



Berwickshire & Northumberland  
Marine Nature Partnership

## **Marine Invasive Non-Native Species on the Berwickshire, Northumberland and North Tyneside Coast: A Strategy for their Prevention, Detection and Management**



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## Definitions

### Invasive Non-Native Species

Invasive non-native species (INNS) are those that have been introduced outside of their natural range and that can damage our environment, ecosystem services, the economy, our health and the way we live. Impacts of INNS are so significant they are considered to be one of the top five biggest threats to biodiversity worldwide. They threaten the survival of native species and damage ecosystems and habitats, particularly rare and protected species and habitats.

### Biosecurity

Biosecurity means taking steps to make sure that good practices are in place to reduce and minimise the risk of spreading invasive non-native species. A good biosecurity routine is always essential, even if invasive non-native species are not always apparent.

### Vector or Pathway

These are the means by which a species is moved from place to place due to human activity.

## Abbreviations

B&N MNP	Berwickshire and Northumberland Marine Nature Partnership
BMR	Berwickshire Marine Reserve
CBD	Convention on Biological Biodiversity
COPLAR	Code of Practice on Litter and Refuse
DEFRA	Department for Environment, Food and Rural Affairs
EA	Environment Agency
ERIC NE	Environmental Records Information Centre North East
GB NNSS	Great Britain Non-Native Species Secretariat
IAS	Invasive Alien Species
ICES	International Council for the Exploration of the Sea
IMO	International Maritime Organisation
INNS	Invasive Non-Native Species
MCZ	Marine Conservation Zone
MMO	Marine Management Organisation

NBN	National Biodiversity Network
NNS	Non-native species
NE	Natural England
NIFCA	Northumberland Inshore Fisheries and Conservation Authority
NT	The National Trust
NTS	National Trust for Scotland
NWL	Northumbrian Water Ltd.
OSPAR	The Convention for the Protection of the Marine Environment of the North-East Atlantic
PAP	Pathway Action Plan
SAC	Special Area of Conservation
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TWIC	The Wildlife Information Centre for Lothian and the Borders
WADER	Water and Disturbance Environmental Restoration on the Northumberland Coast Project

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# 1. Introduction and Purpose of the Strategy

## 1.1 Scope and Purpose

This Plan describes the biosecurity issues of the coastal and estuarine waters of the Berwickshire and Northumberland coast and presents actions for the prevention, early detection, control and mitigation of the introduction and spread of Marine Invasive Non-Native Species. It is intended to align with the [GB Non-Native Species Strategy](#) and to address the omission of marine INNS from the [North East Invasive Non-Native Species Strategy](#)

The Plan reviews the current and future threats from marine INNS, examines the main pathways for INNS introduction and spread, discusses biosecurity measures that can be taken to reduce the spread of marine INNS, and sets out measures for reporting the presence of marine INNS and the steps to be taken when they are discovered. It also provides a short action plan to inform future activity.

## 1.2 What are INNS and why are they of concern?

Non-native species (NNS) have been introduced deliberately and accidentally to the UK over many hundreds of years. Many cause no problems and are a welcome addition to our biodiversity. However, a subset of non-native species are described as Invasive Non-native Species (INNS). These thrive aggressively and threaten native species, ecosystems, natural features (such as mussel beds), or interfere with man-made structures and business interests such as aquaculture or fisheries. INNS are one of the greatest threats to biodiversity, being capable of rapidly colonising a wide range of habitats and excluding the native flora and fauna. This can be through competition for resources such as space, light and food or, in some cases, local species can become prey to INNS. The presence of INNS can also impact on the water environment and the condition of marine protected areas, increasing the risk that these sites do not meet their required environmental status set out in international and domestic policy and legislation.

The increase in global shipping, aquaculture and recreational marine activities has increased the threat of introducing INNS to the marine environment. This can be exacerbated by climate change depending on the tolerance and adaptability of individual species. Not all NNS are invasive from the start of their establishment as some take time to establish and develop the rapid growth required for invasive behaviour. Climate change is expected to have a significant impact on biodiversity by making conditions more favourable for NNS allowing a northward range expansion for various species. Where NNS are already present, they may become invasive.

### 1.3 Relevant Policy and Legislation

The UK has international and domestic obligations to address INNS issues. The GB Non-Native Species portal provides a summary of these. Details of the legislation and policy most relevant to marine INNS are summarised below:

#### Domestic Legislation and Policy

The UK Government's [Great Britain Invasive Non-Native Species Strategy](#) outlines the approach taken in England, Scotland and Wales to INNS in the terrestrial, freshwater and marine environments. The Strategy provides a framework for a more co-ordinated and structured approach to dealing with non-native species and any potential invasive threat in or to Britain. The Strategy aims to raise awareness of non-native species issues and promotes changes in behaviour to reduce or prevent the intentional and unintentional introduction of INNS.

A range of domestic legislation exists which deals with the introduction and control of non-native species. A full summary is available on the website of the [GB Non-Native Species Secretariat](#).

[The Wildlife and Countryside Act 1981](#) (WCA) is the principal legislation dealing with non-native species in England and Wales, with Section 14 placing restrictions on the introduction or sale of certain specified non-native species. The WCA has been amended by several subsequent Acts. One of these, [The Wildlife and Natural Environment \(Scotland\) Act 2011](#), enables relevant authorities (the Scottish Government acting on behalf of Scottish Ministers, NatureScot, , SEPA and the Forestry and Land Scotland) to set out measures that must be taken to control or eradicate INNS when control is considered to be both viable and of sufficient priority. The Scottish Government has also published a [Code of Practice on Non-Native Species](#) to outline these legal responsibilities.

The [UK Marine Policy Statement](#) sets the framework for preparing Marine Plans and taking decisions affecting the marine environment. Marine Plans in England are developed in accordance with the requirements of the [Marine and Coastal Access Act 2009](#). The North East Marine Plans contain policies to reduce the introduction or spread of INNS and which promote the adoption of good biosecurity measures. The legislation covering Marine Planning in Scotland is the [Marine \(Scotland\) Act 2010](#). This legislation also underpinned the production [Scotland's National Marine Plan](#) in 2015. General Policy 10 of the Scottish National Marine Plan covers Invasive non-native species and states: *Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made.*

The [Prohibition of Keeping or Release of Live Fish \(Specified Species\) \(Scotland\) Order 2003](#) regulates the keeping or release of certain species of fish (including Pacific Pink Salmon) in Scotland. [The Keeping and Introduction of Fish Regulations 2015](#) gives the Environment Agency the power to regulate the introduction of fish into inland water in England (excluding the River Tweed). Fish movement on the River Tweed is regulated by the River Tweed Commission under various [Tweed Fisheries Acts](#).

#### International Legislation and Policy

[Convention on Biological Diversity \(CBD\)](#) is a legally binding international treaty to which the UK is a signatory. As part of the CBD there is a call to “prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species.” Under the Strategic Plan for Biodiversity 2011-2020, an overarching framework for the Convention, all participating parties were encouraged to produce national strategies and action plans to address the issue of invasive non-native species.

[The Convention for the Protection of the Marine Environment of the North-East Atlantic](#) was signed and ratified by the UK Government as part of the Oslo and Paris Commission in 1992, and is referred to as the **OSPAR Convention**. The North-East Atlantic Environment Strategy 2030 includes an implementation plan to ensure the marine conservation objectives in the OSPAR Convention are achieved in this decade.

[The EU IAS Invasive Alien Species Regulation \(EC 1143/2014\)](#) Provides for a set of measures to be taken across Member States in relation to Invasive Alien Species (IAS) that are included on a ‘list of Invasive Alien Species of Union Concern.’ Three core strategies are detailed, prevention, early detection and rapid eradication and management. Following EU Exit, this Regulation has been retained in UK Law in England through [the Invasive Non-native Species \(Amendment etc.\) \(EU Exit\) Regulations 2019](#) and in Scotland through [the Invasive Non-native Species \(EU Exit\) \(Scotland\) \(Amendment etc.\) Regulations 2020](#).

[The Water Framework Directive](#) [European Commission Directive on the community action in the field of water policy (2000/60/EC)] established a framework of measures to achieve or maintain water bodies - including estuarine and inshore coastal waters - reach good ecological status by 2015 (or by 2027 at the latest if longer timescales can be justified) and prevent any further deterioration. In order to achieve Good Ecological Status, the Directive requires that INNS ‘have not damaged the native aquatic plant and animal communities. Following EU-exit, the requirements of the Directive have been retained in England through [the Water Environment \(Water Framework Directive\) \(England and Wales\) Regulations 2017](#) and in Scotland through [the Water Environment and Water Services \(Scotland\) Act 2003](#)).

#### 1.4 Relationship of this Plan to Other Plans and Policy

This Plan links Government-led policy, legislation and strategic action with local actions. It supports the provisions and requirements of the following existing Plans and Strategies:

- [The Great Britain Invasive Non-Native Species Strategy](#)
- [The North East Inshore and Offshore Marine Plans](#)
- [The River Basin Management Plans for the Solway Tweed River Basin District and for the Northumbria Basin District](#)
- [The Management Scheme and Delivery Plan for the Berwickshire and Northumberland Coast 2021](#)

This document is intended to complement the [North East Invasive Non-Native Species Strategy and Action Plan 2020-2024](#) which deals solely with terrestrial and freshwater invasives and does not address marine INNS.

This Plan also supports the conservation objectives of Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Marine Conservation Zones (MCZs) in the inshore and estuarine waters between Fast Castle Head in Scotland and the River Tyne in England.





## 2. Marine INNS and the Berwickshire and Northumberland Coast

### 2.1 Description of the area

This document covers the inshore waters and the tidal estuaries found within the area covered by the Berwickshire and Northumberland Marine Nature Partnership, which extends from the River Tyne in England to Fast Castle Head in Scotland. This coastline is characterised by wide sandy bays interspersed with areas of rocky platforms and headlands, with areas of mudflat and saltmarsh found around Lindisfarne and on the estuaries of the Tweed, Aln, Coquet, and Blyth. The area contains one of the most important marine areas in Europe and is subject to multiple conservation designations reflecting its national and international importance (See Annex 1 for list of the main marine designated sites)

### 2.2 Use of the area

The Berwickshire and Northumberland coast supports a number of maritime industries. There are a number of commercial ports and harbours within the area, most notably at St Abbs, Eyemouth, Berwick upon Tweed, North Sunderland (Seahouses), Warkworth (Amble) and at Blyth, with the Port of Tyne immediately adjacent to the Plan area. Commercial fishing still operates out of local harbours and is largely concentrated on pot/creel fisheries for species such as crab and lobster. Pacific Oyster are reared commercially by an aquaculture operation at Fenham Flats. A growing renewable industry, including offshore wind development, has strong links to the Port of Blyth and to Eyemouth Harbour.

The area is well used for coastal recreation and water sports, including fishing, sailing, paddleboarding, diving, and kayaking. There are marinas operating at Amble and Blyth. Marine wildlife watching is a popular part of the local visitor economy, with charter boat companies operating out of Eyemouth, Seahouses and Amble.

### 2.3 Current threats from Marine INNS

There are currently thought to be eight species of Marine INNS present as free-living organisms within the Berwickshire and Northumberland coast, although several of these are not currently thought to pose a significant environmental or socio-economic threat. (Table 1 and Annex 1).

Whilst this number is relatively small compared to other parts of the world and other parts of the UK, it is in the interests of all users of the Berwickshire, Northumberland and North Tyneside coast to keep the number of INNS to a minimum.

**Table 1: Marine INNS Currently Present in the Plan Area**

	Name	Occurrence
Algae	Harpoon Weed <i>Asparagopsis armata</i>	Records from North Longstone on the Farne Islands in 2021 for Black Carrs at St Abbs in 2016.
	Green sea fingers <i>Codium fragile</i>	Local records from Beadnell, Bamburgh, Whitley Bay and Petticowick.
	Oyster Thief <i>Colpomenia peregrina</i>	Existing records from Berwickshire and Northumberland, including Cullercoats, Lindisfarne and Killidraughts
Barnacle	Darwin's barnacle <i>Austrominius modestus</i>	Recorded at a number of locations on the Berwickshire and Northumberland coast
Sea Squirt	Orange-tipped sea squirt <i>Corella eumyota</i>	Records along the Northumberland coast up to Berwick upon Tweed. Scottish record from Dunbar.
Bryozoan	Orange-Ripple Bryzoan <i>Schizoporella japonica</i>	Found on settlement panels at Port of Blyth in 2018
Mollusc	Pacific oyster <i>Magallana gigas</i>	Records of free-living individuals on the Berwickshire coast. Also farmed commercially at an aquaculture operation on Fenham Flats in Northumberland.
Fish	Pacific Pink Salmon <i>Oncorhynchus gorbuscha</i>	Previously recorded in the Tweed and the Coquet. Potential to impact on stocks of native Atlantic Salmon through competition and transmission of disease and parasites.

## 2.4 Horizon Scanning – Marine and Estuarine INNS of High Concern

A number of other Marine or estuarine INNS are unknown to occur more widely in UK water. Of these 10 species are of particular concern to the Berwickshire and Northumberland coast as they are thought to have a high risk of introduction and/or pose significant ecological threats (Table 2).

**Table 2: Marine INNS with high risk of introduction into the Plan area**

	Species	Reason For Concern
Algae	Wakame <i>Undaria pinnatifida</i>	High establishment potential and potentially significant environmental impacts with native kelp species. Also a fouling nuisance. Present on the Firth of Forth.
	Wireweed <i>Sargassum muticum</i>	High establishment potential. Competes with native seaweeds and is a nuisance species for boating and harbour management. Previous records from Killiedraughts Bay appear to be a misidentification but confirmation needed.
Sea Squirt	Carpet sea squirt <i>Didemnum vexillum</i>	High potential for establishment. Threat to biodiversity through smothering. Rapid fouling ability so a high impact species
	Leathery sea squirt <i>Styela clava</i>	Fouling organism with potential economic impacts
Mollusc	Slipper limpet <i>Crepidula fornicate</i>	Many potential pathways for entry and suitable habitat available for establishment. High potential for environmental and economic impacts
	Zebra mussel <i>Dreissena polymorpha</i>	Predominantly a freshwater species but can also occur in brackish estuarine situations. Can significantly reduce native biodiversity. But also causes nuisance and economic problems.
	American oyster drill <i>Urosalpinx cinerea</i>	Preys heavily on both native and introduced oyster species. It feeds preferentially on oyster spat. GB distribution limited to Essex and Kent coasts, primarily in estuaries. Spread is believed to be as a result of transportation with oysters.
Crustacean	Chinese mitten crab <i>Eriocheir sinensis</i>	Recorded from the River Tyne but no records yet from the area covered by this plan. Single unconfirmed report from Lindisfarne in 2014. Can cause environmental and economic impacts
	Japanese skeleton shrimp <i>Caprella mutica</i>	Threat to native skeleton shrimp populations even at low densities. Potential impacts on benthic communities. Unconfirmed record from near Lindisfarne. Reports from Scottish waters where it often appears ephemeral in nature.
	American Lobster <i>Homarus americanus</i>	<a href="#">UK Alert species</a> Poses risk to native lobster populations. Increasing reports of individuals on the Berwickshire and Northumberland coast but no evidence yet of permanent establishment.

### 3. Our Approach to Dealing with the Threats Posed by Marine INNS

This Plan adopts the hierarchical approach to dealing with Marine INNS set out by the [Convention on Biological Diversity \(CBD\)](#) and the [GB Invasive Non-Native Species Strategy](#):

**Prevention** – the most effective and least environmentally damaging option for INNS is to prevent their introduction. This is particularly true for marine INNS as their management, once established, can be difficult and expensive. A clear understanding of potential introduction pathways, good biosecurity, and awareness raising are all important measures in preventing the introduction of marine INNS.

**Early Detection, Surveillance, Monitoring and Rapid Response** – accurate, up to date information on presence and distributions is needed to underpin our decision making on Marine INNS. A priority is to identify the presence of marine INNS at the earliest opportunity and to verify/validate reports of INNS. The precautionary approach in the CBD suggests that action should be taken to eradicate a non-native species or prevent its further establishment or spread where the risk assessment process concludes that it represents or is likely to represent a threat.

**Long-Term Management and Control** – where a marine INNS is widespread and eradication is not feasible, measures may be needed to contain or control the species, or to mitigate against its impacts. However, there may be times when it is not appropriate or feasible to take any action.

The success of this approach will require the building of local awareness, capacity and partnership.

### 4. Potential pathways for introduction of Marine INNS

Marine INNS can be introduced and spread into the marine environment through a number of different pathways. Preventing the introduction and establishment of new INNS on the Berwickshire and Northumberland coast is a high priority so it is important to understand these pathways so that action can be taken to prevent their spread. The pathways or vectors which are thought to be most relevant to the Berwickshire and Northumberland coast are (in alphabetical order):

- Aquaculture
- Attachment to marine debris
- Ballast water release

- Escape or release from aquaria and catering
- Habitat restoration and creation
- Hull fouling
- Maintenance of port and harbour Infrastructure
- Natural dispersal
- Recreational water sports and equipment
- Relocation of structures and equipment

**Table 3: Potential Pathways for the introduction or spread of Marine INNS**

Pathway	Risks associated with the pathway
Aquaculture	<p>Introduction of INNS attached to imported aquaculture stock or equipment.</p> <p>Escape of invasive species from aquaculture operations</p> <p>Introduction of additional species accidentally e.g. invasive seaweeds used as packaging, juvenile crabs in transported mussel seed</p>
Attached to marine debris/litter	Movement of INNS through tidal and ocean currents while attached to debris e.g. discarded fishing gear and plastic waste.
Ballast Water Release	INNS present in ballast water are transferred to transfer to new locations when water is pumped out by ships
Escape or release from aquaria and catering	Escape or deliberate release of INNS from tanks and aquaria
Habitat Restoration and creation	Introduction of marine INNS when importing material for use in habitat creation schemes (e.g. saltmarsh, native oyster beds, seagrass etc.)
Hull fouling	INNS colonise the hulls of commercial or recreational vessels and are transported to new locations
Maintenance of Port or Harbour Infrastructure	<p>Introduction of INNS when importing materials for construction and maintenance of structures such as walls, breakwaters, jetties, piers, slipways etc.</p> <p>Moving, berthing and haul out of vessels from outside local water body can risk introduction of INNS</p> <p>Provision of berthing facilities and moorings, including recreational berthing facilities and moorings allow new opportunities for the introduction of INNS</p>
Natural dispersal	Distribution of INNS on water currents. Even sessile species such as barnacles have free swimming larvae which can be carried over long distances

Pathway	Risks associated with the pathway
Angling	Transfer of INNS between water bodies/localities on angling equipment
Recreational boating and water sports	Transfer of INNS between water bodies/localities on equipment and clothing e.g., kayaks, dive gear, jet-skis, mooring ropes etc.
Relocation of structures and equipment	Transfer of INNS during movements or disposal of pontoons, barges, buoys, navigation aids, anchor chains, commercial fishing gear, underwater equipment

#### 4.1 Pathway Action Plans

National Pathway Action Plans (PAPs) have been produced for [Angling](#) and for [Recreational Boating](#). These address pathways of introduction or spread of non-native species in Great Britain. The plan outlines the general policy and approaches as well as deliverables by government and other actors in relation to this issue. These are currently in draft but will be consulted on in future.

## 5. Biosecurity

Control of marine INNS once they have established in an area can be both expensive and difficult. The emphasis should therefore be on preventing the arrival and establishment of marine INNS.

Table 4 gives examples of the potential biosecurity measures that can be adopted to limit the likelihood of INNS spreading or becoming established in the Berwickshire and Northumberland coast.

#### 5.1 Biosecurity Planning

The production of Biosecurity Plans for particular time-limited activity, such as a construction project, or for the ongoing operations of a particular site, such as a harbour or marina, can be a helpful tool for thinking about potential INNS issues, demonstrating good environmental practice, and for building shared understanding among site users and site staff.

A number of online resources are available to support the production of Biosecurity Plans. These include:

- [Marine Biosecurity Planning Guidance for Scotland](#)
- [Marine Biosecurity Planning Guidance for England and Wales](#)
- [Marine Biosecurity Toolkit](#) (RAPID LIFE Project) – includes guidance, leaflets, videos and PowerPoint presentations
- [Biosecurity Plan Templates](#)

**Table 4: Possible Biosecurity measures associated with different pathways**

Pathway	Risks associated with the pathway	Possible Biosecurity Measures	Relevant Sector(s)
Aquaculture	<p>Introduction of INNS attached to imported aquaculture stock or equipment</p> <p>Escape of invasive species from aquaculture operations</p> <p>Introduction of additional species accidentally e.g. invasive seaweeds used as packaging, juvenile crabs in transported mussel seed</p>	<p>'Check, Clean, Dry' all marine equipment and clothing between use and before moving from one water body to another.</p> <p>Keep records of when equipment is due to have antifouling renewed.</p> <p>Remove unused equipment and stock so that it is not left in the environment longer than required.</p> <p>Regularly check sites and imported equipment/stock for the presence of possible marine INNS.</p> <p>Comply with the <a href="#">ICES Code of Practice on the Introductions and Transfers of Marine Organisms 2005</a></p>	Aquaculture
Attached to marine debris/litter	<p>Movement of INNS through tidal and ocean currents while attached to debris e.g. discarded fishing gear and plastic waste.</p>	<p>Minimise marine litter / debris.</p> <p>Compliance with National Litter Strategies and <a href="#">The Code of Practice on Litter and Refuse (COPLAR)</a></p> <p>Participation in the Fishing for Litter initiative.</p> <p>Beach cleaning activities.</p>	<p>Ports/Harbours</p> <p>Marinas</p> <p>Recreation and Water Sports</p> <p>Local Authorities</p> <p>General Public</p>
Ballast Water Release	<p>INNS present in ballast water are transferred to transfer to new locations when water is pumped out by ships</p>	<p>Follow the <a href="#">Ballast Water Convention</a> and do not pump non-treated water out in harbours or into inshore waters.</p>	<p>Commercial Shipping</p> <p>Ports and Harbours</p>

Pathway	Risks associated with the pathway	Possible Biosecurity Measures	Relevant Sector(s)
Escape or release from aquaria and catering	Escape or deliberate release of INNS from tanks and aquaria	Do not release animals and plants from aquaria.  Use native species in aquaria whenever possible.	Aquarium Stockists  Catering and Seafood Industry  General Public
Habitat restoration and creation	Introduction of marine INNS when importing material for use in habitat creation schemes (e.g. saltmarsh, native oyster beds, seagrass etc.)	Assess the likely presence of marine INNS at donor sites for materials used in habitat restoration or creation schemes  Check donor materials for signs of marine INNS. Where appropriate  For oyster introductions, scrub and clean specimens before placement  Produce Biosecurity Plans as part of any licence application for a Marine Licence	Environmental NGOs and charities  Government Agencies  Ports and Harbours
Hull fouling	INNS colonise ships' hulls and are transported to new locations	Carry out annual haul-out of vessel and treatment with antifouling.  When treating a craft with antifoul ensure 100% surface cover to ensure areas are not left available for plant or animal growth.  Do not allow contaminated anti-foul material to enter drains, watercourses or the marine environment.  Do not allow rinse water to return to the marine environment.  Hull design to prevent fouling and encourage easy cleaning.	Commercial Shipping  Fishing  Recreation and Water Sport  Marinas



Pathway	Risks associated with the pathway	Possible Biosecurity Measures	Relevant Sector(s)
Maintenance of Port or Harbour Infrastructure	<p>Introduction of INNS when importing materials for construction and maintenance of structures such as walls, breakwaters, jetties, piers, slipways etc.</p> <p>Moving, berthing and haul out of vessels from outside local water body can risk introduction of INNS</p> <p>Provision of berthing facilities and moorings, including recreational berthing facilities and moorings allow new opportunities for the introduction of INNS</p>	<p>'Check, Clean, Dry' all vessels, marine equipment and clothing between use and before moving from one water body to another.</p> <p>Ensure all equipment and structures, as far as possible, can be slipped or dry docked should they become fouled by one or more of the highest risk invasive species and require treatment.</p> <p>Annually treat port or harbour vessels with antifouling.</p> <p>Remove unrequired man-made structures from the water.</p> <p>Encourage staff to be aware of and report any heavily fouled vessels or structures (see section 7.1 for details of reporting mechanism).</p> <p>Raise awareness of marine INNS among staff, tenants, and users of port or harbour facilities, e.g., through posters, information leaflets, training etc.</p>	<p>Ports and Harbours</p> <p>Marinas</p>
Natural dispersal	Distribution of INNS on water currents. Even sessile species such as barnacles have free swimming larvae which can be carried over long distances	Understand tidal currents and spread risk for each invasive species.	
Angling	Transfer of INNS between water bodies/localities on equipment and clothing	<p>'Check, Clean, Dry' all equipment and clothing between use and before moving from one water body to another.</p> <p>Use indigenous live bait for angling which has been sourced locally.</p> <p>Follow the <a href="#">GB Code of Conduct on Invasive Non-Native Species for Recreational Angling</a></p>	<p>Anglers</p> <p>Recreation and Water Sports</p> <p>Charter boat companies</p>

Pathway	Risks associated with the pathway	Possible Biosecurity Measures	Relevant Sector(s)
		A detailed GB Pathway Action Plan has been produced for <a href="#">Angling</a>	
Recreational water sports and equipment	Transfer of INNS between water bodies/localities on equipment and clothing e.g., kayaks, dive gear, jet-skis, angling gear, mooring ropes etc.	<p>'Check, Clean, Dry' all marine equipment and clothing between use and before moving from one water body to another.</p> <p>Use indigenous live bait for angling which has been sourced locally.</p> <p>Follow the <a href="#">GB Code of Conduct on Invasive Non-Native Species for Recreational Angling</a></p> <p>Detailed GB Pathway Action Plans have been produced for both <a href="#">Angling</a> and <a href="#">Recreational Boating</a>.</p>	<p>Recreation and Water Sports</p> <p>Charter boat companies</p> <p>Marinas</p>
Relocation of structures and equipment	Transfer of INNS during movements or disposal of pontoons, barges, buoys, navigation aids, anchor chains, commercial fishing gear, underwater equipment	<p>'Check, Clean, Dry' all structures and equipment before moving from one water body to another.</p> <p>Raise awareness of marine INNS and how they are spread.</p>	<p>Ports and Harbours</p> <p>Commercial fisheries and aquaculture</p> <p>Marinas</p> <p>Recreation and Water Sports</p>

## 6. Monitoring and Surveillance of INNS

An up-to-date knowledge of the distribution of marine INNS allows us to assess their spread and impact, and the early detection of the presence of a new INNS increases the likelihood of successful action being taken to manage its impacts.

Within the Berwickshire and Northumberland coast our main priorities for the monitoring of marine INNS are:

- To detect changes in the distribution and abundance of those marine INNS already present in the area
- To detect the presence of those marine INNS previously unrecorded from the area

### 6.1 Potential Sources of Monitoring and Surveillance Data

Information on the presence and distribution of marine INNS can be obtained from a number of different sources:

#### a) Ad hoc records of occurrence

A number of recording schemes operate within the Berwickshire and Northumberland coast which encourage members of the public to submit their wildlife sightings. Such records can be important in identifying the presence of marine INNS in new locations.

Employees or users of ports, harbours or marinas are well placed to notice anything different about their site and should be encouraged to report any sightings of new or unusual species as this may provide an early warning about the presence of a marine INNS.

#### b) Ongoing condition monitoring

Several government agencies carry out routine monitoring of coastal and marine sites. For example, NatureScot and Natural England undertake condition assessment monitoring of marine designated sites, SEPA and Environment Agency undertake Water Framework Directive monitoring, and Northumberland IFCA undertakes a variety of fisheries-related monitoring.

Although none of this monitoring is aimed directly at detecting the presence of marine INNS they offer an opportunity for the early identification of the presence of species which may be of concern.

#### c) Citizen Science Surveys

As well as monitoring carried out by Government Agencies, there are a number of Citizen Science initiatives which engage the general public in collecting biological data and which can be a vehicle for detecting the presence of Marine INNS. This includes activity such as rocky shore monitoring carried out on the Berwickshire coast by volunteers from the Berwickshire Marine Reserve, and on the Northumberland coast by volunteers from Coast

Care. A number of relevant national initiatives are also active such as Seasearch, coordinated by the Marine Conservation Society.

d) Settlement Panel

The use of submerged Settlement Panels is a widely accepted technique for monitoring the presence of fouling organisms with settings such as harbours and marinas. Panels are easy to install and lend themselves to Citizen Science approaches, especially for easily detectable or recognisable species, but support and training is needed for volunteers.

A network of settlement panels has been established by Natural England, Environment Agency and Newcastle University. Within the area covered by this strategy, there are panels in place at the Port of Blyth and at Lindisfarne Causeway within additional panels in place in the wider region, including on the Tyne estuary. The panels are examined as part of Dissertation projects and a current limiting factor in their use is the availability of students.

e) Rapid Assessment Surveys

Rapid Assessment Surveys typically take an hour or less and involved searches for marine INNS on submerged structures. They the most cost-effective way of monitoring for INNS but require trained staff. The technique can be used in association with settlement panels. Rapid Assessment Surveys of selected marinas in England have been undertaken by the Marine Biological Association in 2016 and 2023. This has included Rapid Assessment Surveys at Blyth.

f) Monitoring as a condition of licences and consents

Monitoring for INNS can be included, where appropriate, in any environmental monitoring requirements put in place as part of the conditions on a licence or consent for marine activities.

g) Environmental DNA

Environmental DNA (eDNA) is the DNA shed by an organism into its surroundings, for example as mucus or dead cells. Detection of this DNA in water samples can provide a means of detecting the presence of a particular species even when no visual identification has been made.

Newcastle University will be trialling the use of eDNA to identify marine INNS as part of the [WADER LIFE Project](#).

## 7. Responding to the discovery of Marine INNS

Any sightings of marine INNS should be reported at the earliest. This is particularly important for [UK Alert Species](#) such as American Lobster.

### 7.1 Reporting of Marine INNS

It is important to report suspected sightings of Invasive Non-Native Species so that their distribution can be tracked and any necessary biosecurity measures taken.

In the first instance reports of all other invasive species should be made online via the national INNS reporting system at i-record <https://irecord.org.uk/enter-non-native-records>

When reporting sightings it is helpful to:

- take a photo
- identify the location, ideally to the nearest 100m
- note the date and roughly how many were seen

#### 7.1.1 Alternative Species-Specific Reporting Mechanisms

A “Retain and Report” system also exists in for American Lobster in [England](#) and in [Scotland](#) and any specimens caught can be report to Marine Management Organisation, Northumberland IFCA or the Marine Directive of the Scottish Government.

A National Hotline has been created for fisheries managers, anglers, net fishers and members of the public to report any sightings or catches of Pacific Pink Salmon. The number of the hotline is **0800 80 70 60** or alternatively reports can be made [via an online tool](#).

### 7.2 Local Response to the Presence of INNS

For certain new [high-alert species](#) that are not yet present in the UK or established, a rapid response would be triggered by new records which would be coordinated nationally by the responsible authority. The responsible authority would take on coordinating verification, surveying and a rapid response, working closely with stakeholders.

For all **other INNS** the local procedure following identification should be:

- Where possible, a physical sample of the species should be preserved for analysis to verify its identity and guide further steps
- Work with local environmental record centres and relevant national groups to ensure timely verification of records
- Determine the extent of the infestation
- Carry out surveys in course of normal work to establish and map distribution

- Identify the likely source by which the INNS has reached the location and close pathways if possible
- Assess, in consultation with relevant national staff, whether control is feasible or necessary
- Monitor the affected area
- Follow relevant Codes of Practice and best practice to prevent further spread

## 8. Evaluation and Review

Progress in delivering this Plan will be reviewed biennially. The assessment of progress will include consideration of:

- Progress with delivering agreed actions
- The occurrence and distribution of marine INNS within the Berwickshire and Northumberland Marine Nature Partnership area
- The efficacy of surveillance and monitoring for marine INNS
- The ability to close or restrict established pathways of transmission.
- Any established rapid-responses, control and eradication programmes undertaken

The first full review of this Plan is due in **November 2025**.

## 9. Action Plan

ACTION	LEAD	PARTNERS	TIMEFRAME			
			2023	2024	2025	2026
Objective 1: Continue to reduce the risk of introduction and spread of marine INNS on the Berwickshire and Northumberland coast through awareness raising and promotion of good biosecurity						
Outcome 1: Key stakeholders share a common aware of the threat of marine INNS						
Continue to update MNP website with INNS/Biosecurity information	B&N MNP					
Use MNP social media to raise awareness of INNS/Biosecurity	B&N MNP					
Promote the Check Clean Dry Scheme	EA, SEPA	B&N MNP, NIFCA, Port and Harbour Authorities				
Continue to maintain a list of marine INNS of concern to the Berwickshire and Northumberland coast and review this annually	B&N MNP	Defra, Scottish Government				
Create a toolkit on MNP website signposting to existing guidance and outreach materials on Marine INNS	B&N MNP	Defra, GB NNSS				
Review what additional bespoke outreach material is needed for the Plan area. These could include tailored ID guides, targeted messaging, case-studies etc.	B&N MNP	EA, SEPA, NE, NatureScot, MMO, Marine Directive				
Commission bespoke outreach material for Plan area if need is identified by review	B&N MNP					
Organise training for MNP members and stakeholders about marine INNS and biosecurity planning	B&N MNP	EA, SEPA, NE, NatureScot, MMO, Marine Directive, Port and Harbour Authorities				
Seek funding to support INNS training for stakeholders	B&N MNP					
Promote development of site biosecurity plans to harbour/ports/marina/watersports facilities and work with these,	B&N MNP	Defra, Scottish Government, EA, SEPA, Port and Harbour Authorities				

ACTION	LEAD	PARTNERS	TIMEFRAME			
			2023	2024	2025	2026
where appropriate, to facilitate production						
Promote inclusion of Marine INNS in future iterations of the North East Non-Native Species Strategy	B&N MNP	EA				
Create a specific Marine INNS email group to discuss any pertinent issues around Marine INNS and to discuss appropriate response to new records of marine INNS	B&N MNP					
<b>Objective 2: Promote optimum surveillance, detection, monitoring and rapid response systems for the identified Marine INNS which pose significant threats to biodiversity and economic interests</b>						
<b>Outcome 2a: A programme of data gathering is in place to help provide an early warning of the presence of new invasive species on the Berwickshire and Northumberland coast and to monitor changes in distribution of those marine INNS already present</b>						
Review current monitoring and surveillance measures in place for Marine INNS and identify any gaps in coverage or other issues	B&N MNP Data and Monitoring Group					
Identify key locations for monitoring/surveillance of marine INNS and any new monitoring or surveillance measures which are required	B&N MNP Data and Monitoring Group					
On an annual basis, collate current records of Marine INNS recorded within the Plan area	B&N MNP	ERIC-NE, TWIC				
Liaise with ERIC North East about how to improve verification processes for records of Marine INNS	B&N MNP	ERIC-NE				
Continue to maintain network of settlement panels and to seek opportunities for these to be checked for the presence of marine INNS	NE, EA, Newcastle University	B&N MNP				
Check for the presence of marine INNS during routine survey work	NatureScot, NE, SEPA, EA, NIFCA	B&N MNP				
Through the WADER LIFE Project, trial eDNA techniques to detect	Newcastle University, NE, EA	B&N MNP				



ACTION	LEAD	PARTNERS	TIMEFRAME			
			2023	2024	2025	2026
the presence of Darwin's barnacle ( <i>Austrominius modestus</i> )						
Promote hull checking at ports and harbours and the reporting of any suspicious organisms	B&N MNP	Port and Harbour Authorities				
Seek to confirm the presence and extent of Harpoon Weed <i>Asparagopsis armata</i> and Wireweed <i>Sargassum muticum</i> within the Plan area	B&N MNP	NT, BMR, StAMS, Newcastle University				
Seek funding to support marine INNS monitoring and surveillance, including through the incorporation of INNS work into wider projects	B&N MNP	EA, SEPA, NE, NatureScot, MMO, Marine Directive, NWL				
<b>Outcome 2a: People are aware of how to report the presence of marine INNS and the appropriate response mechanism for those INNS which pose significant threats to local marine and coastal biodiversity</b>						
Promote a single point of contact for reporting records of marine INNS	B&N MNP	NatureScot, NE, MMO, Scottish Government's Marine Directive				
Promote guidance on appropriate steps to take when INNS are recorded from a new area	B&N MNP	ERIC-NE, TWIC				
<b>Objective 3: Develop effective management programmes for existing marine INNS, where management is thought to be necessary, feasible and sustainable</b>						
<b>Outcome 3: Where practicable, the impact and further spread of those marine INNS already established on the Berwickshire and Northumberland coast is minimised through appropriate management measures</b>						
Assess whether any existing populations of marine INNS require additional management actions	B&N MNP	Defra, Scottish Government				
Create an informal standing group who can act as a first point of contact to identify any initial actions required if new marine INNS are detected in the Plan area	B&N MNP	NatureScot, NE, MMO, SEPA, EA Scottish Government's Marine Directive				
Seek to understand the pathways through which any new marine INNS have arrived in the area and assess what action is required to reduce the risk of further spread	B&N MNP, EA, SEPA, NatureScot, NE, Scottish Government's Marine Directive					

## Appendix 1 – Additional Information About Marine INNS Currently Recorded From the Berwickshire, Northumberland or North Tyneside Coast

### Harpoon Weed (*Asparagopsis armata*)



Image credit: Kathryn Birch - CCW

A rosy-pink seaweed which has distinctive harpoon-like branches with barbs that can attach it to other algae. Branches can grow up to 30cm long. Sea temperature in the British Isles are currently thought to preclude sexual reproduction but the species can spread vegetatively via live fragments. Harpoon weed has been reported as dominating algal assemblages in some areas and can cause a nuisance to fishing nets. Two records exist within the area covered by this Plan: one from the Farne Islands in Northumberland, and one from the Berwickshire coast. Both records are shown as verified on the NBN Atlas but doubt has been raised about the validity of at least one of these and further work is needed to confirm the presence and extent of the species.

### Green Sea Fingers (*Codium fragile*)

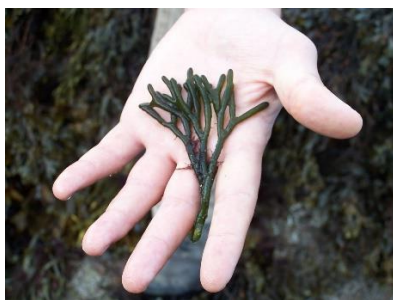


Image credit: Niall Moore

A spongy green seaweed with numerous Y-shaped, branching, cylindrical fronds, typically up to 40cm in size. The fronds have a felt-like texture and a disc-shaped holdfast formed from many fine filaments. Green sea fingers grow in intertidal and shallow sub-tidal areas where it attaches to rocks and artificial structures. It can cause a nuisance to humans when it accumulates and rots on beaches, producing a foul smell. Where it occurs in high densities, green sea fingers can be a fouling nuisance to shellfish beds. Currently it is not thought to be causing ecological or economic problems at its localities in Berwickshire and Northumberland.

### **Oyster Thief (*Colpomenia peregrina*)**



Image credit: B&N MNP

A balloon-like algae, usually 3-9cm in size. contorted and collapsed with age. It is papery and delicate. Oyster thief prefers sheltered areas and grows in rockpools, on hard structures or on other seaweeds. It attaches itself by root-like filaments from a single point at the base. The species has negligible effects on the environment. No economic impacts have been recorded in recent times.

### **Darwin's barnacle (*Austrominius modestus*)**



Image credit: Paul Brazier - CCW

A small white barnacle, 5 -10 mm in diameter, which is characterised by having four shell plates. It has a low, conical body shape with a diamond shaped opening. The species is native to Australasia and is now widely distributed around most coasts of England and Wales and present in a few areas of Scotland. Darwin's barnacle grows on hard surfaces and is most commonly found in intertidal areas. It tolerates a wide range of temperature and salinity and can dominate hard surfaces and can outcompete native species. It can be a nuisance as a fouling organism.

### **Orange-tipped Sea Squirt (*Corella eumyota*)**



Photo credit: Kelvin Perrie, CC BY 4.0 via Wikimedia Commons

A non-colonial sea squirt which grows up to 8 cm in length. It generally lays flat, with one siphon slightly to the right. Siphons often have orange tinge. The species has a distinctive curved or U-shaped gut, unlike other similar squirts which have an S-shaped gut. It is mainly

found in marinas and harbours but is also recorded on natural habitats such as rocky shore. Individuals are small but may form dense clumps by settlement of larvae onto older individuals. Clumps could clog pipes or render submerged gear (e.g. in aquaculture) cumbersome. Orange-tipped Sea Squirt is a potential competitor for food and space with cultured bivalves.

### **Orange-Ripple Bryzoan (*Schizoporella japonica*)**



Photo credit: J. Loxton, C. A. Wood, J. D. D. Bishop, J. S. Porter, M. Spencer Jones, C. R.

Nall, CC BY-SA 4.0 via Wikimedia Commons

A colonial organism that forms circular encrusting mats which can reach several centimetres in diameter. Colonies are bright orange and made up of rectangular or polygonal individuals. They attach to solid surfaces in shallow water in areas such as marinas and harbours. It can compete with native organisms for space and cause a fouling of boats and infrastructure. Orange-ripple bryzoan was identified on settlement panels in the Blyth estuary in 2018.

### **Pacific oyster (*Magallana gigas*)**



Image credit: Paul Brazier – CCW

Deliberately introduced to Great Britain from Canada during the 1960s for commercial purposes. The species grows up to 18cm in length and has thick, rough, shells with distinctively wavy or saw-toothed shell margins. Farmed populations occur throughout England, Scotland, Wales and Ireland, and are widespread in Europe. It was initially presumed that temperatures in British waters would not be suitable for Pacific oyster escapees have established feral populations in south-east and south-west England and Wales. Free-living individuals have also been recorded on the Solway, Firth of Forth and on the Berwickshire coast. Pacific oysters live permanently attached to any hard substrate in intertidal and shallow subtidal zones of estuaries and coastal waters. In muddy or sandy areas they will settle on small rocks, shells or other oysters and can create reefs by cementing their shells to each other, forming dense layers. Once established the Pacific oyster may out-compete and displace native species. It also has the potential to smother or

exclude other marine life (including reef-building species) and alter habitat type. Pacific oyster is seen to outcompete both the native oyster (*Ostrea edulis*) and the blue mussel (*Mytilus edulis*).

**Pacific Pink Salmon** (*Oncorhynchus gorbuscha*)



Picture credit: Timothy Knepp - U.S. Fish and Wildlife Service, Public Domain

Native to the northern Pacific ocean and coastal rivers of North America and Asia but has migrated to the UK from fishery stocks imported into Russia. It has been reported from a number of rivers in Scotland and England, including the Tweed and the Coquet, and there is thought to be a high risk that it may become established in the British Isles. The fish only appears in odd-numbered years due to spawning patterns. Carcasses of pink salmon may affect native salmonids spawning, sea lamprey nests, or nutrient-sensitive pearl mussels and, if established in the UK, may lead to declines in the native Atlantic salmon.

## Appendix 2 – Summary of Interest Features of Marine Protected Areas

Site	Designated Features of Site
St. Abb's Head to Fast Castle SPA	<ul style="list-style-type: none"> <li>• Seabird assemblage, breeding</li> <li>• Guillemot (<i>Uria aalge</i>), breeding</li> <li>• Herring gull (<i>Larus argentatus</i>), breeding</li> <li>• Kittiwake (<i>Rissa tridactyla</i>), breeding</li> <li>• Razorbill (<i>Alca torda</i>), breeding</li> <li>• Shag (<i>Phalacrocorax aristotelis</i>), breeding</li> </ul>
Berwickshire and North Northumberland Coast SAC	<ul style="list-style-type: none"> <li>• Reefs</li> <li>• Submerged and Partially Submerged Sea Caves</li> <li>• Intertidal Sand and Mud Flats</li> <li>• Large Shallow Inlets and Bays</li> <li>• Grey Seal (<i>Halichoerus grypus</i>)</li> </ul>
Tweed Estuary SAC	<ul style="list-style-type: none"> <li>• Estuaries</li> <li>• River lamprey (<i>Lampetra fluviatilis</i>)</li> <li>• Sea lamprey (<i>Petromyzon marinus</i>)</li> <li>• Mudflats and sandflats not covered by water at low tide</li> </ul>
Berwick to St Mary's MCZ	<ul style="list-style-type: none"> <li>• Eider duck (<i>Somateria mollissima</i>) – wintering and breeding</li> </ul>
Northumbria Marine SPA	<ul style="list-style-type: none"> <li>• Arctic tern (<i>Sterna paradisaea</i>), Breeding</li> <li>• Common tern (<i>Sterna hirundo</i>), Breeding</li> <li>• Guillemot (<i>Uria aalge</i>), Breeding</li> <li>• Little tern (<i>Sternula albifrons</i>), Breeding</li> <li>• Puffin (<i>Fratercula arctica</i>), Breeding</li> </ul>

Site	Designated Features of Site
	<ul style="list-style-type: none"> <li>• Roseate tern (<i>Sterna dougallii</i>), Breeding</li> <li>• Sandwich tern (<i>Sterna sandvicensis</i>), Breeding</li> <li>• Seabird assemblage, Breeding</li> </ul>
Lindisfarne SPA	<ul style="list-style-type: none"> <li>• Bar-tailed godwit (<i>Limosa lapponica</i>), non-breeding</li> <li>• Common scoter (<i>Melanitta nigra</i>), non-breeding</li> <li>• Dunlin (<i>Calidris alpina alpina</i>), non-breeding</li> <li>• Eider (<i>Somateria mollissima</i>), non-breeding</li> <li>• Golden plover (<i>Pluvialis apricaria</i>), non-breeding</li> <li>• Grey plover (<i>Pluvialis squatarola</i>), non-breeding</li> <li>• Greylag goose (<i>Anser anser</i>), non-breeding</li> <li>• Light-bellied brent goose (<i>Branta bernicla hrota</i>), non-breeding</li> <li>• Little tern (<i>Sternula albifrons</i>), breeding</li> <li>• Long-tailed duck (<i>Clangula hyemalis</i>), non-breeding</li> <li>• Red-breasted merganser (<i>Mergus serrator</i>), non-breeding</li> <li>• Redshank (<i>Tringa totanus</i>), non-breeding</li> <li>• Ringed plover (<i>Charadrius hiaticula</i>), non-breeding</li> <li>• Roseate tern (<i>Sterna dougallii</i>), breeding</li> <li>• Sanderling (<i>Calidris alba</i>), non-breeding</li> <li>• Shelduck (<i>Tadorna tadorna</i>), non-breeding</li> <li>• Waterbird assemblage</li> <li>• Whooper swan (<i>Cygnus cygnus</i>), non-breeding</li> <li>• Wigeon (<i>Anas penelope</i>), non-breeding</li> </ul>

Site	Designated Features of Site
Northumbria Coast SPA	<ul style="list-style-type: none"> <li>• Purple sandpiper (<i>Calidris maritima</i>), wintering</li> <li>• Turnstone (<i>Arenaria interpres</i>), wintering</li> <li>• Little tern (<i>Sternula albifrons</i>), breeding</li> <li>• Arctic tern (<i>Sterna paradisaea</i>), breeding</li> </ul>
Farne Islands SPA	<ul style="list-style-type: none"> <li>• Sandwich tern (<i>Sterna sandvicensis</i>), breeding</li> <li>• Common tern (<i>Sterna hirundo</i>), breeding</li> <li>• Arctic tern (<i>Sterna paradisaea</i>), breeding</li> <li>• Roseate tern (<i>Sterna dougallii</i>), breeding</li> <li>• Common guillemot (<i>Uria aalge</i>), breeding</li> </ul>
Coquet Island SPA	<ul style="list-style-type: none"> <li>• Sandwich tern (<i>Sterna sandvicensis</i>), breeding</li> <li>• Roseate tern (<i>Sterna dougallii</i>), breeding</li> <li>• Common tern (<i>Sterna hirundo</i>), breeding</li> <li>• Arctic tern (<i>Sterna paradisaea</i>), breeding</li> <li>• Seabird assemblage</li> </ul>
AIn Estuary MCZ	<ul style="list-style-type: none"> <li>• Coastal saltmarsh and saline reedbeds</li> <li>• Intertidal mud</li> <li>• Estuarine rocky habitats</li> <li>• Sheltered muddy gravels</li> </ul>



Site	Designated Features of Site
Coquet to St Mary's MCZ	<ul style="list-style-type: none"> <li>• Low energy intertidal rock</li> <li>• Moderate energy intertidal rock</li> <li>• High energy intertidal rock</li> <li>• Intertidal mixed sediments</li> <li>• Intertidal coarse sediment</li> <li>• Intertidal sand and muddy sand</li> <li>• Intertidal mud</li> <li>• Intertidal underboulder communities</li> <li>• Peat and clay exposures</li> <li>• Moderate energy infralittoral rock</li> <li>• High energy infralittoral rock</li> <li>• Moderate energy circalittoral rock</li> <li>• Subtidal coarse sediment</li> <li>• Subtidal sand</li> <li>• Subtidal mixed sediments</li> <li>• Subtidal mud</li> </ul>
<p>Outer Firth of Forth and St Andrews Bay Complex SPA</p> <p>(NB:The majority of this site lies outside of the Berwickshire and Northumberland Marine Nature Partnership area)</p>	<ul style="list-style-type: none"> <li>• Red-throated diver <i>Gavia stellata</i> (non-breeding)</li> <li>• Slavonian grebe <i>Podiceps auritus</i> (non-breeding)</li> <li>• Common eider <i>Somateria Mollissia mollissima</i> (non-breeding)</li> <li>• Long-tailed duck <i>Clangula hyemalis</i> (non-breeding)</li> <li>• Common scoter <i>Melanitta nigra</i> (non-breeding)</li> <li>• Velvet scoter <i>Melanitta fusca</i> (non-breeding)</li> <li>• Common goldeneye <i>Bucephala clangula</i> (non-breeding)</li> <li>• Red-breasted merganser <i>Mergus serrator</i> (non-breeding)</li> <li>• Non-breeding waterfowl assemblage (divers, grebe &amp; ducks)</li> <li>• Common tern <i>Sterna hirundo</i> (breeding)</li> <li>• Arctic tern <i>Sterna paradisaea</i> (breeding)</li> </ul>

Site	Designated Features of Site
	<ul style="list-style-type: none"> <li>• European shag <i>Phalacrocorax aristotelis</i> (breeding and non-breeding)</li> <li>• Northern gannet <i>Morus bassanus</i> (breeding)</li> <li>• Atlantic puffin <i>Fratercula arctica</i> (breeding)</li> <li>• Black-legged kittiwake <i>Rissa tridactyla</i> (breeding and non-breeding)</li> <li>• Manx shearwater <i>Puffinus puffinus</i> (breeding)</li> <li>• Common guillemot <i>Uria aalge</i> (breeding and non-breeding)</li> <li>• Razorbill <i>Alca torda</i> (non-breeding)</li> <li>• Herring gull <i>Larus argentatus</i> (breeding and non-breeding)</li> <li>• Little gull <i>Larus minutus</i> (non-breeding)</li> <li>• Black-headed gull <i>Chroicocephalus ridibundus</i> (non-breeding)</li> <li>• Common gull <i>Larus canus</i> (non-breeding)</li> <li>• Seabird assemblage (breeding)</li> <li>• Seabird assemblage (non-breeding)</li> </ul>