Marine Pathways
Managing marine non-native species

Marine Pathways News

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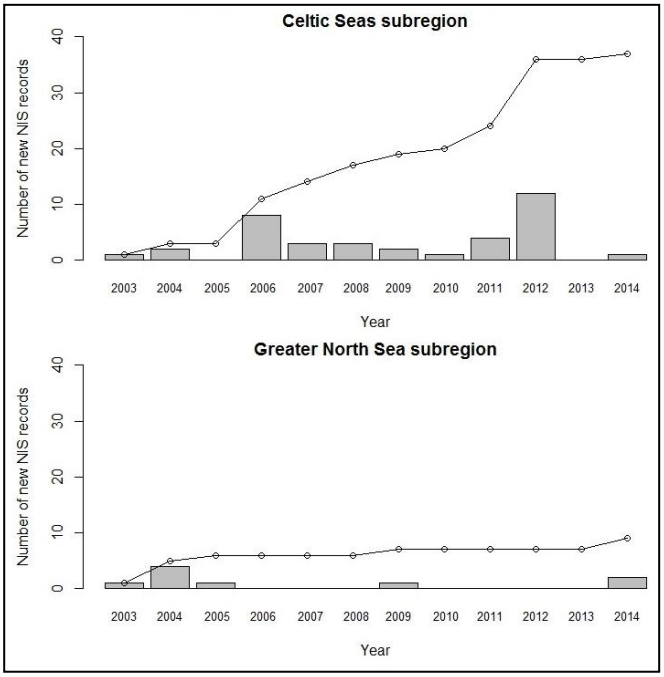
Marine pathways work continues throughout Great Britain and Ireland. Here are some updates on the subject of non-native species and on Marine Pathways work.

UK NNS assessment for The Marine Strategy Framework Directive

The marine Strategy Framework Directive requires that by 2020 the number of NNS within European waters are at levels which do not adversely impact the ecosystem. To determine whether this requirement has been met, the status of NNS within European waters needs to be assessed and reported periodically. The specific nature of the assessment is dependent on recently developed indicators. The indicator developed by OSPAR, and adopted for use by the UK, focuses on assessing the number of new introductions of NNS over time, thereby allowing inferences to be made regarding changes in introduction pathway activity and the effectiveness of measures put in place to reduce the number of new NNS introductions.



The number (bar) and cumulative number (line) of NNS introductions into the Celtic Seas (top) and Greater North Sea (bottom) subregions of UK waters from 2003 to 2014.

An initial assessment of the status of NNS in the UK was undertaken in late 2016. The assessment examined the number of new NNS introductions into the Celtic seas and the Greater North Sea regions of UK waters between 2003 and 2014. The number of new NNS records were compared between two six-year reporting periods: 2003 to 2008, referred to as reporting period 1 and 2009 to 2014, referred to as reporting period 2. In the Greater North Sea, fewer new records of NNS were reported during reporting period 2 than during reporting period 1 (see plot). While the opposite occurred in UK Celtic Seas, with more new records of NNS reported during period 2 compared to period 1 (see plot). However, these differences between reporting periods were not statistically significant in either subregion.

While the assessment showed that there was no significant change in the number of introductions of NNS in reporting period 1 and reporting period 2, interpretation of the assessment results should be undertaken with caution. Given that prior to 2016 there was no specific monitoring programme for NNS in place, the data on which the assessment is based may not capture introductions accurately, thereby limiting confidence in conclusions drawn from the assessment.

To aid confidence in future assessments data on NNS introductions need to improve. The monitoring programme implemented in 2016 will go some way to improving the accuracy of data on NNS introductions into the UK. However, there is still need for monitoring in high risk locations and refinement of processes by which data on NNS are collated and reported.

Stakeholders embracing biosecurity to tackle marine INNS

Biosecurity plans are a simple way of recording and assessing the risk of an activity introducing or spreading a marine NNS and the biosecurity measures that can be taken to mitigate these risks. Following on from previous work to promote site based biosecurity

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:

Ensis leei
(American jack knife clam)

Wikipedia.org

Native range:

Northeastern USA.

Impacts:

- Sediment structure may be affected by burrowing where populations are dense.
- Injuries can result from stepping on sharp shell.
- Economic impact on fisheries may result from damage to trawling nets.

planning through training with ports, harbours and marina operators in 2016, this year biosecurity consultants Sarah Brown (C2W), the Marine Biological Association, PML Applications and Robin Payne, funded by Natural England, trialled estuary wide biosecurity planning and also worked directly with individual marina and port companies to write biosecurity plans which can then be embedded throughout their operations.

Plymouth Sound and Estuaries special area of conservation (SAC) was chosen as one of the locations to write an estuary wide biosecurity plan, as recent condition assessments have indicated unfavourable condition as a result of the presence and impact of both the Pacific Oyster (*Crassostrea gigas)* and the Slipper Limpet (*Crepidula fornicata*) – the IPENS Site Improvement Plan also listed a biosecurity plan as a key action to tackle INNS issues so it was a great opportunity to make progress.

On 1st March 2017, key stakeholders around Plymouth came together to share ideas about practical measures that they could implement into their everyday operations – focussing on those that could be feasible and simple to implement. Some great ideas were discussed such as having shared signage and awareness raising for sea users throughout the estuary and providing opportunities for monitoring new species arrivals.

The report is available to here:
http://www.nonnativespecies.org/index.cfm?pageid=597

The species identification training element of the workshop in action

Genetics of Mitten Crabs

The Chinese mitten crab, *Eriocheir sinensis*, is native to the North East and South coast of China. The species is considered a delicacy and is therefore a highly-valued aquaculture species, however this species is highly invasive. Since the early 20th century, populations have been reported in rivers and estuaries along the NE European coastline where it has caused considerable damage to natural ecosystems. While information exists regarding the occurrence and distribution of this species, the genetic structure of the Chinese mitten crab populations present within Europe has not yet been investigated. A study undertaken by the Natural History Museum (Paul Clark) and Centro de Estudios Avanzandos de Blanes CEAB in Spain (Ferran Palero), with support from Natural Resources Wales (Ben Wray) aims to examine the diversity and population structure of Chinese mitten crab from a number of sites in Europe (including England and North Wales). It is hoped that this will shed light on the potential invasion routes and connectivity of this species between continental Europe and the UK. Such information is valuable for the management of this species and will inform targeting of specific vectors and routes of introduction.

Paul Clark, from the Natural History Museum taking morphometric data from Dee Mitten Crabs as part of DNA analysis work for the project

Of interest:
'Marine litter and NNS – report by National Oceanic and Atmospheric Administration Marine Debris Program *considers the potential role that marine debris may play in introducing NNS that may become invasive'*

Kevin Head

Coming up:
Cefas has conducted a study looking at the behavior of, and interaction between, the Native European Lobster and the NNS American Lobster. This study sheds further light on the potential impact of introduction and establishment of the American Lobster in waters outside its natural range.

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