

MEMORANDUM

ATTN:	Leanne Thompson	CC:	Hans Jacob, Donna West, Peter Wilkins
ORGANISATION:	Department of Water and Environmental Regulation	FROM:	Dr Katharine Thorne, Louise Synnot
PROJECT NO:	365_05	DATE:	23 March 2018
SUBJECT:	Summary of the Beadon Creek Capital Dredging Environmental Monitoring		

1. Background

Onslow Marine Supply Base Pty Ltd (OMSB), lessee to the Department of Transport (DoT), has completed capital dredging in Beadon Creek to create a berth pocket and turning basin immediately west of the existing channel. The dredged material has been used to create a land-backed wharf immediately north of the existing lots. This capital dredging had a proposed footprint of ~33 000 m² and a volume of ~65 000 m³ with an actual final footprint of 28 500 m² and final volume of 48 000 m³.

The capital dredging was referred to the Environmental Protection Authority (EPA) under Section 38 of the Environmental Protection Act 1986 on 12 August 2013 (BMT Oceanica & BMT JFA 2014). This referral was supported with a Dredging Environmental Impact Assessment (DEIA; BMT Oceanica & BMT JFA 2014 – publicly available on the DoT's website at <http://www.transport.wa.gov.au/imagine/beadon-creek-onslow-maritime-facility-project.asp>). On 28 April 2014, the EPA set the Level of Assessment for the proposal as "Not Assessed – Public Advice Given".

Areas of elevated tributyltin (TBT) were identified within the southern portion of the dredge footprint (Figure 1.1) in the DEIA (BMT Oceanica & BMT JFA 2014). Intensive re-sampling of these areas was undertaken in November 2016 to determine present levels of TBT, and an update to the DEIA in the form of a memorandum (BMT Oceanica 2016a) was provided to and accepted by the Office of the Environmental Protection Authority (OEPA; now Department of Water and Environmental Regulation). The environmental management program proposed in the DEIA and the memorandum includes appropriate management of the dredged material and TBT monitoring to determine the level of TBT contamination in Beadon Creek before, during and after the capital dredging campaign. These monitoring and management actions are also detailed in the project environmental management plans (EMPs; Maritime Constructions 2016a,b,c; BMT Oceanica 2016b). The DoT, their lessee (OMSB) and the dredging contractor (Maritime Constructions Pty Ltd; MC) were responsible for implementing the environmental monitoring and management measures before and during the capital dredging campaign (BMT Oceanica & BMT JFA 2014; BMT Oceanica 2016a).

This memorandum presents the results of the required environmental management and monitoring during the capital dredging in Beadon Creek, from 2 January to 17 March 2017, as well as results for small scale clean-up dredging (12 000 m³) completed from 1 June to

9 October 2017 that was required following installation of sheet piling as part of the land-backed wharf construction (refer to Section 5). Works were completed in accordance with the project EMPs (Maritime Constructions 2016a,b,c; BMT Oceanica 2016b) which are consistent with the accepted DEIA and memorandum (BMT Oceanica & BMT JFA 2014; BMT Oceanica 2016a).

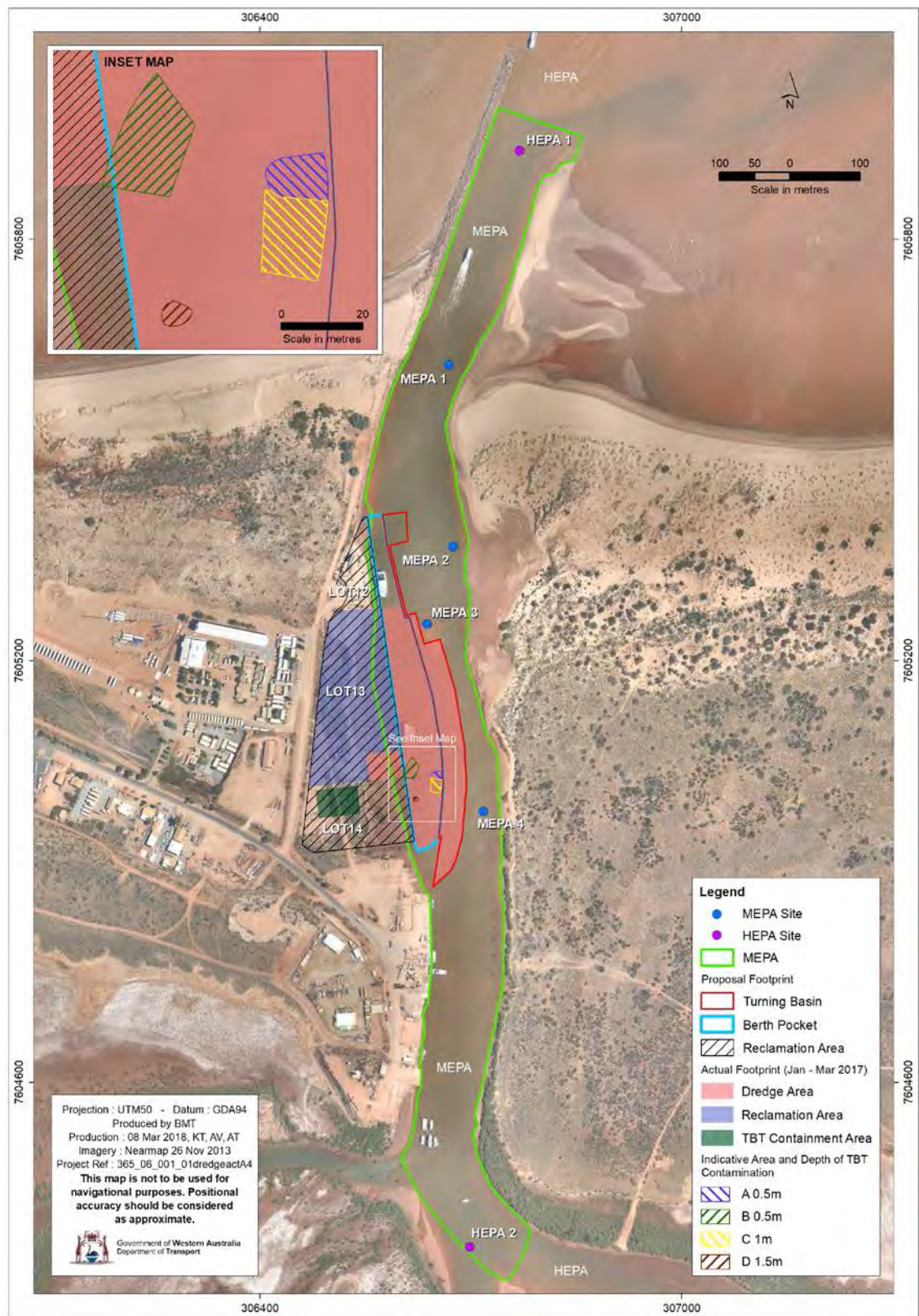


Figure 1.1 Beadon Creek 2016/17 Capital Dredging proposed and actual works footprint, monitoring sites and indicative areas of potential TBT contamination

2. Baseline Tributyltin Monitoring

The results of the baseline monitoring of TBT in water and sentinel oysters, and the results of the site inspection for live gastropods for potential imposex analysis are detailed in a memorandum dated 18 September 2014 previously provided to the OEPA (BMT Oceanica 2014). The baseline monitoring indicated no TBT was present in the creek waters prior to dredging and the species of gastropod naturally occurring in the creek were not suitable for imposex analysis (BMT Oceanica 2014).

3. Management of Dredged Material

The following sections detail how the dredged sediment was managed to minimise the risk of environmental impacts, as proposed in the Dredging and Reclamation Management Plan (Maritime Constructions 2016a).

3.1 Dredging of non-contaminated material

The majority of the non-contaminated sediment outside of the TBT contaminated areas (Figure 1.1) was dredged via cutter-suction dredge (CSD) and disposed of via pipeline to a bunded swale settlement system located on Lot 13 where sediment was accumulated to be dried for wharf construction (Figure 1.1; Figure 3.1). Return water was discharged to the creek at the southern end of Lot 13 via the swale settlement system (Maritime Constructions 2016a).



Figure 3.1 Disposal of dredged sediment to the bunded swale settlement system during the Beadon Creek 2016/17 Capital Dredging

Consolidated rock was encountered in the centre of the dredge footprint on the western side of the creek. This material was dredged using both a land-based excavator and a CSD (with a rock-

cutting head attachment). Some of the dredged rock material, excavated using the land based plant, was placed above high water level on Lot 12 to the north and Lot 14 to the south of the bunded swale settlement system (Figure 1.1).

To accommodate the full volume of material, dewatered dredged sediment in the TBT containment pond, on Lot 14, was excavated, spread on the main reclamation area (Lot 13) above high water level (+3 m CD) and capped (refer to Section 3.2). The containment pond was then used for the disposal of the additional material from the CSD with return water flow to the creek via pipeline.

Dredged material from the cleanup dredging (completed after the installation of sheet piling), using CSD and land-based plant, was used as fill for the land-backed wharf construction (refer to Section 5).

3.2 Dredging of the TBT contaminated material

The dredging of the identified TBT contaminated areas (Figure 1.1) in Beadon Creek required further management to ensure that TBT was not released into the creek waters at levels of environmental concern (BMT Oceanica 2016a, Maritime Constructions 2016a).

The dredging of Areas B–D to depths where TBT levels of potential environmental concern had been recorded (BMT Oceanica & BMT JFA 2014; BMT Oceanica 2016a) was completed using low dredge slurry sediment concentrations to dilute potential TBT release. This material was disposed via pipeline into the top of the bunded settlement area on Lot 13 (see Section 3.1) and return water was allowed to flow into the creek. Target dredge slurry sediment concentrations were based on the volume of water required to dilute the recorded elutriate TBT values in each of the TBT contaminated areas to meet 90% species protection level (ANZECC & ARMCANZ 2000); refer to Memorandum (BMT Oceanica 2016a). Table 3.1 indicates the target and actual dredge slurry sediment concentrations during the dredging of Areas B–D.

Table 3.1 Target and actual dredge slurry sediment concentrations

Area	Target % sediment in dredge slurry	Actual % sediment in dredge slurry	Date dredged
A	0.55	n/a	26 January 2017
B	5	5.76	9 January 2017
C	10	8.8	14 January 2017
D	16	9.2	9 January 2017

Note:

1. Blue numbers indicate dilution rates not achievable by dredge vessel

The dredge slurry ratio required to dilute the return water from the dredging of Area A to meet the 90% species protection level (ANZECC & ARMCANZ 2000) was not practically achievable by the CSD. Therefore sediments from Area A were dredged and disposed to a fully enclosed bunded area (TBT containment area) on Lot 14, to the south the main reclamation area on Lot 13, and above high water level¹ (Figure 1.1; Figure 3.2) (BMT Oceanica 2016a, Maritime Constructions 2016a). A bentonite clay liner was used to seal the bund walls and prevented direct flow of the supernatant water into the creek. The supernatant water evaporated and seeped into the ground within approximately 8 days of dredging the Area A sediments and therefore direct return of the water to the creek was not necessary (Figure 3.2). Once de-watered, the Area A sediments were

¹ The use of geotextile bags to contain the Area A sediments within the TBT containment area was originally proposed (BMT Oceanica 2016a) to aid in the redistribution of the sediments after dewatering. However, due to delays in procuring the geotextile bags, the timing of a potential tropical cyclone and given that there was no added environmental risk, the dredging of Area A proceeded without the use of the bags.

moved and spread on the main reclamation area (Lot 13) above high water level (+3 m CD) and capped using clean dredge material.

The above management of the dredging of the TBT contaminated material was verified using dredge logs provided by the Contractor.



Figure 3.2 Disposal to TBT containment area (Top panel–26 January 2017) and subsequent natural dewatering during Beadon Creek 2016/17 Capital Dredging

4. Environmental Monitoring and Management During Dredging

The monitoring requirements during dredging, as detailed in the project EMPs (Maritime Constructions 2016b,c; BMT Oceanica 2016b), are summarised in Table 4.1. All environmental monitoring and management was completed in accordance with the project EMPs unless otherwise specified in the following sections. There were no environmental incidents during the dredging campaign.

Table 4.1 Monitoring requirements for Beadon Creek capital dredging

Monitoring	Frequency	Responsibility	Details
Pre-dredging			
Sediment sampling	Less than five years prior to dredging ¹	Proponent	DEIA: BMT Oceanica & BMT JFA 2014; Memorandum: BMT Oceanica 2016a
Confirmation that dredge vessel is clear of potential introduced marine species	Prior to transport of the dredge vessel to Beadon Creek	Proponent and Contractor	Section 4.1
Baseline TBT ² monitoring: <ul style="list-style-type: none"> • sentinel oyster monitoring at fixed MEPA and fixed HEPA sites • water quality monitoring at fixed MEPA and fixed HEPA sites • opportunistic gastropod sampling 	Once prior to dredging	Proponent	Memorandum: BMT Oceanica 2014
During dredging			
Plume sketches	Daily during dredging	Contractor	Section 4.2.1
Site photographs	Daily during dredging	Contractor	Section 4.2.2
Remote imagery	During daylight hours during dredging	Proponent	Section 4.2.3
Aerial photography	Once	Proponent	Section 4.2.4
Visual inspection of bunds for leaks	Daily	Contractor	Section 4.3.1
TBT monitoring of supernatant water	Daily (for first two weeks of dredging), then: <ul style="list-style-type: none"> • three times per week for one week if TBT concentrations < guidelines • then once per week (ongoing) if TBT concentrations < guidelines • daily if TBT concentrations > guidelines 	Proponent	Section 4.3.2
TBT monitoring in discharge plume and fixed HEPA sites	Daily (for first two weeks of dredging), then: <ul style="list-style-type: none"> • three times per week for one week if TBT concentrations < guidelines • then once per week (ongoing) if TBT concentrations < guidelines • daily if TBT concentrations > guidelines 	Proponent	Section 4.3.3
Sentinel oyster monitoring at fixed MEPA and HEPA sites	6-weekly deployments during dredging	Proponent	Section 4.3.4

Monitoring	Frequency	Responsibility	Details
Post-dredging (if triggered)			
TBT sampling and analysis of water at fixed MEPA and HEPA sites	Fortnightly until TBT concentrations below relevant guidelines – to be reviewed after 3 months post dredging in consultation with OEPA	Proponent	Not required
Sentinel oyster monitoring at fixed MEPA and HEPA sites	Consecutive 6-week deployments until concentrations below baseline – to be reviewed after 3 months post dredging in consultation with OEPA	Proponent	Not required

Notes:

1. Unless contamination of the site is likely to have increased or new pollution sources are present (CA 2009)
2. TBT = tributyltin
3. OEPA = Office of the Environmental Protection Authority (now Department of Water and Environmental Regulation)

4.1 Introduced marine species

Prior to mobilisation, the major pieces of the floating plant were cleaned, and bilge and ballast tanks were pumped out and completely dried as per the Contractor's standard plant preparation procedure for new projects. Hull photographs after cleaning confirmed minimal biofouling on the vessel hulls. The Western Australian Department of Fisheries (now Department of Primary Industries and Regional Development – Fisheries) assessed all vessels prior to entering Western Australia (WA) waters and assigned all floating plant a low/acceptable risk of translocating live fish into WA (Appendix A).

4.2 Turbidity monitoring

4.2.1 Plume sketches

Plume sketches were completed by the Contractor regardless of whether dredging was occurring or not. Plume sketches were recorded on 99 of 130 days of dredging, equating to a 76% compliance with monitoring commitments. Days when plume sketches were not completed were a result of an oversight by the Contractor, given the highly turbid creek waters, it is not considered the absence of these data pose environmental risk. The plume intensity over the duration of the dredging campaign is shown in Figure 4.1, which indicates that majority of the plume observations were restricted to within Beadon Creek and within ~300 m of the dredging and disposal campaign. On monitoring days where the plume extended to the upper reaches of the creek and entrance channel, strong winds and large tidal ranges were observed which had resulted in large-scale naturally elevated creek waters.

The plume sketches were used by the Contractor to determine the water sampling locations for the TBT monitoring in the dredging return water discharge plume (Section 4.3.3).

The reliability of the plume sketches is limited by the distance over which personnel at a ground level can see turbidity in the water. Comparison of plume sketches with remote imagery captured throughout the campaign and aerial photography captured over on 19 February 2017 and 5 March 2017, indicates plume sketches were a reasonably accurate representation of the plume extent during dredging and disposal (refer to Sections 4.2.4).

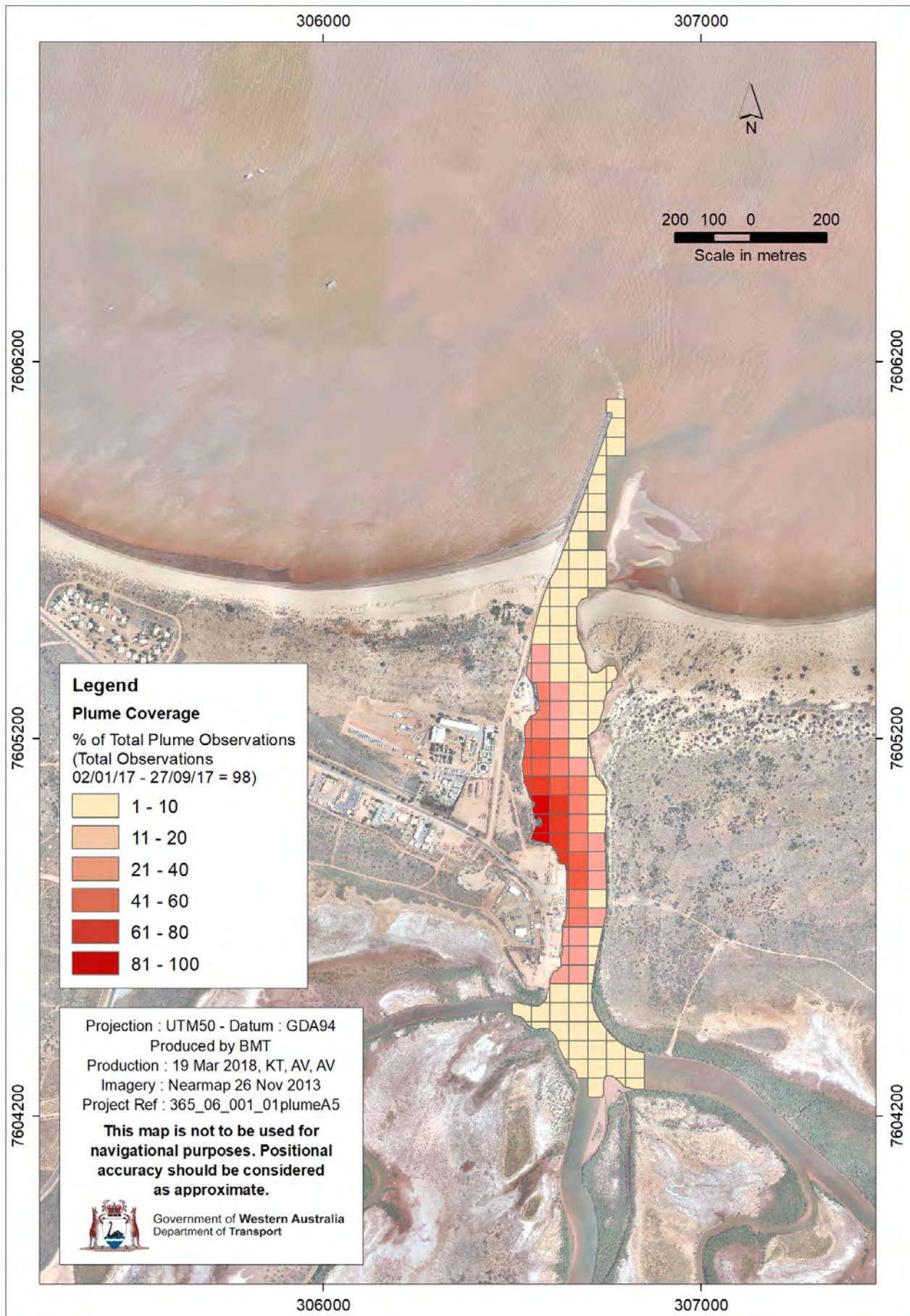


Figure 4.1 Plume intensity during the Beadon Creek 2016/17 Capital Dredging

4.2.2 Site photographs

To provide a record of on-site conditions during the water quality sampling for the Beadon Creek 2016/17 Capital Dredging (Figure 4.2), site photographs were taken by the Contractor on days dredging occurred. Out of 130 days of dredging, site photographs were captured on 80 days equating to a 62% compliance with monitoring commitments. Site photographs showed the plume dissipated rapidly during period of no dredging likely due to the highly dynamic nature of the creek and naturally turbid waters. Days when site photographs were not captured were a result of an oversight by the Contractor and remote imagery and/or aerial photography captured were used to monitor site activity (Section 4.2.4).

4.2.3 Remote imagery

To provide a consistent record of on-site conditions during the Beadon Creek 2016/17 Capital Dredging, images of the dredging and disposal activities were captured remotely during dredging. Prior to commencement of dredging, two remote imagery units were installed on the dredge mast on 12 December 2016 and two units were installed on a light post on 20 December 2016 to monitor dredging and disposal activities. Images were captured at hourly intervals during daylight hours. Images captured by the units were reviewed and no environmental incidents were observed. Additionally the images indicate naturally high levels of turbidity in the creek occurring intermittently throughout the campaign and the plume dissipating on days where there was no dredging (Figure 4.3, Figure 4.4).



Figure 4.2 Site photographs of the dredging and disposal areas during the Beadon Creek 2016/17 Capital Dredging



Figure 4.3 Remote images captured from units installed onshore capturing the Beadon Creek dredging and disposal area (left) and upstream (right) during the Beadon Creek 2016/17 Capital Dredging



Figure 4.4 Remote images captured from units installed on the dredge mast during the Beadon Creek 2016/17 Capital Dredging

4.2.4 Aerial photography

Semi-oblique aerial photographs of the dredging and disposal activities were captured on 19 February 2017 during land based excavation works, 5 March 2017 during CSD works, 29 May 2017 during land based construction works and 28 August 2017 during clean-up CSD works. These images were reviewed and no environmental incidents were observed.

4.3 TBT monitoring

There were no exceedances of the TBT monitoring criteria detailed in the Water Quality Monitoring Plan (Maritime Constructions 2016b) and therefore no TBT concentrations of environmental concern was released into the creek. Therefore no post-dredging monitoring requirements or contingency management actions were triggered.

4.3.1 Bund/pipeline monitoring

The bunds in the reclamation area and dredge pipelines were visually inspected daily by the Contractor during the campaign. No leaking or seepage from the bunds/pipelines was observed.

4.3.2 TBT monitoring of supernatant water

The project EMPs (Maritime Constructions 2016b; BMT Oceanica 2016b) required two supernatant water samples to be collected for TBT monitoring. For the majority of dredging, these samples were collected from the dune swale settlement system close to the outflow the creek. Between 26-29 January 2017, one supernatant water sample was collected from within the TBT containment area prior to the natural dewatering of the sediment in this area. During disposal of clean dredged material to the TBT containment area (refer to Section 3.1), the supernatant water samples were collected from here.

Samples were not collected on the first 4 days of dredging as there was not enough water depth flowing out of the dune swale settlement system to safely collect samples. Following this, samples were collected daily for the first 14 days of dredging and then three times during the following seven days of dredging and thereafter once every seven days of dredging.

Additional samples were collected from the TBT containment area 30 January-3 February 2017, when the pond naturally dewatered. Additional samples were also collected during dredging on 4 and 6 February 2017 during a period when there was no sentinel oyster monitoring (refer to Section 4.3.4). These additional samples have been stored frozen and were to be analysed should other monitoring indicate the need to do so.

Analysis results indicated that TBT levels in the outflow from the dune swale settlement system met the ANZECC and ARMCANZ (2000) 90% species protection level, appropriate for the creek waters adjacent to the boating facilities, for the duration of dredging. The majority of these results were below the laboratory limit of reporting (LoR), <1 ng/L. TBT levels were above LoR, 1–2.7 ng/L, on seven out of 17 sampling occasions. Two of these occasions coincided with the dredging of TBT Areas B, C and D (Figure 1.1). The remaining four are likely associated with further dewatering of the sediments from TBT Areas B, C and D during the mechanical movement of reclamation area sediments or other isolated pockets of TBT within the dredge area not previously identified.

Levels of TBT in the supernatant water within TBT containment area also met the ANZECC and ARMCANZ (2000) 90% species protection level. The TBT concentration of the supernatant water was 1.5–1.8 ng/L on the first two days following the dredging the TBT Area A sediments. The TBT concentration then reduced to below LoR thereafter and therefore no further samples from the TBT containment area were analysed

4.3.3 TBT monitoring in the discharge plume and at the fixed HEPA sites

The project EMPs (Maritime Constructions 2016b; BMT Oceanica 2016b) required four samples to be collected within the dredge return water discharge plume at increasing distances from the outflow point and a water sample from each of two sites in the High Ecological Protection Area (HEPA) (refer to Figure 1.1) for TBT monitoring.

Samples were collected daily for the first 14 days of dredging and then three times during the following seven days of dredging and thereafter once every seven days of dredging in accordance with the Water Quality Monitoring Plan (Maritime Constructions 2016b).

Additional samples were also collected during dredging on 4 and 6 February during a period when there was no sentinel oyster monitoring (refer to Section 4.3.4). These additional samples have been stored frozen and were to be analysed should other monitoring indicate the need to do so.

Analysis results indicate that TBT levels in the discharge plume from the reclamation area met the ANZECC and ARMCANZ (2000) 90% species protection level. The majority of these results were below the LoR, <1 ng/L. TBT levels were above LoR, 1.6 and 2.5 ng/L, on two out of 22 sampling occasions within the discharge plume. Given that these results are of similar magnitude to the supernatant water results (i.e. no dilution with creek waters) and that they were collected at least 100 m downstream from the dredge return water discharge, it is likely that these small amounts of TBT observed are associated with vessel movements stirring up the sediments on the creek floor rather than being associated with dredging works.

All results from the HEPA sites were below the laboratory LoR, <1 ng/L. While the LoR is above the ANZECC and ARMCANZ (2000) 99% species protection level, appropriate for the HEPA, this is the lowest achievable LoR.

4.3.4 Sentinel oyster monitoring

The project EMPs (Maritime Constructions 2016b, BMT Oceanica 2016b) required sentinel oyster monitoring to provide an integrated measure of the bioavailable portion of TBT in the water column over time. Shark Bay pearl oysters (*Pinctada albina*) were deployed at the four Moderate Ecological Protection Area (MEPA) sites and two HEPA sites (Figure 1.1) for a 6-week period between 12 December 2016 and 26 January 2017, which covers approximately the first half of dredging.

The TBT, MBT and DBT (breakdown products of TBT) concentrations in the oyster tissue were below the LoR (0.05 µg Sn/kg) in all samples, at all sites. Therefore, during the first half of dredging which included dredging of the TBT contaminated areas, no bioavailable TBT contamination was released into the creek. The results of TBT concentrations in the oyster tissue are considered an accurate representation of the TBT concentrations in the water column throughout the creek during the deployment period.

The remainder of the main dredging campaign comprised minimal (4 days) non-contaminated sediment dredging followed by rock dredging. Therefore there was a very low environmental risk of TBT being released during the dredging of this material especially as rock is unlikely to contain TBT. Based on this and the water quality and sentinel oyster monitoring results indicating that no TBT of environmental concern had been released into the creek during the first half of dredging, it was decided that the redeployment of oysters for the second half of dredging was not necessary given the low environmental risk. The low/<LoR TBT concentrations in water samples collected during the remainder of the dredging (including the 4 days of sediment dredging) confirmed this low risk.

4.4 Management requirements

4.4.1 Vegetation clearance within permitted area

Vegetation clearance was managed during the campaign in accordance with the EMP (Maritime Constructions 2016c). To accommodate potential beach disposal of dredged material, the native vegetation clearing permit (CPS 6827/1) was revised to include an area of sparse vegetation colonised within the beach disposal area. Note that beach disposal of dredged material was not required. No vegetation in the reclamation/beach disposal area, outside of the permitted cleared area) was disturbed.

4.4.2 Dust management

Dust was managed during the campaign in accordance with the EMP (Maritime Constructions 2016c). There were no public complaints regarding dust reported during the dredging campaign.

4.4.3 Hydrocarbon spill management

Hydrocarbon storage and handling was managed during the campaign in accordance with the EMP (Maritime Constructions 2016c). There were no spills reported during the dredging campaign.

4.4.4 Waste management

Waste was managed during the campaign in accordance with the EMP (Maritime Constructions 2016c) and no issues were reported during the dredging campaign.

4.4.5 Noise management

Noise was managed during the campaign in accordance with the EMP (Maritime Constructions 2016c). There were no noise complaints reporting during the dredging campaign.

4.5 Stakeholder consultation

The following stakeholders were consulted by DoT before and/or during the campaign:

- The WA Office of the Environmental Protection Authority (now Department of Water and Environmental Regulation)
- The WA Department of Transport (Marine Safety Branch)
- The WA Department of Environment Regulation (now Department of Water and Environmental Regulation)
- The WA Department of Parks and Wildlife (now Department of Biodiversity, Conservation and Attractions)
- The WA Department of Fisheries (Fish Health and Bio-security Divisions) (now Department of Primary Industries and Regional Development – Fisheries)

The following stakeholders were consulted by OMSB before and/or during the campaign:

- Shire of Ashburton (SoA)
- Representatives of the Buurabalayji Thalanyji Aboriginal Corporation
- Jetwave Marine Services Pty Ltd
- Discovery Parks, Onslow
- Several harbour lessees including Total AMS and Bhagwan Marine

OMSB also maintained a public complaints register. No complaints were received during the campaign.

4.6 Heritage

OMSB was required to undertake the following commitments before and/or during the campaign:

- endeavour to minimise ground disturbance within the Beadon Creek Maritime Facility survey area
- liaise with Buurabalayji Thalanyji Aboriginal Corporation (BTAC) to engage at least two elders from the native title holding group to visit the proposed development site prior to dredging commencing, and to communicate in language with the Warnamankura, in order to ensure that the serpent is given forewarning of the impending activity and that proper respect is shown to the Warnamankura
- engage representatives of the BTAC to monitor any ground disturbing works for sub-surface archaeological material within Beadon Creek Maritime Facility survey area
- continue to consult with BTAC about the proposed development, particularly if there are any changes to the plans which may result in impacts to places of importance and special significance in Beadon Creek.

These commitments were adhered to during the dredging campaign.

5. Environmental Monitoring and Management for the Clean-up Dredging

Clean-up dredging was required after installation of sheet piling as part of the land-backed wharf construction. This material comprised of a small volume of rock encountered previously during the main capital dredging phase and dredging of material previously dredged during the campaign using both land based plant and CSD. It was considered these works presented low environmental risk in terms of TBT release given the results of all the monitoring components recorded in the main capital dredging phase indicated no TBT of environmental concern was released into the creek. Furthermore, it was considered unlikely TBT to be present in the rock material and any potential TBT release from the sediment would likely have already been released when it was previously dredged.

Therefore only minor environmental monitoring actions were implemented (detailed in the project EMPs; Maritime Constructions 2016a,b,c; BMT Oceanica 2016b) during the remaining dredging works including:

- Turbidity monitoring
 - Daily plume sketches
 - Daily site photographs
 - Daily remote imagery

Environmental management was completed in accordance with the project EMPs; Maritime Constructions 2016a,b,c; BMT Oceanica 2016b).

The results of environmental monitoring and management during the clean-up dredging have been reported in Section 4.

6. References

- ANZECC & ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Volume 1: The Guidelines. Australian and New Zealand Environment and Conservation Council, Agriculture and Resource Management Council of Australia and New Zealand, Canberra, ACT, October 2000
- BMT Oceanica (2014) Summary of the Beadon Creek Capital Dredging Baseline Environmental Monitoring – Memorandum. Prepared for the Department of Transport and the Office of the Environmental Protection Authority, Perth, Western Australia, August 2014
- BMT Oceanica (2016a) Memorandum – Proposed environmental monitoring and management during the 2016/2017 capital dredging at Beadon Creek. Prepared for the Department of Transport and BMT JFA Consultants Pty Ltd by BMT Oceanica Pty Ltd, Perth, Western Australia, November 2016
- BMT Oceanica (2016b) Beadon Creek Capital Dredging Environmental Management Plan – Principal Commitments. Prepared for Department of Transport and BMT JFA Consultants Pty Ltd by BMT Oceanica Pty Ltd, Report No. 365_05_003/1_Rev0, Perth, Western Australia, December 2016
- BMT Oceanica & BMT JFA (2014) Beadon Creek Maritime Facility – Capital Dredging Environmental Impact Assessment. Prepared for Department of Transport by BMT Oceanica Pty Ltd and BMT JFA Consultants Pty Ltd, Report No. 365_01_004/1_Rev6, Perth, Western Australia, April 2014
- CA (2009) National Assessment Guidelines for Dredging. Commonwealth of Australia, Canberra, Australian Capital Territory
- Maritime Constructions (2016a) Design and Construction of the Onslow Marine Support Base – Dredging and Reclamation Management Plan. Prepared for Onslow Marine Support Base by Maritime Constructions Pty Ltd, Report No. MCE0455_PMP_011, Perth, Western Australia, September 2016
- Maritime Constructions (2016b) Design and Construction of Onslow Marine Supply Base – Water Quality Management Plan (WQMP). Prepared for Onslow Marine Support Base by Maritime Constructions Pty Ltd, Report No. MCE0455_P_004, Perth, Western Australia, August 2016
- Maritime Constructions (2016c) Design and Construction of the Onslow Marine Support Base – Environmental Management Plan. Prepared for Onslow Marine Support Base by Maritime Constructions Pty Ltd, Report No. MCE0455_PMP_003, Perth, Western Australia, September 2016

Appendix A

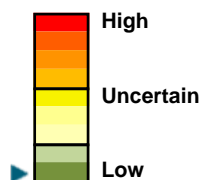
Western Australian Department of Fisheries Vessel Assessments



Assessment Number 16-12-01-0934-29754-A-V1

Vessel Name	PROFILER
IMO Number	Not provided
Last Port of Call	PORT ADELAIDE SA, Australia
Destination Port	Port of Onslow
Date of Departure	2-December-2016
Date of Arrival	9-December-2016
Date & Time Completed	1-December-2016 09:41 AM
Completed By	MS MARTINE WESEN
Contact Details	0459 152 751 mwesen@mc-group.com.au
Nominated Australian Contact	As Above
Contact Details	As Above

Vessel Risk Status



Your vessel risk score is ►

LOW / ACCEPTABLE risk of translocating non-endemic live fish* into Western Australia.

This assessment is based on the following provided information:

Transport via Dry Haulage

Vessel's internal seawater systems have been drained and cleaned and the vessel cleaned of any marine growth.

No AFC

Additional Documents Supplied

Dry docking and/or inspection report provided:
Profiler Out of Water November 2016.docx

Report Comments and Recommendations

- ¹ This assessment relates only to activities associated with the information provided to the Department of Fisheries Western Australia, its Fisheries Officers and Management Officers, as detailed above and for the above vessel movement only.
- ² Any changes to the above details will render this Assessment Report invalid and require a new Vessel Check risk assessment.



- 3 New assessments will be required for subsequent interstate or international vessel movements into Western Australia.
- 4 While vessels with no AFC are considered low risk when cleaned, inspected and transported via dry haulage, for future movements to Western Australia which are not via dry haul, no AFC will result in a higher risk being assigned to your vessel. In addition if your activities will include movements within Western Australia your vessel may pose a higher risk of transporting IMS between domestic locations.

Should you be uncertain about these results or require clarification or additional advice, please contact the Western Australian Department of Fisheries Senior Management Officer for Marine Biosecurity on biosecurity@fish.wa.gov.au or +61 (0) 8 9482 7333.

* Fish is defined in the Fish Resources Management Act (FRMA) 1994 as an aquatic organism of any species (whether alive or dead) and includes —

(a) the eggs, spat, spawn, seeds, spores, fry, larva or other source of reproduction or offspring of an aquatic organism; and

(b) a part only of an aquatic organism (including the shell or tail); and

(c) live rock and live sand,

but does not include aquatic mammals, aquatic reptiles, aquatic birds, amphibians or (except in relation to Part 3 and Division 1 of Part 11) pearl oysters.

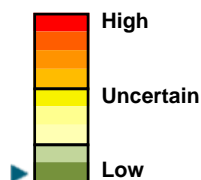
The Department wishes to advise that assessment and recommendations are in accordance with requirements of the Western Australian Department of Fisheries for marine pest management guidelines and risk assessment. The vessel manager is also obliged to comply with all other relevant requirements laws or obligations prescribed in other Australian Commonwealth and state and territory jurisdictions.



Assessment Number 16-11-28-1053-30042-A-V1

Vessel Name	NGURUNDERI
IMO Number	Not provided
Last Port of Call	PORT ADELAIDE, Australia
Destination Port	Port of Onslow
Date of Departure	30-November-2016
Date of Arrival	10-December-2016
Date & Time Completed	1-December-2016 05:24 AM
Completed By	MS MARTINE WESEN
Contact Details	0459 152 751 mwesen@mc-group.com.au
Nominated Australian Contact	As Above
Contact Details	As Above

Vessel Risk Status



Your vessel risk score is ►

LOW / ACCEPTABLE risk of translocating non-endemic live fish* into Western Australia.

This assessment is based on the following provided information:

Transport via Dry Haulage

Vessel's internal seawater systems have been drained and cleaned and the vessel cleaned of any marine growth.

No AFC

Additional Documents Supplied

Dry docking and/or inspection report provided:
Ngurunderi Dry Docking Report _ Nov 2016.docx

Report Comments and Recommendations

- ¹ This assessment relates only to activities associated with the information provided to the Department of Fisheries Western Australia, its Fisheries Officers and Management Officers, as detailed above and for the above vessel movement only.
- ² Any changes to the above details will render this Assessment Report invalid and require a new Vessel Check risk assessment.



- 3 New assessments will be required for subsequent interstate or international vessel movements into Western Australia.

Should you be uncertain about these results or require clarification or additional advice, please contact the Western Australian Department of Fisheries Senior Management Officer for Marine Biosecurity on biosecurity@fish.wa.gov.au or +61 (0) 8 9482 7333.

* Fish is defined in the Fish Resources Management Act (FRMA) 1994 as an aquatic organism of any species (whether alive or dead) and includes —

(a) the eggs, spat, spawn, seeds, spores, fry, larva or other source of reproduction or offspring of an aquatic organism; and

(b) a part only of an aquatic organism (including the shell or tail); and

(c) live rock and live sand,

but does not include aquatic mammals, aquatic reptiles, aquatic birds, amphibians or (except in relation to Part 3 and Division 1 of Part 11) pearl oysters.

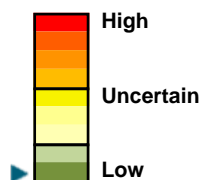
The Department wishes to advise that assessment and recommendations are in accordance with requirements of the Western Australian Department of Fisheries for marine pest management guidelines and risk assessment. The vessel manager is also obliged to comply with all other relevant requirements laws or obligations prescribed in other Australian Commonwealth and state and territory jurisdictions.



Assessment Number 16-12-01-0532-29894-A-V1

Vessel Name	CARTER
IMO Number	Not provided
Last Port of Call	PORT ADELAIDE, Australia
Destination Port	Port of Onslow
Date of Departure	2-December-2016
Date of Arrival	9-December-2016
Date & Time Completed	1-December-2016 08:58 AM
Completed By	MS MARTINE WESEN
Contact Details	0459 152 751 mwesen@mc-group.com.au
Nominated Australian Contact	As Above
Contact Details	As Above

Vessel Risk Status



Your vessel risk score is ►

LOW / ACCEPTABLE risk of translocating non-endemic live fish* into Western Australia.

This assessment is based on the following provided information:

Transport via Dry Haulage

Vessel's internal seawater systems have been drained and cleaned and the vessel cleaned of any marine growth.

No AFC

Additional Documents Supplied

Dry docking and/or inspection report provided:
Dry Docking Carter November 2016.docx

Report Comments and Recommendations

- ¹ This assessment relates only to activities associated with the information provided to the Department of Fisheries Western Australia, its Fisheries Officers and Management Officers, as detailed above and for the above vessel movement only.
- ² Any changes to the above details will render this Assessment Report invalid and require a new Vessel Check risk assessment.



- 3 New assessments will be required for subsequent interstate or international vessel movements into Western Australia.

Should you be uncertain about these results or require clarification or additional advice, please contact the Western Australian Department of Fisheries Senior Management Officer for Marine Biosecurity on biosecurity@fish.wa.gov.au or +61 (0) 8 9482 7333.

* Fish is defined in the Fish Resources Management Act (FRMA) 1994 as an aquatic organism of any species (whether alive or dead) and includes —

(a) the eggs, spat, spawn, seeds, spores, fry, larva or other source of reproduction or offspring of an aquatic organism; and

(b) a part only of an aquatic organism (including the shell or tail); and

(c) live rock and live sand,

but does not include aquatic mammals, aquatic reptiles, aquatic birds, amphibians or (except in relation to Part 3 and Division 1 of Part 11) pearl oysters.

The Department wishes to advise that assessment and recommendations are in accordance with requirements of the Western Australian Department of Fisheries for marine pest management guidelines and risk assessment. The vessel manager is also obliged to comply with all other relevant requirements laws or obligations prescribed in other Australian Commonwealth and state and territory jurisdictions.