



Tamar Estuary & Esk Rivers Program

kanamaluka / Tamar Estuary 2022 Report Card

Ecosystem Health Assessment Program

Monitoring Period December 2020 – November 2021



KANAMALUKA / TAMAR ESTUARY 2022 REPORT CARD RESULTS

The 2022 Tamar Estuary Report Card shows a minor decline in grades in Zones 2, 4 and 5, with Zones 1 and 3 remaining the same when compared to the 2020 Report Card monitoring period. The reporting period coincides with high rainfall throughout the catchment relative to the 2020 and 2018 Report Card monitoring periods. Zone 1 (Launceston to Legana) remains at 'poor ecosystem health', consistent with most other reporting periods. The change in grade from B- to C+ in Zone 2 sees a shift from 'good' to 'fair ecosystem health' in this Zone. Zones 3 to 5 are in 'good' and 'excellent ecosystem health', consistent with previous years.

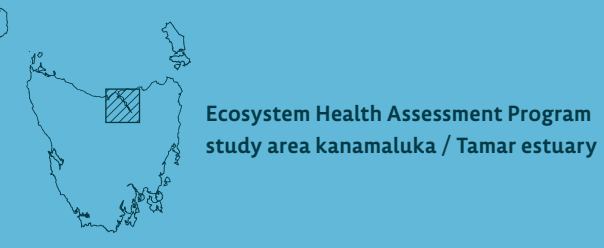
The main factors that have contributed to the ecosystem health grades in the reporting period are:

- continued high levels of nutrients in the upper and mid estuary;
- maintained improvements in nutrient levels in the lower estuary first observed in the 2020 Report Card monitoring period;
- maintained improvement in dissolved metal concentrations in all zones following high levels experienced during years when the sediment raking program was operating; and

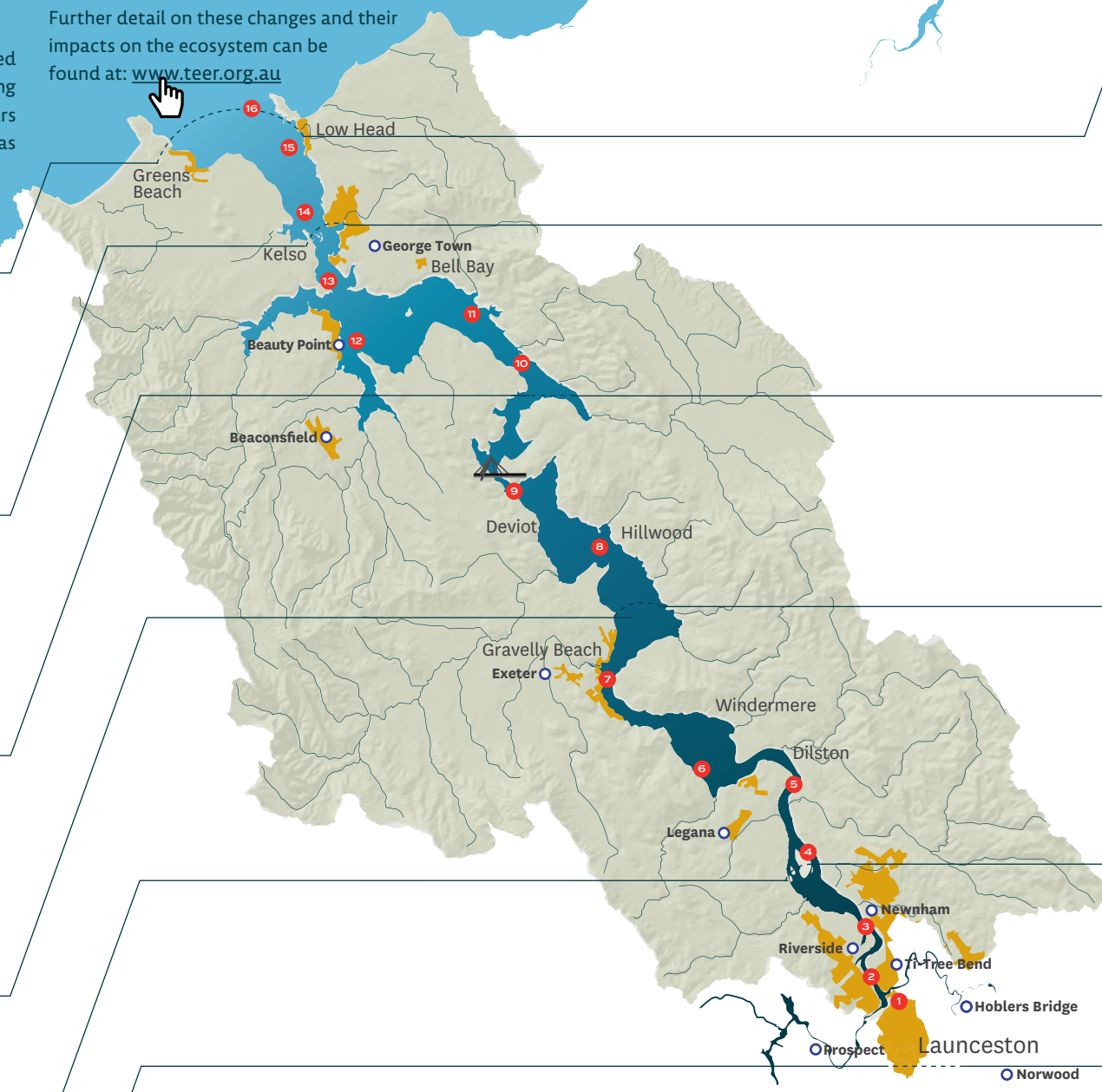
- low dissolved oxygen during two months of the year at many monitoring locations and water being generally more acidic than in previous years.

Elevated chlorophyll-a and total phosphorus are consistent pressures on the ecosystem throughout the estuary.

Further detail on these changes and their impacts on the ecosystem can be found at: www.teer.org.au



Ecosystem Health Assessment Program study area kanamaluka / Tamar estuary



Sponge garden in lower estuary



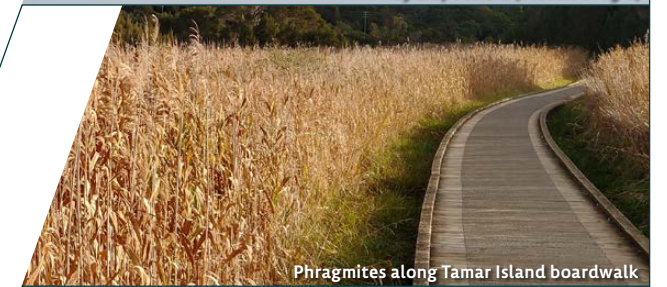
Australian Fur Seal (*Arctocephalus pusillus*)



Threatened saltmarsh vegetation community

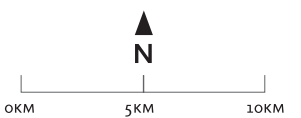


Royal Spoonbill (*Platalea regia*)



Phragmites along Tamar Island boardwalk

- MONITORING SITES
- SEWAGE TREATMENT PLANTS
- URBAN AREAS



ZONE 5 Marine Zone

A- Excellent ecosystem health. Zone 5 experienced 'excellent' ecosystem health, driven by continued low dissolved metals, turbidity, total nitrogen and good dissolved oxygen levels. Total phosphorus, chlorophyll-a and pH are consistent pressures observed within this zone. A small shift in grade from A to A- is due to increased median concentrations of total phosphorus and chlorophyll-a and high variability in pH in the lower estuary.

2020 **A**

ZONE 4 Marine Zone

B+ Good ecosystem health. Zone 4 experienced 'good' ecosystem health for this monitoring period, representing a change in classification from 'excellent' due to a small shift in grade. Elevated chlorophyll-a and total phosphorus have been persistent pressures on ecosystem health in this zone. The shift in grade was primarily driven by increased total phosphorus concentrations, acidic pH and low dissolved oxygen. These pressures were partially offset by a small improvement in heavy metals and relatively large improvement in turbidity.

2020 **A-**

ZONE 3 Estuarine Zone

B Good ecosystem health. Zone 3 remains stable with 'good' ecosystem health. Total phosphorus and chlorophyll-a continue to be the main pressures on ecosystem health in this zone. Ecological health index values for nutrients, heavy metals and dissolved oxygen experienced small decreases relative to the 2020 Report Card. These changes were offset by improvements in turbidity and chlorophyll-a.

2020 **B**

ZONE 2 Estuarine Zone

C+ Fair ecosystem health. Ecosystem health in Zone 2 dropped from a rating of 'good' to 'fair' due to a small shift in grade from B- to C+. This zone experiences consistent pressures from elevated nutrients, turbidity and chlorophyll-a. The decline in grade from 2020 was driven by an increase in median concentrations of nutrients, more acidic pH, as well as reduced dissolved oxygen concentrations in two months over the monitoring period.

2020 **B-**

ZONE 1 Estuarine Zone

D Poor ecosystem health. Zone 1 has consistently received 'poor' grades in past reporting years. As with previous years, a 'poor' ecosystem health score in Zone 1 is mostly driven by high levels of nutrients and elevated turbidity. Chlorophyll-a has significantly improved following a long period of elevated levels. There has been continued improvement in heavy metal concentrations in this zone.

2020 **D**

RECREATIONAL MESSAGES

- Avoid swimming in the estuary for at least three days following heavy rainfall and check for current warnings, signs and information online from councils and the Department of Health regarding the safety of local swimming sites or recreational use of the kanamaluka / Tamar estuary.
- It is not safe to harvest and consume wild shellfish from the kanamaluka / Tamar estuary.
- It is recommended that servings of fish caught from the kanamaluka / Tamar estuary are limited to 2-3 serves per week.

WHAT DO THE GRADES MEAN?

Ecosystem Health Report Card grades ('A' to 'F') are generated for five zones in the kanamaluka / Tamar estuary. Water quality parameters are assessed against local targets, resulting in a single grade for each zone.

A EXCELLENT

Conditions almost always fall well within water quality guidelines across the range of indicators measured.

B GOOD

Conditions almost always fall within or well within water quality guidelines, with very few failing to meet water quality targets across the range of indicators measured.

C FAIR

Conditions frequently meet water quality guidelines, with limited failures across the range of indicators measured.

D POOR

There are a mix of outcomes across indicators with conditions more frequently failing to meet water quality guidelines.

F FAIL

Conditions fail to meet the water quality guidelines for the majority of indicators, with some falling well outside guideline levels.



'+' and '-' signs are included to indicate smaller changes within the bands of the grade scores.

HOW THE GRADES ARE CALCULATED?

The 2022 Report Card has been produced using 12 months of kanamaluka / Tamar estuary ambient monitoring data, collected between December 2020 and November 2021, at 16 sites along the length of the estuary. All seasons are captured in the reporting period. In 2020, the methodology used to calculate the Report Card grades was revised. Key changes to the Report Card methodology include the adoption of trigger values with more specific biological relevance, which are generally more stringent than previous methods. This revised method provides a grade that better reflects the likely biological impact of changes in water quality. All past grades have been calculated using the new methodology. Further information on the data, methods and results for the Report Card can be found on the TEER website www.teer.org.au

WHAT IS ECOSYSTEM HEALTH?

An ecosystem consists of plant and animal communities and the physical environment in which they live. Ecosystem health is a measure of the well-being and natural condition of an ecosystem and its function. It is affected by natural and human induced pressures. Poor ecosystem health can reduce the resilience of the system and its ability to withstand additional pressures and change. Ecosystem health is a complex concept and can be difficult to measure directly. It is generally described by comparing key water quality and biological indicators to acceptable levels and established reference conditions.

WHY MONITOR?

It is important to monitor and understand the health of the kanamaluka / Tamar estuary so that natural resource managers can better evaluate the condition of our waterways, and target investment and on-ground works to improve ecosystem health. The Ecosystem Health Assessment Program in northern Tasmania is used to evaluate the effectiveness of activities undertaken to improve water quality, such as: sewage treatment plant upgrades; addressing combined sewer overflows in the Launceston area; adoption of water sensitive urban design and sediment and erosion controls in urban areas; and best practice catchment management activities.

The Ecosystem Health Assessment Program covers an area extending 70 kilometres from the Tamar Yacht Basin at the confluence of the North and South Esk rivers, to the mouth of the estuary at Low Head. In 2016, the Ecosystem Health Assessment Program transitioned to a program of continuous monitoring of the estuary and publishing Report Cards every two years.

TAMAR ESTUARY AND ESK RIVERS (TEER) PROGRAM

The TEER Program was established in 2008 and is a regional partnership between the agencies responsible for management of the kanamaluka / Tamar estuary and Esk rivers. A key goal of the program is to improve scientific understanding of the issues impacting the health of the TEER waterways to better identify and target priority areas requiring investment in on-ground works.

FURTHER INFORMATION



TEER Program
03 6333 7777
info@teer.org.au
www.teer.org.au

Cover photo courtesy of Tasmanian Divers, internal photos courtesy of Tasmanian Divers, Helen Cunningham and Sam Jack.

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