

Netting to investigate smolt passage through the coastal zone



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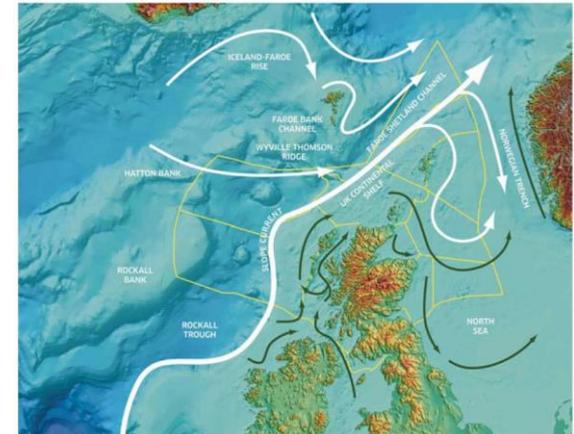
Fisheries Management Scotland Annual Conference, Edinburgh, 29 March 2019



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Salmon – risk assessment

- Need to know the routes salmon smolts use to cross the coastal zone to get to the sea feeding areas.
- Already known that Norwegian Sea is an important staging area and that many smolts migrate along the current on the continental shelf edge to get there.
- But no information for smolts leaving the Scottish east coast, where marine renewables developments are taking place.



Recent smolt trawling by MSS

- Large net towed at over 3 knots close to the surface
- Net can be used open ended just with cameras and PIT tag detector or with a cod end also attached
- Samples can be taken for genetic assignment to rivers or regions of origin



2017 MSS research vessel Scotia



2018 commercial pelagic trawler Sunbeam



Lifting net, camera gear and PIT detector



Gear getting prepared for launch



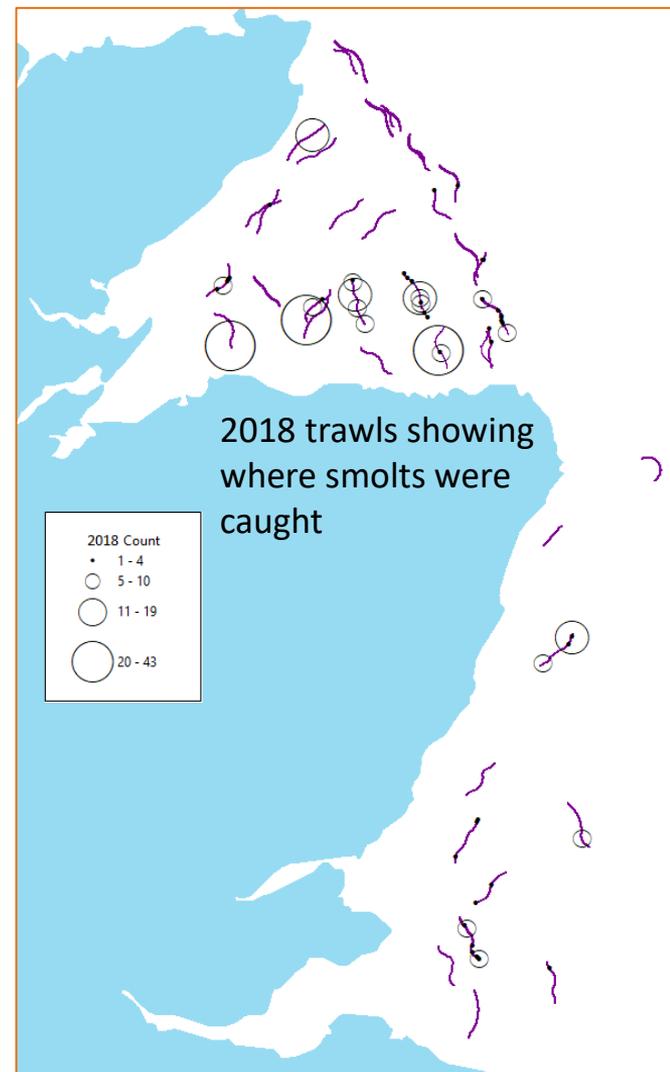
Net being shot



Checking the recordings, two salmon smolts visible

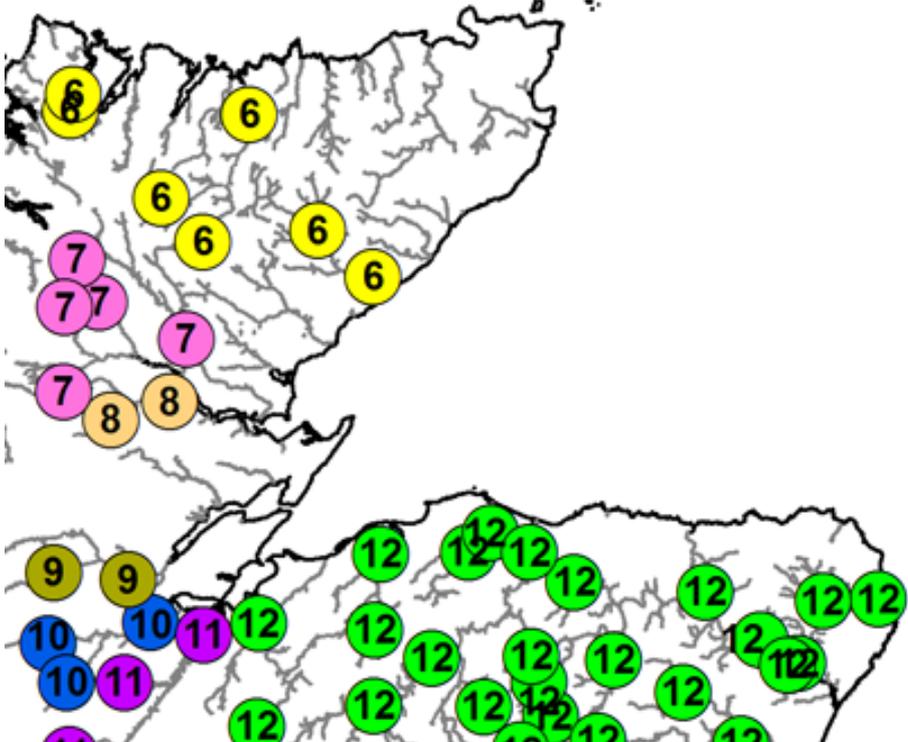
Smolt trawling in 2017 and 2018

- 2017 - Moray Firth
- 2018 - two periods of trawling in the Moray Firth plus a period of trawling off the east coast.
- In the Moray Firth, many smolts move out in an approximately eastward band through the southern part of the firth
- The double sampling in 2018 showed that the smolts moved very quickly across the firth

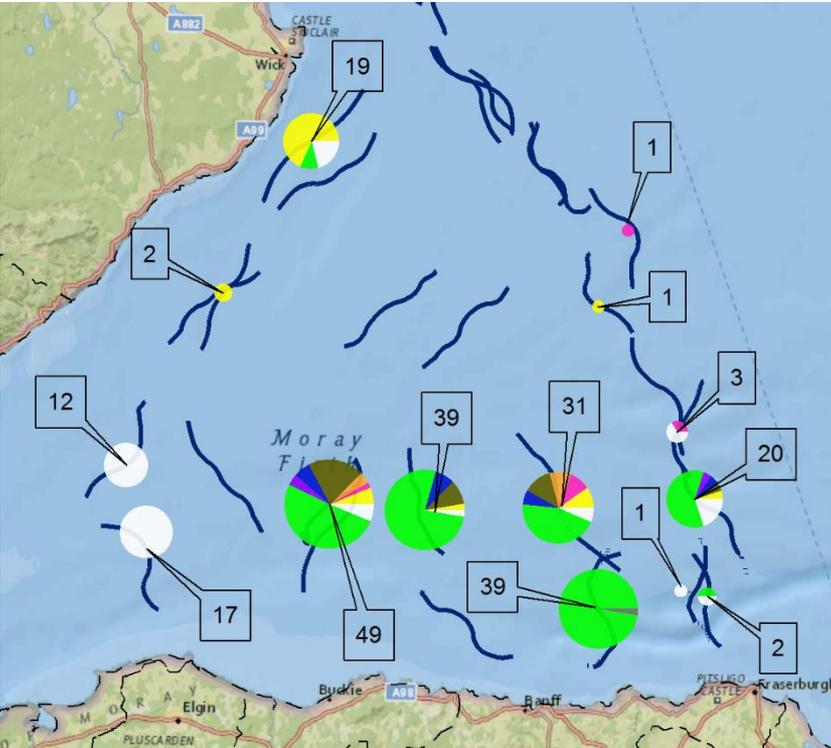


Genetic Assignment

• Sampled smolts assigned genetically to rivers or regions of origin by MSS colleagues



How salmon in rivers assign genetically to regions or separate rivers (Gilbey et al, 2016)



Numbers of smolts in trawls in 2018 and split of smolts into not assigned, and into different regions and rivers

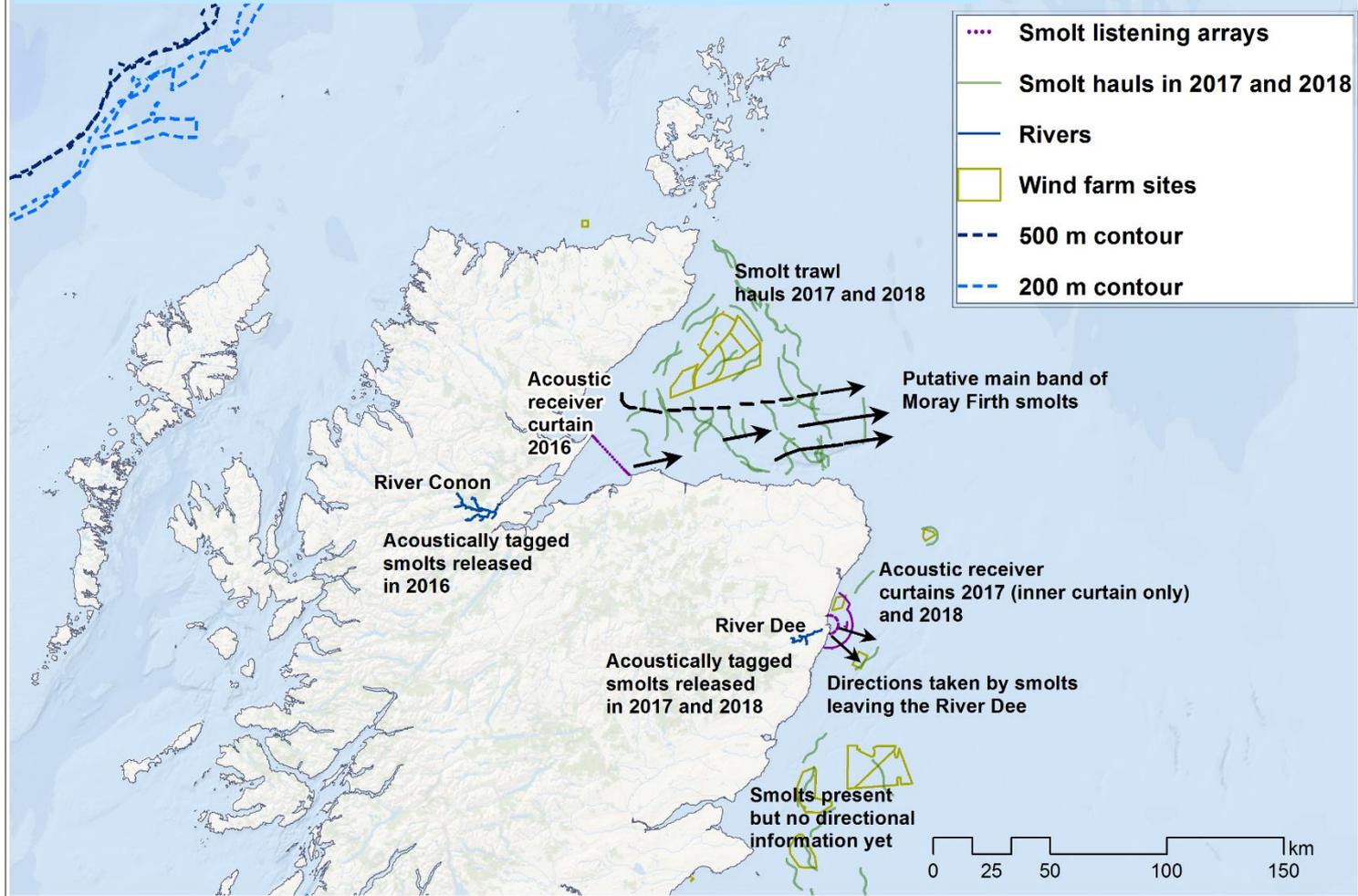
Summary

- Information is key to better understanding and managing potential impacts from activities such as marine renewables development
- Trawling provides snapshots in time for smolts over extensive areas, but not the detailed information for particular locations over the whole run, which acoustic tracking can provide.
- Data obtained to date has shown that smolts move quickly and directly away from the coast and can be concentrated, although not tightly, in particular routes
- Genetics tools can identify which regions and in some cases rivers smolts are from.

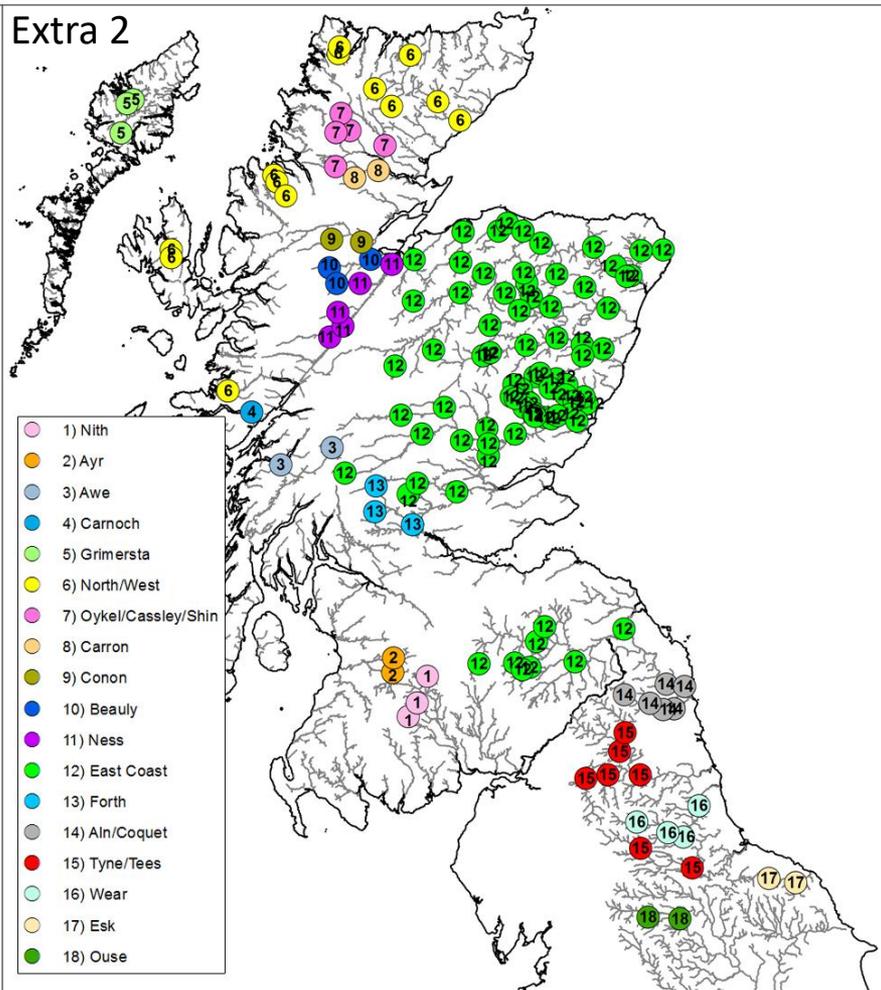
Acknowledgements

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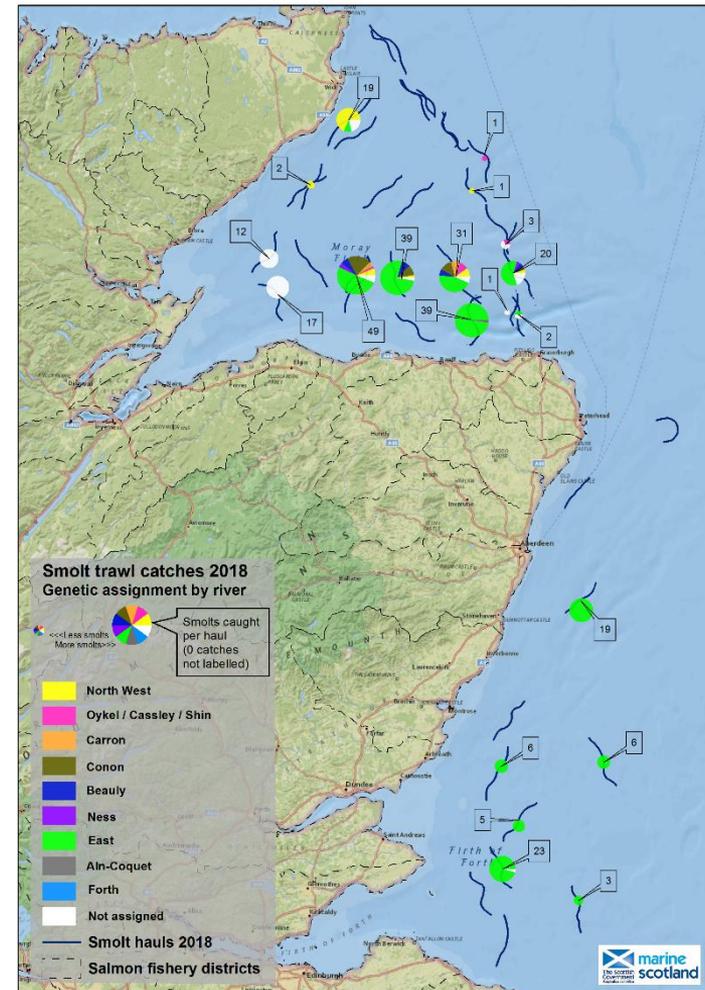
Synthesis of trawling and acoustic tracking and trawling results to date



Extra 2



How salmon in rivers assign genetically to regions or separate rivers (Gilbey et al, 2016)



Numbers of smolts in trawls in 2018 and split of smolts into not assigned, and into different regions and rivers