PROJECT PROPOSAL

AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT IN THE IRISH SEA

DRAFT

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POSEIDON
Aquatic Resource Management Ltd

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TABLE OF CONTENTS

AFBI ....Agri-Food and Biosciences Institute
ANIFPO.......Anglo-North Irish Fish Producers Organisation
CFP ....Common Fisheries Policy
DARD ....Department of Agriculture and Rural Development
DCR............Data Collection Regulation
DEFRA ....Department for the Environment, Food and Rural Affairs
EAFM..........Ecosystem Approach to Fisheries Management
EC ....European Commission
EcoQO ....Ecological Quality Objectives
EFF ....European Fisheries Fund
GES.............Good Environmental Status
ICES............International Council for the Exploration of the Seas
ISU ....International Sustainability Unit
LFA.............Logical Framework Analysis
LTMP...............Long Term Management Plan
MSFD..........Marine Strategy Framework Directive
MSY............Maximum Sustainable Yield
NIFPO ....Northern Ireland Fish Producers' Organisation
NWWRAC ...North Western Waters Regional Advisory Council
OSPAR ....Oslo & Paris Commission
SOP ....Standard Operating Procedure
SSB ....Spawning Stock Biomass

Disclaimer and Report Information

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1   BACKGROUND AND INTRODUCTION

1.1   INTRODUCTION

This document outlines the design of an industry-led project that, in collaboration with scientists, will explore how to implement an Ecosystem Approach to Fisheries Management in the Irish Sea and contribute to the requirements of the Marine Strategy Framework Directive (MSFD). This document has been prepared for the Anglo-North Irish Fish Producers Organisation (ANIFPO) by Poseidon Aquatic Resource Management Ltd.

1.2   BACKGROUND

Of the two most economically important Irish Sea fisheries, Nephrops is still subject to highly variable and contentious annual quota decisions and scallops are not subject to quota restrictions. **The socio-economic importance of these fisheries, the consequences for associated species and habitats and the semi-enclosed nature of the Irish Sea points to management of Irish Sea fisheries in the round as part of an Ecosystem Approach to Fisheries Management (EAFM).**

1.2.1   Ecosystem Approach to Fisheries

An Ecosystem Approach to Fisheries (EAF) is defined[1] as "an extension of conventional fisheries management recognizing more explicitly the interdependence between human well-being and ecosystem health and the need to maintain ecosystems productivity for present and future generations, e.g. conserving critical habitats, reducing pollution and degradation, minimizing waste, protecting endangered species".

The Reykjavik FAO Expert Consultation[2] agreed that the "purpose of an ecosystem approach to fisheries is to plan, develop and manage fisheries in a manner that addresses the multiplicity of societal needs and desires, without jeopardizing the options for future generations to benefit from a full range of goods and services provided by marine ecosystems". Therefore, "an ecosystem approach to fisheries strives to balance diverse societal objectives, by taking account of the knowledge and uncertainties about biotic, abiotic and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries".

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[1] Ward, T., Tarte, D., Hegerl, E. & Short, K. 2002. Ecosystem-based management of marine capture fisheries. World Wide Fund for Nature Australia, 80 pp.

[2] FAO. 2003. The ecosystem approach to marine capture fisheries. FAO Technical Guidelines for Responsible Fisheries, No. 4(Suppl.2): 112 pp.

While an 'Ecosystem Approach' has been advocated for some time, how to apply EAF to management has been difficult to determine. The EC asked its Scientific Technical and Economic Committee for Fisheries (STECF) to explore how EAFM could be developed for European Seas[3]. STECF set up a working group "to provide a pragmatic example of a first attempt assessment and advice in support of EAFM. It achieved this by:

    i. Utilising long time-series of catch and various stock assessment metrics, including the analysis of ecosystem indicators,

    ii. An analysis of the characterisation of fleet impacts,

    iii. An analysis of economic performance,

    iv. An assessment of operational status of ecosystem models to support EAFM.

It established that the ICES bio-region 'Celtic Sea and West of Scotland' could be distinguished as three ecosystems; West Scotland Ireland (Area VIa-b, VIIb-c), the Celtic Sea (Area VIIe-k) and the Irish Sea (VIIa). **It is appropriate for further investigation of EAFM requirements to be at an Irish Sea (VIIa) scale.**

STECF also stated that, "It is also important to recognise that there are other approaches being developed to deliver an EAFM, notably those by NOAA (USA) & DFO (Canada), which may ultimately have greater utility in delivering an EAFM." Therefore in exploring EAFM for the Irish Sea, **consideration should be given to alternative approaches in addition to STECF's.**

1.2.2 Marine Strategy Framework Directive (MSFD)

STECF also notes that "implementing EAFM is a specific task, that has to be conducted in respect to, and in close collaboration with, the Marine Strategy Framework Directive (MSFD), but whose purpose is not (or not only) to ensure GES. On the other hand, **EAFM aims to take into account not only ecological sustainability (and GES), but also economic profitability and social fairness**. Its major objective (its specific value-added) is to analyse trade-offs between ecology, economy and social aspects, the three pillars of the sustainable development of fisheries".

The MSFD requires that marine ecosystems such as the Irish Sea achieve 'good environmental status' by 2020. Commercial fish stocks are one of a number of environmental descriptors being used to assess the status of the marine environment (see table below). ICES recently produced guidance on

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[3] STECF, 2010

how these commercial fish and shellfish descriptors should be assessed[4]. The 44 Fishstat species (or species groupings) which contributed at least 0.1% to the total Fishstat landings in the Celtic Seas can be divided into 72 stocks or functional units. ICES gives advice on 59 of those stocks. Within the shellfish group, ICES only gives advice on Nephrops . Other shellfish species that contribute > 0.1% of the catches are edible crab, two scallop species, whelk, blue mussel and squid. **Additional scientific information on Irish Sea fisheries is needed to fulfil MSFD requirements**.

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[4] ICES MSFD D3 REPORT 2012 ICES ADVISORY COMMITTEE CM 2012/ACOM:62 Marine Strategy Framework Directive – Descriptor 3+ Revised 22 February 2012

Box 1: MSFD Commercial Fisheries GES status and possible UK response

All commercial fish stocks managed through the CFP are being managed in a way that is consistent with Maximum Sustainable Yield (MSY) and MSY is achieved at the level of the overall fishery.

Stepping stone targets:

1. [x%] of stocks fished at the precautionary level – Fishing Mortality (F) per annum and Spawning Stock Biomass (SSB) per annum (Oslo & Paris Commission (OSPAR) Ecological Quality Objectives (EcoQO) on fish stocks).

2. An increasing trend in the number of stocks at safe biological limits (consistent with moving towards achieving MSY at the level of the overall fishery).

3. Non-CFP fish and shellfish are being managed sustainably.

Source: Marine Strategy Framework Directive Good Environmental Status Workshop, 11–12th October 20–10

The Department of Agriculture and Rural Development's Agri-Food and Biosciences Institute (AFBI) are commencing an EFF-funded project to inform 'ecosystem-based management of Irish Sea fisheries and other resources'. This science-led project[5] has a number of components that will also contribute to delivering MSFD objectives for the Irish Sea, but it recognises that one project cannot deliver everything that is required and that industry assistance is necessary.

To contribute to MSFD requirements, the specific tasks under the project are to:

1. provide advice to DARD on best practice and current options to develop an ecosystem-based approach to managing marine fisheries;
2. conduct winter and summer ecosystem surveys of the Malin Shelf;
3. conduct R&D into the relationship between fisheries yield and micro-plankton production;
4. conduct an assessment of the status of the micro-plankton in the western Irish Sea.

This project proposal will fully complement this work, which commenced in January 2012, by focusing on MSFD descriptor 3 (commercially exploited fish and shellfish) and encouraging industry to work together with AFBI in improving the knowledge base for Irish Sea fisheries.

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[5] See AFBI website project description

1.2.3 Irish Sea Fisheries

A pressing target is for European fisheries to achieve MSY by 2015. Sufficient science is needed for stocks to enable MSY levels to be determined. A further objective under the Common Fisheries Policy is to adopt an ecosystem approach to fisheries management. A recent report to The Prince's Charities International Sustainability Unit (ISU) identified that critical data about the operation of fisheries, their target species and the ecosystem are often insufficient to allow for evidence-based decision-making (MRAG, 2010[6]).

Few Irish Sea fisheries are subject to a full stock assessment under the ICES framework and only cod is managed under a long-term (recovery) plan. There are clearly significant gaps in the scientific knowledge of Irish Sea fisheries.

The Irish Sea (VIIa) Nephrops fishery is one of the most important commercial fisheries for the UK, with UK landings valued at £10.8m (€13m), almost 30% of UK landings from Area VIIa in 2010. Despite the importance of the Irish Sea Nephrops fishery to the UK and other Member States, the EC's commitment to the establishment of Long Term Management Plans (LTMP) for key stocks, its management continues on an annual basis for Area VII.

The Irish Sea (ICES Division VIIa) contains two of the six functional units identified for Area VII; Irish Sea East (FU14) and Irish Sea West (FU15). As the ICES Advice notes, 'some stocks in VII such as FU15 have well known and understood larval retention mechanisms (i.e. Western Irish Sea Gyre)'. Given the distinction of Nephrops resources into functional units, the proximity of the two FUs within the Irish Sea and fleets that target both FUs, it is appropriate to consider the management of these Irish Sea fisheries under a single management plan for Area VIIa.

There are ongoing discussions to change from management on an Area VII basis to functional unit (FU) management, but this is being resisted by some quarters. There are concerns that this would change how quota is divided between member states and the flexibility to move between stocks would be lost. This debate is associated with quota allocation and so can be seen as distinct from the objective proposed here of developing Ecosystem Management for Irish Sea fisheries.

ICES Advice for 2011 notes for FU15 Nephrops that 'The variability in mean weight and discarding is a key uncertainty in the derivation of catch options. Improved quality of fishery data and knowledge of growth rates are needed for development of analytical assessment models and improvement of MSY reference points.' With the adoption of a more holistic ecosystem approach to fisheries management and increasing demands on the government's scientific resources, the gaps in knowledge are widening with no potential for increased research budgets to address these gaps.

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[6]MRAG 2010. Towards sustainable fisheries management: international examples of innovation. MRAG Ltd., London: 93 pages.

As the Northern Ireland Assembly Committee for Agriculture and Rural Development notes in its written evidence to the UK Parliament Environment Food and Rural Affairs Committee[7], "For a number of years local fishermen and their representatives have been of the opinion that the science upon which TAC's for the Irish Sea is based is flawed. Concerns around sampling methods and location lead many local fishermen to contend that the scientific picture painted of white fish stocks within the Irish Sea is not an accurate one. There is a real need for enhanced and more robust scientific evidence to establish the state of fish stocks within the Irish Sea. There is also a greater need to explore how local fishermen can be directly involved in the collection of data to inform scientific assessments of stocks."

The fishing industry recognises the need to understand the resources that it depends upon so that management responses are appropriate and timely. As the key benefactors and stewards of a sustainable Irish Sea fisheries resource[8], the Northern Irish fishing industry accepts a joint-responsibility to address the gaps in fisheries science information. As the Northern Ireland fleet accounts for around 80% of the fishing effort in the Irish Sea, it is appropriate that the Northern Irish industry drives such an initiative.

Recent assessment of some Irish Sea fisheries against the MSC standard have identified that one weakness was "the lack of a definitive understanding of stock status " and a lack of clear short and long term objectives for the fisheries. The lack of adequate scientific knowledge to underpin long-term management therefore hinders sustainable fisheries management and may put those targeting Irish Sea stocks at a commercial disadvantage in the near future.

It is important to note that the focus of this project is on Irish Sea <u>fisheries</u>, i.e. management of the Irish Sea stocks and the vessels catching those stocks in the Irish Sea. In this way an ecosystem approach to management of the fishery is developed rather than a single stock approach.

1.3 RATIONALE

The Northern Ireland fleet accounts for over 80% of the fishing effort in the Irish Sea. Nephrops accounts for more than half of the total landings value and is essential for supplies to the Northern Irish fish processing sector. In 2012 the fleet was faced with a proposed 19% cut in the annual Area VII Nephrops quota, which would have been devastating to the fleet, dependent onshore sector and the highly dependent fishing communities in Northern Ireland. The fishing industry and fishery managers have noted the benefit in establishing long term plans to avoid such drastic year on year fluctuations, enabling better planning and more collaborative working relationships. An

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[7]   See   http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvfru/858/858vw03.htm

[8]

ecosystem approach also encourages better understand of the variety of biotic and abiotic factors influencing recruitment patterns in the Irish Sea.

At the same time, the reduction of discards (particularly cod) and the protection of benthic habitats (e.g. via Marine Conservation Zones) in the Irish Sea apply both fisheries management and ecosystem management constraints on the fishing fleet. It is therefore appropriate for the industry to take a lead in the establishment of EAFM in the Irish Sea and that Northern Ireland industry leads this process.

A key additional benefit that industry can provide is fisheries-dependent information. This, as the name implies, is information on fishing effort and the direct impacts of fisheries upon target and non-target stocks. There is a growing realisation that fishers themselves are a vital source of information on fishing activities and also that technology and more effective administrative requirements can also help meet the ever increasing demands for more detailed information on how humankind interacts with the aquatic ecosystems.

2 PROJECT DESCRIPTION

2.1 OBJECTIVES

The **overall objective** of this project is to improve the sustainability of Irish Sea fisheries by developing an Ecosystem Approach to Fisheries Management in the Irish Sea.

The project will explore what an Irish Sea Ecosystem Management Plan would look like and how it could be applied. It will improve the knowledge base for Irish Sea fisheries (establishing the data needs of EAFM and MSFD), and increasing industry's contribution to that knowledge.

The **specific objectives** of the project are to:

1. Explore the scope, objectives and approach to developing an Ecosystem Approach to Fisheries Management in the Irish Sea.

2. Establish the data requirements for an EAFM and the MSFD, collate existing information and explore bio-economic modelling of the Irish Sea.

3. Develop a co-ordinated, focused and robust fisheries-dependent data collection programme to fill information gaps and increase industry's contribution to Irish Sea fisheries management.

4. Improve collaboration and co-management with fisheries scientists, managers and industry.

5. Ensure key Irish Sea fisheries can demonstrate the necessary levels of information gathering and management are being applied to be compliant with the MSC standard (and other third-party fisheries certification programmes).

6. Seek recognition of the progressive efforts made by the Northern Ireland fisheries sector in relation to Irish Sea fisheries by interested parties including the Republic of Ireland, the North Western Waters Regional Advisory Council (NWWRAC), the Prince's Charities ISU and other key organisations and agencies.

2.2 EXPECTED RESULTS

This project will have the following results:

- An Irish Sea Fisheries Plan is developed that has industry (via NWWRAC) and management authority support.

- Key fisheries-dependent information gaps are identified and prioritised in terms of the Irish Sea Management Plan, MSFD, current fisheries management and industry needs.

- A track-record of collaboration is established between industry and scientists to identify and address key information needs for good fisheries management.

- A series of tested, robust and cost-effective methods for data collection are developed.

2.3 APPROACH

The approach suggested for this project is based on the following:

1. A **strong participatory approach** from industry participants at all stages, including project scoping, data collection and in developing any long-term, post-project data collection programmes

2. **Close collaboration with the data users** e.g. the science providers and fisheries managers over the project design and implementation

3. A focus on a **simple, highly targeted work program** that is practical, cost-effective and useful.

4. This project's data collection programme will act as a **pilot** for the regular collection of fisheries-dependent information in the longer-term, to support the management of Nephrops and other key fisheries in the Irish Sea.

This project has been designed using the Logical Framework Analysis (LFA) approach, which is commonly used by organisations such as the European Commission and the World Bank in developing project designs. It uses a formal framework to establish the project goal and then, through a series of logical steps, link a series of purposes, results and then activities. The project design is described over the next two major sections and a summary LFA is provided in **Appendix A**. More information on the LFA approach can be found on the EC EuropeAid website[9].

We have developed a series of three linked work phases as follows:

- **Phase 1: Scoping, data collection and discussion.** This first stage will include initial meetings between fisheries managers, industry and scientists to review information needs, EAFM approaches and expectations from the project. It will include a workshop on "**Future Irish Sea Fisheries Management**" to raise awareness of the project and collate information from industry, management and science, as well as prioritising needs for fisheries-dependent information. It will result in an agreed approach to developing an Irish Sea Fisheries Plan and supporting data collection and implementation programme.

- **Phase 2: Plan & model development, data collection and processing.** This middle stage involves the development of the Plan and bio-economic model. It will also test and roll out the data collection and processing to help inform the plan. Practical approaches to information collection will be developed that minimise the financial

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[9] http://ec.europa.eu/europeaid/how/delivering-aid/project-approach/index_en.htm

and logistical burden to industry participants whilst producing robust and useful data to industry, science and fisheries management alike.

- **Phase 3: Plan development and review.** This stage provides an implementation strategy for the Plan, including a research plan that supports the Plan's information needs. Through a review of the costs and benefits of the data collection, the project results and experience will result in a fisheries-dependent data collection programme. The planning document and supporting research plan is reviewed by stakeholders, including the NWWRAC to assess that it is fit for purpose prior to submission to the EC. The document will include a road map proposing how to progress to a fully-developed and implemented Irish Sea Plan.

2.4 ACTIVITIES

The following section provides further detail on the tasks associated with each phase of the project. An associated timeline can be found in **Figure 1** overleaf.

2.4.1 Phase 1: Scoping, data collection and discussion

Task 1.1: Initial meetings with managers, scientists and industry. This first step will see initial coordination between the project manager (see Section 3.1 for project management structure) and those bodies concerned with providing scientific advice and management to Irish Sea fisheries. One-to-one discussions with the UK and its devolved administrations, the Republic of Ireland, the NWWRAC and EC/STECF representatives will be scheduled. The main purpose of this is to ensure everyone is familiar and aligned with the project's purpose and implementation and to ensure that lines of communication are formally established.

Task 1.2: Review of EAFM approaches and stakeholder workshop. An important early task will be a review of best practice in applying the EAFM (citing work by the STECF and examples from US, Canada and elsewhere). This review would be disseminated to stakeholders via a workshop that PO meetings and email communication, but should be supported through all appropriate forms of communication, e.g. industry press and newsletters. It is expected that the NWWRAC will be a key vehicle for initial engagement with all relevant industry parties and ongoing NWWRAC support for the project will be sought.

Task 1.3: Workshop on Future Irish Sea Fisheries Management. The review will be presented at a workshop (assuming 20-30 invited participants) where industry, science and management will also present existing knowledge and data on the Irish Sea fisheries & ecosystem. This will allow all parties to agree on the basis of a prioritised, cost-effective data collection programme that can be implemented by industry participants.

Task 1.4: Scoping of fisheries data, fisheries-dependent variables & collection methodologies. The project manager will, in consultation with industry participants and the scientific community, draft a data collection

programme. This should be based on the numerous indicators that need to be collected to inform EAFM plans, supporting bio-economic models and MSFD needs. Options for data collection methodologies will be explored. Due consideration will be given to the current data collection requirements through the DCF as well as other current (and planned) data collection programmes.

Task 1.5: Finalisation of data collection. Based upon the feedback from the workshop, the project's scientific advisors in AFBI will finalise the projects' data collection framework. This will include a detailed summary of all indicators to be collected, the collection methodologies to be employed and a plan as to how industry participants will contribute to this process. It is intended that this project act as a pilot scheme for regular data collection programme over the long term.

Figure 1: Project Work plan

Task / Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase 1: Scoping and establishing data collection methodologies	█	█	█	█												
Task 1.1: Initial meetings with managers, scientists and industry	█	█														
Task 1.2: Review of EAFM best practice and briefing to key stakeholders	█	█														
Task 1.3: Workshop on 'Future Irish Sea Fisheries Management'		█	█													
Task 1.4: Scoping of fisheries data & collection methodologies.			█													
Task 1.5: Finalisation of data collection				█												
Phase 2: Plan & model development, data collection and processing					█	█	█	█	█	█	█					
Task 2.1: Develop plan scope, structure and content					█	█										
Task 2.2: Develop model scope, structure and content					█	█										
Task 2.3: Detail SOPs for data collection						█										
Task 2.4: Train participants in data collection							█									
Task 2.5: Initiate data collection								█	█	█	█	█	█	█	█	█
Task 2.6: Data compilation (databases & QC)										█	█					
Phase 3: Plan finalisation and review												█	█	█	█	█
Task 3.1: Draft long-term data collection framework.												█				
Task 3.2: Define Process & additional needs for an Irish Sea Fisheries Plan												█	█			
Task 3.3: Presentation of draft Plan and long-term programme														█	█	
Project wrap-up & dissemination of outputs																█

2.4.2 Phase 2: Plan and model development, data collection and processing

This middle stage develops the plan and supporting bio-economic model and then tests and rolls out the data collection & processing to support the plan. Practical approaches to information collection will be developed that minimise the financial and logistical burden to industry participants whilst producing robust and useful data for the plan.

Task 2.1: Plan development. The project manager will draft the Irish Sea Fisheries Plan document with input from scientific advisors in AFBI. This is expected to follow the best practice established via the review exercise in Task 1.2 and stakeholder experience derived from consultation and the workshop.

Task 2.2: Model development. As proposed by STECF, the development of a bio-economic model is an important supporting tool to EAFM. This task will involve AFBI modellers (with support from other institutes such as CEFAS, if available) exploring how bio-economic models of the Irish Sea could be built and used in management. The extent to which such a model can be developed and tested within this project will be dependent on the availability and utility of existing models such as Ecopath[10] (trophic modelling) and POLCOMS (a 3-D system that hosts ecosystem models). The priority will be on establishing the data needs for the development of any such model.

Task 2.3: Detail SOPs for data collection. Upon approval of the final detailed data collection design in Task 1.5, the AFBI scientific officer would prepare a series of 'Standard Operating Procedures' (SOPs) for data collection. These will be written in consultation with vessel skippers and owners, to provide precise and practical guidance on what data would be collected and how, as well as processes for reporting and data collation.

Task 2.4: Select and train participants in data collection. Once the SOPs have been prepared and reviewed, the project manager would organise a series of training and briefing sessions with participating skippers and crew. A nominal amount (dependent on budget and number of attendees required) would be paid for attendance at the training sessions. This would encourage participation and compensate for any loss of earnings incurred.

Task 2.5: Initiate data collection. Once vessels are trained in the data collection SOPs, the data collection process would begin. A feedback system will be put in place so that any difficulties are identified and the SOPs altered to address these.

Task 2.6: Develop data compilation and quality control processes. During this entire phase the Project Manager will develop the associated data compilation and quality control processes. It is important that this is conducted in close coordination with DARD in order that these processes are

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[10] Lees, K. and Mackinson, S., 2007. An Ecopath model of the Irish Sea: ecosystems properties and sensitivity analysis. Sci. Ser. Tech Rep., Cefas Lowestoft, 138: 49pp

fully compatible with the existing DCR-related processes. It is expected that some form of first stage database for industry-derived data will need to be developed to compile initial data streams and act as a primary quality control point. This will require the development of a simple database system and data entry and quality control processes. It is important that the quality control system is able to feed back QC issues to resolve both SOP design issues as well as data collection problems at source. A brief database and data quality control report will be produced to archive the database design and formalise data handling procedures.

2.4.3 Phase 3: Finalisation and review.

This stage involves dissemination of the plan and proposes an implementation strategy for the plan. Through a review of the costs and benefits of the data collection, the project results and experience will result in a long-term fisheries-dependent data collection programme. The Irish Sea Fisheries Plan document and supporting research plan would be reviewed by stakeholders via the NWWRAC to assess that it is fit for purpose prior to submission to the EC.

Task 3.1: Draft long-term data collection. The project manager will draft a data collection framework. With the lessons learned from this project, and an assessment of costs and benefits of approaches, a case for a long-term data collection programme will be presented that is targeted, prioritised and above all valued by industry and science alike as a useful process to support the DCF and enabling Irish Sea fisheries to meet the MSFD requirements.

Task 3.2: Assess the Irish Sea Fisheries Management Plan.

As part of final outputs, the project team will draft an implementation document that proposes how the plan and bio-economic model could be developed and successfully implemented. A peer review of the draft plan is proposed that will identify any amendments or additions that could strengthen the plan and aid its implementation. Using the project's logical framework analysis (LFA) will facilitate this evaluation of the outputs and their potential contribution to meeting the objectives of the project. It is important that this process reflects both the benefits of the project as well as the likely on-going costs, both in purely financial terms as well as the practical and logistical implications of long-term data collection.

Task 3.3: Presentation of an Irish Sea Fisheries Management Plan.

A final task is to disseminate the work through suitable stakeholder networks, particularly the NWWRAC. A paper will be produced that will explore the pros and cons of a fully integrated Irish Sea fisheries management and explore the best approaches to deliver such as plan.

2.5 REPORTING

It is envisaged that a number of reports and written outputs will be made available by the project:

Table 1: Reporting schedule

Report / Output	Timing
Initial briefing document on EAFM approaches (Task 1.2)	Month 2
Project scoping & design document (Tasks 1.3 & 1.5)	Month 2
Workshop on Future Irish Sea Fisheries Management (Task 1.3)	Month 4
Training event on data collection (Task 2.4)	Month 6
Database and data quality control report (Task 2.5)	Month 9
Draft Plan & Peer review of draft outputs (Task 3.1 & 3.2)	Month 12
Proposal for long-term industry data collection (Task 3.2)	Month 14
Paper on the potential for an Irish Sea Fisheries Plan (Task 3.3)	Month 15

2.5.1 Monitoring and Evaluation

The project has clear objectives and outputs that will facilitate monitoring and evaluation.

The project manager will, in coordination with the project steering committee, establish a series of progress indicators (see LFA in Appendix A for suggested indicators). The project manager would provide a brief (e.g. 2 page) report to the steering committee on progress against achieving these indicators. If possible existing consultation structures would be used rather than establishing further steering group structures. For example if agreeable the Seafish Northern Ireland Advisory Committee (SNIAC) would represent the steering group to provide regular review structure and the NWWRAC would provide high-level oversight.

Towards the end of the project, a peer review of draft outputs is proposed that will contribute to the final outputs as well as project evaluation.

2.6 RISKS AND ASSUMPTIONS

A number of risks and assumptions are identified:

2.6.1 Achieving the project purpose

- Agreement on the need for an Irish Sea Fisheries Plan between NWWRAC members, the UK and it's devolved administrations and the ROI.

- Agreement on what incremental (e.g. above current DCF) fisheries dependent variables are to be collected.

- Cost-effective data collection mechanisms can be sustained by industry.

2.6.2   Achieving the results

- Willingness to engage exists.

- Industry contributes to data collection.

- Data quality can be controlled at source.

- Project outputs are of sufficient value to warrant a long-term programme.

2.6.3   Implementing the activities

- Industry and others prepared to fully engage with project.

- Industry participation in SOP development.

- Availability of suitable models for adaptation/combination into bio-economic model.

- Database for preliminary data processing with 'off the shelf' software.

- Data are of sufficient quality and robustness to be utilised by science and managers.

3 IMPLEMENTATION

3.1 PROJECT MANAGEMENT

3.1.1 Project manager

A project manager, who will be engaged by the project, will conduct the day-to-day management. He / she will be part-time, working an average one week a month over the envisaged sixteen month project duration. He / she will be a skilled project manager, with considerable experience of the Irish Sea fisheries and their management.

3.1.2 Scientific officer

A scientific officer will also be required to co-ordinate the gathering and analysis of data and information to support the plan (ideally extending to bio-economic model development). It is expected that the scientific officer be full-time and based at AFBI to enable line management from senior researchers, access to AFBI's considerable data on Irish Sea fisheries and linkage with ICES and the Irish Sea fisheries science network. Capacity in bio-economic modelling would be an advantage, but it is hoped that an AFBI-based scientific officer will be able to engage with colleagues involved in ecosystem modelling.

3.1.3 Steering committee

It is recommended that a project steering committee is appointed with a wide-ranging membership from industry, science, fisheries management and e-NGOs. This committee would provide guidance to the project manager and the project participants and would be expected to meet to review progress at least three times over the project's implementation. To reduce the administrative burden it is proposed that this be an existing industry structure if possible; Seafish's SNIAC and the NWWRAC could both contribute to steering the project.

3.2 PARTICIPANTS

3.2.1 Direct participants

The direct participants will be the fishing industry operating in the Irish Sea, both from the UK and the Republic of Ireland. This is likely to be in the form of Producer Organisations (POs) with members targeting Irish Sea stocks in both UK and Irish waters.

3.2.2 Other active participants and stakeholders

The other key participants will be the immediate beneficiaries of the data flows e.g. the science providers and fisheries management organisations who are responsible for preparing stock assessments from both fisheries independent and fisheries dependent data sources, and acting on these to

install appropriate fisheries management regimes. These are identified as NWWRAC members, ICES and the EC (and/or STECF as advisors to the EC)

3.3 BUDGET

A preliminary project budget of around £100,000 has been prepared. This is mainly composed of the project manager's remuneration (40%), the scientific officer's remuneration (42%), workshop and travel expenses (6%) and the cost of training industry participants in data collection techniques (10%). It is assumed that the indirect costs of the project manager (e.g. office and other operating costs) will be included in daily fee rates if sub-contracted from another organisation. Project participants will provide data collection (e.g. by vessels, deployment of observers, electronic monitoring systems, etc.) and sharing of that data as part of their co-funding.

Table 2: Outline budget

Cost element	Unit cost	Units per work phase			Total units	Total cost
		1: Scoping	2: Data collection	3: Analysis		
Project manager	£500 per day	20	40	20	80	£40,000
Scientific officer	£26,000 per annum				1.6	£41,600
data collection	£250 Trainee day		40		40	£10,000
Workshop costs	£1,500 per WS	1		1	2	£3,000
Travel costs –car	£0.40 £ per mile	400	1600	400	2400	£960
Travel costs – flights	£300.00 per flight	3	1	1	5	£1,500
Peer review	£500.00 per day			3	3	£1,500
Equipment & Printing	£200 Lump sum	1	5	1	7	£1,400
					TOTAL	£99,960

Appendix A: Project Logical Framework Analysis

Narrative Summary	Objectively Verifiable Indicators (OVIs)	Means of Verification (MoV)	Important Risks and Assumptions
Overall Objective			
Improve the sustainability of Irish Sea Nephrops fisheries	Stock indicators (MSY & proxys); fisheries economic indicators; 3rd party certification	ICES, DARD and industry reporting	Measures are widely agreed and adopted
Specific Purposes			
1. An Irish Sea Fisheries Management Plan is developed.	Plan is presented to NWWRAC & other stakeholders.	Plan is supported by NWWRAC. Plan is supported by other stakeholders.	Agreement on the need for an Irish Sea Fisheries Plan based on the EAFM.
2. Progress towards an ecosystem approach to Irish Sea fisheries management	x number of additional, fisheries–dependent variables inc. in analyses	List of data variables inc. in analyses	Agreement on what incremental (e.g. above current DCF) fisheries dependent variables are collected
3. Increased availability of relevant fisheries–dependent data	Recurrent additional data from industry	Annual reporting	
4. Improved collaboration and co-management between industry, fisheries scientists and managers	Frequency of meetings and common outputs	Meeting records and other recorded outputs	Cost-effective data collection mechanisms can be sustained by industry
5. Fisheries achieve compliance with internationally–recognised 3rd party fisheries certification	x number of fisheries 3rd party certified	Lists of certified fisheries on standard websites	
6. Irish sea fisheries considered progressive and well–managed.	External recognition e.g. ISU, ICES, etc.	Ad hoc reporting	
Results			
1. An Irish Sea Fisheries Management Plan is developed.	Plan is agreed by NWWRAC	Minuted approval of plan by NWWRAC.	Agreement on the content of the plan.
2. Key fisheries–dependent information gaps are identified and prioritised in terms of the plan, MSFD, fisheries management and industry needs.	Data collection agreed by industry and other stakeholders	Data collection framework implemented.	Common agreement on incremental variables to be collected
3. An established track–record of collaboration between industry and scientists to identify and address key information needs for good fisheries management	Regular meetings and communication progressing data identification, collection & supply	Meeting minutes circulated	Willingness to engage exists
4. A series of tested, robust and cost–effective methods for data collection are established	SOPs established, tested & refined.	SOPs circulated	Industry contributes to data collection

Narrative Summary	Objectively Verifiable Indicators (OVIs)	Means of Verification (MoV)	Important Risks and Assumptions
5. Primary data analysed & controlled for quality, and fully integrated into science provider data suites	Database in place with QC procedures	Database report	Data quality can be controlled at source
6. Preparation of detailed proposals for a longer-term recurrent industry data collection programme	Long term data collection framework prepared	Funding application	Long-term programme can be agreed

See activities overleaf ….

Activities			
Activity	Resources & Means	Cost Summary	Important Risks and Assumptions
Phase 1: Scoping, data collection and discussion Task 1.1: Initial meetings with managers, scientists and industry. Task 1.2: Review of EAFM approaches and stakeholder workshop. Task 1.3: Workshop on Future Irish Sea Fisheries Management. Task 1.4: Scoping of fisheries data, fisheries-dependent variables & collection methodologies Task 1.5: Finalisation of data collection.	a) Project manager appointed b) Scientific officer appointed c) Consultation on plan & scoping d) Workshop convened	£20,260	Industry and others prepared to fully engage with project
Phase 2: Plan and model development, data collection and processing Task 2.1: Plan development. Task 2.2: Model development. Task 2.3: Detail SOPs for data collection. Task 2.4: Select and train participants in data collection. Task 2.5: Initiate data collection. Task 2.6: Develop data compilation and quality control processes.	a) PM + Consultation for plan development b) AFBI + Consultation for model development c) Industry participation in SOP development d) Industry participation in training and data collection e) PM oversees data collection, feedback and QC. f) AFBI Database design	£51,940	Industry participation in SOP development Availability of existing suitable models for adaptation/ combination. Database for preliminary data processing on 'off the shelf' software

Phase 3: Finalisation and review. Task 3.1: Draft long-term data collection. Task 3.2: Assess the Irish Sea Fisheries Management Plan. Task 3.3: Presentation of an Irish Sea Fisheries Management Plan.	a) Formal data supply & sharing linkages established b) Peer review of outputs c) Data collection framework prepared d) Presentation of document	£22,160	Data are of sufficient quality & robustness
		Total cost: £99,960	