Project Proposal and Business Case: North Devon Skate Pilot study

Background to the project

The initial idea for the project came about after the closure of UK skate and ray fisheries in October 2014 after year-on-year reductions in quota, partly due to a precautionary approach to a paucity of data. The Devon and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) chair suggested that IFCA officers may be best placed to initiate a project which would form a first step in improving our knowledge of skate stocks in North Devon. D&S IFCA is the statutory regulator for sea fisheries out to the 6 mile limit. D&S IFCA officers have a wealth of experience in boat-based research, marine ecology, fisheries biology and the application of novel methods for mapping species distributions. All officers are fully ticketed (sea survival, PSSR, firefighting) for the boat-based work required in this project. A wealth of local expertise and knowledge is also held by the other funding organisations; the North Devon Area of Outstanding Natural Beauty and the North Devon Biosphere Reserve.

Objectives of the project

The primary objectives of the project are to pilot the use of data storage tags (DSTs) for the monitoring of patterns of distribution, movement and migration of skate species in North Devon. One of the wider objectives of the project is to bring together interested parties to discuss the potential for the development of a long-term monitoring plan and explore the possibility of the development of a Fisheries Improvement Plan. This will be both through the informal links set up through setting the FLAG project up and through a more formal workshop which will be a solutions-focused event aimed at identifying a clear way forward for monitoring skate movements, set up partnerships and identify possible future projects and funding. Whilst it is acknowledged that the issues with ray quota and evidence gaps cannot be solved at a local level alone, local initiatives can help improve the sustainability of local stocks and provide evidence to suppliers that local conservation measures provide benefits to North Devon skate stocks.

- The project will use local fishermen to catch and tag 25 blonde rays and 25 thornback rays in North Devon waters, both inside and outside the ray box, with data storage tags.
- The project will pay local fishermen to return any tags retrieved from rays to the IFCA.
- The project will estimate the return rates of rays tagged in North Devon to assess the viability of this method for larger-scale projects.
- The project will collect data which can be used by future project phases to model movements of rays in the Bristol Channel.
- A workshop will be held for all interested parties to plan a longer term monitoring strategy including data analysis of the returned tags, for skates in North Devon, identify potential funding and discuss the necessary steps for producing a Fisheries Improvement Plan.

Project need or demand

The Bristol Channel is one of the few targeted skate fisheries in the UK with landings of ray from this area contributing about 20% by weight of the total skate landed by all English & Welsh fisheries (Catchpole & Enever 2007). The Bristol Channel skate fishery has an estimated annual value of approximately £1 million (Catchpole & Enever 2007). The main skate species caught by otter trawls

and gill-nets in the Bristol Channel, and their proportions recorded in landings from otter trawls are: are thornback ray *(Raja clavata) (32%) blonde ray (Raja brachyura) (28%) and small-eyed ray (Raja microocellata) (41%).* Small quantities of spotted ray *(*Raja montagui) are also caught by these fisheries. Beam trawls which operate further offshore have a different catch composition, with cuckoo ray (Leucoraja naevus) dominating catches. Blonde ray, small-eyed ray and spotted ray are also caught, but thornback rays are caught in much smaller numbers.

Skate fisheries are currently managed by a multi-species quota, with TACs often covering large geographic areas. This is partly due to the historical reporting of landings of skates at the family level but this is improving and the proportion of skate landings reported to species level for UK (English and Welsh) fleets has increased from ca. 42% (2008) to ca. 92% (2010) (Ellis et al. 2012). A total allowable catch (TAC) was first introduced for skates in the Celtic seas ecoregion (which includes the Bristol Channel) in 2009. Initially the quota for this area was set at 15,748 tonnes with yearly reductions down to 9,915 tonnes in 2012 (Ellis et al. 2012). Historically quotas for skates were at or above the total landings however recent reductions in skate and ray quota are now restrictive to some fisheries.

Additional measures have also been implemented by the fishing industry in North Devon which strives to safeguard the sustainability of the skate fishery in the Bristol Channel through the North Devon Fisherman's Association. This includes the implementation of a voluntary seasonal closed area which covers an area of approximately 400 square km encompassing Lundy Island known as the 'ray box' which has been agreed by English and Belgian vessels. Larger mesh sizes and a voluntary minimum landing size initially of 38cm across the wing tips which has recently increased to 45cm (NDFA) have also been adopted. Around 500 tonnes of ray are caught per year in in the Bristol Channel fishery (Catchpole & Enever 2007).

The UK quota for skates and rays has steadily declined since 2009. In October 2014 many UK skate fisheries were closed as the UK ran out of the annual quota. This closure has had particularly severe consequences for the targeted ray fishery in North Devon with many boats forced to move elsewhere or stop fishing, with serious knock-on effects for local fish processors and the North Devon economy.

ICES advice based on scientific trawl surveys for 2015 and 2016 have suggested a 20% increase in Thornback ray landings could be permissible in the Irish and Celtic Seas. However the advice for blonde ray, small eyed ray, spotted ray and cuckoo ray suggests reductions in TAC of 20%, 36%, 4% and 34% respectively. Furthermore, many supermarkets have stopped stocking skate over concerns surrounding sustainability after pressure from a number of NGOs (ABPmer 2013).

However there are major concerns that the methods used to calculate the suggested quotas, the rigidity of the ICES framework, combined with a lack of information on stock structure in the Bristol Channel contribute to misconceptions regarding the sustainability of many ray stocks in the Bristol Channel. Whilst this project is very much a pilot study which aims to test a monitoring methodology, it also aims to bring together interested parties to identify future funding for monitoring that will improve knowledge of North Devon ray stocks, and in particular the benefits of local conservation measures. Whilst the issues of quota and level of evidence required by ICES are not going to be solved at a local level, the project could feed into initiatives by Seafish and the Sharks Trust which will provide suppliers with data on the sustainability of rays caught at a local level.

Support for your project

A number of organisations are extremely interested in this project from a wide range of government, academic and NGO interests. This includes the Centre for Environment, Fisheries and Aquaculture Science (Cefas), whose staffs have expressed a desire to be involved in the development of the pilot study and the workshop relating to a longer term project and possible development of a Fisheries Improvement Plan.

Professor Mike Kaiser (University of Bangor) has also stated an interest in the long term development of a monitoring programme (letter of support supplied, Appendix 6). Seafish have a very direct interest in terms of the data from the project feeding directly into the current development of fine-scale sustainability guides for fish.

The Sharks Trust, who have been working extensively with North Devon fishers in promoting the sustainability of North Devon rays are also supportive of the project, and can see that it may have tangible links to some of their own work in this field (letter of support supplied, Appendix 6).

Marketing of project

- Twitter and other social media outlets of all partner organisations will be used to 'tweet' about the work happening. This is a very effective way of reaching a large interest group very quickly. Partners will also be able to include information on their websites.
- The IFCA will attend a North Devon event with a display which includes the project as well as promoting it through other outreach events attended.
- The regional and national press will be targeted, as well as industry specific publications.
- Presenting results – a presentation will be submitted to the Fisheries Society of the British Isles or the Institute of Fisheries Management conference in 2015.

Evidence of costs and justification

Item	**Cost (Including VAT)**
DST Tags	16680
Peterson discs	231
Boat charter	3600
Tag return reward for fishermen based on 50% return rate (£50 per tag returned)	1250
Workshop	1675
Total	**23436**

Match funding contributions	**Cost**
IFCA	8,256
AONB	2000
North Devon Bioshphere	1000
Match funding total	11,256
Contribution requested from FLAG	**12,180**

Results and impact of the project

The benefits of the project to the fishing community will primarily relate to the Appledore, Bideford and Ilfracombe trawl community but also inshore fishermen targeting rays.

- This project will pilot the use of one innovative method for monitoring data needed to fill evidence gaps – that could be replicated elsewhere, if successful.
- The project will provide preliminary evidence capture methods for future assessment of the benefits of the ray box
- The project will also bring together interested groups to determine a longer term plan monitoring the Northern Devon skate stocks
- Long-term aims of improving knowledge of ray biology through the workshop and links set up therein will aid understanding of the sustainability of the stock
- The project, through its stated marketing will also highlight the issues relating to skate sustainability and bring attention to the efforts of the North Devon fishermen to ensure their fishery is sustainable
- Boat chartering and engagement of fishers in the monitoring of fish stocks – helping fishers gain an understanding of science

Project monitoring

- Monthly objectives and recording
- 6 month progress report
- Cruise report for each tagging cruise
- Conference presentation
- Full report written at end of project outlining success of deployment of tags, future modification
- Plan for involvement of future projects

Risk management

Risk	**Impact**	**Prevention/ mitigation**
Bad weather prevents tagging cruises taking place	Medium	Rays can be fished for much of the year so likely to find a useable weather window. Flexibility of IFCA officers and work plan for 2015 should mitigate this.
Insufficient individuals of target skate species caught to tag	Medium	Extremely unlikely due to low target amounts. If one method proving difficult (e.g. netting) trawls can be used, although less preferable. Easily mitigated.
Lack of support from local fishermen	High	Work closely with fishermen through project, be open and honest about scale of project – data collected not designed to stand alone. Encourage participation and IFCA officers to hold regular meetings or conversations wherever necessary.
Poor return rate for tags	Low	This project is primarily designed to look at whether the return rate is sufficient for this work to be of use in the future so poor return rate would, in itself be informative.

Information about the IFCA

Small body returns are attached to this application.

Effect on the local area

- The project will be the first to do this kind of tagging of skate species in North Devon. Do you know if Ray tagging is being undertaken elsewhere (lessons learned, tools, etc).
- Other research institutions have been contacted to ensure they have not carried out/ do not plan any similar research.
- The project therefore should not be competing with any existing work or business.

Need for grant

- Little information available as to the best methods for monitoring the movement of different species in the Bristol Channel.
- There is currently no method being tested for scientific validation of the voluntary 'ray box' or other voluntary methods.
- Without grant funding it is unlikely that this project will go ahead as D&S IFCA funds have been allocated for the financial year 2014-2015 and a large proportion of the principle project area (ray box and areas targeted by North Devon fishermen) actually sit outside the D&S IFCA district.

Exit strategy

This pilot will be the first stage of a much larger project that will incorporate a wider area, focus on several species and involve more organisations. It will be help to prove a basis for a larger tagging programme and the data provided will be freely available for academic and industry organisations for analysis.