MARINE BIOSECURITY PLANNING

Guidance for Estuary Wide Plan Development

This document is designed to help guide the development of an estuary wide biosecurity plan. The examples provided are suggestions for consideration and may not be applicable in all scenarios. Separate guidance and templates are also available for creating plans for site based operations, events or construction activities. A template is provided at the end of this document however plans can be in whatever format is most appropriate to the user.

Section 1 – Scene Setting

Your opening section sets the scene for why you are doing a biosecurity plan. You can highlight the concerns the area or organisation has and set them in the context of the national issues identified by the GB Secretariat. Topics which you should cover in this section include:

* What are Non-Native and Invasive Non-Native Species (INNS)?
* What is Biosecurity?
* What is a Vector or Pathway?
* Abbreviations and Acronyms

Section 2 – Introduction

Here you identify what area is to be covered, who has responsibility for the Plan and how and when it will be reviewed and updated. Items in this section should include:

* Site name including area covered and a site map
* Biosecurity Manager/Officer or responsible person or organisation/group
* Plan duration and review date
* Plan review process
* Location of biosecurity logbook i.e. to record biosecurity actions/review of plan

Section 3 - Environmental Information

In this section you should delve into more detail about the physical characteristics of the area covered by the Plan. Don’t be put off at this stage if you are not a trained marine biologist, most information is available online and searches of the relevant marine planning portals (see list at the end of this document) will provide a lot of information. Engagement with local contacts at key agencies will also be helpful. Items to include are:

* ***Site description*** – what sort of estuary is it, how many rivers feeding in, types of sediment etc
* ***Tidal, salinity, stratification information*** – gather information from users such as shipping organisations which may have salinity data easily to hand.
* ***Sensitive habitats and protected features/areas*** – list any protected areas and include information about why they are designated and any concerns noted about the potential impact of INNS.
* ***Known environmental management measures*** – all protected areas will have some management measures in place and/or targets for maintenance of status; use these to inform the development of your plan.
* ***Condition assessment (if available)*** – not all protected areas/sites will have a condition assessment but where they exist they are very useful.
* ***INNS known to be present*** – there may not be a list of INNS for your area already available. However, the Marine Biological Association along with a number of other associations, universities and agencies have compiled lists of known INNS which you may already be aware of. Make contact with these relevant organisations or you can search by area or by species on the National Biodiversity Network/Atlas site. Links at the end of the document.
* ***INNS likely to be of concern (horizon scanning)*** – the GB Secretariat has a list of high alert species but you can also compile your own list. A list of horizon scanning species has also been produced by the Marine Pathways group for Marine Strategy Framework Directive reporting.

Section 4 - Use of the Area

Here you will list the major types of activity e.g. tourism, recreation, shipping, ferries, MoD etc. for the area. Include information about the amount of use e.g. 6,000 ferry movements, 2000 marina berths – present this information in a way which is useful for you. Include useful detail such as where the marinas, ports, major shipping routes, scrub down areas/piles, yacht clubs etc. are. Grouping activities under Commercial, Recreation and Defence can be helpful. Again the marine management/planning organisations and authorities can be helpful with this data and the RYA data layers are included on these portals.

**Higher Risk Activities**

List the main pathways and vectors for the area – a list is included below to get you started. Describe the activities in a way which helps to identify the risks associated with them.

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| --- | --- |
| Activity | Risk Factors |
| Naval and commercial freight shipping  | Use of ballast waterHull foulingSpeed of vessels and routes followed. Slower moving vessels from distant ports are higher risk.  |
| Ferries | Regularity of route leads to potential for multiple introductions. International, regional and local ferries present different risks.  |
| Fishing  | Fouled nets and gearDisposal of by-catchBallast water Hull fouling |
| Recreational boating and related activities | Transfer between water bodies on boats, equipment and clothing e.g. kayaks, dive gear, Personal Water Craft, fishing gear. Wash down of boats.  |
| Port infrastructure  | Construction and maintenance, importation of materials.DredgingProvision of berthing/haul out/dry dock facilities and moorings. |
| Relocation of structures and equipment  | Movements or disposal of pontoons, barges, buoys, anchor chains, underwater equipment. |
| Marine litter | Tidal and ocean currents move material into your area e.g. discarded fishing gear and plastic waste. |
| Aquarium and catering trades | EscapeDeliberate releaseWaste disposal |
| Natural spread | It should be noted that some species will move naturally, this is generally thought of as ‘range extension’ not invasion.  |

Remember to keep this list under review as risk will change over time e.g. with development of different industries or changes in practice.

Section 5 - Biosecurity Actions / Control measures

The type and number of actions you wish to include in your biosecurity plan will vary depending upon the number of partners involved, their operational parameters and budgets. In general measures will focus on the following aspects of control and awareness raising:

* Remove unnecessary man-made structures from the water – in general INNS prefer these structures and removal of the preferred substrate is a useful control measures. This could include temporary removal or moving structures out of the preferred growth zone e.g. removal of mooring buoys in winter to a yard on land and putting the mooring chain to the seabed to smother fouling.
* Air dry – most, if not all, marine and aquatic INNS will be killed by being dried out – identify opportunities to dry out equipment or infrastructure as often as possible e.g. dive kit or dredgers and barges between uses.
* Expose to fresh water – most marine INNS need some degree of salinity to sustain their life cycle – if you can expose them to fresh water by immersion or washing down you will reduce the risk posed by INNS.
* Awareness – most people are unaware of what INNS look like or the threat from them. Your biosecurity actions list should include opportunities for training and dissemination of information e.g. through public signage or ID guides for staff and volunteers.

Section 6 – Monitoring

**Current Monitoring Activity**

There may be monitoring activities already happening in the area. This could include formal monitoring of protected areas and water bodies for Water Framework Directive classification or less formal citizen science including ‘Bio-Blitz’ style events.

Formal monitoring can be carried out by the following agencies and it is worth checking with local staff if you can have access to their reports or if they can supply information about INNS recorded during these surveys:

* Natural England, Environment Agency, Marine Scotland
* Defra, CEFAS
* Scottish Natural Heritage, Scottish Environmental Protection Agency
* Natural Resources Wales
* Department of Agriculture, Environment and Rural Affairs, N Ireland.

Volunteers may also be engaged with recording in your area. Search for citizen science projects such as ‘CoCoast’ and ‘The ShoreThing’. Your local Wildlife Trust or relevant university department may already be aware of what is happening locally so get in touch with them too.

Research undertaken by university staff, PhD and MSc students as well as people on short courses should be taken into account if possible.

Include in this section ideas about future monitoring, surveillance and recording, it may be that very few of the organisations and projects listed above are recording INNS, through your biosecurity plan you could set objectives to encourage them to do so.

**New INNS Monitoring**

Now that you have established what monitoring is happening around the estuary you will be able to work out where the significant gaps are. You should now make a list of new monitoring/surveillance or survey activities you would like to put in place. These will most likely be high risk and easy to access areas around the coast. For example you could focus on:

* Scrubbing piles or wash down areas for boats
* Wave screens or harbour defence walls
* Navigation buoys and moorings which are subject to regular maintenance making them easier to access.
* New facilities – for example a new pontoon or facility just installed will be a blank canvas for all species and monitoring how it becomes colonised will be informative for your biosecurity planning.
* Slipways and informal boat or dive launch sites.
* Marinas and associated infrastructure.

Section 7 - Contingency Plan / Rapid Response Plan

Even with good biosecurity procedures in place it is highly likely new INNS will arrive in the area. It is important that the response to such an event is rapid and proportionate to the threat posed.

In this section you should lay out guidance for stakeholders about what to do if a new INNS is found in the area. Typical actions which could be included in such plans are laid out below.

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| Event | Action |
| Unusual/unknown species | Photograph specimen. Record location and approximate size of area affected. Contact local taxonomic expert (from contact list – Section 8) or email to alert\_nonnative@ceh.ac.uk.Once identified:* If INNS known from area then simply record sighting in Biosecurity Log book and report via [www.brc.ac.uk/irecord/enter-non-native-records](http://www.brc.ac.uk/irecord/enter-non-native-records)
* If low/medium risk UK INNS not previously known from area record sighting, inform others through email alert group and record as above.
* If high risk INNS not found locally or not known from UK see box below.
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| High risk INNS not found locally but present elsewhere in UK ORHigh risk INNS not currently present in UK e.g. North Pacific seastar | Alert the relevant authority immediately.Photograph specimen, record location and approximate size of area affected.If feasible, keep specimen in a pot/bucket of seawater for expert to examine. Make sure this is kept securely and disposed of appropriately and cannot contaminate other waterbodies.If practicable, carefully remove specimen(s) from water e.g. if on rope or fender.Contact taxonomic expert from contact list (section 8). Inform other local stakeholders through email alert group.  |

For certain new high risk species that are not yet present or established in the UK, a rapid response by Government would be triggered by new records. This response would be coordinated nationally by the responsible authority. The following steps could be followed:

* Visual survey of the site containing INNS, including vessels and infrastructure.
* Determine the size and distribution of the INNS population at the site.
* Assessment of the risk posed by the INNS.
* Assess possibility of treatment and removal of INNS.
* Inform other marine users e.g. marinas, fishermen, local recreational boaters of the detection and advise that extra caution should be taken to avoid further spread.

Section 8 – Contact Lists

Gather together useful contacts into one spreadsheet and keep it up to date. This should include the following groups:

* Estuary wide organisations e.g. Estuary Partnerships, Consultative Forums or Environmental Forums
* Agency contacts e.g. Natural England, SEPA or SNH staff with a INNS interest/remit
* Local clubs or national membership organisations e.g. yacht, kayak and dive clubs
* Ports, marinas and harbours
* Shipping agents, cruise companies
* Defence organisations including contractors
* Education contacts e.g. those interested in studying INNS and those who could provide training and support

Section 9 - Future events

In this section list any relevant likely or confirmed future events and identify opportunities to include them in biosecurity planning. For example there may be an international boat race using the estuary or plans to construct a new terminus for cruise ships, establishing contact with the organisers at an early stage will make for more effective biosecurity.

Section 10 - Evaluation and Review

It is important to have some way to measure the success of your Plan. In this section identify aspects of Section 7 which can be monitored and assessed for effectiveness. Set a target for implementation and a date for review.

Evaluation can also be done by assessment of the changes to the occurrence and distribution of INNS within the estuary area, the amount and efficacy of surveillance and the ability to close or restrict established pathways of transmission. Evaluation should also include established rapid-responses, control and eradication programmes undertaken.

Further information

A wide range of marine planning resources including environmental and usage information is available online from the devolved administrations’ marine planning or nature conservation organisations. These are:

* **Marine Management Organisation** – **England** –[www.gov.uk/topic/planning-development/marine-planning](http://www.gov.uk/topic/planning-development/marine-planning) including their online map based portal <http://defra.maps.arcgis.com/apps/webappviewer/index.html?id=2c2f6e66c0464fa99d99fd6d8822ddef>
* **Natural England –** Designated Sites System for information about protected sites <https://designatedsites.naturalengland.org.uk/>
* **JNCC –** Information on Marine Protected Areas <http://jncc.defra.gov.uk/marineprotectedareas>
* **Marine Scotland** - [www.gov.scot/Topics/marine](http://www.gov.scot/Topics/marine) including their online map based portal <https://marinescotland.atkinsgeospatial.com/nmpi/>
* **Welsh Government -** <http://gov.wales/topics/environmentcountryside/marineandfisheries/marine-planning/?lang=en> including their online map based portal <http://lle.gov.wales/apps/marineportal/#lat=52.5145&lon=-3.9111&z=8>
* **Northern Ireland -** [www.daera-ni.gov.uk/articles/marine-plan-northern-ireland](http://www.daera-ni.gov.uk/articles/marine-plan-northern-ireland) online portal due out shortly.

**GB Non-Native Species Secretariat** – Non-native species information, Government policy and strategy for management. [www.nonnativespecies.org](http://www.nonnativespecies.org)

**National Biodiversity Network** – Distribution maps and information about species. <https://data.nbn.org.uk> to be replaced shortly with NBN Atlas [www.nbnatlas.org](http://www.nbnatlas.org)

**European Commission** - European Alien Species Information Network - EASIN <https://easin.jrc.ec.europa.eu/Services/SpeciesSearch> and <http://ec.europa.eu/environment/nature/invasivealien/index_en.htm> and list of Species of Union Concern - <http://www.nonnativespecies.org/index.cfm?sectionid=7>

Guidance on **Marine Biosecurity planning**

* England and Wales - [www.nonnativespecies.org/downloadDocument.cfm?id=1401](http://www.nonnativespecies.org/downloadDocument.cfm?id=1401)
* Scotland - <http://www.snh.gov.uk/docs/A1294630.pdf>
* N Ireland - <https://www.daera-ni.gov.uk/articles/invasive-alien-species>

**Marine Biological Association** of the UK – Information on marine species including non-native species. [www.mba.ac.uk](http://www.mba.ac.uk) http://www.marlin.ac.uk/

**Bishop Group**, Marine Biological Association – Surveys of INNS and information on INNS. [www.mba.ac.uk/bishop](http://www.mba.ac.uk/bishop) or [www.mba.ac.uk/fellows/bishop-group](file:///C%3A%5CUsers%5CSarah%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CTemporary%20Internet%20Files%5CContent.Outlook%5CU8E0WBJI%5Cwww.mba.ac.uk%5Cfellows%5Cbishop-group) or email cwo@mba.ac.uk

**DEFRA** - <http://jncc.defra.gov.uk/page-5150>

**DASSH** (The Archive for Marine Species and Habitats Data) - www.dassh.ac.uk/

**MARINE BIOSECURITY PLAN FOR\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. **Scene setting**
* **What are Invasive Non-Native Species (INNS)?** *E.g. Invasive Non-Native Species are those that have been transported outside their natural range and that damage our environment, the economy, our health and the way we live.*
* **What is Biosecurity?** *E.g.**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-natives are not always apparent.i*
* **What is a Vector or Pathway?** *E.g. These are the means by which a species is moved from place to place due to human activity.*

**Abbreviations and Acronyms**

*Examples*

*DEFRA Department for Environment, Food and Rural Affairs*

*GB NNSS GB Non-Native Species Secretariat*

*GES Good Ecological Status (within WFD) or Good Environmental Status (MSFD)*

*INNS Invasive Non-Native Species*

*MSFD Marine Strategy Framework Directive*

*WFD Water Framework Directive*

1. **Introduction**
* **Location/map:**
* **Plan period and review date:**
* **Biosecurity Manager/Officer:**
* **Location of biosecurity log:**

**3. Environmental information:**

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| --- |
| **Site description** |
| **Tidal, salinity, stratification information**  |
| **Sensitive habitats and protected features/areas**  |
| **Known environmental management measures**  |
| **Condition assessment (if available)** |
| **INNS known to be present** |
| **INNS likely to be of concern (horizon scanning)** |

**4. Use of the area**

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| --- | --- |
| **Activity** | **Risk Factors** |
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**5. Biosecurity Actions/Control Measures**

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| --- | --- | --- | --- |
| **Biosecurity Action** | **Who** | **Where** | **When** |
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**6. Monitoring**

**Current Monitoring Activity:**

**New INNS monitoring:**

**7. Contingency Plan/Rapid Response Plan**

|  |  |
| --- | --- |
| **Event** | **Action** |
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**8. Contact lists**

**9. Future events**

**10. Evaluation and review**