

Marine Stewardship Council 3rd Surveillance Report

for the

Northern Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery

and the linked

Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery

facilitated by

Cross Border Aquaculture Initiative (CBAIT)

And the

Bord Iascaigh Mhara (BIM)

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Glossary

AA	Appropriate Assessment
AFBI	Agri Food and Biosciences Unit
BGMCF	Bottom Grown Mussel Consultative Forum
BIM	Bord Iascaigh Mhara – Irish Sea Fisheries Board
CAB	Conformity Assessment Body - Certifier
CBAIT	Cross Border Aquaculture Initiative
DAFM	Department of Agriculture Food and the Marine
DARD	Department of Agriculture and Rural Development
DAERA	Department of Agriculture, Environment and Rural Affairs
HCRs	Harvest Control Rules
MSC	Marine Stewardship Council
NI	Northern Ireland
PI	Performance Indicator
IE	Republic of Ireland
SAC	Special Area of Conservation
SPA	Special Protection Area
VMS	Vessel Monitoring System

1 Executive Summary

This report contains the findings of the third surveillance audit in relation to the Cross Border Aquaculture Initiative (CBAIT) and Bord Iascaigh Mhara (BIM) certificate of the Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) Fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery.

The third surveillance audit focused on any changes to the fishery and its management since the 2nd surveillance audit, and monitoring continued compliance with the MSC Principles and Criteria.

The assessment team has evaluated progress against the 8 conditions (PIs 1.2.2. Harvest Control Rules and Tools, 2.2.3 Bycatch Species Information/Monitoring, 2.4.2 Habitats Management Strategy, 2.4.3 Habitats Information/Monitoring, 2.5.2 Ecosystem Management Strategy, 2.5.3 Ecosystem Information/Monitoring, 3.2.2 Decision Making Processes, and 3.2.4 Research Plan).

SAI Global determines that:

- **The Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) Fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery continue to operate well-managed and sustainable fisheries and therefore, continued certification to the MSC Principles and Criteria for Sustainable Fishing is awarded.**

Table 1 summarizes conditions status, Performance Indicator (PI) and Principle level score changes. Evaluation tables for rescored PIs can be found in [Appendix 1](#).

Table 1. Conditions status and original and revised Performance Indicator (PI) and Principle level scores.

Condition number	PI	Status	PI original score	PI Revised Score	Principle original score	Principle revised score
1	1.2.2	Closed (at surveillance 3)	65	80	81.5	83.3 (at surveillance 3)
2	2.2.3	Closed (at surveillance 3)	75	80	83.1*	84.2 (at surveillance 3)
3	2.4.2	Closed (at surveillance 3)	70	80		
4	2.4.3	Closed (at surveillance 3)	75	80		
5	2.5.2	On target	75	Not revised		
6	2.5.3	On target	75	Not revised		
7	3.2.2	On target	75	Not revised	85*	85 (not revised)
8	3.2.4	On target	70	Not revised		

*The Principle level scores for P2 and P3 were originally incorrectly calculated as 83.3 and 84.5 respectively.

On behalf of the MSC client, the Cross Border Aquaculture Initiative (CBAIT) and Bord Iascaigh Mhara (BIM), SAI Global would like to extend thanks to the management organisations and stakeholders of the Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) Fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) who took part in this surveillance audit.

The assessment team was made up of:

- **Lead Assessor:** Dr. Virginia Polonio manages technical functions of SAI Global's MSC Fishery Program and is an approved MSC Fishery Team Leader.
- **Assessor:** Fergal Guilfoyle is a contractor for SAI Global with an extensive experience in the shellfish aquaculture sector in Ireland.
- **Assessor:** Sam Dignan is a fisheries technical officer for SAI Global and is ISO approved auditor with extensive knowledge of the Irish fishery industry.

The team is not the same as for the 1st and 2nd surveillance audits. Skills and experience are summarised below.

Virginia Polonio - Lead Assessor

Virginia has a degree in Environmental Sciences (B.Sc. University of Cádiz). She has a Master degree (M.Sc. University of Cádiz) in Fisheries Management and Aquaculture. She obtained her PhD in Biodiversity and Natural resources at the University of Oviedo and during her PhD she gained experience in the field of research of fisheries and how protect the Vulnerable Marine Ecosystems (VMEs) as coral reefs versus fishing activities. She wrote several articles describing new species of corals under her thesis and she developed skills in the fields of benthic ecology and management of ecosystems.

Before her PhD, Virginia was contracted as technician in the Spanish Oceanographic Institute where she realized work at sea and gained field experience to assessment fisheries stocks. She participated in the Spanish National Basic Plan of Data to collect and evaluate the fishing in the ICES and CECAF areas where Spanish fleets realize their activities. During this period, she carried out feeding habit and age/size studies of *Pagellus bogaraveo* and others commercial species (hake, anchovy, sharks, mackerel, squid, etc.) to know how the trophic level and predation could affect the ecosystems and the distribution of the species in the Gulf of Cadiz and the Strait of Gibraltar.

Virginia has worked on several full assessments such as Cantabrian Sardine, North Atlantic Albacore, Squat lobster, Blue sharks and Swordfish among others as team member and lead assessor. Virginia has participated in Surveillances acquiring experience in the MSC certification. She has participated in several pre-assessments.

She is a full-time employee at SAI Global and she will be the **lead assessor** and P2 expert in this assessment.

Fergal Guilfoyle – Assessor

Fergal has a degree in Marine Biology from Trinity College Dublin, a Masters in Fisheries and Marine Science from Aberdeen University and a postgraduate Diploma in Environmental Management from the University of Ulster. Fergal is currently managing director of Treanbeg Shellfish Ltd, a small oyster farming business based in Mayo. Treanbeg Shellfish also trades as Treanbeg Marine Consulting which is a business focusing on Environmental Impact Assessment for finfish farms.

Fergal is a member of the Chartered Institute of Ecology and Environmental Management, and he is an invited member of the National Inland Fisheries Forum (NIFF) which advises IFI and the minister in matters relating to inland fisheries resources in Ireland. Fergal has worked as a research scientist in Ireland for BIM and the Marine Institute. As an Aquaculture Development/Quality Officer in Co. Mayo, Fergal has gained a thorough understanding of all aspects of the aquaculture industry in Ireland. Since 2009 Fergal has been working extensively with the Aquaculture Industry as a shellfish producer and as a consultant working on EIA projects in the finfish sector.

Sam Dignan – Assessor

Sam Dignan is a fisheries scientist who has previously worked with the Department of Environment, Food and Agriculture (DEFA), Isle of Man and Bangor University Fisheries and Conservation Science Group (Wales). He has a BSc in Biological and Chemical Sciences with Zoology from University College Cork and an MSc in Marine Environmental Protection from Bangor University. He has experience conducting stock assessments, from the survey design and implementation phases through to final analysis and report presentation; from 2013 to 2015 he was a member of the ICES working group on scallop stock assessment. He has been involved in providing scientific data to ensure fishery compliance with the Marine Stewardship Council's (MSC) certification framework and has participated in MSC surveillance audits from a client's perspective. Sam has extensive experience of interacting directly with fishers and their representative organisations as well as members of scientific and government institutions. He was previously an advisor to the Isle of Man Queen Scallop Management Board that manages the MSC certified Isle of Man queen scallop fishery. He has also worked on the spatial analysis of fishing activity, using Vessel Monitoring System (VMS) and logbook data, to spatially quantify fishing activity and fisheries-ecosystem interactions.

2 General Information

Table 2. When harvesting from cultivation sites within Northern Ireland (NI):

Client Name	Cross Border Aquaculture Initiative (CBAIT) and Bord Iascaigh Mhara (BIM)	
Fishery Units	<u>Target Species:</u> <ul style="list-style-type: none"> ▪ <i>Mytilus edulis</i> <u>Geographical Area</u> <ul style="list-style-type: none"> ▪ Seed location: NI 12nm Fishing Limit in VIa, VIIa and VIIg. ▪ Harvest location: Permitted harvest areas within identified bays of Belfast Lough, Lough Foyle, Carlingford Lough (North shore) <u>Method of Capture:</u> <ul style="list-style-type: none"> ▪ Modified Dutch Bottom Dredge (with limited hand raking) 	
Date of Report	8 th February 2017	
Certification Date	30 th July 2013	
Assessment Team	(Lead Assessor) Virginia Polonio (Assessor) Fergal Guilfoyle (Assessor) Samuel Dignan	
On-site audit	7 th and 8 th December 2016	
Surveillance Audit completion		Surveillance Audit 1:
		Surveillance Audit 2:
	X	Surveillance Audit 3: 8 th February 2017
		Surveillance Audit 4:
		Re-certification Audit:
Certificate Holder	Bord Iascaigh Mhara (BIM) P.O. Box 12 Dun Laoghaire, Co. Dublin Ireland	
SAI Global Correspondence to:	Jean Ragg jean.ragg@saiglobal.com	

Table 3. When harvesting from cultivation sites within the Republic of Ireland (IE):

Client Name	Bord Iascaigh Mhara (BIM) and the Cross Border Aquaculture Initiative (CBAIT)	
Fishery Units	<p><u>Target Species:</u></p> <ul style="list-style-type: none"> ▪ <i>Mytilus edulis</i> <p><u>Geographical Area</u></p> <ul style="list-style-type: none"> ▪ Seed location: Coastal waters (FAO 27) within IE's 12nm Fishing Limit and NI 12nm Fishing Limit in VIa, VIIa, VIIg, VIIj and VIIb ▪ Harvest location: Permitted harvest areas within identified bays of Lough Swilly, (Cromane) Castlemaine, Wexford harbour, Lough Foyle and Carlingford Lough (South shore) <p><u>Method of Capture:</u></p> <ul style="list-style-type: none"> ▪ Modified Dutch Bottom Dredge (with limited hand raking) 	
Date of Report	8 th February 2017	
Certification Date	30 th July 2013	
Assessment Team	(Lead Assessor) Virginia Polonio (Assessor) Fergal Guilfoyle (Assessor) Sam Dignan	
On-site audit	7 th and 8 th December 2016	
Surveillance Audit completion		Surveillance Audit 1:
		Surveillance Audit 2:
	X	Surveillance Audit 3: 8 th February 2017
		Surveillance Audit 4:
		Re-certification Audit:
Certificate Holder	Bord Iascaigh Mhara (BIM) P.O. Box 12 Dun Laoghaire, Co. Dublin Ireland	
SAI Global Correspondence to:	Jean Ragg jean.ragg@saiglobal.com	

3 Introduction

This report sets out the results of the third annual surveillance assessment of:

- The Northern Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery and the linked Ireland Grown Bottom Mussel (*Mytilus edulis*) Fishery.

To be awarded an MSC certificate for the fishery, the applicants agreed in a written contract to develop an action plan for meeting the required 'Conditions' against the performance indicators that scored below 80% in the initial assessment. Action Plans for each Condition were submitted by each fishery client and these were approved by GTC as the certification body of record.

The applicant also agreed in a written contract to be financially and technically responsible for surveillance visits by an MSC accredited certification body, which would occur at a minimum of once a year, or more often at the discretion of the certification body (based on the applicant's action plan or by previous findings by the certification body from annual surveillance audits or other sources of information).

Announcement of Surveillance Audit

An announcement of the surveillance site visit was published on the MSC website on the November 2016 to provide an opportunity to stakeholders to meet with or submit information on the fishery to the assessment team. Additionally, written notification was sent to the list of stakeholders representing the consultation plan during the initial assessment of this fishery and in many cases follow up mails were also made to ensure that stakeholders had been provided with sufficient opportunity to participate in consultation.

Table 8 provides a list of the stakeholders and management organizations engaged in the process either through meetings, conference call or submission of information. These consultations focused on the questions and evidence that demonstrates the status of seed collection and mussel harvesting, the performance of the fishery throughout the year and measures that supported the fulfilment of the Conditions of Certification placed upon the Cross Border Aquaculture Initiative (CBAIT) and Bord Iascaigh Mhara (BIM) at the initial certification decision.

Meetings were held with the following management and scientific organizations responsible for the Northern Ireland Bottom Grown Mussel Fishery and the linked Ireland Bottom Grown Mussel Fishery:

- DAERA, BIM, CBAIT, SFPA, representative members of the client group

A number of scientific and meeting reports were also examined by the surveillance team in producing this report, as detailed in the information sources section.

4 Background

4.1 Fishery Observations

During the year 2015, the total seed fished was 10,500 t (net) in Ireland and in Northern Ireland were 1,639.7 t. Of the 10,500 t fished, 5,122.13 t were fished by vessels that are members of the client groups meaning 5,377.87 t were fished by vessels that are not part of the client group. Table 4 details the Northern Ireland and Republic of Ireland catches and re-laying locations. A total of 12,139.7 t of finished mussels (end product) were produced under the certificate in 2015.

Table 4. Tonnage of mussel seed fished and re-laid by Northern Ireland (NI) and Ireland (IE) boats in 2014 (Net tonnage in brackets).

Area	Re-laid NI	Re-laid IE	Total
NI boats	411 (310)	1,228.7 (759)	1,639.7 (1,069)
IE boats	2,390 (1,744.5)	8,110 (6,510)	10,500 (8,254.5)

4.2 Relevant changes to Legislation and Regulations

Since the 2nd surveillance audit there have been material changes to the legislation and/or regulations that govern the Northern Ireland Bottom Grown Mussel Fishery and the linked Ireland Bottom Grown Mussel Fishery.

In a unanimous decision, delivered on 27th October 2016, the Supreme Court of Ireland held that Northern Ireland fishing vessels cannot legally fish or harvest mussel seed in Irish state territorial waters (within 6nm of the coast). Prior to the Judgement, fisheries involving vessels registered in NI fishing in Irish waters had been carried out with the knowledge and approval of the Irish authorities and had been managed by State authorities under a reciprocal agreement (the *Voisinage* Agreement) that also afforded Irish vessels access to NI waters. The Judgement in its entirety may be read at:

<http://www.supremecourt.ie/Judgments.nsf/1b0757edc371032e802572ea0061450e/206a80ad74301f568025805900497a6d?OpenDocument>

In delivering the verdict of the six judge court, Justice O'Donnell concluded that the practice of harvesting of mussel seed by NI registered boats in the territorial waters of the Republic of Ireland constituted the exploitation of a natural resource. Under Article 10 of the Constitution the fishery should therefore have been provided for by a law enacted by the *Oireachtas*, the National Parliament of Ireland consisting of the President and two Houses (Dáil Éireann and Seanad Éireann).

The scope of the Judgement did not address whether the fishing for mussels in Irish waters by boats registered in NI was beneficial or harmful, but focussed solely on whether it was lawful. Delivering the judgment of the six-judge Supreme Court, Justice O'Donnell indicated that while there is no such law at present, he was satisfied that there was "no insuperable constitutional objection to making provision by law for such fishing".

As a consequences of the above Judgement, NI registered vessels can no longer fish for mussel seed in Irish waters; however, the practice of NI registered vessels fishing in Irish waters could resume if properly legislated for under Irish law.

Consequences of Supreme Court Judgement for MSC Certification

As a result of the Judgement described above vessels registered in NI can no longer fish for mussel seed in Irish waters.

Following the Judgement described above the Assessment Team is confident that both the Northern Ireland and the Ireland Bottom Grown Mussel Fisheries remain within the scope of the MSC Certification Requirements. That is to say that:

- Neither of the fisheries targets Amphibians, Reptiles, Birds or Mammals.
- Neither of the fisheries uses poisons or explosives.
- Neither of the fisheries is conducted under a controversial unilateral exemption to an international agreement¹.
- The client group does not include any entities that have been successfully prosecuted for a forced labour violation in the last 2 years.
- The fisheries have mechanisms in place for resolving disputes.
- Mechanisms for resolving disputes are adequate to deal with potential or existing disputes.
- Disputes do not overwhelm either fishery.

PI 3.1.1. Legal and/or customary framework

The Assessment Team is confident that the management system for both fisheries exists within an appropriate and effective legal and/or customary framework. The legal and/or customary framework ensures that the management system is capable of delivering sustainability, observes the legal rights created explicitly or established by custom of people dependent on fishing for food or livelihood and incorporates an appropriate dispute resolution framework.

PI 3.1.2. Consultation, Roles and Responsibilities

The Assessment Team is confident that the management system has effective consultation processes that are open to interested and affected parties and that the roles and responsibilities of organisations and individuals who are involved in the management process are clear and understood by all relevant parties.

3.1.3. Long term objectives

The Assessment Team is confident that management policy has clear long-term objectives to guide decision-making that are consistent with MSC Principles and Criteria, and incorporates the precautionary approach.

4.3 Relevant changes to the Management Regime

There have been changes to the management regime of the Northern Ireland Bottom Grown Mussel Fishery and the linked Ireland Bottom Grown Mussel Fishery since the last 2nd surveillance audit however these have not had a bearing on the performance of the fisheries against the MSC Standard.

Since the 2nd surveillance audit there has been a change in the name of the one of the NI management entities. The Department of Agriculture and Rural Development (DARD) has been renamed the Department of Agriculture, Environment and Rural Affairs (DAERA). During the site visit, DAERA representatives confirmed to the assessment team that the change does not imply any changes to the management regime.

¹ For definitions and considerations used in evaluating this requirement see MSC FCR 7.4.1.3.

4.4 The General Conditions of Certification

The general 'Conditions' set out for the Bord Iascaigh Mhara (BIM) and the Cross Border Aquaculture Initiative (CBAIT) as the certificate holder at initial full assessment were as follows:

- The Client must recognize that MSC standards require regular monitoring inspections at least once a year, focusing on compliance with the 'Conditions' set forth in this report (as outlined below) and continued conformity with the standards of certification;
- The Client must agree by contract to be responsible financially and technically for compliance with required surveillance audits by an accredited MSC certification body, and a contract must be signed and verified by SAI Global prior to certification being awarded;
- The Client must recognize that MSC standards require a full re-evaluation for certification (as opposed to yearly monitoring for update purposes) every five years;
- Prior to receiving final certification, the Clients fulfilled the requirement to document an 'Action Plan' (in this case, one for each of the client groups) for Meeting the Conditions for Continued Certification' and have these approved by SAI Global.
- The Client must provide a list of all the entities eligible for certification as well as a list of active vessels fishing under one the certificate. This list must be updated annually prior to each annual surveillance audit activity.

Fulfilment of General Conditions – Surveillance Audit 3:

- An Action Plan was submitted and accepted prior to the initial certification of the Northern Ireland Bottom Grown Mussel Fishery and the linked Ireland Bottom Grown Mussel Fishery and actions undertaken against the milestones of each Condition in the intervening period are reported upon in the next following sections.
- An up-dated list of members of the client group has been provided and a list of active vessels during the 2016 fishery.
- A package of evidence was shared with the assessment team to evaluate the progress against each condition. These evidences have analysed by the assessment team in the section 6

The client group at the time of the 3rd surveillance audit is formed by:

- Cloughmore Shellfish Ltd.
- Lough Garman Harbour Mussels Ltd.
- Down Mussels Ltd.
- Emerald Mussels Ltd.
- Dougold Mussels Ltd.
- Crescent Seafoods
- Carlingford Lough Mussels Ltd.
- O'Sullivan McCarthy Mussel Development Ltd.
- Cromane Seafoods Ltd.
- Lenger Seafoods Ltd.
- Wexford Mussels Ltd.

For the 2017 season a new member (Lenger Seafoods Ltd.) has joined the client group; this new member conducts fishing activities in the same manner as the rest of the group.

The UoCs of the Northern Ireland and Ireland Bottom Grown Mussel Fisheries have shown changes since they were initially certified and since the last surveillance assessment with the removal of some on-growing areas where no mussel culture activities are currently carried out. Importantly all currently included areas were part of the original UoA and have been extensively considered during both the initial assessment of the fishery and at subsequent surveillance audits.

Current mussel on-growing areas and the major locations from which mussel seed is sourced are outlined in Figure 1.

In Northern Ireland the harvest locations of Dundrum and Lough Larne are no longer included in the Unit of Certification as no activity is being conducted in either area. Therefore current harvest locations in Northern Ireland are:

- Belfast Lough
- Lough Foyle
- Carlingford Lough (NI portion)

In Ireland the harvest locations of Waterford Harbour and Youghal Harbour are no longer included in the Unit of Certification as no activity is being conducted in either area. Therefore current harvest locations in Ireland are:

- Lough Swilly
- Castlemaine (Cromane)
- Wexford Harbour
- Lough Foyle
- Carlingford Lough (IE portion)

In addition to the changes outlined above vessels registered in NI can no longer fish for seed mussel in the Irish waters.

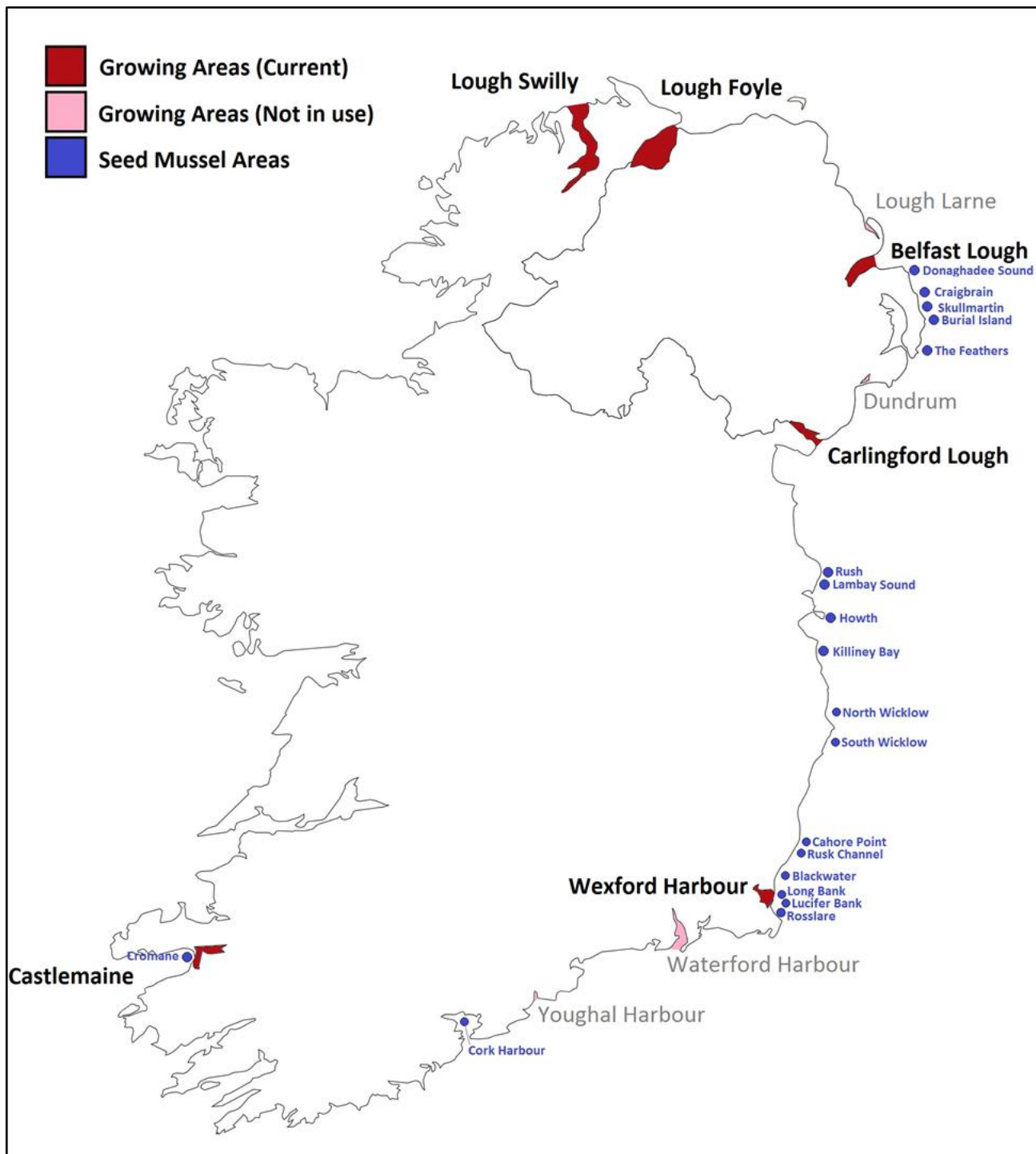


Figure 1. Schematic of mussel growing areas and main seed mussel areas in the Northern Ireland and Ireland Bottom Grown Mussel Fisheries.

4.5 The Specific Conditions of Certification

During the initial assessment of the Northern Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery and the linked Ireland Grown Bottom Mussel (*Mytilus edulis*) Fishery, a conditional score was allocated for PIs 1.2.2. Harvest Control Rules and Tools, 2.2.3 Bycatch Species Information/Monitoring, 2.4.2 Habitats Management Strategy, 2.4.3 Habitats Information/Monitoring, 2.5.2 Ecosystem Management Strategy, 2.5.3 Ecosystem Information/Monitoring, 3.2.2 Decision Making Processes, and 3.2.4 Research Plan.

Table 5. Summary of Assessment Conditions.

Condition number	Performance Indicator (PI)	Status	PI original score	PI Revised Score
1	1.2.2	Closed	65	80
2	2.2.3	Closed	75	80
3	2.4.2	Closed	70	80
4	2.4.3	Closed	75	80
5	2.5.2	On target	75	Not revised
6	2.5.3	On target	75	Not revised
7	3.2.2	On target	75	Not revised
8	3.2.4	On target	70	Not revised

5 Assessment Process

Surveillance Audit activities were conducted following the current version of MSC procedures and methodologies listed in Table 6 and implemented by SAI Global accredited MSC Procedures (QP).

Table 6. MSC procedure.

MSC Scheme Document	Issue Date	Implementation
MSC Certification Requirements v1.3	January 14 th , 2013	Standard
MSC FCR and Guidance v2.0	October 1 st , 2014	Process
General Certification Requirements v.2.1	February 20 th , 2015	Process
Surveillance Reporting Template v1.0	October 8 th , 2014	Process

During the full assessment the surveillance level was set by the assessment team as shown in Table 7.

Table 7. Fishery Surveillance Program.

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit	On-site surveillance audit & re-certification site visit.

The surveillance audit was conducted as a normal onsite audit. Surveillance Audit activities were designed in general to:

- To review any changes in the management of the fishery, including regulations, key management or scientific staff or stock evaluation.
- To evaluate the progress of the fishery against any Conditions of Certification raised during the full-assessment.
- To review any developments or changes within the fishery which impact traceability and the ability to segregate MSC from non-MSC products.
- To review any other significant changes in the fishery.

The surveillance audit consisted of the announcement to stakeholders and interested parties as required through the MSC website and more direct stakeholder contact with the original stakeholders that took part in the initial assessment and management organizations that comprise the management system and regime for the Northern Ireland and Ireland Bottom Grown Mussel Fisheries. Through this process, a stakeholder consultation plan was developed as part of the on-site assessment.

Emails and information on objectives of the surveillance audit were sent to stakeholders and management agencies. From this, a surveillance on-site meeting plan was organized and appointments for each individual meeting set. Due to the nature of the management of the Northern Ireland and Ireland Bottom Grown Mussel Fisheries, and the geographic location of the respective clients and stakeholders, the on-site audit meeting was proposed to be in the BIM Offices in Dún Laoghaire, Dublin.

- On site Surveillance Audit dates were 7th and 8th December 2016.
- On-site audits were performed by Virginia Polonio (Lead Auditor), Sam Dignan (Auditor) and Fergal Guilfoyle (Auditor).
- Antonio Hervás was on-site as an observer from ASI, the MSC's accreditation body.

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The surveillance audit meeting was informed by a pre-determined agenda. The agenda was set out so as to allow specific stakeholder interests and concerns to be covered through a structured approach.

During the site visit, a separate call was held with one stakeholder on the 8th December, as he was unable to attend the on-site meeting.

Information and notes from the consultation phase of the assessment were combined with a review of formal documentation from science and management agencies, regulatory amendments and the direct evidence collected during each of the client consultation meetings.

5.1 Summary of stakeholder and client meetings

Arising out of stakeholder consultation preparation a considerable number of stakeholders were contacted directly by surface mail and e-mail and a final direct consultation plan for the audit was prepared.

Table 8 details the dates, meeting locations and organisations that were consulted through direct meetings or conference calls during the on-site surveillance assessment.

All meetings were conducted by the Surveillance Team Assessors.

Table 8. Consultation Meetings during the On Site Surveillance Assessment.

Name Organization	Present at Meetings	Location	Venue	Date/Time	Purpose
BIM- Ireland client representative	Virginia Polonio Fergal Guilfoyle Samuel Dignan Joanne Gaffney Donald Maguire Nicolas Chopin Antonio Hervás	Dun Laoghaire, Ireland	BIM Offices	7 th December 2016 at 11.30 am	Fisheries observations, HCRs, Information and monitoring, Bycatch species, Habitats impacts, strategy and information, Ecosystem impacts, strategy and information, Consultation, Decision-making processes, Research Plan, progress against the action plan for each condition.
BIM – Ireland Client Bottom Grown Mussel Consultative Forum (BGMCF) AI – Northern Ireland client representative DAERA SFPA DAFM Members of the client group	Virginia Polonio Samuel Dignan Fergal Guilfoyle Antonio Hervás John Doran William Dingemanse Michael Havelin Richard Henning Deirdre Morgan Nick Hoffman Bryan Hyland Clare Frew Nicolas Chopin Joanne Gaffney Dee Moore Mike Murphy Declan Quigley Barry Fox	Dun Laoghaire, Ireland	Royal Marine Hotel	8 th December 2016 at 10.30 am	HCRs, Information and monitoring, Bycatch species and bycatch program, Habitats impacts, stocking density, stock assessment, strategy and information, Ecosystem impacts, strategy, decision-making processes, Research Plan and measures for P2, progress against the action plan for each condition.

6 Results

To evaluate each condition the assessment team has reviewed information gathered during the site visit for each condition. Table 9 below shows the pack of evidence of each condition to evaluate the progress and determinate the status of each one in the 3rd surveillance audit.

Table 9. Pack of evidence of each condition gathered during the site visit in the 3rd surveillance audit. Material provided by BIM.

Condition	PI	Evidence provided
1	1.2.2	<ul style="list-style-type: none"> Schedule of Arrangements SI's opening and closing fishery Timeline of the 2016 fishery SMS messages sent 2016
2	2.2.3	<ul style="list-style-type: none"> Bycatch Monitoring Report Seed Fishery Reports (Feathers and Burial Island) Methodology to prove it will be systematic
3	2.4.2	<ul style="list-style-type: none"> Seed Surveys IE (Cromane, Howth, Rusk and Rosslare) Seed surveys NI (Stock assessments April 16 and Aug 16, Video Survey June 16) Schedule of arrangements Fisheries reports Seed status 2015 Cork harbour statement Letter from Chairman re new seed beds New Castlemaine assessment
4	2.4.3	<ul style="list-style-type: none"> Same documentation submitted for condition 3
5	2.5.2	<ul style="list-style-type: none"> Carrying capacity report WFD monitoring results all bays Foyle-EASE Swilly-AA, licencing outcomes(area reduction) Belfast- Cumulative Assessment complete Carlingford- Cumulative Assessment Complete Wexford-Draft assessment complete- cannot be shared at the moment Castlemaine-licensing and Fisheries assessments complete IAS training and proposed IAS surveillance measures in2017
6	2.5.3	<ul style="list-style-type: none"> Same documentation submitted for condition 3
7	3.2.2	<ul style="list-style-type: none"> Carrying capacity document Schedule of arrangements UOC Data
8	3.2.4	<p>Research info useful to evaluate mussel fishery activities:</p> <ul style="list-style-type: none"> Blue fish (Interreg funding confirmed) Irish Sea Portal (awaiting funding decision) Larval monitoring 2016 Sea squirt report - Carlingford Spat collection studies NI Crepidula studies Belfast Alien species course and resources Horizon 2020 EASE project Appropriate assessments/tests of significance Seed survey reports IAS training and proposed IAS surveillance measures in 2107

Following the site visit the assessment team has been evaluated each condition against both the revised milestones laid out at the second surveillance audit and MSC Certification Requirements v1.3. The tables below include the Conditions written during the full assessment, revised milestones following the 2nd surveillance audit in 2015, where applicable, the client action plan established for each one and the observations from evidence collected during the 3rd Surveillance Audit.

6.1 Evaluation tables for Conditions during the 3rd Surveillance Audit 2016.

6.1.1 Condition 1

Item 5:	Condition 1 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 1.2.2: There are well defined and effective harvest control rules in place.	<p>Guidepost 80 (SI a and b).</p> <p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The selection of the harvest control rules takes into account the main uncertainties.</p>
<i>Condition 1</i>	<p>There is a need for explicit harvest control rules relating to the timing of harvesting, the viability of harvested seed, and the process by which the fishery may be open or closed. Ideally such explicit harvest control rules should form part of a wider fishery management plan which explicitly states the rationale and assumptions underlying the harvest strategy and the harvest control rules.</p>	
<i>Client Action Plan and Milestones</i>	<p>BIM/Aquaculture Initiative will liaise with the statutory authorities of NI and IE to ensure that the necessary fishery dependent and independent information is obtained to support the development of the HCR and the necessary institutional processes are put in place by the Departments to provide the mechanism to test and implement the condition.</p> <p>The client through the BGMCF will also support the acquiring of any additional information that may be required to support the activities required to develop, test and implement the condition.</p> <p>The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Upon completion of stakeholder consultations the final harvest control rules will be made available to all stakeholders and the CAB.</p> <p>Documentary evidence will be supplied to demonstrate that these rules have been implemented.</p> <p>Milestone</p> <p>By the first surveillance audit or earlier, the assessment team shall be provided with documentary evidence that suitable harvest control rules consistent with the harvest strategy are defined by the management organizations.</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the defined harvest control rules have been implemented on a trial basis and the main uncertainties are considered.</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that harvest control rules are explicitly defined by the management system, implemented and align harvests to provide for optimum sustainability and productivity of the resource.</p>	

Revised Milestones in the 2 nd Surveillance Audit	By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the defined harvest control rules have been implemented on a trial basis and the main uncertainties are considered. Also, the assessment team shall be provided with documentary evidence that harvest control rules are explicitly defined by the management system, implemented and align harvests to provide for optimum sustainability and productivity of the resource.
<i>Conclusion and Outcome on Condition 1 from 2nd surveillance audit</i>	<p>Implicit within the management objectives for the seed mussel fishery is that the seed mussel beds are essentially ephemeral and so harvesting of seed mussel is considered highly unlikely to have any consequence for mussel population size; this is reflected in the harvest strategy. The strategy is therefore to manage the seed mussel fishery, and not to manage the Irish Sea mussel stock, and so conventional stock assessments with target and limit reference points are not appropriate in this fishery.</p> <p>Historically, mussel seed harvests have been of variable sizes and recent years had shown much lower catches than previous; 2014 represented a much better year than 2012 and 2013 with the total amount fished (10,036 t) approaching an average year.</p> <p>The harvest strategy must ensure that susceptibility of the stock is maintained at or below acceptable levels given the productivity of the species. In this instance the susceptibility of the mussel stock to the fishing activity is considered minimal for the following reasons:</p> <ul style="list-style-type: none"> • When compared to the distribution of the mussel stock around the coasts of Northern Ireland and Ireland, as well as within the wider Irish Sea, the spatial scale of seed mussel harvesting activity is extremely limited • Seed mussel extraction only takes place from beds that have historically been considered ephemeral. While some of these beds may overwinter in some years, given suitable environmental conditions, none have been seen to persist over a long time scale • The practice of re-laying of seed and allowing it to mature into more reproductively-active and fecund adults has the potential to actually enhance recruitment to the wider stock; effectively in transferring seed mussels inshore to conditions more favourable to survival and growth the natural mortality of that component of the mussel stock is reduced. <p>At present there are numerous rules in place to control the harvest of seed mussels including but not limited to:</p> <ul style="list-style-type: none"> • Specific authorisation to fish for seed mussel must be held • Authorisation comes into operation on specific date and states on which tides fishing is permitted • Curfews (e.g. fishing prohibited between 18:00hrs and 06:00hrs in IE) • Owner and/or master must complete an accurate EU logsheet and spat sheets • Fully operational black box Vessel Monitoring System (VMS) • Hold of the vessel to be marked in 0.5m segments • Requirement to supply seed fishing information for seed fished in IE waters via text message (SMS) to a stock tracking database. <p>but there is at present no clearly defined Harvest Control Rule to determine:</p> <ol style="list-style-type: none"> 1. whether it is appropriate that a seed fishery take place and if so 2. when during the season a particular seed resource should be fished in order to achieve the greatest return <p>Since 2014 in the Irish Sea there is a limit of 1,500 t of seed mussel biomass that must be identified before a fishery is allowed to take place, however, this an economic rather than a biologically derived figure; in fact while the measure was not in place at the time the total amount of mussel seed fished in 2013, which represented an exceptionally poor year, still surpassed this figure.</p>

	<p>In NI rules are in place to close the fishery when either the seed mussel to waste ratio in catches reaches 50:50 or quantities of benthic substrata begin to be observed. The benefits of these rules are twofold; 1) mussel seed is left on the bed to potentially spawn and overwinter and 2) benthic habitat complexity is protected which may subsequently promote spat settlement. While dredge efficiency and economic factors will determine at what point fishing ceases in IE waters these alone may not protect habitat structure and functioning as efficiently as the NI system.</p> <p>The minutes of the BGMCF and the resulting letters and SMS messages to industry clearly document a decision making process. Evidence of this process can be seen in the decisions to twice open fisheries early in 2015 due to the perceived imminent threat of predation and also to delay the opening of the 2015 IE fishery by a week to allow seed to attain a greater size as a result of slow growth rates due to colder than usual water temperatures in Spring/Summer 2015. However, this decision making process needs to be formalised in order to ensure consistent outcomes regardless of differing biological, environmental and socioeconomic circumstances.</p> <p>Force majeure may be enacted by the Minister in IRL or DARD in NI if a bed is seen to be in imminent danger of destruction due to predation; however, there is no set level of starfish abundance that definitively represents imminent danger. At present the use of force majeure is subjective and is based on past experience rather than a firm HCR.</p> <p>Appropriate reference points are needed in order to ensure decisions relating to; 1) whether or not to open a fishery at all; 2) when the use of force majeure is appropriate and 3) when a fishery should be delayed to allow seed to on-grow, are made consistently and to prevent personal interests and emotions from affecting the decision making processes.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence that the defined harvest control rules have been implemented on a trial basis and the main uncertainties are considered” is yet to be met by the fishery. The assessment team accepts that there are harvest control rules in place as evidenced by the workings of the BGMCF and that these rules are being applied in managing the fishery. However, the control rules are not currently clearly defined and are based on past experience rather than firm procedural reference points.</p> <p>There is little confidence that these rules would necessarily be applied consistently in differing circumstances. Further, the control rules have not been formally endorsed and as such remain subject to alteration and interpretation. As a result the assessment team concluded that the condition does not at present meet the milestone for surveillance audit 2 and is behind target. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 1 in the 2nd surveillance: Open – Behind target</p>
Progress on Condition [Year 3]	For the 2016 season, management authorities formalised the arrangements for the management of the mussel fishery, including <i>force majeure</i> provisions in: “Seed Mussel Fishery IE and NI - Schedule of Arrangements”.
Evidence for Year 3	<p>The audit team was provided with a number of documents as evidence to support the fisheries compliance with the agreed upon milestone for the 3rd surveillance audit including:</p> <ul style="list-style-type: none"> ▪ Chronology of key actions around the 2016 Seed Season Decision making schedule - Seed Fishery ▪ Decision making schedule - Seed Fishery (Gantt chart) ▪ Seed Mussel Fishery IE and NI - Schedule of Arrangements ▪ S.I. No. 469 of 2016 (Opening fishery in Irish waters) ▪ S.I. No. 551 of 2016 (Closing fishery in Irish waters) ▪ Seed mussel survey reports <p>Chronology of key actions contributing to the schedule of decisions relating to the Seed Fishery.</p>

This document outlined key actions (including SMS messages sent to the fleet) that contributed to decision making process in 2016 (Table 10). The main items of relevance to this condition is the structured way in which consultation with the industry takes place and the evidence based nature of the decision making processes, including the use of *force majeure* at The Feathers.

Table 10. Chronology of key actions around the 2016 seed season decision-making schedule.

28/04/2016	BGMCF Meeting – seed fishing dates proposed
23/05/2016	SMS: <i>“There have been no reports of seed beds in the Irish Sea therefore the seed fishery will not open on the 27th. If seed is located a BGMCF meeting will be called to discuss findings and make a recommendation on potential dates”.</i>
30/05/2016	Letter issued by BGMCF, outlining findings of surveys
08/06/2016	SMS: <i>“seed survey is now available at www.daera-ni.gov.uk/articles/mussel-seed-fishery The areas will be surveyed again 14, 15 July and subject to findings the fishery may then open on the 27th July. An update will be issued by SMS as soon as further information becomes available”.</i>
07/07/2016	Conference call between Chairman of the Forum and DAERA re <i>Force Majeure</i> at the Feathers. JG told to issue SMS to industry members.
07/07/2016	SMS: <i>“NI is opening the 2016 fishery at The Feathers on Thurs. 14 July to Fri 15 July. The Seed Fishery is opening earlier than expected due to Starfish predation. Approx. 210 tonnes of seed has been identified. You are reminded of the need to finalise all outstanding paperwork issues. NI licences etc. will issue by email.”</i>
15/08/2016	SMS: <i>“BIM survey reports will be on the website later this week. Surveys indicate that the fishery should be delayed until the 7th September - please respond with your opinion on this”.</i> Response: Agreement
19/08/2016	SMS sent to industry reps: <i>“In light of the responses to the SMS sent 15/08 and available seed mussel survey reports, it is my intention to submit a recommendation on behalf of the forum to DAERA and DAFM, that the Autumn fisheries open on the 7th September, as an industry rep can you please let me know if you are happy with this.”</i>
25/08/2016	SMS: <i>“Subject to Ministerial Approval, 7th September is the proposed opening date for the seed fishery in IRL waters. NI will also open on the 7th – Burial Island (and Skullmartin subject to confirmation). Surveys will be available on DAERA and BIM websites when these are complete.”</i>
05/09/2016	SI published opening fishery in IE waters in line with suitable tides in authorisations
07/09/2016	SMS: <i>“SMS returns must be submitted for all seed fished in IRL waters. Burial Island seed fishery closed as of 4.30 today.”</i>
03/10/2016	SMS: <i>“As a condition of your mussel seed authorisation all fishing events in IRL waters must be reported via the SMS system. It appears some skippers have not yet fully reported. Please submit any outstanding reports ASAP. Non-reporting will be brought to the attention of the enforcement authorities.”</i>
03/11/16	SMS: <i>“An Industry member has requested that the Irish Sea seed fishery should be closed, as it is his view that the resource is exhausted at this time. Is this a request that you would support?”</i>
04/11/16	Summary of responses received sent to DAFM
07/11/16	SMS: <i>“the Irish Sea seed fishery is closed from the 5th November 2016. See Statutory Instrument no.551 of 2016.”</i>

Decision making schedule - Seed Fishery

This document presented a Gantt chart outlining the schedule by which decisions and activities relating to the seed mussel fishery are undertaken (Figure 2). The main items of relevance to this condition were the timing of decisions and the overarching ability of force majeure to override previously agreed upon aspects of the fishery.

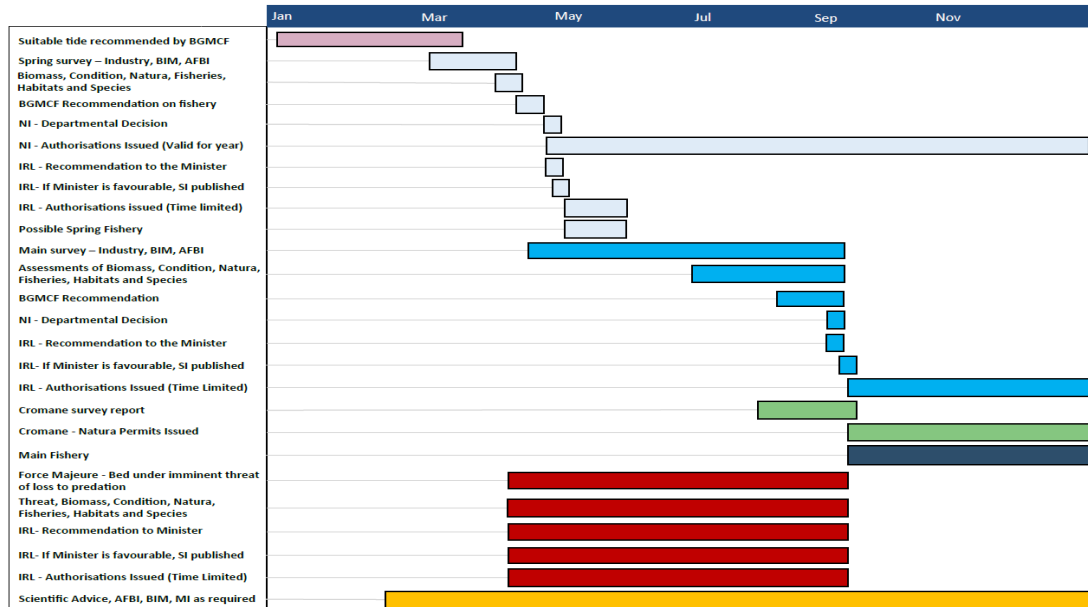


Figure 2. Seed Fishery – Decision Schedule (Full page image available in [Appendix 3](#)).

Seed Mussel Fishery IE and NI - Schedule of Arrangements

This document outlines the arrangements in place for the seed mussel fishery up to and including the 2016 fishing season. As part of this document there are annexes presenting sample licences, BGMCF meeting minutes, survey methodologies, the use of *Force Majeure* and links to legislation opening and closing the 2016 fishery.

S.I. No. 469 of 2016 (Opening fishery in Irish waters)

Statutory Incident opening fishery in Irish waters.

S.I. No. 551 of 2016 (Closing fishery in Irish waters)

Statutory Incident closing fishery in Irish waters.

Seed mussel survey reports

Northern Ireland

- Burial Island and The Feathers video survey, 2016 (AFBI)
- Outer Ards Seed Mussel Stock Assessment Survey, August 2016 (AFBI)
- Outer Ards Seed Mussel Stock Assessment, May 2016 (AFBI)
- Outer Ards Seed Mussel Stock Assessment, April 2016 (AFBI)

Ireland

- Howth and Lambay Sound, 5th and 6th July 2016 (BIM)
- Wicklow Area, 7th and 21th July 2016 (BIM)
- Castlemaine Harbour/Cromane, 23rd and 24th August 2016 (BIM)
- Cahore Point and the Rusk Channel, 4th to 12th August 2016 (BIM)
- Rosslare, 16th to 18th August 2016 (BIM)

<p><i>Conclusion and Outcome on Condition 1 from 3rd surveillance audit</i></p>	<p>Implicit within the management objectives for the seed mussel fishery is that the seed mussel beds are essentially ephemeral and so harvesting of seed mussel is considered highly unlikely to have any consequence for mussel population size; this is reflected in the harvest strategy. The strategy is therefore to manage the seed mussel fishery, and not to manage the Irish Sea mussel stock, and so conventional stock assessments with target and limit reference points are not appropriate in this fishery.</p> <p>Historically, mussel seed harvests have been of variable sizes and recent years had shown much lower catches than had previously been the case. 2015 (9,334 t) represented a slight decrease on 2014 (10,036 t), however yields from both the 2014 and 2015 seed fisheries were higher and significantly higher than 2012 and 2013 (7,003 t and 2,262 t respectively).</p> <p>The harvest strategy must ensure that susceptibility of the stock is maintained at or below acceptable levels given the productivity of the species. In this instance the susceptibility of the mussel stock to the fishing activity is considered minimal for the following reasons:</p> <ul style="list-style-type: none"> ▪ When compared to the distribution of the mussel stock around the coasts of Northern Ireland and Ireland, as well as within the wider Irish Sea, the spatial scale of seed mussel harvesting activity is extremely limited ▪ Seed mussel extraction only takes place from beds that have historically been considered ephemeral. While some of these beds may overwinter in some years, given suitable environmental conditions, none have been seen to persist over a long time scale ▪ The practice of re-laying of seed and allowing it to mature into more reproductively-active and fecund adults has the potential to actually enhance recruitment to the wider stock; effectively in transferring seed mussels inshore to conditions more favourable to survival and growth the natural mortality of that component of the mussel stock is reduced. <p>At present there are numerous rules in place to control the harvest of seed mussels including but not limited to:</p> <ul style="list-style-type: none"> ▪ Specific authorisation to fish for seed mussel must be held ▪ Authorisation comes into operation on specific date and states on which tides fishing is permitted ▪ Curfews (e.g. fishing prohibited between 18:00hrs and 06:00hrs in IE) ▪ Owner and/or master must complete an accurate EU logsheet and spat sheets ▪ Fully operational black box Vessel Monitoring System (VMS) ▪ Hold of the vessel to be marked in 0.5m segments ▪ Requirement to supply seed fishing information for seed fished in IE waters via text message (SMS) to a stock tracking database. <p>At the second surveillance assessment of the fishery in 2015 it was determined that, at the time, a clearly defined Harvest Control Rule (HCR) was not in place to determine:</p> <ol style="list-style-type: none"> 1. whether it was appropriate that a seed fishery take place, and if so 2. when during the season a particular seed resource should be fished in order to achieve the greatest return. <p>For the 2016 season, management authorities formalised the arrangements for the management of the mussel fishery in: “<i>Seed Mussel Fishery IE and NI - Schedule of Arrangements</i>”. The management arrangements constituting the harvest control rules for the mussel fishery are as follows:</p> <p>In early spring the BGMCF discuss and propose suitable tides (<7.1 m) for fishing mussel seed during the year. The proposed tides may then be approved by the Minister in IE and the Department in NI. If approved, suitable tides are set out in the mussel seed licenses/authorisations of both jurisdictions.</p> <p>In spring/summer BIM and AFBI conduct mussel seed surveys in their respective jurisdictions. Industry members may, with the appropriate permissions, conduct their own surveys and are obligated to</p>
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	<p>report any “finds”. Seed mussel survey reports are published on the BIM and AFBI websites as they become available.</p> <p>The department has set a minimum quantity of 1,500t that must be identified as being exploitable in the Irish Sea before it recommends the opening of a fishery. If surveys identify at least 1,500 t of exploitable mussel seed in the Irish Sea, BGMCF members, taking into account the results of the seed mussel surveys make a recommendation to the Ministers proposing dates for mussel seed fishing to take place.</p> <p>In IE the Minister considers the recommendation from the BGMCF, BIM’s survey results and other relevant information from other stakeholder entities such as the Marine Institute or the SFPA. Other relevant information might include, but is not limited to, disease control, invasive species, biotoxins or control and enforcement issues and/or interactions with protected areas. In NI, the BGMCF’s recommendations are considered by DAERA.</p> <p>In IE, if the Minister decides that a mussel seed fishery should take place, his/her decision is given legal effect by means of a statutory instrument in which the fishing of mussel seed is typically allowed for a defined period. In NI, DAERA may permit fishing for mussel seed in specific areas for a defined period.</p> <p>The harvest control rules for the fishery also include a <i>force-majeure</i> provision that allows for the BGMCF to recommend to the Ministers on a case-by-case basis the fishing of an individual mussel seed bed outside of a regular fishing period in situations where the mussel seed is suitable for commercial fishing and confirmed to be under predation from starfish. Such predation presents a management challenge for the seed mussel fishery, where a balance must be achieved between allowing seed to grow and harden (In order to maximise survival in transport) and protecting the seed stock from predators.</p> <p>As surveillance 2, there was found to be no set level of starfish abundance that definitively represented imminent danger resulting in the use of <i>force majeure</i> being somewhat subjective. Following a review of the available literature and discussions with survey officers, management arrangements have been formalised and include the following trigger points when starfish are detected in a seed mussel bed:</p> <ul style="list-style-type: none"> ▪ At a level of 10 starfish m⁻² the BGMCF should immediately consult with industry members and scientific advisors as to the course of action that should be pursued for the bed. ▪ At a levels of 20 starfish m⁻² <i>force majeure</i> should immediately be implemented and the bed opened on the earliest available tide <p>The fisheries open on the specified time and date and are fished by the appropriately licenced vessels. The fisheries remain open until 1) fishers have reached their allocation, 2) the date of closure is reached or 3) the fishery is closed early for whatever reason.</p> <p>A fishery might be closed early for a variety of reasons. In NI rules are in place to close the fishery when either the seed mussel to waste ratio in catches reaches 50:50 or quantities of benthic substrata begin to be observed. In IE economic factors are the primary driver of the point at which the fishing ceases. However, industry members can and do recommend the closure of the fishery if it is their view that the resource is exhausted and further fishing would cause unnecessary damage to benthic ecosystems. The 2016 fishery in IE waters was closed early following a request from industry (Table 10).</p> <p>The minutes of the BGMCF and the resulting letters and SMS messages to industry clearly document a decision making process. Evidence of this process can be seen in the decisions to twice open fisheries early in 2015 due to the perceived imminent threat of predation and also to delay the opening of the 2015 IE fishery by a week to allow seed to attain a greater size as a result of slow growth rates due to colder than usual water temperatures in Spring/Summer 2015.</p>
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	<p>Following the formalisation of management arrangements, including <i>force majeure</i> provisions, the Assessment Team accepts that clearly defined harvest control rules, based on both procedural reference points and past experience of the fishery, are in place and that these are applied in managing the fishery. Furthermore, the Assessment Team is confident that rules are sufficiently formalised such that they should apply equally in all circumstances and should help ensure consistent outcomes regardless of differing biological, environmental and socioeconomic circumstances.</p> <p>The Assessment Team concludes that the requirements that “<i>the defined harvest control rules have been implemented on a trial basis and the main uncertainties are considered</i>” and “<i>the assessment team shall be provided with documentary evidence that harvest control rules are explicitly defined by the management system, implemented and align harvests to provide for optimum sustainability and productivity of the resource</i>” have been met by the fishery.</p> <p>As a result the Assessment Team concluded that the fishery not only meets the milestones for surveillance audit 3 but in fact meets SG80 for PI 1.2.2.; therefore this PI is rescored to SG80 and the condition is closed.</p>
Status of condition	<p>Following the formalisation of management arrangements, including <i>force majeure</i> provisions, the Assessment Team accepts that clearly defined harvest control rules, based on both procedural reference points and past experience of the fishery, are in place and that these are applied in managing the fishery. Furthermore, the Assessment Team is confident that rules are sufficiently formalised such that they should apply equally in all circumstances and should help ensure consistent outcomes regardless of differing biological, environmental and socioeconomic circumstances.</p> <p>The Assessment Team concludes that progress against this Condition not only meets the milestone for surveillance audit 3 but in fact meets SG80; therefore PI 1.2.2 is rescored to SG80. A full evaluation table for the re-scored PI 1.2.2 is included in Appendix 1.</p> <p>Since the original score for this PI has changed and the fishery now meets SG 80 for PI 1.2.2 the condition is closed.</p> <p>Status of Condition 1: Closed.</p>

6.1.2 Condition 2

Item 5:	Condition 2 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 2.2.3: Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch	Guidepost 80 (SI c). Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy).
<i>Condition 2</i>	Detailed information on bycatch should be collected over the appropriate spatial and temporal scales, with respect to the extent of fishing activities, to verify existing information on bycatch levels over seed mussel beds as well as over cultivation areas. Following this, a baseline monitoring programme needs to be considered and adopted to ascertain quantitative bycatch data to monitor and confirm the current bycatch impacts from the fishery and in the future.	
<i>Client Action Plan and Milestones</i>	Action Plan: BIM/Aquaculture Initiative will undertake to facilitate information, data and research from the scientific advisors in NI and IE to support the close out of this condition. The client will provide documentary evidence of the requests and support provided on this condition. Bycatch monitoring will be undertaken by scientific authorities and industry. Results and procedures will be made available to the CAB. Milestones: By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been planned for all bycatch species at seed and harvest sites. By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted/implemented successfully for all bycatch species. By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted that will produce sufficient data to monitor and confirm the impacts of the fishery for all bycatch species over time.	
<i>Revised milestones during the 2nd surveillance audit</i>	By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted/implemented successfully for all bycatch species. Also, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted that will produce sufficient data to monitor and confirm the impacts of the fishery for all bycatch species over time.	
<i>Conclusion and Outcome on Condition 2 from 2nd surveillance audit</i>	There has been a programme of by-catch monitoring established for the seed fishery in the Irish Sea and in Northern Ireland. A more standardised protocol and systematic programme is recommended. Such a programme would allow direct comparison between beds and jurisdictions. There was no information presented that a by-catch monitoring programme has been implemented in seed fishery beds in Castlemaine, or in any of the harvesting areas.	

	<p>While there has been major improvement towards meeting this condition for the 2nd surveillance audit the audit team concludes that the requirement that “the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted/implemented successfully for all bycatch species”, in <u>both seed fisheries areas and harvesting locations</u>, is yet to be met by the fishery.</p> <p>As a result the audit team concluded that the condition does not at present meet the milestone for surveillance audit 2 and is behind target.</p> <p>The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 2 in the 2nd Surveillance audit: Open – Behind target.</p>
Progress on Condition [Year 3]	<p>The bycatch monitoring program is in place. There is a bycatch sampling plan to follow over the years and the main results of the bycatch composition are shown in the report.</p> <p>The objectives of the bycatch monitoring program are clear and defined.</p> <p>The Bycatch Plan the actions are defined. In 2016 and following years the main seed beds and harvest areas will be monitor to collect data regarding physical and biological parameters.</p>
Evidence Year 3	<p>Bycatch Monitoring Report</p> <p>During the autumn and winter of 2016 samples were taken from the main seed areas of the Irish Sea by BIM personnel and the harvest areas were samples by industry members with the assistance of BIM regional staff. Seven areas were sampled and a total of 37 dredges were analysed to define the bycatch and the species composition.</p> <p>The following parameters are recorded: width of the dredge, speed of tow, length of tow, weight of mussel and weight of bycatch.</p> <p>Seed Fishery Reports NI (Feathers and Burial)</p> <p>In Northern Ireland Feathers Seed Fishery was carried out on July 2016. The catches of 11 vessels were examined to determinate the bycatch composition among other factors such as waste composition. A number of samples were taken for size/weight for FHI inspections records plus a sample was submitted to AFBI for genetic studies. All the data obtained were sent to BIM and SFPA.</p> <p>Burial Island fishery survey was carried out on September 2016. A total of 13 sampling were realized to determinate the bycatch composition among others. As it was done in Feathers</p> <p>Harvest area, the samples were sent to BIM and SFPA. Several incidences of non-compliance of fishing outside area were reported but after advice the fleet with closing the fishery no more incidents were reported.</p> <p>Bycatch Sampling Plan 2016</p> <p>The bycatch Sampling Plan shows how the monitoring will be realized.</p> <p>The plan must cover the main seed beds and harvest areas to control physical and biological parameters. The spatial and temporal scales are defined. The samples must follow the methodology described in the Bycatch plan and will be responsibility of BIM and DAERA. The members of industry participating in taking samples should be able to follow the methodology and will be advice by BIM. Bycatch will be assessed as component of a typical commercial harvest of seed and of market ready mussel to be consistent with the fishery strategy.</p>

	<p>Research Plan for 2017</p> <p>The research plan for 2017 has projects to improve skills that will be for the 3 principles of MSC standard. Regarding this condition, the Bluefish projects carried out by Bangor University will improve the knowledges of present and predicted future scenarios of economically important species such as mussels in order to provide adaptation guidelines for future management tools.</p>
<p><i>Conclusion and Outcome on Condition 2 from 3rd surveillance audit</i></p>	<p>By the 2nd surveillance the Assessment Team concluded that shall be provided with documentary evidence that a bycatch monitoring program has been implemented successfully for all bycatch species. Also, the assessment team shall be provided with documentary evidence that a bycatch monitoring program has been adopted that will produce sufficient data to monitor and confirm the impacts of the fishery for all bycatch species over time.</p> <p>During the 3rd surveillance the assessment team was provided with evidence to evaluate the condition. The Bycatch monitoring program and Bycatch Plan show evidence that the program has been successfully implemented.</p> <p>In the autumn and winter of 2016, samples were taken from the main seed areas of the Irish Sea by BIM personnel and the harvest areas were sampled by industry members with the assistance of BIM regional staff.</p> <p>The following areas were assessed;</p> <ul style="list-style-type: none"> ▪ Seed bed Rosslare - 5 dredges ▪ Seed Bed Bar Buoy - 1 dredge ▪ Seed Bed Rusk - 5 dredges ▪ Harvest sites Carlingford - 6 dredges ▪ Harvest sites Belfast - 6 dredges ▪ Harvest Sites Wexford - 6 dredges ▪ Harvest Sites Castlemaine - 8 dredges <p>The following parameters were recorded;</p> <ul style="list-style-type: none"> ▪ Width of the dredge (meters) ▪ Speed of tow (knots) ▪ Length of tow (minutes). ▪ Weight of mussel ▪ Weight of bycatch <p>Organisms were then be sorted by species and the total number of individuals recorded. In addition, where possible and practical, the total weight of all individuals of each species was recorded, enabling an estimate of mean weight per individual to be made.</p> <p>These data was then used to assess the Bycatch and Mussel density using the following formulas:</p> <ul style="list-style-type: none"> ▪ Bycatch and mussel density (kg/km²) = Catch (kg) / Area Swept (km²) ▪ Swept Area (km²) = towing time (hr) x towing speed (km/hr) x width of trawl (km) ▪ Biomass (t) = Area square (km²) x Density (kg/km²) <p>Accurate recording of the bed size as part of the seed surveys allowed bycatch to be assessed as a component of a typical commercial harvest of seed.</p> <p>The Area used in the harvest area calculations was 1/3 of the aquaculture plots, this is regarded as highly precautionary as it is highly unlikely the 1/3 of available ground would hold harvest ready stock in a given year. The results of these samples in Irish waters have shown that no ETPs species have been identified in the seed beds and harvest areas.</p>

	<p>The main species identified as bycatch in the fishery were green crab, spider crab, starfish and worms; other species were identified but in low percentages.</p> <p>As expected the main by-catch are species that are known as fouling organisms of as those that predate on mussels. By-catch data in the harvest areas reflect the experiences of industry members who highlighted starfish as the main species in Belfast, weed and sea squirts at high levels in Carlingford and green crab and starfish posing the threat to mussel stocks in Castlemaine and Wexford.</p> <p>That assessment identified green crab and starfish as “main” by-catch species, they also recognised that these species constitute more than 5% of the catch on only a few rare occasions. That assessment reviewed Irish Sea data, looked at the spatial overlap of the fishery and concluded that starfish and crabs are abundant and ubiquitous in the Irish Sea, and that that the fishery was likely to be having a negligible impact on populations, which appear from existing data to be in a healthy state</p> <p>Spider Crabs were found to be the main by-catch species on the seed beds in the 2016 survey. Spider crabs have been previously documented in the vicinity of seed beds in the southern Irish Sea (MI & BIM, 2014) and are known to predate on mussel beds. The spider crab was identified in high quantity in Rosslare but during the site visit and the interviews with the crew of the seed surveys and the industry, the assessment team was provided with information about the higher % of this species. It was a particular case and just in one sample, Rosslare 1, the % of abundance was high. In the rest of the samples were as normal and is not a particular concern in the fishery. This data can be consulted in the appendix 4.</p> <p>On the other hand, as is current practice, where crew members can safely access seed catches, spider crabs caught should not be retained therefore the fishery is not a risk for spider crab populations.</p> <p>Regarding the results of the bycatch programme for 2016 the assessment team can confirm that the fishery has a negligible impact on non-target species populations, however, the bycatch program should be monitored annually following the same methodology than in 2016. The sampling plan must be carried out every year to gather more information. Further, more information from industry sources during the main fishery should be available for evaluating the possible effect on populations.</p> <p>By-catch monitoring should continue in 2017 and the Bycatch plan will be followed over the years to obtain more quantitative data and historical series that allow a complete analysis of the bycatch in the fishery.</p> <p>Physical parameters to be recorded:</p> <ul style="list-style-type: none"> ▪ Width of the dredge (meters) ▪ Speed of tow (knots) ▪ Length of tow (minutes) <p>Bycatch should be recorded for 2 dredge contents per survey day, this will allow us to calculate bycatch species density.</p> <ul style="list-style-type: none"> ▪ $Density (kg/km^2) = Catch (kg) / Area Swept (km^2)$ <p>Swept area is calculated as:</p> <ul style="list-style-type: none"> ▪ $Swept Area (km^2) = towing time (hr) \times towing speed (km/hr) \times width of trawl (km)$ <p>Biomass is calculated as area of square times density:</p> <ul style="list-style-type: none"> ▪ $Biomass (t) = Area square (km^2) \times Density (kg/ km^2)$
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	<p>Methods to define the species composition:</p> <p>For the purposes of this survey the contents 1 dredge should be deposited onto the deck of the vessel and all visually obvious fish and macro-invertebrates (greater than approximately 10mm in largest dimension) be removed and placed into standard fish baskets, which should be porous so as not to not retain water.</p> <p>Any remaining fish and invertebrates should be collected in the same manner during the shovelling of mussels into the hopper/bags.</p> <p>Baskets of retained bycatch should then be weighed to the nearest 500g using a hand-held spring balance (range 0-50kg).</p> <p>Organisms should then be sorted by species and the total number of individuals recorded. In addition, where possible and practical, the total weight of all individuals of each species should be recorded, enabling an estimate of mean weight per individual to be made.</p> <p>Total weights should not be recorded for frequently broken species, since weights were irrelevant, or where the combined weight was less than the operational accurate range of the measuring apparatus (<25g).</p> <p>For commercial fish species, where small numbers (<10) of individuals are present, individual weights and lengths should be recorded. When relatively large numbers (>10) are caught, the total number of individuals and their combined weight should be recorded.</p>
Status of condition	<p>PI 2.2.3 requires that information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch. Given the evidence provided at the surveillance audit the Assessment Team is satisfied that the bycatch monitoring program as implemented is sufficient to meet these requirements; however the continuing implemented of the programme needs to be controlled and monitored over a number of years to ensure that information continues to be gathered enabling management to detect any changes in the nature of bycatch and the risk posed by the fishery to non-target species.</p> <p>The Assessment Team concludes that progress against this Condition at Surveillance Audit 3 not only meets the milestone for surveillance audit 3 but in fact meets SG80 because sufficient data are collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the strategy) and this information will continue to be collected as shown in the bycatch sampling plan.</p> <p>Therefore PI 2.2.3. is rescored to SG80. A full evaluation table for the re-scored PI 2.2.3 is included in Appendix 1.</p> <p>Since the original score for this PI has changed and the fishery now meets SG 80 for PI 2.2.3. the Condition is closed.</p> <p>Status of Condition 2: Closed.</p>

6.1.3 Condition 3

Item 5:	Condition 3 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 2.4.2: There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types	Guidepost 80 (Issue b). There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.
<i>Condition 3</i>	A decision process that incorporates a clear management strategy for seed exploitation must be adopted with includes a mechanism that prevents the accidental damage to sensitive habitats, particularly for any new or unsurveyed areas.	
<i>Client Action Plan and Milestones</i>	<p>Action Plan: BIM/Aquaculture Initiative will undertake to liaise between the authorities of NI and IE to facilitate the information and institutional arrangement required to fulfil this condition.</p> <p>The client through the BGMCF will support the acquiring of any additional information that may be required to support these activities.</p> <p>The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Documentary evidence will be supplied to demonstrate that measures have been implemented</p> <p>Milestones: By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a strategy had been established.</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a strategy had been adopted.</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that that a strategy had been implemented successfully.</p> <p>By the fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a strategy achieves the Habitat Outcome 80 level of performance or above.</p>	
<i>Conclusion and Outcome on Condition 3 from 2nd surveillance audit</i>	<p>Documentary evidence was presented that indicated that a strategy was in place to ensure that the fishery does not pose a risk to habitat types. This strategy has been assessed and found to be sufficient to protect vulnerable habitats.</p> <p>On-going monitoring and active management has been documented and new issues, which potentially have posed a risk, have been assessed.</p> <p>The audit team concludes that the requirement that “By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a strategy had been adopted”, has been met. As a result the audit team concluded that the condition does meet the milestone for surveillance audit 2 and is on target. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 3: Open – On target</p>	

Evidence Year 3	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Seed Mussel Fishery IE and NI – Schedule of Arrangements ▪ Irish Sea Seed Fishery ▪ Seed Surveys IE (Cromane, Howth, Rusk and Rosslare) ▪ Fisheries reports ▪ Seed status 2015 ▪ Cork harbour statement ▪ Letter from Chairman re new seed beds ▪ BGMCF Fishery Natura Plan 2013 – 2017 ▪ Article 6 Assessment of Fisheries, including a Fishery Natura Plan for Seed Mussel (2013-2017), in the Irish Sea; Marine Institute Rinville Oranmore, Co. Galway. July, 2014. ▪ Shellfish Stocks and Fisheries Review 2014 v2. Common Scoter and mussel fishing. ▪ Seed surveys NI (Stock assessments April 16 and Aug 16, Video Survey June 16) ▪ Decision Making Schedule – Seed Fishery ▪ Castlemaine seed survey report 2016 ▪ Report supporting Appropriate Assessment of the impact of seed mussel fishing and relaying on Castlemaine Harbour SAC and SPA April 2016 Marine Institute ▪ Draft Fisheries Natura Plan (<i>Mytilus edulis</i>) Castlemaine Harbour 2016-2016 ▪ Shellfish Stocks and Fisheries Review 2014 v2. Castlemaine Harbour, mussel stock assessment. <p>The schedule of arrangements document describes and codifies the management regime of the Northern Irish and Irish Sea seed fisheries. The fisheries are managed via license, permit, open season and closed areas.</p> <p><u>Irish Sea Seed Fishery:</u></p> <p>The mussel seed fishery in the Irish Sea is subject to an assessment of the Fishery Natura Plan (2013 – 2017) submitted to DAFM by the Bottom Grown Mussel Consultative Forum (BGMCF). The appropriate assessment has been conducted, vulnerable areas have been identified and access to these areas has been restricted. These areas continue to be monitored.</p> <p>Recurring seed beds are surveyed each year and survey reports were presented. New beds, if found, are subject to survey and assessment. A bed was found in 2015 in Cork Harbour which was fished by a small number of boats. This bed was not within an SAC and therefore was not assessed. It was within an open area, the area was not restricted and therefore an assessment was not required. It was accepted that this was a highly unusual case and arrangements have been put in place to prevent this situation from reoccurring.</p> <p><u>Northern Ireland seed fishery:</u></p> <p>The assessment team was presented with seed survey reports and stock assessment reports from the seed beds in Northern Ireland for 2016. The decision making schedule was previously presented which describes the timeframe and decision making framework for seed fishery management.</p> <p><u>Castlemaine / Cromane Seed Fishery:</u></p> <p>There was no seed fishery permitted in 2016 due to the lack of resource as reported in the seed survey report. A Fishery Nature Plan covering the years 2016-2026 has been submitted and assessed by the Marine Institute. No significant cause for concern was raised. The seed fishery was predicted to have no negative impact on the habitats and species of the Castlemaine SAC and SPA.</p>
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<p><i>Conclusion and Outcome on Condition 3 from 3rd surveillance audit</i></p>	<p>Documentary evidence was presented which indicated that a strategy has been implemented successfully to ensure that the fishery does not pose a risk to habitat types. This strategy has been assessed and found to be sufficient to protect vulnerable habitats.</p> <p>The monitoring of seed fisheries is ongoing and the management of the seed fishery is active. This is considered sufficient to ensure the protection of vulnerable habitats.</p> <p>The assessment team concludes that the requirement that “By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a strategy had been implemented successfully”, has been met.</p>
<p>Status of the condition</p>	<p>In the light of information gathered at the 3rd surveillance audit, the assessment team has concluded that the fishery meets the milestone for surveillance audit 3 and would be considered to be on target. However, the assessment team has evaluated the fishery against PI 2.4.2 and can confirm that there is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved; therefore the fishery now meets SG80.</p> <p>As the assessment team has concluded that the information available, PI 2.4.2 has been rescored. The fishery now meets SG80 for all scoring indicators under PI 2.4.2 and the condition is closed.</p> <p>A full evaluation table for the re-scored PI 2.4.2 is included in Appendix 1.</p> <p>Status of Condition 3: closed</p>

6.1.4 Condition 4

Item 5:	Condition 4 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 2.4.3 Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types	Guidepost 80 (SI c). Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).
<i>Condition 4</i>	A monitoring programme of habitats with respect to seed collection and an assessment of the potential impact of the collection of seed needs to be established and used to inform the management decision process for seed exploitation that prevents the accidental damage to sensitive habitats, particularly for any new or unsurveyed areas.	
<i>Client Action Plan and Milestones</i>	<p>Action Plan: BIM/Aquaculture Initiative have undertaken to liaise with the statutory authorities in NI and IE to facilitate the information and institutional processes as necessary in fulfilment of this condition.</p> <p>The client through the BGMCF will support the acquiring of any additional information that may be required to support these activities.</p> <p>The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Documentary evidence will be supplied to demonstrate that measures have been implemented.</p> <p>Milestones: By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a program had been established</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a program had been adopted</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that that the program has been implemented successfully</p>	
<i>Conclusion and Outcome on Condition 4 from 2nd surveillance audit</i>	<p>Documentary evidence was presented that indicated that a data collection programme was in place and that this Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types. Data collection is ongoing and adaptive to any new issues raised.</p> <p>The assessment team concludes that the requirement that “By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that a program had been adopted”, has been met.</p> <p>As a result the assessment team concluded that the condition does meet the milestone for surveillance audit 2 and is on target. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 4: Open – On target</p>	

Evidence Year 3	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Irish Sea Seed Fishery ▪ Seed Surveys IE (Wicklow, Howth, Cromane, Rusk and Rosslare) ▪ Fisheries reports ▪ Seed status 2015 ▪ Cork harbour statement ▪ Letter from Chairman re new seed beds ▪ BGMCF Fishery Natura Plan 2013 – 2017 ▪ Article 6 Assessment of Fisheries, including a Fishery Natura Plan for Seed Mussel (2013-2017), in the Irish Sea; Marine Institute Rinville Oranmore, Co. Galway. July, 2014. ▪ Shellfish Stocks and Fisheries Review 2014 v2. Common Scoter and mussel fishing. ▪ Seed surveys NI (Stock assessments April 16 and Aug 16, Video Survey June 16) ▪ Castlemaine seed survey report 2016 ▪ Report supporting Appropriate Assessment of the impact of seed mussel fishing and relaying on Castlemaine Harbour SAC and SPA April 2016 Marine Institute ▪ Draft Fisheries Natura Plan (Mytilus edulis) Castlemaine Harbour 2016-2016 ▪ Shellfish Stocks and Fisheries Review 2014 v2. Castlemaine Harbour, mussel stock assessment. <p><u>Irish Sea Seed Fishery:</u></p> <p>Seed survey reports were presented which indicate the extent and scale of the surveying effort in the Irish Sea, Cromane and Northern Ireland seed beds.</p> <p>The Fishery Natura Plan for the Irish Sea seed fishery was drawn up for the years 2013 – 2018 and an appropriate assessment was carried out. Areas of concern were restricted and data in those areas has been collected, e.g. Common Scoter in the Raven where data was collected but the bed has not reoccurred in the intervening years.</p> <p>A new bed was reported in Cork Harbour in 2015 and a protocol elaborated by Marine Institute has been set up in place to control possible new beds found during incidental or non-targeted surveys. This was considered a highly unusual situation and a new protocol was provided to prevent this from reoccurring.</p> <p>Fishing effort is actively monitored, via blackbox/VMS, during the fishery and catches are monitored with daily reporting via text message. Closed and restricted areas, as identified in the appropriate assessment / FNP, are closed and fishing is prevented via a georeferenced (virtual restriction).</p> <p><u>Northern Ireland Seed Fishery:</u></p> <p>Survey reports from Northern Ireland indicate the extent and scale of the survey effort on new and recurring seed beds. Data collection is ongoing and monitoring is considered adequate.</p> <p><u>Castlemaine Mussel Seed Fishery:</u></p> <p>The seed survey in 2016 found no seed beds and there was no fishable resource allocated in 2016. Annual surveys are conducted and reported. The survey results feed into the management of the fishery due to the TAC set as 66.6% of the fishable biomass. The new FNP for 2016-2026 has requested no increase in this proportion.</p> <p>A request has been made to potentially import seed from the Irish Sea during years where the seed settlement fails or is inadequate in Castlemaine. This has not been assessed but would be assessed as part of the Irish Sea assessment if requested.</p>
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<p><i>Conclusion and Outcome on Condition 4 from 3rd surveillance audit</i></p>	<p>Documentary evidence was presented which indicated that a data collection programme is in place. This information is adequate to determine the risk posed to habitat types by the fishery and feeds into the management structure which limits the impacts on habitat types. Data collection is ongoing and adaptive to any new issues raised.</p> <p>The assessment team concludes that the requirement that “By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the program has been implemented successfully” has been met.</p> <p>As a result the assessment team concluded that the condition does meet the milestone for surveillance audit 3 and is on target.</p>
<p>Status of condition</p>	<p>In the light of information gathered at the 3rd surveillance audit, the assessment team can confirm that there is a program and measures in place to collect information regarding the impacts of the fishery on habitats. The data collected as a result of this programme are sufficient to detect any increase in risk to habitat.</p> <p>Therefore the assessment team has concluded that the fishery meets the milestone for surveillance audit 3 and would be considered to be on target. However, the assessment team has evaluated the fishery against PI 2.4.3 and can confirm that information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types; therefore the fishery now meets SG80.</p> <p>As the assessment team has concluded that the information available, PI 2.4.3 has been rescored. The fishery now meets SG80 for all scoring indicators under PI 2.4.3 and the condition is closed.</p> <p>A full evaluation table for the re-scored PI 2.4.3 is included in Appendix 1.</p> <p>Status of Condition 4: closed</p>

6.1.5 Condition 5

Item 5:	Condition 5 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 2.5.2: There are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to ecosystem structure and function.	Guidepost 80 (SI b) The partial strategy takes into account available information and is expected to restrain impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.
<i>Condition 5</i>	The partial strategy that is in place needs to take into account all available information on the carrying capacity and productivity of individual cultivation bays and have a direct influence on the overall management of the cultivation sites.	
<i>Client Action plan and Milestones</i>	<p>Action Plan: BIM/Aquaculture Initiative have undertaken to liaise directly with the scientific advisors in NI and IE as to the information and institutional arrangements and support required fulfilling this condition.</p> <p>The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Data arising from site audits and requirements under the habitats directive will also serve to inform this.</p> <p>Results and procedures will be made available to the CAB</p> <p>Milestones: By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence that available information (e.g. relevant site specific evidence, models) is identified for consideration of developing a partial strategy aimed at restraining the impacts of the fishery on the ecosystem so as to achieve the Ecosystem Outcome 80 level of performance.</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence that information available has been considered with respect to the overall management of the cultivation site stocking densities.</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that information available is influencing the strategy for overall management of the cultivation site stocking densities.</p> <p>By the fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the partial strategy continues to be implemented and effective within the licensing scheme for the cultivation sites.</p>	
<i>Revised milestones during the 2nd Surveillance Audit</i>	<p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that information available has been considered with respect to the overall management of the cultivation site stocking densities. Also, the assessment team shall be provided with documentary evidence that information available is influencing the strategy for overall management of the cultivation site stocking densities.</p> <p>By the fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the partial strategy continues to be implemented and effective within the licensing scheme for the cultivation sites.</p>	

<p><i>Conclusion and Outcome on Condition 5 from 2nd surveillance audit</i></p>	<p>Evidence was presented that indicated that there had been some progress on appropriate assessments for some of the production bays.</p> <p>Some progress has been made in determining the husbandry practice in harvesting areas but this process has not been completed.</p> <p>No evidence of a Carrying Capacity assessment having been conducted for most of the harvesting bays has been presented and no evidence that this has informed the management of individual cultivation plots was presented.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence that information available has been considered with respect to the overall management of the cultivation site stocking densities” is yet to be met by the fishery.</p> <p>As a result the assessment team concluded that the condition does not at present meet the milestone for surveillance audit 2 and is behind target. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 5: Open – Behind target.</p>
<p><i>Evidence Year 3</i></p>	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Carrying capacity report ▪ WFD monitoring results all bays ▪ Foyle –EASE ▪ Swilly-AA, licencing outcomes (area reduction) ▪ Belfast- Cumulative Assessment Complete ▪ Carlingford- Cumulative Assessment Complete ▪ Wexford-Draft Assessment Complete ▪ Castlemaine-Licencing and Fisheries assessment complete ▪ IAS training and Proposed IAS surveillance measures in 2017 <p><u>IE harvesting bays:</u></p> <p>The BGMCF in association with DAFM and DARD undertook to carry out a mussel husbandry review with all growers which would collect information on stocking densities and the return from seed allocation. This information was to inform the carrying capacity studies and the allocation of seed was to be linked to seed success. The deadline for submissions was 20th May 2015. No results were presented.</p> <p>No progress on this husbandry review has been presented and no review of the seed allocation was been completed. The information collected has not informed the management of individual sites. The minutes from the BGMCF meetings indicate that this issue has been tasked to a sub-committee, the work is in progress and that the BGMCF will be working with the departments to progress this item.</p> <p>An alternative assessment of carrying capacity was presented in the form of a review of carrying capacity studies in other bays and published stocking densities from other European bays was presented. A comparison between reported stocking densities in harvesting areas in the IE and those reported from other countries indicates that the current stocking densities are below or within the range from other countries.</p>

	<p>Evidence of water quality from Water Framework Directive water sampling programmes was presented. The data was presented to indicate that carrying capacity of harvesting bays was not being exceeded since water quality was reported to be good in most bays. While this was not a carrying capacity assessment the data did indicate that the stocking densities were within norms and that no water quality issues were evident. Following MSC CR requirements the general experience or comparison with other fisheries can be used to determine the relationship between the fishery and the ecosystems.</p> <p>The appropriate assessment of Lough Swilly has been completed and it has resulted in the reduction of licensed area for bottom mussel cultivation. This was required in order to prevent significant negative impact on the conservation objectives of the SAC and its protected habitats and communities. No specific assessment of carrying capacity was made during this process but it would be expected that the low level of overlap between licensed beds and designated habitats will result in no exceedance of carrying capacity.</p> <p>The appropriate assessment of Wexford Harbour is in a draft and has not yet been published. Therefore no data was presented. Progress has been made but was not available and no alternative data was presented which could be considered as evidence that this condition is being addressed.</p> <p>Waterford Estuary and Youghal Bay did form part of the UoC but they have been removed, as requested by the client. No production has been forthcoming from these bays for a number of years. No data collection or appropriate assessment has been completed.</p> <p><u>Northern Ireland / Cross Border harvesting bays:</u> The harvesting bays in Northern Ireland (Belfast) and Cross Border (Carlingford and Lough Foyle) have been subject to carrying capacity modelling and this continues to be improved and updated. The modelling has largely indicated that the overall carrying capacity of each bay has not been exceeded and that there is no predicted negative impact from current stocking levels. In Belfast Lough it was forecast that the carrying capacity could potentially be exceeded if every site was stocked to its maximum. This is highly unlikely to actually occur but continued monitoring is required.</p> <p><u>Castlemaine:</u> The FNP and AA for Castlemaine has been completed and updated for the years 2016 – 2026. A seed resource partition of 66%: 33% has been implemented as a means of protecting the population of wild birds in the SAC and SPA. The appropriate assessment has concluded that the seed fishery, at its present effort levels, has not negatively impacted on the ecosystem of Castlemaine and this has been accepted to include the carrying capacity of the bay as a whole.</p>
<p><i>Conclusion and Outcome on Condition 5 from 3rd surveillance audit</i></p>	<p>Evidence was presented that indicated that there had been some progress on appropriate assessments for certain bays (Lough Swilly) and that this had influenced the management of the aquaculture licensing in the bay. Progress on Wexford has been reported but was not presented because the data are not published yet.</p> <p>No progress has been reported on the review of husbandry practice in harvesting areas. An alternative assessment was presented which compared husbandry practices in IE harvesting bays with those in other bays and other countries as a comparison with similar fisheries.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence that information available has been considered with respect to the overall management of the cultivation site stocking densities” is yet to be met by the fishery. However, following MSC requirements the fishery has completed sufficient assessments to be on target at the 3rd surveillance.</p>

	<p>The assessment team has evidence of controlling of allocation, carrying capacity studies in some areas, water quality and implemented precautionary approach in terms of number of license to control the density is also in place.</p> <p>During the site visit the assessment team were advised that an Appropriate Assessment of Wexford Harbour is currently being conducted (pers. comm. Joanne Gaffney); however as the process is still ongoing specific information is currently unavailable.</p> <p>Wexford has been productive over the years and this fact could be treated as a general experience that the system is working. Comparison with other fisheries could be an option to compare different areas inside the UoCs and how the strategy is working in these areas and they are still productive over the years. The water quality monitoring and data are also offered as evidence of there being a partial strategy in place.</p> <p>As a result the assessment team concluded that the fishery meets the milestone for surveillance audit 3 and is on target and a revised milestone is not required. The PI has not been rescored at this surveillance audit as SG 80 is not yet fully met; the Condition is not closed out since the original score for this PI remains unchanged</p> <p>Status of Condition 5: Open – On target.</p>
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6.1.6 Condition 6

Item 5:	Condition 6 (of 8)	
<i>Performance Indicator & Guidepost Issue</i>	PI 2.5.3: There is adequate knowledge of the impacts of the fishery on the ecosystem.	Guidepost 80 (SI e) Sufficient data continue to be collected to detect any increase in risk level (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).
<i>Condition 6</i>	A procedure or mechanism with a scientific basis for the continued collection of sufficient data that would detect any increase in risk levels to the ecosystem due to changes in current cultivation practices is required. This data should relate to the performance indicator for achieving an 80 score for PI2.5.2 b.	
<i>Client Action Plan and Milestones</i>	<p>Action Plan: The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Data arising from site audits and requirements under the habitats directive will also serve to inform this.</p> <p>Results and procedures will be made available to the CAB.</p> <p>Milestones: By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the type and extent of information to be considered for the objective/science based detection of any increase in risk level due to the overall management of the cultivation sites.</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the procedure or mechanism for information collection and review for informing of risk level associated with the management of the cultivation sites.</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence of how information available from scientific evidence and is influencing the overall management of the cultivation sites to ensure that increase in risk levels of the impacts of the cultivation sites on the ecosystem can be managed so as to achieve outcome indicator score 80 for PI 2.5.3.</p> <p>By the fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the procedure/mechanism for information collection and review is adopted for detecting increase in risk levels due to changes in the outcome scores or the operation of the fishery or the effectiveness of the measures.</p>	
<i>Revised milestones during the 2nd Surveillance Audit</i>	By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the procedure or mechanism for information collection and review for informing of risk level associated with the management of the cultivation sites. Also, the assessment team shall be provided with documentary evidence of how information available from scientific evidence and is influencing the overall management of the cultivation sites to ensure that increase in risk levels of the impacts of the cultivation sites on the ecosystem can be managed so as to achieve outcome indicator score 80 for PI 2.5.3.	

	<p>By the fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the procedure/mechanism for information collection and review is adopted for detecting increase in risk levels due to changes in the outcome scores or the operation of the fishery or the effectiveness of the measures.</p>
<p><i>Conclusion and Outcome on Condition 6 from 2nd surveillance audit</i></p>	<p>Evidence was presented that appropriate assessment is ongoing in many of the harvesting bays. The data collection programme which supports this process was presented where an assessment had been carried out.</p> <p>Some progress has been made on data collection concerning the husbandry practice in harvesting areas but this process has not been completed.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence of the procedure or mechanism for information collection and review for informing of risk level associated with the management of the cultivation sites.” Is yet to be met by the fishery.</p> <p>As a result the assessment team concluded that the condition does not at present meet the milestone for surveillance audit 2 and is behind target.</p> <p>The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 6: Open – Behind target.</p>
<p><i>Evidence Year 3</i></p>	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Carrying capacity document ▪ Schedule of arrangements ▪ UOC data ▪ Lough Foyle WFD 2nd Cycle ▪ Lough Swilly AA ▪ Presentation on Loughs Agency research and modelling ▪ WFD monitoring report NW ▪ WFD monitoring report SE ▪ Castlemaine ▪ Carrying capacity report ▪ WFD monitoring results all bays ▪ Foyle –EASE ▪ Swilly-AA, licencing outcomes (area reduction) ▪ Belfast- Cumulative Assessment Complete ▪ Carlingford- Cumulative Assessment Complete ▪ Wexford-Draft Assessment Complete but no presented ▪ Castlemaine-Licencing and Fisheries assessment complete ▪ IAS training and Proposed IAS surveillance measures in 2017 <p><u>IE harvesting bays:</u></p> <p>The data collection programme for Lough Swilly has been completed and was found to be adequate to allow an appropriate assessment. This process assessed the impact of aquaculture on the conservation objectives of the SAC. No data has been collected for the Waterford Estuary and Youghal Bay harvesting areas. These areas have been removed from the UoC.</p> <p>The data collection programme for the Wexford Harbour harvesting area has been completed and the appropriate assessment completed. The report on the AA was not available.</p>

	<p><u>Northern Ireland/Cross Border harvesting bays:</u> The data collection programmes for Belfast Lough, Carlingford Lough and Lough Foyle was presented and is ongoing. Improvements and planned work on the carrying capacity models were presented. AFBI baseline data collection programmes for Carlingford were presented.</p> <p><u>Castlemaine:</u> The annual seed surveys in Castlemaine was presented and the FNP describes the effort and stocking densities expected and forecast to occur over the coming 10 years (2016-2026). The data collection surveys are ongoing annually and these inform the management of the seed fishery and the stocking densities of the growing sites.</p>
<p><i>Conclusion and Outcome on Condition 6 from 3rd surveillance audit</i></p>	<p>Evidence was presented that appropriate assessment is ongoing in many of the harvesting bays. The data collection programme which supports this process was presented where an assessment had been carried out.</p> <p>No progress was presented on data collection concerning the husbandry practice in harvesting areas. Progress is continuing and has been tasked to a technical sub-committee but no data are already available for public consultation.</p> <p>Data was presented on a comparison made between stocking densities in IE harvesting areas and those in other countries.</p> <p>The assessment team concludes that the requirement that “By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the procedure or mechanism for information collection and review for informing of risk level associated with the management of the cultivation sites. Also, the assessment team shall be provided with documentary evidence of how information available from scientific evidence is influencing the overall management of the cultivation sites to ensure that increase in risk levels of the impacts of the cultivation sites on the ecosystem can be managed so as to achieve outcome indicator score 80 for PI 2.5.3.” is met by the fishery.</p> <p>Documentary evidence must be proportionate to the level of risk associated with fishery. Historical experience of the fishery has shown that over the years the fishery has been productive and areas continue to be productive in recent years. Scientific opinion is taken into account and there is a close relation between science and fishery management, there are measures in place based on scientific data such as: water quality, density, mapping of productive areas, detection of non-productive areas by controlling of seed stocking density, seed bed surveys and agreements to determinate the open/closed seasons. By comparison with similar fisheries it can be confirmed that data collection is commensurate with the level of risk to the ecosystem posed by the fisheries.</p> <p>The assessment team have determined that the fishery meets the milestone for surveillance audit 3; therefore the fishery is on target and a revised milestone is not required. The Assessment Team feel that another year is required before the continuity and consistency of data collection can be fully verified. Therefore SG 80 is not yet fully met and the PI has not been rescored at this surveillance audit. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 6: Open – On target.</p>

6.1.7 Condition 7

<i>Item 5:</i>	<i>Condition 7 (of 8)</i>	
<i>Performance Indicator & Guidepost Issue</i>	PI 3.2.2: The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives	Guidepost 80 (SI c) Decision-making processes use the precautionary approach and are based on best available information.
<i>Condition 7</i>	The decision making process that set the harvest cap was set on historical information. A formal review of the harvest cap within the definition of a precautionary approach suitable for mussel stock sustainability is required and the precautionary approach to decision making is formally adopted by the management agencies.	
<i>Client Action Plan and milestones</i>	<p>BIM/Aquaculture Initiative have undertaken to liaise directly with the scientific advisors and authorities in NI and IE as to the information and institutional arrangements and support required to fulfil this condition.</p> <p>The client through the BGMCF will support the acquiring of any additional information that may be required to support these activities.</p> <p>The client will provide documentary evidence of the requests and support provided on this condition.</p> <p>Documentary evidence will be supplied to demonstrate that measures have been implemented</p> <p>Milestones</p> <p>By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the available information which will be considered to support and inform a precautionary management approach to decision making on stock densities for cultivation beds.</p> <p>By the second audit or earlier, the assessment team shall be provided with documentary evidence of how this information is being used to inform the decisions for stocking densities and that a precautionary approach is being adopted with respect to meeting the objectives of the fishery (and of Principle 2 with respect to managing risks to ecosystem effects).</p> <p>By the third surveillance audit or earlier, the assessment team shall be provided with documentary evidence that the client has formally committed to a precautionary approach in decision making, using best available information and aligned to the specific objectives of the fishery and those of MSC Principles 1 and 2. This may be formulated within a fishery management plan.</p>	
<i>Revised milestones during the 2nd Surveillance Audit</i>	By the third audit or earlier, the assessment team shall be provided with documentary evidence of how this information is being used to inform the decisions for stocking densities and that a precautionary approach is being adopted with respect to meeting the objectives of the fishery (and of Principle 2 with respect to managing risks to ecosystem effects). Also, the assessment team shall be provided with documentary evidence that the client has formally committed to a precautionary approach in decision making, using best available information and aligned to the specific objectives of the fishery and those of MSC Principles 1 and 2. This may be formulated within a fishery management plan.	

<p><i>Conclusion and Outcome on Condition 7 from 2nd surveillance audit</i></p>	<p>While the consultation has taken place it did so behind schedule due to ‘<i>some slippage in (the) timeline due to a number of unforeseen administrative issues</i>’. No results of the consultation have yet been provided and the review itself has yet to take place.</p> <p>As the review has yet to take place there have been no alterations to the way allocations are currently calculated and there is no evidence that all available information is being used to inform the decisions for stocking densities.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence of how this information is being used to inform the decisions for stocking densities and that a precautionary approach is being adopted with respect to meeting the objectives of the fishery (and of Principle 2 with respect to managing risks to ecosystem effects)” is yet to be met by the fishery.</p> <p>As a result the assessment team concluded that the condition does not at present meet the milestone for surveillance audit 2 and is behind target.</p> <p>The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 7: Open – Behind target</p>
<p>Evidence Year 3</p>	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Carrying capacity document ▪ Schedule of arrangements ▪ UoC data <p><u>Carrying capacity document</u></p> <p>In this report the assessment team can consult the information regarding the water quality in Irish waters and the results and main data from Smile modelling in NI waters.</p> <p>In Irish waters, a large dataset has been gathered in coastal areas in compliance with the European Union’s Water Framework Directive (EC, 2000) which ranks areas under a range of Ecological carrying capacity indicators with five resulting status classes: high, good, moderate, poor and bad.</p> <p>‘High status’ is defined as the biological, chemical and morphological conditions associated with no or very low human pressure. This is also called the ‘reference condition’ as it is the best status achievable - the benchmark.</p> <p>Assessment of quality is based on the extent of deviation from these reference conditions, following the definitions in the Directive. ‘Good status’ means ‘slight’ deviation, ‘moderate status’ means ‘moderate’ deviation, and so on. The definition of ecological status takes into account specific aspects of the biological quality elements, for example “composition and abundance of aquatic flora” or “composition, abundance and age structure of fish fauna”. With the results of these assessment of quality the condition of the ecosystem can be checked and advises are used to determinate the status of the area.</p> <p>In NI waters the SMILE models have been developed to provide shellfish aquaculture management advice and to address conservation issues from the ecological carrying capacity viewpoint and its use is still in place.</p> <p>Following the Natura 2000 Habitat directive, “Appropriate assessments” in Ireland and a “Test of Significance” in NI are carried out to monitor the status of the special areas of concerns and how the impacts of the fishery might be affecting the habitats.</p>

	<p><u>Schedule of arrangements</u></p> <p>As explained in condition 1, this document presented a Gantt chart outlining the schedule by which decisions and activities relating to the seed mussel fishery are undertaken. The schedule of arrangements shows main items of relevance that previously the fishery did not have established such as the timing of decisions and the overarching ability of force majeure to override previously agreed upon aspects of the fishery.</p> <p><u>UoC data</u></p> <p>The UoCs of the Northern Ireland and Ireland Bottom Grown Mussel Fisheries have shown changes since they were initially certified and since the last surveillance assessment with the removal of some on-growing areas where no mussel culture activities are currently carried out. Importantly all currently included areas were part of the original UoA and have been extensively considered during both the initial assessment of the fishery and at subsequent surveillance audits.</p>
<p><i>Conclusion and Outcome on Condition 7 from 3rd surveillance audit</i></p>	<p>With the information gathered at surveillance 3, it may be seen that the decision making process is in place and the management and control of the fishery are laid out following these criteria. Reviewing the carrying capacity report the assessment team has confirmed that the allocation system has and continues to function well in terms of protecting the ecosystems of the receiving bays. There is no evidence that the levels of relaying have had any significant negative impacts and there is considerable evidence that the relayed stocks are providing valuable eco-services in terms of improving water quality across a number of parameters.</p> <p>Further, the approach taken has also served to protect the productive capacity of the receiving beds by ensuring that they have not been overstocked to the point where there has been any observed reduction in growth rate.</p> <p>In the minutes of the meeting of BGMF carried out on April 2016, the assessment team could confirm that the fishery has set up different mechanism to control new beds with a protocol in place realised by Marine Institute, therefore the fishery has taken into account the scientific advice.</p> <p>The assessment team concludes that the requirement that “the assessment team shall be provided with documentary evidence of how this information is being used to inform the decisions for stocking densities and that a precautionary approach is being adopted with respect to meeting the objectives of the fishery (and of Principle 2 with respect to managing risks to ecosystem effects)” is partially met by the fishery.</p> <p>As a result the assessment team concluded that the condition meets the milestone for surveillance audit 3 and is on target. However, the Condition is not closed out since the original score for this PI remains unchanged. This condition is linked with condition 8. A research plan was provided to evaluate the progress of the fishery and several research projects are in place but to close the condition the best available information, aligned to the specific objectives of the fishery and those of MSC Principles 1 and 2 must be used in the decision making process within a fishery research plan. The plan was set up in 2016; more evidence that the plan is working well is needed to close the condition.</p> <p>The assessment team has concluded that the condition is on target but as of yet SG 80 is not fully met and the PI has not been rescored at this surveillance audit. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 7: Open – On target.</p>

6.1.8 Condition 8

<i>Item 5:</i>	<i>Condition 8 (of 8)</i>
<i>Performance Indicator & Guidepost Issue</i>	<div> <div data-bbox="355 378 807 595"> PI 3.2.4: The fishery has a research plan that addresses the information needs of management. </div> <div data-bbox="807 378 1461 595"> Guidepost 80 (SI a) A research plan provides the management system with a strategic approach to research and reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2. </div> </div>
<i>Condition 8</i>	A research plan that provides the management system with a strategic approach to research and provided reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2 is required.
<i>Client Action Plan and Milestones</i>	<p>BIM/Aquaculture Initiative have undertaken to liaise directly with the scientific advisors and authorities in NI and IE as to the research priorities and institutional arrangements and support required to fulfil this condition. Funding options will be explored.</p> <p>The client through the BGMCF in consultation with the national scientific advisors, technical experts and industry members will highlight areas requiring research</p> <p>The client will provide documentary evidence of the consultation and research priorities</p> <p>Documentary evidence will be supplied to demonstrate that a Research Plan has been implemented</p> <p>Milestones</p> <p>By first surveillance audit or earlier, the assessment team shall be provided with documentary evidence of a management review of the fisheries research requirements that is aligned with the strategies and objectives of the fishery, and conforms to MSC Principles 1 and 2. Where research planning coincides with information requirements identified in conjunction with conditions raised under Principle 1 and 2 of this assessment, these should be identified and indication as to how they will be implemented.</p> <p>By the second surveillance audit or earlier, the assessment team shall be provided with documentary evidence of the adoption of the Research Plan and priority /on-going research/information requirements.</p> <p>By the third and fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that adoption/progress of the Research Plan is providing reliable and timely information sufficient to achieve the objectives consistent with MSC's Principles 1 and 2.</p>
<i>Conclusion and Outcome on Condition 8 from 2nd surveillance audit</i>	<p>The evidence presented during the 2nd surveillance audit demonstrates that the client's actions have met the requirements of the Action Plan for the Year 2 milestone of Condition 8.</p> <p>The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 8: Open – On target.</p>

<p><i>Evidence Year 3</i></p>	<p>The following evidence was presented:</p> <ul style="list-style-type: none"> ▪ Loughs agency work areas (Carlingford Birds and Invertebrate community) ▪ Aquaspace project presentation ▪ AFBI invasive species report (Crepidula in Belfast Lough) ▪ AFBI spat collection report, Belfast Lough ▪ Spring Mussel Larvae Monitoring Programme ▪ Irish Sea Portal Information (including WP on larval fate modelling) ▪ Bluefish project information (Climate change and larval tracking) ▪ Subtidal sea squirt assessment Carlingford (BIM / Loughs agency) <p>The evidence presented indicates that there is active research progressing on many fronts. The funding available has been increasing over the past years and the cooperation between IE/Northern Ireland and Wales is evident.</p> <p>Many of the projects approved answer questions which the industry have been asking and the results of which have to potential to impact on the commercial operations of the industry members. The industry is also involved in some of the projects as partners and associate partners.</p> <p>The industry can influence the research agenda as is evidenced from the sea squirt survey in Carlingford and the larval monitoring in the Irish sea and Castlemaine. The industry is also actively supporting this research with time and resources. The BGMCF highlights and discusses the research, as evidenced from the minutes of meetings.</p> <p>However there is no overall research plan documented which would highlight the priorities for the industry. There is no overall coordinated and managed research coordinator assigned. While the research is being conducted a long term view and a prioritised programme would be to the long-term benefit of the industry.</p>
<p><i>Conclusion and Outcome on Condition 8 from 3rd surveillance audit</i></p>	<p>Evidence was presented that there are active research projects ongoing and planned which support the aims and priorities of the industry and management structure of the fishery.</p> <p>It is evident that the BGMCF and the industry are actively engaged with the research and that the industry supports the data collection programmes. The research outputs are documented, published and reported. However the overall research plan is not evident and the priorities of the industry and management partners are not coordinated. That said the research plan, while not documented fully, is providing reliable and timely information sufficient to achieve the objectives.</p> <p>The assessment team concludes that the requirement that “By the third and fourth surveillance audit or earlier, the assessment team shall be provided with documentary evidence that adoption/progress of the Research Plan is providing reliable and timely information sufficient to achieve the objectives consistent with MSC’s Principles 1 and 2” is met by the fishery.</p> <p>As a result the assessment team concluded that the condition meets the milestone for surveillance audit 3 and is on target. The Condition is not closed out since the original score for this PI remains unchanged.</p> <p>Status of Condition 8: Open – On target.</p>

6.2 Summary of Status of Conditions

Condition	Performance Indicator	Status
1	1.2.2	Closed
2	2.2.3	Closed
3	2.4.2	Closed
4	2.4.3	Closed
5	2.5.2	On target
6	2.5.3	On target
7	3.2.2	On target
8	3.2.4	On target

7 Harmonization of Certificates

The fishery was certified against the version 1.3 of CR MSC requirements. After April 2014 the process of certification must follow the FCR V2.0. In this version the harmonization process is redacted similar than in version 1.3.

Certification Bodies assessing fisheries that have areas of overlap are required to ensure consistency of outcomes so as not to undermine the integrity of MSC fishery assessments. The FCR provides guidance for harmonisation where a fishery in assessment overlaps with an already certified fishery.

The MSC wishes to discourage overlapping assessments to avoid potential financial, consistency and credibility costs, including:

- fisheries managers, scientists and stakeholders receiving duplicate requests for information
- duplication of costs for a fishery's certification, including that expense incurred by fishery management agencies pre- and post-certification; and
- the possibility of different assessments placing different conditions upon the same fisheries managers and upon different fishery clients.

In this fishery under assessment even there are several fisheries from the same client certified against MSC requirements. Following the FCR V2.0 in the annex PB (section PB2.1) the fishery doesn't required to harmonise because the other ISF fisheries in Iceland are certified against V1.3 with different default tree, therefore MSC defines that "Fisheries using different CR requirements shall not be required to harmonise their default tree". The MSC has provided direction in cases where a certificate sharing arrangement has not been possible.

In this cases the fishery are no overlapping with other fisheries and harmonization process is not required, therefore, no action was taken for harmonization issues in relation to overlapping.

8 Conclusion

The assessment team conducting this 3rd surveillance audit has determined that the **Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery** have met the general requirements for continued certification to the MSC Principles and Criteria for Sustainable Fishing.

Furthermore, the assessment team has concluded that:

In four areas where Conditions had originally been raised there is now sufficient evidence to confirm the fishery meets SG 80. These areas; PI 1.2.2. Harvest Control Rules and Tools; PI 2.2.3 Bycatch Species Information/Monitoring; PI 2.4.2 Habitats Management Strategy, and; PI 2.4.3 Habitats Information/Monitoring; represent the original Conditions 1, 2, 3 and 4. In these areas the assessment team has determined that the conditions initially placed on the fishery have been closed.

In the remaining four areas where Conditions had originally been raised the available evidence remains insufficient to confirm the fishery meets SG 80. These areas; PI 2.5.2 Ecosystem Management Strategy; PI 2.5.3 Ecosystem Information/Monitoring; PI 3.2.2 Decision Making Processes, and; PI 3.2.4 Research Plan; represent the original Conditions 5, 6, 7 and 8. In these areas the assessment team has determined that the fishery has met its milestones for Surveillance 3 (as revised at Surveillance 2). In these areas progress against the original Conditions is on-target; however, SG 80 is yet to be met and the conditions remain open with progress to be again evaluated at Surveillance 4.

Therefore, the assessment team recommends that continued certification be awarded to the the Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery

8.1 Outcome of SAI Global Decision

SAI Global determines that:

- **The Northern Ireland Grown Bottom Mussel (*Mytilus edulis*) fishery and the linked Ireland Bottom Grown Mussel (*Mytilus edulis*) Fishery continue to operate well-managed and sustainable fisheries and therefore, continued certification to the MSC Principles and Criteria for Sustainable Fishing is awarded.**

9 Information Sources and References

Condition 1

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- Schedule of Arrangements Seed Mussel Fishery (Northern Ireland and the Republic of Ireland)
- Chronology of key actions around the 2016 Seed Season
- BGMCF meeting minutes

Condition 2

- MarLIN <http://www.marlin.ac.uk/biotic>
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Conditions 3 and 4

- INFOMAR Report. The improved characterisation and quantification of mussel seed beds around the Island of Ireland.
- BIM seed mussel survey reports;
 - 2016 BIM Seed Survey Wexford
 - 2016 BIM Seed Survey for Castlemaine and Cromane
 - 2016 BIM Seed Survey of Cahore Point and the Rusk channel
 - 2016 BIM Seed Survey for Rosslare
 - 2016 BIM Seed Survey for Wicklow area
 - 2016 BIM Seed Survey for Howth and Lambay Sound
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- Outer Ards Seed Mussel Stock Assessment, 2016. AFBI

- Report Supporting Appropriate Assessment of the impact of seed mussel fishing and relaying on Castlemaine Harbour SAC and SPA. Marine Institute
- Burial Island and the feathers video Survey. June 2016 AFBI.0

Conditions 5 and 6

- Carrying capacity report
- WFD monitoring results all bays
- Foyle-EASE
- Swilly- Appropriated Assessment, licencing outcomes- area out certification
- Belfast- Cumulative Assessment complete
- Carlingford- Cumulative Assessment Complete
- Wexford-Draft assessment complete- cannot be shared at the moment
- Castlemaine-licensing and Fisheries assessments complete
- IAS training and proposed IAS surveillance measures in2017

Conditions 7 and 8

- Blue fish (Interreg funding confirmed)
- Irish Sea Portal (awaiting funding decision)
- Larval monitoring 2016
- Sea squirt report - Carlingford
- Spat collection studies NI
- Crepidula studies Belfast, 2016
- Alien species course and resources, 2016
- Horizon 2020
- EASE project
- Appropriate assessments/tests of significance
- Seed survey reports
- MSC Bottom Grown Mussel research Plan 2017
- IAS training and proposed IAS surveillance measures in 2107

10 Appendices

10.1 Appendix 1. Re-scoring evaluation tables

10.1.1 Re-scoring evaluation table – Condition 1

Original rationale is in **BLACK** (or **GREY** if it has been superseded) while revised rationale is in **BLUE**.

PI 1.2.2		There are well defined and effective harvest control rules (HCRs) in place		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Generally understood harvest rules are in place that are consistent with the harvest strategy and which act to reduce the exploitation rate as limit reference points are approached	Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.	
	Met?	Y	Y	
	Justification	<p>Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached.</p> <p>The main harvest control rules in place relate to opening and closing of the fishery and the allocation of a seed mussel resource allocation to each holder of a licence for a cultivation site. These harvest control rules limit the exploitation rate consistent with the overall volume of seed required for re-laying on the cultivation sites, which is the key element of the harvest strategy. Fishing for seed mussels is permitted only by vessels on behalf of cultivation site licence holders, and there is a very limited season in which seed mussel can be harvested. In 2012, harvesting of seed mussel was permitted for 12 days in May and a total of 49 days is specified within the period August to December, although in practice strong tides and weather conditions restrict the available fishing time further (29 days were actually fished). Fishing is limited in Ireland to the hours of 0600 to 1800 and in Northern Ireland from 0800 to 1800. All NATURA 2000 sites are closed for fishing seed unless a test of significance/screening and an appropriate assessment if required has been completed. In IE, seed beds can be closed by DAFM if, after consultation with the industry, mussel seed is considered too small or too weak to be relayed onto cultivation sites, and in NI beds are closed to harvesting by DARD if the mussel to waste ratio drops below 50% irrespective of whether resource allocation is still available.</p> <p>Annual seed mussel resource allocations for each cultivation site licence holder are based primarily on the size of the cultivation site, historic performance and area of the seabed. Resource allocations were introduced in 2004 following advice to the relevant Governments by the Seed Mussel Advisory Committee (SMAC).</p> <p>Whilst there are a number of harvest control rules in place which are consistent with the current harvest strategy, these control rules and the overall management plan for the fishery are generally not explicitly defined.</p> <p>The harvest strategy is based on maximising seed transplantation success which in turn should increase recruitment to the fishery. Individual resource allocations were not designed therefore to be responsive to fluctuations in seed mussel availability. Within Natura 2000 sites a test of significance/screening and an appropriate assessment if required must be completed before seed harvesting can take place, and in SPA's will require that a certain percentage of the seed mussels must be retained for the protected birds that are capable of accessing the resource, and indirectly as a consequence of bird feeding requirements, there is a limit placed on the level of harvesting within these sites which is effectively responsive to changes in seed mussel stock biomass. Harvest rules may therefore be different in designated and undesignated harvesting sites, both in terms of whether or not the fishery is open, and in terms of the</p>		

	<p>nature of protected habitats and species and what proportion of the stock biomass may be harvested for relaying on cultivation sites.</p> <p>Seed mussel resource allocations were based on advice in 2005 to the Irish and Northern Irish Governments by the Seed Mussel Advisory Committee (SMAC) which included representatives from DARD, DAFM, BIM, the Loughs Agency and the Aquaculture Initiative. SMAC assessed applications and advised on individual resource allocations incorporating a number of factors such as historical fishing activity, survey history and distance from seed site to cultivation site, and on the capacity of both the cultivation site and on the wider area of the local bays in which the cultivation sites are situated. These resource allocations have remained unchanged since 2005, with the exception of a few licence holders who have requested a review of their allocations, but a full review of these allocations is now overdue. The Bottom Grown Mussel Consultative Forum (BGMCF) has appointed a Seed Mussel Allocation Sub Committee (SMAC) which acts as a discussion forum for policy and is a central point of contact between the technical advisors and the regulators on allocation decisions and policy. The Forum can work with the regulators to ensure that all aspects of harvest strategy and harvest control rules such as opening and closing of the fishery are being evaluated continuously.</p> <p>There are other regulations in place which can trigger the closure of the seed mussel fishery. In NI the constant monitoring of harvested seed allows closures to occur immediately by DARD if the mussel to waste ratio drops below 50% irrespective of whether resource allocation is still available which, acts to reduce exploitation on beds with lower density and reduce habitat removal (which is considered under PI 2.4.2). With respect to viability of seed, all seed beds can be closed by DAFM if, after consultation with the industry, mussel seed is considered too small or too weak to be relayed onto cultivation sites. Whilst the control rule is explicitly defined for waste threshold in N. Ireland, it does not specifically address seed viability (size, likely survivability) of the seed resource to secure its best use, and in IE, whilst there is evidence of the control rule functioning, the process by which seed beds may be closed if the mussel seed is considered unviable to be successfully relayed is not well defined.</p> <p>In summary the seed mussel fishery lacks explicit harvest control rules relating to the timing of harvesting, the viability of harvested seed for relaying, and the process by which the fishery may be open or closed. Ideally such explicit harvest control rules should form part of a wider fishery management plan which explicitly states the rationale and assumptions underlying the harvest</p> <p>Implicit within the management objectives for the seed mussel fishery is that the seed mussel beds are essentially ephemeral. As a result of the ephemeral nature of the seed mussel beds their harvesting has no impact on overall stock size (or a positive impact). With the above in mind, the management strategy is designed to manage the seed mussel fishery, and not to manage the wider mussel stock; therefore, conventional stock assessments with target and limit reference points, designed to ensure that the exploitation rate is reduced as limit reference points are approached, are not appropriate in this fishery. The fishery's harvest strategy is aimed at managing the seed mussel fishery, and not the mussel stock as a whole.</p> <p>To implement the harvest strategy well defined harvest control rules are in place that are designed to determine if and when recruitments of seed mussels should be exploited. In the context of the seed mussel fishery, the "if" is based on surveys and habitat assessments and is contingent on at least 1,500 t of mussel seed being identified as being exploitable in the Irish Sea, while the "when" is based on the timing of suitable tides, the size and viability of seed (and associated survivability in transport) and the threat of loss of seed to predation (primarily starfish). Secondary management measures determine how the resource is best allocated between users such that re-laying areas are not adversely impacted. Harvest control rules are consistent with and act in support of the overall the harvest strategy.</p>
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	<p>For the 2016 season, management authorities formalised the arrangements for the management of the mussel fishery. The management arrangements constituting the harvest control rules for the mussel fishery are as follows:</p> <ul style="list-style-type: none"> ▪ In early spring the BGMCF propose suitable tides for fishing mussel seed during the year. ▪ Proposed tides are approved by the Minister in IE or the Department in NI. ▪ If approved, suitable tides are set out in the mussel seed licenses/authorisations of both jurisdictions. ▪ In spring/summer BIM and AFBI conduct mussel seed surveys in their respective jurisdictions. ▪ Industry members may, with the appropriate permissions, conduct their own surveys and are obligated to report any “finds”. ▪ Seed mussel survey reports are published on the BIM and AFBI websites as they become available. ▪ The BGMCF has set a minimum quantity of 1,500t that must be identified as being exploitable in the Irish Sea before it recommends the opening of a fishery. ▪ If surveys identify at least 1,500 t of exploitable mussel seed in the Irish Sea, BGMCF members, taking into account the results of the seed mussel surveys, make a recommendation to the Ministers proposing dates for mussel seed fishing to take place. ▪ In IE the Minister considers the recommendation from the BGMCF, survey results and other relevant information. In NI, the BGMCF’s recommendations are considered by DAERA. ▪ In IE, if the Minister decides that a mussel seed fishery should take place, his/her decision is given legal effect by means of a statutory instrument in which the fishing of mussel seed is typically allowed for a defined period. In NI, DAERA may permit fishing for mussel seed in specific areas for a defined period. ▪ Fisheries open on the specified time and date and are fished by appropriately licenced vessels. ▪ The fisheries remain open until 1) fishers have reached their allocation, 2) the date of closure is reached or 3) the fishery is closed early. ▪ In NI an early closure is triggered when the percentage of seed mussel to waste in catches reaches 50% or quantities of benthic substrata begin to be observed. ▪ In IE, industry members can, and do, recommend the closure of the fishery if in their view the resource is exhausted and further fishing would cause unnecessary damage to benthic ecosystems. <p>The harvest control rules for the fishery also include <i>force-majeure</i> provisions that allows for the BGMCF to recommend to the Ministers on a case-by-case basis the fishing of individual seed beds outside of agreed upon fishing seasons in situations where the seed is suitable for commercial fishing and is confirmed to be suffering predation from starfish. Such predation presents a management challenge for the seed mussel fishery, where a balance must be achieved between allowing seed to grow and harden (in order to maximise survival in transport) and protecting the seed resource from predators. Management arrangements include the following trigger points when starfish are detected in a seed mussel bed:</p> <ul style="list-style-type: none"> ▪ At a level of 10 starfish m⁻² the BGMCF should immediately consult with industry members and scientific advisors as to the course of action that should be pursued for the bed. ▪ At a levels of 20 starfish m⁻² <i>force majeure</i> should immediately be implemented and the bed opened on the earliest available tide <p>Following the formalisation of management arrangements, including <i>force majeure</i> provisions, the Assessment Team accepts that clearly defined harvest control rules, based on both firm procedural reference points and past experience of the fishery, are in place and that these are applied in managing the fishery. Furthermore, the Assessment Team is confident that rules are sufficiently formalised such that they should apply equally in all circumstances and should help ensure consistent outcomes regardless of differing biological, environmental and socioeconomic circumstances. The minutes of the BGMCF and the resulting letters and SMS messages to industry clearly document the above decision making processes.</p> <p>On the basis of the above evidence, the Assessment Team considers SG80 to have been met for Sla.</p>
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b	Guidepost		The selection of the harvest control rules takes into account the main uncertainties.	The design of the harvest control rules takes into account a wide range of uncertainties.
	Met?		Y	N
	Justification	<p>The selection of the harvest control rules takes into account the main uncertainties.</p> <p>The harvest control rules relating to seed mussel allocations do not fully take into account the main uncertainties surrounding optimum productivity relating to carrying capacity on cultivation sites, fluctuations in overall seed mussel availability, and variation in biomass of seed between seed beds.</p> <p>There is also uncertainty concerning the equitable division of the resource amongst license holders because of the varying speed with which individual vessels can reach their seed allocation. The control rules relating to size of seed mussel for harvesting and mussel to waste ratio are based more soundly on empirical evidence of likely success rates of ongrowing of seed of varying size and quality.</p> <p>The key uncertainties in this fishery relate to temporal and spatial fluctuations in seed mussel availability and how long a successful recruitment of mussel seed will remain available to the fishery before it is either washed away or they are lost to predation. Harvest controls rules are designed with these uncertainties in mind and include sufficient flexibility to allow management deal with the main uncertainties.</p> <p>Harvest control rules allow managers to react in a timely manner to the appearance of mussel seed and determine how best to achieve the optimum yield from the available resource. In order to realise the optimum yield from a successful mussel spat fall, harvest control rules are designed to achieve a balance between allowing seed to grow and harden (in order to maximise survival in transport) and protecting the seed resource from predators.</p> <p>Seed mussel survey reports include observations on the size and hardness of observed seed and recommendations from survey officers as to the potential viability of the seed and when the seed should be fished in order to best utilise the resource. Survey officers also report on the presence of predators on seed mussels and can recommend the activation of <i>force-majeure</i> in circumstances where they deem the seed to be under threat from predation and where the defined predator density thresholds have been met.</p> <p>Following the formalisation of management arrangements, including <i>force majeure</i> provisions, the Assessment Team accepts that selection of harvest control rules takes into account the main uncertainties. Consideration of the main uncertainties by harvest control mechanisms is evidenced by the minutes of BGMCF meetings, letters and SMS messages to industry and the use of <i>force majeure</i> provisions.</p> <p>On the basis of the above evidence, the Assessment Team consider SG80 to have been met for SIb.</p> <p>However, it is not possible to affirm that the harvest control rules take into account a wide range of uncertainties; as a result SG100 is not met for SIb.</p>		

c	Guidepost	There is some evidence that tools used to implement harvest control rules are appropriate and effective in controlling exploitation.	Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	Evidence clearly shows that the tools in use are effective in achieving the exploitation levels required under the harvest control rules.
	Met?	Y	Y	N
	Justification	<p>The monitoring of fishing activity through “black boxes”, the SMS system and VMS on vessels and the recording of catches in log books is effective in controlling exploitation by ensuring compliance with limited entry regulations, seed mussel fishing seasons, and individual resource allocations. The closure of a seed mussel bed in NI when the mussel: waste ratio in the fishing gear drops below 50%, and the closure of the fishery following consultation with licence holders in IE when the seed are too small are effective tools which limit exploitation at times when the resource is scarce or is not suitable for re-laying.</p> <p>Landings have been well below the maximum allowed catch (the sum of individual resource allocations) in the last few years due to lack of available seed. Data from SFPA show that the average resource allocation uptake in Ireland from 2004 – 2011 was 45.5% (Declan Quigley, SFPA, pers. comm.), so there is no available evidence in recent years that the resource allocation can indeed control exploitation rate. This would only be shown clearly if the overall resource allocation was lower than the biomass of available seed. Under the current harvest strategy this is unlikely to occur because the current harvest strategy is designed to provide sufficient seed mussel for re-laying on licensed cultivation sites within IE and NI on a continuous basis, and does not vary in relation to annual fluctuations in availability of seed mussels.</p>		
References		<p>Policy 2004: Joint arrangements for management of seed mussel stocks in relation to Irish and Northern Ireland vessels http://www.aquacultureinitiative.eu/page24.html Strong, J.A. (2011). Mussel stock assessment: Ards Peninsula 2011, Northern Ireland. Agri-Food and Bioscience Institute, Northern Ireland. The Rising Tide: The review of the Bottom Growth Mussel Sector on the Island of Ireland, 230 pp. Inshore Ireland Publishing Ltd. The Rising Tide Progress Report 2010-2011. 2011. A review of the Bottom Grown (BG) Mussel Sector on the Island of Ireland. Progress Report (Position at end of 2010). Schedule of Arrangements Seed Mussel Fishery (Northern Ireland and the Republic of Ireland) Chronology of key actions around the 2016 Seed Season BGMCF meeting minutes</p>		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER (if relevant):				NA

10.1.2 Re-scoring evaluation table – Condition 2

PI 2.2.3		Information on the nature and the amount of bycatch is adequate to determine the risk posed by the fishery and the effectiveness of the strategy to manage bycatch		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	Qualitative information is available on the amount of main bycatch species taken by the fishery.	Qualitative information and some quantitative information are available on the amount of main bycatch species taken by the fishery.	Accurate and verifiable information is available on the catch of all bycatch species and the consequences for the status of affected populations.
	Met?	Y	Y	N
	Justification	<p>Qualitative and some quantitative information with respect to by-catch species at mussel seed fishing sites is available through the survey reports by respective governmental bodies (ABFI and BIM). Additionally a dedicated study on bycatch species over mussel seed beds exists that gives some additional verifiable information (Davies, 2003).</p> <p>However, bycatch information has not been systematically collected. This is mainly due to the fact that catch and bycatch, after seed collection, are not being separated but instead are relayed over the cultivation sites. The lack of systematic data also stems from the fact that with bycatch levels below 1% this issue has not been identified as a major concern. At cultivation sites similar low levels of bycatch have been reported by fishers, but no formal data was available. Nevertheless, it can be assumed that seed mussel beds and mature mussel beds are functionally very similar. In fact lower numbers of predators and scavengers might be expected to live on mature mussel beds (i.e. less bycatch) as they are less vulnerable to predation compared to seed mussel beds (Beadman et. al 2004).</p>		
b	Guidepost	Information is adequate to broadly understand outcome status with respect to biologically based limits	Information is sufficient to estimate outcome status with respect to biologically based limits.	Information is sufficient to quantitatively estimate outcome status with respect to biologically based limits with a high degree of certainty.
	Met?	Not relevant	Not relevant	Not relevant
	Justification	Scoring issue need not be scored when RBF used to score PI 2.1.1		
c	Guidepost	Information is adequate to support measures to manage bycatch.	Information is adequate to support a partial strategy to manage main bycatch species.	Information is adequate to support a strategy to manage retained species, and evaluate with a high degree of certainty whether the strategy is achieving its objective.
	Met?	Y	Y	N
	Justification	<p>The information available did indicate that due to the low levels of bycatch made by this fishery (below 1%) and no 'main bycatch species' present no direct partial strategy appears to be required (see 80a).</p> <p>By year 3, during the surveillance audit, the assessment team was provided with the results of the bycatch program carried out during the fishing season of 2016 and it's planned to continue with the sampling program over the years to get more accurate information of the composition of total catches by the fishery in both areas, seed beds and harvest areas. Therefore this bycatch program will be a partial</p>		

		<p>strategy in the fishery to monitor the non- target species although the bycatch is low and in the list of species there is no main bycatch, all the species identified are in percentages below 5 %.</p> <p>Therefore after the third surveillance audit the assessment team can confirm that Information is adequate to support a partial strategy to manage main bycatch species and SG 80 is met.</p> <p>The assessment team cannot said with a high degree of certainty whether the strategy is achieving its objective because more time is needed to evaluate is the bycatch programme is working well and comply with all the objectives define in the plan, therefore SG 100 is not fully met at this stage.</p>		
d	Guidepost		<p>Sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy).</p>	<p>Monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species.</p>
	Met?		Y	N
	Justification	<p>Data on bycatch has not been collected in a consistent manner for seed mussel beds or for cultivation sites and no continuous monitoring program is in place that could be used for adaptive management. While there is no dedicated bycatch monitoring in place, potential bycatch species are to some extent monitored thought the seed surveys conducted by respective government agencies (ABFI, BIM and the Loughs Agency) that will assess the quality of the bed and the presence of associated species. For designated sites, a test of significance/screening and an appropriate assessment if required (where completed) will also provide some evidence of the type and quantity of bycatch organisms. It could be argued that collectively, this type of monitoring together with the low bycatch levels reported by fishers might be considered as sufficient to determine any potential risk (Fahy, et. al. 2005, Beadman et. al 2004, AFBI 2011).</p> <p>However, because the information available is mainly of qualitative, anecdotal nature and there is little in terms of hard, industry wide data, that could confirm the estimated claims on bycatch levels, uncertainties remain about the current and future risks to the relevant bycatch species. Accurate and verifiable data on industry level about bycatch data does not exist.</p> <p>By the third surveillance audit the assessment team has been provided with the bycatch monitoring results and the bycatch sampling plan. This bycatch program has a specific objectives that are listed below:</p> <ul style="list-style-type: none"> Quantify the biomass and relative contribution of all species retained in the mussel seed fishery and harvest areas Identify any bycatch species and their contribution to the total catches Compare mussel bycatch in Northern Ireland and Ireland with other mussel fisheries <p>During the last winter, in the season of 2016 the seed beds were samples by BIM personnel and the harvest areas were samples by the industry, the members were allowed to sample the areas where they have a license to harvest. Therefore quantitative data are now available and it should continue during 2017 with the same methodology which is described in the bycatch sampling plan. The appendix 4 shows more details regarding the species composition reported in the bycatch monitoring report.</p> <p>In Northern Ireland, DAERA and AFBI have been carried out the surveys in Burial Island Seed and Feathers Seed to control the species composition. The data are reported to SFPA and BIM. The assessment team has been provided with the reports in which the results of the samples and composition of those are detailed.</p>		

	<p>In comparison with the results showed during the full assessment, now the fishery has quantitative data of bycatch composition and should be monitored over the years to detect any change, in the populations of these species, caused by the impact of the fishery. Therefore, sufficient data continue to be collected to detect any increase in risk to main bycatch species (e.g., due to changes in the outcome indicator scores or the operation of the fishery or the effectively of the strategy) and SG 80 is met.</p> <p>The bycatch monitoring programme is newly established and as yet it is not clear whether monitoring of bycatch data is conducted in sufficient detail to assess ongoing mortalities to all bycatch species; therefore SG 100 is not met.</p>	
References	<p>Davies LCR 2003 An Assessment of bycatch from the common mussel (<i>Mytilus edulis</i>) seed dredge fishery in the southwest Irish Sea. MSc thesis, University College Cork</p> <p>The Rising Tide: The review of the Bottom Growth Mussel Sector on the Island of Ireland, 230 pp. Inshore Ireland Publishing Ltd.</p> <p>MarLIN http://www.marlin.ac.uk/biotic</p> <p>Fahy E, Carroll J, O'Toole M, Barry C and Hother-Parkes L, 2005 Fishery associated changes in the whelk <i>Buccinum undatum</i> fishery in the south west Irish Sea. Irish Fisheries investigation Number 15.</p> <p>Beadman, HA, Caldow RWG, Kaiser MJ, Willow RI, 2004. How to toughen up your mussels, using shell morphology plasticity to reduce predation loss. Marine Biology 142, 487-494</p> <p>AFBI Report The improved characterisation and quantification of mussel seed beds around the Island of Ireland.</p> <p>AFBI (2011) Stock assessment report.</p> <p>BIM seed mussel survey reports</p> <p>Bycatch monitoring report Seed and harvest Areas 2016</p> <p>MSC Bycatch Sampling Plan 2016</p>	
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		NA

10.1.3 Re-scoring evaluation table – Condition 3

PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	Y	Y	N
	Justification	<p>Yes, there are measures in place that relate to the nature of the activity that are expected to achieve a Habitat outcome of 80 as indicated in the SICA tables for seed collection and harvest on cultivation sites. The principle measures are licensing of cultivation areas, a restricted fishing season and areas open or closed to fishing translating into a relatively small temporal and spatial scale of the fishing activity for both seed harvesting and cultivation. The fishing gear has been modified by the industry to be less impacting and exclude the capture of large stones</p> <p>(Amended for clarification post PCDR): Regarding seed collection a partial strategy is in place and is expected to achieve the Habitat Outcome 80 applied in the designated areas. N.B. Please refer to rationale 80b referring to the explicitness of the partial strategy for seed beds outside of the current designated areas.</p> <p>Seed fishing For both IE and NI waters of the UoC where a designation exists, seed fishing is not allowed unless a test of significance/screening and appropriate assessment if required is first undertaken.</p> <p>In NI designated areas, a mussel seed survey is in place that uses acoustic survey techniques combined with ground trothing techniques. Located seed mussel beds are screened for their suitability for exploitation taking into account potential impacts on protected habitats, ETP species or specifically listed conservation features. This screening process is more likely to determine if the seed mussel bed is ephemeral.</p> <p>In IE, all designated areas have remained closed to seed fishing except in one case, Cromane (Castlemaine) where a similar regulatory approach to seed collection has been implemented for designated areas under Natura 2000, seed surveys are employed by BIM to help the industry find mussel seed. Some expert judgment over the suitability of the seed beds is made in these scientifically surveyed areas but there is not a clearly defined process linked to sensitive habitat conservation where all mussel seed beds open to the fishery are systematically screened and no clear decision matrix exists to close or open seed beds outside of the current designated areas. Due to the fact that for NI, all seed fishing has taken place within or sufficiently adjacent to designations to warrant an assessment prior to opening, habitat status is explicitly protected. In IE whilst the same requirement exists, for non-designated seed sites, there is not the same explicit requirement for scientific screening prior to fishing. The Natura 2000 designations have been implemented post scientific assessment of the coastline of IE and hence, the unit of certification area and additional survey reports have been undertaken which support a rationale that sufficient knowledge exists to confirm that designations are sufficiently in place to protect sensitive habitats and that it is unlikely that seed fishing to date has occurred in areas that has caused irreversible damage to sensitive habitats (e.g. seed over cobble reefs or mixed with <i>Modiolus modiolus</i> reefs) and the potential that overwintering mussel seed beds are being exploited (i.e. with relevant habitat and ecosystem effects).</p> <p>However, a systematic screening process of all seed mussel beds prior to exploitation has been recommended by several reports produced for this fishery (Crowe et. al. 2011, Maguire et.al. 2007).</p>		

		<p><u>Cultivation Sites</u></p> <p>Mussel cultivation sites are licensed and strictly regulated. Licensing procedures aim to limit the fishery to specific locations and to prevent an uninhibited spread to other area less suitable for cultivation from an environmental point of view. Licenses are being released by the respective governmental bodies on the basis that these fisheries are being conducted in a manner that are conducive to the terms stipulated in the licensing. The degradation of the habitat would constitute a breach of the license agreement. Thus this licensing scheme represents a formal strategy to mitigate the impact of this fishery on habitats on a regional and local scale.</p>		
b	Guidepost	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y	Y	N
	Justification	<p>The measures taken are thought to work to limit the impact of this fishery on habitat by restricting the spatial and temporal scale of the fishing effort. Fishing activity is more or less controlled by legislation through the licensing of cultivation areas and in NI through the opening and closing of fishing areas for mussel seed. In IE the seed collection effort is mainly restricted through the open and closed season as well as due to tidal and weather conditions. A literature review was carried out in 2009 by BIM of dredging impacts but this did not include analysis of the specific modified gear and areas fished in these fisheries. However, it does include supporting evidence, and generally it can be assumed that this gear modification works with respect to reducing impacts and to exclude stones.</p> <p>There is a partial strategy in place and an objective basis where it is implemented for all designated sites across both units of certification (IE and N. Ireland). A clear paper trail exists for seed surveys and the decision making process to open specific areas for seed collection. With respect to seed collection in IE waters fishing effort is currently only permitted outside protected areas or following assessment and within the open season.</p> <p>However for areas outside of designations, the strategy is less explicit and hence, the objective basis for confidence may be reduced due to lesser definition on the parameters that would ensure the fishery does not pose a serious risk of serious harm in the event of a seed fishery locating in an area containing sensitive habitats.</p> <p>Some scientific screening of seed beds over their suitability for exploitation does take place through expert judgment following scientific surveys. However, a clearly defined process (e.g. decision matrix) is not evident and screening of seed beds only happens over areas that BIM surveyed which may leave areas outside of the survey without any scientific input unless requested by fishers. This may reduce confidence in the effectiveness of the partial strategy overall through the potential for exploitation of non-ephemeral beds and impacts to sensitive habitats not currently charted.</p> <p>For all ongrowing locations, the strategy adopted is to limit and control cultivation sites through a licensing scheme that will prevent the spatial extension of this fishery and provides legislative means to protect vulnerable habitats.</p> <p>At the third surveillance audit the assessment team has been provided with documentation which verifies that there is data directly from the fishery to evaluate the possible impacts of the fishery in the habitats.</p> <p>The assessment team has been provided with the seed surveys in IE and NI, the measures to open and close the fishery are established depends on scientific advice when the tones of seeds are enough to</p>		

		<p>allow the fishery. The fishery has to be in contact with the management bodies; the schedule of arrangements decides all the relevant aspects of the fishery and must be reported by SMS. Therefore, the assessment team can confirm that documentary evidence was presented which indicated that a strategy has been implemented successfully to ensure that the fishery does not pose a risk to habitat types. This strategy has been assessed and found to be sufficient to protect vulnerable habitats. The monitoring of seed fisheries is ongoing and the management of the seed fishery is active. This is considered sufficient to ensure the protection of vulnerable habitats and therefore, there is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved and SG 80 is met.</p> <p>To meet SG 100 the testing must support high confidence that the strategy will work. Due to the condition has been closed by the third surveillance; the assessment team considers that more years will be needed to verify if the strategy is still working and there is enough evidence that the habitats are in the same condition and any risk is coming up due to the fisheries activities therefore at this stage SG 100 is not fully met.</p>		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y	N
	Justification	<p>There is evidence that the strategy is implemented albeit that it is partial in that non-designated/non-surveyed sites do not have as an explicit a process for ensuring that in the event of a sensitive habitat being discovered, the fishery will not pose a risk of irreversible harm. (refer to 80b).</p> <p>The management plan of Cromane and seed harvesting to date in Northern Ireland has occurred within or adjacent to SAC's and hence have scientific input to confirm that the fishery does not pose a risk of serious or irreversible harm to habitat types.</p> <p>As both NI and IE have access to seed mussels, the seed mussel fishery was assessed following the 'worst case' scenario.</p> <p>The licensing of mussel cultivation sites for both NI and RI prevents the uninhibited spread of this fishery into unsuitable areas and can be regarded as a successful management strategy.</p> <p>At the third surveillance the assessment team has concluded that SG100 is not fully met because there is a lack of data on new beds, such as Cork Harbour. A protocol developed by Marine Institute has been established in the event of a seed bed being found during incidental or non-targeted surveys but it should be evaluated by surveillance 4th to make sure that there is clear evidence that the strategy is being implemented successfully.</p>		
d	Guidepost			There is some evidence that the strategy is achieving its objective.
	Met?			Y
	Justification	<p>No clear unified strategy exists for the exploitation of mussel seed and cultivation based on habitat types.</p> <p>At the third surveillance audit, the assessment team has considered that the condition in this PI can be closed because there is a specific strategy to control the habitat and make sure that the fishery and harvest do not have risk for the habitats. The surveys carried out in the seed beds define if the fishery can be open or when the fishery must be closed. All the information is available and is shared by SMS.</p>		

		<p>Sensitive areas are closed to the fishery and in these three years of certification there is some evidence that the strategy is working. The schedule of arrangement can be consulted and the situation of the fishery is reported on that. The areas of fishery and harvest are monitored, in Northern Ireland AFBI has realized a video survey to define the status, the results has shown that the beds are not damaged and are still intact. The Natura Plan has shown the same result for Castlemaine, there is no impact on the habitat and the results were positive for the seed beds surveys. Therefore there is some evidence that the strategy is achieving its objective and SG 100 is met.</p>
References		<p>Dredging impacts literature review by Aquaculture initiative 2009 - unpublished The Rising Tide: The review of the Bottom Growth Mussel Sector on the Island of Ireland, 230 pp. Inshore Ireland Publishing Ltd. INFOMAR Report. The improved characterisation and quantification of mussel seed beds around the Island of Ireland. BIM seed mussel survey reports; 2009 BIM Seed Survey Cromane 2009 BIM Seed Survey Wexford and Wicklow 2010 BIM Seed Survey Wexford and Wicklow 2011 BIM Seed Survey Cahore Point 2011 BIM Seed Survey Rosslare Area 2011 BIM Seed Survey Wexford and Rosslare Area 2008 BIM Seed Survey Wexford and Wicklow 2009 BIM Seed Survey Wexford, Wicklow and Castlemaine 2010 BIM Seed Survey Wexford, Wicklow and Castlemaine 2011 BIM Seed Survey Wexford, Wicklow and Castlemaine 2012 BIM Seed Survey Wexford and Castlemaine Appropriate Assessment Castlemaine Harbour: http://www.fishingnet.ie/media/fishingnet/content/fisheriesinnaturaareas/fisheriesnaturaplanconsultations/AA_Castlemaine_2011_FINAL.pdf AFBI report Dredging of Seed Mussel adjacent to the Outer Ards Peninsula SPA and the Copeland Island SPA AFBI seed mussel survey reports; 2007 Baseline Survey of the Shellfish Resources of Lough Foyle 2008 Seed Mussel Bed Survey Co. Down 2010 Donaghadee Sound seed mussel survey V1 2011 AFBI Seed mussel stock survey ABFI (2010). Dredging for Seed Mussels within Donaghadee Sound DARD seed mussel fishery surveillance reports Maguire, JA, T Knights, G Burnell, T Crowe, F O’Beirn, D McGrath, M Ferns, N McDonough, N McQuaid, B O’Connor, R Doyle, C Newell, R Seed, A Small, T O’Carroll, L Watson, J Dennis, and M O’Cinneide, 2007. ‘Management Recommendations for the sustainable exploitation of mussel seed in the Irish Sea’. <i>Marine Environment and Health Series</i>. 3.1. Outer Ards Seed Mussel Stock Assessment, 2016. AFBI Seed Mussel Surveys report for 2016. BIM Report Supporting Appropriate Assessment of the impact of seed mussel fishing and relaying on Castlemaine Harbour SAC and SPA. Marine Institute Burial Island and the feathers video Survey. June 2016 AFBI.</p>
OVERALL PERFORMANCE INDICATOR SCORE:		85
CONDITION NUMBER (if relevant):		NA

10.1.4 Re-scoring evaluation table – Condition 4

PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guidepost	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y	Y	Y
	Justification	<p>Yes, there are variable levels of spatial detail but overall there is a good understanding of what habitats occur in the area of the fishery.</p> <p>Generally this is true, as a great amount of data has been collected though seed assessment surveys using acoustic methods and other more specific habitat surveys. Thus, the general distribution of habitats and their vulnerability will be known. As ephemeral mussel seed beds tend not to occur in exactly the same locations but in nearby locations each year, there is a small risk that some gaps in the knowledge over habitat may exist but not relevant to the scale and intensity of the fishery (refer to 80c).</p> <p>The distribution of all main habitats is known at a relevant scale within cultivation areas.</p>		
b	Guidepost	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y	Y	N
	Justification	<p>There is a good understanding of the spatial overlap of habitats with this fishery. Fishing vessels during seed collection and cultivation are required by legislation to carry a black box that monitors vessel movement. The impact of mussel dredges is in principle understood. However, while the precise configuration of all the dredge types used in this fishery have not been scientifically tested in these fisheries it is possible to draw conclusions from the general design, fishing practices adopted and a large amount of relevant literature.</p> <p>The spatial and temporal extent of the fishery and its impact on habitats has been established within the RBF and was found to score (SG80).</p>		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y	N
	Justification	<p>While there is continuing monitoring of habitats with respect to seed collection both in NI and IE. Only for Natura and adjacent designated sites, is there an assessment of risk of seed collection to habitats prior to the fishery commencing. For NI all harvesting sites exist within designations due to the SAC coverage. In IE, assessments occur for designated sites before a fishery can commence. All other designated sites remain closed until the required assessments can be completed. However, where there are no designations, it is not apparent that a similar type of assessment occurs outside of currently surveyed sites.</p>		

	<p>Therefore, for any newly identified, non-designated seed fisheries, data may not be sufficient to detect an increase in risk to habitat, if these fisheries were found to be within a sensitive habitat. Changes in the habitat distributions in relation to the fishing activity have not been measured over time.</p> <p>At the third surveillance the assessment team was provided with sufficient information to confirm that the fishery is collecting data of habitats to ensure that any risk can be identified.</p> <p>Therefore, documentary evidence was presented that indicated that a data collection programme was in place and that this information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types. Data collection is ongoing and adaptive to any new issues raised and SG 80 is met.</p> <p>On the other hand, to get SG 100 the assessment team should have to evaluate the measures in place to detect any change in the habitats. Due to the condition in this PI is closed by surveillance third more control in this issue would be needed to get the maximum scoring and at this stage of the certification SG 100 is not fully met.</p>	
References	<p>AFBI Report. The improved characterisation and quantification of mussel seed beds around the Island of Ireland.</p> <p>AFBI (2011) Stock assessment report</p> <p>BIM seed mussel survey reports</p> <p>AFBI report Dredging of Seed Mussel adjacent to the Outer Ards Peninsula SPA and the Copeland Island SPA</p> <p>ABFI (2010). Dredging for Seed Mussels within Donaghadee Sound</p> <p>http://www.gsi.ie/</p> <p>Kaiser, M., Laing, I., Utting, S. and Burnell, J. 1998 Environmental impact of bivalve mariculture. Journal of Shellfish Research. 17: 58-66</p> <p>MJ Kaiser, KR Clarke, H Hinz, MCV Austen, PJ Somerfield, I Karakakkis 2006 Global analysis of response and recovery of benthic biota to fishing Marine Ecology Progress Series 311</p> <p>Dolmer, P., Kristensen, T., Christiansen, M. L., Petersen, M. F., Kristensen, P. S. And Hoffmann, E. (2001) Short-term impact of blue mussel dredging (<i>Mytilus edulis</i> L.) on a benthic community. Hydrobiologia. 465: 115-127</p> <p>Outer Ards Seed Mussel Stock Assessment, 2016. AFBI</p> <p>Seed Mussel Surveys report for 2016. BIM</p> <p>Report Supporting Appropriate Assessment of the impact of seed mussel fishing and relaying on Castlemaine Harbour SAC and SPA. Marine Institute</p> <p>Burial Island and the feathers video Survey. June 2016 AFBI.</p>	
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER (if relevant):		NA

10.1.5 Revised Performance Indicator (PI) Scores

Principle	Wt (L1)	Component	Wt (L2)	PI No.	Performance Indicator (PI)	Wt (L3)	Weight in Principle	Score
One	1	Outcome	0.5	1.1.1	Stock status	0.333	0.1667	100
				1.1.2	Reference points	0.333	0.1667	80
				1.1.3	Stock rebuilding			
				1.1.4	Genetic Outcome	0.333	0.1667	80
		Management	0.5	1.2.1	Harvest strategy	0.25	0.125	80
				1.2.2	Harvest control rules & tools	0.25	0.125	80
				1.2.3	Information & monitoring	0.25	0.125	80
				1.2.4	Assessment of stock status	0.25	0.125	80
Two	1	Retained species	0.1667	2.1.1	Outcome	0.333	0.0556	100
				2.1.2	Management	0.333	0.0556	100
				2.1.3	Information	0.333	0.0556	100
		Bycatch species	0.1667	2.2.1	Outcome	0.333	0.0556	100
				2.2.2	Management	0.333	0.0556	80
				2.2.3	Information	0.333	0.0556	80
		ETP species	0.1667	2.3.1	Outcome	0.333	0.0556	80
				2.3.2	Management	0.333	0.0556	80
				2.3.3	Information	0.333	0.0556	80
		Habitats	0.1667	2.4.1	Outcome	0.333	0.0556	80
				2.4.2	Management	0.333	0.0556	80
				2.4.3	Information	0.333	0.0556	80
		Ecosystem	0.1667	2.5.1	Outcome	0.333	0.0556	80
				2.5.2	Management	0.333	0.0556	75
				2.5.3	Information	0.333	0.0556	75
		Translocation	0.1667	2.6.1	Outcome	0.333	0.0556	80
				2.6.2	Management	0.333	0.0556	85
				2.6.3	Information	0.333	0.0556	80
Three	1	Governance and policy	0.5	3.1.1	Legal & customary framework	0.25	0.125	85
				3.1.2	Consultation, roles & responsibilities	0.25	0.125	85
				3.1.3	Long term objectives	0.25	0.125	100
				3.1.4	Incentives for sustainable fishing	0.25	0.125	90
		Fishery specific management system	0.5	3.2.1	Fishery specific objectives	0.2	0.1	80
				3.2.2	Decision making processes	0.2	0.1	75
				3.2.3	Compliance & enforcement	0.2	0.1	95
				3.2.4	Research plan	0.2	0.1	70
				3.2.5	Management performance evaluation	0.2	0.1	80

10.1.6 Revised Principle level scores

Principle	Overall Principle level scores
Principle 1 – Target species	83.3
Principle 2 – Ecosystem	84.2
Principle 3 – Management	85.0

10.2 Appendix 2. Stakeholder submissions

In advance of the on-site visit four email submissions were received.

Email #1 – Mussel Alliance 30/10/2016

Email #2 – Mussel Alliance 09/11/2016

Email #3 – Mussel Alliance 06/12/2016

Email #4 – Email from Stakeholder requesting Conference Call

Each submission and the Assessment Team's response is provided below:

Email #1: Mussel Alliance 30/10/2016:

From: Vessel Owner [<mailto:musselalliance@gmail.com>]

Sent: 30 October 2016 19:35

To: Jean Ragg <Jean.Ragg@saiglobal.com>

Subject: Re: Notification of Release of 2nd Surveillance Report : Ireland and Northern Ireland bottom grown mussel fisheries

You should be aware by now that fishing by NI/UK boats has been declared illegal and taking seed from Republic of Ireland's waters for UK shellfish farms in Belfast and UK sites in Carlingford is also illegal. You were made aware of this previously and the fishing by UK unlicensed fishing vessels in the mussel fishery.

Quite obviously you have compromised your credentials for a cheque. All industry will now know the credibility of organisation.

The link below doesn't relate to the decent fishermen that are about the Irish industry but they are your MSC chosen clients that demanded MSC for their Dutch factories.

Shame on you and those who paid you!

Email #2: Mussel Alliance 09/11/2016:

From: Vessel Owner <musselalliance@gmail.com>

Date: 06/12/2016 18:40 (GMT+00:00)

To: Virginia Polonio <Virginia.Polonio@saiglobal.com>

Subject: Re: Notification of 3rd Annual Surveillance Assessment for the Ireland and Northern Ireland Bottom Grown Mussel Fisheries

Dear Virginia,

Let us be quite clear. The mussel fishery you have given MSC status has been proven to be illegal. Some of the vessels you approved have been operating unlicensed and some of the mussel seed have been stolen.

Perhaps your organisation was simply used as a distraction so the MSC status could be presented in court. However the facts of the Supreme Court ruling (below) completely vindicate our position presented to your organisation many times. Your certification of this mussel fishery completely undermines the credibility of your certification process.

Please read the SC judgement below!

[10/27/2016](#) Barlow & ors -v- Minister for Agriculture, Food and the Marine & ors Supreme Court

Email #3: Mussel Alliance 06/12/2016:

From: Vessel Owner [<mailto:musselalliance@gmail.com>]

Sent: 09 November 2016 18:50

To: Jean Ragg <Jean.Ragg@saiglobal.com>

Subject: Re: Notification of 3rd Annual Surveillance Assessment for the Ireland and Northern Ireland Bottom Grown Mussel Fisheries

As per our last message. Most of the mussels under your label were caught illegally by either unlicensed UK vessels fishing in UK waters. UK vessels fishing in Irish waters and mussel seed taken from Irish waters to UK shellfish farms by Irish mussel vessels (The Irish minister was not legally correct to be allocating Irish mussels to UK shellfish farms). Illegal Illegal Illegal! MSC was used as a pawn in an effort to make some in BIM and the Irish Department look legal. This was always Illegal and your team was well advised to hold back any accreditation until the courts had ruled.

Please see attached below the advice to NI fishermen from their producer organisation and the basis upon which he advises his fishermen.

Introduction

The Judgement described in the above submissions is discussed in Section 4.2. (Relevant changes to Legislation and Regulations). As a result of the Judgement vessels registered in NI can no longer fish for mussel seed in Irish waters; however, as this Judgement was only reached in the Supreme Court of Ireland, IE registered vessels may still fish in NI waters.

Assessment Team response to Email #1

As noted in the opening paragraph of the submission, fishing by NI boats in Irish waters has been found to have no basis in law and the taking of mussel seed from Irish waters for re-laying in NI sites is also now prohibited. It is important to note that the Supreme Court did not find that the Voisinage arrangements were unlawful per se but that, as it stands, there is insufficient legal provision for them. The Mussel Alliance have previously, in submissions made both at the initial assessment and surveillance stages of the Certification cycle, made SAI Global's Assessment Teams aware of an ongoing court challenge relating to fishing by NI vessels in Irish waters. It is this court challenge that came to a conclusion in October 2016 with the issuing of the Judgement discussed above.

SAI Global's Assessment Teams have at all times acted with the utmost integrity in evaluating the Ireland and Northern Ireland Bottom Grown Mussel Fisheries against the requirements of the MSC Standard. Furthermore, SAI Global's Assessment Teams have always adhered rigidly to MSC's accredited process requirements when conducting evaluations of the fisheries.

The submission provided a link to a newspaper article, [Mussel dredgers leave Dublin coastline 'smelling like corpses'](#), published in the Irish Independent Newspaper on 30th October 2016. The article variously links the Irish Sea seed mussel fishery to falling catches by anglers and small commercial fishers, swarms of stinging jellyfish, the "extinction" of the Dublin Bay prawn (*Nephrops norvegicus*) in Dublin Bay and the presence of a foul smell in some inshore areas. As discussed in detail in the original report and subsequent surveillance reports there are measures in place to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types. It is the determination of the Assessment Team that the article merely provides a series of

anecdotal reports and does not provide any new evidence that would have a material impact on the team's evaluation of the Irish Sea seed mussel fishery against MSC requirements.

Assessment Team response to Email #2

The assertion in the opening paragraph that fishing by NI boats in Irish waters has been proven to be illegal is not strictly correct. The Supreme Court did not find that the Voisinage arrangements were unlawful per se but that, as it stands, there is insufficient legal provision for them. The assertion that mussel seed has been stolen is difficult to reconcile with the fact that fishing NI vessels was always actively managed with the full knowledge of Irish fishery management authorities.

As discussed previously, SAI Global's Assessment Teams have at all times acted with the utmost integrity in evaluating the Ireland and Northern Ireland Bottom Grown Mussel Fisheries against the requirements of the MSC Standard. Furthermore, SAI Global's Assessment Teams have always adhered rigidly to MSC's accredited process requirements when conducting evaluations of the fisheries.

The submission is correct in that the Mussel Alliance's position that fishing by NI boats in Irish waters had and indeed has no basis in law has been vindicated by the Judgement of the Supreme Court; this position has also as mentioned been presented to SAI Global's Assessment Teams on numerous occasions. Until the issuing of the Judgement it was the position of management that the Voisinage Agreement was lawful and the fishery was managed in accordance with this belief; DAFM's position resulted, at least in part, from a previous High Court Judgement that had found in their favour. Following the Judgement, DAFM confirmed that any fishing by NI vessels in Irish waters for mussel seed would be illegal and is prohibited.

While the Mussel Alliance's position in relation to the legal standing of the Voisinage Agreement has indeed been vindicated, the Assessment Team is confident that this change does not lead to the fisheries contravening any of the MSC Certification Requirements. In fact, the court process involving the legality or not of NI vessels fishing in Irish waters is further evidence of the effectiveness of the fisheries' dispute resolution processes.

Assessment Team response to Email #3

In relation to the opening statement and as noted in the response to the previous submission, fishing by NI boats in Irish waters has not been found to be unlawful per se but that, as it stands, there is insufficient legal provision for them. Until the Supreme Court Judgement was delivered in October 2016, the DAFM managed the Irish Sea seed mussel fishery with the well intentioned belief that the Voisinage Agreement provided sufficient legal provision for management arrangements between IE and NI. DAFM's belief was based on the fact that the Department's position had previously been found in favour of in a High Court Judgement on the same case. The Supreme Court Judgement to the contrary was as a result of an appeal against that earlier High Court Judgement.

Upon the issuing of the Supreme Court Judgement DAFM moved immediately to prevent access by NI registered vessels to Irish waters. Furthermore the Irish government, through the Minister responsible Minister Michael Creed, have confirmed that they intend to bring a Bill before the Dáil to provide "*sufficient legal provision for Northern Irish vessels to resume the reciprocal fishing access of the Voisinage arrangements*".

Regarding MSC being used in an effort to make some in BIM and DAFM look legal. The MSC Programme is entirely voluntary and has no legal standing. Being MSC certified only implies that a fishery is managed according to what the MSC's own definition of what well-managed means, as contained within the MSC Standard.

The attachment provided with the submission is a statement from Northern Ireland Fish Producers Organisation Ltd (NIFPO) to its members informing them of the Supreme Court Judgement and advising them to stay out of Irish state territorial waters.

Again the Assessment Team is confident that changes as a result of the October 2016 Supreme Court Judgement does not lead to the fisheries contravening any of the MSC Certification Requirements. In the Assessment Team's view the NIFPO statement is evidence that NI vessels intend to comply with the Court Judgement and remain outside Irish waters until such time as the provisions of the Voisinage Agreement have been properly provided for in law.

Assessment Team response to Email #4 – Email from Stakeholder requesting Conference Call

The Assessment Team held a conference call with the stakeholder concerned.

The Stakeholder expressed concerns that non-MSC mussels could be sold as MSC certified. The Stakeholder seemed unaware of MSC Chain of Custody requirements. The Assessment Team briefly described CoC requirements and agreed to forward on more information on CoC requirements by email.

Following the meeting the Team provided some background information to the concerned stakeholder relating to MSC CoC requirements.

10.3 Appendix 3. Surveillance audit information

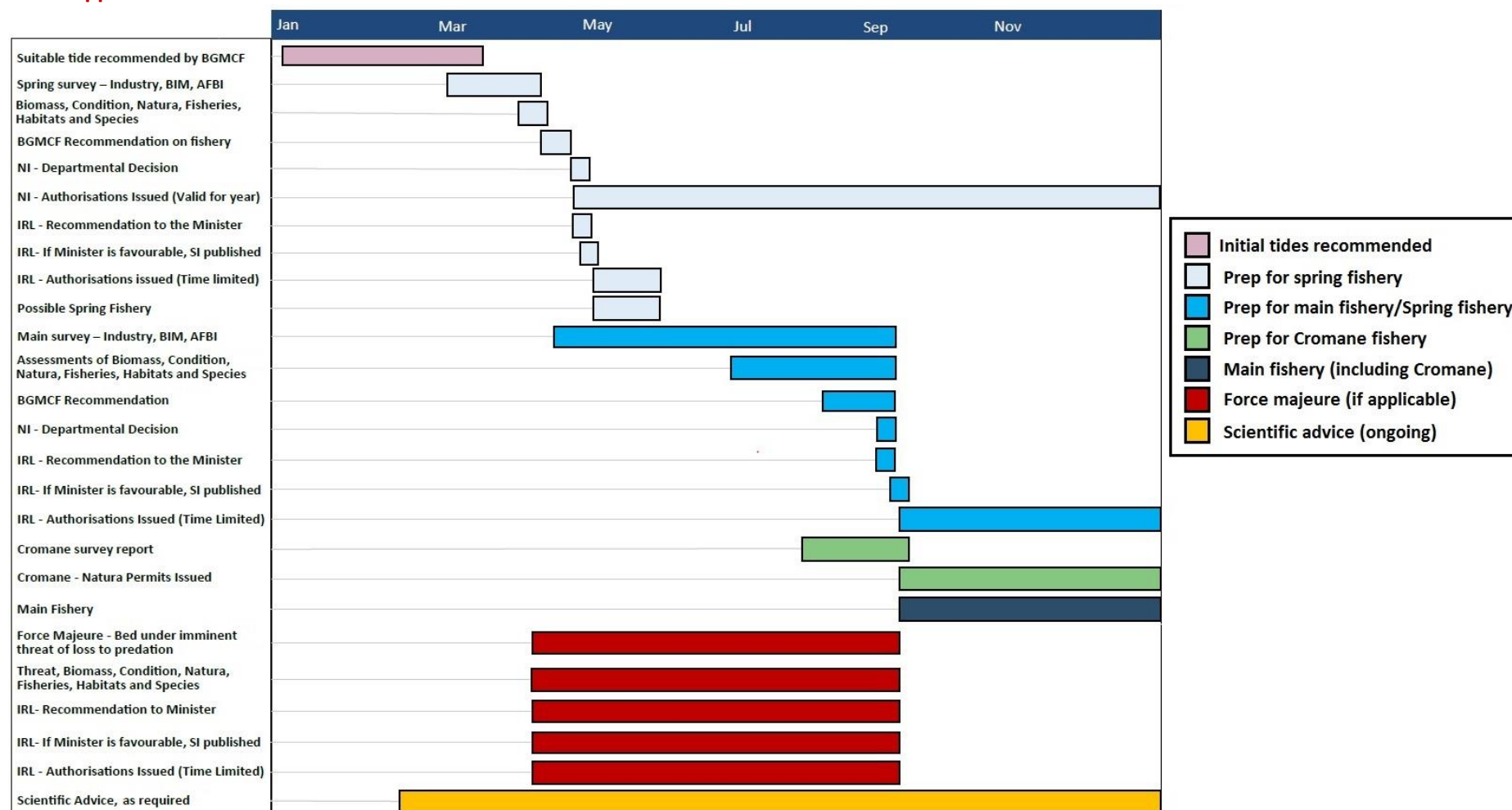


Figure 2. Seed Fishery – Decision Schedule.

Table 11. 2016 bycatch survey data.

Bed	Rosslare	Rosslare	Rosslare	Rosslare	Rosslare	Bar Buoy	Rusk	Rusk	Rusk	Rusk	Rusk	Carlingford	Carlingford	Carlingford	Carlingford
Sample	1	2	3	4	5	1	1	2	3	4	5	1	2	3	4
Bed Size (ha)	72	72	72	72	72	39	74	74	74	74	74	310	310	310	310
Bed Size (km2)	0.72	0.72	0.72	0.72	0.72	0.39	0.74	0.74	0.74	0.74	0.74	3.1	3.1	3.1	3.1
Dredge width (m)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dredge width (km)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Speed (knots)	2.2	2.2	2.2	1.5	1	1	2.2	1.5	1.5	1.5	1.5	2	2	2	2
Speed (km/hr)	4.07	4.07	4.07	2.775	1.85	1.85	4.07	2.775	2.775	2.775	3.7	3.7	3.7	3.7	3.7
Length of tow (m)	100	50	80	50	40	180	58	36	34	30	76	57	57	73	68
Length of tow (km)	0.1	0.05	0.08	0.05	0.04	0.18	0.058	0.036	0.034	0.03	0.076	0.057	0.057	0.073	0.068
Towing Time (Hr)	0.02457	0.012285	0.019656	0.018018	0.021622	0.097297	0.014251	0.012973	0.012252	0.010811	0.020541	0.015405405	0.015405405	0.01972973	0.018378378
Swept area (Km2)	0.0001	0.00005	0.00008	0.00005	0.00004	0.00018	0.000058	0.000036	0.000034	0.00003	0.000076	0.000057	0.000057	0.000073	0.000068
Total Weight (kg)	61	72	70	70	65	80	66.22	36.22	40.1	27.5	52.5	2	3	1	0.45
Bycatch Weight (kg)	19.1	0.7	1.6	1.2	1.75	0.3	0.22	1.22	3.1	3.5	5.5	0.4	0.5	0.66	0
Mussel Weight (kg)	41.9	71.3	68.4	68.8	63.25	79.7	66	35	37	24	47	1.6	2.5	0.34	0.45
Bycatch Density (kg/km2)	191000	14000	20000	24000	43750	1666.667	3793.103	33888.89	91176.47	116666.7	72368.42	7017.54386	8771.929825	9041.09589	0
Bycatch Biomass (Bed) Kg	137520	10080	14400	17280	31500	650	2806.897	25077.78	67470.59	86333.33	53552.63	21754.38596	27192.98246	28027.3973	0
ByCatch Biomass (Bed) t	137.52	10.08	14.4	17.28	31.5	0.65	2.806897	25.07778	67.47059	86.33333	53.55263	21.75438596	27.19298246	28.0273973	0
Bycatch average (t)	42.156					0.65	47.04825					25.67760404			
Mussel Density (kg/km2)	419000	1426000	855000	1376000	1581250	442777.8	1137931	972222.2	1088235	800000	618421.1	28070.17544	43859.64912	4657.53425	6617.647059
Mussel Biomass (Bed) kg	301680	1026720	615600	990720	1138500	172683.3	842069	719444.4	805294.1	592000	457631.6	87017.54386	135964.9123	14438.3562	20514.70588
Mussel Biomass (Bed) t	301.68	1026.72	615.6	990.72	1138.5	172.6833	842.069	719.4444	805.2941	592	457.6316	87.01754386	135.9649123	14.4383562	20.51470588
Mussel Bed Average (t)	814.644						683.2878					470.8650519			
Weed/Hydro/Bryo	100g	50 g	200g	200g	150g	100g	60g	<10g	<10g	50g	15 g	320g kelp	120g mix	500g kelp	
Sea Squirt						2						70g (5 ciona int.)	280g (>20 indiv Ciona	130g (13 ciona int.)	
Mixed Crab			200g (Hermit, Swimming, Velvet)	300g (Velvet, Swimming, Porcelain, Brown)	100g (Porcelain, Velvet, Swimming)	200g (Hermit, Velvet, Green)	20 g (small velvet, small swimmin)	50 g (small velvet and small swimmin)	<20g (1 small swimmin g, 2 ermit)		< 20g(4 small swimmin g, 1 ermit)				
Green Crab												1	3 (150g)		
Spider Crab	44 (19 Kg)	2 (0.65Kg)	3 (1 Kg)	3 (0.7 Kg)	3 (1.5 kg)			1 (0.6 kg)	2 (3kg)	3 (3kg)	5 (5kg)				
Velvet Crab	3	3													
Porcelain Crab	1														
Swimming Crab	1	1								1	4				
Hermit Crab										2	1	1			
Brown Crab															
Squat Lobster					1										
Dog Whelk				1	1	1									
Star Fish			200g	1		1	4 (150g)	10 (520g)	1 (30g)	6 (450 g)	9 (460g)				
Brittle Star			1	1											
Shrimp			3			5				1	9				
Worms		25	10	3				3		3					
Anemone		3	6					2							
Urchin			2		1										
Butterfish			2		1	2									
Scorpion Fish			1												
Juvenile Fish (Fry)						3									
Nudibranch				2											
Flat fish								1							
Whelk								2							
Philine (white gasteropod)															1

Table 11. 2016 bycatch survey data cont.

Bed	Carlingford	Belfast	Belfast	Belfast	Belfast	Belfast	Belfast	Wexford	Wexford	Wexford	Wexford	Wexford	Wexford	Castlemaine
Sample	6	1	2	3	4	5	6	1	2	3	4	5	6	1-8
Bed Size (ha)	310	421.4	421.4	421.4	421.4	421.4	421.4	491.01	491.01	491.01	491.01	491.01	491.01	137.08
Bed Size (km2)	3.1	4.214	4.214	4.214	4.214	4.214	4.214	4.9101	4.9101	4.9101	4.9101	4.9101	4.9101	1.3708
Dredge width (m)	1	4	4	4	4	4	4	2.5	2.5	2.5	2.5	2.5	2.5	2
Dredge width (km)	0.001	0.004	0.004	0.004	0.004	0.004	0.004	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.002
Speed (knots)	1.8	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.8	2.8	2.8	2.8	2.8	2.5
Speed (km/hr)	3.33	4.625	4.625	4.625	4.625	4.625	4.625	5.18	5.18	5.18	5.18	5.18	5.18	4.625
Length of tow (m)	59	30	25	30	25	25	25	40	35	35	35	35	35	480
Length of tow (km)	0.059	0.03	0.025	0.03	0.025	0.025	0.025	0.04	0.035	0.035	0.035	0.035	0.035	0.48
Towing Time (Hr)	0.017717718	0.006486	0.005405	0.006486	0.005405	0.005405	0.005405	0.007722	0.006756757	0.006756757	0.006756757	0.006756757	0.006756757	0.103783784
Swept area (Km2)	0.000059	0.00012	0.0001	0.00012	0.0001	0.0001	0.0001	0.0001	0.0000875	0.0000875	0.0000875	0.0000875	0.0000875	0.00096
Total Weight (kg)	1	200	250	200	275	200	225	200	175	180	194	200	120	4000
Bycatch Weight (kg)	0.5	0.5	0.75	0.1	0.5	0.25	0	0.5	0.1	0.5	0.1	0.5	0.25	3.3
Mussel Weight (kg)	0.5	199.5	249.25	199.9	274.5	199.75	225	199.5	174.9	179.5	193.9	199.5	119.75	3996.7
Bycatch Density (kg/km2)	8474.576271	4166.667	7500	833.3333	5000	2500	0	5000	1142.857143	5714.285714	1142.857143	5714.285714	2857.142857	3437.5
Bycatch Biomass (Bed) kg	26271.18644	17558.33	31605	3511.667	21070	10535	0	24550.5	5611.542857	28057.71429	5611.542857	28057.71429	14028.85714	4712.125
Bycatch Biomass (Bed) t	26.27118644	17.55833	31.605	3.511667	21.07	10.535	0	24.5505	5.611542857	28.05771429	5.611542857	28.05771429	14.02885714	4.712125
Bycatch average (t)		14.04667						17.65298						4.712125
Mussel Density (kg/km2)	8474.576271	1662500	2492500	1665833	2745000	1997500	2250000	1995000	1998857.143	2051428.571	2216000	2280000	1368571.429	4163229.167
Mussel Biomass (Bed) kg	26271.18644	7005775	10503395	7019822	11567430	8417465	9481500	9795650	9814588.457	10072719.43	10880781.6	11195028	6719822.571	5706954.542
Mussel Biomass (Bed) t	26.27118644	7005.775	10503.4	7019.822	11567.43	8417.465	9481.5	9795.65	9814.588457	10072.71943	10880.7816	11195.028	6719.822571	5706.954542
Mussel Bed Average (t)		8999.231						9746.432						5706.954542
Weed/Hydro/Bryo	5g red seaweed	100g	50g (lamin)	15g	100g	100g				15g		100g	75g	
Sea Squirt	1				50g									
Mixed Crab														
Green Crab					1			4	1	3	1	4		2
Spider Crab														
Velvet Crab													1	
Porcelain Crab														
Swimming Crab														
Hermit Crab														1
Brown Crab									1					
Squat Lobster														
Dog Whelk														
Star Fish		5	10	2	4	2				1	2		1	31 (7-18cm)
Brittle Star														
Shrimp														
Worms														
Anemone														
Urchin														
Butterfish														
Scorpion Fish														
Juvenile Fish (Fry)														
Nudibranch														
Flat fish														
Whelk			1 (25g)										1	
Philine (white gasteropo)														

10.4 Appendix 4. Revised Surveillance Program (if necessary)

The surveillance Program has not been revised and the Surveillance Level remains Level 6.

Table 12. Fishery Surveillance Program

Surveillance Level	Year 1	Year 2	Year 3	Year 4
Level 6	<i>On-site surveillance audit</i>	<i>On-site surveillance audit</i>	<i>On-site surveillance audit</i>	<i>On-site surveillance audit & re-certification site visit.</i>