

Why do we care?

Coral reefs are important for many different reasons aside from **containing the most diverse ecosystems on the planet**.

They:

- protect coastlines from the damaging effects of wave action and tropical storms
- provide habitats and shelter for many marine organisms
- are the source of nitrogen and other essential nutrients for marine food chains
- assist in carbon and nitrogen fixing
- help with nutrient recycling...



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eReefs Hydrodynamic model

The [eReefs hydrodynamic model](#) predicts the movement of water and key environmental conditions (temperature, salinity, currents, tides).

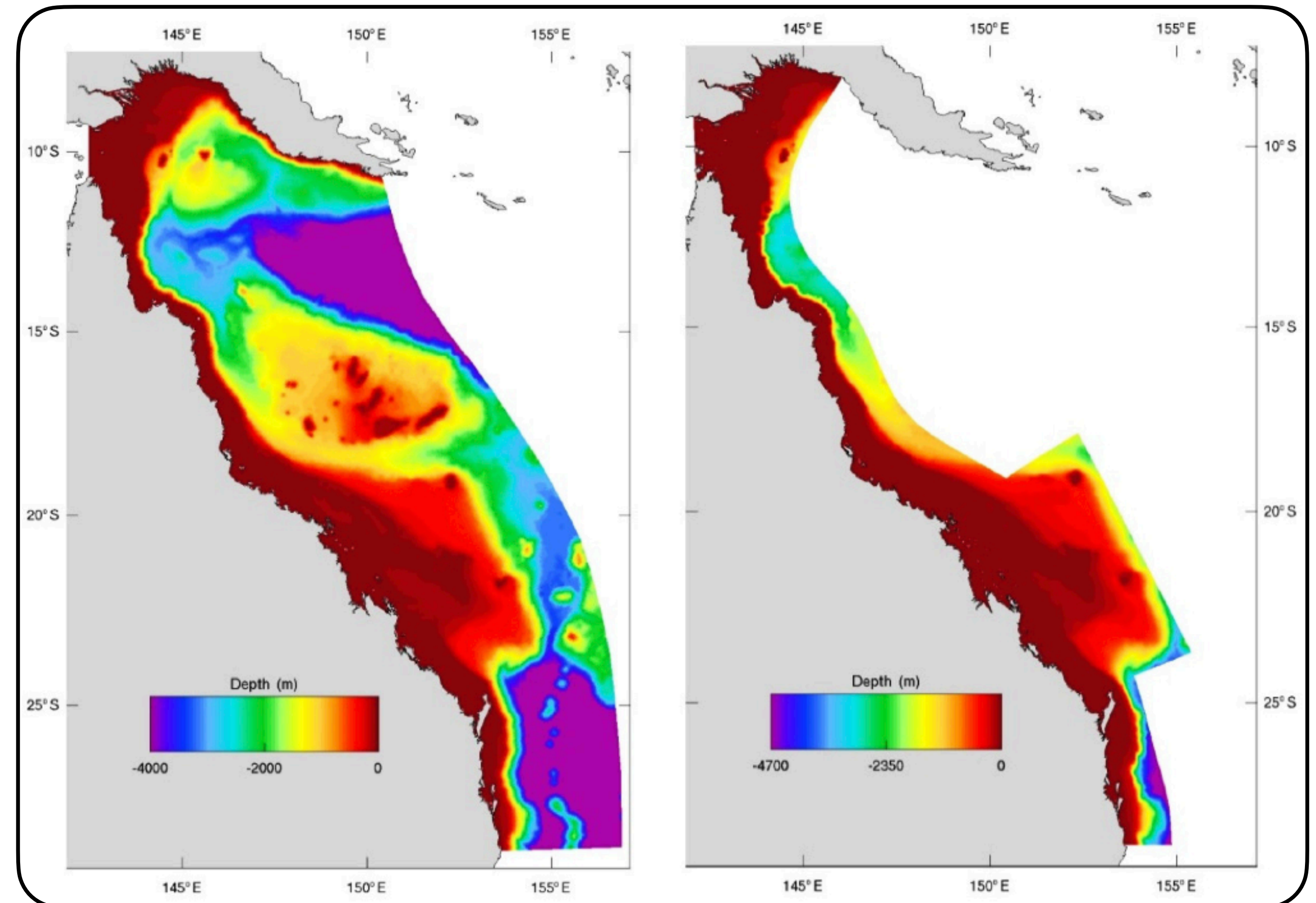
This model allows us to better understand:

- how cyclones mix the water,
- the location of potentially damaging heat waves,
- the ocean currents that disperse larvae of corals
- fresh water plumes from flooded rivers
- ...

This model is run with a **4 km** and **1 km** grid size.

The 4 km grid has a longer hindcast going back to **September 2010**, while the 1 km model starts in **December 2014**.

The 1 km model also only extends out to the edge of the GBR, whereas the 4 km model covers much of the Coral Sea.



Model grid and bathymetry for the 4km (left) and 1km (right) resolution model