



# Management Plans

PORT OF  
**HAY POINT** | 2018



# Management Plans

▶ **Summary report**  
March 2018

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# SUMMARY REPORT



## SYNOPSIS

### Introduction

The Port of Hay Point is located on the north-east coast of Australia and lies within the Great Barrier Reef World Heritage Area (GBRWHA). The Port is managed by the North Queensland Bulk Ports Corporation (NQBP).

Maintenance dredging activities may interact with marine fauna and habitats. A comprehensive environmental risk assessment has been undertaken and shows that maintenance dredging would not result in impacts

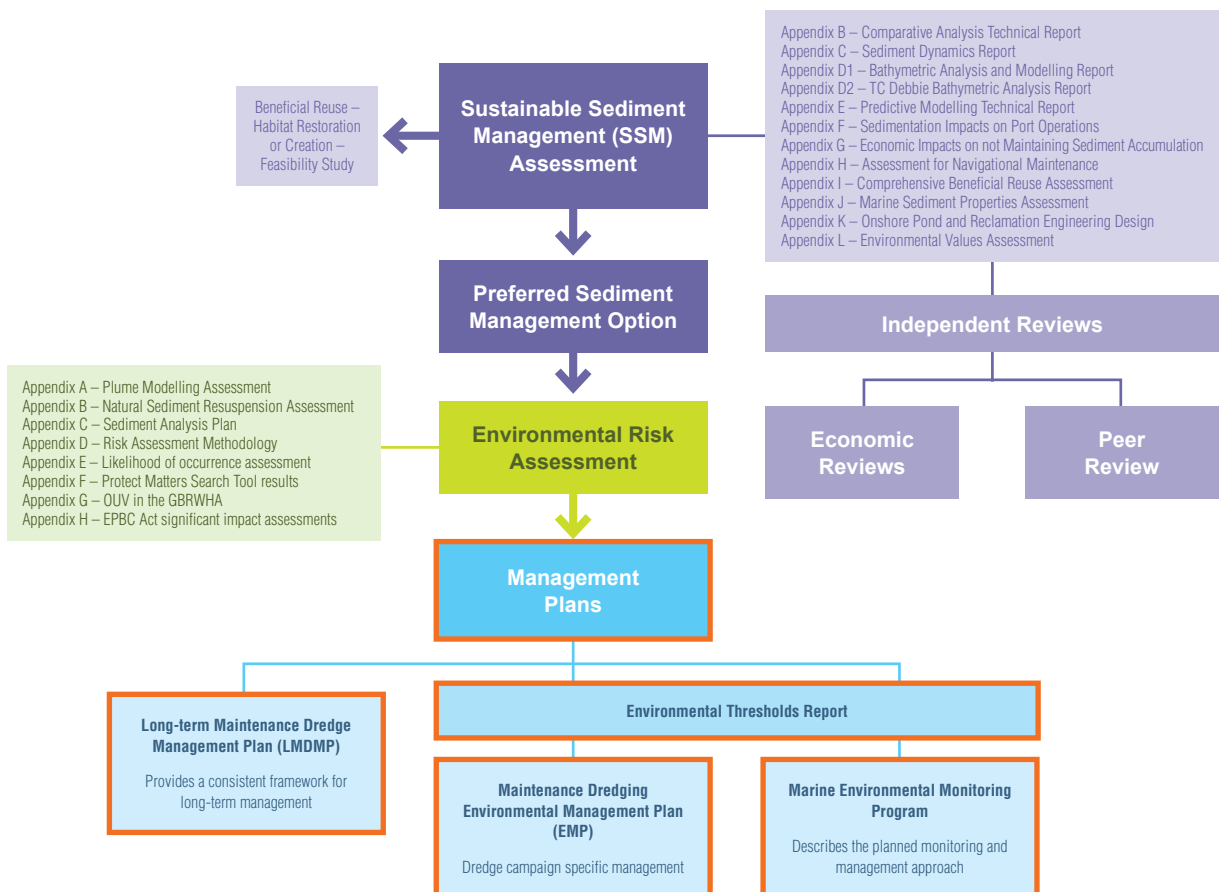
to sensitive environmental values if the dredging volumes remain under 800,000m<sup>3</sup> for a single campaign.

NQBP has immediate maintenance dredging needs of 356,553m<sup>3</sup> and future predicted needs of approximately 200,000m<sup>3</sup> expected to result in impacts to sensitive environmental values are not predicted.

Environmental monitoring will be employed to check for unpredicted environmental change and a suite of management measures will be implemented to further minimise or avoid consequential effects. A thorough environmental management approach will enable maintenance dredging campaigns to be undertaken in line with best practice.

This report provides the management framework for maintenance dredging at the Port of Hay Point.

### A number of supporting studies have been undertaken to inform this assessment



### Three-tiered approach to management

The best-practice management framework is based on three key plans:

1. Port of Hay Point – Long-term Maintenance Dredging Management Plan
2. Port of Hay Point – Maintenance Dredging Environmental Management Plan
3. Port of Hay Point – Marine Environment Monitoring Program.

The latter two plans have been informed by a peer reviewed approach to setting ecologically relevant management triggers that are tailored to the natural environment in and around the Port of Hay Point.

### Long-term Maintenance Dredge Management Plan (LMDMP) (2018-2043)

In 2016 the Queensland Government published the Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports. Its primary objective is to provide certainty to the ports industry and to the wider community that the economic and social contribution of ports is maintained, while ensuring the continued protection of Queensland's valuable environmental assets, in particular the World Heritage listed GBR.

In line with the strategy and best-practice management, all GBRWHA ports will develop a Long-term Maintenance Dredging Management Plan (LMDMP) to:

1. Provide a framework for maintenance dredging of the Port over the next 25 years (2018-2043)
2. Establish a robust, transparent long-term planning approach to managing port sediment accumulation
3. Outline operational, planning, consultation, monitoring and reporting arrangements
4. Maintain local environmental values, including the Outstanding Universal Value of the GBRWHA
5. Apply continual improvement practices in the management of sediment and dredging actions.

The Port of Hay Point LMDMP is fully aligned with the Maintenance Dredging Strategy.

### Environmental Thresholds Report

The other management plans within the best-practice framework are designed to deliver on-the-ground direction for individual maintenance dredging programs. A key element informing these management plans is the use of ecologically relevant environmental triggers, which can be applied to manage dredging outcomes in real-time.

A comparison of published ecological thresholds with measured data on natural marine water quality conditions at the Port of Hay Point was used to inform the development of environmental triggers. These triggers will be used during maintenance dredging so that unpredicted changes in marine water quality can be managed in real time.

Statistical analysis was undertaken on a three (3) year marine water quality dataset collected by James Cook University's (JCU) TropWATER unit. Using an intensity, duration, frequency (IDF) approach, the inshore marine environment in the Mackay / Hay Point area is naturally more turbid than many of the published guidelines, so would offer little value for managing to natural conditions.

However, the analysis did identify that an intensity threshold of 15mg/L (11 NTU) would be appropriate at offshore locations and specifically at the inshore Round Top Island, which had considerably lower turbidity than other inshore areas.

The report concludes that Round Top Island is considered a key location on which to develop intensity and duration triggers, given its proximity to the Dredged Material Placement Area (DMPA), and similarity between published intensity thresholds and the natural conditions measured.

Intensity thresholds have been based on an intensity value of 15mg/l (11 NTU) at Round Top Island, which reflects the:

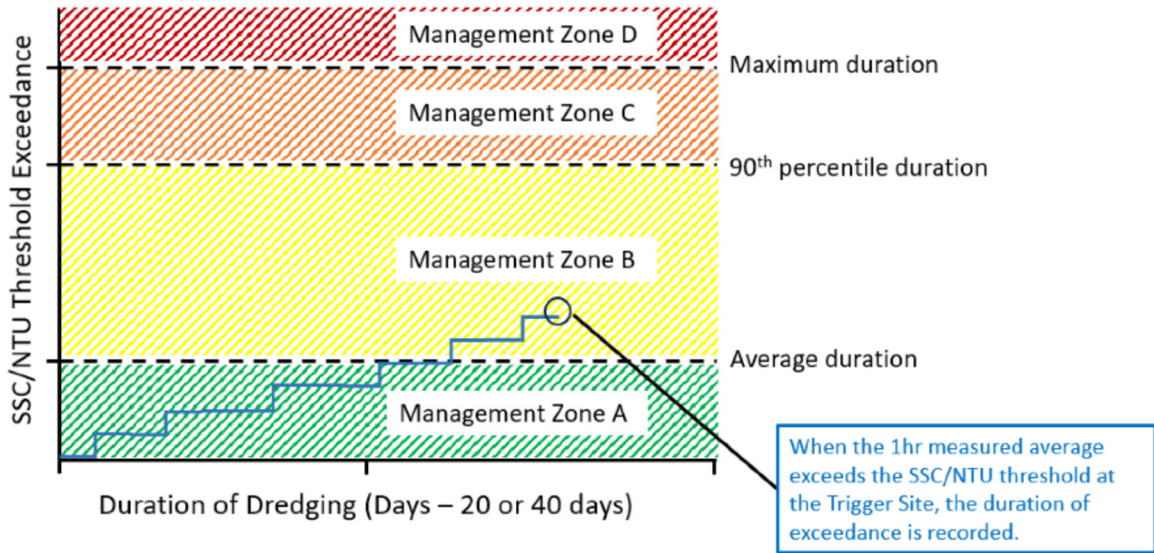
- 92nd percentile of natural suspended solids concentration (SSC) in the wet season, and
- 95th percentile of natural suspended solids concentration (SSC) in the dry season

Insuring this intensity thresholds is equally applied at other monitoring sites is simply achieved through equally determining the 92nd percentile (wet season) or 95th percentile (dry season) at other monitoring sites.

Duration thresholds are established by calculating the time that water quality is naturally higher than the defined

intensity threshold at each specific monitoring location. Four management triggers based on calculated duration thresholds have been adopted and will be applied equally at all monitoring locations (Fig 1).

**Figure 1 – Example plot showing how duration trigger limits are used in adaptive management response, using locally developed intensity thresholds**



The practical application of these site specific environmental thresholds is further detailed in the Port of Hay Point Maintenance Dredging Environmental Management Plan and Port of Hay Point Marine Environment Monitoring Program.

### Maintenance Dredging Environmental Management Plan (EMP)

The Maintenance Dredging Environmental Management Plan (EMP) guides activities during dredging operations, through:

- describing management during the implementation of maintenance dredging and material relocation activities
- defining environmental management requirements of staff and contractors during maintenance dredging operations
- defining roles and responsibilities during maintenance dredging operations
- detailing compliance needs of Commonwealth and Queensland Government permits and approvals
- the project delivery standards including environmental controls and limits to ensure that project objectives and targets are achieved.

### Marine Environmental Monitoring Program (MEMP)

Three layers of monitoring plan collectively form the Port of Hay Point Environmental Monitoring Program:

- **Ambient monitoring** – ongoing long-term continuous monitoring to assess natural environmental condition
- **Impact monitoring** – undertaken before, during and after each maintenance dredging to detect unpredicted impacts
- **Adaptive monitoring** – real time monitoring during each maintenance dredging campaign to respond to unpredicted changes in water quality.

A summary of the key monitoring for each plan is provided in Table 1.

**Table 1 – Key parameters to be monitored**

Parameter	Ambient	Impact	Adaptive
Marine water quality	✓	✓	✓
Island fringing corals	✓	✓	
Seagrass and benthic habitat	✓		
Invasive marine pests	✓		
Sediment quality	✓	✓	
Marine megafauna			✓

Although NQBP’s ambient monitoring program is well established and impact programs have been successfully implemented previously, the adaptive monitoring plan is entirely new. This plan has been designed to detect and respond to changes in the marine environment at the Port, during dredging.

Informed by the Environmental Thresholds Report, four (4) adaptive management monitoring locations have been identified, which consider the prevailing wind conditions:

- prevailing southerly conditions
  - Round Top Island (Trigger Site)
  - Freshwater Point (Control Site)
- prevailing northerly conditions
  - Victor Island (Trigger Site)
  - Slade Islet (Control Site)

A traffic light system (figure 2) has been developed to ensure action is progressed if water quality remains above predetermined concentrations for defined periods of time (see figure 1, management zones).

**Figure 2 – Management responses based on trigger and control site combination**

Trigger	Control	Management Response
●	●	= NO ACTION (CONTINUE DREDGING OPERATIONS AS NORMAL)
●	●	= INVESTIGATE
●	●	= NO ACTION
●	●	= RESPOND – TURBIDITY REDUCTION MEASURES
●	●	= NO ACTION
●	●	= STOP DREDGING (until instantaneous NTU falls below 92nd/95th% @trigger site)
●	●	= NO ACTION

Some of the management measures include:

- Changing the disposal location and vessel route within spoil grounds
- Slowing vessel speed during disposal
- Altering the overflow regime
- Changing the dredging location (e.g. move to Half Tide Tug Harbour)
- Modifying the disposal phase with respect to the tide (e.g. dispose on ebb tide only)
- Reducing the dredge load