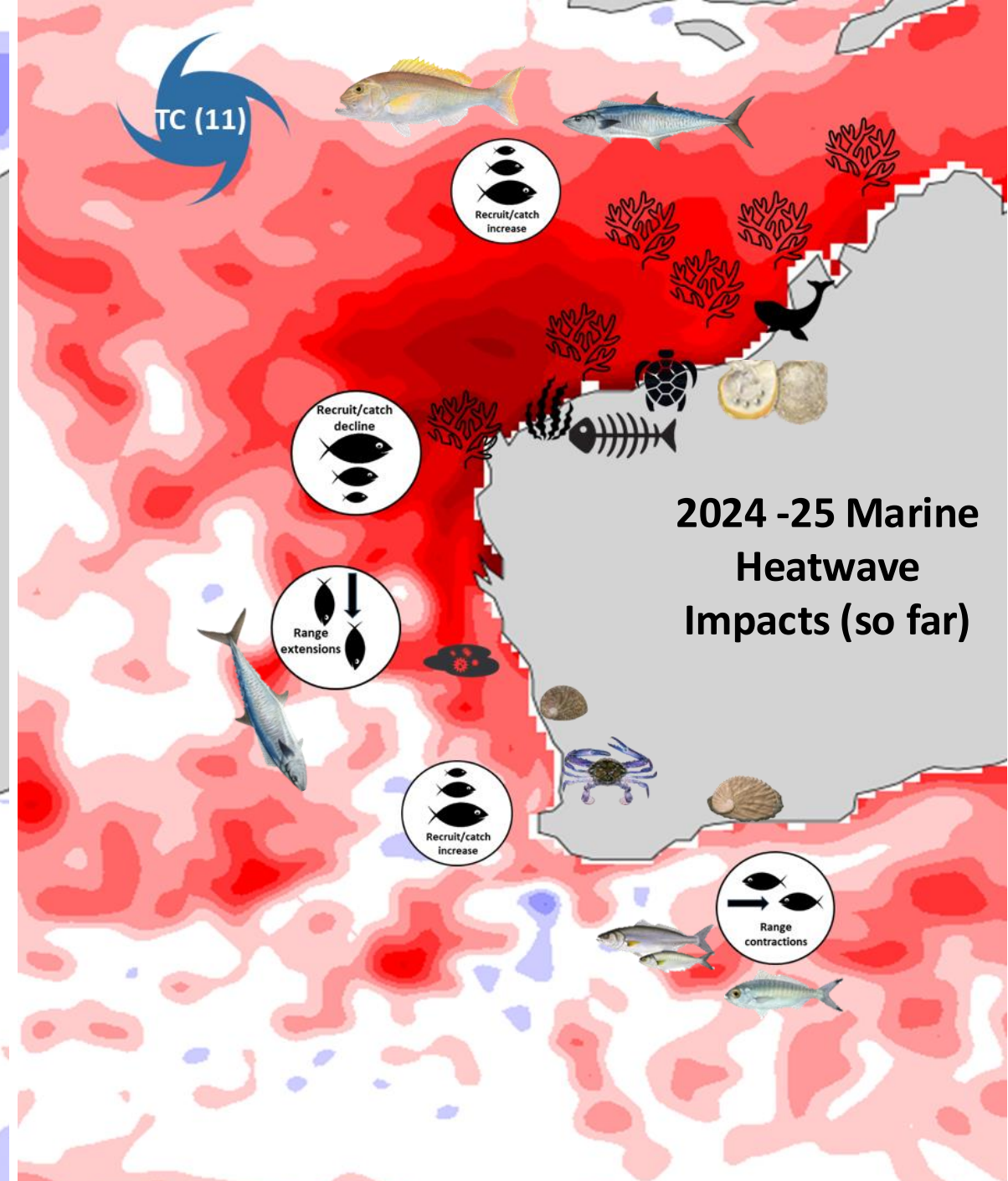
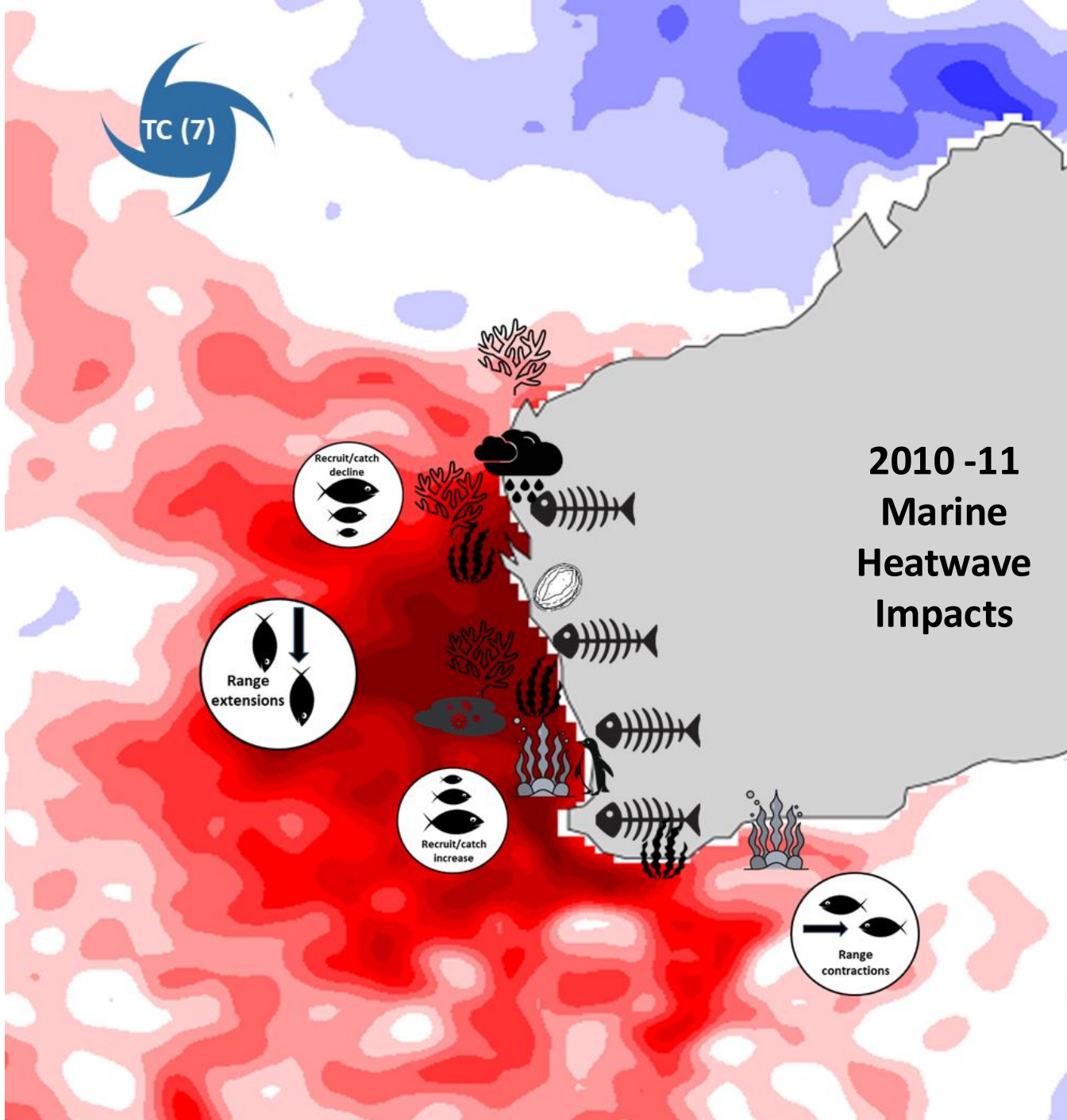
Could this MHW get as bad as the 2011 MHW ?

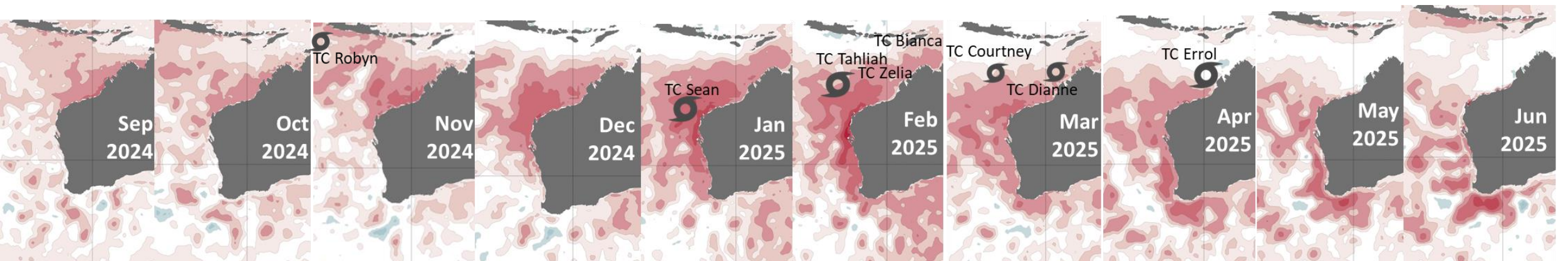
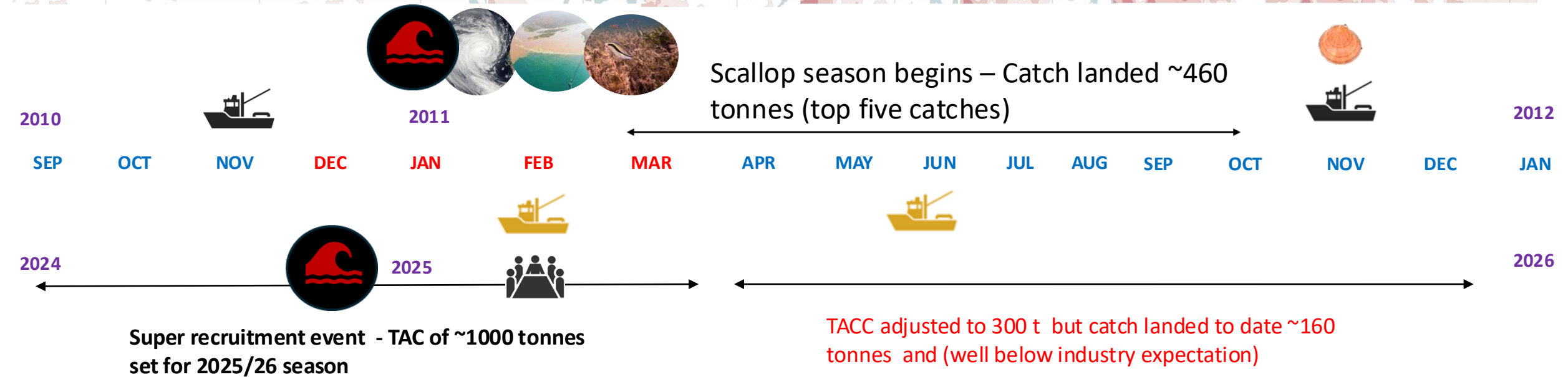
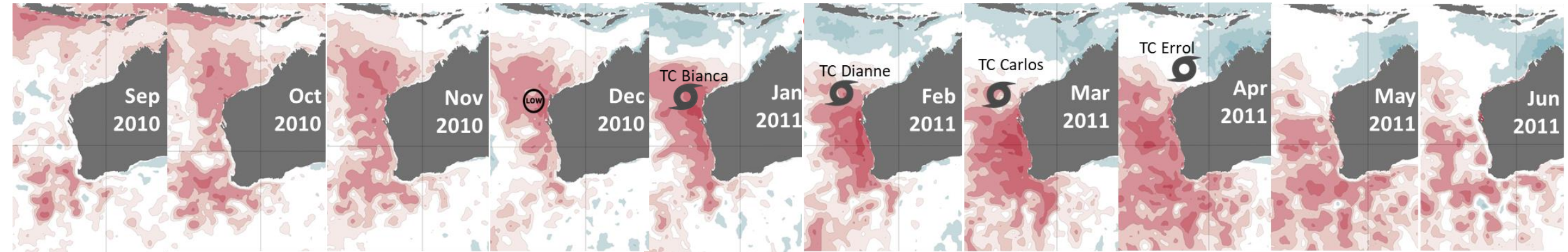
OFFICIAL



2024/25 MHW event response summary

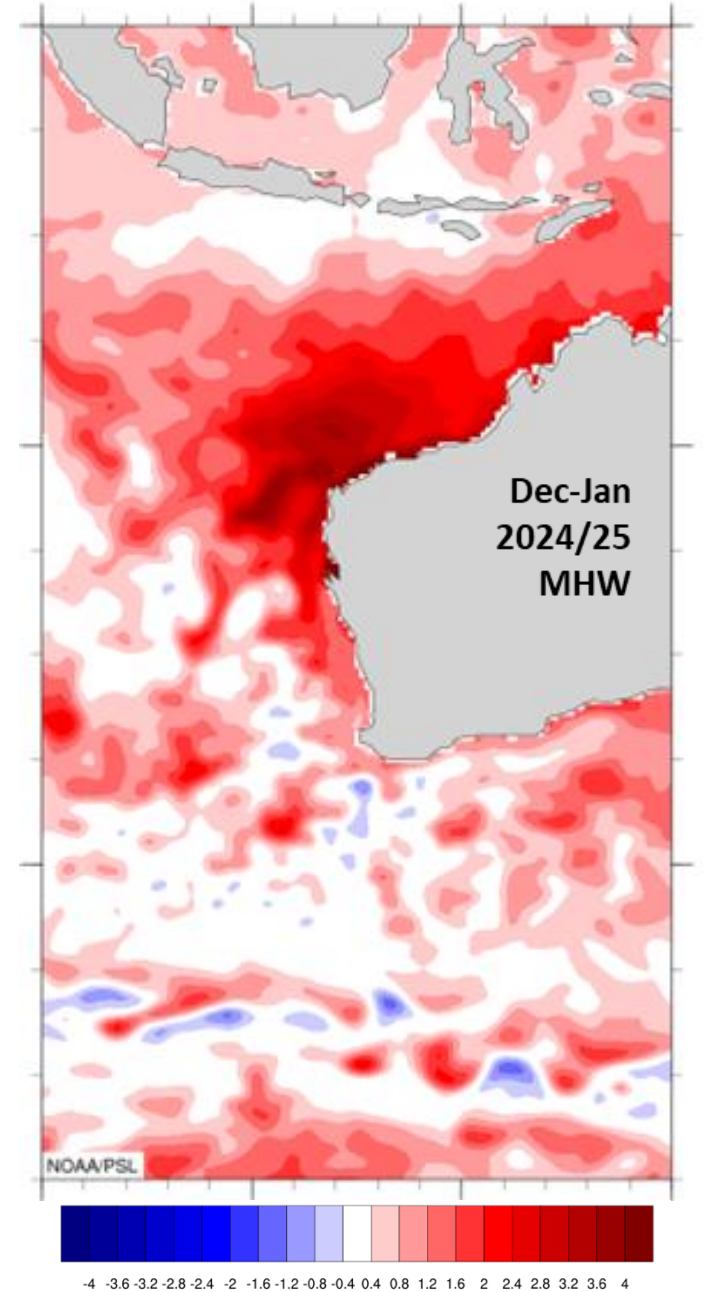
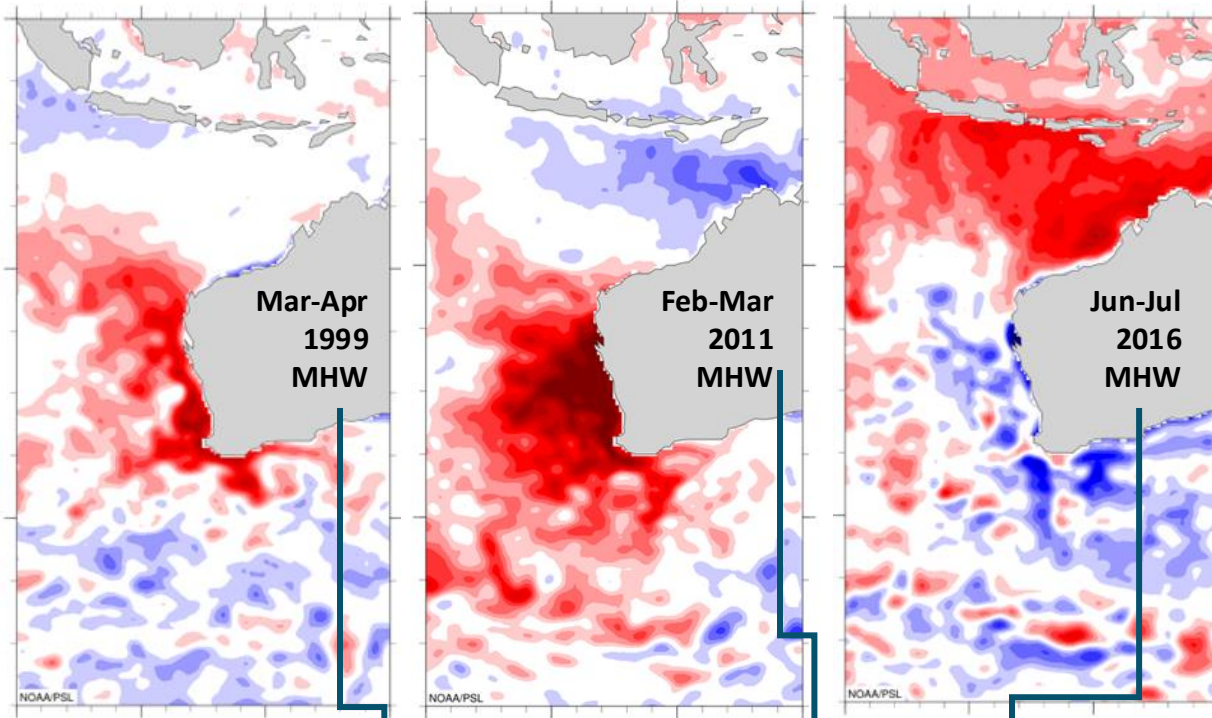




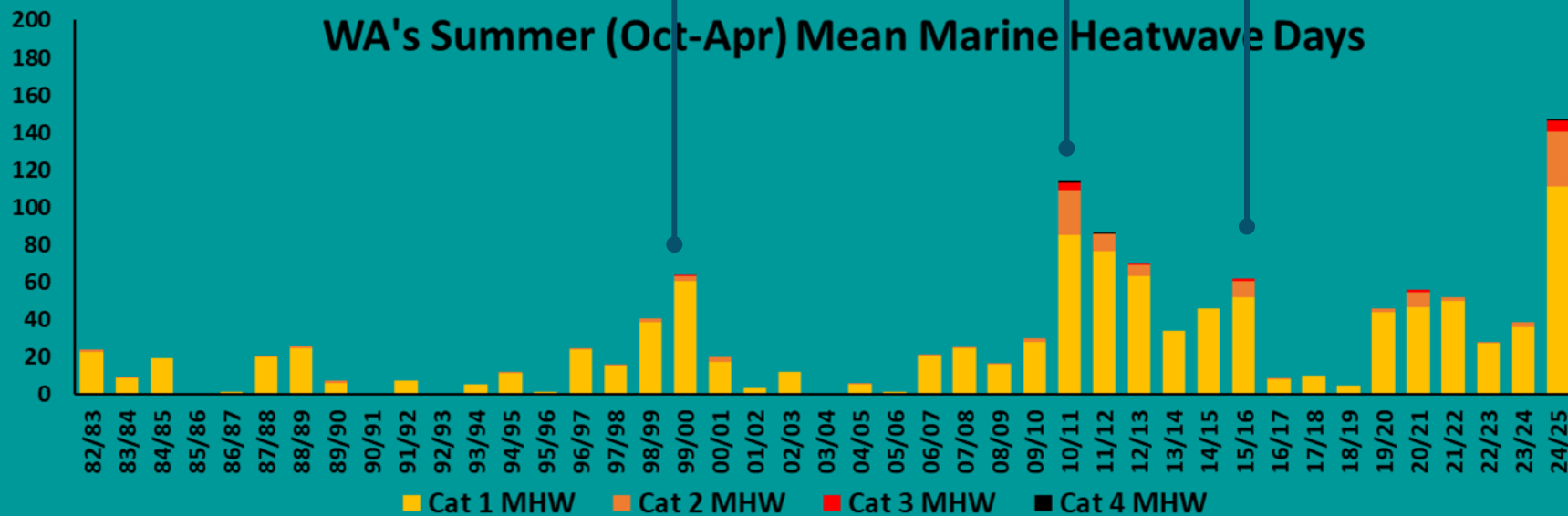




No two
MHWs
are
alike.....



WA's Summer (Oct-Apr) Mean Marine Heatwave Days



Thank you

dpird.wa.gov.au    

Important disclaimer

The Chief Executive Officer of the Department of Primary Industries and Regional Development and the State of Western Australia accept no liability whatsoever by reason of negligence or otherwise arising from the use or release of this information or any part of it.

Copyright © State of Western Australia (Department of Primary Industries and Regional Development), 2025.