



Identifying and assessing vectors for the dispersal of invasive species in the Shetland Islands

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Shetland

- 160km from mainland Scotland and 360km from Norway
- Archipelago – More than 100 islands, 15 inhabited
- 2,702km of coastline
- 120km in length
- Population of approximately 22,500



Locational Context

- Economically reliant on the sea
- More fish landings than England, Wales and N Ireland combined
- Europe's largest oil terminal
- 30% of UK farmed salmon
- 65% UK farmed mussels



Biosecurity Planning

- Developing a bio-security plan as part of the Shetland Islands Marine Spatial Plan
- Identify risks
- Vectors / pathways
- Develop best practice guidance
- Address 'local' issues



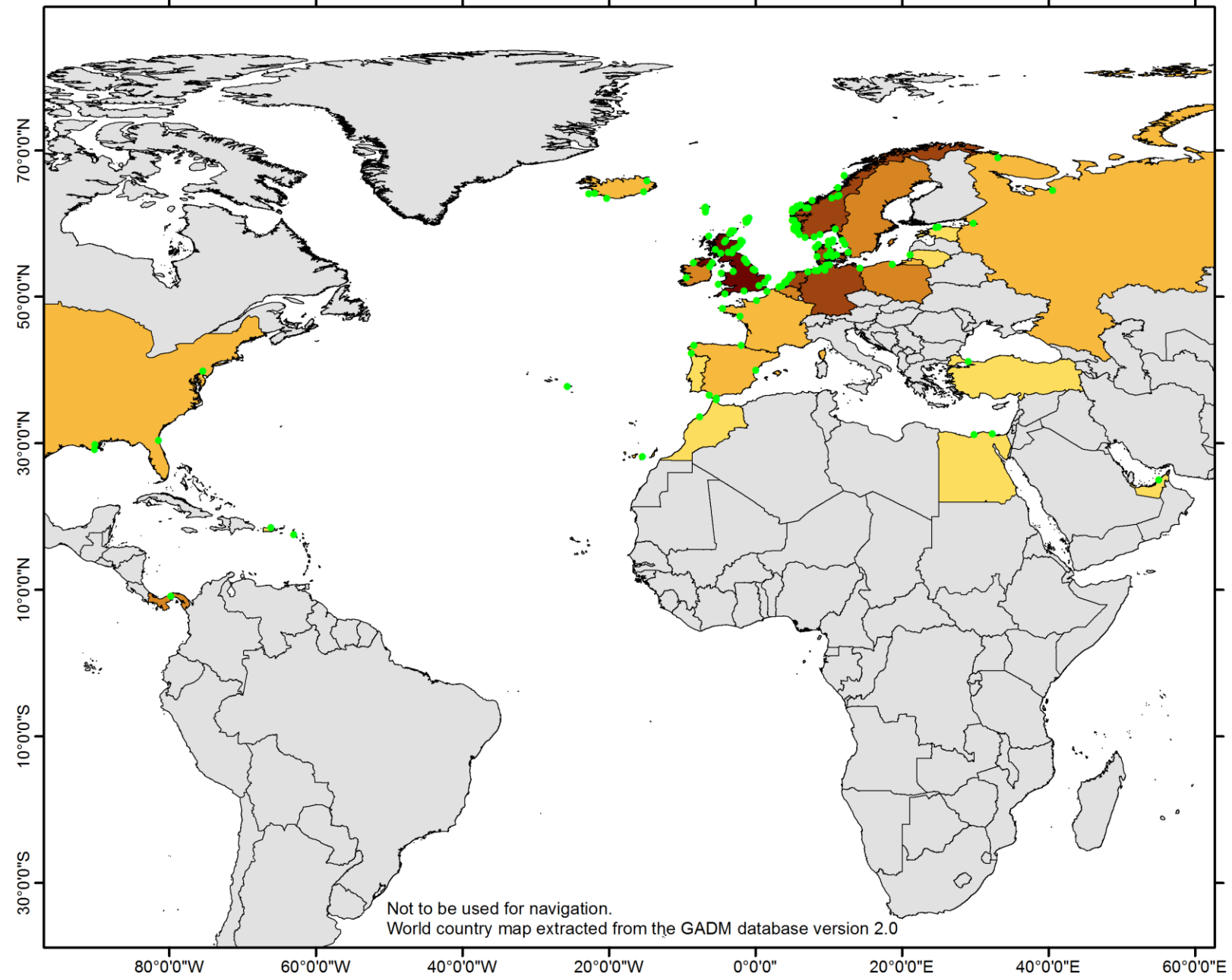
Strategy

- Identify potential vectors
- Identify potential natural dispersal
- Identify areas of high risk



Shipping

- Biofouling
- Ballast water exchange
- AIS data
- Oil vessels/ cruise ships/ cargo/fishing/ ferries



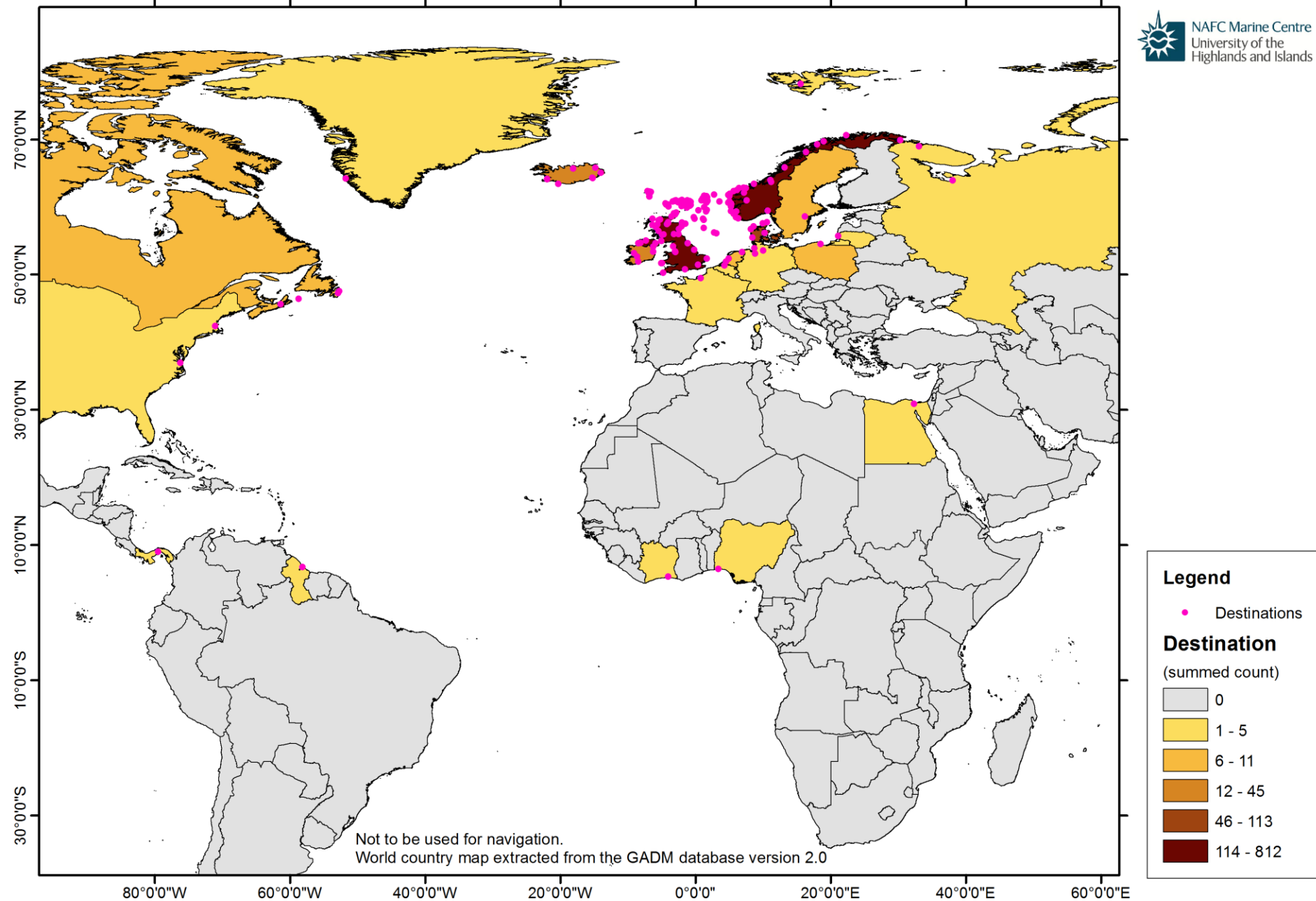
Not to be used for navigation.
World country map extracted from the GADM database version 2.0

Legend

- Last Port

Last Country
(summed count)

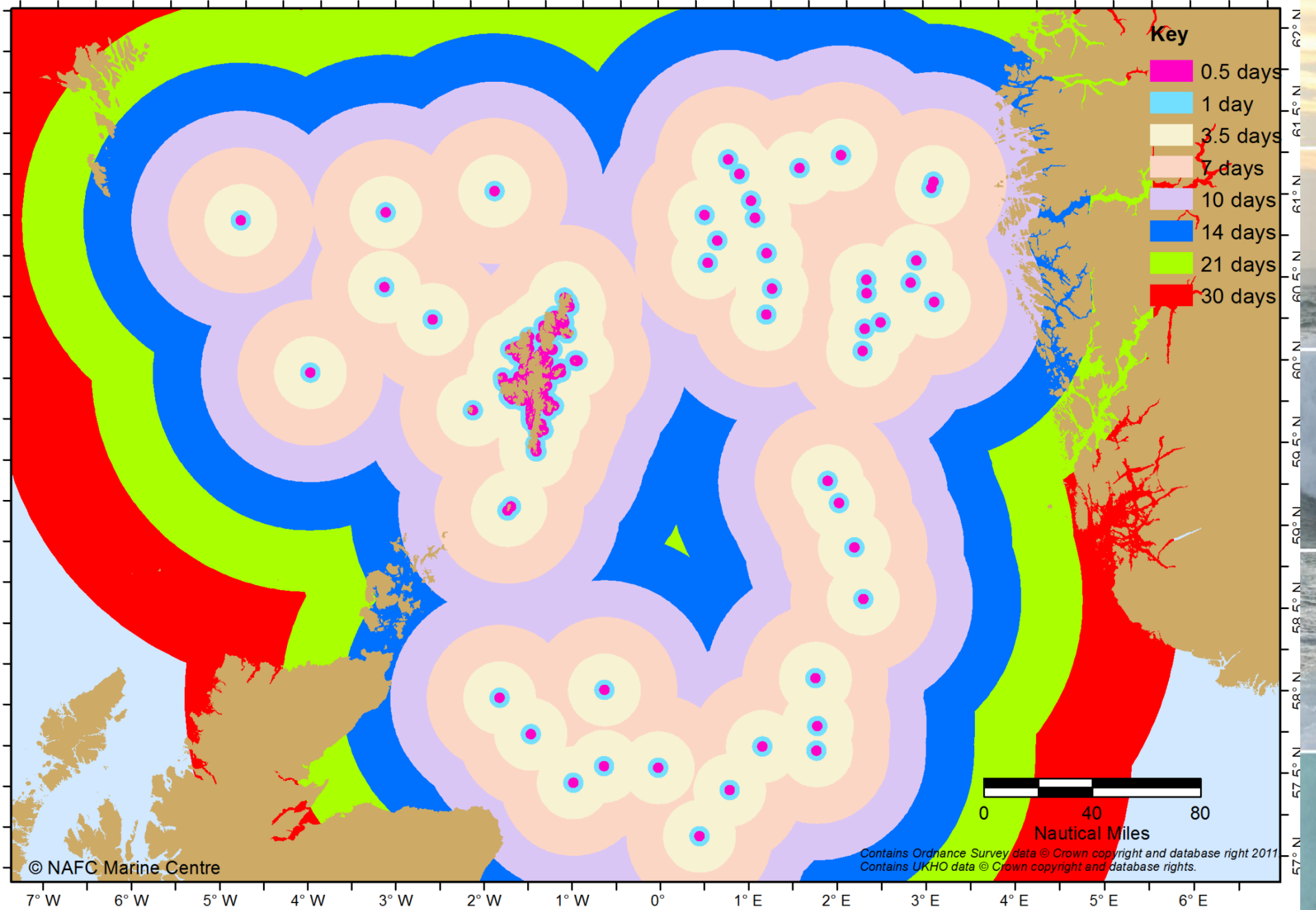
Light Gray	0
Yellow	1 - 5
Orange	6 - 20
Brown	21 - 41
Dark Brown	42 - 297
Dark Red	298 - 1370



Not to be used for navigation.
World country map extracted from the GADM database version 2.0

Stepping stones

- Aquaculture
- Marine renewables
- Oil platforms
- Shore access points
- Standard tidal excursion
- Compared with larval stages

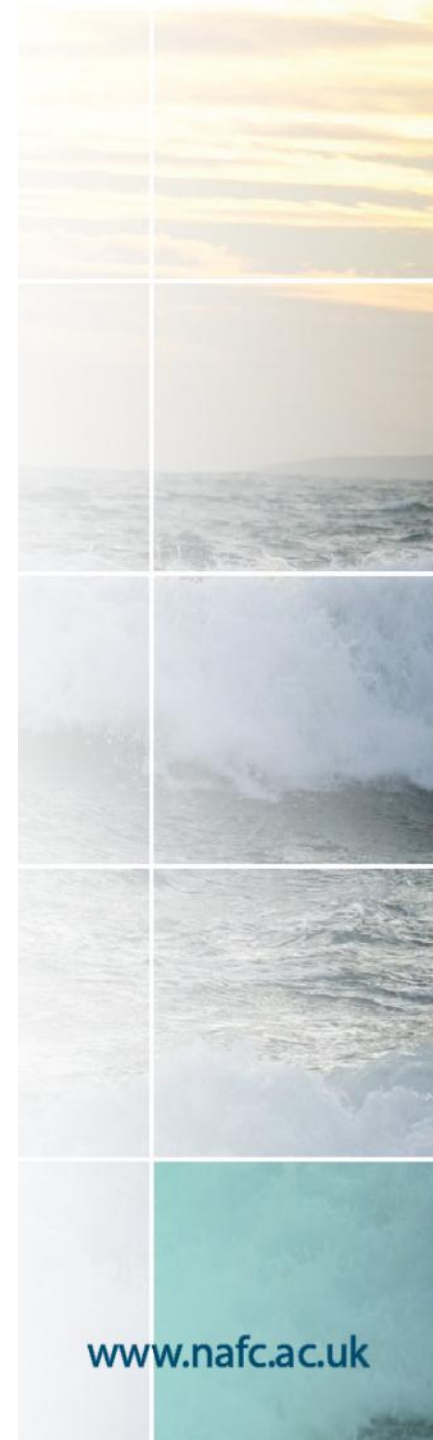
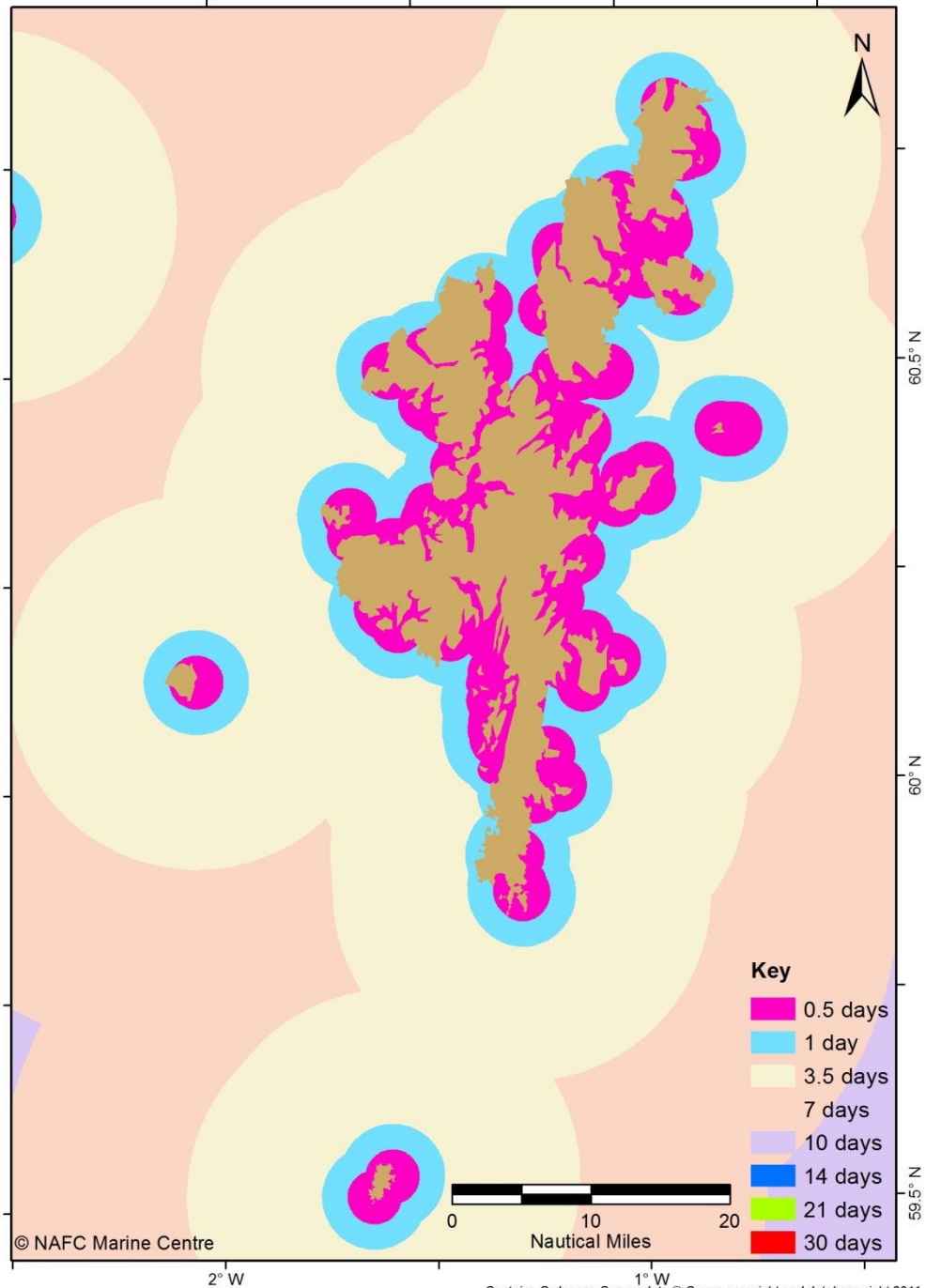




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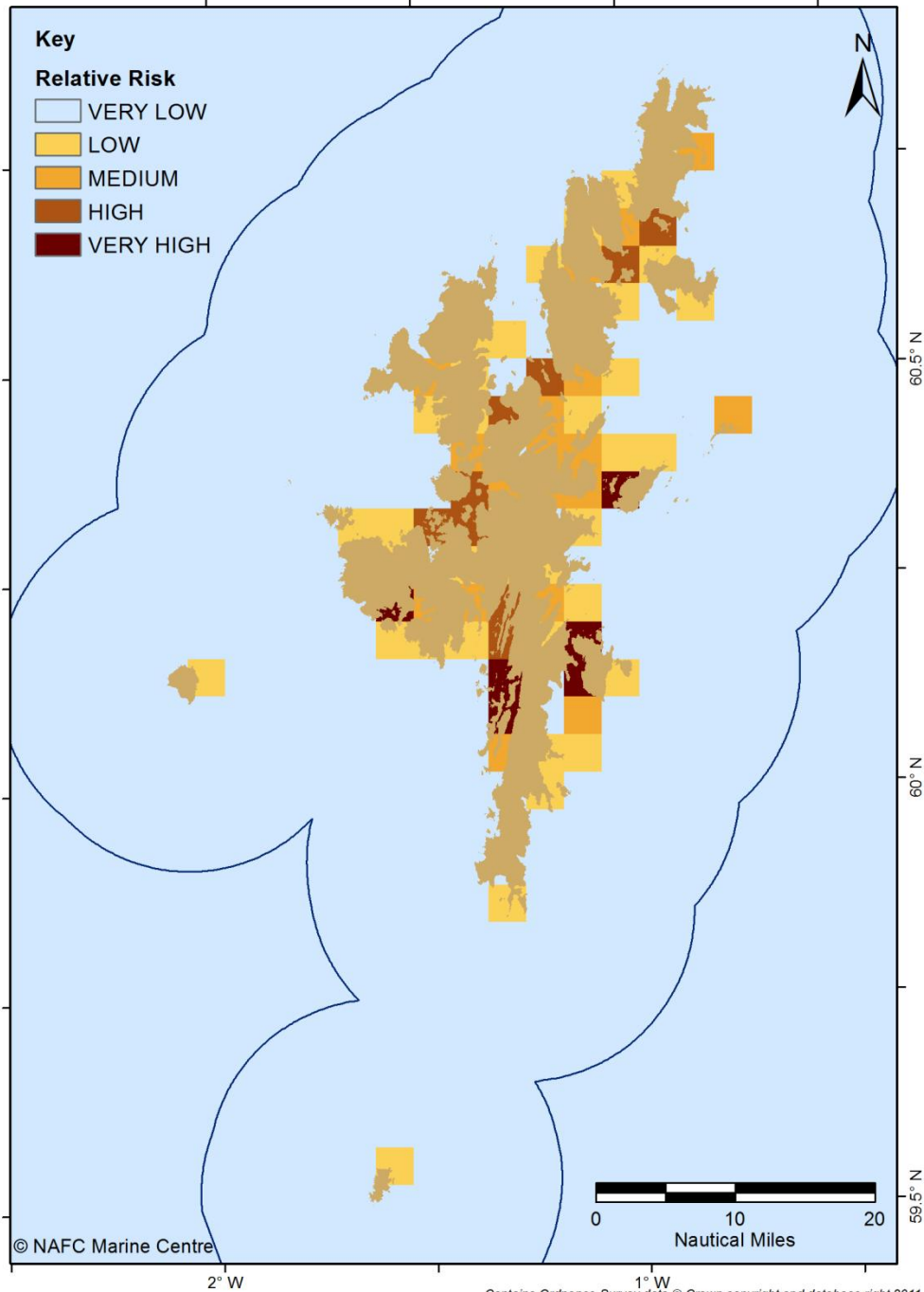
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Risk

- Identified areas of relative risk within Shetland
- Based on aquaculture, shipping intensity, shore access points, renewables
- Target monitoring



Local Management

- Internal risks and monitoring can be tackled locally
- Raise awareness
- Stepping stones outside 12 NM no control
- Natural dispersal means easy to spread
- Shipping little local control
- Need local, national and international management

Thank you,
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