

Marine pathways work continues throughout Great Britain and Ireland. Here are some updates on the subject of non-native species and on Marine Pathways work.

Citizen Science for UK Marine Non-native species (NNS)

Citizen Science is increasingly viewed by the scientific community and environmental authorities as a valid complementary route to ecological data gathering paths. [Capturing our Coast](#) is a 3 year programme, funded by the [Heritage Lottery Fund](#), which explores the degree to which the volunteer community can contribute robust evidence, supporting our understanding of species distributions and ecological processes. To date we have 5000 registered participants, of which 3000 have undergone a one-day training programme in intertidal survey techniques. **'Marine Invaders'** timed searches was launched as part of the project in September 2017. Involvement in this activity does not require formal registration or training, and the protocol has been devised with accessibility and ease of engagement in mind, to maximise uptake. Volunteers select one of three habitats to survey: rocky intertidal, sediment intertidal and man-made structures. Identification guides for the NNS to search for are freely downloadable from the website, along with instructions and recording sheets. Records, including absences, are uploaded directly by the volunteer, with photographs of suspected findings for verification. Species selected to include within the search lists were derived from existing Cefas and statutory lists of already established and predicted potential (horizon-scanning) coastal invasive species. Extensive consultation was conducted throughout 2017 to finalise this list, with consideration of what is tractable for volunteers to robustly identify as a prioritising criterion for inclusion.

The launch and associated media profiling generated an initial surge of interest, though surveys are now being routinely submitted on a more modest level. To date there have been a total of 327 individual 10 minute searches around the UK coast with 32 confirmed species sightings, 11 of which have been of

Japanese Wireweed (*Sargassum muticum*), closely followed by 8 confirmed sightings of Pacific/Portuguese Oysters (*Magallana gigas/Crassostrea angulata*). Data collected is being linked to the profiling by the Great British Non-Native Species Secretariat (GBNNS) and their hosting of a **national 'Invasive Species Week' (23rd - 29th March)** to launch a series of events running across our hubs throughout late March and April. Our ongoing communications with volunteers through newsletters, website updates and hub events will serve to reinvigorate the campaign and bring the issue back to the forefront of volunteers' survey priorities. CoCoast and Marine Invaders can contribute to the work of the Marine Pathways project by increasing the numbers of 'eyes on the ground', adding to capacity and educating widely about invasive impacts. As one of the four greatest threats to the world's oceans, the introduction of invasive species to new environments requires innovative approaches to documentation and monitoring, and Citizen Science can be a cost-effective way to resource this.



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The North American ostracod, *Eusarsiella zostericola*: A non-native species in Milford Haven

Ecology and distribution:

The North American ostracod, *Eusarsiella zostericola*, is a benthic crustacean measuring 1.0 to 1.5mm in size. It has a calcified bivalve carapace which allows it to expose its seven pairs of legs during feeding and movement, and close in times of stress.

Definition:

Invasive non-native species (INNS):

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

Synonymous term: Invasive non-indigenous species (INIS).

Case Species:

Ficopomatus enigmaticus (Trumpet tube worm)



Native range:

Australia and Indian Ocean. It's thin tubes grow up to 8 cm in length, diameter of 0.1-0.2cm.

Habitat: Shallow, sheltered coastal waters.

Impacts:

Can overgrow existing hard substrate communities potentially reducing biodiversity and altering ecosystems.

Can foul fishing and aquaculture equipment causing impact financially.

It thrives in a variety of benthic marine conditions and can tolerate a wide range of temperatures and salinities. Therefore, it can occupy most shallow coastal marine and brackish habitats. Generally, they are limited to the euphotic zone where they feed on planktonic algae and organic detritus but are also known to be scavengers and sometimes predatory. Thus, they are most commonly found in environments where there is a lot of sediment and organic matter suspended in the water column, such as estuarine environments, mangrove swamps, seagrass beds, and biogenic reefs.

History as a non-native:

E. zostericola is native to the waters off the east coast of the North American continent, from the Gulf of St. Lawrence down to the Gulf of Mexico. It is believed that it was unintentionally introduced into S.E. English estuaries between the 1870s and the 1940s, via the importation of the American oyster (*Crassostrea virginica*), or via ballast water brought over with trade vessels from North America. The ostracod quickly settled in the estuaries in Essex, Kent, Thames valley, and the Solent, and has subsequently been recorded in the Netherlands, most likely from imports of shellfish vectors from England.

Due to its small size, this species is only able to spread with the help of man-made vectors.

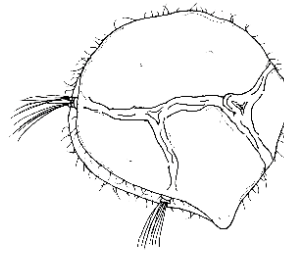
Presence in Milford Haven:

In 2015 it was found in the Milford Haven waterway, it is unclear what facilitated the invasion, but it is likely due to the vectors discussed above. It is possible it may have been present in the muddy sediments of the waterway for some time, as with most meiofauna living in/on the benthos, they can easily be missed when sampling.

There are currently no known harmful environmental or economic impacts associated with this species. Nonetheless, this finding highlights the importance of biosecurity and good practice of the “check, clean, dry” initiative when taking part in any activity in the Waterway.

Identified by Natural Resources Wales’ Marine Monitoring and Skomer Dive Teams as part of the annual Milford Haven inlet SAC SSSI Monitoring programme.

Article written by Rhodri Irranca-Davies.



1.0mm
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Of Interest:
Invasive species week 2018 was the best so far.

- 90 events took place ranging from practical management to surveys and roadshows
- 8 countries took part
- 310 organisations were involved
- See GBNNS website for more information:

<http://www.nonnative-species.org/index.cfm?sectionid=132>

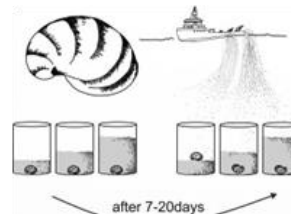
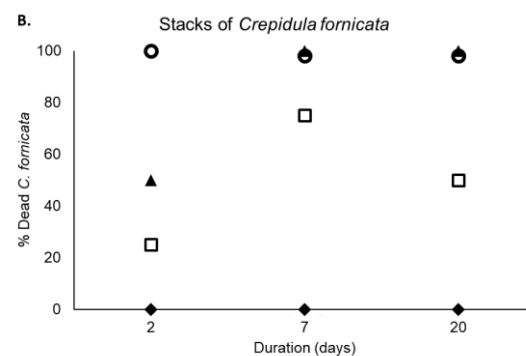
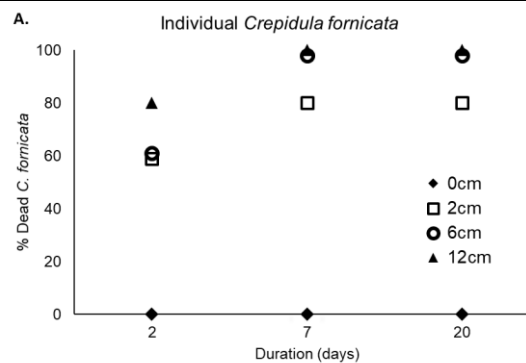
Crepidula fornicata is poorly adapted to sediment burial

A recent study at Swansea University aimed at assessing whether *Crepidula fornicata* is able to survive sediment burial. *C. fornicata* was found attached to hard substratum in Swansea Bay intertidal areas with densities reaching up to 412 individuals per meter squared in the eastern side of the bay. However, it was absent at a nearby subtidal dredge spoil disposal site.

In laboratory experiments 22% of *C. fornicata* emerged when buried under a 2 cm sediment-layer; only half of them survived. When buried under ≥ 6 cm none re-surfaced or survived. The results provided evidence that *C. fornicata* is poorly adapted to adjust its vertical position in sediment and is killed by sudden burial under 2 to 6 cm of sediment. The combined laboratory experiments and field surveys suggested that *C. fornicata* has limited scope to survive the dredge spoil disposal process.

Paper: <https://www.sciencedirect.com/science/article/pii/S0025326X18301516>

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