Wind farms, lost fishing gear and marine mammals: Considering potential entanglement risk

Authors:
Steven Benjamins, Scottish Association for Marine Science
Anja Wittich, SAMS Enterprise
Rachel Shucksmith, UHI Shetland
Shaun Fraser, UHI Shetland
Laura Williamson, HiDef
Joseph Marlow, Scottish Association for Marine Science
Rachael Anderson, SAMS Enterprise
Alison Cook, Scottish Association for Marine Science
Andrew Dale, Scottish Association for Marine Science

Abstract ID: 133
Submitted: May 22, 2026
Call:: MRC 2026 Research & Technical Track – Call for Abstracts
What Theme Are You Submitting for?: Environmental and Ecosystem Impact Considerations
Presenter Name: Steven Benjamins
Focus Area: Offshore Wind
Keywords: Floating offshore wind; Entanglement; Marine mammals; Environmental Impact; Monitoring

Accidental entanglement of marine mammals and other megafauna in abandoned, lost or discarded fishing gear (ALDFG) remains a global conservation and animal welfare concern. As floating offshore wind (FOW) and other renewable energy developments expand offshore, concerns have emerged regarding interactions between ALDFG and novel infrastructure. In particular, FOW installations may facilitate *secondary entanglement*, whereby animals become entangled in fishing gear that has become attached to offshore structures, distinct from *primary entanglement* in mooring lines.

In 2025, a series of pilot projects was undertaken on behalf of the Scottish Government to explore the likelihood of secondary entanglement events associated with FOW developments in Scottish waters. The work addressed four key questions: (1) how, and how frequently, ALDFG is generated; (2) how the buoyancy of floating ALDFG changes over time; (3) the detectability of floating ALDFG using standard digital aerial survey methods; and (4) whether ALDFG attached to subsea FOW infrastructure can be identified using remotely operated vehicles (ROVs).

Results indicate that fishing gear loss rates vary widely between Scottish fishing sectors, with adverse weather identified as the primary cause. The buoyancy of common fishing gear components was shown to change substantially over time due to increasing biofouling. Floating ALDFG was detectable in digital aerial surveys, though observed quantities were lower than anticipated. Small amounts of ALDFG were also identified in ROV footage of FOW infrastructure.

These findings will inform modelling studies to populate a secondary entanglement risk

framework for FOW installations, supporting evidence-based decision-making as offshore wind developments move further offshore.