



**TR2025/33
Summary**



Tāmaki Makaurau / Auckland Marine Sediment Contaminant Monitoring

State report for Manukau Harbour 2024. Summary of TR2025/33

Environmental Evaluation and Monitoring Unit

Key points:

- **Sediment contaminants (metals) were sampled at 14 sites across the Manukau Harbour.**
- **All sites except Anns Creek showed relatively low metal concentrations within the ‘green’ sediment quality guideline, indicating minimal impact on sediment-dwelling animals.**
- **The state of metals over time at most sites has remained stable, however sites in the Māngere Inlet have shown improvements in copper, lead and zinc over a long time period.**

This document summarises the findings for sites sampled in Manukau Harbour in 2024. See [TR2025/33](#) for the full report. For a comprehensive assessment of marine sediment contaminant state and trends across the region, see [Marine sediment contaminant state and trends in Tāmaki Makaurau 2004 to 2023](#).

Overview

Contaminants such as copper, lead, and zinc, can accumulate in the sediments of our harbours, estuaries, and beaches. These metals originate from a range of different activities and land uses, including vehicle tyre and brake wear, industrial activity, and some building materials. When it rains, these pollutants are washed into stormwater networks and waterways, ending up in our marine environment. The build-up of these contaminants can affect ecological health, by reducing the number or diversity of animals like shellfish, worms, and other invertebrates living in the sediment. This can have

harmful effects on the natural functioning of these ecosystems and result in degraded communities that are dominated by few species that can tolerate higher contaminant levels. Understanding the distribution and level of contaminants in marine sediments provides a useful indicator of land use impacts on marine environments and ecosystem health.

Where and what we monitor

The Regional Sediment Contaminant Monitoring Programme undertakes regular monitoring in the intertidal sand/mud flats at around 80 sites. Most sites are in coastal areas receiving run-off from predominantly urban catchments. Core sites are sampled every three years, with additional sites sampled every six years. Monitoring focuses on the main metals associated with urban stormwater: copper, lead, and zinc, along with mercury and arsenic. In 2024, 14 core sites were sampled in the Manukau Harbour.

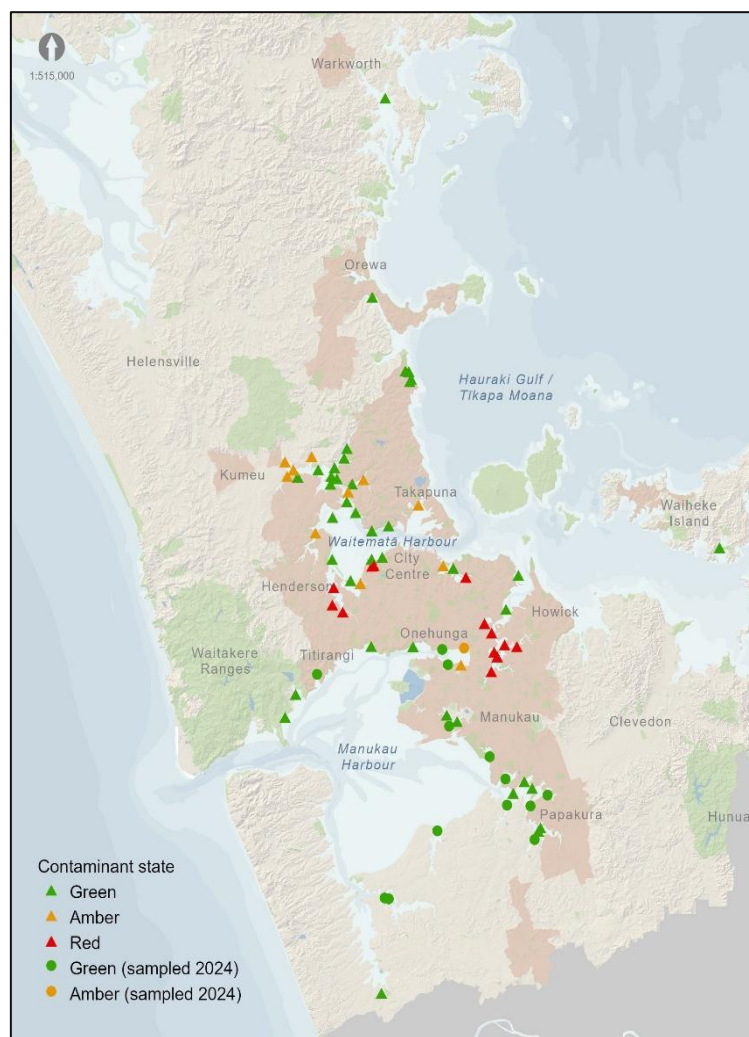
Sediment Quality Guidelines

Concentrations are compared with Sediment Quality Guidelines (SQGs), which are used to assess the potential impact of contamination on aquatic life. For copper, lead, and zinc, region-specific SQGs known as the Environmental Response Criteria (ERC) have been developed. These use a traffic light system: **green** indicates low contamination, **amber** signals moderately elevated levels where ecological effects may begin, and **red** indicates levels likely to cause ecological degradation. Details of SQGs used and comparisons with all chemicals analysed are provided in [TR2025/33](#).

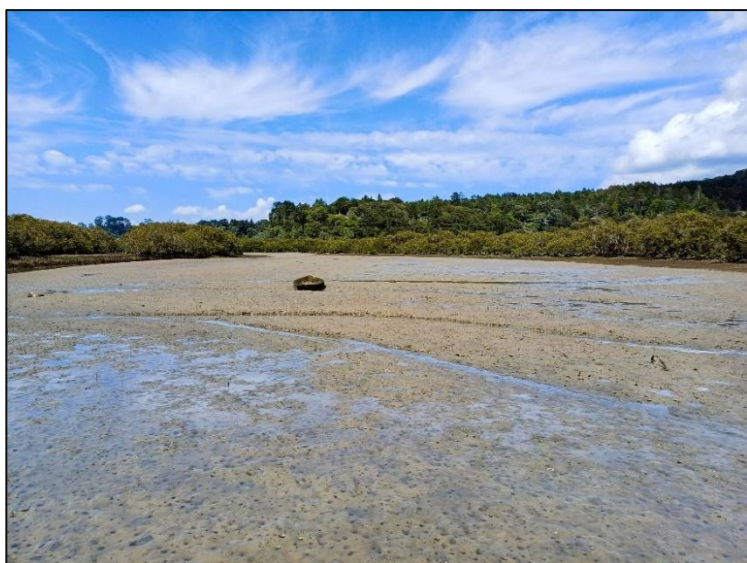
What have we found

Manukau Harbour sites sampled in 2024 generally showed low metal contamination, falling within the 'green' sediment quality guideline, suggesting minimal impact on benthic ecology at most sites. Only one site (Anns Creek in the Māngere Inlet) exceeded the ERC guidelines for zinc, resulting in an 'amber' grade.

The spatial distribution of contamination is consistent with previous monitoring in the Harbour. Contaminant levels were generally higher in the Māngere Inlet (a shallow tidal arm in the upper northeast reaches of the harbour) compared to other sites. Outside of the inlet, concentrations are fairly low.



Contaminant state of sites sampled in 2024 (●) and in previous years (▲). State is determined by the highest sediment quality grade across all contaminants (copper, lead, zinc, arsenic, and mercury). Green = low, amber = moderate, and red = high.



Monitoring sites Little Muddy (left) and Mauku/Taihiki River B in the Manukau Harbour.

What does it mean

The physical characteristics of a site, along with the surrounding catchment land use, influence the volume of contaminants that enter marine environments and accumulate in sediments. Elevated metal levels are most prevalent at sheltered, muddy sites, within catchments that have a long history of intensive urban land use.

Higher levels observed in the Māngere Inlet reflect its fine sediment texture and low wave and tidal energy, which restrict dispersal and promote contaminant build-up, as well as the influence of a highly urbanised catchment with a legacy of industrial and waste inputs.

Over time, contamination levels in this area have declined (see table). While the exact causes of this ongoing improvement aren't certain, they may be

linked to better industrial site practices, stormwater control, and waste management within the catchment.

When compared to the Waitematā Harbour, the Manukau shows considerably lower levels of metal concentrations. This is presumably due to the much lower percentage of urban land use in its surrounding catchment (just ~17% land cover) and the high volume of tidal flushing, which helps remove and dilute contaminants with each cycle.

Although contaminant levels in the Manukau are currently low, ongoing urban development and potential climate-related extreme weather events could increase contaminant inputs or mobilise otherwise contained pollutants. Ongoing monitoring will help detect changes over time and assess management effectiveness.

Site	Year																
	1998	1999	2001	2003	2005	2007	2009	2010	2011	2013	2015	2016	2017	2018	2019	2021	2024
Anns Creek	●●●	●●●	●●●	●●●	●●●	●●●	●●●		●●●	●●●		●●●		●●●		●●●	●●●
Māngere Cemetery	●●●	●●●	●●●	●●●	●●●	●●●	●●●		●●●	●●●		●●●		●●●		●●●	●●●
Tararata					●●●			●●●			●●●		●●●		●●●	●●●	●●●
Harania					●●●			●●●			●●●		●●●		●●●	●●●	

History of Environmental Response Criteria (ERC) state for sites in the Māngere Inlet. Each set of dots (●●●) represents sediment metal concentration for a given year - copper (left), lead (middle), and zinc (right). Dot colour indicates contamination level relative to the ERC: green = low, amber = moderate, and red = high.

Find out more:

Allen, H. (2025). [Tāmaki Makaurau / Auckland marine sediment contaminant monitoring: State report for 2024](#). Auckland Council technical report, TR2025/33

Allen, H. (2025). [Marine sediment contaminant state and Trends in Tāmaki Makaurau / Auckland 2004-2023. State of the environment reporting](#). Auckland Council technical report, TR2025/12

Drylie, T.P. (2025). [Harbour and estuary ecology state and trends in Tāmaki Makaurau / Auckland to 2023. State of the environment reporting](#). Auckland Council technical report, 2025/15

For more information or to request data, email environmentaldata@aklc.govt.nz

Technical reports are available via the [Environment Auckland Data Portal](#)