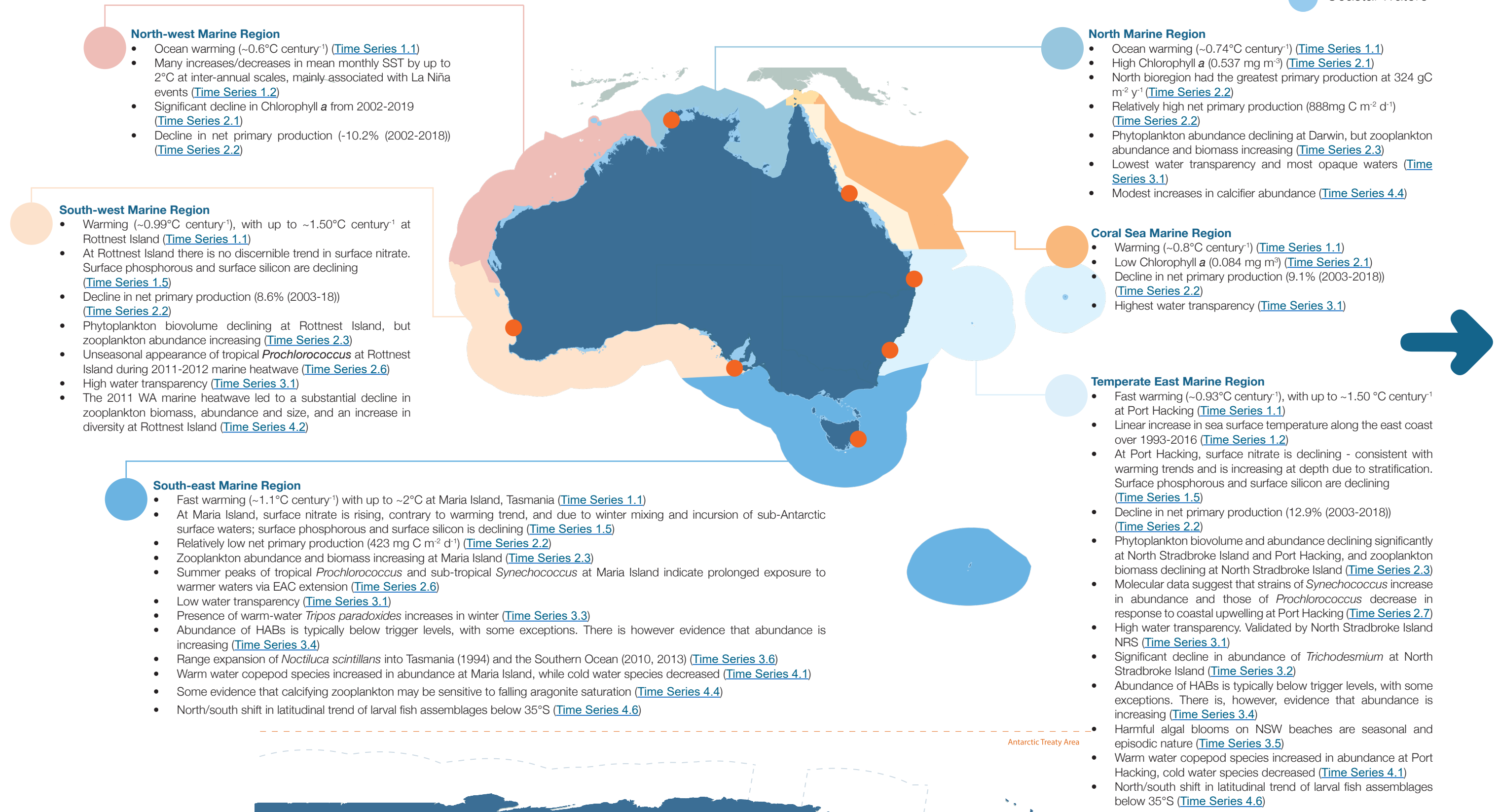


State and Trends of Australia's Ocean Report

Marine Bioregional Summary

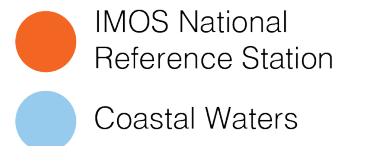
- IMOS National Reference Station
- Coastal Waters



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State and Trends of Australia's Ocean Report

Regional Summary



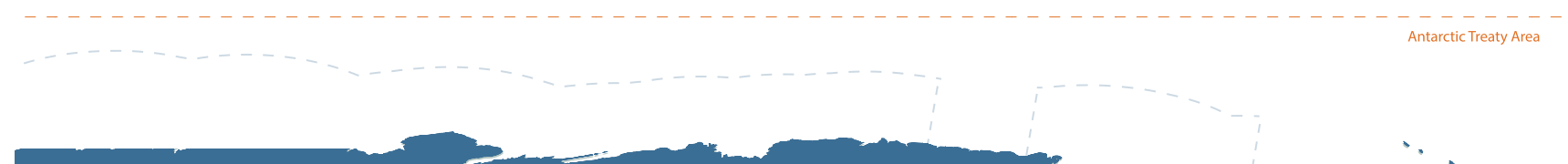
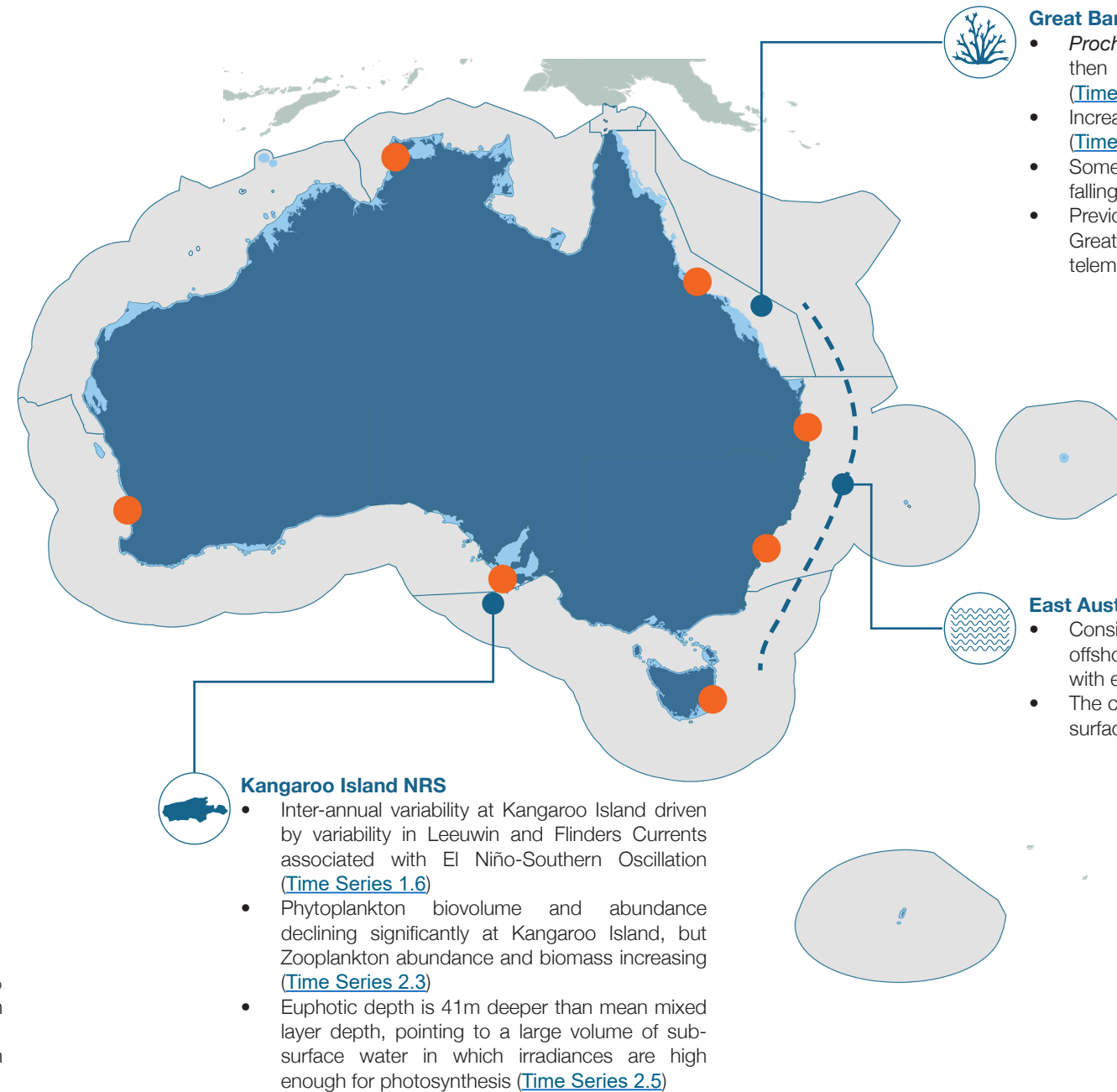
Australian Region/EEZ

- Steady warming since 1920, particularly in the south ([Time Series 1.1](#))
- The Leeuwin and East Australian Currents demonstrated strong seasonable and inter-annual variability linked to El Niño and La Niña events ([Time Series 1.4](#))
- Large decreases in both aragonite saturation rate and pH between 1870-99 and 2000-09 ([Time Series 1.6](#))
- Low average Chlorophyll *a* (0.25 mg m^{-3}) typical of healthy tropical/sub-tropical oceans. The average is declining, by 8% in the period 2003-19 ([Time Series 2.1](#))
- Low average net primary production ($551 \text{ mg C m}^{-2} \text{ d}^{-1}$) typical of healthy tropical/sub-tropical oceans. Average declining by 12% in the period 2002-2019 ([Time Series 2.2](#))
- Seasonal cycle of phytoplankton follows latitudinal bands, except in the Leeuwin Current and northeast Indian Ocean ([Time Series 2.4](#))
- Deep chlorophyll maxima deeper than mean mixed layer depths indicating that sub-surface production is important ([Time Series 2.5](#))
- Average Secchi disk depth is 24m ([Time Series 3.1](#))
- Majority of Tripos species exhibit broad temperature range ($10\text{--}25^\circ\text{C}$). Restricted group of warm water species identified to enable monitoring of any future range expansion ([Time Series 3.3](#))
- No evidence of decline in calcifying zooplankton at National Reference Stations ([Time Series 4.4](#))



Southern Ocean and Tasman Sea

- Increasing trend in acoustic backscatter in Southern Ocean (77% (2010-2018)) and Tasman Sea (44-105%), likely to reflect change in mesopelagic communities ([Time Series 4.5](#))
- IMOS satellite tagging of elephant seals in the Southern Ocean revealing physical drivers of population change ([Time Series 4.8](#))



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