

The aim of the Marine Pathways Project is to:

'protect marine biodiversity in the UK and Ireland by managing key pathways by which marine invasive non-native species are introduced and spread.'

The marine pathways project work continues throughout Great Britain and Ireland, carried out by a wide range of project partners and contractors. Here are some updates on the subject of non-native species and on specific project components:

The Asian Shore Crab – First Time Recorded in UK Waters

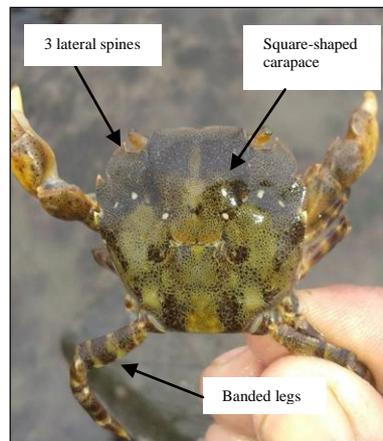
Two recordings of the Asian shore crab, *Hemigrapsus sanguineus*, have been made in the UK for the first time – one in Kent and one in Barry Island, Wales.

What does it look like?

The Asian shore crab is small, typically with a shell (carapace) between 3.5cm to 4.5cm. It has a distinctive square shaped carapace and light and dark banded legs. It's colour ranges from orange-brown to green-purple.

Where is it from?

This crab is native to Russia, China, Korea, Hong Kong and Japan. The crab has been previously introduced to the USA and Europe where it has become invasive.



How was it introduced into UK waters?

It is thought that the crab may have been introduced into UK in the ballast water of ships arriving from France. Crab larvae may also have drifted across the English Channel from France on ocean currents.

What is being done?

Ballast water management is being researched as a tool to reduce the likelihood of future introductions via this route. Along the US coast, where this species has already been introduced, scientists are monitoring its spread and impact. In addition, experiments are being conducted to increase knowledge of the basic biology and ecology of this species.

What to do if you suspect you have seen an Asian shore crab?

The Marine Biological Association (MBA) has asked the public to help identify and report sightings of Asian shore crabs. If you find an Asian shore crab [please report it to the MBA](#). If possible, please provide a photograph when reporting the sighting.

For further information on the Asian Shore Crab please go to the [Non-Native Species Secretariat Website](#).

Control of the Carpet Sea Squirt in Ireland

Didemnum vexillum is a colonial sea-squirt (tunicate) native to Japan. Over the past decade this species has spread rapidly outside its native range and has now been recorded at over 100 locations worldwide. Once established this species can grow rapidly, extensively coating living and non-living underwater surfaces. This species has been of major concern globally because of its potential to alter marine ecosystems and the threat that it poses to aquaculture operations. Experimental work is currently being carried out in Clew Bay, Co. Mayo (mid-west Ireland) to

Definition:

Invasive non-native species (INNS):

'a species which has been introduced outside its natural, past or present distribution and has a negative environmental, economic or social impact.'

Case species:

The Asian Shore Crab (*Hemigrapsus sanguineus*):



From: Japan, Russian Federation.

Impact: Disrupts native species by

- competition for food and space
- alteration of foodweb

investigate two control treatments for *D. Vexillum*: A 5% acetic acid (vinegar) spray (a number of studies have identified this as an eco-friendly chemical found to reduce *D. vexillum* cover by 80 – 100%) and bag turning (farmers found that fouling was reduced significantly when oyster bags were turned regularly, causing desiccation stress to *D. vexillum*). Over the course of the experiment, levels of *D. vexillum* will be monitored and oyster health and condition will be recorded.



Oyster bags fouled with *D. vexillum* being treated by (a) bag turning and (b) spraying bags with a 5% vinegar solution.

Invasive species are a known threat to biodiversity and to the operation of aquaculture businesses. Any initiative to manage invasive species will ultimately facilitate the continued operation and growth of the aquaculture sector.

Author of text and researcher carrying out work is Martina O'Brien, University College Dublin, Ireland. For further information on this work please contact Martina at: martina.o-brien@ucdconnect.ie

Biosecurity Guidance – Tackling NNS

Marine NNS may be introduced by a number of different routes into many different locations. Here we focus on two locations – marinas and aquaculture sites where the marine pathways project has been involved in putting together guidelines for the management of NNS:

Biosecurity guidance for the shellfish industry

The project team have held a series of meetings with the Shellfish Association of Great Britain to discuss best practice biosecurity and issues around INNS for the industry. The plan now is to incorporate biosecurity messages relating to INNS into existing biosecurity planning guidance for fish and shellfish disease provided by the Fish Health Inspectorate.

Attendance and feedback from The Mollusc Committee Meeting in April highlighted a need to provide a simple leaflet explaining INNS guidance for the industry. By working with the project advisory group for the aquaculture industry the marine pathways project team aim to provide clear information on biosecurity measures and make progress towards control and management of marine INNS in order to minimise the impact they have on the shellfish industry.

Biosecurity guidance for marina operators and boat owners

A key issue for marina operators and boat owners has been the lack of clear practical guidance on cleaning boats to reduce risk of introducing and spreading INNS. A simple decision tree for boat cleaning has now been developed by the marine pathways project team. By working with key stakeholders such as the RYA and The Green Blue and the project advisory group for recreational boating and water use the project team aim to raise awareness of INNS and the cleaning procedures recommended to reduce the risk of their introduction and spread. In addition, the ground-breaking [Marine Biosecurity Planning Guidance](#) will be utilised by the team to give site operators easy to follow procedures for creating a biosecurity plan. This guidance is the first of its kind in the UK and was created by The Firth of Clyde Forum, in partnership with Scottish Natural Heritage (SNH), who commissioned SAMS Research Services Ltd (SRSL) to undertake the work.

Coming up:

- Details on surveys carried out by The Scottish Association of Marine Science (SAMS) to determine if non-native Pacific oyster populations are establishing around the coast of Scotland. This work is important for both the sustainable farming of this species and in the maintenance of protected sites.
- Progress update on the Marine Non-Natives Inshore Monitoring Network project in Wales. This collaborative project between the School of Ocean Sciences, Bangor University and NRW aims to develop methods to enable detection of marine non-native species at hot-spots around Wales.

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