ORKNEY ISLANDS COUNCIL HARBOUR AUTHORITY

POST-ADOPTION STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) STATEMENT

BALLAST WATER MANAGEMENT POLICY

Report Reference. P1565_RN2869_Rev0

Issued 16th April 2014

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POST-ADOPTION SEA STATEMENT – COVER NOTE
PART 1

To: SEA.gateway@scotland.gsi.gov.uk

or

SEA Gateway
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Edinburgh EH6 6QQ

PART 2

A post-adoption SEA statement is attached for the PPS entitled:

Orkney Islands Council Harbour Authority's Revised Ballast Water Management

The Responsible Authority is:

Orkney Islands Council Harbour Authority

PART 3

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Signature & date	 16th April 2014

POST - ADOPTION SEA STATEMENT

Post-adoption SEA statement for:

Orkney Islands Council Harbour Authority's Revised Ballast Water Management

Adopted on:

10th December 2013

Responsible Authority:

Orkney Islands Council Harbour Authority

POST-ADOPTION SEA STATEMENT INTRODUCTION

This document (referred to here as the post-adoption SEA statement) has been prepared in accordance with Section 18 of the Environmental Assessment (Scotland) Act 2005.

POST-ADOPTION SEA STATEMENT AVAILABILITY OF DOCUMENTS

WEBSITE

The full PPS as adopted, along with the Environmental Report and post-adoption SEA Statement are available on the Responsible Authority's website at:

http://www.orkneyharbours.com/ and http://www.orkney.gov.uk/

OFFICE ADDRESS

The PPS, as adopted, along with the Environmental Report and post-adoption SEA Statement may also be inspected free of charge (or a copy obtained for a reasonable charge) at the principal office of the Responsible Authority:

Contact name, address and telephone number

David Sawkins
Orkney Islands Council,
Marine Services,
Harbour Authority Building,
Scapa,
Orkney
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01856 873636

Times at which the documents may be inspected or a copy obtained:

9:00 – 17:00

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ABBREVIATIONS

AA	Appropriate Assessment
BWM	Ballast Water Management
BWM Convention	International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004
EC	European Commission
EEZ	Eastern Exchange Zone
EPS	European Protected Species
ER	Environmental Report
HAB	Harmful Algae Bloom
HRA	Habitats Regulation Appraisal
IMO	International Maritime Organisation
JNCC	Joint Nature Conservation Committee
LNG	Liquefied Natural Gas
LPG	Liquid Petroleum Gas
MARPOL	International Convention for the Prevention of Pollution from Ships
MEPC	Marine Environment Protection Committee
MPA	Marine Protected Areas
NNS	Non-native species
OIC	Orkney Islands Council
OICHA	Orkney Islands Council Harbour Authority
OMEPC	Orkney Marine and Environmental Protection Committee
PMF	Priority Marine Feature
PPS	Plan, Programme or Strategy
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SMRU	Sea Mammal Research Unit
SNH	Scottish Natural Heritage
SPA	Special Protection Area
STS	Ship-to-Ship
WFD	Water Framework Directive
UKTAG	UK Technical Advisory Group

1 INTRODUCTION

This SEA Post Adoption Statement has been prepared on behalf of Orkney Islands Council Harbour Authority (OICHA) to comply with Section 18 of the Environmental Assessment (Scotland) Act 2005 and as part of the Strategic Environmental Assessment (SEA) of Ballast Water Management (BWM) for Scapa Flow. This document provides a summary of the responses received from consultation on the Proposed BWM Policy and Environmental Report(s); consulted on in March-May 2010, March-May 2013 and August-September 2013. The document explains how the key findings from the SEA and responses from consultation have been taken into account in the preparation of the final BWM Policy; details how environmental considerations have been integrated; explains the reasons for adopting the final policy; and, includes proposals for monitoring the implementation of the BWM Policy.

1.1 CONSULTATION

A Scoping Report was issued in October 2009 as part of the formal consultation process on the scope of the SEA and circulated to a range of organisations and stakeholders.

The first SEA Environmental Report was prepared by Cascade and was issued in March 2010, along with a draft BWM Policy. Following consultation, a number of issues were raised on various aspects of the report and draft policy. There were major concerns with respect to the quality of the SEA and its ability to adequately inform the development of the draft BWM Policy. These concerns included: inclusion of sustainability appraisal; inadequate baseline data; geographic scope of the baseline data; lack of cumulative impact assessment; insufficient mitigation and monitoring, and inconsistency of assessment of alternatives.

Intertek Energy and Water Consultancy Services (Intertek) was instated as lead advisor on the SEA and Habitats Regulation Appraisal (HRA) in 2011. Following this, an addendum to the original Environmental Report was issued in February 2012. The aim of this was to address the key outstanding issues received at the SEA Scoping Stage which were not addressed adequately in the Environmental Report and to provide additional supporting information. This Addendum was released for information only and not for consultation. On 29th May 2012 OICHA held a public drop-in awareness session in Kirkwall. Sixty people attended the exhibition of HRA Appropriate Assessment (AA) and SEA Addendum results.

Following the decision by OICHA to revise the SEA Environmental Report towards the end of 2012, the environmental assessment was re-done and a revised Environmental Report was written and released for consultation in March 2013. The revised report included a number of fundamental changes including: removal of the sustainability appraisal; updated definition of alternatives assessed; updated baseline data; updated geographic scope of the baseline data; cumulative impact assessment; mitigation and monitoring, updated assessment approach. These updates took into account all consultation comments received during the 2010 Environmental Report consultation where these comments were relevant to the revised Environmental Report.

On 10th and 11th April 2013 two public drop-in awareness sessions were held in Stromness and Kirkwall. Twenty six people attended the exhibitions of the revised SEA results.

Following consultation of the Environmental Report in March-May 2013, the revised report was amended and improved. The amended report was released for consultation alongside the Proposed BWM Policy in August 2013. On 28th August 2013, OICHA held an additional public drop-in awareness session in Kirkwall to present the latest release of the Environmental Reports results. Twelve people attended the session.

All of the comments received during the Environmental Report and policy consultation periods (March-May 2010, March-May 2013 and August-September 2013) are included in this post-adoption statement, thus ensuring the process is transparent and that all concerns are recognised.

1.2 HABITATS REGULATION APPRAISAL

In addition to the SEA, an HRA (required under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)) has been undertaken of the Proposed BWM Policy. The HRA enabled OICHA, as the Competent Authority, to determine that there would not be any adverse effects on the integrity of any European Sites arising from the implementation of the BWM Policy. This work was carried out from November 2011 to October 2013.

Some of the comments within this Post Adoption Statement refer to the results of the HRA and reference is made to the HRA and AA where applicable.

2 KEY FACTS

POST-ADOPTION SEA STATEMENT - KEY FACTS

Name of Responsible Authority	Orkney Islands Council (OIC) Harbour Authority
Title of PPS	OIC Harbour Authority Ballast Water Management Policy
Purpose of PPS	To lay down protocols for ballast water management which minimise risks to the environment, whilst promoting social and economic development through the use of Scapa Flow's facilities. To minimise the transfer risk of non-native aquatic organisms and pathogens, which may be contained within ships ballast water. With the aim to provide protection for the marine environment.
What prompted the PPS (e.g. a legislative, regulatory or administrative provision)	The International Maritime Organisation (IMO) has adopted, by consensus, the International Convention for the Control and Management of Ships' Ballast Water and Sediments (2004 Ballast water Management [BWM] Convention), with the aim to prevent the spread of harmful aquatic organisms from one region to another, by establishing standards and procedures for the management and control of ships' ballast water and sediments. The BWM Convention will require harbour authorities and shipping companies to prevent, minimise and eventually eliminate the transfer of harmful aquatic organisms and pathogens. OICHA will therefore be required to enforce more stringent controls on ballast water management once the BWM Convention is ratified. OICHA is seeking to implement the requirements and standards set out by the BWM Convention to ensure best practice is followed, including the provision of a ballast water management plan to support prevention of harmful aquatic organisms entering into Scapa Flow and the waters of the Orkney Islands. Under the existing BWM Policy all ballast water from cargo tankers (such as crude oil tankers) arriving in Scapa Flow, except those loading at Flotta Oil Terminal and Liquid Petroleum Gas (LPG) tankers, must be discharged outside Scapa Flow harbour limits. The discharged ballast water has not been subject to exchange or treatment as recommended in the BWM Convention. Under the existing BWM Policy, the practice of leaving Scapa Flow to de-ballast is an operational risk and costs vessel operators time and money. Trade has decreased in recent years as operators choose to trade elsewhere.
Subject (e.g. transport)	Transport
Period covered	2013 onwards
Frequency of updates	The BWM Policy will be updated and modified when required. No timescales are currently in place for the frequency of this.

POST-ADOPTION SEA STATEMENT - KEY FACTS

Area of PPS (e.g. geographical area)	Includes the extent of the Harbour Authority's jurisdiction as defined by the harbour limits of Scapa Flow.
Summary of nature/content of PPS	Policy sets out how ballast water is managed within the Orkney Islands Harbours and applies to all ships intending to conduct ballast water management within Scapa Flow.
Date adopted	10th December 2013
Contact name & job title Address, email, telephone number	David Sawkins Orkney Islands Council, Marine Services, Harbour Authority Building, Scapa, Orkney KW15 1SD 01856 873636 harbours@orkney.gov.uk
Date	**16TH April 2014**

3 STRATEGIC ENVIRONMENTAL ASSESSMENT PROCESS

The OICHA BWM Policy has been subjected to a process of Strategic Environmental Assessment (SEA), as required under the Environmental Assessment (Scotland) Act 2005. This has included the following activities:

- Taking into account the views of the Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and the Scottish Ministers (Historic Scotland) regarding the scope and level of detail that was appropriate for the Environmental Report.
- Preparing an Environmental Report on the likely significant effects on the environment of the draft Plan, Programme or Strategy (PPS) which included consideration of:
    - the baseline data relating to the current state of the environment;
    - links between the PPS and other relevant strategies, policies, plans, programmes and environmental protection objectives;
    - existing environmental problems affecting the PPS;
    - the plan's likely significant effects on the environment (positive and negative);
    - measures envisaged for the prevention, reduction and offsetting of any significant adverse effects;
    - an outline of the reasons for selecting the alternatives chosen, and
    - monitoring measures to ensure that any unforeseen environmental effects will be identified, allowing for appropriate remedial action to be taken.
- Consulting on the Environmental Report
- Taking into account the Environmental Report and the results of consultation in making final decisions regarding the PPS
- Committing to monitoring any potential significant environmental effects of the implementation of the PPS. This will also identify any unforeseen adverse significant environmental effects and to enable taking appropriate remedial action.

4 INCORPORATING THE FINDINGS FROM THE SEA INTO THE BWM POLICY

This section provides an overview of how the findings from the SEA were used to inform the preparation of the final BWM Policy.

4.1 How Environmental Considerations Have Been Integrated Into The BWM Policy

Table 4-1 lists the potential negative effects (direct, indirect and cumulative effects) identified from the introduction of a revised BWM Policy and demonstrates how these have been taken into account in the final BWM Policy. When these have not been taken into account, reasons for this are included. Measures to prevent, reduce or offset significant adverse effects are also identified along with details of how these have been integrated in the Policy.

The table also lists positive effects identified and how these have been integrated into the BWM Policy.

Table 4-1: Environmental considerations and how they were taken into account

Environmental considerations and findings from the Environmental Report	Integrated / taken into account in the BWM Policy (YES/NO)	How integrated/taken into account or reason for not being taken into account Measures to prevent, reduce or offset significant adverse effects
Negative Effects Identified		
Introduction of NNS and pathogens. While the likelihood of invasion is considered to be unlikely, the introduction of NNS may be hard to remove.	YES	Compliance with the BWM Convention will ensure best practice and minimise the likelihood of introduction. The existing BWM Policy did not allow discharge within Scapa Flow under most circumstances; however it did permit discharge of raw ballast water (i.e. having received no exchange or treatment) outside the harbour limits. The adopted BWM Policy requires that discharge of exchanged ballast water in Scapa Flow is limited to the minimum essential quantity possible. The BWM Policy includes a monitoring plan and reporting protocols to GB NNS Secretarial to ensure early warning and best advice. Measures suggested by the GB NNS Secretarial will be followed.
Introduction of harmful algae blooms (HAB)	YES	An increase in coastal HAB's has been identified in recent years. Ballast water may contain HAB. The Eastern Exchange Zone (EEZ) will be monitored using remote sensing to determine if and where HABs occur, OICHA can then advise vessels to avoid exchange in impacted areas. Subsequent treatment will further minimise the likelihood of HAB introduction into Scapa Flow.
Introduction of oils, chemicals and metals impacting water quality	YES	The BWM Convention requires ballast tanks to be maintained in a clean state and provides provisions for State Officers to ensure this is met by inspecting ships. This will help to avoid discharge of sediment and metal contaminants. The exchange process removes quantities of sediments and metal contaminants from ballast water; this may improve the aesthetic quality of the ballast water by avoiding introduction of these contaminants. OICHA have the right to inspect ships tanks to ensure they are clean.

Environmental considerations and findings from the Environmental Report	Integrated / taken into account in the BWM Policy (YES/NO)	How integrated/taken into account or reason for not being taken into account Measures to prevent, reduce or offset significant adverse effects
Impacts on internationally and nationally designated sites	YES	Adverse impacts on designated sites are avoided through exchange, subsequent treatment and by spatially restricting activities with discharge away from designated sites (e.g. Loch of Stenness). Introduction of a monitoring plan and reporting protocols to GB NNS Secretarial to ensure early warning and best advice. An AA has been carried out to ensure that the Policy will not adversely affect the integrity of the site/s, either directly, indirectly or in-combination with other plans.
Impacts on human health and sea users	YES	Exchange/treatment minimises risk for human health as IMO Regulation D-2 specifies strict standards on indicator microbes for human health, therefore ensuring strict human health standards. Provisions within the Policy of exchange followed by exchange and treatment (when available on vessels) will ensure higher levels of safety in terms of sea users.
Disturbance of European Protected Species (EPS) and other species of importance	YES	Disturbance from surface traffic and underwater noise from propeller induced noise and onboard machinery noise could disturb wildlife. The BWM Policy restricts activity spatially to avoid and reduce disturbance from areas associated with protected species. Vessels to be under pilot command within Scapa Flow such that the vessel and propeller speeds will be maintained at low levels, to avoid and minimise impacts of disturbance and underwater noise.
Risk of oil spill	YES	The final BWM Policy will ensure that the risk of oil spill is minimised as vessels will be under pilot command within Scapa Flow, thereby reducing the likelihood of oil spill during an operation. The MARPOL Convention requires that pollution from ships is regulated; this will help to ensure the water environment is not affected by oil spills. Regulation B-6 of the BWM Convention requires crew to be familiar with BWM Plan and safety provisions. This will help ensure oil spill risk is reduced.
Risk of collision	YES	Vessels will be under pilot command within Scapa Flow, thereby reducing the likelihood of accidents and associated incidents.
Impacts on habitats and benthic communities	YES	Seabed disturbance from anchors penetrating the seabed and dragging over a distance will be limited in extent and recovery will be relatively quick. Whilst the BWM Convention requires a goal of treatment only, the BWM Policy offers offshore exchange as an additional protection and helps to reduce potential impacts. BWM will be restricted spatially to minimise disturbance on habitats. Sensitive habitats will be avoided.
Alterations to salinity	YES	Exchange of ballast water within the EEZ or in deep waters to the west will ensure ballast water discharges are of a similar salinity to that of Scapa Flow. In addition ballast water samples will be collected and analysed to check salinity before discharge.
Impacts on aquaculture from HAB and toxins	YES	HABs and toxins have the potential to impact aquaculture in Scapa Flow. The EEZ will be monitored using remote sensing to determine if and where HABs occur, OICHA can then advise vessels to avoid exchange in impacted areas. Treatment of ballast water (when available on vessels) will further minimise the likelihood of HAB introduction and toxins.

Environmental considerations and findings from the Environmental Report	Integrated / taken into account in the BWM Policy (YES/NO)	How integrated/taken into account or reason for not being taken into account Measures to prevent, reduce or offset significant adverse effects
Fouling on vessel hulls	NO	Cargo ships, fishing vessels, ferries and leisure craft could all potentially bring NNS through fouling on vessel hulls. Any policy on BWM will always contain the risk of bio-fouling. It is not the purpose of the BWM Policy to address hull fouling, however it is acknowledged that hull fouling is a cause of NNS instructions worldwide.
Impacts on maritime heritage through NNS growing on wrecks	YES	The BWM Policy ensures impacts on the historic environment will be avoided wherever possible through the appropriate location of activities to minimise the potential for organisms to grow on heritage sites.
Air pollution through shipping	INDIRECTLY	Treatment systems should be designed to minimise energy consumption and consequential emissions.
In-combination and cumulative impacts from ballast water discharge at STS sites and Liquid Petroleum Gas (LPG) discharge	YES	LPG vessels using the Flotta Oil Terminal are not required to undertake exchange and treatment as per the BWM Policy, due to stability issues in the transport of LPG. The AA (August 2013) concluded that there would be no adverse effect on the integrity of any European Sites through in combination cumulative discharges.
Other Plans, Programmes and Strategies (PPS) environmental protection objectives	YES	84 PPS (and International, European and National policies) were reviewed and taken into account in the BWM Policy's preparation. Details of how the PPS's objectives may affect or be affected by the BWM Policy are listed in Appendix C of the Environmental Report.
Positive Effects Identified		
Reduced health and safety risks when compared to the existing BWM Policy	YES	The existing BWM Policy requires ships to couple and decouple twice for each operation and requires vessels to leave the safe haven of Scapa Flow harbour to de-ballast. This increases health and safety risks. The final BWM Policy removes the need to decouple to leave the harbour limits therefore reducing health and safety risks. The BWM Policy complies with safety precautions suggested by BWM Convention and MARPOL Convention in terms of the ship and its equipment.
Reduced risk of oil spillage when compared to the existing BWM Policy	YES	The existing BWM Policy requires ships to couple and decouple twice for each operation thereby increasing the risk of oil spill. The final BWM Policy removes the need to decouple to leave the harbour limits therefore reducing the risk of oil spill during coupling.
Reduced emissions when compared to the existing BWM Policy	YES	The existing BWM Policy requires ships to couple and decouple twice for each operation and requires vessels to leave the safe haven of Scapa Flow harbour to de-ballast. This requires results in higher fuel consumption and emissions when compared to the adopted Policy for the same volume of traffic.
A revised BWM Policy is likely to be more attractive to operators and consequently attract more trade and support economic development.	YES	Increased Ship-to-Ship (STS) industry is likely to secure jobs in shipping and provide increased opportunities for further employment.

4.2 How The Environmental Report Has Been Taken Into Account

The SEA informed the preparation of the BWM Policy in a number of ways:

- Providing a transparent means of identifying, describing, evaluating and reporting environmental effects
- Incorporating input from consultation activities
- Develop approaches to prevent, reduce and offset negative environmental effects
- Develop approaches to enhance positive effects

During the SEA process it was identified that a HRA was required in order to understand the environmental effects properly. While this was undertaken to determine if the BWM Policy would adversely affect the integrity of the European sites, the AA also allowed for a detailed assessment of the impacts of ballast water release across Scapa Flow and the northern North Sea.

4.2.1 Changes to the BWM Policy

Throughout the progression of the SEA the Proposed BWM Policy changed in a number of ways. These are described below.

- The final BWM Policy contains a monitoring and recording programme for Marine NNS in Scapa Flow. The monitoring programme has been implemented to identify any adverse environmental impacts of ballast water management and shipping activities. The monitoring programme contains a Contingency Plan and details steps to be followed in the event of identification of any NNS. The programme has been developed in consultation with a variety of stakeholders including Marine Scotland, SNH and SEPA.
- The adopted policy imposes requirements for vessels to undertake ballast water exchange followed by treatment, when available on board. This exceeds the requirements of the IMO BWM Convention and provides two levels of protection and risk reduction.
- The adopted BWM Policy includes requirement for Liquefied Natural Gas (LNG) vessels to undertake exchange and treatment. When the policy was first drafted LNG vessels were not expected to use Scapa Flow and were therefore not included in the draft BWM Policy. This situation has since altered and LNG vessels are included in the Policy and required to undertake ballast water exchange and treatment if available on board.

4.2.2 Mitigation Measures

During the environmental assessment negative impacts were identified against the baseline for the *Biodiversity, Flora and Fauna* SEA Objectives for all BWM alternatives. This is because no STS activities had taken place for the past two years; therefore compared to this baseline any activity will have a negative impact. As a result the most appropriate approach was to ensure the negative impacts were adequately mitigated.

A number of mitigation measures were implemented to prevent, reduce and offset any significant adverse effects; these are listed in Table 4-2 below, along with who is responsible for implementing them.

Table 4-2: Mitigation measures

Potential Impact	Proposed Mitigation	Lead Authorities
Potential introduction of new NNS – while the likelihood of invasion is considered to be unlikely, the introduction of NNS may be hard to remove.	• Compliance with the BWM Convention will ensure best practice and ensure the likelihood of introductions is reduced. • The volume of water discharged in Scapa Flow will be limited to the minimum essential quantity possible. • A monitoring plan and reporting protocols to GB NNS Secretarial will be introduced to ensure early warning and best advice. Mitigation suggested by GB NNS Secretarial will be followed.	OICHA GB NNS Secretarial
Potential adverse impacts on designated sites.	• Adverse impacts on designated sites are avoided by spatially restricting activities and discharge away from designated sites (e.g. Loch of Stenness). • A monitoring plan and reporting protocols to GB NNS Secretarial will be introduced to ensure early warning and best advice. • Where activities could potentially directly, indirectly or in-combination with other activities affect the qualifying interests of designated sites, OICHA undertook an AA so that it could be determined if BWM Policy would adversely affect the integrity of the site/s. This allowed the potential risk to be quantified.	OICHA GB NNS Secretarial
Potential adverse impacts on habitats.	• Whilst the BWM Convention requires a goal of treatment only, the adopted BWM Policy offers offshore exchange as an additional protection and helps to reduce potential impacts. • BWM will be restricted spatially to minimise disturbance on habitats.	OICHA
Potential adverse impacts on protected species and species of commercial importance through disturbance and underwater noise.	• BWM will be restricted spatially to avoid and reduce disturbance away from areas associated with protected species. • Impacts on EPS will be avoided by complying with protected species legislation. • Vessels to be under pilot command within Scapa Flow such that the boat and propeller speeds will be maintained at low levels, to avoid and minimise impacts of disturbance and underwater noise.	OICHA Shipping Operators
Potential adverse impacts on water quality.	• BWM Convention requires ballast tanks to be maintained in a clean state and provides provisions for State Officers to ensure this is met by inspecting ships. This will help to avoid discharge of sediment and metal contaminants. • Exchange process reduces sediments and metal contaminants from ballast water, therefore promoting aesthetic quality of the ballast water.	OICHA Shipping Operators
Limited quantities of waste will inevitably be produced by treatment of ballast water.	• Wherever possible waste by-products (e.g. sludge) will be reused or recycled.	OIC
Potential for organisms to grow on wrecks which could impact recreation.	• Impacts on the historic environment will be avoided wherever possible through the appropriate location of activities to minimise the disturbance on maritime heritage.	OICHA
Introduction of HAB picked up during exchange could impact fish farms, shellfish fisheries and aquaculture.	• Monitoring of the EEZ to determine if and where HABs occur, OICHA can then advise vessels to avoid exchange in impacted areas. • On-board treatment systems will reduce the concentration of phytoplankton taken on board during ballast water exchange.	OICHA
Increased shipping traffic may lead to increased chances of accidents such as collisions, and risks of fire and oil spillage	• Vessels will be under pilot command within Scapa Flow, thereby reducing the likelihood of accidents and associated incidents.	OICHA Shipping Operators

5 HOW CONSULTEE VIEWS HAVE BEEN TAKEN INTO ACCOUNT WITHIN THE FINALISED BWM POLICY

This section provides an overview of how the consultee views have been taken into account within the preparation of the final BWM Policy. Table 5-1 lists all consultation responses received on the SEA Environmental Reports and BWM Policy from 2010 to 2013. Where appropriate, the comments raised have been taken into account in the preparation of the adopted BWM Policy. When these have not been taken into account reasons for this are identified.

Table 5-1: Consultation comments and description of how they have been taken into account

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
Scottish Environmental Protection Agency (SEPA) - 6 May 2010 - 7 May 2010	**Draft Policy Comments**	
	Advise consultation with Marine Scotland on proposed policy.	Marine Scotland was consulted on both the Environmental Report and the final BWM Policy.
	Object to the policy on the grounds that it may lead to an unacceptable deterioration in the status of the water environment as a result of the introduction of non-native species. Advise retain the existing BWM policy or for the policy to reflect the water treatment standards to be introduced in 2016 by IMO Ballast Water Convention.	Noted. The final Policy implements the requirements of the IMO BWM Convention by requiring that water is exchange and treated to standards set out in the Convention.
	State that proposed policy is less biosecure than the current policy as water will be able to be discharged within Scapa Flow and would increase risk associated with the introduction of non-native species.	The final Policy will minimise introductions of NNS through implementing more stringent management techniques and follows latest scientific knowledge and international best practice.
	Identify that the proposed policy will become non-compliant in 2016 when the new IMO Ballast Water Convention is upgraded to take into account the new biosecurity needed.	The final Policy is an integrated policy that have been drafted to be compliant with the IMO BWM Convention now and when the Convention enters into force.
	Lack of mitigation measures should non-native species become introduced. There is a potential risk to biodiversity, increased risk to the Water Framework Directive characterisation of the water body and potentially a risk to aquaculture, fisheries and recreational industries in the longer term.	Since this comment was received the Environmental Report and final BWM Policy have been revised to incorporate a number of mitigation measures. This includes the incorporation of a comprehensive monitoring and recording programme for marine NNS in Scapa Flow, involving a baseline survey and annual surveys thereafter to record any NNS presence. The mitigation actions requested by the GB NNS

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
		Secretariat will be followed. The monitoring and recording programme has been developed following best practice advice and consultation with various stakeholders including SEPA.
	Merchant Shipping (Ship-to-ship Transfers) Regulations 2010 will come into force on 1st April 2011 and it would be prudent to take these into account in final BWM policy.	Noted. The regulations have been taken into account when drafting the final BWM Policy.
	State that there is a potential for the proposed policy to result in an increased risk to biodiversity, the Water Framework Directive status and potentially risks to aquaculture, fisheries and recreational industries in the long term.	The final BWM Policy has been drafted using the latest scientific knowledge and to follow international best practice and thereby ensuring that the environment is not adversely affected.
	Environmental Report Comments	
	Consider the assessment of potential impacts of the approaches assessed to not be as detailed as would have liked.	The assessment has been revised in the later releases of the Environmental Report.
	Little analysis of the policies relationship with other plans, policies and strategies – identify that the Merchant Shipping (ship-to-ship transfers) Regulations 2010 should be included in analysis.	The review of other plans, policies and strategies has been revised in the later releases of the Environmental Report and includes the Merchant Shipping (ship-to-ship transfers) (Amendment) Regulations 2012 - latest version of the regulations.
	State that information provided in the ER on marine benthology and habitats is very limited and that should have been more significance to assessment of the potential risks of introduction of invasive species and subsequent impacts.	The environmental baseline section on marine benthic habitats has been revised in the later releases of the Environmental Report, along with the assessment of potential risks.
	Dismisses impacts on water quality were activities take place in and over the water such as diving and sailing. Suggest this is readdressed.	The activities which take place in and over water are incorporated in the later releases of the Environmental Report.
	Consider Objective 10 to be a policy objective and not an SEA objective – as does not relate to any environmental objectives.	Agree. This objective has been removed in the later releases of the Environmental Report.
	Welcome the decision not to give a specific scores for individual assessments.	Noted.
	Issue with consistency in assessment of alternative approaches, some being assessed relative to current policy, others assessed relative to no policy – as result comparisons between assessments cannot be drawn. Recommend assessment repeated against a no policy baseline.	The environmental assessment of alternatives has been revised against a no discharge baseline in the later releases of the Environmental Report.

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
	Believe current policy that allows no discharge will provide the greatest level of protection against the introduction of non-native species. Suggest that proposed policy and any alternatives which allow discharge of treated ballast water into the area, would result in a reduction in biosecurity but would have a significant positive impact against introduction but not very significant as recorded. ER needs to clearly demonstrated that the risk posed by the preferred policy, and others, will be as effective as the current policy.	While the current policy does not permit the discharge of ballast water within Scapa Flow, it does allow the discharge of raw (unexchanged and untreated) ballast water outside the harbour limits. This water has been shown to flush back into Scapa Flow and therefore lead to any NNS in the discharge being able to enter Scapa Flow and potentially colonise. The current policy is also not compliant with the IMO BWM Convention and therefore cannot remain in place.
	State is possible that alternatives which discharge ballast water could cause a deterioration in Water Framework Directive status but issue is not adequately addressed in assessments.	The assessment on water has been revised in later releases of the Environmental Report.
	Is inappropriate to offset environmental impacts against socio-economic objectives.	Socio-economic objectives have been removed from the assessment.
	No alternatives promote use of low emissions technology.	OIC monitor emissions from their activities. The BWM Policy aims to reduce emissions, so that increased shipping activity does not lead to a reduction in air quality. Exchange is considered to be a low emission technology, as it can be undertaken while a vessel is on route and Treatment systems are being designed with energy efficiency in mind.
	Believe that the proposed policy and associated exchange to the IMO Standards is less biosecure than the current policy. In addition to the proposed policy becoming non-compliant in 2016 when IMO BWM Convention is upgraded.	The final BWM Policy is an integrated policy that have been drafted to be compliant with the IMO BWM Convention now and when the Convention enters into force. The Policy will minimise introductions of NNS through implementing more stringent management techniques and follows latest scientific knowledge and international best practice.
	ER was not clear in how SEA informed policy.	In later releases of the Environmental Report a new section was added to provide a clear explanation of how the SEA process informed policy.
	Geographic scope is limited to Scapa Flow, which is insufficient to enable a full strategic appraisal of alternatives.	In later releases of the Environmental Report baseline data has been included for the wider geographic area and the environmental assessment carried out for the whole area, including the North Sea.

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
	Monitoring is not mitigation – suggest that mitigation measures are revised to address significant negative effects, including measures that will be taken should marine non-native species become introduced.	Mitigation measures have been revised in the latest releases of the Environmental Report.
	Is not clear how Sustainability Appraisal section (Section 5) relates to the Policy being consulted upon – if is relevant to the policy then highlight that the impacts of the various business scenarios have not been fully explored in relation to the policy. No information provided on likely increases to ship traffic and potential adverse impacts to business.	The Sustainability Appraisal section has been removed from the latest releases of the Environmental Report.
The Scottish Ministers (Historic Scotland) - 6 May 2010	**Environmental Report Comments**	
	Generally content with the findings of the assessment as it relates to the historic environment. However the inclusion of the Sustainability Appraisal with the SEA led to confusion.	Noted. The Sustainability Appraisal section has been removed from the latest releases of the Environmental Report.
	State that ER could have benefited from a more in-depth reporting of the historic environment baseline within the area covered by the policy.	The baseline data for the historic environment has been revised in the later releases of the Environmental Report and the locations of key wrecks shown on a map.
	Consider that Objective 10 (Cross-cultural) is not relevant to an assessment of environmental effects.	This objective has been removed in the later releases of the Environmental Report.
Scottish Natural Heritage (SNH) - 28 April 2010	**Draft Policy Comments**	
	Are concerned that the specific changes proposed in the Policy increase the risk of detrimental effects on the natural heritage features, including the qualifying interests of Natura sites, both within Scapa Flow and in the wider coastal marine area.	The Environmental Report has been revised and incorporates assessment of the wider marine area.
	Given the major limitations of the Environmental Report are unable to fully assess and advise of potential implications of implementing this policy.	The Environmental Report has been revised to address these limitations.
	Welcome emphasis that total quantity of ballast water for discharge within Scapa Flow is limited to that which is essential.	Noted.
	Identify that exchange is only recommended under the IMO Convention as an interim measure until Performance Standard is phased in, as it is recognised as an inconsistently effective method by which to reduce the risk of introducing non-native species.	The final Policy has since been revised. As soon as onboard treatment is available on a vessel they will be required to undertake ballast water exchange and treatment.

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	Highlight that the probability of unwanted introductions to Scapa Flow will increase if vessels are able to discharge within Scapa Flow as compare to the current policy.	The current policy discharges raw (unexchanged and untreated) ballast water outside the harbour limits, this water has been shown to flush back into Scapa Flow and therefore lead to any NNS in the discharge being able to enter Scapa Flow and potentially colonise. The current policy is also not compliant with the IMO BWM Convention. The final Policy will minimise introductions of NNS through implementing more stringent management techniques and follows latest scientific knowledge and international best practice.
	Concerned that there has been inadequate assessment of the suitability of the two areas identified for exchange. Recommend further consideration of oceanographic conditions and usage levels of these areas.	The Environmental Report has been revised to incorporate baseline data for the northern North Sea and assessment of a wider geographical area. The Western Exchange Zone has since been removed from the BWM Policy. Vessels approaching the Orkney Islands from the west will exchange ballast water in the open sea in accordance with Regulation IMO Regulation B-4, paragraph 1.1.
	Believe spatial restrictions to mitigate potential impacts on designated sites should apply to all STS operations.	Noted. For ballast water exchange best endeavours have been made to ensure exchange is undertaken remotely from the Orkney Islands. To the west, this is in open sea in accordance with Regulation IMO Regulation B-4, paragraph 1.1. To the east this is in accordance with Regulation IMO Regulation B-4, paragraph 2 which recognises the restrictions of the North Sea. For the discharge of exchanged or exchanged and treated ballast water fours STS locations have been identified to improve geographic distribution of the discharge. These locations also serve to reduce the risk of transport to Loch of Stenness SAC following considerations of geographic restrictions and safety (e.g. STS need to be undertaken in sheltered areas).
	Suggest revision of section 3.4 to specify how far ships should proceed out of Scapa Flow before discharging.	This has been removed from the policy and replaced by a new section on how the policy will be policed. See section 8 of the Policy document.
	Suggest revisions of Annex 2 regarding the ballast water exchange areas.	This has been revised. Use of the Eastern Exchange Zone for ballast water exchange complies with Regulation B-4 of the IMO Convention. In addition, the Western Exchange Zone has been removed Vessels approaching the Orkney Islands from the west will exchange ballast

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		water in the open sea in accordance with Regulation IMO Regulation B-4, paragraph 1.1.
	Advise that further assessment of the potential impacts is required.	The assessment of potential effects has been revised in the later releases of the Environmental Report.
	State that Ship-to-ship activities will require Appropriate Assessment to determine if will have a significant effect on any European protected site.	An AA has been undertaken.
	Environmental Report Comments	
	SEA is critically flawed in respect to information used as basis for assessment and actual assessment process.	The baseline data and environmental assessment has been revised.
	State that more quantitative assessment (i.e. Appropriate Assessment) would be required for exchange zones and ship-to-ship transfer, as it would resolve issues in relation to the SEAs level of detail.	An AA of the exchange of ballast water within the EEZ and discharge of exchanged and exchanged and treated ballast water within Scapa Flow has been carried out to quantify the impacts.
	The proposed policy was not assessed as an alternative in the SEA – identified exchange areas not assessed.	In the latest releases of the Environmental Report the policy assessed is the final policy.
	Was inappropriate to offset environmental considerations against socio-economic ones within the ER – assessments should have been solely on environmental aspects.	The socio-economic objective has been removed in the later releases of the Environmental Report. The assessment has been revised to assess environmental aspects only.
	Concerned with definitions of policy alternatives, was insufficient detail attached to the policy alternatives to enable assessment of their potential impacts.	The latest releases of the Environmental Report contain revised definitions of the policy alternatives.
	Problems with Sustainability Appraisal approach of the SEA.	The Sustainability Appraisal approach has been removed from the later releases of the Environmental Report.
	Limitation of the geographic scope of the SEA to Scapa Flow is insufficient to enable a full strategic appraisal of policy alternatives – proposed policy proposes exchange in defined areas which have number of European protected sites nearby.	The latest releases of the Environmental Report contain revised baseline data for the wider geographic area (including the area where ballast water exchange will be undertaken) and the assessment has been revised to assess this wider area.

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	Suitability of baseline data, sources used often inappropriate and/or inadequate in context of the SEA, including data on birds, benthic ecology and potential invasive species.	The latest releases of the Environmental Report contain revised baseline data suggested by SNH.
	Suggest more details on water flows and their potential implications for the movement of alien species – in particular no consideration of the hydrodynamic characteristics of the exchange zones identified.	The latest releases of the Environmental Report contains revised baseline data for water flows and hydrodynamic characteristics of the EEZ.
	Fundamental problems with the consistency and accuracy of the assessments, in some instances have been assessed relative to current policy.	The environmental assessment of alternatives has been revised against a no discharge baseline in the later releases of the Environmental Report.
	Believe number of alternatives should not have been scored as high as current policy in respect to preventing introduction of alien species.	The assessment of alternatives has been revised.
	Issues with assessments of objective 6 (promote use of low emission technologies) as not quantitative and strategic in scope, as will depend on various factors including number of vessels, distances travelled etc.	Noted. The number of vessels and distances travelled cannot be determined with certainty as it will depend on the amount of trade undertaken. OICHA has made best endeavours to estimate trade volumes and reported these accordingly. Vessels carrying on-board treatment systems are incentivised to consider lower emissions in their treatment system selection and operation. The adopted policy also seeks to minimise unnecessary emissions by restricting ballast water discharge to minimum volumes and ensuring vessels do not undertake unnecessary operations (e.g. For a given operation vessels are not required to decouple, exit Scapa Flow and discharge whilst steaming and then re-enter Scapa Flow to continue operations).
	Monitoring is not mitigation – lack of information on water movements in Scapa Flow makes it difficult to determine whether ensuring STS transfer takes place at eastern end of area would protect protected sites.	The Environmental Report and Policy have been revised to incorporate a number of mitigation measures. The AA contains detailed assessment of water movements in Scapa Flow and indicates transport paths of discharged ballast water.
	Proposed monitoring does not adequately focus on potential specific impacts of proposed policy on key elements of the environment.	The monitoring framework has been revised to incorporate a large variety of monitoring activities and proposed remedial actions should any unforeseen significant adverse effects be identified.

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	Currently no proposed monitoring to analyse ballast water for presence of alien species – without this the proposed monitoring for presence of alien species within Scapa Flow would not act as mitigation measure or to assess effects of the policy.	A comprehensive monitoring and recording programme for Scapa Flow and Loch of Stenness has been implemented as part of the final policy (Annex 5 of the policy document). This includes a baseline survey and report and on-going monitoring programme.
	Lack of information on who undertakes monitoring of cetaceans, seals and otters and on what timescales, as well as how monitoring results will be used to determine effects of policy.	OBRC, SMRU and JNCC undertake monitoring of cetaceans, seals and otters annually. Monitoring results will enable populations to be examined.
	Monitoring of wintering birds and designated sites are missing from proposed monitoring.	Wintering birds and designated sites were omitted from the monitoring programme because they are already subject to pre-existing monitoring programmes.
Orkney Field Club - 7 May 2010	**Draft Policy Comments**	
	Conclude that change in policy would be very serious environmental mistake and should be no ballast water discharges whatever into Scapa Flow. Have little confidence that any damage would be controllable or reversible.	Noted. Ballast water from LPG vessels has been released in Scapa Flow for over 30 years at the Flotta Oil Terminal jetty, while this is in small quantities there has been no environmental catastrophes.
	Introduction of potentially harmful alien phytoplankton or nutrients could cause harmful; algae blooms.	Noted. OICHA will access information with regard to the possibility of algae blooms in the EEZ. This data will be used as and when necessary. This information can then be used to inform vessels not to exchange ballast water in certain areas. Vessels exchanging ballast water to the west of Orkney will be required to do so in oceanic waters.
	There is insufficient regular tidal exchange to be confident that any damage would be controllable or reversible.	The AA modelled the movements of tides and currents around the Orkney Islands.
	State three flaws: - 5% of original ballast water will be discharged into Scapa Flow - Ships to self-certify that 95% exchange has taken place - Policy only as good as the deep sea water loaded in the open sea exchange	The BWM Policy has been developed to be compliant with the IMO BWM Convention. The BWM Convention specifies that vessels must demonstrate at least 95% volumetric exchange is met. OICHA have a number of methods available to ensure that 95% volumetric exchange has been met. These include inspection of ballast water records and the certificate to verify details on exchange and treatment operations. If there are grounds for believing that the condition of the ship or its equipment does not correspond to the particulars on the Certificate in the record book, or the Master and crew are not familiar with the

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		essential on board procedures relating to ballast water management, then a detailed inspection will be carried out. Vessels exchanging in the Atlantic Ocean will meet the requirements of IMO Regulation B-4, paragraph 1.1 and will be exchanging in the open sea which is the most preferable of all options given the depth of water and distance from the land.
	Do not comprehend how the treatment methods would not have potential to damage Scapa Flow.	Treatment methods must be approved by the IMO before being certified and installed on vessels. All treatment systems must be safe, environmentally acceptable and meet specific standards in terms of discharge concentration standards for zooplankton, phytoplankton and other parameters.
	State that little attention is given to the broad range of species other than birds, mammals, cetaceans and fish.	The baseline data section has been revised to include data on a broader range of species in the later releases of the Environmental Report.
	No analysis of possible content of the North Sea or North Atlantic water which would be discharged.	In the latest releases of the Environmental Report baseline data for water quality, temperature, salinity, planktonic communities and NNS of the northern North Sea has been included. The Western Exchange Zone has been removed. Vessels exchanging in the Atlantic Ocean will meet the requirements of IMO Regulation B-4, paragraph 1.1 and will be exchanging in the open sea which is the most preferable of all options given the depth of water and distance from the land.
Orkney Fisheries Association - 8 April 2010	**Draft Policy Comments**	
	Raise concern over the suggested areas for ballast water exchange as areas cover major fisheries areas. Are anxious about effects of the introduction of toxins into Orkney waters.	The SEA and HRA/ AA work and modelling indicates that the exchange of ballast water in the EEZ will not affect any European site, and this along with the relatively large tides around Orkney (i.e.: Orkney waters) should mean that exchange process will meet the IMO ballast water exchange requirements for “other areas”.

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Orkney Islands Council Development and Environmental Services - 7 May 2010	**Environmental Report Comments**	
	Agreed with rejection of Alternatives D, F, G and H, but question some of the assessment results, including that Alternatives A and B would not very significantly reduce the risk of the introduction of non-native species, stating that only Alternatives C and E would very significantly reduce the risk.	The assessment of alternatives has been revised in the later releases of the Environmental Report. Any alternatives will have a negative effect when compared to a baseline of no discharge. Alternatives A, E and F (each enforcing IMO BWM regulations on NNS discharges) have been assessed as having a minor negative effect, alternatives C and D have been assessed as having a moderate negative effect and alternative I (no policy control) as having a major negative effect on the baseline. Assessment of alternative B was revisited and it was concluded that the approach was not feasible as the approach assumes all vessels already have treatment – which the vast majority do not. Therefore, a blanket policy for on-board treatment cannot be implemented immediately. . Therefore further environmental assessment was not undertaken.
	Raise issues with assessment of approaches impacts on water quality.	The assessment of alternatives has been revised in the later releases of the Environmental Report. Alternative A (Adopted BWM Policy) was assessed as having a neutral/negligible effect as it is the only approach that effectively removed oils and chemical contamination and assists with sediment flushing. All other alternatives will not help with this and therefore are assessed as having a negative effect on the baseline.
	Environmental Baseline data provides little information on Scapa Flows diverse shorelines and recreational activities carried out there.	The baseline data has been revised in the later releases of the Environmental Report. The baseline data section includes information on the various recreational activities carried out in Scapa Flow, and includes a map of the recreational waters.
	Questions reversibility of the effects.	The assessment methods used and environmental assessment itself has been revised in the later releases of the Environmental Report. This includes the reversibility of effects.
	Identify conflicting findings in regard to effects on future development of Orkney as centre of marine renewable.	This section has been removed from the later releases of the Environmental Report.

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	Recommend Alternative E (Shore-based treatment to IMO Standards) as most beneficial approach – as it provides long-term solution, followed by continuation of current policy – as it has offered protection for many years.	The assessment of alternatives has been revised in the later releases of the Environmental Report. Alternative E was assessed as having a broadly negative effect on the environment. Construction of a shore-based facility and associated infrastructure will not make best use of existing infrastructure, as new infrastructure will be required. Construction of underwater ballast water reception pipelines will adversely impact benthic habitats. This impact may be temporary or permanent depending on the construction methods. Burial of pipelines should enable recovery of habitats and therefore disturbance may be temporary, however if the pipelines cannot be buried they will have to be covered by rock protection, which will create a new habitat. Negative impacts are predicted on the use of low emission technologies, as construction of the new infrastructure will create a large carbon footprint. However this impact is predicted to be temporary and short term. Once constructed, use of the treatment facility is expected to result in low emissions.
	Argue that if non-native species were to form a viable population in Scapa Flow the outcome could be long-term or permanent and have very significant adverse effects upon ecosystems.	The later releases of the Environmental Report highlight that the presence of any NNS are likely to be irreversible and have significant effects on the environment. Therefore it is preferable to prevent the arrival of NNS through effective management.
	Draft Policy Comments	
	Recommend that policy would cause inferior water quality in Scapa Flow and that users of the sea would suffer health effects. Would recommend that sea users be assessed in greater detail.	The assessment of alternatives has been revised in the later releases of the Environmental Report. This includes the assessment of impacts on sea users.
	Question whether open sea exchange would be feasible for container ships if Scapa Flow becomes trans-shipment hub.	It is considered that the requirements of the BWM Policy regarding vessels of this size would be able to undertake ballast water exchange.
RSPB - 5 May 2010	**Draft Policy Comments**	
	Suggest could carry out Appropriate Assessment to determine if policy has adverse effect on Scapa Flow if it was an SPA for its internationally important bird populations.	An Appropriate Assessment has been undertaken.
	Believe that the current BWM policy has been an important factor in maintaining the marine environment of Scapa Flow in a good condition. Slackening of current policy has potential to	The current policy discharges raw (unexchanged and untreated) ballast water outside the harbour limits, this water has been shown to flush

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	cause deterioration of the environment through introduction of invasive alien species and consequent effect on bird populations.	back into Scapa Flow and therefore lead to any NNS in the discharge being able to enter Scapa Flow and potentially colonise. The current policy is also not compliant with the IMO BWM Convention and therefore cannot remain in place. The final Policy will minimise introductions of NNS through implementing more stringent management techniques and follows latest scientific knowledge and international best practice.
	Despite inspections and random spot checks of ballast water quality non-compliance with policy remains possible. Anticipated increase in ship-to-ship oil transfer means the chances of an accident occurring are increased. Do not agree with the overall conclusions of the Habitats Regulation Appraisal in respect to Natura 2000 sites.	The final Policy has been revised to incorporate a section of how the policy will be policed. See section 8 of the Policy document. All ships are required to comply with other International regulations associated with safe shipping and ship-to-ship transfers will be carried out following specific guidelines. IMO Resolution MEPC.186(59) contains a new Chapter 8 to MARPOL Annex I on the prevention of pollution during the transfer of oil cargo between oil tankers at sea. This will help ensure planning and procedures are regulated. The Habitats Regulation Appraisal (i.e.. Appropriate Assessment) has been revised and updated throughout the process in order to include the latest data and resources and to respond to the comments of statutory consultees and other stakeholders. It is recognised that any form of discharge will present a risk, however small. The Appropriate Assessment provides quantitative measures and references to research papers etc wherever reasonable. It quantifies the risk from passive transport of NNS to the Loch of Stenness SAC and then provides a measure how much worse the effects would need to be under active transport before predicted concentrations approach those of the IMO standards. Results from the Appropriate Assessment P1565H_RN3165_Rev2 show that the effect of active transport would need to be five million times worse to approach the D-2 standard at the Loch of Stenness SAC. This would also involve organisms moving against the prevailing current. The risk of stepping stone transfer (part of active transport) cannot be

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		predicted with certainty. Therefore, this was taken into account through use of the precautionary approach, which incorporated reasonable worst case scenario modelling.
	Urge that current policy is not altered, as by 2016 stricter policies will be enforced.	The date for all vessels to have onboard treatment is likely to push back from this due to the limited amount of vessels with treatment systems and the lack of approved treatment systems worldwide. However as soon as onboard treatment is available on a vessel they will be required to undertake ballast water exchange and treatment. The final BWM Policy is an integrated policy that has been drafted to be compliant with the IMO BWM Convention now and when the Convention enters into force.
SR (member of public) - 23 March 2010	**Draft Policy Comments** Believes that proposed policy has been selected for commercial gain more than for environmental gain.	It has consistently been stated in meetings and reports that low environmental risk has been a major objective in the development of the BWM Policy. For example, exchange is carried out as remotely from Scapa Flow as is practical; the volumes of exchanged/treated ballast water discharged are kept to minimum, treatment will be mandatory for any vessel carrying on-board treatment regardless of whether it is a legal requirement (i.e. the policy does not wait for ratification of the IMO BWM Convention); both exchange and treatment are required (which exceeds the Convention requirements); and best management practices will be introduced in accordance with IMO BWM Convention.
	Suggested that cross-ballasting should be primary method of management.	The later releases of the Environmental Report highlight that current vessel construction does not readily support cross-ballasting. This is due to manifold design and the potential for contamination between cargo (e.g. oil) and ballast water. There are also issues of a ship's master not being willing to take on-board another vessels ballast water, due to liability considerations. Therefore cross-ballasting is not a feasible approach to BWM management and has not been assessed.
	Issues with water sampling to determine changes in water properties.	IMO guidelines for water sampling set out in *Guidelines for ballast water sampling (G2)* provides guidance and protocols on water sampling and analysis for compliance with Regulation D-1 and D-2. Water sampling

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		on board vessels and from Scapa Flow are taken with a strict scientific background and training. This is progressed to the monitoring and reporting part of the Policy where water samples are taken under the same guidelines. The sampling regime includes regular testing of the salinity of Scapa Flow in the area that STS operations take place.
Historic Scotland - 1 May 2013	Response should be read in conjunction with Historic Scotland's previous response to this assessment (dated 06 May 2010). Welcome that Historic Scotland's comments in response to the original Environmental Report have been taken into account in the revised report. Historic Scotland agrees with the findings presented within the report in relation to the potential effects of the policy on the historic environment and welcomes that proposed mitigation measures and monitoring framework in relation to maritime heritage. For information, during 2013-14, Historic Scotland will be looking at the case for an Historic Marine Protected Area (MPA) in relation to marine heritage sites of national importance within Scapa Flow. This will encompass the existing scheduled wrecks of the German High Seas Fleet, but it may also incorporate other sites within Scapa Flow relating to WW1 and 2 naval anchorage. A proposal will be further refined in discussion with key stakeholders in Orkney prior to consultation in Spring 2014. However, Historic Scotland considers that this will have no significant interaction with Ballast Water Management activities.	Noted. Please refer to response above. Noted. Noted. Noted.
SEPA - 1 May 2013	**Environmental Report Comments** SEPA has used its response on the previous Environmental Reports and the more recent response in relation to the re-scoping of the assessment to consider the adequacy of the Environmental Report. Generally, SEPA considers the Environmental Report to be an improvement on what they've previously seen, but still have some concerns relating to the assessments presented. SEPA considers the revised Environment Report to be well written and structured. Although they don't agree with all the assessments presented they do consider that it provides more and clearer detail on the assessment of the revised policy itself and the reasonable alternatives. SEPA considers the approach of identifying a range of potential alternatives and then narrowing these down to those that are technically feasible a reasonable approach. However, it is not	Noted. Noted. Alternative A is for immediate treatment, if available on the vessel. The availability of on-board treatment will increase as the IMO BWM Convention proceeds. Newer vessels will have treatment. Alternative B

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	absolutely clear from the information provided that Options B and H are not technically feasible.	assumes all vessels already have treatment – which the vast majority do not. Therefore, a policy for onboard treatment cannot be implemented immediately. Alternative H is for use of the Flotta reception facilities. The current treatment facility is consented by SEPA. In order for this option to be technically feasible it is not just the jetty that would need to be modified – there would be major re-construction needed to the infrastructure within the Oil Terminal – this facility is not managed by OICHA.
	Through discussions with SNH, SEPA understands that in June 2012 the USA introduced mandatory treatment standard for ballast water. This suggests that such an approach is technically feasible and therefore it would have been useful if the option had been assessed further so that it could be compared with the others.	The USA has stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1st 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers arriving from the east and visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The adopted BWM Policy requires ballast water exchange but adds that as soon as treatment systems are available (i.e. not waiting on the IMO BWM Convention timetable) they will be used. Therefore it could be said that the adopted policy is more stringent than that in existence in the USA.
	In relation to Option H SEPA suggests that such a policy is feasible if changes to the jetty construction were made.	See comment above regarding Flotta shore based treatment. In order for this option to be technically feasible it is not just the jetty that would need to be modified – there would be major re-construction needed to the infrastructure within the Oil Terminal and modification to the treatment facilities.

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	Assessment methods – SEPA is pleased to note that the minor comments they made at the revised scoping stage have been taken into consideration in the assessment methods. This means that it is clearer that those assessments recorded in dark green and red are significant, which is important as the purpose of SEA is to identify significant effects.	Noted.
	It would have been helpful if the geographical scope of the assessment has been clearly defined and it explained how this related to the described baseline condition. When SEPA provided comment on the baseline for the assessment at the scoping stage it was their understanding that the comment related to the baseline condition in the Policy area (i.e. no ballast water transfer within the Scapa Flow harbour limits) but that the baseline included consideration of related ballast water transfer elsewhere. Some supporting text suggests that the baseline is no discharge anywhere and it is not always clear whether the effects considered relate only to the Policy area or the wider environment. This lack of consistency means comparisons between assessments cannot always be drawn.	The baseline covers the geographic scope of the wider area (Orkney Islands surrounding waters and northern North Sea). The environmental assessment has been undertaken for this wider geographic area.
	If the assessment considers the wider environment, not just the effects on Scapa Flow, SEPA would suggest that policies which propose the discharge of similar volumes of untreated ballast water anywhere could have similar effects.	The IMO BWM Convention requires significant improvements in BWM management practice (e.g. Regulation B and E). These BWM improvements will support the attainment of high quality ballast water.
	SEPA suggests Options E and F, which provide treatment, would have a more positive effect against this SEA Objective than Option A, which currently would not include treatment.	Option A is for exchange plus treatment (whenever available). Exchange on its own can be as effective as treatment although less reliable. Alternatives E and F, whilst treating will reduce organisms it will not remove all organisms. As thousands will be released it cannot be neutral and therefore falls into the same category as exchange.
	SEPA would have welcomed if the assessment considered the issue of potential effect introduction of non-native species could have on the ecological status of local water bodies, outlining the risk of downgrade of water bodies.	OICHA recognise that "*where SEPA determines that an invasive NNS listed in Table 4 below"* (this table sets out 9 target species for transitional and coastal waters) *"is present and reproducing successfully in a transitional water body or coastal water body and the area of the water body in which the species is present is greater than the spatial standard for high status specified in Section 3 of Schedule 4 of the Standards Directions, the highest classification of ecological status or ecological potential SEPA shall assign to the water body shall be good*" . This is set out in The Scotland River Basin District (Classification of Water Bodies) Directions 2009 (SEPA, 2009). While the text on the

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		WFD does not explicitly mention NNS, the European Commission, the UK Government and UK Technical Advisory Group (UKTAG) have agreed that alien species should be considered as a pressure on water bodies that need to be considered when implementing the WFD. The Policy contains various measures to mitigate the risk of NNS introduction, including exchange of ballast water and treatment. In addition, the BWM Convention requires compliance with numerous management practices, surveys and maintenance which are all designed to reduce the risk of NNS introduction. Any vessel with onboard treatment will be required to use it in addition to exchange. Both will reduce the concentration from the undiluted levels currently discharged. This will reduce the number of organisms discharged in the Orkney Islands coastal waters (including Scapa Flow) thereby reducing the risk of introduction across the area.
	The assessment should have acknowledged that any form of exchange, especially when located in relatively shallow seas, is a relatively high risk approach.	The IMO BWM Convention allows for other sea areas to be designated for Ballast Water Exchange (Regulation B-4.2) taking into account the guidelines for the areas in section 1 of the same regulation. This is what has been done in the case of the EEZ. SEPA use the word relative in this response but do not state to what it is relative. The SEA uses a clearly stated regulation from the IMO as an absolute basis for use of best practice and available technology.
	SEPA suggests the assessment should have more clearly considered the fact that once non-native species are introduced they are very hard to control or eradicate.	The Environmental Report highlights that the presence of any NNS are likely to be irreversible and have significant effects on the environment. Therefore it is preferable to prevent their arrival through management. This is the intention of the BWM Policy.
	SEA Objective 5 – SEPA suggests if the assessment only considers the affect on Scapa Flow harbour limits, SEPA suggests any policy supporting any type of ballast water discharge within the policy area would have a more negative effect than any approach which excluded discharge in the area. Concentrating discharges into specific areas increases the risk of degraded water quality. However, if the assessment considers wider environment, SEPA would suggest policies which propose the discharge of similar volumes of untreated ballast water anywhere could have similar effects.	SEA objective 5 relates to salinity, oils, metals and chemicals. Alternative A is for ballast water exchange and immediate treatment upon availability – even if this is before BWM Convention ratification. Exchange will provide discharged water of similar composition in terms of salinity (and other factors if taken from the EEZ). Ballast water receiving treatment only (e.g. Alternatives E and F) may be of a different salinity and chemical composition depending on their origin. In addition treatment may not address oils, metals and salinity.

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	SEA Objective 6 – SEPA agrees that Option C, which requires ships to depart Scapa Flow to discharge un-exchanged ballast water, is likely to be the most negative of the options in relation to the SEA Objective 6. However, SEPA highlights that less stringent approaches to ballast water treatment could result in the potential increase in marine traffic in Scapa Flow from ships diverting from other ports to take advantage of the reduced ballast water management requirements.	The likelihood of this happening is very remote. The adopted BWM Policy requires higher standards i.e. (exchange plus treatment) than those set out in the Convention (i.e treatment only). The adopted policy is likely to be more stringent than the vast majority of ports in Europe. Therefore there would not be a commercial reason for ships to divert to Scapa Flow. In addition, at present there is no regulation that would prevent any vessel discharging ballast water in the international sea areas around Orkney i.e. anywhere outside the Harbour Area. Therefore, again, there would be no reasons for a ship to enter Scapa Flow just to discharge ballast water.
	SEA Objective 7 – suggests that the disposal of untreated ballast water with associated sediments and any other pollutants at sea should be considered the lowest option in a waste hierarchy. Suggest that Option E, which includes the recovery and treatment of waste, is the highest option in the waste hierarchy and therefore should score positively against this Objective.	The assessment of Objective 7 was revised in the last release of the Environmental Report to take account of this comment. Common worldwide practice is ballast water disposal; this uses the best available technology not entailing excessive cost (BATNEEC). Disposal is therefore the best practical environmental option. Limited quantities of waste will inevitably be produced by treatment of ballast water whichever approach is used. Waste by-products (e.g. sludge) should wherever possible be reused or recycled. Alternative A includes improved management practices (Regulation B) and survey and certification (Regulation E).
	SEA Objective 10 – no evidence seems to have been presented which demonstrates that the current policy is having a negative effect on the local economy. As a result, SEPA suggests it is not clear that Option C has a significant negative effect against SEA Objective 10. SEPA suggests building new shore based treatment facilities (Option E) would have the most positive effects against this SEA Objective as it would secure new jobs and ensure protection of local fish farm and aquaculture businesses.	In council report it states "*The business case has been shown which clearly indicates a drop in Ship to Ship (in particular) work in Scapa Flow which is due to having a BWM policy that increases cost and the risk to vessels*". The report and previous reports to Committee and Council show that the number of STS operations has decreased over the recent years. The world price for chartering oil tankers has an effect on this, but in local terms the delay incurred by the previous BWM Policy lead directly to a large increase in costs – not acceptable to the owner / operator of the vessels involved, noting that there are at least two vessels for every STS operation. It is very clear that a reduction in STS operations reduces revenue both to the Harbour Authority and private contractors and operators in Orkney, hence the negative effect on the local economy. Consideration of a shore based facility is covered in the documentation submitted to the Policy and Resources Committee on 14

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		November 2013, but in essence this would be a very short term solution, as once the IMO Convention is in force vessels would have treatment systems fitted and the shore facilities would therefore not be required.
	Explanation of Direct and Indirect Effects – terminology used in paragraph 4.3.2.1 appears to suggest there is no original ballast water discharged into Scapa Flow. The D-1 exchange standard asks for three exchanges of ballast water, resulting in an average of 95% of the original ballast water being removed. This leaves a percentage of the original ballast water present in the discharge.	Noted. The BWM Convention requires ballast water exchange to demonstrate an efficiency of at least 95% volumetric exchange. This is made clear in the Environmental Report.
	SEPA welcomes the proposals for monitoring and reporting but this is not mitigation. SEPA would welcome it if in relation to SEA Objective 1 mitigation included a commitment by the Council to try and eradicate any high risk marine non-native species that are found during the monitoring. SEPA also welcomes our approach of providing an assessment of the proposed approach following implementation of the proposed mitigation measures.	The final Policy clearly states that in the event of a NNS detected in Scapa Flow the GB NNS Secretariat will be informed and that the Council will follow their advice on the way forward. This is the national procedure for all NNS found in new areas. The Policy clearly states that the OICHA will follow the advice of that body. Hence this response has been covered within the Policy.
	SEPA welcome the new monitoring proposals outlined for marine non-native species.	Noted.
	Monitoring – as there is low water exchange in Scapa Flow at the proposed discharge point locations, the revised Policy could result in an accumulation of pollutants in that area and smothering of the sea-bed. As a result, SEPA suggests regular survey in these areas.	The monitoring and reporting part of the BWM Policy contains an annual survey at set points, there is a monthly salinity measurement taken in the general area of STS operations and OICHA are working with SEPA who undertake sediment sampling every three years.
SEPA - 30 April 2013	**Draft Policy Comments**	
	SEPA considers that the revised policy increases the risk of introducing marine invasive species into the water bodies in the area. Such discharges would also introduce chemical and physical pollutants which are currently avoided by the present policy. Even diluted to 5% of its original concentration, the discharge of ballast water at a single point within an enclosed sheltered water body presents an increased risk in comparison with the dispersed discharge in open dynamic waters. As a result, SEPA cannot support the revised policy.	The SEA provides no comparative assessment of 5% discharge to Scapa Flow compared to 100% in open dynamic waters. OICHA has made clear to SEPA that it would be pleased to see SEPA's calculations to support their opinion. The subsequent Appropriate Assessment does provide impact assessment for the current policy, although it is only the adopted policy that is subject to Appropriate Assessment. These calculations show that risks within Scapa Flow are similar in terms of the number of organisms entrained within the Flow, although the distribution throughout Scapa Flow varies between the current policy and the adopted policy. However, the current policy discharges 100% of the organisms taken up from the source port close to Scapa Flow and within

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		the immediate coastal waters of the Orkney Islands. In contrast, the adopted policy discharges only 5% of these organisms to the coastal waters of the Orkney Islands, which is clearly a lower risk.
	SEPA welcomes the inclusion of Annex 5 to the revised policy, which is well researched, provides useful information and SEPA is supportive of the monitoring proposals.	Noted.
	Monitoring has identified the presence of *Schizoporella japonica*, which is currently unclassified in relation to environmental risk. Should this species be identified as of high-environmental risk then it is likely it will have an affect on future water body classification.	Noted.
	We welcome the inclusion of the Contingency Plan and consider the division of the proposed actions between high risk species and other species to be a reasonable approach.	Noted.
	We note that no mitigation (only recording and reporting) are proposed in relation to "other non-native species". If the Council intend to adopt the revised Policy, SEPA asks that it includes the proposed measures to prevent further establishment of high risk species.	The monitoring and reporting part of the BWM Policy contains a list of high risk species and how this will be kept up to date. As for "other non-native species" as there are thousands of these world-wide it would be totally impossible to look for everything – but the Marine Environment Unit of the Harbour Authority are in regular contact with Marine Scotland and other national bodies to ensure that all relevant non-native species are known about and considered. It should be noted that all species are identified in the samples collected as part of the monitoring programme. The Policy clearly states that the OICHA will follow the advice from the GB NNS Secretariat.
	The revised Policy includes no commitment for the Council to try to eradicate high risk species from the area, yet SEPA highlighted in previous response that this is considered to be the only possible acceptable mitigation. SEPA would therefore want this mitigation added, if the Council adopts the revised Policy. Council should be aware that eradication is very difficult and costly and likely impossible to achieve in full. Therefore, the Council should focus on pathway management and prevention of marine non-native species, especially those considered to be of high risk.	The adopted Policy clearly states that in the event that a NNS is detected in Scapa Flow that the GB NNS Secretariat will be informed and that the Council will follow their advice on the way forward. This is the national procedure for all NNS found in new areas. OICHA will follow the advice from the GB NNS Secretariat. Hence this response has been covered within the BWM Policy.
	There is no information or data provided either in the Policy or the Environmental Report to support the view that it is the policy that is causing a decrease in trade.	Table 2.1 in the Environmental Report shows decline in STS trade in recent years.

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SNH - 30 April 2013	**Environmental Report Comments** Advice focuses on aspects of the revised Environmental Report that are core to SNH's remit, primarily biodiversity, flora and fauna.	Noted.
	This Environmental Report is much improved on the original 2010 report by Cascade and addresses a number of SNH's previous concerns. In particular, the removal of the Sustainability Appraisal, better description of the environmental baseline and adoption of a standard baseline against which to assess policy options. Definition of non-native species – it is incorrect to define non-native species that are already present within the North Sea as "local" species. The term "local species" should not be applied to species (e.g. *Styela clava*) that were introduced to the UK and are now spreading either naturally or through further human agency within the UK waters. Alternatives considered – SNH questions the exclusion of Option B (onboard treatment of ballast water) on the grounds of technical feasibility. As of June 2012 the USA is phasing in mandatory treatment standards for ballast water discharge within its territorial seas and has developed an associated approval process for existing ship-based ballast water treatment systems. A key driver for this is the uncertainty of exchange as an effective safeguard against introduction of invasive non-native species.	Noted. The term "local" was used in a non-scientific way to refer to species living near-by rather than "scientifically" native to the area. Wording was amended in the next Environmental Report revision to avoid misunderstanding. Alternative A is for immediate treatment if it available on the vessel. Exchange only is used only if the vessel does not have treatment. It simply recognises that at present only a small percentage of vessels carry on-board treatment. This percentage will increase with time – particularly after BWM Convention ratification but it will be some years before all vessels have on-board treatment. New vessels will have treatment. Alternative B assumes all vessels already have treatment – which the vast majority do not. Therefore, a blanket policy for on-board treatment cannot be implemented immediately. The USA have stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that

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		virtually all tankers visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The adopted BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	Approach to assessment – SNH does not support the definition of "significance" in terms of magnitude of effect combined with likelihood of occurrence. Magnitude of effects should be considered against the ecological sensitivity and/or protected status of receptors. This is particularly important in this instance as any establishment of invasive non-native species originating from ballast water may cause permanent and irreversible effects to sensitive receptors (including Natura sites). There are also some inconsistencies in scoring both within and between the options assessment.	The assessment methods used in the SEA follow the guidelines set out in the Strategic Environmental Assessment Tool Kit produced by the Scottish Executive (2006). While magnitude and likelihood were considered in the assessment of effects they are not the definition of significance, they instead feed into the assessment. In predicting and evaluating the significance of an impact a number of criteria were considered, including geographical extent of the effect, duration of the effect, reversibility of the impact, sensitivity and importance of environmental receptor and value of the receptor. Section 4.2.1.1 of the SEA ER states clearly that the sensitivity or importance of a location or environmental receptor are considered in the assessment of effects separately from the assessment of likelihood and magnitude.
	Assessment conclusions - In light of concerns raised, SNH has limited confidence in overall conclusions of the SEA. In particular, the conclusion that the preferred policy (Option A) would exert negative impacts of the same or lesser significance on biodiversity, flora and fauna as Options E or F. Unlike Option A, both Options E and F would implement treatment of ballast to Convention standards without discharge of raw/unexchanged ballast to either Orkney waters or the proposed EEZ.	Alternative A is for immediate treatment if available on the vessel regardless of the BWM Convention implementation schedule (i.e. prior to ratification). It follows that on-board treatment cannot be provided if it does not exist on the vessel. Exchange alone is used only if the vessel does not have treatment. Exchange can produce results as good as or better than treatment (as in analysed water sample data from LNG exchange undertaken in August 2013), however it is less certain than treatment. Options E and F include treatment that will reduce organisms but will not remove them all. Therefore, these options must have a negative impact – albeit a minor one. Option E – shore based treatment would also impact the habitat where the treatment facilities are constructed.
	SNH welcomes the recognition of the needs for a non-native species monitoring plan, but note that monitoring is not in itself a mitigation measure.	Noted. The Environmental Report includes a detailed table of measures to prevent, reduce and offset any significant adverse effects or enhancements (mitigation measures) separately to details on monitoring

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		the BWM Policy and NNS presence.
	The revised ER is clearly written and includes all the elements required by the Environmental Assessment (Scotland) Act 2005.	Noted.
	SNH supports the results of the original scoping of SEA topics (Table 1.4)	Noted.
	Report refers to JNCC's review of marine non-native species in British waters, which identified 51 species. A more recent (2012) review identified 74 established marine NNS of which 40 have been introduced in ballast or ships hulls. The introduction pathway for the other 26 is unknown.	The Environmental Report has been updated with this latest information.
	The list of biodiversity, fauna and flora plans, policies and strategies in Appendix C appears comprehensive with exception of the recommended list of Scottish Priority Marine Features (PMF).	Scottish Marine Nature Conservation Strategy which includes development of a list of Priority Marine Features (PMF) has been included in the revision of the Environmental Report.
	The statement under both Communication 'Towards an EU Strategy on Invasive Species' (EU COM (2008) 789) and Wildlife and Natural Environment (Scotland) Act 2012 that "The Policy will implement a monitoring programme so that early detection and eradication can be ensured" would have been better expressed as "The Policy will implement a monitoring programme to assist early detection of NNS to improve chances of eradication."	We welcome and concur with SNH's comment. Prevention is preferable to eradication therefore the BWM Policy will implement international best practice management techniques to ensure the arrival of NNS is reduced to a minimum.
	The text relating to the Marine Strategy Framework Directive could usefully have highlighted that one of the descriptors for GES is non-indigenous species	Noted. The revised Environmental Report has been amended to include this statement.
	In the summary of PPS in Table 3.1, the statement "protect designated sites including SACs, SPA, Ramsar sites and SSSIs from adverse effects" would have been better split into two sections.	The revised Environmental Report has been amended to address this.
	The description of the environmental baseline is much improved on that in the original ER (Cascade, 2010) and the section on data limitation (3.3) is useful.	Noted.
	The list of designated sites and features in Table D.2 appears comprehensive, with exception of	Noted. Solan Bank reef cSAC was omitted from the table, as it is outside

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	Solan Bank reef cSAC.	the geographical extent of the baseline data and assessment.
	The map of otter sightings at Figure D 7 is somewhat misleading as the distribution of sightings reflects observer bias. It should be assumed that otters occur throughout coastal areas of Orkney.	Noted. The revised Environmental Report has been amended to include this statement.
	Text on p.23 of the main report is somewhat misleading with respect to possible future SPA status of Scapa Flow. Scapa Flow is an AoS, so has not been "recommended" for SPA status, but the possibility of it becoming an SPA would not be dependent upon it meeting the criteria for a waterbird assemblage.	Noted. Text has been amended to reflect this.
	The description of seabirds at section 3.2.1.3 (p. 22) and section D.1.3 (p. D-43) does not make a clear distinction between broadscale patterns of distribution in the North Sea and the importance of Orkney coastal waters to seabirds breeding at the colonies around the islands.	Noted. The text on individual SPA's identifies the importance of the areas as breeding grounds of seabirds.
	The sections on marine species and habitats of conservation importance should have been compiled with reference to the recommended Scottish PMF list.	Noted. References to the habitats and species on the PMF list are added where applicable.
	There are some instances of imprecise wording in sections 3.4 and 3.5.	Sections 3.4 and 3.5 were reviewed during the latest release of the Environmental Report and numerous changes were made.
	SNH notes that both the cross-ballasting (Option G) and discharge of ballast to the on-shore facilities at Flotta (Option H) have now been excluded as not technically feasible. We question the exclusion of Option B (treatment of ballast water to Convention standards) from the assessment on the grounds of technical feasibility.	Alternative B assumes all vessels already have treatment – which the vast majority do not. Therefore, a blanket policy for onboard treatment cannot be implemented immediately.
	Option F (floating treatment to IMO standards) is not clearly defined. Table 4.1 simply states that treated ballast would be discharged to sea, whereas the assessment of this option (4.3.2.5) implies that discharge would be outwith Scapa Flow.	Noted. Please add a response.
	It is unclear how the importance of receptors fed into the environmental assessment methodology.	The assessment methods used in the SEA follow the guidelines set out in the Strategic Environmental Assessment Tool Kit produced by the Scottish Executive (2006). Section 4.2.1.1 of the SEA ER states that the sensitivity or importance of a location or environmental receptor are considered in the assessment of effects separately from the assessment

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		of likelihood and magnitude.
	In line with the BWM hierarchy set out by the Convention, exchange within shallow sea areas such as the proposed EEZ is a relatively high risk approach to BWM. Given the relative efficacies of treatment and exchange, we also question the equivalence of the assessment scores for SEA Objectives 1 and 2 under Options E and F (shore-based or floating treatment to IMO standard) and A (exchange within EEZ and discharge of exchanged water to Scapa Flow pending implementation of Convention treatment standards). We would regard Option A as carrying greater risk of NNS introduction and associated impacts. The assessments of SEA Objective 2 under Options A and D state that *"potential NNS....are unlikely to survive in the water long enough to reach designated sites"*. This does not accord with the modelling work previously carried out to support Appropriate Assessment, which indicated that ballast water discharged at STS sites within Scapa Flow could be passively transported to the Loch of Stenness within timeframes (9-26 days) within which some INNS could remain viable. This assessment also ignores the risk of stepping stone transfer of NNS within Scapa Flow.	IMO provides a tiered system for choosing ballast water exchange locations under Regulation B-4. Vessels approaching from the west will take full advantage of the western geography, undertaking remote deep water exchange in accordance with Regulation B-4, 1.1. The east simply does not offer the same geographical expanse meaning that an exchange zone must be defined in accordance with IMO Regulation B-4,2. Exchange is recognised as the best available technology in the absence of, or prior to the availability of, treatment. The AA indicated that exchange and treatment would have similar impacts. Comparison between the two modelled plumes indicated that the exchange only plume covers a slightly larger area than the extent of the treatment plume. Superseded in the AA, P1565H_RN3165_Rev2. Also the assessment has not ignored active transport. Rather it is accounted for in the four step precautionary approach that has been taken: - Quantify what we can (i.e. passive transport) under conservative/pessimistic parameters. - Compare impacts to established standards (e.g. Regulation D-2). - Calculate how much worse things would have to be through active transport to approach the standards. - Decide whether it is reasonable to assume that things could get that much worse. Results from the Appropriate Assessment P1565H_RN3165_Rev2 show that active transport would need to make things approximately five million time worse to approach the D-2 standard at the Loch of Stenness SAC. This would also involve organisms moving against the prevailing current.

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		The risk of stepping stone transfer (i.e. part of active transport) is of unknown magnitude and cannot be predicted with certainty (i.e. it is an unknown biological risk). Therefore, this was taken into account through use of the precautionary approach, which incorporated reasonable worst case scenario modelling.
	The relative significances of potential impacts on objectives 1-4 varies considerably among assessments (see e.g. Options A, C and G), which suggests some inconsistency in assessment of the impacts on these receptors from any introduction of NNS.	All of the BWM alternatives were assessed consistently. The individual assessment conclusions are explained in Appendix E of the Environmental Report.
	The relationship between BWM policy and likely volume of STS operations is critical to the assessments of impacts on a number of SEA Objectives. More supporting information concerning likely levels of increased STS traffic under the various Options would have been valuable to support the assessments.	The number of STS operations is dependent on market conditions at any one time. As per the whole project a worst case scenario has been applied and the details used have been based on 52 STS operations per annum i.e. one a week. This is far in excess of what has been carried out in the past and a more likely a more likely estimate would be 30 to 35 per annum.
	Policy options A and C both entail discharge of raw ballast to shallow seas or coastal waters, but in the assessments this is only highlighted in relation to Option C. The commentary to the assessment of risk of introduction of NNS (SEA Objective 1) under the proposed new policy (Option A, p.E-3) makes no reference to potential introduction of NNS to the proposed EEZ.	The exchange of ballast water within the EEZ will lead to the release of NNS into the North Sea. Marine modelling of this process was undertaken as part of the AA. The results showed that in all occasions the concentrations of NNS (zooplankton and phytoplankton) were lower than the IMO BWM Convention Regulation D-2 Standard. Given the relative volumes between a ships ballast water and the volume of the North Sea significant dilution will occur.
	SNH has limited confidence in the overall conclusions of the SEA. This is due to concerns about choice of alternatives, definition of significance and apparent inconsistencies in application of the assessment framework. SNH questions the assessment of Option A as potentially exerting the same or lesser significance of impacts on biodiversity, flora and fauna interests as Options E or F.	Alternative A is for immediate treatment if available on the vessel regardless of the BWM Convention implementation schedule (i.e. prior to ratification). Exchange alone is used only if the vessel does not have treatment. Exchange can produce results as good as or better than treatment (e.g. LNG exchange undertaken in August 2013), however it is less certain than treatment. Options E and F include treatment that will reduce organisms but will not remove them all. Therefore, these options must have a negative impact – albeit a minor one. Option E – shore based treatment would also impact the habitat where the

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		treatment facilities are constructed.
	SNH welcomes the proposal to implement a NNS monitoring plan and reporting protocol; however monitoring is not in itself a mitigation measure. NNS may be very difficult to remove or manage once established. However we would welcome a stronger recognition of the Harbour Authority's duties with respect to implementation and funding of mitigation measures in such an event; for example in the form of a statement of mitigation clearly setting out responsibilities for implementation and funding of mitigation measures. SEA process questioned, following issue of the addendum to the ER in February 2012 it was stated that, following technical review of the original ER, it had been decided by the Responsible Authority that "the most effective way forward was to produce an Addendum to the ER as opposed to revising the original document" and that the addendum "will also complete OIC Marine Services commitments under the Environmental Assessment (Scotland) Act 2005". We would have welcomed an explanation of the subsequent decision to issue the revised ER.	Noted. The adopted Policy clearly states that in the event that a NNS is detected in Scapa Flow that the GB NNS Secretariat will be informed and that the Council will follow their advice on the way forward. This is the national procedure for all non-native species found in new areas. OICHA will follow the advice from the GB NNS Secretariat. Hence this response has been covered within the BWM Policy. The reason for the full revision of the Environmental Report, in March 2013, was due to some apparent confusion within consultees (as a whole not specific to SNH) and resulted in pulling previous documentation into one publication for completeness.
SNH - 1 May 2013	**Draft Policy Comments** The proposed policy has potential to exert significant impacts on natural heritage interests of national importance through incidental introduction of marine non-native species to Scapa Flow. We welcome the inclusion in the revised policy of a monitoring and recording system for marine non-native species (NNS) and offer advice on some technical aspects of this at Annex A.	Noted. This is acknowledged in all the reports. Phase 1 of the baseline survey for NNS was carried out between 25th February and 4th April 2013. This advice was received on 1st May 2013 i.e.: after Phase 1. Items raised in this letter and Annex A are noted – but the Monitoring and Recording programme is a flexible document as stated. The monitoring programme document states that *'after each monitoring year the survey methods and frequency will be reviewed in light of the results. This document will be review annually to comply with any new national or international recommendation. The target species list will be reviewed and amended in according to any new guidelines.'* In light of this, and as per the programme along with baseline survey results, it is highly likely that modifications to the system and programme will be submitted to Orkney Marine and Environmental Pollution

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
		Committee for their consideration in spring 2014.
	We advise that there should be a greater emphasis within the policy on contingency planning and a clear statement of the Harbour Authority's roles and responsibilities in event of detection of marine NNS.	The adopted Policy clearly states that in the event that a high level non-native species is detected in Scapa Flow that the GB Non Native Secretariat will be informed and that the Council will follow their advice on the way forward. This is the national procedure for all non-native species found in new areas. OICHA will follow the advice from the GB NNS Secretariat. Hence this response has been covered within the BWM Policy.
	We reiterate our earlier advice that the proposed policy and in particular the discharge to Scapa Flow of ballast water exchanged within the EEZ or coastal waters (LPG carriers) risks introduction and establishment in Scapa Flow of marine non-native species. Such introductions could exert significant impacts on natural heritage interests, including the nationally important qualifying interests of Loch of Stenness SAC.	Noted. OIC recognise that there is risk from any policy, however small. Therefore, the adopted policy seeks to reduce this risk as far as reasonably possible. Overall, these measures exceed those associated with the current policy which evidence suggests has not resulted in any catastrophic environmental events. For example, in the case of the adopted policy, exchange is carried out as remotely from Scapa Flow as is practical; the volumes of exchanged/treated ballast water discharged are being kept to minimum, treatment will be mandatory for any vessel carrying on-board treatment regardless of whether it is a legal requirement (i.e. the policy does not wait for ratification of the IMO BWM Convention); both exchange and treatment are required (which exceeds the Convention requirements); and best management practices will be introduced in accordance with IMO BWM Convention.
	We welcome the inclusion at Annex 5 of the revised policy of a monitoring and recording system for marine non-native species (NNS). SNH supports the addition of plankton sampling and the use of winter and summer sampling to establish the NNS baseline.	Noted.
	SNH has concerns about the proposed reduction in sampling frequency for the ongoing monitoring, particularly as a key objective of the monitoring should be to trigger an appropriate and timely response to the introduction of NNS. SNH advises that contingency planning needs to be further developed. The Harbour Authority's role and responsibilities in the event of any introduction of NNS needs to be set out.	During planning of our 'Monitoring and Recording System' advice was sought from well-respected and known NNS specialist in Scotland (the Scottish Association for Marine Science). The advisor did not see a need to necessarily have a winter sampling included in our monitoring programme.

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	In addition to receiving six-monthly reports on the monitoring programme, via the Orkney Marine Environment Protection Committee, SNH should be alerted immediately to the discovery of any new NNS, including but not confined to species currently classified as high risk.	Noted. The reporting and monitoring document will be reviewed and this can be taken into account during that review process.
RSPB - 1 May 2013	RSPB considers the SEA has inadequately assessed the effects on the environment of the proposed revised BWMP. RSPB's concern focuses on the potential environmental impacts of introduced non-native species (NNS) on the natural heritage of Scapa Flow and surrounding waters.	Noted.
	The assessment of the potential likely significant effects of the revised BWMP on integrity of European designated sites remains inconclusive. The site of relevance is the Loch of Stenness SAC. RSPB Scotland holds serious reservations over the methodology of the Appropriate Assessment and hence OIC's conclusions of *'no adverse effect'* on integrity of the Loch of Stenness SAC.	The assessment methodology of the AA has since been revised in consultation with SNH and they recognised the extent and value of the technical work undertaken in the HRA and have indicated that they are satisfied with the new hydrodynamic model and that it indicates a low risk of direct passive transport of NNS in ballast discharged in Scapa Flow to Loch of Stenness SAC, however they remain unable to advise that it can safely be concluded that implementation of the proposed policy will not adversely affect the integrity of the Loch of Stenness SAC.
	The parallel HRA process and its conclusions are integral to this SEA and should therefore be included. As such, RSPB Scotland considers the effects on the environment are inadequately assessed in both cases.	Noted. The process followed for the SEA and the HRA – including their reporting, are in accordance with statutory requirements, and government guidance. The SEA by definition is undertaken at a strategic level and the AA (i.e. as part of the HRA process) considers the preferred option in detail.
	Request that our concerns relating to the SEA/ Environmental Report and detailed in Annex 1 (summarised below) are addressed through finalisation of the SEA process.	Noted. OICHA responses to individual concerns are set out below.
	Question the description of Scapa Flow as a "naturally deep water harbour". In section 3.2.4.2 of this report Scapa Flow is described as "a relatively shallow inland sea, with an average water depth of 30 m-35 m".	Scapa Flow is both a naturally deep water harbour and a shallow inland sea.
	It ought to be stated that some organisms have also been known to bloom and breed and so increase in numbers during transit in ballast water tanks.	It is acknowledged that some species have the ability to breed within transit.
	It should be clarified that over 200 STS have occurred but without any ballast water being released directly into Scapa Flow harbour limits in accordance with the existing policy.	This is stated within the Environmental Report (section 3.2.6).

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
	If it was the IMO Convention that initiated the OIC proposed change to the BWM Policy we question why the proposed policy will not be immediately compliant with the changes that the IMO Convention will implement – the adoption of stringent D-2 standards that will require treatment of ballast water prior to release.	Alternative A is for immediate treatment, if available on the vessel. It simply recognises the BWM Convention implementation schedule. New vessels will have treatment. Alternative B assumes all vessels already have treatment – which the vast majority do not. Therefore, a policy for onboard treatment cannot be implemented immediately.
	With respect to potential negative impacts we question why impact on infrastructure (including port infrastructure) has not been included. One of the main economic impacts of Zebra Mussels in the USA has been the impact on industrial infrastructure.	It is acknowledged that NNS can pose an impact on infrastructure,; as a result buoys and wrecks are included within the OICHA monitoring and recording programme for marine NNS in Scapa Flow.
	The main alternative missing from this assessment is to require ships to exchange and treat with immediate effect, a policy now adopted by the USA. Unlike the proposed policy, this would be immediately fully compliant with the IMO Convention D2 Standards (along with Shore-based and floating treatment) but would not require additional infrastructure. Whilst the USA has adopted this policy OIC have deemed this not currently technically feasible.	The USA have stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The adopted BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	It should be stated that under D-1 standards a designated exchange zone is the IMO's least preferred option. The EEZ is less than half of the recommended depth and at its limits considerably less than 50 miles from land. Depth within the Exchange Zone is required to decrease the likelihood that source organisms, taken up in shallow port areas, will survive in the exchange zone area.	The EEZ conforms to the IMO Convention Regulation B-4-2. The geography of the North Sea simply does not offer the depths and distances of Regulation B-4-1 meaning that an exchange zone must be defined in accordance with IMO Regulation B-4-2. Vessels approaching from the west will take full advantage of deep oceanic waters for their ballast water exchange.

Consultee/Respondent	Summary of Comments	How the Comment was Taken into Account or Reason for not being Taken into Account
	We also question why shore-based or floating treatment would have a greater environmental impact than the proposed policy. Ballast water exchange alone does not satisfy the D-2 standards unlike approved treatment methods. Therefore, any policy relying for any time period on exchange only will have a greater environmental impact during this phase.	The BWM Policy will require vessels to undertake exchange and treatment (once available onboard), and therefore provides environmental protection beyond that of treatment alone. Exchange can in fact produce water quality equivalent to or better than treatment. However, it is less certain than treatment. In either case there is a residual of organisms that will be discharged. Therefore, there will be some impact in either case – categorised as minor negative in the SEA.
	The statutory agency SNH, as a specialist government advisor, has clearly stated that with the proposed policy, the likelihood of significant effects on protected habitats and species cannot be ruled out. Therefore, the conflicting statement in this section is misleading and incorrect and should be removed or SNH concerns explained.	BWM activities are restricted spatially and temporarily to ensure that impacts on protected habitats and species are minimised. Compared to the baseline of no STS shipping activities for two years the predicted effect is negative. The likelihood of significant effects is considered to be low due to discharge post exchange and treatment.
	Studies have shown that exchange is not effective at removing sediments or species, even though 95-99% of water may be exchanged by a flow through Ballast Water Exchange Standard, due to dead spaces within tanks, inability of pumps to remove sediment sludge and the ability of species to swim away from pumps. Therefore, impact on benthic communities and risk of NNS establishment should be re-assessed.	In addition to modern ship design and exchange, the IMO BWM Convention requires numerous management practices to improve the management of ballast water, including sediments (Regulation B and E). This includes a strict ballast water management plan for each vessel that includes for ballast tanks to be inspected and cleaned (if necessary) on a regular basis. Thus reducing the risk of sediment discharge to a minimum.
	We also question the estimated impact on biodiversity as it is our understanding that OIC have yet to model the cumulative impact of ballast water releases from the desired number of STS operations.	The cumulative modelling assessment scenario was for simultaneous STS and LPG releases (one per week), and Flotta Oil Terminal Ballast Water pipeline discharging twice a week. This is based on realistic worst case data from OICHA predictions.

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	Question the lack of impact on water as studies show that BWE is not effective at removing sediment, especially with the flush through method.	The SEA Objective for water is "Minimise impacts on water quality in terms of salinity, oils, metals or chemical contamination". As the BWM Policy will implement exchange and treatment (when available) this will ensure that any metals and chemical contaminations picked up from destinations during ballast water uptake are reduced through flushing during exchange. Exchange within the EEZ will also ensure ballast water discharges are of a similar salinity to that of Scapa Flow. See above for note on sediment.
	We question the positive impact on human health. There are a number of INNS known to have been transferred by ballast water that have a negative impact on human health, including strains of cholera, *Styela clava* (respiratory disease) and *Alexandrium spp* (PSP Toxins).	There is a positive impact predicted on human health because safety precautions suggested by BWM Convention and MARPOL are applied in the BWM Policy. This will significantly benefit the SEA objective in being met. Exchange/treatment minimises risk for human health as IMO Regulation D-2 specifies strict standards on indicator microbes for human health, therefore ensuring strict human health standards. The BWM Policy will implement this standard.
	With reference to nutrient loads, exchange only may not effectively remove sediment and therefore may affect nutrient loads.	See above for note on sediment.
	Compliance with the IMO Convention will ensure likelihood of introduction of NNS is reduced but only when the policy complies with it, not when it is only following the temporary D-1 standards which it proposes to do until the Convention is ratified. Therefore, mitigation should be assessed for the first phase when following D-1 standards with consideration of the fact that the policy is adopting the least favourable Exchange Zone option.	The BWM Convention D-1 standards for ballast water exchange are not temporary. The IMO has recommended D-1 as an effective method of BWM until treatment systems are available. See the above note on the designation of the EEZ.
	We do not believe that spatially restricting activities within Scapa Flow – such as discharge sites will offer any protection for designated sites or species. Documented spread of INNS by biological dispersion show that the whole of Scapa Flow can easily be invaded once a species is established within a couple of years. *Mnemiopsis leidyi* has recently spread through the Baltic Sea over a course of 5 years.	Any vessel with onboard treatment will be required to use it in addition to exchange. Both will reduce the concentration from the undiluted levels currently discharged. This will reduce the number of organisms discharged in the Orkney Islands coastal waters (including Scapa Flow) thereby reducing the risk of introduction across the area. The spatial distribution of discharged ballast water plumes has been considered in the AA and presented in the form of contour plots. We recognised that these reflect only the passive transport of organisms (i.e. transport by currents and tides). Further risk exists regarding active

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		transport (i.e. organisms colonising and then moving under propelled motion such as swimming or walking). It is not practical or possible to predict with certainty the behaviour of individual species. However, it is possible to compare concentrations due to passive transport with established standards (i.e. The D-2 standard) and then test whether it is reasonable to assume that active transport could increase concentrations to this standard. Conservative parameters were used together with extreme sensitivity (i.e. exchange of 0% effectiveness up to the D-1 standard of 95% effectiveness). For impacts at the Loch of Stenness SAC, results showed that active transport would have to make things worse by a factor of between 5,000,000 (i.e. 0% exchange effectiveness) and 24,000.000 (i.e. following treatment to D-2 standard).
	OIC have already conducted a HRA for the Loch of Stenness SAC. SNH have confirmed that site integrity cannot be assured with the proposed BWM Policy and therefore that this policy is unlikely to comply with the EU Habitats Directive. As OIC are continuing with this policy we do not believe that they are adequately mitigating effects.	SNH has recognised the extent and value of the technical work undertaken in the HRA and have indicated that they are satisfied that the hydrodynamic model indicates a low risk of direct passive transport of NNS in ballast discharged in Scapa Flow to Loch of Stenness SAC, however they remain unable to advise that it can safely be concluded that implementation of the proposed policy will not adversely affect the integrity of the Loch of Stenness SAC. The Report considered by the Policy and Resources Committee on 14 November 2013 contained full details of the proposed Policy, mitigating measures, the SEA and HRA/AA documents as well as full details of comments raised by Statutory consultees and others. The Committee recommended "that, having regard to all the details, data, documentation, the Strategic Environmental Assessment and the Habitats Risk Appraisal / Appropriate Assessment contained within this report and its appendices, it has been ascertained beyond reasonable scientific doubt that the proposed Ballast Water Management Policy Statement for Scapa Flow, attached as Appendix 1 to this report, will have no adverse effect on the integrity of any European Sites". This recommendation was approved at the General Meeting of Orkney Islands Council on 10 December 2013 thereby the Ballast Water Policy for Scapa Flow was adopted.

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	SEPA, as statutory advisors on water quality, have already stated that the proposed policy is unlikely to comply with the EU Water Framework Directive due to a lowering of water quality due to increased NNS. As OIC are continuing with this policy we do not believe they are adequately mitigating effects.	While the text on the WFD does not explicitly mention NNS, the European Commission, the UK Government and UK Technical Advisory Group (UKTAG) have agreed that alien species should be considered as a pressure on water bodies that need to be considered when implementing the WFD. The Policy contains various measures to mitigate the risk of NNS introduction, including exchange of ballast water and treatment. In addition, the BWM Convention requires compliance with numerous management practices, surveys and maintenance which are all designed to reduce the risk of NNS introduction. Any vessel with onboard treatment will be required to use it in addition to exchange. Both will reduce the concentration from the undiluted levels currently discharged. This will reduce the number of organisms discharged in the Orkney Islands coastal waters (including Scapa Flow) thereby reducing the risk of introduction across the area. It is clear that the Policy will reduce the number of NNS discharged to the area.
	Whist a monitoring plan is essential as NNS can come from a variety of sources this is not considered to be an effective mitigation measure. There are very few examples of eradication of marine INNS following detection and those that have been conducted have almost entirely been within enclosed marinas where universal poisoning could be conducted.	The Marine Invasive NNS monitoring programme is intended to monitor and record NNS presence. This will ensure early warning and best advice is followed from the GB NNS Secretarial. Prevention is preferable to eradication therefore the BWM Policy will implement international best practice management techniques to ensure the arrival of NNS is reduced to a minimum.
	Given the shallow depth of the EEZ and hence risk of NNS establishment within this area we question what mitigation measures will be put in place in this area.	The exchange of ballast water within the EEZ will lead to the release of NNS into the North Sea. Marine modelling of this process was undertaken as part of the AA. The results showed that in all occasions the concentrations of NNS (zooplankton and phytoplankton) were lower than the IMO BWM Convention Regulation D-2 Standard. Given the relative volumes between a ships ballast water and the volume of the North Sea significant dilution will occur.
	If the revision of the BWM policy was driven by the aim of the IMO Convention, to prevent the spread of harmful aquatic organisms, as stated in table 1.1, we question why the proposed policy will not be immediately compliant with the changes that the IMO Convention will implement to achieve its aim – the adoption of D2 standards that will require treatment of ballast	The adopted BWM Policy is for immediate treatment, if available on the vessel. It simply recognises the BWM Convention implementation schedule. New vessels will have treatment. Alternative B assumes all vessels already have treatment – which the vast majority do not. Therefore, a policy for onboard treatment cannot be implemented

<table>
<tr><th>Consultee/Respondent</th><th>Summary of Comments</th><th>How the Comment was Taken into Account or Reason for not being Taken into Account</th></tr>
<tr><td></td><td>water prior to release.</td><td>immediately.</td></tr>
<tr><td></td><td>We question the claim that “under the existing policy, the practice of leaving Scapa Flow to de-ballast costs vessel operators time and money. Consequently, trade has decreased in recent years as operators choose to trade elsewhere” stated in table 1.1 We would be grateful to see the data that OIC have collected and analysed to support this claim and would appreciate an explanation for the huge variation in income from STS transfers between years to date.

We question why consultation responses to the ER Consultation in 2010 are not included in full as an Appendix in table 1.2.</td><td>The number of STS operations over the last 13 years has been included in the reports to Committee’s and Council throughout this project.
<table>
<tr><th>YEAR</th><th>STS OPS</th><th>OIL TONNAGE</th><th>LNG OPS</th><th>LNG TONNAGE</th></tr>
<tr><td>2000</td><td>34</td><td>3,681,885</td><td>0</td><td>0</td></tr>
<tr><td>2001</td><td>19</td><td>1,812,085</td><td>0</td><td>0</td></tr>
<tr><td>2002</td><td>11</td><td>926,399</td><td>0</td><td>0</td></tr>
<tr><td>2003</td><td>4</td><td>575,184</td><td>0</td><td>0</td></tr>
<tr><td>2004</td><td>15</td><td>2,660,841</td><td>0</td><td>0</td></tr>
<tr><td>2005</td><td>17</td><td>1,746,715</td><td>0</td><td>0</td></tr>
<tr><td>2006</td><td>8</td><td>993,759</td><td>0</td><td>0</td></tr>
<tr><td>2007</td><td>7</td><td>930,136</td><td>1</td><td>56,827</td></tr>
<tr><td>2008</td><td>10</td><td>582,097</td><td>0</td><td>0</td></tr>
<tr><td>2009</td><td>27</td><td>2,599,461</td><td>0</td><td>0</td></tr>
<tr><td>2010</td><td>17</td><td>942,629</td><td>1</td><td>8,128</td></tr>
<tr><td>2011</td><td>5</td><td>282,708</td><td>0</td><td>0</td></tr>
<tr><td>2012</td><td>0</td><td>0</td><td>0</td><td>0</td></tr>
<tr><td>2013</td><td>0</td><td>0</td><td>1</td><td>32,583</td></tr>
<tr><td>TOTAL</td><td>174</td><td>17,733,899</td><td>3</td><td>97,538</td></tr>
</table>
This clearly shows a drop in the number of STS operations (which in turn is income) based on the fact that there are a number of factors. An important one is the charter cost of oil tankers per day – this varies from day to day but has been as high as $100,000 per day to as low as $15,000 per day depending on world markets. Regardless of charter rates , operators will not want to spend any more time than absolutely necessary in port – therefore the additional time needed to comply with the original BWM policy causes additional expense, i.e.: STS operations have tended to go to locations where there is no ballast water delays. The huge variation in revenue is purely due to number of STS operations with the charge being based on amount transferred (subject to a minimum charge).

All comments are included in this SEA Statement.</td></tr>
</table>

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	We also question why consultation responses to the ER Addendum of February 2012 and HRA consultation responses have not been included or summarised within this report.	There were no consultation responses from the ER Addendum. HRA consultation comments are not required within the SEA under legislation
	As this SEA is required to determine the likely significance of effects on the environment and give regard to the effects on areas which have recognised international protection status, we consider that this should include consideration of HRA consultation responses. In particular, this should include the significant outstanding concerns of both statutory agencies SNH and SEPA, as government advisors, that this revised policy does not comply with two European Directives, the Habitats Directive and the Water Framework Directive, we think that the public should be made aware of these concerns.	The SEA and AA have been undertaken in accordance with regulation and guidance. SNH and SEPA's concerns have been taken into account where appropriate. In addition, OIC has requested that SNH and SEPA list and document their specific requirements, including risk evaluation, methodology, and evaluation. Advice received has been welcomed and included.
	With respect to table 1.3, we question the summarising of the consultees concerns. In particular at this point in time statutory consultees raised concerns that we cannot see included within this table or specified adequately enough.	As noted within the Environmental Report the purpose of this table was to summarise comments from March 2010. These comments related to the Original Environmental Report. All consultation comments are included in this SEA Statement.
	As OIC are yet to complete a comprehensive baseline survey for NNS we question the claim that activities have occurred without *"catastrophic environmental disaster."* In addition, we would like to point out that some NNS may exist in an environment for many years before becoming invasive.	Noted. The baseline surveys are complete. With over thirty five years of operating an oil terminal and over twenty years of carrying out STS operations there have been no catastrophic environmental disasters.
	We also question whether there is any scientific research that shows that untreated ballast tanks are sometimes devoid of organisms, sediment and chemicals originating from the source port and question the use of the words? "may contain organisms, sediments and chemicals".	Scientific research undertaken by Greig *et al.* (2006) and Eames *et al.* (2008) support the hypothesis that ballast water exchange effectively removes suspended particles and aquatic organisms from ballast water tanks. It is stated that ballast water exchange can be very effective at removing small suspended particles or organisms but less so larger particles. If these larger particles are unable to be removed during the exchange process they are unlikely to be discharged into Scapa Flow and instead are anticipated to remain within the tanks to be removed during tank cleaning.
	We question the scientific evidence that shows that the existing policy is responsible for decrease in trade and question why, if this is the case, income from STS has fluctuated widely within the years of the existing policy.	See comment above on STS trade.

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	With respect to the STS transfers we think it should be clarified that the over 200 STS have taken place without any ballast water being released directly into Scapa Flow harbour limits in accordance with the existing policy except in the case of LPG carriers. We think that the low number of LPG carriers should be stated and whether these can originate from non-UK waters.	This is stated within the Environmental Report (section 3.2.6). It is noted within section D.6.1 that 1,880 LPG tankers have discharged ballast water into Scapa Flow.
	We question the figures used for NNS in British Waters. We believe that this source data is now out of date and more current databases show higher numbers of NNS.	Statistics on NNS in British Waters have been revised in the latest Environmental Report to include the latest data at the time of writing.
	We question the assertion that more research is a major causal factor in the increase in NNS. Major changes in shipping have altered the way ballast is carried together with an increasing volume of trade. The design of segregated ballast tanks that no longer carry fuel and the reduction of journey times are surely to be considered as factors that have increased dispersal of NNS by ballast water. Where long-term studies exist, such as those conducted in San Francisco Bay, a marked increase in establishment of NNS has been clearly documented in recent years.	As awareness of NNS has increased so has NNS research. Therefore, with more researchers looking for NNS it is more likely that they will be found. This observation has been made by scientific researchers.
	We also question the statement that "The BWM Convention will come into force 12 months after ratification by 30 States." As of 31 March 2013, 36 contracting states/parties had signed this Convention.	The BWM Convention will come into force 12 months after ratification by 30 States, representing 35% of the world merchant shipping tonnage. To date the percentage of shipping tonnage has not been met.
	We challenge the claim that "The Revised BWM Policy seeks to implement the level of protection that will be afforded by the BWM Convention with immediate effect." We consider this grossly misleading. The proposed policy aims to adopt only D1 standards (exchange only) until the Convention comes into effect. The D1 standards do not comply with the new D2 standards that the Convention will bring into effect, which will require ships to treat their ballast water. Therefore, Option A will only be compliant with the Convention standards when the Convention comes into effect. This should be clearly stated and the title of Option A re-worded to correctly reflect its level of compliance.	RSPB's statement is incorrect. The BWM Policy is compliant with the BWM Convention. The Convention requires ships to perform ballast water exchange (in compliance with Regulation D-1) until ballast water treatment (to D-2 standards) is available onboard vessels. On-board treatment systems are not immediately available. In the intervening period ballast water exchange remains the policy.
	We would request to see the scientific analysis that shows that the proposed policy is safer than the existing policy and if this is the case, why statutory consultees have raised concerns of an increased risk to protected habitats and species. We also point out that if both of these policies fail to comply with the EU Habitats Directive and EU Water Framework Directive, such comparisons are of little use.	Analysis is included in the SEA, AA and has been made readily available throughout the consultation process including public drop in days, briefings, seminars and presentations – including to the Orkney Marine Environmental Protection Committee (OMEPC) on which RSPB are represented.

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	We question the assertion that the existing policy "requires ships to couple and decouple numerous times for each operation" and hence the perceived positive health and safety benefit of the proposed policy. We note in Section 2.1.5 of this same report that under the current policy the de-coupling requirement is described as a "requirement of having to couple and de-couple twice" We question whether twice should be described as numerous times and hence the validity of the perceived health and safety benefits.	In overall terms berthing and unberthing any vessels involves a risk all be it small and mitigating measures in place reduce this to a minimum. In having to de-couple half way through a STS operations some might consider this to be increasing the risk.. Quite often an STS operation is not just one ship to one ship, it can be one ship to up to five or six other ships – therefore there are numerous de-coupling operations associated with one overall STS operation.
	We request the scientific evidence that backs the assertion that the proposed policy will be more attractive to ship operators and again question the reason for the large fluctuations in income under the existing policy.	Answer as above regarding fluctuations. Vessel owners must at some stage comply with the BWM Convention – BWM plans and other parts of the Convention are already becoming common practice even though the Convention has not yet been ratified – therefore in operating to the adopted BWM Policy for Scapa Flow owners and operators are complying as a minimum with the Convention – the adopted Policy uses the Convention as a minimum and exceeds it in parts.
	We question the decision to remove Shetland Islands from the baseline data review. We would like to see the scientific evidence that shows that cumulative ballast water releases within the northern limits of the EEZ will not have an impact on the Shetland Islands.	The spatial extent of the exchanged ballast water plumes is included in the AA report. These do not materially impact the Shetland Islands.
	Birds - We seek clarity on the data and definitions used to establish that Scapa Flows' wintering waterbird populations *"**does not meet** UK SPA selection criteria for a waterbird assemblage as waterbird populations do not exceed 20,000 for 2 or more species"*. The criteria for waterbird assemblage, reads: *"An area is used regularly by over 20,000 waterfowl (waterfowl as defined by the Ramsar Convention) or 20,000 seabirds in any season."*There is no requirement for this to include only 2 or more species.	This has been revised in the latest Environmental Report.
	Non-native species – There has yet to be a finished comprehensive baseline survey of NNS in Scapa Flow and therefore consider this list to be incomplete and suggest that this should be clearly stated in this section rather than in 3.3.	It is noted within the report that until recently there was limited information available on the NNS populations currently inhabiting the waters of the Orkney Islands.
	As figures for numbers employed in the Harbours have been identified, numbers employed in fishing and tourism, as likely impacted industries, should also be included.	These numbers were not obtainable therefore are not included within the baseline data section. It is acknowledged within Section D.2.4 that fishing and tourism are important employers within the Orkney

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		Islands.
	We assume that Alternative B, treatment to IMO Biological standards refers to the immediate adoption of the IMO Convention D2 Standards. We note with interest that this has been described as not currently technically feasible. Could OIC please explain how, if this is the case, the Environmental Protection Agency in the USA has been able to release a new general permit effective as of 28th March 2013 whereby all vessels longer than 79 feet — which includes an estimated 60,000 vessels — must treat ballast water with technology? This alternative has clearly been wrongly assessed and is in need of re-assessment as a viable alternative.	The USA have stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The final BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	We would also like to question why an alternative banning the release of Ballast Water both in Scapa Flow and outside the Harbour limits was not considered.	The Council, the Harbour Authority, the MCA nor any other authority has the ability to ban the discharge of any type of ballast water outside of the Harbour limits. This is contained in international law of the sea and the right of access and navigation. In order for this to happen the IMO would have to set up and approve a convention on this, which in turn would have to be ratified etc in the same fashion as the BWM Convention – or make a specific amendment to this same Convention. It is suggested that as this Convention was agreed in 2004 and has yet to be ratified that this process would take many years.
	We question the scaling of effects and request justification of these, as follows. Treatment of ballast water using IMO approved methods is known to fulfil the new stringent D2 requirements which limit number of organisms by volume. Exchange of ballast water cannot achieve these new stringent levels. There are a number of scientific studies that prove that flow through ballast water exchange is not a reliable mechanism for removing NNS. Some of these were provided	The BWM Convention requires ships to perform ballast water exchange (in compliance with Regulation D-1) until ballast water treatment (to D-2 standards) is available onboard vessels. The Convention provides a schedule for installation of on-board treatment. RSPB is not correct - Option A does “rely only on exchange until the IMO Convention comes

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	to OIC during the SEA process in 2010. This is why the IMO Convention D2 Standards will require treatment of ballast water. We therefore question why Option A which will rely only on exchange until the IMO Convention comes into force, is deemed to have the same minor negative effect on SEA objectives relating to introduction of NNS & protection of protected species, habitats & sites as immediate treatment of ballast water.	into force ". It requires any vessel with treatment to use it, regardless of the Conventions implementation. That means the Policy requires the use of treatment whenever possible. The use of treatment systems is not immediately available. Exchange can produce results as good as or better than treatment, however it is less certain than treatment. The adopted policy (option A) is to use treatment immediately where available. The policy merely recognises that many vessels will not retrofit treatment until ratification of the convention. In either case (exchange and treatment) there is a residual of organisms that will be discharged.
	We also would like to see the comparative studies that prove that the current policy has a larger, moderate effect on introduction of NNS and impact on protected habitats than the proposed policy, given that this requires that no ballast water is released immediately into Scapa Flow.	The existing BWM Policy allows discharge of raw (unexchanged and untreated) ballast water outside the harbour limits. This is a far greater number of organisms discharged to the local environment than the adopted policy. Additionally, under the existing policy water has been shown to flush back into Scapa Flow to some extent and therefore lead to any non-native species in the discharge being able to enter Scapa Flow and colonise. The adopted Policy will minimise introductions of NNS through implementing more stringent management techniques and follows latest scientific knowledge and international best practice.
	Believe there is a requirement to completely re-assess effects of alternatives. In light of this, we think that the cumulative effects should be re-assessed, in particular in relation to biodiversity, water and human health. As we consider that option A proves a greater risk of introduction of NNS during its exchange only phase than ballast water treatment options, this should be reflected in level of cumulative effects, impact on water quality under the WFD and potential impact on human health as a number of NNS carried in ballast water are known to have a negative effect on human health as described earlier.	Noted. OIC agree that exchange only represents a higher risk than exchange and treatment. This is why the BWM Policy is for on-board treatment to be used whenever it is available, regardless of the implementation schedule of the BWM Convention.
	In light of the above comments we challenge OIC conclusion that "Approach A has the least potential adverse environmental effects identified from the assessment of direct and indirect effects and cumulative and synergistic effects". We believe that the assessment of scale of effects does not take into account available scientific research and has not taken account of the dangers of the exchange only phase of the policy. We therefore believe that the conclusion is flawed for the above reasons and repeat that as well as a re-assessment, taking into account	Noted. The methods used to assess the alternatives are clearly set out in the SEA. These are supported by reference to a considerable body of scientific research and evidence.

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	the above comments, that also the omitted alternatives also be assessed.	
	We request that, due to the shallowness of the EEZ, that survey and monitoring of NNS of the EEZ be included in the monitoring procedures.	To carry out any form of accurate and meaningful survey and monitoring of the EEZ would almost be impossible due to the sea area. As a comparison the 320km^2 area of Scapa Flow monitoring and reporting system has been commented on as being one of the biggest (if not the biggest) monitoring areas in the UK. The EEZ is many times bigger than Scapa Flow. The EEZ contains some of the deepest parts of the North Sea.
	We do not think that the time-frame should permit the adoption of a BWM policy before the baseline survey of NNS in Scapa Flow has been completed. The baseline survey must necessarily include sampling in the summer months. If a new policy should be agreed before the baseline survey work has been completed it would be impossible to attribute any NNS to either pre- or post-policy operations. In addition, results of the base-line survey should be a material consideration in a policy review. We would advise that decision making on the BWM Policy should only commence once the baseline survey is complete.	The baseline survey for the monitoring and reporting system has always included requirements for two baseline surveys, one being in the late summer. The list of known NNS is/was included in the BWM Policy.
	Whilst ensuring that all species are identified in the absence of a comprehensive list of marine INNS, we strongly suggest that the high risk species should include those considered as a hazard in European waters, as outlined in databases such as the DAISIE database as a bare minimum.	The marine INNS on the OICHA high risk species list are all the aquatic alien species from transitional and coastal waters listed on the UKTAG list on the Water Framework Directive (2013) Revised classification of aquatic alien species list. The information on each NNS was gathered from DAISIE.
SS (member of public) - 30 April 2013	Major reservations about the SEA's format, and in particular, its omissions.	Noted. The process followed for the SEA and the HRA – including their reporting, are in accordance with statutory requirements, and government guidance.

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	The SEA's conclusions, to favour Option A, is arrived at by means of the exclusion of some critically important issues and alternatives. SEAs are notoriously 'developer-led', and this one (despite its size and cost) unfortunately is no exception.	Noted. The alternatives were presented to statutory consultees for agreement prior to the assessment being undertaken. The number and scope of alternatives is considered to be reasonable. A full consultation process has been followed which has considered the alternatives and any associated issues. These have been included in the reporting where appropriate and are also addressed through this post adoption statement.
	Whilst the document may serve to satisfy legal SEA requirements, there are major omissions from the document's content which may continue to mislead OIC councillors and the Orkney public from a proper understanding of the issues.	Noted. A full consultation process has been followed which has considered the alternatives and any associated issues. These have been included in the reporting where appropriate and are also addressed through this post adoption statement. The views of members of the public have been collated through public drop in days in addition to the views that have been expressed through the media and direct communications from the public to the Council and Councillors.
	The comments of SNH and SEPA have been limited to those given at the start of the SEA consultation process, which are largely procedural comments. In practice, much more detailed work and subsequent comments have been provided by both organisations further to the investigations relating to the HRA requirements.	All comments are included in this SEA Statement.
	Work regarding the Habitats Regulation Appraisals, and the subsequent views of the statutory environmental advisors should have been incorporated within the SEA and the Orkney public advised about the concerns of the two statutory environmental advisors. To omit them from the SEA at this late stage is highly misleading.	Noted. All comments received from the statutory consultees and other interested parties have been made available.
	The alternative of 'exchange and immediate treatment' has been omitted (owing to a reason given in the SEA as 'not currently technically feasible'). Believes this alternative would be compliant with the new IMO D-2 standard which will become the industry standard shortly anyway. The technical difficulties are clearly less of a problem in the USA than within Scapa Flow.	The USA has stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure

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		USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers arriving from the east and visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The final BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	The SEA does not analyse recent actions by other countries such as the USA.	See comment above.
	A major weakness of the SEA is the assumption that the proposed ballast water exchange zone conforms to IMO criteria, in practice it fails the key criteria identified for both distance from land and water depth. To claim that this meets with modern IMO standards is misleading since it merely complies with the 'old' D1 standards under the default option of the 'exchange alone' scenario.	The EEZ conforms to IMO Convention Regulation B-4-2.
	The SEA does not analyse the likely timescale for implementation of the new IMO Convention on Ballast Water, or assess the nations about to sign the Convention. An implementation date of 2016 is assumed, but with several states on the verge of signing the Convention this date could be brought forward to 2014.	This is not correct; even if the Convention was ratified there would be a 12 month period before coming into force. Pending an amendment in November 2013 there would then be a requirement for treatment systems to be fitted by the first renewal survey (this is up to 5 years) therefore the date of 2016 is not un-reasonable. The intention is to implement the adopted policy with immediate effect. If this were Alternative A then it would be implemented in advance of ratification of the BWM Convention. Under Alternative A, any vessel with treatment will be compelled to use it (i.e. New builds will have treatment installed and any other vessels with treatment).
	There are major omissions of species, and difficulties with the associated monitoring plan. No reference in SEA to the leading European database on INNS called Delivering Alien Invasive Species in Europe (DAISIE).	This is not correct – DAISIE is mentioned and used in the Monitoring and Reporting part of the final policy (Annex 5).

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	Specific difficulties from species that have been overlooked include the zebra mussel (on port infrastructure); the comb jellyfish (on marine biomass in the Baltic sea); and organisms impacting on human health such as cholera and PSPs.	Individual species have not been assessed in the SEA. The SEA is a strategic level assessment and it would not be appropriate to assess the individual impacts of each species. Further details on NNS which may be carried in ships ballast tanks are provided in the AA Rev 02 report.
	Baseline monitoring has already been commenced in February 2013 which is particularly cold and inappropriate month to formulate a baseline.	The Monitoring and Reporting section of the BWM Policy clearly states that the baseline survey will not only be based on a survey in February 2013 but also one in August 2013 – therefore this response is answered within the adopted Policy documentation.
	Little reference in the SEA to the volume and complexity of Ruiz *et al*'s work in recent years on the efficacy of ballast water exchange. It isn't explained anywhere where the 95% efficiency figure came from or tested for reliability. Ruiz suggests that a mean figure of 70% efficacy is used to overcome the large range of empirical results.	The SEA is undertaken at a strategic level. Comprehensive sensitivity to both volumetric exchange efficiency and organism removal efficiency is included in the AA, Rev 2. There are also studies that show efficiencies in excess of 95% - the IMO Convention has been generated after taking account of a range of studies.
	There are also highly misleading statements repeated throughout the SEA, particularly that option A is compliant with the new IMO Convention on Ballast Water. It is not!	This is incorrect. The EEZ conforms to the IMO Convention Regulation B-4-2.
DB (member of public) - 27 April 2013	Cannot support the proposal as I believe the proposed scheme will increase the risk of introducing NNS to Scapa Flow.	Noted.
	Disagree with the route for vessels shown on chart, as the whole of the area west of Orkney is an IMO designated 'to be avoided' area for vessels over 5,000 tonnes or with dangerous or toxic cargo.	Noted, the area to be avoided is in general terms only slightly further off shore than that shown in the diagrams.
Historic Scotland - 27 September 2013	Response should be read in conjunction with previous responses to this assessment (dated 6 May 2010 and 1 May 2013).	Noted.
	HS welcomes the updating of the ER in relation to the current consideration being given to Historic MPA status for Scapa Flow and can confirm that we remain content to agree with the overall findings stated in relation to the historic environment.	Noted.
SEPA	**Environmental Report Comments**	
	Would have been helpful if Table A-1 had been updated to include SEPA's previous advice and how it has been taken on board within the revision.	Noted. All comments are included in this SEA Statement

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- 27 September 2013	With exception to assessment of SEA objective 7, it's not clear that any of SEPA's previous advice has been considered. Therefore, refer to previous response of 1 May 2013 (SEPA reference PSC/125661).	Noted. All comments are included in this SEA Statement
SEPA - 19 September 2013	**Draft Policy Comments**	
	SEPA notes the policy position hasn't changed since last consulted. Therefore, SEPA can't support the policy and refers to previous comments of 30 April 2013 (SEPA reference PCS125679).	Noted. The policy has been continuously developed and tested throughout the process. For example, through reference to the latest position of the USA MCA; through consideration of the IMO BWM Convention implementation schedule; development of a monitoring programme; consideration of the implications of latest scientific research; through consideration of baseline data that has increased in scope and coverage.
	Greatest risk for pollution from chemicals, sediments, heavy metals and marine invasive NNS is in vicinity of areas where STS transfers take place.	Noted. OICHA recognised that there must be some compromise in the selection of STS sites. Whilst undertaking STS in a highly energetic and exposed area might be best in terms of the advection and dispersion of discharged plumes it does not provide the safe haven required for operational safety. Indeed, STS operations could not practically be undertaken in the more open Orkney Islands coastal waters which also may not form part of the harbour waters.
	Current policy largely avoids risk for pollution from chemicals, sediments, heavy metals within Scapa Flow but if proposed policy changes it will concentrate any discharge and any potential pollutants at a single source location within this area. SEPA is concerned there is a risk of accumulation of pollutants in the areas of Scapa Flow which are quieter in nature.	With a three times exchange policy and treatment when fitted this is reduced to an absolute minimum, there are also four STS locations within Scapa Flow. Noted. The OICHA adopted policy is to undertake exchange followed by treatment (as soon as it is available). This exceeds the requirements of the IMO BWM Convention. One of the benefits of the exchange process is that it flushes the ballast water tanks by 95% volume. This supports the flushing of sediments and other pollutants in areas away from Scapa Flow. The exchanged ballast water will then be of a relatively consistent composition – meaning that it will have come from ocean waters to the west of the EEZ, rather than from any other global location. These exchanged waters will then be subject to treatment (as soon as it is available) prior to discharge in Scapa Flow. Further to this, the BWM process will be subject to management controls set out in the

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		IMO BWM convention. Taken together these processes reduce the risk from both single discharges and cumulative discharges. The Appropriate Assessment provided an assessment of the cumulative impacts from the adopted policy.
	Monitoring in these areas will be important not only for marine INNS but for chemical pollutants, metals and sediment smothering the seabed. If OIC implements this proposed policy, SEPA urges them to implement rigorous monitoring regime, to ensure long term environment changes can be assessed against baseline data.	The monitoring and recording part of the BWM Policy contains NNS and salinity recordings. SEPA carry out benthic sampling every three years – which OICHA will have access to. Any further monitoring will be considered as part of the reporting system contained within the Policy.
SNH - 27 September 2013	**Environmental Report Comments** The record of previous consultation response (section 1.4 and Appendix A) in the revised report has not been updated to include comments received during formal consultation on previous version (P1565_RN3099_Rev0). Some minor amendments have been made in line with SNH's earlier comments but core advice with respect to the assessment methodology adopted and conclusions drawn in this SEA have not been addressed.	All comments are included in this SEA Statement Noted. The final release of the SEA includes the following significant amendments: • Objective 7 - assessment of the waste hierarchy was revised • Justification for results is strengthened • Explanation was provided as to why modelling was not considered in the SEA • The inter-relationship of topics was analysed • Limitations of the data were revised to provide clarity on data gaps and their implications • Baseline data were updated • NNS narrative was revised to provide more detailed information regarding direct impacts • Inclusion of the discharge from the Flotta Oil Terminal ballast water reception facility was incorporated. • Statistics were added regarding historical trade in STS. • Consideration was given to NNS introduction pathways

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	As previously advised SNH does not support the conclusion that the preferred policy would exert impacts on biodiversity, flora and or lesser significance than would policy options for immediate treatment of ballast water to IMO Convention standards without discharge of raw/exchanged ballast in either Orkney waters or the proposed EEZ.	Noted. The adopted policy – Alternative A, is for immediate treatment where available. The policy merely recognises that many vessels will not retrofit treatment until ratification of the BWM Convention. In practical terms it is not reasonable to implement a policy of immediate treatment when the vast majority of vessels do not carry onboard treatment.
	Key issues raised in our previous advice on the earlier version of this report have not been addressed. In particular Section 4.1 Alternatives Considered and Section 4.2 Assessment Methods are largely unchanged and our previous comments still apply. We in particular reiterate that defining significance of effect as a function of magnitude and likelihood, rather than of magnitude and sensitivity/importance of receptors, does not accord with standard impact assessment practice and is particularly inappropriate in this instance where there are a number of highly sensitive receptors that could potentially suffer catastrophic and irreversible impacts from incidental introduction of invasive non-native species.	The assessment methods used follow the guidelines set out in the SEA Tool Kit produced by the Scottish Executive (2006). While magnitude and likelihood were considered in the assessment of effects they are not the definition of significance, they instead feed into the assessment. In predicting and evaluating the significance of an impact a number of criteria were considered, including geographical extent, duration, and reversibility of the impact, sensitivity and importance of environmental receptor and value of the receptor. Section 4.2.1.1 of the ER states clearly that the sensitivity or importance of a location or environmental receptor are considered in the assessment of effects separately from the assessment of likelihood and magnitude.
John Jolly - 28 August 2013	Referred to STS transfer of 13th August 2013 where Belgian gas tanker Excel discharged about 8500m^3 of ballast water into Scapa Flow, which was then taken onboard in the Atlantic Ocean in accordance with international regulations. This discharge was done with the non-disapproval of SNH.	This was a single operation where an AA was generated and considered. The documentation was sent to SNH who replied on 7 August 2013 and who made comment on the overall details in that it was outside of the original policy (in force at the time) and that the Council had duties under various EU Directives.
	Asked what the difference was between this event and the proposed policy for all ships (gas and oil).	The STS transfer of 13th August 2013 was undertaken in accordance with adopted BWM Policy.
	John Jolly are agents for operators who would like to use Scapa Flow for future STS business but only after the ballast water policy is changed.	Noted.
RSPB - 24 September 2013	Majority of RSPB's previous concerns haven't been addressed in this revised SEA.	OICHA has incorporated observations from consultees and stakeholders where appropriate or has provided an appropriate response in this post adoption statement.
	RSPB Scotland is also very concerned about the lack of transparency offered throughout the process of this policy revision.	The SEA process has been carried out under full consultation with the consultation authorities, other stakeholders and the public. All have been kept fully updated with developments of the BWM Policy. It is the

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		aim of this SEA Statement to ensure all concerns are considered.
	Please note that this report has not been updated to include comments received during the formal consultation on the previous version of this report.	The report has been revised a number of times and consultation comments taken into account when appropriate.
	Failure to properly consider all options. RSPB questions how Option B, treatment to IMO biological D-2 standards, can be ruled out as technically infeasible when other countries, such as USA, have already adopted such a policy.	The final policy is to use treatment immediately where available. The policy merely recognises that many vessels will not retrofit treatment until ratification of the convention. This is in essence the same as the USA policy. The USA has stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1st 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers arriving from the east and visiting Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The final BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	Inaccurate assessment conclusions e.g. risk of introduction of NNS is assessed as being same for exchanged ballast water as treated ballast water. It is scientifically proven that flow through exchange of ballast water is not very efficient at removing organisms which is why only treated ballast water, not exchanged ballast water, meets the new D-2 standards.	Exchange can in fact produce ballast water quality equivalent to or better than treatment. However, it is less certain than treatment. In either case there is a residual of organisms that will be discharged. Therefore, there will be some impact in either case – categorised as minor negative in the SEA.

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	Failure to demonstrate, beyond reasonable scientific doubt, that the proposed policy will not have likely significant effects on Loch of Stenness (SAC) and as such the policy can't comply with the European Habitats Directive. Key concern is that the introduction of INNS, resulting from activities proposed within the revised policy, will affect the integrity of the Natura network.	The adopted policy has been subjected to a HRA AA which ascertained beyond reasonable scientific doubt that the BWM Policy will have no adverse affect on the integrity of any European sites.
	Proposed policy may adversely affect water quality and as such will be contrary to the requirements of the EU Water Framework Directive.	OIC recognise that "where SEPA determines that an invasive NNS listed in Table 4 below" (this table sets out 9 target species for transitional and coastal waters) "is present and reproducing successfully in a transitional water body or coastal water body and the area of the water body in which the species is present is greater than the spatial standard for high status specified in Section 3 of Schedule 4 of the Standards Directions, the highest classification of ecological status or ecological potential SEPA shall assign to the water body shall be good" . This is set out in The Scotland River Basin District (Classification of Water Bodies) Directions 2009 (SEPA, 2009). While the text on the WFD does not explicitly mention NNS, the European Commission, the UK Government and UK Technical Advisory Group (TAG) have agreed that alien species should be considered as a pressure on water bodies that need to be considered when implementing the WFD. The Policy contains various measures to mitigate the risk of NNS introduction, including exchange of ballast water and treatment. In addition, the BWM Convention requires compliance with numerous management practices, surveys and maintenance which are all designed to reduce the risk of NNS introduction. Any vessel with onboard treatment will be required to use it in addition to exchange. Both will reduce the concentration from the undiluted levels currently discharged. This will reduce the number of organisms discharged in the Orkney Islands coastal waters (including Scapa Flow) thereby reducing the risk of introduction across the area. It is clear that the Policy will reduce the number of NNS discharged to the area.
	The statement that Scapa Flow fails to meet UK SPA selection criteria is fundamentally incorrect. Scapa Flow is currently being considered as an area of search within the context of future potential designation as an SPA. The fact that the area supports internationally and	The text on Scapa Flow in relation to SPA status has been revised following advice from SNH (30/04/2013) and RSPB (01/05/2013). The assessment identifies that Scapa Flow is an important area for birds.

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	nationally important aggregations of birds must be a consideration of the assessment.	
	Failure to provide requested evidence to support assertion that the existing policy is preventing trade in STS. Monitoring system isn't a mitigation measure; likelihood of successful eradication is almost zero. Monitoring system must have a species risk register that includes species already present in likely source ports that would be able to survive in Orkney. Current system doesn't do this, despite repeated requests. If, as is claimed, it is the IMO Convention that initiated the proposed BWM policy change, why does this policy not adopt D-2 standards with immediate effect? RSPB considers the scope of this assessment incomplete and conclusions fundamentally inaccurate. RSPB is opposed to the proposed BWM policy.	Table 2.1 in the Environmental Report shows decline in STS trade in recent years. The monitoring and reporting system contained within the new Policy does contain a list of high risk species and what steps to follow in the event of such being detected. The IMO Convention states that the goal is for treatment of ballast water, however this option is not feasible with immediate effect due to the lack of vessels with onboard treatment. If vessels do have onboard treatment systems they will be required to undertake exchange followed by treatment of the water (i.e. beyond IMO requirements). Noted. OICHA has incorporated observations from consultees and stakeholders where appropriate or has provided an appropriate response in this post adoption statement.
AM (member of public) - 25 September 2013	Highlighted work of Kate Walker employed by Orkney Sustainable Fisheries to study the brown crab. Female brown crabs walk long distances away from Orkney to the west, and south west, 20 to 160 miles, along the seabed to lay their eggs in the sediment. When the eggs hatch the larvae drift back on the North Atlantic drift to the shores of Orkney and then grow on to maturity. Sent this information to flesh out the understanding of the eco system with regard to ballast water discharges and to understand that in the ocean species move around to breed and migrate. A discharge thought to be in a geographically remote place can in fact intersect one of these migration or breeding cycle sites. Ballast discharges to left and right of Orkney cannot then be said to be clearly isolated in their effects.	Noted. OIC welcome this new information. The IMO BWM Convention Regulations recognise that risk increases as discharges become closer and when made to shallower waters. This is captured in the hierarchy for the exchange of ballast water. For this reason OICHA has sought to provide a policy of exchange plus treatment – even though the Convention only requires treatment in the

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		long term. The intention here is to keep discharges remote wherever possible. In consideration of the magnitude of any risk, one of the factors considered was the impacts from the current BWM policy. This has been in place for many years and allows for discharge of raw ballast water (i.e not subject to exchange or treatment) just outside the harbour limits. Evidence suggests that this practice of local raw ballast water discharge has not led to any catastrophic environmental events although it is clearly a higher risk operation when compared to the adopted policy.
	Currently, ballast water discharged via Flotta terminal is not screened for biological intrusions and there seems to be no system there to kill invasive species in the ballast using the methods described to be introduced to ships. Since its inception, ballast water discharge via Flotta has not had biological inhibitors. This loop hole needs to be closed now and not in 5 to 10 years time. Is happy with the more stringent conditions that will eventually prevail on ships	Noted. The Flotta treatment facility is consented by SEPA. OICHA have no control over land based discharges. Noted.
Orkney Fisheries Association - 24 September 2013	Orkney Fisheries Association sees no material change to the original report as it affects the potential for invasive species affecting commercial fish stocks. While monitoring is welcomed, it can only act as a measure. Therefore, Orkney Fisheries does not accept the proposed policy change.	Noted. The report has been continuously developed throughout the process as information and knowledge has become available. Please refer to the comments in this post adoption statement for details regarding report revisions and upgrades. The Monitoring and Reporting part of the final Policy also includes sections on what to do if NNS are identified. Noted.
DB (member of public) - 27 September 2013	Until BWM Convention Regulation D-2 comes into force (2016) 95% exchanged ballast water will be pumped into Scapa Flow. Thus, 5% of the water being pumped out could contain non-native species and put Scapa Flow's environment at risk.	The date of 2016 is now very unlikely to be met. The BWM Convention requires ballast water exchange to demonstrate an efficiency of at least 95% volumetric exchange. Therefore up to 5% of the original water will be discharged into Scapa Flow. This will be followed by treatment whenever possible (i.e. if a vessel has treatment it will be mandated to use it regardless of whether the IMO BWM Convention is yet in force.). Following treatment there will still be a residual amount of organisms in the discharge. Therefore, risk cannot be fully eliminated.

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	Retro-fitting to existing ships of treatment plants is unlikely to happen for 'several years' after 2016 as ship owners design and develop systems to retro-fit into existing ships. Hence, the risks to Scapa Flow of introducing non-native species is higher than the SEA indicates as the D-1 compliant policy will continue beyond 2016.	New ship builds have treatment installed. The timing of retrofitted treatment is uncertain as it depends on the IMO BWM ratification date. The adopted policy is to use exchange followed by treatment immediately where available. The policy merely recognises that at the time of writing only a small percentage of vessels carry on-board treatment and many vessels will not retrofit treatment until ratification of the convention.
	Against the new policy as it would increase the risk to Scapa Flow from the introduction of non-native species.	Noted.
	Inconsistencies in the number of quoted STS operations in the document. 'one per week' vs. '25 per annum' (25% market share of UK STS operations).	The modelling and details used for assessing any impacts the discharge of exchanged or exchanged and treated ballast water may have on European sites have always been worst case scenario. In this case one per week is the worst case scenario, so that was used in assessments. The more realistic scenario is 25 per annum. There is a European STS market which is what Orkney would tap into, especially as Scapa Flow is a well-known and respected sheltered harbour – therefore STS operations are rarely weather delayed as per other areas within Europe.
	Fig 4.1 still shows incorrect deballasting area west of Orkney which includes an IMO exclusion zone and ships engaged in STS operations are not allowed to enter this area.	Noted, the area to be avoided is in general terms slightly further off shore than that shown in the diagrams.
SS (member of public) - 19 September 2013	It is remiss of the consultants *not* to provide key information relating to the issue, principally the opposition of the statutory advisors, and developments throughout the world with respect to ballast water management, especially the implementation in 2013 of an exchange and immediate treatment regime in the USA.	The USA has stipulated that vessels with a ballast water volume of more than 5,000m^3 must have a BW treatment system fitted and in use by the first schedule dry-dock after January 1st 2016. Therefore the use of treatment systems is not immediate. In the intervening period ballast water exchange remains the policy. In addition, all crude oil tankers engaged in coastwise trade are exempt from this requirement. It should be noted that countries such as the USA are bounded by oceanic waters and therefore ballast water exchange to IMO Convention B-4.1 is not problematical. For many countries and sea areas throughout the world this is not possible – hence the IMO Convention B-4.2. If the pure USA requirements and in particular the exemption for crude oil tankers were applied to crude oil tankers trading in Northern Europe then it could be suggested that virtually all tankers arriving from the east and visiting

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		Scapa Flow would be exempt and therefore only have to carry out ballast water exchange. The final BWM Policy requires ballast water exchange but adds that when treatment systems are available this should also be used – therefore it could be said that the policy is more stringent than that in existence in the USA.
	Neither the non-technical summary (nor the full report) satisfied the reader in understanding the environmental effects. Alternative method of ballast water treatment has been omitted: exchange and immediate treatment. This would satisfy the D-2 IMO ballast water regulations and has been adopted already by the USA Underpinning the assessment is an untested mathematical model that predicts the hydrological behaviour of water molecules. This can't be the same as the response by actual living organisms were they to escape into Scapa Flow from even diluted ballast. The precautionary principle should apply to risks from Invasive Non-Native Species.	The report has been presented to be as comprehensive and readable as possible. It is recognised that the issues are complex and require a high degree of scientific analysis. For this reason, the reporting has been supplemented by public drop in days and briefings where people can ask questions and enter discussion. See comments above re: USA implementation. The model is not and was not untested. It has been scrutinised and endorsed by Marine Scotland. The AA report makes clear that the numerical model can quantify the advection and dispersion of discharged material (passive transport). This in itself is very useful because it provides objectivity and the degree of hydrodynamic connectivity. The report also clearly recognises that no models exist that can predict with absolute certainty the behaviour of organisms (e.g. active transport). The latter is therefore treated through precautionary modelling including extreme sensitivity analysis. Active transport is accounted for in a four step precautionary approach: - Quantify what we can (i.e. passive transport) under conservative/pessimistic parameters. - Compare impacts to established standards (e.g. Regulation D-2). - Calculate how much worse things would have to be through active transport to approach the standards. - Decide whether it is reasonable to assume that things could get that much worse.

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		Results from the AA (P1565H_RN3165_Rev2) show that active transport would need to make things approximately five million times worse (assuming exchange removes no organisms) for concentrations to approach the D-2 standard at the Loch of Stenness. This would also involve organisms moving against the prevailing current.
	Cherry-picking' to ensure that the 'right' result is arrived at. The exchange zone is lauded throughout the report as satisfying IMO criteria – but it actually fails all the IMO criteria, except the political 'catch-all' that states that if all else fails you can have an exchange zone wherever you wish.	This is incorrect. The adopted policy meets IMO Regulation B-4.1 for vessels approaching from the west and IMO Regulation B-4.2 for vessels approaching from the east.
	In the scientific community and published reports, it's accepted that exchange, whilst varying in efficiency, doesn't deal adequately with sediments. The SEA suggests that it does. Moreover, INNS are easily able to survive in sediments but this hasn't been acknowledged.	In addition to modern ship design and exchange the IMO BWM Convention requires numerous management practices to improve the management of ballast water, including sediments (Regulation B and E). This includes a strict ballast water management plan for each vessel that includes for ballast tanks to be inspected and cleaned (if necessary) on a regular basis. Thus reducing the risk of sediment discharge to an absolute minimum.
	Summary of assessment of environmental effects (Table 4-6) is misleading and confusing. Option A emerges as the 'best' option, with only 'minor negative' effects assessed. This, however, only holds for IMO treatment to D-2 standards, and not D-1 as would be the case in practice for an interim period before the new IMO standards are introduced. Assessment to D-1 standards alone has not been assessed.	The assessment was carried out for the adopted option. Assessment to exchange and exchange followed by treatment are assessed in the same option as they together form the adopted policy.
	Opposition of statutory environmental advisors SNH and SEPA has never been openly displayed for public to consider. Comments of the advisors are omitted from the analyses.	Comments from all consultees have been taken into account when drafting the revisions of the Environmental Report. All comments from advisors have been included in OIC Council reports and are included within this SEA statement.
	Urges OIC to ensure the alternative of exchange and immediate treatment is offered for inclusion in this analysis before any final decision is made.	This option is not feasible due to the lack of vessels with onboard treatment. However, if vessels do have onboard treatment systems they will be require to undertake exchange followed by treatment of the water. Therefore the adopted policy will utilise on-board treatment in advance of ratification of the Convention and whenever a vessel has on-board treatment. In practical terms, no more can be done.

6 REASONS FOR CHOOSING THE BWM POLICY AS ADOPTED IN THE LIGHT OF OTHER REASONABLE ALTERNATIVES

6.1 ALTERNATIVES CONSIDERED

The alternative approaches to BWM, considered as part of the SEA, included a range of approaches to the BWM Convention, in addition to the existing BWM Policy and no policy control. The alternatives take account of the IMO Guidelines and will therefore be compliant with the BWM Convention upon ratification (with the exception of the no policy control approach and the existing BWM policy). A number of alternatives were screened out of further environmental assessment, due to technical constraints making them unreasonable alternatives. The alternatives taken forward to the assessment of likely significant effects on the environment were:

- BWM to comply with the BWM Convention, with ballast exchange undertaken in deep ocean waters to the west or in the defined EEZ (in accordance with Regulation D-1) to the east as an immediate requirement. Whenever a vessel is carrying on-board treatment, exchange will be followed by treatment (in accordance with Regulation D-2).
- The Existing BWM Policy
- Risk Based BWM
- Shore-based treatment to IMO standards
- Floating treatment to IMO standards
- No policy control

6.2 STRATEGIC ENVIRONMENTAL ASSESSMENT FINDINGS

A summary of the assessment findings for the six alternatives assessed is shown in Table 6-1. The assessment determined that while several of the BWM approaches assessed had positive effects on a few of the SEA objectives (the alternatives of **Risk Based BWM**, **Shore-based treatment**, **Floating treatment** and the **Existing BWM Policy**), these alternatives also had a number of adverse effects. The environmental assessment of the approaches to BWM is summarised below.

The **no policy control** approach was considered to have an unacceptably high level of ecological risk, as uncontrolled discharge of ballast water over a wide area would lead to a relatively high likelihood of NNS introduction and other associated impacts. Negative impacts are predicted on biodiversity, water, cultural heritage, population and human health. While it is likely that there would be positive effects on the use of existing infrastructure (material assets), compared to current uses, from this approach and neutral/negligible effects on waste and climatic factors, these positive effects cannot cancel out the negative effects on biodiversity and water quality.

The **Existing BWM Policy** was assessed as having a number of potential negative effects on the environment, namely biodiversity, water, climatic factors and the potential to decrease employment opportunities. Negative impacts occur following the discharge of raw ballast water outside the harbour limits but within the immediate vicinity of the Orkney Islands. The **Existing BWM Policy** would have implications in terms of greenhouse gas emissions, due to the requirement to de-couple and leave the harbour limits. This activity will also have negative impacts on health and safety (human health). In addition marine modelling undertaken at a later stage (as part of the HRA AA) identified that under the **Existing BWM Policy** discharged raw ballast water outside Scapa Flow could be transported to some extent via tides and currents into Scapa Flow and towards the Loch of Stenness SAC, as the areas are hydrodynamically connected. Neutral/negligible impacts are predicted on the waste hierarchy and maritime heritage. There will however be positive impacts in terms of making best use of existing infrastructure. In addition when the BWM Convention is ratified and comes into force the **Existing BWM Policy** would not be compliant with the Convention.

Risk Based BWM was assessed as having negative impacts on biodiversity, water and population. Due to uncertainties in the classification of risks, there could be potential for errors and mistakes. This could result in accidental introduction on NNS and subsequent adverse impacts on designated sites, EPS, habitats and water quality. Positive impacts are predicted for potential to use existing infrastructure and promotion of low emission technologies. Neutral/negligible impacts are predicted on maritime heritage, the waste hierarchy and human health. However, there is the potential for accidental introduction of parasites, pathogens and dinoflagellates, which could impact the health of sea users.

The approaches of **Shore-based treatment** and **Floating treatment** were assessed as broadly negative. Negative impacts are predicted on biodiversity, water and climatic factors. If IMO guidance is followed and ballast water is treated to the IMO D-2 performance standards, this will reduce the likelihood of introduction of NNS and associated impacts on habitats, designated sites, EPS and human health. However, compared to the baseline these impacts will be negative, albeit a minor one. Neutral/negligible impacts are predicted on the waste hierarchy. Negative impacts are predicted on climatic factors due to the requirement to construct new infrastructure, which will create large carbon footprints. Positive impacts are predicted on population, as HAB will be removed by treatment and therefore not adversely impact fish farms and aquaculture. Construction of underwater pipelines to the **Shore-based treatment** facility will adversely impact benthic habitats. Similarly the requirement for long term anchoring of the **Floating treatment** facility could potentially affect benthic habitats.

The assessment of environmental effects concluded that the approach of **BWM to comply with BWM convention, exchange and then exchange and treat** has the least potential adverse environmental effects identified from the assessment of direct, indirect and cumulative & synergistic effects. There are some potential adverse effects but these are considered unlikely to occur and have been adequately mitigated. This approach was selected to form the BWM Policy. The outcomes of the environmental assessment of this approach are summarised in Section 6.3.

Table 6-1: Summary of assessment of environmental effects

	BWM Approach:	A	C	D	E	F	I
SEA Topic	**SEA Objective**	**BWM to comply with BWM Convention**	**Existing BWM Policy**	**Risk Based BWM**	**Shore-based treatment to IMO Standards**	**Floating treatment to IMO Standards**	**No Policy Control**
Biodiversity, flora and fauna	1. Avoid introduction of non-native species and pathogens	Minor Negative	Moderate Negative	Moderate Negative	Minor Negative	Minor Negative	Major Negative
	2. Preclude significant impacts on nationally or internationally designated sites	Minor Negative	Moderate Negative	Minor Negative	Minor Negative	Minor Negative	Moderate Negative
	3. Preclude significant impacts on other habitats within Scapa Flow	Neutral/ Negligible	Minor Negative	Minor Negative	Major Negative	Minor Negative	Moderate Negative
	4. Prevent adverse impacts on European Protected Species, and other species within Scapa Flow, including those of commercial importance	Minor Negative	Minor Negative	Moderate Negative	Minor Negative	Minor Negative	Moderate Negative
Water	5. Minimise impacts on water quality in terms of salinity, oils, metals or chemical contamination	Neutral/ Negligible	Moderate Negative	Moderate Negative	Minor Negative	Minor Negative	Moderate Negative
Climatic factors	6. Promote use of low emission technologies and approaches	Moderate Positive	Moderate Negative	Moderate Positive	Minor Negative	Minor Negative	Neutral/ Negligible
Material assets	7. Enable effective implementation of the waste hierarchy such that waste is minimised, and reuse/recycling is maximised	Neutral/ Negligible	Neutral/ Negligible	Neutral/ Negligible	Neutral/ Negligible	Neutral/ Negligible	Neutral/ Negligible
	8. Make effective use of existing infrastructure	Major Positive	Major Positive	Moderate Positive	Moderate Negative	Minor Negative	Moderate Positive
Cultural heritage/ Human health	9. Avoid impacts on maritime heritage including protected wrecks and recreational access to these	Neutral/ Negligible	Neutral/ Negligible	Neutral/ Negligible	Moderate Negative	Neutral/ Negligible	Minor Negative
Population	10. Increase opportunities for employment in the local area, and avoid damaging current sources of income such as fishing, aquaculture, tourism and recreation	Minor Positive	Moderate Negative	Minor Negative	Minor Positive	Minor Positive	Major Negative
Human Health	11. Allow for effective provision of safety and prevention of long-term health impacts (e.g. sea users).	Major Positive	Minor Negative	Neutral/ Negligible	Major Positive	Moderate Negative	Minor Negative

6.3 SUMMARY OF FINDINGS FOR THE ADOPTED APPROACH

It was concluded that **BWM to comply with the BWM Convention** may have a **minor negative** effect on SEA Objectives (*[1] Avoid introduction of non-native species and pathogens; [2] Preclude significant impacts on nationally or internationally designated sites; and [4] Prevent adverse impacts on European Protected Species, and other species within Scapa Flow, including those of commercial importance*) when compared to the current baseline of no STS shipping activities in the last two years. The spatial extent of potential impacts is the greatest of all the approaches considered in this assessment because raw ballast water is discharged (i.e. exchanged) in areas that are remote from the Orkney Islands. Therefore, under this approach only ballast water that has at least 95% volumetric exchange with similar waters (e.g. in the North Sea) will be allowed to approach the Orkney Islands and in particular Scapa Flow. The location of the EEZ is considered remote enough not to impact any coastal areas. The water depth within the EEZ and its distance from the coastline will ensure high levels of dispersion and dilution of the ballast water during exchange, therefore impacts on the coastline and designated sites are considered to be low. This is supported by marine modelling undertaken as part of the HRA AA.

It should be fully understood that the above conclusion is drawn on the basis of a comparison between the effects of the adopted BMW approach compared to the effects which would be experienced if the existing STS shipping activities were to cease. This does not represent the effects of introducing the adopted BMW approach compared to the effects of the existing BWM Policy approach. Consequently, the conclusion of this assessment is **not** that the replacement of the existing BWM policy by the adopted BMW approach will have a negative effect on the SEA Objectives.

In the baseline conditions of no STS shipping activities, no ballast water is released within Scapa Flow (except small quantities from LPG vessels and discharge from the Flotta Oil Terminal ballast water outfall pipeline) hence any additional form of ballast water discharge will inevitably have some **negative** impact on this baseline to a greater or lesser extent. However, it is considered unlikely that NNS will be introduced through ballast water discharge from this approach due to the volumetric exchange of water of at least 95% and treatment when available onboard, thereby reducing the risk. Exchange of ballast water may lead to the pickup of HABs, when onboard treatment is used these will be removed through adequate treatment. Mitigation measures applied to monitor for HABs in the EEZ will ensure that the likelihood of picking up HAB is minimised.

The adopted BWM Policy is for immediate treatment if available on the vessel regardless of the BWM Convention implementation schedule (i.e. prior to ratification). On-board treatment cannot be provided if it does not exist on a vessel. Exchange alone is used under this approach only if the vessel does not have treatment. Exchange can produce results as good as or better than treatment (as shown in analysed water sample data from an LNG exchange undertaken in August 2013); however, it is less certain than treatment.

The approach, implements precautions to prevent and minimise the potential for these adverse effects. This approach requires ballast water to have been exchanged in open sea or treated to certain standards before discharge, thereby reducing the potential impacts from NNS and pathogens. Additional

mitigation measures have been implemented to ensure that the likelihood of occurrence and extent of the adverse effects will be reduced. These include spatially and temporarily restricting BWM activities; limiting volumes to the minimum essential quantity possible and; following best practice protocols for vessel survey, maintenance and management.

The adopted BWM Policy had the most **positive** environmental effects, with **positive** effects predicted on SEA Objectives (*[6] Promote use of low emission technologies and approaches; [8] Make effective use of existing infrastructure; [10] Increase opportunities for employment in the local area, and avoid damaging current sources of income such as fishing, aquaculture, tourism and recreation; and [11] allow for effective provision of safety and prevention of long-term health impacts (e.g. sea users)*). Exchange is considered to be a low emission technology, as it can be undertaken while a vessel is on route. The EEZ has been designed to take into account existing shipping routes to ensure vessels do not need to deviate much (if at all) from their original route to undertake the exchange. Treatment systems are being designed with energy efficiency in mind, as all systems are likely to be required to pass emission standards testing before being approved for use. There would be **positive** effects in terms of making use of existing infrastructure compared to the baseline because tug boats would be better utilised than they are currently. Exchange and treatment will minimise the risk of effects on human health. IMO Regulation D-2 specifies strict standards on indicator microbes for human health. This approach would therefore ensure strict human health standards are met. These **positive** environmental effects have been enhanced wherever possible.

Negligible impacts are predicted for water, waste hierarchy and cultural heritage (SEA Objectives 5, 7 and 9). The process of ballast water exchange will remove sediments and metals from the water and therefore ensures aesthetic quality of the ballast water when discharged in Scapa Flow. These aspects will not be addressed by treatment systems. This will also result in **negligible** impacts on the waste hierarchy. **Negligible** impacts are predicted because ballast water disposal is common worldwide practice; disposal uses the best available technology and is therefore the best practical environmental option. Limited quantities of waste will inevitably be produced by treatment of ballast water whichever approach is used. It is considered unlikely that this approach will impact maritime heritage.

Indirect impacts of this approach include the visual impact of shipping, which could potentially impact tourism and recreational industries, however the location of the STS moorings are situated within the wider body of Scapa Flow and therefore are unlikely to have significant effects. These STS locations have been in existence for some time and their use has co-existed with other industries. Fish farms and aquaculture are also unlikely to be significantly affected, due to the dilution of the ballast water from the exchange process and the considerable distance between STS moorings to fish farms and aquaculture. Seabed disturbance from anchoring will be limited in extent and recovery is likely to be relatively quick. There may be indirect effects through the potential of increase in shipping traffic and subsequent disturbance of EPS and other species, and underwater noise. However, as vessels using Scapa Flow will be moving slowly at all times and running at low engine revs this will provide the maximum opportunity for marine life to move away from the vessels. Therefore, the likelihood is considered low.

6.4 SUMMARY OF ADOPTED APPROACH

The BWM Policy requires exchange of ballast water in open sea (to the west) or the defined EEZ (to the east) in accordance with the BWM Convention Regulation D-1 (ballast water Exchange Standard). If a vessel does not carry on-board treatment, the exchanged ballast water will then be discharged into Scapa Flow at designated STS locations.

In the event that a vessel does carry on-board treatment, the BWM Policy requires exchange of ballast water in open sea (to the west) or the defined EEZ (to the east), followed by treatment to BWM Convention Regulation D-2 (ballast water Performance Standard). The ballast water that has been exchanged and then treated on-board will then be discharged into Scapa Flow at designated STS locations during STS operations.

In adopting the BWM Policy OICHA are implementing an integrated BWM Policy that implements the requirements of the BWM Convention and that ultimately offers protection beyond the BWM Convention requirements (i.e. exchange plus treatment).

The BWM Policy incorporates a variety of mitigation measures to prevent, reduce or offset potential adverse effects and enhancement measures for environmental benefits. In addition, the BWM Policy includes a monitoring programme which has been implemented to detect any adverse environmental impacts at an early stage. These are provided in Section 7.

6.5 HRA ASSESSMENT FINDINGS

The assessed approach of **BWM to comply with BWM convention, exchange and then exchange and treat** was worked up into the Proposed BWM Policy. The Policy was subsequently subjected to an AA under the EC Habitats Directive.

An AA was undertaken for the following scenarios:

- Exchange of ballast water in the EEZ (i.e. worst case exchange scenario)
- Discharge of ballast water from LPG vessels alongside the Flotta Oil Terminal
- Discharge of ballast water under the adopted BWM Policy at STS 1 through STS 4 (exchanged and exchanged and treated ballast water)
- In-combination discharges – two simultaneous discharges of both LPG and STS ballast water discharges
- In-combination cumulative discharges - simultaneous LPG and STS discharges (one per week); two discharges per week from Flotta Reception facilities

Marine modelling was used to support the AA and was used for the following:

- to understand and quantify the oceanography, advection and dispersion throughout the area
- to assess the level of hydrodynamic connectivity between discharge sites and sensitive receivers

- to evaluate the hydrodynamic connectivity with reference to a suitable environmental standard (the Reduction Standard)
- to provide inputs to the risk assessment of potential invasive species

Marine modelling of the exchange of ballast water within the EEZ showed no impacts at the coast or near European Sites. The severity was assessed against the conservation objectives for each interest feature. It was concluded that the exchange of ballast water under the OICHA Proposed BWM Policy will have **NO ADVERSE EFFECT** on the integrity of any European Sites.

The LPG and STS discharge modelling scenario results show no impacts in the locality of the Loch of Stenness SAC. The Loch of Stenness SAC was assessed to determine whether the proposed BWM Policy will affect the ability of the site to meet its conservation objectives. It was concluded that the discharge of LPG ballast water under the OICHA Proposed BWM Policy will have **NO ADVERSE EFFECT** on the integrity of any European Sites and the discharge of exchanged (and exchanged and treated) ballast water under the OICHA Proposed BWM Policy at STS locations 1 to 4 will have **NO ADVERSE EFFECT** on the integrity of any European Sites.

There are no in-combination effects between discharges within the EEZ and discharges within Scapa Flow. The LPG, STS and Flotta Oil Terminal in-combination discharge results show no impacts in the locality of the Loch of Stenness SAC. Therefore, there will be **NO ADVERSE EFFECT** on the integrity of any European Sites through in combination discharges. The LPG, STS and Flotta Oil Terminal in-combination cumulative discharge results show no impacts in the locality of the Loch of Stenness SAC.

In conclusion the AA ascertained beyond reasonable scientific doubt that the Proposed BWM Policy will have **NO ADVERSE EFFECT** on the integrity of any European Sites.

7 MONITORING MEASURES

Section 19 of the Environmental Assessment (Scotland) Act 2005 requires monitoring of the significant environmental effects of the implementation of the BWM Policy, in order to identify, at an early stage, unforeseen adverse effects and to be able to undertake appropriate remedial action.

Table 7-1 sets out the framework for monitoring the potential environmental effects of the BWM Policy. The framework lists all aspects which will be monitored, who will be responsible for the monitoring and how frequently this monitoring will occur.

Information gathered from the monitoring will enable OICHA to do the following:

- track the environmental effects of the BWM Policy;
- gauge the effectiveness of any mitigation measures employed;
- identify unforeseen effects;
- and manage any uncertainty encountered in the assessment process.

Following identification of any unforeseen significant adverse effects the BWM Policy will be modified to provide remedial actions or mitigation measure to prevent, reduce or offset these effects. This will be undertaken in consultation with other bodies and the public where appropriate.

Table 7-1: SEA monitoring framework for the BWM Policy

What is being monitored?	Data source, frequency	Summary of monitoring and proposed remedial actions	Responsibility and Timescales
NNS presence	Marine NNS survey Annual survey	• Presence and trends of marine NNS in Scapa Flow will be monitored and reported to Orkney Marine Environment Protection Committee. • Any detected NNS will be reported to GB NNS Secretariat for risk assessment and action plans. • OICHA will follow the guidance from GB NNS Secretariat. • Presence of NNS can be benchmarked against other surveys of NNS in Scotland.	OICHA - Baseline survey and ongoing annual monitoring
Ballast water salinity	Vessels - as and when STS operations occur	• Ballast water to be monitored to check salinity before discharge.	OICHA - ongoing
Sediment within ballast water tanks	Vessels - as and when STS operations occur	• Ballast water to be discharged should not include sediments. As required by Resolution MEPC.127(53) (IMO Convention Guideline 4), accumulation of sediments in ballast tanks should be monitored and removed in a timely fashion. Ships Ballast Water Record Books to be inspected and checked to ensure operations have been conducted appropriately. • OICHA to inspect ballast water tanks.	OICHA - ongoing
Water quality	SEPA Monitoring four times per year	• Water quality of coastal and transitional waters to be monitored to fulfil the WFD monitoring requirements to ensure thresholds are not exceeded. Parameters monitored include; benthic invertebrates, phytoplankton, macroalgae, physio-chemical parameters, saltmarsh and fish.	SEPA - ongoing
	Vessels - as and when STS operations occur	• Ballast tanks monitored and inspected to ensure tanks are maintained in a clean state.	OICHA - ongoing
Eastern Exchange Zone for HAB	Satellite Imagery – as and when STS operations are due	• Eastern Exchange Zone to be monitored prior to exchange to determine the presence and location of potentially harmful algae blooms using remote sensing. • OICHA is then able to advise vessel operators of areas to be avoided when undertaking exchange.	OICHA - ongoing
Maritime heritage	Protected wrecks - Annual survey	• Protected wrecks monitored to ensure no new organisms associated with invasive NNS grow.	MOD and OIC - ongoing
Disturbance of EPS and other important species	Traffic volumes - continuous	• Shipping traffic volumes to be monitored.	OICHA - ongoing
	Cetaceans, seal & otters - Annual	• Populations of cetaceans, seals and otters will continue to be monitored.	OBRC, SMRU and JNCC - ongoing
Emissions from tug boats and craft	OIC - continuous	• Carbon dioxide emissions from tug boats and harbour craft monitored to ensure Carbon Management Programme targets are met.	OIC - ongoing
Waste by-products	OIC - continuous	• Quantities of waste by-products produced by vessels to be monitored.	OIC - ongoing
Compliance with IMO BWM Conventions requirements	Vessels - as and when STS operations occur	• Inspection of vessels ballast water record book. • Inspection of vessels treatment systems certification. • Inspection of vessels ballast water management plan.	OICHA - ongoing