Marine Pathways Project News

Issue 5 – Jan 2015

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.

Offshore Early Warning Network - A students Experience of Sample Collection on the Cefas Endeavour (by Anthony Barker)

As a placement student in the Marine Monitoring Team for Natural Resources Wales (NRW) during my Marine and Freshwater Biology degree at Aberystwyth University, I had the opportunity to spend ten days working offshore with the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) on their vessel, the Endeavour. We sailed from Swansea, the task being to service five Smart Buoys out in the Celtic deep, Atlantic and English Channel. These smart buoys act as multi parameter platforms, used primarily for collecting data about the surrounding marine environment.

Collection of settlement plates (Courtesy of Anthony Barker).

The voyage was one of a series of regular CEFAS maintenance cruises that the Marine Pathways Project has made use of to test the utility of smart buoys as a method for monitoring marine INNS introductions into the UK. Structures like buoys and offshore platforms can assist these species to cross the deep sea barrier by offering a hard substrate, creating a 'littoral like' stepping stone.

Recovered offshore buoy (Courtesy of Anthony Barker).

The project involves attaching settlement plates to the buoys which are retrieved 6 weeks later. I aided in removal and photography of these plates as well as taking scrape samples around the buoy.

I'd never had the opportunity to perform research on a survey ship before. The first shock was the luxurious living conditions; something I thought would not be highly rated. In my dorm I was pleasantly surprised to find a comfy bed next to a porthole window with a great, eye level view of the sea. An en-suite bathroom, personal desk and sofa really made it feel I could live on a ship for life. Given the distance between the buoys, free time presented itself and allowed the opportunity for cetacean surveys. The fast leaping dolphins seen during the surveys really were good for practising my wildlife photography.

I learnt so much whilst at sea and now know how much I enjoyed working offshore. Not seeing land for days on end was daunting sometimes but by the time we ended up on Lowestoft, setting foot on land was somehow a disappointment. I really did love life at sea and I can only hope with my future aspirations I will be able to return to offshore survey work one day.

The offshore buoy monitoring work is due to be completed by end of March 2014.

The Celtic Seas Partnership Project

The Celtic Seas Partnership is a four year EC LIFE+ funded project (2012-2016) led by WWF-UK to help achieve healthy and sustainable seas. The project is supporting the implementation of the Marine Strategy Framework Directive (MSFD) in the Celtic Seas by increasing awareness and understanding of the policy and by drawing people together from across the region to set up collaborative and innovative approaches to managing their marine environment. It is working to put the people that use the sea at the heart of management and offer them the opportunity to influence how their marine environment will be managed in the years to come.

A key focus of the project's activities has been to develop a number of ideas for management measures under the different MSFD descriptors. A select few of these ideas are now being taken forward by stakeholders as initiatives through recently formed task groups. One of these groups is developing an initiative to reduce the introduction and spread of non-indigenous species in the Celtic Seas. The initiative aims to identify and address gaps in the coverage of existing biosecurity protocols in different sectors and improve their implementation through identifying sector champions. The task group includes a range of experts from across the Celtic Seas,

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:
Slipper Limpet
(Crepidula fornicata)

(Image from GBNNSS)

Native range:
From Point Escuminac, Canada along the eastern coast of America, down to the Caribbean.

Impacts:

- Can smother native seabed species.
- Can alter the seabed habitat dramatically.
- Competes with other filter feeding species for resource.
- Can foul manmade structures and equipment and hard shell species including those of commercial importance.

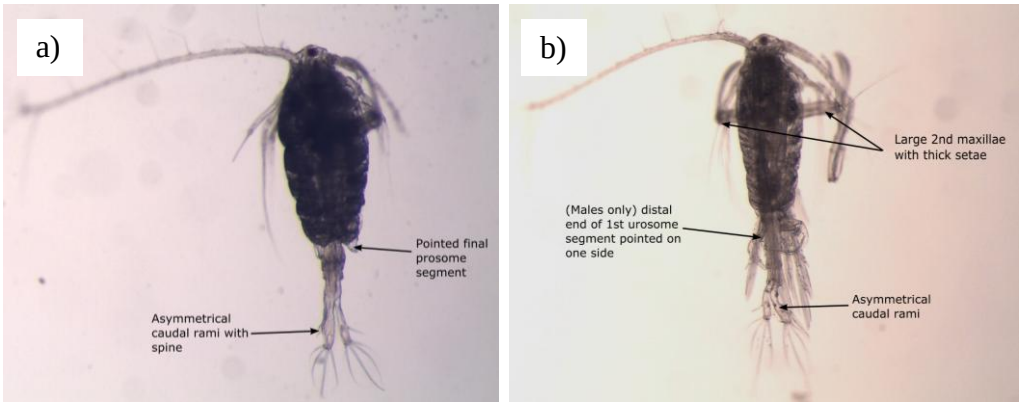
coming from industry, academia, statutory agencies and NGOs. For more information please contact Natasha Barker Bradshaw (NBarkerBradshaw@wwf.org.uk) or Jenny Oates (Joates@wwf.org.uk) or see the project web pages (http://www.celticseaspartnership.eu/) and twitter (www.twitter.com/celticseas).

Marine Copepods – First Time Recorded in UK Waters.

Two non-native marine copepods, *Tortanus (Boreotortanus) discaudatus* and *Eurytemora herdmani,* have been observed in Firth of Forth, Scotland during monitoring undertaken by Scottish Environment Protection Agency (SEPA) between 2012 and 2014.

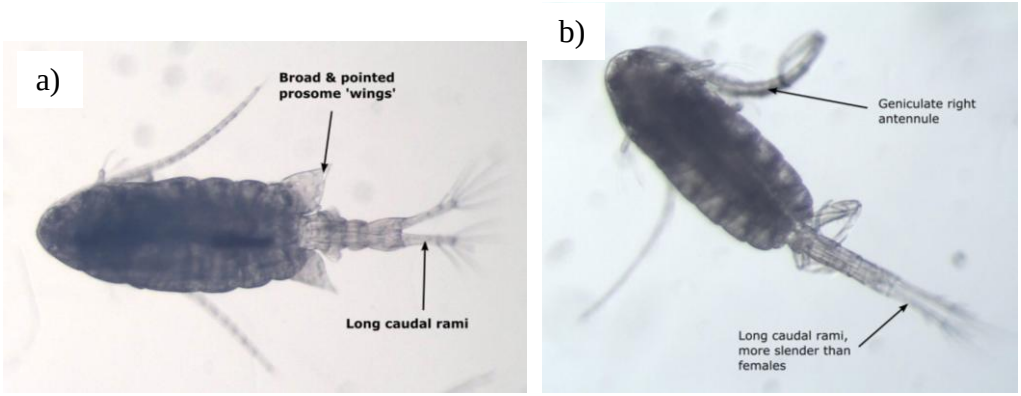
What do they look like?

T. discaudatus*:* Medium sized predatory copepod, typically 1.5-1.8mm in total length. The head region is quite angular. When mature the tail is characteristically asymmetrical in both sexes. The 2nd maxilla is very large, projects out from the body and bears stout setae, a specialisation for grasping the copepods upon which it preys.



T. discaudatus a) female and b) male.

E. herdmani*:* Medium sized herbivorous copepod, typically 1.5-2mm in total length. Females have broad pointed prosome 'wings' and long caudal rami. Eggs are held in a sac between the 5th pair of swimming legs and tail. Females are superficially similar to native *Eurytemora affinis*, which are more slender, have smaller prosome 'wings', a much smaller exopodite of the 5th pair of swimming legs, and a rounder egg sac when gravid. Male *E. herdmani* are smaller than females, with thinner caudal rami, no prosome 'wings' and one geniculate antennule. Small differences in the 5th pair of swimming legs serve to distinguish male *E. herdmani* from male *E. affinis.*



E. herdmani a) female and b) male.

Where are they from?

T. discaudatus*:* Coastal waters off Alaska, Western Canada, Northeast USA & Canada. Previous single record off Porcupine Bank, Irish continental shelf from Continuous Plankton Recorder in 1967.
E. herdmani*:* Coastal waters off Alaska, Northeast USA & Canada, Arctic Canada & Russia.

How were they introduced into UK waters?

The most probable vector of introduction is ballast water of ships arriving from the USA and Canada. The Firth of Forth has a high volume of ship traffic. Transport via ocean currents is less likely, but is not ruled out.

What is being done?

Specimens are being retained for possible genetic analysis and monitoring continues to detect negative impacts upon native zooplankton. Diapause eggs, the life stage that non-native copepods survive the ballast tank environment in, were previously not thought to be produced by *E. herdmani* but this is being investigated.

Upcoming Events:

End of project Pathways Conference

When: 25th February 2015
Where: Cardiff.

Organised by Natural Resources Wales, the conference will showcase project work carried out during the last two years and focus on how the project could be continued into the future. If you are interested please contact Pat Wilson (Pat.Wilson@naturalresourceswales.gov.uk) or visit project news on www.nonnativespecies.org/projects/marinepathways for more information.

Pathways Biosecurity Training

When: 17th & 18th February 2015
Where: Pembrokeshire

Arranged by Natural Resources Wales this workshop will provide training for marina operators on the new Biosecurity Guidance. The training will be focused on the needs of marina operators but will also be suitable for people giving advice on biosecurity plans. The training will be free with food and accommodation also provided. If you are interested please contact Pat Wilson (Pat.Wilson@naturalresourceswales.gov.uk) or visit project news on www.nonnativespecies.org/projects/marinepathways for more information.

For further information on the Marine Pathways Project please following the link to our web pages hosted on the Non-Native Species Secretariat website: www.nonnativespecies.org/projects/marinepathways

Contact us:

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