CETUS CIL Co-deployment Project
MUL240028

Supporting evidence for Maritime Usage Licence application MUL240028

Support for Section 2.7

Industry engagement

The Arklow Bank wind farm is operated by GE Energy, with the prospective site owners SSE Renewables currently in Phase II of site licencing and investigations. Formal meetings were held with SSE renewables team on January 24th, 2023, and GE Energy January 27th, 2023, to discuss ongoing UCC tracking programs, and an informal dialogue has been maintained since these meetings. The CETUS team has hosted meetings with the Wind Energy Ireland Environment group, which has included representatives from nine unique OWF developers February 8th, 2023, and June 30th, 2023. The team also attended the Wind Energy Ireland conference in Dublin on the February 14-15th, 2023. This conference hosted over 300 attendees. PhD and postdoctoral researchers presented posters on the CETUS Project and sister projects, with Dr [redacted] (Postdoctoral Researcher) receiving an award for the Best Research Poster.

Engagement with the wider research community

Prior to this proposal, we have had in-depth discussions with members of the European animal tracking community that have deployed equipment on existing infrastructure. Advice gleaned from these discussions is summarised below.

Case study 1. [redacted] Instituut voor Natuuren Bosonderzoek, Belgium.
The LifeWatch network currently operates and maintains an extensive permanent acoustic network of acoustic receivers in the North Sea and the Western Scheldt. LifeWatch was established as part of the European Strategy Forum on Research Infrastructure (ESFRI). The LifeWatch network currently encompasses marine, coastal, and estuarine systems and includes 51 acoustic receivers co-deployed on buoys and other platforms. Several methods of attachment were trialled for this research program; it was found that connecting the tether using a 13mm stainless steel shackle affixed to an insulated steel cable was the most effective (Fig. 1). This tether is weighted using a 35 kg concrete block, with a receiver positioned towards the terminal (weighted) end. A safety line ensured no equipment was/is lost during extreme weather events.

Case study 2. [redacted] *NIOZ Royal Netherlands Institute for Sea Research*
In 2023, we initiated discussions with [redacted] of the Royal Netherlands Institute for Sea Research. To understand the movements of a range of fishes in the Dutch Wadden Sea, the Swimway Project has deployed a large-scale array of receivers from existing coastal buoys (Fig. 2, Edwards et a. 2024). This deployment model predominantly includes receivers directly attached onto coastal buoys using a weighted coated cable wire (Fig. 3). It should be noted that his attachment method was initially developed by the Instituut voor Natuuren Bosonderzoek in Belgium (Case study 1 above) to track fishes in the North Sea and Scheldt Estuary using existing marine buoys. From this engagement we received advice on how best to attach and service these devices, which we have subsequently incorporated into this licencing application.

Figure 1. The LifeWatch acoustic receiver co-deployment design: An insulated steel cable with an attached 35 kg concrete weight.

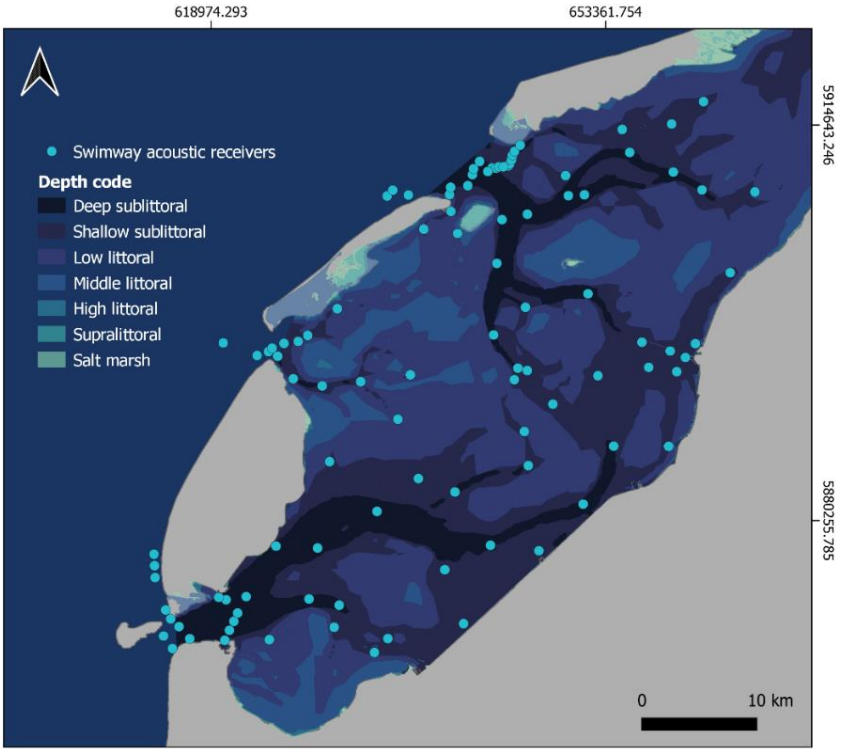

Figure 2. The Dutch Wadden Sea acoustic array, made possible through co-deployment of acoustic receivers on existing coastal infrastructure. Map provided by [redacted]

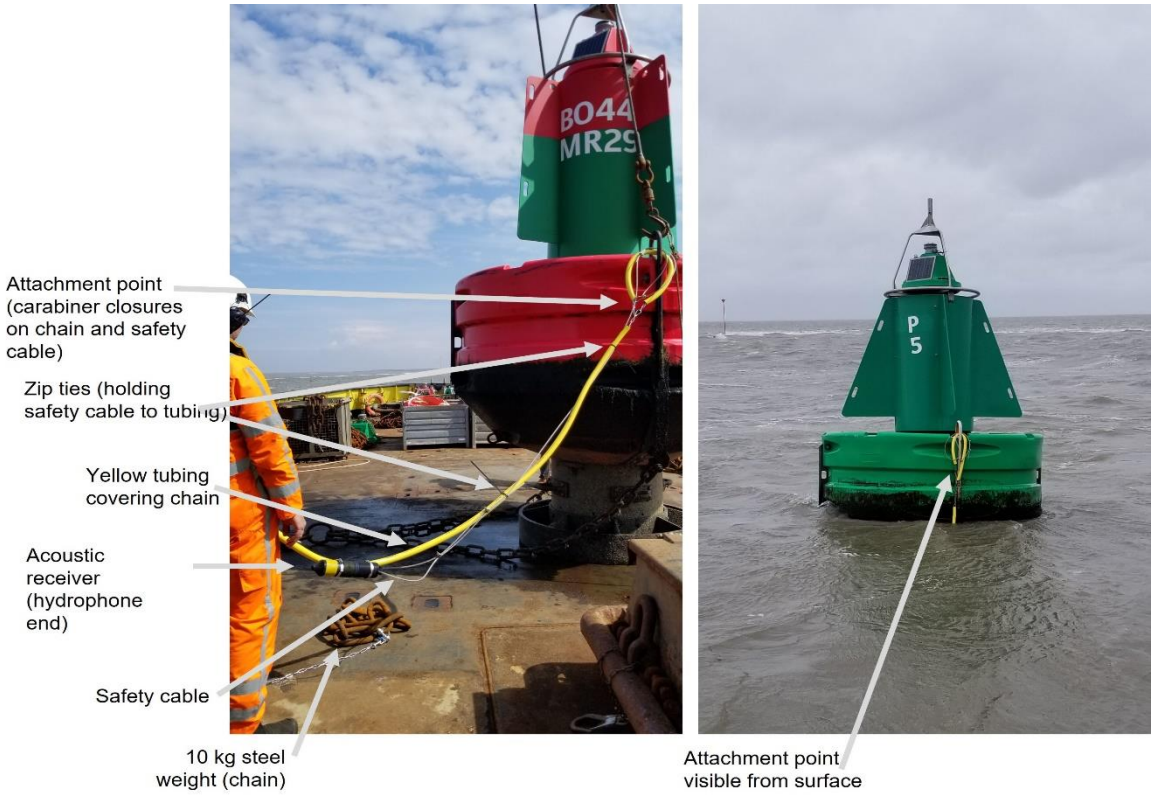

Figure 3. An example of two co-deployed receivers within the Dutch Wadden Sea Swimway acoustic array, shown pre- (left panel) and post- (right panel) deployment. Thirty receivers are currently deployed on the larger buoys (left). Photos provided by [redacted]

Case study 3. [redacted] *Ireland.*

In the past, independent researchers in the Republic of Ireland have trialled the deployment of acoustic receivers on existing CIL infrastructure in Irish waters ([redacted] thesis). A large D-shackle was used to attach a weighted 14mm polypropylene line below a coastal buoy (Fig 4). This attachment proved successful in tracking European sea bass (*Dicentrarchus labrax)* in proximity to Waterford and Wexford.

Figure 4. An acoustic receiver deployed on a 14mm polypropylene rope (left) attached using a D shackle through a metal eyelet on a tethered line (right)

Case study 4. [redacted]*. Georgia Department of Natural Resources, USA*

At the Annual Florida Atlantic Coast Telemetry Network (FACT Network) meeting in 2022, [redacted] presented a low-cost attachment method to deploy acoustic receivers on existing coastal infrastructure. This approach cost approximately $200 and involved deploying a weighted line on protective housing (Fig. 5).

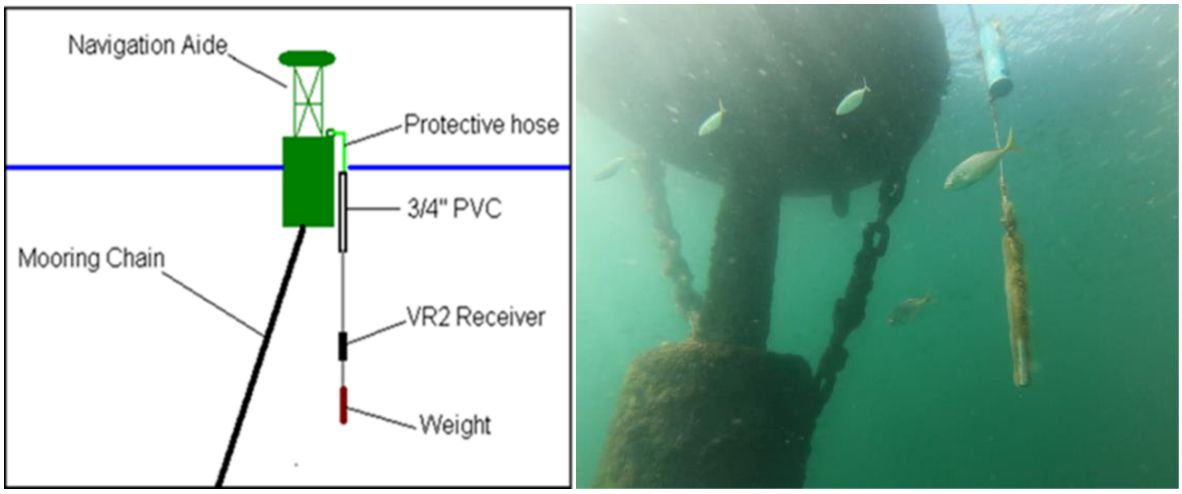

Figure 5. A schematic of the co-deployment strategy used by the Georgia Department of Natural Resources, USA (left), used to track acoustically tagged fishes (right).

Case study 5. Dr [redacted]*. University of Plymouth, UK*

Figure 6. An acoustic receiver deployed on existing coastal infrastructure in the Solent, UK as part of ongoing tracking project called FishINTEL.

Through social media, we also learnt of the University of Plymouth's co-deployment of acoustic receivers on existing infrastructure in partnership with the Cowes Harbour Commission on the Isle of Wight. This ingoing project tracking tagged fishes including sharks, rays and bass is using a suspended weighted steel chain attached to the first ring of the marine buoy (Fig. 6).

With the information provided from the research projects described above, we initiated meetings with the Commissioners of Irish Lights in Spring 2024 to discuss the potential for co-deployment on existing moorings. Through piloting the use of this attachment method, we hope to co-develop a robust co-deployment strategy and methodology.

Community engagement

As part of the CETUS Project, there has also been extensive engagement with maritime tourism operators, the local fishing community and broader community. In-person meetings were held in Courtmacsherry in 2023 (March 1st, April 6th, July 12th) and 2024 (March 11th, ongoing). The CETUS Courtmacsherry and Arklow tracking arrays have been conducted using the expertise of expert angling charters, with support from Wicklow Charters, Courtmacsherry Angling and West Cork Charters. For further information see '*Document 8. Supporting evidence for Maritime Usage Licence application_LIC230039'* submitted to MARA in March 2024 (licence pending).

References

Edwards JE, Buijse AD, Winter HV, van Leeuwen A, Bijleveld AI (2024) A multi-scale tracking approach for conserving large migratory fish in an open coastal environment. *Estuarine, Coastal and Shelf Science* 301: 108737. https://doi.org/10.1016/j.ecss.2024.108737