Aberdeen Harbour Expansion Project

Construction Environmental Management Document

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DRAGADOS

Contents

Chapter 12
Marine Invasive Non-Native Species and Biosecurity Management Plan

Contents

Appendices

12 Marine Invasive Non-Native Species and Biosecurity Management Plan

12.1 Introduction

This document is a Marine Invasive Non-Native Species (INNS) and Biosecurity Management Plan (BsM), known collectively for the purpose of this document as the BsM, which will be in place for the duration of the Aberdeen Harbour Expansion Project (AHEP) construction phase.

The requirement to produce the INNS and BsM plan is listed under the Marine Construction Licence Condition 3.1.7, 3.2.4 and 3.3.3[1], the Marine Dredging and Disposal Licence Condition 3.2.4 and 3.3.4[2], as well as the Harbour Revision Order Mitigation Measures Schedule 2(d).

12.2 Roles, Responsibilities and Cross-Referencing

The following individuals are responsible for ensuring that the requirements of this Marine Invasive Non-Native Species and Biosecurity Management Plan are implemented at the AHEP site.

Table 12.1: Roles, Responsibilities and Cross-referencing

Job Title	Name	Responsibilities
Environmental Clerk of Works (ECoW)	Emma Bias	Main point of contact relating to non-native species. The ECoW will undertake biosecurity surveillance, monitoring, recording, and update this plan as required.
Environmental Manager	Craig Hynd	Will consult with regulators in the event of non-native species incident. Additional point of contact for non-native species recording. Joint responsibility with the ECoW for updating this management plan.

12.2.1 Cross-Referencing

The INNS and BsM Plan should be read in conjunction with the following CEMDs:

- Vessel Management Plan

[1] Licence to construct, alter or improve works and to deposit or use explosive substances or articles within the Scottish marine area. Licence Number 05965/16/0
[2] Licence to carryout dredging and to deposit dredged spoil substances or objects within the Scottish Marine area. Licence Number 05964/16/0

12.3 Overview

Invasive non-native plant and animal species are a significant threat to biodiversity worldwide. In Scotland, there is a growing problem with marine INNS. 'Non-native species' are the equivalent of 'alien species' as used by the Convention of Biological Diversity[3]. It refers to a species, subspecies or lower taxon, introduced (i.e. by human action) outside its natural past or present distribution; includes any part, gametes, seeds, eggs, or propagules of such species that might survive and subsequently reproduce[4]. An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live[4,5].

Written approval for the BsM plan must be granted by the licensing authority, prior to the commencement of the licensed activities. This BsM plan will be treated as a 'live' document and will be updated throughout all stages of the construction process in accordance with changes to the construction works and threats that are identified. Dragados will ensure that all vessels adhere to the approved BsM plan.

This BsM plan is to be read in conjunction with the Vessel Management Plan. This plan will reviewed and managed by the Environmental Manager and Ecological Clerk of Works appointed for the duration of the AHEP. The BsM will be reviewed and updated on a quarterly basis and in line with any change management procedures.

12.4 Legislation

12.4.1 International Convention for the Control and Management of Ships' Ballast Water and Sediments

All applicable vessels that travel to the site from outwith UK waters will comply with the IMO Ballast Water Management (BWM) Convention 2004[5] which establishes standards and procedures for the management and control of ships' ballast water and sediments.

Under the Convention, all ships of 400 gross tonnes (gt) and above in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan.

All ships will also have to carry a ballast water record book and an international ballast water management certificate.

[3] Convention on Biological Diversity. Invasive Alien Species. https://www.cbd.int/invasive/. Accessed 10/01/2017.
[4] Non-native Species Secretariat (2016), Definition of Terms. http://www nonnativespecies.org/index.cfm?pageid=64. Accessed 02/05/2016.
[5] International Maritime Organisation (2004) International Convention for the Control and Management of Ship' Ballast Water and Sediments (BWM). http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships'-Ballast-Water-and-Sediments-(BWM).aspx. Accessed 04/11/2016.

12.4.2 Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011

Section 14 of the Wildlife and Countryside Act 1981 & The Wildlife and Natural Environment (Scotland) Act 2011 made significant amendments to the law in Scotland and strengthened the legal requirement for everyone to take all reasonable steps to ensure biosecurity. This legislation is about prevention rather than cure and contains the following relevant offences:

- Releasing an animal to a place outwith its native range
- Otherwise causing an animal outwith the control of any person to be at a place outwith its native range
- Otherwise causing a plant to grow in the wild at a place outwith its native range

12.4.3 The Merchant Shipping (Anti-fouling Systems) Regulations 2009

The Merchant Shipping (Anti-fouling Systems) Regulations 2009[6] prohibit the use of harmful organotin compounds in anti-fouling paints used on ships and establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems and places into UK law Regulation (EC) 782/2003 on the prohibition or organotin compounds on ships.

The Regulations provide powers for the Maritime Coastguard Agency to issue an International Anti-fouling System Certificate to ships of 400gt or above and every ship which is certified to carry 15 or more persons.

12.5 Marine Non-Natives - Risk Assessment and Plan

In line with recommendations within the Scottish Government Code of Practice on Non-Native Species[7]:

- Adopt a precautionary approach and not carry out operations which might lead to the spread of NNS until there is a clear understanding of the situation
- Carry out risk assessments to understand the risk of spreading a NNS, setting out how to avoid it happening
- Seek advice and following good practice
- Report the presence of NNS to Marine Scotland Science

SNH have also indicated that their preference is for non-native species to be removed at source, before vessels travel to the UK and SNH recommend that

[6] Maritime and Coastguard Agency (2009), Merchant Shipping (Anti-fouling Systems) Regulations 2009. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440772/MGN_398.pdf. Accessed 02/05/2016

[7] The Scottish Government (2012) http://www.gov.scot/Resource/0039/00398608.pdf Accessed 22/02/2017

ballast water (and sediment in the tanks) is checked before leaving other ports and an external hull inspection is carried out.

This plan follows the SNH Guidelines 'Marine Biosecurity Planning – Guidance for producing site and operation-based plans for preventing the introduction of non-native species'[8].

12.5.1 Species of Concern

These marine INNS have become widespread and well established in Scotland, including[9]:

- Green sea fingers (*Codium fragile subsp. tomentosoides*)
- Common cordgrass (*Spartina anglica*)
- A red alga (*Dasysiphonia japonica*)
- Wireweed (*Sargassum muticum*)
- Acorn barnacle (*Austrominius modestus*)
- Japanese skeleton shrimp (*Caprella mutica*)
- Leathery sea squirt (*Styela clava*)

Other marine INNS can only be found in isolated or sporadic locations within Scotland, including:

- Carpet sea squirt[10] (*Didemnum vexillum*); and
- Pacific oyster (*Crassostrea gigas*)

The following examples are species that are in, or are close to, the British Isles but have yet to reach Scotland:

- Chinese mitten crab external site (*Eriocheir sinensis*); and
- Slipper limpet external site (*Crepidula fornicata*).

12.5.2 Understanding the AHEP Site

Following the SNH Guidance, Nigg Bay is judged at 'significant risk' of introducing or spreading NNS because:

- Nigg Bay is fully saline and as such, has the greatest risk of NNS establishment occurring; and
- There will be considerable infrastructure used in the construction of the harbour. It should be noted that the accropode blocks are designed to encourage marine growth.

[8] Payne, Cook and Macleod (2014) Marine Biosecurity Planning. http://www.snh.gov.uk/docs/A1294630.pdf) Accessed 22/02/2017
[9] SNH (2016), Marine non-natives. http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-nonnatives/. Accessed 02/05/2016.
[10] Scottish Natural Heritage. Carpet sea squirt. http://www.snh.gov.uk/land-and-sea/managing-coasts-and-sea/marine-nonnatives/carpet-sea-squirt. Accessed 04/11/2016.

The site specific surveys as described in the Environmental Statement[11] (ES) did not identify the presence of NNS, invasive or otherwise, in the study area.

Due to the artificial structures already present in the area, not least the existing harbour and the associated infrastructure and vessel traffic, the potential for the introduction of NNS was assessed in the ES as minor adverse, which is not significant in EIA terms. However, due to the high degree of uncertainty associated with this assessment as it depends on unpredictable events, the environmental risk is assessed as medium high. Therefore a precautionary principle should be followed, where it should be assumed that NNS may be present and procedures should act as if NNS are present.

12.5.3 Activities at AHEP and Risk of Introducing Non-Native Species

SNH identify these examples of activities that should be considered at risk of introducing marine non-native species during construction and/ or maintenance of slipways/ jetties/ coastal defence structures etc.:

- Use of construction barge and slow moving vessels;
- Using vessels from locations outside local water body;
- Importation of materials;
- Removal of old structures/ equipment; and
- Disposal/ re-use of old structures/equipment.

Most of the above activities will be part of the AHEP construction process, therefore Dragados will need to have a high level of control over activities which have the potential to introduce marine non –native species.

12.5.4 Potential for Introduction of Marine Non-Native Species at AHEP

Each individual vessel arriving at Nigg Bay will be required to complete a risk assessment (see Appendix A) considering the following questions from the SNH Guidance:

- Has the vessel/ equipment just arrived from UK territorial waters?
- Has the vessel/ equipment had an anti-fouling coating applied to submerged structures within the last 12 months (or time recommended by manufacturer)?
- Are all the visible submerged surfaces free of bio-fouling (a green ‘slime’ is OK)?
- Do the visible submerged surfaces have more than a green ‘slime’ coating?
- Does the vessel/ equipment have noticeable clumps of algae and/ or animals clinging to the visible parts of the hull/ rudder/ propeller?

[11] Waterman and Fugro (2015), Environmental Statement. Chapter 12: Benthic Ecology

- Has the vessel/ equipment just arrived from another country, region or water body with similar environmental conditions (e.g., seawater temperature)?
- Has the vessel/ equipment just arrived from a water body known to have NNS present?
- Does the vessel/ equipment spend long periods of time stationary at sites in between anti-fouling treatments?
- Is the vessel 'slow moving', such as a construction barge or drilling rig?

As many of the vessels involved in the construction of AHEP will be from ports outwith the local area and include slow moving barges, the SNH Guidance identifies that there is significant risk of introduction of NNS at AHEP.

12.5.5 Hazard Analysis and Critical Control Point (HACCP)

For individual packages of work which are deemed to pose a high risk of introducing marine non-natives, an in-depth risk assessment will take place using the HACCP template provided in the SNH Guidance. This is a five step process leading to the development of an action plan:

- Step One – List Site Activities
- Step Two – Describe Activities
- Step Three – Split Activities into Tasks
- Step Four – Establish Critical Control Points and Control Measures
- Step Five – Develop an Action Plan

The individual Action Plans for each work package will be produced using the mitigation measures set out in Section 12.6.

12.5.6 Biosecurity Surveillance, Monitoring and Reporting

12.5.6.1 Surveillance and Monitoring

The surveillance of NNS will include:

- All relevant staff receive a copy of the site/ operation biosecurity plan summary and instructions sheet;
- ECoW to receive training in NNS identification;
- Identification of commonly found NNS will also be outlined in toolbox talks given to staff by the ECoW; and
- All staff will be encouraged to report any 'suspect' marine plant or animal to the Environmental Manager or ECoW.

Monitoring by the ECoW will include:

- Routine inspections of equipment and vessels for NNS and biosecurity measures taken if NNS found at site or on equipment; and
- Inspection of any high 'risk' vessels or materials.

12.5.6.2 Reporting a Potential INNS

In the event of a potential INNS contamination, it should be immediately reported to either the Environmental Manager or ECoW. The ECoW will be trained in the identification of INNS. Relevant identification sheets can be found on the Great Britain Non-Native Species Secretariat Website[12]. In the event of an emergency, the Pollution Prevention Plan and the following procedures should be followed:

- The ECoW must determine if the species reported is a INNS, if necessary, Scotland's Environmental and Rural Services (SEARS) will be contacted immediately at this stage if identification needs confirmation;
    - A sample will be collected, placed in plastic bag and sent to the nearest SEARS location.
    - **SEARS 24/7 Contact Service Number 08452 30 20 50**
- If the INNS is confirmed by the ECoW/SEARS it must be reported to Marine Scotland Licensing Operations Team and Marine Scotland -Science immediately[13];
- The ECoW will inform other water-users and vessel operators;
    - The Construction Marine Coordinator will be contacted.
- A record of the findings should be logged and include:
    - The scientific and or common name of the species;
    - Location of the find with an accurate grid reference or GPS coordinates;
    - How it was found (e.g. attached to equipment);
    - Date;
    - Name of individual who identified the INNS and who confirmed the identification (e.g. ECoW);
    - Photographs of the INNS and surrounding area; and
    - Approximate numbers and or area of INNS recorded.
- In the event of a high alert species:

[12] Great Britain Non-Native Species Secretariat Identification Sheets: http://www nonnativespecies.org/index.cfm?sectionid=47 .
[13] The Scottish Government (2015) Non-Native Species

- Immediate containment measures will be initiated, including restricted vessel movements. This will be coordinated by the Construction Marine Coordinator;
- Wider surveys of vessels and structures will be undertaken; and
- In the event of NNS being found, the Environmental Manager will seek further advice from MS and SNH.

The report will include details of when ECoW has been informed of a potential 'high risk' vessels and the additional biosecurity measures that have been undertaken.

12.6 Mitigation Measures

The HRO and MLs require Dragados to ensure the risk of transferring marine non-native species to and from the site is minimised during the licensed activities using appropriate bio-fouling management practices.

Dragados must ensure that during the execution of the licensed activities, the risk of transferring marine INNS to and from the location of the activities is minimised by implementing the marine non-native species and biosecurity management plan.

12.6.1 Marine Invasive Non-Native Species Management Requirements

There are two main potential routes for the introduction of marine INNS:

- The introduction of ballast waters and/ or sediment, containing non-native species; and
- Installation of structures, fouled with non-native species. Notably caissons which will be constructed in La Coruna, Spain

Specific measures that are required to be adopted by all key contractors and subcontractors include:

- All contractors and subcontractors are required to undertake a marine non-natives risk assessment (See Appendix A);
- All vessels of 400gt or above are required to be in possession of a current international Anti-Fouling System (AFS) certificate6;
- All vessels of 24m or more in length (but less than 400gt) are required to carry a declaration on AFS signed by the owner or authorised agent accompanied by appropriate documentation;
- Details of all ship hull inspections and biofouling management measures are required to be documented by the contractor and, where applicable, recorded in the contractor's Planned Maintenance System;
- All submersible / immiscible equipment e.g., ROVs are required to be subject to pre-use and post-use checks including checks for the presence of marine

growth. All equipment will be required to be free of marine growth likely to encourage INNS prior to mobilisation;

- All vessels are required to be compliant (where applicable) with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) Convention[5], developed and adopted by the International Maritime Organisation (IMO) (i.e., ships 400gt and above designed/constructed to carry ballast water and operating in the waters of more than one Member State), specifically:
    - Where relevant, management of ballast water in accordance with an approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provisions of the Convention; and
    - A requirement, where possible, and if required, for Ballast Water Exchange to take place at least 200nm from the nearest land and in 200m water depth.

12.6.2 Guidelines for the Control and Management of Ships Biofouling[14]

To minimize the transfer of invasive aquatic species, a ship should implement biofouling management practices as outlined in Resolution MEPC.207(62) 2011 guidelines, including the use of anti-fouling systems and other operational management practices to reduce the development of biofouling. The intent of such practices is to keep the ship's submerged surfaces, and internal seawater cooling systems, as free of biofouling as practical. A ship following this guidance and minimizing macrofouling will have a reduced potential for transferring invasive aquatic species via biofouling.

It is recommended that every ship should have a biofouling management plan which is specific to the ship and included in the ship's operational documentation. Such a plan should include:

- Relevant aspects of the IMO 2011 Guidelines[14] ;
- Details of the anti-fouling systems and operational practices or treatments used, including those for niche areas;
- Hull locations susceptible to biofouling, schedule of planned inspections, repairs, maintenance and renewal of anti-fouling systems;Details of the recommended operating conditions suitable for the chosen anti-fouling systems and operational practices;
- Details relevant for the safety of the crew, including details on the anti-fouling system(s) used; and

[14] International Maritime Organisation (IMO) Annex 26. 2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species. http://www.imo.org/en/OurWork/Environment/Biofouling/Documents/RESOLUTION%20MEPC.207%5b62%5d.pdf. Accessed 04/11/2016

- Details of the documentation required to verify any treatments recorded in a Biofouling Record Book as outlined in the IMO 2011 Guidelines[14].

12.6.3 Marine Invasive Non-Native Species Management Report

A short marine INNS management report will be produced based upon the risk assessments and action plans developed for individual activities. Each action plan will detail the specific monitoring requirements. These will be collated by the ECoW and checks undertaken as part a regular audit process to ensure mitigation measures are being applied correctly. The report is subject to regular review and audit in line with Dragados Environmental Plan.

Appendix A

SNH Marine Biosecurity Plan Template

A1 SNH Marine Biosecurity Plan Template

Marine Biosecurity Plan Template	
Site Name or Description of Operation	
Site/ Operation Location (s)	
Plan Period	
Biosecurity manager	

Site features affecting biosecurity:

Salinity	
Submerged structures	
Non-native species known to be present	

Vessel types using the site/ involved in the operation:

Vessel type	Risk Factors: Pathway, speed, bio-fouling control	Risk: High/ Medium Low

Site activities which have a significant risk of introducing or spreading non-native species:

	Activity Description
1.	
2.	
3.	
4.	
5.	
6.	

A1.1 Risk Factor Table

Risk Factor Table (reference to risk factors in tables above)

		Risk of marine non-native		
		High	Medium	Low
1.	Has the vessel/ equipment just arrived from the local area?			
2.	Has the vessel/ equipment had an anti-fouling coating applied to submerged structures within the last 12 months (or time recommended by manufacturer)?			
3.	Are all the visible submerged surfaces free of bio-fouling (a green 'slime' is OK)?			
4.	Do the visible submerged surfaces have more than a green 'slime' coating?			
5.	Does the vessel/ equipment have noticeable clumps of algae and/ or animals clinging to the visible parts of the hull/ rudder/ propeller?			
6.	Has the vessel/ equipment just arrived from another country, region or water body with similar environmental conditions (e.g., seawater temperature)?			
7.	Has the vessel/ equipment just arrived from a water body known to have NNS present?			
8.	Does the vessel/ equipment spend long periods of time stationary at sites in between anti-fouling treatments?			
9.	Is the vessel 'slow moving', such as a construction barge or drilling rig?			