

Capacity, capability and cross-border challenges associated with marine eradication programmes in Europe:

The attempted eradication of an invasive non-native ascidian *Didemnum vexillum* in Wales, United Kingdom

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PRIFYSGOL
BANGOR
UNIVERSITY



**Cyfoeth
Naturiol**
Cymru
**Natural
Resources**
Wales

Draft EU regulation on INNS

Proposal adheres to 3-stage hierarchical approach advocated by the Convention of Biological Diversity

1. Prevention

2. Early detection and rapid response

3. Control



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Eriocheir sinensis
Chinese mitten crab



Crepidula fornicata
Slipper limpet



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Proposal adheres to 3-stage hierarchical approach advocated by the Convention of Biological Diversity

1. **Prevention**
2. **Early detection and rapid response**
3. **Containment and long-term control**

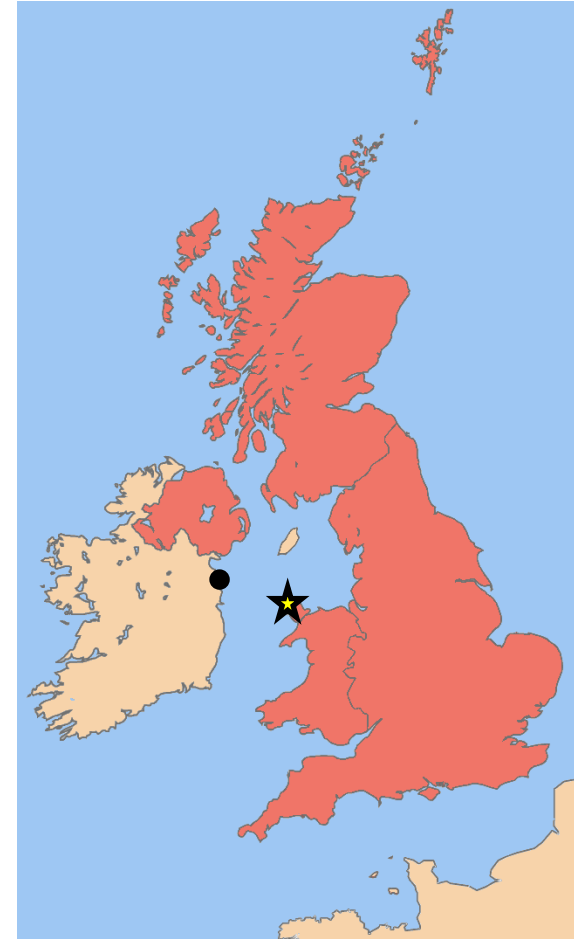
Draft regulations recommends creation of priority list of INNS that pose highest risk to biodiversity and economic stability of the EU

- **Invasive Alien Species (IAS) of Union concern**

If new establishing population of **IAS** is detected the affected State is obligated to apply eradication measures within 3 months

Case Study

- The first recording of the invasive ascidian *Didemnum vexillum* was made in the UK in 2008 (Griffith et al, 2009) at Holyhead Marina, North Wales
- the subsequent eradication efforts presented us with an opportunity to :
 - Evaluate UK capability and capacity to undertake **rapid response** to INNS
 - Highlight the cross-border challenges facing the EU



Current UK Framework

GB Non-Native Species Secretariat

Great Britain – England, Scotland and Wales

Devolved administrations dealing with non-native species

- England – Natural England and DEFRA
- Scotland – Scottish Natural Heritage (SNH) and Scottish Government
- Wales – Natural Resources Wales (NRW) and Welsh Assembly Government

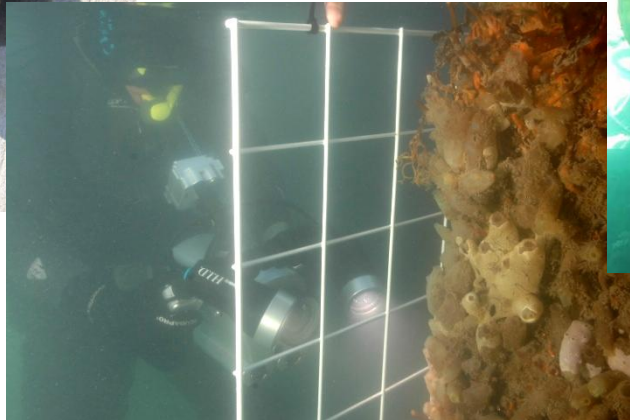


Response to *D. vexillum*

September '08 – Discovery of *D. vexillum*

October '08 – Wales Working Group formed
government, industry & academia

Nov '08 – Feb' 09 – NRW Extensive dive survey in Holyhead
1-10% coverage infection early stage
Additional surveys across Wales



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March' 09 – Feasibility of eradication and/or control
2 options proposed by NRW
1) *full eradication*
2) *pilot trial followed by eradication*

> 1 year Oct '09 – May '10 – Pilot trial followed by eradication plan
implemented

TIME TO ERADICATION



All photos
Rohan Holt (NRW)



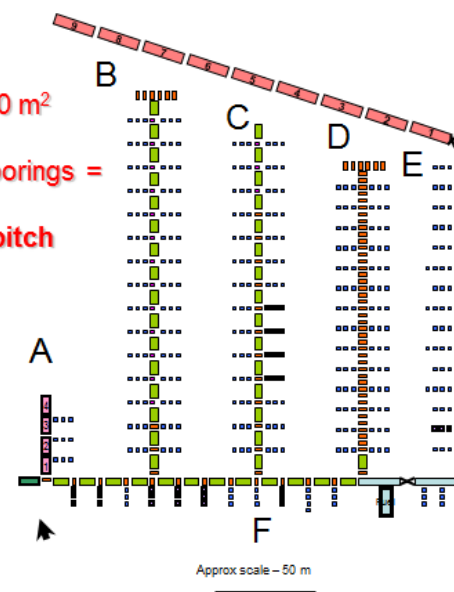
Working diagram of HOLYHEAD MARINA

near-scale plan of pontoon floats

525 pontoons = 6,140 m²

+ 140 chains and 100 moorings =

7,000 m² = football pitch

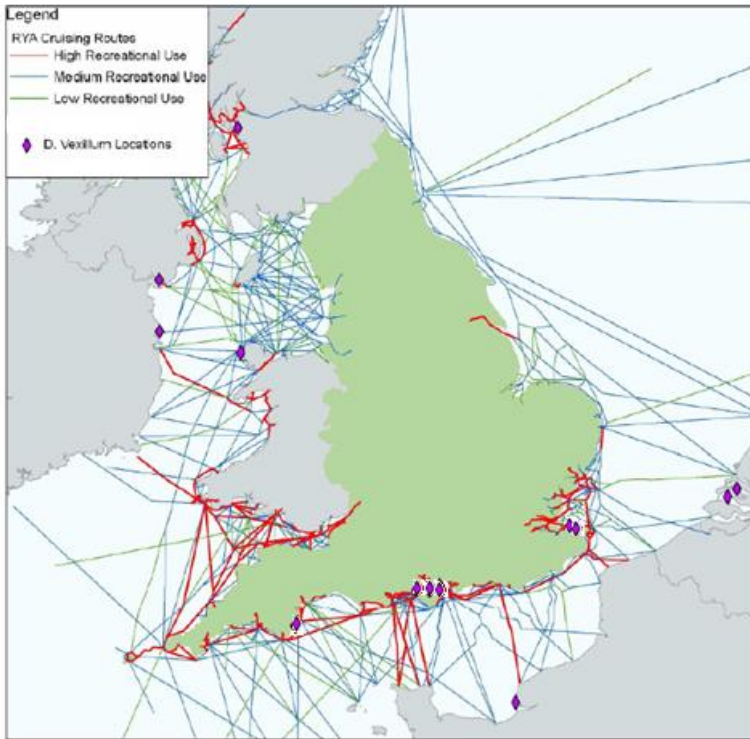


Post-eradication

- In Sept 2010 (4 months after eradication attempt) *D. vexillum* had re-established covering around 19% of marina pontoons
- In Oct 2010 further survey revealed that 50% of the submerged surfaces were infected
- Second eradication effort implemented in January 2012 – **long delay after difficulties with funding**
- Further small scale eradications required in September 2012, January 2013, March 2014



What were the problems?



- The presence of *D. vexillum* on the east coast of Ireland (reported in 2005 - 3 years before the first UK record) should have triggered an alert in UK and action to monitor “hotspots”
- NRW advised Welsh Government to eradicate but were faced with considerable delays in securing funding and permits
- Complex multi-agency regulatory framework seems to have impeded progress
- First UK report triggered GB-wide alert BUT surveys in Scotland and England took place **OVER A YEAR** later and 4 established populations of *D. vexillum* were found

A lack of co-ordinated effort between nations and agencies

Lessons learnt in UK



Current distribution of
D. vexillum

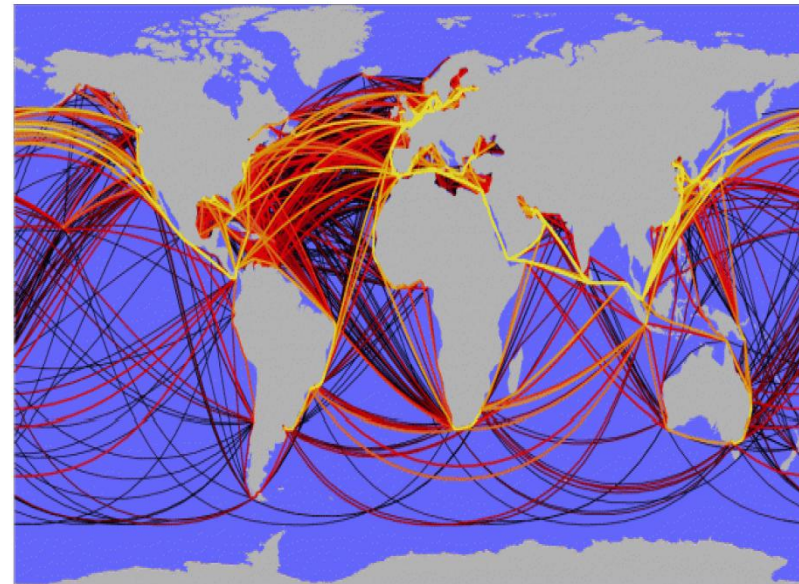
Much uncertainty about navigating through agencies and lines of authority to achieve a **rapid response**

UK is inadequately prepared to undertake **rapid** eradication measures in the marine environment

Lack of coordinated effort between UK nations has significant potential to devalue localised eradication efforts

Recommendations

- Enhanced alerting mechanisms
- Science-based monitoring programmes to enable early detection
 - Pathways Project – monitoring hotspots
 - NRW and Bangor University
- Increased commitment of resources
- The need for cross-border collaboration



Thank You...Questions?

