

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.

Surveys for Japanese wakame, *Undaria pinnatifida*, in the Firth of Forth

Since the first observation and confirmation of Japanese wakame (*Undaria pinnatifida*) from a site in the Firth of Forth in August 2016, the Scottish Working Group for Marine INNS has undertaken two surveys of the surrounding areas to check for further spread. Ten locations were identified, five on the north of the Forth and five on the south (Figure 1). These were selected based on accessibility to ensure a quick survey turn-around. Surveys were conducted at and around low tide by Marine Scotland, SNH and SEPA.



Figure 2

U. pinnatifida was not observed at any of the survey locations. Discussions are underway to carry out possible future surveys to monitor spread and management strategies.

Marine Scotland is in the process of developing and validating molecular-based tools for the identification and monitoring of marine INNS in Scottish waters. One of the species selected for this work is *U. pinnatifida*. Material has been collected from the established site

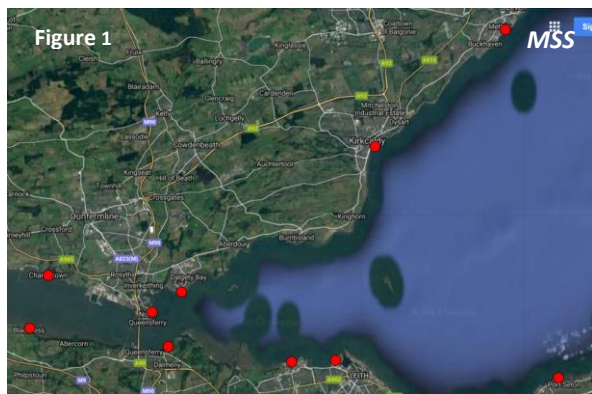


Figure 1

(Figure 2) in addition to material from native algal species to begin this work. Water samples have also been collected for eDNA analysis.

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:

Schizoporella japonica
(Orange ripple bryozoan)



Jirina Stehlikova, SAMS

Native range: Northwestern Pacific

Impacts:

- Competes for space and inhibits growth of neighbouring species.
- It has the potential to become a significant fouler of aquaculture equipment.

Marine Biosecurity Planning part 2

Following on from previous work to promote site based biosecurity planning in 2016, this year biosecurity consultants Sarah Brown (C2W), the Marine Biological Association, PML Applications and Robin Payne, funded by Natural England, worked directly with individual marina and port companies to write biosecurity plans which can then be embedded throughout their operations. It was clear that biosecurity planning is still a relatively new concept and stakeholders can be put off developing a plan due to a perception that it may be complex, time consuming and the actions identified expensive which could potentially negatively impact their businesses. The support provided from the project was therefore really valuable and participants were reassured that the process could be straightforward and focus only on key actions that are realistic, practical and cost effective.

As part of this project, estuary wide biosecurity planning was also trialed (see April 2017 newsletter).

The plans, with a wider geographical scope and wider stakeholder buy-in, clearly had the potential to be successful but they also required more time to create and will require co-ordination to ensure that they continue to achieve their potential positive impact. Smaller site plans are, by their nature, more contained but are limited in what they can achieve if they are not networked into wider regional plans.



Providing samples promotes awareness and prompts

For more information about the project or to download the full report and associated documents go to:

<http://www.nonnativespecies.org/index.cfm?pageid=593>

or contact Jan.Maclennan@naturalengland.org.uk or sarah@c2w.org.uk.

Mapping non-natives in English and Welsh marinas, 2013-2016

Marinas and harbours are recognised as hotspots for NNS and thus priority sites for risk-based monitoring and surveillance for marine pathway management. However, they are not currently covered by statutory monitoring. Since 2013, rapid assessment surveys (RASs) for sessile marine NNS have been undertaken in 81 marinas/harbours (Figure 1) by the Marine Biological Association (MBA) and collaborators. English RASs built upon previous surveys conducted by the MBA (2009 – 2012) and Welsh RASs on the Cross-Wales NNS surveys (2011) conducted by CCW/Bangor University. English RASs were funded mainly by the Bromley Trust and Welsh RASs by the Resilient Ecosystems Fund administered by NRW.

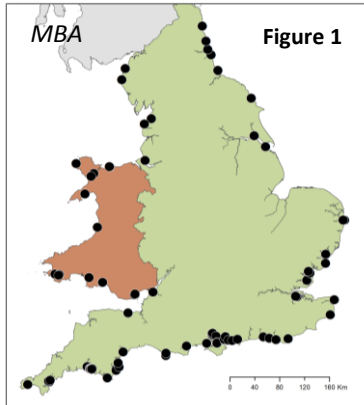
The presence and absence of a target list of 29 animals and 9 algal NNS were recorded, and any unexpected NNS documented. The first sightings in the UK of the Asian Brush-clawed Crab (*Hemigrapsus takanoi*), Wright's Golden Membrane Weed (*Chrysmenia wrightii*) and Blue-fringed Fan Weed (*Dictyota cyanoloma*) were documented. Important extensions to known ranges of species were also observed including *Didemnum vexillum* and *Undaria pinnatifida*. The ongoing spread to new sites was also documented in a range of species. Some species (those which had a high rate of occurrence by 2012) showed little or no further colonisation, including *Tricellaria inopinata*, *Austrominius modestus* and *Styela clava*.

It is apparent that there are regional differences in the prevalence of NNS, with individual sites on the south coast of England and in East Anglia frequently hosting 14 or more of the target species. Presence (926) and absence (2,317) records provided a significant contribution to the baseline mapping data for several priority NNS on the MSFD monitoring list. The data also fed into indicator B6 (pressure from invasive species) in the annual UK Biodiversity Indicators (Defra). Site-specific data from the surveys was compiled for individual marinas, marina groups and whole estuaries for use in the recent NE-funded biosecurity planning project.

Records prior to 2013 are summarized in *Aquatic Invasions* 10(3): 249-264.

2014-2016 survey reports can be found at <http://www.thebromleytrust.org.uk/> (England) and <http://www.nonnativespecies.org/index.cfm?pageid=597> (Wales).

For further information or suggestions regarding the continuation of this work, please contact jbis@mba.ac.uk.



Coming up:

A short article on the Eco structures project in Wales

Of Interest:

The Marine Pathways group is now being coordinated by Rachel Parks, Cefas.

American Lobsters in UK waters

American lobsters (*Homarus americanus*), are endemic to the east coast of North America, from Labrador to North Carolina. There is an extensive fishery for the lobster throughout this area, and much of the catch is exported live to Europe, including the UK. From the early 1980s American lobsters have been found in UK waters in limited numbers. There are concerns that the species could pose a potential risk to native species, such as the European lobster (*Homarus gammarus*),



Hybrid American/European lobster hatched from an egg bearing female American lobster landed in Bergen, Norway.

through competition, hybridisation and the introduction of disease. Between 1988 and 2011 a total of 26 animals had been found in UK waters. Between 2012 and 2017 a total of 144 American lobster were found. Most of these animals were landed after a rigorous response to remove animals from a mass release of 361 American lobsters off the coast of Brighton in 2015. Most were landed within 10 weeks of the initial release date. Four of the animals caught were females carrying eggs. Egg masses were tested from three of the females using molecular methods to determine the species of the parents. Two of the egg masses were from American female lobsters fertilised by American males. Lobsters can store sperm for some time, so females could have received the sperm while still in its native range. The third egg mass tested was from an American female and fertilised by a European male. This indicates the potential for hybridisation between the American and European lobsters to occur in the wild. Further work will be required to examine potential consequences of the mass release of American lobsters.

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