

Overview of the Scottish pelagic industry data collection programme

This overview provides a short description of the Scottish Pelagic Industry Data Collection Programme has been developed by the Scottish Pelagic Fishermen's Association (SPFA), Shetland UHI (SUHI) and Marine Scotland Science (MSS), with additional industry support from the Scottish Fishermen's Federation (SFF). Funding support has come from the EU H2020 project PANDORA and contributions from the partners themselves.

Building on an initial [feasibility study](#), efforts to develop a self-sampling scheme began in earnest in 2018. Initial expectations for a limited pilot programme have far been exceeded. Since 2020, all members of the SPFA (representing 20 out of 21 Scottish pelagic vessels) have been self-sampling.

Following training, sampling is undertaken by crew on each of the vessels, and involves taking biological samples of the catch from every haul in their fisheries for mackerel, herring and blue whiting. Ideas and feedback from skippers and crew have been used to co-develop simple and efficient sampling [protocols](#) and [data collection tools](#), which includes a robust keypad for inputting data at sea (see photo), and direct uploading of data to cloud storage while at sea.

In 2020 vessels took on responsibilities under a new co-sampling scheme whereby crew collect samples that are analysed by Marine Scotland and used to submit data on age, sex and maturity of pelagic fish to ICES stock assessments. From January 2022, the co-sampling scheme will replace onshore sampling by Marine Scotland and be adopted under Scotland's national sampling programme to become the sole mechanism for collecting biological data on the catches of pelagic fish by the Scottish fleet.

Alongside the work at sea, a lot of effort has gone into ensuring quality control processes, including establishing a clear chain of custody for the data, and developing tools for efficient generation of reports, which are fed back to the vessels within one week of receiving their data.

To date, over 1250 hauls have been sampled from 550 trips, resulting in more than 145,000 fish measured (Table 1). Results show that self-sampling provides high quality scientific data that has been evaluated to be fully consistent with data from the existing national sampling programme, and adds additional finer temporal and spatial coverage (Figure 1). The data can be used by industry and scientists to quantify changes in biology and demographics of the commercially targeted fraction of pelagic fish stocks, and understand changes in the ecosystem and dynamics of pelagic fisheries. Through a Roadmap agreed with Marine Scotland Science, work is ongoing to bring the results to relevant [ICES stock assessment working groups](#).

Self-sampling and co-sampling are a core part of the SPFA's [Data Collection Strategy](#), and with their commitment to a [Data Policy](#), participants have committed to the principles for data access and sharing of the results. Industry's support to fully-fund a new Pelagic Scientist post at SUHI until 2026 provides a solid foundation for further developments, and serves as an example for other potential industry sampling programmes.



Table 1. Number of unique vessels/trips/hauls/fish sampled by SPFA member vessels.

	2018	2019	2020	2021
Herring				
No. vessels	7	5	15	16
No. trips	41	14	65	64
No. hauls	73	30	128	149
No. fish	7882	3640	15396	17225
Mackerel November				
No. vessels	7	7	15	19
No. trips	29	20	67	88
No. hauls	53	39	133	178
No. fish	6165	4191	15119	19872
Mackerel January				
No. vessels	n/a	7	14	18
No. trips	n/a	23	45	67
No. hauls	n/a	42	82	138
No. fish	n/a	4862	9140	15851
Blue whiting				
No. vessels	n/a	1	5	9
No. trips	n/a	4	20	40
No. hauls	n/a	16	69	125
No. fish	n/a	1893	8002	15170

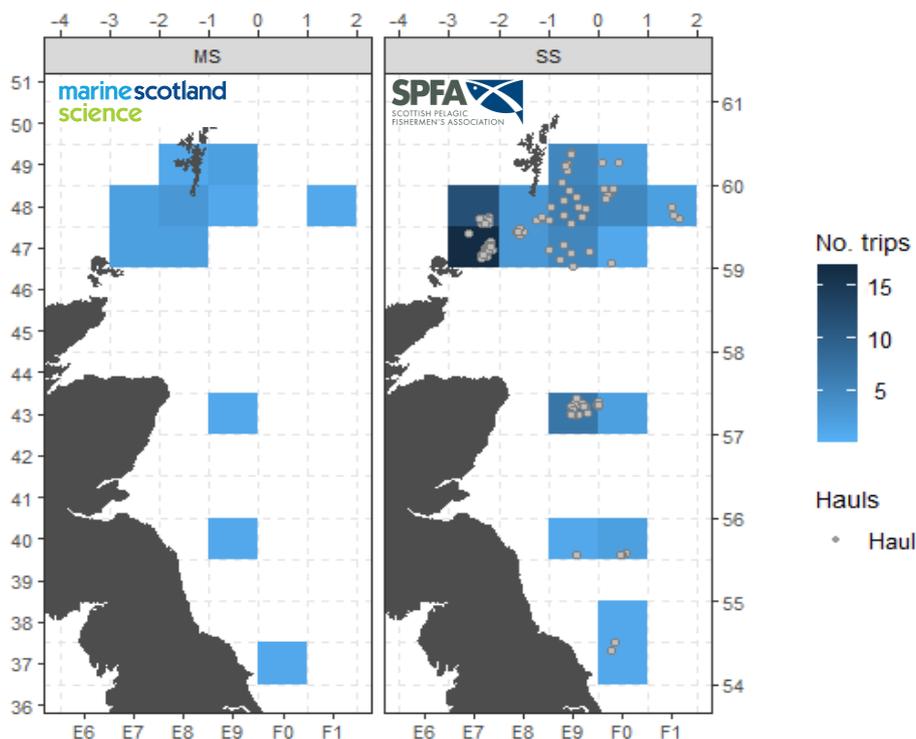


Figure 1. Sample locations from industry self-sampling and Marine Scotland Science sampling for herring 2020. Number of trips per ICES rectangle, mapped by dataset, where MSS=onshore sampling overseen by MSS, and SS=self-sampling undertaken by SPFA vessels.