SEAFISH INSHORE FISHERIES PROJECT

WP6. Integrating stock management considerations with market opportunities in the Scottish inshore fisheries sector – a pilot study

Name of contractor: Hambrey Consulting

Start date of project: 30th June 2014

End date of project: 15th July 2015

Aims and objectives:

The purpose of this study was to undertake a pilot assessment of the potential economic and associated benefits of establishing a **minimum market landing size** (MMLS) in excess of the minimum legal landing size (MLS) for *Nephrops* and velvet crab; and to evaluate if such intervention could be undertaken at a regional level.

The projects objectives were to:

1. Determine the size distribution of individuals landed (above MLS) from stocks on a seasonal basis, within case study areas for the identified species;
2. Quantify the costs and returns associated with different sized animals;
3. Establish the consequences of increasing MMLS through pilot economic assessments; and
4. Evaluate the potential for increased MMLS as a tool for improved returns and fishery sustainability

The rationale behind this research is that an increased MMLS may lead to improvements in stock health and the potential for improved yield or size profile of landings in the future; subsequently attracting substantial increases in returns per kg landed and enhancing returns for the industry as a whole.

Approaches:

The case study area focused on the Skye and SW Ross Trawl and Creel fishery for Nephrops with preliminary assessments also made for the South Uist and Barra velvet crab fishery. Researchers engaged with local fishery interests (skippers and traders) to ensure that a realistic understanding of fishing practice, production economics and market opportunities was developed. Basic steps in the research were to undertake:

1. Economic profiling of the case study area, including the structure and economic contribution of the local fleet, and a review of existing catch size profile;
2. An assessment of the factors that determine catch size profile and the costs associated with structural or strategic changes to increase the size profile of the catch;
3. Analysis of the market, market trends, and prices associated with different sizes of product;
4. The development of economic models (for representative fishing enterprises) to assess the relationships between altered catch profiles and associated costs, and between returns and size catch profiles;
5. An assessment of the economic and yield consequences of possible future increases in MMLS alongside regional and national benefits/costs using stock assessment techniques and dialogue.

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Results / key conclusions and recommendation:

Case Study Summary Profile and Investigations:
Within the Skye and SW Ross Trawl and Creel Nephrops fishery, the landed value is approx. £2.9million for creel and £1.8m for trawl sectors respectively. The creel sector is highly varied with a range of part-time and full-time vessels, whereas the trawl sector tends to be more aligned with the main markets.

Using developed baselines, cost- benefit tool and scenario modelling, estimations were made of the impact of a change in the catch size profile to landed product value (£/kg) arising from altered fishing practices required to meet an agreed MMLS. This was modelled on two scenarios: S1: A scheme to reduce catch of smaller prawns (< 25 or 30mm Carapace Length (CL)) for the whole fishery, and S2: The introduction of MMLS of 40mm CL for the creel fleet.

While the information garnered from the study areas was valuable the lack of a formal agreement with industry regarding the research, along with the absence of national economic performance data profiles, constrained the results.

Key findings:
The existing diversity within the creel fishery of Skye and SW Ross is already fulfilling a range of social and economic functions while the trawl fishery is supplying a range of markets requiring smaller catch size. The pre-discard catch profile of the creel fleet includes very few prawns below 32mm CL i.e. 12mm over the current MLS. Furthermore, some creelers discard prawns of less than 40mm CL to meet particular market and trader demand.

The catch profile for the trawl fleet is typically of smaller animals, but with < 5% under the current MLS. Around 20% of catch is less than 25mm CL (the regulated east coast MLS) and around 50% below 30mm CL. Some trawl fishers employ a shorter final tow to increase size and quality, and occasionally market a small proportion as live. Substantial variation in catch profile exists due to factors such as location, depth, season, time of day, skill, net design and fishing practice.

Taking into account discard mortality, modelling suggests that for trawls the optimum size for retention is slightly lower than the current MLS. If discard and escape mortality can be reduced, there is some benefit to avoiding the capture of males of less than 25mm CL as these will eventually mature to a greater size. There may be some opportunities for utilising a "French grid" although this would require further research. Net losses were generally forecast for trawlers. Preliminary analysis of the limited data available relating to velvet crabs suggests that there is a case for increasing MMLS to as much as 77mm for at least part of the year.

Potential Marketing Strategies to reach demand:
Specific opportunities to market larger prawns locally within the case study area were limited or underdeveloped and demand is largely met at present. Despite this specific market opportunities may include:

- Trawlers meeting some of the excess demand for live prawns seasonally when prices are strong, although there is a danger that this could have negative consequences for creelers.
- Following market signals (e.g. strengthened demand for whole fresh and frozen trawled prawns over live prawns) and emerging market opportunities (e.g. east and SE Asia)
- Targeting local tourists and the increase for 'local' food through direct sales or local seafood hubs.

Conclusions:
Preliminary results suggest that the North Minch Nephrops fishery is being fished sustainably and at a level of maximum sustainable yield. For creels, no strong case exists for an increase in MMLS above the current 34mm CL as determined by the live prawn market; however modest changes could potentially enhance the size profile for market or stock health reasons. The opportunity for trawlers to exploit or diversify into a raised MMLS would incur costs and complexities that currently outweigh any benefits. Any attempt to introduce an increased MMLS for the trawl sector is unlikely to be supported unless substantial longer term benefits can be demonstrated. For this closer and longer term relationships between scientists, economists and fishermen are required for improved assessment and analysis. This study highlights the fundamentally different interests of the creel and trawl sub-sectors in terms of both optimal stock management and product/marketing strategy and indicates that a greater degree of physical separation between the two may be beneficial.

Contact details

All general enquiries about the project should be directed to the MASTS Project Manager – Dr John Thompson at: jbt5@st-andrews.ac.uk

More detailed inquiries with respect to individual work packages should be directed to the Project Facilitators:

Dr Kyla K. Orr
T 01599 – 544 739
M 07502 – 329 058
E kylaorr@gmail.com

Ali McKnight (MCIEEM)
T 01540 – 662 083
M 07713 – 333 166
E alimcknight@agroecosystems.co.uk

Freephone
0800 043 3474

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