

## MEMORANDUM

<b>ATTN:</b>	Jonathan McKay	<b>CC:</b>	Joel Bailey, Bruce Hegge
<b>ORGANISATION:</b>	BMT JFA	<b>FROM:</b>	Lotte Rivers
<b>PROJECT NO:</b>	1068_001	<b>DATE:</b>	22 October 2014
<b>SUBJECT:</b>	EPSL Maintenance Dredging Environmental Monitoring Close Out Reporting		

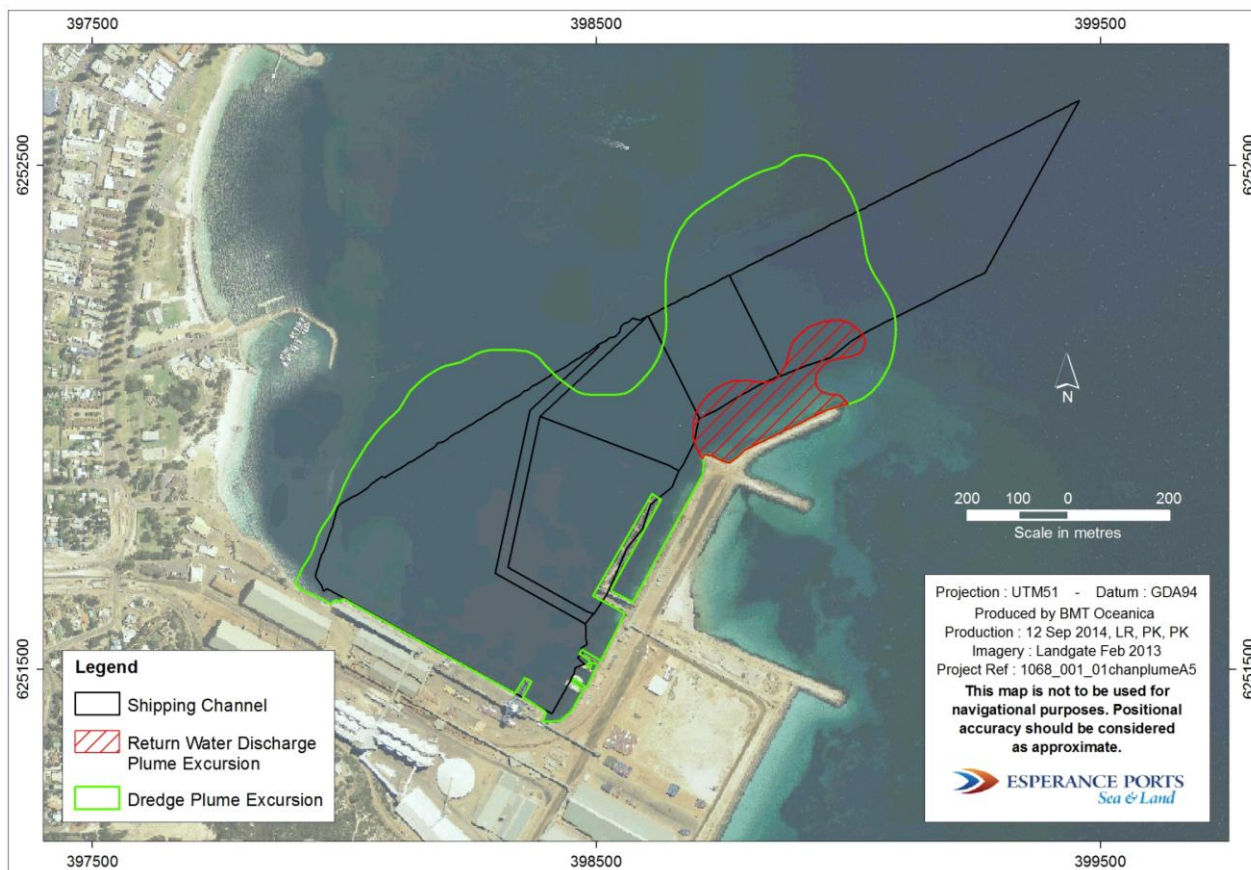
### 1. Background

Esperance Ports Sea and Land (EPSL) have recently completed the dredging component of the 2014 maintenance dredging program. This memorandum presents outcomes related to the environmental monitoring undertaken during this program. A summary and review of the following elements is presented:

- visual plume monitoring
- water quality analysis
- marine fauna monitoring
- introduced marine species survey.

### 2. Visual plume monitoring

Visual plume monitoring for turbidity was undertaken daily from the dredge and near the return water discharge point. The visual plumes created through dredging and discharge of return water settled out very quickly (less than 24 hours). The maximum excursion of the plumes did not extend more than 200 m beyond the boundaries of the shipping channel. The risk of impacts to the adjacent seagrass meadows was considered negligible.



**Figure 2.1 Summary of maximum plume excursion from the dredge and the return water discharge point, 22 June 2014 to 5 August 2014**

### 3. Water quality analyses

#### 3.1 Return water quality

Three water samples were obtained from the reclamation area on 23 June 2014, prior to first overflow and were analysed for tributyltin (TBT), nickel, copper, lead and zinc. Results were compared against the ANZECC & ARMCANZ (2000) 90% species protection limit for marine water. The analyses showed that the return waters had lead levels approximately twice the 90% species protection limit in all three samples; copper was above the limit in one of the three samples (Table 3.1). Zinc, nickel and TBT were below 90% species protection limits in all samples.

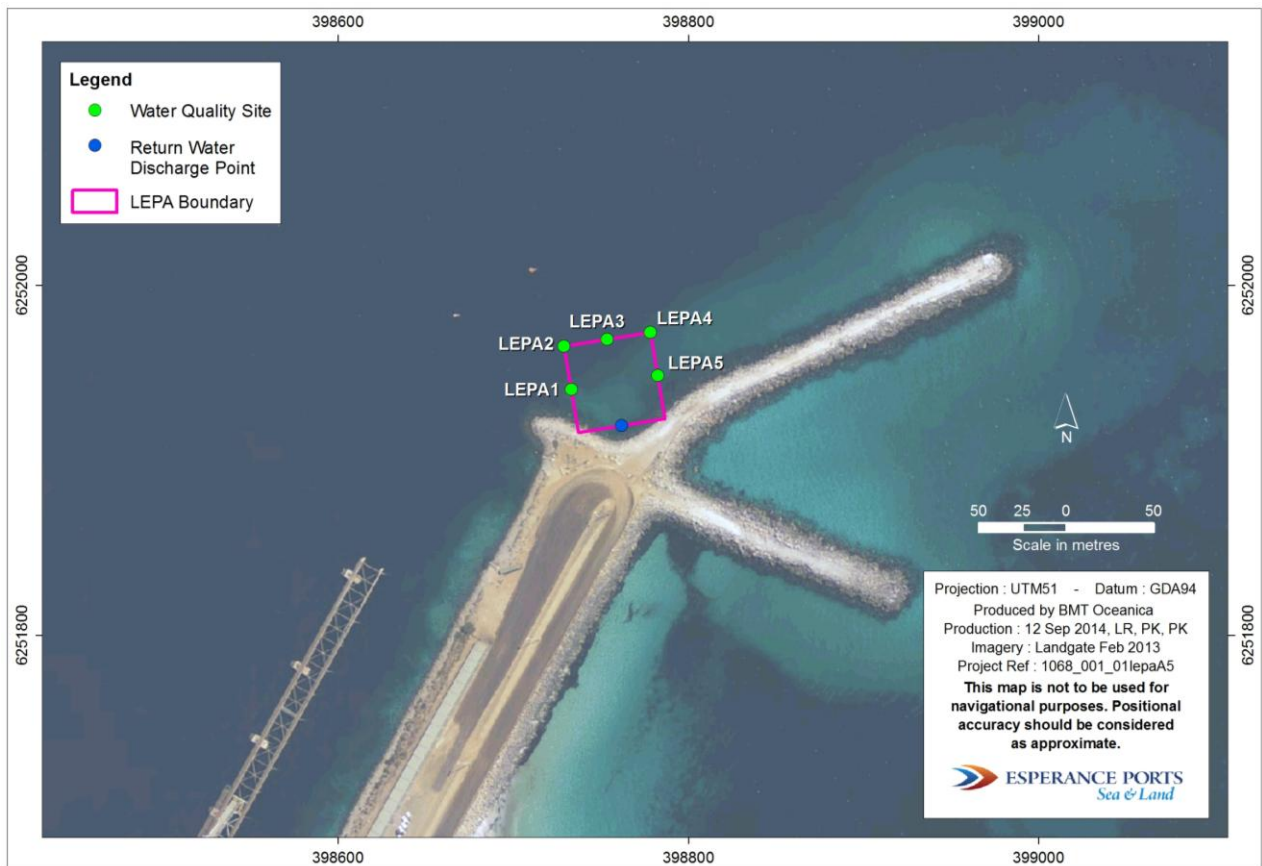
**Table 3.1 Tributyltin (TBT), copper, lead, nickel and zinc concentrations in return water**

Sample	Tributyltin as Sn (ng/L)	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Zinc (µg/L)
90% species protection	20	3	6.6	200	23
E1	8.8	2.8	12	41	20
E2	8.7	2.4	11	42	6.1
E3	9.6	3.5	14	44	6.5

### 3.2 Marine water quality

As the return water analyses showed exceedences of 90% species protection limits, a conservative LEPA was defined covering an area of 50 m by 50 m around the return water discharge point (Figure 3.1). Return water discharge ceased on 5 August 2014. Depth-integrated water samples were collected from 5 sites on the boundary of the LEPA on 6 August 2014 and analysed for concentrations of copper and lead.

The samples showed lead and copper concentrations below both the 90% and 99% species protection limits for marine water (Table 3.2); and therefore no further water quality testing was required (Oceanica 2013).



**Figure 3.1 Low Ecological Protection Area (LEPA) around return water discharge point**

**Table 3.2 Copper and lead concentrations in marine water on the boundary of the Low Ecological Protection Area (LEPA).**

Sample	Copper (µg/L)	Lead (µg/L)
<b>90% species protection</b>	<b>3</b>	<b>6.6</b>
<b>99% species protection</b>	<b>0.3</b>	<b>2.2</b>
LEPA1	<0.001	0.013
LEPA2	<0.001	0.016
LEPA3	<0.001	0.006
LEPA4	<0.001	0.01
LEPA5	<0.001	0.015

## 4. Marine fauna monitoring

Marine fauna monitoring was undertaken daily by trained observers. A total of 21 dolphins were seen on 8 occasions and two seals on two occasions (Table 4.1). Whale impact avoidance measures were not required as no whales were observed.

**Table 4.1 Marine fauna observations during maintenance dredging operations**

Date	Species	Number of animals	Range (m)	Comments
31/05/2014	Dolphin	10	100	no dredging
01/06/2014	Dolphin	2	50	no dredging; steaming from spoil ground
09/06/2014	Seal	1	50	no dredging; steaming to spoil ground
16/06/2014	Dolphin	2	200	passed under bow, away from vessel
16/06/2014	Dolphin	2	1000	continued away from vessel
16/06/2014	Dolphin	1	1000	continued away from vessel
24/06/2014	Dolphin	1	2	dredging; swam across bow
18/07/2014	Seal	1	200	dredging
30/07/2014	Dolphin	1	100	no dredging; pumping ashore
03/08/2014	Dolphin	2	200	no dredging; pumping ashore
<b>TOTAL</b>	<b>Dolphin</b>	<b>21</b>		
<b>TOTAL</b>	<b>Seal</b>	<b>2</b>		

## 5. Introduced marine species

The maintenance dredging works were undertaken by the *River Bee* (owned by WA Dredging) a trailer-hopper suction dredge. An outline of the *River Bee's* introduced marine species (IMS) assessment history is given below:

- *River Bee* had a refit in the Netherlands (total 32 months, ending August 2011) and was not required to do an IMS inspection upon arrival in Australia. *River Bee* has not left WA since her arrival.
- An assessment by the Australian Quarantine Inspection Service (AQIS) on 21 April 2011 assessed the *River Bee* as low risk.
- An IMS inspection report was completed on 23 January 2012, where *River Bee* was assessed as low risk.
- Immediately prior to arrival in Esperance, *River Bee* underwent maintenance in dry dock in Fremantle for at least one week, including being recoated with TBT-free antifoulant paint.

The above information and accompanying documentation from *River Bee* was submitted to Fisheries WA. *River Bee* was assessed as low risk on 5 May 2014. It was "recommended that an inspection prior to arrival at Esperance is not necessary" (Appendix A).

The above information and accompanying documentation was also submitted to Biosecurity South Australia (SA), as it was anticipated that the dredge would travel to Flinders Port South Australia after completing dredging in Esperance. *River Bee* was assessed as low risk by Biosecurity SA on 9 May 2014. "Introduced marine species inspection will not be necessary for movement to SA" (Appendix B).

*River Bee* arrived in Esperance with non-fouled hulls, having just been recoated in dry dock.

## **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, Australian Capital Territory, October 2000
- Oceanica (2013) Port of Esperance Maintenance Dredging – Environmental Impact Assessment. Prepared for Esperance Ports Sea and Land by Oceanica Consulting Pty Ltd, Report No. 922\_001/2\_Rev5, Perth, Western Australia, April 2013



## **Appendix A**

**Fisheries WA – *River Bee* IMS Risk Assessment 5 May 2014**





## Lotte Rivers

---

**From:** Marion Massam [Marion.Massam@fish.wa.gov.au]  
**Sent:** Monday, 5 May 2014 1:56 PM  
**To:** Lotte Rivers  
**Cc:** Jonathan McKay; Justin McDonald  
**Subject:** RE: River Bee IMS inspection Report Jan 2012 and TBT-free certificate

Hi Lotte

That's great mate. Given that this vessel has just been dry-docked, re-AFCed and has a keel-cooled system, it is considered by the Department of Fisheries to present a low risk of introducing invasive marine species to WA or parts of WA, so it is recommended that an inspection prior to arrival at Esperance is not necessary.

Regards.

### Marion Massam

Senior Management Officer | Marine Biosecurity | Aquatic Environment Branch  
Department of Fisheries

Level 3, The Atrium, 168 St Georges Terrace, Perth 6000 WA  
Post: Locked Bag 39, Cloisters Square WA 6850

T +61 8 9482 7371 | M +61 (0)409 175 189 | [marion.massam@fish.wa.gov.au](mailto:marion.massam@fish.wa.gov.au) |  
[www.fish.wa.gov.au/biosecurity](http://www.fish.wa.gov.au/biosecurity)



Government of Western Australia  
Department of Fisheries

For further information about marine pest management on vessels see:

[http://www.fish.wa.gov.au/Documents/biosecurity/introduced\\_marine\\_pests\\_management\\_guidelines.pdf](http://www.fish.wa.gov.au/Documents/biosecurity/introduced_marine_pests_management_guidelines.pdf)

Please report all suspected Freshwater and Marine Pests and Diseases and Illegal Fishing - Tel 1800-815-507 or [biosecurity@fish.wa.gov.au](mailto:biosecurity@fish.wa.gov.au),  
or use the new mobile app and internet tool WA PestWatch. For the web based version and more information [click here](#).



---

**From:** Lotte Rivers [<mailto:Lotte.Rivers@bmtocanica.com.au>]  
**Sent:** Monday, 5 May 2014 8:27 AM  
**To:** Marion Massam  
**Cc:** Jonathan McKay  
**Subject:** River Bee IMS inspection Report Jan 2012 and TBT-free certificate

Hi Marion

WAD were able to provide the following documents to assist in your review:

- IMS Inspection Report 23 January 2012
- TBT free certificate and MSDS for the antifouling to be applied this week (May 2014).

*River Bee* was classified as compliant with local regulations and meeting the standard of a **low risk vessel** on 23 January 2012, as per the attached inspection report.

Please let me know if you would like any further information.

I hope you had a good weekend.

Lotte

**Dr Lotte Rivers**  
**Experienced Consultant, Marine Ecologist**  
**BMT Oceanica Pty Ltd**

Tel: +61 8 6272 0000  
Fax: +61 8 6272 0099  
Email: [lotte.rivers@bmtoceanica.com.au](mailto:lotte.rivers@bmtoceanica.com.au)  
Website: [www.bmtoceanica.com.au](http://www.bmtoceanica.com.au)



[LinkedIn](#) | [Twitter](#) | [Facebook](#) | [YouTube](#)

BMT Oceanica Pty Ltd, Level 1/353 Cambridge St, Wembley, Western Australia, PO Box 462, Wembley WA 6913

Registered in Australia, ABN 89 093 752 811.

Unless otherwise agreed by BMT Oceanica Pty Ltd in writing, all work, services, goods or products supplied by BMT Oceanica Pty Ltd shall be subject to and governed by BMT Oceanica Pty Ltd's own terms and conditions which are available for inspection from BMT Oceanica Pty Ltd on request.

E-mail confidentiality notice and disclaimer:

The contents of this e-mail and any attachments are intended for the use of the mail addressee(s) shown. If you are not that person, you are not allowed to read it, to take any action based upon it or to copy it, forward, distribute or disclose the contents of it and you should please delete it from your system. BMT Oceanica Pty Ltd does not accept liability for any errors or omissions in the context of this e-mail or its attachments which arise as a result of internet transmission, nor accept liability for statements which are those of the author and clearly not made on behalf of BMT Oceanica Pty Ltd.

 Please consider the environmental impacts of printing this email, and only do so if really necessary.

## **Appendix B**

**Biosecurity SA – *River Bee* IMS Risk Assessment 9 May 2014**



## Lotte Rivers

---

**From:** Sierp, Michael (PIRSA) [Michael.Sierp@sa.gov.au]  
**Sent:** Friday, 9 May 2014 1:56 PM  
**To:** Lotte Rivers  
**Cc:** Virtue, John (PIRSA)  
**Subject:** RE: query: IMS inspection for vessel coming from Esperance, WA

Hello Lotte,

Thankyou for your due diligence in providing the documents to be able to give an assessment.

From the documents you have supplied the vessel appears to have been recently surveyed as a low risk vessel by the Western Australia Department of Fisheries.

The assessment as low risk during pratique by AQIS when the vessel was imported (2012) in this case further defines the appropriate actions for movement to South Australia.

With these aspects in consideration and as mentioned in your email today 9/05/2012 that the vessel is in dry dock for at least one week, a follow up introduced marine species inspection will not be necessary for movement to SA.

Regards,  
Michael

---

**Dr Michael Sierp** PhD MBA

**Manager Marine Biosecurity**  
**Primary Industries and Regions South Australia**  
**Biosecurity SA**  
w (+61) 8 8303 9619 f m 0434 078 851  
GPO Box 1671 Adelaide 5001 SA



Please consider the environment before printing this e-mail

The information contained within this email is confidential and may be the subject of legal privilege. This email is intended solely for the addressee, and if you are not the intended recipient you must not disclose, copy, use or distribute this email or any of its attachments. If you have received this email in error, please advise the sender immediately via reply email, delete the message and any attachments from your system, and destroy any copies made. PIRSA makes no representation that this email or any attached files are free from viruses or other defects. It is the recipient's responsibility to check the email and any attached files for viruses or other defects.

---

**From:** Lotte Rivers [mailto:Lotte.Rivers@bmtocanica.com.au]  
**Sent:** Wednesday, 7 May 2014 12:31 PM  
**To:** Sierp, Michael (PIRSA)  
**Subject:** query: IMS inspection for vessel coming from Esperance, WA

Hi Michael

I got your contact details from Marion Massam at Dept of Fisheries, WA. She said you might be able to help with my query.

BMT Oceanica are undertaking environmental monitoring work for Esperance Port during their upcoming dredge campaign in the next few months. The dredge vessel *River Bee* will be heading to Flinders Port SA after completing dredging in Esperance. The Port prior to Esperance was Bunbury, WA.

Could you give some guidance as to whether it will require an IMS inspection prior to arriving in SA?

I have quite a bit of information on the dredge, *River Bee*, which I will attach for you.

- The vessel was assessed by Fisheries as low risk on 5 May 2014 (attachment 1).
- The previous IMS inspection report (23 Jan 2012) is also attached, where it was assessed as low risk(attachment 2).
- The low risk assessment from AQIS (21 April 2011) is confirmed in an email (attachment 3) based on the biofouling report (attachment 4)
- I have also attached a document which summarises the history of the River Bee dated 9 April 2014 (attachment 5).

In summary:

- The THSD River Bee had a refit in the Netherlands (total 32 months, ending August 2011) and she wasn't required to do an IMS inspection upon arrival in Australia.
- The River Bee has not left WA since her arrival.
- The *River Bee* is currently in dry dock, is being re-AFCed (TBT free certificate attached, attachment 6) and has a keel-cooled system.

Could you also provide guidance as to who has the responsibility to ensure an IMS inspection is undertaken (if required); would it be the receiving Port or the departure Port?

I would appreciate your help in this matter. Please let me know if you require any further information.

Thanks for your time

Lotte

**Dr Lotte Rivers**  
Experienced Consultant, Marine Ecologist  
BMT Oceanica Pty Ltd

Tel: +61 8 6272 0000  
Fax: +61 8 6272 0099  
Email: [lotte.rivers@bmtoceanica.com.au](mailto:lotte.rivers@bmtoceanica.com.au)  
Website: [www.bmtoceanica.com.au](http://www.bmtoceanica.com.au)



[LinkedIn](#) | [Twitter](#) | [Facebook](#) | [YouTube](#)

BMT Oceanica Pty Ltd, Level 1/353 Cambridge St, Wembley, Western Australia, PO Box 462, Wembley WA 6913

Registered in Australia, ABN 89 093 752 811.

Unless otherwise agreed by BMT Oceanica Pty Ltd in writing, all work, services, goods or products supplied by BMT Oceanica Pty Ltd shall be subject to and governed by BMT Oceanica Pty Ltd's own terms and conditions which are available for inspection from BMT Oceanica Pty Ltd on request.

E-mail confidentiality notice and disclaimer:

The contents of this e-mail and any attachments are intended for the use of the mail addressee(s) shown. If you are not that person, you are not allowed to read it, to take any action based upon it or to copy it, forward, distribute or disclose the contents of it and you should please delete it from your system. BMT Oceanica Pty Ltd does not accept liability for any errors or omissions in the context of this e-mail or its attachments which arise as a result of internet transmission, nor accept liability for statements which are those of the author and clearly not made on behalf of BMT Oceanica Pty Ltd.

 Please consider the environmental impacts of printing this email, and only do so if really necessary.