

Frequently Asked Questions

The purpose of the Gladstone Healthy Harbour Partnership is to monitor the overall health of Gladstone Harbour through a comprehensive assessment of environmental, social, cultural, and economic indicators. The aim is to assess the state of each indicator through annual monitoring of key measures and pressures, so that, relative to baseline assessments, variation and trends can be identified.



WHAT IS THE GLADSTONE HEALTHY HARBOUR PARTNERSHIP?

The Gladstone Healthy Harbour Partnership (GHHP) is a collaboration between the federal, state, and local government, industry partners, First Nations, research organisations and community groups aimed at monitoring the health of Gladstone Harbour and its surrounding environments. The partnership was formed in 2013 in response to public concerns about the health of the harbour, particularly in relation to ecosystem and fish health.

Annually, GHHP contracts expert research organisations to undertake scientific monitoring of the Gladstone Harbour, who in turn provide GHHP with independent, robust, and credible data about the health of the harbour. The data is reviewed by an Independent Science Panel (ISP) before being released as an annual Gladstone Harbour Report Card, Technical Report, and individual project reports.

The vision of GHHP is to have a healthy, accessible, working Gladstone Harbour.



WHAT ARE SUB-INDICATORS AND HOW ARE THEY DIFFERENT TO INDICATORS?

An indicator is an aspect of a system that indicates the state or condition of that system. For example, 'water quality' may be used to indicate the environmental condition of Gladstone Harbour, while 'shipping activity' may be used to partially indicate the economic state of the Gladstone Harbour. A sub-indicator is a measure or group of related measures that contribute to an indicator. For instance, the 'nutrients sub-indicator' (within water quality) is comprised of the measures 'total nitrogen', 'total phosphorus', and 'chlorophyll-a'.



WHEN WAS THE DATA COLLECTED FOR THE 2024 REPORT CARD?

The 2024 report card showcases new monitoring data collected between 1 July 2023 and 30 June 2024. Poor weather conditions delayed the assessment of Mud Crabs, with the winter data collection completed in mid-July 2024.

Ten years of reporting has shown that some indicators are stable each year, therefore no new assessment of the Social and Cultural indicators was conducted in 2024, with results carried over from the 2022 report card. The 2024 report card presents a partial assessment of the Economic indicators, with a new assessment of Economic Performance and Economic Stimulus. Results from the Fish Health Assessment Index, a sub-indicator of the Fish Health indicator, have been carried over from 2021.





CAN THE 2024 RESULTS BE DIRECTLY COMPARED TO THE 2023 RESULTS?

As no new indicators were included and the methods employed to calculate the scores and grades did not change, the 2023 and 2024 scores are directly comparable for the Environmental and Economic components. The Social, and Cultural components were not assessed in 2024 and the results from the previous assessments were used.



HOW DO THE SCORES FOR THE ENVIRONMENTAL COMPONENT COMPARE FROM 2024 TO 2023?

The Environmental component score rose to 0.67 (B, Good) from 0.63 (C, Satisfactory) in 2023.

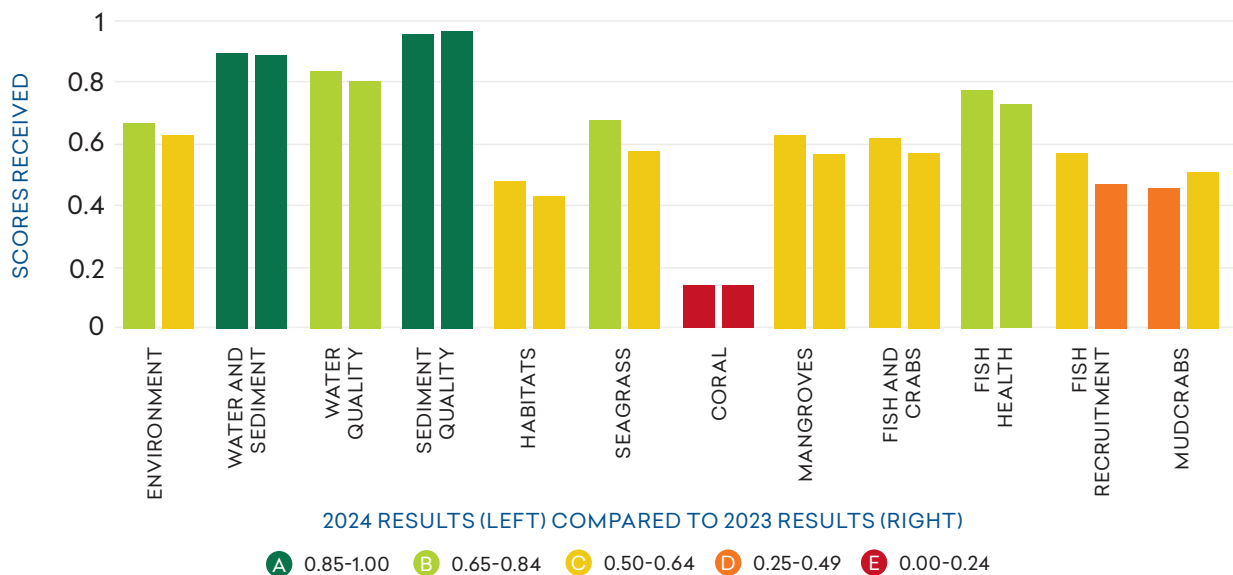
The Water and Sediment Quality indicator group remained stable, scoring 0.89 in 2024 (A, Very Good), and has consistently received a Very Good grade (A) for the past eight years. The Water Quality indicator improved slightly in score to 0.83 (B, Good) from 0.81, while Sediment Quality scored 0.96 (A, Very Good), slightly lower than the 2023 score of 0.97.

The Habitats indicator group increased slightly to 0.48 (D, Poor) from 0.43, driven by an improved Seagrass score and grade (0.68, (B), up from 0.58, (C) in 2023.

Coral scores remained at 0.14 (E, Very Poor). Mangroves showed improvement to 0.63 (C, Satisfactory) from 0.57 in 2019.

The Fish and Crabs group scored 0.62 (C, Satisfactory), consistent with last year. Fish Health remained stable at 0.78 (B, Good), while Fish Recruitment improved to 0.57 (C, Satisfactory) from 0.47 (D, Poor). In contrast, the Mud Crabs score and grade decreased to 0.46 (D, Poor) in 2024, from 0.51 (C, Satisfactory) in 2023.

GLADSTONE HARBOUR REPORT CARD - ENVIRONMENTAL RESULTS



HOW DO THE SCORES FOR THE MUD CRAB INDICATOR COMPARE FROM 2024 TO 2023?

Mud crab monitoring took place on 5-8 February (warm, wet season) and 1-17 July (cool, dry season) for the 2024 Report Card. Overall, Mud crabs received a score of 0.46 (Poor, D), which is a small decline from the 2023 score of 0.51 (Satisfactory, C).

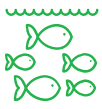
Mud crabs are assessed with three sub-indicators: Abundance, Sex Ratio and Rust Lesions.

The overall harbour grade for **Abundance** improved to a Poor (D) grade in 2024 from a Very Poor (E) grade in 2023 as the overall number of crabs caught increased from 94 in 2023 to 162 in 2024.

Most crabs were caught in two zones, The Narrows and Boat Creek, resulting in a Very Good (A) grade for those zones. All other zones received a Very Poor (E) grade for Abundance.

However, the overall harbour grade for **Sex Ratio** for Mud Crabs declined from Satisfactory (C) in 2023 to Very Poor (E) in 2024. At the zone level, six of the seven zones received a Very Poor (E) grade, with one, Boat Creek, achieving a Poor (D) grade for sex ratio.





HOW DO THE SCORES FOR THE FISH RECRUITMENT INDICATOR COMPARE IN 2024 FROM 2023?

Data for the two bream species were collected monthly from 26 sites across 12 harbour zones between December 2023 and February 2024. The Outer Harbour was excluded from the surveys as there were no suitable bream habitats. Each site was sampled 20 times using a standard cast net.

Overall, the Fish Recruitment score for 2024 was 0.57 – an improvement from the previous year (2023: 0.47) and an increase of one grade to Satisfactory (C) from Poor (D) in 2023. Ten of the 12 monitored zones had increased scores compared to 2023. This resulted in an increase of grade for five zones: Inner Harbour, Calliope Estuary, Mid Harbour, Boyne Estuary, and Colosseum Inlet.

A total of 641 bream were caught in 2024 from 1540 casts, comprising of 236 Yellowfin bream and 405 Pikey bream. Fish recruitment has been a highly variable report card indicator, and further investigations are required to determine the extent of the relationship between prevailing climatic conditions and bream recruitment in Gladstone Harbour and its tributaries.



HOW DO THE SCORES FOR THE FISH HEALTH INDICATOR COMPARE IN 2024 FROM 2023?

The Fish Health indicator is made up of two sub-indicators: Fish Health Assessment Index (HAI) which is a pathological analysis undertaken through dissection, and Fish condition, which assesses fish body mass and visual health. Fish HAI was previously assessed in 2021 and scored 0.90, equating to a grade of Very Good (A). This result has been copied over to the 2024 Report Card.

Overall, the Fish condition sub-indicator score was 0.78 – an improvement from the previous year (2023: 0.73) and retained a Good (B) grade.

The Fish condition sub-indicator is composed of two measures: visual body condition and visual fish condition. Three fish species were assessed for body condition (length and weight): Yellowfin bream (2024: 0.46, D, 2023: 0.48, D), Pikey bream (2024: 0.68, B, 2023: 0.51, C), and Mangrove Jack (2024: 0.75, B, 2023: 0.46, D). There was insufficient data for body condition of Barred javelin or Dusky flathead.

Four species were assessed for visual fish condition, which considers visible pathologies such as eye health and skin issues. A higher score indicates a lower prevalence of abnormalities, and all four fish species received a Very Good (A) grade, consistent with 2023. Only Dusky flathead was unable to receive a score owing to insufficient data.

The overall score for Fish health in the 2024 Gladstone Harbour Report Card was the aggregation of the Fish HAI (2021: 0.90, A) and Fish condition (2024: 0.78, B), and resulted in an overall score of 0.84 and a grade of Good (B), an increase from 2023 (0.81, B).



HOW DID THE CORAL INDICATOR SCORE IN 2024?

The overall grade for coral in the 2024 report card was Very Poor (E) for the seventh consecutive year. Low scores reflect low cover of living coral, high macroalgal cover, low abundance of juvenile corals, and minimal change in hard coral cover at most of the surveyed reefs.

The data for each of the four indicators was scored against a baseline of coral surveys collected before 2010 in Gladstone and other data from the Great Barrier Reef Marine Park Authority's Marine Monitoring Program for inshore reefs in the Great Barrier Reef. The initial coral monitoring in 2015 noted very low coral cover, which reflected the severe impacts of the 2013 flooding on coral, linked to prolonged periods of low salinity and higher turbidity. Ten years on, there has been very little change.

There is evidence of higher nutrient concentrations with increased growth of macroalgae at the monitored reefs since monitoring commenced. The prevalence of bio-eroding sponges continues to impact on coral communities in the area. Subsequent monitoring has shown little recovery in coral condition.

Based on various sub-indicator scores, the corals of Gladstone Harbour demonstrated very limited recovery potential in 2024. While the poor coral condition scores are similar to other inshore reefs in the Fitzroy and Mackay Whitsunday regions, the observed rate of recovery is lower in the Gladstone Harbour.



HOW DO THE SCORES FOR THE SEAGRASS INDICATOR COMPARE IN 2024 FROM 2023?

Seagrass monitoring in Port Curtis and Rodds Bay commenced in 2002 and has been conducted annually since 2004 as part of a long-term partnership between Gladstone Ports Corporation (GPC) and the Centre for Tropical Water and Aquatic Ecosystem Research (TropWATER) at James Cook University. Since 2015, that data has also been provided to GHHP for the annual report card assessment.

Fourteen meadows representing the range of different seagrass community types in Port Curtis and Rodds Bay are monitored each October/November. Three indicators of seagrass condition are assessed: biomass, area, and species composition.

Overall, the Seagrass score for 2024 was 0.68 – an improvement from the previous year (2023: 0.58) and an increase of one grade to Good (B) from Satisfactory (C) in 2023. Ten of the 14 monitored seagrass meadows and two of the seven zones had increased scores compared to 2023. This resulted in an increase in grade for two zones: Inner Harbour and Rodds Bay. One zone, Mid Harbour, declined to a Poor (D) grade from a Satisfactory (C) grade in 2023.



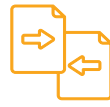


WHY WERE MANGROVES MONITORED IN 2024, AND HOW DO THE SCORES COMPARE TO 2019?

The Mangroves indicator was previously evaluated in 2018 and 2019. Given the greater buffering capacity of long-lived species and the observed low variability between monitoring years, a decision was made to stagger the frequency of Mangrove monitoring to every five years.

Overall, the Mangroves score for 2024 was 0.63 – an improvement from the previous monitoring year (2019: 0.57) and it maintained a Satisfactory (C) grade. Eight of the 13 zones improved in score, resulting in improved grades for six zones: Graham Creek, Western Basin, Boat Creek, Calliope Estuary, Boyne Estuary, and Rodds Bay.

This was a result of improved Mangrove Canopy Condition in 2024 (0.65, B Grade) compared to 2019 (0.49, D Grade). Both Mangrove Extent (2024; 0.69, 2019; 0.69) and Shoreline Condition (2024; 0.53, 2019; 0.54) remained stable.



HOW DO THE SCORES FOR THE ECONOMIC COMPONENT COMPARE IN 2024 FROM 2023?

Economic Health is assessed through three indicator groups: Economic performance, Economic stimulus and Economic value (recreation). Economic value was not assessed in 2024, with results carried over from the 2022 Report Card.

Overall, Economic Health received a score of 0.71, equating to a Good (B) grade. This result is very similar to 2023 (0.74, B). The two sub-indicators measured in 2024 were also stable from the previous year: Economic performance (2024: 0.90, A, 2023: 0.87, A) and Economic stimulus (2024: 0.77, B, 2023: 0.77, B).

Thank-you

We'd like to extend a big thank-you to the following partner for their ongoing support of GHHP and the Gladstone Healthy Harbour Report Card.

