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Migration of Salmon Post-Smolts from the River Dee in Aberdeenshire

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Group
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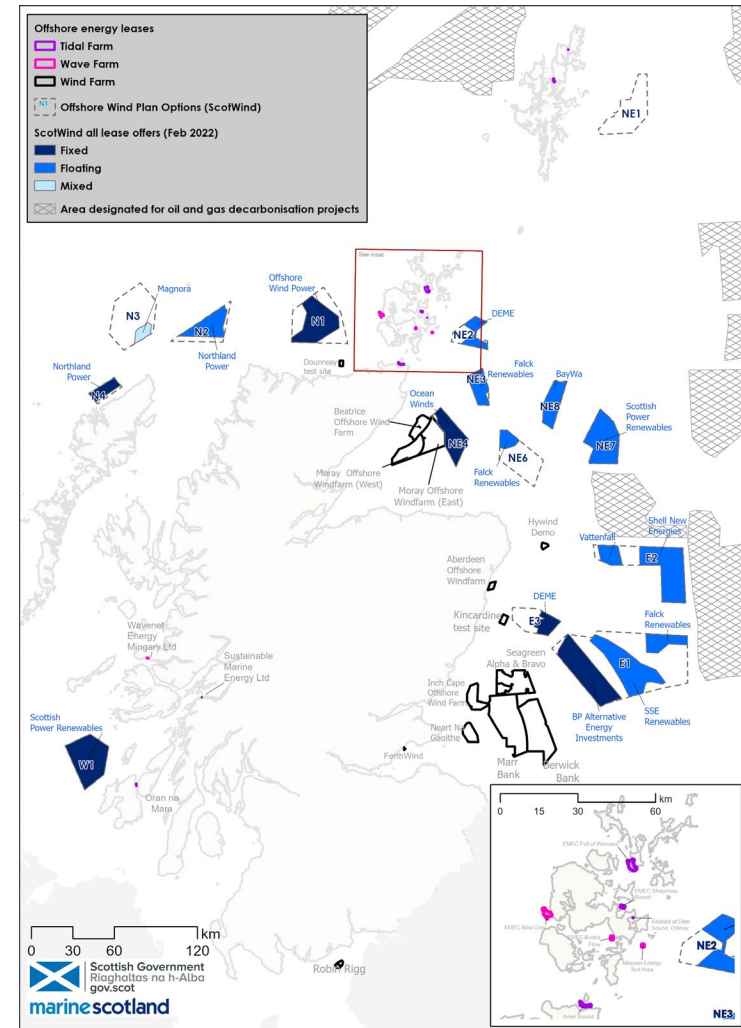
marinescotland
science

Today's Aim

- What are Marine Scotland drivers for this work
- How we capture, tag and track smolts.
- Results from the River Dee for 2017 to 2022
- Show some of the particle tracking data and how it marries up to the real data gathered.

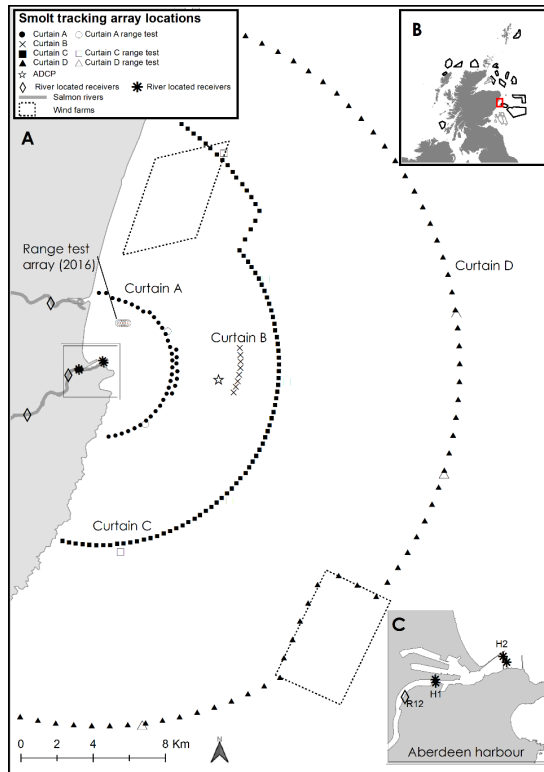
Drivers for monitoring

- Matt showed this but for reference

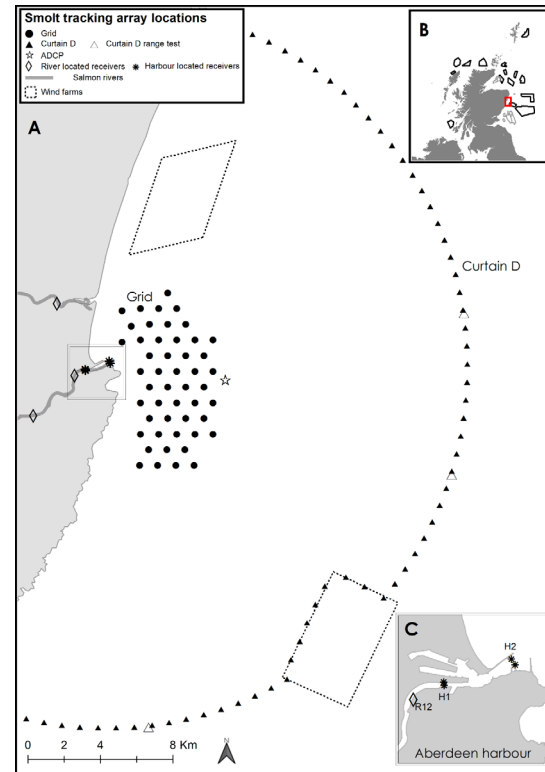


Array Layouts

2017-2019



2022



Capture Smolts

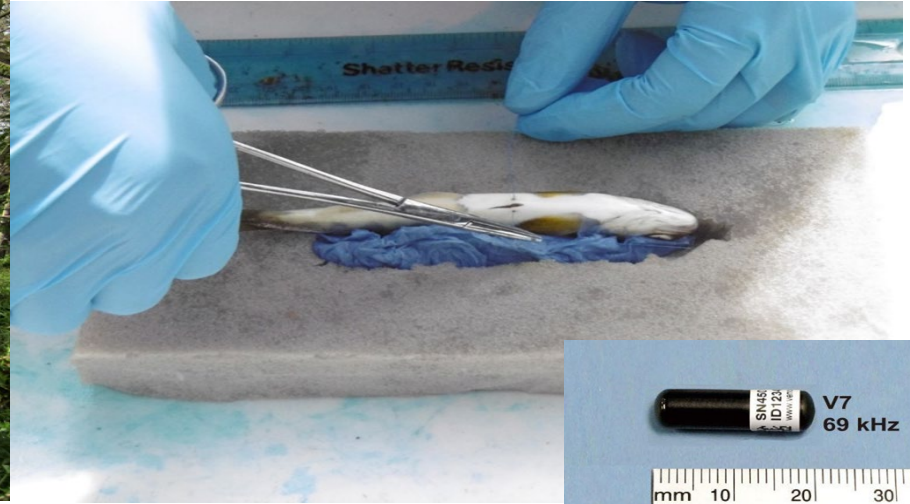


Fyke Net



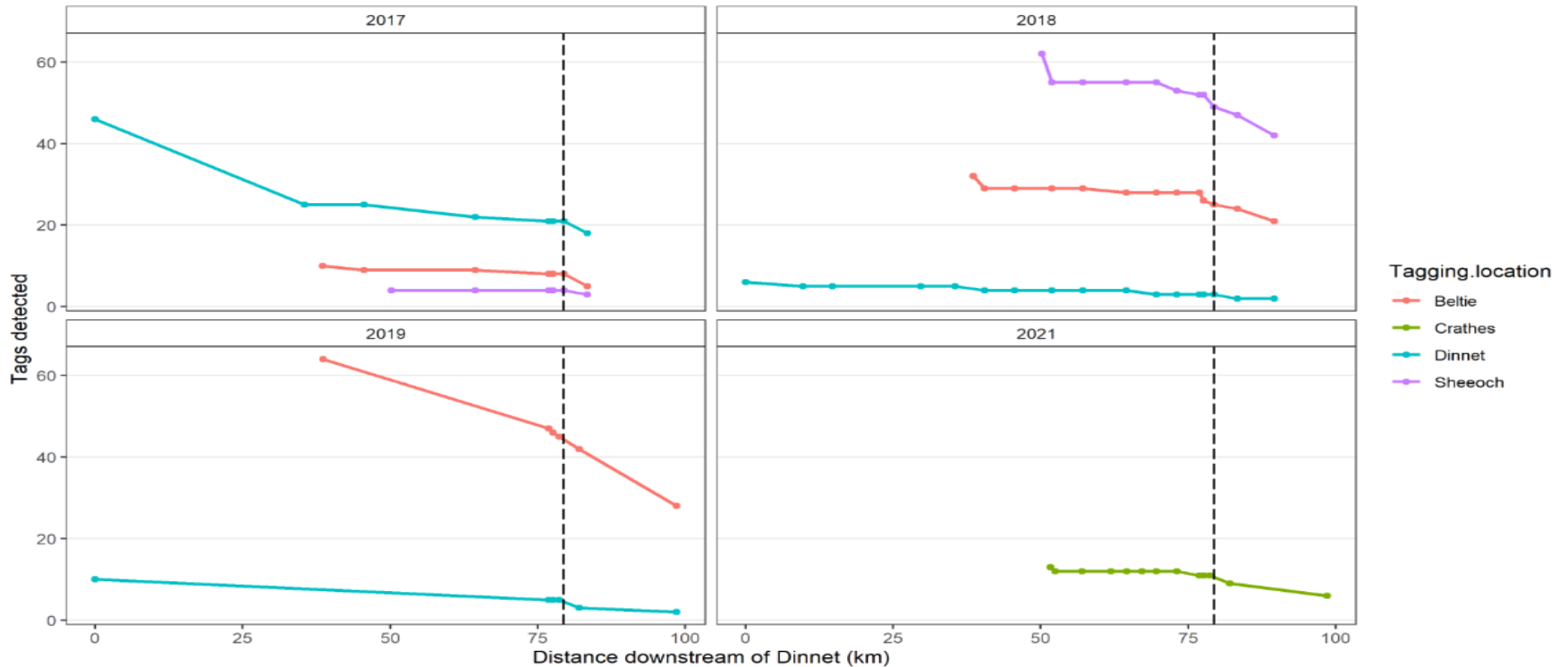
Rotary
Screw Trap

Tagging Smolts in the Field

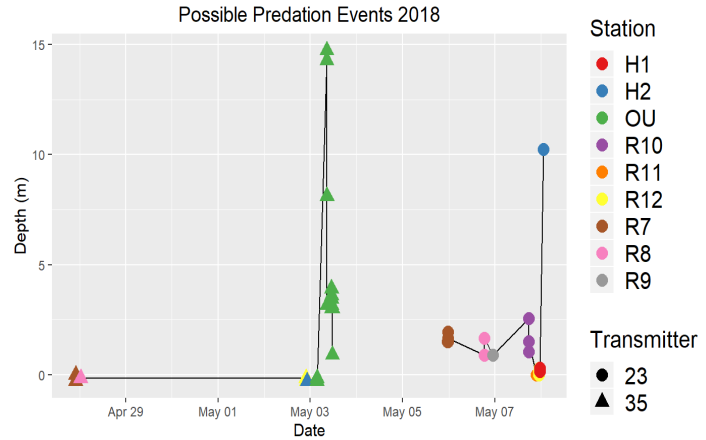
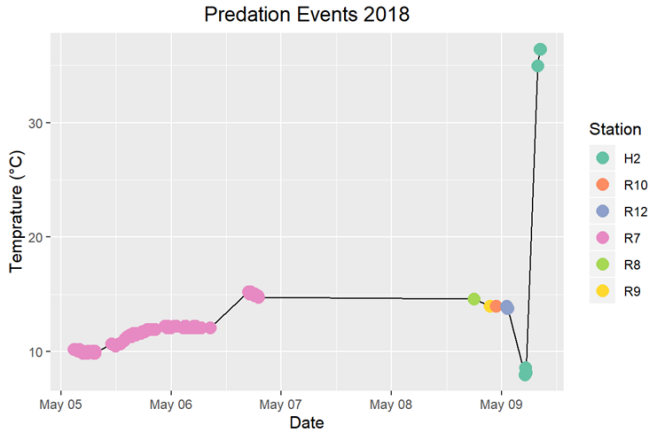


- We have tagged about 250 salmon smolts on the Dee. 150 on the Don and 98 Seatrout smolts

Tag Detections River Dee

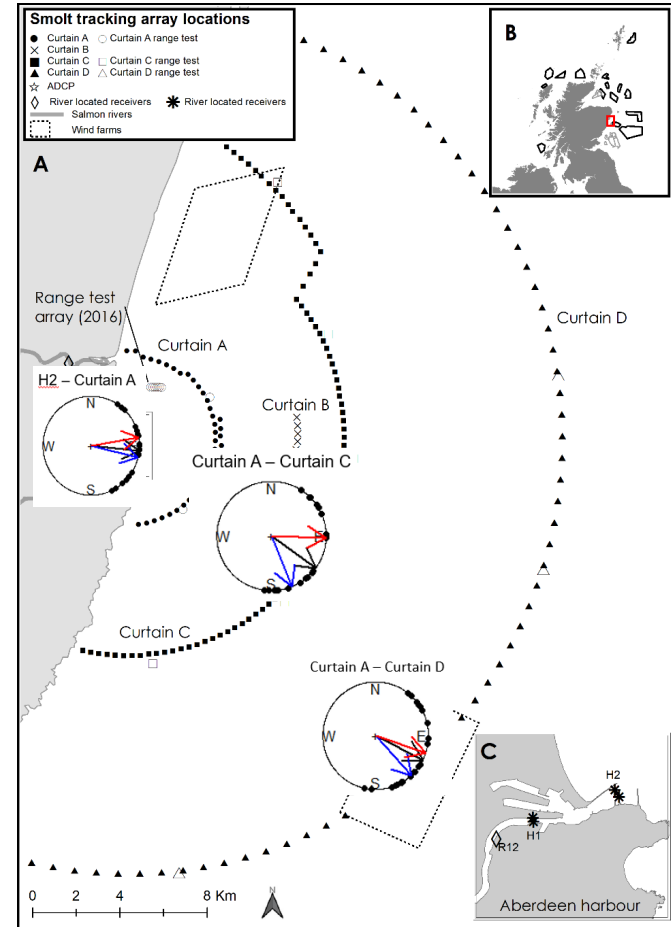


Predation?



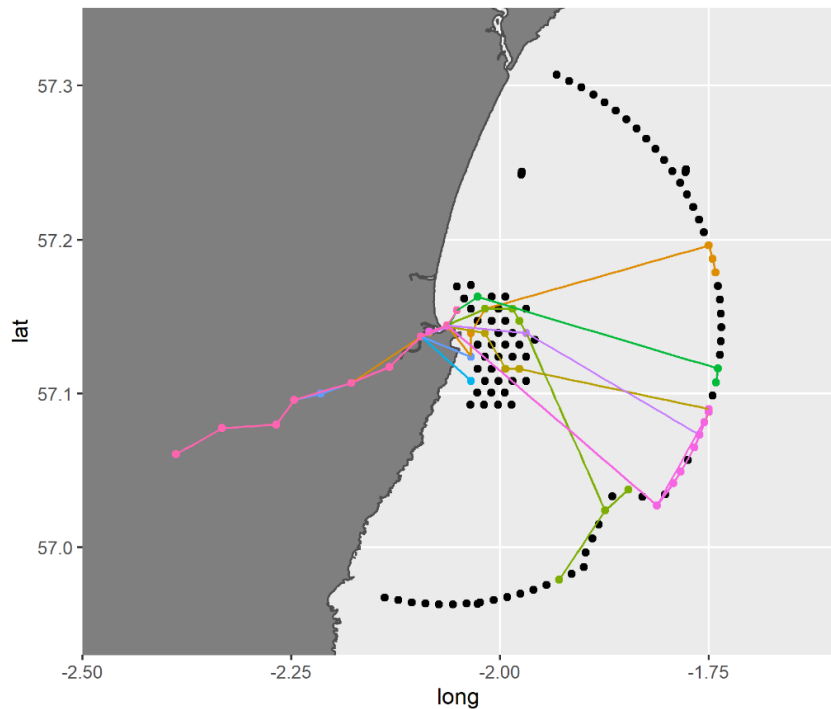
Year	Movement	Mean Bearing \pm circular SD (Degree from North)	Corrected Bearing \pm circular SD (Degree from North)
2017	H2 – Curtain A (4km)	106° \pm 39°	94° \pm 23°
2018	H2 – Curtain A (4km)	96° \pm 34°	107° \pm 49°
2019	H2 – Curtain A (4km)	97° \pm 50°	75° \pm 30°
2018	Curtain A (4km) – Curtain C (10km)	128° \pm 46°	158° \pm 37°
2019	Curtain A (4km) – Curtain D (20km)	117° \pm 49°	114° \pm 43°

Salmon post-smolts are not moving North East straight away but moving almost South East right up to 20km

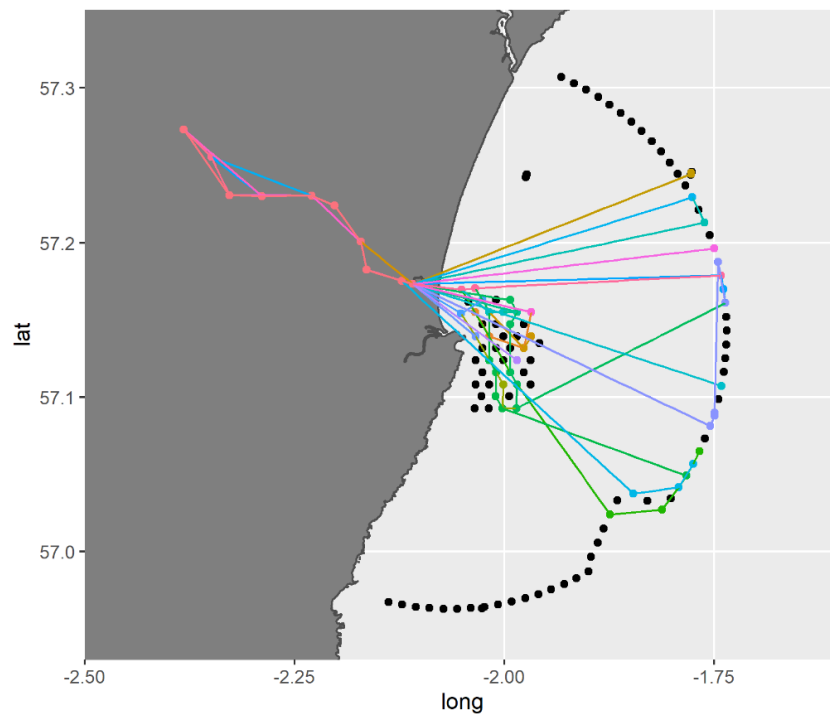


The Grid....

Dee



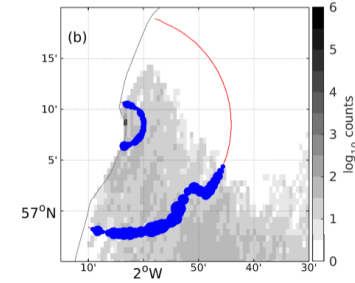
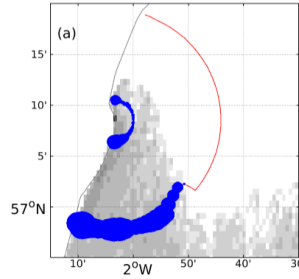
Don



Particle Tracking

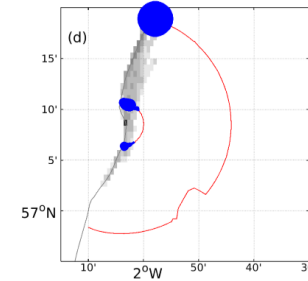
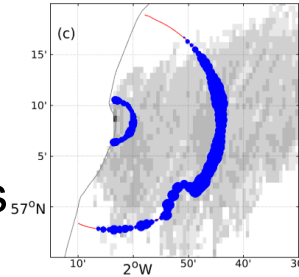
Near Field

Passive



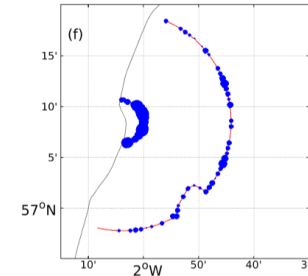
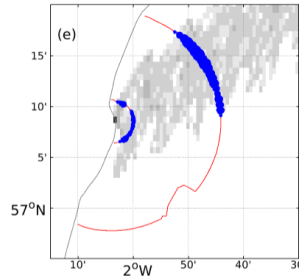
Negative
Rheotaxis

Variable
Rheotaxis



Northerly

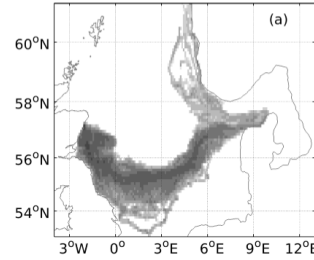
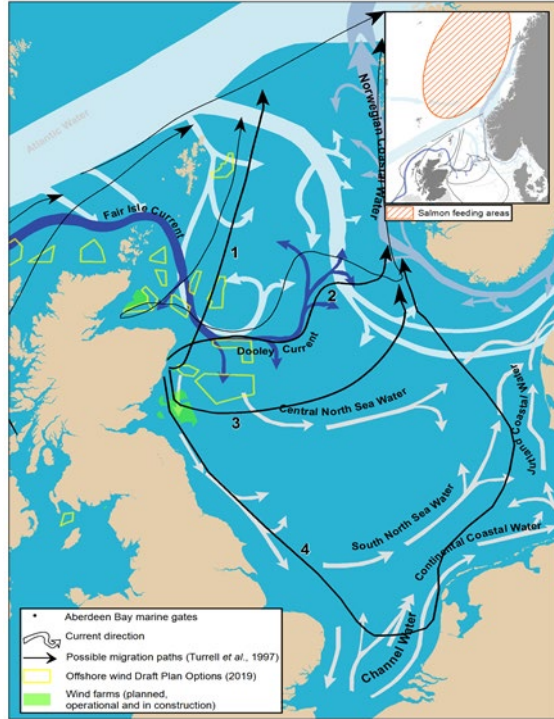
North-
Easterly



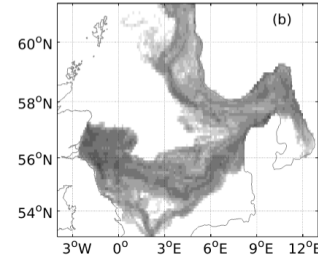
Tag
Detections

Particle Tracking

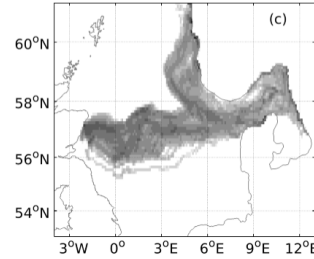
Far Field



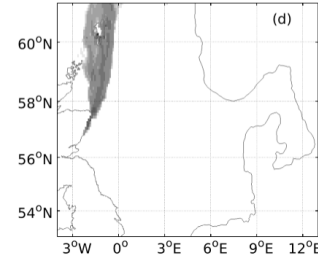
Passive



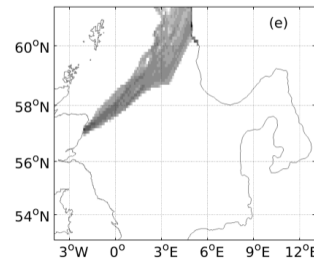
Negative
Rheotaxis



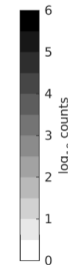
Variable
Rheotaxis



Northerly



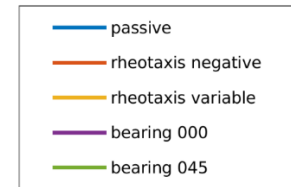
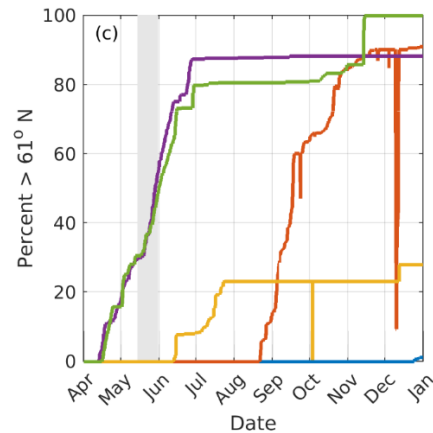
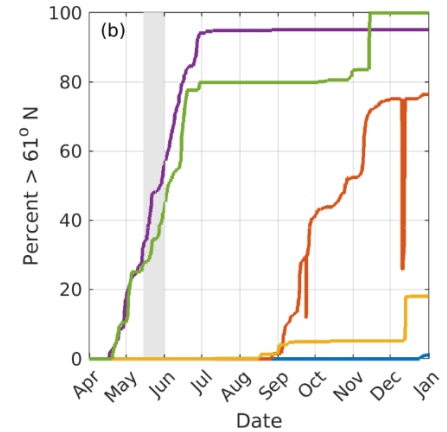
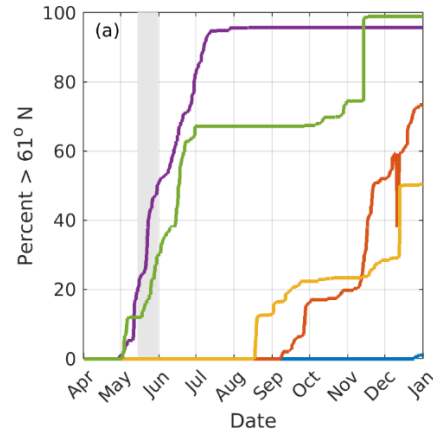
North-
Easterly



Particle Tracking

Numbers.

- The grey line indicates the band of time smolts need to be progressing into the Norwegian Sea to be available for capture in the herring fishery and the SALSEA work.
- Norwegian Coastal Current



What dose this mean?

- Post-Smolts from the Dee need to Head North or North East to get to the feeding grounds in Norway early enough to be sampled in the fishery there.
- Post-Smolts are heading South East out of the river Dee.
- Post-Smolts must make a course correction/change of behaviour to head in a more northerly direction further off shore.
- This work was only up to 20km from the mouth of Aberdeen Harbour.

Further Offshore

- Trawling work has been used to try and give a more complete picture further off shore.