Clean Catch
Joint Action on Sensitive Species Bycatch

National Advisory Board meeting

Online | 10th November 2025

Meeting will begin at 12:00

Department for Environment Food & Rural Affairs

Centre for Environment Fisheries & Aquaculture Science

ARRIBADA initiative

ZSL Institute of Zoology

mmoc

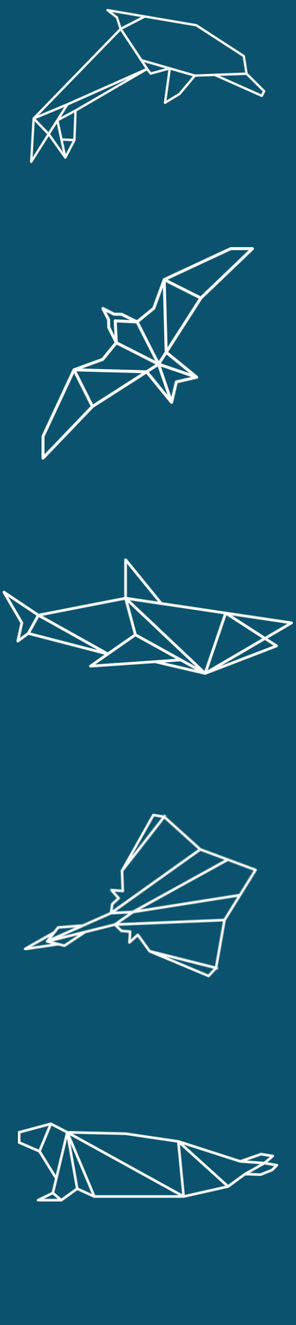
MINDFULLYWIRED

WELCOME & INTRODUCTIONS

Vicki Castro-Spokes
Defra, NAB Chair

Agenda

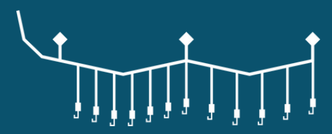
- 12.00: Welcome and introductions
- 12.10: EEFPO North Sea Trial – updates & discussion
- 13:00: Passive Acoustic Reflectors – updates
- 13:20: AOB and closing remarks

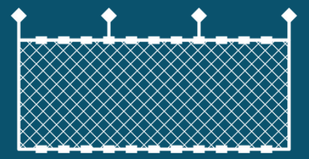


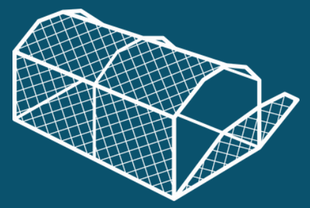
Welcome

Housekeeping (1/2)

- This session is being recorded (but will not be shared beyond the NAB).
- Please ensure your name and organisation is displayed.
- Cameras on, but please remain muted unless talking.
- Please use the Raise Hand function.
- Please introduce yourself the first time you ask a question or make a comment.



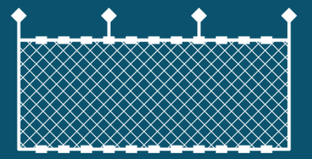


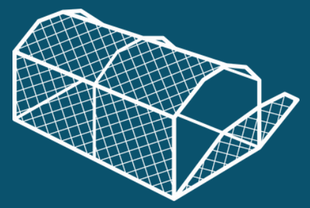


Welcome

Housekeeping (1/2)

- Please use the Teams chat to flag any technical queries.
- The Teams chat will also be recorded so please drop any thoughts in there if the discussion needs to move forward.
- Please post any items for AOB in the Teams chat, prefixed AOB.

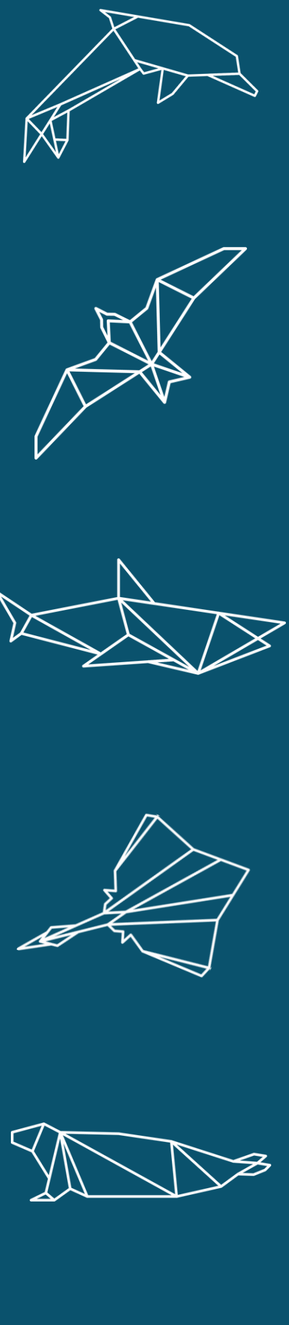




Meeting aims

Aims

- EEFPO North Sea Whitefish Trial: update and discussion
  - Obtain advice and insights from the NAB
- Passive Acoustic Reflectors: overview of next steps
- Gather NAB members suggestions on:
  - Topics for future NAB meetings
  - Format and style of future NAB meetings



EEFPO North Sea whitefish trial

Emily Roebuck
Cefas

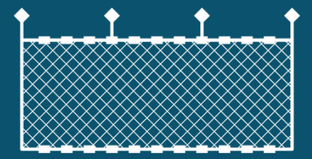
EEFPO North Sea Whitefish Trial

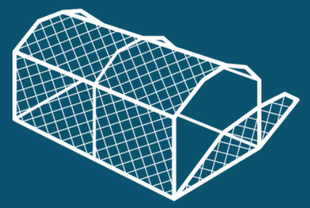
Session outline & aims

- Progress to date & timeline
- Observer trips
- Trial design
- Co-design and Bird Scaring Lines
- Next steps and mitigation
- RSPB: Imvelo Tension Monitoring Device & discussion

Addressing feedback

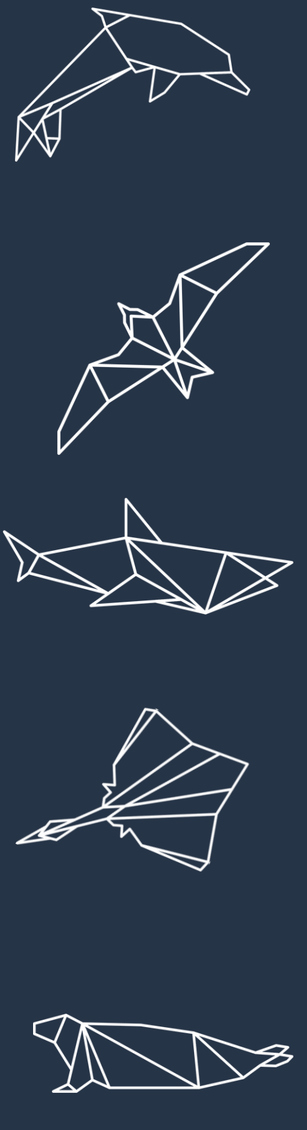
- Trial co-design
- Discussions

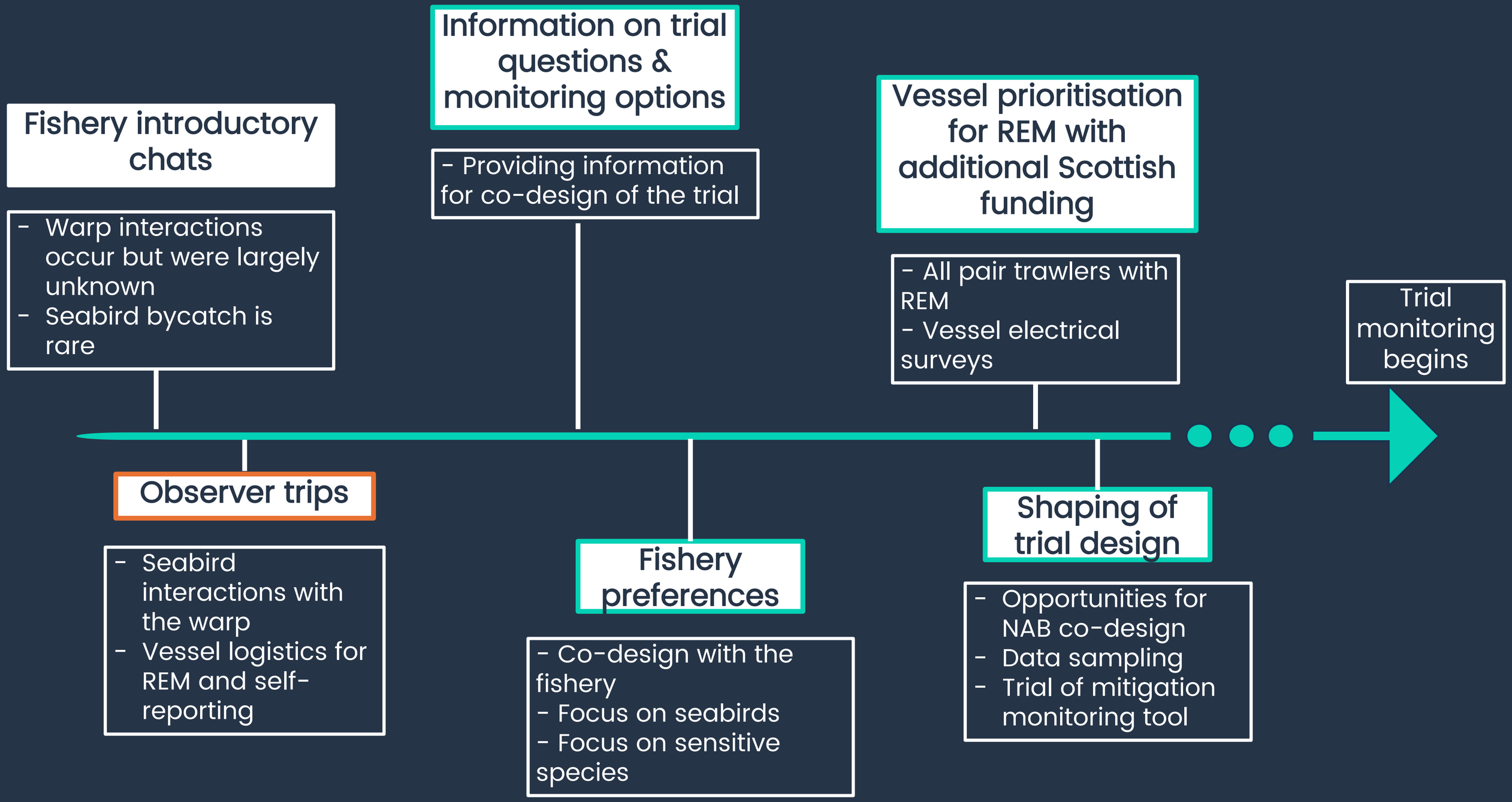




TRIAL DEVELOPMENT

2025	Spring	Introductions with fishery	☑
		Fishery and skipper comms established	☑
	Summer	BMP observer trips	☑
	Autumn - Winter	Trial monitoring phase, baseline estimates of seabird bycatch and interactions	☑
2026	Spring	Trial measure(s) implemented	




Fishery introductory chats
- Warp interactions occur but were largely unknown
- Seabird bycatch is rare
Information on trial questions & monitoring options
- Providing information for co-design of the trial
Vessel prioritisation for REM with additional Scottish funding
- All pair trawlers with REM
- Vessel electrical surveys
Trial monitoring begins
Observer trips
- Seabird interactions with the warp
- Vessel logistics for REM and self-reporting
Fishery preferences
- Co-design with the fishery
- Focus on seabirds
- Focus on sensitive species
Shaping of trial design
- Opportunities for NAB co-design
- Data sampling
- Trial of mitigation monitoring tool

BMP OBSERVER TRIPS

Funding from Scottish Government

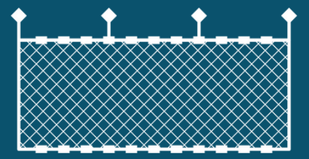
Aims and objectives

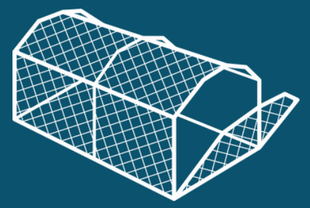
- To gather information to aid the development and design of the trial
- Information collected on seabird interactions & feasibility of data collection within the trial

Tailored observer forms

- Focus on seabird interactions and fishing operations
- Anecdotal observations and go-pro footage

Pair trawler (June) and single trawler (July)



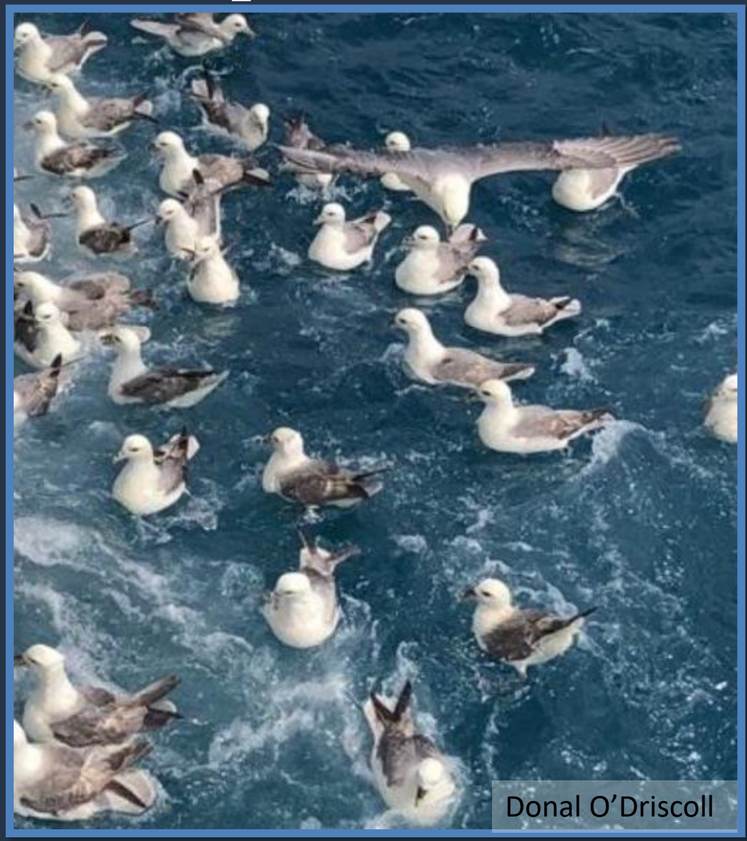


Physical interactions with the warp

Observations of fulmars only

Observed during offal discharge when birds were focused on feeding

Impacts appeared minor



2 types of physical interactions (both cryptic)

Aerial collisions with the warps

Physical contact when the animal was sitting on the surface of the water

Aerial collisions

Aerial collisions

Physical contact on the surface of the water

Physical contact on the surface of the water

Seabird and sensitive species bycatch

*Seabirds	0
*Marine mammals	0
*Elasmobranch: Common skate complex	21

High-risk time periods for interactions with warps

- During catch processing and offal discharge
- Seabirds are focused on feeding and don't appear to notice the warp
- **Higher densities** within feeding clusters and birds attending the vessel resulted in **increased physical contact with the warp**

Monitoring options information

WHAT COULD BE MONITORED?	ORIGIN OF THE TRIAL QUESTION	HOW COULD IT BE MONITORED
Q1. Seabird physical interactions with the warp(s)	Clean catch application Fishery introductory chats Observer trips	REM Observers
Q2. Seabird bycatch in the meshes of the net	Clean catch application Fishery introductory chats Observer trips	REM Observers Self-reporting
Q3. Seabird feeding abundance at the vessel	Fishery introductory chats Observer trips	REM Observers
Q4. Sensitive species bycatch other than seabirds (such as sharks, skates, rays, marine mammals)	Fishery introductory chats Observer trips	REM Observers Self-reporting

Monitoring options information

WHAT COULD BE MONITORED?	HOW COULD IT BE MONITORED
Q1. Seabird physical interactions with the warp(s)	REM
Q2. Seabird bycatch in the meshes of the net	REM Self-reporting
Q3. Sensitive species bycatch other than seabirds (such as sharks, skates, rays, marine mammals)	Self-reporting

SKIPPER SELF-REPORTING

EXAMPLE DATA

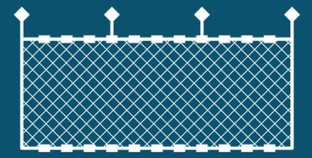
	START HAUL							END HAUL							VESSEL INFO	
Haul N	Date	Start Time	LAT deg	LAT min	LONG deg	LONG min	Start Depth	Date	End Time/ LIFT NET	LAT deg	LAT min	LONG deg	LONG min	End Depth	Towing hr:min	Trawls
E.G.1	17/09/25	22:10	52	27.9 N	1	43.8 E	420	17/09/25	23:59	52	18.76 N	1	40.1 E	470	01:49	1
E.G. 2	19/09/25	21 00	XX	XXN	X	XXW		20/09/25	00 10	XX	XXN	X	XXW		03:10	1

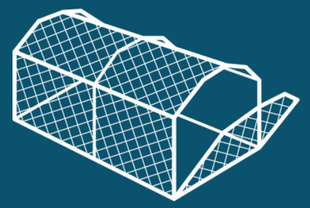
	BYCATCH		
Haul N	Species & number	Vitality	Outcome
E.G.1	gannet 1	Good	Released alive
E.G.2	flapper skate 3	1x good 2x poor	Release alive
E.G.3	0		

REMOTE ELECTRONIC MONITORING

- Camera angles: over warp and net deck
- Considerations around viewing interactions at night
- The need to sample REM footage around the warps due to extended fishing times and cryptic nature of interactions
- Data sampling options yet to be confirmed

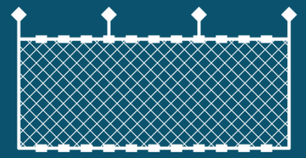
Time	14:00	14:30	15:00	15:30	16:00	16:30	17:00
Fishing Operation	Shooting	Towing					Hauling
Catch processing							
REM Sampling							





SENSORS AROUND CONVEYOR BELT

- To understand when offal discharge is happening



Conveyor belt is moving » Catch processing is underway » Increased abundance of birds » Increased risk of interactions with warps

Donal O'Driscoll

Data collection

Considerations

REM sampling design to be reviewed as data collection begins.

Matching hauls between REM and self-reporting.

3-month baseline monitoring period

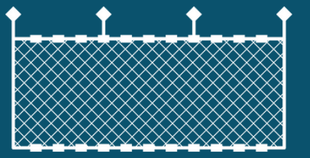
Baseline data collection on seabird interactions with the warp.

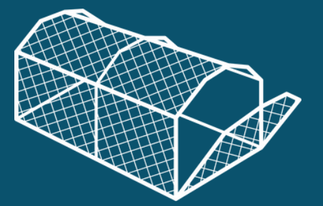
Is it appropriate to implement mitigation?

BIRD SCARING LINES (BSL) IN THE EEFPO APPLICATION

- BSL mitigation is effective in reducing seabird interactions in the Scottish longline fishery[1.]
- Studies show BSL mitigation reduces seabird bycatch in trawl fisheries in southern hemisphere[2, 3.]
- There is little evidence for European trawl fisheries


Source: ACAP





COLLABORATION & CO-DESIGN

- Collaboration with EEFPO, vessel owners and skippers throughout allowing for co-design of the trial

1. Kingston, A., Northridge, S., Paxton, C.G. and Buratti, J.P.F., 2023. Improving understanding of seabird bycatch in Scottish longline fisheries and exploring potential solutions.
2. Reid, K., Baker, G.B. and Wells, R., 2023. Mitigation of seabird bycatch in New Zealand squid trawl fisheries provides hope for ongoing solutions. Emu-Austral Ornithology, 123(3), pp.195-205.
3. Tamini, L.L., Dellacasa, R.F., Chavez, L.N., Marinao, C.J., Góngora, M.E., Crawford, R. and Frere, E., 2023. Bird scaring lines reduce seabird mortality in mid-water and bottom trawlers in Argentina. ICES Journal of Marine Science, 80(9), pp.2393-2404.

Looking towards mitigation...

Implemented Spring 2026 (if use appropriate)

Following 3-month baseline monitoring of seabird interactions with the warp.

Prior BMP observer trip will identify any challenges and record information on seabird activity (to inform REM analysts).

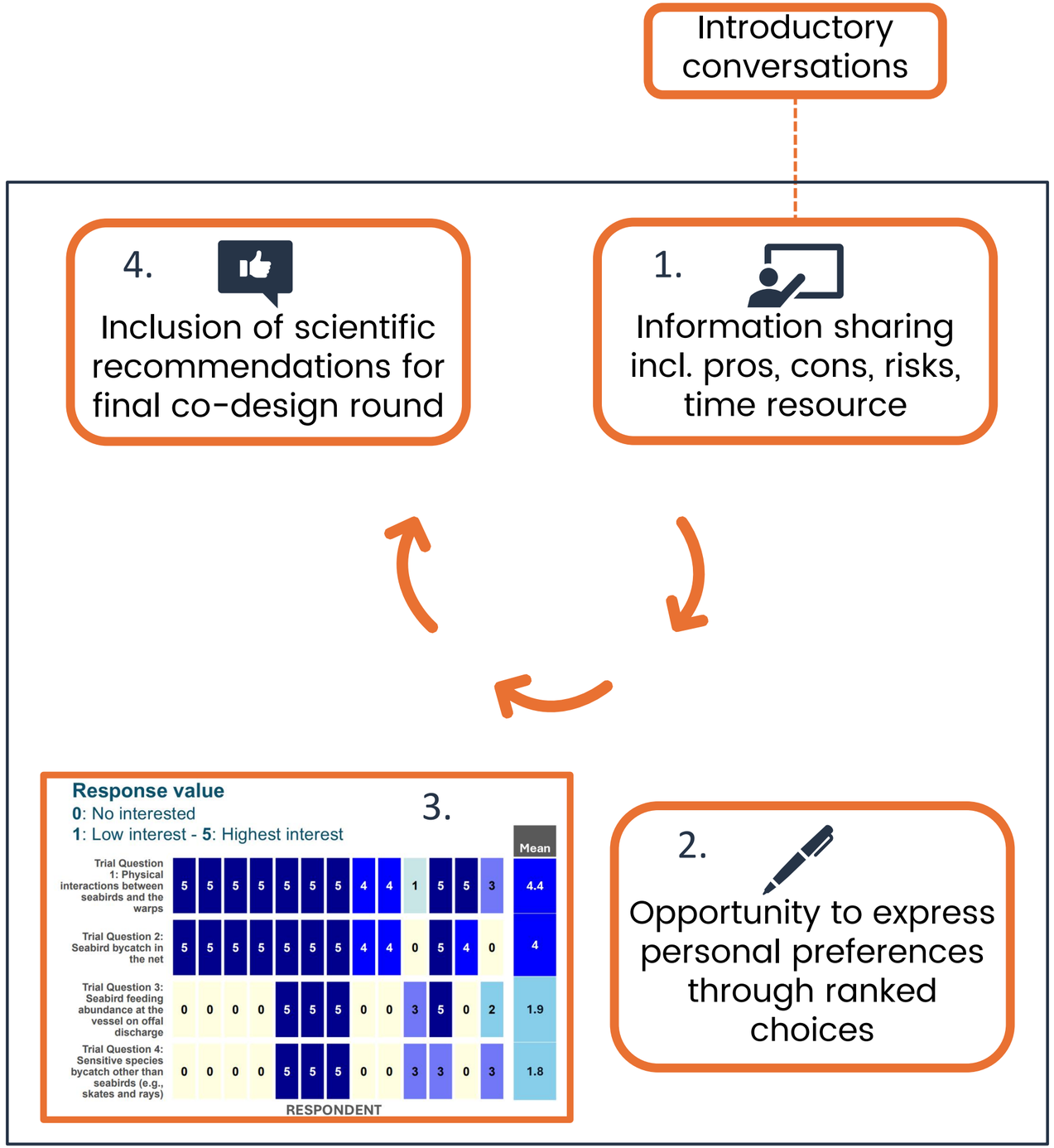
Consultation & co-design with fishery

The PO, vessel owners and skippers will need to be consulted on the use of mitigation and provided data to allow an informed decision on their use in the trial.

CO-DESIGN:

HIGHLIGHTS

- Ranked choice exercise for selection of trial questions and monitoring tools
- Continuous co-design process though specific communications tailored to the fishery
- Capturing feedback through communication logs and questionnaires for adaptive management and a holistic approach

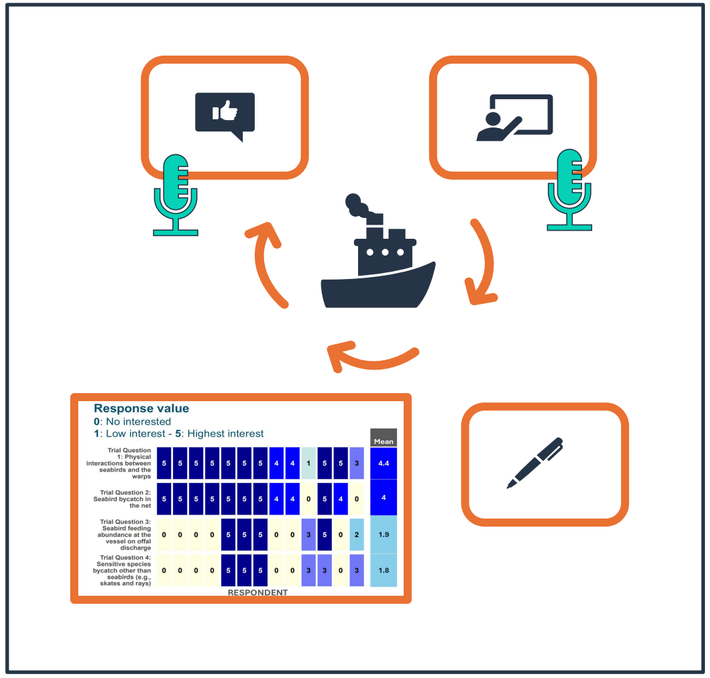


CO-DESIGN:

CONNECTION TO CLEAN CATCH'S GOALS

Recommendations embedded from the Barriers & Opportunities Report

- **Empowerment of the fishery** to make informed choices through clear and thorough communication
- **Adaptively respond to feedback** through regular conversations and blended holistic approach
- **Providing the 'why's** of decisions to improve trust and advance the project and improve engagement



Voices of the fishery are front and centre, however, there will be important areas for the NAB to feed in views and advice through consultations throughout the trial

CO-DESIGN: NEXT STEPS

- Triallists feedback through questionnaires
- Information on mitigation and bird scaring lines
- Information sharing with NAB for input and consultation on REM sampling design
- <u>Local Focus Group Vs. Expert Working Group:</u>
  set-up and dynamics of this fishery may better suit expert opinions on an ad-hoc basis when needed, e.g. RSPB expert input

WE WANT TO HEAR FROM YOU!

How would you like to provide thoughts and be engaged through co-design? Links to networks and forums?

Imvelo- Tension monitoring device for bird scaring lines

- BSL challenge of achieving the correct aerial extent during deployment
- An electronic tension sensor which attaches to the BSL and continuously measures the tension exerted when it is dragged through the water
- BirdLife International Marine Programme, Albatross Task Force: trials in South African demersal trawlers

Source: IMVELO

- Views on its incorporation into the North Sea trial
- Should it be trialed from the start or after a period of baseline monitoring for the mitigation device?

QUESTIONS, ANSWERS & COMMENTS

Passive Acoustic Reflectors (PARs)

Alasdair Davies
Arribada

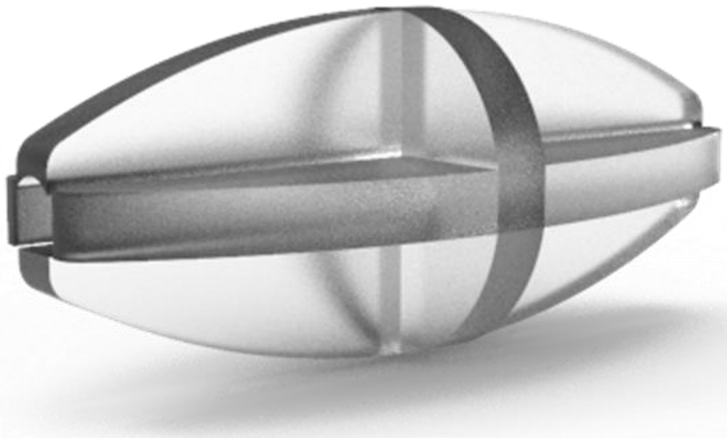
Passive Acoustic Reflectors (PARs)

Session outline & aims

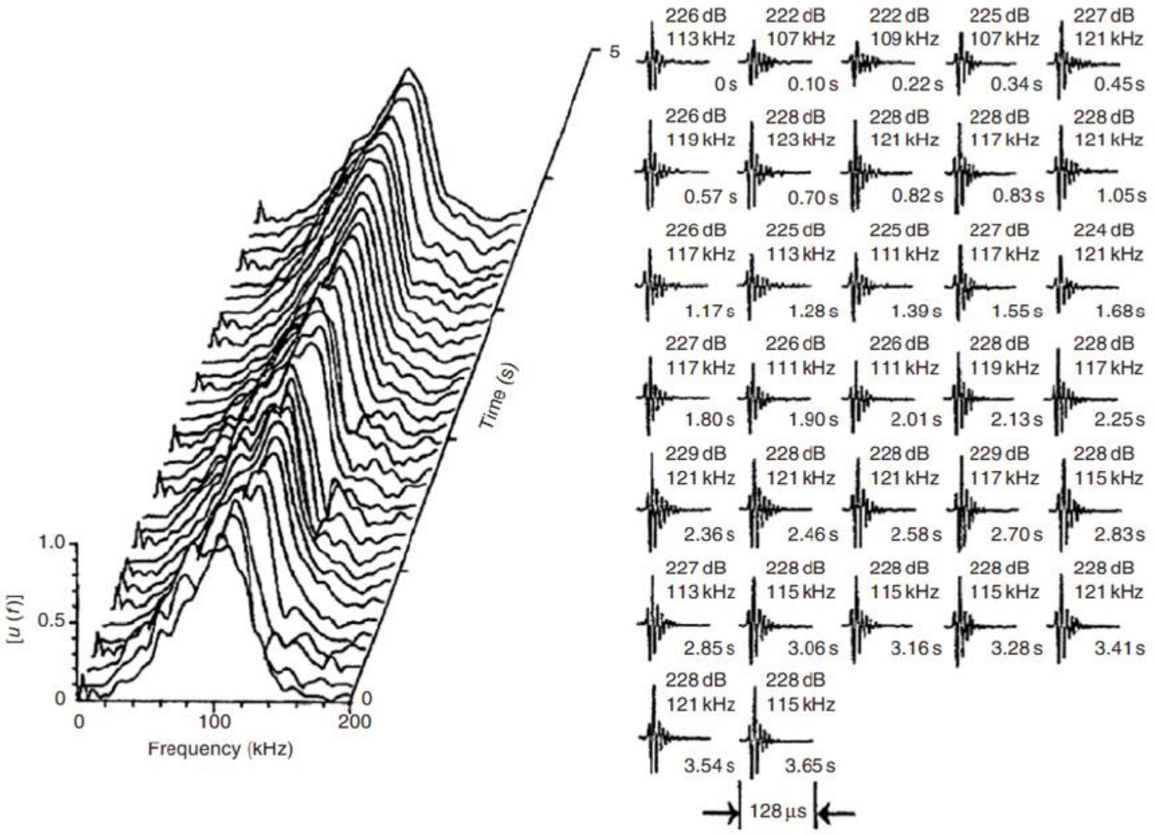
- Progress to date
- Passive acoustic reflecting pearls and "Grip Pearls"
- Overview of additional R&D activities
- Priority R&D goals
- PARs power analysis
- Questions

Progress to date

Headline PAR

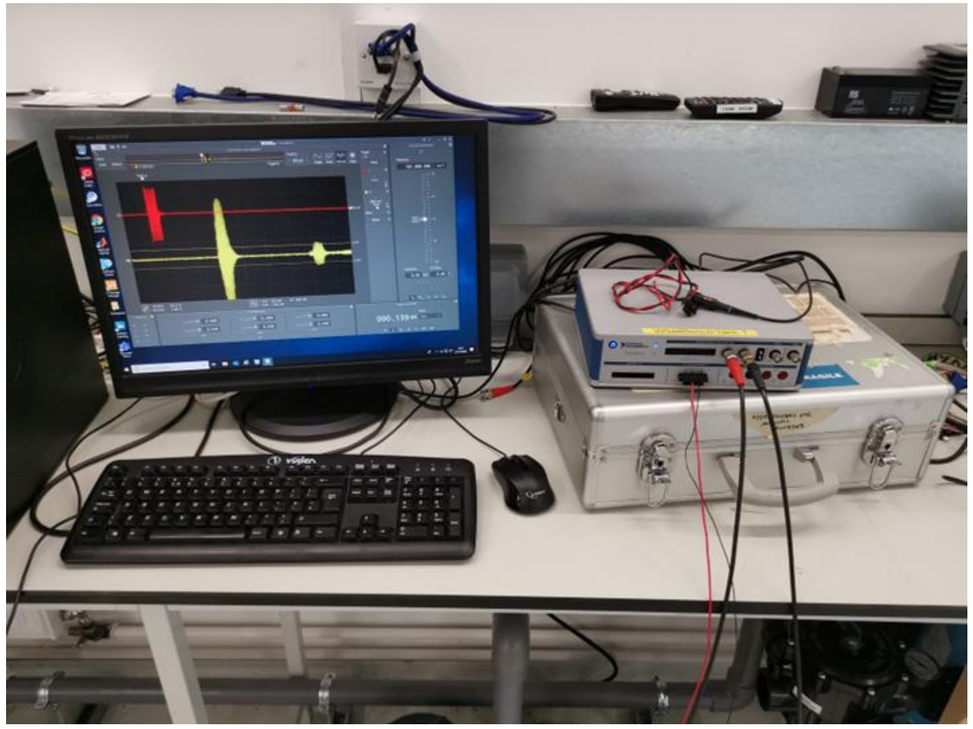


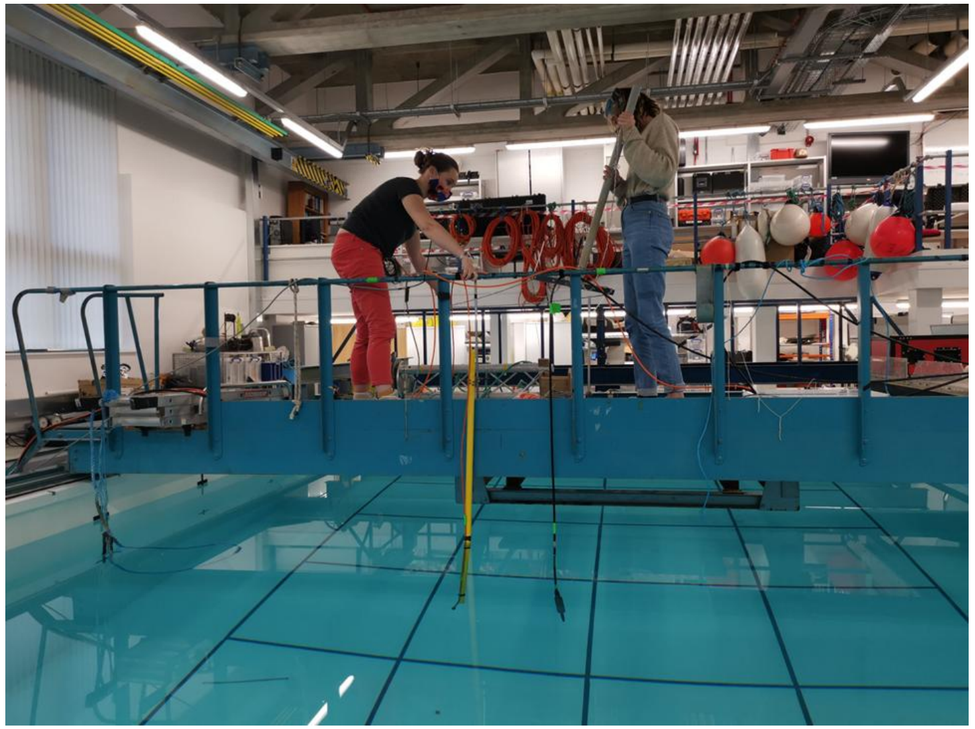
100 – 130kHz Reflectivity



Progress to date

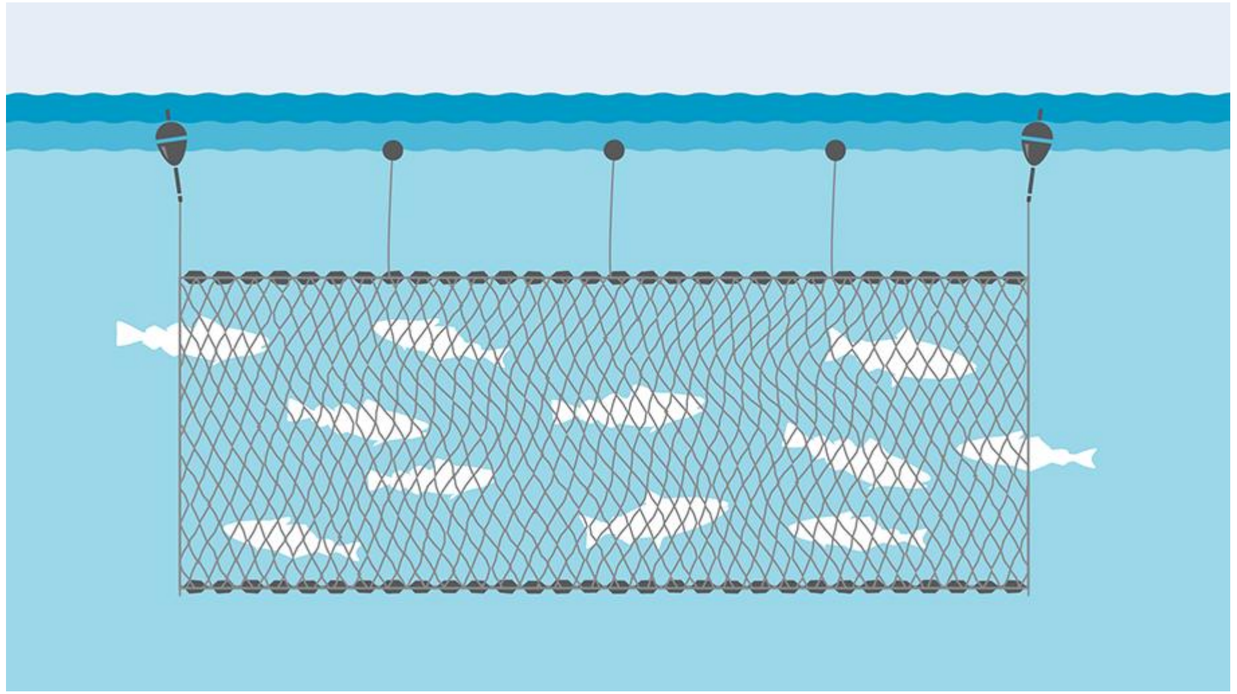
Tested at the Wolfson School of Mechanical, Electrical and Manufacturing Engineering, Loughborough University





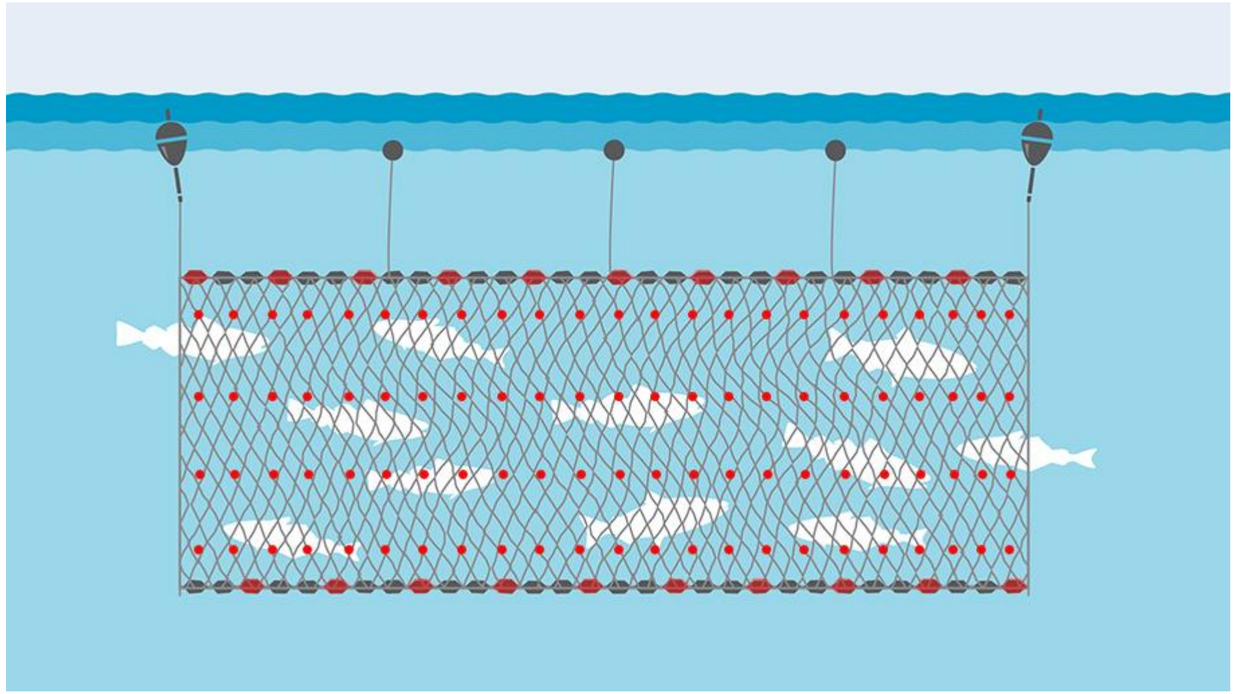
Progress to date

Designed to replace traditional T80 headline floats on gillnets



Progress to date

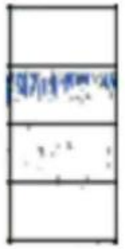
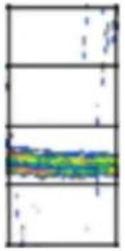
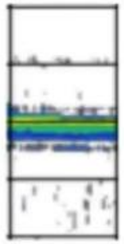
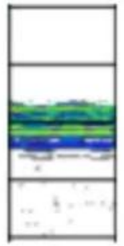
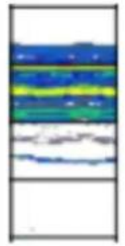
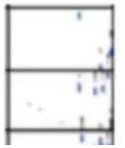
Enhancing the reflectivity of the net's filament may be beneficial



Progress to date

"PearlNets" developed by the **Thünnen** Institute provide a solution to increasing reflectivity of gillnet filament through the introduction of resonating acrylic beads (8mm)

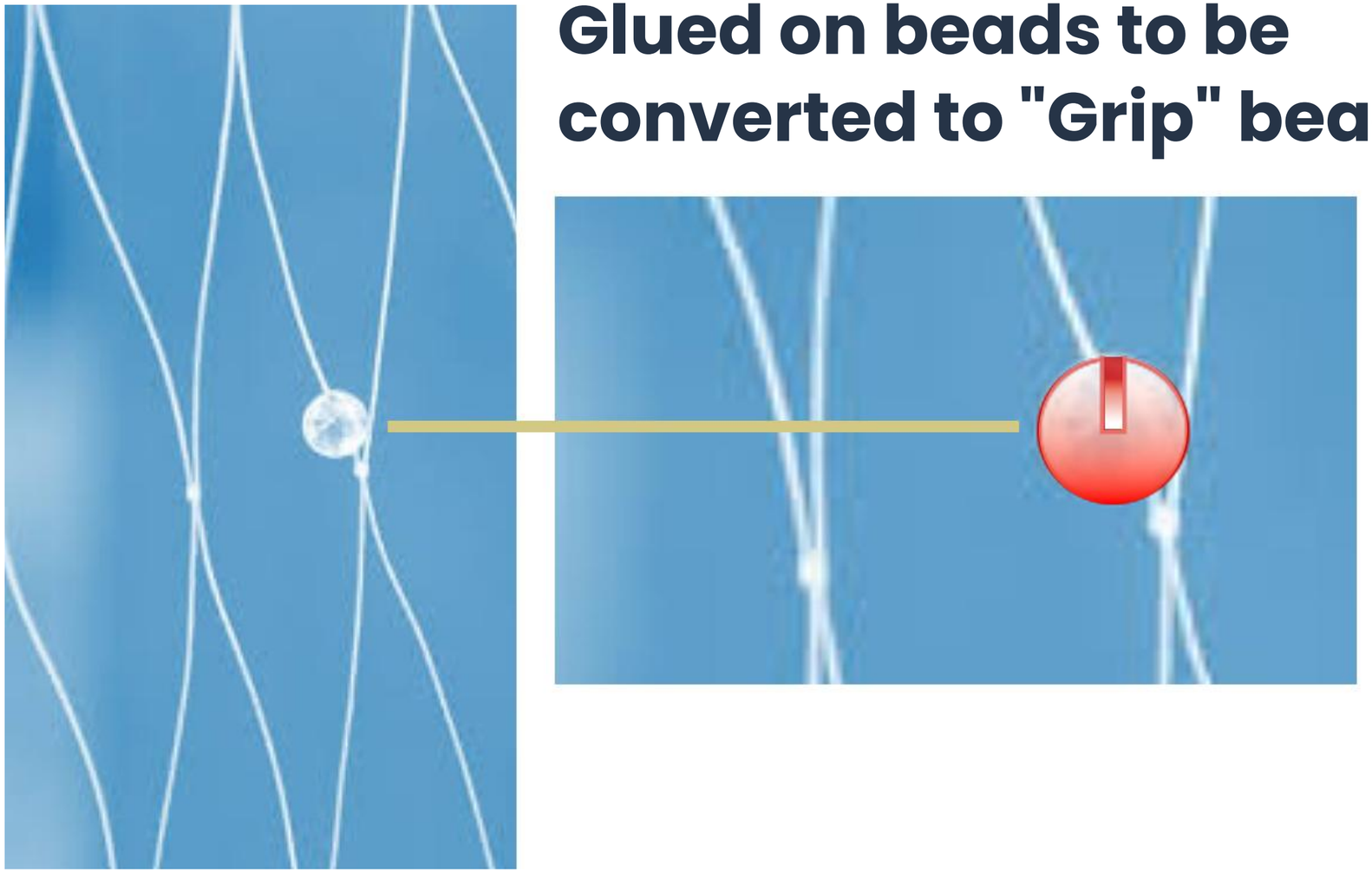
Acrylic / Polycarbonate spheres machined to specific sizes may provide omnidirectional reflectivity

Transducer	ES38-18DK			ES70-18CD			ES120-7C		
Frequency range	35 – 45 kHz			55 – 90 kHz			90 – 170 kHz		
Inclination	0°	20°	45°	0°	20°	45°	0°	20°	45°
Cod Reference									
Cod 60cm									
Cod 40cm									

PearlNet acrylic bead size vs frequency

Species	Centroid frequency [kHz]	Sphere size [mm] ≤ 10 mm (TS [dB])
Lissodelphis borealis	18.2	**10 (–75.65)**
Delphinus delphis	112	9.9 (– 37.43)
Phocoena phocoena	130	8.5 (– 38.78)
Lagenorhynchus obliquidens	94.6	8.1 (– 37.78)
Phocoenoides dalli	133	8.3 (– 38.97)
Neophocaena phocaenoides	125	8.9 (– 38.47)
Stenella coeruleoalba	40	**10 (–67.60)**
Pontoporia blainvillei	130	8.5 (– 38.78)
Tursiops truncatus ponticus	80	9.6 (– 36.28)
Lagenorhynchus obscurus	73.8	10 (– 38.04)
Phocoena sinus	132	8.4 (– 38.86)
Phocoena phocoena relicta	presumably 130	8.5 (– 38.78)
Platanista gangetica	64.4	**10 (–53.14)**
Orcaella brevirostris	94.6	8.1 (– 37.78)
Inia geoffrensis geoffrensis	101.2	7.5 (– 38.38)
Cephalorhynchus hectori	124	8.9 (– 38.41)

Priority R&D Goals



Glued on beads to be converted to "Grip" beads

Priority R&D Goals

- **Utilise our combined technical R&D expertise to optimise bead material (cost, acoustic properties, recyclability and durability)**

- **Consider Polycarbonate as a possible substitute to Polymethyl Methacrylate (Acrylic).**

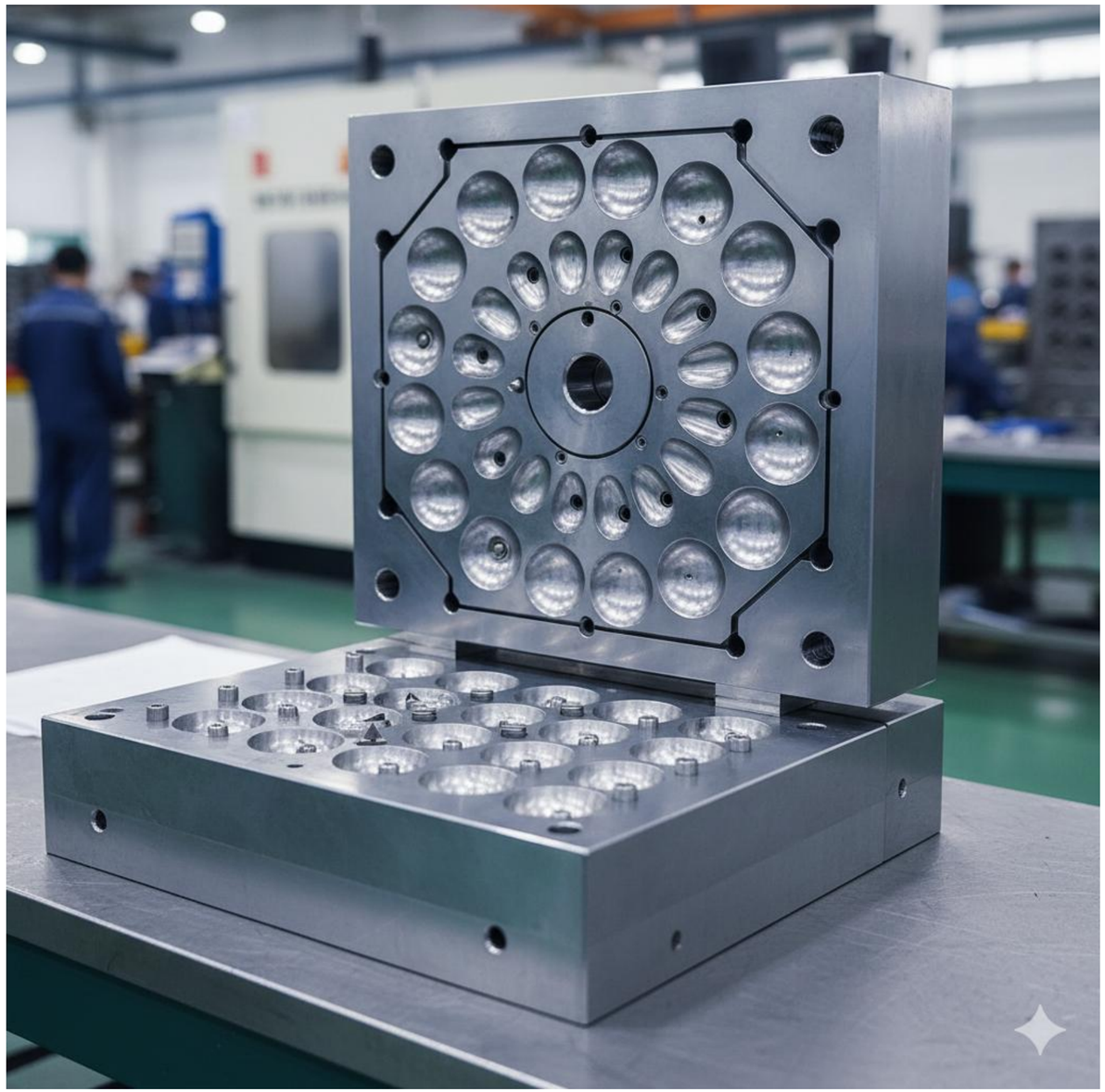
- **Test the acoustic properties of both Acrylic and Polycarbonate Grip Pearls (e.g. 8.5mm, 13.6mm)**

Priority R&D Goals

Co-design with fishers and the Thünnen Institute an attachment tool for the secure and efficient fixation of GripPearl beads to nets

Priority R&D Goals

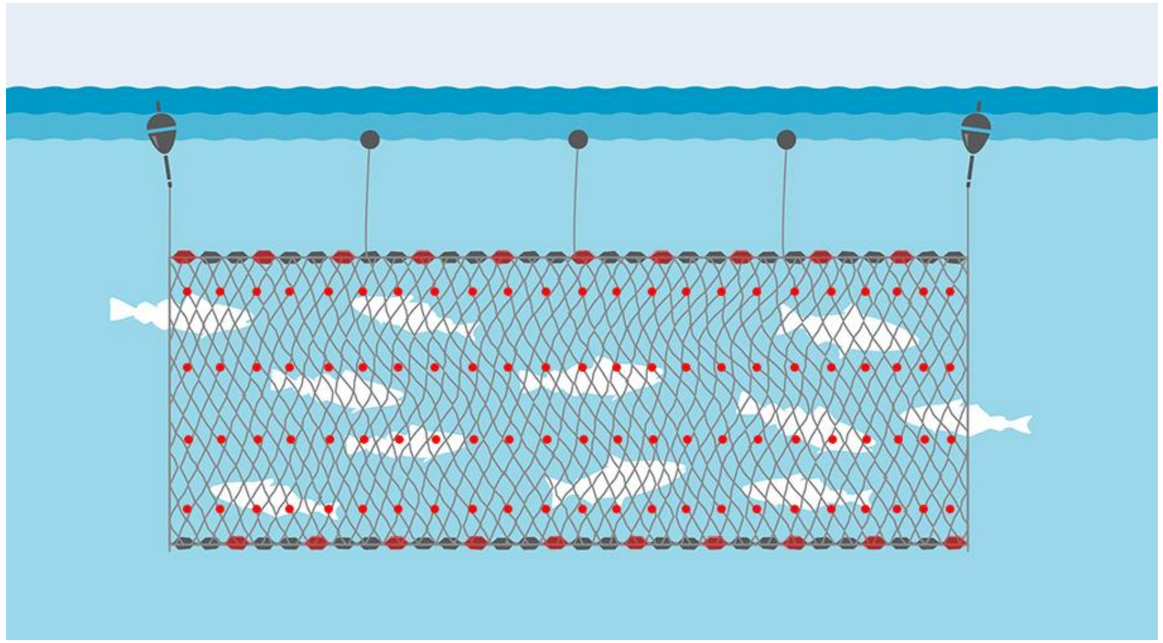
Produce a suitable injection molding tool in which to form and manufacture a quantity of ”Grip Pearl” beads



Priority R&D Goals

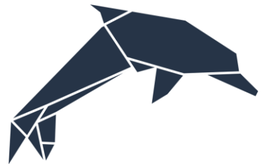
- **Trial different configuration(s) of both beads and headline PARs**

- **Complete controlled tests to verify acoustic performance and practical use for fishers**



PARs Power Analysis

- **Provide informed estimate of required scale, duration and budget for future trials.**
- **We’re looking for candidate fisheries (static net) for which data on bycatch per unit effort and effort per unit time exists.**
- **We want relatively high bycatch rates, so statistically significant insights can be obtained.**
- **We recognise that there’s inherent variability and rates can shift over time; results will be treated as a guide to inform decision-making rather than a prediction.**





QUESTIONS, ANSWERS & COMMENTS

AOB & Closing Remarks

Vicki Castro-Spokes
Defra, NAB Chair

AOB & closing remarks

- Suggestions for future NAB meetings:
  - Format & style - has today's format been useful?
  - Topics

- Email us with any further thoughts/questions on today's discussion items