

Water Quality in Emily and Slaughter Bays

NORFOLK ISLAND

Our reef is only as healthy as the water that flows into it!



Have you ever wondered why it's unsafe to swim in Emily Bay after big rainfalls? Have you noticed that the Emily Bay and Slaughter Bay reef has less coral than it did when you were a kid?

The health of our reef depends on the quality of water flowing into the ocean from the surrounding land.

WHAT IS A WATER CATCHMENT AND WHY DOES IT MATTER?

A water catchment is the area of land that funnels rainwater and ground water into a river or stream, which then flows into the ocean.

Two Norfolk Island catchments funnel water into Emily Bay and Slaughter Bay: Upper Watermill Creek catchment and Town Creek catchment.

WHAT'S HAPPENING TO OUR REEF - IS IT SICK?

Many people have commented there are less coral and fish, and more algae in the lagoon than there used to be.

Coral health studies conducted by the Sydney Institute of Marine Science (SIMS) in 2020 and 2021 have confirmed the coral reef in Emily Bay and Slaughter Bay lagoon is in poor and declining health, with increased coral disease and increased algae growth.

WHY IS THIS HAPPENING?

For more than 50 years, there have been public health and environmental concerns about stormwater contaminated with human and animal waste entering Emily and Slaughter Bays.

The surface water in the catchment is polluted due to historic and ongoing septic tank and wastewater management issues, unrestricted cattle grazing around creeks and wetlands, and soil erosion.

The SIMS surveys found nutrient levels are often still high within Slaughter Bay and Emily Bay even during dry periods when the Emily Bay outlet is not flowing, which means the groundwater is also polluted. This surface and groundwater pollution has meant that over time, the health of the reef has suffered - and now that deterioration is accelerating.



WHAT EXACTLY IS MAKING OUR REEF SICK?

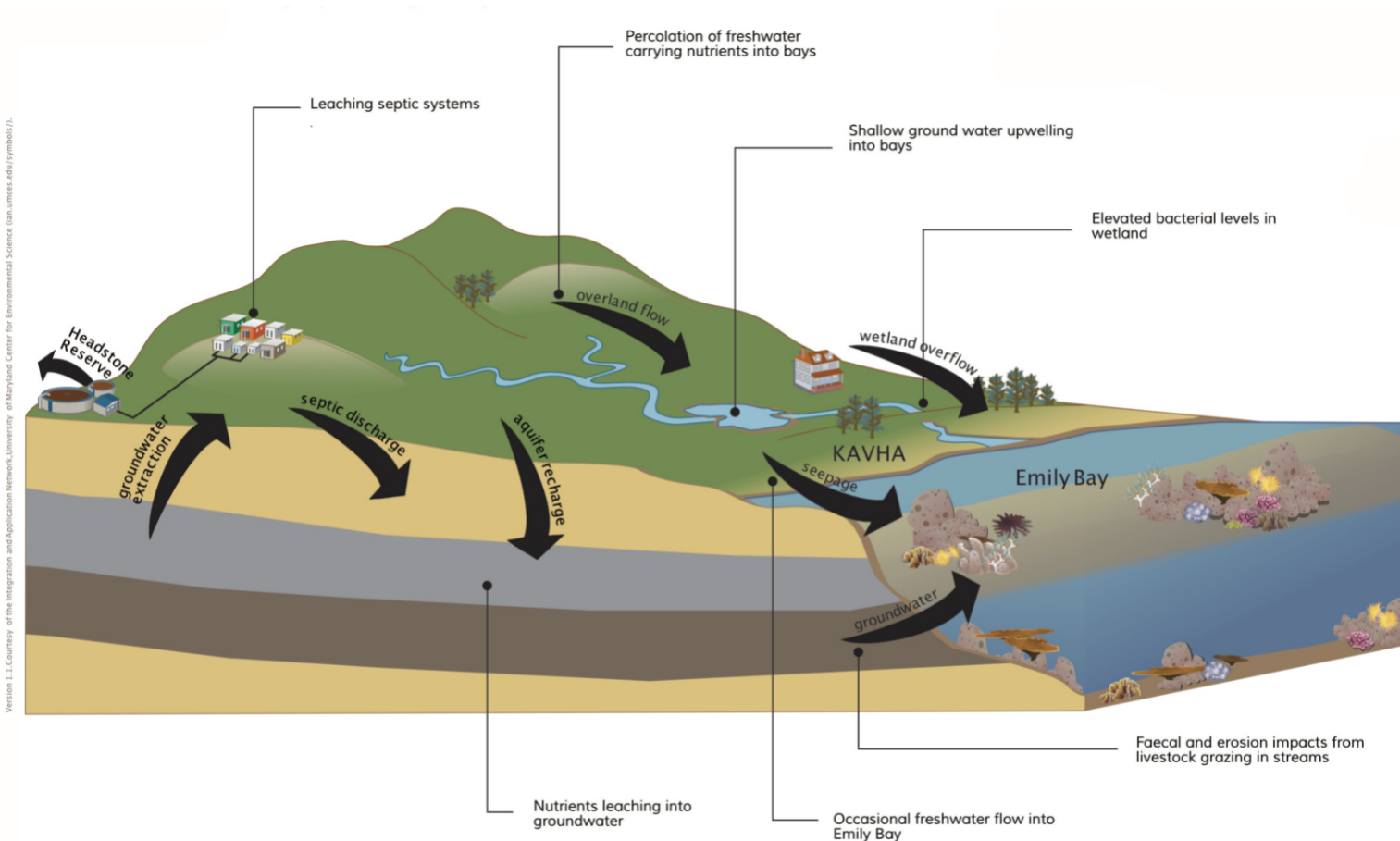
The health of the reef is affected by several factors, including:

- High nutrient levels
- Increased sediment
- Increased sea water temperatures due to climate change.

High nutrient levels: There are two main nutrient types that are affecting the health of our reef: nitrogen and phosphorus. These nutrients come from both animal waste and human sewage, and we see high concentrations of them in Emily Bay and Slaughter Bay after heavy rainfall.

Increased sediment: Clearing of native vegetation, cattle grazing and the construction of buildings, roads and other structures can all disturb soil, which then washes from the catchments into creeks and eventually into the sea.

Increased sea water temperatures due to climate change: Increases in sea surface temperatures can cause the corals to 'bleach' and sometimes even to die. Climate change, specifically increases in surface water temperature, is a primary driver of coral degradation and is affecting coral communities across the world.



Version 1.1. Courtesy of the Integration and Application Network, University of Maryland Center for Environmental Science (ian.umces.edu/symbols/).

WHAT WILL HAPPEN IF NOTHING IS DONE?

The health of the Emily and Slaughter Bay reef will continue to decline if steps are not taken soon to improve ground and surface water quality. Continued decline in reef health could ultimately cause a collapse of the reef structure itself and expose Emily Bay and the World Heritage Kingston and Arthurs Vale Historic Area (KAVHA) to coastal erosion and exposure to storm surges and inundation.



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HOW CAN WE HELP IMPROVE REEF HEALTH AT EMILY BAY AND SLAUGHTER BAY?

There are many ways we can help improve the health of our reef.

- Reduce human sewage flowing into the catchments by regularly servicing and pumping out septic tanks or replacing ineffective septic tanks with more effective systems such as package treatment plants.
- Connect properties to the sewerage system (the water assurance scheme) rather than continue to use ineffective septic tanks.
- Allow native aquatic plants to grow in creeks and wetlands so they consume nutrients, slow the flow of water and allow sediments to drop out of the water and settle.
- Reduce animal waste in the catchments by fencing and planting native plants along creeks and wetlands and installing water troughs instead of allowing cattle to have direct access to creeks and wetlands.
- Slow the flow of water into Emily Bay and Slaughter Bay by constructing leaky weirs in creeks in the Upper Watermill Creek and Town Creek catchments to hold water back.



This factsheet is available online at: www.norfolkisland.gov.nf

Visit Australian Marine Parks (<https://parksaustralia.gov.au/marine/parks/temperate-east/norfolk/>) and Norfolk Island's Reef (<https://www.norfolkislandreef.com.au/>) to find out more about the amazing Emily Bay and Slaughter Bay reefs and how you can help to protect them for future generations.

This fact sheet has been produced by the Water Quality Working Group. Officers from the Norfolk Island Regional Council (NIRC), Parks Australia, the Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) and the Office of the Administrator are meeting regularly to discuss and coordinate actions for water quality improvement.