

# UK Overseas Territories Marine Biosecurity Toolkit: Sampling Guidance



## Introduction

This document provides sampling guidance for monitoring marine invasive non-native species across the UK Overseas Territories and provides links to existing guidance and resources to help support the planning of sampling activities. The protocols below have been broadly based on sampling guidance provided by the Massachusetts Office of Coastal Management <sup>[1]</sup>. Identification of a new marine invasive non-native species could occur through planned pre-emptive measures such as systematic checks, monitoring surveys or discovery by chance. Taking a precautionary approach to prevent the establishment of marine invasive non-native species through early identification is encouraged, as it is extremely difficult to eradicate an established marine invasive non-native species. Early identification will also result in a more cost-effective response and a lower impact on native biodiversity and economy.

## Scope

This document describes sampling that can be conducted whilst existing monitoring activities are carried out. It is in the form of rapid assessments and opportunistic sightings, rather than presenting a comprehensive monitoring strategy. This guidance covers three scenarios: (i) ports and marinas <sup>[1]</sup>; (ii) rocky shore intertidal zone <sup>[1]</sup>, and; (iii) roving dive surveys <sup>[2]</sup>. Although the sampling protocol for ports and marinas is also relevant to taking samples from a vessel's hull, detailed guidance on undertaking assessments of vessel hull fouling is provided within the wider biosecurity toolkit (document A). Rapid assessments provide an important early warning system to the potential presence of marine invasive non-native species and can be carried out by a range of people in a variety of settings, including staff in ports or scientists surveying shorelines <sup>[3,4,5,6]</sup>. Sightings of marine invasive non-native species may also be opportunistic encounters by government, NGO, academic and citizen scientists. Chance sightings could occur whilst staff are conducting shoreline and harbour biodiversity monitoring, during recreational dives by SCUBA divers <sup>[7]</sup>, or potentially by members of the public who are outdoors on the coast. In all cases the potential marine invasive non-native species will need to be verified using the species ID guides provided within this toolkit (documents D) in case a rapid response is needed. A data sheet is provided in Annex 1 for the recording of marine invasive non-native species under any of the scenarios presented below.

This guidance does not provide information of how to eradicate these species, but within the toolkit there is mitigation measures guidance (document E) that provides an overview of information available on control strategies.

# Sampling Guidance

## 1. Rapid Assessment - port and marina monitoring

Ports and marinas are ideal locations for monitoring as they are often the first place marine invasive non-native species occur. They also contain an abundance of artificial structures to which marine invasive non-native species can attach such as pontoons and vessels. Ports and marinas are also very accessible, and often easier to monitor than open water because artificial structures such as ropes can be pulled to the surface. Additionally, specific hull assessments can be conducted on vessels whilst securely anchored in port (see document A). Although the focus of the protocol below is that of monitoring the whole port and marina, it can also be applied if undertaking vessel hull assessments and the requirement arises to also record data and undertake sampling.

### Site selection

- Prioritise monitoring the most heavily used ports and marinas because there is a higher chance of finding marine invasive non-native species.
- Monitoring multiple sites allows for the investigation of spatial distribution and spread.

### Protocol

- Safety – monitor in pairs and beware of vessels (both stationary and in transit).
- Supplies – ID cards, data sheet, camera, boat hook, thermometer, refractometer.
- Record site name.
- Record GPS coordinates and take picture of site.
- Record date, time and weather.
- Record site description, including the number of boats as this may increase likelihood of the presence of marine invasive non-native species.
- Put thermometer 15 cm below water for one minute and record water temperature if possible - optional.
- If possible, record salinity with refractometer - optional.
- If the port or marina is small then monitor whole area, if this is not possible then monitor samples in different locations across the whole port or marina.
- Inspect submerged areas of floats and ropes and natural substrates, using a boat hook if needed.
- For each of your species record presence/absence on the data sheet.
- If possible, take a photo of the species and record the image reference number on the data sheet - optional.
- If observers are confident they have correctly identified a marine invasive non-native species, a specimen can be taken and preserved in alcohol or by freezing. The specimen reference number should be recorded on the data sheet - optional.
- If observers are familiar with the eradication protocol for the species, measures can potentially be taken if legal.

## 2. Rapid Assessment - rocky shore intertidal zone monitoring

Rocky intertidal zones are a good location to monitor due to visibility of benthic species at low tide. Additionally, they can be combined with a baseline biodiversity survey.

### Site selection

- Select rocky shore sites that are accessible at low tide.

## Protocol

- Safety – monitor in pairs.
- Supplies – ID cards, data sheet, thermometer, refractometer, camera.
- Record site name.
- Record date, time, weather.
- Record site description, including the habitat types present.
- Put thermometer 15 cm below water for one minute and record water temperature if possible - optional.
- If possible, record salinity with refractometer - optional.
- Walk lengths of the search area systematically searching for marine invasive non-native species.
- For each of your species, record presence/absence on the data sheet.
- If possible, take a photo of the species and record the image reference number on the data sheet - optional.
- If observers are confident they have correctly identified a marine invasive non-native species, a specimen can be taken and preserved in alcohol or by freezing. The specimen reference number should be recorded on the data sheet - optional.
- If observers are familiar with the eradication protocol for the species, reactionary measures can potentially be taken if legal.

## 3. Opportunistic Monitoring - roving dive survey

Species occurring in open water at greater depths can be surveyed using the roving diver technique. This technique can be conducted with SCUBA and allows more time to be spent looking for species than during traditional underwater transects. Additionally, volunteers can conduct the surveys as they go about their regular dives.

### Site selection

- Not specific.

### Protocol

- Record dive site and GPS location of boat.
- Search time will be the same as the length of a regular dive and is limited by safe diving considerations.
- Safety - dives should be conducted in pairs.
- Supplies – ID cards, data sheet on slate, underwater camera, dive equipment.
- Observers can search freely for the species as they go about their regular dive.
- Opportunistic sightings of potential marine invasive non-native species should be recorded on a slate.
- For each species record presence/absence on the data sheet.
- If possible, take a photo of the species and record the image reference number on the data sheet - optional
- If observers are confident they have correctly identified a marine invasive non-native species, a specimen can be taken and preserved in alcohol or by freezing. The specimen reference number should be recorded on the data sheet - optional
- If observers are familiar with the eradication protocol for the species, reactionary measures can potentially be taken if legal.

## References

- [1] Massachusetts Office of Coastal Management, 2011, Monitoring Marine Invasive Species: Guidance and Protocols for Volunteer Monitoring Groups. Available at: <https://www.mass.gov/files/documents/2016/08/ob/mimic-guide-2011-web.pdf>
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- [7] Anderson *et al.*, 2017, The role of conservation volunteers in the detection, monitoring and management of invasive alien lionfish. Available at: [https://www.reabic.net/journals/mbi/2017/4/MBI\\_2017\\_Anderson\\_etal.pdf](https://www.reabic.net/journals/mbi/2017/4/MBI_2017_Anderson_etal.pdf)



