

CENTRAL WAITEMATĀ HARBOUR REPORTING AREA

Includes Albert-Eden, Devonport-Takapuna, Henderson-Massey, Kaipātiki, Orākei, Upper Harbour, Waitematā and Whau local boards

JULY 2014

AREA GRADE

D



STATE OF AUCKLAND MARINE REPORT CARD

WHAT MAKES UP THIS GRADE?

OVERALL GRADE



WATER QUALITY



CONTAMINANTS IN SEDIMENT



ECOLOGY



The overall environmental health score from A to F is based on the average of the scores for water quality, contaminants in sediment and ecology. Bathing Beach scores are not included in this grade.

These grades represent an average of the results from the individual sites. Individual site results will vary and localised issues may not be represented by the overall grades.



QUICK FACTS

OF THE NINE BATHING BEACHES TESTED DURING SUMMER 2013/14 **95% PASSED** RECREATIONAL BACTERIA GUIDELINES

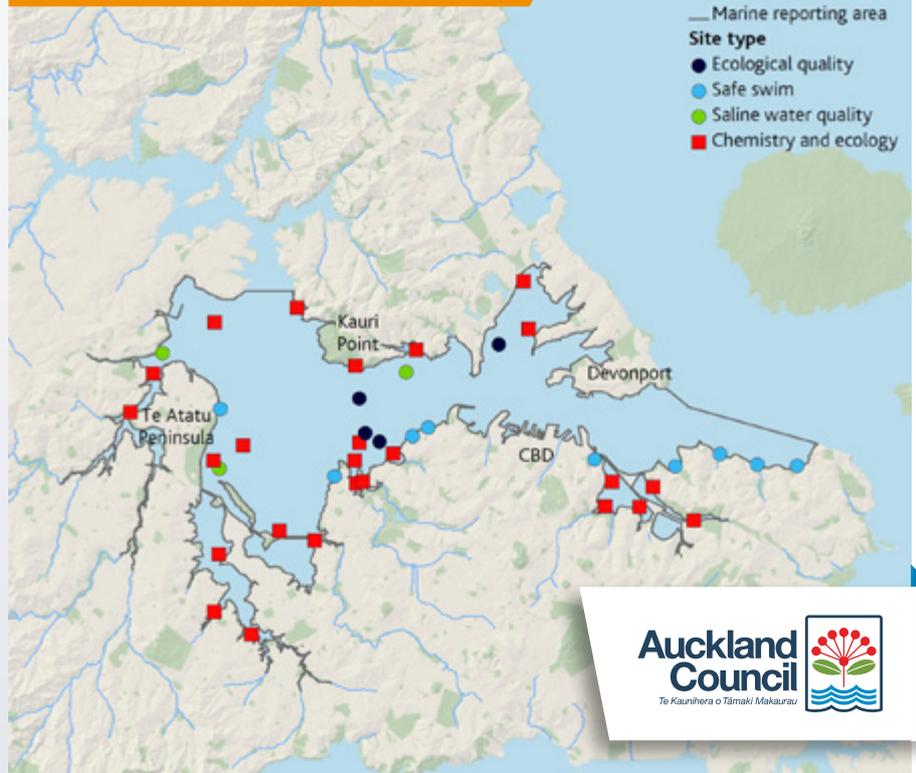
DUE TO THE USE OF ANTI-FOULING PAINTS, DISSOLVED AND TOTAL COPPER CONCENTRATIONS ARE ELEVATED IN MARINA WATERS COMPARED TO AMBIENT CONCENTRATIONS IN THE HARBOUR

THE HARBOUR'S DEEP NAVIGABLE CHANNELS AND SHELTERED BAYS HELPED TO DETERMINE THE CHOICE OF A SITE FOR NEW ZEALAND'S **CAPITAL IN 1840**

POLLEN ISLAND MARINE RESERVE PROVIDES IMPORTANT FEEDING AREAS FOR WADING BIRDS

SPOTLIGHT ON BEACH WATER QUALITY: RIMU and DHI are developing a 3 day forecast model for beach water quality for the Waitematā harbour that will be web based and accessible by the public. By looking at indicator bacteria concentrations this model will help inform the public of the associated health risk when swimming at beaches within the harbour. Currently, up to 26 monitored sites (from St Heliers bay to the Upper Waitematā) cover many of the 'bathing beach' or 'Safeswim' sites. The forecast model uses data from the Council's rain gauges, Metservice rainfall forecasts and estimated & measured bacteria loadings to provide more certainty around beach water quality following rainfall.

CENTRAL WAITEMATĀ HARBOUR MONITORING SITES



MONITORING BACKGROUND AND INTERPRETATION

Water quality: To measure the health of our marine waters, a comprehensive range of parameters including nutrients, turbidity, salinity, pH (and more) are measured. Results are classified according to the Water Quality Index, which was developed by the Canadian Council of Ministers of the Environment in 2001 and adapted by Auckland Council. Scores are based on the averages over the last three years and exclude 'bathing beach water quality'. Check out report TR2013/031.

Contaminants in sediment: Auckland Council tests for zinc, copper and lead every two to five years. Other contaminants such as PAHs (polycyclic aromatic hydrocarbons, by-products of burning fuels) and arsenic are also monitored. Environmental Response Criteria (ERC) are used: green indicates low levels of contaminants, amber indicates some elevation and red indicates relatively high levels (as outlined in *Blueprint for monitoring urban receiving environment*, ARC TP 168, 2004 and ANZECC guidelines). Check out report TR2012/041.

Ecology: At harbour and estuarine sites, seabed-dwelling (benthic) species are counted and contaminants in sediments and sediment grain size are measured every two to five years, with the most contaminated sites sampled most frequently. Results are classified according to a five-point health index outlined in

Health of estuarine soft-sediment habitats: continued testing and refinement of state of the environment indicators, Auckland Council technical report, TR2012/012, which ranges from 'extremely good' to 'unhealthy with low resilience'. Ecology is also monitored more frequently at selected sites, every two to three months for soft sediment sites and annually for subtidal rocky reefs. There is currently no reporting indicator for reef ecology. Check out report TR2013/027.

Bathing beach water quality: Tests for microbiological (enterococci) contamination are carried out in summer as part of the Safeswim programme and are in line with Ministry for the Environment guidelines. These results are reported as a 'Quickfact' and are calculated from all tests carried out at all monitored beaches in the Harbour. 'Bathing beach water quality' has not been included in the overall score as it relates to human health and is based on a different method of assessment (number of alerts). Individual results for monitored beaches are provided on the Safeswim section of the Auckland Council website.

Warning: These State of the Environment indicators DO NOT measure or indicate food quality or safety; refer to foodsafety.govt.nz for more information.

MONITORING RESULTS



WATER
QUALITY

Marine water quality is sampled at three sites and began in 1991. The water quality of the Central Waitematā Harbour has been ranked as 'fair'. This ranking is made up of 'fair' water quality at Henderson and Chelsea and 'good' water quality at Whau River/Pollen Island.



CONTAMINANTS
IN
SEDIMENT

Sediment quality sampling began in 1998. The Central Waitematā Harbour is widely contaminated. The highest concentrations of metals are present at muddy estuarine sites receiving runoff from older urban and industrial catchments e.g. from Henderson Creek to Cox's Bay along the southern shores of Central Waitematā Harbour including Whau, Motions, and Meola Creeks. Of the 15 sites sampled for PAHs, 74 per cent of sites are ERC green, 13 per cent are amber and 13 per cent are red. Of the 26 sites regularly monitored for metals their ERC status is as follows:

- » Copper: 35% of sites are green, 61% are amber and 4% are red
- » Lead: 27% of sites are green, 58% are amber and 15% are red
- » Zinc: 50% of sites are green, 23% are amber and 27% are red.



ECOLOGICAL HEALTH

There was very little change in individual site scores from the 2013 report card. Ecological health varies greatly across the harbour with some sites ranked as 'good'. However, the majority of sites are 'moderate', 'poor' or 'unhealthy'. Ongoing, detailed monitoring of ecological communities has shown most sites to exhibit moderate variability relating to natural cyclic patterns in abundance. Ecology at Shoal Bay highlights this variability with improved health grade of 'moderate' compared to 'unhealthy' last year.

Monitoring at Meola Reef shows there to be little difference in the number and abundance of species overall, however some slow changes are associated with noted increases in the kelp *Ecklonia radiata* cover. Other changes include the presence of invasive species including the algae *Undaria pinnatifida*, the ascidian *Styella clava*, and the Mediterranean fanworm *Sabella spallanzanii*.

FIND OUT MORE

This report card is part of a series prepared by the Auckland Council's Research, Investigations and Monitoring Unit, which undertakes monitoring and research to provide information and evidence to inform the council's activities and reporting. Auckland's environment must be healthy and resilient in order

to support life and lifestyle. More report cards can be found at: aucklandcouncil.govt.nz/stateofauckland. The report card series includes reporting on freshwater, terrestrial, marine, air, soil, capacity for growth, demographics and quality of life.

GET INVOLVED

Auckland Council provides more than 20 environmental programmes across the region for you to get involved with and improve your local environment.

► For more information: e-mail monitoring@aucklandcouncil.govt.nz or call us on 09 301 0101.