Marine Heatwave Prediction

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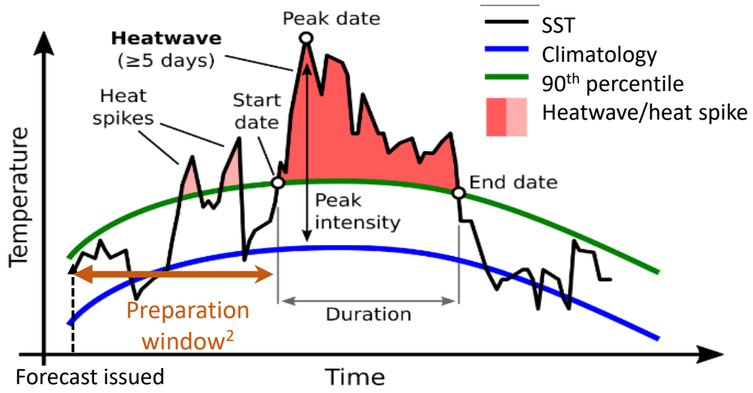
What is a marine heatwave?



A marine heatwave is defined as when sea surface temperatures (SST) exceed the 90th percentile for 5 or more consecutive days.[1]

Marine heatwaves can occur year round, though usually have the greatest impacts in summer. Severity of impacts depend on event duration, intensity, extent and timing.

What's the big deal?

Marine heatwaves can have devastating impacts on marine systems and industries.

Marine heatwaves

System impacts
- Thermal limits exceeded
- Changes in fish growth
- Toxic algal blooms
- Coral bleaching
- Changes in abundance & distributions
- Increased disease risk

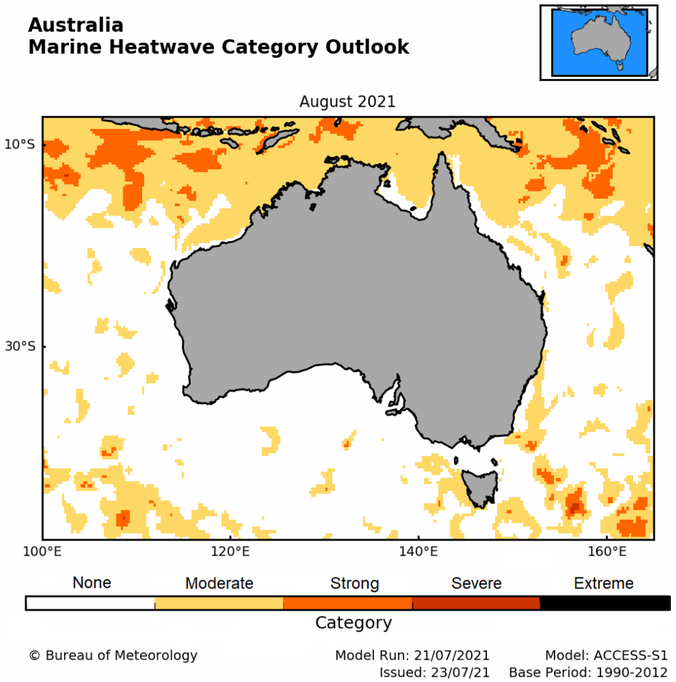
Operational impacts
- Fishery closures
- Smaller catches
- Poor fish quality
- Changing fishery yields & locations
- Spend longer at sea
- Biodiversity loss
- Beach closures

Industry & community impacts
- Decreased resilience
- Increased costs
- Reduced profitability
- Food insecurity
- Illegal fishing
- Reduced employment
- Less valuable alternatives

Predicting marine heatwaves

The Bureau of Meteorology and CSIRO have a 3 year project to research and develop prototype ACCESS-S seasonal marine heatwave forecast tools.

These cutting edge decision support tools will predict marine heatwave likelihood, intensity and location in the coming months.



Prototype marine heatwave forecast for August 2021

Advance warning of these extreme events provides a preparation window[2] for marine users. This allows for proactive management responses to mitigate impacts, increasing system and industry resilience in a warming climate.

1. Hobday et al 2016 2. Spillman et al in review

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