

# £1.53M FOR SCOTTISH INSHORE FISHERIES RESEARCH

Scottish Cabinet Secretary for Rural Affairs and Connectivity, Fergus Ewing MSP, recently announced £4.1m of grants from the European Maritime and Fisheries Fund (*Fishing News*, 3 November), including £1.53m to fund the Scottish Inshore Fisheries Integrated Data System (SIFIDS) Project.

**Kelvin Boot** takes a closer look at how the SIFIDS project, which was launched last week, will use this money and how, in line with Marine Scotland's vision, it will seek to 'support the development of a more sustainable, profitable and well-managed inshore fisheries sector by modernising the management process'.

## An important resource

Inshore vessels dominate the Scottish fleet and in 2016, 1,508 vessels comprising more than 78% of licenced fishing vessels in Scotland, were 12m and under. While the inshore fishery is undoubtedly important, information on its scale and impact remains patchy.

Mark James, operations director for the Marine Alliance for Science and Technology for Scotland (MASTS), which conceived and will manage the project, is clear about the need for research in this area:

"There are more than 1,500 inshore fishing vessels operating in Scottish coastal waters. This fishery represents an important part of the rural economy and the cultural fabric of our coastal communities. The fact that there are so many small inshore vessels operating around our coast – often in remote areas – means that it has been difficult to gather data that we need to understand how this sector operates in terms of fisheries management, economics and its relationship with other users of our coastal waters."

## Building on previous research

The SIFIDS Project will build upon

previous research funded through the European Fisheries Fund (EFF) and is designed to deliver a step change in the way that inshore fisheries in Scotland could be managed in cooperation with the industry. SIFIDS will be run by the MASTS Directorate at the University of St Andrews (USTAN) through a series of specific work packages (WPs).

The 12 WPs will bring together expertise from USTAN, the University of the Highlands and Islands (UHI), through the North Atlantic Fisheries College and the Scottish Association for Marine Science (SAMS) together with two independent research companies: Seascope Fisheries Research Ltd., and Agroecosystems Ltd. All of the participating organisations have worked directly with the fishing industry before and, as Mark James points out, this is key to a successful project with workable outcomes:

"It has always been difficult to collect fisheries management-related data from the inshore fishery because it consists of a large number of small vessels dispersed around the Scottish coast – often in remote locations. Technology is now available or in development that could help to plug this information gap. But to maximise the benefit of using these systems and processes, it is vital to work closely with fishermen and to get their input.

"The SIFIDS project is designed to address some of the key concerns of the inshore fleet. Under the previous EFF project we fitted 274 sub-12m vessels with Class B AIS units, largely as a means of seeing how well we could use this technology for tracking fishing activity. Conventional wisdom before we started was that no fishermen would voluntarily have technology on-board that would let others see where they might be fishing. In reality, the project was completely oversubscribed with skippers keen to have the kit fitted to their vessel. The reasons they gave



▲ Isle of Skye skipper Alastair Philp took part in previous monitoring projects with the prawn creeler *Nemesis*, and welcomes funding for more inshore fisheries research.

ranged from the pragmatic view that if government was going to make AIS a requirement they may as well get it for free!

"However, the majority of skippers involved in the project were keen to be able to record their fishing activity over time. On the west coast in particular there was genuine interest in being able to demonstrate where they fished as part of the evidence base that they might be able to use if challenged with respect to marine spatial planning and for some, the ability to help avoid gear conflict.

"The skippers on the east coast tended to want the AIS on-board for safety reasons – particularly where they were working close to busy shipping areas. Again, contrary to popular belief, the vast majority of skippers involved in the AIS trial elected to keep their AIS unit operating and only a small number indicated that they would



▲ MASTS Operations Director Mark James outlining the SIFIDS project.

not use it or would like to switch it off or into silent mode when fishing."

## The need to establish a baseline

Starting from a reliable baseline is essential and one strand of the work will be reviewing current shellfish stock assessments, including quantifying any risks and uncertainties associated with them. In parallel, a cost-benefit analysis regarding the potential introduction of an optimised data and stock assessment strategy for brown crab, lobsters and scallops, will also be undertaken.

Often, catch records are the only data available but these may not reflect the true picture as they do not account for fishing effort, for example, but data is key to future management of stocks, as Mark James points out:

"Providing data can always be seen as a double-edged sword,

but managing the inshore fishery sustainably is in everyone's interests and at present we know that there are deficiencies in data and we hope that the SIFIDS project will be able to provide systems and processes to address these gaps.

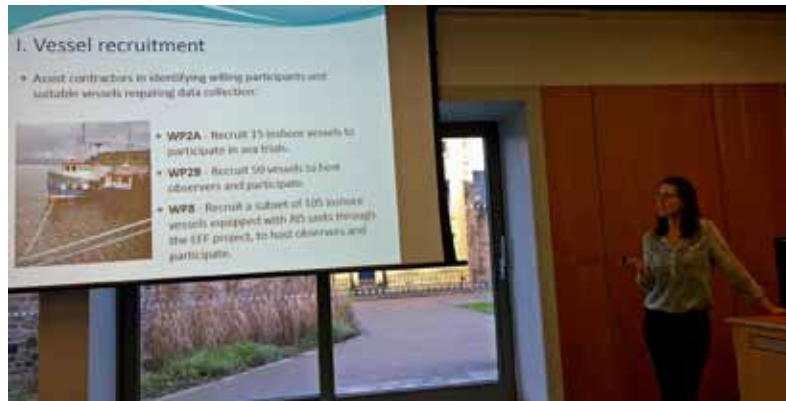
"Empowering fishermen to collect data has long been an aspiration; the technology to do so is now increasingly available. The trick is in gathering this data and being able to use it in ways that can inform fishermen about the performance of their businesses, provide fisheries management data that is relevant, timely and can be gathered cost-effectively and, increasingly, provide objective evidence of fishing activity that can be fed into the marine planning process."

Bill Wiseman, a skipper who took part in the previous research, agrees that data is important: "I think that taking data from the



▲ The SIFIDS project was launched in Edinburgh on 13 December.





▲ Kyla Orr, of Agroecosystems Ltd, will play a key role in engaging with the inshore sector to promote the SIFIDS project and inform the inshore community of progress.

boats is the way forward because knowledge is power and the more we know, the better and more we can do to solve problems. It is also a way to resolve the problem of gear conflict, so, in my opinion, the more data that we collect the better – it will build up a database for that particular area.”

The project’s work packages have been designed to investigate ways of filling the data gaps. The first will use Automatic Identification System (AIS) technology and stand-alone GPS to gather data, at high spatial resolution, on inshore fisheries vessels’ activity. This data will be complemented with dedicated on-board observations, which will help to provide a detailed understanding of what the vessel activity data from the AIS and GPS actually means at any given point in time. Observers will also survey catch handling and processing. This information will be used to identify, develop and trial technologies that could automate the collection of relevant catch and fishing effort data.

The balance of cost against scope is always a problem when it comes to stock assessments. Scallop beds are a particular challenge, where methods need to provide sufficient spatial resolution without being destructive. WP3 will investigate how automated mechanisms and processes could provide accurate assessment data. Such technologies might include the latest imaging and sonar to identify presence and extent of scallop beds. Low cost Autonomous Underwater Vehicles and towed arrays will also be assessed for their potential to be towed behind fishing vessels as

part of their normal activities.

Alastair Philp, a skipper out of Kyleakin, took part in the previous monitoring projects and had an AIS system installed on the *Nemesis*. He is ‘delighted to hear about the EMFF funding that has been allocated to research within the inshore fishing sector’, and believes that there should be ‘further development of automated data collection systems, which can relieve the burden of paperwork that fishermen are currently required to submit’, and he ‘welcomes any vessel technology that will reduce gear conflict between fishing sectors, and increase stock sustainability’.

### Local knowledge

One data resource that is often overlooked is the wealth of experience and knowledge that exists within the fishing communities. Encouraging fishermen to share this information can be difficult, and providing the necessary verification and quality assurance for ‘experiential’ data is a challenge.

There may be a natural reluctance on the part of some fishermen to share information that they perceive as being negative and that could result in some form of restriction. This is especially relevant when it comes to accidental catch of charismatic and other Protected, Endangered and Threatened (PET) species. Scientists will be working with fishermen with the aim of assessing the true impact of

**Scallop beds are a particular challenge, where methods need to provide sufficient spatial resolution without being destructive**

there is a high risk of interaction with PETs, or reduce the amount of wasted fishing effort in areas where the stock may be of low or limited value.

### Answering ‘what if’ questions?

A particularly important aspect of the SIFIDS project will be to integrate vessel activity data with catch and other relevant effort data. This will then be linked to season, weather and tide data and economic data for example to help develop statistical models. The beauty of a ‘model’ is that you can then use it to answer questions about what might happen under a range of different scenarios.

With respect to marine planning for example, it might well be possible to quantify the impact of restricting or preventing fishing in a given area.

What might happen if the various effort controls were introduced?

What would the impact of increasing or decreasing the number of creels in a given area



▲ Inshore fisheries at small harbours like St Andrews are vitally important throughout Scotland.

be?

How would a hike in fuel prices or other costs affect inshore fishing businesses?

Having the right spatial and temporal data available makes it possible to provide fishermen with business-relevant information, fisheries managers with data upon which they can make defensible decisions, and the evidence base that policy makers and planners

will increasingly need to inform their work.

### Sharing data

A key output of SIFIDS is to bring all the data streams together in a secure, powerful

and flexible data resource that can be easily accessed by fisheries managers, marine planners, scientists and, potentially, the fishermen themselves. The important aspect is to make data available in a form that is relevant, understandable and useful to the individual groups.

The SIFIDS project team will be seeking the views of all the relevant stakeholders to design a data resource that delivers outputs that meet their respective needs, while maintaining the necessary levels of data protection and confidentiality. This will be achieved partly through the way the database is structured and through the development of appropriate data sharing agreements.

### Economics and culture

Scotland’s inshore fisheries comprise a large, dispersed and varied sector that makes important, though largely unquantified, economic, social and cultural contributions to coastal communities.

Understanding this context is essential for the successful implementation of any management or marine planning initiatives. Bringing together estimates of the direct and indirect value of the industry and identifying the contribution of inshore fisheries to the social and cultural fabric of local communities are aims of another WP.

An objective of this research is to assess within communities who is involved and how businesses operate within the inshore sector, and whether any planning is in place to maintain the continuity of fishing into the future – either through inherited businesses within families or through new entrants to the sector.

All business sectors have a ‘culture’ and it is important that we understand and recognise the culture of the inshore sector to improve communication and direct resources to where they are most needed.

### So what will all this ‘research’ deliver?

The ultimate aim of the SIFIDS project is, in 30 months, to deliver a prototype package of processes and systems that have been designed to radically improve the way we collect data from the inshore fleet, process that data and make the outputs available to key user groups – fishermen as individuals, inshore fishery groups, fisheries managers and marine planners.

Much of the work of SIFIDS is assessing the feasibility – both technical and economic – of the processes and systems being developed. At the end of the project, decisions will then need to be made as to how the outputs might be rolled out to the sector as a whole. ■



▲ Grant Course, of Seascope Fisheries Research, outlines the approach to installing technology, database development and the observers’ programme on volunteer vessels.