Maintenance Dredging



PORT OF TOWNSVILLE

Maintenance dredging removes sand, silt, mud and rock from underwater channels and berths where it has collected through natural processes such as wind or wave action. Maintenance dredging is required to keep the channel and the harbour at an acceptable depth to allow safe access for commercial, cruise and military ships.

Why are the maintenance dredging works needed in the Port of Townsville?

The Port of Townsville is currently linked to national shipping routes by a 14 kilometre long channel in Cleveland Bay. The depth of the channel is maintained to enable ships to safely enter the Port. To keep the channel open to shipping, the Port of Townsville has been carrying out maintenance dredging since 1883.

The Port of Townsville is required to maintain a safe shipping channel and harbour to provide an efficient port which services the North Queensland community. The Port of Townsville also maintains appropriate depths so that commercial vessels (such as ferries, barges and fishing vessels) and private boats can continue to access Ross Creek, Ross River and the Marine Precinct.

Maintenance dredging is usually undertaken once a year for around 4-5 weeks, depending on the amount of sediment building up in the channel and harbour.

How do we know when maintenance dredging works are needed?

The Port's Hydrographic Surveyors use specialist equipment and carry out detailed surveying four times per year. They measure the depth of the water around the port and monitor the volume of sediment accumulating in the channel.

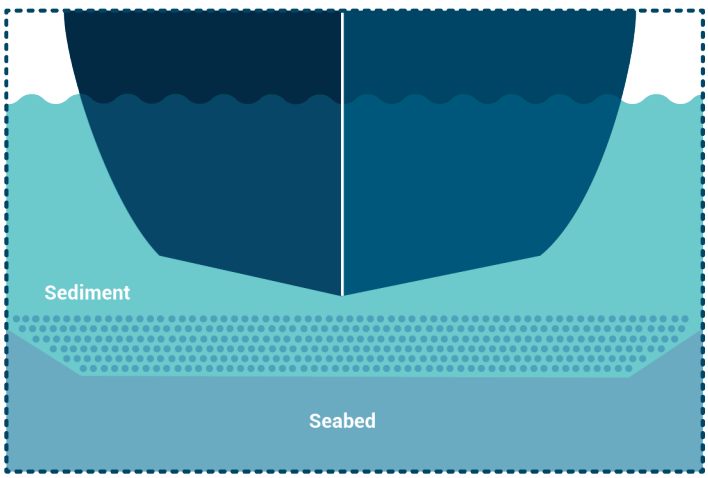
The survey results are measured against the navigational target depths for the port, anticipated shipping trends, projects or developments that may affect navigational requirements. The port works closely with the Maritime Safety Queensland Regional Harbour Master to determine if and when dredging is required.

How is the maintenance dredging done?

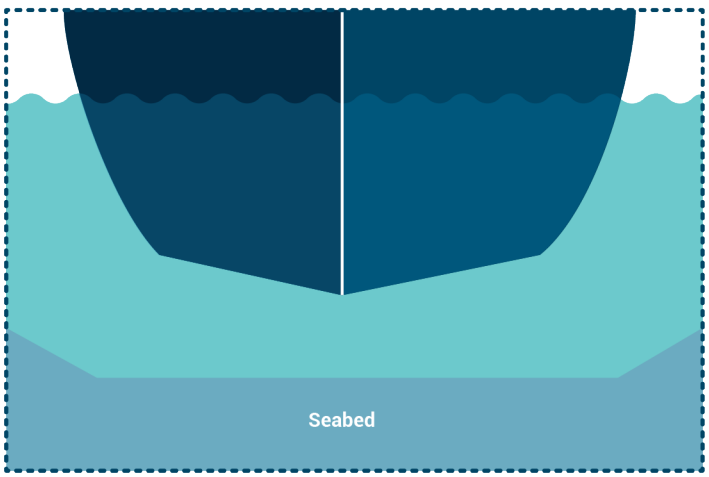
Maintenance dredging can be carried out by different types of dredges such as: cutter suction, trailer suction hopper or mechanical (grab) dredge. The port determines which method is used depending on what area is being dredged. The majority of maintenance dredging is carried out by a trailer suction hopper dredge due to its mobility. This type of dredge is designed for use with loose and soft sediments such as sand, gravel, silt and clay, typically found in Cleveland Bay and along the Queensland coast.

A pump system is lowered over the side of the dredge and sucks up a mixture of the sediments and seawater like a vacuum cleaner into a "hopper" or hold of the dredge. When the hopper is full, the dredge travels to an approved dredge material placement area, opens the hopper doors below the water level and releases the sediment. At times maintenance dredge material is placed on port land for reclamation purposes.

Natural sediment buildup



After maintenance dredge



How is the maintenance dredging program managed?

The maintenance dredging program is subject to a number of environmental permit approvals and conditions from a range of Commonwealth and Queensland government agencies.

Conditions of maintenance dredging permits include:

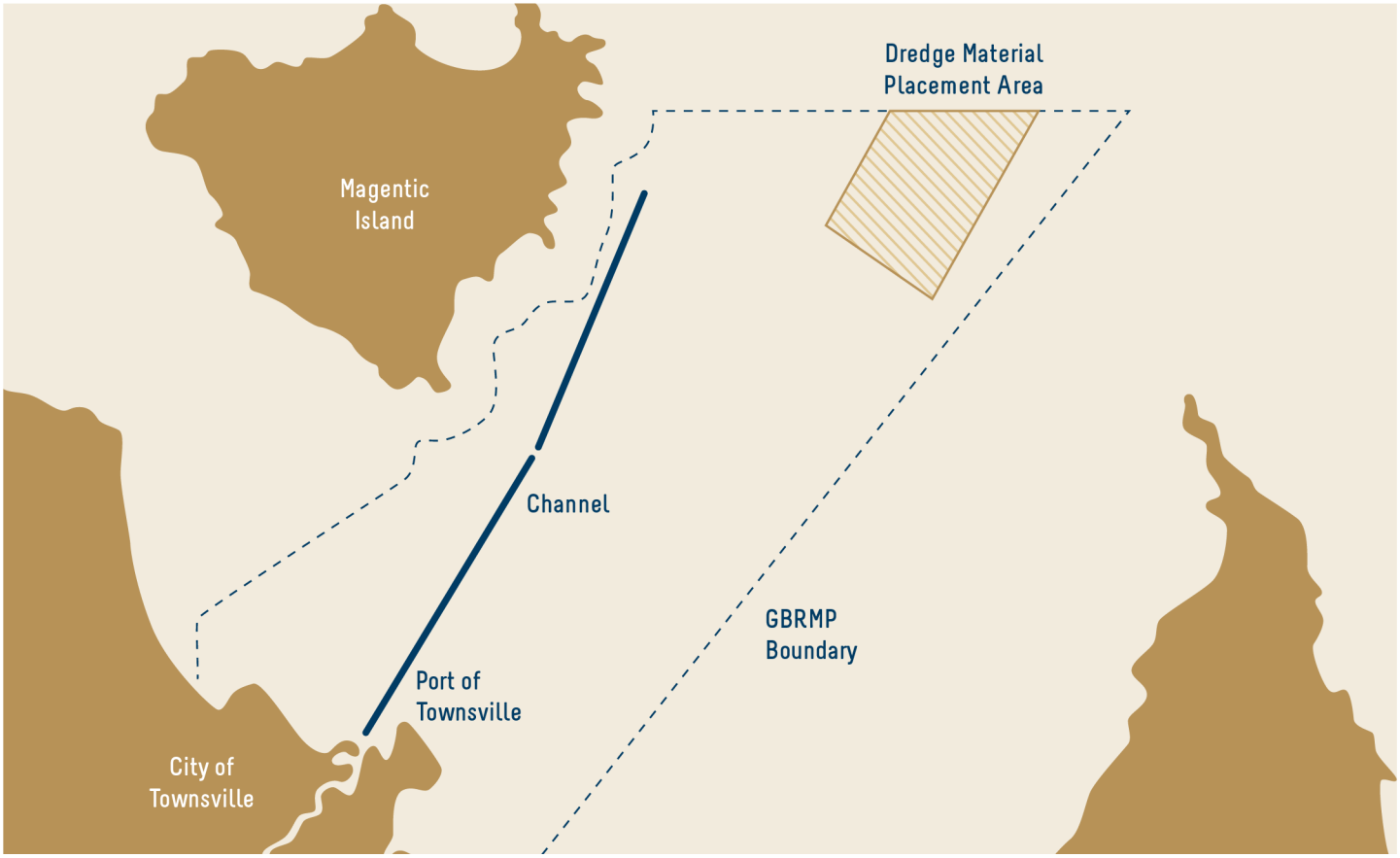
- turtle exclusion devices (prevent injury to marine life)
- technical advisory and consultative committee
- approved long term dredge management plan
- extensive modelling and monitoring of Cleveland Bay to ensure a high standard of environmental protection is maintained

The regulating bodies monitor and enforce the Port's compliance. The Port of Townsville invests in environmental management controls, monitoring and research each year to ensure the most up-to-date management of maintenance dredging programs.

Where is material from maintenance dredging placed?

Since 1993, maintenance dredge material has been placed both on land and at sea. The designated ocean Dredge Material Placement Area was chosen in conjunction with government agencies, GBRMPA, JCU and AIMS.

This area is in deeper water and is located away from sensitive coral reefs and seagrass beds. It is located outside the Great Barrier Reef Marine Park.



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