

Project UK: Round 2 UK Scallop

Year 4 report

May 2023

Report Information

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1.Introduction

1.1 Introduction

Project UK includes 12 fisheries, through eight Fishery Improvement Projects (FIPs). These fisheries were selected by the supply chain because they bring commercial, economic, and cultural benefits to UK communities. As part of Project UK, these FIPs address 61 individual actions. These actions address multiple milestones across a five-year period, representing best practice in working towards an environmentally sustainable future.

The first round of FIPs¹ to participate in Project UK (Channel scallop, monkfish, plaice & lemon sole, and crab & lobster) were launched in 2017, the second round of FIPs were launched in 2019 for nephrops and wider UK scallops. So far, these fisheries have made demonstrable progress against their Action Plans, focusing on developing and documenting progress in stock assessment, fisheries data and mitigating environmental impacts.

The UK scallop FIP comes to its five year end in April 2024. This report forms the Annual Review for the end of year 4 and will document the position of the FIP with respect to individual Performance Indicators (PI) and scoring guideposts (SG) of the current (version 2.1) MSC Fisheries Standard.

The **Marine Stewardship Council** (MSC) has contracted **Poseidon Aquatic Resource Management Ltd** to provide technical advice to the FIPs and conduct annual benchmarking of progress against the action plans. This contract also covers this final review and action plan update.

1.2 Structure of the report

This report has been divided into three main parts:

1. **Annual review:** this assesses what progress has been made over the past year in addressing the actions in this FIP up to the end of year four in the five year FIP timescale.
2. **Benchmark:** this provides the scoring of the FIP at the end of year 4 to demonstrate where PI scores have changed within the categories of <60, 60-79 and ≥80.
3. **Revised pre-assessment:** this section documents the position of the FIP UK scallop fishery with respect to individual Performance Indicators (PI) and scoring guideposts (SG) of the (version 2.1) MSC Fisheries Standard.

1.3 Scope of the FIP

The stock assessment areas included within this FIP are presented in Figure 1.

2. Annual Review end of Year 4

This section presents the annual review for the UK scallop FIP based on work progressed during year 4.

¹ Following the success of Round 1, the Round 2 UK scallop and Nephrops FIPs were launched in 2019. Each includes three fishery areas around the UK (North Sea, West of Scotland, and Irish Sea), and so operate on a larger scale than Round 1 FIPs.

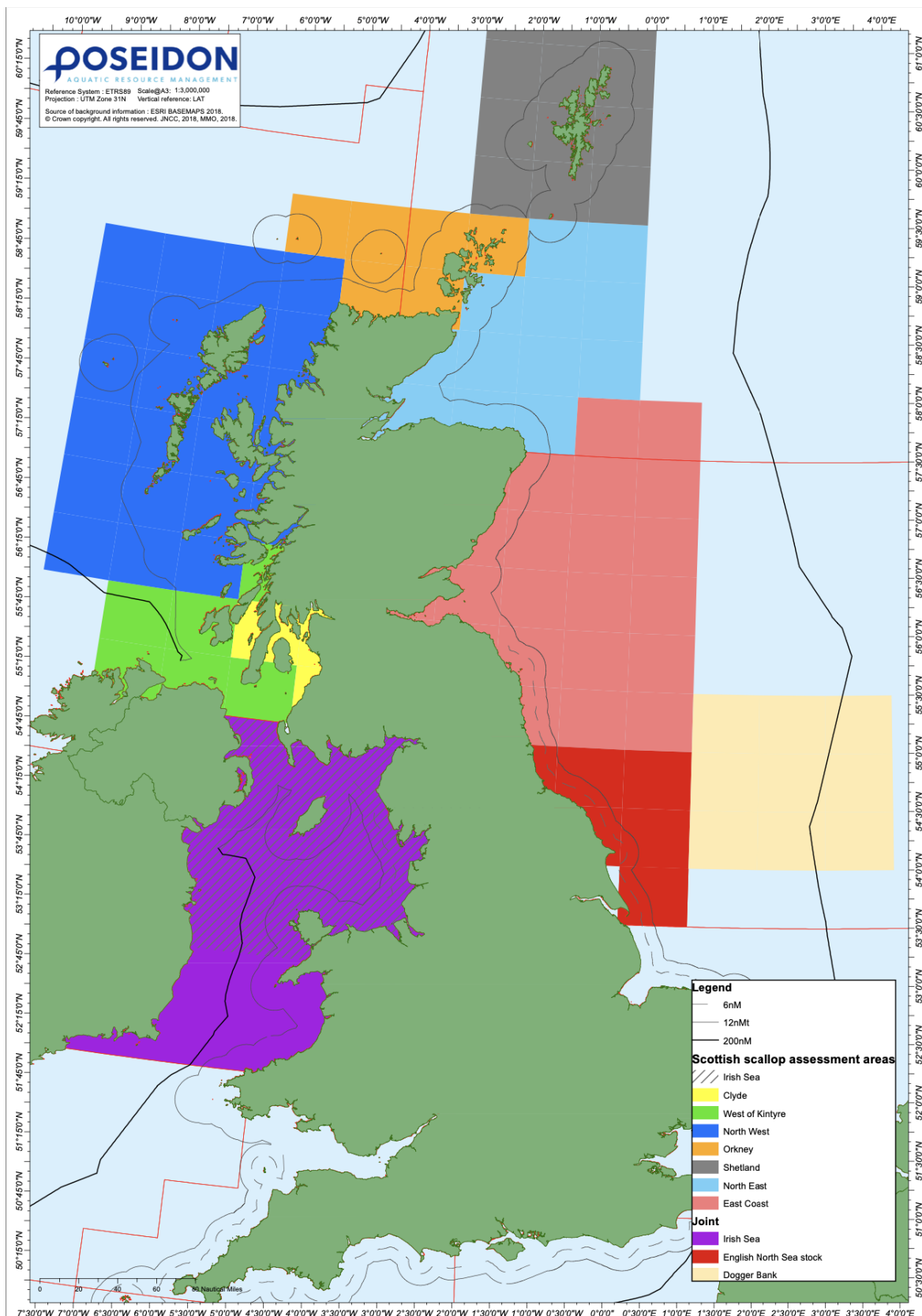


Figure 1: UK king scallop stock assessment areas included in the FIP [Note: there is a Prohibition Order overlapping most of the Dogger Bank]


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Overview

Fishery name: UK North Sea, West of Scotland and Irish Sea King Scallop (<i>Pecten Maximus</i>)			Start date: 25 March 2019		
Fishery location: ICES Divisions 4, 6a, 7a			Fishing methods:		Annual reviews:
UoA	Stock Area	ICES Division	Mechanical dredge		End Year 1: April 2020 Completed 14 April 2020
1	West of Kintyre	6a			End Year 2: April 2021 Completed 19 May 2021
2	North West	6a	UoA vessels: all UK vessels		End Year 3: April 2022 Completed 13 April 2022
3	North East	4			End Year 4: April 2023 Completed 10 May 2023
4	East Coast	4	Project leaders: Project UK Fisheries Improvements – Round 2		End Year 5: April 2024
5	Clyde	6a			
6	Orkney	4, 6a			
7	North Sea South	4			
8	Dogger Bank	4			
9	Irish Sea	7a			
Improvements recommended by: 					

Overview of the Action Plan:

This [Action Plan](#) has been undertaken as part of Project UK Round 2 and is applicable to UK vessels using mechanised dredge targeting king scallop in the North Sea, West of Scotland and Irish Sea. It has been informed by an MSC pre-assessment (completed in March 2019), quarterly steering group meetings and a review process at end of each year. Actions and milestones have been completed for the MSC performance Indicators (PIs) that fail to reach Scoring Guideposts (SG) 60 and/or 80. The Action Plan highlights an ambitious set of actions designed to raise the scores over a defined period to a point at which the fishery could enter MSC assessment. The focus of the action plan is outlined for each MSC Principle below.

Principle 1 (target stock):

- defining appropriate reference points,
- development of a **Harvest Strategy**,
- development of **harvest control rules and tools** at stock level,
- undertake surveys for data poor stocks.

Principle 2 (ecosystem):

- understanding the catch composition,
- interactions with ETP species & additional management requirements in an **ETP Strategy**.
- assessment of commonly encountered and VME habitats impacts,
- development of a UK Scallop **Habitat Management Plan**
- introduction of vessel monitoring systems on all vessels to record the footprint of the fishery accurately / reliably.

Principle 3 (management):

- development of a **Fisheries Management Plan**,
- documenting stakeholder roles and responsibilities,
- development of short- and long-term fishery objectives,
- organised and effective cooperation with other parties.

It should be noted that a separate FIP for the UK Channel (7d & 7e) king scallop fishery is being undertaken by Project UK Round 1.

Colour code in tables below:

Principle 1

Principle 2

Principle 3

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Annual Review (end of year 4)

This section summarises the annual review process at the end of year 4 in a five year Fisheries Improvement Project (FIP) for the UK North Sea, West of Scotland and Irish Sea king scallop dredge fishery. This section provides a review of the progress made in year 4 and the focus of actions for year 5.

Main findings

Overall, the UK scallop FIP is currently behind target, with only one of the expected eleven score changes being achieved during this last annual period. For the West of Kintyre, North West, North East and East Coast Scottish stocks, at the end of year 4, five MSC PIs fail to reach SG60 and 13 are within the 60-79 category. Full BMT scoring sheets are available in Section 3.

Substantial work has progressed within the FIP, including stock surveys across most of the Scottish areas, the English North Sea and development of approaches for stock assessment in the Irish Sea. There has been clear progress for the English scallop fishery through the development of an English and Welsh King Scallop Fishery Management Plan, development and refinement of co-management roles including the responsibilities of specific groups and organisations, specifically the SICG and the SICG Working Group (that is drafting the FMP), development and ongoing implementation of consultation processes on the first draft of the FMP, including organisation of future in-person and remote workshops; continuation of stock surveys and annual stock assessment, including definition of an MSY harvest rate reference point for the Yorkshire/Durham stock (27.4.b.S).

There is a clear delineation between progress and approach for stock assessment and management of the scallop fishery, with the development of a UK wide FMP no longer being developed. Currently, the delivery mechanism for a Scottish scallop FMP is unclear, with a lack of clarity on the role or remit of the SSSWG.

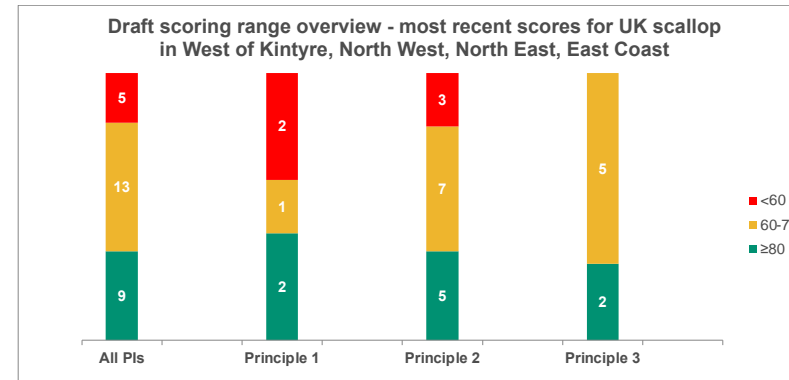
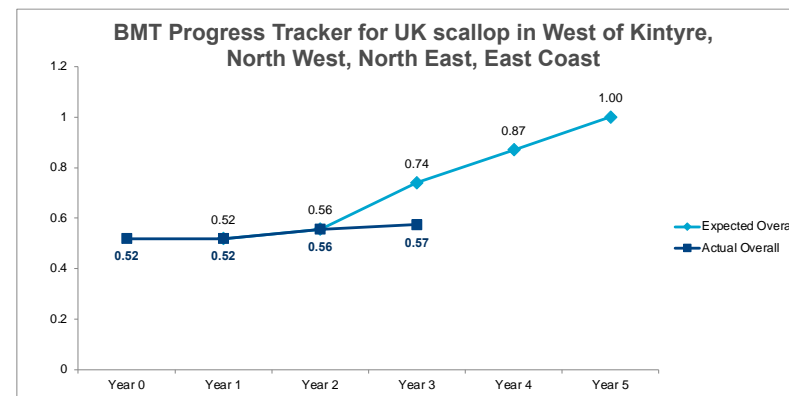
The scallop habitat PhD has made significant progress through the modelling and assessment of the relative benthic status of more and less sensitive habitats taking account of recovery rates and depletion rates. Furthermore, the implementation of Remote Electronic Monitoring is almost at 100% for all Scottish vessels.

P3 actions in year 3 continued to focus on addressing Fisheries-Specific Management, through development of a FIP level Fisheries Management Plan (FMP). Drafting is underway with individual Steering Group members responsible for relevant sections of the FMP.

Recommended actions in year 5

For Principle 1 significant work remains on agreeing the most appropriate form of management (TAC, effort, spatial, etc), ensuring an inclusive approach that can be agreed by all stakeholders across this UoA, including inshore and remote fleets (e.g. Scottish islands), and ensuring that the form of management can be responsive to the status of the stocks.

Principle 2 will continue to be informed by ongoing gear trials and the habitat PhD. A bycatch report on total catch from scallop dredge surveys (using both scientific dredge and commercial dredge gear) is expected to be published imminently. Principle 3 will focus on consulting on and progressing the FMP.



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Table 1: Action Plan

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 1: Stock status Overview Development and implementation of reference points to allow assessment of stock status of scallop stocks in relation to PRI and MSY. Performance indicator 1.1.1 Stock status 60-79 <u>Requirement at SG80:</u> It is highly likely that the stock is above the PRI The stock is at or fluctuating around a level consistent with MSY.	Action lead: Scotland: MSS, other areas: TBC Partners: Cefas, AFBI, Bangor University (IoM/Wales) Resources: ICES Scallop WG	1a. Yr1 – Review and define appropriate stock boundaries, including review of VMS data and biological data. Consideration of extent of biologically meaningful data available and requirement for further data/survey to support stock definition.	Complete Current stock boundaries are reviewed annually by the ICES Scallop WG. Boundaries are based on spatial VMS data reviewed at time of stock assessment and biological data on growth. Areas used for assessment fully encompasses VMS data. Current boundaries are considered appropriate. Further work to support stock definition: being considered at ICES WG (see annual reports), a PhD student at Strathclyde University is undertaking a meta-population connectivity analysis based on oceanographic modelling, with Heriot Watt (MK) as co-supervisor. Irish Sea stock boundary has been defined (see action 5b). Documentation: ICES Scallop WG 2019 report	
		1b. Yr. 3-4 - Consideration of appropriate reference points based on: <ul style="list-style-type: none"> stock surveys and TSA in Scotland where analytical stock assessment available. fishery-independent surveys and yield-per-recruit modelling in English stocks, AFBI and Isle of Man surveys in Irish Sea & Welsh surveys in Cardigan Bay. 	Update for end of Year 4 Behind target (Scotland and Northern Ireland) Marine Scotland Science (MSS) have completed stock surveys in 2019, 2021 and 2022, which adds to the 40 year timeline of surveys undertaken. Stock assessments have not yet been generated from the stock survey data and the 2016 stock assessment remains the latest available. MSS aspire to include exploring potential reference points as part of forthcoming work, however, to date, resource capacity has not made this possible. This topic remains a point for discussion within the ICES MSY reference points workshops and ICES WGScallop meetings, and is included as part of the ICES WGScallop terms of reference for the period (2022-2024), as follows: <i>Review scallop ICES stock categories and discuss possible reference points (following ICES guidelines from WKREF2).</i> The king scallop stock advice developed by AFBI (2023) provides trends in relation to landings per unit effort and stock survey index. Reference points are not defined, and trends are compared with the timeseries average values. The area surveyed by AFBI covers the Northern Irish territorial waters, overlapping with West of Kintyre and Irish Sea stock assessment areas. Action: <ul style="list-style-type: none"> Follow progress of WGScallop ToR item related to reference points. On target (England) The Cefas scallop stock assessment (Lawler et al, 2023) defined a MSY proxy for harvest rate (HR_{MSY}) for the English North Sea Yorkshire/Durham stock (27.4.b.S). See 5d for further details.	V3.1: changed to Yr. 3-4
		1c. Yr3-4 – Consultation on proposed reference points with ICES Scallop Working Group.	This milestone is yet to be commenced.	V3.1: changed to Yr. 3-4
		1d. Yr4 – Agreement of reference points in all scallop fishing areas, where possible. Presentation to fisheries	This milestone is yet to be commenced.	V3.1 changed to Yr. 4

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
		authorities.		
		1e. Yr4-5 – Assessment of stock status in relation to the newly-implemented reference points	This milestone is yet to be commenced.	V3.1 changed to Yr. 4-5
Action 2: Harvest strategy Overview Development of a harvest strategy which controls exploitation rate, incorporates reference points and an HCR and is responsive to the state of the stock. Ensure that there is a regular review of alternative measures for minimising mortality of unwanted catch. Performance indicator 1.2.1 Harvest strategy <60 <u>Requirement at SG80:</u> The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives reflected in PI 1.1.1 SG80. The harvest strategy is achieving its objectives (although may not be fully tested). There is a regular review of alternative measures of minimising mortality of unwanted catch.	Action leads: Seafish [2a]	2a. Yr1 - Investigate approaches for assessing both the discard rate and the survival rate of discarded unwanted small scallops. [This milestone is aligned with 6e]	This milestone is aligned with 6e. See progress reporting under 6e.	V2.3 aligned with 6e
	Action leads: SICG (Macduff / SWFPA) [2b-2f]. Partners: MSS, Cefas, AFBI, Bangor University, NIFPO, ANIFPO, Manx Fish PO, WFA.	2b. Yr1 – Consider options for controlling exploitation rate within the scallop fisheries.	Complete SICG management group have undertaken an assessment of interventions for the UK king scallop fishery. The draft report was circulated to industry for consultation prior to the final report being submitted to UK Government in Nov 2019. Current management can be summarised as follows per vessel length category: <ul style="list-style-type: none"> Over 15m – effort restrictions in Channel and Western Waters 10-15m – need scallop entitlement but no effort ceilings. under 10m – no scallop entitlement needed. There has been a growth in 10-15m fleet targeting scallops due to enacting latent entitlements. Seafish reported falling CPUE across the UK fishery. SICG proposed interventions options are summarised as follow: <u>Intervention 1: stop expansion of industry</u> <ul style="list-style-type: none"> Freeze latent scallop entitlements (already done in Scotland and Isle of Man). Cap effort in 10-15 and 10m vessels at current levels. This is considered the prerequisite to managing the fishery, as any measure would be ineffective if the fishery is still open to new entrants. <u>Intervention 2: management options</u> <ol style="list-style-type: none"> TACs – catch controls. Consider hybrid to prevent consolidation within inshore e.g. inshore and offshore TAC, regional TACs (as in Norway). Effort system – expand to all segments and all areas. Avoid displacement. Harmonise technical conservation measures – dredge limitations, Scottish system tighter and more prescriptive. Deliberately reducing efficiency of vessels, makes sense in effort system as limited by time. But not for TAC, as reducing efficiency increases footprint of fishery. Closed areas and closed seasons. SICG next steps: <ul style="list-style-type: none"> Earliest possible implementation of fleet measures to stop expansion. Develop management measures and timetable for implementation. Documentation: CEFAS status reports, Poseidon report, Seafish CPUE & scallop workshop in Feb 19.	
		2c. Yr2-3 – Consult with relevant authorities on options for controlling exploitation rate in the fisheries and/or	Update for end of Year 4 On target (England and Wales)	V3.1: changed to

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		other management measures for the scallop fishery.	<p>The English and Welsh Scallop FMP is being developed by a co-management group, including a formal consultation process. Further details are provided in 2e.</p> <p>Behind target (Scotland)</p> <p>There are currently no plans for a Scottish Scallop FMP, however Marine Scotland are being regularly updated on the progress of the English and Welsh Scallop FMP.</p> <p>Management measures being developed through the English and Welsh Scallop FMP will not be applicable to Scottish waters.</p> <p>It is expected that the scallop FMP will be developed by the Scottish Scallop Sector Working Group (SSSWG), but this is unconfirmed.</p> <p>Progressing (Northern Ireland)</p> <p>Scallops are included in the Northern Irish Inshore FMP which is currently under development. Consultation processes for this Inshore FMP have not yet commenced.</p>	Yr. 2-3
		2d. Yr. 2-3 – Consult with fisheries stakeholders including RIFGs and inshore fishermen on management measure options for the scallop fishery.	<p>Update for end of Year 4</p> <p>On target (England and Wales)</p> <p>The draft English and Welsh Scallop FMP will be available imminently for public consultation, ahead of formal publication in Autumn 2023.</p> <p>Behind target (Scotland)</p> <p>Engagement with Regional IFGs and inshore fishermen is crucial to ensure information from the inshore fleet is appropriately reflected and all sectors are fully engaged in the project, which will support successful implementation of the FMP.</p> <p>Currently in Scotland, decision making is centralised in Marine Scotland.</p> <p>The secretariat has engaged with RIFGs to raise awareness of the FIP and understand local management plans relevant to scallops.</p> <p>The Project UK Facilitator (MSC) maintains regular communication with Marine Scotland, with relevant updates included throughout the Action Plan.</p> <p>Currently, Marine Scotland have no plans to develop a scallop FMP and therefore there are no management measure options for consultation. This milestone is therefore behind target.</p> <p><u>Scotland's Fisheries Management Strategy 2020-2030</u></p> <p>Scotland's Fisheries Management Strategy 2020-2030 was published in Dec 2020. It commits to working in partnership wherever possible, including through established co-management groups FMAC (Fisheries Management and Conservation Group) and IFMAC (Inshore Fisheries Management and Conservation Group), and RIFGs. It commits to strengthening the role of RFGs, which could be supported through strengthening inshore licence conditions.</p> <p>Scotland's Fisheries Management Strategy (FMS) 2020-2030 has a 12 point Action Plan focused on social, environmental and economic sustainability, specifically of relevance to this FIP are the following FMS Action Points:</p> <p>Of relevance to Principle 1 FIP Actions:</p> <ul style="list-style-type: none"> FMS Action Point 8: expand use of TAC's where relevant. FMS Action Point 10: Catching Policy – stock management with responsive and proportionate technical and spatial measures. 	V2.3 Milestone added

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			<p>Of relevance to Principle 2 FIP Actions:</p> <ul style="list-style-type: none"> FMS Action Point 9: Remote Electronic Monitoring (REM) and vessel tracking technology to improve MPA compliance. FMS Action Point 11: Ecosystems based approach and protection for spawning and juvenile congregations. FMS Action Point 12: Support net-zero targets and reduce vessel emissions and reduce marine litter. <p>Of relevance to Principle 3 FIP Actions:</p> <ul style="list-style-type: none"> FMS Action Point 3: Policies around allocation of additional quota. FMS Action Point 6: Strengthening the RIFG network. FMS Action Point 7: Improve quota management arrangements. FMS Action Point 9: REM and technology tracking to deliver compliance and improve knowledge. <p>Progressing (Northern Ireland)</p> <p>The Northern Ireland Inshore FMP is being delivered by DAERA with a timetable for preparation and publication of 2022-2024. Consultation processes are expected, but the timing for this is unknown.</p>	
		<p>2e. Yr. 2-4 – Development of the scallop harvest strategy as part of the UK Scallop Fisheries Management Plan (FMP).</p>	<p>Update for end of Year 4</p> <p>On target (England and Wales)</p> <p>Under the UK Fisheries Act and as defined in the Joint Fisheries Statement (JFS), the King Scallop Fishery Management Plan is being developed as a joint plan between Defra and Welsh Government to cover stocks in English and Welsh waters out to 200 NM.</p> <p>The English and Welsh Scallop FMP is being developed by a co-management group, with a sub-group of the Scallop Industry Consultation Group (SICG) responsible for drafting the plan. Significant progress has been made in this process. A summary of objectives and measures being considered is provided below:</p> <p><u>Harvest strategy:</u></p> <ul style="list-style-type: none"> Robust HS, monitoring, stock assessment and HCR. Overarching aims and objectives; Pragmatic, cost effective, adaptive, easy to understand, iterative. Response to status of stock – stock areas. Clear fishery specific strategy. Updated as appropriate to meet management objectives. Biological, social and economic data will be included. <p><u>Management approaches:</u></p> <ul style="list-style-type: none"> High level based on working group discussions. Scientifically base output control. Scientifically based effort control. Seasonal closures. Harmonisation of measures. <p><u>Considerations when developing management approaches:</u></p> <ul style="list-style-type: none"> Apply to all commercial sectors – national, local, inshore, offshore. Improved efficiency. 	V4.1 timescale updated

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			<p>The timeline for the delivery of the FMP is as follows:</p> <ul style="list-style-type: none"> Public consultation on Draft FMP, from April/May 2023. Publication of 1st Iteration of FMP: planned for September 2023 2nd Iteration: is anticipated 12-18 months later. <p>It is understood that the 1st iteration will not specify the harvest strategy being adopted, but will list management approaches that will be discussed and progressed during consultation events and SICG working group discussions.</p> <p>The chosen management approach is expected to be set out within the 2nd Iteration (currently expected in March 2025).</p> <p>Behind target (Scotland and Northern Ireland)</p> <p>As per 2d above.</p>	
		2f. Yr3 – Agreement with fisheries administrations on the FMP for the scallop fisheries. Complete review of alternative measures for minimising mortality of unwanted catch.	<p>See update under 2d and 2e on FMPs.</p> <p>See update under 6e on alternative measures.</p>	
		2g. Yr5 – Implementation of the management plan which includes a harvest strategy that is responsive to the state of the stock.	This milestone is yet to be commenced.	V5.1 timescale updated
		2h. Yr5 – Noting that the harvest strategy may not have been fully tested, provide evidence that the new harvest strategy is working and achieving its objectives.	This milestone is yet to be commenced.	
<p>Action 3: HCR&T</p> <p>Overview</p> <p>Development of a harvest control rule which takes into account uncertainty and provides evidence that the tools in use are effective in reducing exploitation rate if required.</p> <p>Performance indicator</p> <p>1.2.2 Harvest control rules and tools</p> <p><60</p> <p><u>Requirement at SG80:</u></p> <p>Well-defined HCRs are in place that ensure exploitation rate is reduced</p>	<p>Action leads: SICG (Macduff / SWFPA)</p> <p>Partners: UK fisheries administrators (UK FAs), MSS, Cefas, AFBI, Bangor University</p>	3a. Yr5 – Consider options for reference points and associated HCRs.	<p>Update for end of Year 4</p> <p>Behind target (England)</p> <p>As described in 1b and 5d a reference point for harvest rate MSY has been defined for the Yorkshire/Durham stock (27.4.b.S). However, no harvest control rules are defined in relation to any fisheries management reference points. It is anticipated that harvest control rules will be defined when an overall harvest strategy is agreed, which will define the management approach (e.g., effort based, catch based or other technical measures).</p> <p>Behind target (Scotland and Northern Ireland)</p> <p>As per Milestone 1b, reference points have not yet been defined. These will be based on advice from MSS, Cefas and ICES Scallop WG. Reference points are very much on the agenda, but have not been agreed as yet.</p> <p>The delivery mechanism for a Scottish scallop FMP is unclear, although it is expected to be developed by the Scottish Scallop Sector Working Group (SSSWG), but this is unconfirmed.</p> <p>There will not be a single UK-wide scallop plan, as Scotland and Northern Ireland will develop their own regional plans. The Trade and Cooperation Agreements (TCA) requires multiyear strategies (known as "MYS"), with scallops being considered as a MYS candidate.</p>	<p>V5.1 timescale updated</p> <p>V4.1 timescale updated</p> <p>V1.7: changed to Yr. 2-3</p> <p>V5.1</p>

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<p>as PRI is approached and stock is expected to be consistent or above MSY. HCRs are likely to be robust to the main uncertainties.</p> <p>Available evidence indicates that tools in use are effective in achieving exploitation rates required under HCR.</p>		3b. Yr5 - Consult with relevant authorities on proposals for HCRs.	As per 3a.	
		3c. Yr4 - Agreement on preferred option for HCR	This milestone is yet to be commenced.	
		3d. Yr4-5 – Implementation of HCR.	This milestone is yet to be commenced.	
		3e. Yr5 – Provide evidence that indicates the tools in use are appropriate and effective in achieving exploitation rates required by the HCR e.g. evidence that exploitation rate has been reduced if required.	This milestone is yet to be commenced.	
<p>Action 4: Information Overview</p> <p>Implementation of annual stock surveys in Orkney, Clyde and English North Sea fisheries to provide information on stock structure and estimates of stock abundance.</p> <p>Performance indicator</p> <p>1.2.3 Information and monitoring</p> <p>60-79 (Orkney only)</p> <p><u>Requirement at SG80:</u></p> <p>Sufficient relevant information related to stock structure, stock productivity, fleet composition is available to support the harvest strategy. Stock abundance and UoA removals are regularly monitored at a level of accuracy and coverage consistent with the harvest control rule.</p>	<p>Action leads: MSS, Cefas [4a-4d]</p> <p>Partners: SICG (Macduff / SWFPA) CFA, OFA, Bangor University, AFBI, Marine Institute</p>	4a. Yr1 – Undertake gap analysis to identify possible information gaps across all stock assessment areas identified and conduct necessary research/information gathering as required.	<p>Complete</p> <p>The ICES Scallop WG undertook a gap analysis for stock assessment areas in 2015. Summary tables were produced, and gaps identified for improved knowledge including biological sampling and survey design. This gap analysis is reviewed every three years to agree priorities for the WG. The current 3-yr period is from 2019 to 2021 and therefore a review of priorities is expected in 2022.</p> <p>MSS note a data gap in the work being undertaken on UK scallops is that the MSS surveys are undertaken in Scottish waters only, and this will not be representative of the entire fishing area for this FIP. Additionally, only a relatively small area is surveyed, which is often returned to, and MSS does not have data on habitat ground. It is noted Cefas are undertaking survey work for the English North Sea stock.</p> <p>In 2019 dredge efficiency was identified as a key area and a review paper on dredge efficiency has been undertaken.</p> <p>Documentation: ICES Scallop WG reports.</p> <p>Action:</p> <ul style="list-style-type: none"> Circulate technical review report on dredge efficiency (available 2020 or 2021) 	
		4b. Yr1 (and yearly thereafter) - Consultation with relevant authorities (Marine Science Scotland and Cefas) in relation to extending annual stock surveys.	<p>Update for end of Year 4</p> <p>On target</p> <p>Scotland:</p> <p>MSS completed scallop stock surveys in 2023 for six stock assessment areas: Clyde, West of Kintyre, North West, North East, East Coast and Shetland. Surveys were not undertaken by MSS in Orkney or the Irish Sea. In 2023, MSS intend to utilise the data collated across the timeseries of surveys to provide updated stock assessments. The last stock assessment was published in 2016.</p> <p>As reported in the Year 3 annual review, Orkney Sustainable Fisheries (OSF) resumed observer trips on scallop vessels in August 2021. The primary objectives for the OSF scallop project are to determine the relative abundance of king scallop resources around Orkney, and to produce a heat map of fishing effort. The secondary objectives focus determining optimum tow durations and gear efficiency, and assessing the bycatch levels.</p> <p>Northern Ireland: The AFBI scallop survey went ahead in 2022 and has informed a Scallop Advice Sheet published in 2023.</p>	

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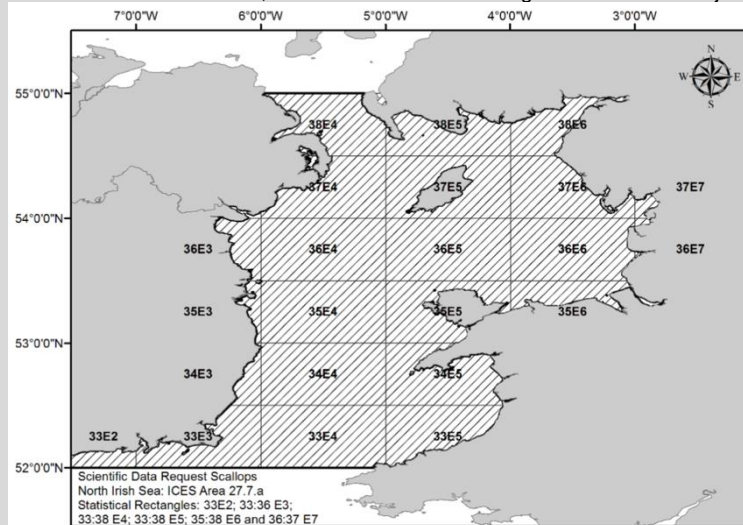
Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			<p>England: Cefas successfully carried out a dredge survey in 2022 and subsequent stock assessment in 2023. It is confirmed that Cefas' stock assessment remit covers North Sea English waters.</p> <p>Wales: With the inclusion of Cardigan Bay within the scope of the FIP it may be appropriate for Natural Resources Wales (NRW) to engage with the Steering Group.</p>	
		<p>4c. Yr1 & Yr2 (and yearly thereafter) - Alternative options for stock assessment. Feasibility and resource assessment for implementing stock surveys.</p>	<p>On target</p> <p>MSS are exploring use of cameras on dredges and gear specifications. Orkney Sustainable Fisheries have established scallop research projects which aim to collect biological information on scallops around Orkney. This will provide regionally specific information that can be used to assess the sustainability of the fishery and aid stock definition.</p> <p>The ICES WGScallop 2020 report provides an update on recent/current stock assessment methods and explores other methodologies; including comparisons with fishery dependant indicators. Specifically it explored Norwegian examples and highlighted how sensitive reference point estimates are to assumptions made on key population dynamic parameters, including natural mortality and recruitment.</p> <p>The ICES WGScallop 2023 report highlights the information sharing across scientific bodies involved in scallop stock assessment and continuous review of available assessment methods and appropriateness for specific stock assessment areas.</p> <p>Resource availability for routine stock assessments for Orkney and the Irish Sea is not known.</p>	
		<p>4d. Yr3 (and yearly thereafter) – Instigate annual stock surveys in Orkney, Clyde and Irish Sea (where relevant).</p>	<p>Progressing</p> <p>Clyde: Annual stock surveys have been undertaken for the Clyde stock assessment area for 2019, 2021 and 2022.</p> <p>Orkney: OSF conduct observer trips on scallop vessels, but no further update on forthcoming scallop stock surveys.</p> <p>Irish Sea: The ICES WGScallop 2023 report documents work on progressing a stock assessment for the Irish Sea including five intersessional subgroup meetings; use of available VMS and logbook data to consider various models (Vector Autoregressive Spatial-Temporal Model (VAST) and SPict) and standardized survey indices. A stock annex has been drafted for king scallops in the Irish Sea.</p>	
<p>Action 5: Assessment Overview</p> <p>For the Orkney, Clyde and English North Sea scallop fisheries, an appropriate method of stock assessment should be developed, and the method should take uncertainty into account.</p> <p>Performance indicator</p>	<p>Action leads:</p> <p>MSS [5a] Bangor / IoM [5b] MSS/ Bangor/ IoM/ Cefas [5c-5e]</p> <p>Partners: CFA, OFA, Bangor University, AFBI, Marine Institute, SICG</p>	<p>5a. Yr1 – Investigate feasibility of undertaking stock surveys in Orkney and Clyde. Consider appropriate stock boundaries.</p> <p>5b. Yr1 – Investigate scope of collaborative survey being undertaken in Irish Sea by researchers in Ireland, Isle of Man and Wales. Undertake gap analysis of scope of all Irish Sea assessments.</p>	<p>Complete</p> <p>Orkney Sustainable Fisheries are going ahead with a scallop survey for Orkney and funding has been secured for next year (see action 5c).</p> <p>The Clyde survey has been completed by MSS, with industry (CFF) input related to information sharing on ground conditions and station positions (see action 5c).</p> <p>Complete</p> <p>ICES WG Scallop 2020 report details their ToR (c): 'Collate all available data and attempt to conduct a stock assessment for the north east Irish Sea'.</p> <p>A list of data sources was then collated from Northern Ireland (AFBI), Isle of Man (Bangor University), Wales (Bangor University), Ireland (Marine Institute) and Scotland (Marine Scotland). The ICES WG Scallop 2020 report has the most up-to-date synopsis.</p> <p>This ToR (c) will run for three years with the expected deliverable at the end of this period of a Stock Assessment for the North Irish Sea (i.e. 2023). The area included in the assessment is shown below</p>	

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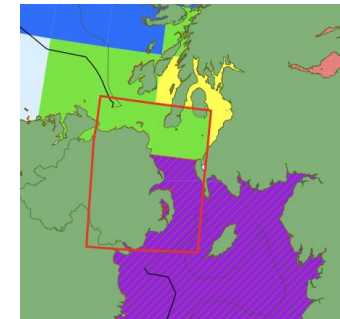
Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
<p>1.2.4 Assessment of stock status</p> <p>60-79 (Orkney only)</p> <p><u>Requirement at SG80:</u></p> <p>The assessment is appropriate for the stock and for the harvest control rule.</p> <p>The assessment takes uncertainty into account.</p>	<p>(Macduff / SWFPA)</p> <p>Resources: ICES Scallop WG</p>		<p>(ICES area 7.a). The WG will agree the most appropriate scale of assessment including: single area, spatially structured assessments and fully separated sub-area assessments. The scale will be based on stock identification science, rather than fisheries management boundaries/ jurisdictions.</p>  <p>Scientific Data Request Scallops North Irish Sea: ICES Area 27.7.a Statistical Rectangles: 33E2; 33:36 E3; 33:38 E4; 33:38 E5; 35:38 E6 and 36:37 E7</p> <p>Documentation: ICES Scallop WG 2019 and 2020 reports</p>	
		<p>5c. Yr2-4 – Undertake initial stock survey in Orkney, Clyde and Irish Sea (subject to gap analysis).</p>	<p>Complete</p> <p>Orkney and Clyde stock surveys have been completed – reporting not currently available for Orkney. Irish Sea stock assessment is part of ICES WG Scallop ToR and being progressed in a three-year time frame (2020-2023).</p> <p>Note that the stock areas/boundaries within the Irish Sea (7a) are being considered and expected to be further defined into distinct stock areas as knowledge grows.</p> <p><u>Northern Ireland:</u></p> <p>AFBI carried out a scallop survey in the Irish Sea in Feb 2020. In the Irish Sea, AFBI have identified six survey “areas” from which stations are selected randomly on an annual basis. In 2020 the areas within the Irish Sea showed mixed results with four showing a reduction in the standardised CPUE and two showing an increase in CPUE. AFBI do not currently have a stock assessment but do examine trends in the stock. Following from the 2020 survey the Irish Sea continues to show a downward trend in CPUE.</p>	<p>V2.3 changed to Yr. 2-4 (Irish Sea survey timeframe)</p>
		<p>5d. Yrs3 & 4 – Continue stock surveys in Orkney, Clyde, English North Sea and Irish Sea (where relevant).</p>	<p>Progressing</p> <p><u>Update for end of Year 4</u></p> <p>Irish Sea</p> <p>The WGScallop report documents work on progressing a stock assessment for the Irish Sea including five intersessional subgroup meetings; review of data for application to various models (Vector</p>	

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone																									
			<p>Autoregressive Spatial-Temporal Model (VAST) and SPiCT), standardized survey indices, and development of a draft stock annex for scallops in the Irish Sea.</p> <p>Northern Irish water</p> <p>AFBI provided scallop advice in 2023 for the area depicted to the right, which overlaps with Northern Irish territorial waters, and the MSS defined stock assessment areas of West of Kintyre and Irish Sea.</p> <p>AFBI advised that landings of scallops should be reduced in line with the survey index and commercial declines in landings per unit effort (LPUE) since 2014. Fishing pressure is currently above average and survey index for stock is decreasing and below average (see below).</p> <p>It is advised that landings in 2023 should be no more than 507 tonnes (noting that in 2021, 466 tonnes were landed).</p> <div><div><table><tr><th colspan="4">Fishing Pressure</th><th colspan="5">Survey Index</th></tr><tr><th>2019</th><th>2020</th><th>2021</th><th rowspan="2">Increasing; Above average</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th rowspan="2">Decreasing; Below average</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></div></div> <p>English North Sea</p> <p>The Cefas scallop stock assessment published in April 2023 (Lawler et al, 2023) established a harvest rate (HR) MSY reference point for the dredged portion of the North Sea Yorkshire/Durham stock (27.4.b.S). This allows the harvest rate from 2018 to 2021 to be reviewed with respect the HR_{MSY}, as depicted below. The HR dropped from 2018 to 2019 (from just above 45% to 15%), and has grown steadily from 2019 to 2021, up to just under 40%. There is not sufficient timeseries to assess the likely status of the stock with certainty, however the indication is that the harvest rate has been above and below HR_{MSY} across the period assessed and fishing pressure is currently above the level that would support MSY. Based on the updated stock assessment for the English North Sea (Yorkshire/Durham) stock, this meets SG80 for assessment of stock status.</p>	Fishing Pressure				Survey Index					2019	2020	2021	Increasing; Above average	2019	2020	2021	2022	Decreasing; Below average								
Fishing Pressure				Survey Index																									
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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			<p>North Sea, Yorkshire/Durham (27.4.b.S)</p> <p>Harvest rate, on dredged portion of stock (dredge survey only), %</p> <p>2018 2019 2020 2021</p> <p>Harvest rate MSY</p> <p>Marine Scotland Science surveys</p> <p>Stock surveys have been completed by MSS. Information has not been incorporated into stock assessments, with the 2016 stock assessments remaining the latest available (which were reported upon in the pre assessment). During 2023, MSS intends to undertake annual surveys, complete a scallop stock assessment and design and produce a survey report (ICES WGScallop, 2023).</p>	
		<p>5e. Yr5 - Continue stock surveys in Orkney, Clyde, English North Sea and Irish Sea (where relevant), and all other UoAs, and use TSA or other appropriate model to undertake stock assessments.</p>	<p>This milestone is yet to be commenced.</p>	
<p>Action 6: Secondary species</p> <p>Overview</p> <p>Information on the nature and scale of effect of this fishery on secondary species needs to be assessed. Some quantitative data should be available. Based on this, appropriate management measures need to be developed.</p> <p>Performance indicators</p> <p>2.2.1: 60-79</p>	<p>Action leads:</p> <p>Seafish [6a-6c]</p> <p>To be decided in Yr. 2 [6d-6f]</p> <p>Partners: SICG (Macduff / SWFPA), SFF, Gear Innovation and Technology Advisory Group (GITAG)</p> <p>MS, Defra</p> <p>Cefas</p>	<p>6a. Yr. 1-2 – Review existing data available to inform catch profile of scallop dredgers including landings, discard data and observer coverage.</p>	<p>Completed</p> <p>Seafish have assembled information on survival of secondary species and will incorporate into review of alternative measures.</p> <p>The NMPi has data on scallop catch rate. Recognise need for more transparency on data collating.</p> <p>Bycatch was previously on the ICES Scallop WG terms of reference, but has been removed for the next three years due to priority being focused on stock assessments.</p> <p>Marine Scotland Science's (MSS) scallop dredge survey uses scientific gear on one side and commercial dredges on the other, so comparison between scientific and commercial gear types/methods can be made (both are 6 dredges per side).</p> <p>The catch data from 2009 - 2019 scallop surveys provides quantitative data on the proportion of catch.</p> <p>Marine Scotland Science's (MSS) scallop dredge survey show indications of presence, absence and diversity of bycatch species. The data collected would not be defined as total catch data as the scientific survey gear is only designed to catch scallops, it is not representative of the catch from commercial dredges. MSS continues to work on a bycatch paper and progress has been made recently on writing up</p>	<p>V2.3: changed to Yr. 1-2</p>

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
<p>2.2.2: 60-79 2.2.3: ≥ 80 <u>Requirement at SG80:</u> 2.2.1. Outcome status: Main secondary species are highly likely to be above biologically based limits, or if below there is evidence of recover or a demonstrably effective partial strategy. 2.2.2. Management: A partial strategy is in place for the UoA that is expected to maintain or not hinder rebuilding of main secondary species at/to levels which are highly likely to be within biologically based limits or to ensure that the UoA does not hinder their recovery. SG80: regular review and implemented as appropriate. 2.2.3. Information: Information is adequate to support a partial strategy to manage main secondary species.</p>	Stakeholders: Poseidon (support)		<p>the report. MSS is working on gathering weight data and that, for most species, length-weight keys are already available. The steering group members agree to share information on weight-length keys where available.</p> <p>It is noted to collect comprehensive total catch data, it would be necessary to have observers on board vessels; there are no current proposals to have observers on board.</p> <p><u>Update for Northern Ireland:</u> AFBI are currently working up bycatch data based on scallop survey work and hope to publish this as a report. Due to this, it is not possible to release AFBI bycatch records. However, information on a particular species may be feasible to provide if required.</p> <p>Subject to reviewing the MSS Bycatch Report, the steering group will consider how to address collection of total catch data.</p>	
		6b. Yr. 1-2 - Undertake gap analysis on data to determine if the appropriate level of detail is available to provide reliable total catch statistics, including unwanted catch and unobserved mortality.	<p>Completed</p> <p>The MSS bycatch report has been drafted and provides quantitative data on total catch from scientific dredge and commercial dredge gear. This paper is not yet published.</p>	V2.3: changed to Yr. 1-2
		6c. Yr. 1-3 - Based on gap analysis undertake necessary data / information gathering exercises e.g. observer coverage, underwater video analysis of unobserved mortality where considered necessary.	<p>Update for end of Year 4</p> <p>Behind target</p> <p>Scotland</p> <p>The MMS Bycatch Report has not yet been published.</p> <p><u>Subject to reviewing the MSS Bycatch Report, the steering group will consider how to address collection of total catch data.</u></p> <p>MSS highlight importance of industry participation in gathering catch composition data. Work undertaken by Bangor for Channel scallop FIP included cameras on vessels, which could be replicated to collect more information on catch composition for this FIP. MSS do not have the resources for such work. Industry steering group members to discuss with their members to be involved in such a study (if necessary).</p> <p>Northern Ireland</p> <p>All bycatch from AFBI scallop surveys is identified and logged. The ICES WGScallop (2023) report documents that "In total 67 taxa, including Pecten maximus, were recorded. The common starfish (<i>Asterias rubens</i>) was the most abundant bycatch species and was found at 28 of the stations surveyed. The queen scallop (<i>Aequipecten opercularis</i>) was the second most abundant species and the edible urchin (<i>Echinus esculentus</i>) the third most abundant. The proportion of the catch made up of bycatch species ranged from 19% to 77%."</p> <p>England</p> <p>Cefas have published a paper on the catch composition for King scallop dredges in ICES divisions 7d and 7e. Comparable information is not yet compiled for the English North Sea Yorkshire / Durham stock.</p>	V2.3: changed to Yr. 1-3
		6d. Yr. 2-3 – Based on these investigations, establish accurate main	Behind target	V3.1 changed to

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		secondary elements of the UoA (and primary elements, should they arise).	As per 6c.	Yr2-3 due to Covid.
		6e. Yr. 2 – Establish a protocol / process for undertaking a regular review of alternative measures to minimise unwanted catch. Undertake review and document effectiveness and practicality of alternative measures. [This milestone is aligned with 2a]	Complete The review has been completed and compiled into a comprehensive report. It is noted that the key points to an alternative measures document are: <ul style="list-style-type: none"> • identifying if there are better ways to catch the target stock. • whether the alternative measure will negatively impact other species, or the safety of the crew. • whether the alternative measure is cost-prohibitive to fishers; and, • whether it is feasible and legal to implement these changes Seafish have completed an alternative measures paper to review alternative scallop dredge gear and management measures and document their effectiveness at minimising mortality. This is relevant for both target species (P1) and secondary species. The Steering Group agree to continue discussing ongoing work into alternative measures on a regular basis. Update for end of Year 4 Alternative measures continue to be reviewed regularly; ICES WG Scallop members recently contributed to the review paper, "A global review of catch efficiencies of towed fishing gears targeting scallops" being published in Reviews in Fisheries Science and Aquaculture.	
		6f. Yr. 3 – Development of possible management approaches to reduce impacts on secondary species.	This milestone is yet to be commenced.	
		6g. Yr. 4 – Implement management as appropriate.	This milestone is yet to be commenced.	
Action 7: ETP species Overview Information on the nature and scale of impacts on ETPs needs to be assessed. Based on this, appropriate management measures need to be developed. This needs to be embedded in an on-going, risk-based ETP impact monitoring system. Performance indicators 2.3.1: <60 2.3.2: <60 2.3.3: 60-79 <u>Requirement at SG80:</u>	Action leads: LINK Partners: SNH, MSS, WWF, Natural England, DERA, JNCC, SICG (Macduff / SWFPA) Stakeholders: Poseidon (support)	7a. Yr. 1 – Define and agree ETP list.	Complete Through the Environment sub-group, WWF have reviewed the ETP list in the pre-assessment, added to this list and reviewed with SNH LINK JNCC and other stakeholders to ensure a comprehensive list of ETP species.	
		7b. Yr. 1-2 - GIS-based risk assessment. Listing of potential ETPs interacting with UoAs, and then mapping of ETP distribution overlap with UoA dredging effort.	Complete The group agree that for data and information, the most reliable species distribution lists and survey/scientific data should be sought through SNH and JNCC. These datasets include third party records (e.g. from divers), where appropriate. Master's student completed report on GIS-based risk assessment, focused on aerial overlap and encounterability. The report was a useful platform for future work to build on but there were concerns around the results and conclusions. In terms of next steps, the group agreed that further sources of data should be collated to inform any follow up research.	V1.7 updated to Yr1-2 (due to timing of Masters)
		7c. Yr. 2 - Development of fishery dependant recording protocol, to record, analyse and monitor ETP interactions and outcomes (e.g. returned alive).	Complete Update for end of Year 4 An ETP Interaction Log has been developed in excel format. The Steering Group consider that this	

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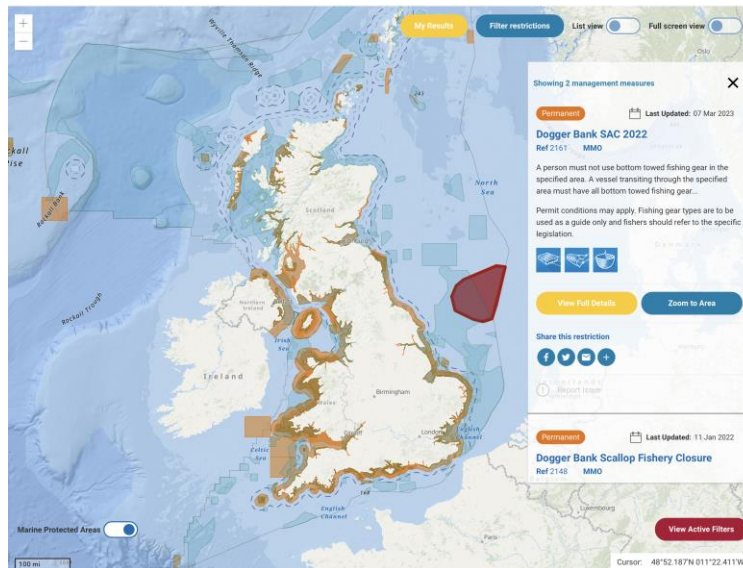
Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
<p>2.3.1. Outcome status: Known direct effects of the UoA are highly likely to not hinder recovery of ETP species.</p> <p>2.3.2. Management: There is a strategy in place, with objective basis for confidence that it will work and regular review of potential effectiveness and practicality of alternative measures to minimise mortality</p> <p>2.3.3. Information: Some quantitative information is adequate to assess UoA related mortality of ETP species</p>			action is more efficiently delivered through an App for recording ETP interaction through a hand held device (such as mobile phone). The Clean Catch App is a wildlife bycatch reporting application which is currently being trialled and tested by UK fishermen (namely related to the Cornish gill net fishery). The Clean Catch App has been extended to include dredge gear type and it is expected to be trialled further with fishermen operating dredge gear in the next 6-months.	
		7d. Yr. 3-4 – Development of possible management approaches for reducing ETP interactions and impacts, if necessary.	<p>Progressing</p> <p>Update for end of Year 4</p> <p>The UK Government launched a “Marine wildlife bycatch mitigation initiative” in August 2022. See: https://www.gov.uk/government/publications/marine-wildlife-bycatch-mitigation-initiative</p> <p>Management measures related to Marine Protected Areas are in a process of staged development and implementation, which is expected to be completed for all MPAs by end of 2024.</p> <p>Highly Protected Marine Areas (HPMAs) form part of the MPA network, and will be no take zones. The first three HPMAs in English waters are expected to come into force by 6 July 2023 (including: North East of Farnes Deep, Allonby Bay in the Solway Firth and Dolphin Head in the English Channel). For Scotland, 10% of Scottish seas are proposed to be HPMAs, with work commencing in 2023 to determine site selection, with designation expected in 2026.</p>	V3.1 updated to 3-4
		7e. Yr. 2 – Establish a protocol / process for undertaking a regular review of alternative measures to minimise UoA related ETP mortality. Undertake review and document effectiveness and practicality of alternative measures.	<p>Complete</p> <p>Update for end of Year 4</p> <p>The Alternative Measures Report has been supplemented with information on gear interaction with ETP species, gear penetration of the seabed, and the extent of knowledge on seabed recovery relevant to ETP species.</p> <p>Further details under 6e</p>	
		7f. Yr. 4-5 - Implementation of recording protocol and pilot projects for ETP management approaches.	<p>Behind target</p> <p>Update for end of Year 4</p> <p>The Clean Catch App has not yet been trialled or implemented by the dredge fishery.</p>	V5.1 timeline updated
		7g. Yr. 4-5 - Mainstreaming of ETP management approaches and introduction of a risk-monitoring system.	This milestone is yet to be commenced.	V5.1 timeline updated
<p>Action 8: Habitats Overview</p> <p>The scale of impact on commonly encountered habitats needs to be assessed to determine the risk of serious harm resulting from UoA operation across the entire fleet and the entire range</p>	<p>Action leads: LINK, SNH, MS Heriot Watt Uni</p> <p>Partners: Seafish Bangor Uni WWF, Global Fishing Watch</p>	8a. Yr. 1-2 - Review of existing fishery footprint analysis combined with commonly encountered habitats mapping and VMEs, including Scottish PMF habitats and MPA and SAC habitat features.	<p>Complete</p> <p>A 3-year PhD (2020-2022) is underway titled: Understanding the consequences of scallop dredging in relation to seabed habitat types, conservation features and other industry sectors.</p> <p>Amalgamated VMS data has been analysed for >12m vessels.</p> <p>Access to >12m fleet VMS data from Marine Scotland is possible at trip level (i.e. requiring in-person visit to Aberdeen offices – delayed due to Covid).</p> <p>The <12m fleet mapping will be done using social science techniques. Covid-19 dependent, this work should start in Spring 2021 and will improve mapping already undertaken within the PhD.</p> <p>The PhD has undertaken a review paper on examples of scallop fishery management worldwide, with a focus on management of seabed habitat impacts. Mapping has been produced to present the best</p>	V1.7 updated Yr. to 1-2 due to PhD appointment in Jan 2020.

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<p>of the habitats.</p> <p>The spatial scale, intensity and impact on commonly encountered and VMEs, needs to be quantified within the UoA. Based on this, appropriate management approaches need to be developed.</p> <p>This needs to be embedded in an on-going, risk-based habitat impact monitoring system.</p> <p>Performance indicator</p> <p>2.4.1: <60</p> <p>2.4.2: <60</p> <p>2.4.3: 60-79</p> <p><u>Requirement at SG80:</u></p> <p>2.4.1. Outcome status: The UoA is highly unlikely to reduce structure and function of commonly encountered habitats to a point where there would be serious harm.</p> <p>2.4.2. Management: There is a partial strategy in place to achieve Habitat Outcome 80 level. There is some quantitative evidence that management is being implemented and UoA complies with VME related management.</p> <p>2.4.3. Information: There is reliable information on the spatial extent of interaction and timing and location of use of fishing gear. Adequate information continues to be collected to detect any increase in risk to main habitats.</p>	JNCC	<p>8b. Yr. 1-3 – Provide a summary of scallop management measures within MPAs, SACs and any other designated sites.</p>	<p>Progressing</p> <p>Update for end of Year 4</p> <p>The Dogger Bank SAC implemented management measures to prohibit all bottom contact gears as of April 2022 via the Dogger Bank Special Area of Conservation (Specified Area) Bottom Towed Fishing Gear Byelaw 2022.</p> <p>Seafish Kingfisher Information Service launched the UK Fishing Restrictions mapping tool, available at: https://kingfisherrestrictions.org</p> <p>This mapping tool allows selection of gear type (i.e. scallop dredge) to map all spatial management measures specific to this fishery, together with MPA locations. This can be viewed on board vessels on plotters by importing positional data from the Kingfisher resource. An example is shown below.</p>  <p>In addition, as part of the PhD, a desk-based review of current management measures for global scallop fisheries has been undertaken. The report is currently under review, prior to being disseminated to the FIP.</p>	V3.1 updated Yr. to 1-3 due to PhD appointment in Jan 2020.
		8c. Yr2-4 – Assessment of scallop dredge impact on habitats, including	Progressing	V2.5 updated to Yr. to 2-3

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		analysis via Bangor University habitat assessment tool.	<p>Update for end of Year 4</p> <p>During Year 4 the PhD project adopted the Bangor habitat impact tool to analyse Relative Benthic Status for more sensitive and less sensitive habitats as defined below:</p> <table><tr><th>More sensitive habitats include:</th><th>Less sensitive habitats include:</th></tr><tr><td><ul style="list-style-type: none">• Blue mussel beds• Flame shell beds• Horse mussel beds• <i>Sabellaria spinulosa</i> reefs• Northern sea fan and sponge communities• Sea grass beds• Maerl beds• Serpulid reefs• Offshore deep muds• Tidal swept algal communities• Tide swept coarse sands with burrowing bivalves• Kelp and seaweed communities on sublittoral sediment• Offshore subtidal sands and gravels• Carbonate mound communities• Cold water coral reefs</td><td><ul style="list-style-type: none">• Circalittoral coarse sediment• Circalittoral mixed sediment• Circalittoral mud• Circalittoral sand• Infralittoral coarse sediment• Infralittoral mixed sediment• Infralittoral mud• Infralittoral sand• Offshore circalittoral coarse sediment• Offshore circalittoral mixed sediment• Offshore circalittoral mud• Offshore circalittoral sand• Upper bathyal sediment</td></tr></table> <p>Relative Benthic Status is calculated using the following formula:</p> $RBS = 1 - \frac{\text{fishing effort} \times \text{depletion rate}}{\text{recovery rate}}$ <p>Each habitat element has a different depletion rate and recovery rate that is entered into the modelling equation. The formula generates answers ranging from 0 to 1, where 0 is completely depleted and 1 is not impacted. An RBS score of less than 0.8 indicates that SG80 for habitat outcome status is unlikely to be met and therefore management measures may be appropriate.</p> <p>The RBS analysis was undertaken for each ICES Division: 4a,b&c (North Sea), 6a (West of Scotland) and 7a (Irish Sea). RBS scores of less than 0.8 were mapped together with VME records and fishery restrictions (closures), to investigate where potential risk exists. An example of the mapping outputs for the West of Scotland is shown below, indicating the RBS related to scallop dredging for the area, the specific locations where RBS <0.8; the c-squares with VME records and the locations of scallop fishery closures.</p> <p>Further work will be undertaken to assess potential overlaps at a higher resolution using vessel tracks to determine the likelihood of overlap of gear with VME records within the C-squares identified.</p> <p>The results below will be developed into a reporting output. This work will inform the development of a habitat management plan.</p>	More sensitive habitats include:	Less sensitive habitats include:	<ul style="list-style-type: none">• Blue mussel beds• Flame shell beds• Horse mussel beds• <i>Sabellaria spinulosa</i> reefs• Northern sea fan and sponge communities• Sea grass beds• Maerl beds• Serpulid reefs• Offshore deep muds• Tidal swept algal communities• Tide swept coarse sands with burrowing bivalves• Kelp and seaweed communities on sublittoral sediment• Offshore subtidal sands and gravels• Carbonate mound communities• Cold water coral reefs	<ul style="list-style-type: none">• Circalittoral coarse sediment• Circalittoral mixed sediment• Circalittoral mud• Circalittoral sand• Infralittoral coarse sediment• Infralittoral mixed sediment• Infralittoral mud• Infralittoral sand• Offshore circalittoral coarse sediment• Offshore circalittoral mixed sediment• Offshore circalittoral mud• Offshore circalittoral sand• Upper bathyal sediment	to allow for VME/pmf analysis.
More sensitive habitats include:	Less sensitive habitats include:							
<ul style="list-style-type: none">• Blue mussel beds• Flame shell beds• Horse mussel beds• <i>Sabellaria spinulosa</i> reefs• Northern sea fan and sponge communities• Sea grass beds• Maerl beds• Serpulid reefs• Offshore deep muds• Tidal swept algal communities• Tide swept coarse sands with burrowing bivalves• Kelp and seaweed communities on sublittoral sediment• Offshore subtidal sands and gravels• Carbonate mound communities• Cold water coral reefs	<ul style="list-style-type: none">• Circalittoral coarse sediment• Circalittoral mixed sediment• Circalittoral mud• Circalittoral sand• Infralittoral coarse sediment• Infralittoral mixed sediment• Infralittoral mud• Infralittoral sand• Offshore circalittoral coarse sediment• Offshore circalittoral mixed sediment• Offshore circalittoral mud• Offshore circalittoral sand• Upper bathyal sediment							

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			<p>Relative benthic status</p> <p>RBS < 0.8</p> <p>C-squares with fishing activity containing VME records</p> <p>Fishery closures</p> <p>As reported previously, species distribution models for VMEs susceptible to damage from towed bottom-contact fishing gear have been developed. Including focus on sea fan and sponge communities and horse mussel beds. Conceptual PMF distribution maps were modelled based on the species' life histories; potential community shifts under different climate change scenarios have also been explored and applied to PMFs.</p> <p>A low impact scallop gear trial (LISG) has been undertaken including field work in the Moray Firth.</p> <p>In relation to habitat data, ICES issue formal data calls for VME data on an annual basis, improving the quality and spatial and temporal coverage of regional VME datasets (ICES 2021).</p>	
		8d. Yr. 2-4 -Development of a UK Scallop Habitat Management Plan including development of possible management approaches for reducing habitat interactions and impacts.	Progressing Update for end of Year 4 <p>This milestone is linked with 8b. Documentation on current habitat management measures for commonly encountered habitats is necessary, as well as potential further management considerations based on the findings of the PhD (as illustrated above).</p> <p>The implementation of management measures within MPAs is progressing, as described in 7d, this is also relevant to habitat features within MPAs.</p>	V2.5 updated to Yr. to 2-4 to allow for above changes.
		8e. Yr1-3 - Introduction of inshore-VMS (i-VMS), or equivalent, on all vessels <12m in length.	Complete <p>This action is being delivered through Marine Scotland commitment for Remote Electronic Monitoring (REM) for scallop fleets and through the inshore modernisation programme.</p> <p>The scallop fleet now has almost 100% REM coverage, including the inshore vessels. This system includes a tracking mechanism that could be used to determine the footprint of the fishery.</p> <p>Further details in action 14a.</p>	

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		8f. Yr. 4-5 – Update footprint of fishery when i-VMS is available.	Progressing Update for end of Year 4 Data from iVMS or REM has not yet been collated, analysed or mapped. With implementation completed in 2023, it will take time to collect an annual period of data for subsequent analysis.	V5.1 timeline updated
		8g. Yr. 4-5 - Implementation of habitat management approaches, where required. Recording and analysis of all scallop dredge VMS data.	This milestone is yet to be commenced.	
		8h. Yr. 5 - GIS reporting on extent and intensity of fishing for all vessel lengths. Mainstreaming of habitat management approaches and introduce of the risk-monitoring system into the fishery via the FMP.	This milestone is yet to be commenced.	
Action 9: Ecosystem Overview Information on the nature and scale of impacts on key elements underlying ecosystem structure and function needs to be assessed. Based on this, appropriate management measures need to be developed. Performance indicator 2.5.1: 60-79 2.5.2: 60-79 <u>Requirement at SG80:</u> 2.5.1. Outcome status: The UoA is highly unlikely to disrupt the key elements underlying ecosystem structure and function to a point where there would be a serious or irreversible harm. 2.5.2. Management: There is a partial strategy in place, if necessary, which	Action leads: Seafish Partners: LINK, SNH, WWF Stakeholders: Poseidon (lead SICA)	9a. Yr. 1-2 - Constitute expert group and conduct SICA analysis of main ecosystems and ecosystem services impacted by scallop dredging across the UoAs under assessment.	Complete It is noted that many of the information requirements will come from other P2 actions. Noted that an ICES WG on benthic impacts may be useful source of information. A SICA workshop with an expert group on scallop dredge ecosystem impacts was held through a virtual, interactive workshop. The findings will inform action 9b.	
		9b. Yr. 3 - Identify and recommend further research and management actions that reduce disruption to the ecosystem and ecosystem services to acceptable levels. This may be aligned with actions 2, 7 and 8.	This milestone is aligned with Action 8: Habitats.	
		9c. Yr. 4-5 - Implement management measures as appropriate.	This milestone is aligned with Action 8: Habitats.	

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takes into account available information and is expected to restrain impacts of the UoA on the ecosystem. There is some objective basis for confidence that these measures/partial strategy will work.				
Action 10: Legal framework Overview Develop organised and effective cooperation with other parties, associated with Irish Sea shared stocks to deliver management outcomes consistent with MSC Principles 1 and 2. Performance indicator 3.1.1 Legal and /or customary framework 60-79 (UoA 9)	Action leads: Management sub-group Partners: DERA, DAFM, Marine Institute, IoM board	10a. Yr1-3 – Identify relevant stakeholders for Irish Sea defined stock units.	Progressing Update for end of Year 4 This has been further developed through the work if the ICES WGScallop in progressing scallop stock assessment approaches for the Irish Sea. The English and Welsh Scallop FMP will be applicable to the English and Welsh waters, while a Scottish scallop FMP is yet to be developed. There is a requirement for evidence of organised cooperation with other parties over shared Irish Sea stocks. This further highlights the importance of defining roles and responsibilities for this shared stock. This will be documented within Section 3 of the FMP.	Timeline updated v2.5
		10b. Yr3 – Review legal framework when UK is an independent coastal state	Complete A general review of Principle 3 scoring for Project UK FIPs has been undertaken by Poseidon. The UK Fisheries Act 2020 provides a broadly robust legal framework. However, there remains uncertainty in relation to fishing opportunities for shared stocks, specifically relevant to the Irish Sea stock. As such "organised and effective cooperation with other parties" is not proven.	Timeline updated v2.5
		10c. Y3-4 – If review identifies as necessary, develop co-operative management arrangements with other states for shared scallop stocks	Behind target Update for end of Year 4 The review determines the need to demonstrate organised and effective cooperation with other parties for the shared scallop stock in the Irish Sea. This is yet to be developed and will be influenced by the developing English and Welsh Scallop FMP.	Timeline updated v2.5
		10d. Yr. 4 – Agree co-operative arrangements with other states on scallop stocks	This milestone is yet to be commenced.	
		10e. Yr. 5 – Effective co-operative arrangements are in place for shared scallop stocks	This milestone is yet to be commenced.	
Action 11: Roles & responsibilities Overview	Action leads: SICG (Macduff / SWFPA)	11a. Yr. 1-3 - Identify relevant stakeholders for each defined stock unit (as defined under 1.1.1) and identify existing consultation processes.	Progressing Roles and responsibilities remain to be fully documented. This will be documented within Section 3 of the FMP.	Timeline updated v2.5

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Performance indicator 3.1.2 Consultation roles and responsibilities 60-79 <u>Requirement at SG80:</u> For each UoA: Responsibilities are explicitly defined, roles understood. Consultation processes are in place that involve all interested and affected parties. Consultation regularly seeks & accepts information.	Partners: Subject to SICG sign-off and feedback on UK Scallop Management Plan and objectives UK FAs	11b. Yr. 3 – Review and define roles and responsibilities when UK is an independent coastal state.	On target See 10b.	Timeline updated v2.5
		11c. Yr3 – Develop effective (in reviewing/considering information received) and inclusive consultation processes	This milestone is yet to be commenced.	
		11d. Yr4 – Collate evidence that consultation processes are inclusive and effective.	This milestone is yet to be commenced.	
Action 12: Fishery specific objectives Overview Short and Long-term objectives to meet P1 outcomes need to be explicit in the management system. Performance indicator 3.2.1 Fishery-specific objectives 60-79	Action leads: SICG (Macduff / SWFPA) Partners: UK FAs (expected to be Action lead on formal consultation)	12a. Yr2-3 – Develop a suite of appropriate short and long-term objectives for P1 (and well-defined P2 objectives).	On target The UK Fisheries Act (2020) (23 Nov 2020) sets out fisheries objectives as follows — (a) the sustainability objective, (b) the precautionary objective, (c) the ecosystem objective, (d) the scientific evidence objective, (e) the bycatch objective, (f) the equal access objective, (g) the national benefit objective, and (h) the climate change objective. The UK Fishery Administrations are responsible for formulating Joint Fishery Statements, which will be published 2 years after the Bill was passed (i.e. Nov 2022). The timing for implementation and structure of Fisheries Management Plans being delivered under the UK Fisheries Act is unclear. The FMP section 2 includes Goals and Objectives, where short and long term objectives for the UK scallop fishery will be defined. Action <ul style="list-style-type: none"> Secretariat to provide examples of short and long term objectives in certified MSC fisheries. 	Timeline updated v2.5
		12b. Yr3 – Management groups associated with each UoA agree on the short and long-term management	This milestone is yet to be commenced.	

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		objectives.		
		12c. Yr3 – Management plans are developed that explicitly state the short- and long-term objectives for each UoA	This milestone is yet to be commenced.	
		12d. Yr4 - Management plans are in place that explicitly state the short- and long-term objectives for each UoA	This milestone is yet to be commenced.	
Action 13: Decision making processes. Overview Decision-making processes are established for each UoA that: Respond to serious and other important issues. Apply the precautionary approach. Share information on the performance of the fishery. Performance indicator 3.2.2 Decision-making processes 60-79	Action leads: Steering Group Partners: Sub-groups for specific UoAs UK FAs	13a. Yr1-3 – Propose the establishment of management groups that are appropriate for each UoA [management groups are expected to comprise a range of stakeholders including industry, management and scientists]. This milestone is also relevant to Action 15	Complete There is a commitment to work with industry to establish appropriate management systems. CP provided three examples of appropriate co-management measures: 1. SFSAG closure of the Fladen Ground for North Sea Cod. Measures were implemented to protect key areas and species such as sea pens. This was a self-imposed restriction using geo-fencing and is monitored by Marine Scotland. 2. Scottish Government Fleet Modernisation: a commitment to modernise the fleet by provide proportionate technology installed on vessels. Priority has been given to the scallop fleet. 3. Geofencing in the Isle of Man. Vessels have a 15 minute ping frequency which changes to a two minute ping if the vessel enters a geo-fenced area. Illegal to be travelling at fishing speed in a closed area. This management integrates fishery and conservation areas. The Steering group continue to discuss establishing regional management groups which be formalised in Section 3 of the FMP. Discussion continues on the appropriate scale for this. They could be assigned by Fishery Administration areas (England, Scotland, Wales Northern Ireland); however, the SICG has been considering regional management areas covering the whole of North Sea (English and Scottish waters), West of Scotland as a separate Scottish regional group, and Irish Sea. The importance of discussion with and full inclusion of the Regional IFGs within the FIP is highlighted. Marine Scotland recently published Scotland's Fisheries Management Strategy - 2020 to 2030 (here). Currently, while rIFGs discuss local/regional management measures, the do not have legislative power to define and implement management measures and instead can make recommendations to Marine Scotland for policy to be enacted. The Regional Management Groups will be delivered through the Scallop Industry Consultation Group (SICG) and the Scottish Scallop Sector Working Group (SSSWG).	Timeline updated v2.5
		13b. Yr3-4 –Decision-making processes are agreed.	On target Management groups During a meeting of the Scottish Scallop Sector Working Group (SSSWG) Jim Watson, of Marine Scotland, made clear that any changes to management in Scottish waters would be discussed through the SSSWG forum. The way in which the SICG and SSSWG will work together was yet to be determined. A Terms of Reference is being developed.	Timeline updated v2.5
		13c. Yr3-5 – Decision-making processes are shown to be implemented.	This milestone is yet to be commenced.	Timeline updated v2.5

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone																																
		13d. Yr4 – Evidence of information on fishery performance of the UoA being available.	This milestone is yet to be commenced.	Timeline updated v2.5																																
Action 14 Overview A monitoring, control and surveillance system has been implemented in the fishery and has demonstrated an ability to enforce relevant management measures, strategies and/or rules. Performance indicator 3.2.3 Compliance and enforcement 60-79	Action leads: Steering Group Partners: UK FAs, SICG (Macduff / SWFPA), MS, MMO Stakeholders: LINK, WWF, SNH	14a. Yr. 1-3 – Work with the industry to establish an appropriate system for monitoring within MPAs and other closed areas for all vessels. 14b. Yr. 2-4 – Consult with Fisheries Control Agencies and wider stakeholders on proposed monitoring system. 14c. Yr. 2-4 – Implement monitoring system.	On target It is noted that the timeline for Action 14 is reliant on Devolved Administration timelines for iVMS implementation. Scotland: Scotland's Fisheries Management Strategy 2020-2030 commits to Remote Electronic Monitoring (REM) and vessel tracking technology to improve MPA compliance. The Strategy specifically highlights delivery of this for the scallop fleet. Implementation of REM is almost at 100% coverage for Scottish vessels. Northern Ireland: iVMS is limited to Strangford Lough. However, consultation is planned for late 2021 to discuss iVMS implementation. This technology is likely to be introduced via licence conditions, rather than legislation. A summary of the timeline for iVMS implementation is provided below. <table><tr><th>Management Body</th><th>Start date</th><th>Fleet component</th><th>Note</th></tr><tr><td>MMO</td><td>15/02/2022</td><td>10m to 11.99m</td><td>Concluded by end of 2022</td></tr><tr><td>MMO</td><td>16/03/2022</td><td>8m to 9.99m</td><td></td></tr><tr><td>MMO</td><td>18/05/2022</td><td>6m to 7.99m</td><td></td></tr><tr><td>MMO</td><td>17/08/2022</td><td>Below 6m</td><td></td></tr><tr><td>Natural Resources Wales/ Welsh Government</td><td>Expected mid – February 2022</td><td>U12m in Welsh waters</td><td>Introduction of Welsh iVMS statutory instrument to occur in 2022</td></tr><tr><td>Marine Scotland</td><td>Due-2022</td><td>Varies across the fleets. Scallop sector nearing completion</td><td>New Scottish Nationalist Party and Scottish Greens formation might have amended timeline</td></tr><tr><td>DAERA</td><td>Due-2022</td><td>All vessels u12m</td><td>End of 2022. Unknown whether it will be a licence condition</td></tr></table> Progressing This is being delivered through the Scotland's Fisheries Management Strategy commitments for REM and tracking technology. This is complete for Scotland. Implementation for vessels registered in Northern Ireland, England and Welsh is as indicated in 14a. Progressing Implementation of REM is almost at 100% coverage for Scottish vessels. Details on the mechanism and frequency of REM monitoring would further inform this milestone.	Management Body	Start date	Fleet component	Note	MMO	15/02/2022	10m to 11.99m	Concluded by end of 2022	MMO	16/03/2022	8m to 9.99m		MMO	18/05/2022	6m to 7.99m		MMO	17/08/2022	Below 6m		Natural Resources Wales/ Welsh Government	Expected mid – February 2022	U12m in Welsh waters	Introduction of Welsh iVMS statutory instrument to occur in 2022	Marine Scotland	Due-2022	Varies across the fleets. Scallop sector nearing completion	New Scottish Nationalist Party and Scottish Greens formation might have amended timeline	DAERA	Due-2022	All vessels u12m	End of 2022. Unknown whether it will be a licence condition	Timeline updated v2.5
Management Body	Start date	Fleet component	Note																																	
MMO	15/02/2022	10m to 11.99m	Concluded by end of 2022																																	
MMO	16/03/2022	8m to 9.99m																																		
MMO	18/05/2022	6m to 7.99m																																		
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Natural Resources Wales/ Welsh Government	Expected mid – February 2022	U12m in Welsh waters	Introduction of Welsh iVMS statutory instrument to occur in 2022																																	
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DAERA	Due-2022	All vessels u12m	End of 2022. Unknown whether it will be a licence condition																																	
Action 15:	Action leads:	15a. Yr2-4 – Management groups (SICG and SSSWG) agree on performance	On target	Timeline																																

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Monitoring Overview The fishery-specific management system is subject to regular internal and occasional external review. Performance indicator 3.2.4 Monitoring and management performance evaluation ≥ 80 [English North Sea (Yorkshire/Durham)] $60-79$ [all other UoAs]	Steering Group Partners: Sub-groups for specific UoAs UK FAs	evaluation procedures involving regular internal and occasional external review.	For the English North Sea (Yorkshire/Durham) stock there is clear evidence of internal review through the English and Welsh Scallop FMP drafting process and co-management arrangement between the SICG and Defra. For all other stocks Marine Scotland and the SSSWG need to agree performance evaluation procedures with a focus on internal review.	updated v2.5
		15b. Yr4 – Management groups (SICG and SSSWG) undertake performance evaluation.	This milestone is yet to be commenced.	Timeline updated in v3.3
		15c. Yr4 – Reporting on internal performance evaluation available.	This milestone is yet to be commenced.	
		15d. Yr5 – External review is undertaken	This milestone is yet to be commenced.	
Cross - cutting	Action lead: MacDuff Partners: Steering Group	Development of Fishery Management Plan	It is agreed by the steering group that MacDuff will coordinate the development of the FMP. It is noted that the national shellfish fishery management plan (FMP) is likely to be prioritised by Defra, and the FIP FMP could provide a good working example for the scallop section. In terms of timelines, the Defra shellfish FMP is likely to go out to consultation in the summer of 2022. Defra sought calls for evidence, which ended in August 2021, Overall Defra received 20 responses to their latent capacity call for evidence and 18 responses for management of the <15m fleet. The steering group agree that the Project UK Round 1 and Round 2 scallop FIPs should develop separate FMPs, with transferrable learning from the Scallop Channel FMP brought into the UK Scallop FMP. Macduff (CP) agreed to act as gatekeeper for the FMP, with steering group members responsible for drafting specific section related to their expertise. Agreed authors to draft each section: Section 1: Identification and description of the fishery. Input from each region is required. Section 2: Goals and objectives. Defra (CB) Section 3: Fisheries management structure. CP and BL. Section 4: Harvest strategy and harvest control rules. CP and JPo. Section 5: Ecosystem management strategies: Environmental sub-group, Defra, and Fisheries Administrations dependant on outcome of ESG contact. Section 6: Stock assessment, fishery monitoring and research: Cefas (EB) for England; Marine Scotland Science (LB) for Scotland; TBC for Northern Ireland. Section 7: Compliance and monitoring. Poseidon Section 8: Fishery performance evaluation. MS and Fisheries Administrations Section 9: Resources required to implement the plan. CP and BL	

3. Year 4 Benchmark

3.1.1 Four Scottish stocks: West of Kintyre, North West, North East, East Coast, Clyde

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5		
1	Outcome	1.1.1 Stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80		
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---		
	Management	1.2.1 Harvest Strategy	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80	
		1.2.2 Harvest control rules and tools	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80	
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		1.2.4 Assessment of stock status	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
	Secondary species	2.2.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80	
		2.2.2 Management	<60	<60	60-79	60-79	60-79	60-79	<60	60-79	60-79	≥80	≥80	
		2.2.3 Information	60-79	60-79	≥80	≥80	≥80	≥80	60-79	≥80	≥80	≥80	≥80	
	ETP species	2.3.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80	
		2.3.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80	
		2.3.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80	
	Habitats	2.4.1 Outcome	<60	<60	<60	60-79	60-79	60-79	<60	<60	60-79	60-79	≥80	
		2.4.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80	
		2.4.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
	Ecosystem	2.5.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		2.5.2 Management	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		2.5.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
	3	Governance and Policy	3.1.1 Legal and customary framework	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
			3.1.2 Consultation, roles and responsibilities	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
			3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
Fishery specific management system		3.2.1 Fishery specific objectives	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		3.2.2 Decision making processes	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80	
		3.2.3 Compliance and enforcement	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80	
		3.2.4 Management performance evaluation	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		Total number of PIs equal to or greater than 80		8	8	9	9	9	8	9	13	20	27	
Total number of PIs 60-79		12	12	12	13	13	12	12	14	7				
Total number of PIs less than 60		7	7	6	5	5	7	6						
Overall BMT Index			0.52	0.52	0.56	0.57	0.57	0.52	0.56	0.74	0.87	1.00		

3.1.2 Scottish stock: Orkney

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	
1	Outcome	1.1.1 Stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	
	Management	1.2.1 Harvest Strategy	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.2 Harvest control rules and tools	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.3 Information and monitoring	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.1.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Secondary species	2.2.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		2.2.2 Management	<60	<60	60-79	60-79	60-79	60-79	<60	60-79	60-79	≥80	≥80
		2.2.3 Information	60-79	60-79	≥80	≥80	≥80	≥80	60-79	≥80	≥80	≥80	≥80
	ETP species	2.3.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
	Habitats	2.4.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.4.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.4.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
	Ecosystem	2.5.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		2.5.2 Management	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
3	Governance and Policy	3.1.1 Legal and customary framework	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.2 Consultation, roles and responsibilities	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		3.2.2 Decision making processes	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.4 Management performance evaluation	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
Total number of PIs equal to or greater than 80			6	6	7	7	6	7	12	20	27		
Total number of PIs 60-79			14	14	14	15	14	14	15	7			
Total number of PIs less than 60			7	7	6	5	7	6					
Overall BMT Index			0.48	0.48	0.52	0.54	0.54	0.48	0.52	0.72	0.87	1.00	

3.1.3 English North Sea Yorkshire / Durham stock (27.4.b.S)

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	
1	Outcome	1.1.1 Stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	
	Management	1.2.1 Harvest Strategy	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.2 Harvest control rules and tools	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.3 Information and monitoring	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
	Secondary species	2.2.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		2.2.2 Management	<60	<60	60-79	60-79	60-79	60-79	<60	60-79	60-79	≥80	≥80
		2.2.3 Information	60-79	60-79	≥80	≥80	≥80	≥80	60-79	≥80	≥80	≥80	≥80
	ETP species	2.3.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
	Habitats	2.4.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.4.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.4.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
	Ecosystem	2.5.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		2.5.2 Management	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		2.5.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
3	Governance and Policy	3.1.1 Legal and customary framework	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		3.1.2 Consultation, roles and responsibilities	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		3.2.2 Decision making processes	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.4 Management performance evaluation	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
Total number of PIs equal to or greater than 80			6	6	7	7	6	7	12	20	27		
Total number of PIs 60-79			14	14	14	15	14	14	15	7			
Total number of PIs less than 60			7	7	6	5	7	6					
Overall BMT Index			0.48	0.48	0.52	0.54	0.59	0.48	0.52	0.72	0.87	1.00	

3.1.4 Irish Sea

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	
1	Outcome	1.1.1 Stock status	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	
	Management	1.2.1 Harvest Strategy	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.2 Harvest control rules and tools	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		1.2.4 Assessment of stock status	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	
	Secondary species	2.2.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		2.2.2 Management	<60	<60	60-79	60-79	60-79	60-79	<60	60-79	60-79	≥80	≥80
		2.2.3 Information	60-79	60-79	≥80	≥80	≥80	≥80	60-79	≥80	≥80	≥80	≥80
	ETP species	2.3.1 Outcome	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.3.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
	Habitats	2.4.1 Outcome	<60	<60	<60	60-79	60-79	60-79	<60	<60	60-79	60-79	≥80
		2.4.2 Management	<60	<60	<60	<60	<60	<60	<60	<60	60-79	60-79	≥80
		2.4.3 Information	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
	Ecosystem	2.5.1 Outcome	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		2.5.2 Management	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
3	Governance and Policy	3.1.1 Legal and customary framework	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	
		3.1.2 Consultation, roles and responsibilities	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80
		3.2.2 Decision making processes	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.4 Management performance evaluation	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	60-79	≥80
Total number of PIs equal to or greater than 80			3	6	8	8	8	7	9	12	18	25	
Total number of PIs 60-79			19	18	13	14	14	16	16	14	10	3	
Total number of PIs less than 60			6	4	6	5	5	5	3	2			
Overall BMT Index			0.50	0.50	0.54	0.56	0.56	0.50	0.54	0.72	0.87	1.00	

4. Revised pre-assessment

4.1 Summary of Performance Indicator level scores

4.1.1 Principle 1

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
1.1.1 – Stock status [All stocks, except Yorkshire/Durham]	60 – 79	Yes	a	RBF	RBF
			b	-	RBF
Rationale: As there are no reference points defined for the scallop stocks in all stock assessment areas (except Yorkshire/Durham), the Risk-Based Framework (RBF) is used to score this Performance Indicator. The RBF method was used for the 2019 pre-assessment and results remain the same. In summary, the Consequence Analysis (CA) scored 60 and Productivity Susceptibility Analysis (PSA) scored 60-79, the overall RBF score is likely to be 60-79 for the various scallop UoAs.					
1.1.1 – Stock status [Yorkshire/Durham 27.4.b.S]	60 – 79	No	a	✓	×
			b	-	×
Rationale: The Cefas scallop stock assessment published in April 2023 (Lawler et al, 2023) established a harvest rate (HR) MSY reference point for the dredged portion of the North Sea Yorkshire/Durham stock (27.4.b.S). This allows the harvest rate from 2018 to 2021 to be reviewed with respect the HRMSY, as depicted below. The HR dropped from 2018 to 2019 (from just above 45% to 15%), and has grown steadily from 2019 to 2021, up to just under 40%. There is not sufficient timeseries to assess the likely status of the stock with certainty, however the indication is that the harvest rate has been above and below HRMSY across the period assessed and fishing pressure is currently above the level that would support MSY. It is considered likely that the stock is above PRI, but not fluctuating around MSY and therefore reaches SG60, but not SG80.					
1.1.2 – Stock rebuilding		No	a		
			b		
Rationale: If the RBF s used to score PI 1.1.1, then this Performance Indicator is not scored.					
1.2.1 – Harvest Strategy	<60	No	a	×	×
			b	×	×
			c	✓	-
			d	-	-
			e	N/A	N/A
			f	✓	✓

Rationale: "Some limitation on fishing effort through Western Waters, this is only for $\geq 15\text{m}$ vessels. Technical limits based on vessel length and number of dredges. No overall control of fishery effort in each stock unit identified. Although noted that some action was taken due to 2016 stock assessment (freeze of latent scallop entitlements for Scottish vessels), management is not responsive to findings in stock assessments. For all stocks there are no limit reference points; for all except Yorkshire/Durham there are no MSY reference points and for Yorkshire/Durham there are no defined steps to take when HR MSY is exceeded.

Although there is robust monitoring via Registration of Buyers and Sellers and iFISH database to comprehensively log catches of scallops, VMS on $\geq 12\text{m}$ vessels to map footprint of fishery, technical controls by national fisheries administrators (including IFCA controls), survey programme.

For issue e. there are no sharks, and this issue is not relevant.

The FIP has worked to document all alternative measures that have been trialled within the fishery and the status of any implementation. Alternative measures are reviewed regularly, and the steering group has formed a useful forum for sharing knowledge and information on various gear trials.

1.2.2 – Harvest control rules and tools	<60	No	a	×	×
			b	-	×
			c	×	×
Rationale: No HCR rules linked to reference points. No evidence of response to stock status.					
1.2.3 – Information and monitoring [All UoAs except Orkney]	≥80	No	a	✓	✓
			b	✓	✓
			c	-	✓
Rationale: Stock assessments are undertaken annually by MSS and Cefas for all areas (except Orkney), stock structure (stock assessment areas defined), productivity known (based on stock surveys), fleet composition known, based on fishing licences and scallop entitlement. Other data includes UK MMO iFISH database of landings by ICES rectangle and by port of landing; VMS data.					
1.2.3 – Information and monitoring [Orkney]	60 – 79	No	a	✓	×
			b	✓	×
			c	-	✓
Rationale: Orkney Sustainable Fisheries (OSF) have established scallop research projects which aim to collect biological information on scallops around Orkney. This will provide regionally specific information that can be used to assess the sustainability of the fishery and aid stock definition. Stock survey for the Orkney area is not undertaken by MSS. Some aspects are understood, including fleet composition (based on fishing licences and scallop entitlement), landings data from UK MMO iFISH database by ICES rectangle and by port of landing; VMS data. OSF conduct observer trips on scallop vessels, but no further update on forthcoming scallop stock surveys is available; issues a and b at SG80 are not met.					
1.2.4 – Assessment of stock status [All UoAs except Orkney]	≥80	Yes	a	-	✓
			b	✓	✓
			c	✓	✓

			d	-	-
			e	-	✓
<p>Rationale: The results remain the same as the 2019 pre-assessment. In summary, for the scallop UoAs where there are regular stock surveys, there are annual estimates of stock biomass, along with an index of stock abundance from CPUE data, and along with catch information, exploitation rates can be calculated.</p> <p>There are no reference points, however at full assessment if RBF is used for 1.1.1, this PI automatically scores SG80.</p> <p>The latest stock assessment was published in 2016 and a new scallop stock assessment is expected in 2023.</p>					
1.2.4 – Assessment of stock status [Orkney]	60 – 79	Yes	a	-	×
			b	✓	✓
			c	✓	×
			d	-	-
			e	-	✓
<p>Rationale: The results remain the same as the 2019 pre-assessment. In summary, the assessment is based upon catch data and catch-at age information from market sampling only, and is not considered sufficient to provide an appropriate assessment of stock status for the scallop stock, so SG80 is not met.</p> <p>There are no reference points, however at full assessment if RBF is used for 1.1.1, this PI automatically scores SG80.</p>					

4.1.2 Principle 2

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
2.1.1 – Primary Outcome	≥80	No	a	✓	✓
			b	-	-
Rationale: No main primary species, so achieves SG80.					
2.1.2 – Primary Management	≥80	No	a	✓	✓
			b	✓	✓
			c	-	✓
			d	N/A	N/A
			e	✓	✓
Rationale: No main primary species, so achieves SG80.					
2.1.3 – Primary Information	≥80	No	a	✓	✓
			b	-	-

			c	✓	✓
<p>Rationale: Landing statistics clearly indicate that no primary species are landed in conjunction with the king scallop dredge fishery. The MSS bycatch report provides data by weight and proportion of catch for commercial dredge and scientific dredge. Further information has been collated during the gear trials to analyse catch composition in order to compare bycatch rates between the dredge gear with sleds and the standard dredges.</p>					
2.2.1 – Secondary Outcome	60 – 79	Yes	a	RBF	RBF
			b	RBF	RBF
<p>Rationale: Catch composition by species data has not yet been provided to the assessment team. It is understood that the MSS Bycatch Report remains in draft form and has not yet been published. The MSS Bycatch Report will provide a robust source of information to determine the secondary species and identify if they are main or minor.</p> <p>It is expected that the secondary main species will include: queen scallop, common cockle, common starfish and sea urchin. An RBF assessment of these species was carried out in the 2019 pre-assessment. All species, except queen scallop, score 80 and above, while queen scallop scored 60-79. The MSS Bycatch Report will assist in determining whether queen scallop should remain categorised as a main species.</p>					
2.2.2 – Secondary Management	60 – 79	No	a	✓	✓
			b	✓	×
			c	-	×
			d	N/A	N/A
			e	✓	✓
<p>Rationale: A range of measures that form a partial strategy are outlined in the 2019 pre-assessment. In addition the FIP has worked to document management measures in place for secondary species. The accurate determination of the main secondary species will inform whether management is appropriate for these species.</p> <p>A regular review of alternative measures is undertaken, as described under 1.2.1.</p>					
2.2.3 – Secondary Information	≥80	No	a	✓	✓
			b	-	-
			c	✓	✓
<p>Rationale: This performance indicator has been awarded on account of the MSS Bycatch Report being in draft form. Some information from this report has been presented to the assessment team, although the paper has not yet been published.</p>					
2.3.1 – ETP Outcome	<60	No	a	N/A	N/A
			b	×	×
			c	-	×

Rationale: Significant work has been undertaken to develop a robust list of ETP species, including benthic invertebrate species, and this list has been reviewed and updated based on review by the steering group and experts in specific fields (e.g. The Shark Trust) to ensure the ETP list is comprehensive.

The performance indicator b states that "known direct effects of the UoA are likely to not hinder recovery of ETP species". It is expected that evidence from the MSS Bycatch Report will be useful in assessing this issue, because documentation of interaction with the ocean quahog is included in the reporting. Benthic invertebrate species on the ETP list include: burrowing sea anemone, fan mussel, heart cockle, northern feather star, ocean quahog, pink sea fingers, pink sea-fan and white cluster anemone. Other benthic habitat forming invertebrates are included in the habitats VME assessment (including modiolus beds). At this point, evidence is not available to support the PI(b) specifically for benthic invertebrate species and therefore SG60 is not met.

2.3.2 – ETP Management	<60	No	a	N/A	N/A
			b	×	×
			c	✓	×
			d	-	×
			e	✓	✓

Rationale: There are measures in place in the form of seasonal restrictions and closed areas including within Marine Protected Areas. These are focused on shark and ray species, as well as other qualifying MPA feature species. Concern remains for appropriate management of benthic invertebrate ETP species, specifically those listed as Scottish Priority Marine Features. A review of alternative measures to minimise mortality has been undertaken specific to ETP species and the steering group forms a forum to share information and knowledge on alternative measures on a regular basis.

2.3.3 – ETP Information	60 – 79	No	a	✓	×
			b	✓	×

Rationale: To review MSS Bycatch Report data to understand if this can qualify as some quantitative data.

2.4.1 – Habitats Outcome	60 – 79	No	a	✓	✓
			b	✓	×
			c	-	-

Rationale: Reaches SG80 for commonly encountered habitats based on relative benthic status analysis undertaken as part of current PhD, with average RBS >0.8 for all commonly encountered habitats. The same analysis shows that in general overlap of the scallop fishery footprint with records of VMEs is low and therefore SG60 is met. However, some interaction is evident from the research undertaken and further work is required to understand the resolution of the data and likelihood of interaction, therefore SG80 is not met for issue b.

2.4.2 – Habitats Management	<60	No	a	✓	×
			b	✓	×

			c	-	×
			d	✓	×
<p>Rationale: There are some measures in place for specific VMEs in the form of spatial and temporal restrictions within designated marine protected areas. However, the timeline for implementation of MPA management measures is phased and expected to be completed by 2024. This includes consideration of habitats defined as Scottish priority marine features that are both inside designated areas, and outside of these areas. Marine Scotland is currently considering the implementation of management measures to protect the most vulnerable PMFs in Scottish inshore waters (within 6 nautical miles from shore), and have held various consultation workshops and stakeholder meetings to discuss proposals. MPA management options and PMF management proposals are following the same timelines. These measures are not yet implemented and therefore SG60 is not met.</p>					
2.4.3 – Habitats Information	60 – 79	No	a	✓	✓
			b	✓	×
			c	✓	✓
<p>Rationale: The ongoing PhD focused on scallop dredge habitat interactions has provided some helpful modelling of RBS for commonly encountered and VME habitats, with very good level of detail to inform habitat assessment. Habitat types and distribution are known and any increase in risk can be monitored through VMS data and landing statistics. The timing and location of activity can be monitored through VMS data for 12m and over vessels. Marine Scotland has confirmed that REM has been implemented on almost 100% of scallop vessels. Data on the footprint of the fishery from REM is not yet available and therefore the full extent of the scallop dredge footprint (including under 12m vessels) is not yet available. For this reason issue b at SG 80 is not met.</p>					
2.5.1 – Ecosystems Outcome	60 – 79	No	a	✓	×
<p>Rationale: Wider ecosystem function, linked to indirect effects resulting from habitat disturbance. Scallops not a key prey item, so do not expect removal of target species to be an issue. Change in ecosystem, scavengers based on dredging effects. As per SICA findings, a score of 60-79 is appropriate.</p>					
2.5.2 – Ecosystems Management	60 – 79	No	a	✓	×
			b	✓	×
			c	-	✓
<p>Rationale: As per justification provided in the 2019 pre-assessment. An improved score is anticipated to be linked with habitat management implementation and an improved understanding of the fishery footprint from amalgamated and analysed REM data.</p>					
2.5.3 – Ecosystems Information	≥80	No	a	✓	✓
			b	✓	✓
			c	-	✓
			d	-	✓
			e	-	✓

Rationale: As per justification provided in the 2019 pre-assessment. In addition, significant work has been undertaken to inform this PI as part of the habitats PhD. Full documentation of the PhD is ongoing. There is a need to ensure research and scientific papers are obtained and catalogued in a P2 library.

4.1.3 Principle 3

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
3.1.1 – Legal and customary framework [All UoAs except Irish Sea]	≥80	No	a	✓	✓
			b	✓	✓
			c	✓	✓
Rationale: EU, UK and IFCA level management framework.					
3.1.1 – Legal and customary framework [Irish Sea]	60 – 79	No	a	✓	×
			b	✓	✓
			c	✓	✓
Rationale: As per the justification provided in the 2019 pre-assessment. In summary, SG60 is met on the Irish Sea shared stocks as the scientific co-operation through the ICES Working Group satisfies the requirements for co- operation. There is no evidence of ‘organised and effective co-operation with other parties’ on the Irish Sea shared stocks in relation to the development of management advice and SG80 is not met for issue a.					
3.1.2 – Consultation roles and responsibilities	60 – 79	No	a	✓	×
			b	✓	×
			c	✓	×
Rationale: As per the justification provided in the 2019 pre-assessment. For the English North Sea stock, the consultation roles and responsibilities are in the process of being defined and the ongoing delivery of the FMP includes clear and inclusive consultation processes with opportunity for all parties to be involved. This process is ongoing currently. A similar process for Scottish scallop stock management is not currently proposed.					
3.1.3 – Long term objectives	≥80	No	a	✓	✓
Rationale: The UK Fisheries Act sets out defined fisheries objectives as follows: (a) the sustainability objective, (b) the precautionary objective, (c) the ecosystem objective, (d) the scientific evidence objective, (e) the discards objective, and (f) the equal access objective.					
3.2.1 – Fishery specific objectives	60 – 79	No	a	✓	×

Rationale: For the English North Sea stock, the fishery specific objectives are defined in the draft English and Welsh King Scallop FMP, which is due to be published in autumn 2023.
For the Scottish scallop stocks, fishery -specific objectives are not well-developed and are not explicit within a fishery specific management system.

3.2.2 – Decision making processes	60 – 79	No	a	✓	×
			b	✓	×
			c	-	×
			d	✓	×
			e	✓	✓

Rationale: No established decision-making processes for fishery-specific objectives. For English North Sea stock, decision making processes are in the process of being tested through the delivery of the English and Welsh Scallop FMP. For Scottish stocks, the role of SSSWG is not clear. Management performance information is not readily available.

3.2.3 – Compliance and enforcement	60 – 79	No	a	✓	×
			b	✓	✓
			c	✓	✓
			d	-	✓

Rationale: While it is understood that REM is implemented on almost 100% of Scottish scallop vessels, it has not yet demonstrated the ability to enforce relevant management measures in relation to closed areas such as MPAs.

3.2.4 – Management performance evaluation [All UoAs except English North Sea]	60 – 79	No	a	✓	✓
			b	✓	×

Rationale: Key parts of the management are evaluated, e.g. western waters. There is some external review, but management is not subject to internal review for .

3.2.4 – Management performance evaluation [English North Sea]	≥80	No	a	✓	✓
			b	✓	✓

Rationale: Key parts of the management are evaluated, e.g. western waters. There is external review, and extensive internal review through the English and Welsh Scallop FMP development process.

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