



# Alternative baits for the Irish whelk *Buccinum undatum* pot fishery

Presentation to BIM and Crab FIP members, Wednesday December 1<sup>st</sup>,  
2021

# Context

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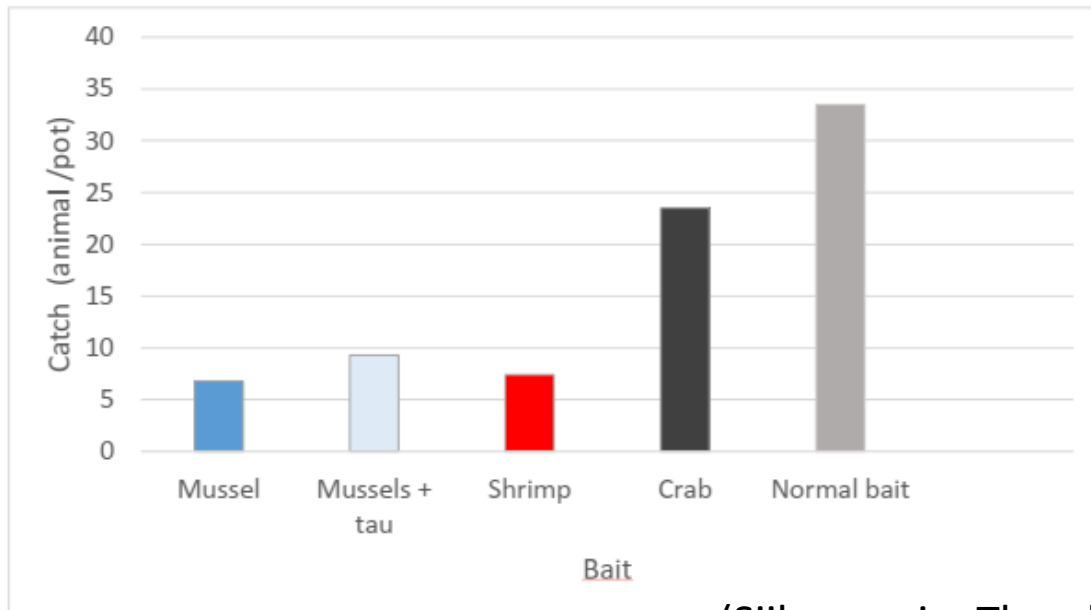
- Challenges for Irish whelk fishery:
  - increased cost of frozen bait
  - Use of preferred bait species (brown crab) unsustainable
- Formed baits required to relieve pressure on bait species and reduce competition with brown crab fisheries



# Progress to date

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- Previous lab and field trials conducted by BIM and NOFIMA show that brown crab and brown crab by products have greatest success in attracting whelk
- Properties underlying this attractiveness not known



(Siikavuopio, Thesslund and Gallagher 2017)

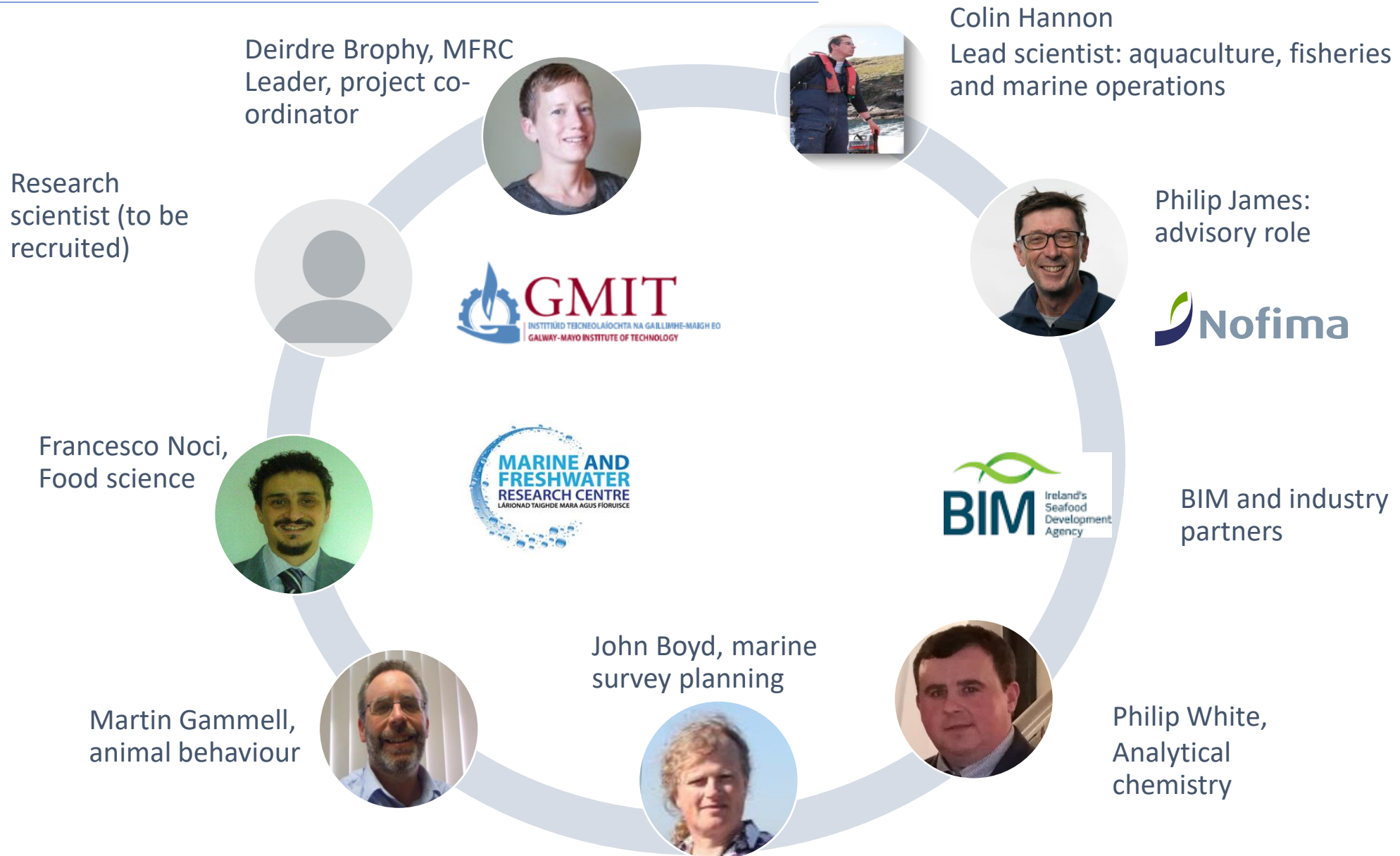
# Project details

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- RFT 195131: Provision of services to research and develop an alternative viable and sustainable commercial bait for the Irish whelk *Buccinum undatum* pot fishery
- 18 Month contract between GMIT and BIM



# Project Team



# Project objectives

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- Valorise fish & shellfish processing waste streams and identify the ideal bait component for the Irish whelk fishery
- Identify and implement an effective binding agent to maintain water stability
- Test extrusion for the forming/shaping of the formulated bait
- Identify potential attractants and drivers of foraging behaviour through live holding experiments
- Examine feasibility of attractant extraction and development as a bait component/additive

# Approach



## 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.

Current status of development of formulated bait for the Irish whelk fishery

Target within the 18 month timeline of the project

# Approach

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Design and formulate candidate baits using waste streams, test stability, extrusion rate etc. (months 1-6)

Test bait performance in live holding experiments (months 7-10)

Identify potential attractants in bait extrusions through chemical analysis of holding water (months 8-13)

Commercial viability roadmap: SOPs for bait production and field testing (months 14-16)

Analysis and reporting (months 15-18)



# Expected outputs

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- Prototype baits for further development
- List of attractants that potentially elicit a whelk foraging response – for future development of synthetic bait
- Bait manufacturing SOP
- Onboard commercial fishing trial setup - for future implementation
- Interim and final project reports including digital video footage from trials and non-technical industry brief



Thanks for your attention!