



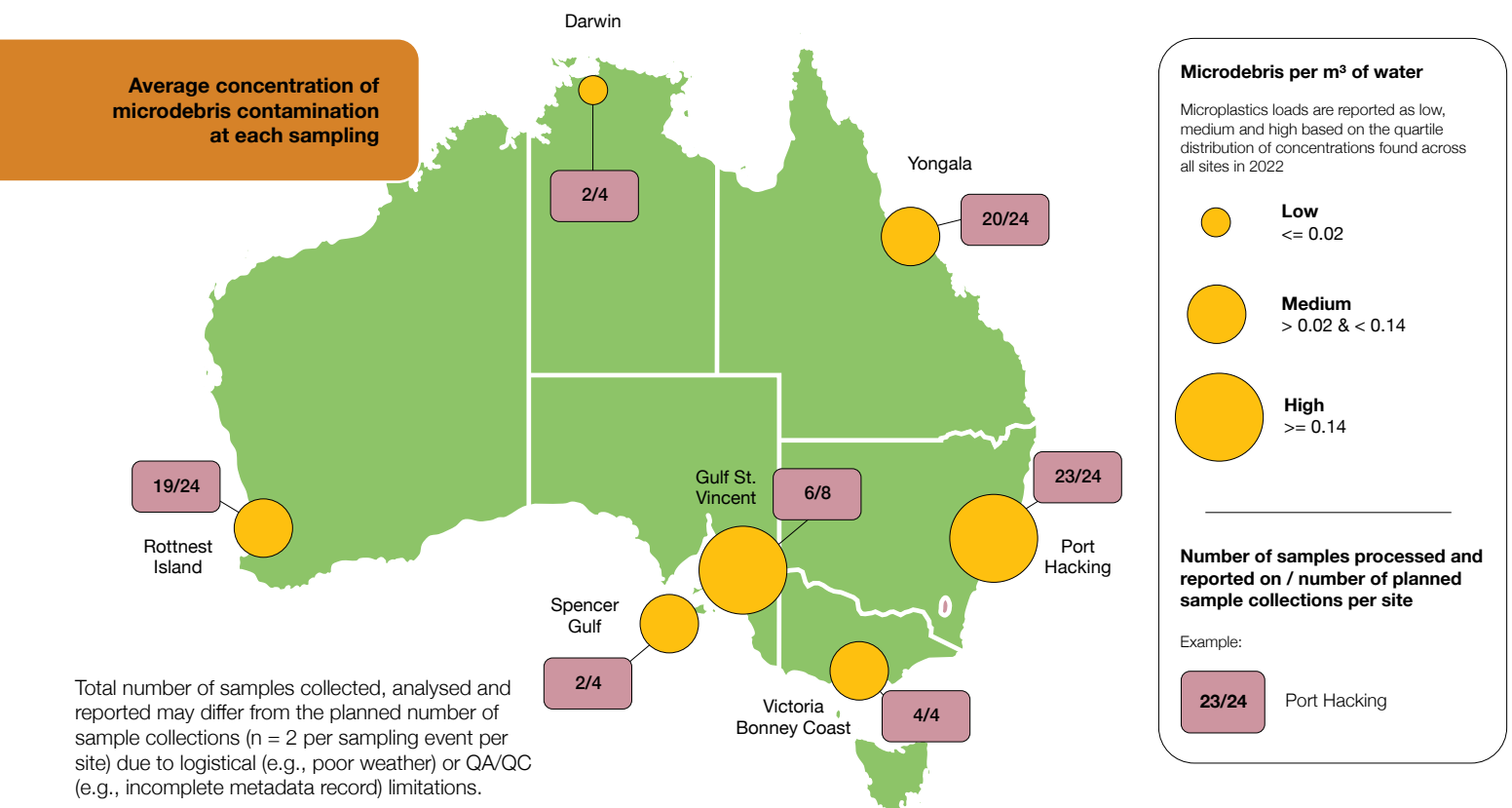
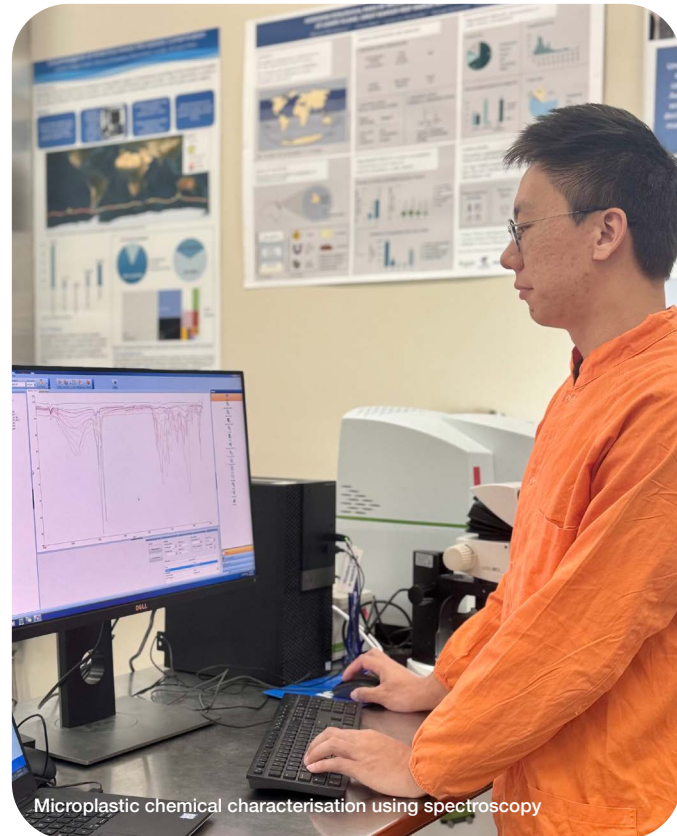
## Program overview

Marine microdebris is comprised of anthropogenic solid waste, including microplastics (plastics smaller than 5 mm in length), that has been inadvertently or intentionally disposed in marine environments. With global plastic production rising, microdebris contamination is predicted to increase.

The IMOS Marine Microdebris Monitoring New Technology Proving project, established in 2021, monitors temporal and spatial variations of this contamination in Australian waters to inform environmental management and policy.

This series of Marine Microplastics report cards documents the extent of contamination at each sampling site and summarises trends in pollution levels. This 2022 report provides a comprehensive annual summary for all monitored sites for January to December 2022 and serves as the first assessment against the baseline established in 2021. This, and future reports, leverages year-on-year comparable data to identify contamination hotspots, support pollution target-setting, and evaluate the effectiveness of local management practices.

Findings are reported as microdebris abundance per cubic metre of water (MPs  $m^{-3}$ ), along with diagnostic physical and chemical characteristics — essential data for identifying sources, assessing ecological risks and informing policy decisions.

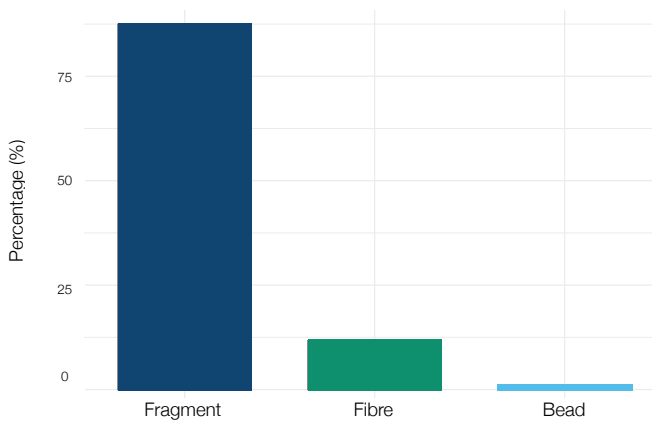


# Microdebris up close: What it looks like

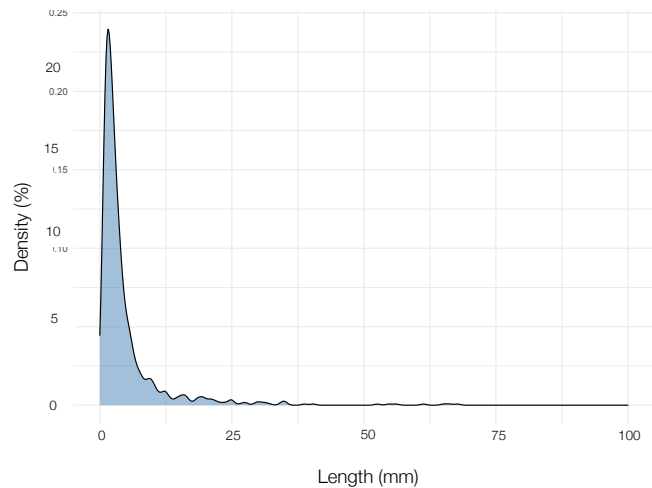
Shape, colour, size and chemical composition characteristics are presented for all microdebris found in 2022. This is a representation across all sites.

Refer to the site-specific graphs for the most common polymer types found at each site for the year.

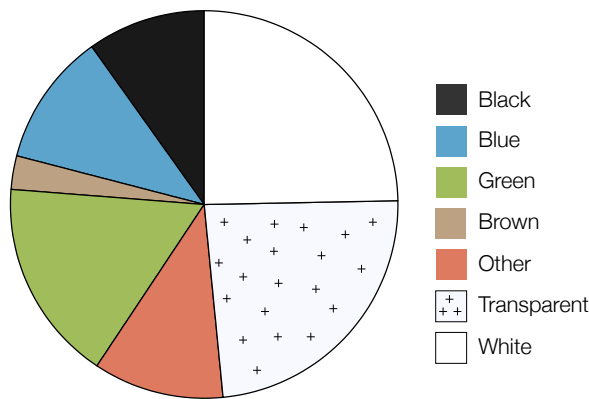
Shape %



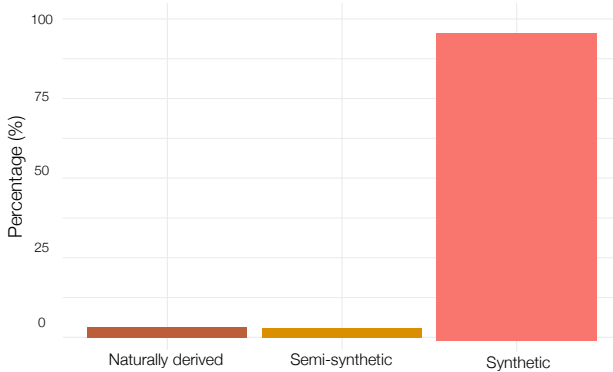
Size %



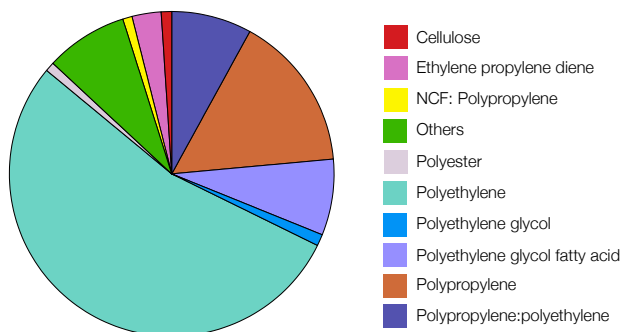
Colour %



Chemical composition %  
Percentage of polymer category



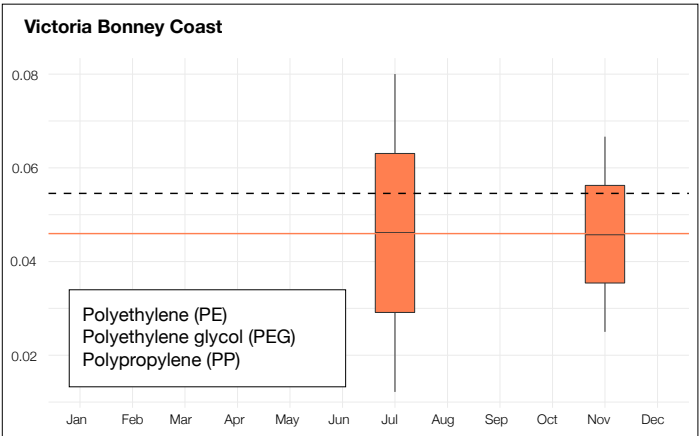
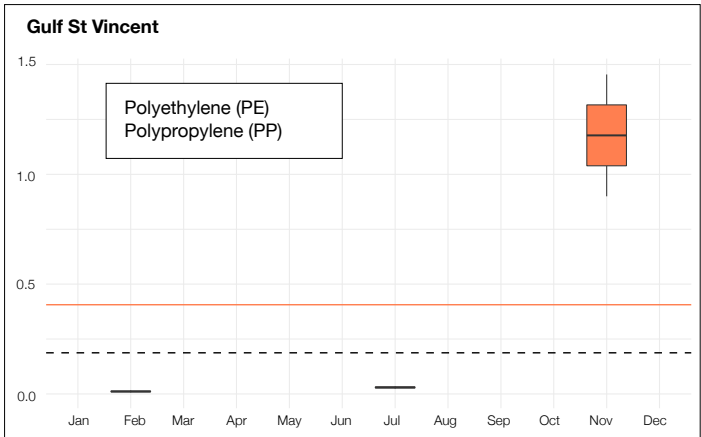
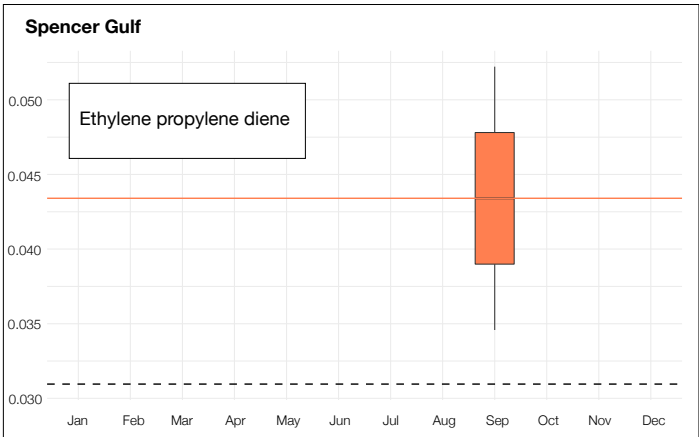
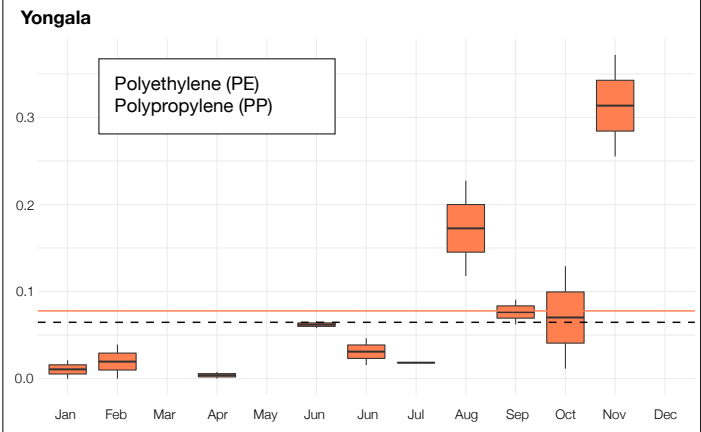
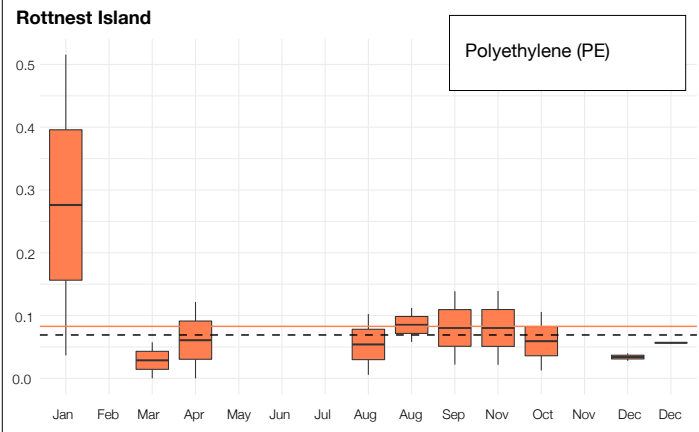
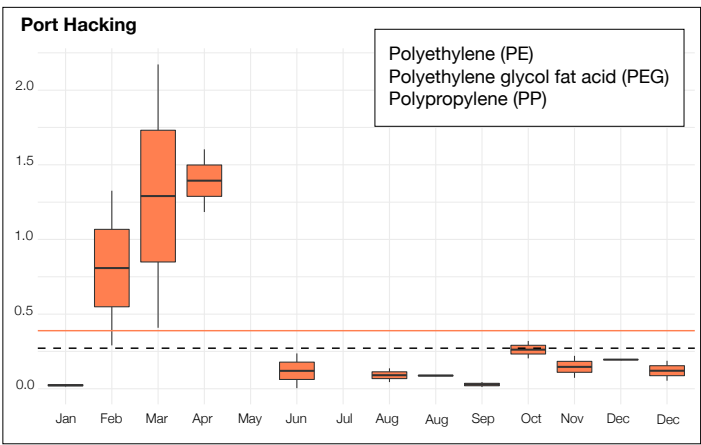
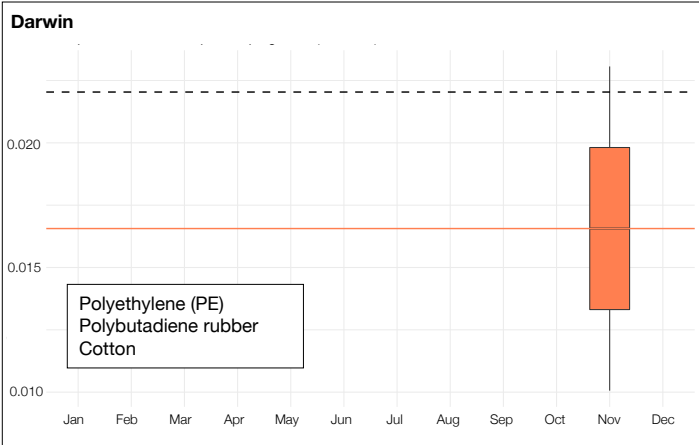
Polymer type distribution



# Where and when: Microdebris levels and characteristics across sites

These graphs illustrate microdebris contamination levels (items per cubic meter of water, MP <sup>m-3</sup>) recorded in 2022, categorised by month and sampling location. Because of logistical constraints, some months may feature multiple sampling events - these months are duplicated on the relevant graph. Months without any sampling events are left blank.

Plots are supplemented with additional data, including annual and cumulative averages of microdebris concentrations for 2022 (represented by a continuous line) and across the entire program timeline 2021 - 2022 (dashed line). Additionally, the most abundant polymer types identified at each site are provided.



2022

### Important Notes

- Each microdebris item was physically and chemically characterised using stereomicroscopy and Fourier transform infrared spectroscopy. Potential extraneous contamination (e.g., staff clothing fibres) were excluded following standardised procedures.
- Caution should be taken when comparing data as sampling frequency differs between sites (refer to the map).

ACCESS THE DATA

# Understanding the impact: What the data tells us

**The IMOS Marine Microplastics sub-Facility aims to provide insightful data for better understanding trends of microplastic contamination over time and across the different sampling locations.**

This dataset complements other IMOS long-term ocean observation datasets (e.g., surface salinity, current, plankton and fish larvae) and will aid in identifying environmental factors that potentially influence the distribution of such contamination or its potential impacts.

The data contributes to determining potential sources, fate, and impacts of microplastics in Australian marine waters thereby informing environmental management at local and national scales.

The IMOS Marine Microplastics sub-Facility is operated by AIMS, in partnership with CSIRO, SARDI, NSW-DCCEEW and Deakin University.



## Highlights from 2022

2022 marked the second and final year of the pilot project and established the feasibility of spatio-temporal monitoring of microdebris in ocean surface waters on a national scale.

During 2022, data from 76 of the planned 92 samples across Australia was published, alongside continued efforts to develop and validate standardised methods.

At most sites, the average microplastic concentration in 2022 exceeded the cumulative average for 2021–2022.

At the Port Hacking site, New South Wales (NSW), increased microplastic loads coincided with months affected by heavy rainfall and one of the most devastating flood events in NSW history (late February to early April 2022).

## Access the data

For more information on the program's methodologies and to access the publicly available data, **visit the AODN website.**

## Get in touch

If you have any questions, please email [microplastic@aims.gov.au](mailto:microplastic@aims.gov.au)

