



Environmental Summary Report

Port of Hay Point 2024 Maintenance Dredging Program

16 January 2025

Version control

| Revision No. | Date | Revision details |
|--------------|------|---|
| A | | Summary report in accordance with permit and MEMP requirements. |

Executive summary

Between 25 August and 14 September 2024, North Queensland Bulk Ports (NQBP) carried out maintenance dredging at the Port of Hay Point, including Half Tide Tug Harbour (HTTH). The maintenance dredging program was conducted in accordance with State and Commonwealth approvals, and NQBP's approved plans including the [Long-term Maintenance Dredging Management Plan](#) (LMDMP) and [Marine Environmental Monitoring Plan](#) (MEMP) for the Port of Hay Point.

This report summarises the outcomes of NQBP's adaptive and impact environmental monitoring programs for the Port of Hay Point 2024 maintenance dredging program.

This report has been prepared to address compliance with **Condition 25 of Sea Dumping Permit SD19/01** and **Condition 32 of Marine Park Permit G19/40185.1**, and to **meet NQBP's commitments under the MEMP**.

An independent audit report assessing compliance with both State and Commonwealth approvals for the program will be made available on NQBP's website upon completion, likely in February 2025.

Based on the outcomes of the monitoring programs and information summarised in this report, it is considered that the 2024 maintenance dredging program was completed in accordance with the conditions of NQBP's environmental approvals, and that **no environmental impact occurred as a result of maintenance dredging activities**.

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1. Introduction

1.1 Background to dredging at the Port of Hay Point

The Port of Hay Point (the Port) is a major bulk commodities port managed by the North Queensland Bulk Ports Corporation Pty Ltd (NQBP) as the designated Port Authority. The Port was established in 1971 and is home to two coal terminals - Dalrymple Bay Coal Terminal (DBCT) and Hay Point Coal Terminal (HPCT). It is a coastal port with offshore trestle jetties extending approximately 4km seaward. The port has seven dedicated coal loading berths, with up to 100 million tonnes of coal currently exported each year. Most of this coal (~85%) is metallurgical (coking) coal exported to Asian customers for the making of steel.

Hay Point is located approximately 40 km south of Mackay in Queensland on Australia's east coast. The maritime areas of the Port are within the Great Barrier Reef World Heritage Area (GBRWHA) and adjacent to the Great Barrier Reef Marine Park (GBRMP). The shipping departure path, which is approximately 9 km long, extends into the Marine Park.

The port's navigational areas include seven ship loading berths, an apron area, departure path, apron areas and tug harbour (Figure 1). An approved Dredged Material Placement Area (DMPA) is located approximately 6 km from the berth areas.

Left unmanaged, natural sediment fills up navigational infrastructure, impacting the depth necessary for safe loading, manoeuvring and transit of ships. A reduced ability to effectively load ships can have a substantial economic impact on the region that the port supports.

A maintenance dredging program was carried out by NQBP between 25 August and 14 September 2024 to remove naturally accumulated sediments from the approved dredge areas at the Port of Hay Point, including Half Tide Tug Harbour (HTTH).

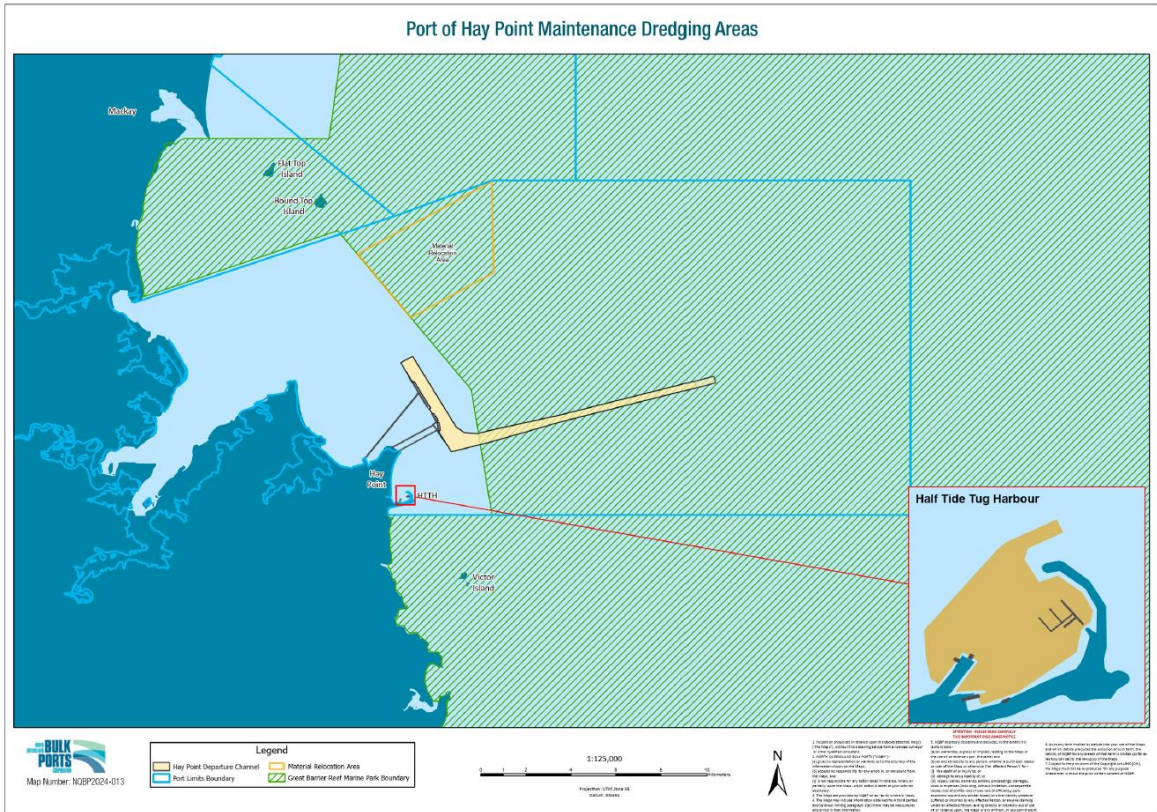


Figure 1: Port of Hay Point approved maintenance dredging areas

1.2 Purpose of this report

This report has been prepared to address compliance with Condition 25 of Sea Dumping Permit SD19/01 and Condition 32 of Marine Park Permit G19/40185.1, and to meet NQBP's commitments under the MEMP.

Maintenance dredging at the Port of Hay Point must be carried out in accordance with the approvals detailed in Table 1.

Table 1: Port of Hay Point Maintenance Dredging Approvals and Permits

| PERMIT | PERMIT NO. | ACTIVITY |
|--|----------------|---|
| Environmental Authority (18 July 2022 - Environmentally relevant activity ERA 16) | P-EA-100222169 | Undertake maintenance dredging of navigational infrastructure |
| Development Approval (1 February 2019) (- Operational Works (Tidal Works) | 1805-5537 SPD | Placement of dredged material below high-water mark |
| Development Approval (22 July 2022) – Operational Works (Tidal Works and Marine Plant disturbance) | 2112-26590 SRA | Dredging and disturbance of marine plants at HTTH |
| Development Approval (16 March 2022) – Operational Works (Tidal Works) | 2112-26520 SDA | Placement of dredged material from HTTH below high-water mark |
| Marine Park Permit | G19/40185.1 | Dredging and placement inside Marine Park |
| Sea Dumping Permit | SD19/01 | Loading and placement of material at sea. |

In accordance with the requirements of G19/40185.1, an independent audit is in progress to assess compliance with all approvals and will be made available on NQBP's website when completed.

2. Operational Summary

2.1 Dredge program summary

A summary of the 2024 Port of Hay Point maintenance dredging program is provided in Table 2 below.

Table 2: Port of Hay Point 2024 maintenance dredging program summary

| | |
|-----------------------------|--|
| Location | Port of Hay Point <ul style="list-style-type: none"> • Apron • Departure path • DBCT Berths 3 and 4 • HTTH |
| Program duration | 21 days |
| Shutdown duration | Approx. 36 hours between 3-5 September due to adverse weather conditions |
| Dredge vessel | <i>TSHD Brisbane</i> (Port of Brisbane Pty Ltd) |
| Support vessels | <ul style="list-style-type: none"> • <i>Pacific Titan</i> (East Coast Maritime) – bed leveller • <i>Pacific Tiger</i> (Fodico Marine Group) – bed leveller • <i>Sounds Pacific</i> (NaMaSys) – survey • <i>Sounds Good</i> (NaMaSys) – survey • <i>HT Salute</i> (East Coast Maritime) – support tug • <i>Steel Ranger</i> (East Coast Maritime) – mooring barge • <i>Giles S</i> (Port of Brisbane Pty Ltd) – dredge support |
| Total volume removed | 166,000 m ³ |
| Dredge loads/cycles | 152 |
| Placement location | Hay Point Dredge Material Placement Area (DMPA) |

Of the total volume of 166,000m³ removed, approximately 117,000 m³ was removed from the Port of Hay Point berths, apron and channel, and approximately 49,000 m³ was removed from within Half Tide Tug Harbour.

The volumes of material removed from each area were within the approved volume limits as per NQBP’s environmental approvals, as detailed in Table 3 below.

Table 3: Port of Hay Point permitted volumes

| Dredge area | Permitted volume (m ³) | Volume removed (m ³) |
|--|------------------------------------|----------------------------------|
| Departure path/channel (area within the GBRMP) | 12,000 | 9,600 |
| HTTH | 60,000* | 49,000 |
| Total program | 200,000 | 166,000 |

**60,000m³ is approximately equal to 100,000t, which is the limit set by P-EA-100222 169 for HTTH.*

2.2 Dredge movement summaries

Collated daily track plots for dredge movements at the Port of Hay Point have been provided as follows:

- Week 1 (25 to 31 August 2024) – Figure 2
- Week 2 (1 to 7 September 2024) – Figure 3
- Week 3 (8 to 14 September 2024) – Figure 4

Collated daily track plots for dredge movements at Half Tide Tug Harbour have been provided as follows:

- Week 1 (25 to 31 August 2024) – Figure 5
- Week 2 (1 to 7 September 2024) – Figure 6
- Week 3 (8 to 14 September 2024) – Figure 7

It should be noted that these plots show the *movements* of the dredge vessel; tracks outside the approved dredge area show the *TSHD Brisbane* in transit to and from the dredge areas and the material placement areas and are not indicative of dredging.

All dredging was carried out within the approved dredge areas.

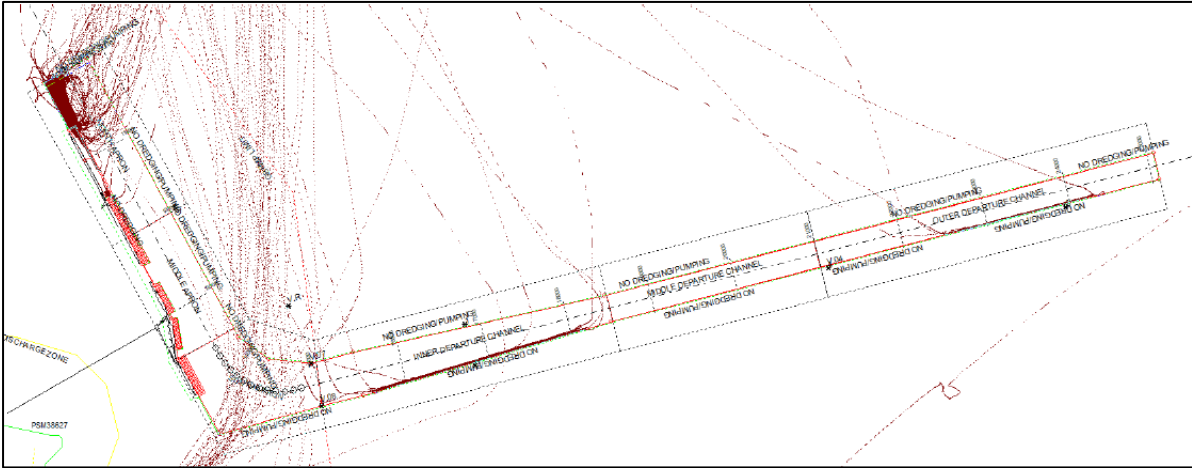


Figure 2: Daily dredge movements at the Port of Hay Point during Week 1 (25 to 31 August 2024)

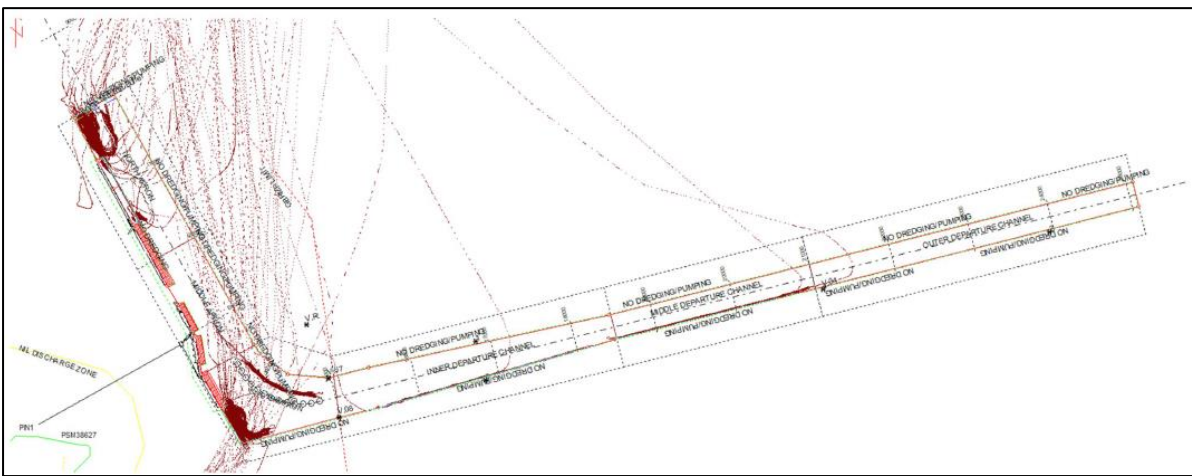


Figure 3: Daily dredge movements at the Port of Hay Point during Week 2 (1 to 7 September 2024)

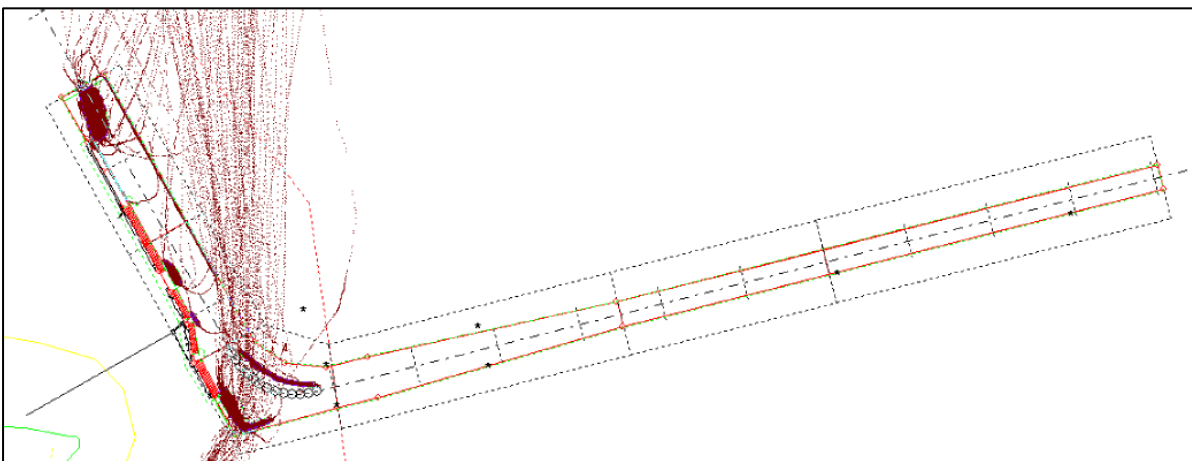


Figure 4: Daily dredge movements at the Port of Hay Point during Week 3 (8 to 14 September 2024)



Figure 5: Daily dredge movements at HTTH during Week 1 (25 to 31 August 2024)

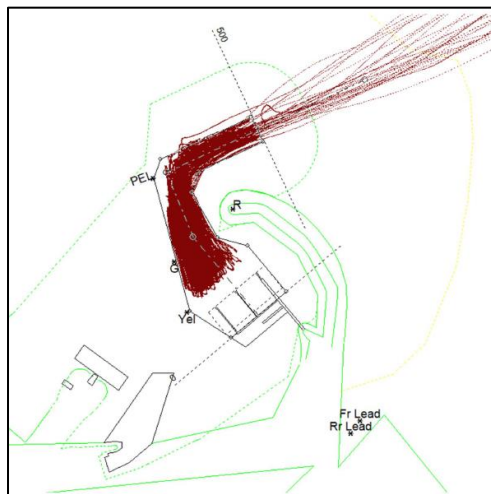


Figure 6: Daily dredge movements at HTTH during Week 2 (1 to 7 September 2024)

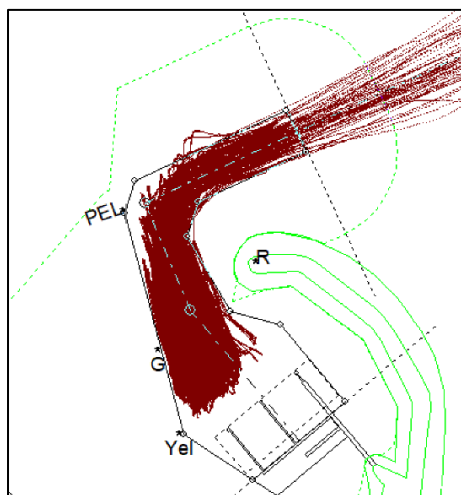


Figure 7: Daily dredge movements at HTTH during Week 3 (8 to 14 September 2024)

2.3 Dredge material placement plot

A figure showing all dredge material placement activity for the duration of the program has been provided in Figure 8 below.

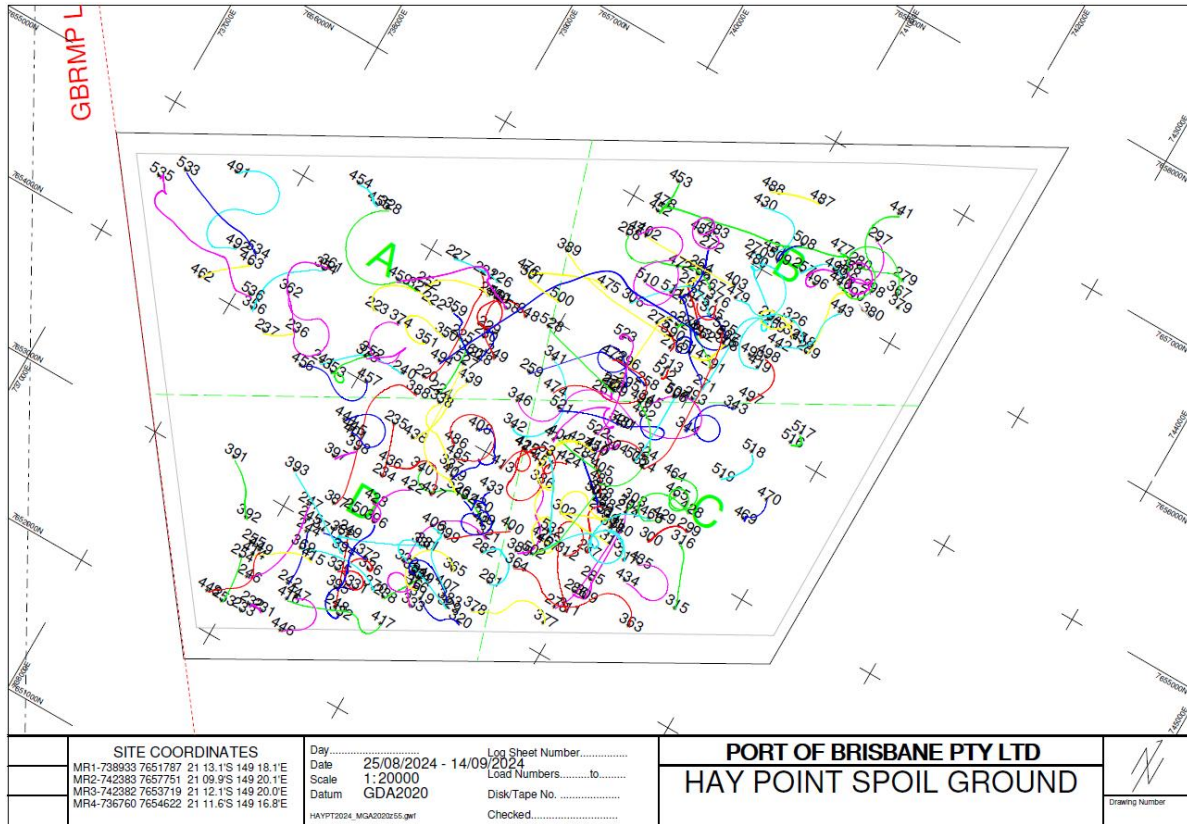


Figure 8: Dredge Material Placement Area discharge plot - 25 August to 14 September 2024

3. Environmental Monitoring Programs

The monitoring programs implemented comprised pre-, during- and post-dredging monitoring, including coral and water quality monitoring.

Maintenance dredging was last carried out at the Port of Hay Point in 2019, therefore no dredging related monitoring has been carried out since the 2019 program.

In accordance with the Port of Hay Point Marine Environmental Monitoring Plan, NQBP implements ambient, impact and adaptive monitoring programs for the parameters in Table 4 below.

Table 4: Key parameters to be monitored

| Parameter | Ambient | Impact | Adaptive |
|------------------------------|---------|--------|----------|
| Marine water quality | ✓ | ✓ | ✓ |
| Island fringing coral | ✓ | ✓ | |
| Seagrass and benthic habitat | ✓ | | |
| Invasive marine species | ✓ | | |
| Sediment quality | ✓ | ✓ | |
| Marine megafauna | | | ✓ |

The results of NQBP’s ongoing **ambient** environmental monitoring programs at the Port of Hay Point are available on NQBP’s website: [Research and reports | North Queensland Bulk Ports Corporation Ltd \(nqbp.com.au\)](https://www.nqbp.com.au/research-reports).

This section presents a summary of the outcomes of the **impact and adaptive** monitoring programs associated with the 2024 maintenance dredging program.

Water quality thresholds for turbidity monitored in real time during the 2024 maintenance dredging program as per the EA and the MEMP were not exceeded as a result of maintenance dredging activities, and no adaptive management action was required to minimise or reduce risk to the environment.

Sediment plumes from dredging and placement activities were low concentration, localised and of short duration, and did not persist beyond the completion of dredging.

No impacts to island-fringing coral communities were observed as a result of maintenance dredging activities.

Based on the data collected across the impact and adaptive monitoring programs, there were no observed environmental impacts associated with the 2024 maintenance dredging program.

3.1 Sediment characterisation

A sediment characterisation report (SCR) was prepared and approved by the Great Barrier Reef Marine Park Authority (GBRMPA) prior to commencement of the maintenance dredging program.

The SCR determined that the accumulated sediments in the Port of Hay Point apron and channel, HTHH and DBCT Berths 3 and 4 were suitable for offshore placement at the DMPA. Areas where sediment was determined not to be suitable for unconfined ocean placement were excluded from the maintenance dredging program.

3.2 Real-time water quality monitoring

Real-time monitoring of water quality at NQBP's monitoring sites located at Round Top Island, Freshwater Point, Victor Island and Slade Islet were used to monitoring turbidity (NTU) for four (4) weeks pre- and post-dredging and throughout the dredging period.

NQBP implements thresholds and trigger limits (PCS 2024a) based on real time turbidity monitoring data in accordance with the [Port of Hay Point Marine Environmental Monitoring Plan](#).

The real-time water quality data showed that turbidity at all four monitoring locations (both trigger and control locations) was naturally elevated during periods of increased wind and wave activity pre-, during and post-dredging - see Figure 9 and Figure 10. All four sites exceeded some trigger limits during a weather event from 3 to 5 September 2024; however, due to the conditions the *TSHD Brisbane* went to anchor and was not dredging during this period. **The exceedances were therefore not due to dredging activities and no adaptive management action was required.**

In addition to the thresholds detailed in the MEMP, NQBP also monitor TSS in accordance with the requirements of our state approvals. **No exceedances of the 100 mg/L six-hourly rolling mean limit for TSS set under these approvals occurred during dredging.**

The water quality monitoring report is available on NQBP's website: [Port of Hay Point Water Quality Monitoring Report](#).

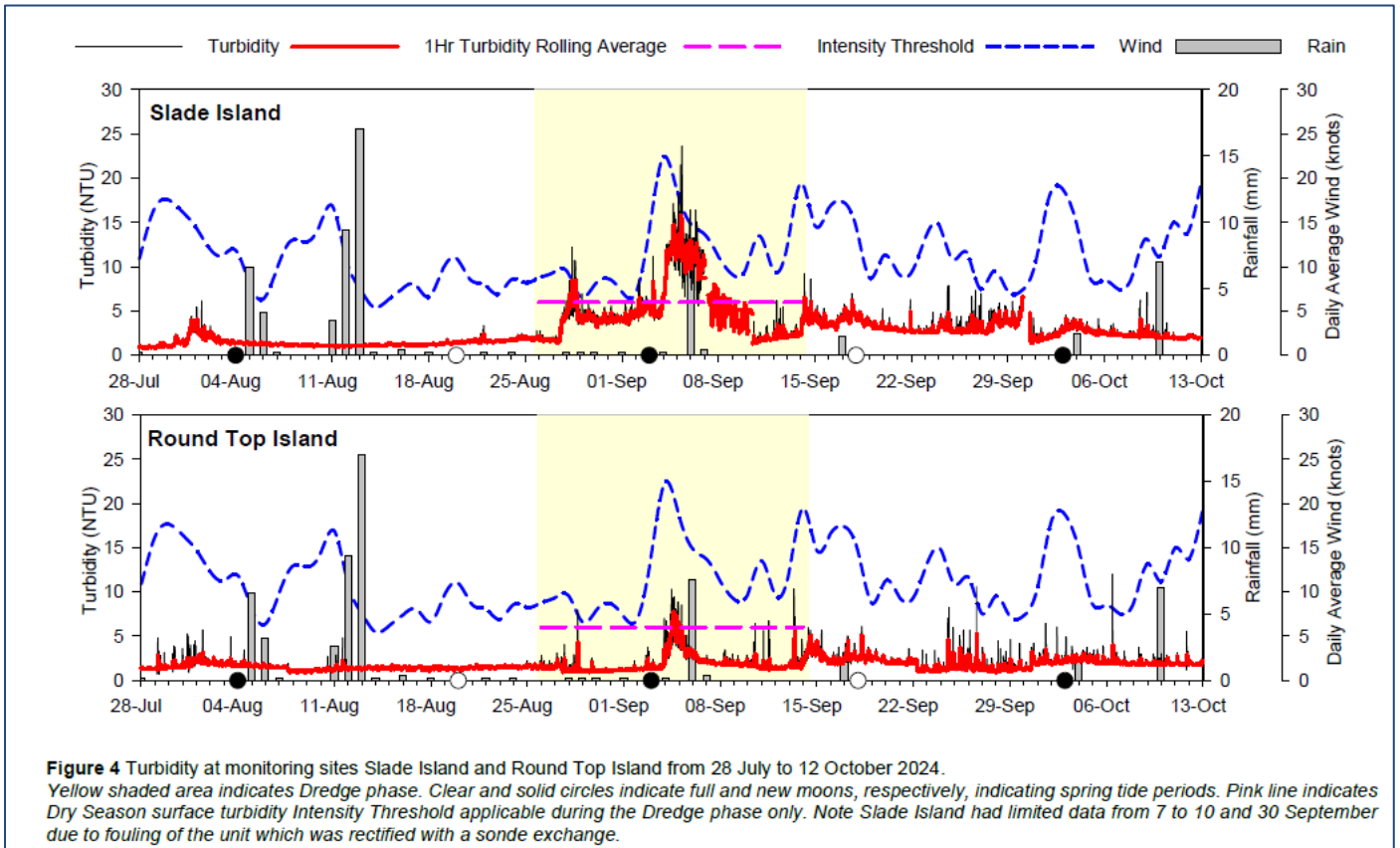


Figure 9: Turbidity monitoring at Slade Island and Round Top Island (VE ANZ 2024a)

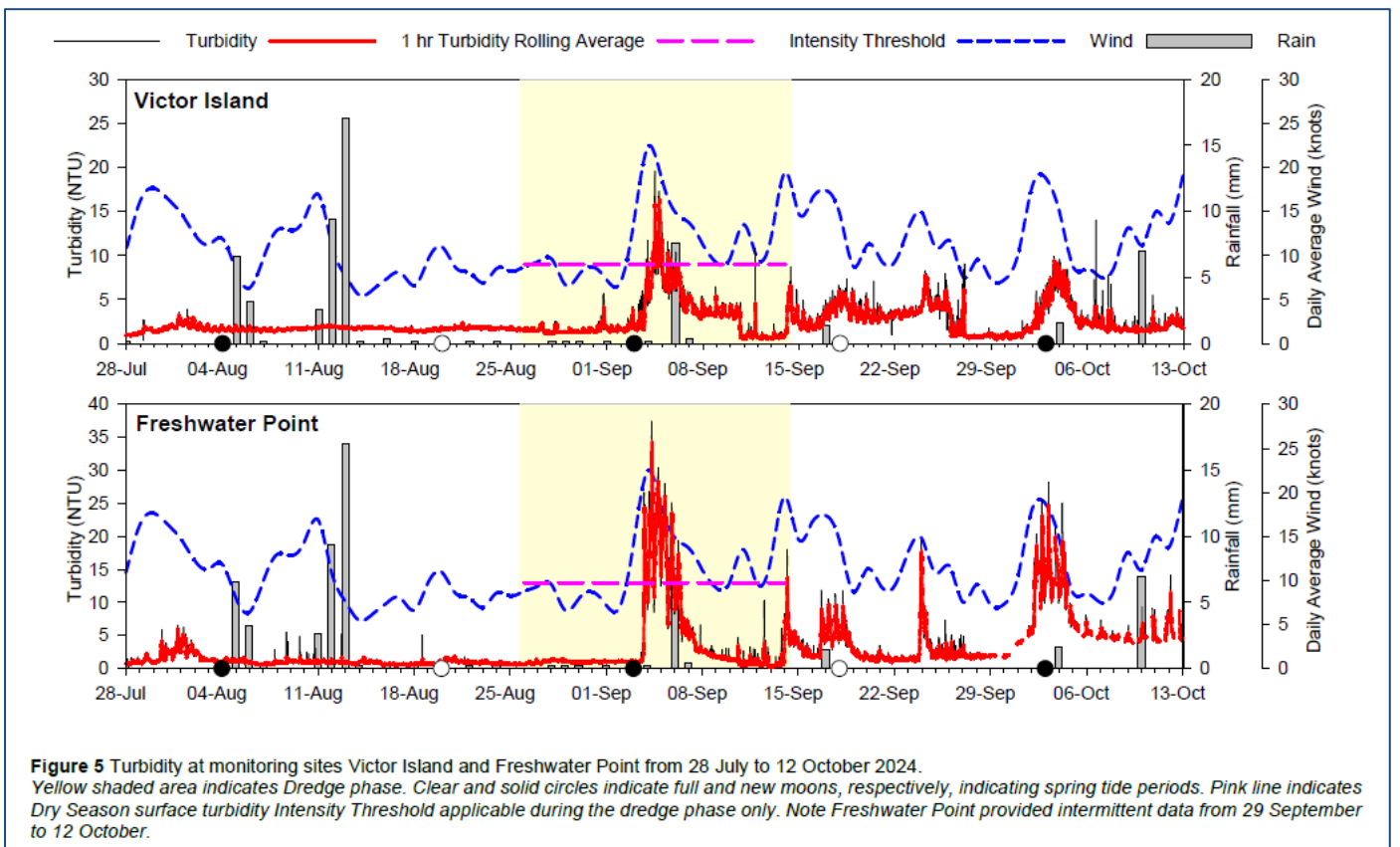


Figure 10: Turbidity monitoring at Victor Island and Freshwater Point (VE ANZ 2024a)

3.3 Plume monitoring and satellite imagery

Satellite imagery was used to monitor the spatial extent of both the natural turbidity in the Hay Point region and any plumes resulting from maintenance dredging activities.

Satellite derived Total Suspended Matter (TSM) data was used to show regional scale turbidity (from Broad Sound to the Whitsunday Islands) and the local scale turbidity around the Port of Hay Point, and to identify any plumes resulting from the maintenance dredging and bed levelling activities.

The monitoring showed that regional scale turbidity remained similar throughout the period, with high TSM in Broad Sound and low TSM throughout the rest of the area. Localised natural plumes were also present throughout the region.

At the DMPA, low concentration plumes from placement activities typically remained within the DMPA or to the north of the DMPA due to prevailing southeasterly winds. No plumes were transported from the DMPA towards any of the impact/adaptive monitoring sites (i.e. offshore coastal islands).

In the Hay Point apron and berths, low concentration plumes from dredging and bed levelling generally remained localised to the area of activity, with any residual plumes <10 mg/L TSM and consistent with the plume modelling previously completed.

In HTTH, a localised plume was observed to be present throughout most of the program, with TSM of up to 50 mg/L when both bed levellers and the *TSHD Brisbane* were operating at the same time. The satellite imagery showed that the high concentration plume was retained within HTTH, with low concentration plumes (5 to 10 mg/L TSM) periodically being transported outside the harbour. Visual monitoring carried out by the crew on board the *TSHD Brisbane* recorded no visible plumes extending beyond the HTTH modelled zone of influence.

Some examples of satellite derived TSM images from the program are provided in Figure 11, Figure 12 and Figure 13. Note that white patches on the images are cloud cover.

The example pre-dredging image provided in Figure 11 was captured on 17 August 2024, prior to dredging commencing. The image shows low TSM throughout the area, with some natural plumes and higher TSM along the coastline.

The example during dredging image provided in Figure 12 was captured on 11 September, during dredging activities. The low concentration plumes (approx. 5mg/L TSM) within and to the north of the DMPA are likely to be from recent placement activities on the ebb tide. At the time the image was captured, the *TSHD Brisbane* and two bed levellers were operating simultaneously in HTTH, resulting in a localised plume of up to 50 mg/L TSM within HTTH. The plumes visible in the berths and aprons are due to the movements of two tugs and a larger vessel operating in the area when the image was captured.

The post-dredging image in Figure 13 was captured on 21 September 2024, seven days after the *TSHD Brisbane* completed dredging and departed. The low concentration plumes in the north apron are likely due to a bed leveller working in that area, and the higher concentration plume around the wharf is from vessel and tug movements associated with the vessels berthed at the time the image was captured.

The turbidity monitoring report is available on NQBP's website: [Port of Hay Point Turbidity Monitoring Report](#)

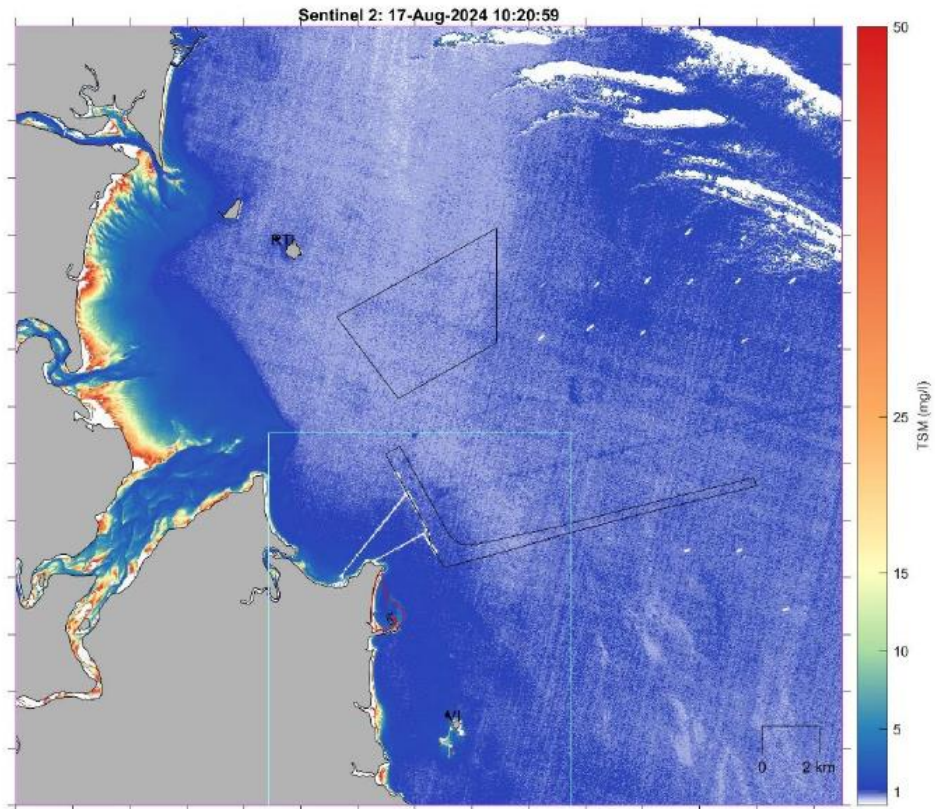


Figure 11: Port of Hay Point satellite derived TSM - pre-dredging (PCS 2024).

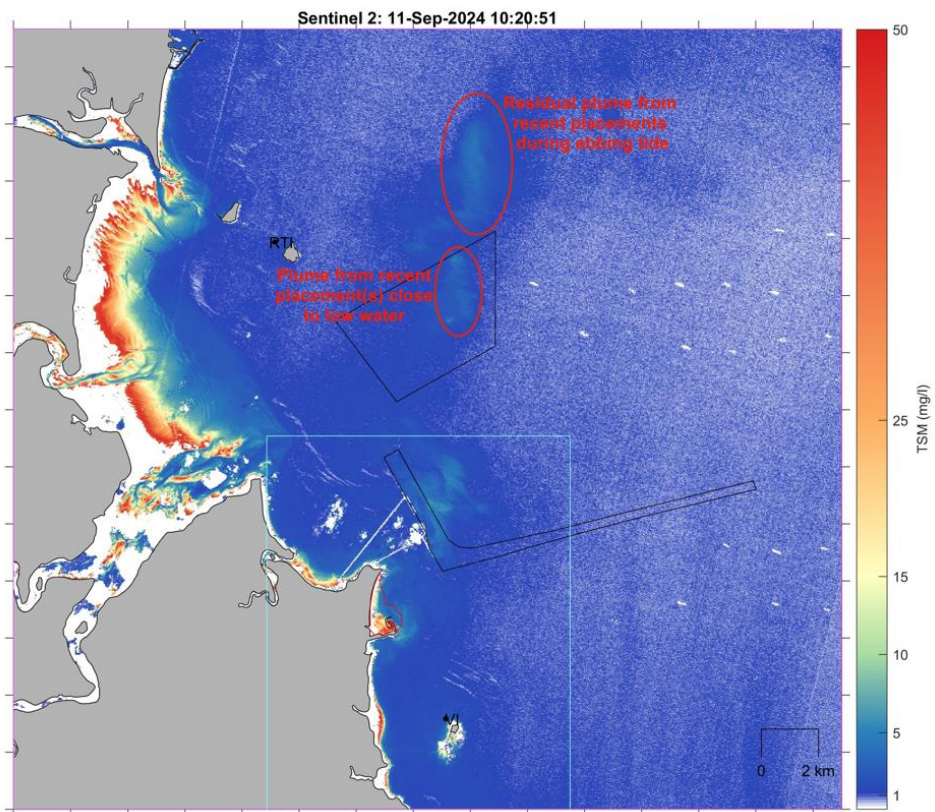


Figure 12: Port of Hay Point extent satellite derived TSM - during dredging (PCS 2024).

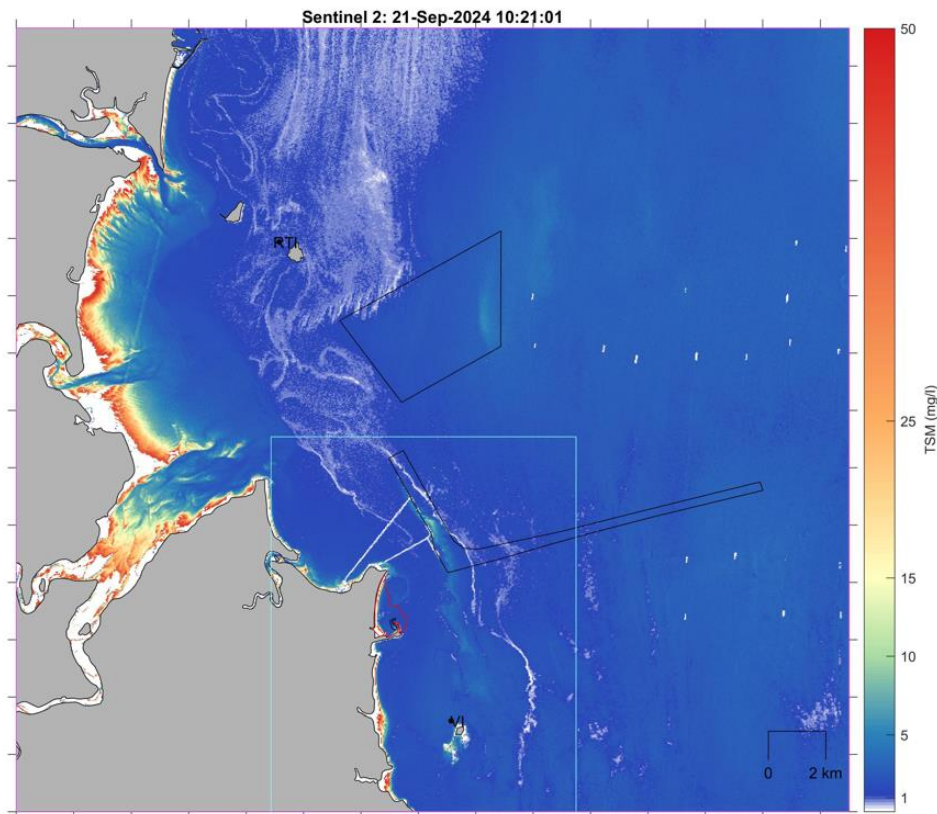


Figure 13: Port of Hay Point extent satellite derived TSM - post-dredging (PCS 2024).

3.4 Coral monitoring

In accordance with the MEMP, coral surveys were conducted pre-dredging (19-20 July and 7-8 August) and post-dredging (21-23 October 2024). Surveys were undertaken at the three inshore coral locations (Round Top Island, Victor Island and Slade Island) monitored biannually under NQBP's long-term ambient coral monitoring program. A similar methodology to the ambient program was undertaken, in addition to a rapid coral health assessment technique which was also utilised in the 2019 Hay Point maintenance dredge coral assessment.

The monitoring found no significant variation in most of the coral parameters measured between the pre- and post-dredging surveys including benthic coverage, occurrence of bleached and diseased coral, occurrence of sediment deposition on corals, abundance of juvenile corals and coral pigmentation (Figure 14).

Sediment deposition on corals was deeper during the pre-dredge survey than the post-dredge survey. This is therefore likely due to regional metocean influences rather than maintenance dredging activities.

No impact to coral communities were caused by maintenance dredging activities.

The coral monitoring report is available on NQBP's website: [Port of Hay Point Coral Monitoring Report](#).

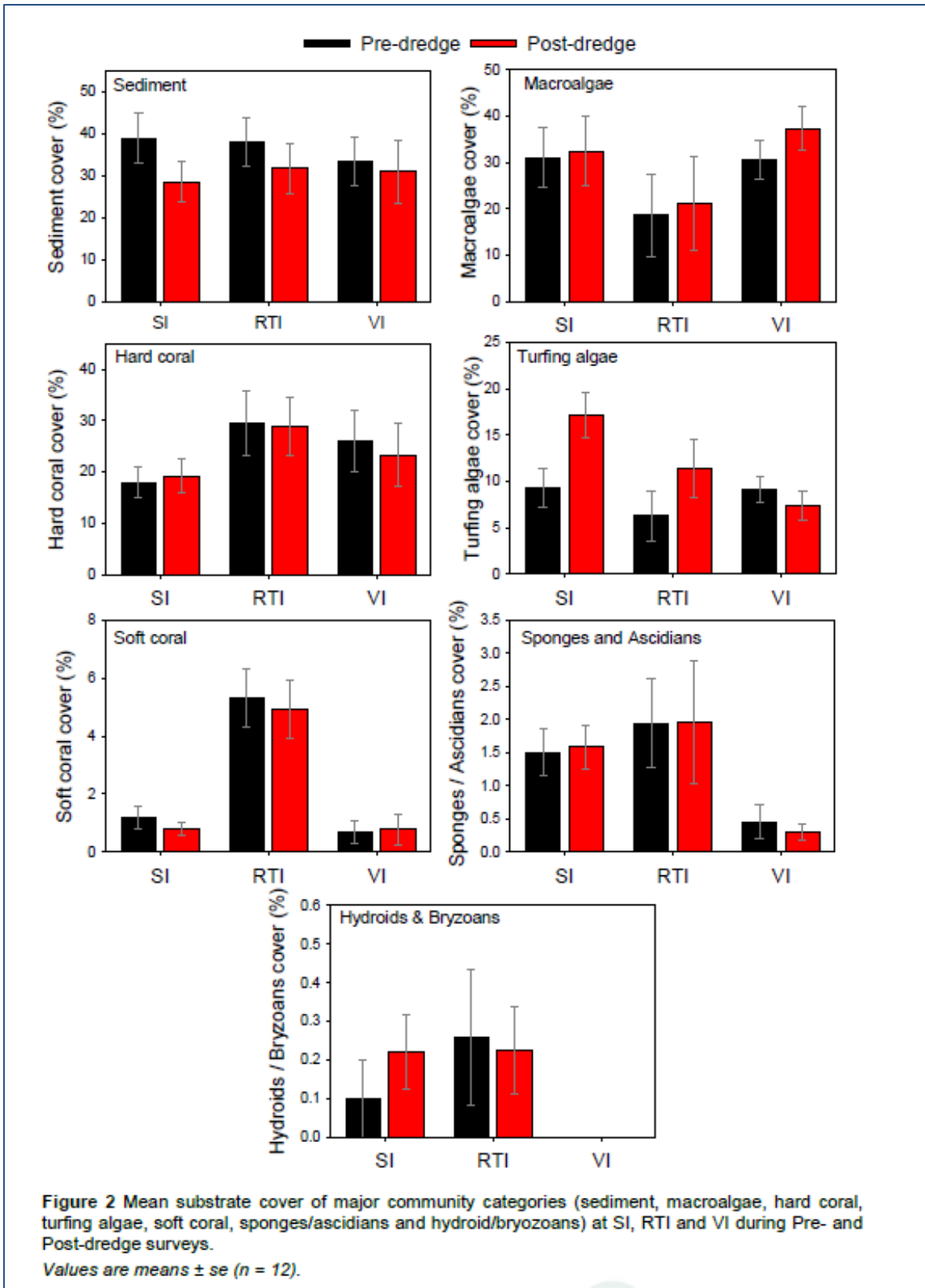


Figure 14: Pre- and post-dredging substrate cover of major coral community categories (VE ANZ 2024b).

3.5 Marine fauna

In accordance with NQBP's approval requirements, the crew on board the *TSHD Brisbane* used binoculars to check for marine fauna within the 300-metre monitoring zone surrounding the vessel before commencing each dredging or placement run. All marine fauna observations were recorded in the vessel logs and provided to NQBP daily.

3.4.1 Whales

There was significant whale activity in the Hay Point region during the program, however generally these were at a distance to the dredging and placement activities.

Whales were observed within the monitoring zone at the dredge material placement area (DMPA) or while dredging several times during the program. In each instance, the *TSHD Brisbane* ceased activities and waited 20 minutes before recommencing or relocated to maintain 300 metres from the whales.

No other marine mammals were observed during the program.

3.4.2 Turtles

No turtle captures occurred during the dredging program.

The *TSHD Brisbane* is fitted with permanent turtle exclusion devices that are welded to the drag heads and were in place during the entirety of the dredging program. This was confirmed during both the internal NQBP and external audit.

4. Environmental incidents and complaints

There were no environmental incidents during the maintenance dredging program.

One complaint was received during the program. A member of the public rang NQBP on 10 September 2024 to raise concerns regarding turbidity from dredging and bed levelling operations in Half Tide Tug Harbour and potential environmental impacts. Advice was provided to the resident regarding NQBP's monitoring and management activities for the project. No further action was required.

No significant equipment failures or events that had potential environmental management consequences occurred during the maintenance dredging program.

No incidents or deviations from the approved plans occurred during dredging, therefore no corrective actions were required to minimise or reduce environmental harm.

5. References

Vision Environment (2024a). *Compliance Water Quality Monitoring for Port of Hay Point Maintenance Dredging*. Vision Environment ANZ, A Trinity Consultants Australia Company, Gladstone Australia.

Vision Environment (2024b). *Monitoring for Port of Hay Point Maintenance Dredging*. Vision Environment ANZ, A Trinity Consultants Australia Company, Gladstone Australia.

Ports and Coastal Solutions (2021). *Port of Hay Point, Environmental Thresholds Update, November 2021*. Port and Coastal Solutions, Burleigh Heads, Australia

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