



Characterising the Welsh Crab and Lobster Pot Fishery with iVMS

Tim Jackson-Bué
Bangor University

Welsh fisheries

Small-scale fisheries (James *et al.*, 2018)

Approximately 336 active vessels (MMO, 2023)

Mostly static gears:

- pots (179 vessels)
- gill nets (84)
- hook and line (~70)

Crustacean potting considered lower-impact than mobile gears
(Stephenson *et al.*, 2017, Rees *et al.*, 2021, Stevens, 2021)





Fisheries Management Plans

UK Fisheries Act 2020

Evidence-based with industry and stakeholder input

Crab and Lobster FMPs for English (2023) and Welsh waters (2026)

Quantified evidence needed about the spatial interaction of fishing with potentially sensitive habitats and species



iVMS

Vessel monitoring system (VMS)

- Since 2012 in European waters
- Vessels 12 m and over
- 2 hr polling
- Fishing distribution and footprint (Amoroso *et al.*, 2018), behaviour (Joo *et al.*, 2015), impact (Witt and Godley, 2007)

Inshore vessel monitoring system (iVMS)

- Vessels under 12 m in Wales (2022) and England (2024)
- 10 (Wales) and 3 (England) min polling
- Value highlighted by related data (Mendo *et al.*, 2023)

First insights from a national scale iVMS analysis

Data

Anonymised iVMS (Wales), landings and effort data

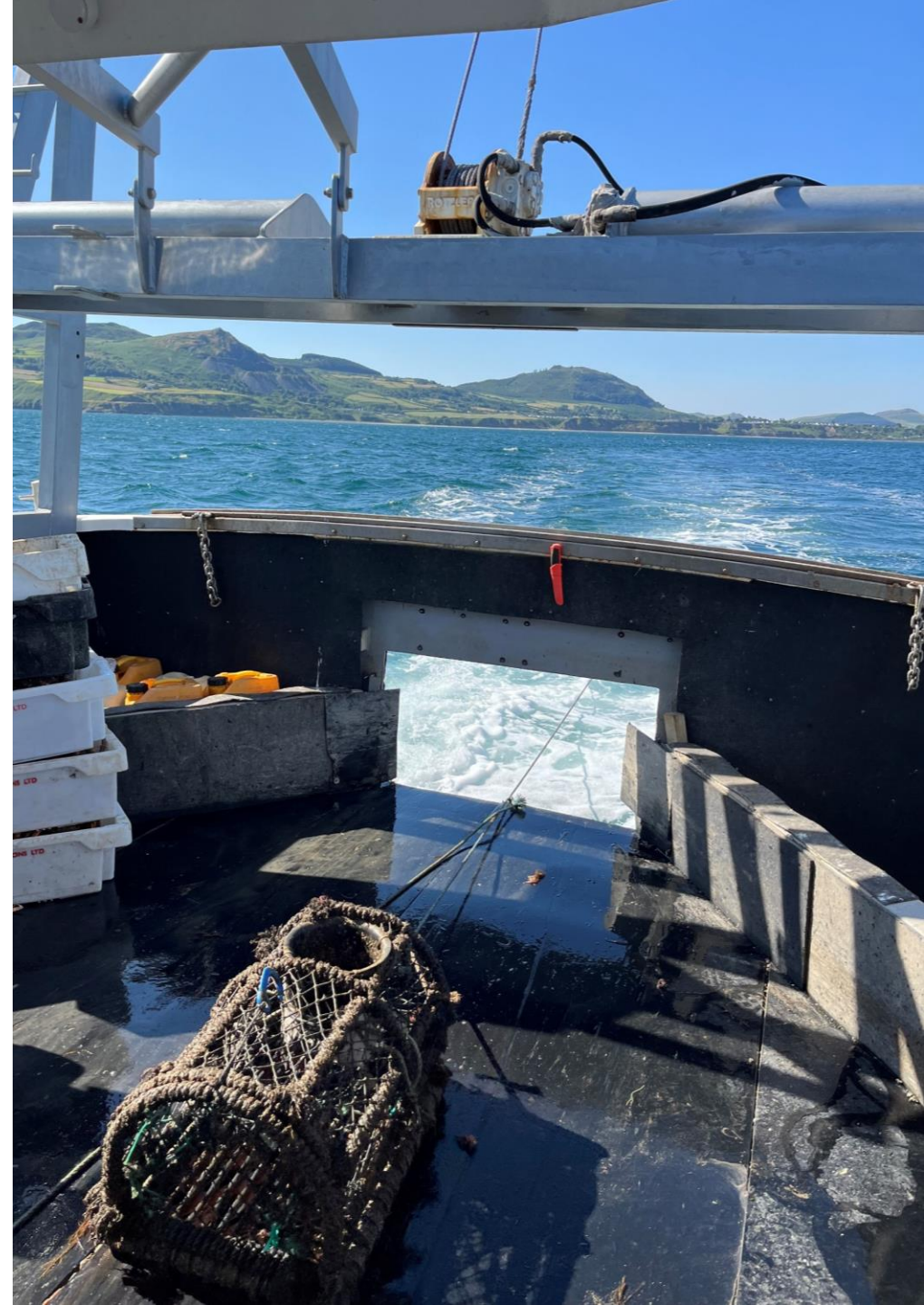
Crustacean potting vessels

10-minute polling

Feb – Dec 2022

Day trips (95%)

Trips in Welsh waters



Results

141 vessels under 12m using crustacean pots in Welsh waters in 2022

91% (129) under 10 m

600k points classified as fishing (25%), moored (25%) or transit (50%)

10,026 Individual trips, 8044 complete trips

62% of u10 day trips (5475/8896) linked to daily landings (CatchApp)

97% of o10 months (113/116) linked to monthly landings (logbook)

Landings

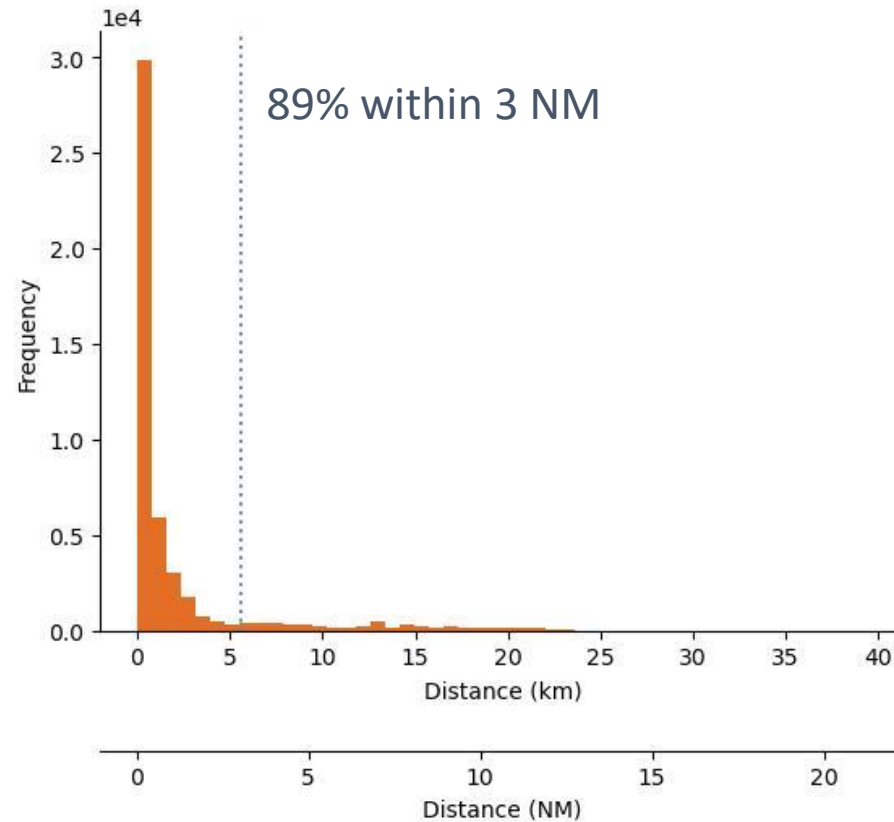
Common whelk	European lobster	Brown crab	European spider crab	Common prawn	Velvet swimming crab	European seabass	Brown shrimp	King scallop	Gear	Trips
<i>Buccinum undatum</i>	<i>Homarus gammarus</i>	<i>Cancer pagurus</i>	<i>Maja squinado</i>	<i>Palaemon serratus</i>	<i>Necora puber</i>	<i>Dicentrarchus labrax</i>	<i>Crangon crangon</i>	<i>Pecten maximus</i>		
									Pots	1084
									Pots	1082
									Pots	992
									Pots	570
									Pots	226
									Pots	157
									Pots	156
									Pots	118
									Pots	96
									Pots	74
									Pots	63
									Unknown	63
									Handlines	62
									Pots	50
									Pots	45
									Pots	39
									Pots	34
									Dredge	29
									Pots	25
									Lines	25

u10s, 91% of trips

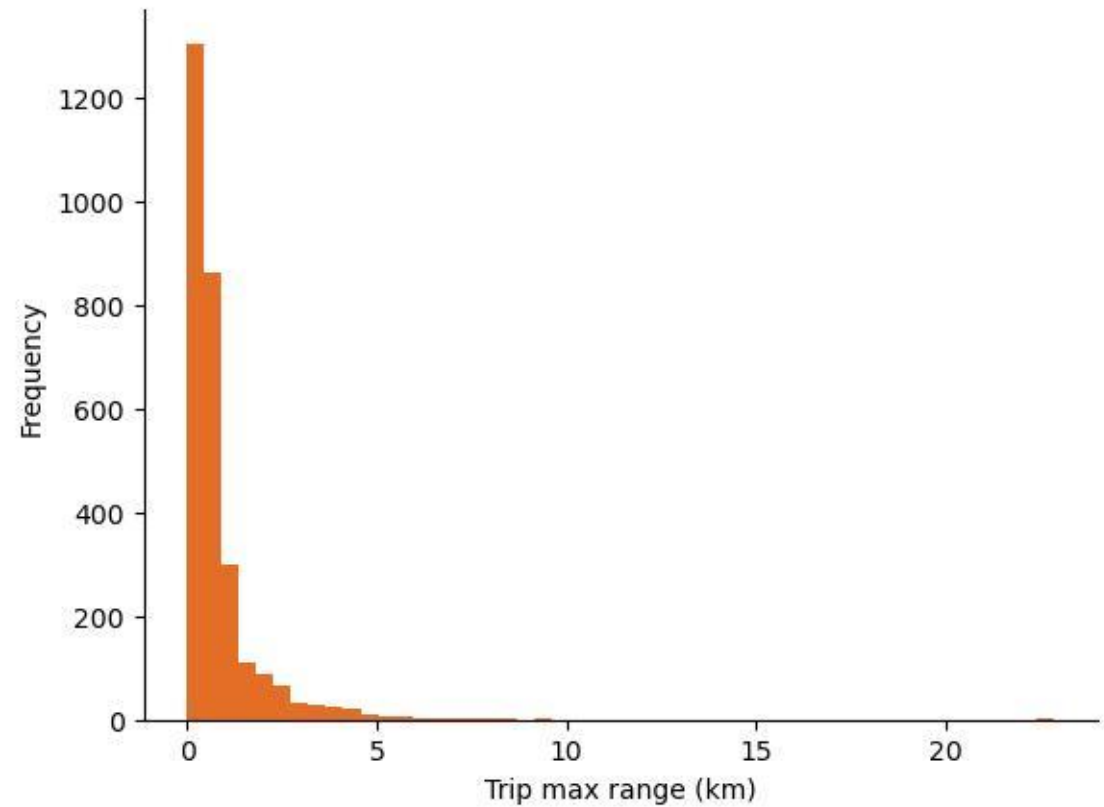
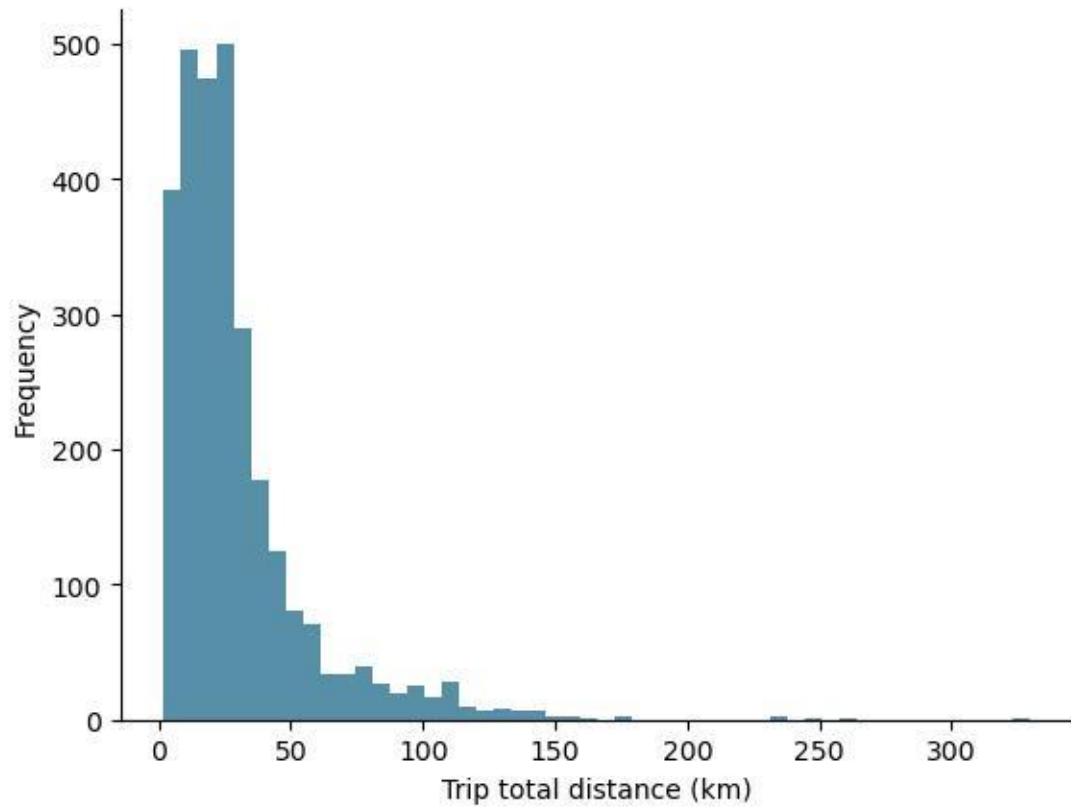
Landings (pots)

Common name	Scientific name	Live weight (t)
Common whelk	<i>Buccinum undatum</i>	2438.88
European spider crab	<i>Maja squinado</i>	203.11
Brown crab	<i>Cancer pagurus</i>	205.15
European lobster	<i>Homarus gammarus</i>	132.16
Common prawn	<i>Palaemon serratus</i>	12.92
Velvet swimming crab	<i>Necora puber</i>	9.54
Brown shrimp	<i>Crangon crangon</i>	1.07
Crawfish	<i>Palinurus</i> spp.	1.16

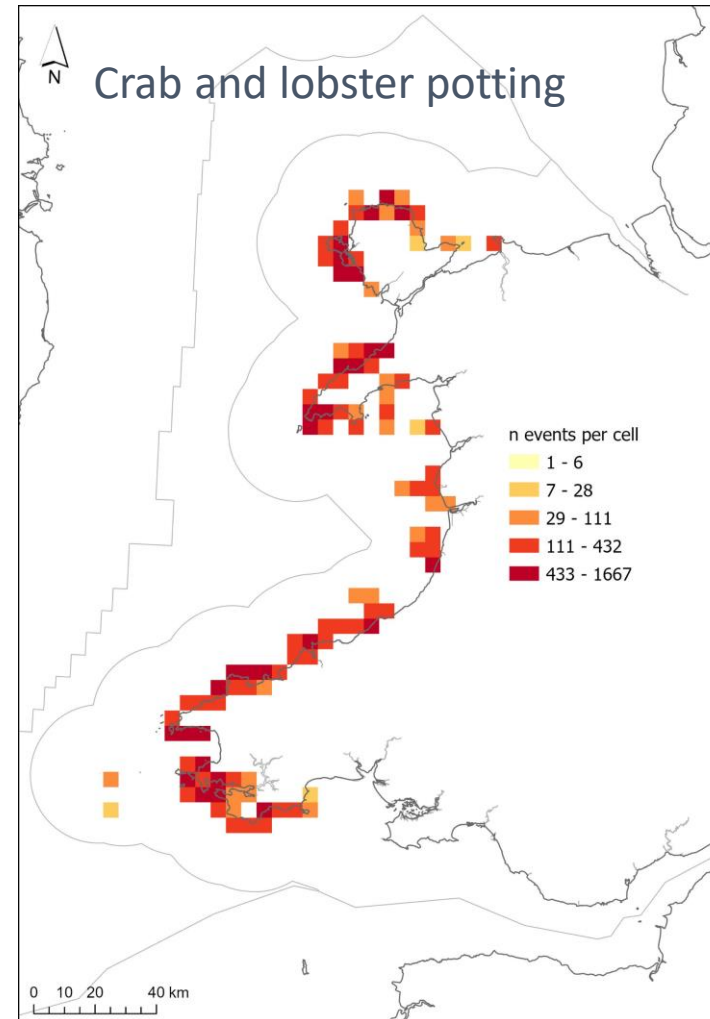
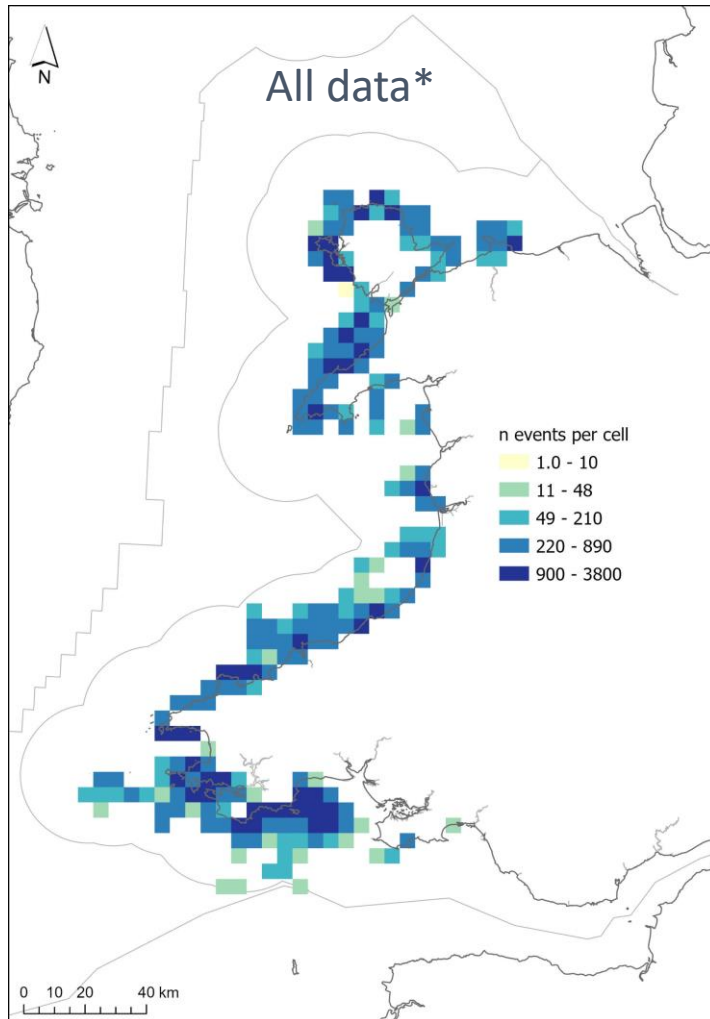
Activity is very close to shore



Trip range is limited



Hotspots of activity

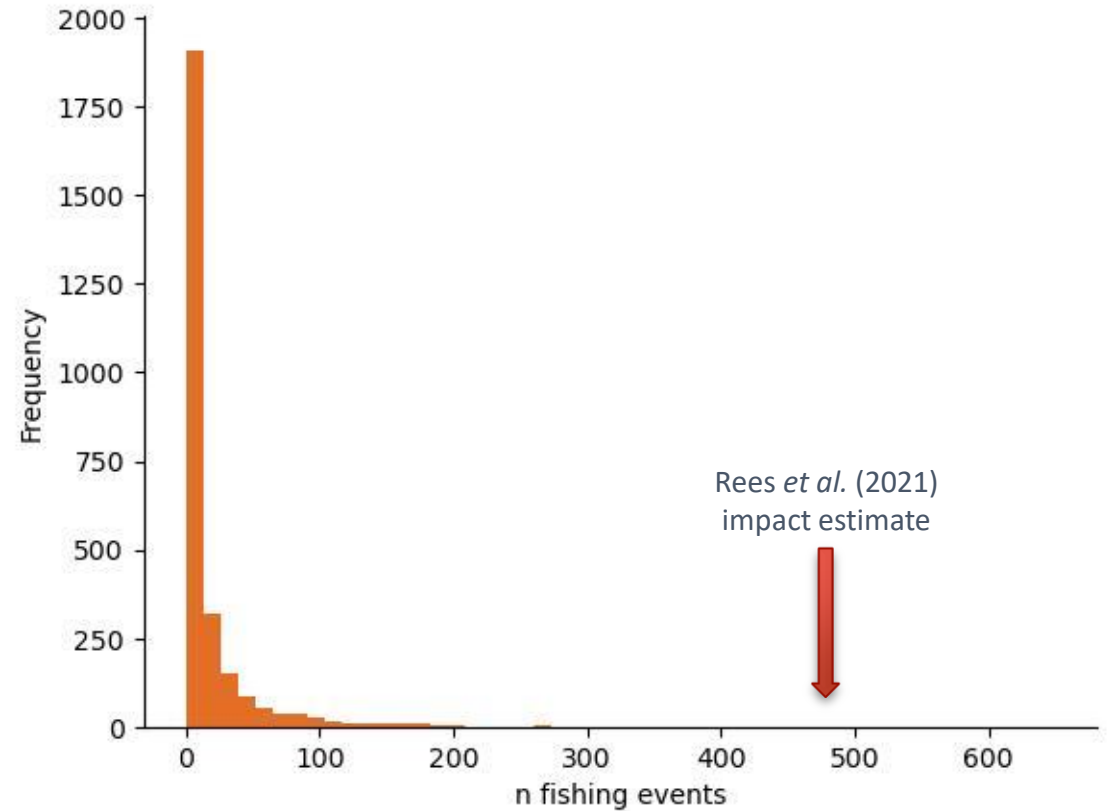
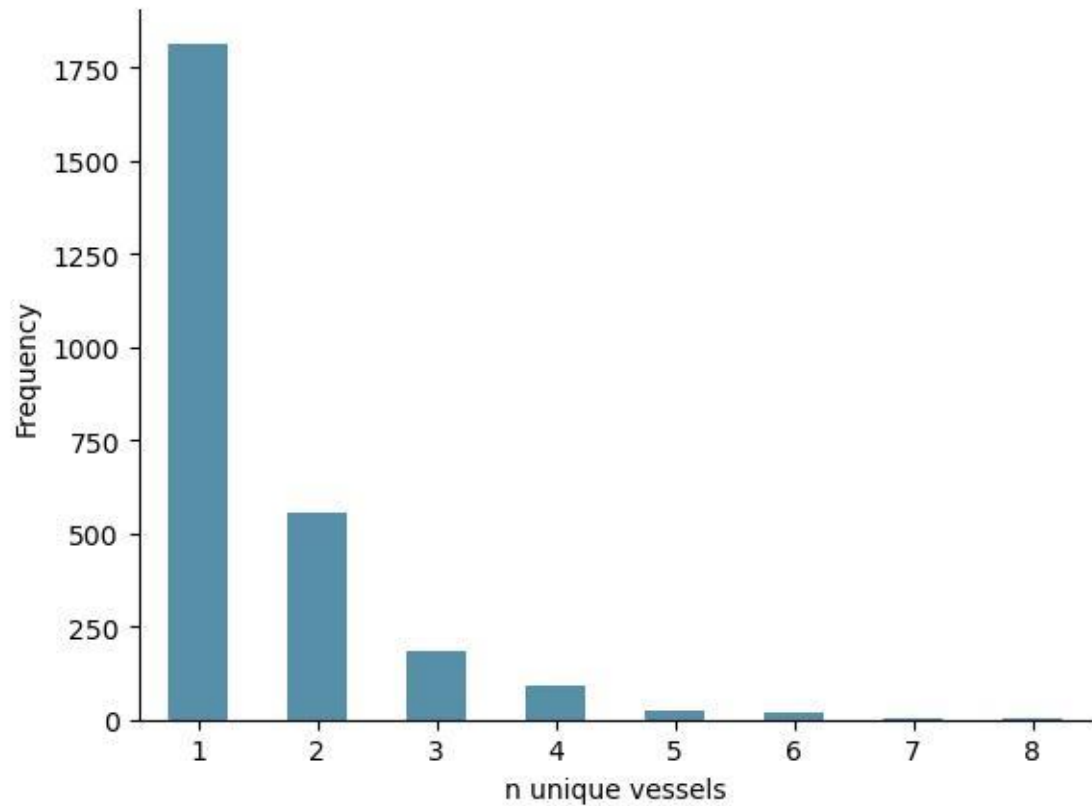


5km cells

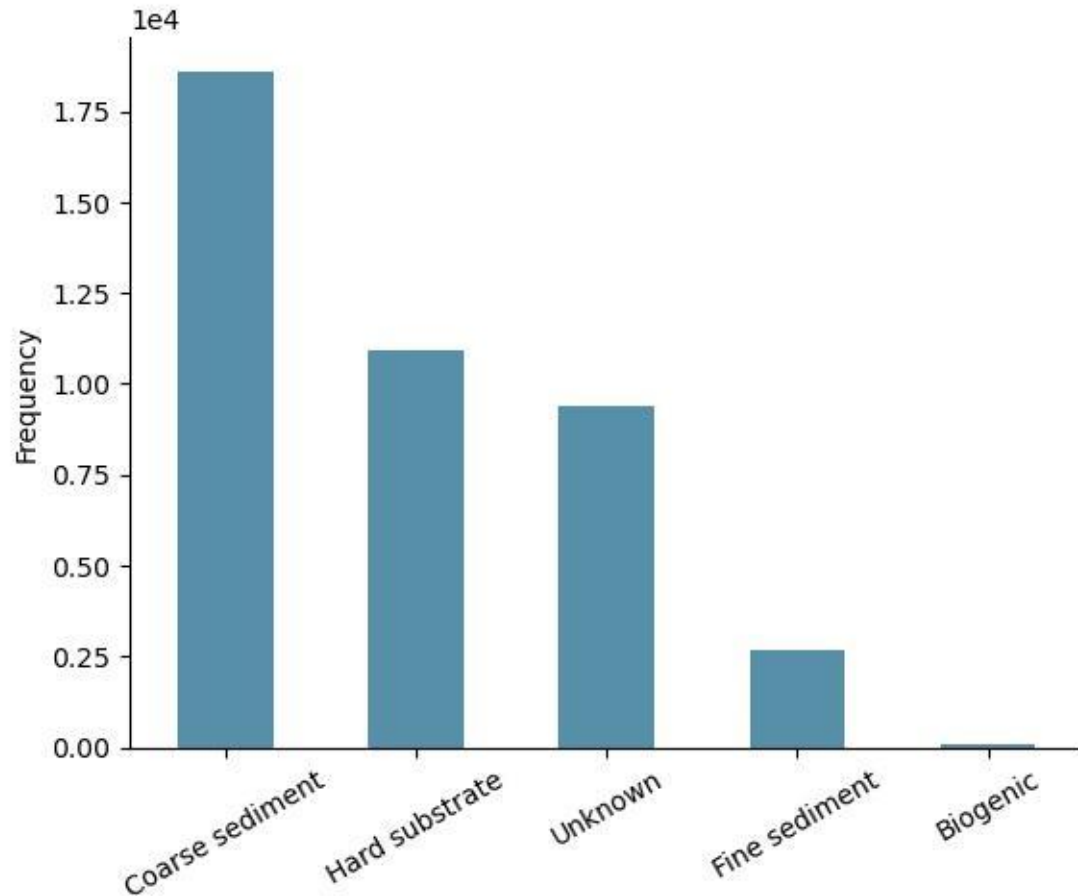
Cells with > 2 vessels
only

*Vessels that use
crustacean pots

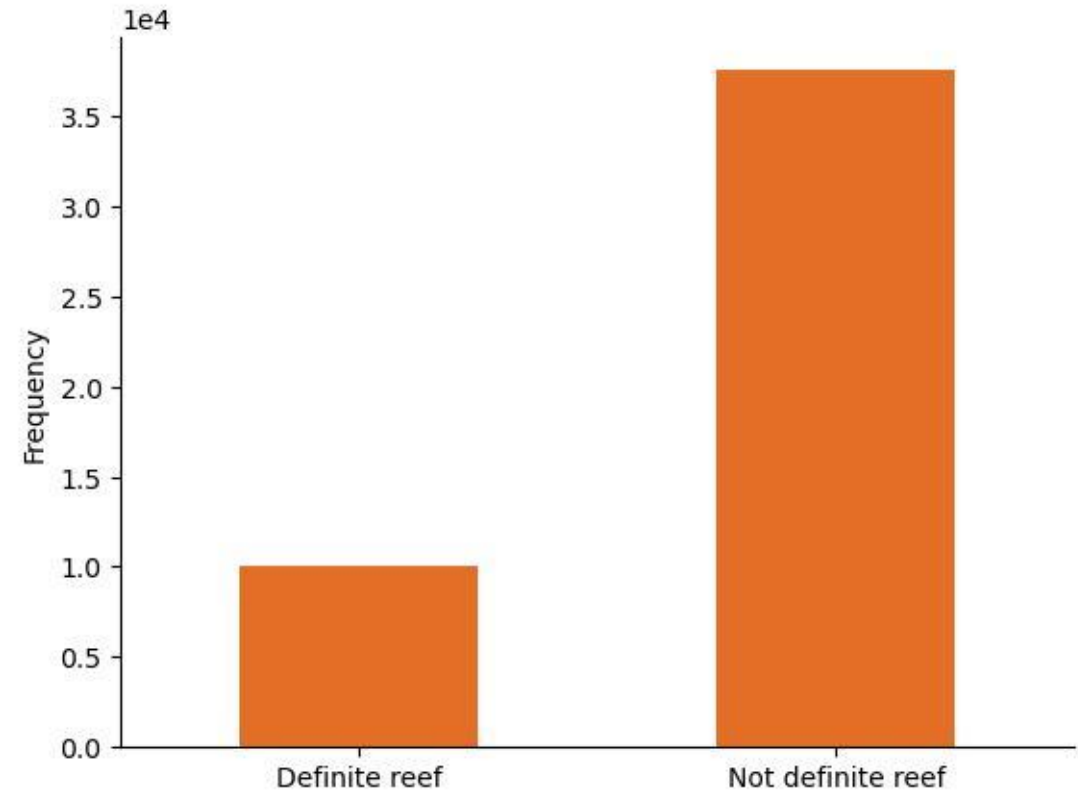
Vessels and events per 1 km cell



Habitat interaction

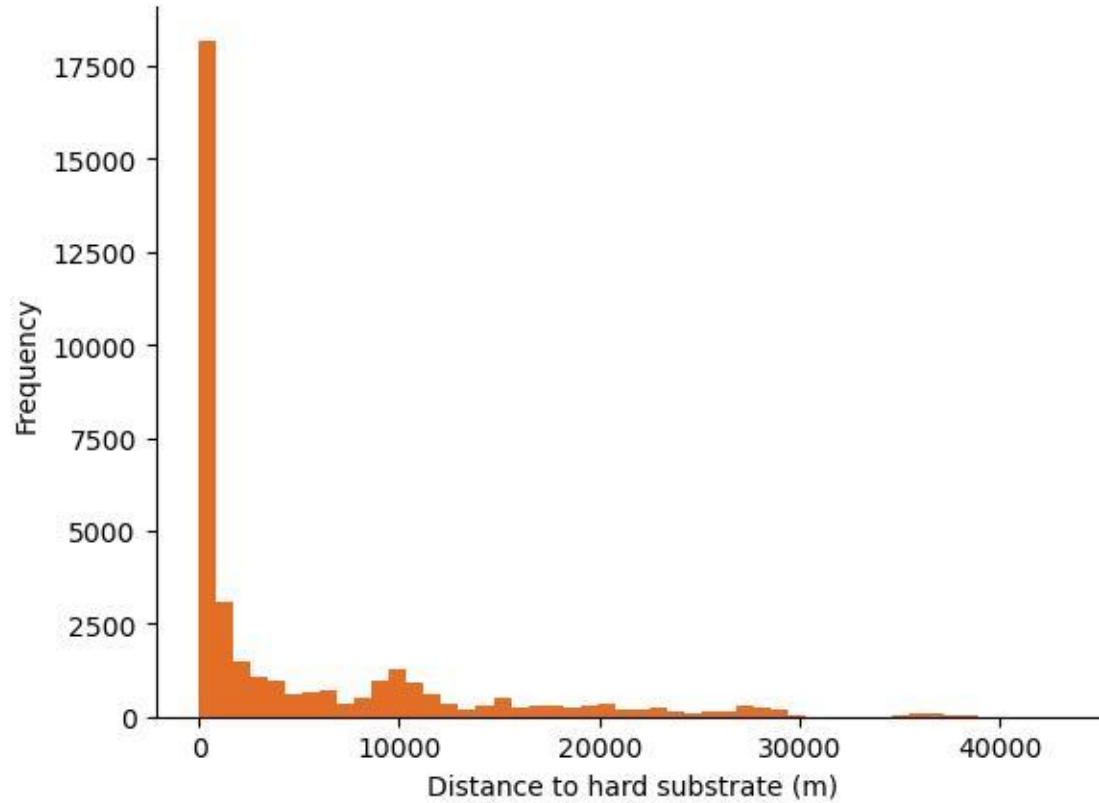


EUSeaMap 2023
(EMODnet)

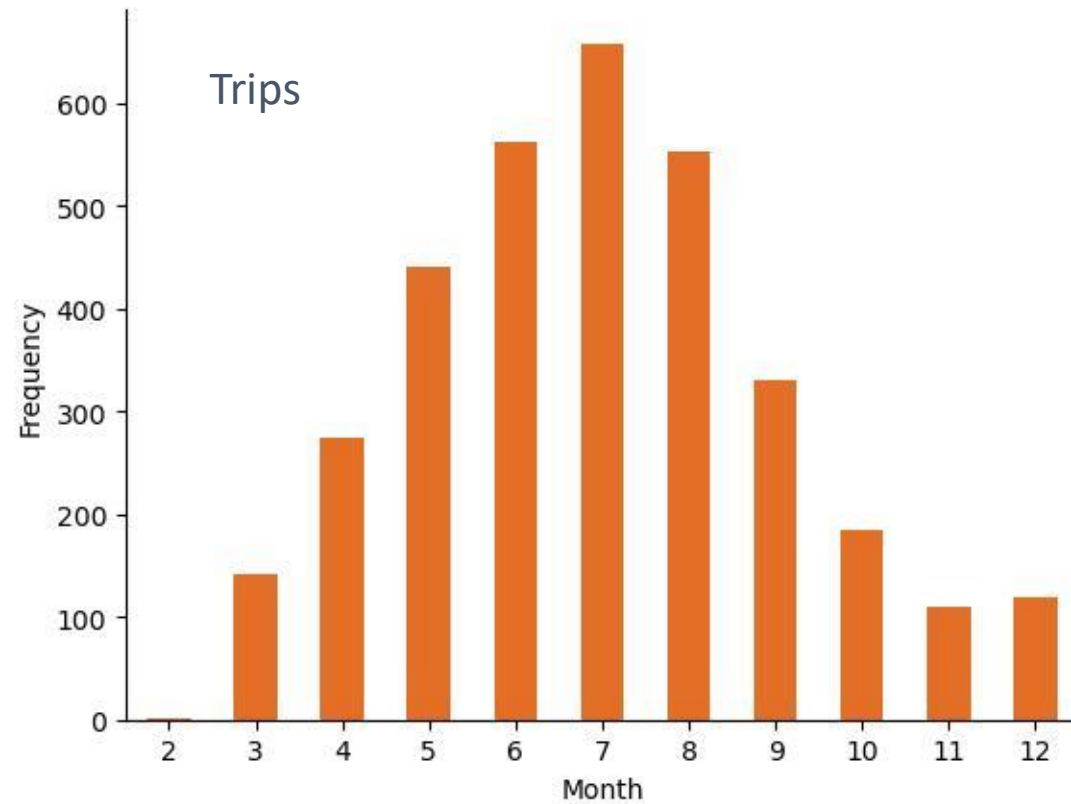


Habitats Directive Article 17 Reef
(Natural Resources Wales)

Habitat interaction



Temporal trends



Lessons so far

Effective quantification of characteristics of small-scale fisheries

Support for low impact consensus of crab and lobster pot fishing

Substantial individual and regional variation

Limitations:

- Disconnect between iVMS and landings datasets
- 10-minute polling interval misses some events





Thank you

Filling the gap in crustacean evidence for English and Welsh FMPs (WP3)

- Natalie Hold, Bangor University team
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- Welsh Fishermens' Association
- Natural Resources Wales
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- The Crab and Lobster Management Group
- Marine Management Organisation
- Mindfully Wired

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