

Science in support of industry-led initiatives in inshore fishery management in Orkney

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Summary

Six Inshore Fishery Management Groups (IFGs) have been established around Scotland, facilitating regional management of fisheries out to six nautical miles, also providing a means for the fishing industry to have a voice in wider marine management issues. The Orkney IFG, led by a cooperative consortium of stakeholders in local fisheries set up as a not-for-profit company, has been proactive in seeking scientific support for the development of sustainable fisheries initiatives, relating particularly to a thriving shellfish sector. We describe how industry is working with university scientists and local and national government agencies to develop fishery monitoring programmes that address two needs: firstly, supporting fishery assessment and management in relation to sustainability criteria; secondly, information to support marine spatial planning in the region, particularly in relation to the emerging wave and tidal energy sector. A Fishery Improvement Project is underway for the brown crab fishery, working towards meeting standards for sustainable fishery management and coordinating closely with local and national agencies on issues of governance and spatial planning. Scientific support for this and other industry-led initiatives in the region is providing a basis for the development of sustainable harvest strategies, with controls potentially provided under existing and future legislative instruments.

Introduction

Inshore fishery management in Scotland has recently been strengthened by the establishment of six Inshore Fishery Groups (IFGs), regional non-statutory bodies with membership drawn from relevant commercial fishing sectors and each with a chair appointed by Marine Scotland as the marine management directorate for Scotland. The remit of the IFGs is to facilitate the development of policy and measures relating to the regional management of fisheries within six nautical miles, in accordance with the Marine Scotland Inshore Fisheries Strategy 2012 and the National Marine Plan (Marine Scotland 2012). TACs and quotas do not apply to many of the species targeted by fisheries in these inshore areas, notably for regionally important crustacean and mollusc stocks, and management has mainly been restricted to vessel licensing and technical measures such as the definition of minimum landing sizes (MLS). Informal stock assessments are undertaken for key shellfish species including brown crab (*Cancer pagurus*), European lobster (*Homarus gammarus*), velvet crab (*Necora puber*) and king scallop (*Pecten maximus*), based on nationally coordinated sampling programmes (Barreto & Bailey 2013), but these provide only indicative status in relation to an F_{MSY} proxy, there are no formally adopted biological reference points and harvest strategies are not defined. In this context there are two essential pre-requisites for the success of fishery management initiatives put forward by the IFGs, namely access to scientific support on a regional basis and the existence of legislative instruments for effective implementation of management actions. We describe the development of an industry-led programme of scientific monitoring, assessment and research in support of sustainable fishery management initiatives by Orkney Sustainable Fisheries Ltd, which is now recognised as the IFG for Orkney.

Materials and Methods

Orkney Sustainable Fisheries Ltd (OSF) is led by a cooperative consortium of stakeholders in local fisheries, set up in 2006 as a not-for-profit company to run the local lobster hatchery and take forward

research initiatives to support development of the local shellfish sector. We describe the evolution of scientific monitoring, assessment and research in support of fishery sustainability in Orkney since 2006.

Results and Discussion

A proposal to establish management of inshore shellfish fisheries in Orkney waters through the establishment of a Regulating Order under the Sea Fisheries (Shellfish) Act 1967 was rejected by a majority of Orkney fishers in 2001 (Johnson 2004). This followed the establishment of the first Scottish Regulating Order in Shetland in 1999, providing for management of shellfisheries within the six nautical mile limit. Orkney has since pursued other avenues for inshore fishery management, with the setting up in 2006 of OSF as a cooperative consortium of local stakeholders. One of the first actions of OSF was to commission a pre-assessment for the creel fisheries (brown crab, European lobster and velvet crab) against the Marine Stewardship Council (MSC) standard for sustainable fishing (Hough, 2006), which identified three main issues: defining the extent of stocks, particularly the inshore and offshore components in brown crab; the lack of explicit objectives and effort controls; recording of catches and bycatch. OSF employed its first full-time shellfish researcher in 2010, initiating a tagging programme to characterise the offshore spawning migrations of female brown crabs and undertaking biological sampling at ports and observer trips to characterise catch, landings and bycatch in terms of size and species composition and catch per unit effort in the creel fishery. These monitoring programmes continue to date, providing an accumulating time series of detailed monitoring data. In more recent years, research and monitoring activities have stepped up considerably with the initiation of the Orkney Shellfish Project in 2013, with two prime motivations: the licensing of areas of Pentland Firth and Orkney Waters for wave and tidal energy developments; and a second pre-assessment of the creel fisheries against the MSC standard, which identified the main issues as being the lack of biological reference points, harvest control rules and monitoring of fishing effort (Bell & Gascoigne 2012). The Crown Estate, a public body which manages UK assets including the seabed, funded the monitoring of spatial patterns of fishing effort in Orkney waters with vessel monitoring systems supplied by Marine Scotland, their interest being in developing a resource for wave and tidal energy developers in informing consenting activities. At the same time, the project has involved the development of a Fisheries Improvement Project to formally progress the brown crab fishery towards meeting the MSC standard for sustainable fishing, this being supported by WWF-UK and Marks & Spencer as a retailer working towards sourcing of sustainable seafood products. Two full-time and two seasonal shellfish scientists are employed, working under the direction of a scientist at Heriot-Watt University's International Centre for Island Technology in Orkney, who is also providing scientific support for the development of stock assessments and relevant research. This has provided significant knowledge transfer to OSF, whilst the university has benefited from an increasing portfolio of fishery related research, including research projects for MSc and PhD students. Through this relationship, OSF is developing a sound basis for evidence-based management, highlighting the needs for legislative instruments to define the necessary controls. The Sea Fish (Conservation) Act 1967 enables legislation, e.g. for MLS, with further controls possible through the Inshore Fishing (Scotland) Act 1984; limitations for effective development of management tools are currently being discussed with a view to moving forward strategies for inshore fishery management in Scotland.

References

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