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.

American Comb Jellyfish in the UK

The American comb jellyfish, *Mnemiopsis leidyi*, may look harmless but is a major carnivorous predator of edible zooplankton, fish eggs and larvae. This comb-jelly is indigenous to temperate, subtropical estuaries along the Atlantic coast of North and South America. Its accidental introduction, via ballast waters, into the Black Sea in the early 1980s, was followed by dramatic ecosystem changes and was associated with the collapse of the anchovy fisheries. The species quickly spread to the Mediterranean Sea and based on this first invasion, *M. leidyi* was considered among the 100 most severe invasive alien species worldwide (http://www.issg.org/worst100_species.html). It is therefore no surprise that when *M. leidyi* was first spotted in the English Channel along the French coast in 2005, and in the following years all along the continental coast up to Denmark, it raised concern among the scientific community.

The transparency and fragile nature of this invasive comb-jelly make it difficult to see or sample when present in low abundances. Modelling work indicated that risk of introduction of this species may be greater in the Wash area (North Norfolk). Using Environmental DNA (eDNA) detection technique *M. leidyi* was first detected in UK waters in 2014 as part of sampling carried out for Norfolk County Council's SEFINS project. Visual evidence of this animal was still necessary to confirm its presence. This happened in February 2016 when our French partners contacted us to report the presence of *M. leidyi* individuals in their plankton samples collected during the International Bottom Trawl Survey (IBTS). The collected specimens were sent to Cefas and the eDNA technique was applied, with positive results; thus confirming that *M. leidyi* is present in UK waters and confirming that eDNA is a valid technique for the detection of non-native species.

The locations where M. leidyi has been detected.

A rapid risk assessment for this species is currently being undertaken. Further reports of this species will be monitored and its distribution traced. Good biosecurity and pathway management in UK waters, as measures to reduce the risk of introduction and spread of NIS, continue to be promoted and implemented.

Ballast water Management Convention

Ballast water is used to stabilise vessels whilst at sea. It has since been recognised that the exchange and transfer of ballast water between ports and other locations represents an important pathway for the introduction of aquatic non-native species and thereby poses a considerable risk to vulnerable habitats and aquatic biodiversity. Following the UN Conference on Environment and Development, held in Rio de Janeiro in 1992, the International Maritime Organization's (IMO) Ballast Water Working Group began the process of drafting a global agreement designed to address the role of shipping in the transfer and spread of such organisms. The result was the International Convention for the Control and

Vessel discharging ballast (© Zane Johnston)

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:
American comb jellyfish (*Mnemiopsis leidyi*)

S. Pitois, Cefas.

Native range: Northeastern USA

Impacts:

- Major predator of zooplankton, fish eggs and larvae.
- Reduced abundance of pelagic fish prey
- Reduces abundance of fish stocks including commercial stocks thereby resulting in economic loss.

Management of Ships' Ballast Water and Sediments.

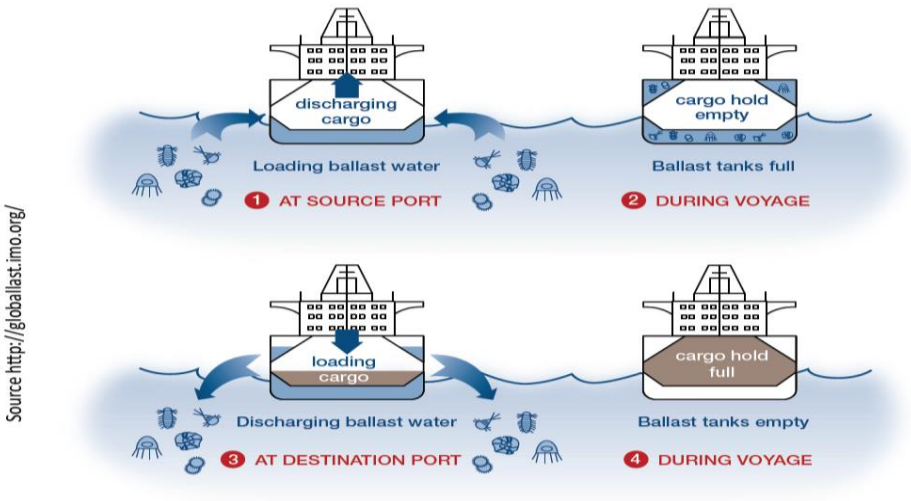
The Convention applies to any vessels utilising ballast water whilst engaging in international voyages and has the explicit aim of reducing the introduction of viable non-natives through the enforcement of ballast water treatment prior to exchange. This requires a considerable number of ship owners to retrofit their current vessels' with ballast water treatment systems (which generally come at a high cost both economically and logistically). Following entry into force all ship owners are required to: 1) Implement a vessel specific ballast water management plan; 2) Maintain a logbook of ballast water management operations; and 3) Meet the performance standard for treatment systems (as specified within the convention).

Originally adopted in February 2004 by the IMO, the Convention requires at least 30 member states representing 35% of global merchant shipping tonnage to ratify the Convention before its entry into force following a twelve-month transition period. The IMO currently report (May 2016) that 51 member states representing 34.87% tonnage have ratified the Convention, making entry into force in 2017 highly likely. The compliance schedule for individual ships is to be determined by construction date and renewal status of International Oil Pollution Prevention (IOPP) certification; however, a limited availability of retrofitting facilities may complicate the process. Assuming the Convention enters into force in 2017, all global shipping would need to be compliant by 2022.

Although a considerable challenge for the shipping industry, the implementation of the Convention is expected to reduce the unwanted introduction of non-native species into high risk areas and provide an internationally agreed instrument for increased environmental protection.

More information on the Ballast Water Management Convention can be found at:

- The International Maritime Organization – Ballast Water Management
- Institute of Marine Engineering, Science and Technology
- Guidelines and guidance documents related to the implementation of the international convention for the control and management of ships' ballast water and sediments, 2004



Cross sections of ballast tanks and ballast water cycle (http://globallast.imo.org/)

Marine licensing and INNS

Along with the marine aggregates industry in Wales, NRW are developing guidance related to marine aggregate dredging activities and Invasive non-native species (INNS), specifically those species listed on Schedule 9 of the Wildlife & Countryside Act 1981. The guidance relates to Welsh Seas and is the first of several briefing notes covering similar INNS issues related to a range of marine activities. NRW are also developing a 'General License' that will permit the release, under certain conditions, of some marine INNS (those on Schedule 9, W&CA) into Welsh Seas.

Of interest:

A plan to implement the GB Invasive Non-Native species strategy has recently been published and is available here.

First list of IAS of Union Concern has been published by the European Commission.
The list comprises 37 species and will come into force on 3rd August 2016. The list includes 1 marine species – The Chinese mitten crab (*Eriocheir sinensis*) and is available here.

Coming up:

- *Update on the presence of American Lobster (Hommarus americanus) in the UK.*
- *INNS reporting training for aquaculture operators in Ireland.*

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