Marine dredging guideline

Assessment and authorisation of marine dredging proposals in the NT

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ntepa Northern Territory Environment Protection Authority

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1. Purpose

Marine dredging activities may require regulation under a suite of Territory and Commonwealth legislation. This guidance focuses on the main statutory authorisation processes associated with marine dredging activities in Territory waters. This includes dredging activities that require environmental impact assessment by the Northern Territory Environment Protection Authority (NT EPA) and approval by the Minister for Environment, Climate Change and Water Security (Minister) under the *Environment Protection Act 2019* (EP Act), and other statutory authorisations under Territory legislation.

The NT EPA encourages proponents to seek early advice from suitably qualified and experienced specialists and the Department of Environment, Parks and Water Security (DEPWS) regarding the application of this guidance in the context of their proposals. For more detailed information on environmental impact assessment and approval processes, refer to guidance material available on the NT EPA webpage.

2. Background

2.1. What is dredging?

Dredging is the mechanical removal of material from the bed of any sea or waterway. Substrate material (sediment or rock) that has been removed from the bed of any sea or waterway by dredging is termed dredged material.

There are a number of different types of dredges including hydraulic dredges, such as cutter-suction dredges and trailing suction hopper dredges, and mechanical dredges, such as bucket or grab dredges and excavator dredges.

There are three types of marine dredging activities:

1. Capital dredging—involves dredging a site for the first time, for the purpose of navigation or construction of infrastructure. Examples include the creation of new or modified navigation channels, berths, turning basins, marinas, canals, port expansions and to construct new marine infrastructure such as wharfs and jetties;
2. Maintenance dredging—dredging to ensure that existing channels, berths, turning basins, or other port areas are maintained within their designed dimensions or where natural tidal waters are maintained for navigation or flood mitigation; and
3. Extractive dredging — such as the extraction of sand or gravel for construction purposes. Subsea mining activity is a prohibited action[1] under the EP Act and is not permitted in the Territory.

2.2. What is disposal?

Disposal refers to the placement of dredged material. Dredged material is either disposed of to sea (in a designated marine disposal area) or to land (such as for beneficial reuse or land reclamation). Statutory authorisation may be required under a range of NT legislation for the disposal of dredged material to sea or land depending on the location and potential environmental impacts of the action.

[1] Northern Territory, *Northern Territory Government* Gazette, No. S30, 4 August 2021.

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2.3. Environmental impacts of dredging

Potential environmental impacts from dredging and disposal of dredged material include:

- increased turbidity and reduced light availability
- marine ecosystem impacts (direct, indirect and cumulative) on bottom-dwelling (benthic) habitats and communities, seagrasses and corals due to disturbance of the seabed
- contaminant release (including impacts associated with acid sulfate soils) impacting on water quality
- increased sedimentation affecting marine flora and fauna
- modifications to physical and habitat processes resulting from changes to bed topography (depth, channel profiles), hydrodynamics (current, wave action)
- changes to habitat features and process upon which fisheries depend
- the introduction or spread of marine pest species
- impacts (direct, indirect and cumulative) on other fauna, including migratory species and protected species.

The significance of environmental impact caused by dredging activity depends on the sensitivity, value and quality of the marine environment impacted on, and the context, intensity, duration, magnitude and geographic extent of the impact. The significance of direct, indirect and cumulative impacts on environmental values is influenced by a range of factors, such as:

- the volume of material being dredged
- the sediment characteristics including the presence of elevated levels of contaminants
- the duration and timing of the dredging campaign
- the dredging, transport and disposal methods
- the proximity of sensitive receptors
- the hydrodynamic, sediment transport and ecological regimes at the location
- the quality and sensitivity of the environment that would be impacted.

Environmental impact is unavoidable within a capital dredging footprint and new disposal area. This is less of an issue for maintenance dredging activities as the works occur within areas of existing and repeated disturbance. Although it is likely that benthic biota may colonise previously dredged areas between maintenance events, further impacts on these directly-affected biota are unlikely to be regarded as key considerations in the assessment of maintenance dredging proposals. This is due to those direct impacts being largely unavoidable and recolonising biota being well-adapted to surviving within dynamic benthic habitats.

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3. Statutory context

3.1. Summary of statutory authorisations

Dredging activity in Territory waters may require several statutory authorisations, depending on the type and location of dredging activity and the significance of potential environmental impacts.

Table 1 lists a range of marine dredging related activities and statutory authorisations that may be needed under the EP Act, *Planning Act 1999* (Planning Act), *Mineral Titles Act 2010* (MT Act) and *Water Act 1992* (Water Act).

Table 1 Marine dredging-related activities and indicative approval types (within Territory waters)

Activity (a single activity may meet more than one of the criteria below)	Environmental approval under EP Act	Development consent under Planning Act	Waste Discharge Licence under Water Act
Dredging or disposal action that has the potential to have a significant impact on the environment; or meets a referral trigger (outside of Darwin Harbour)	✓	✗	✗
Dredging or disposal action that has the potential to have a significant impact on the environment; or meets a referral trigger (within Darwin Harbour)[2]	✓	✓	✗
Disposal of dredged material to land involving the controlled discharge of decant water to a waterway	Refer above	✓	✓
Dredging for the extraction of minerals[1]	Refer above	✗	✗
Reclaiming coastal land below the level of highest astronomical tide	Refer above	✓	✗
Land-based disposal of dredged material as fill above the level of highest astronomical tide	Refer above	✓	✗

The process for determining whether approval is required under the EP Act and Planning Act is shown at Figure 1. Table 2 summarises dredging-related approvals and the administering authority.

[2] Northern Territory Planning Scheme 2020, Clause 3.1: Planning scheme overlays.

Table 2 Dredging approval requirements (within Territory waters)

Legislation	Land type/ tenure	Trigger	Approval type	Administering authority	More information
Environment Protection Act 2019 *Environment Protection Regulations 2020*	Bed of any naturally occurring sea or waterway	NT EPA decision that an environmental impact assessment is required for a proposed action or strategic proposal because it has the potential to have a significant impact on the environment (see section 6 of EP Act for meaning of "environment").	Environmental approval	DEPWS	Guidance on the environmental impact assessment and approval processes under the EP Act is available on the NT EPA webpage
Planning Act 1999 Planning Regulations 2000	Zoned land covered by the NT Planning Scheme	• Dredging of the seabed within the *Darwin Harbour Dredging Overlay* • Coastal reclamation (placement of dredged material as fill material below the level of the highest astronomical tide) • Land-based disposal (or beneficial reuse) of dredged material as fill material above the level of the highest astronomical tide)	Development consent	Development Assessment Services (DAS) branch of the Department of Infrastructure, Planning and Logistics (DIPL)	NT Planning Scheme 2020 Part 3 Overlays
Water Act 1992 Water Regulations 1992	Water as defined in s16 of the Water Act, including water flowing or contained in a waterway; or tidal water.	Disposal of dredged material to land, and there is a controlled discharge to a waterway, in a manner that would otherwise be an offence under the *Water Act 1992*.	Waste Discharge Licence	DEPWS	Information about waste discharge licensing under the *Water Act 1992* is available on the NT Government webpage.

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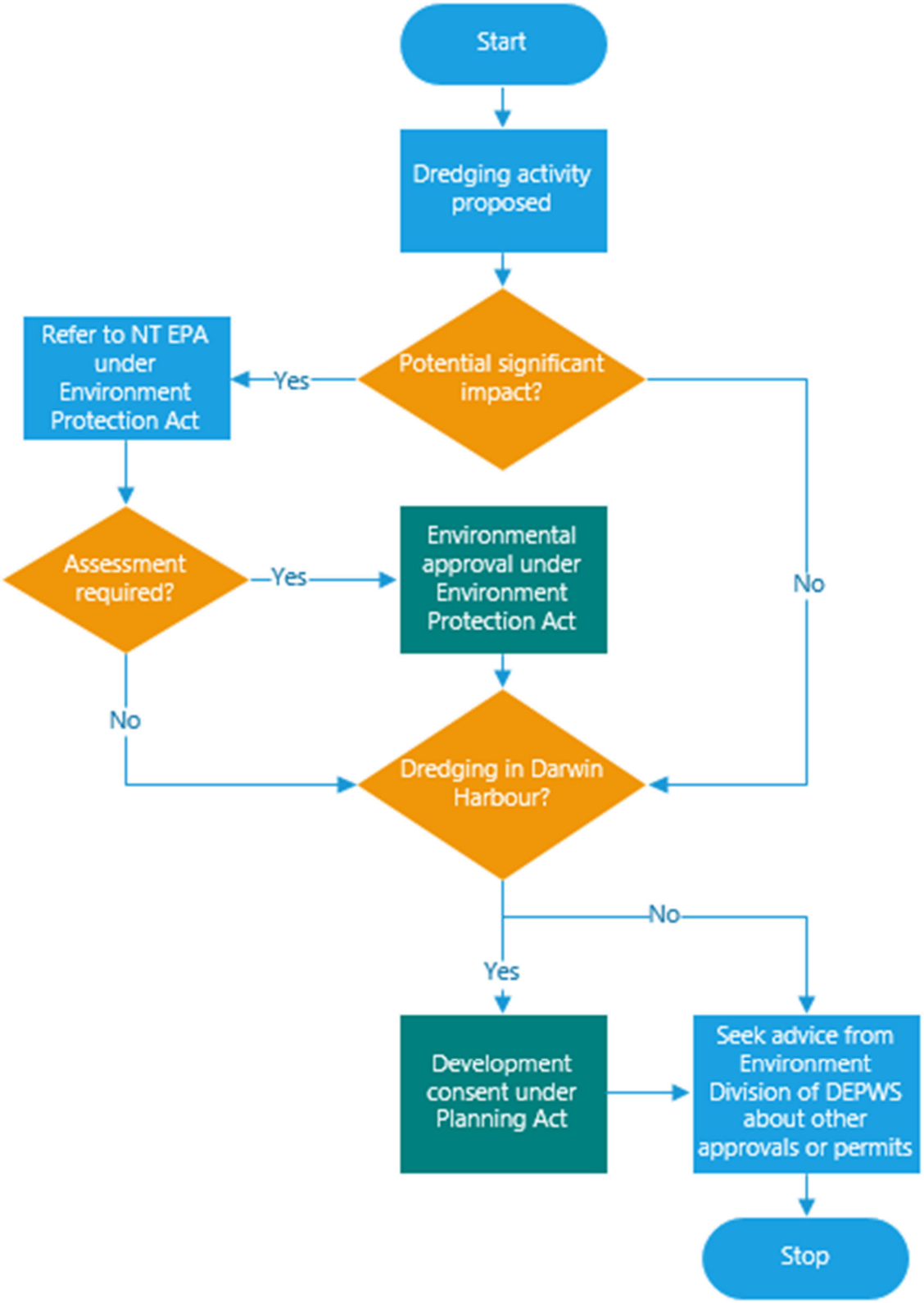

Figure 1 Process for determining whether approval required under EP Act and/or Planning Act

It is the proponent's responsibility to identify any further statutory authorisations that may be needed. These may include:

- *Ports Management Act 2015* – written approval from the regional harbourmaster prior to undertaking dredging or any other activity that would cause a significant alteration of the bathymetry of the port
- *Cobourg Peninsula Aboriginal Land, Sanctuary and Marine Park Act 1981* – approved management plan for actions within a marine park
- *Territory Parks and Wildlife Conservation Act 1976* – approved management plan for actions within parks, reserves and wilderness zones
- *Heritage Act 2011* – works approvals for actions that would disturb a heritage place or object
- *Underwater Cultural Heritage Act* (Cth) – permit for entry into a protected zone or to impact underwater cultural heritage
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) — matters of national environmental significance
- *Environment Protection (Sea Dumping) Act 1981* (Cth)—sea dumping in Commonwealth waters.

3.2. Environmental approval under the Environment Protection Act 2019

Proposed actions that have the potential to have a significant impact on the environment must be referred to the NT EPA under the EP Act. The NT EPA must consider the referral and decide whether an environmental impact assessment is required.

A proposed action or strategic proposal that includes dredging activity in the NT and that undergoes environmental impact assessment by the NT EPA must have an environmental approval granted by the Minister before it can proceed.

The NT EPA may call-in a proposed action if it believes on reasonable grounds that a proponent is taking an action that should be referred to the NT EPA for assessment.

A statutory decision-maker must not grant a statutory authorisation while an environmental impact assessment is being carried out under the EP Act (unless the activity is required to inform the environmental impact assessment process).

If a statutory authorisation is granted before the completion of an environmental impact assessment process, it will cease to have effect until after an environmental approval has been granted for the action under the EP Act.

Information on the environmental impact assessment and approval processes is available on the NT EPA website.

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3.3. General Environmental Duty under the Waste Management and Pollution Control Act 1998

A proponent or operator of a dredging activity has a general environmental duty to take all measures that are reasonable and practical to:

a) Prevent or minimise the pollution or environmental harm; and

b) Reduce the amount of waste.

To meet the general environmental duty (Section 12 of the *Waste Management and Pollution Control Act 1998* (WMPC Act)), proponents of dredging proposals should conduct their dredging activity in accordance with guidance that supports best practice environmental management. This includes undertaking dredging activity in accordance with a dredging and dredge spoil management plan (DMP) that sets out measures to avoid, mitigate and manage impacts on the environment. The DMP should be reviewed and endorsed by an independent qualified person, who provides written verification that the dredging activity can be managed to avoid or minimise pollution, and prevent material environmental harm.

If it is determined that an operator has caused pollution resulting in serious or material environmental harm, enforcement action may be taken under the WMPC Act.

3.4. Development consent under the Planning Act 1999

Dredging actions within Darwin Harbour require development consent under the Planning Act and ~~section~~ ~~clause~~ Overlay 3.9 (Darwin Harbour Dredging) of the Northern Territory Planning Scheme. This applies to all dredging actions within the extent of the Darwin Harbour Dredging Overlay, regardless of whether environmental approval under EP Act is required.

The Overlay covers ~~(insert dredging activities here)~~ dredging but does not include coastal reclamation activities, including the placement of dredged material below the level of the highest astronomical tide, as this is covered by ~~clause~~ Overlay 3.4 (Coastal Reclamation) ~~on zoned land in the NT requires development consent~~. ~~This may be applicable to proposed dredging actions where dredged material would be used as fill for coastal land reclamation.~~

Land-based disposal of dredged material ~~as fill~~ above the level of the highest astronomical tide on zoned land ~~in the NT~~ is defined as Excavation and Fill in the Planning Scheme and requires consent (as ~~is~~ an impact assessable use). ~~(which requires consent) in all zones and requires development consent under the Planning Act~~.

~~An application for dredging must consider the requirements of this guideline. In~~ In considering an application for dredging in the Darwin Harbour, the ~~development~~ consent authority ~~must~~ will have regard to the requirements within the ~~clause~~ Overlay and the advice of DEPWS when making ~~their~~ its decision~~.~~

Proponents of dredging proposals should seek early advice from suitably qualified and experienced specialists and the DAS branch of DIPL regarding the application of this guidance in the context of their proposals.

For more detailed information on planning approval processes, refer to the NT Government webpage on Planning applications and processes or contact a planner from Development Assessment Services to discuss your proposal. Development applications can be made at Development Applications Online.

4. Leading practice technical guidance for marine dredging

The NT EPA encourages proponents to use the Western Australian Environmental Protection Authority (WA EPA) Technical Guidance – Environmental impact assessment of marine dredging proposals (WA EPA Technical Guidance) in the preparation of their environmental impact assessment documents for processes under the EP Act.

Use of the WA EPA Technical Guidance will assist proponents to:

- present their predictions of impacts to benthic habitats associated with dredging activities in a clear and consistent manner
- interpret and efficiently and consistently apply the key relevant findings of the research program undertaken by the Dredging Science Node of the Western Australian Marine Science Institution (WAMSI DSN) (https://www.wamsi.org.au/dredgingscience-node).

The WAMSI DSN is a strategic research initiative that evolved in response to uncertainties in the environmental impact assessment and management of large-scale dredging operations and coastal infrastructure developments in Western Australia. Although focussed on port and coastal development in Western Australia, the findings and outputs are broadly applicable across Australia and globally, and are widely regarded as contemporary best practice for dredging impact prediction, monitoring and management.

The WA EPA Technical Guidance identifies and further refines the key WAMSI DSN research findings with input from regulators and experienced environmental consultants, in sections 3.5–3.7 of the WA EPA Technical Guidance and the appendices.

It is important to note that the guideline values in the WA EPA Technical Guidance are not prescriptive, rather they can be considered a set of default guidelines that may be adapted for use with consideration of NT conditions, in the absence of more robust site-specific information.

The WA EPA Technical Guidance is generally applicable to environmental impact assessment of dredging proposals in the NT. However, proponents should apply the WA EPA Technical Guidance in the context of their proposals with consideration of the type of dredging activity, the locality or region, resident benthic habitats and communities and natural background conditions.

Measures to manage dredging activity should ideally be based on locally-derived information rather than on generalities or information from other regions. For example, dredging in Darwin Harbour is best done during the wet season when turbidity levels are naturally elevated, and additional impacts from dredging are relatively less compared to dredging in the dry season.

Proponents are encouraged to seek early advice from suitably qualified and experienced specialists and DEPWS in relation to application of the WA EPA Technical guidance to the environmental impact assessment of dredging proposals in the NT.

5. Dredging Management Plans

Proponents of dredging proposals in the Territory should carry out their dredging activity in accordance with guidance that supports best practice environmental management. This includes undertaking their dredging activity in accordance with a DMP that generally meets the requirements set out in the WA EPA Technical Guidance and this document.

DMPs should be:

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- submitted to the NT EPA in draft form at the referral stage for proposals requiring referral under the EP Act
- submitted to the DAS branch of DIPL in draft form as part of the development application for proposals requiring development consent under the Planning Act
- submitted to the port operator and regional harbourmaster for dredging proposals within a designated port under the *Ports Management Act 2015*

The DMP should be reviewed by an independent qualified person, who provides written verification to endorse that the dredging activity can be managed to avoid or minimise pollution, and prevent serious or material environmental harm.

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