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BIM Connect

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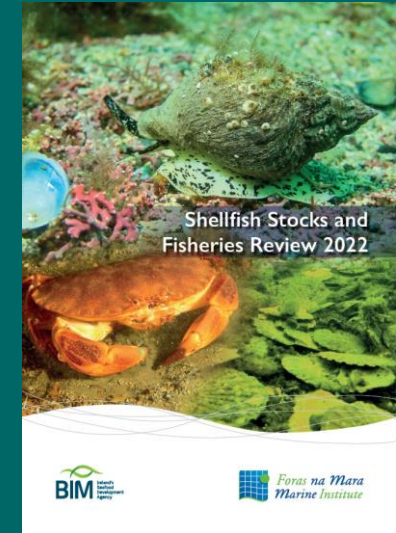
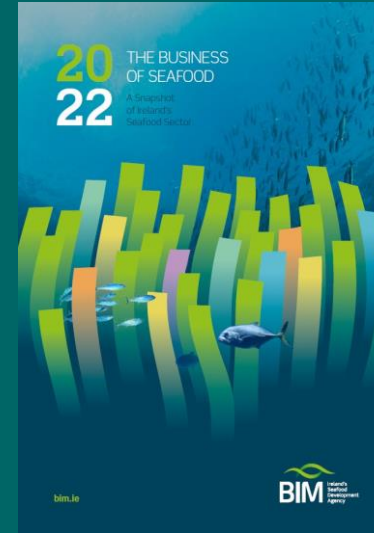


BIM Whelk Bait Project

– Project Briefing –

Context

- Address supply challenges involving commercially valuable bait species for the economically important whelk fishery in Ireland
- Building upon work conducted by NOFIMA, Norway



European Commission


Technology Readiness Levels

TRL 0: Idea. Unproven concept, no testing has been performed.

TRL 1: Basic research. Principles postulated and observed but no experimental proof available.

TRL 2: Technology formulation. Concept and application have been formulated. 

TRL 3: Applied research. First laboratory tests completed; proof of concept.

TRL 4: Small scale prototype built in a laboratory environment ("ugly" prototype). 

TRL 5: Large scale prototype tested in intended environment.

TRL 6: Prototype system tested in intended environment close to expected performance.

TRL 7: Demonstration system operating in operational environment at pre-commercial scale.

TRL 8: First of a kind commercial system. Manufacturing issues solved.

TRL 9: Full commercial application, technology available for consumers.

Components

- Project group: Dr Deirdre Brophy, Dr Colin Hannon, Dr Francesco Nocci, Dr Philip White, Dr Martin Gammell, John Boyd, Liam Strachan
- Industry Reference Group (IRG)
- Bait development
- Behaviour studies in lab
- Water chemistry
- Fishing trials



Industry Reference Group

- Industry led research project
Funding BIM RFT 195131
- Industry representatives,
processors, fishers, researchers
and other interested bodies and
stakeholders

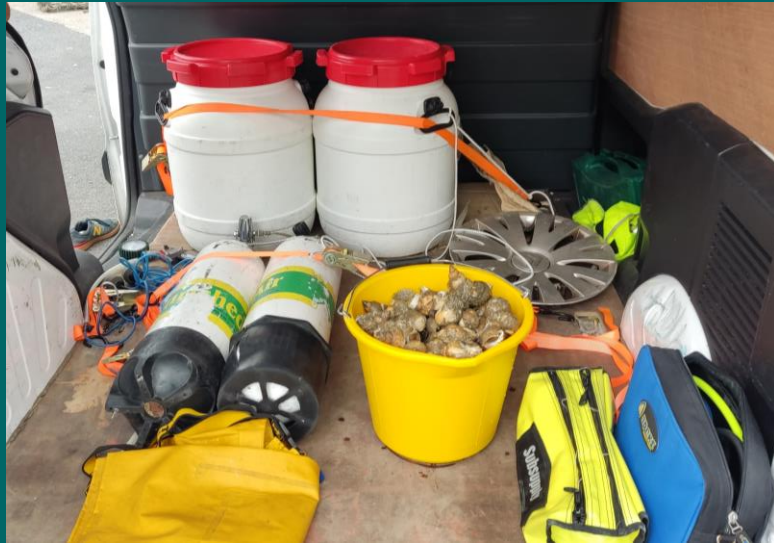


Bait development

- Material preparation and bait formation



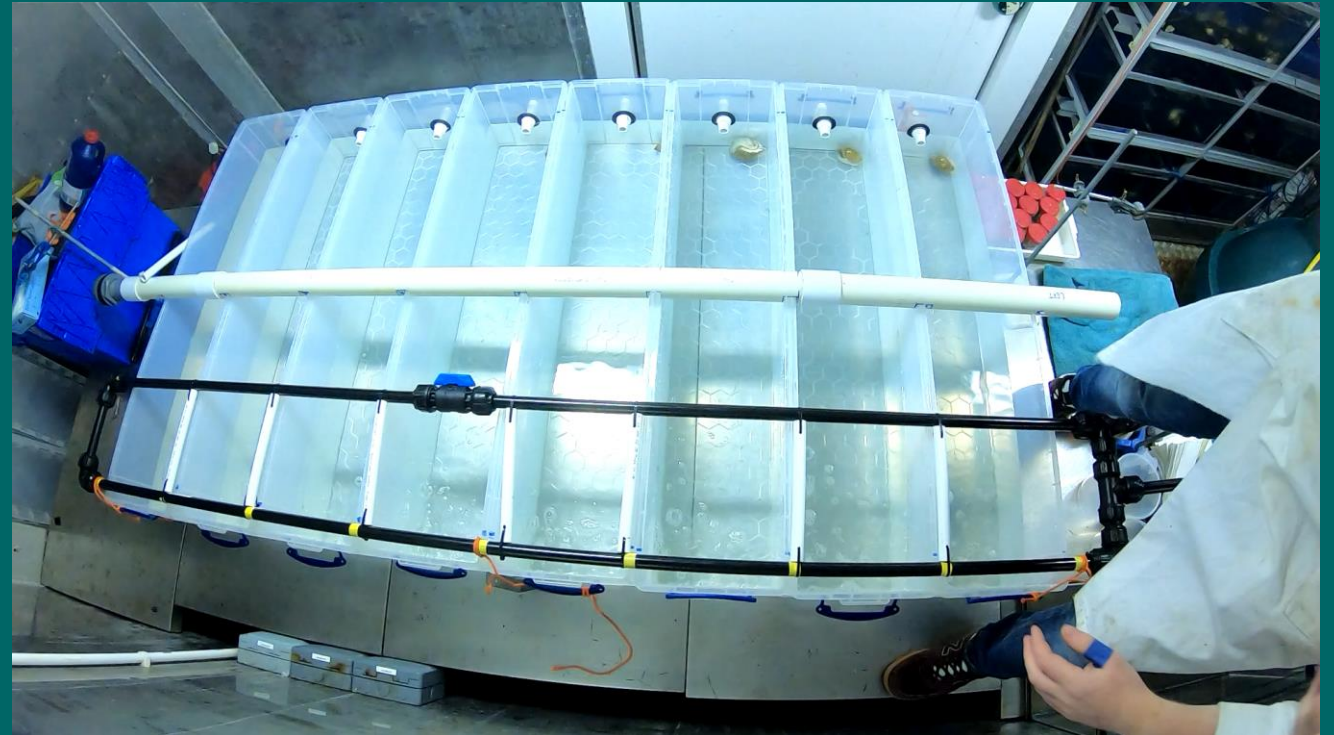
Behaviour studies



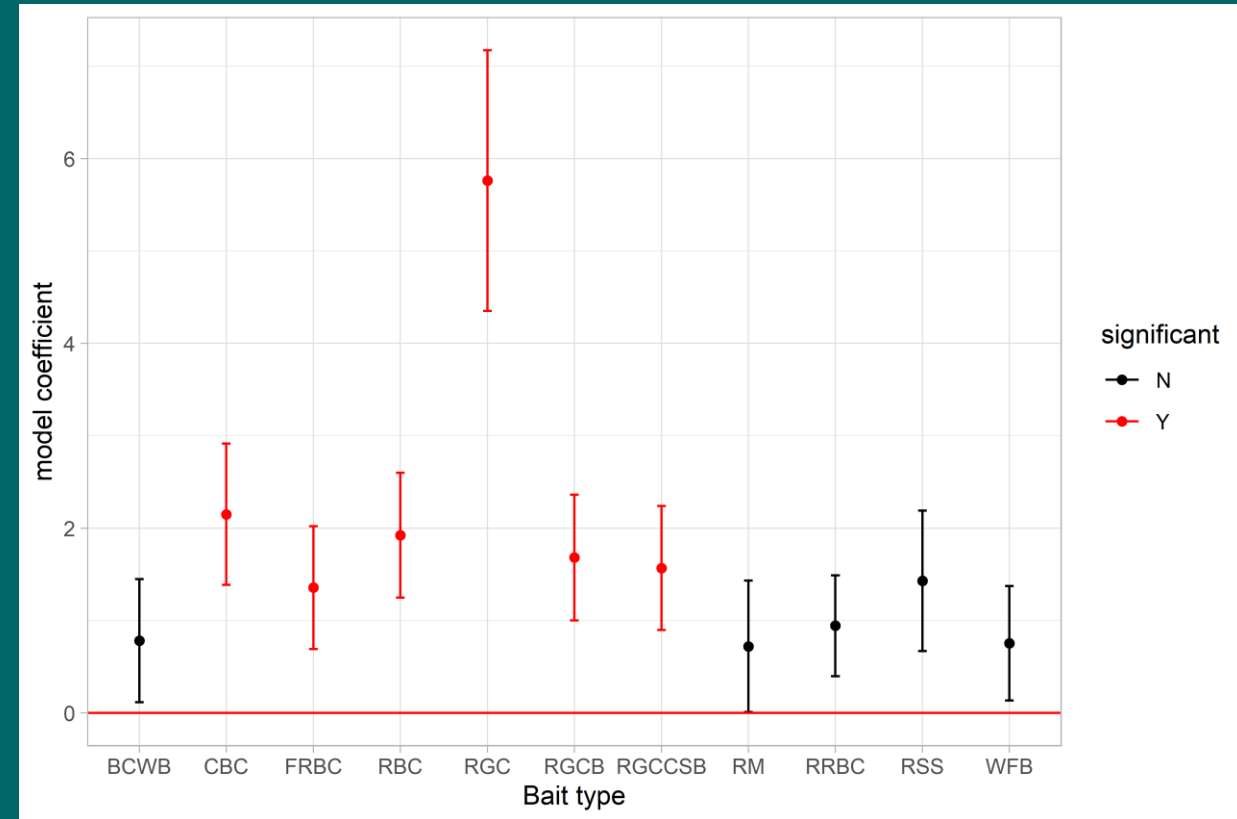
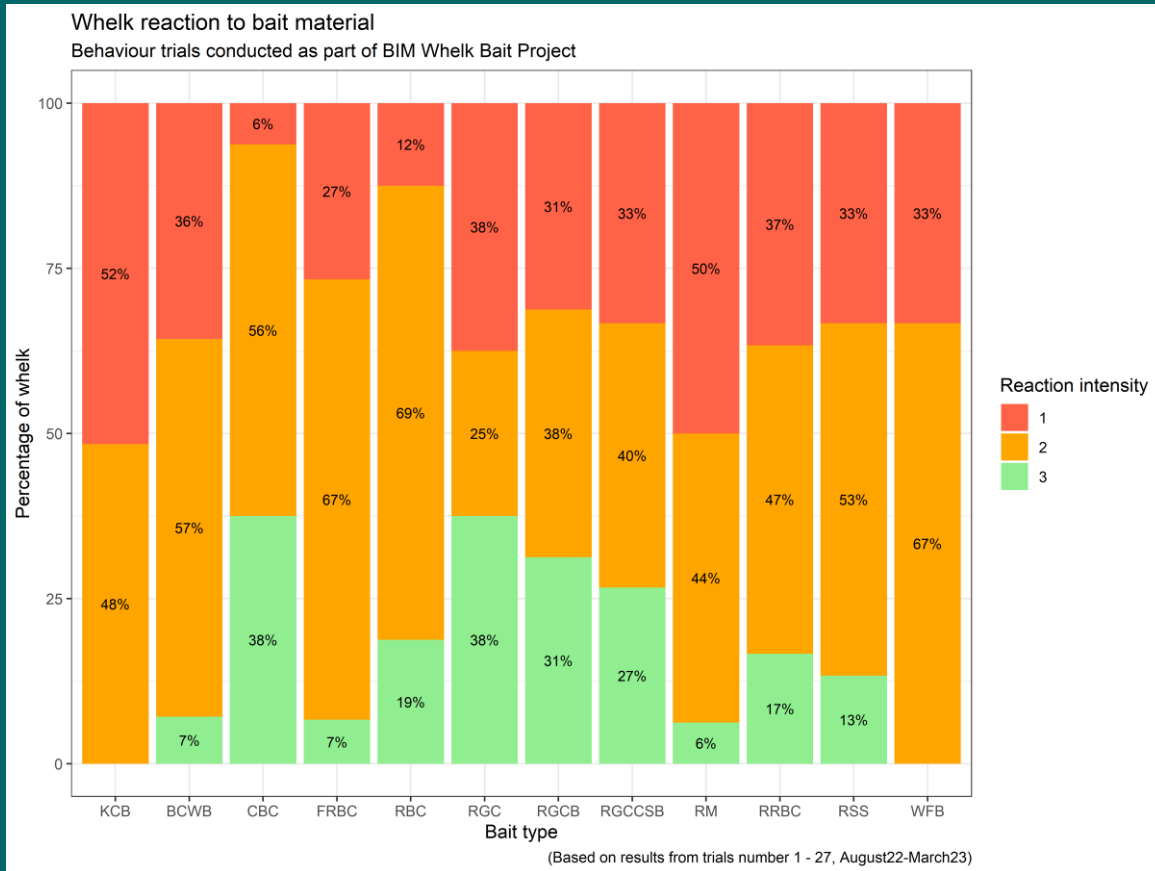
Whelk collection
and holding



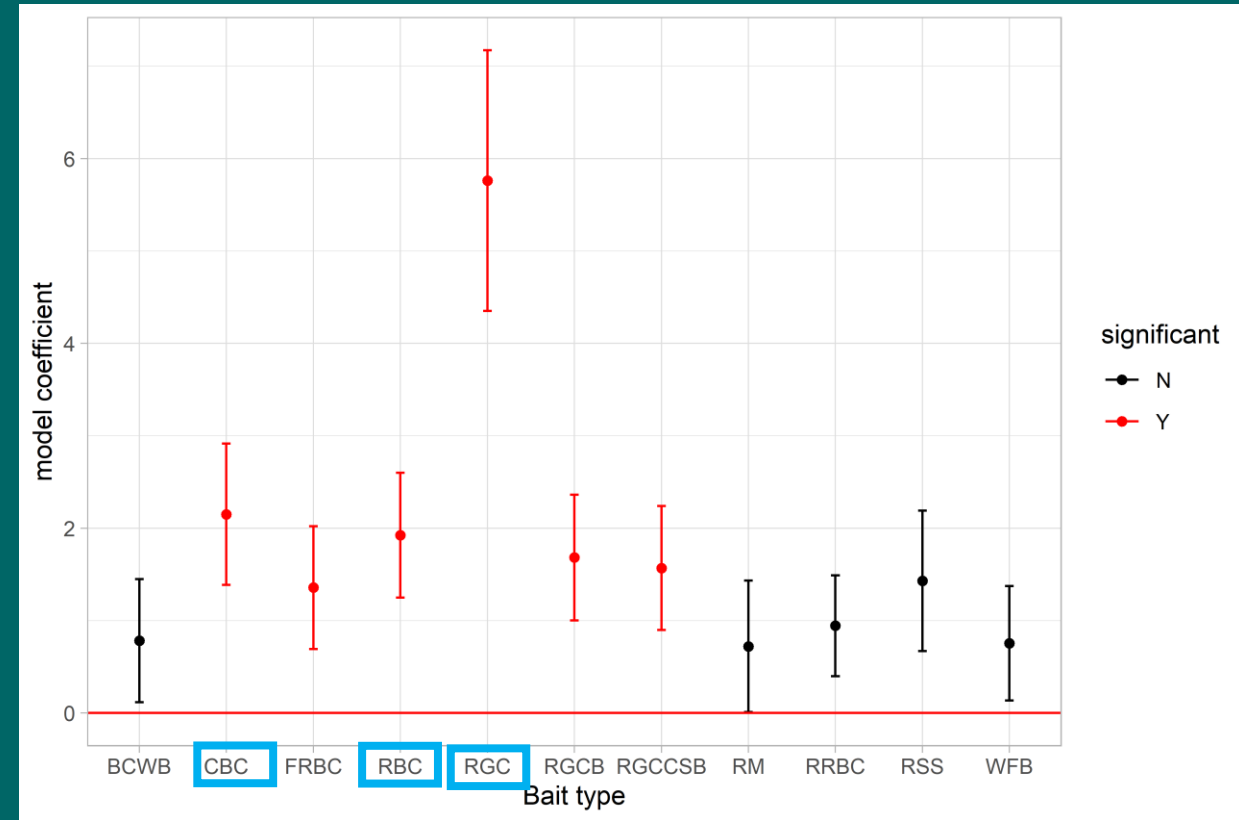
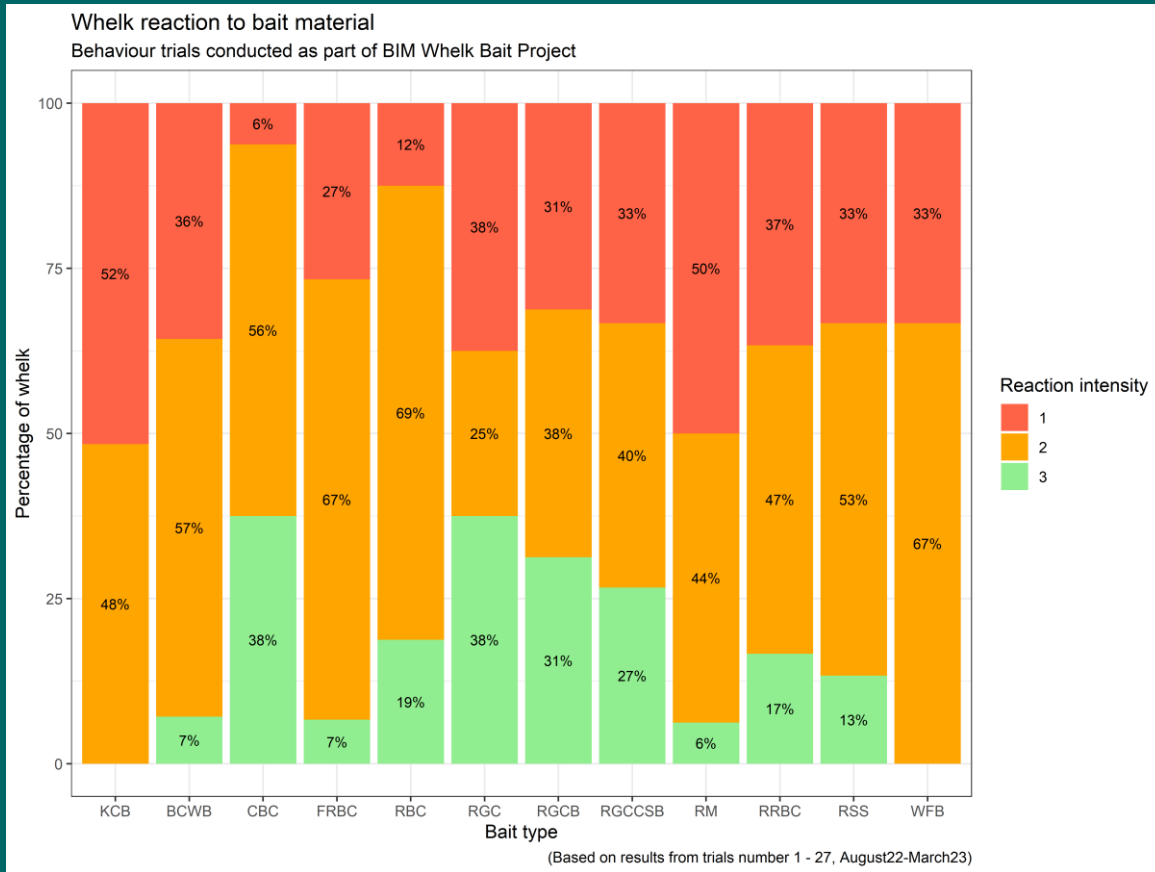
Raceway
behaviour trials



Behaviour studies

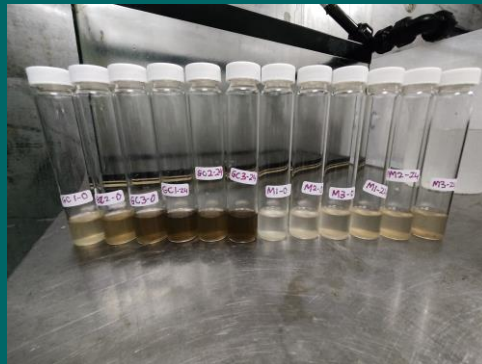


Behaviour studies



Water chemistry

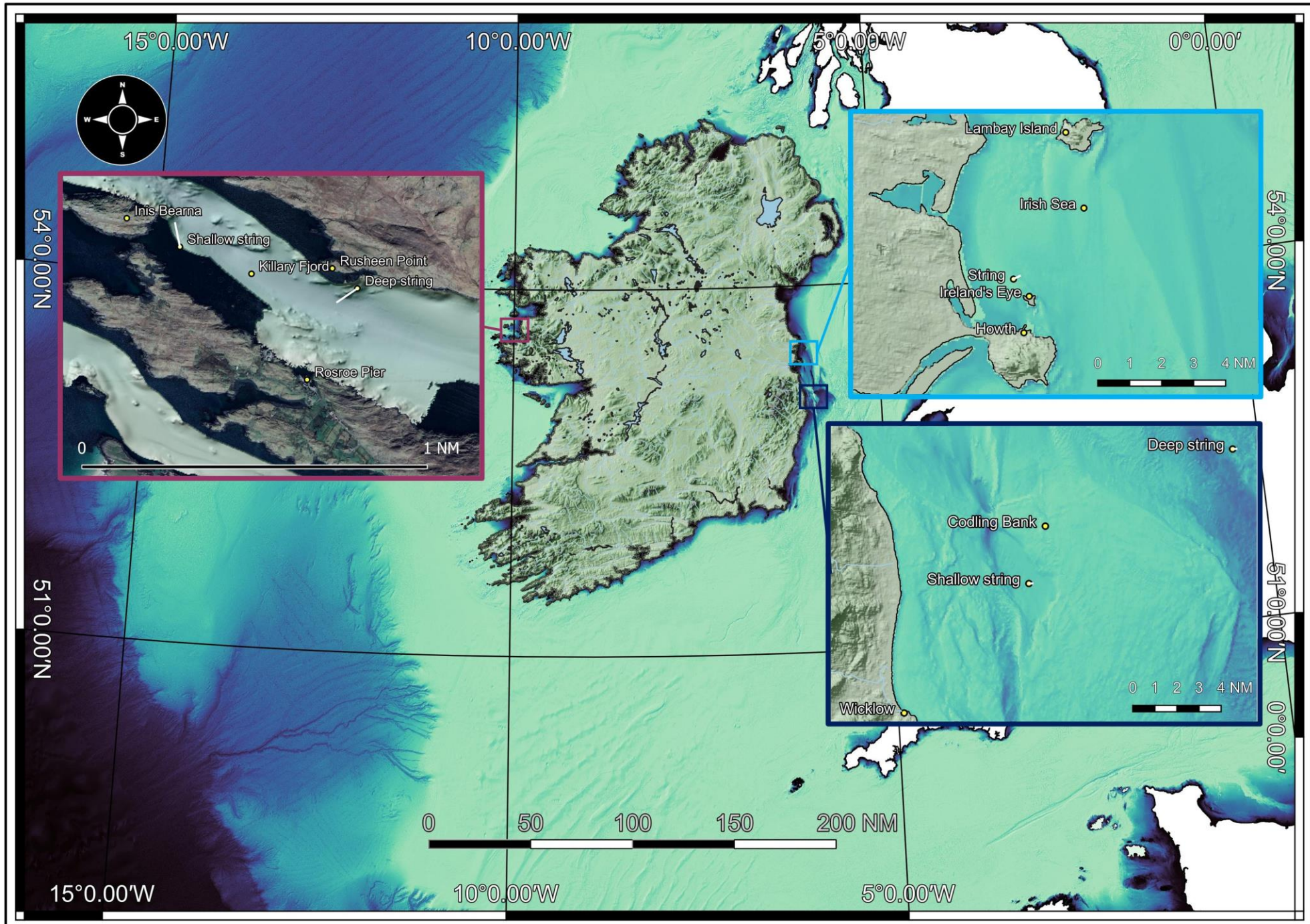
- Odour plume characterisation
- Bait material hydrolysis and further characterisation
- Known attractant Vs. described attractant



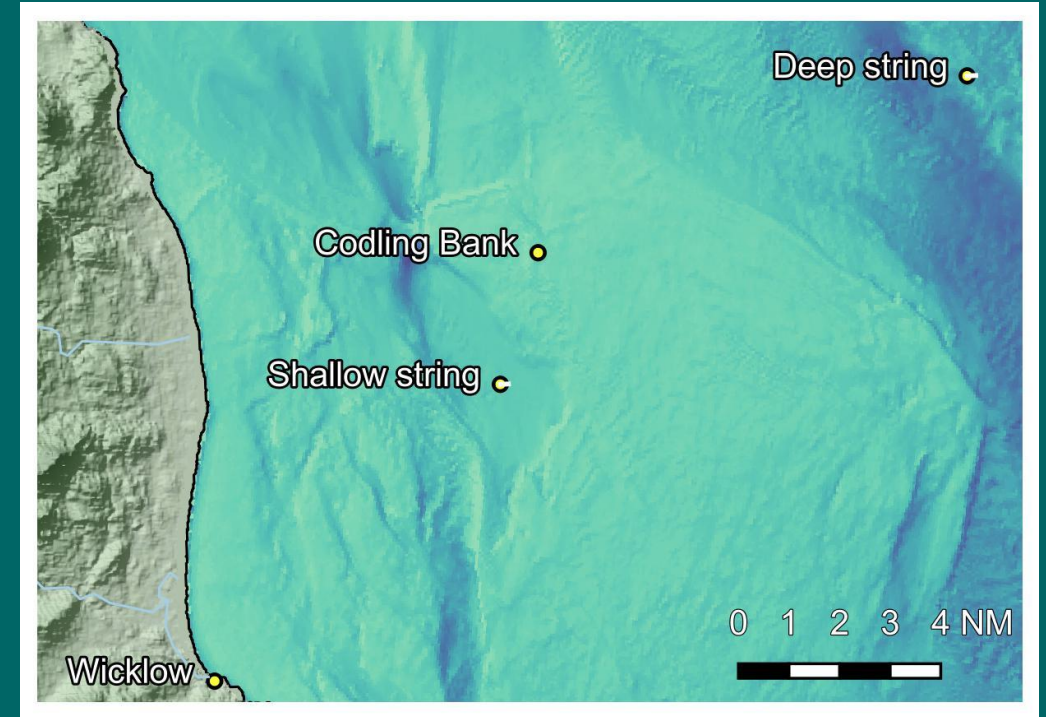
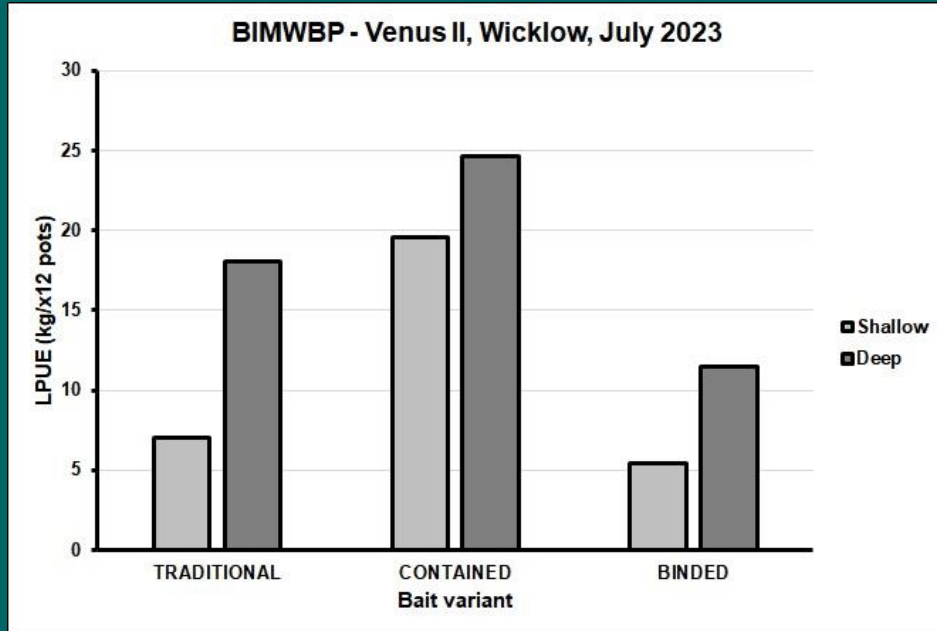
Fishing trials

- Testing binded bait against traditional and contained bait variants
- Wicklow: 2 strings (x48 pots), shallow and deep site, 3 bait types in each string
- Killary: 2 strings (x16 pots), shallow and deep site, 3 bait types in each string
- Howth: 1 string (x50 pots), shallow site, 2 bait types in string

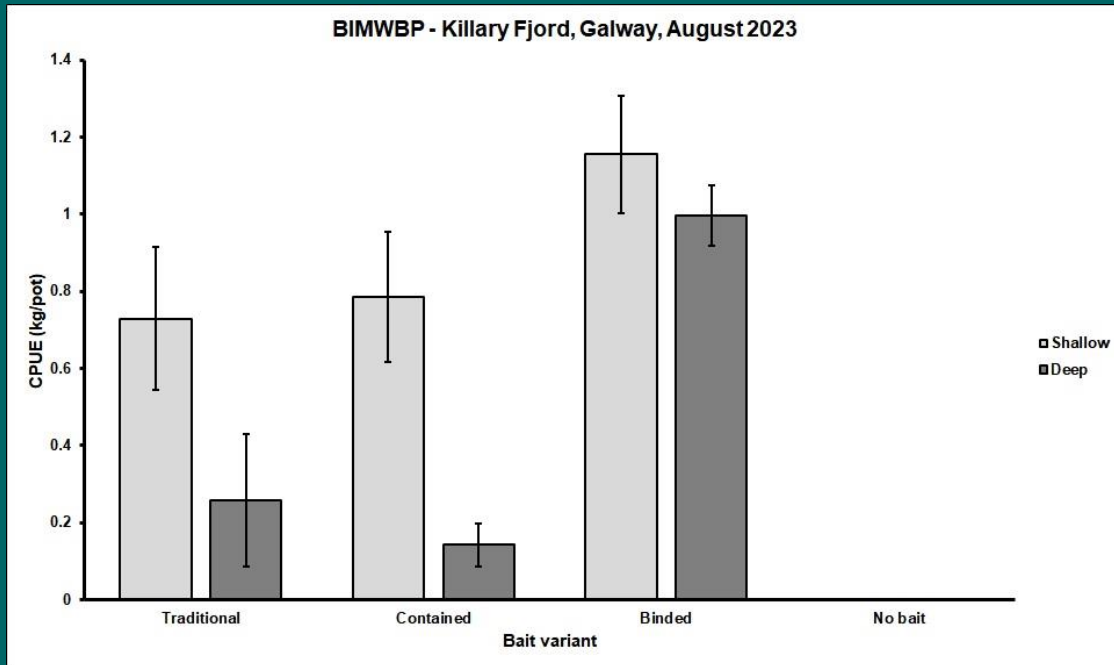




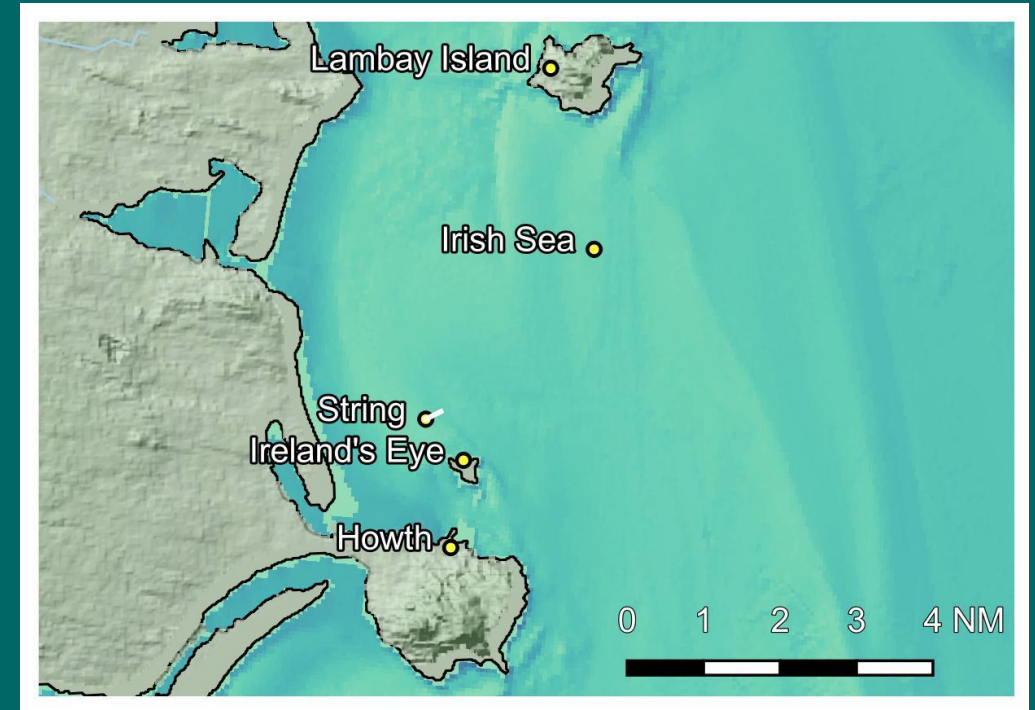
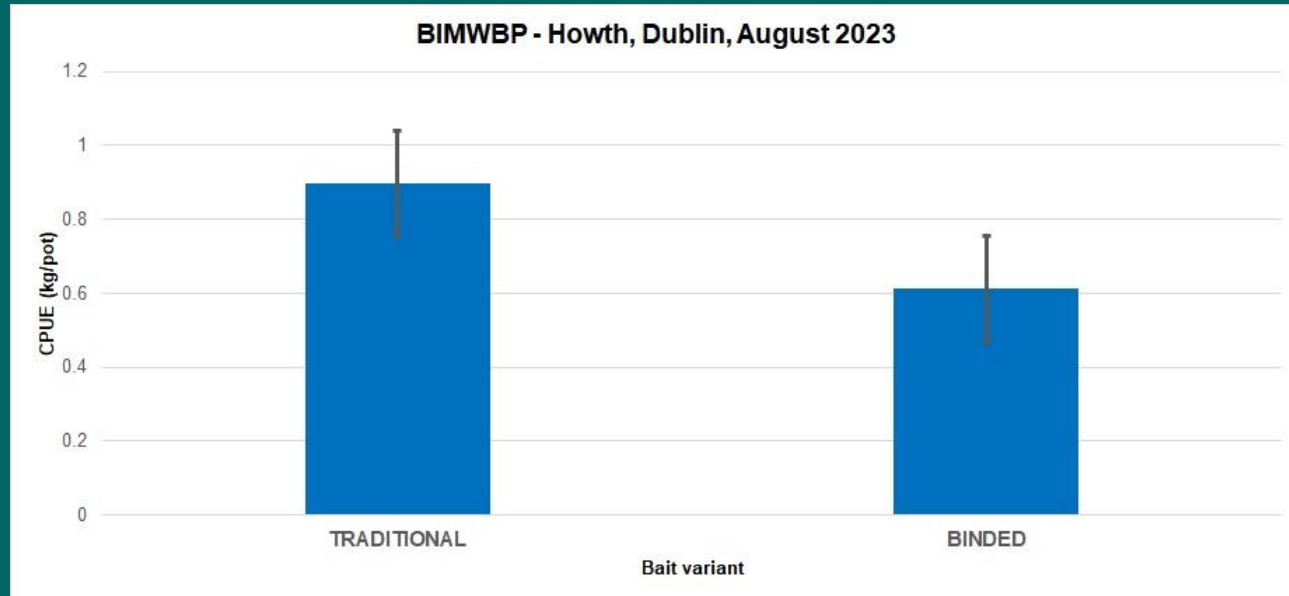
Fishing trials – Wicklow, *Venus II*



Fishing trials – Killary Fjord, Galway



Fishing trials – Howth, *Velvet Strand*



Fishing trials – Wicklow, *Venus II* continued

- Consistent fishing between formed bait of smaller volume and traditional bait over 48-hour soak



Conclusion

- Gelling rectified for formed bait using green crab and kappa carrageenan gelling agent
- Underutilized resource could fish more sustainably

- Bait volume and concentration to be tuned
- Production process and usability to be optimized (scalability)
- Increasing TRL Scale → Demonstration at scale in operational environment



THANK YOU!



■ Acknowledgements

- BIM Project Team and Fisheries Conservation Technologists
- IRG
- MFRC and ATU Technical Staff
- Iarfhlaith Connellan, Redbank Shellfish
- Cormac Ryan (*Velvet Strand*) and Barry McAuley (*Venus II*)
- Thomas Doherty, Killary Salmon
- Dr Maria Hayes, Teagasc