CLEAN CATCH UK

National Steering Group

Fifth Meeting

Meeting will begin at 10.30am

Department for Environment Food & Rural Affairs

Centre for Environment Fisheries & Aquaculture Science

MINDFULLY WIRED COMMUNICATIONS

WELCOME AND HOUSEKEEPING

Cat Bell -

Defra

UPDATES FROM WIDER NSG GROUP

University of St Andrews

SCOTTISH FISHERMEN'S FEDERATION

Cefas

UK Centre for Ecology & Hydrology

marinescotland science

nffo

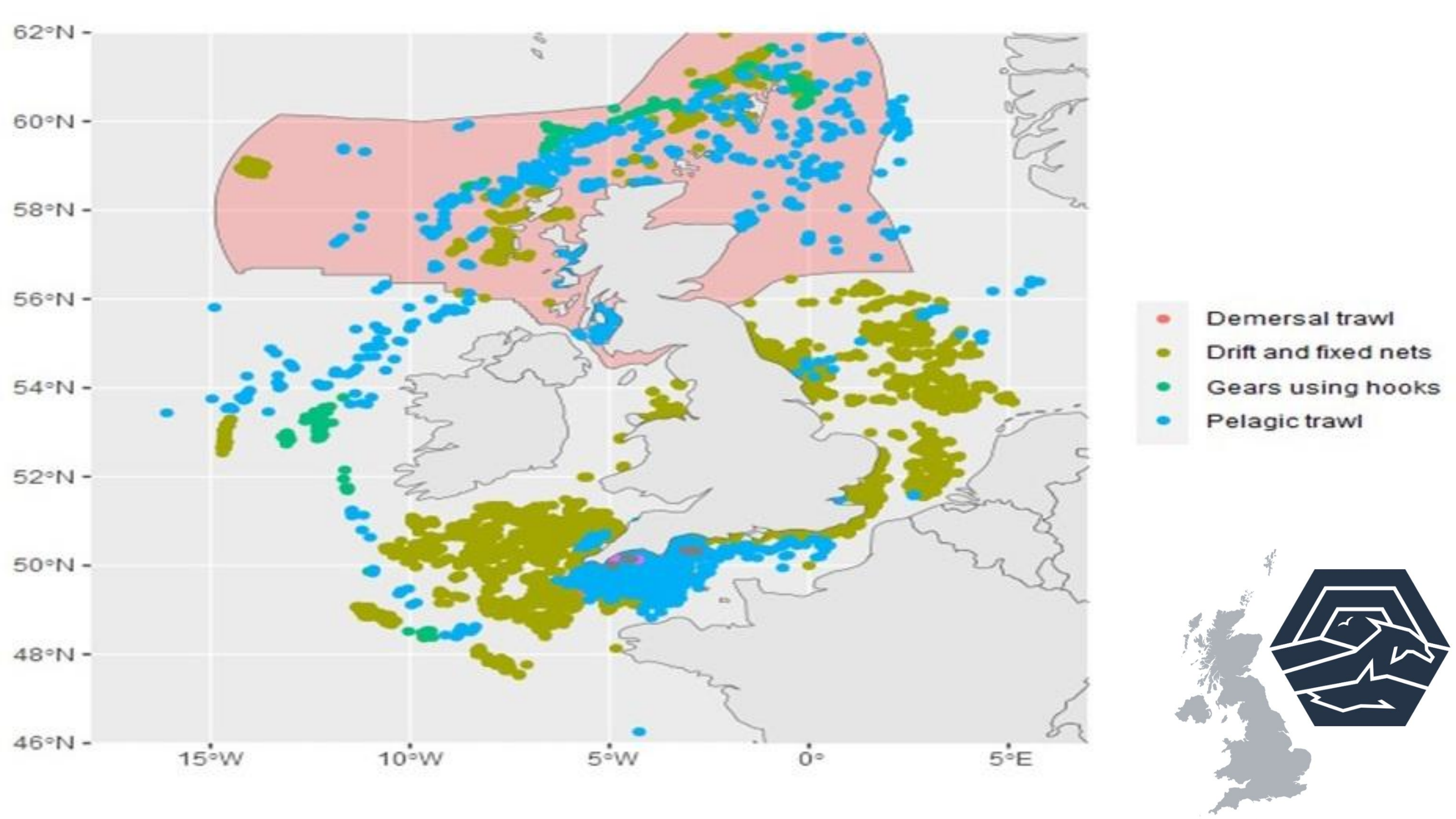
BYCATCH MONITORING PROGRAMME

Al Kingston -

University of St Andrews

Bycatch monitoring began in the UK in 1996

- 1996–2004 focus on small cetaceans (other taxa also recorded) under HD - net fisheries in Subarea 4, midwater trawls 4,6,7
- Regulation 812/2004 – specific monitoring targets (% or CV)
- 2005 – 2010 most sampling in nets (7) & midwater trawls (4,6,7)
- 2010 – longline & deepwater nets
- 2018 – ring nets
- 2022 – purse seines


62°N
60°N
58°N
56°N
54°N
52°N
50°N
48°N
46°N
15°W
10°W
5°W
0°
5°E
Demersal trawl
Drift and fixed nets
Gears using hooks
Pelagic trawl

31st January 2020: UK left EU – bycatch monitoring now falls under domestic and international drivers:

Domestic:

- UK Marine Strategy
- Fisheries Act 2020
- Conservation of Offshore Marine Habitats & Species Regulations 2017
- 25 Year Environment Plan
- Wildlife and Countryside Act 1981
- Scottish Seabird Conservation Strategy
- Scotland's Fisheries Management Strategy
- Seabird and Cetacean PoA's
- Bycatch Mitigation Initiative

International:

- Ascobans, IWC, US MMPA, OSPAR, ICES ……

- The main underlying principle is one of managing human activities to ensure the **long-term sustainability** of the ecosystem/s on which those activities depend.
- But the “**minimise, and where possible, eliminate**” Fisheries Act objective suggests there is also a requirement to reduce bycatch even if population impacts are not occurring/not known

- Late 2021: Defra issued ITT for new BMP contract
- Feb 2022: submitted a proposal
- Mar 2022: contract awarded, but some delays ensued
- July 22: MS also agreed to contribute funds

University of St Andrews

- Marine mammal biology & ecology
- At-sea data collection programmes
- Bycatch mortality and risk assessments, bycatch mitigation

Cefas

- Fish / elasmo biology, ecology, stock assessment
- At-sea data collection programmes
- PETs bycatch mitigation and EM

marinescotland science

- Fish / elasmo biology, ecology, stock assessment
- At-sea data collection programmes
- Fish bycatch mitigation and EM

UK Centre for Ecology & Hydrology

- Seabird distribution, ecology and population dynamics
- Effects of human activities on seabird populations

nffo

- Industry knowledge and oversight
- Fisheries management
- Link to grassroots industry

SCOTTISH FISHERMEN'S FEDERATION

- Industry knowledge and oversight
- Fisheries management
- Link to grassroots industry
- At-sea data collection programmes

University of St Andrews

Cefas

marinescotland science

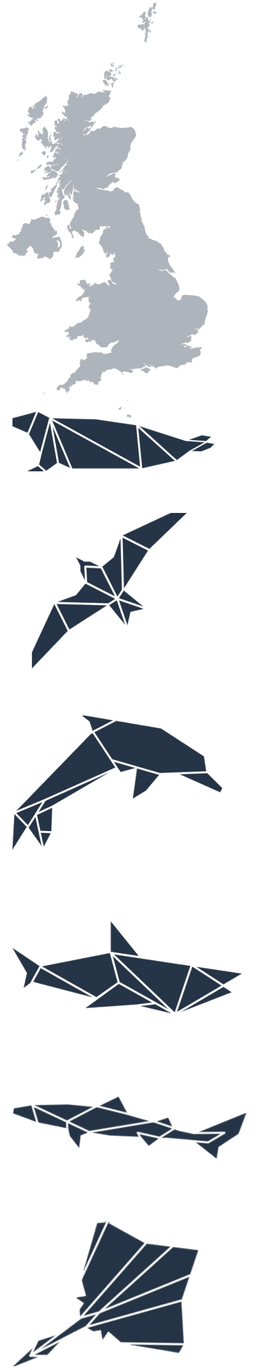
UK Centre for Ecology & Hydrology

- Impartial and informed scientific oversight
- Data considerations and implementation
- Assessment & reporting

nffo

SCOTTISH FISHERMEN'S FEDERATION

- Industry liaison and oversight
- Data collection
- Reporting



Main aims and objectives

Build on the existing BMP to improve understanding of sensitive species bycatch

- Improve and increase coverage
- Expand the number of vessels
- Improve understanding of why, what, where
- Expand the BMP beyond observer monitoring

Provide estimates of bycatch rates for different sensitive taxa

- Produce information on bycatch trends
- Assess bycatch as needed to meet UK obligations
- If possible, bring data and research outputs into one platform
- Contribute to assessments, incl. identifying high risk situations

Tasks

Sampling designs

- Analysis of trends and levels of fishing effort
- Gap analyses and expert input to steer sampling designs
- Elasmobranch distribution/status report
- Ongoing mitigation efficacy
- Industry input on areas where monitoring can help support fisheries improvement plans

This will help ensure that future sampling designs are appropriate to support comprehensive and reliable assessments

Tasks

Existing data streams

- Improve bycatch data collection protocols within the catch sampling programmes to ensure data can be used in bycatch assessments
- Assess potential for using existing EM bycatch data (e.g. CCUK) in assessments
- Assess reliability of self-reported bycatch data (e.g. CCUK, MMPA) to consider if/how they might be incorporated into assessments

Cheap and relatively quick way of increasing monitoring coverage and data for inclusion in bycatch assessments

Tasks

Electronic Monitoring

- SWOT analysis to evaluate how EM could best contribute to broadscale multi-taxa bycatch monitoring in the UK
- Catalogue current/planned EM projects to see if bycatch recording can be built into them
- Discuss potential role of EM for bycatch monitoring with industry
- Possibly initiate an EM trial to address issues related to species ID, automated review, deployment approaches etc

This will help us determine how best to incorporate EM into routine bycatch monitoring going forward

THANKS

INSIGHT360

Shauna Young – ZSL

& Ben Tutt-Leppard - Arribada

What is Insight360?

INSIGHT 360

Combining fishing experience with machine learning to transform how bycatch is monitored

Department for Environment Food & Rural Affairs

Cefas

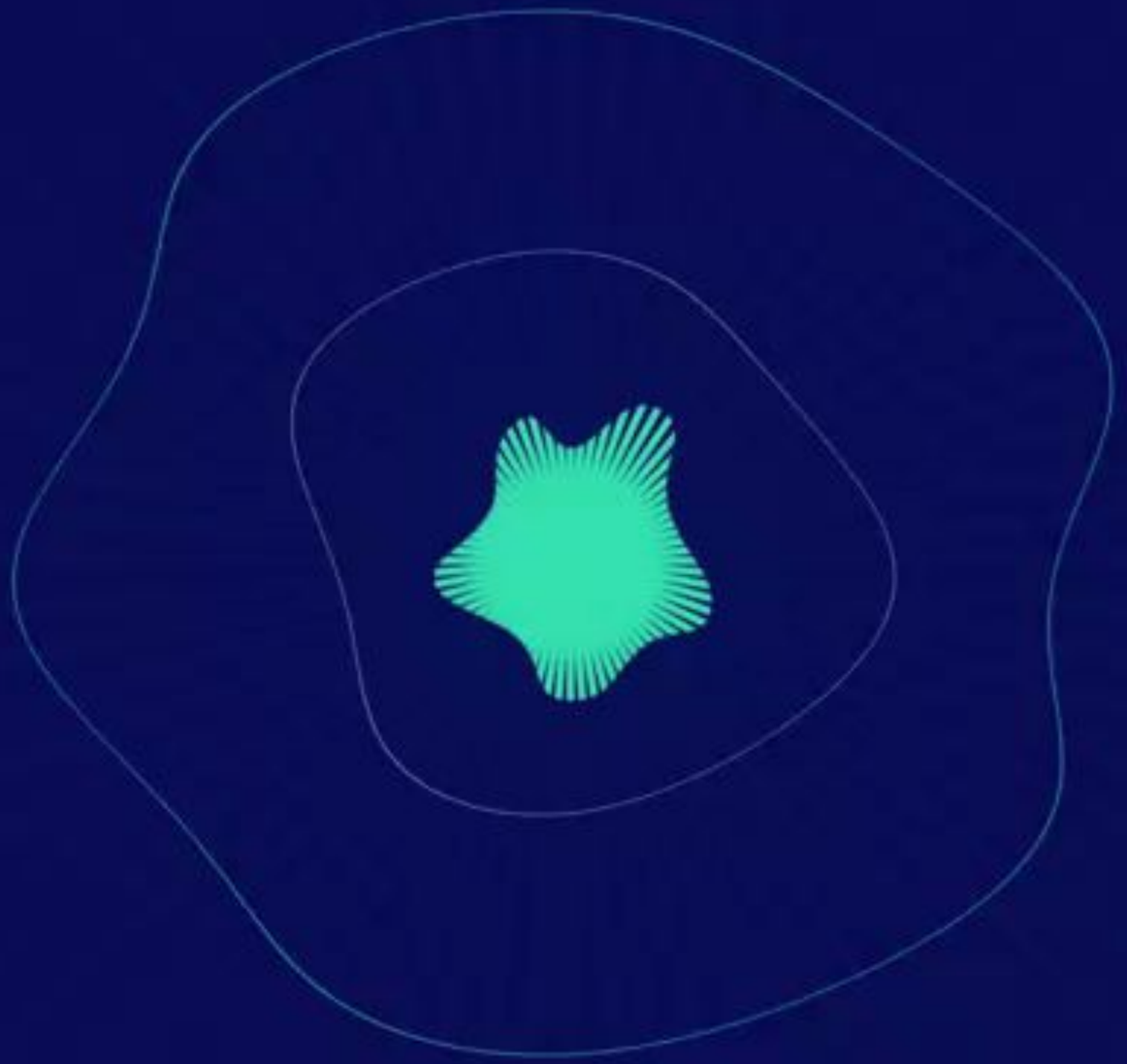
ARRIBADA initiative

ZSL

MINDFULLY WIRED COMMUNICATIONS

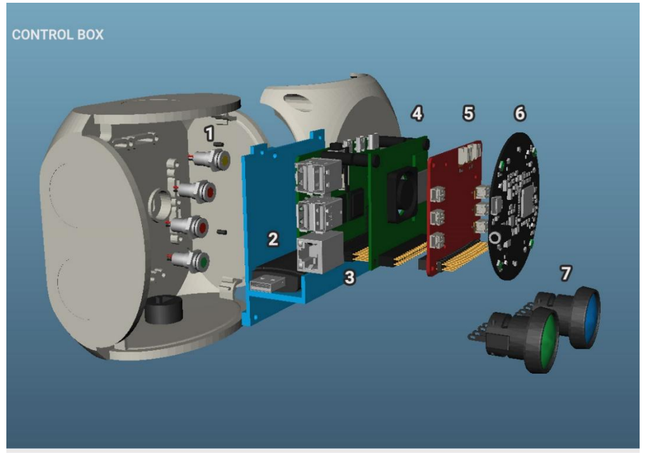
CORNISH SARDINE ASSOCIATION

ZSL INSTITUTE OF ZOOLOGY



Insight360 – Alpha system

Installed August 2022



Insight360 – Beta system

Installed March/April 2023

Next steps

INSIGHT 360

Continued software and hardware dev:

- **Automatic haul detection**
- **Speech to text**
- **GPS logging**
- **Insight360 website**
- **Underwater components**
- **Social science**

THANK YOU

Ben@arribada.org Shauna.Young@zsl.org

CDT SuMMer PhD

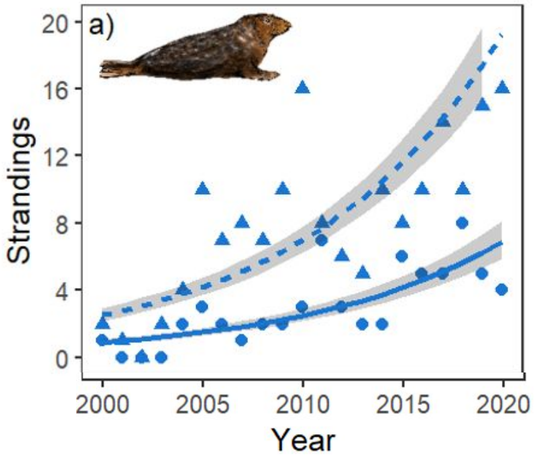
(CENTRE FOR DOCTORAL TRAINING IN SUSTAINABLE MANAGEMENT OF UK MARINE RESOURCES)

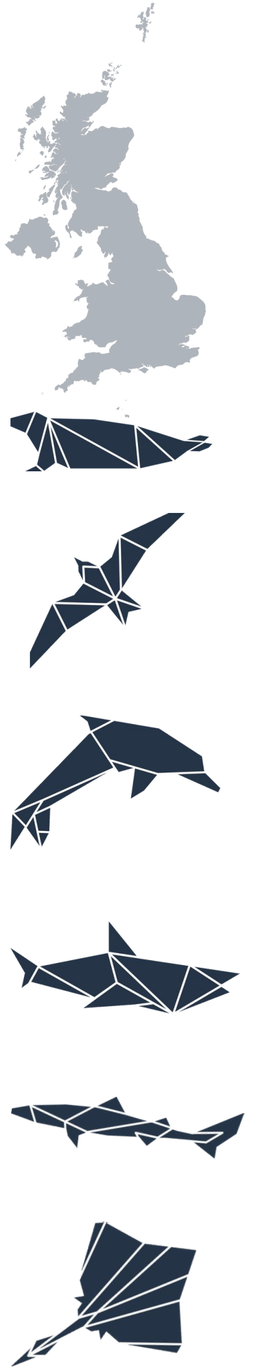
Rob Deaville -

CSIP

About me

- **BSc Conservation Biology & Ecology at University of Exeter**
- **5 Years working with Cornwall Wildlife Trust Marine Strandings Network**
- **4 Years assisting with necropsies**
- **UG project on grey seal strandings (manuscript in review)**



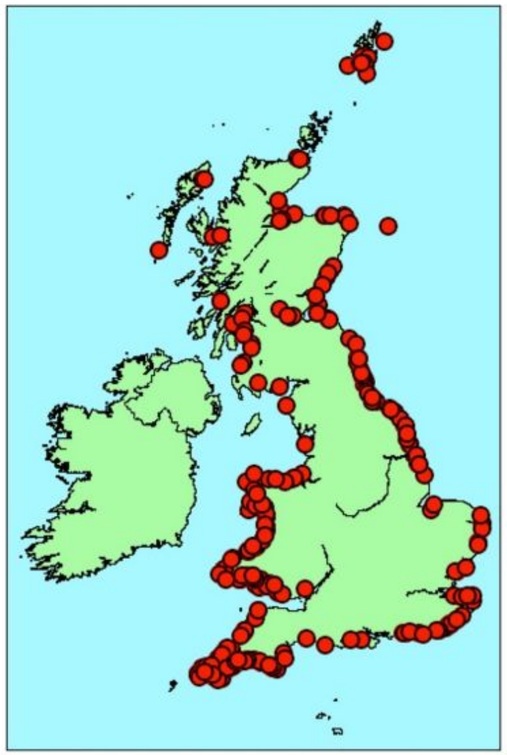


Centre for Doctoral Training in Sustainable Management of UK Marine Resources (SuMMeR CDT)

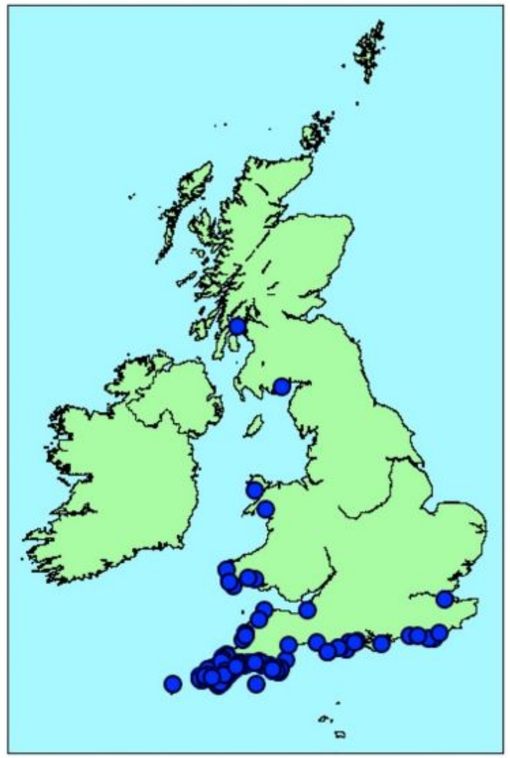
Produce **transdisciplinary** researchers and practitioners to support governmental and non-governmental sectors to ensure sustainable management of our marine resources

Project background

Southwest England bycatch hotspot



HP by-catch 1990-2019
n=377



CD by-catch 1990-2019
n=343

Cornwall
29.4% HP
62.1% CD

- **High numbers of small cetacean bycatch in Cornwall**
- **Existing data and questions**

Project aims

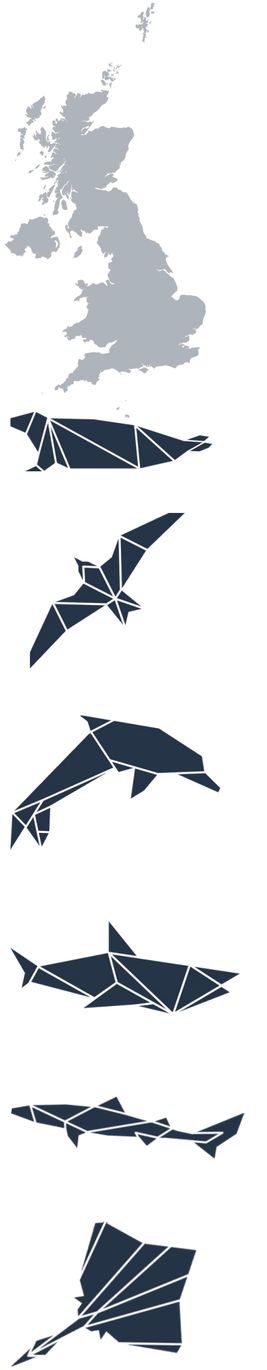
- Gather data on spatial and temporal overlap with fisheries and types of gear used
- Develop methods to understand which fisheries may pose the greatest risk to marine mammals
- Devise targeted efforts to reduce threats

Transdisciplinary approach

- **Integrates knowledge across disciplines with input from non-academic stakeholders**

- **Bridges the gap between academia and society and generating actionable knowledge**

- **Requires integration of diverse perspectives to generate relevant, practical, and sustainable solutions**

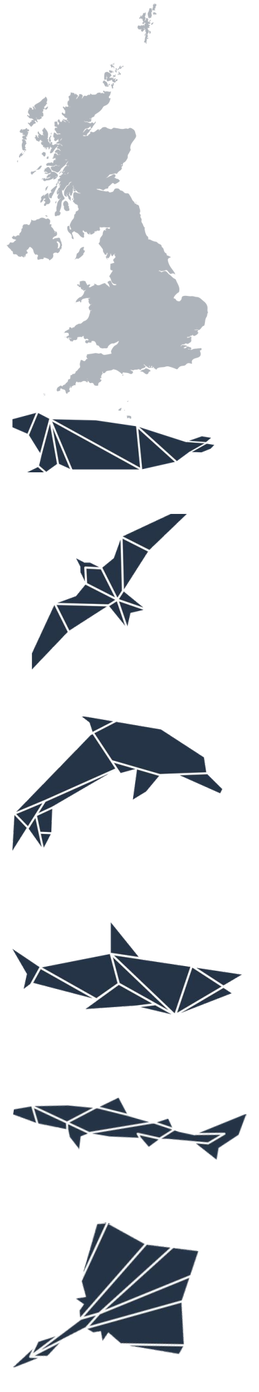


This Project will involve a number of disciplines

- Marine mammal ecology and conservation
- Analysis of veterinary pathology data
- Oceanography
- Policy analysis

Large supervisory team

- Dr Sarah Nelms – University of Exeter (Ecology & Conservation)
- Dr David Woolf – Heriot-Watt University (Oceanography)
- Ruth Williams – Cornwall Wildlife Trust (Policy)
- Rob Deaville - Cetacean Strandings Investigation Programme (CSIP), Zoological Society of London (Pathology)
- James Barnett - Cetacean Strandings Investigation Programme (CSIP), Cornwall Marine Pathology Team (Pathology)
- Professor Nicola Beaumont - Plymouth Marine Laboratory (Social Science)
- Dr James Clark - Plymouth Marine Laboratory(Oceanography)
- Professor Brendan Godley - University of Exeter (Ecology & Conservation)



University of Exeter

Cornwall Wildlife Trust

CSIP

ZSL Institute of Zoology

HERIOT WATT UNIVERSITY

PML | Plymouth Marine Laboratory

CORNWALL MARINE PATHOLOGY TEAM

Ecology/Pathology

Synthesise a holistic understanding of bycatch-related impacts across different marine mammal species

Image credit : James Barnett

- **Determine whether additional evidence could be gathered during investigation of strandings to improve data collection and diagnoses.**

- **Test how interactions with different gear types may present in bycaught**

Oceanography

Identify potential factors that may influence the spatio-temporal patterns of bycatch-related strandings

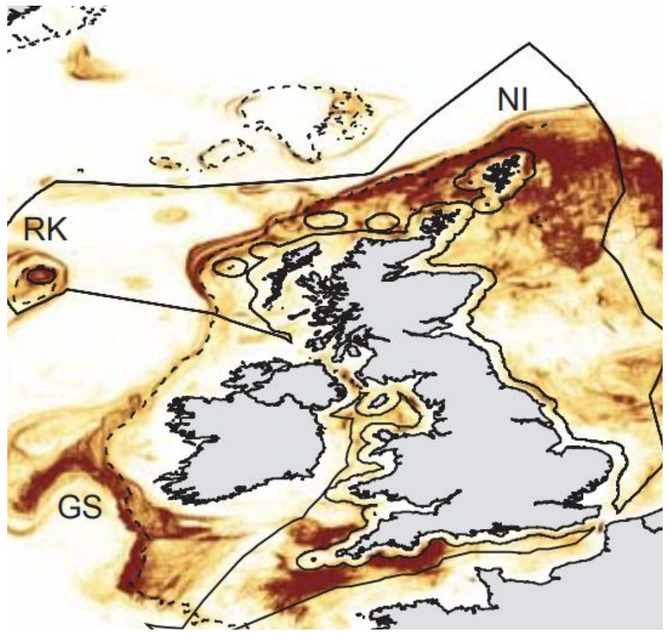


Image credit : Witt and Godley 2007

- **Reverse drift modelling/particle tracking**
- **Tagging**
- **Identify spatial extent of 'high risk' fishing activities in SW regional waters using several data sources (Inshore VMS data and landings information)**

Policy Analysis

Develop policy options to support design improvement and potential solutions where gaps exist.

Image credit : Fishtek Marine

- Review current and potential bycatch mitigation policies
- Collaborate with ongoing initiatives (CleanCatch programme, Insight360 etc)
- Conduct interviews evaluating current and potential policies

Project Timeline

Officially begin September 2023

- 0 – 6 Systematic literature review and training
- 3-6 Familiarising with bycatch process and CSIP data collection
- 6 – 12 Policy review
- 6-24 Analysis of bycatch data
- 12 – 18 Fisher interviews
- 18 – 24 Oceanographic modelling
- 24 – 30 Co-development of policy options
- 30 – 36 Thesis write-up

Already started!

- Currently undertaking paper on 30-year (1991-2020) review of small cetacean strandings in the UK, focusing on bycatch

- Looking forward to working with many of you and hope this project can complement work already being undertaken by this group

THANK YOU FOR LISTENING!

H.chadwick3@exeter.ac.uk

@Helen__Chadwick

Ministerie van Landbouw,
Natuur en Voedselkwaliteit

CIBBRiNA

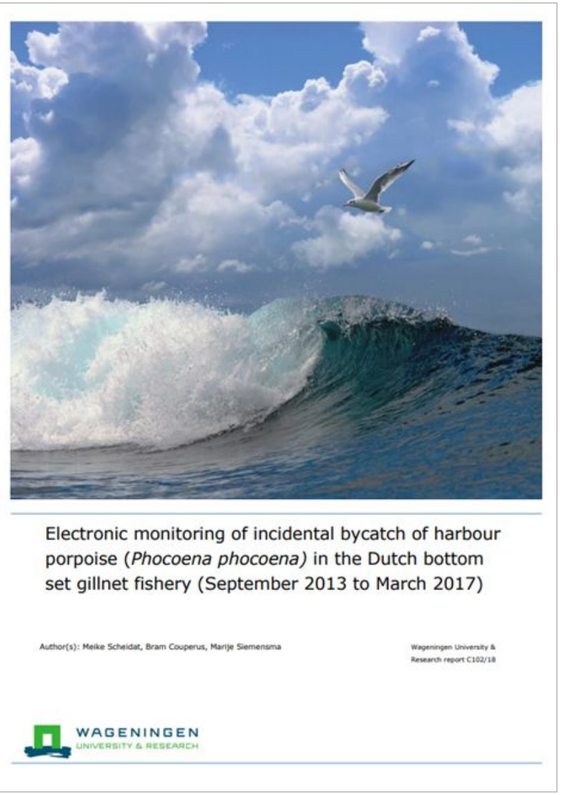
(COORDINATED DEVELOPMENT AND IMPLEMENTATION OF BEST PRACTICE IN BYCATCH REDUCTION IN THE NORTH ATLANTIC REGION)

Anne-Marie Svoboda -
Ministry of Agriculture, Nature and Food Quality - The Netherlands

HOW IT ALL STARTED

- Developments within EU but also US MMPA
- OSPAR/HELCOM/ASCOBANS workshop September 2019
- Initial thoughts for this project were:
  - More international collaboration
  - Involve fishers from the start
  - Don’t duplicate efforts but work complementarily to other projects

BENTHIS

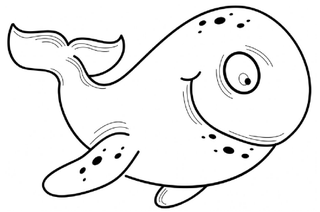


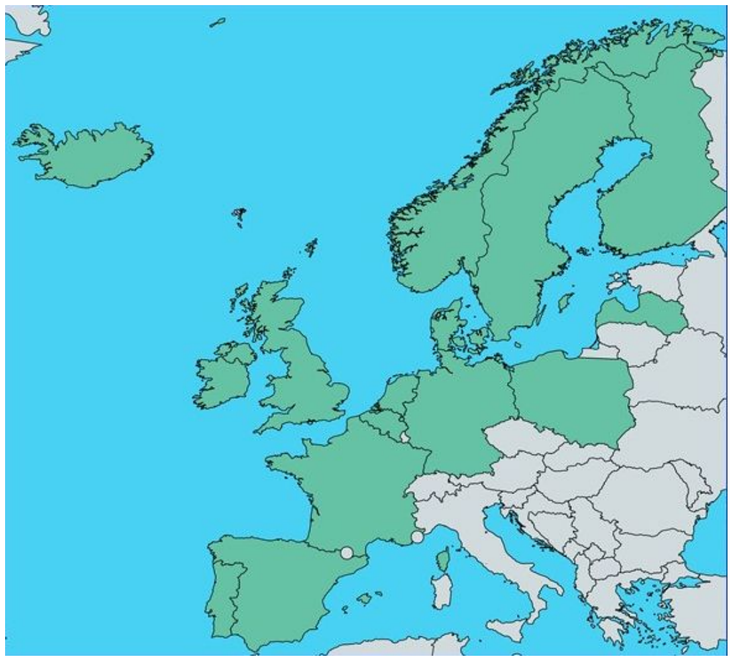
OBJECTIVES

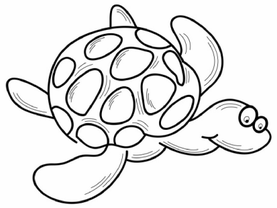
- To work together with fishers, authorities and other relevant stakeholders to minimise – and, where possible, eliminate – incidental bycatch of priority Endangered, Threatened and Protected (ETP) marine species.
- This will be done by optimising, developing and evaluating proven and promising mitigation methods as well as support tools and processes, such as monitoring and assessment, and working to ensure their long-term implementation.

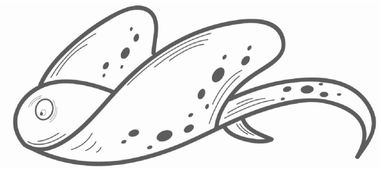
SCOPE

- Multi species level (priority marine mammals, birds, turtles and elasmobranchs)
- Focus on high risk fisheries (gillnets, longlines, bottom and pelagic trawls)
- Regional scope NEA/Baltic and Med, however, linkages with Black Sea projects are recommended









PARTICIPATION

- Regional representation depending on commitment, at least per country:
  - Fisheries/environment dept
  - Scientific expert
  - Fishers / fisheries industry representatives
- IGO’s and NGO’s

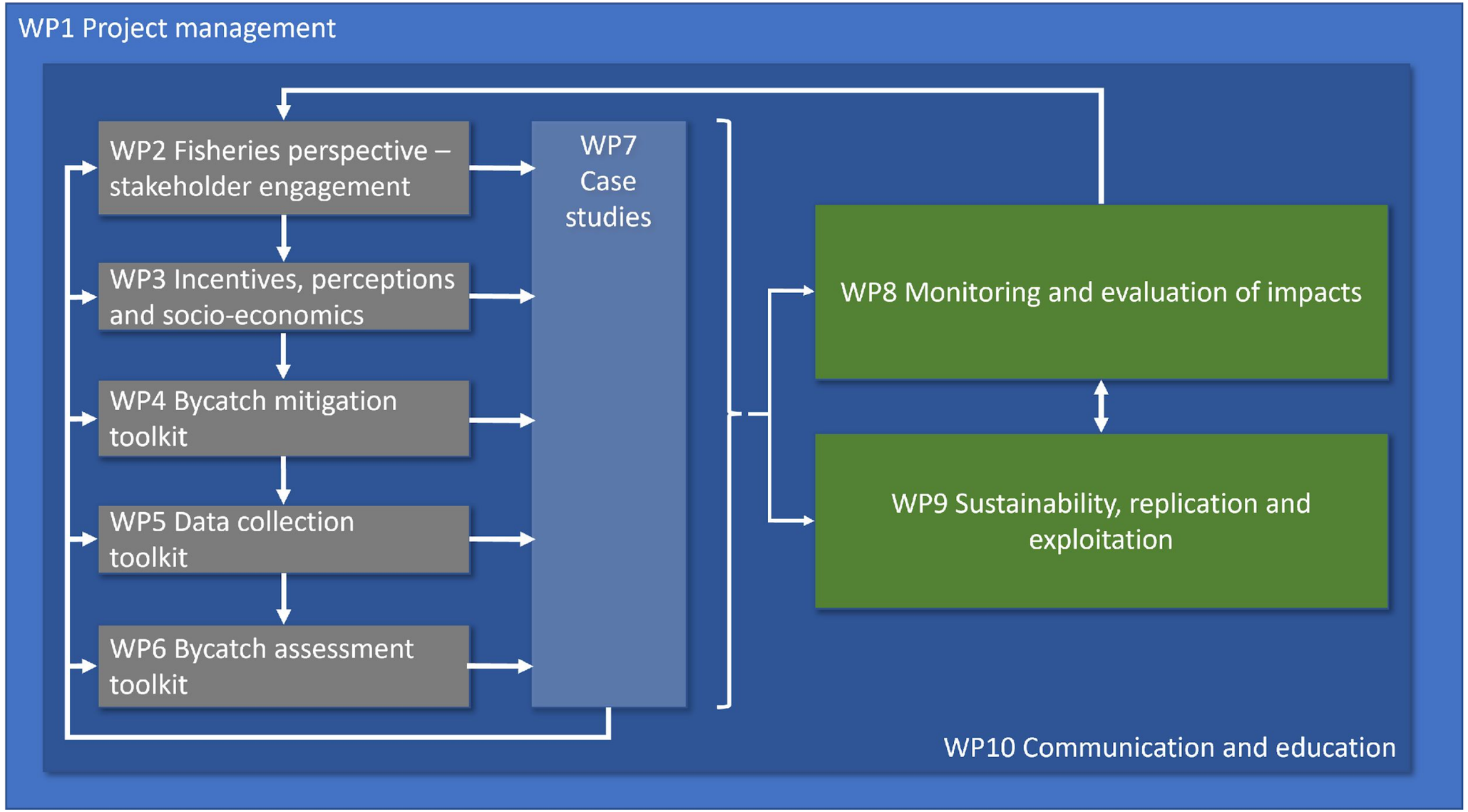
PROCESS

- First submission 30 November 2021
- Evaluation May 2022:
  - Impact/case studies not sufficiently described
  - Budget considered excessive
  - Effectiveness not demonstrated sufficiently
- Decision to resubmit
- Budget ‘ceiling’ per WP
- WP leads mandate to cut budgets/ tasks
- Resubmission 4 October 2022
- HORIZON 2023-2024 WP specific topic *“Understanding and reducing bycatch of protected species”*
- Deadline 28 March 2023

MAIN CHANGES

- Main focus on mitigation of bycatch
  - Promising/proven methods
  - Less on general bycatch monitoring/assessment or species behaviour
- Separate WP for case studies
  - Case studies bundled by gear-type
  - Most WPs relate to the case studies
  - Case studies focus on high priority species
- Reduction in overall budget (24M -> 12.5M)

STRUCTURE


WP1 Project management
WP2 Fisheries perspective – stakeholder engagement
WP3 Incentives, perceptions and socio-economics
WP4 Bycatch mitigation toolkit
WP5 Data collection toolkit
WP6 Bycatch assessment toolkit
WP7 Case studies
WP8 Monitoring and evaluation of impacts
WP9 Sustainability, replication and exploitation
WP10 Communication and education

CASE STUDIES

Case study	Case study name	Subcase study	Subcase study name
T7.1	Gillnets	T7.1.a	Gillnets north
T7.1	Gillnets	T7.1.b	Gillnets south
T7.1	Gillnets	T7.1.c	Gillnets in UK waters
T7.2	Longlines	T7.2.a	Deepwater longlines Portugal, Azores, Madeira
T7.2	Longlines	T7.2.b	Surface longlines Madeira
T7.2	Longlines	T7.2.c	Longlines in UK waters
T7.3	Pelagic trawl	T7.3	Pelagic trawl
T7.4	Bottom trawl	T7.4.a	North Sea and eastern channel bottom trawls

CONSORTIUM

- 35 beneficiary partners / 10 Associated partners
- Partnerships fisheries/ govt/ science/ NGO's from:
  - BE, DE, DK, ES, FR, IS, IR, NL, NO, POL, POR, SW, UK
- ICES, IWC
- Stakeholder Advisory Board: 26 organisations

- Among which 5 AC's, OSPAR, HELCOM, ASCOBANS, EAPO, EFCA, Low Impact Fishers of Europe (LIFE), NOAA, several NGO's/ one gvt

GRANT AGREEMENT

- 14 March notification approval!
- Grant Agreement preparations
- 25 April deadline beneficiary partners Declaration of Honour
- GAP analysis process
- Discussion priority species
- 67% instead of 75%
- All partners still on board
- Striving for July signing Grant Agreement and start project September 1st

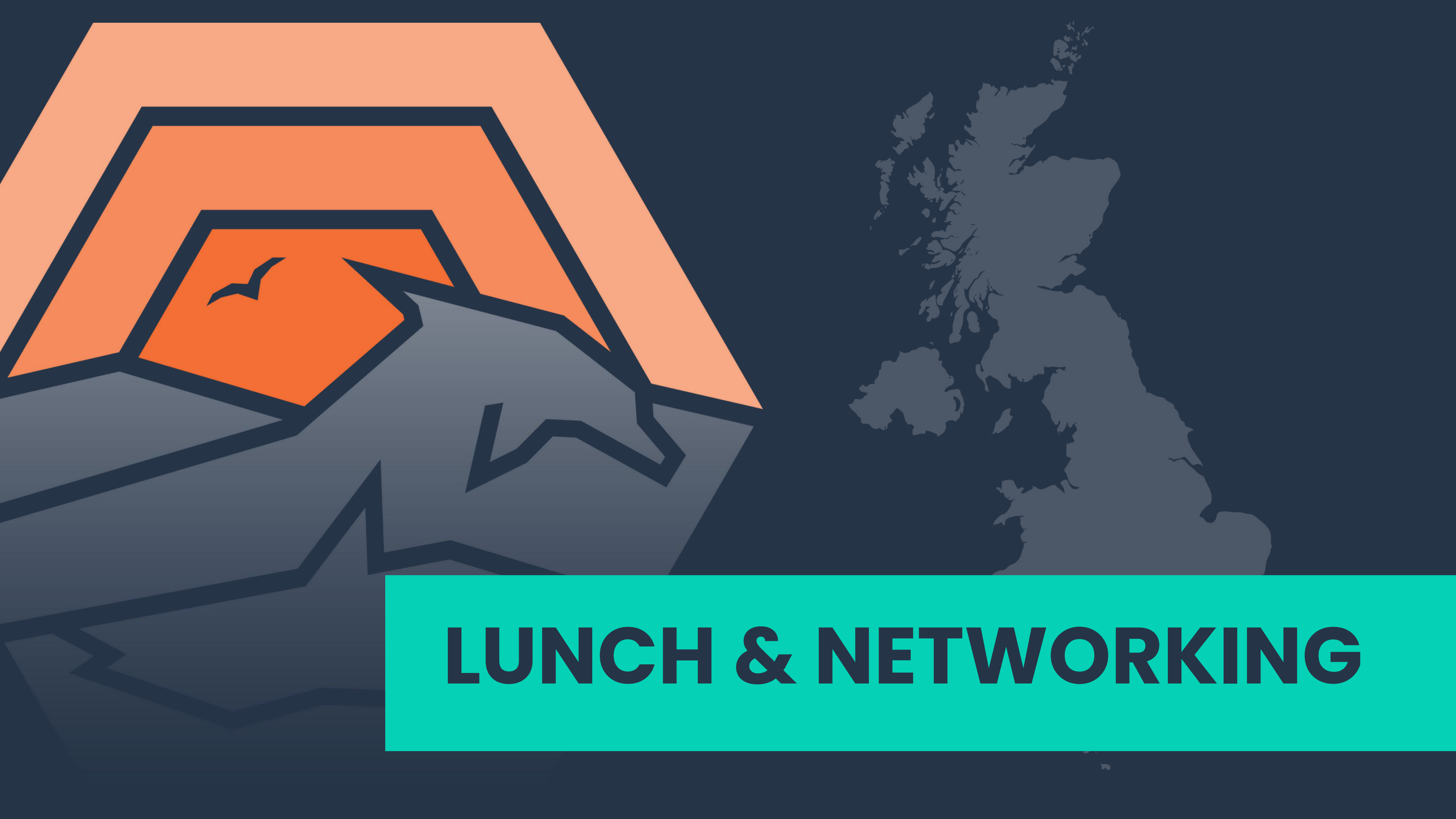
QUESTIONS, ANSWERS & COMMENTS

BREAKOUT

BREAKOUT: GUIDING QUESTIONS

- Where is bycatch work in the UK currently taking place?

- Which areas should be a priority for future research?



LUNCH & NETWORKING

PROJECT UPDATES

CEFAS TEAM UPDATE

Joanna Murray -

Cefas

CCUK CEFAS TEAM

Eva Maher, PM

- Manage data protection, finances and resources.
- Lead on procurement processes in conjunction with the PI.
- Ensure that the project plan, objectives and deliverables are communicated to the project team and Defra.

Dr Joanna Murray, PI

- Lead Cefas Research on marine wildlife trade and wildlife bycatch, domestically and internationally.
- Provide leadership and oversight to the CCUK team in monitoring and mitigation of wildlife bycatch in SW fisheries.

Spike Searle, Fisheries liaison

- Deep water gill-netter for 15 years in the SW.
- Experience fisheries liaison and Cefas observer.
- As part of Clean Catch UK, Spike liaises with the industry to oversee field trials and data collection from his base in Newlyn.

Emily Roebuck, marine scientist

- Background in wildlife conservation.
- Emily joined Cefas in 2022 working with the shellfish industry to collect and analyse field data.
- Since 2023, Emily has been a part of the CCUK team supporting field trials and data collection.

CCUK CEFAS TEAM

David Maxwell, Head of Statistics

- Team leader of the Cefas Data Science and Statistics Team.
- Chartered statistician with over 20 years' experience.
- Original CCUK team member.

Dr Wayne Rostant, statistician

- Background in evolutionary biology.
- Joined Cefas in 2022.
- Wayne led the new Cetacean Bycatch Mitigation Study analysis.

Will Proctor, GIS analyst

- Specialises in marine and freshwater geospatial data processing and analysis as well as spatial database creation and management.
- Will works on database management, spatial data analysis, and mapping for CCUK.
- Wayne led the new Cetacean

CCUK CEFAS TEAM

Rebecca Skirrow,
REM operational lead

- Scientific lead for use of REM in Clean Catch.
- Oversight of REM data collection and analysis.

Hannah Wolstenholme, REM analyst

- Cefas onshore observers.
- REM data analysis including Clean Catch.

Dr Thomas Catchpole,
Principal fisheries scientist

- Cefas lead advisor on discards, bycatch and technical measures.
- Scientific advisor to Cefas bycatch programme.

WHY HAVE A TEAM?

- Primary UK legislation, 2020 Fisheries Act:
  - "*Ecosystem objective*"–incidental catches of sensitive species are minimised and, where possible, eliminated."
  - "*bycatch objective*" - to reduce bycatch of non-target commercial fish species

- The UK Marine Strategy
  - GES for cetaceans, seals and birds - objective that the long-term viability of these populations is not threatened by bycatch.

- 25 Year Environment plan
  - "Account for, and seek to minimise, impacts on non-commercial species and the marine environment generally…"

- Others…

How will data we collect feed into the data which is already collected?

CCUK PROJECT UPDATES

- Monitoring – CCUK self-reporting app
- Monitoring – Remote Electronic Monitoring
- Monitoring - Chelonia POD array
- Mitigation – Passive Acoustic Reflectors
- Mitigation – Cetacean Bycatch Mitigation Study

CCUK PARTNERSHIPS

Anchor Lab
Copenhagen

Cornwall IFCA
Inshore Fisheries and Conservation Authority

MINDFULLY WIRED COMMUNICATIONS

CFPO

ARRIBADA initiative

AST Enabling Global Connectivity

THANK YOU

CCUK SELF-REPORTING APP

Joanna Murray -

Cefas

WHY SELF-REPORTING?

- Observer programmes have low coverage of commercial fishing activity, which make detecting rare events such as the bycatch of PETS challenging.

- A self-reporting monitoring programme will complement existing observer programmes by;
  - Increasing evidence of spatial and temporal trends in bycatch of PETS overtime.
  - Provide a baseline to test effectiveness of mitigation.

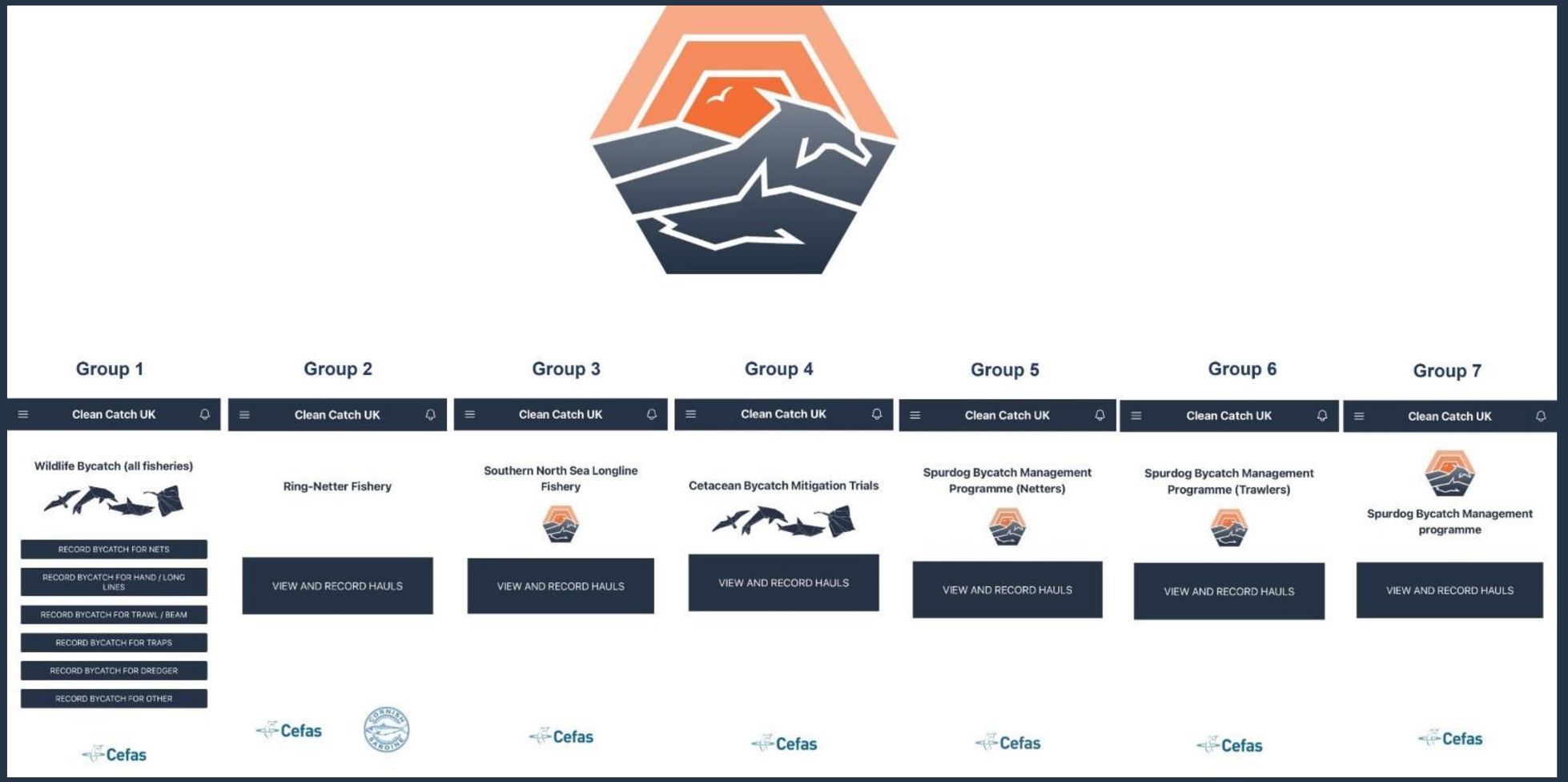
SELF-REPORTING APP

- Aim of a Smartphone application: to provide an intuitive tool for fishers to report capture of vulnerable wildlife species while at sea.

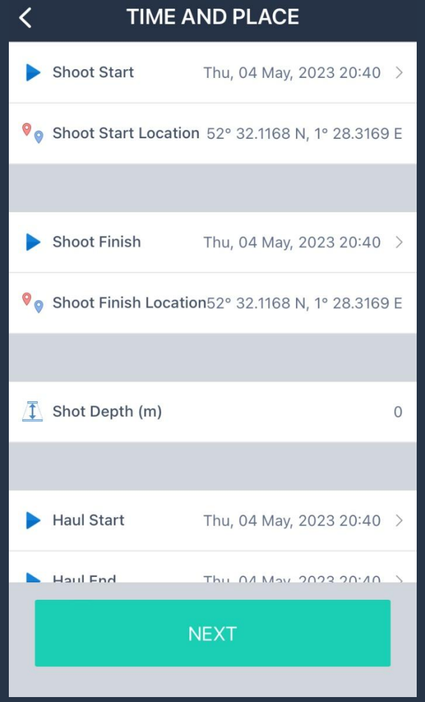
- Collaboratively developed by Cefas, AST and fishers.
- Data sharing agreements in place so data can’t be used without permission.

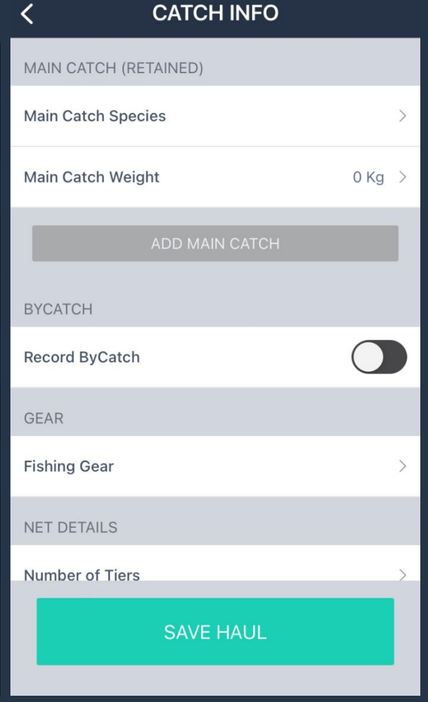
- Challenges with self-reported data to consider- need to demonstrate the quality of data collected and how it is combined with other data sources.

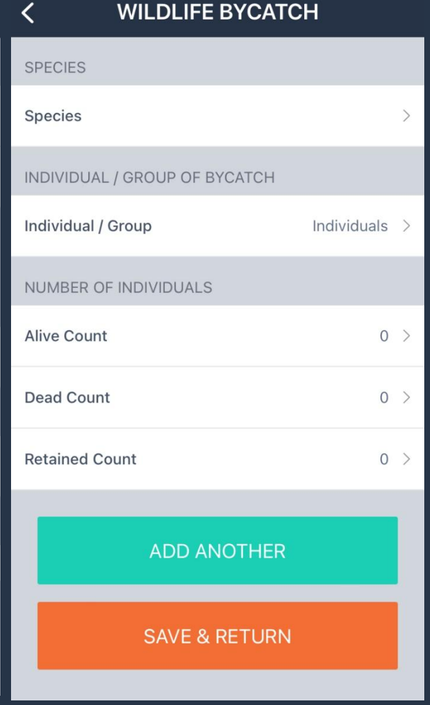
OVERVIEW OF APP GROUPS

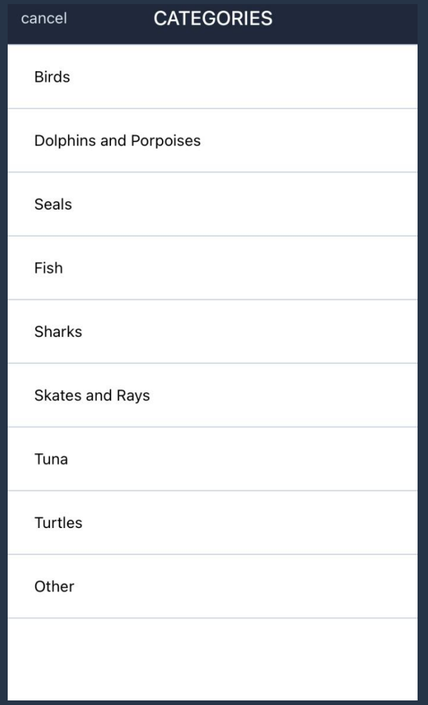


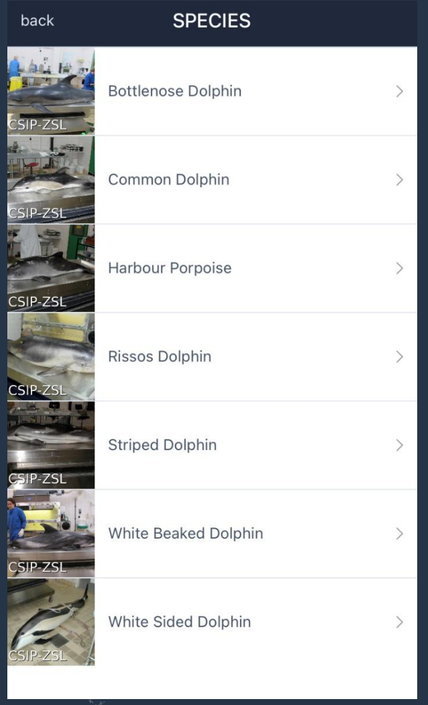
GROUP 1: WILDLIFE BYCATCH











APP DEVELOPMENT

New app to shed light on spurdog populations and reduce bycatch

by editor | Dec 20, 2022 | Featured News, Latest News, UK Fishing Industry

A new smartphone app that's being trialled by Cornish fishermen in the Celtic Sea is seeking to reduce bycatch of spurdog

The pioneering technology will allow skippers to report bycatch and plot routes to avoid areas of high spurdog density - all in one place.

A new smartphone app that's being trialled by Cornish fishermen in the Celtic Sea is seeking to reduce bycatch of spurdog.

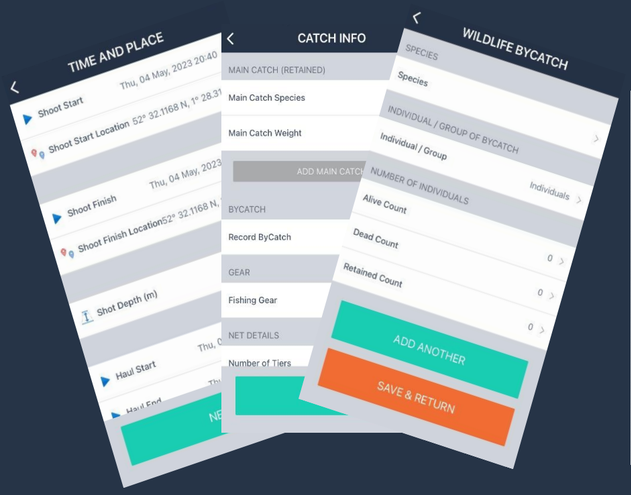
The Fishing Daily
Reach your Fishing Industry customers across the UK, Ireland and Northern Europe.
Click HERE to find out how

- **FSP project**
- **Provide paperless mechanism to monitor self-sampling of sardine.**
- **Final testing phases with fishers.**

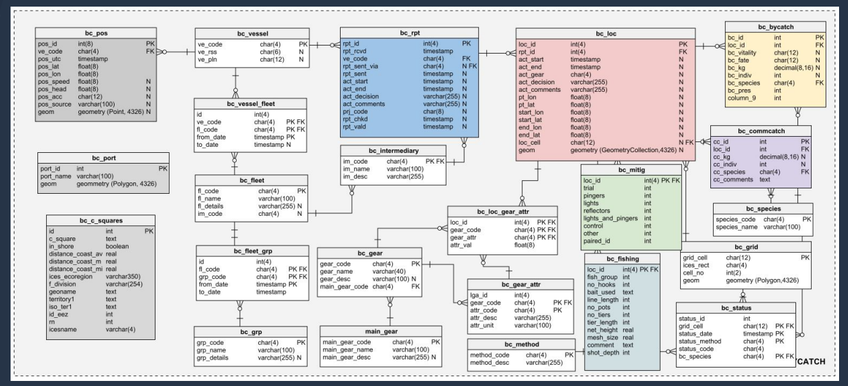
- **More complex – 5 gear groups to test.**
- **Tested by Cefas and feedback provided to developers.**
- **Need to recruit one or two volunteer fishers to test each of the 5 gear groups.**

DATA COLLATION

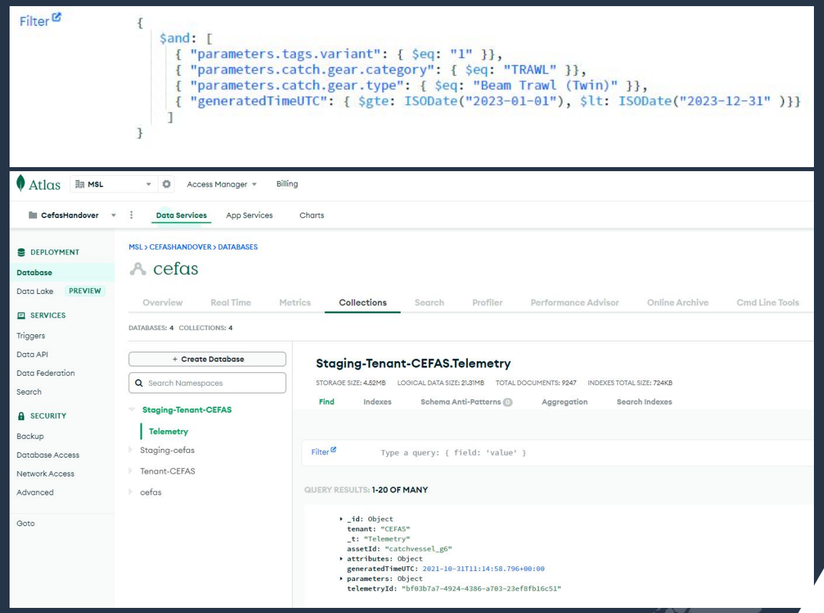
Data entered the app at sea



Data stored in cloud-based JSON database



Permitted users interact with the database via Mongodb platform



APPLYING THE DATA

- Need to understand quality of the data

- Tailor access for different audiences and different data users.

- Maximise impact - use multiple times.
  - Industry want to use data to make local decisions (e.g., Spurdog Bycatch Avoidance Programme)
  - Use of data for assessing whether UK has met GES or not.

THANK YOU

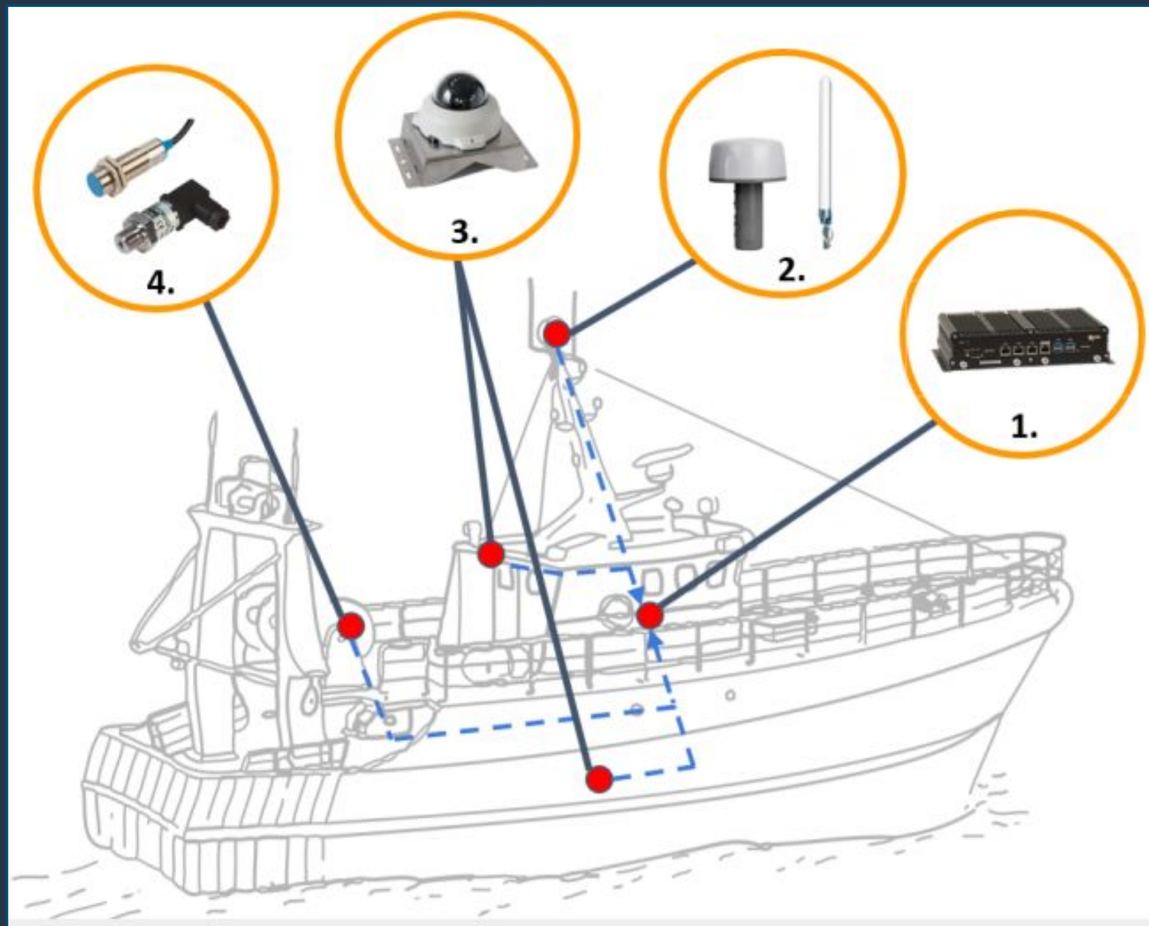
REMOTE ELECTRONIC MONITORING

Hannah Wolstenholme - Cefas

What is REM?

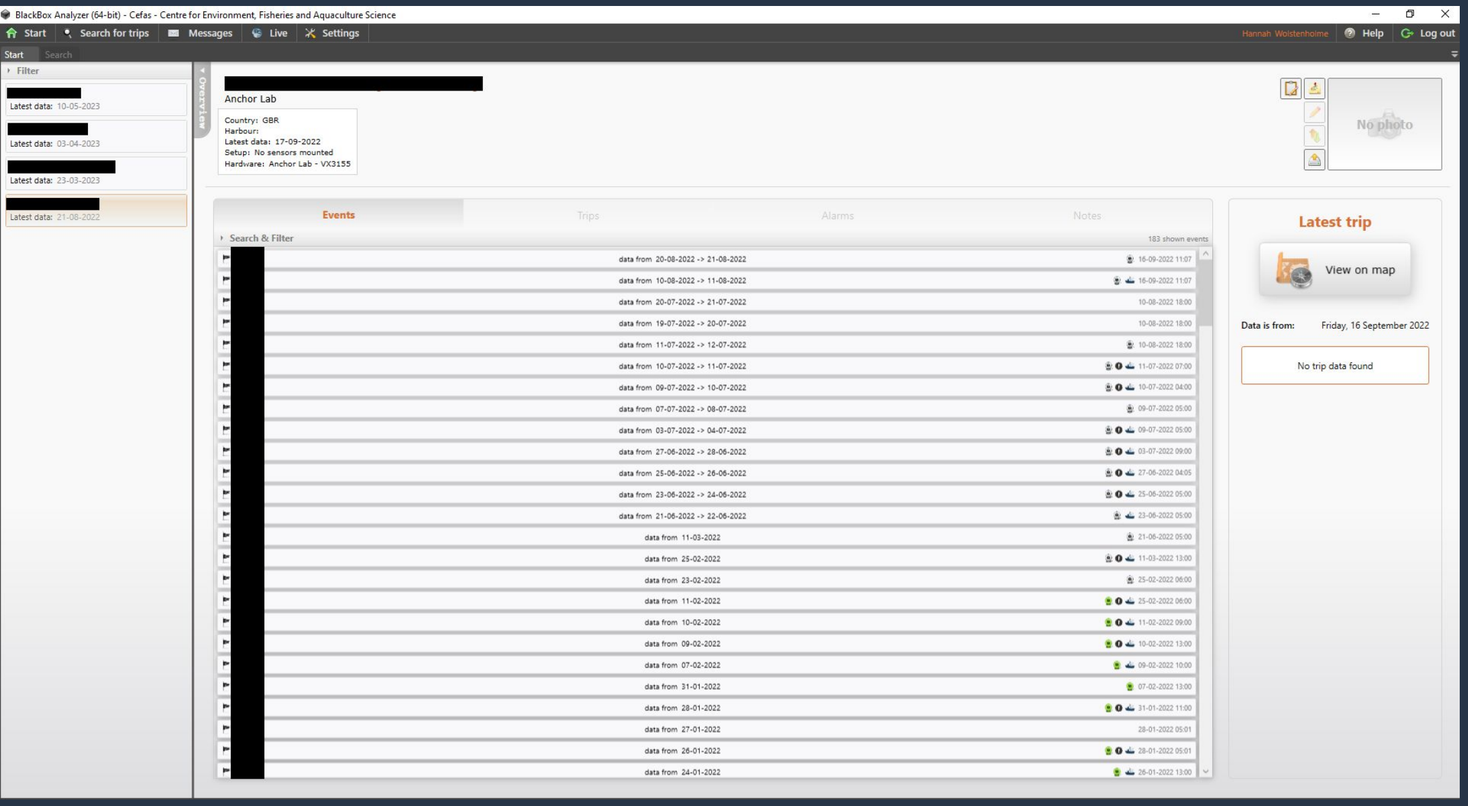
- Onboard system – captures and stores sensor and video data using computer with hard drives, cameras, sensors and GPS
- Analysis software
- Cefas have been using REM for >10 years to generate enhanced data on:
  - Commercial species catches
  - Spatial fishing activity
  - Incidental bycatches of sensitive species
- Generates high resolution data but has several requirements
- Analysis can be resource heavy
- ICES groups working on REM, WGTIFD, WGCATCH

- A Defra consultation on REM is expected this summer



1. **Black Box Video control unit** with built-in GPS & wireless communication modules, that captures & stores sensor and video data.
2. **Antenna** enabling the wireless communication of data from the vessel & remote connectivity to the vessel to monitor & manage the system.
3. **Digital IP cameras** for capturing the handling and processing of the catch.
4. **Sensors** (analog & digital) supported to capture fishing activity and effort.

How Cefas have used REM for Clean Catch UK



REM data analysis

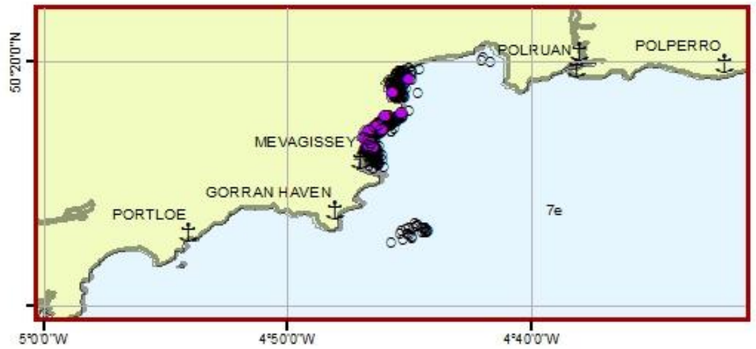
- Camera view dependent on vessel layout
- All views are concentrated on the net hauler
- Challenges: lighting changes, dirty cameras, difficult views of catch, identification of catch when very tangled.

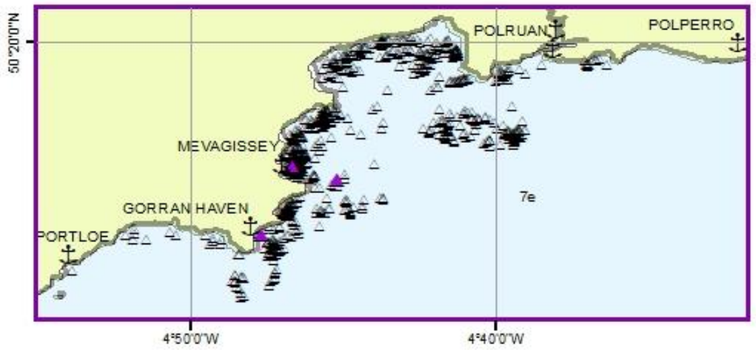
REM data so far

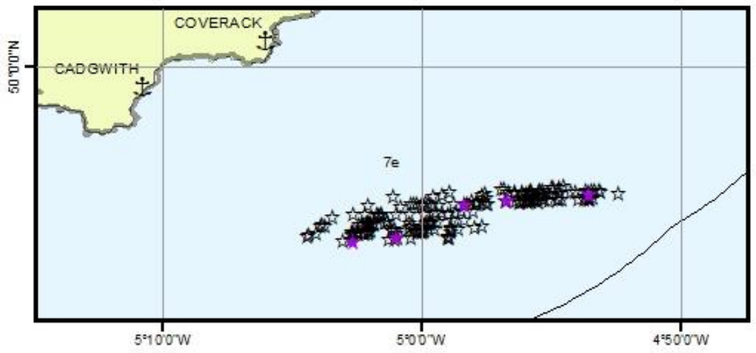
- 100% analysis of data from the 3 inshore netting vessels from installation to June 2022
- Video data from ring netter not yet reviewed

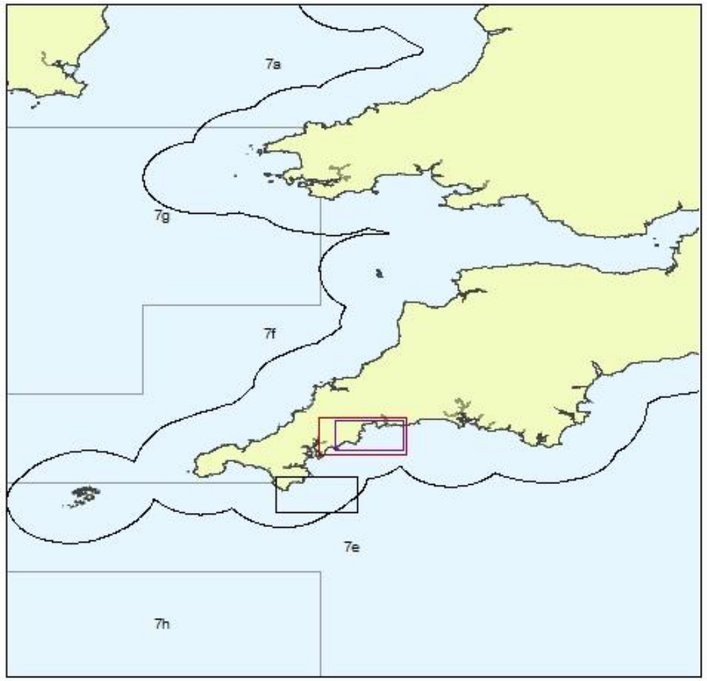
Vessel	No. of trips	No. of hauls	No. of bycatch	Seals and cetaceans	Birds	Sharks	Skate	Potential PETS
A	240	502	46	10	6	0	0	30
B	311	974	8	2	0	1	0	5
C	103	202	8	4	0	2	1	1
D	180	99	-	-	-	-	-	-
Total	834	1777	62	16	6	3	1	36

REM data so far









Vessel

- A, Presence
- A, Absence
- B, Presence
- B, Absence
- C, Presence
- C, Absence

Ports

12nm limit

ICES Areas

Coordinate System:
GCS WGS 1984
Datum: WGS 1984

Created 12/05/2023.
Data sources: ICES, GSHHG, MMO, UKHO
© Crown Copyright and database right 2023.

REM – what's next?

- Review current camera views and improve where possible.
- Match the REM identified bycatch records with Skippers' app data, for validation and quality assurance.
- Trial moving away from 100% analysis.
- Continue collection and analysis of video footage.
- Contribute to the collation of images of sensitive bycatch species for training AI.

THANK YOU FOR LISTENING

ACOUSTIC MONITORING OF CETACEANS

Emily Roebuck -

Cefas

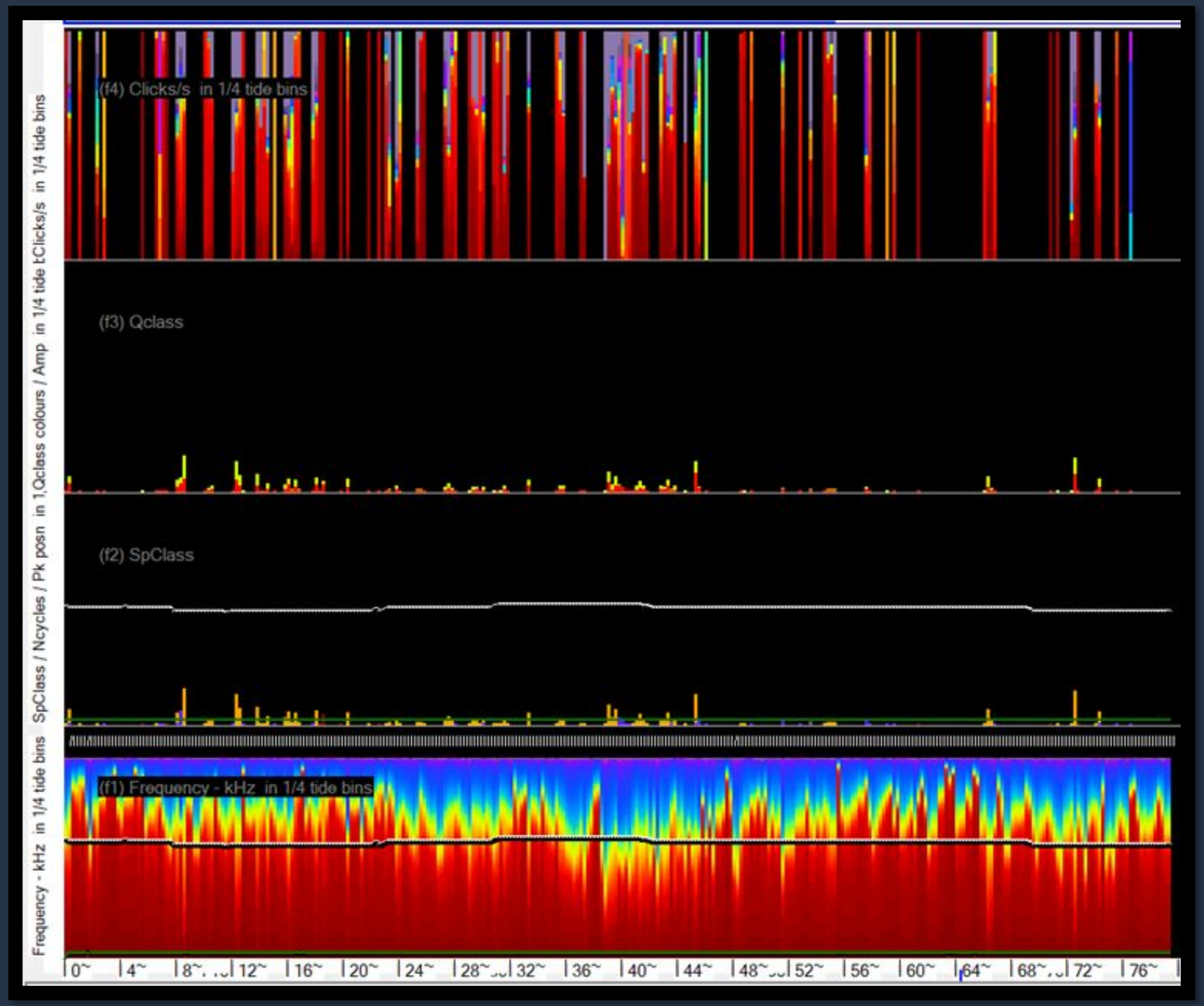
Acoustic monitoring

- **Acoustic monitoring Vs Alternative monitoring**
  - **Cost-effective, autonomous, continuous, behavioural information**

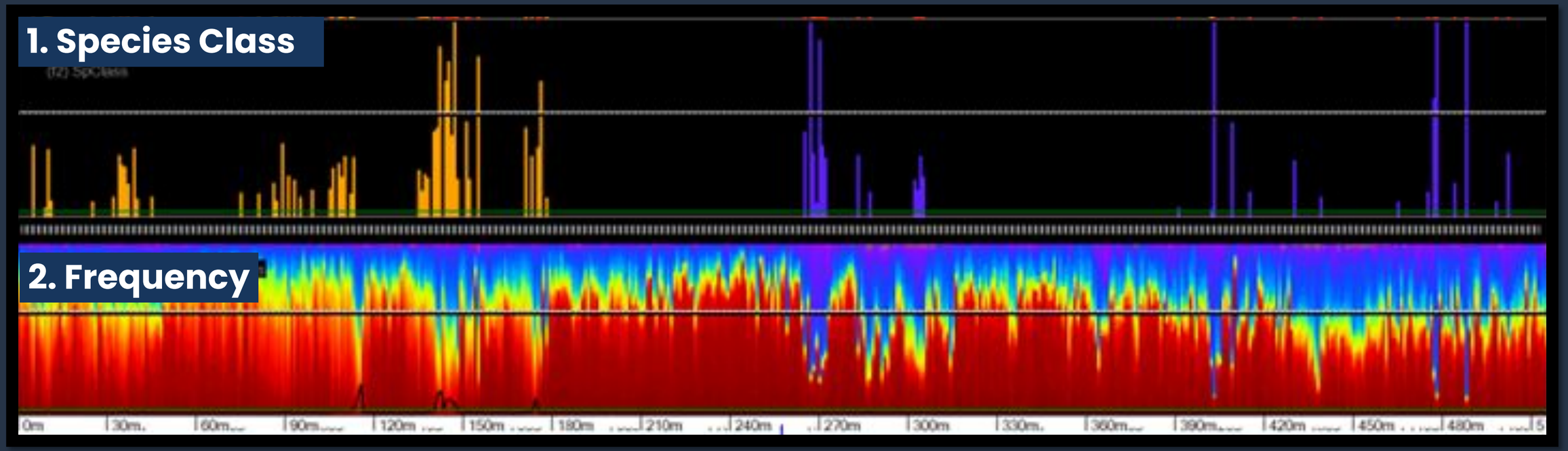
- **CCUK acoustic monitoring using Chelonia Ltd ‘PODs’**

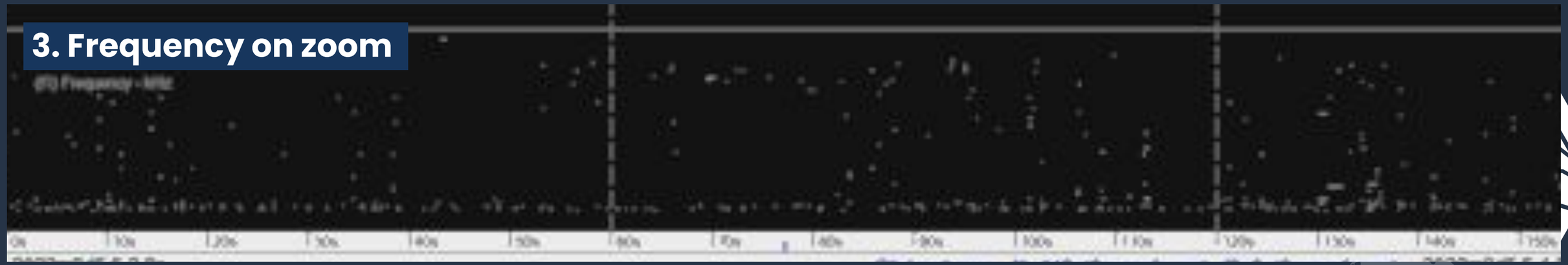
- **C-PODs & F-PODs**
  - **Monitoring spatial use and seasonal patterns**

Data overview

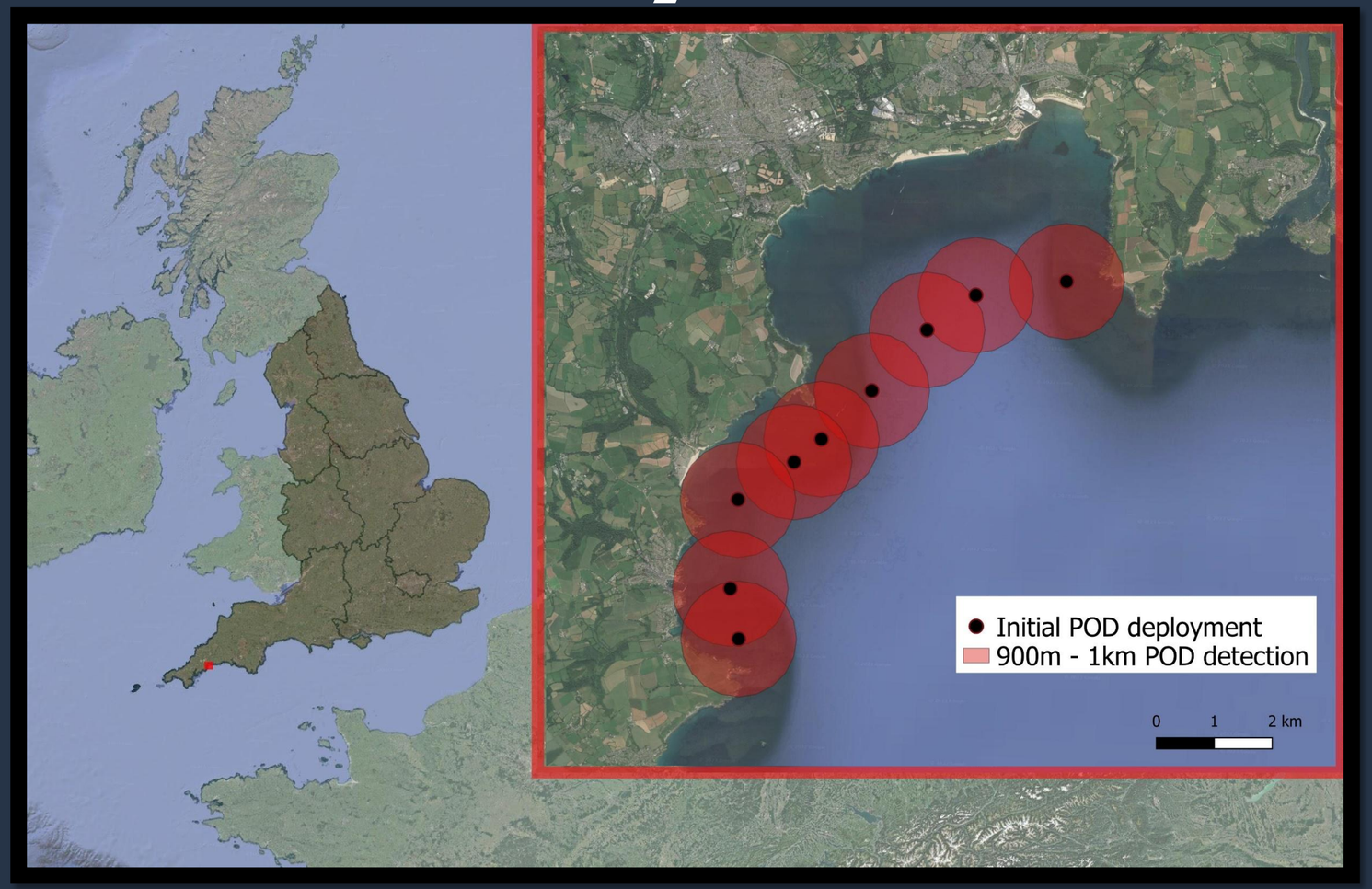


FPOD 6129 05/09/2022, 05:15





Study site: Mevagissey & St. Austell Bay, Cornwall

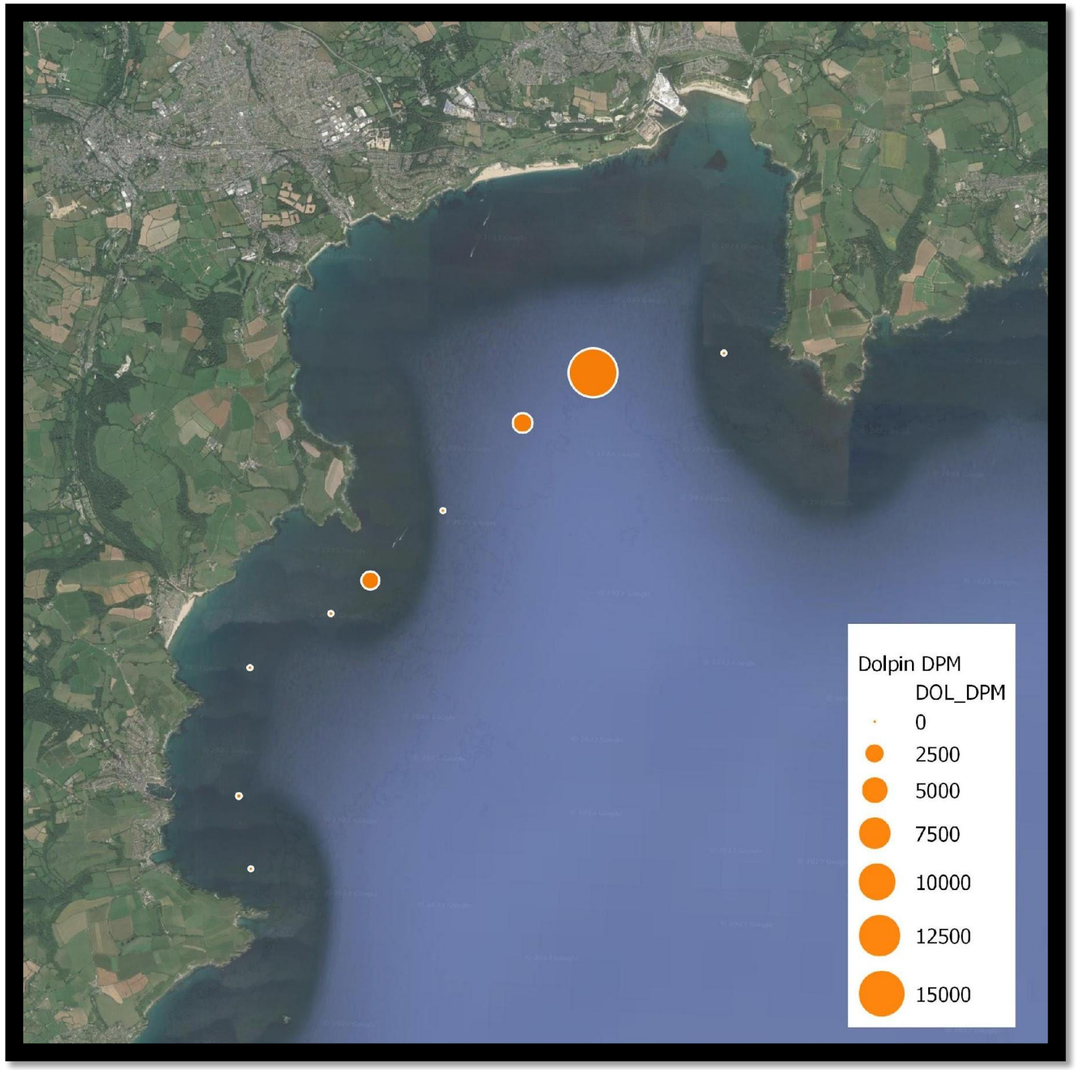


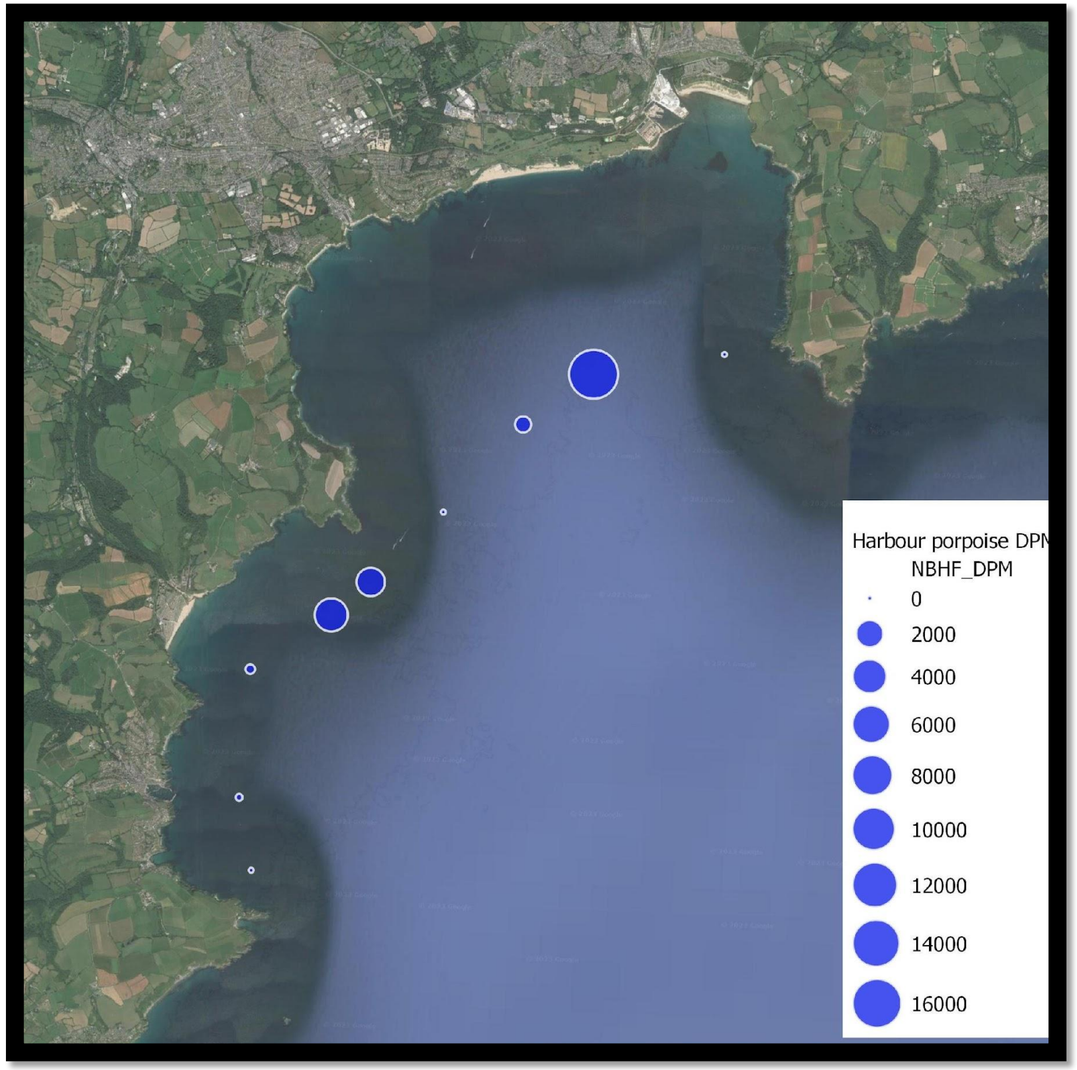
- March 2021
- 10x C- & F-PODs
- Monitoring the presence of cetaceans over time and space within the area

Data from initial deployments

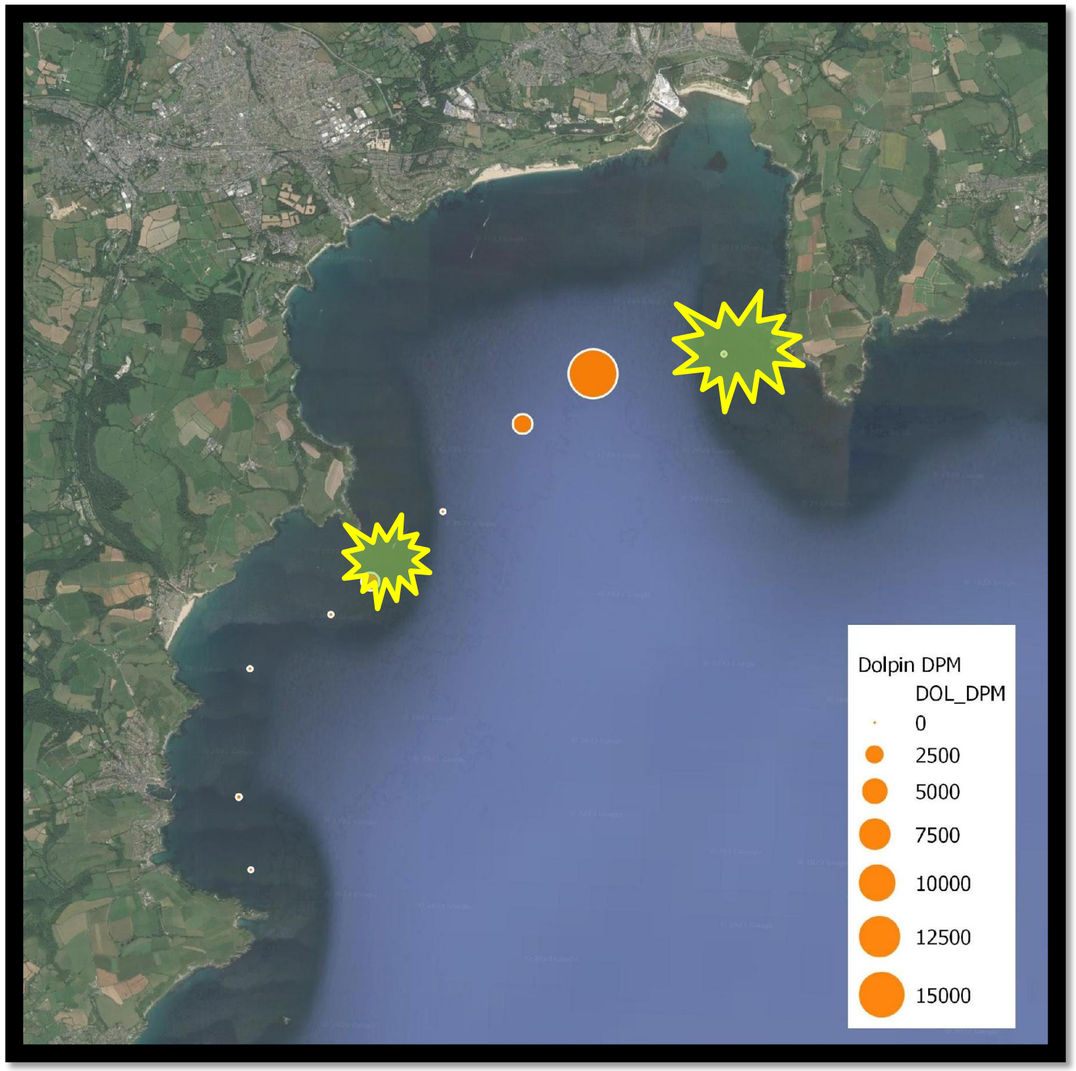
- 22,273 hours / 928 days
- Harbour porpoise DPM
  22,290 ~ 1.6%
- Dolphin species* DPM
  19,949 ~ 1.4%

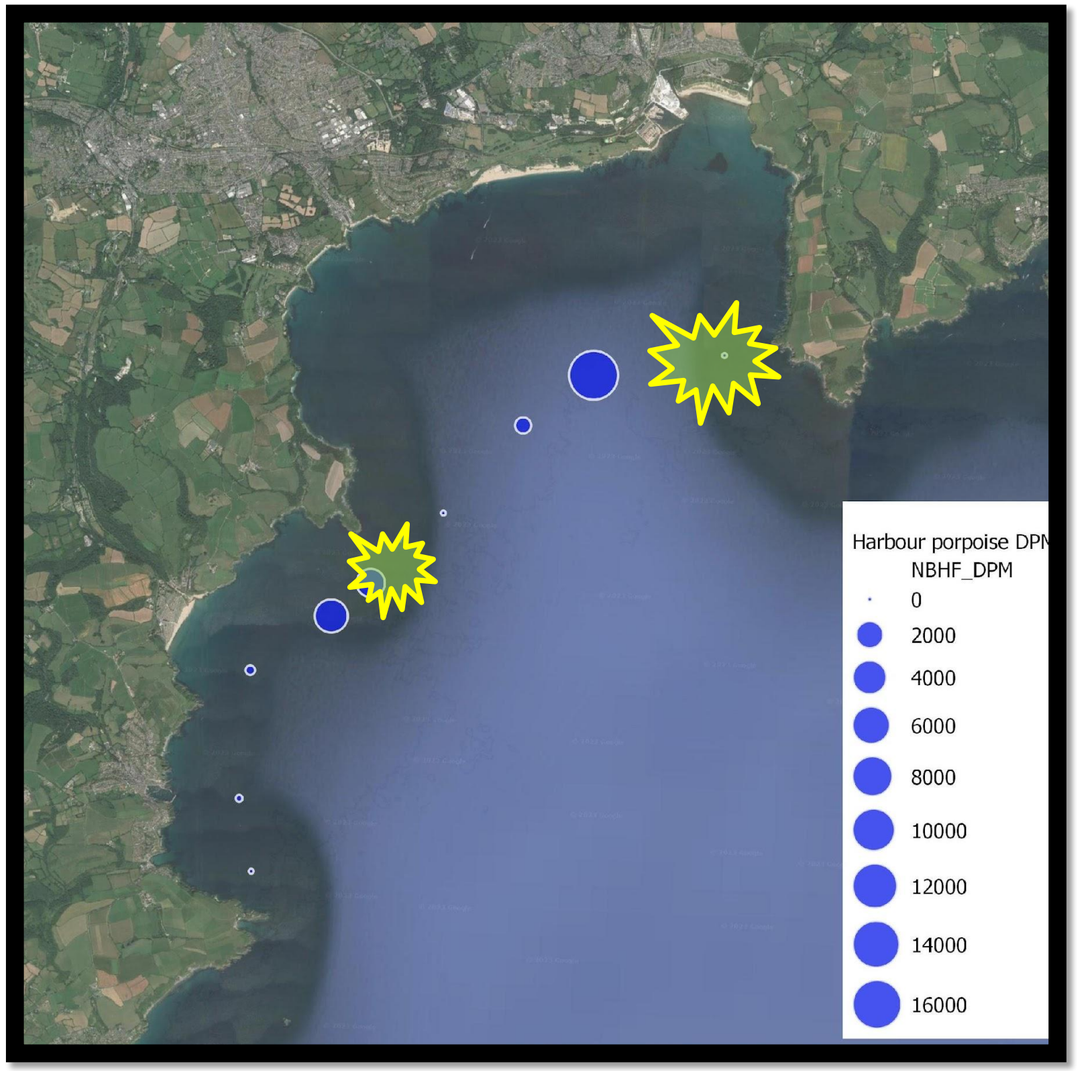
Initial data insights



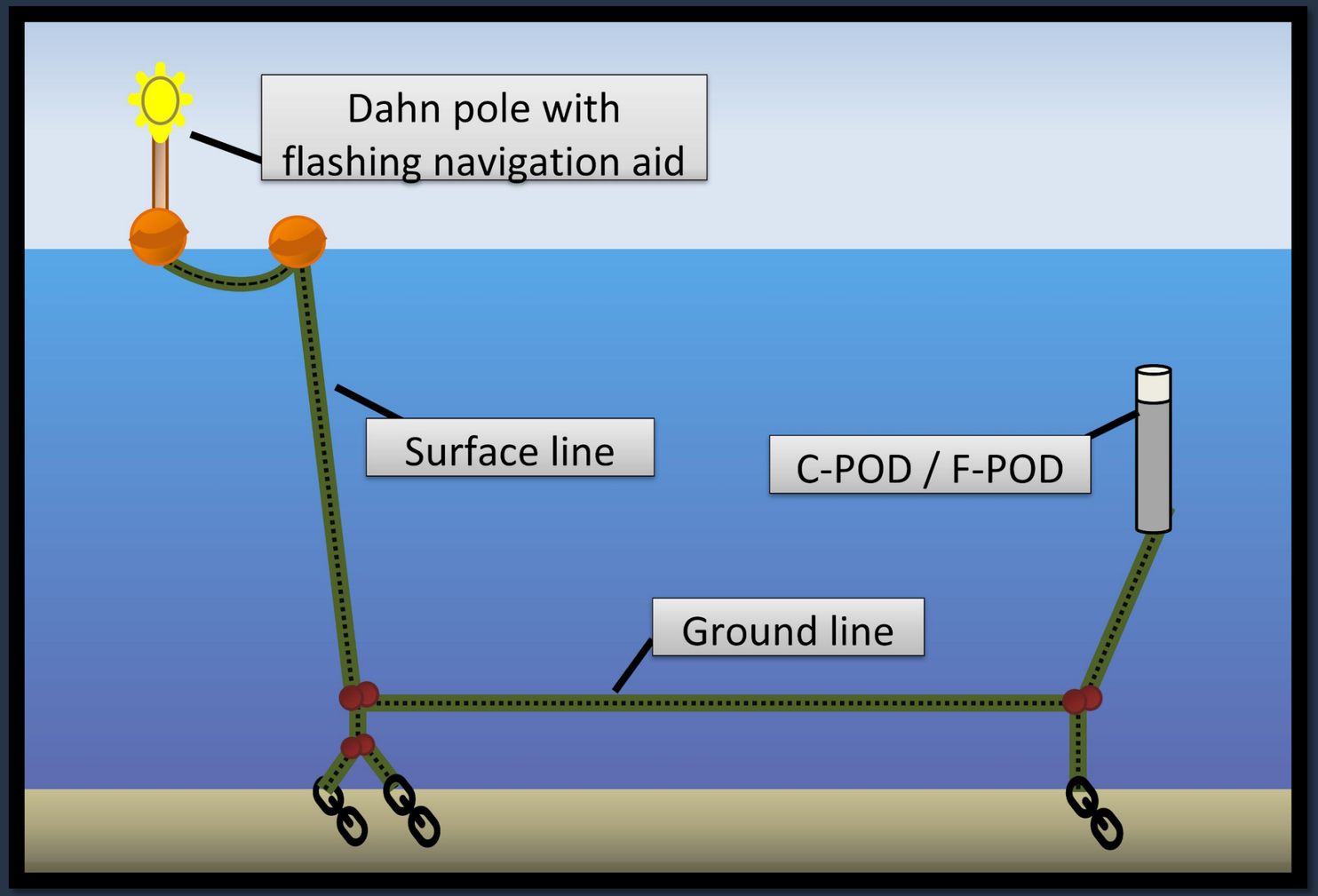


Initial data insights





New mooring design



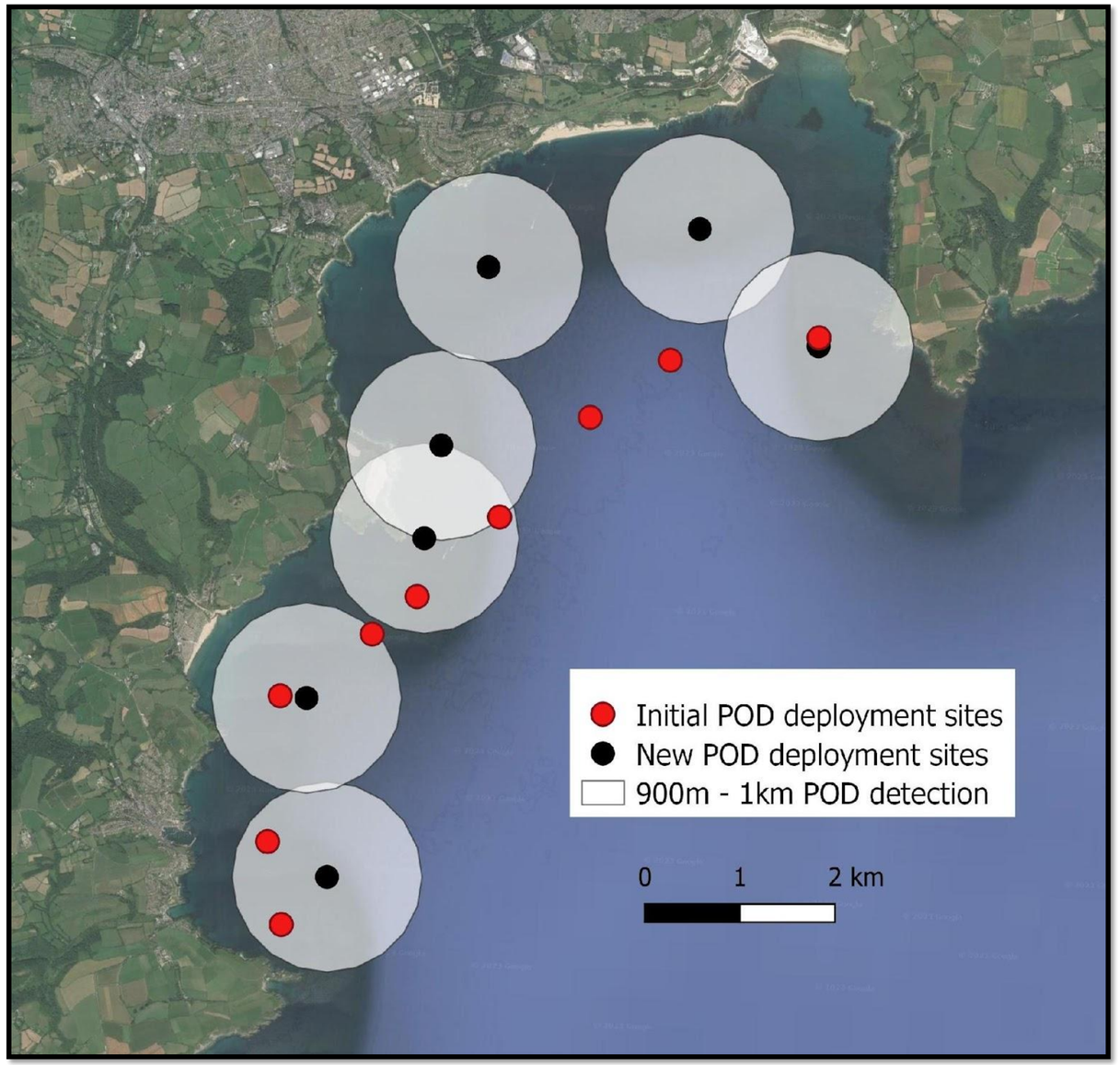
- **Collaboration with Cornwall IFCA**
- **Improved navigation aids**
- **Robust design using industry knowledge**

Initial and new POD array

- Deployment of new moorings and pods scheduled for May 2023 (TBC)

Initial and new POD array

- **Deployment of new moorings and pods scheduled for May 2023 (TBC)**



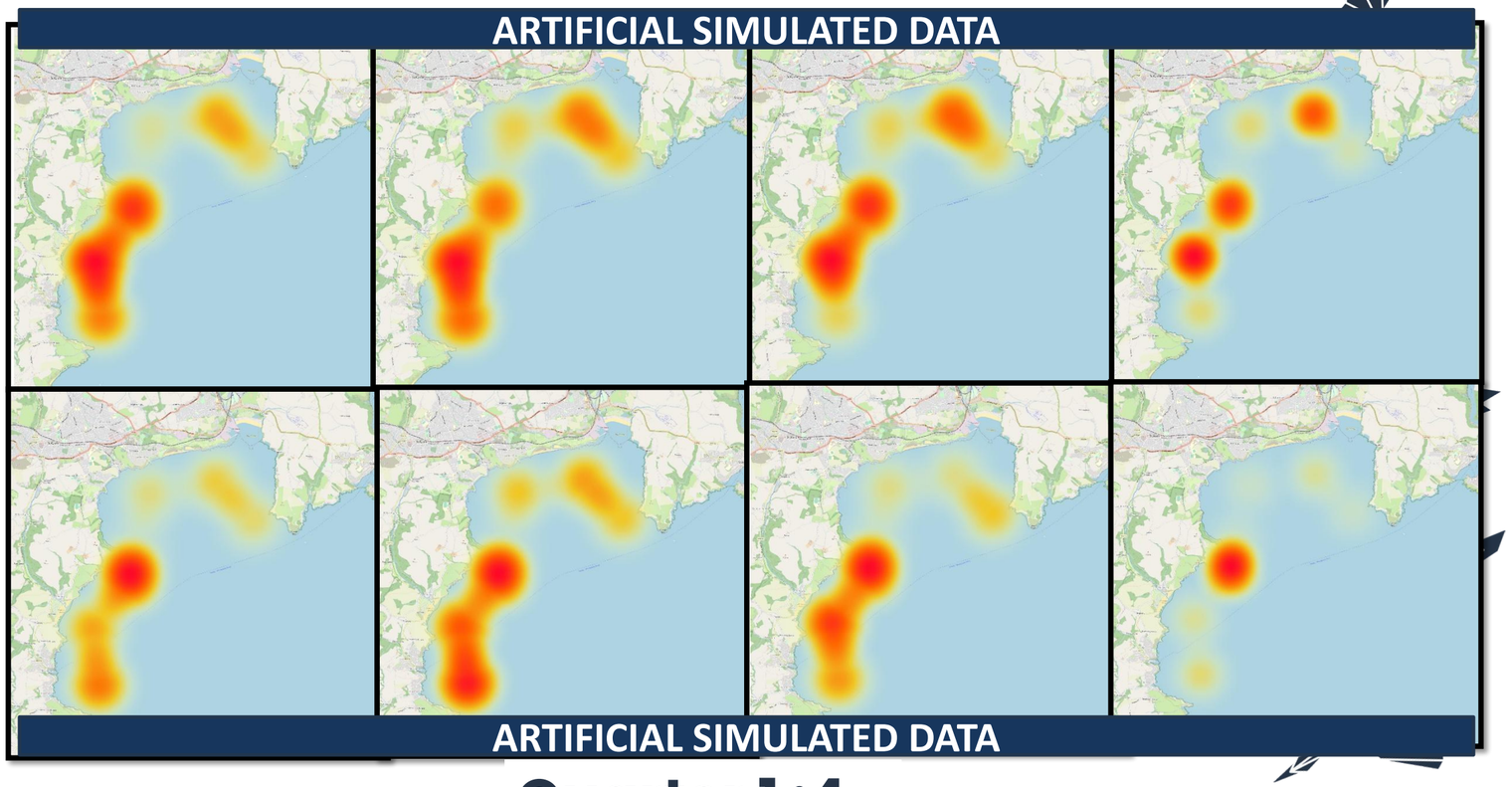
Going forward

Data collection & servicing

- 3 month regime of data collection, servicing and analysis

Visualising trends

- Understanding cetacean activity in the area



THANK YOU

PASSIVE ACOUSTIC REFLECTORS

Joanna Murray -

Cefas

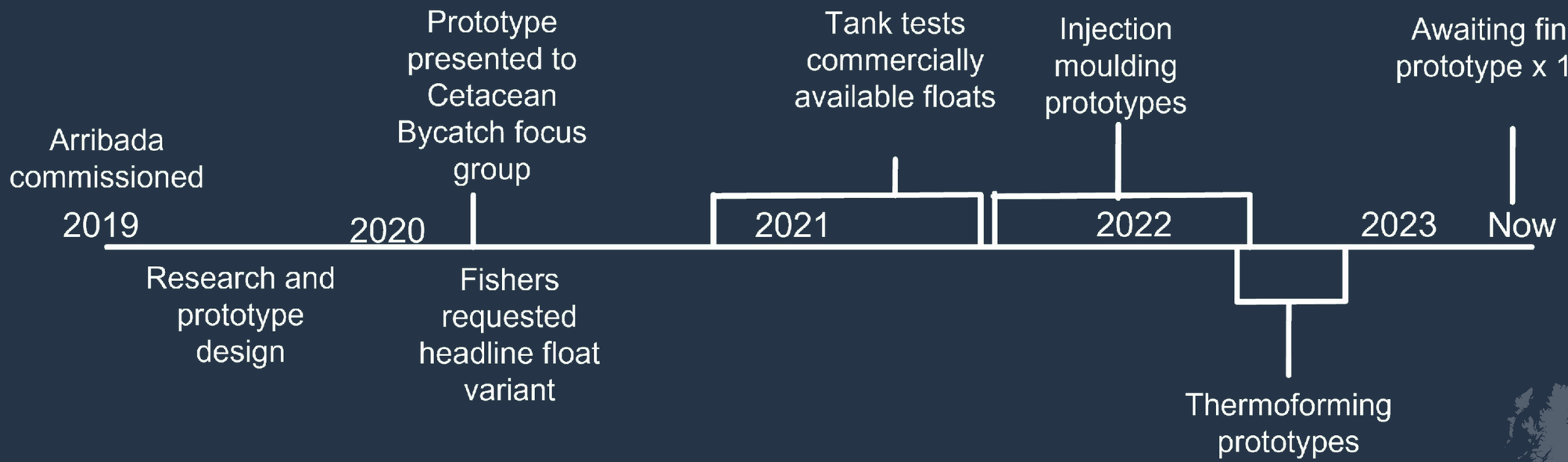
PASSIVE ACOUSTIC REFLECTOR

BACKGROUND

- Passive Acoustic Reflectors (PAR) reflect and transmit back an echo made by the ‘click’ of a nearby cetacean, alerting it to the presence of gear.
- In December 2019, Arribada Initiative were commissioned with co-developing with fishers a low-cost PAR, suitable for attachment to fishing gear via a single point attachment as a novel bycatch mitigation device.
- Al Davies from Arribada Initiative presented a research and development update at the 3rd NSG meeting in May 2021 - see website.

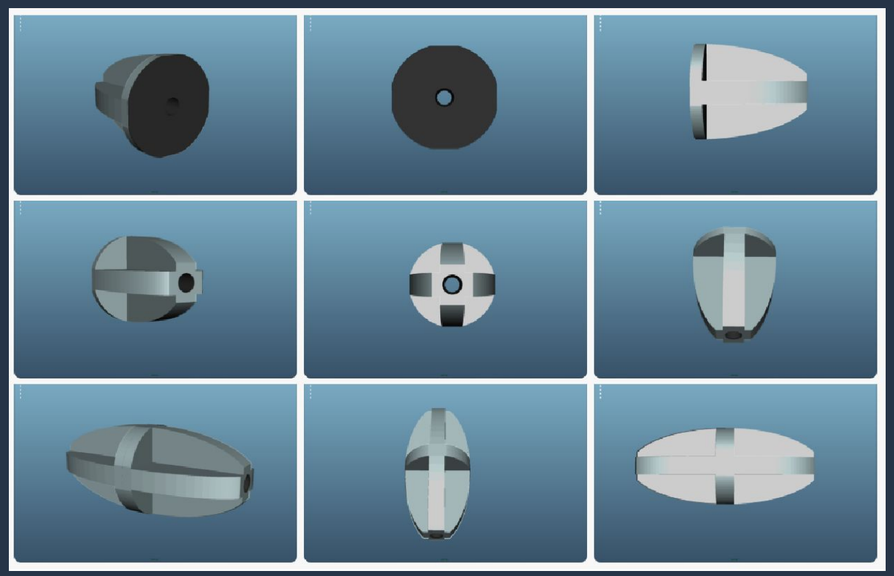
PASSIVE ACOUSTIC REFLECTOR

DEVELOPMENT TIMELINE



PASSIVE ACOUSTIC REFLECTOR

PROTOTYPE



Best performing material for outer case was a polycarbonate, and internally a rigid polyurethane foam offered the best acoustic reflective performance and buoyancy control.

PASSIVE ACOUSTIC REFLECTOR

NEXT STEPS

- **Once we receive 100 PAR we will work with a local net rigger to establish their buoyancy on commercial gill nets and agree a set up for spacing and numbers required for their testing practicality and robustness.**

- **Explore ‘proof of concept’ methods for better understanding the fundamental acoustic properties of PAR and link to a change in the acoustic behaviour of cetaceans i.e. how do we know they will work? - *A discussion point for the Q&A session.***

THANK YOU

CETACEAN BYCATCH MITIGATION STUDY

Joanna Murray -

Cefas

BACKGROUND

RELEVANT PAPERS

- Original study design and power analysis - See Info # 1.2.
- Updated pinger power analysis – see For Decision #1.

- 4th meeting of the NSG (March 2022) – presentation on initial results from pinger trial and challenges using lights.

- Decision made to refine and continue the study, over a longer period, increase number of fishing vessels involved and make lights easier to attach and use.

REMINDER: ORIGINAL TRIAL

Five treatments plus a control were trialled, including 2 types of pingers, 1 set of lights, and 2 different combinations of pingers and lights:

(1) **Future Oceans Netguard, 70 kHz,145dB, seal-safe dolphin pinger - Pinger 1 (*P1*);**
(2) **Fishtek Banana Pinger, 50-120 kHz, 145dB, seal-safe dolphin and porpoise 'banana' pinger - Pinger 2 (*P2*);**
(3) **Fishtek Netlight, with green wavelength at 2.6 lumen - Light (*L*);**
(4) **The combination of Pinger 1 and Fishtek Netlight - *P1L*;**
(5) **The combination of Pinger 2 and Fishtek Netlight - *P2L*.**

DATA COLLECTED (Dec 19-May 22)

- Two participating vessels self-reported 813 hauls, of which 306 were paired (either treatment or control) nets.
- Bycatch was recorded by both vessels participating in the study.

Treatment	No. of hauls	No. hauls with bycatch	Number of bycaught individuals
Control	153	2 (paired with P2)	2
Pinger 1	42	2	3
Pinger 2	14	1	4
Lights	28	0	0
Pinger 1 and lights	22	0	0
Pinger 2 and Lights	47	0	0

KEY POINTS

FISHER FEEDBACK

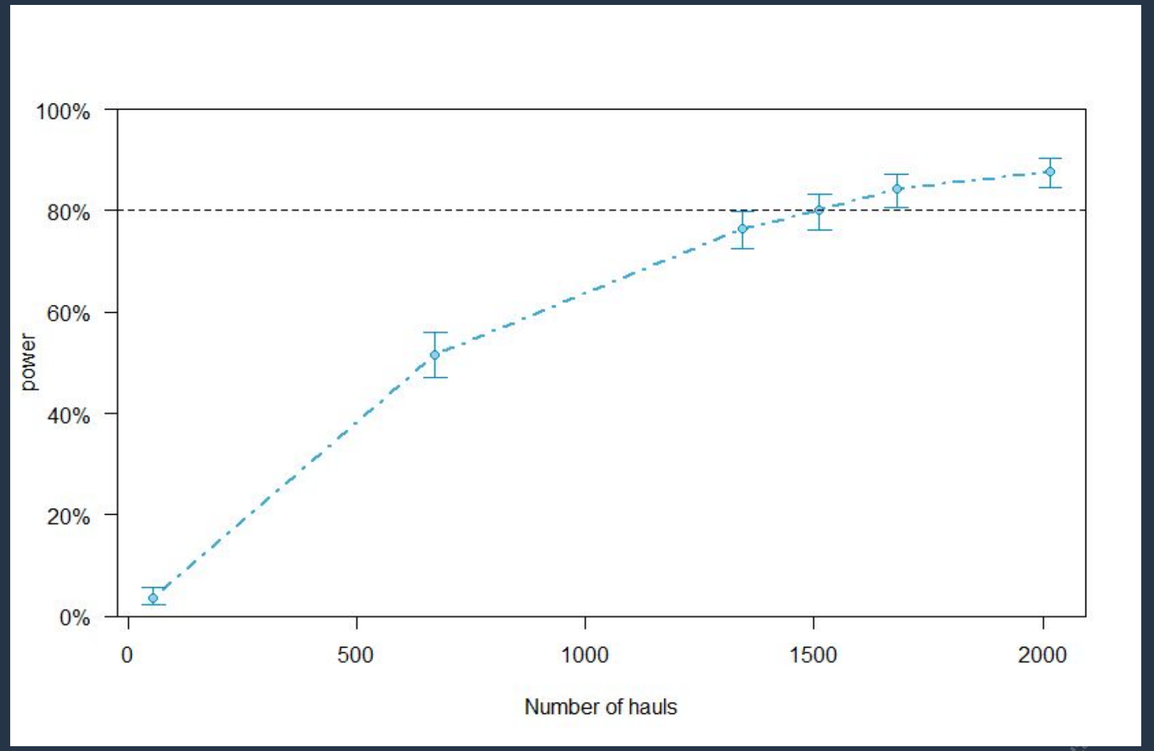
- Pinger 2 – easy to add to fishing gear, without interference with fishing operations, good battery duration and simple to change.
- Both pingers impact the buoyancy of nets used to fish for sole (*Solea solea*).
- Lights – impact buoyancy of the net, half a day to remove lights, replacing batteries time consuming.

- Much smaller baseline bycatch rate observed.

UPDATED POWER ANALYSIS

- New analysis is simpler, assumes reduced treatments, and examines various scenarios based on varying fisher enrolment, haul rate and treatment effect size.

- For all scenarios modelled, where no new fishers were enrolled in the study, the shortest trial period to achieve 80% power was 4.5 years.



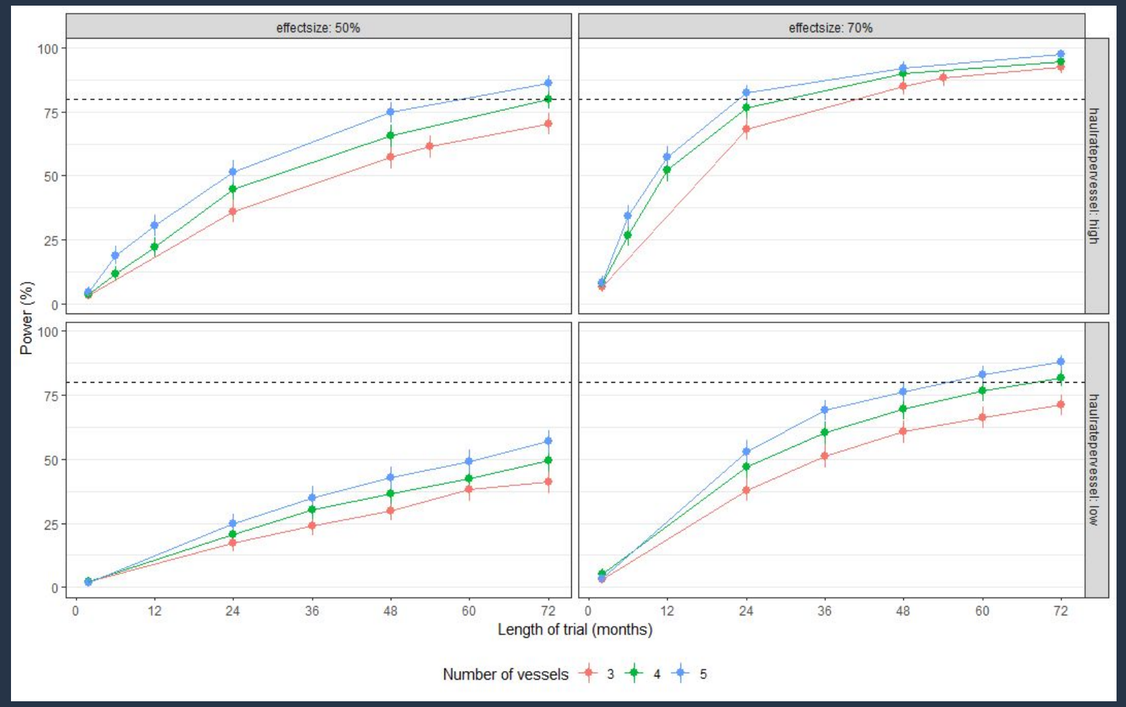
80% power (95% Confidence Interval = [76.2%, 83.4%]) achieved at 1512 hauls, equivalent to 4.5 years.

OPTIONS FOR MOVING FORWARD

INCREASE NUMBER OF VESSELS

Increasing number of vessels increases power and shortens time to achieve a minimum of 80% power.

Most optimistic scenario (high effect size, high haul rate, 5 vessels) achieved power ≥ 80% within 2 years.

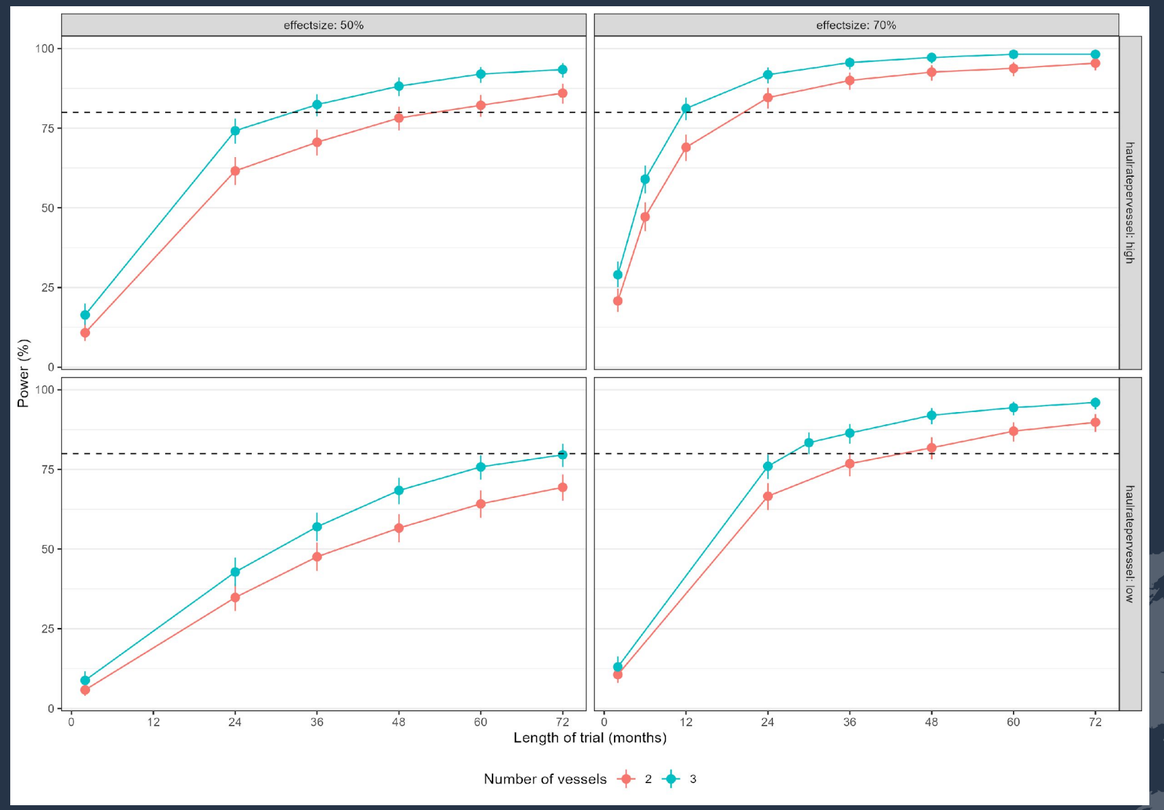


OPTIONS FOR MOVING FORWARD

TEST ONE PINGER

Selecting one pinger for continued testing shortens time to achieve a minimum of 80% power. Most optimistic scenario (high effect size, high haul rate, 3 vessels) achieved power ≥ 80% within 1 year.

With just 2 vessels this increases time to just under two years.



PROPOSED RECOMMENDATION

ITEM FOR DECISION

- **The simplified trial should continue based on the new power analysis, but additional participants should be sought to reduce the overall study duration.**

- **NSG members will actively identify and recruit more participants to take part in the trial.**

- **NSG members support further simplifying of the trial to test the Banana Pinger only (with or without more participants) based on feedback from trial participants to date.**

THANK YOU

QUESTIONS, ANSWERS & COMMENTS

ITEM 1

FOR DECISION

Continuation of pinger trial

Cat Bell -

Defra

PROPOSED RECOMMENDATION

ITEM FOR DECISION

- **The simplified trial should continue based on the new power analysis, but additional participants should be sought to reduce the overall study duration.**

- **NSG members will actively identify and recruit more participants to take part in the trial.**

- **NSG members support further simplifying of the trial to test the Banana Pinger only (with or without more participants) based on feedback from trial participants to date.**

NEXT STEPS

Cat Bell, Emma Eastcott &

Emma Kelman - Defra

Bycatch STAG (Working title!)

- Bycatch work in the UK is complex and widespread
- Joint aim – of minimising bycatch and entanglement
- Proposal to create a Bycatch Strategic and Technical Advisory Group to:
  - Support coordination of UK bycatch work
  - Central point of communication
  - Enable better use of collective resources
  - Provide a pool of technical support for programmes and projects
- Ambition to be UK-level for strategy, and targeted for technical
  - Strategic oversight for coordination and communication
  - Technical advice as required across UK bycatch programme of work
- Broad membership for strategy; attendance on a need-basis for technical

UK Bycatch Programme of Work - Overview

Strategies and action plans

Defra

Welsh Government

DAERA

Marine Scotland

Seabird Conservation Strategy

Dolphin and Porpoise Conservation Strategy

Shark Conservation Strategy?

International bycatch forums e.g. ICES WGBYC; ASCOBANS

Seabird Bycatch Action Plan

Bycatch Mitigation Initiative

Research projects

e.g. Scottish bycatch trials and analysis

e.g. Seabird Bycatch Project / Seabird Task Force

e.g. Scottish Entanglement Alliance

Bycatch Monitoring Programme - Observers - REM

Bycatch Strategic and Technical Advisory Group (STAG)

Cetacean Strandings Investigation Programme (CSIP)

Scottish Marine Animal Strandings Scheme (SMASS)

Project Steering Group

UK Coord task groups?

Project Steering Group

Clean Catch 1 SW trails

Clean Catch 2 (coming soon)

National Steering Group

TBC

Regional Working Group

Bycatch evidence repository

Bycatch Mitigation Hub

Fisheries Management Plans

MMO self reporting

Bycatch STAG

- Is there a need for this?
- Thoughts on membership?
- Next steps?... circulation of draft ToR

AOB & CLOSING REMARKS

THANK YOU FOR ATTENDING