

EMFF Operational Programme 2014-2020 Seafood Processing Development Measure

**BIM Economic and Strategic Services Unit/
Seafood Technical Services**

**Sustainable Fisheries Scheme
Work Programme Projects**

Final Report 2021

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/DIS-BG024-BR032
NAME OF PROJECT: Developing a Formed Bait for the Commercial Whelk Fishery
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

In 2020 Irish annual landings of crustaceans and bivalve shellfish by volume and value totalled 16,622MT and €54million respectively. The whelk fishery, with a landed volume of 5,562MT and value of €8.67million is of significant socio-economic importance to many rural coastal communities. Export values of €34million for brown crab and €19million for whelk in 2020, further highlights their commercial importance.

Bait represents a significant cost burden, with anecdotal estimates of close to twenty percent of vessel's total running costs. It has been estimated by the fishing industry that up to 3,000MT of bait is used by Irish pot fishers annually. For whelk fisheries, undersized and poor-quality brown crab is the preferred bait. Since 2014 Ireland's Marine Institute (MI) has raised concerns regarding the poor stock abundance and reduced recruitment of Ireland's brown crab fisheries. A range of mitigation measures has been recommended including closed areas and landing of smaller volumes of higher quality crab. In addition, both the MI and industry stakeholders recommended ending the unsustainable practice of using undersized and soft crab as a bait source for the whelk fishery.

To seek a resolution BIM, industry stakeholders and third party researcher, Nofima, commenced an 18 month project in 2017 to develop a formed bait primarily focusing on the whelk fishery. Despite the progress that was made within the project in terms of developing baits that attracted whelks, none of the baits matched the traditional crab, dogfish, fish offal combination. Within the final report, a series of specific recommendations were provided on the next stages required to effectively develop a bait. This project seeks to build on the knowledge base from this research to progress the development of a formed bait alternative for the whelk pot fishery.

Objectives

The aim of the project was to develop a cost effective sustainable synthetic bait solution that matches performance of existing commercial baits. Specifically, the objectives were:

- Form industry group linked to include crab FIP. Scope project and circulate to third party experts.
- Select a third-party expert resource and progress the project which will be managed by the industry group.
- Engage relevant stakeholders through regular meetings to meet project milestones to include commercial bait trials.
- Establish best-fit bait solution based on sustainability, effectiveness, and costs.
- Provide recommendations on commercial bait production.

Budget

€73,752

Achievements/Spend

During 2021 BIM held industry consultations with the Crab FIP to progress a new project to develop a commercial formed bait that builds on the previous work. A detailed project scope was co-produced with the crab FIP and a RFT 'Provision of services to research and develop a viable and sustainable commercial bait for the Irish whelk *Buccinum undatum* pot fishery' was circulated through the OGP. GMIT was selected and approved in November 2021 and are progressing the 18 months project as per the agreed contract.

The project is complex given that to date research conducted nationally or internationally has been unsuccessful in developing an effective commercial bait alternative for whelk or indeed for any other pot fisheries (e.g., crab, lobster).

To maximise the chances of success for this project GMIT has appointed a dedicated researcher focusing on all aspects of formed bait development. The researcher will be supported by a team of experts including a behavioural scientist to assess whelk bait forage responses to different test baits under captive conditions, a chemist to assess the molecules in traditional bait that elicit a forage response in whelk, and a food technologist to ensure a formed bait releases the stimuli but also remains intact in the pot during commercial fishing. A project manager has also been appointed by GMIT and a detailed project plan has been developed in consultation with industry stakeholders (through the crab FIP). GMIT will liaise regularly with the crab FIP and BIM to progress the project during 2022 and 2023.

Summary of Spend	
Total Approved	€73,752
Total Eligible Expenditure	€73,752
Total Drawdown	€73,752
EU – 50%	€36,876
Exchequer – 50%	€36,876

Report by: Michael Gallagher

Date: 9th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG025-BR035
NAME OF PROJECT: **Brexit Seafood Industry Supports**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

With the UK exiting the EU from 1 January 2021, a range of changes relating to supply chains and trade flows with new trade checks and controls in both directions between the EU-UK will be introduced. There have also been changes in terms of reciprocal access to EU/UK waters and the allocation of fishing opportunities, which have significantly impacted the Irish fishing fleet. The changes have only emerged during 2021 and have created challenges for the seafood sector.

For 2021, BIM needs to have the ability to react to these changes and the challenges they create through the provision of technical trials, support and guidance as well as commissioning of specific studies to assess the longer-term impacts of Brexit. The entire seafood sector has and will continue to be impacted to some degree across varying timelines. Therefore, the services and supports put in place and the analyses carried out need to be agile and able to complement financial supports and guidance BIM and other agencies have already developed.

This project will provide those support services to assist seafood businesses to navigate the challenges of Brexit through studies to assess the longer-term impacts of Brexit, technical trials (logistics, adding value) and support and guidance (new rules, documentation). The project focuses on the catching sector and first-point of sale businesses. It will fund the provision of professional consultancy to assist businesses and carry out economic impact analyses associated with Brexit, the costs for technical trials, design and publication of user-friendly guides and information notes.

Objectives

The aim of this project is to provide a suite of support services to assist seafood businesses to navigate the challenges of Brexit with a focus on the catching sector. This will encompass technical trials (i.e., adding value on board vessels), support and guidance to understand new rules, documentation, and studies to support DAFM to assess the longer-term impacts of Brexit. The key goals are to assist industry to adapt, restructure and reposition post-Brexit.

Budget	€25,000
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Achievements/Spend

The estimated direct impact of Brexit during 2021 has been highly asymmetric, with substantial reductions in imports from the UK to Ireland but without any statistically significant impact on exports. This is likely due to the gradual implementation of customs procedures by the UK, with many proposed checks deferred to 2022. This gradual implementation of new customs procedures and requirements has resulted in less issues arising than had been envisaged at the beginning of 2021. Seafood companies were able to adapt to the new rules introduced without major disruption to their business and requests for assistance were limited. Nonetheless, Brexit mentoring supports were provided to two groups of fishermen, both involved in selling shellfish direct to market. Support centred around logistics and supply chain management for exporting directly into UK.

Additionally, under this project, two separate analyses were carried out to support the introduction of a voluntary decommissioning scheme for the polyvalent sector. The first of these analyses looked at the identification of facilities that are licensed to decommission fishing vessels and estimated the time & costs for decommissioning fishing vessels based on typical trawlers. The second analysis considered the value of fishing vessels and licence capacity in preparation for a possible decommissioning scheme. Vessels in the Polyvalent over 18m sub-segment and those between 12m and 18m LOA in the Polyvalent under 18m sub-segment were considered. The findings of these studies fed into the Seafood Task Force established by Minister for Agriculture, Food and the Marine, Charlie McConalogue TD, to examine the implications of the EU/UK Trade & Cooperation Agreement (TCA) for the Fishing Industry and Coastal Communities and to consider initiatives to address those implications. One of the recommendations emanating from the Task Force was for the development of a voluntary decommissioning scheme for polyvalent and beam trawl vessels with a target of removing up to 60 vessels with a capacity of 8,000GT and 21,000 Kw.

Summary of Spend	
Total Approved	€25,000.00
Total Eligible Expenditure	€18,875.00
Total Drawdown	€18,875.00
EU – 50%	€9,437.50
Exchequer – 50%	€9,437.50

Report by: Dominic Rihan

Date: 24th February 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG027-BR038
NAME OF PROJECT: Fisheries Information Dissemination
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

The rationale for this project is to use the expertise within BIM and the data available to provide valuable commercial insight to the seafood sector. Defining and developing capability to share insight and guidance is required more than ever as the seafood industry faces rapidly emerging new trends and significant challenges. This project follows from an initial 'Needs Capture' exercise, carried out by BIM in 2019 with key industry stakeholders designed to determine industry priority from a data and informational viewpoint. From the industry workshops held as part of this exercise, several areas were identified as priorities as follows:

- Improving operational efficiency; deeper analysis of the operational efficiency of the fleet to secure its future viability,
- Markets: Understanding the market through analysis of the price and volume data to identify the EU & international market trends and demand changes over time,
- Regulations: To help industry in understanding Regulations to aid compliance; and
- Talent: Harnessing talent and resources, to recruit and retain fishermen and improve the skillset of existing fishermen.

Since 2020 BIM have begun developing the tools to address these priorities and facilitate dissemination of data and information by BIM to external stakeholders. Over time, the intention is to continue to build data and information assets and facilitate the generation of strategic insights to key stakeholders.

The solutions looked at to date are designed to increase the competitiveness of the Irish Seafood Sector and address strategic industry requirements. Additionally, providing information on political and legislative developments regarding fisheries and environmental policies in user-friendly formats. This will benefit the seafood sector and help to improve regulatory compliance. The types of tools that have been developed to date include software solutions such as mobile apps, interactive dashboards, websites, information feeds and reports.

The first of these was the production of a web-based 'Fisheries Management Chart Online' App (FMCO) for fishermen detailing technical conservation measures (TCMs) regulations relevant to Irish fishermen. This app complements the much-used paper version, Fisheries Management Chart that BIM has published annually since 2006.

Additionally, since 2020 BIM has directly provided information to the seafood sector and internally within BIM detailing political and legislative developments relating to EU and international fisheries policy as well as hosting an annual stakeholder workshop to provide an overview to industry of these key developments.

In 2020, BIM began the development of a further series of interactive dashboards providing industry insights on data held by BIM and continued to provide industry-focused reports and user-friendly guides relating to business intelligence, financial assistance as requested.

The work in 2021 carried out under this project represented a continuation of the services and outputs developed since 2020.

Objectives

The main objective of this project is to assist the seafood sector to be more competitive, both operationally and in the marketplace through the provision of real-time, segmented, analysed information. Such insights will assist the seafood sector in areas including, pricing (real time), value maps, business performance improvement and address industry issues such as understanding and complying with complex regulations.

The project should also help to identify market growth opportunities of scale, so that the industry can forward plan and invest appropriately with a degree of confidence. Ongoing analysis of international markets and facilitating the industries understanding of consumers both locally and internationally is key here.

Budget

€180,000

Achievements/Spend

Building on the work in 2020 and 2021, new 'needs based' modules were developed. These new modules included the extension of the 'fisheries management chart online' (FMCO) app to include new inshore fisheries and aquaculture information.

This application is available at <http://www.fisheriesmanagementchart.ie/>.

During 2021, there were over 100,000 uses of the FMCO app recorded. In addition to the FMCO app, the paper version of the Fisheries Management chart that has been produced annually since 2006 was completed and disseminated widely to the fishing industry and other key stakeholders with over 1,600 copies of the chart distributed.

See <http://www.bim.ie/media/bim/content/downloads/BIM-fisheries-management-chart-2020.pdf>

Additionally, ongoing meetings with the seafood sector have led to the conclusion that there is a need for industry to have access to knowledge on sectoral trends, albeit in a timely manner. Therefore, as part of this project, during 2021 BIM procured third party dashboard development services via OGP (Office of Government Procurement). These dashboards have been designed from a functional perspective and are currently being developed focusing on fisheries and aquaculture economic data including data generated for BIM's annual Business of Seafood Report. Prototype dashboards have been developed and it is envisaged that they will go "live" to industry before the end of 2022. The development of dashboard to bring baseline data on CO2 emissions from the Carbon footprint study (21/SFS/ESS-BG028-BR042) was also commenced.

During 2021, BIM has continued to provide the bespoke, independent and neutral information service to the seafood sector and internally to BIM. This service is provided by the European Bureau of Conservation and Development (EBCD). This information service details political and legislative developments relating to EU and international fisheries policy, the Integrated Maritime Policy (IMP) and environmental policies, which have a primary focus on marine and fisheries issues. The information collected is relevant to the catching and aquaculture sectors to inform on proposals and enacted legislation that may impact their operations. BIM continued to disseminate this information to the seafood sector on a regular basis where relevant. A workshop to present more detailed information on the major policy initiatives to key stakeholders to highlight the potential impacts was hosted. The stakeholder workshop was supported by the North Western Waters Advisory Council and attended by approximately 40 participants.

Several iterations of a quarterly “business intelligence” publication was produced during 2021 and circulated to industry representatives for comment. However, while the industry representatives consulted with felt the content was useful, it tended to be retrospective rather than forward-looking. To maintain the quality of the publication on a quarterly basis as planned in the workplan for the project, represented a significant amount of research work as well as being administratively top-heavy. For this reason, it was decided to discontinue this part of the project to concentrate on the existing services and the development interactive dashboards as the main dissemination tools.

Summary of Spend	
Total Approved	€180,000.00
Total Eligible Expenditure	€140,517.62
Total Drawdown	€140,517.62
EU – 50%	€70,258.81
Exchequer – 50%	€70,258.81

Report by: Ben Dallaghan

Date: 24th February 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG027-BR040
NAME OF PROJECT: **Seafood Data Centre (DC Map new system)**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

BIM manages and stores a significant number of datasets, generated from a variety of sources. However, of primary importance, under the Data Collection Framework, economic data are collected and collated annually from the catching, processing and aquaculture sectors through BIM's National Seafood Survey (NSS). The lack of a centralised database within BIM has previously limited the organisation's ability to disseminate information to DAFM, industry, as well as various state agencies such as the Marine Institute, in a timely efficient manner. It also limits BIM's capability to disseminate information to the wider seafood sector.

To address this, work began in 2020 to develop a Seafood Data Centre that would increase the value of the data collected. This is based on the system analysis completed in 2019, which defined the technical and functional specifications for the Seafood Data Centre (SDC). This will allow the organisation and storage strategic data in a way that is standardised and accessible to the seafood sector. Additionally, system development of a web-based platform for online data input by industry is in train.

The system being developed is encapsulated in a data governance structure that is compatible with the legal obligations pertaining to state organisations involved in the collection and dissemination of data for the public good. Data security and protection are of paramount importance to BIM. To this end, policies informing data retention and GDPR compliance were and continue to be key aspects of this project.

This project represents a strategic move away from historical paper-based systems for economic data collection towards a 'digital' mode of data management. The modern digital approach of this project has and will facilitate BIM in providing strategic insight to the seafood sector and also ensures a higher level of data governance such as compliance with GDPR legislation. The newly developed seafood data centre will help BIM to ensure that Ireland can meet its obligations with respect to data collection in a European context.

Objectives

The main objective of this project is to develop a new database system to enable data capture and reporting. This system will manage DCF data using a database structure and facilitate online data entry of NSS data. The new system supports DCF reporting and incorporates Business Intelligence (BI) modules to allow integration of the data and to allow generation of 'insightful' outputs for the seafood sector. The initial, fisheries module of the Data Centre has now been developed and this will act as a template for the development of future modules such as one for the collection of aquaculture data.

Budget	€156,861
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Achievements/Spend

The fisheries module of the DCF data system has now been developed and features a sequel database as well as an integrated web front end for data entry. The Seafood Data Centre not only caters for mandatory reporting of fisheries economic data but also facilitates Business Intelligence capabilities, adding value to

the data collected. This 'automation' approach ensures that DCF data is organized and managed in a way that is 'best practice' and in line with BIM data strategy, policy and procedures.

The system developed comprises five modules:

- A portal for collection and uploading of data collected,
- Data integration hub,
- Data scaler,
- Data Reporting System and Interface; and
- Reporting and Analytics outputs.

The technical solution is aligned with the organisation's current IT Strategy. BIM have adopted a Cloud First strategy and have migrated to Microsoft Office 365 for collaboration and communication. The strategy requires a client centric focus and Dynamics CRM has been deployed to support this objective. BIM's strategy is to host customer facing solutions and portals in enterprise cloud environments using the Azure platform. The BIM data strategy aims to bring business data 'closer' together to facilitate the production of reports and the building of applications that use different data sets. The DC-MAP system is the first application due for development under the new Data Strategy and has been designed accordingly. The final Data Centre has been delivered with a User Manual (DCMAP back-office system) and Operations Guides. The new system went live in Q4 of 2021.

Summary of Spend	
Total Approved	€156,861.00
Total Eligible Expenditure	€156,861.00
Total Drawdown	€156,861.00
EU – 50%	€78,430.50
Exchequer – 50%	€78,430.50

Report by: Ben Dallaghan

Date: 4th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG028-BR041
NAME OF PROJECT: **Development of a Fisheries Bio-economic Model**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

BIM commenced the development of a bioeconomic model in 2020. This model is being developed to simulate the activity of the Irish fishing fleet and describe as accurately as possible the interactions between mixed and single fisheries in which they operate. The purpose of the model is to provide robust estimates of the impact (economic, technical, and social) of proposed quota changes for stocks of relevance to the Irish fishing fleet. The model will also be able to incorporate information on gear selectivity trials or avoidance measures to simulate any potential improvement in terms of extending the fishing season of affected fleets. It will estimate the net impacts of the combined quota changes proposed. Biological modelling of the fisheries relevant to Ireland will be carried out based on the most recent ICES data and following ICES methodologies for the estimation of quotas for the spectrum of possible fishing mortalities within the range of maximum sustainable yield. Economic modelling will link to the biological aspects via the production function. Value and costs will be modelled by fleet segment and disaggregated across fisheries. Different configurations of fleet segments will be assessed (DCF - data collection framework; DAFM - Department of Agriculture, Food and the Marine). Social impact will be linked to the economic impact to assess the regional direct and downstream employment impacts.

During 2020, the Marine Institute and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) were awarded the contract to develop the model and several phases of the project have been completed as follows:

Phase 1: Collation, analysis and synthesis of available data on relevant stocks, fisheries and economic variables to condition the bio-economic model. Data has been collected from different sources (i.e., ICES, logbooks, sales notes, and BIM).

Phase 2: Model development, including data input and validation, conditioning of the simulation model and structuring to ensure the bio-economic model framework is flexible enough to deal with the management scenarios envisaged.

The work in 2021 focused on completing the development, testing and operationalisation of the model.

Objectives

The main aim of this project is to develop a fisheries bio-economic model that will simulate the activity of the Irish fishing fleet and describe as accurately as possible the mixed and single fisheries in which they operate. Using these simulations, it will be able to forecast the impacts on these fleets under different fisheries management scenarios, including changes in fishing opportunities, choke situations under the Landing Obligation and the implementation of gear selectivity and avoidance measures.

Budget

€103,510

Achievements/Spend

A prototype model was delivered by the contractors in Q4 of 2020. During 2021, this prototype has been further developed under three further workstreams as follows:

- Continued model development through the inputting of economic variables. Based on economic data obtained from STECF AER reports and information provided by logbook data/sales notes for the Irish fleet, a fleet model as well as the price and cost model were conditioned. This allows assessment of economic performance of the fleet under different management scenarios. With help of a simple employment multiplier the regional impact on employment can also be calculated.
- Model interaction and dissemination development. This focused on the development of an interactive tool to disseminate the outputs of the scenarios evaluated. This has been completed by the Marine Institute using R shiny dissemination tools, which make fisheries data more accessible and understandable to a wide range of end users.
- A detailed technical report and manual detailing all aspects of the bioeconomic model has been provided with delivery of the final model at the end of Q2 2021.

The final model is written in universal “R” statistical code and incorporate mixed fisheries dynamics so that the effects of a proposed quota change in one fish stock is accurately measured in relation to the overall fishery (i.e., choke species impacts). It provides:

- Simulations of future stock sizes under fixed and adaptable scenarios
- Simulations of future fleet sizes under fixed and adaptable scenarios
- Simulations of future direct economic impact under fixed and adaptable scenarios
- Simulations of future downstream economic impact under fixed and adaptable scenarios
- Incorporates mixed species interactions to adequately simulate scenarios under the landing obligation
- Incorporates information on gear selectivity trials to simulate any potential improvement in terms of extending the fishing season of affected fleets affected by the landing obligation and quota changes
- Capability of incorporating selectivity adjustments as part of simulations
- Outputs in the form of a socioeconomic impact assessment of the EU TAC setting procedure and national quotas, as well as policy changes to selectivity improvements or other management scenarios.
- Assessment of the impacts of quotas, choke species and technical measures.

The final model was delivered at the beginning of Q3 of 2021 and is seen as a powerful tool to help inform fisheries management decisions. BIM will utilise it for all relevant analyses going forward.

Summary of Spend	
Total Approved	€103,510
Total Eligible Expenditure	€103,510
Total Drawdown	€103,510
EU – 50%	€51,755
Exchequer – 50%	€51,755

Report by: Richard Curtin

Date: 4th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG028-BR042
NAME OF PROJECT: **Seafood Sector Carbon Footprint Study**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

With the increasing focus on climate change and the environmental performance of industry, the Irish seafood sector is currently in a strategically weak position because there is no national Carbon baseline data upon which the performance of Carbon mitigation strategies can be measured. At best the available Carbon studies provide information on specific fleet segments but do not necessarily paint the industry in a positive light. At present, sea fishing is perceived as a high Carbon emitting activity. However, research internationally indicates that this may not necessarily be the case for seafood.

In this context, BIM commissioned a study in 2021 to establish a 'Carbon' baseline for the Irish seafood sector. Other sectors of the Irish economy, including food production of a terrestrial nature, have completed this exercise. Having a carbon baseline is seen as a starting point in terms of climate action and is a necessary step to inform adaptation and mitigation/reduction strategies. All sectors of the Irish economy are seeking to decarbonise and are moving towards carbon neutrality/Net Zero by 2050, and the seafood sector is seeking to decarbonise in compliance with European and national policies.

The study is aligned to the Government's Climate Action Plan published by the Department of Communications, Climate Action & Environment in 2021 (note: this activity is listed under the National Climate Action Plan 2021); the Department of Agriculture, Food and the Marine's Climate Change Sectoral Adaptation Plan published in 2019 as well as the Programme for Government. This project seeks to increase knowledge in terms of the environmental performance of the seafood sector, with special reference to Carbon and climate change.

Fishing, like all anthropogenic activity, contributes to climate change. The use of large amounts of fuel on fishing vessels results in considerable emissions of Carbon and other greenhouse gases. In commercial fisheries, fuel is used to generate propulsion as well as for activities such as onboard processing, refrigeration and freezing. In general, most fuel usage is associated with vessel propulsion. European fishing fleets are major oil consumers amongst the world's fishing fleets, so they are responsible for a substantial portion of total global greenhouse gas emissions from fisheries. However, CO₂ emissions by global fisheries, both in absolute terms and emission intensity, are not well-defined. From an Irish perspective, accurate baseline data on CO₂ emissions for the fishing sector is limited. Most datasets include fisheries with agriculture data making assessments difficult. There is economic data from the Data Collection Framework, but this only provides information on fuel usage per tonne of fish landed. From a technology perspective BIM has done a lot of work on fuel efficiency and has information demonstrating the impact of modifications to fishing gears, vessel design and operational changes that will reduce fuel usage and increase efficiency. However, on carbon footprint, as indicated, knowledge is limited.

Objectives

This project is listed under the National Climate Action Plan 2021 and seeks to calculate a baseline figure(s) of greenhouse gas emissions for the Irish seafood sector. These figures will be broken down by the various sub sectors of the industry under the headings of sea fishing fleet, aquaculture and seafood processing. To this end, the project will acquire detailed carbon data by liaising with industry partners for each of these sub sectors. Project acquired data, as well as data collected under the data collection framework (DCF) will

be used to conduct detailed life cycle assessments (LCA) and case studies for key seafood industry components. A key objective of this detailed analysis is the identification of Green House Gas (GHG) emission 'hotspots' that can be targeted for reduction in the future.

Budget

€180,000

Achievements/Spend

Following on from a successful tendering process, environmental consultants, Mabbett's Limited, were engaged for the purposes of this project. The project has progressed well in 2021. Following an extensive literature search of published and grey literature, supported by a series of stakeholder interviews, technical information on the CO2 emissions of fishing vessels across identified fleet segments currently operating was collected. This is largely based on measurement of the emissions from the main engine, any auxiliary engines and on-board processing equipment including refrigeration and freezers of a representative sample from each fleet segment. This carbon data acquisition and analysis is concentrating on vessels over 12m which create most of the CO2 emissions associated with the fleet, however measurements and estimates for typical inshore vessels less than 12m will/are also be conducted.

For final reporting, the results of these sample Carbon assessments will be scaled up to the entire fleet to provide an indication of total CO2 emissions by fleet segment, allowing comparison between segments. Where relevant the carbon assessments and analytic efforts will use the information developed from the analysis of the operational and technical efficiency of the Irish fishing fleet described in Project 20/SFS/ESS003, completed in 2020. The above Carbon calculation exercise has been repeated for the aquaculture finfish, oyster and mussel sectors.

The second part of the Carbon study, carried out in parallel with the first, reviewed information from published reports looking at the emissions generated by similar fleet segments globally. The literature review findings and figures for Carbon from other seafood producing countries were/are being compared to Irish seafood Carbon estimates to provide a clearer picture as to the Carbon performance of the Irish seafood sector. Additionally, meetings with Bord Bia and other agencies were conducted to establish and document their interest, approach, and project overlap with respect to carbon and food production. Extensive interviews and data collection with respect to carbon emissions have also been carried out by surveying the fleet and aquaculture sectors. Another dimension of the study has involved the production of Carbon life cycle assessments (LCA) to establish the Carbon output associated with different stages of the seafood supply chain.

The final report is due to be completed by 31st March 2022. On completion, it is planned to host a series of workshops to disseminate the results of this study to industry and other relevant stakeholders. This communications package would be staged during Q2 and Q3 of 2022. The outputs in terms of data and information collated will be used to inform future BIM work in reducing the carbon footprint of seafood.

Summary of Spend	
Total Approved	€180,000.00
Total Eligible Expenditure	€163,283.50
Total Drawdown	€163,283.50
EU – 50%	€81,641.75
Exchequer – 50%	€81,461.75

Report by: Ben Dallaghan

Date: 4th March 2022



BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG028-BR044
NAME OF PROJECT: Labour Force Analysis of the Irish Fishing Fleet
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

The 2015 report of the Working Group on Safety, Training & Employment in the Irish Fishing Industry (the “Leech Report”) made a series of recommendations to improve the attractiveness of the fishing industry as a career option. The Working Group identified the introduction of more tailored social-protection provision as one of the most significant negative factors in retaining qualified and experienced personnel in the fishing industry and advocated significant changes to the existing provisions for those working in the fishing industry. Other important recommendations in this area focus on the need for lifelong learning and the development of career diversification paths, to reflect the complex demands of the modern industry. While some of these recommendations have been acted on, locating and retaining crew remains one of the most significant issues facing the Irish fishing industry.

Therefore, in 2021 BIM commissioned a study to assess the current labour structures that exist across the Irish fishing fleet. This study is an industry identified need, aligned to a Strategic Goal included in DAFM’s Statement of Strategy of “delivering a sustainable, growth driven sector focused on competitiveness and innovation driven by a skilled workforce delivering value added products in line with market demands”. It responds to the issue of recruitment and retention of crew in the catching sector which is widely recognised as a problem for the Irish catching sector.

The study will consider the make-up of the crews on board Irish fishing vessels in terms of how they are employed, principally through an industry survey. The differences in the terms of conditions of employment will be detailed and an evaluation of the pros and cons of the different crew working arrangements for the employer and the employee in terms of tax, social welfare, benefits completed. An evaluation of the attractiveness of working in the Irish fishing industry will be carried out by comparing the working and employment conditions, as well as the overall benefits with other sectors of the economy that compete for labour with the fishing sector. The real costs to the employer of different employment categories will also be assessed and the main constraints to recruitment and possible ways to mitigate against these constraints identified. Finally, the study will identify ways of improving the training incentives and career structures within the industry which will help to attract and retain crew.

Objectives

The main objectives of this project are:

- Describe how crew are employed including terms and conditions, tax and welfare rules across Irish fleet segments
- Estimate how many crew are employed in each fleet segment with an assessment of the proportion of crew in each employment category
- Evaluate of the real costs to the employer of different employment categories
- Describe the pros and cons of the different crew structures in terms of tax, social welfare, benefits etc.
- Develop a roadmap to improve attractiveness of working in the Irish fishing industry

Budget

€68,432

Achievements/Spend

This project started in 2021. Following on from a successful tendering process, Indecon Economic Consultants, were engaged for the purposes of this project.

In the first phase of the project, an extensive literature review of existing documents available, has been completed, describing the labour situation in the Irish fishing fleet. This has been backed up with a series of interviews with stakeholders across all sectors of the Irish fishing industry, including Producer Organisations, Fishermen's Co-ops, individual fishermen, and other fishermen's representative groups. An interview was also conducted with the International Transport Workers' Federation in respect of Atypical workers.

Following from this initial phase, two surveys were developed to collate information that describes working conditions on board vessels and employment arrangements covering both vessel owners and vessel crew. Feedback on the survey contents have been requested from stakeholders of the Irish fishing industry and has been incorporated into the survey designs. The surveys were launched in September 2021 through the stakeholders of the Producer Organisations and through other representative bodies to their members. Media notifications describing the survey were published in the seafood trade media to encourage participation in the survey. Reminders to participate in the survey were sent out through the BIM CRM list of fishing owners. A total of 112 returns from skippers and 114 from crewmen were received. Employer respondents represent almost 20% of the total workforce in the fishing sector. Once completed, the consultants engaged analysed the data to bring together the results and information gained.

In parallel, an evaluation of the attractiveness of working in the Irish fishing industry has been completed by comparing the working conditions, the employment conditions and the overall benefits with other sectors of the economy that compete for labour with the fishing sector. The real costs to the employer of different employment categories were also assessed. From this information, the main constraints to recruitment and possible ways to mitigate against these constraints were identified. Finally, an assessment of ways of improving the training incentives and career structures within the industry which will help to attract and retain crew was completed.

The final report of the study is in preparation and will be made available to industry in early Q2 of 2022.

Summary of Spend	
Total Approved	€68,432.00
Total Eligible Expenditure	€68,429.82
Total Drawdown	€68,429.82
EU – 50%	€34,214.91
Exchequer – 50%	€34,214.91

Report by: Richard Curtin

Date: 4th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG029-BR045
NAME OF PROJECT: **Fishery Improvement Projects**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

In line with Foodwise 2025 Action 37, BIM has created several different networks that aim to promote changed behaviour within the catching sector through a Change Management Programme initiated in 2017. As part of this programme, BIM working with the industry initiated four pilot fishery improvement projects (FIPs). FIPs offer a mechanism to bring together an alliance of fishermen, seafood buyers and suppliers, to talk through the challenges from the landing obligation faced in a specific fishery or fisheries, identify data needs, agree on a set of priority actions that should be undertaken to improve the fishery, and then oversee an action plan. These stakeholders work together to improve a specific fishery by pressing for better policies and management, while voluntarily changing purchasing and fishing practices to reduce problems such as illegal fishing, bycatch, and habitat impacts. FIPs, as scientifically appropriate, are registered with Fishery Progress which is an internationally recognised NGO that records and tracks information on the progress of global fishery improvement projects. In addition to providing forums for participatory discussions between key stakeholders they help industry to develop and implement a roadmap for change. The goal of FIPs is that the relevant fisheries would be in a position to achieve certification under the Marine Stewardship Council (MSC), which is internationally recognised in the marketplace as assurance of sustainable fisheries.

Since the creation of the original FIPs, the number of FIPs established has increased from four to nine species and fisheries covered are Brown Crab, *Nephrops*, hake, haddock, whiting, saithe, monkfish, megrim and Albacore tuna. In 2021, BIM will continue to support the implementation of the individual FIP workplans, which will be discussed at quarterly FIP meetings. The FIPs are chaired by an independent facilitator, Verifact, contracted by BIM. BIM provides secretariat and technical support. In addition to providing forums for participatory discussions between key stakeholders they will help industry to develop and implement a roadmap for change, particularly in the light of full implementation of the Landing Obligation, Brexit, the objectives of the Common Fisheries Policy as well as increasing pressure from major retailers to demonstrate the sustainability of fisheries. Work will also continue with the Marine Institute to identify and provide data through voluntary programmes and participation in observer. FIP members will continue to participate in other BIM trials on food safety, fish quality and technical trials (e.g. alternative bait trials) as they progress during 2020.

Additionally, an industry self-sampling service to support data collection for Fishery Improvement Projects (FIPs) has been identified as a weakness is in fisheries data. This has been exacerbated by the Covid-19 pandemic which has limited scientific data collection due to issues around deploying scientific observers. Therefore, to address data gaps in the fish stock assessment process, self-sampling programmes carried out by the industry have been identified as one way of helping to provide an important data source for the improvement of existing stock assessment models. This has been discussed at length with the Marine Institute during 2020 when information was provided on the Albacore tuna fishery.

Objectives

The key objectives of the FIPs are:

- Maintain access to key markets for Irish seafood through fully operational FIPs that provide a platform for the demonstration of sustainability credentials of Irish fisheries.

- Increase competitiveness of Irish seafood in domestic and international markets by demonstrating sustainable management of key fisheries
- Implement a change management policy in the key Irish fisheries through improvements in fishing practices and encouraging active participation in data collection programmes.
- Facilitate discussion between key stakeholders on issues relevant to key Irish fisheries.
- Progress Irish fisheries to MSC certification where required by the market.
- Facilitate industry self-sampling programmes to complement on board observer programmes

Budget

€178,414

Achievements/Spend

Work on the Fishery Improvement Projects began in 2017 and during 2021 nine Irish FIPs for Brown Crab, Prawns, Hake, Haddock, Whiting, Saithe, Monkfish, Megrin and Albacore Tuna were in operation. By the end of 2021, there were approximately 450 vessels involved, along with 30 or more processors, sales agents, co-ops and retailers. This number increased steadily during 2021, demonstrating that the sector is committed to sustainability and to improving the management of their fisheries. Detailed workplans for each of the FIPs have been developed following the framework of the international NGO SFP (Sustainable Fisheries Partnership) and Fishery Progress. The industry led approach is evidence based with input from BIM's conservation scientists and fisheries scientists from Ireland's Marine Institute. All of the plans are publicly available online at <https://veri.fish/fip/>.

Specific actions achieved during 2021 include the following:

- Members of the crab FIP have collaborated on an alternative bait in the whelk fishery (which uses brown crab as bait) to reduce pressure on the crab stock (see project 21/SFS/DIS-BG024-BR032).
- FIP members have participated in data collection programmes for crab, in collaboration with the Marine Institute and participated in a pilot traceability scheme with processors which included collection of data on under 10m vessels.
- FIP members have undertaken self-sampling program for Albacore tuna and prawns. This has helped to make up the shortfall in observer trips carried out by the MI due to Covid-19.
- Workshops for FIP members have been held with the Marine Institute to identify the main challenges to achieving Maximum Sustainable Yield in the different fisheries and data gaps where industry data provision could assist.
- The FIP Secretariat has attended the Irish Research and Science Partnership chaired by the Marine Institute.
- The FIP Secretariat met with FIP groups in the UK working on the UK prawn fisheries and representatives from the UK prawn FIP attended all relevant FIP meetings.
- FIP member vessels participated in gear trials with BIM during 2021, including cuckoo ray survivability work and four separate trials testing selective trawl and codend designs (see project 21/SFS/STS-BG040-BR076).
- FIP members have been involved in a pilot project testing blockchain technology to enhance traceability of FIP sourced seafood across supply chains. This included initial exploration of internal capabilities (IT, Data recording, quality management systems) within the pilot participants organisations. The pilots have been successful and have shown that the use of blockchain technology can help to maintain access and confidence along the supply chain (see project 21/SFS/ESS-BG030-BR048).

Summary of Spend	
Total Approved	€178,414.00
Total Eligible Expenditure	€176,953.59
Total Drawdown	€176,953.59
EU – 50%	€88,476.80
Exchequer – 50%	€88,476.80

Report by: Catherine Barrett

Date: 4th March 2022



BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG029-BR046
NAME OF PROJECT: National Fishermen's Development Group (NFDG)
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

BIM in conjunction with the Producers Organisations and Inshore Fishermen's Forums (NIFF and RIFFS) set up a stakeholder forum, the National Fishermen's Development Group (NFDG), for the catching sector during 2017. The NFDG is an industry initiative, set-up to provide a forum for fishermen to discuss practical and operational issues, which are often not discussed at Producer Organisation level. The NFDG provides an information conduit between the representative organisations and the catching sector. It discusses issues such as financial management, safety at sea, working conditions and conservation. It assists in the development of tools to aid fishermen such as user-friendly guides to explain regulations or apps to allow for the recording of working time at sea. Its establishment has been well received by industry but has been impacted by the Covid-19 pandemic in 2020. An independent chair/facilitator assists the Group and secretarial and technical support is provided by BIM. Experts from other agencies and service providers (BIM, MSO, SFPA, financial services, pensions experts) to the catching sector will continue to participate where relevant in 2021.

During 2021, the NFDG will continue to facilitate constructive discussion both amongst the group as well as with Government agencies and service providers dialogue on technical, operational and practical pertaining to the catching sector. This will be provided through direct feedback to the Producer Organisations and the NIFF/NIFA on issues impacting on the day-today operation of the catching sector. The NFDG will input into BIM's training strategy and participate in steering groups as and when required to help alleviate the crewing issues that currently exist in the catching sector. The NFDG will also be involved in projects identified as being important to the catching sector, linking to the Fishery Improvement Projects where relevant (see Project 21/SFS/ESS-BG029-BR045). The work in 2021 since the establishment of the NFDG in 2017.

Objectives

The main objective of the NFDG is to provide a mechanism to allow dialogue between practising fishermen on a range of "grassroots" issues relating to fishing operations. Specifically, the NFDG aims to provide a platform to:

- Facilitate discussion between fishermen on technical, practical and business issues that impact on the day-today running of fishing vessels.
- Facilitate the provision of expert advice on relevant issues including on new and existing rules and regulations.
- Allow fishermen to share information and experiences with new technology and innovations that can improve fishing.
- Promote a positive image of the Irish fishing industry.

Budget

€45,000

Achievements/Spend

- Development of a “Fishermen’s Handbook” providing information on Basic Seamanship, Rules of the Road, Navigation Lights and Buoys etc. It aims to raise the awareness of safety at sea and promote training.
- Explored the possible creation of a Register of Fishermen that would help gather data to build a better picture of the catching sector and raise its outward facing profile to the wider public as a professional and well-regulated industry. An outline of the Register has been developed and discussed with the POs and the NIFF/NIFA.
- Members of the NFDG have inputted into BIM’s training strategy and participate in steering groups as and when required to help alleviate the crewing issues that currently exist in the catching sector.
- Participated in a project to develop a software system with integrated Mobile Application Solutions for Recording of the Working Time Directive and Compliance with the CLO188 on Board Commercial Fishing Vessels.

Despite the constraints of Covid-19 that prevented physical meetings of the Group, the NFDG held three virtual meetings during 2021. The NFDG continued to provide direct feedback to the Producer Organisations and the National Inshore Fisheries Forum (NIFF) and Regional Inshore Fisheries Forum (RIFF) on issues impacting on the day-to-day operation of the catching sector. Members of the NFDG inputted into BIM’s training strategy and provided constructive input into the development of a possible Watchkeepers Course. The NFDG assisted in the drafting of a Watchkeeping course directly related to new manning requirements introduced under The Fishing Vessels (Certification of Deck Officers and Engineer Officers) (Amendment) Regulations 2019, (S.I. No 673 of 2019) which gives effect to EU Regulations. The Group is also progressing the development of a Register of Fishermen that would help gather data to build a better picture of the catching sector and a “Fishermen’s Handbook” providing information on Basic Seamanship, Rules of the Road, Navigation Lights and Buoy. Additionally, the group provided input into the labour force and carbon footprint studies being carried out by BIM, as well as collaborating with the prawn and tuna FIPs to carry out self-sampling on board vessels engaged in these fisheries.

Summary of Spend	
Total Approved	€45,000.00
Total Eligible Expenditure	€33,138.50
Total Drawdown	€33,138.50
EU – 50%	€16,569.25
Exchequer – 50%	€16,569.25

Report by: Dominic Rihan

Date: 4th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/ESS-BG030-BR048
NAME OF PROJECT: Sustainability Improver Programme
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

As part of the BIM's Sustainability Strategic project, BIM is planning to develop one single standard covering both wild caught and farmed seafood. While the standard is being developed this project will prepare industry for the standard through a sustainability improver programme. This would involve bringing in clusters of businesses across supply chains to improve the chain of custody by enhancing the interoperability of their traceability systems as developed through BIM's digitalisation pilot project. The enhanced traceability provides an evidence-based approach to developing reliable messaging around sustainability. This project will focus on clusters within the wild capture seafood supply chain from co-operative to retailer where the FIPs (project 21/SFS/ESS-BG029-BR045) provide a forum for bringing these clusters together to differentiate FIP caught product in the marketplace.

The Improver Programme is planned as a stepping stone for the OneBIM standard being developed. It will allow identification and validation within the supply chain of the product/service features of the standard, the product benefits (improved transparency, sustainability credentials) and customer benefits (improved relationships/partnerships, connection with seafood producers, understanding and appreciation of seafood). This will help to articulate the perceived value of the new BIM standard being developed. The Sustainability Improver Programme will work with clusters of seafood businesses along supply chains willing to participate in the project. This would include fishing vessel owners, processors and retailers. These business clusters will assist BIM to identify and address questions, concerns, challenges, opportunities in developing a new oneBIM standard, including contributing to the development of a logo with Bord Bia for the promotion of Irish seafood. BIM, through an appointed external contractor, would provide access to digital traceability systems (Blockchain) developed by BIM during a pilot programme completed in 2020 to participants in the Improver Programme. Such systems would facilitate the exchange data across the supply chain, thereby increasing the traceability of seafood. This is a key requirement that increasingly being asked for by major retailers both in Ireland and globally. During the standard development phase, participants in the Improver Programme would be permitted to use the "Member of the BIM Sustainability program" at a Business-to-Business level to allow differentiation of their products in the marketplace. It is planned to involve up to six seafood business clusters involving fishing vessels, fishermen's co-ops, processors, and Irish and international retailers during 2021.

Objectives

The Sustainability Improver Programme aims to communicate the value a sustainable Irish seafood sector across the supply chain from catch to consumer and the power of a single national sustainability standard as a promotional tool. It aims to capitalise on emerging technologies to enhance the traceability and trust around Irish seafood and to develop a chain of custody framework to bring key information regarding seafood sourced from an Irish FIP (Fishery Improvement Project) to the market place, based on evidence-based sustainability information, to the destined market/B2B customer.

Budget

€66,421

Achievements/Spend

For the purposes of the SIP project, six clusters comprising twelve enterprises were identified with the aim of demonstrating the provenance of seafood to market along the supply chain from producer to retailer. A third-party contractor, Verifact, was contracted to assist the clusters through the completion of an internal IT & traceability review with each participant and then the creation of a data transfer plan. Three main data exchange options were developed to verify data: automated, online portal or a manual spreadsheet. The data fields were benchmarked against the international standard, Global Dialogue Sustainability Traceability (GSDT), to insure international relevance of the data transfer both in data points and quality of transfer.

For each cluster, the sustainability evidence areas that needed to prioritise along the supply chain were identified. This was completed by carrying out a deep dive into the sustainability strategies of the client's key buyers and summarised through a Sustainability Materiality Matrix. Increasingly, retailers are applying such matrices to identify the sustainability issues that matter or impact their own business and are of interest to their various customers. This approach also enhances the opportunity a business has through other verified programmes such as Origin Green and BRC (British Retail Standard). This also helped to identify the areas that an accredited certification can provide as evidence of sustainable practices and allowed clear measurable steps and targets to be identified, that the SIP could provide as an auditable chain of custody evidence.

The next phase of the project looked at the opportunities and available capability within the clusters for the digital transfer of agreed data via blockchain technology. This built on previous work carried out by BIM in 2020 of using such technology to address and strengthen the visibility of data along the supply chain. By creating new synergies through the understanding of the sustainability needs in the market, applying blockchain addresses the opportunity to strengthen provenance throughout the supply chain.

The digitalisation approach taken was to adapt to the systems that the enterprises had already in place. This took significant resources as the project did not want their current technical solutions to be a barrier to embracing chain of custody and provenance the chain of custody was built around their current resources in place which was significant investment of time and IT development in the project.

The main findings were:

The SIP programme provided the mechanism to provide evidence of responsible sourcing needed to commercially maintain access to key markets for Irish seafood from FIPs. Applying blockchain technology provided both provenance and chain of custody of FIP sourced fish in the commercial supply chain.

Working closely with other agencies, in particular the Marine Institute, the provision of industry self-sampling programmes on FIP member vessels were critical to the fishery science to complement on board observer programmes that were restricted during COVID. Through the FIP and SIP approach, it brought the market relevance of participating in these sampling programme and not just for supporting the science.

The FIP framework requires a social assessment to completed in the fisheries. However, social assessment and human rights due diligence is increasing in the supply chain, The findings were that is area of work is complex and needs special attention and prioritising as it impacts both on the fishery and the supply chain. There is a need for a Human Right due diligence strategy for the Irish Supply chain to be in line with the EU Corporate Sustainability Reporting Directive published in April 2021. The findings highlighted the need to maintain the FIPs progression while being cognisant of the wider EU developments in this area.

Commercial positioning of responsibly sourced seafood increased the commercial and business needs of the participating seafood enterprises to demonstrate improvements in fishing practices through the uptake of selective gears at first point of sale (FPOS) level. The FPOS increased its leverage with vessels, both to fully register, record their participation in the trials and participate in the sea sampling.

BIM developed a “marketing funnel” to bring the FPOS and processor participants on a journey to identify the need to build sustainability into the strategic objectives of their business. First step was “Awareness”. Awareness of the market sustainability issues that are of material interest of the business. Ensure linkage of FIPs with Certification programmes, Origin Green and other marketing initiatives. This was presented as a Sustainability Materiality Matrix. The next step was “Consider” - to consider the matrix did the matrix represent their own market intelligence, could they add any further insights from their direct engagement with account managers. Then “Commit”, will they commit to addressing the key issues, can they commit? Have they resources and opportunities to do so? Then “Plan to Prove” - set measurable targets and metrics to demonstrate their commitment to the issues, where can they prove their targets, what is available to them i.e. BRC, IFS, Origin Green or blockchain. The last step is “Verify” - complete the verification and close out the non-conformances.

Through the SIP, businesses were able to see the business relevance of Origin Green in the marketplace and as the SIP assisting is setting up the sustainability context of their market needs and the value of utilising both Origin Green and block chain to provide an evidence-based approach to the market.

Summary of Spend	
Total Approved	€66,241
Total Eligible Expenditure	€66,420
Total Drawdown	€66,420
EU – 50%	€33,210
Exchequer – 50%	€33,210

Report by: Catherine Barrett

Date: 4th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/STS-BG030-BR085
NAME OF PROJECT: **OneBIM Standard as a Promotional Tool**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

There is increased focus on sustainability and traceability within seafood markets which requires independent third-party accredited certification to deliver trust and transparency. Accredited certification standards have been a key mechanism in assisting businesses wishing to translate requirements, both product and process specifications, to other parts of the supply chain. This is especially important as supply chains become more vertically integrated. Indeed, from the perspective of the business, standards and the accreditation sitting behind them can serve as mechanisms for food safety and quality assurance. They also facilitate traceability, standardisation of products, and transparency of production processes. The proliferation of private standards causes confusion for fishers, fish farmers and processors trying to decide which certification scheme to choose; buyers trying to decide which standards have most credence in the market and will offer returns to reputation and risk management; and where standards fit into their food safety and resource management strategies.

BIM currently has two accredited certification programmes in place: CQA and RSS. CQA has been successful largely because of the organic credentials which help command market access and a premium price for Irish product. RSS has been less successful since it does not have the same link to market requirements. By undertaking this project, BIM aims to develop a single standard/a single programme of standards which allow Irish seafood to be differentiated in the market, using Origin Green, and which will deliver verifiable market-driven sustainability.

Objectives

In this context, BIM is seeking to work with Bord Bia to understand the logo/branding opportunities and then to design an accredited certification standard which delivers meaningful volume of products while allowing Irish producers to differentiate themselves. In parallel we need to maintain existing standards until the new standard is in place. The project encompasses several workstreams as follows:

- Technical development of the standard;
- Establishment of the standard as a promotional tool;
- Continuation of the development and incorporation of digitalisation and cloud-based technologies into the standard; and
- Preparing industry for uptake of this accredited certified standard.

Budget	€80,000
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Achievements/Spend

Seafood certification is key to maintain market access both nationally and globally. In 2021 BIM drafted an integrated seafood sustainability standard which will be piloted with industry in 2022, with the vision of creating an Irish sustainable seafood brand.

BIM has reviewed their current suite of standards and identified the need to develop a universal standard which would cover the value chain from primary handling (vessels, farms, primary processors) to processing

for all sectors. Based on this review, the new draft standard has a modular design, initially covering traceability, quality, food safety and sustainability, but allowing for the addition of modules in the future. The standard has been designed with accreditation in mind. A matrix approach is required so that each applicant's obligations are clear depending on their place in the supply chain.

BIM has always strived and continues to strive for its seafood certification programmes to be accredited to international recognition. The reality is that certification bodies will have to rely more on remote auditing methods and BIM recognises the value in this approach both for the client and the CBs, while cognisant it must fit with ISO, Organic DAFM and GSSI requirements. Trials are underway utilising digital technologies and cloud-based data storage with verification checks on specific documentation carried out offsite with the aim of limiting the onsite audit to the essential audit items. These elements have been integrated into the new standard.

BIM has met with Bord Bia on the co-ordination of the new seafood standard with the Bord Bia certification systems. The new standard has been designed to harmonise with the standards and use the same architecture and accreditation process. This is with a view to associating the seafood standard with the Bord Bia certification logo in due course to establish it as a promotional tool for the sector.

While these changes are ongoing to the certification process, BIM had continued to support the Irish wild caught fisheries sector with the Responsibly Sourced Seafood scheme while the new standard is being developed.

Summary of Spend	
Total Approved	€80,000.00
Total Eligible Expenditure	€46,644.06
Total Drawdown	€46,644.06
EU – 50%	€23,322.03
Exchequer – 50%	€23,322.03

Report by: Catherine Morrison

Date: 15th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/STS-BG040-BR076
NAME OF PROJECT: **Environmentally Friendly Fishing Methods**
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

In 2021, the Fisheries Conservation Section worked closely with the Irish Fishing Industry on developing fisheries conservation solutions. Projects aimed at reducing unwanted catches or 'bycatch' by fishing more selectively helped the Irish Fishing Industry to address EU landing Obligation requirements, improve fisheries sustainability and protect marine biodiversity. Work also commenced on improving the energy efficiency of gear in key fisheries.

Objectives

- Complete four studies with the Irish fishing industry which aim to reduce unwanted catches and improve the environmental performance of Irish fisheries.
- Submit at least one new application for a new gears or survivability exemption under the annual North-Western Waters Discard Plan.

Budget	€240,000
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Achievements/Spend

The objectives were achieved with four successful gear studies and one survivability study completed. Two new Fisheries Conservation measures were implemented on the basis of applications submitted under the North-Western Waters Discard Plan. In addition, a new tool for rapidly assessing gear modifications was developed and a paper on a new methodology which optimises experimental design in single-rig gear selectivity experiments was published. There was a slight overspend due to the additional outputs. Project summaries and full report links are provided below:

Preliminary assessment of artificial light on the raised-fishing line

This study aimed to assess the effects of green LED lights on mixed-demersal fish species targeted by a trawler using the raised-fishing line (RFL), a regulated gear option in the Celtic Sea. The lights substantially reduced catches of low-quota haddock while largely maintaining catches of higher-quota whiting. Very few cod were caught in gears with or without lights due to the RFL and/or low abundance on the grounds but lab experiments in Scotland suggest cod also avoid green lights. This work was carried out on a self-sampling basis due to COVID protocols. Further full-scale testing is planned in 2022:

<https://bim.ie/wp-content/uploads/2021/10/BIM-Preliminary-Assessment-of-artificial-light-on-the-raised-fishing-line.pdf>

Assessment of the Dual Codend on the Galway Aran Fishing Grounds

This trial demonstrated effective separation of gurnard and other fish species into the upper part of the dual codend. A doubling in market sized fish catches makes the dual codend a sensible gear option for vessels targeting Nephrops and fish species. The dual codend is currently a regulated gear option in the Celtic Sea and for vessels availing of the Nephrops survival exemption ICES sub area 7.

<https://bim.ie/wp-content/uploads/2021/09/BIM-Fisheries-Report-Dual-Codend-GalwayAran-Fishinggrounds.pdf>

Preliminary assessment of a box trawl in the Irish Nephrops fishery

This new four-panel 'box trawl' is highly effective in targeting Nephrops and facilitates large-scale changes in mesh size. Extended areas of enlarged mesh in the top sheet have strong potential to improve species selectivity, fuel and carbon efficiency. This work forms part of a strategy to incrementally reduce the amount of netting, drag, fuel use and bycatch in Nephrops trawls with a view to meeting climate change as well as landing obligation challenges. Further work on the energy efficiency of this gear will be carried out in 2022:

<https://bim.ie/wp-content/uploads/2021/07/Preliminary-assessment-of-a-box-trawl.pdf>

Preliminary assessment of a four-panel T90 codend with lastridge ropes in the Irish demersal seine net fishery

This trial of a new four-panel T90 codend with lastridge ropes demonstrated substantial reductions in small haddock and increases in larger haddock in the seine-net fishery which targets and receives additional quota for this species. T90 mesh of at least 100 mm size is currently a regulated gear option in the Celtic and Irish Seas and is thought to be widely used by seine-net vessels. This work further improves the selectivity and quality of fish retained in T90 mesh which will assist in driving uptake of this gear:

<https://bim.ie/wp-content/uploads/2022/03/Preliminary-assessment-of-fourpanel-T90-codend-with-lastridge-rope-Irish-demersal-seine-net-fishery.pdf>

*An assessment of cuckoo ray (*Leucoraja naevus*) survivability in an Irish otter trawl fishery*

Post-capture survival estimates of cuckoo ray (*Leucoraja naevus*) caught in an Irish otter trawl fishery ranged from 11 to 16%. Results are similar to a recent French study on cuckoo ray survival in an otter trawl fishery in the Celtic Sea. Cuckoo ray catches constitute around 1% of total catches in the Irish Sea fishery targeting blonde ray and are difficult to mitigate given similarities in behaviour and morphology with the target species. This work provides important new information to the EC on cuckoo ray which is currently subject to a survival exemption:

<https://bim.ie/wp-content/uploads/2022/02/An-assessment-of-cuckoo-ray-survivability-in-an-Irish-otter-trawl-fishery.pdf>

Fast-Tracking Gear Development with Side-Scan Sonar

This study demonstrated the use of sidescan sonar imaging is a powerful tool which enables rapid visualisation and assessment of fishing gear modifications. This tool has major potential to assess gear modifications which aim to reduce bycatch, seabed impacts, and carbon emissions. Preliminary testing of a new fish bycatch escape corridor in the quad-rig trawl fishery for Nephrops in the Irish Sea was conducted as part of this work. Further assessment of this new gear modification is planned in 2022:

<https://bim.ie/wp-content/uploads/2021/08/BIM-Fast-tracking-gear-development-with-side-scan-sonar-Report.pdf>

Match of the Day: optimised experimental design in alternate-haul gear trials

Statistical methodology for comparing two or more gears in twin or multi-rig gear selectivity experiments is well established but less so in the case of single-rig experiments. Published in the ICES Journal of Marine Science, this study helps optimise trial design and outputs in single-rig gear selectivity experiments:

<https://bim.ie/wp-content/uploads/2021/06/Match-of-the-day-optimized-experimental-design-in-alternate-haul-gear-trials.pdf>

Based on previous work by BIM in collaboration with the Irish Fishing Industry, the following Fisheries Conservation measures were legally implemented in 2021:

- The 100 mm T90 codend was added to the list of gear options for demersal trawls and seines in ICES division 7a (Irish Sea) under the Commission Delegated Regulation (EU) 2021/2324 amending Regulation (EU) 2019/1241 of the European Parliament and of the Council as regards technical measures for certain demersal and pelagic fisheries in the Celtic Sea, the Irish Sea and the West of Scotland: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R2324&from=EN>
- A survival exemption for plaice caught in ICES divisions 7b to 7k with seines (SSC) was implemented under the Commission Delegated Regulation (EU) 2021/2063 amending and correcting Delegated Regulation (EU) 2020/2015 specifying details of the implementation of the landing obligation for certain fisheries in Western Waters for the period 2021-2023: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R2063&from=EN>

Summary of Spend	
Total Approved	€240,000.00
Total Eligible Expenditure	€239,274.62
Total Drawdown	€239,274.62
EU – 50%	€119,637.31
Exchequer – 50%	€119,637.31

Report by: Ronan Cosgrove

Date: 8th March 2022

BENEFICIARY: Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER: 21/SFS/STS-BG043-BR086
NAME OF PROJECT: Clean Oceans Initiative incorporating Fishing for Litter
IMPLEMENTATION PERIOD: 1st January to 31st December 2021

Project Scope

The Clean Oceans Initiative was launched by the Minister for Agriculture, Food and the Marine, Michael Creed early in 2019. BIM was tasked with engaging industry to ensure 100% participation by fishermen in collecting and reducing marine litter. This project was successful in signing up 96% of the fishers in participating ports. In addition, BIM worked with the wider coastal communities to develop innovative solutions for the prevention and removal of marine litter.

By introducing measures on single use plastics as well as retired fishing gear, the EU have brought forward legislation that will contribute to Europe's transition towards a Circular Economy. Fishing gear (nets, lines, pots, trap etc.) accounts for 27% of all beach litter. The commission view this legislation as a key means of encouraging all actors involved to create a baseline of fishing gear being put on the market, get a maximum of retired gear back to shore and include it in the waste and recycling streams. Producers of plastic fishing gear will be required to cover the costs of waste collection from port reception facilities and its transport and treatment (December 2024). This new measure builds on existing rules such as the Marine Strategy Framework Directive (MSFD) and complements other actions taken to protect the marine environment, such as under the Port Reception Facilities Directive (PRF). Thus, source management will need to be a key focus of Clean Oceans moving forward in tandem with the further development of actions that support MSFP and the PRF Directive.

In line with MSFD and PRF, BIM has invested significant resources to improve the baseline knowledge, industry engagement, management of onboard and onshore industry generated waste streams. BIM has instigated a Fishing for Litter (FFL) programme, trialled onboard technologies to reduce fishing generated waste and carried out waste characterisation surveys. BIM has also held a series of awareness raising initiatives to highlight the issue of marine litter and the steps being taken by the fishing industry to reduce marine litter and fishing generated waste.

Objectives

The key objectives of the Clean Oceans project are to minimise and reduce waste in those areas where fishermen operate, to deal with fishing and aquaculture derived waste in an optimum manner and to address waste streams at source to support circularity.

EU Directive 2000/59/EC on port reception facilities (PRF) for ship-generated waste and cargo residues obliges Member States to ensure the availability of adequate port reception facilities to reduce the discharges of ship-generated waste and cargo residues into the sea. Building on previous work it is now that PRF can be further developed to support forthcoming reporting requirements and management measures to facilitate the maximum level of recycling and reuse and thus to Europe's transition towards a Circular Economy. A key activity for 2021 will be to develop industry led approach to demonstrate the responsible actions undertaken by the fleet in net and gear management.

This project will provide the foundation needed to develop baselines and industry capability for the upcoming monitoring and reporting requirements. It will also generate key information points for Ireland as a member state to develop an extended producer responsibility scheme support by industry by the December 2024 deadline.

Budget

€200,000

Achievements/Spend

Plastic in the marine environment remains a concerning issue for the seafood sector and the public alike. As part of the Clean Oceans Initiative, over 180 tonnes of marine litter were removed by volunteer fishers in 2021 via the 12 participating Clean Oceans ports.

The ultimate goal is the prevention of plastic pollution of the oceans. BIM engaged with the ports on providing facilities for marine litter and developing port waste management plans in advance of the new port reception facilities directive implementation. The Port Reception Facilities directive states that the procedures for reception, collection, storage, treatment, and disposal should conform in all respects to an environmental management scheme suitable for the progressive reduction of the environmental impact of these activities. Working with six ports, draft plans were developed with following objectives:

- To minimise the production of waste wherever possible
- To re-use or recycle waste wherever possible
- To reduce illegal discharge of waste from vessels
- To fulfil legal duties regarding waste management and reporting
- To consult with users, agents, operators, contractors and regulators in the development and implementation of waste management strategies and measures
- To communicate the reception facilities services provided to port users
- To ensure signage and instruction provided and clearly understood and consistent with those provided in other ports
- To provide facilities to port users to optimise proper waste management
- To make it easier for port users to offload waste without undue delay
- To dispose of waste to minimise negative environmental effects

A national webinar to disseminate information and to inform the commercial gear suppliers about the developments of the single use plastics directive was held around developing a circular economy model for fishing and aquaculture plastics. Target groups were Producer Organisations, harbours, gear suppliers and recyclers. This was an opportunity to disseminate the findings of a case study into fishing gear distribution and use pathways and hear about the Extended Producer Responsibility scheme from CEO Liam Maloney of Farm Plastics. DCCE answered questions from the virtual floor on the plans for the implementation of the directive in Ireland. Four technical reports on waste management options for retired fishing gear, mapping the fishing gear supply chain, assessing waste management flows in ports and the feasibility of collecting data on retired gear.

Discussion of reporting and monitoring requirements of Directive (EU) 2019/904 Single Use Plastics Directive (SUPD) on the reduction of the impact of certain plastic products on the environment was undertaken as part of this project. Monitoring and reporting fishing (and aquaculture) gear on and off the market are challenging as the pathways on and off are so different with a different set of stakeholders that have no business connection, for example, waste contractors that are a service to a port have no connection with gear suppliers, yet they now have common data points to be reported and monitored. Information gathering regarding sources of data for fishing and aquaculture gear on and off the market needed for the MS to comply with the directive commenced as part of this project and will continue into 2022.

Summary of Spend	
Total Approved	€200,000.00
Total Eligible Expenditure	€179,985.37
Total Drawdown	€179,985.37
EU – 50%	€89,992.69
Exchequer – 50%	€89,992.69

Report by: Catherine Morrison

Date: 15th March 2022

