

Benthic Assessment Cleveland Bay Dredge Material Placement Area

Summary of monitoring completed by GHD for Port of Townsville Limited in 2020 and 2025.

The Port of Townsville Limited (the Port) has undertaken monitoring within and surrounding the Cleveland Bay Dredge Material Placement Area (DMPA) to assess the benthic communities living within the DMPA.

Marine benthic communities live within the seabed (the benthic zone) and provide ecological services including food provision and habitat foundation. Placement of dredged material can have a direct impact on the benthic organisms within the DMPA; therefore, the Port has investigated the presence, recovery, and resilience of the benthic communities.

Through burrowing, feeding, and digging into the seafloor, the benthic organisms mix the sediments and move nutrients, organic matter and oxygen through the layers, which help maintain a healthy ecosystem. This is known as bioturbation. Bioturbation was observed through the underwater footage of the DMPA after placement in the form of burrows and mounds, indicating the resilience of the benthic communities living in the DMPA through the placement of dredge material.

The assessment of benthic communities is completed by collecting samples from the upper 10cm of sediment from the seabed at a number of locations within and surrounding the DMPA. From these samples the animals are examined and identified to family level. Family level identification provides a reliable measure of ecological condition, community structure, and potential environmental change while ensuring consistency with national benthic monitoring standards. This sampling occurred both before and after maintenance dredging and sea placement activities in 2020 and 2025.

The benthic organisms identified during each study were typical of communities found in tropical, soft sediment environments. The studies identified core 'influential' organisms including marine worms, crustacea, bivalves, and brittle stars that were present at the DMPA in both the 2020 and 2025 sampling events. These organisms are found in the area across time, throughout a range of potential influences such as dredge placement activities and significant climatic events (including Tropical Cyclone Kimi, major flooding in Townsville and the Burdekin, and Tropical Cyclone Kirrily). Together, these species form a stable, core community that provides resilience to change, likely supported by new individuals moving in from surrounding areas.

Based on the data collected from these studies, as well as previous investigations of the region, GHD determined that dredge material placement at the DMPA does not appear to have a long-term effect on the benthic communities of the DMPA or surrounding area.



Processidae (night shrimp)



Sabellidae (feather duster worm)



Arcturidae (marine isopod crustacean)

Images of benthic fauna identified and preserved from GHD 2025 sampling events

dredging@townsville-port.com.au
+61 7 4781 1500

Administration Building, Benwell Road
PO Box 1031, Townsville Q 4810
Australia



website

