

Ms Lisa Bradley
Department of Environment, Parks and Water Security
PO Box 3675
DARWIN NT 0801

Dear Ms Bradley

Re: Invite to Comment - Draft guidance for marine dredging – NT EPA

The Department of Environment, Parks and Water Security (DEPWS) has assessed the information submitted for the above draft guideline and provides the following comments.

Flora and Fauna Division

The Flora and Fauna Division acknowledges that the Draft Guidance for Marine Dredging focuses on administrative procedures, and leaves the technical details to WA EPA Technical Guidance – Environmental Impact Assessment of Marine Dredging Proposals (WA EPA Technical Guidance) and publications from the Western Australian Marine Science Institutions (WAMSI) Dredging Science Node. The NT EPA and the Flora and Fauna Division have relied on these documents (and others) to guide assessments of Dredging and Dredge Spoil Management Plans, and informed proponents that these documents form the basis of our assessments. However, even with reference to these publications, referrals are submitted with major information gaps, requiring additional information for impact assessment of proposed dredging activities. Additional information requirements typically relate to scope of the assessment, mapping spatial coverage of habitats, benthic habitat classification, background environmental data needs, generating predictions and defining zones of influence and impacts.

Broadly speaking, the Flora and Fauna Division considers the WA EPA Technical Guidance is more than adequate for its intended purpose, especially given the lack of site-specific data for the NT. As such, until the Darwin Harbour Dredging Strategy has been completed and published, the WA Technical Guidance should be used as the point of reference for dredging activities in the NT. However, there are some sound reasons for developing a technical guidance document specific to the NT.

The level of detail prescribed in WA EPA's Technical Guidance allows for interpretation by proponents that does not align with requirements for assessment, often resulting in requests for further information. NT-specific guidance can heavily reference the WA EPA guidelines, with additional clarification added to relevant sections.

- amendments made to the WA Technical Guidance may directly affect how information is collected, and how projects are assessed by the NT EPA, yet the NT may not even be consulted about these changes;
- the WA guidelines directly refer to many other underpinning guidelines, which will then apply to the NT unless there is an alternative; and
- the development of NT-specific technical guidelines would allow the NT EPA to update the guidance when new local data becomes available. This includes the opportunity to place the guidance document in context to, and align itself with the Darwin Harbour Dredging Strategy, which is being developed in parallel by Department of Infrastructure, Planning and Logistics (DIPL).

In the case that the NT EPA makes a decision to include technical detail into the 'Draft Guidance for Marine Dredging', the Flora and Fauna Division has included specific comments in **Attachment 1** where it recommends changes to topics covered in the WA EPA Technical Guidance.

The Flora and Fauna Division recommends that some NT-specific technical detail should be included in the NT EPA Draft Guidance for Marine Dredging, this will:

- (1) provide the NT EPA ownership over the approaches taken within an NT context;
- (2) allow for the document to be updated when new local information becomes available;
- (3) enable the NT EPA to be more prescriptive in areas where there has been a repeated need to either request additional information or comment on areas where standards are not met; and
- (4) align with the Darwin Harbour Dredging Strategy being currently developed by DIPL.

Environment Division

The Environment Division has reviewed the draft guideline and have provided advice in **Attachment 2**.

Water Resources Division

The draft guideline refers to dredging as the mechanical removal of material from the bed of any sea or waterway. Impacts described in section 2.3, *Environmental impacts of dredging*, refer to changes to bed topography and hydrodynamics.

The *Water Act 1992* requires a permit to interfere with a waterway if there is:

- (1) a material change to the shape of a waterway;
- (2) a material change to the volume, speed or direction of the flow or likely flow of water in or into a waterway; or
- (3) an alteration to the stability of the bed or banks of a waterway.

Authorisations described in Table 1, *Marine dredging-related activities and indicative approval types (within Territory waters)*, should refer to interference with a waterway permitting requirements under section 41 of the *Water Act 1992*.

Table 2, *Dredging approval requirements (within Territory waters)*, refers to section 16 of the *Water Act 1992* for the definition of water. That section relates specifically to the application of pollution provisions in that section. Relevant definitions for other applicable parts of the *Water Act 1992* including interfering with a

waterway without authorisation and the granting of a permit to interfere with a waterway, are defined in section 4 of the *Water Act 1992*.

It is noted that the status of waters as 'tidal waters' (also defined in section 4 of the *Water Act 1992*) has no bearing on permits to interfere with a waterway or the offences for interfering with waterways.

Should you have any further queries regarding these comments, please contact the Development Coordination Branch by email DevelopmentAssessment.DEPWS@nt.gov.au or phone (08) 8999 4446.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'M Wauchope'.

Maria Wauchope
Executive Director, Rangelands
27 October 2023

Attachment 1 – Flora and Fauna Division comments
Attachment 2 – Environment Division comments

Attachment 1

NT EPA Draft Guidance for Marine Dredging

Government authority: Department of Environment, Parks and Water Security – Flora and Fauna Division

Summary: highlighted in **Bold** is recommended to be included into the Draft, *Italics* are excerpts from Draft Guidance or WA EPA Technical Guidance

Section of Guideline	Section in Guideline	Comment
NT EPA Draft Guidance	List of abbreviations and definitions	It is recommended that a list of abbreviations and definitions of terms is included in the draft guidelines. Example of where this would improve the document include: <ul style="list-style-type: none"> Defining the difference between extractive mining and seabed mining; What triggers a significant impact and therefore is a notifiable action?; Section 2.3, Environmental impacts of dredging, provides a list of factors but does not provide any context how to determine if it is a significant impact or not.
NT EPA Draft Guidance Section 1&2	Purpose and Background	These sections of the guidance document could better inform how the document operates in relation to the future Darwin Harbour Dredging Strategy. This is important as proponents are aware that the strategy is being prepared and would have queries about how the two documents interact.
NT EPA Draft Guidance Section 2.3	Environmental impacts of dredging, 1 st and 2 nd dot points	It is recommended that reference to <i>seagrass and corals</i> is removed from 2 nd dot point and added to the 1 st dot point. This is due to these organisms being part of light dependent communities. Suggested changes to dot points 1 and 2 are identified below: <ul style="list-style-type: none"> <i>increased turbidity and reduced light availability, impacting primary producers including micro and macroalgae, seagrass, corals, and phototroph sponges; and</i> <i>'marine ecosystem impacts (direct, indirect and cumulative) on bottom-dwelling (benthic) habitats and communities, seagrasses and corals due to disturbance of the seabed'</i>

		<p>Micro¹ and macroalgae are not discussed in the WA EPA Technical guidance, but it is recommended that these are included as they are important from a primary-production process perspective.</p> <p>It is recommended that dot point 4 is re-worded to include impacts from the resuspension of sediments deposited from plumes. A suggested revision is:</p> <ul style="list-style-type: none"> • <i>increased sedimentation and resuspension of deposited plume sediments affecting marine flora and fauna</i>
NT EPA Draft Guidance Section 3	Table 1 Marine dredging-related activities and indicative approval types (within Territory waters)	Table 1 states “Refer above”. It is unclear what the table is referring to; this should be clarified in the document.
	Figure 1. Process for determining whether approval required under EP Act and/or Planning Act	<p>Currently, dredging activities may be referred to the NT EPA to determine if assessment is required under the <i>Environment Protection Act 2019</i>. The Flora and Fauna Division recommends that the NT EPA consider including dredging activities, or a specified type of dredging activities, in the list of notifiable actions requiring referral under Section 30(1)(A) of the <i>Environment Protection Act 1992</i>. This is recommended for the following reasons:</p> <ul style="list-style-type: none"> • impacts from dredging activities can be wide ranging and complex; • the Planning Act largely focuses on terrestrial activities and has insufficient regulation to deal with the complexity of dredging activities comprehensively, and • the Development Consent Authority/Minister rely heavily on the assessment processes undertaken by the NT EPA, including its advice and/or recommendations when considering dredging activities.

¹ Burford MA, Rothlisberg PC, Revill AT (2009) Sources of nutrients driving production in the Gulf of Carpentaria, Australia: a shallow tropical shelf system. *Mar Freshw Res* 60: 1044–1053 <https://www.publish.csiro.au/mf/MF08291>

Burford MA, Webster IT, Revill AT, Kenyon RA, Whittle M, Curwen G (2012) Controls on phytoplankton productivity in a wet-dry tropical estuary. *Estuar Coast Shelf Sci* 113: 141–151 <https://www.sciencedirect.com/science/article/abs/pii/S0272771412002879?via%3Dihub>

Burford MA, Valdez D, Curwen G, Faggotter SJ, Ward DP, O’Brien KR (2016) Inundation of saline supratidal mudflats provides an important source of carbon and nutrients in an aquatic system. *Mar Ecol Prog Ser* 545:21-33. <https://doi.org/10.3354/meps11621>

<p>NT EPA Draft Guidance Section 3.3</p>	<p>General Environmental Duty under the Waste Management and Pollution Control Act 1998 2nd paragraph</p>	<p>The Guidance document states” <i>The DMP [Dredge and Dredge Spoil Management Plan] 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.</i></p> <p>The Flora and Fauna Division supports the NT EPA’s review of Management Plans by an independent qualified person. For transparency, the Flora and Fauna Division recommends that the independent expert report(s) are publicly accessible document(s).</p>
<p>NT EPA Draft Guidance Section 4</p>	<p>Leading practice technical guidance for marine dredging</p>	<p>The WA EPA and WAMSI dredging science node are not the sole sites that can provide technical guidance. Proponents wishing to undertake dredging activities should also acquaint themselves with websites and organisations that provide other contemporary dredge related information, for example:</p> <ul style="list-style-type: none"> • Dredging and dredge material disposal gbrmpa² • Guidelines for long term maintenance dredging management plans (Department of Transport and Main Roads) (tmr.qld.gov.au)³ and the links to specific port management plans (e.g, Gladstone, Townsville, (Far-)North Queensland) • IADC International Association of Dredging Companies (iadc-dredging.com)⁴ <p>The Flora and Fauna Division recommends including the above links into the Draft Guidance for Marine Dredging.</p>
<p>NT EPA Draft Guidance Section 4</p>	<p>WA EPA Technical Guidance</p>	<p>The NT EPA Draft Guidance for Marine Dredging relies on the technical details provided in the WA EPA Technical Guidance. Broadly speaking, the Flora and Fauna Division considers this document is more than adequate for its intended purpose, especially given the lack of site-specific data for the NT. As such, until the Darwin Harbour Dredging Strategy has been completed and published, the WA Technical Guidance should be used as the point of reference for dredging activities in the NT.</p> <p>However, at present the level of detail prescribed in WA EPA’s Technical Guidance allows for interpretation by proponents that does not align with requirements for assessment, often resulting in requests for further information. To resolve this gap, the Flora and Fauna Division recommends that a technical guidance document specific to the NT is developed. The NT guidance can heavily reference the WA EPA Guidelines with additional clarification added to relevant sections. Recommendations are presented below, based on issues the Flora and Fauna Division consistently advises on for Marine Dredging assessment.</p>

² <https://www2.gbrmpa.gov.au/our-work/managing-activities-and-use/dredging-and-dredge-material-disposal>

³ <https://www.tmr.qld.gov.au/business-industry/Transport-sectors/Ports/Dredging/Maintenance-dredging-strategy/Guidelines-for-long-term-maintenance-dredging-management-plans>

⁴ <https://www.iadc-dredging.com/>

		<p>In addition, in the absence of specific guidance for the NT, amendments made to the WA technical reports may directly affect how information is collected and how projects are assessed by the NT EPA.</p>
	<p>For Benthic Habitats only WA EPA Guidance Purpose Page 3</p>	<p>The WA EPA Dredge Technical Guidance is limited to impacts to benthic communities and other impacts are assessed using other guidance material, i.e. marine megafauna, changes to coastal processes, ecological processes and water circulation, contaminants released from dredged sediments, introduction of marine pests and listed threatened and migratory species.</p> <p>The NT EPA may wish to consider including additional information in the Draft Guidance for Marine Dredging document to address this gap within a Northern Territory context.</p>
	<p>Benthic habitat mapping requirements WA EPA Guidance Section 3, page 9; Appendix C</p>	<p><u>Mapping spatial coverage and scale:-</u></p> <p>The WA Guidance document states that mapping spatial coverage of habitats is at a scale that can ‘<i>inform the location of monitoring and reference sites</i>’; ‘<i>should extend across any predicted Zones of High and Moderate Impact and a part of the Zone of Influence nearest to ZoMI; sufficiently fine scale to provide confidence in the habitat boundaries</i>;.’</p> <p>The Flora and Fauna Division recommends that Proponent’s provide habitat mapping that covers the full extent of the Zone of Influence and that mapping is undertaken at a scale that informs both the design of the monitoring program and selection of monitoring locations.</p>

		<p><u>Baseline benthic habitat mapping classes for initial assessment purposes:</u></p> <p>The WA EPA Guidance provides guidance on benthic habitat classes that could be used for deriving spatial extents of benthic communities. The Guidance also speaks to the benthic lifeforms (morphology) that are critical for assessing impact pathways. However, the Guidance does not provide minimum standards. To address this, the Flora and Fauna Division recommends that the Guidance be more explicit in what is expected from proponents. In particular:</p> <ul style="list-style-type: none"> • if underwater video or dropdown cameras are used to characterise benthic communities, then the National Benthic Habitat Classification Scheme (CATAMI⁵) should be used to classify communities, with the modification that lifeforms are included into the classification scheme. Lifeforms are included here because species can have different morphologies depending on the site-specific environmental conditions and thus the impact pathway may differ even though it is the same species. Further, it will also allow impact assessment to be based on functional traits rather than solely on species level information; • benthic habitat maps are developed using predictive modelling (e.g., Udyawer et al, 2021⁶) rather than drawing polygons around sites with similar community types; • a qualitative and quantitative assessment of how well the collected data matches the predictive habitat maps should be undertaken and how well habitat boundaries are mapped; • map extent of sensitive receptors is provided and their condition is assessed - at the very least for mangrove, coral, macroalgal, seagrass and autotroph/mixotrophic sponge-dominated communities and filter feeders within the zone of influence; • established temporal variability of composition, cover and spatial extent (in particular seagrass and macroalgal communities).
	<p>Background environmental data WA EPA Guidance Section 3, page 10 Appendix C</p>	<p>WA Guidance recommends that baseline data should ideally be longer than two years and be of sufficient environmental quality to ensure that the full natural exposure regime is adequately captured.</p> <p>However, experience in the NT is that this requirement is never met. The Flora and Fauna Division considers the minimum length of baseline data should cover at least three consecutive neap-spring tide for the Wet,</p>

⁵ Althaus et al. 2015. A standardised vocabulary for identifying benthic Biota and substrata from underwater imagery, CATAMI, <https://catami.org/>

⁶ Udyawer, V., Radford, B., Galaiduk, R., Brinkman, R. and Streten, C. (2021) Chapter 5. Predictive modelling of Darwin Harbour's benthic community. Pp 43-70 In: Streten, C. (editor). Revised predictive benthic habitat map for Darwin Harbour. Report prepared for Department of Environment, Parks and Water Security. Australian Institute of Marine Science, Darwin, 127 pp. including appendices

		<p>Dry and transitional seasons (under natural environmental conditions). If cyclonic activities occur during monitoring of baseline conditions, then additional three neap-spring tidal cycles after the cyclone is required.</p>
	<p>Generating Predictions WA EPA Guidance Section 3.3</p>	<p>The WA Technical Guidance notes that:</p> <ul style="list-style-type: none"> • <i>‘Proponents are encouraged to consider the recommendations set out in Sun et al (2019) for issues surrounding model set up and calibration, including the collection of appropriate field data and incorporating natural sediment dynamics.’;</i> • <i>has not specified the level of agreement between model outputs and observations to be achieved; and</i> • <i>expects proponents to set out the process and outcomes of calibration and validation exercises and relevant assumptions on a project-by-project basis.</i> <p>Dredging referrals submitted to the NT EPA refer to the WA Guidelines, however, the Flora and Fauna Division have made repeated comments on previous assessments in relation to Modelling and Predictions. We believe that additional detail in the document would improve confidence in the referral’s approaches and modelling outputs by including the following:</p> <p><u>Hydrological Model: Currents and Waves:</u></p> <ul style="list-style-type: none"> • 3D Hydrodynamic modelling is undertaken (to facilitate sediment transport modelling); • wave model is calibrated with <i>seasonal</i> wind data characteristics; Seasonal periods to consider are Wet, Dry and the transition periods; • performance of current and wave models are qualitatively and quantitatively validated; • modelling is undertaken to establish existing and changes in current - wave energy characteristics at the seafloor from project activities; and • before, after and residual change spatial maps are included. <p><u>Sediment Transport Model</u></p> <ul style="list-style-type: none"> • 3D Hydrodynamic modelling is undertaken; • all three sediment transport pathways (long-shore sediment drift, suspended sediments and bed load sediment transport) are modelled, where appropriate; • modelled sediment parameters should reflect sediment and suspended sediment characteristics, and if appropriate should include multiple grain sizes classes;

		<ul style="list-style-type: none"> • all models required to be calibrated and validated and performance of all models is qualitatively and quantitatively validated; • the cumulative effect of these three sediment transport pathways is assessed; • seasonal aspects of sediment transport pathways are assessed; • before, after and residual change spatial maps are included; • extent of deposited sediments are included into the Zone of Influence extent. <p><u>Suspended sediments</u></p> <ul style="list-style-type: none"> • establish seasonal variability for Total Suspended Solids (TSS), turbidity (NTU) and light (Photosynthetic Active Radiation (PAR) to be expressed as a percentage of the sea surface intensity and daily light integrals) (this is included in the WA Technical Guidance, nevertheless specifically mentioned here as it is critical for assessing impacts to Benthic Primary Producer Habitat); • establish Total Suspended Solids (TSS), Nephelometric Turbidity Units (NTU) and Photosynthetic Active Radiation (PAR) relationships (surface, mid-water column and seafloor) for existing sensitive receptors; (this is included in the WA Technical Guidance, nevertheless specifically mentioned here as it is critical for assessing impacts to Benthic Primary Producer Habitat); • establish baseline conditions that take into account temporal and spatial variability; • temporal variability taken into account by undertaken monitoring should ideally be ≥ 2 years, as per WA Guidance. However, this requirement is never met. The Division considers the minimum length of base line data should cover at least three consecutive neap-spring tide for the Wet, Dry and transitional seasons (under natural environmental conditions). If cyclonic activities occur during monitoring of baseline conditions, then additional three neap-spring tidal cycles after the cyclone is required; • assessment of baseline conditions should include frequency and time duration of TSS/Suspended-Sediment Concentration (SSC)/NTU, sediment deposition and light. <p><u>Plume modelling</u></p> <ul style="list-style-type: none"> • requires 3D modelling; • should modelled to reflect seasonal conditions in which dredging and dredge spoil disposal is planned. If unsure of timing, then both Wet and Dry conditions should be modelled;
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		<ul style="list-style-type: none"> • takes into account resuspension of deposited TSS from dredging and dredge spoil disposal; • discuss how the Management Plans will implement monitoring to validate plume behaviour and sediment deposition of TSS from dredging and dredge spoil disposal; • plume modelling outputs should at least include: Cumulative Probability TSS/SSC graphs for sites within sensitive receptors, time series SSC graphs and plume dispersion maps.
	<p>Peer Review page 13 WA EPA Guidance</p>	<p>It is noted that the WA EPA does not routinely require proponents to commission peer reviews. The Flora and Fauna Division recommends that hydrodynamic, sediment transport and plume modelling approaches and outputs for; are reviewed by independent experts. The reviews should be submitted unredacted by the proponent to the NT EPA and be publicly available. The proponent’s response to the review should also be provided.</p> <p>The Flora and Fauna Division recommend that peer review is required. The modelling used to inform potential impacts from dredging is highly technical and requires technical expertise for assessment. DEPWS does not currently maintain or develop expertise in this field. A peer review will allow DEPWS and/or the NT EPA to have confidence in the modelling approach taken and the resulting outputs as they are important components of the risk/impact assessment.</p>
	<p>Describing Impacts Zones Influence and impacts page 14 WA EPA Guidance Section 3.4</p>	<p>The WA EPA provides definitions for Zone of High impact & Moderate impact. They are qualified by recovery time: <i>irreversible or where any recovery, if possible, would be unlikely to occur for at least 5 years, or less than 5 years respectively</i>; Zone of influence is defined as <i>an area where WQ changes would not result in a detectable impact on benthic biota</i>.</p> <p>The Flora and Fauna Division has difficulty applying these definitions due a number of factors.</p> <p><u>Zone of Influence</u></p> <ul style="list-style-type: none"> • Firstly, the Zone of Influence is purely based on impacts to benthos. It does not take into account the sensitivities of e.g., pelagic species, larvae, phytoplankton, and zooplankton; in other words, we believe the WA Dredging Guidance is incomplete in terms of assessing impacts to biodiversity. • The zone of influence is based on a ‘detectable’ impact to benthic biota. <p>Secondly, the WA Technical Guidance does not define the meaning of ‘detectable’. This could mean a number of things; visual detection (e.g. bleaching, mortality, changes in percent cover, sediment</p>

		<p>deposited on benthos), or could mean the health of a species (photosynthetic activity of coral or seagrass, changes in below ground biomass or carbohydrate reserves), etc.</p> <p>The Flora and Fauna Division believes that starting point of defining an area that maybe impacted on by dredging, or any another coastal/marine development for that matter, is primarily driven by the changes in physical environmental conditions. So therefore, the zone of influence of dredging activities should be determined by changes in Water Quality (WQ) as starting point and that the severity of the 'detectable' impact then determines whether the area is a high, medium zone of impact.</p> <ul style="list-style-type: none"> • Thirdly, benthic species react differently to dredging pressures, and therefore the zone of influence for a coral species may be very different than that for a seagrass species. Thus, the zone of influence would have to be the additive extent of zones of influences for each species/community assessed. <p>The Flora and Fauna Division believes that this is incredibly onerous and quite unworkable approach for what is often a quite large extent.</p> <ul style="list-style-type: none"> • Fourthly, to determine whether the impact zone is high, medium or low (i.e. zone of influence) there is a need to understand which species/communities are present. However, understanding which species occur where is reliant on undertaking benthic surveys; and the extent of the benthic survey area depends on understanding the extents the impact zones. The Flora and Fauna Division considers this a circular argument that cannot be applied effectively. <p>The Flora and Fauna Division recommends that to establish the Zone of Influence the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Water Quality Guidelines, 2000 and 2018⁷) should be followed. The WQ Guideline states that the 80th percentile above background conditions are considered a detectable change in WQ, and thus should be considered for defining the outer limits of the zone of influence. A 'detectable' impact should be used to define the zones of high and medium impact.</p> <p>Further, in many current applications the Zone of influence extent is generally only guided by the plume modelling and does not include deposition of sediment. The Flora and Fauna Division recommends that all areas where depositions of sediment is occurring should be included in the Zone of Influence definition, for the reason that even the smallest amount of sediment settling on hard substrates hamper settlement of benthic fauna larvae.</p>
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⁷ <https://www.waterquality.gov.au/guidelines>

Zones of High and Medium Impact

- The Flora and Fauna Division agrees with the WA Guidance that the 95th or 5th percentile are used to identify high and medium impact zones. In the past proponents have used 90th, 95th and 97th percentiles. Some consistency in the approach would be useful, as it allows comparisons between different proponent's referrals.
- These zones are qualified by the ability or inability to recover within 5 years. Recovery periods are highly site specific, and therefore should be locally derived. Furthermore, impact assessment and monitoring in the NT are never undertaken past the completion of the action. The NT EPA has never made a condition to monitor impacts to assess recovery of an impacted habitat, e.g. a dredge spoil area or a zone of high/medium impact; therefore the 5 year criterion seems irrelevant in a NT context. The underlying principles for the WA assessment is mortality and recruitment parameters. These should be used until locally derived parameters (including recovery rates) are derived. However, monitoring design will need to be statistical robust given the uncertainty of whether WA derived values are applicable to Darwin Harbour environments.
- The WA Guidance also states that a shift from one benthic habitat to another is a zone of medium impact. The Flora and Fauna Division considers that a loss of habitat/community type is a zone of high impact because a habitat is lost completely. For example, coral habitat may shift to macro algae habitat if recruitment process are severely impacted; this would be an unacceptable impact from the Flora and Fauna Division's perspective.

Attachment 2

NT EPA Draft Guidance for Marine Dredging

Government authority: Department of Environment, Parks and Water Security – Environment Division

Summary: *Italics* are excerpts from Draft Guidance or WA EPA Technical Guidance

Section of Guideline	Section in Guideline	Comment
Table 1 page 6	Dredging for the extraction of minerals	Release of wastewater from tailings ponds may require a discharge licence. The <i>Water Act 1992</i> does apply (by saying it doesn't contradict advice provided in Table 2, p7).
Table 1 page 6	Reclaiming coastal land below the level of highest astronomical tide	Release of tailgaters' from revetments and reclamation ponds may require a waste discharge licence. The <i>Water Act 1992</i> does apply.
Table 1 page 6	Land-based disposal of dredged material as fill above the level of highest astronomical tide	There would always be a period of dewatering which may require a waste discharge licence. The <i>Water Act 1992</i> does apply.
Section 4. page 11	Leading practice technical guidance for marine dredging <i>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.</i>	It is recommended that the NT EPA does not provide any advice that it is best practice to dredge in the wet season. There is still insufficient information about the tolerance of marine biota to increased sedimentation, and reduced water column light in NT waters to be sure that biota are not already close to their tolerance thresholds for dredging stressors and pressures.

Section 4. page 11	<p>Leading practice technical guidance for marine dredging</p> <p><i>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</i></p>	<p>This statement infers that the tolerance threshold values developed for WA marine ecosystems can apply in NT waters. They cannot.</p> <p>It is recommended that this paragraph be deleted. The intent is repeated in the next paragraph “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”</p>
Section 4. page 11, 6 th para	<p>Leading practice technical guidance for marine dredging</p> <p><i>“Measures to manage dredging activity should ideally be based on locally-derived information rather than on generalities or information from other regions.”</i></p>	<p>Delete ‘ideally’</p>
Section 4.	<p>Leading practice technical guidance for marine dredging</p> <p>Missing advice on sediment assessment.</p>	<p>The WA guidelins and WAMSI documents do not reference assessment of sediment quality and management of dredged sediment.</p> <p>It would be useful to require proponents to prepare a Sediment Assessment Plan (SAP) for material to be dredged, handled and disposed/reused. The SAP would need to be endorsed by a suitably qualified person and designed in accordance with relevant national guidelines, including:</p> <ul style="list-style-type: none"> - Guidelines for the dredging of acid sulfate soil sediments and associated dredge spoil management (waterquality.gov.au) - Simpson et al, 2005, Handbook for Sediment Quality Assessment. CSIRO. <p>These guidelines are referenced in ANZG2018, but are not obvious.</p>