



The curse of connectivity- the challenge of delivering local effective management in the Shetland Islands

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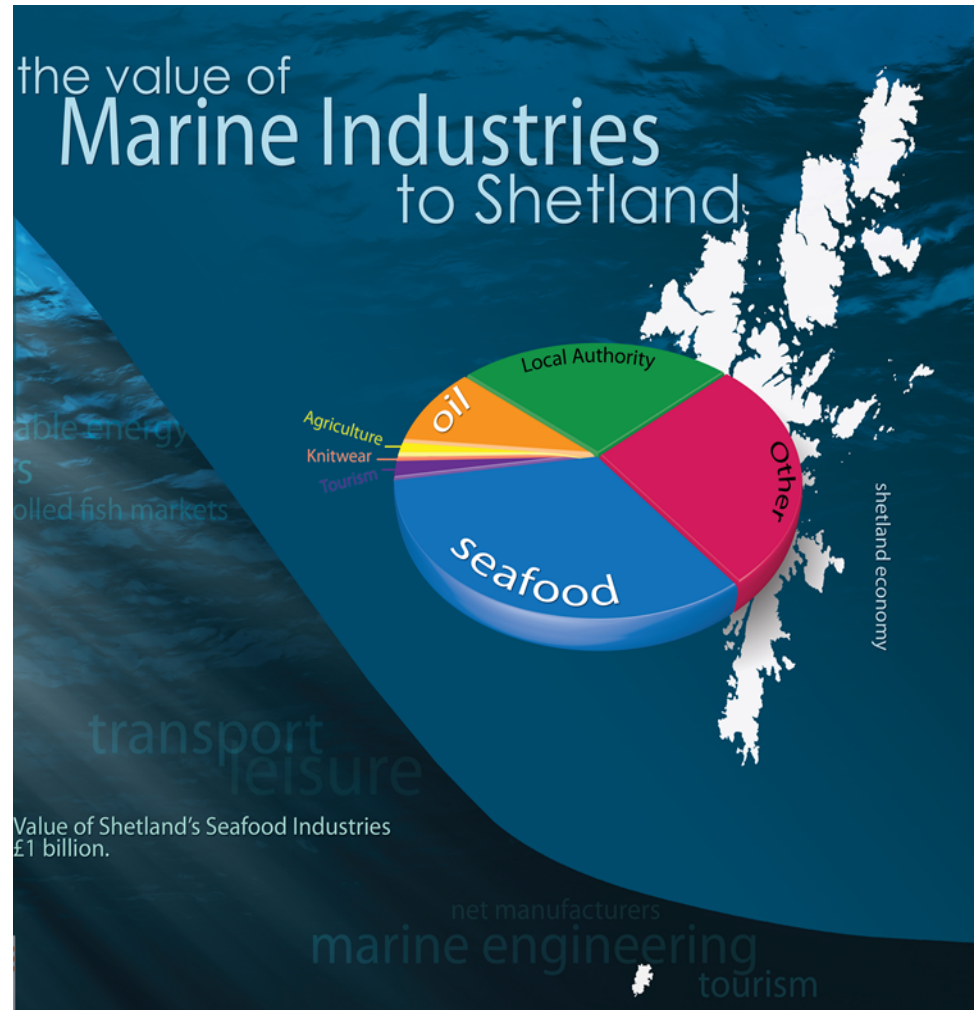
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A Marine Economy

- Seafood sector direct outputs worth £350 million to the Shetland Economy
- Gross impact of the sector £584 million
- 22% of all jobs in the Isles are dependent on the seafood sector



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A Marine Economy

- More fish landed in Shetland than England, Wales and NI combined
- 30% of Scotland's salmon production
- 80% of mussel production
- Europe's largest oil terminal



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Semi-autonomous Management

- ZCC Act 1974 Licencing power out to 12 NM
- Shellfish regulating order out to 6 NM
- Regional Marine Planning



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NAFC Marine Centre Shetland

- Set up to support fisheries industries
- Teaching and research
- Marine Spatial Planning, Fisheries and Aquaculture
- Strong links with local community



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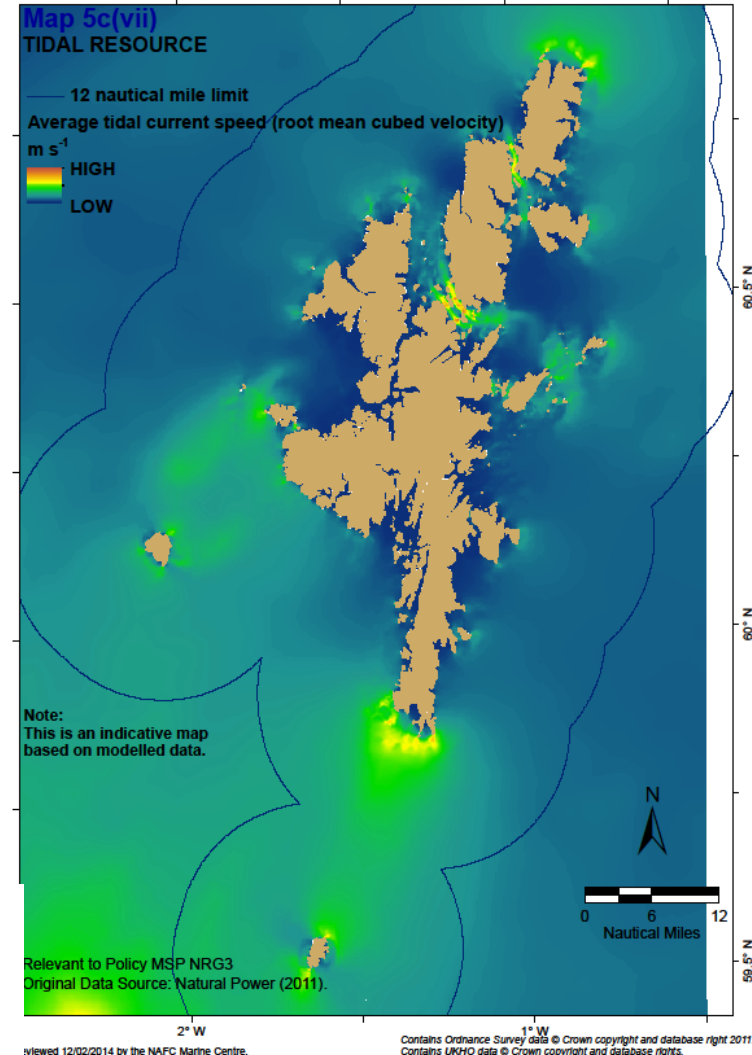


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Spatial Data

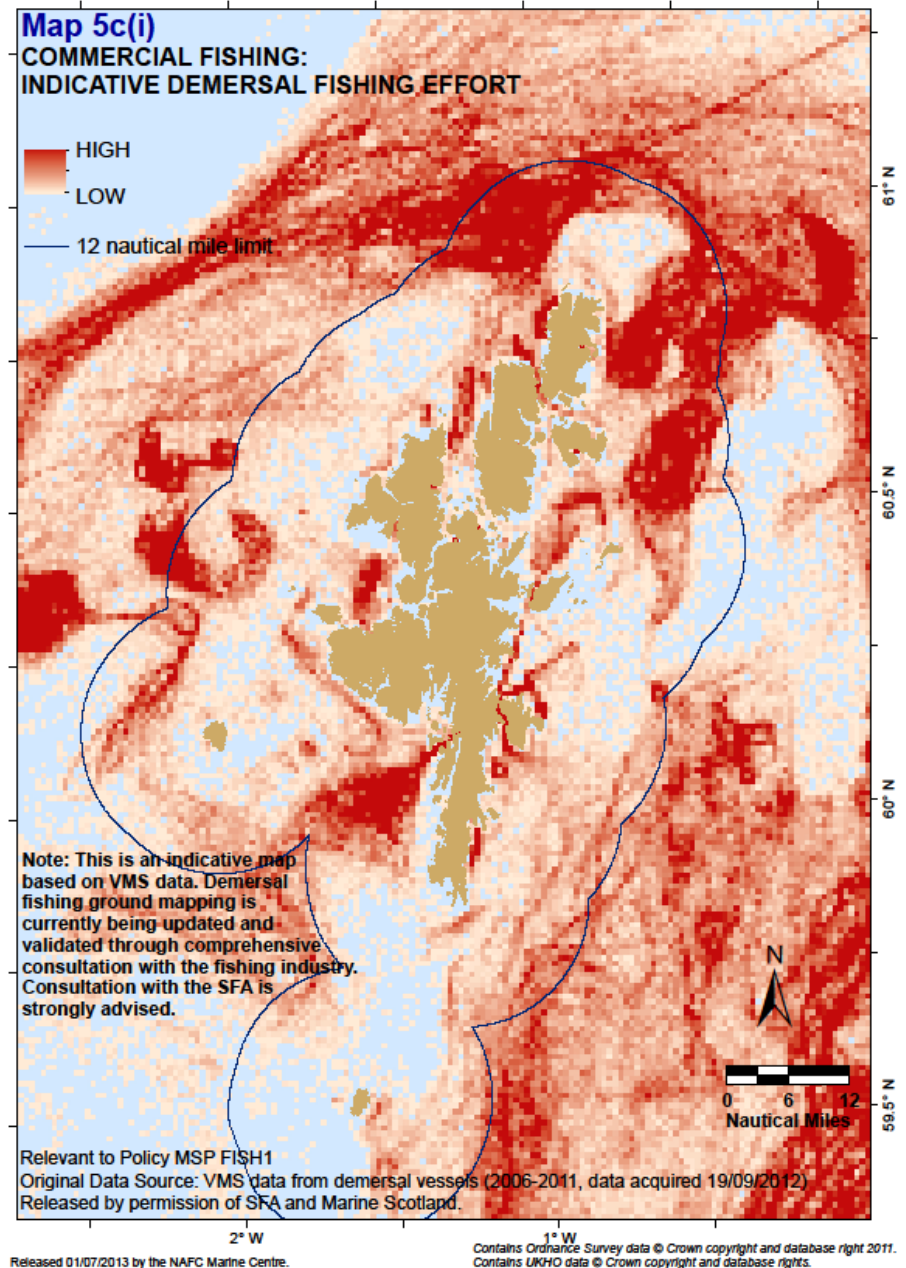
- 127 data sets, 60 different sources*
- Statistics e.g. aquaculture production statistics
- Local and national data sets
- Collection of new data
- Community and economic use

*Shucksmith R, Gray L, Kelly C, Tweddle JF (2014) Regional Marine Spatial Planning- the data collection and mapping process. *Marine Policy* 50:1-9



Data and Trust!

- Greater data use and sharing
- Allow data ownership to stay with fishermen etc
- Notice errors



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ICZM

- Coastal uses and features:
 - Cultural uses e.g. tourism, archaeology, recreation
 - Landscape/ seascape character
 - Nature conservation sites



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Marine Stewardship Council

- Environmental Certification for sustainable fisheries
 - World First for multiple fisheries
 - World First for a dredge fishery



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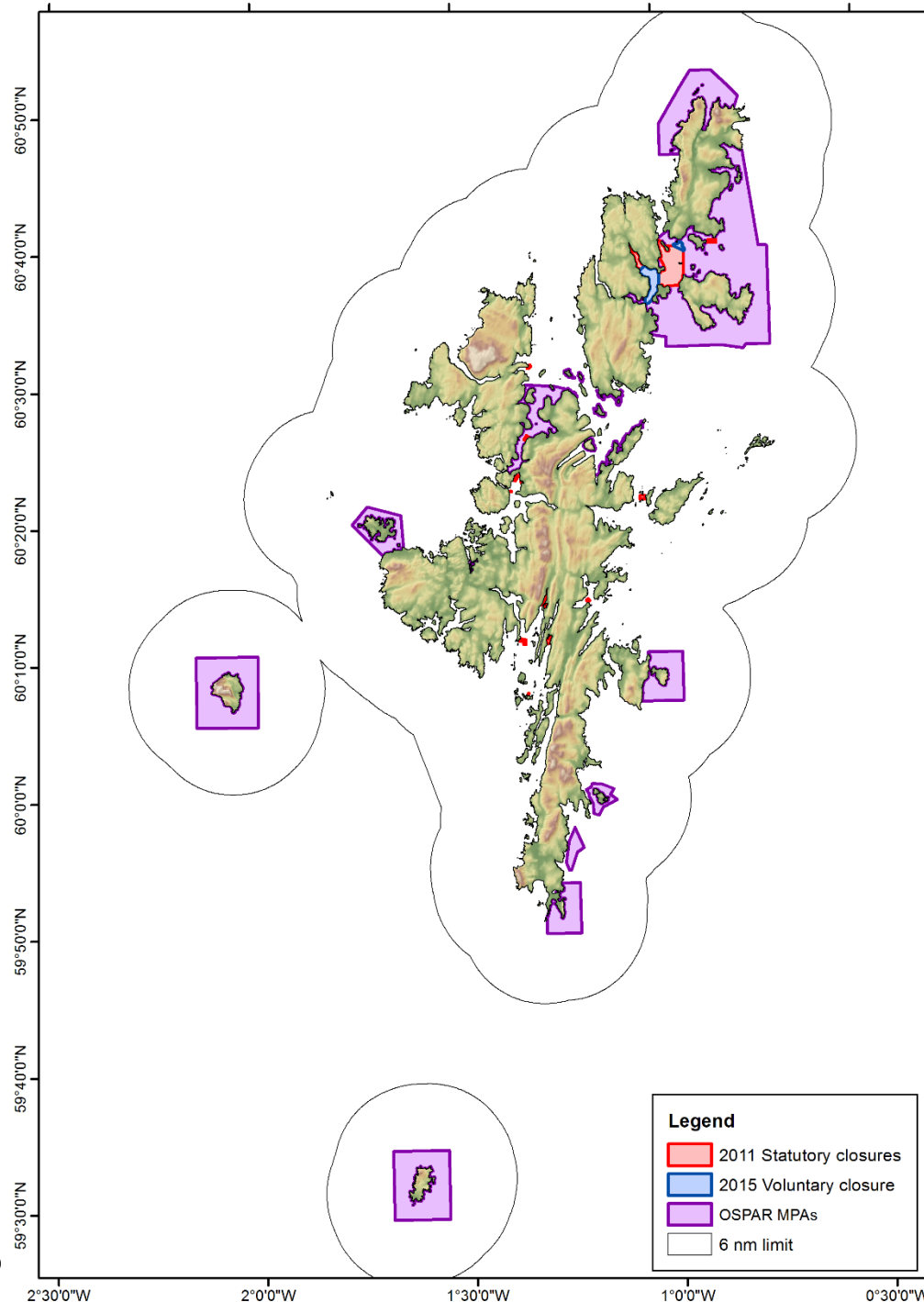
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Closed areas

- 24 statutory closures
- 2 Voluntary
- 30 km²
- Ground truthed by NAFC



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Method

- Survey vessel MV *Moder Dy*
- Hull mounted multibeam echosounder
 - Backscatter
 - Bathymetry
- Drop Down Video system for ground-truthing



Review of SMSP

- Spatial data and policy framework used in decision making
- Identifies constraints developers were unaware of
- Avoid conflict by guiding development away from areas of known constraint
- Shetland a more 'attractive' place to come*

*Kelly C., Gray L., Shucksmith R., Tweddle JF. (2014) Review and evaluation of marine spatial planning in the Shetland Islands. *Marine Policy*, 46: 152-160.

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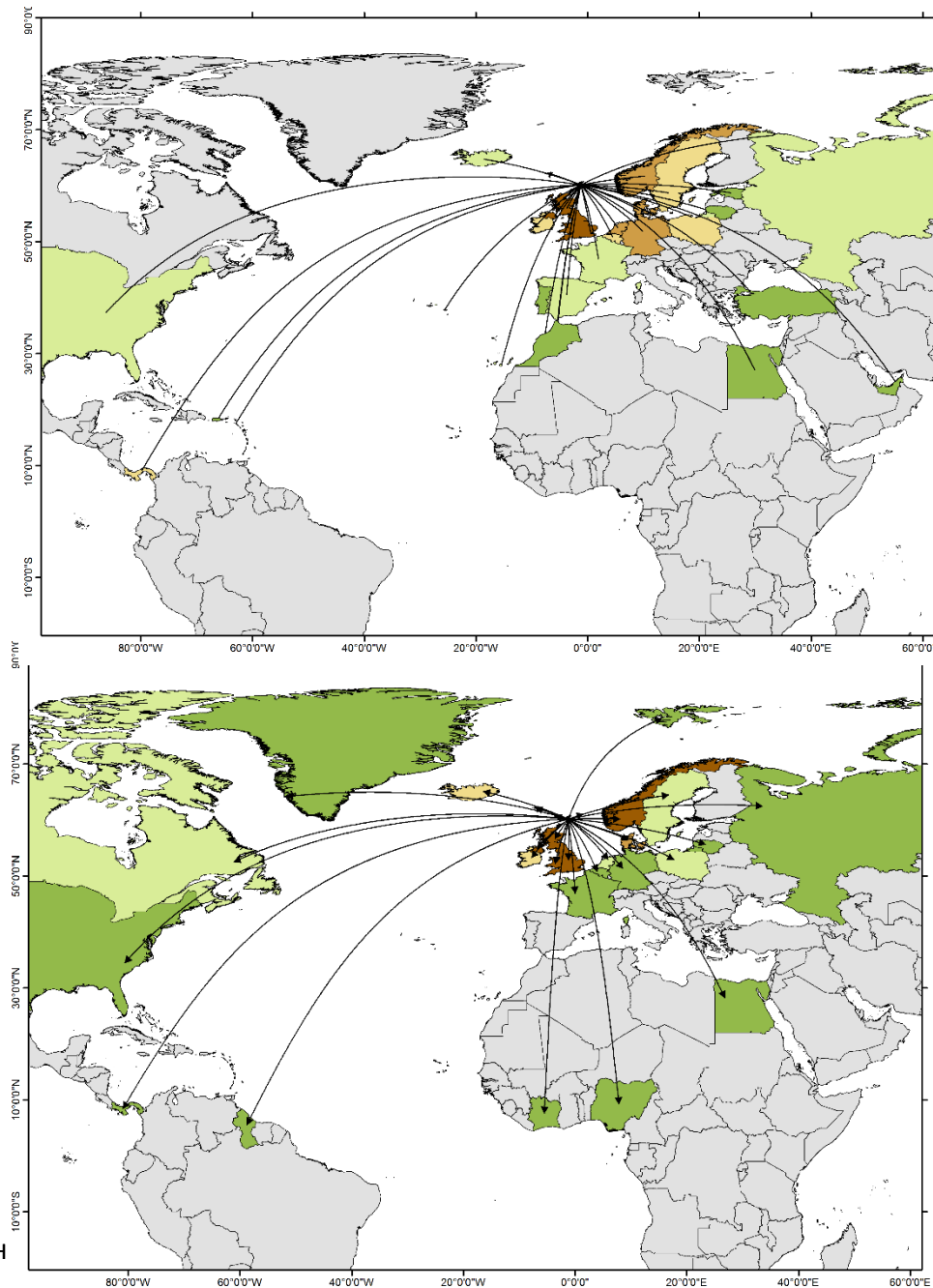
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Challenges- biosecurity

- Port of origin
 - 152 ports, 26 countries
- Destination
 - 231 usable destinations in 23 countries
 - From 1212 vessels!

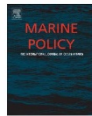


Marine Policy 59 (2015) 32–43

Contents lists available at ScienceDirect

Marine Policy

journal homepage: www.elsevier.com/locate/marpol



A risk based approach to non-native species management
and biosecurity planning

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SAND FISH

Challenges

- Fish stocks exist over very large areas- CFP
- Fisheries management measures have spatial impacts



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Nationally importance

- Renewables
- Oil and Gas
- Shipping



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Challenges

- Natura sites- decided nationally
- ‘Strong hold’ for internationally rare species which are relatively common locally
- 6979 km²



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Challenges

- Not all challenges are spatial
- Climate change
- Marine Litter
- Global economy



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Challenges

- MSP is just one tool
- Need local and international solutions
- Globalism may be the problem but also the solution!



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Thank you

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