Interreg
North Sea Region
Jomopans
European Regional Development Fund

EUROPEAN UNION

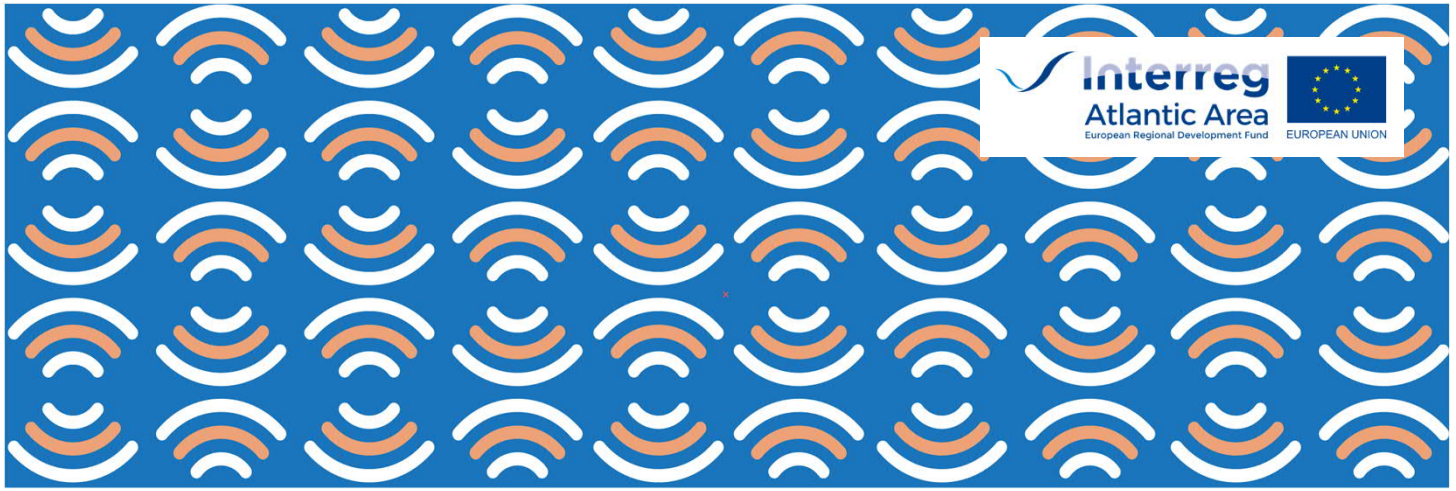
# PITCHES round 2

## JONAS, ECHO, MARPAMM

Midterm Event

London, 8 October 2019

AARHUS UNIVERSITY
BSH BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE
Cefas
FFI Forsvarets forskningsinstitutt Norwegian Defence Research Establishment
FOI
INSTITUTE OF MARINE RESEARCH
Scottish Government Riaghaltas na h-Alba gov.scot
marinescotland
Rijkswaterstaat Ministerie van Infrastructuur en Waterstaat
NPL National Physical Laboratory
Institut royal des Sciences naturelles de Belgique
museum
TNO



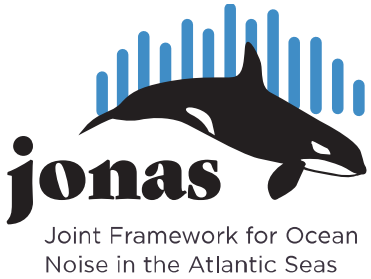

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

# JONAS Project Overview

JOMOPANS Midterm Workshop
Royal Society, London, October 2019

MaREI
Energy · Climate · Marine

Gerry Sutton-JONAS Coordinator
University College Cork, MaREI Centre for Energy, Climate and Marine





# JONAS

JOINT FRAMEWORK FOR OCEAN NOISE IN THE ATLANTIC SEAS

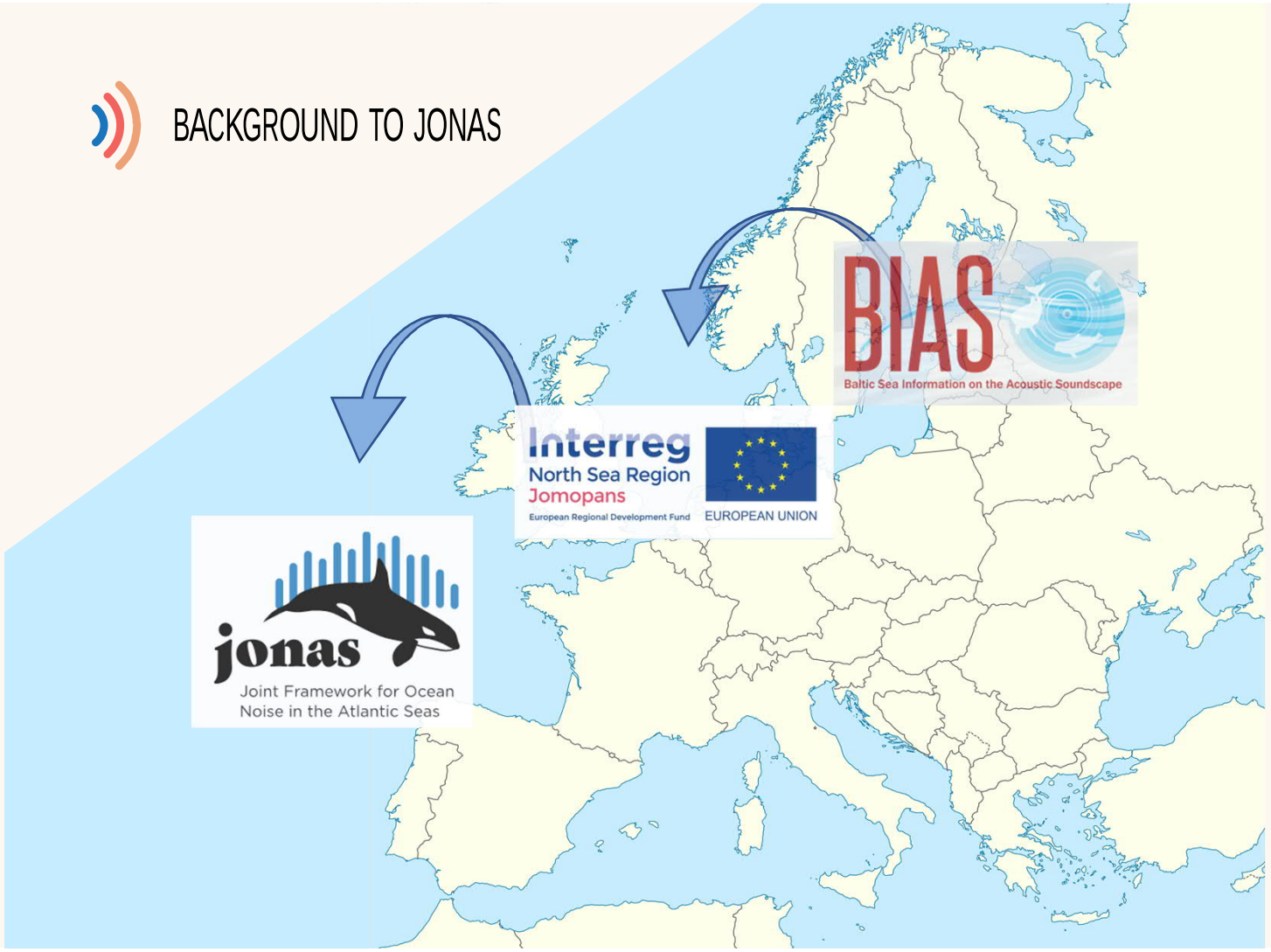
Addressing threats to biodiversity from underwater noise pollution on sensitive species in the NE Atlantic by streamlining ocean noise monitoring and risk management on a transnational basis.

# Content

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

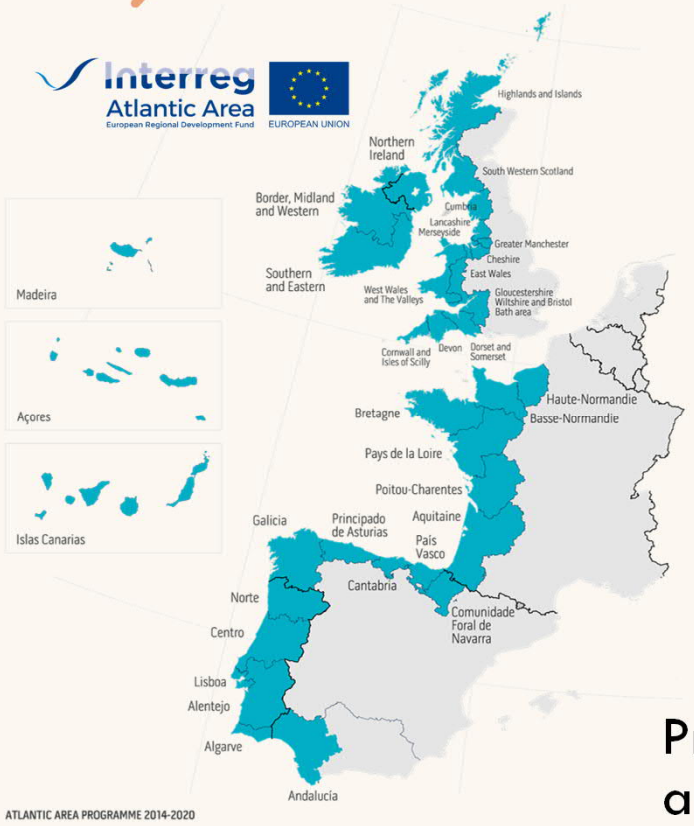
- Background
- Area and objectives
- Structure & workplan
- Outcomes & deliverables

# BACKGROUND TO JONAS



# BACKGROUND TO JONAS

jonas
Joint Framework for Ocean Noise in the Atlantic Seas




## Priority 4: Biodiversity, Natural and Cultural Assets

# BACKGROUND TO JONAS

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

- Meeting the needs of policy makers for a consistent and cost effective approach to MSFD requirements
- Adapted to NEA specific characteristics

jonas Consistent approach

Best Practice

OSPAR COMMISSION Protecting and conserving the North-East Atlantic and its resources

EU Technical Group on Underwater Noise (EU TG-NOISE)

March 2019 to March 2022

Value 2.8m€

10 partners + 4 associated

# Project Area and Objectives

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

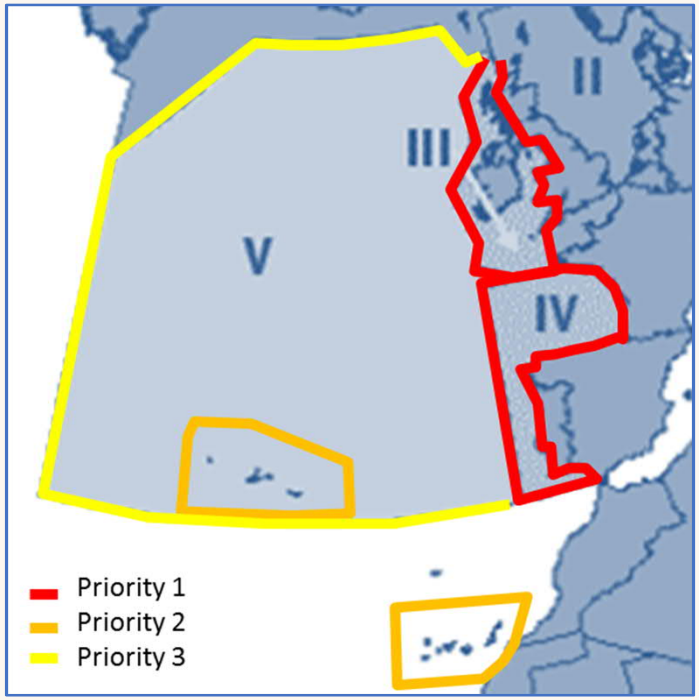
OSPAR regions (III IV and V)
+ South to 24.5N and
+North to 80N

- Celtic Seas
- Manche (Calais)
- Bay of Biscay & Iberian Coast
- Macaronesia

Final decision will be influenced by data availability

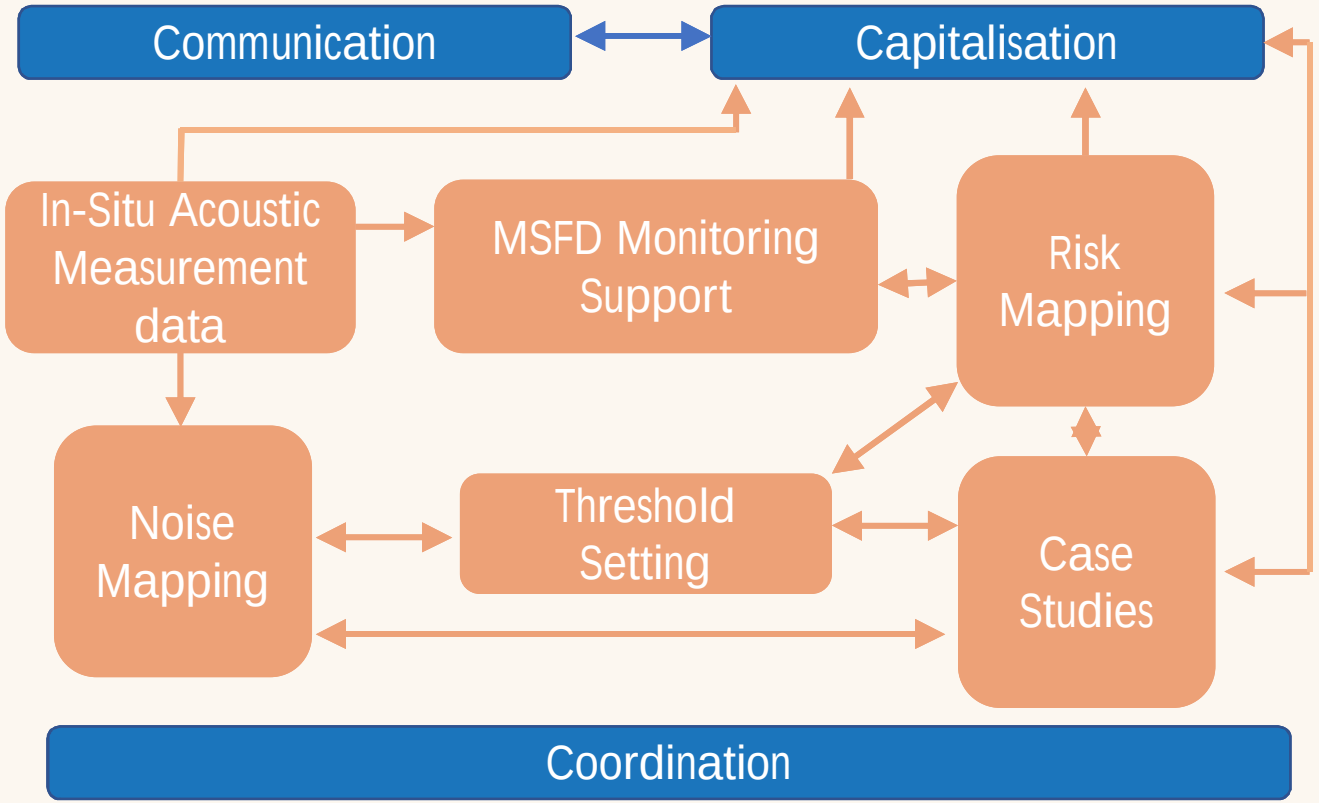
NB limit on EMODNET (62 N), 42 W

<u>Higher resolution</u>
for EZ's
priority 1 & 2 areas



# Structure and workplan

jonas
Joint Framework for Ocean Noise in the Atlantic Seas



# Key Deliverables

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

Data Sharing Platform

Validated Risk Maps

VRE

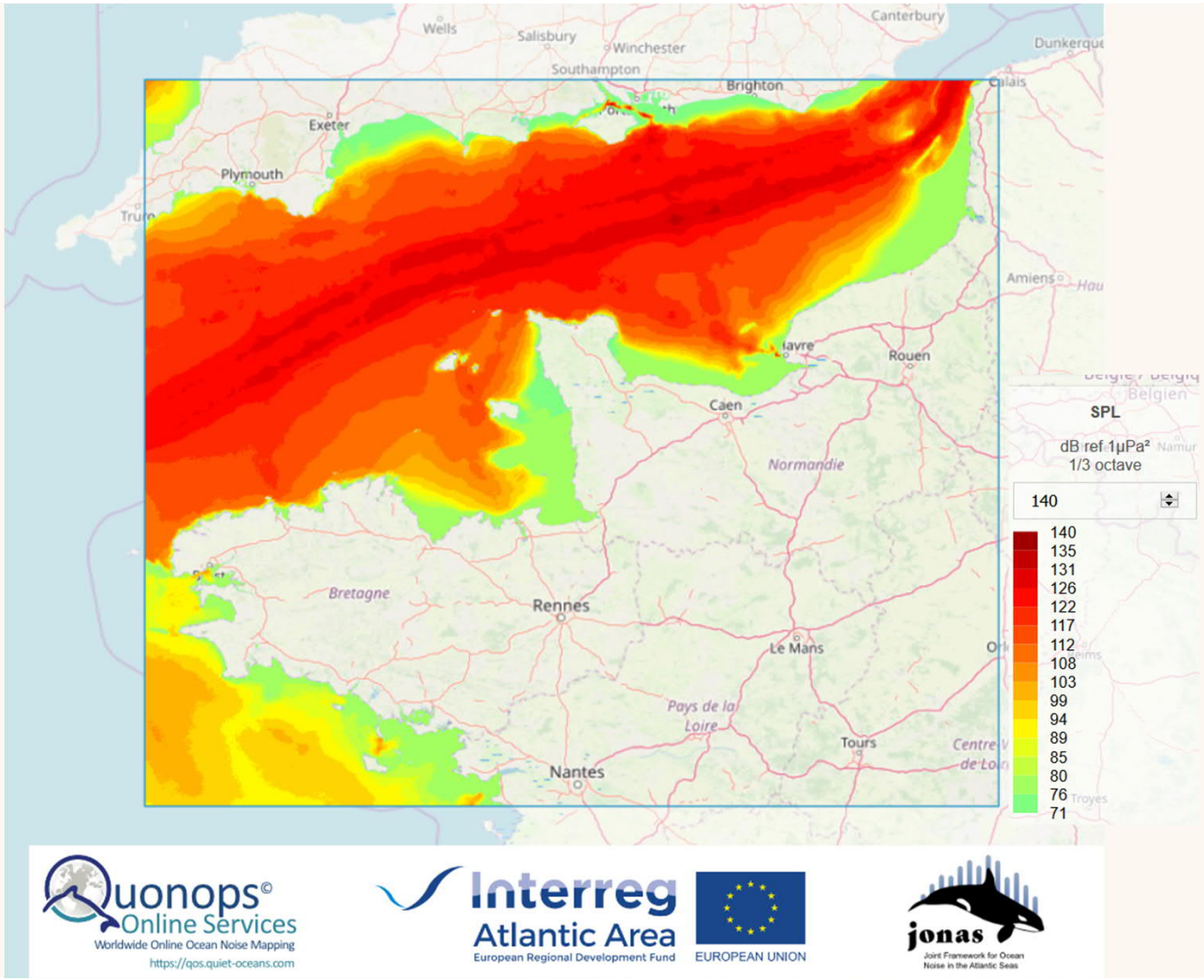
Common Methodologies

Noise Reduction Case Studies

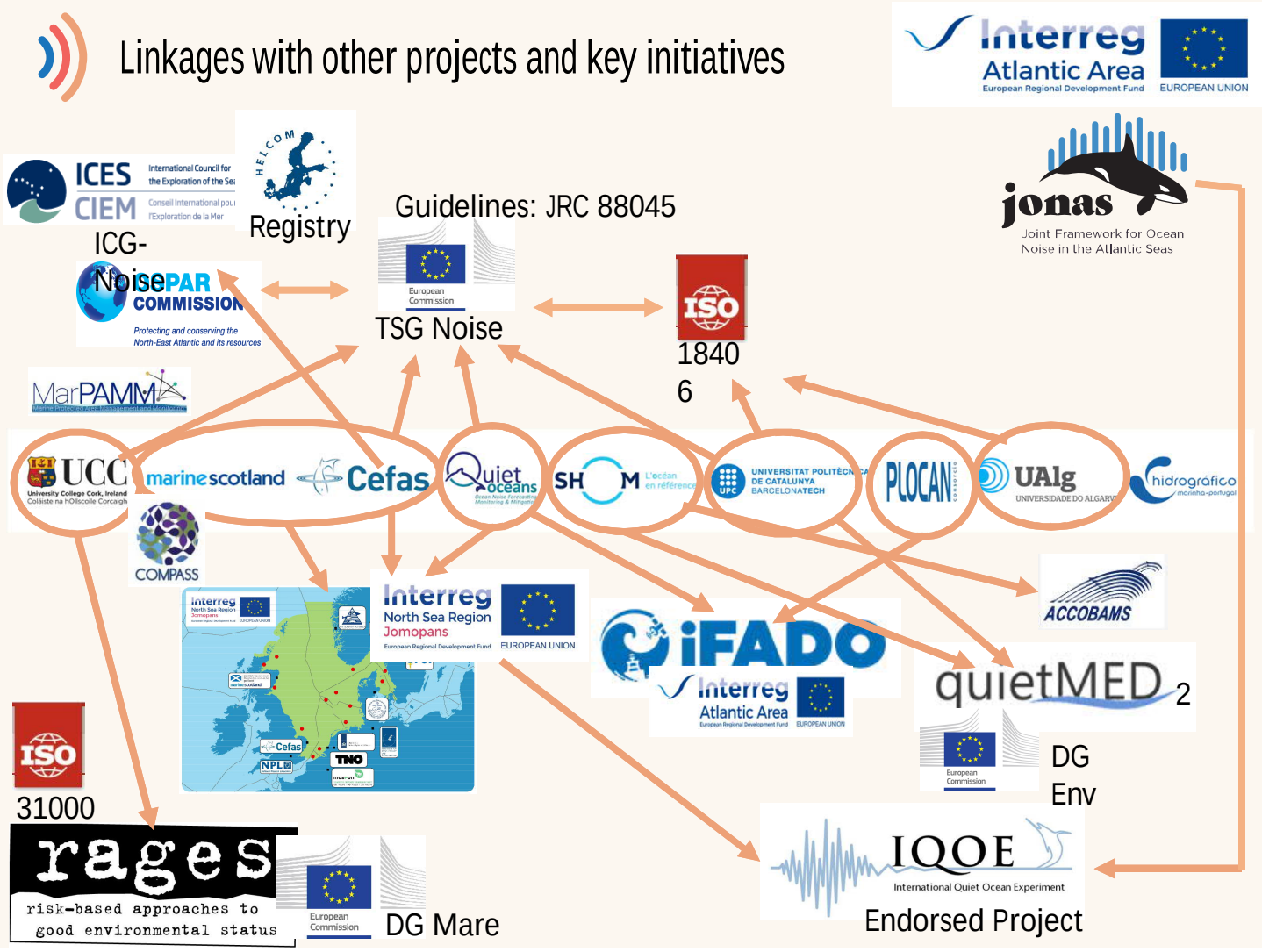
# Outcomes

jonas
Joint Framework for Ocean Noise in the Atlantic Seas

- Enhanced technical capacity to address MSFD D11 obligations in Atlantic Area
- Harmonised methods based on best practice and cooperative transnational approach
- Improved quality and consistency of MSFD reporting - NEA
- Common EU wide vision for long-term monitoring and management strategy for underwater noise –
  - risk based,
  - cost efficient,
  - sustainable,
  - supports biodiversity
  - integrated with MSP


Wells
Salisbury
Winchester
Southampton
Canterbury
Dunkerque
Brighton
Calais
Exeter
Plymouth
Amiens
Rouen
Caen
Normandie
Bretagne
Rennes
Le Mans
Pays de la Loire
Tours
Nantes
Belgien
SPL
dB ref 1µPa²
1/3 octave
140
140
135
131
126
122
117
112
108
103
99
94
89
85
80
76
71
Quonops©
Online Services
Worldwide Online Ocean Noise Mapping
https://qos.quiet-oceans.com
Interreg
Atlantic Area
European Regional Development Fund
EUROPEAN UNION
jonas
Joint Framework for Ocean Noise in the Atlantic Seas

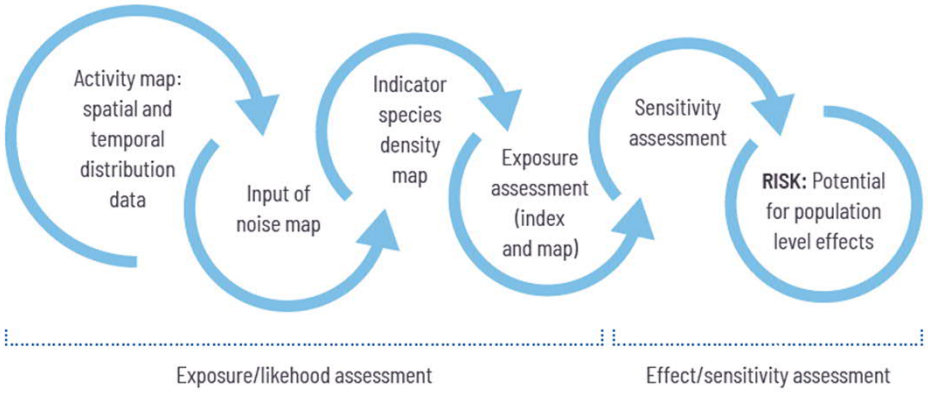
# Linkages with other projects and key initiatives



# Linkages with other initiatives – Rages high level risk assessment framework


| | | |
|---|---|---|
| STEP 1 | **Risk Context** | • **Define:**<br>- Management objectives<br>- Ecosystem elements<br>- Assessment scale<br>- Risk assessment parameters and categories |
| STEP 2 | **Risk Identification** | • **Identify:**<br>- Drivers-Activities-Pressures-State Change chains |
| STEP 3 | **Risk Analysis** | • **Assess:**<br>- Exposure and Consequence<br>- Uncertainty |
| STEP 4 | **Risk Evaluation** | • **Categorize:**<br>- Level of risk (high, medium, low) |
| STEP 5 | **Risk Treatment** | |

Framework for risk assessment within MSFD



jonas
Joint Framework for Ocean Noise in the Atlantic Seas

Interreg Atlantic Area
European Regional Development Fund

EUROPEAN UNION

**Next steps**

- Complete data compilation
- Prioritise Spp. list and compile distributions
- Start modelling

**Forthcoming events**

- Booth in Barcelona
- Stakeholder engagement Lisbon – March 2020

We look forward to engaging with you e-mail us at : jonas@ucc.ie
and visit our website for info, news updates and to register for our newsletter
https://www.jonasproject.eu/

UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh · marinescotland · Cefas · Quiet Oceans · SHOM L'océan en référence · Universitat Politècnica de Catalunya BarcelonaTech · PLOCAN · UAlg Universidade do Algarve · hidrográfico marinha-portugal

# Enhancing Cetacean Habitat and Observation (ECHO) Program

Reducing underwater noise from shipping in the Salish Sea

Michael Ainslie
JASCO Applied Sciences Ltd.

For
Krista Trounce
Vancouver Fraser Port Authority

October 8, 2019

# Port of Vancouver

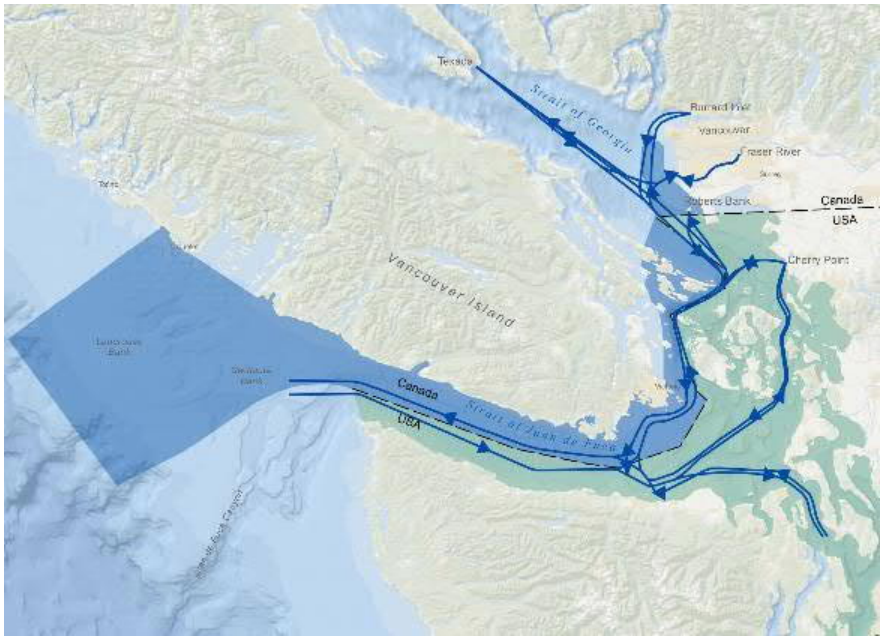
## Enabling trade with more than 170 world economies


PORT of vancouver

JASCO APPLIED SCIENCES

# Commercial shipping activities and whales
## An international issue

- International shipping lanes overlap protected critical habitat for endangered southern resident killer whales and other at-risk species
- Underwater noise can affect whales' ability to feed and communicate
- Predicted shipping activity and human population growth in both Canada and USA




PORT of vancouver

JASCO APPLIED SCIENCES

# Enhancing Cetacean Habitat and Observation (ECHO) Program overview

**What?** A collaboration with marine transportation industries, conservation groups, scientists, Indigenous individuals and Canadian and US governments.

**When?** Convened Nov 2014

**Why?** To better understand and reduce the cumulative effects of commercial shipping activities on at-risk whales throughout the southern coast of British Columbia.

**Key actions:**

- Collaborative international and regional relationships.
- Research projects, with an emphasis on underwater noise.
- Trial and implement threat reduction measures

Photo: Joan Lopez

PORT of vancouver

JASCO APPLIED SCIENCES

# Research: Underwater listening stations

## Learning about:

- Vessel source levels (10,000+ measurements)
- Marine mammal detections
- Ambient noise

## To better understand:

- Vessel-generated underwater noise
- How to assist regional operators with noise reduction
- Habitat use by marine mammals
- Spatial and temporal trends in underwater noise

Photo: VFPA

PORT of vancouver

JASCO APPLIED SCIENCES

# Research: Ambient Noise Evaluation

For three locations in the Salish Sea, analysis of two years (2016 and 2017) of continuous ambient noise data was used in the “Ambient Noise Evaluation Project”, conducted by JASCO Applied Sciences, SMRU Consulting and the University of Victoria.

Key study questions:

- What key factors affect ambient noise differences and variability at each site?
- What are the temporal variabilities and/or trends in ambient noise for each location?
- What are the key requirements for future monitoring of ambient noise?

Report is being finalized, and will be posted to ECHO website in late 2019.

Peer-reviewed publication and “best practices” document to follow

PORT of vancouver

JASCO APPLIED SCIENCES

# Measures: Voluntary vessel slowdown in Haro Strait

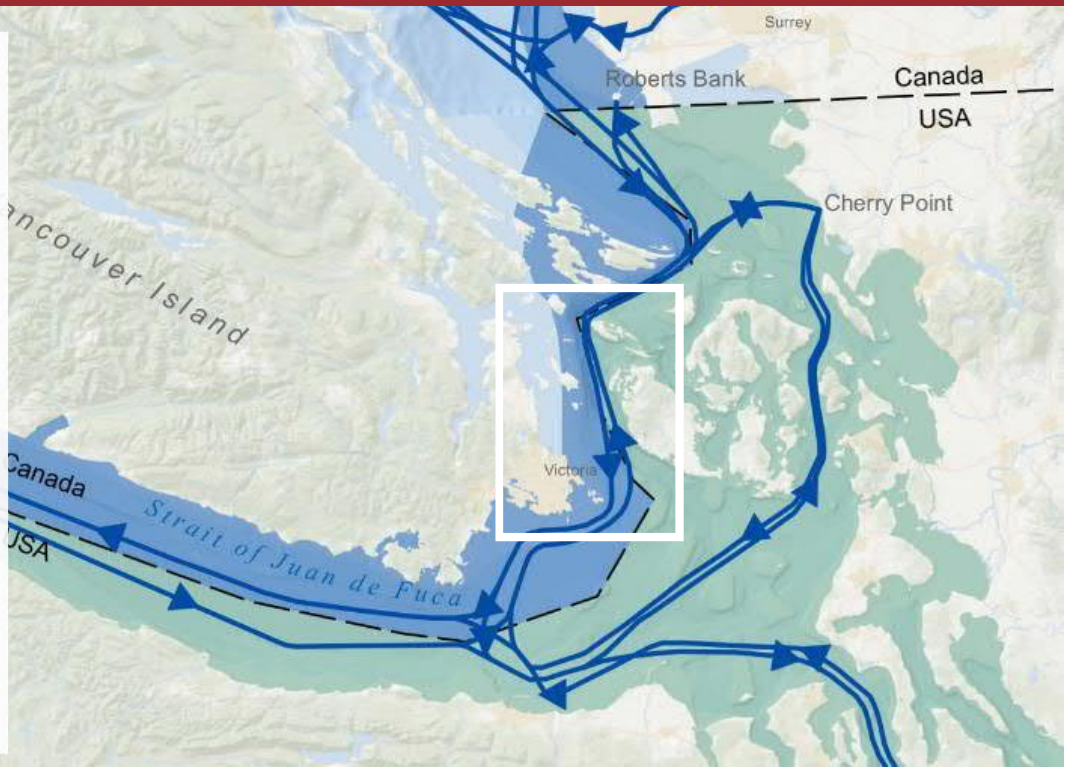
**Why:** To better understand the relationship between vessel speed, underwater noise and potential effects on killer whales

**Where:** ~16 nautical miles through critical whale foraging habitat in Haro Strait

**Who:** Over 70+ organizations

**Monitoring:**

- Participation and vessel speeds
- Ambient noise
- Vessel source levels
- Killer whale presence and behavior




PORT of vancouver

JASCO APPLIED SCIENCES

# Conclusions

- Collaborative approach for a common solution
  - Increasing mariner awareness and involvement
  - Industry and government working together to balance economic factors and optimize voluntary participation to benefit whales
- Use of research and technology to support science-based decision making
- Global support for advancing quiet ship design
- Species around the world can benefit from underwater noise reduction research and efforts

PORT of vancouver

JASCO APPLIED SCIENCES

# Thank you for listening!


PORT of vancouver

JASCO APPLIED SCIENCES

MarPAMM
Marine Protected Area Management and Monitoring

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

# Marine Protected Area Management & Monitoring (MarPAMM)

**Dr Ewan W. J. Edwards**
Interim Work Package Lead, Marine Scotland Science, Aberdeen

afbi AGRI-FOOD & BIOSCIENCES INSTITUTE
BirdWatchIreland
marinescotland science
SAMS
Scottish Natural Heritage Dualchas Nàdair na h-Alba nature.scot
UCC University College Cork, Ireland Coláiste na hOllscoile Corcaigh
Ulster University

www.mpa-management.eu

MarPAMM
Marine Protected Area Management and Monitoring

Interreg
EUROPEAN UNION
Northern Ireland - Ireland - Scotland
European Regional Development Fund

**What is MarPAMM?**

- € 6.4 million project
- Commenced October 2018 (five years)
- EU INTERREG VA Programme

Seven partners:

- Agri-Food and Biosciences Institute
- Marine Scotland
- Scottish Natural Heritage
- University College Cork
- Ulster University
- Scottish Association for Marine Science
- BirdWatch Ireland

**The project will culminate in the development of six comprehensive MPA management plans.**

**Work packages:**

- Management
- Communications
- Seabirds
- Benthic habitat mapping + modelling
- Marine mammals
- Coastal processes
- MPA management plans

www.mpa-management.eu

MarPAMM
Marine Protected Area Management and Monitoring

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

**What is MarPAMM?**
MarPAMM is an environment project to develop tools for monitoring and managing a number of protected coastal marine environments in Ireland, Northern Ireland and Western Scotland.

MarPAMM partners will collect data on the abundance, distribution and movement of marine protected species and habitats. These data will help us produce new habitat maps and develop models for a range of species, including connectivity assessment for species with mobile life stages.

We will produce a regional sea bird model, a regional model of protected seabed-dwelling species and habitats, a seal foraging and underwater noise model and a coastal processes model.

T3: Marine Mammals work package
Gavin Arneill, Mark Jessopp: UCC, Ireland
Ewan Edwards, Anne Saunders: Marine Scotland Science
Suzanne Beck: AFBI, Northern Ireland

www.mpa-management.eu

MarPAMM
Marine Protected Area Management and Monitoring

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

# MarPAMM: T3

| Activity and Deliverable | | |
|---|---|---|
| **Activity Number** | **Activity Title** | **Activity Start Date** |
| Activity T3.1 | Identifying important areas for seals and mapping shipping pressure. | 01.03.2018 |
| Collate existing seal telemetry data. Re-analyse to identify important areas, and present them in a way that is more useful for n managers with more detailed understanding of areas where there is high shipping pressure. Analysis to determine level of over monitoring. Mapp | | |
| **Deliverable Nu** | | |
| Deliverable T3.1. | | |
| Deliverable T3.1.2 | Shipping pressure analysis. | Report on shipping levels in the region and overlap with important areas for seals, and key outputs provided to WP T5 to assist in development of MPA Management Plans |
| Deliverable T3.1.3 | Translation of activity research into Geographical Information System outputs available for stakeholders. | Mapping products made available in online GIS formats to aid stakeholder use: minimums of six sets of map layers (raster or vector files). |

| Deliverable Number | Deliverable Title | Deliverable Description |
|---|---|---|
| Deliverable T3.2.1 | Underwater noise surveys and data collection. | Recording of noise levels in identified areas, and key outputs provided to WP T5 to assist in development of MPA Management Plans. 1 technical report summarising data collected. |

MarPAMM: T3

| Deliverable Number | Deliverable Title | Deliverable Description |
|---|---|---|
| | Underwater noise surveys and data | Recording of noise levels in identified areas, and key outputs provided to WP |

**Activity and Deliverable**

| Activity Number | Activity Title | Activity Start Date | Activity End Date | Activity Budget |
|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |

Analysis of recorded noise levels. Initially analysis at MSFD frequencies, but may expand to consider frequencies that seals are more sensitive to. Consideration of whether noise levels may affect how seals use areas. Comparison with shipping pressure mapping, to determine how well shipping pressure matches real world noise levels.

| Deliverable Number | Deliverable Title | Deliverable Description | Deliverable Targetvalue | Deliverable Delivery Date |
|---|---|---|---|---|
| Deliverable T3.3.1 | Analysis and interpretation of recorded noise levels. | Reporting in format suitable to be incorporated into national MSFD monitoring reports. Key outputs provided to WP T5 to assist in development of MPA Management Plans 1 technical report. | 1.00 | 01.09.2021 |

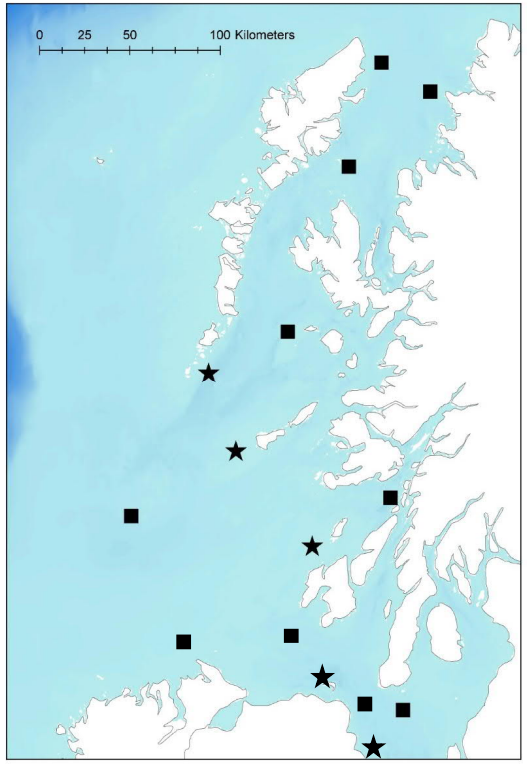
MarPAMM
Marine Protected Area Management and Monitoring

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

**Marine Protected Areas in "cross border region"**

European:
- Special Areas of Conservation
- Special Protection Areas

Scottish:
- Nature Conservation MPAs
- Seal haul-out sites




**MarPAMM**
3 locations in Scottish waters
Focus on seals
Ambient noise

**COMPASS**
6 locations in Scottish waters
Focus on cetaceans
Ambient noise

**Data are being shared between projects**

www.mpa-management.eu

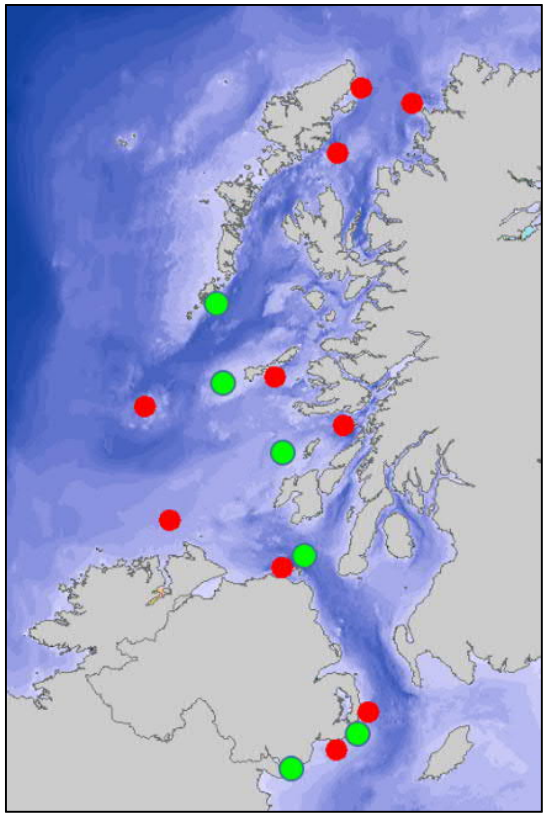
MarPAMM
Marine Protected Area Management and Monitoring

Interreg
Northern Ireland - Ireland - Scotland
European Regional Development Fund

## MarPAMM: T3

- Mooring deployments
  - MSS – 13-15 May 2019; to be serviced 21-31 October
  - Sites off Islay/Colonsay, Tiree, Mingulay
  - Complementary to the COMPASS array
  - AFBI – early October 2019
  - Strangford, Carlingford, Rathlin

Mammal and sound monitoring equipment



www.mpa-management.eu

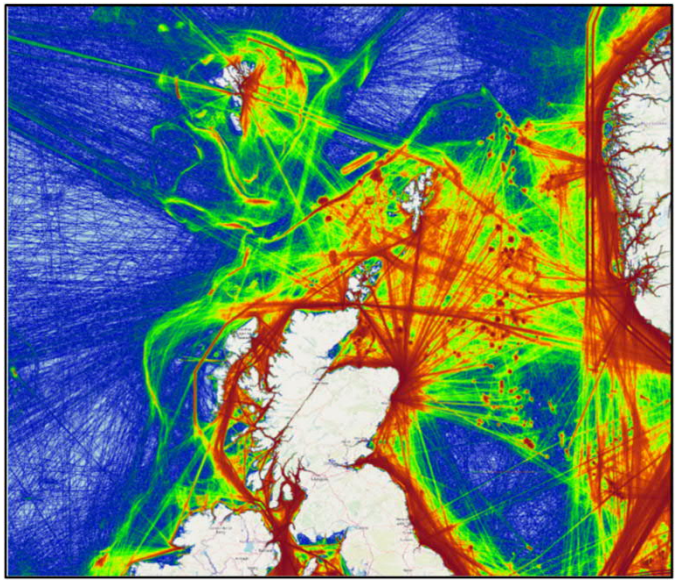
MarPAMM
Marine Protected Area Management and Monitoring

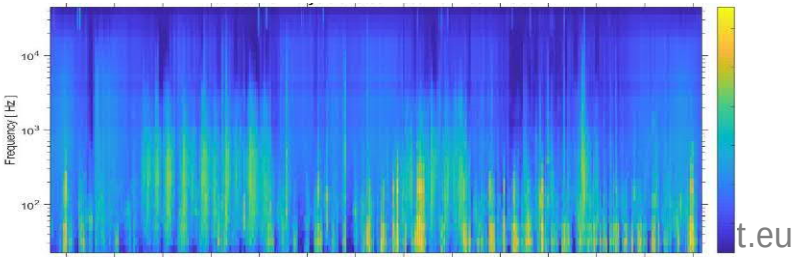
Interreg
EUROPEAN UNION
Northern Ireland - Ireland - Scotland
European Regional Development Fund

# MarPAMM: T3

- AIS/VMS mapping
  - Marine Scotland Science
- Noise modelling
  - University College Cork

- Synergy with other projects
  - Data sharing with JONAS
  - Data sharing with COMPASS






t.eu