Evidence Gathering in Support of Sustainable Scottish Inshore Fisheries – An EFF funded project led by Seafish

Frequently Asked Questions

WP1. Establishing the location of fishing activities within Scottish inshore areas

Q: What is the project about?

A: The purpose of the project is to fit and test innovative monitoring and communication systems on 300 Scottish West coast inshore fishing vessels. Whilst this technology is already in use around the UK, this project is designed to demonstrate the value of the technology to the inshore fishing industry whilst assessing the Automatic Identification System (AIS)* communication capability on the West coast of Scotland, where the utility of the AIS system is known to vary. AIS is a free, publicly accessible VHS radio-wave based service which provides information on the location and track of vessels at sea. In addition to being a safety device, AIS data provided by fishing vessels can help to support and improve fisheries management.

Through a process of open competition, Succorfish M2M (http://www.succorfish.com) has been appointed to supply and fit their SC2 systems to selected inshore fishing vessels (at no cost) for the purposes of this project. Participating vessels will have the option to keep the SC2 system which is worth approximately £1000, once the project ends on 1st August 2015.

*Automatic Identification System, which is a exclusively safety VHF channel

Q: What will my responsibilities entail?

A: If you are interested in participating in the project, all you need to do is to supply your contact details and the vessel identification number to one of the contact points noted at the end of this document. If you are then selected to participate in the project, you will be contacted by Succorfish and an SC2 device will be fitted to your vessel. You will be expected to have the device operating on your vessel throughout the course of the project which will end on 1st August 2015.

Q: What does the SC2 system do?

A: The SC2 device has a built-in GPS receiver which is accurate to 2 meters. At 1 to 2 minute intervals the device will report the vessels; position, course and speed over AIS The data will be sent using the AIS (Automatic Information System) This data is saved on the Succorfish servers and is accessible via the web based software system. The data can then interrogated and presented on a chart view. In addition, real time positions and plots of AIS data can be publicly viewed online using a range of freely available software. The SC2 systems will also have additional communication capabilities which may well benefit fishermen, particularly in relation to safety. These capabilities will be discussed in more detail with vessels selected to take part in the project, but they do not form part of the project.
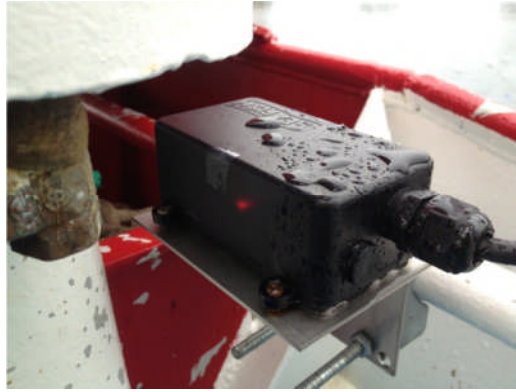
Figure 1. SC2 device fitted to a vessel (dimensions 116 x 66 x 43 mm)

Q: What happens if the system goes out of communication range?

A: When out of AIS range the device will report as normal but if it is not picked up by an onshore base station the data will be lost, users will see gaps in the vessels plot when viewing this data.

Q: What will happen on my boat?

A: If you sign up to having a SC2 system fitted on your vessel you will be contacted by a Succorfish engineer and a convenient data and time for the installation will be arranged. The SC2 system will be fitted to a permanent regulated power supply on the vessel. The device will be located in a prominent position with a clear line of sight of the sky. The installation will be performed by Succorfish engineers and take between 1 and 2 hours. At the end of the project you will be given the option to keep the device or to have Succorfish engineers remove it from your vessel.

Q: What will it cost me?

A: The system is fully paid for by this European Fisheries Fund project. There will be no additional costs to the vessel during the lifetime of the project. If you decide to keep the device beyond the lifetime of the project, all liability for the cost of maintaining, operating the system will reside with the vessel owner/operator. Should you decide to continue to use the data storage and visualisation facility offered by Succorfish the ongoing cost the vessel owner would average £10 per month but this will depend on usage and if any additional services are added to the system such as Gear in Gear out RFID sensors, e-mail client, depth and temperature sensors for example. Alternatively, the unit could continue to operate free of charge by simply using publicly available online AIS software.

Q: How much power will the system use on my vessel?

A: This system is a very low power consumption system. The power consumption will vary slightly depending on its application but on average will use 1Ah / day. For vessels which have no permanent on-board power supply a solar panel system will be installed but this system has not been tested as yet and its performance is as yet unknown.

Q: What happens if the system stops working?

A: The most frequent cause of system failure is the lack of a regulated power supply. If the device has a regulated power supply but fails to transmit Succorfish will repair / replace the unit under warranty within 12 months of fitting. Beyond this period the vessel owner will be responsible for the upkeep of the system. Skippers will be able to check the system as it has a red internal light indicating power. In addition, the Succorfish Graphical User Interface (GUI) software system has a Watchdog function which will automatically email skippers when the system has stopped reporting for a defined period of time.

Q: Will the system interfere with any of my other electronic systems?

A: The SC2 device will not interfere with any on-board systems when installed.

Q: Who will see the data?

A: The device will report the vessels data over AIS and this data will be publically available on AIS tracking sites such as Marine Traffic. This service is free. During the course of the project, the data will also be stored on a Succorfish server. You will be able to access your stored data and visualise it in various formats using Succorfish software. At the end of the project, the data will become the property of Marine Scotland.

Q: Will the data be used to prosecute a vessel?

A: The data will be collected to inform better management of fisheries for inshore fisheries in Scotland. There is no intention to use the data for compliance purposes. Is the responsibility of each vessel to comply with all relevant legislation. Under the terms of the EFF funding for this project, Marine Scotland will own the data produced by the project, but will respect the confidentiality of any commercially sensitive information that they have access to as a result of the project.

Q: How do I get to see my data?

A: After the system is installed on the vessel and the Activation Form completed by the engineer, you will be email by Succorfish with details of your unique Username and Password and a tutorial on how to use the online software.
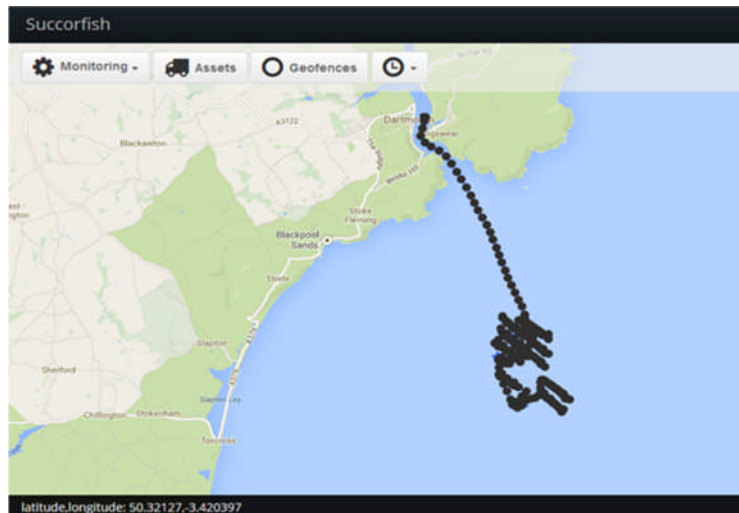
Figure 2. Example of a plot generated by a potting vessel

Q: What happens when the project ends?

A: The Project will end on 1st of August 2015. From this time the vessel may take full ownership of the SC2 system and responsibility for its maintenance. If required, a Succorfish engineer will remove the device within a specified period after the end of the project. It will not be compulsory for the vessel to operate the system beyond this date.

Q: Can the skippers control the SC2 system when their vessel is in operation, i.e. can skippers turn the SC2 system on and off at will? Is there any way to override the SC2 system?

A: The SC2 is designed to be tamperproof and cannot be turned off and on at will. If the power is removed the internal back up battery will continue to power the system for 48 hours or more.

Q: How much would the SC2 system normally cost a skipper to purchase and install if they did not volunteer for the EFF project, but decided that they would like the technology at a later stage?

A: The System which Succorfish will be supplying would cost in the region to £1000 when fitted.

Q: What happens if a SC2 device is stolen? Will skippers be able to locate it if it is reinstalled on another boat?

A: If powered up, the device would report its location and allow the police to recover it.

Q: What happens if the vessel loses power? Does it store the data that has not yet been uploaded, or is this lost?

A: When the SC2 loses power it will continue to operate for about 48 hours. Over this period no data will be lost but when the internal battery is exhausted the device will stop working.

Q: What happens if the boat sinks? Will the SC2 system still work if it is recovered from the vessel (how waterproof is it)?

A: The system is IP67 rated so it is certified to immersion for 1 hour in 1 meter of water.

Q: Do you or Marine Scotland foresee that high-resolution vessel monitoring systems such as Succorfish SC2 will become a legal requirement for inshore fishing vessels in the future?

A: The project will help inform the discussion around this question. In England and Wales inshore vessel monitoring systems (iVMS) are now a legal requirement in some fisheries and its adoption is expanding.

Q: Presumable the creel tracking tags (the yellow ones shown in iTV news) are not included in this EFF pilot project. But what would the tags cost the fishermen to purchase should they want to use them in combination with the black box?

A: The RFID tags are not included in this project but are easily added to the system supplied, but under separate agreement with Succorfish. If a fisherman or group of fishermen wanted to test the technology the hardware will cost £150 for the reader and between £1 and £3 for the tags. The RFID data cannot be transmitted over AIS due to the data not having a safety feature and the data cost would be around £10 month.

WP2. Monitoring fishery catch to assist scientific stock assessments in Scottish inshore fisheries WP3. Identifying catch composition to improve Scottish inshore fisheries management using technology to enable self-reporting

Q: What is EM technology and how does it work on small inshore vessels?

A: EM (electronic monitoring) technology consists of a data logger which collects data from various sensors and cameras. The sensor data can be used to determine fishing and non-fishing events/ periods throughout a trip. The synchronised video data allows analysts ashore to either corroborate self-reported data through an audit process, or to collect data on catch composition/quantities independently.

Q: Why do we need to have cameras on board?

A: Data for stock assessments have traditionally come from market sampling, observer sampling and submitted catch records. The nature of west coast fisheries means that data is difficult and expensive to collect through these methods. Data sets which are important to stock assessments are often only able to be collected at sea (e.g. catch composition/number/quantity of discards by species). Collecting these data can be problematic for a number of reasons including frequency of landings, widely dispersed activity and landings, safety and space issues arising from smaller vessels and cost. If this data can be collected by fishers it could lead to reduced monitoring and sampling costs and more comprehensive and accurate stock assessments. The EM systems allow the fisher collected data to be verified through an audit process and therefore give it scientific credibility to allow it to be used with confidence by all interested parties.

Q: Self-sampling seems like a lot of additional work, what will I have to collect and why would I want to participate?

A: Participating vessels will be asked to collect a range of data daily about the quantities and species they have caught. The additional work required will be as limited as possible so as not to overburden the crews. In recognition of the additional self-sampling undertaken, an inconvenience payment will be made to participants at the conclusion of the project.

Q: What do I do if my system isn't working?

A: SeaScope provide a 24 hour contact for participants to report operational issues with camera systems. Where issues can't be resolved over the phone, a technician (or contracted local engineer) will be deployed to rectify the issue.

Q: If my system isn't working will I be able to continue fishing?

A: Yes. However, in order to ensure data collection is maximised, fishers will be required to report any functionality issues as soon as the issue is discovered.

Q: Will I be required to take observers to sea?

A: Yes. A fundamental part of the project is to have observers collect independent data from time to time throughout the projects duration as well as provide additional at sea training on self-sampling techniques. We estimate an average of 4 sea-days per participant vessel will be required. All observers will be experienced seagoers and hold relevant sea-going qualifications. They will also be insured for public liability.

Q: What happens to the data once the project is finished?

A: All video and sensor data collected throughout the trial will belong to Seafood Scotland and be stored securely for the duration of the project. Once all data has been analysed and the final report completed it is expected that the video data will not be required and will be deleted.

Q: How secure is my data?

A: All data and video collected will be stored on encrypted portable hard drives. Only SeaScope staff will be able to access these hard drives.

Q: Who can use my video or see where I have been fishing?

A: The data will be treated as commercially sensitive and will be anonymised. Any data that is used in reports or presentations will be displayed on maps in an aggregated way and at a resolution that cannot pinpoint exact fishing location.

Q: How do I know that this information won't be used against me?

A: This is a pilot project to evaluate if fisher self-sampled data can be collected, verified and used in stock assessments. The data collected on this project <u>MUST</u> only be used for the purposes it was collected. Obviously in a serious criminal case a court can subpoena any and all data from anyone in the UK, however it is not in anyone's interest to use this project to identify potential infringements and the data will not be volunteered for enforcement purposes.

Q: Can I keep the equipment at the end of the project?

A: This is a pilot project, which if successful could lead to a longer term project. In this situation it may be possible for vessels to retain the systems on board but ownership of the equipment will remain with Seafood Scotland, under the care of SeaScope. Alternatively the equipment can be easily removed at the end of the project.

Q: What are the novel approaches being developed in this project?

A: Whilst the concept of self-sampling is not a new one, using technology (EM) to verify self-reported data collected by fishers and to gather biological data is. It should also give fisheries managers, the fishing industry and scientists confidence in the data sets and transparency.

Q: What additional biological data could be collected using EM technology?

A: Additional sub-projects within WP3 will explore what additional data may be able to be collected via EM technology. These could include length frequency data on retained and/or discarded catch and actual weights of catch.

Q: What are the long term benefits of this project?

A: This pilot project aims to show how EM verified self-sampled data can improve the quality and quantity of data available to scientists, and therefore improve the stock assessments. This will lead to better managed stocks and help to ensure that a long term sustainable fishery exists. It will also forge stronger links between the inshore fisheries sector and fisheries managers/ policy makers and give fishers a greater role in the management of their stocks and demonstrate responsible fishing.

WP5. Improving market intelligence and fishery production co-ordination in Scottish inshore fisheries

WP6. Integrating stock management considerations with market opportunities in Scottish inshore fisheries

Q: Who can we contact?

A: WP5: Crick Carleton, Nautilus Consultants, crick@nautilus-consultants.co.uk, tel 01721 729839; m 07968842295. WP6: John Hambrey, Hambrey Consulting, john@hambreyconsulting.co.uk; tel 01997 420086; m 07899 876 992.

Q: When will the research be completed?

A: June 2015.

Q: Where will the data come from?

A: Existing government statistics and previous research, supplemented with gap filling information collection direct from the industry in case study areas.

Q: How can I/we be included in the study?

A: These are pilot studies, intended to identify issues, opportunities and productive approaches to improved inshore fisheries. We are looking to engage with fishers and supply chain intermediaries interested in joining with this research and open to innovative solutions to identified problems. As pilot studies the geographical scope of our research will be limited, but we welcome approaches from any and all interested parties. It is expected that a wider programme of work / implementation will be framed to take forward the findings of these studies.

Q: What happens to any information I provide?

A: Our objective is to develop in-depth understanding of the practice and economics of typical fishing and marketing enterprises as a basis for informing both fishery management and marketing strategy. Data provided by individual fishermen or supply chain intermediaries will be used to inform generic models. No data will be attributable to specific businesses in any published or publicly available form without the express permission of providers.