




PROJECT UK

DELIVERING FISHERY IMPROVEMENTS IN THE NORTH EAST ATLANTIC

UK: Round 1
Western Seas & Channel Monkfish fishery

Year 6 report

May 2023

POSEIDON
AQUATIC RESOURCE MANAGEMENT

Report Information

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POSEIDON
AQUATIC RESOURCE MANAGEMENT

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1. Introduction

1.1 Introduction

Project UK includes 12 fisheries, through eight 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 FIPs[1] to participate in Project UK (Channel scallop, monkfish, plaice & lemon sole, and crab & lobster) were launched in 2017. So far, these fisheries have made demonstrable progress against their Action Plans, focusing on developing and documenting robust stock management and mitigating environmental impacts.

With these five year FIPs ending in April 2022, there was a need to review their overall progress to date and agree on the next steps to be taken. In the case of this monkfish FIP, the stakeholders agreed to extend the FIP by two more years to April 2024 and a new Action Plan for Year 6-7 of the FIP prepared. This was based on a new assessment (see Appendix A) that not only looked at Performance Indicators (PIs) covered by the FIP actions but reviewed all 22 PIs in the current (version 2.1) MSC Fisheries Standard to determine what had changed since the pre-assessments were conducted in 2016.

As a result these next steps were embedded into a new Action Plan for Year 6-7 of the FIP. It should be noted that the review will not only look at Performance Indicators (PIs) covered by the FIP actions but will review all 22 PIs in the current (version 2.1) MSC Fisheries Standard to determine whether anything has changed since the pre-assessments were conducted in 2016.

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 consists of a summary report, a review of the status of PIs scoring less than 80 in terms of progress made and the likely current score under v2.01[2] (**Section** Error! Reference source not found.) and the resultant benchmarking (**Section 2.2**). The 2022 re-assessment is provided in **Appendix A.**

An analysis to determine the likely implications of scoring the fishery under the new Fisheries Standard version 3[3] has been conducted as a separate exercise.

[1] Following the success of Round 1, the 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.

[2] Dated 31 August 2018

[3] Dated 16 October 2022

2. Annual Review and Benchmark (April 2023)

2.1 Annual Review

Fishery name: Western Seas & Channel Monkfish MON *Lophius piscatorius* & Anglerfish ANK *L. budegassa*

Start date: 25 March 2018

Fishery location:
Western Seas and Channel (VII b-k, VIII a/b/d)

Fishing methods:

Gear	Spp.	UoA #
Demersal trawl OTB	MON	1
	ANK	2
Beam trawl TBB	MON	3
	ANK	4
Gillnets GN	MON	5
	ANK	6

Annual reviews:
End Year 1: March 2018 Completed 30 April 2023
End Year 2: March 2019
End Year 3: April 2020
End Year 4: March 2021
End Year 5: March 2022
End Year 6: March 2023
End Year 7: March 2024

Project leaders:
Project UK Fisheries Improvements – Stage 1

Improvements recommended by: POSEIDON AQUATIC RESOURCE MANAGEMENT

Overview of the Action Plan:

Two species of monkfish (also called anglerfish), *Lophius piscatorius* (MON) and *L. budegassa* (ANK), are caught in important commercial fisheries in the western Channel and Western Approaches. The gillnet UoA is composed of (i) trammel nets (>220 mm mesh size) GTR and (ii) a combination of set gillnets (anchored) GNS, gillnets and entangling nets (not specified) GEN and gillnets (not specified) GN, all >220 mm.

Although monkfish species are separate stocks, they are managed together through a shared TAC. ICES' advice is provided for both species separately but only *L. piscatorius* has reference points and uses a precautionary, MSY approach. ICES considers *L. budegassa* to be a Category 3 stock where management is essentially based on recent trends, rather than well-defined harvest rules. Under P1, this Action Plan therefore seeks to address this through better single species management, a reduction in unwanted target catches (of both species) through the development of alternative management measures and the introduction of probabilistic analysis of stock assessment e.g. include confidence limits.

In P2, a major part of the plan is developed to improve the major weakness of the fisheries identified by the pre-assessment, the management of secondary species caught in these fisheries. This will cover other fish as well as out of scope species such as seabirds, esp. for the gillnet fisheries, as well as ETPs. The Action Plan also looks at reducing the impact of these fisheries – specifically the demersal and beam trawl segments – on habitats, especially VMEs. The plan also calls for a Scale Intensity Consequence Analysis (SICA) analysis of the impact of beam trawling on the ecosystem.

Under P3, the plan includes the development of a fisheries-specific management plan with explicit short and long-term objectives. This will set out a clear harvest strategy and harvest control rules for both species of anglerfish. It also calls for external evaluation of the management of these anglerfish fisheries, possibly though a final pre-assessment before the FIP is concluded and the fisheries might be considering entering into full MSC assessment process.

Colour code in tables below: Principle 1 | Principle 2 | Principle 3

Summary Report (End Year 6)

Introduction

Following its extension from five to seven years, this report examines the progress and current status of the Fisheries Improvement Project (FIP) for the UK Western Seas & Channel Monkfish MON / Anglerfish ANK (*Lophius piscatorius* and *L. budegassa*) fishery (see previous page) at the end of the sixth year. It builds on the re-scoring conducted in 2022 and is intended to provide the basis for deciding on how this fishery could be further prepared for assessment under the MSC Fisheries Standard, under either v2.01 (as a fishery in transition) or under v3. This report has been prepared by Tim Huntington of Poseidon

Main Findings

Principle 1: Based on the recent (2022) stock assessments, the stocks of both species appear to be in good condition. The black-bellied monkfish (ANK) is now ICES data category I and like MON now should achieve ≥80. It is also included in the mixed fisheries management advice and should also be close to scoring SG 80 in 1.2.1, 1.2.2 and 1.2.3 (to be confirmed in Y7).

Principle 2: Management of the main secondary species (e.g., non-quota species such as gurnards, pouting and cuttlefish) in the trawl fisheries is mainly through the use of larger cod end mesh sizes (e.g., 90 – 100 mm in the TBB fleets) as proven by Project 50%, although the widespread uptake of these gears needs to be proven. Management of ETP interactions of <12 m vessels with the gillnets also needs to be improved, and information sources verified. Habitat interactions from the trawl UoAs (1-4) need to be better managed, if possible, through proactive approaches ahead of forthcoming mandatory MPA management measures.

Principle 3: In Year 4 Borges (2021) in her external review of the fisheries management under P3 suggests that P3.1.1 (Legal and customary framework), P3.1.2 (Consultation, roles & responsibilities) & P3.2.3 (Compliance and enforcement) are all down-graded from a pass (≥80) to a conditional pass (60-79), mainly due to changes resulting from the UK's exit from the EU e.g. the effectiveness of the UK-EU bilateral negotiation on fishing opportunities for shared stocks, and the role and function of the Specialised Committee on Fisheries. As a result of progress in developing UK fisheries management outside of the EU all the P3 PIs now score at or above 80, except P3.2.3 which scores 60 – 69 due to uncertainties over the effectiveness of enforcing the landings obligation.

Overall the FIP is on track, with real improvements in P1 which should see an overall pass by the end of Year 7 in 2024.The main remaining issues are in P2 for the trawl fisheries that will need to manage their impact in MPAs in particular. The gillnet fisheries will also have to better manage ETP impacts, esp. for the <12 m vessels.

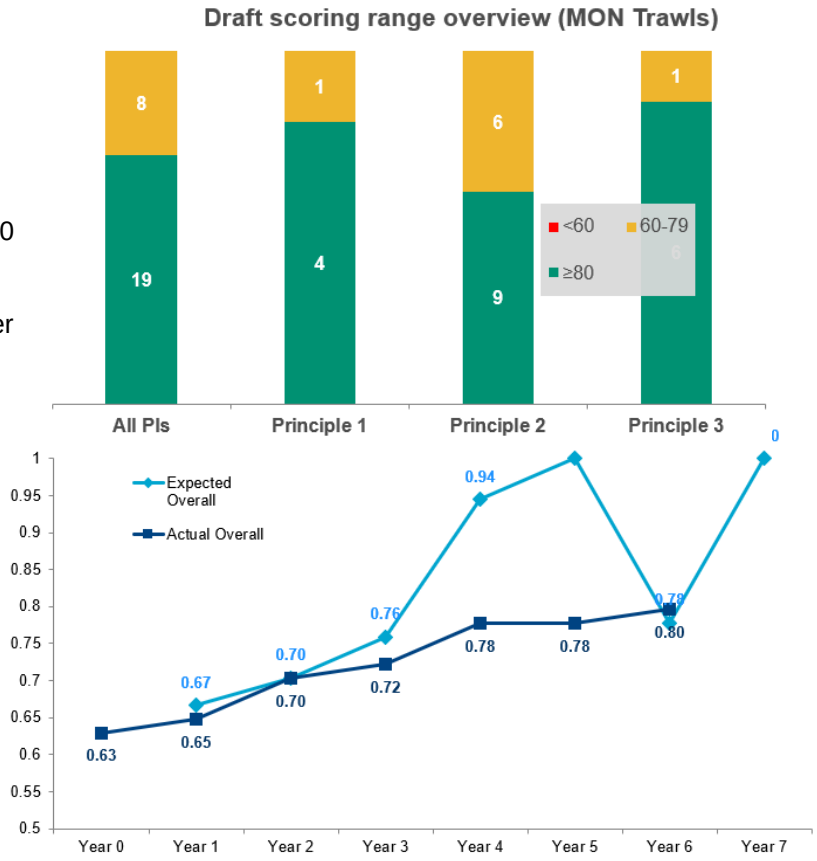

Table 1: Action Plan

<table>
<tr><th>Standard requirement</th><th>Lead & partners</th><th>Timescale / milestones</th><th>Progress / outcome</th><th>Revised milestone</th></tr>
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Action 1: Stock status (ANK)

Gear	Spp.	UoA #	Scope
Demersal trawl OTB	MON	1	
	ANK	2	✓
Beam trawl TBB	MON	3	
	ANK	4	✓
Gillnets GN	MON	5	
	ANK	6	✓

Overview

ANK only: Currently only have fishing mortality reference points (proxy), with relative fishing mortality well below $F_{MSYproxy}$. Recruitment has been reasonably strong over the past 5 – 10 years. Biomass index (in kg/hour) is also increasing from around 4 in 2003 to > 4 since 2018. Based on this will meet SG 60 in SI (a), but not enough information to meet SG 80.

Performance indicator

1.1.1 Stock status

≥80

Requirement at SG80:

SIa: It is highly likely that the stock is above the PRI.

SIb: The stock is at or fluctuating around a level consistent with MSY.

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Action lead: Lisa Readdy as representative of CEFAS and the ICES Working Group

Partners: NWWAC & SWWAC members

Resources: Engagement with ICES AC and WGs over stock assessment methodologies

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1a. Yr 6 & 7: Stock assessment report for ANK published in May 2023

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Target ≥80

ANK now Cat 1, so presumably stock assessment and benchmarking done.

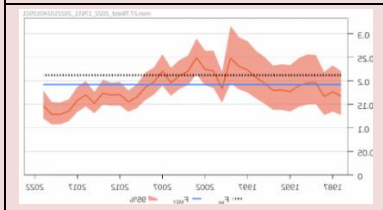
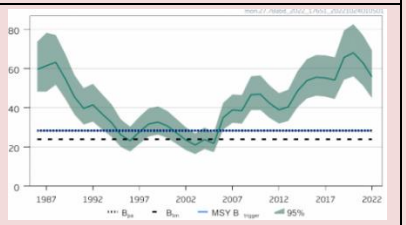
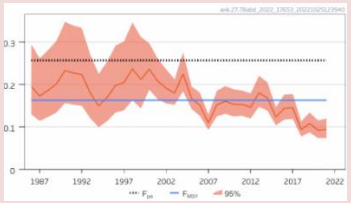
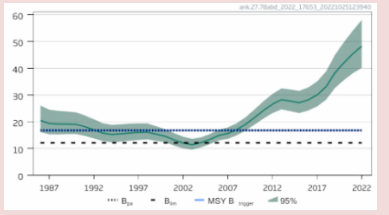
See if it is added into the mixed management plan. Its own TAC? If both species in good condition, then do we need separate TACs if it is complicated. Maybe have an interim ref point whereby species identification is needed. Need update from Lisa, and maybe confirmation from Paul M on acceptability and possible safeguards.

Actions:

- Continued engagement with ICES over the ANK benchmarking and stock assessment process.

Progress (April 2023)

Both stocks are now assessed using Stock Synthesis (an integrated statistical modelling framework) with black anglerfish now gaining full analytical assessment status moving it to a category 1 assessment along with white anglerfish.

Fishing mortality F	SSB (1,0000 t)
Black-bellied anglerfish (*Lophius budegassa*) MON	
	
White anglerfish (*Lophius piscatorius*) ANK	
	

Source: MON ICES 2022b; ANK ICES 2022c

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Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			The working group is due to meet in May 2023 to update advice using data up to 31 December 2022. Last year's assessments showed that biomass for both species of anglerfish was estimated to be above MSY $B_{trigger}$ and fishing mortality was estimated to be below F_{MSY}. This suggests that both stocks are in a healthy position and harvested sustainably (ICES 2022b & ICES 2022c). The advice for 2023 is 26% higher because the advice is now based on the MSY approach using a category 1 assessment method and forecast after being benchmarked (ICES, 2022a). **Status at end of Y6, April 2023 (Target ≥80, Actual ≥80)**: • The new stock assessment process for both species and their results now means that both scoring issues meet SG 80 and this action can be closed. **Latest documentation:** • ICES (2022a). Benchmark workshop on anglerfish and hake (WKANGHAKE). ICES Scientific Reports. 4:21. http://doi.org/10.17895/ices.pub.20068997 • ICES (2022b). White anglerfish (*Lophius piscatorius*) in Subarea 7 and divisions 8.a–b and 8.d (Celtic Seas, Bay of Biscay). ICES Advice: Recurrent Advice. Report. https://doi.org/10.17895/ices.advice.21394107.v2 • ICES (2022c). Black-bellied anglerfish (*Lophius budegassa*) in Subarea 7 and divisions 8.a–b and 8.d (Celtic Seas, Bay of Biscay). ICES Advice: Recurrent Advice. Report. https://doi.org/10.17895/ices.advice.21394104.v2 • ICES (2022d). Working Group for the Bay of Biscay and the Iberian Waters Ecoregion (WGBIE). ICES Scientific Reports. Report. https://doi.org/10.17895/ices.pub.20068988.v1	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 2: Harvest strategy (ANK) **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1; ANK 2 ✓ **Beam trawl TBB** – MON 3; ANK 4 ✓ **Gillnets GN** – MON 5; ANK 6 ✓ **Overview** ANK only: ICES have separate F advisories but combined by EU/UK at quota level. No desire to split TAC as can be managed via mixed fishery MSY. Mixed fisheries management approach includes MSY of multiple species and at present only includes MON, there is a likelihood that ANK will be included if the benchmark workshop is successful in developing a category 1 stock assessment or if the mixed fisheries model used for the Celtic Sea can successfully integrate category 3 stock assessments. ANK not in the mixed fishery model at present. There is a higher likelihood of inclusion in to the mixed fishery management system, with a successful assessment benchmark process scheduled for 2022/23, but inclusion might be delayed into 2024 owing to the complexity of the process to integrate new stocks in to the modelling framework. **Performance indicator** 1.2.1 Harvest strategy **60 - 79** Requirement at SG80: SIa: 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. SIb: The harvest strategy may not have been fully tested but evidence exists that it is achieving its objectives.	Action lead: Lisa Readdy as representative of CEFAS and the ICES Working Group Partners: NWWAC & SWWAC members Resources: Engagement with ICES AC and WGs over stock assessment methodologies	**2a**. Yr 6 : no milestone	**Target 60-79** **Actions**: • Continued engagement with ICES over the ANK benchmarking and stock assessment process. **Progress**: • The mixed fisheries advice was published on the 10 November 2022 and now includes both species under two ecoregions (Celtic Seas and Bay of Biscay and Iberian Waters ecoregions). All scenarios presented (with the exception of the Max scenario) do not present an issue for either stock in terms of exceeding their respective ICES catch advice. • N.B. Both stocks management area extends into both the Irish Sea and Greater North Sea ecoregion, where they are not included in those mixed fisheries advice. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • ANK now seems to be included in the mixed fishery MSY harvest strategy. • This action could be closed off now, but suggest we keep open, review and close in Y7.	
		2ba. Yr 7: ANK included in mixed fishery MSY harvest strategy	**Target ≥80** **Actions:** • Continued engagement with ICES over the ANK benchmarking and stock assessment process and the inclusion of ANK in the mixed fishery MSY harvest strategy. **Progress**: • To be determined. **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: • To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 3: Harvest control rules and tools **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON – 1 – ✓ ANK – 2 – ✓ **Beam trawl TBB** – MON – 3 – ✓ ANK – 4 – ✓ **Gillnets GN** – MON – 5 – ✓ ANK – 6 – ✓ **Overview** Last joint quota for the last five years has remained stable. MON fishing pressure below F_{MSY} and SSB well above MSY $B_{trigger}$ (SIa). Robust to most uncertainties (SIb). But with ANK not included in mixed fisheries assessment both species may not score >80 in SIc. ANK has proxy F_{MSY} and has been below in recent years, so also good (SIa). Stock status has some uncertainties (SIb). But with ANK not included in mixed fisheries assessment may not score >80 in SIc. **Performance indicator** 1.2.2 Harvest control rules and tools **60 - 79** Requirement at SG80: SIa: Well defined HCRs are in place that ensure that the exploitation rate is reduced as the PRI is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY. SIb: The HCRs are likely to be robust to the main uncertainties. SIc. Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the HCRs.	Action lead: Lisa Readdy as representative of CEFAS and the ICES Working Group Partners: NWWAC & SWWAC members Resources: Engagement with ICES AC and WGs over stock assessment methodologies	**3a**. Yr 6 : no milestone	**Target 60-79** **Actions**: • Continued engagement with ICES over the ANK benchmarking and stock assessment process. **Progress**: • The mixed fisheries advice was published on the 10 November 2022 and now includes both species under two ecoregions (Celtic Seas and Bay of Biscay and Iberian Waters ecoregions). All scenarios presented (with the exception of the Max scenario) do not present an issue for either stock in terms of exceeding their respective ICES catch advice. • N.B. Both stocks management area extends into both the Irish Sea and Greater North Sea ecoregion, where they are not included in those mixed fisheries advice. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • ANK now seems to be included in the mixed fishery MSY harvest strategy. • This action could be closed off now, but suggest we keep open, review and close in Y7.	
		3b. Yr 7: ANK included in mixed fishery MSY harvest strategy	**Target ≥80** **Actions:** • Continued engagement with ICES over the ANK benchmarking and stock assessment process and review the impact / effects of the inclusion of ANK in the mixed fishery MSY harvest strategy and its likely impact in terms of HCR effectiveness. **Progress**: To be determined. **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 4: Information and monitoring (ANK) **Gear** / **Spp.** / **UoA #** / **Scope** **Demersal trawl OTB**: MON 1; ANK 2 ✓ **Beam trawl TBB**: MON 3; ANK 4 ✓ **Gillnets GN**: MON 5; ANK 6 ✓ **Overview** New research that shows potential for rehybridization makes this complicated. Smaller fish are more difficult to distinguish. MON / ANK ratio is estimated from sampling, but there is some uncertainty in the mainly port-based sampling (there is also some limited on-board sampling). Forster's work showed there is little that industry can do., esp. with hybrids. Could be possible to use REM cameras e.g. after head and tail removed to show black membrane and test via the new FISP REM project (very obvious for the larger fish, but smaller fish just above MLS is less obvious). Need to be aware that the UK only lands a small portion of the total TAC. FR & ESP. separate landings by species in some ports. Genetic studies still on-going (Cefas contributed). ANK: Insufficient information on stock biomass to meet SIa, although this is being addressed over the next year or so. **Performance indicator** 1.2.3 Information and monitoring **60 - 79** Requirement at SG80: SIa: Sufficient relevant information related to stock structure, stock productivity, fleet composition and other data are available to support the harvest strategy.	Action lead: Lisa Readdy as representative of CEFAS and the ICES Working Group Partners: NWWAC & SWWAC members Resources: Engagement with ICES AC and WGs over stock assessment methodologies	**4a**. Yr 6 & 7: Stock assessment report for ANK published in May 2023	**Target ≥80** **Actions**: • Continued engagement with ICES over the ANK benchmarking and stock assessment process. **Progress**: • Awaiting WG meeting in May 2023 to update advice using data up to 31 December 2022, last year's assessments showed that biomass for both species of anglerfish was estimated to be above MSY $Bt_{trigger}$ and fishing mortality was estimated to be below F_{MSY}, this suggests that both stock are in a healthy position and harvested sustainably. • In Spain ANK is double the price of MON and is identified by exposing the black membrane when fishing. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Need to consider whether there is now Insufficient information on stock biomass to meet SIa and to close this action…. • Note: have increased score for 1.2.4 (Assessment of stock assessment) to ≥80 for all UoAs. 	

Gear	Spp.	UoA #	Scope
Demersal trawl OTB	MON	1	
	ANK	2	✓
Beam trawl TBB	MON	3	
	ANK	4	✓
Gillnets GN	MON	5	
	ANK	6	✓

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 5: Secondary species management (OTB & TBB only) **Overview** It is unclear whether management strategies exist for different gurnard species. Pouting is thought to have very minimal management measures and cuttlefish are currently not managed at all. While generic management measures may apply e.g. restricted licencing, monitoring of catches, MPAs, technical regulations and the Landing Obligation, it is unclear whether these are effective to the specific species and initial reviews of the Landing Obligation have suggested limited effectiveness. This is not likely meet to SG80 for SIa, SIb or SIc. **Performance indicator** 2.2.2 Secondary species management **60 - 79** Requirement at SG80: SIa. There is a partial strategy in place, if necessary, 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 above biologically based limits or to ensure that the UoA does not hinder their recovery. SIb. There is some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or species involved SIc. There is some evidence that the measures/	Action leads: Steering group MSC to investigate funding, if necessary Partners: Cefas & Industry Stakeholders: Resources: Expertise to manage main and minor secondary catch.	5a. Yr 6 : Internal FIP paper prepared on management needs and options for main secondary species.	**Target 60-79** Gurnard & cuttle covered in the Celtic Sea (inc. 7e) mixed demersal non-quota management plan. Pouting mainly used for bait. But is small so most will escape, so PSA probably positive. Check if PSA done by Cefas. Actions: • Review of management needs and options for main secondary species such as gurnards, pouting and cuttlefish caught in OTB and TBB. Focus both at stock management level (Cefas) and operational level (industry). **Progress**: • Gurnard and cuttle non-quota species so not covered by the Landings' Obligation. Pouting not covered by CEFAS PSA (e.g., Ribeiro Santos, 2019), but given relatively large mesh sizes would likely be a pass for both gears. • Gilllnet mesh sizes vary from 107 – 114 mm (GN) and 80 – 120 mm (GTR), based on MMO data from a FOI request. This suggests that only large pouting and gurnards are likely to be caught by this gear. • Catchpole & Nelson (2017) suggest that improvements in TBB selectivity has led to the reduction of bycatch, inc. of gurnard and cuttlefish. However the FOI data showed the average OTB mesh size to be 95 mm (ranging from 81 mm in 7d < 12 m to 100 mm) and 80 – 87 mm for TBB, suggesting most TBB vessels still had not switched to the 90 mm square mesh cod ends. However it should be noted that JH flagged that her members have said they often use larger mesh sizes than they declare in their logbooks in order to account for any shrinkage with new nets. • The Western Waters Multi-Annual Plan (EC, 2019) also Regulation also applies to by-catches caught in the Western Waters when fishing for the 36 specific stocks listed in paragraph 1 of the regulation, citing the need to apply the precautionary approach. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Given most of these species are not covered by the landings obligation, it is likely that the most effective management measure will be through mesh sizes. The apparent persistence with 80 mm cod ends after the Project 50% recommendations (for 90 or 100 mm) needs to be discussed.	

Gear	Spp.	UoA #	Scope
Demersal trawl OTB	MON	1	✓
	ANK	2	✓
Beam trawl TBB	MON	3	✓
	ANK	4	✓
Gillnets GN	MON	5	
	ANK	6	

Average of Mesh_size_mm	Col	
Row Labels	OTB	TBB
12m and over	95	80
27.7.d		80
27.7.e	93	80
27.7.f	92	80
27.7.g	99	80
27.7.h	100	80
27.7.j	99	
under 12m	95	82
27.7.d	81	80
27.7.e	95	82
27.7.f	100	87
Grand Total	95	80

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
partial strategy is being implemented successfully.				
		5b. Yr 7: Include secondary species management strategy (partial or full).	**Target ≥80** **Actions:** • Include secondary species management strategy (partial or full) in FMP, including (i) some objective basis for confidence that the measures/ partial strategy will work, based on some information directly about the UoA and/or species involved and (ii) some evidence that the measures/ partial strategy is being implemented successfully. • Consider wider move to large mesh sizes, esp. in TBB. **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: To be determined in April 2024.	

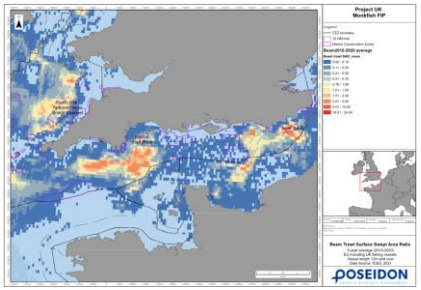
Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 6: Secondary species information (OTB & TBB only) **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1 ✓; ANK 2 ✓ **Beam trawl TBB** – MON 3 ✓; ANK 4 ✓ **Gillnets GN** – MON 5; ANK 6 **Overview** There is sufficient information on the biology of each of the main secondary species (e.g. length at maturity, maximum length, common length, maximum weight, maximum age, distribution, depth range, distribution, life cycle and mating behaviour). According to MRAG Americas (2020), based on availability of biological data and also taking into consideration the lack of spatial extent, especially those species not covered by ICES assessments (such as cuttlefish and gurnards), the two mobile gears would not meet SG 80 for SIc. **Performance indicator** 2.2.3 Secondary species information **60 - 79** Requirement at SG80: SIc. Information is adequate to support a partial strategy to manage main secondary species.	Action leads: Steering group MSC to investigate funding, if necessary Partners: Cefas & Industry Stakeholders: Resources: Expertise to manage main and minor secondary catch.	**6a**. Yr 6 & 7: Short report for inclusion in the FMP on the spatial intensity of main secondary species catches within the UoA.	**Target ≥80** CEFAS might be doing this (CN to check). Alternative to so have a data -limited fisher-based survey on heat mapping and habitat (depth / substrate / dependency). **Actions**: • Assess spatial intensity of main secondary species catches within the UoA to support the development of management measures in Action 5. **Progress**: • Cefas' GeoFISH heatmapping project by Cefas, which combines landing data and VMS data to achieve high resolution fishing activity and catch data could potentially assist any spatial management measures, if required. It can also be used to show core fishing grounds and activity statistics by gear and month and compare fishing intensity by gear and month. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Work with CEFAS to gauge whether GeoFISH provides sufficient spatial resolution on main secondary / in-scope species for their potential management (e.g., for mobile fishing) if required. **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 7: ETP management (GN only) **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1; ANK 2 **Beam trawl TBB** – MON 3; ANK 4 **Gillnets GN** – MON 5 ✓; ANK 6 ✓ **Overview** The common dolphin and harbour porpoise are recorded as bycatch in other gill net fisheries (for example Cornish hake fishery) and it is therefore considered here that the UoAs in this Pre-assessment are likely to also interact with these species, albeit rarely. Given over 70% of GN vessels are <12 m and therefore do not need pingers this may fail to reach SG 80 for SIa, SIc & SId. **Performance indicator** 2.3.2 ETP management **60 - 79** Requirement at SG80: SIa: There is a strategy in place for managing the UoA's impact on ETP species, including measures to minimize mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species. SIc. There is an objective basis for confidence that the partial strategy/ strategy will work, based on information directly about the UoA and/or the species involved. SId. There is some evidence that the measures / strategy is being implemented successfully.	Action leads: CFPO. Partners: CEFAS, Industry, JNCC , MMO, Seafish Science Advisory Group (SAG) Stakeholders: Seafish, NWWAC & SWWAC members SMRU Resources: Expertise to assess fisheries-related impacts on ETP populations, and to develop both alternative management measures to combat these and a long-term risk-monitoring program.	**7a**. Yr 6: Independent review of ETP interactions with gillnets, with recommendations, prepared and approved by the steering group.	**Target 60-79** **Actions**: • Independent review of ETP interactions with gillnets throughout the UoAs to assess the risk to the species involved. • Based on the above, recommend practical, efficient and cost-effective mitigation approaches that will constitute a strategy for managing the UoA's impact on ETP species, including measures to minimize mortality, which is designed to be highly likely to achieve national and international requirements for the protection of ETP species. Likely focus on <12 m boats (which don't have to use pingers) and inshore waters where interaction rates are likely to be higher. **Progress**: • Review of the 2019 marine mammal bycatch data (Kingston *et al*, 2021) suggests that two metiers covered by the 'gillnet' UoA have differing impacts on harbour porpoises, common dolphins & seals (all figures below per annum, UK-wide, assuming full ADD[4] compliance): ○ *Gill Hake* (heavy twine gillnets designed specifically to target hake): c. 275 harbour porpoises, 66 common dolphins and zero seals. Will be mostly >12 m vessels using ADD. ○ *TangTram* (large mesh, heavy twine tangle and trammel nets designed to target large fish (anglerfish, turbot etc) and shellfish (spider crab, crayfish etc): c. 376 harbour porpoises, 164 common dolphins and 445 seals. Will also be mainly >12 m vessels, but may include some <12 m **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Consider appropriate mitigation measures for consideration over Yr 7, focusing mainly on <12 m vessels, esp. trammel nets.	
		7b. Yr 7: Report on the progress in rolling out ETP mitigation measures in the GN UoAs and an assessment of their effectiveness (see also Action 8 overleaf).	**Target ≥80** **Actions:** • Pilot-testing of mitigation approaches and roll-out of refined plan in GN metiers where a medium to high risk of interaction is assessed. • Investigate potential impact of the UoA on cetacean / pinniped population levels. **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: To be determined in April 2024.	

[4] Acoustic Deterrent Devices (ADD) – mandatory for vessels > 12 m using any bottom-set gillnet or entangling net in 7d, 7f, 7g, 7h & 7j

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 8: ETP information (GN only) **Gear** / **Spp.** / **UoA #** / **Scope** **Demersal trawl OTB**: MON 1; ANK 2 **Beam trawl TBB**: MON 3; ANK 4 **Gillnets GN**: MON 5 ✓; ANK 6 ✓ **Overview** There is some quantitative information on ETP catches, based on the catch profile estimates, which is adequate to assess UoA related mortality and impact on ETPs. However the information available is not sufficient to determine trends and support a strategy to manage ETP interactions. It is not clear whether the observer coverage is sufficient to represent the intensity of all UoA activities, in particular as no records of marine mammal / seabird interactions were available for this pre-assessment, so will fail to meet SG80 for SIba strategy and thus fails to meet SG 80 for SIb. **Performance indicator** 2.3.3 ETP information **60 - 79** Requirement at SG80: SIb: Information is adequate to measure trends and support a strategy to manage impacts on ETP species.	Action leads: CFPO. Partners: CEFAS, Industry, JNCC, MMO, Seafish Science Advisory Group (SAG) Stakeholders: Seafish, NWWAC & SWWAC members SMRU Resources: Expertise to assess fisheries-related impacts on ETP populations, and to develop both alternative management measures to combat these and a long-term risk-monitoring program.	**8a**. Yr 6-7: Information on the frequency, nature and outcome of interactions of gillnets with marine megafauna is available and adequate to measure trends and support a strategy to manage impacts on ETP species.	**Target 60-79 (Y6)** Suggest we have a small report to compile current GN ETP reporting pathways and use / availability of data. Look for gaps in GN UoA fleet coverage. Compile in one place? CN. Training / awareness of discard reporting regs, etc. **Actions**: • Review of different cetacean and other megafauna reporting programs (e.g. CleanCatch) conducted to determine reporting coverage and assess informational spatial / metier gaps. Better to keep reporting system separate from logbooks. • Client body to propose a system that compiles data on the frequency, nature and outcome of interactions of gillnets with marine megafauna from different sources and addresses any gaps. These data should be compiled on a regular basis and made readily available to any interested stakeholder. **Progress (Y6 April 2023)**: • Review of the 2019 marine mammal bycatch data (Kingston *et al*, 2021) suggests that two metiers covered by the 'gillnet' UoA have differing impacts on harbour porpoises, common dolphins & seals (see Action 7). • Need further verification of these figures which seem to be on the high side compared to our previous understanding. • The Clean Catch App has undergone significant work to rebuild the different 'groups' after testing last year revealed a number of technical errors. Group 1 is focussed on wildlife bycatch, and extensions have been made to the app to make it suitable for use on trawl and dredge vessels. Final internal testing should be complete by the end of February 2023, after which it can be trialled by fishing vessels. • An alternative App called MoFI is noted as a potential alternative if Clean Catch App is not successful **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Examine alternative data sources (such as the revised Clean catch UK app') to refine understanding of inshore ETP interactions.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
			Status at end of Y7, April 2024 (Target ≥80, Actual tbc): To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 9: Habitats outcome **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON – 1 – ✓ ANK – 2 – ✓ **Beam trawl TBB** – MON – 3 – ✓ ANK – 4 – ✓ **Gillnets GN** – MON – 5 ANK – 6 **Overview** For the two mobile gears, the Round 3 FIP pre-assessment for mixed fisheries in the SW and Celtic Sea suggests that the larger scale location and intensity of all the vessels need to be available in order to correspond these with underlying main habitats and meet SG 80. Therefore this does not meet SG 80 for SIa (commonly encountered habitats) or SIb (VMEs). It is understood from Defra that IFCAs continue to assess the need for MPA management measures in their districts. For offshore sites (& those within 6-12nm), the MMO intends to apply management measures in all MPAs within three years. This suggests that management measures will be in place on MPAs by, say, mid 2024 and not before and that a confident pass for PI 2.4.2 may not be possible before this date. **Performance indicator** 2.4.1 Habitat outcome **60 - 79** Requirement at SG80: SIa: The UoA is highly unlikely to reduce structure and function of the commonly encountered habitats to a point where there would be serious or irreversible harm. SIb: The UoA is highly unlikely to reduce structure and function of the VME habitats to a point where there would be serious or irreversible harm.	Action leads: Steering group Partners: CEFAS, Industry, JNCC, MMO, Defra, Seafish Science Advisory Group (SAG) Resources: Expertise to assess fishers-related impacts on habitats, and to develop both alternative management measures to combat these and a long-term risk-monitoring program.	**9a**. Yr 6 : Summary report on the footprint, scale and intensity of mobile gear fisheries in the UoA against commonly encountered habitats and VMEs.	**Target 60-79** Consider rerunning SICA assuming all MPAs will be closed to trawling, focusing on SICA, and see if this pushes the score up. **Actions**: • Using both previous FIP reports and new information, compile existing data on the footprint of the spatial mobile (OTB/TBB) fisheries compared to habitat maps (inc. both commonly encountered habitats and VMEs), including any habitat management (e.g. MPAs) boundaries. • Assess information on habitat recovery rates from both OTB & TBB fishing in both commonly encountered habitats and VMEs to guide habitat management measures to be developed in Action 10 (next) **Progress (Yr 3, April 2023)**: Previous SICA results summarised for the FMP (by CN). Some initial, informal work undertaken by Fiona Nimmo of Poseidon to show overlap of beam trawl (TBB) intensity (in terms of the surface swept area ratio). This suggests that overlap with TBB in some areas (e.g., the Solent and Isle of Wight; south Cornwall coast; Scilly islands) is low, it is higher in some areas, esp. around the South West Approaches to the Bristol Channel MCZ and the Skerries Bank and Surrounds MCZ (near Start Point).  See **Figure 5** for larger figure **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Fiona Nimmo considers re-running the SICA (which was for 2.5.1 Ecosystems, not habitat) will not provide progress. She suggests we focus on the MPAs in terms of (i) their designated features / GES and (ii) their vulnerability to the UoA activities. This could be done in the form of a brief review of each MPA and risk analysis against each gear type and the historic level of associated activity. • However the FIP will have to act mainly though Action 10 (2.4.2 Management).	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 10: Habitats management **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1 ✓; ANK 2 ✓ **Beam trawl TBB** – MON 3 ✓; ANK 4 ✓ **Gillnets GN** – MON 5; ANK 6 **Overview** The network of designated areas, including MPAs and SACs, and fisheries management measures, together form a partial strategy, that if applied as intended would be expected to meet SG80 for SIa. While measures are likely to work (SI b at SG60 is met), no site-specific management measures have been proposed by Defra for any of the MCZs, other than a generic objective of "Recover to favourable condition" for most of the habitats described and this is likely to fail at SG 80 for SIb, SIc & SId. **Performance indicator** 2.4.2 Habitat management **60 - 79** Requirement at SG80: SIb: There is some objective basis for confidence that the measures/ partial strategy will work, based on information directly about the UoA and/or habitats involved. SIc: There is some quantitative evidence that the measures/partial strategy is being implemented successfully. SId: There is some quantitative evidence that the UoA complies with both its management requirements and with protection measures afforded to VMEs by other MSC UoAs/non-MSC fisheries, where relevant.	Action leads: Steering group Partners: CEFAS, Industry, JNCC, MMO, Defra, Seafish Science Advisory Group (SAG) Resources: Expertise to assess fishers-related impacts on habitats, and to develop both alternative management measures to combat these and a long-term risk-monitoring program.	**10a**. Yr 6 -7: Site-specific management measures in place for designated protected areas.	**Target 60-79 (Y6)** **Actions**: • Work with the IFCAs, Defra and MMO to formulate site-specific management measures for designated protected areas. It is important that industry engage to ensure that these measures are relevant, practical and effective. **Progress (Yr 6, April 2023)**: • In 2021, the MMO consulted on management measures for four MPAs, one in the English Channel, and these measures were implemented in April 2022. In June 2022, the MMO consulted on management measures for the next tranche of MPAs, including a further two in the English Channel. Management measures are also expected to be rolled out in those MPAs in due course, and full management measures are expected for all currently designated MPAs by the end of 2024 **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Based on the analysis in Action 9, pre-actively industry-led management options for these MPAs in advance of any management measures put in place by Defra/MMO in 2024. • See also Action 12 (2.5.1 Ecosystem outcome) **Status at end of Y7, April 2024 (Target ≥80, Actual tbc)**: To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 11: Habitats information **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1 ✓; ANK 2 ✓ **Beam trawl TBB** – MON 3 ✓; ANK 4 ✓ **Gillnets GN** – MON 5; ANK 6 **Overview** There is detailed knowledge in relation to habitat distribution within English inshore and offshore waters - including vulnerable habitats, VMEs & SG80 is met for SIa. There is detailed information available on the spatial and temporal patterns of fleet operations for vessels >12m via VMS, iVMS for smaller vessels is supposedly being rolled out across the UoAs. However, reliable information on the spatial extent of interaction and the location of use of the fishing gear is not yet available for <12m vessels. SIb does not meet SG80. Considering that the habitats management PI requires information directly about the UoA, this would imply that, although the broad scale level of information of habitat impact may be sufficient, for OTB and TBB more specific information is required with respect to monitoring of risk and fails to meet SG 80 for SIc. **Performance indicator** 2.4.3 Habitat information **60 - 79** Requirement at SG80: SIb: Information is adequate to allow identification of the main impacts of the UoA on the main habitats, and there is reliable information on the spatial extent of interaction and on the timing and location of use of the fishing gear. SIc: Adequate information continues to be collected to detect any increase in risk to the main habitats.	Action leads: Steering group Partners: CEFAS, Industry, JNCC, MMO, Defra, Seafish Science Advisory Group (SAG) Resources: Expertise to assess fishers-related impacts on habitats, and to develop both alternative management measures to combat these and a long-term risk-monitoring program.	**10a**. Yr 6 -7: Spatial data made on the spatial extent of habitat interaction and on the timing and location of use of the fishing gear.	**Target 60-79 (Y6)** **Actions**: • As iVMS is rolled out over the UoA, adequate information is made available on the spatial extent of habitat interaction and on the timing and location of use of the fishing gear within the UoA by <12 m vessels. • For all the UoAs, information on the spatial intensity of mobile gears continues to be collected and is sufficient to detect increased risk to the main habitats. **Progress (Yr 6, April 2023)**: • Some initial, informal work undertaken by Fiona Nimmo of Poseidon to show overlap of beam trawl (TBB) intensity (in terms of the surface swept area ratio). This suggests that overlap with TBB in some areas (e.g., the Solent and Isle of Wight; south Cornwall coast; Scilly islands) is low, it is higher in some areas, esp. around the South West Approaches to the Bristol Channel MCZ and the Skerries Bank and Surrounds MCZ (near Start Point). • The rollout of inshore Vessel Monitoring System (I-VMS) devices on all English vessels <12m in length is expected to be complete by May 2023; the only remaining vessels to have I-VMS installed are those <6m in length. • It remains unclear what evidence can be provided to determine spatial footprint of dredge vessels under 12m in length. This remains a concern for environmental advisors on the steering group. Actions are focused on investigations into the provision of iVMS data in amalgamated format that does not cause confidentiality issues **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Check progress of iVMS roll-out and access to aggregated data by the FIP. **Status at end of Y7, April 2024 (Target ≥80, Actual tbd)**: • To be determined in April 2024.	

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 12: Ecosystem outcome **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON 1 ✓; ANK 2 ✓ **Beam trawl TBB** – MON 3 ✓; ANK 4 ✓ **Gillnets GN** – MON 5; ANK 6 **Overview** The demersal trawl gears UoAs in particular will have to demonstrate restrained impact on the ecosystem, which in terms of the gear types involved, would, for example, be a case of clearly demonstrating the footprint of the demersal gears UoAs as well as demonstrate active gear development / configuration to restrain impact across the wider benthos. SG 80 is not met. **Performance indicator** 2.5.1 Ecosystem outcome **60 - 79** Requirement at SG80: SIa: 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.	Action leads: Steering group MSC to investigate funding Partners: CEFAS, Industry, JNCC, Seafish SAG Resources: Expertise in ecosystem analysis and use of the RBF and SICA tools.	**12a**. Yr 6: Summary report on the footprint, scale and intensity of mobile gear fisheries in the UoA against commonly encountered habitats and VMEs.	**Target 60-79** **Actions (common with Action 9)**: • Using both previous FIP reports and new information, compile existing data on the footprint of the spatial mobile (OTB/TBB) fisheries compared to habitat maps, including any ecosystem management (e.g. MPAs) boundaries. • Assess information on ecosystem recovery rates from both OTB & TBB fishing in both commonly encountered habitats and VMEs to guide habitat management measures to be developed in Action 10. **Progress (Yr 6, April 2023)**: • Some initial, informal work undertaken by Fiona Nimmo of Poseidon to show overlap of beam trawl (TBB) intensity (in terms of the surface swept area ratio). This suggests that overlap with TBB in some areas (e.g., the Solent and Isle of Wight; south Cornwall coast; Scilly islands) is low, it is higher in some areas, esp. around the South West Approaches to the Bristol Channel MCZ and the Skerries Bank and Surrounds MCZ (near Start Point). • Katara (2019) suggested that the "*RBS[5] values for the monkfish FIP fleet are lower than 80% for coarse sediments and beam trawlers and otter trawlers. Based on* the *RBS values for common habitats, and beam or otter trawlers, in the absence of fishing, the coarse sediments could not recover to 80% compared to an undisturbed habitat*". This suggests that such 'commonly encountered' habitats should also be considered in Action 10. • No information to date on the potential availability of iVMS data for assessing the footprint of vessels <12 m in the UoA and its use for ecosystem management purposes. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Check progress of iVMS roll-out and access to aggregated data by the FIP. **Status at end of Y7, April 2024 (Target ≥80, Actual tbd)**: To be determined in April 2024.Work un	

[5] RBS – Relative benthic status

Standard requirement	Lead & partners	Timescale / milestones	Progress / outcome	Revised milestone
Action 13: Compliance and enforcement **Gear / Spp. / UoA # / Scope** **Demersal trawl OTB** – MON – 1 – ✓ ANK – 2 – ✓ **Beam trawl TBB** – MON – 3 – ✓ ANK – 4 – ✓ **Gillnets GN** – MON – 5 – ✓ ANK – 6 – ✓ **Overview** The MMO recently revised and updated its Compliance and Enforcement Strategy which sets out its approach to monitoring and enforcement via a risk-based enforcement process. The IFCAs also operate a risk-based enforcement system. In 2018 the European Commission found limited evidence of the effective implementation of the landing obligation by Member States and that there are concerns about the capacity of national and EU agencies to monitor and enforce compliance with the landing obligation. Statements in the (draft) JFS suggest that UK authorities could introduce additional measures to ensure the MCS system is able to enforce all relevant management measures, strategies and/or rules, but there is no evidence to date that these are applied. The MMO recently revised and updated its Compliance and Enforcement Strategy, which sets out its approach to monitoring and enforcement via a risk-based enforcement process. However, we have found no recent evidence on the effectiveness of UK enforcement, including in relation to the LO and consequently SG80 is not met for SIa. **Performance indicator** 3.2.3 – Compliance and enforcement **60 - 79** Requirement at SG80: SIa: 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.	Action leads: Steering group MSC to investigate funding Partners: CEFAS, Industry, JNCC, Seafish SAG Resources: Expertise in ecosystem analysis and use of the RBF and SICA tools.	**13a**. **Yr 6 :** Consultation on potential additional measures to ensure effective control and enforcement of vessels within the UoAs, resulting in draft control & enforcement measures. **13b**. **Y7:** Consult on control & enforcement measures (M1-6) and then implement finalised control & enforcement measures (M7-12).	**Target 60-79** Hake fishery now has a condition on this. Cameras are the only objective way. Fully-documented fisheries scheme finished. Defra looking for REM trials of different systems. All gear types will have some REM (6 vessels), for data-deficient species, which could help on discarding behaviour. Could include para or two in FMP on drivers for discards and which ones are expected, etc. Cod main choke species. Will always be a small level of discarding, but so long as this is accounted for in the stock assessment this is broadly acceptable. But difficult to quantify this with current camera system but can be done in future. **Actions**: • Catches of quota species are subject to the landing obligation (LO). Reviews have found that existing control measures cannot effectively implement the LO. • The UoAs must provide evidence of effective control and enforcement of all regulatory requirements, including the Landing Obligation. **Progress (Yr 6, April 2023)**: • CN spoke with her members about discard reporting but it is difficult for skippers to see what is happening on deck from the wheelhouse. Remote Electronic Monitoring (REM) may provide a solution, and Defra are shortly planning to consult on, and then trial, REM on various vessel and gear types. Defra are working with the discards policy reform team to ensure the REM policy is compatible with the discards policy. CN said there will be a call for volunteer vessels to trial REM when Defra get to that stage, and industry representative should encourage vessels in this FIP to participate. **Status at end of Y6, April 2023 (Target 60 – 79, Actual 60 – 79)**: • Some limited uptake of REM. **Status at end of Y7, April 2024 (Target ≥80, Actual tbd)**: To be determined in April 2024.	

2.2 Benchmarking tool

Figure 1: BMT (UoAs 1&3 MON (OTB & TBB))

Note: based on new pre-assessment scores and revised Action Plan targets

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Actual Year 5	Actual Year 6	Actual Year 7	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	Expected Year 6	Expected Year 7
1	Outcome	1.1.1 Stock status **(Action 1)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	≥80	≥80	≥80	≥80	≥80
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Management	1.2.1 Harvest Strategy **(Action 2)**	60-79	60-79	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		1.2.2 Harvest control rules & tools **(Action 3)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	≥80	≥80	≥80	≥80	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥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	≥80	≥80	≥80
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Secondary species	2.2.1 Outcome **(Action 4)**	<60	<60	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		2.2.2 Management **(Action 5)**	<60	<60	<60	60-79	≥80	60-79	60-79	---	<60	<60	60-79	≥80	≥80	60-79	≥80
		2.2.3 Information **(Action 6)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
	ETP species	2.3.1 Outcome **(Action 7)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.2 Management **(Action 7)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.3 Information **(Action 7)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
	Habitats	2.4.1 Outcome **(Action 8)**	<60	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
		2.4.2 Management **(Action 8)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
		2.4.3 Information **(Action 8)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
	Ecosystem	2.5.1 Outcome **(Action 9)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		2.5.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥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	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.2 Consultation, roles and responsibilities	≥80	≥80	≥80	≥80	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.2 Decision making processes **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	≥80	≥80	≥80	≥80	60-79	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		3.2.4 Management performance evaluation **(Action 11)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
Total number of PIs equal to or greater than 80			10	10	12	12	17	19	19		10	12	14	24	27	19	27
Total number of PIs 60-79			14	15	14	15	10	8	8		16	14	13	3		8	
Total number of PIs less than 60			3	2	1						1	1					
Overall BMT Index			0.63	0.65	0.70	0.72	0.81	0.85	0.85		0.67	0.70	0.76	0.94	1.00	0.85	1.00

Figure 2: BMT (UoAs 2&4 ANK (OTB & TBB))

Note: based on new pre-assessment scores and revised Action Plan targets

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Actual Year 5	Actual Year 6	Actual Year 7	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	Expected Year 6	Expected Year 7
1	Outcome	1.1.1 Stock status **(Action 1)**	60-79	60-79	60-79	60-79	<60	60-79	≥80	---	60-79	60-79	≥80	≥80	≥80	60-79	≥80
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	---	---	---	---	≥80
	Management	1.2.1 Harvest Strategy **(Action 2)**	60-79	60-79	≥80	≥80	≥80	60-79	60-79	---	60-79	≥80	≥80	≥80	≥80	60-79	≥80
		1.2.2 Harvest control rules & tools **(Action 3)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	60-79	≥80	---	60-79	60-79	≥80	≥80	≥80	60-79	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥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	≥80	≥80	≥80
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Secondary species	2.2.1 Outcome **(Action 4)**	<60	<60	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		2.2.2 Management **(Action 5)**	<60	<60	<60	60-79	≥80	60-79	60-79	---	<60	<60	60-79	≥80	≥80	60-79	≥80
		2.2.3 Information **(Action 6)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
	ETP species	2.3.1 Outcome **(Action 7)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.2 Management **(Action 7)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.3 Information **(Action 7)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
	Habitats	2.4.1 Outcome **(Action 8)**	<60	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
		2.4.2 Management **(Action 8)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
		2.4.3 Information **(Action 8)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
	Ecosystem	2.5.1 Outcome **(Action 9)**	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		2.5.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥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	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.2 Consultation, roles and responsibilities	≥80	≥80	≥80	≥80	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.2 Decision making processes **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	≥80	≥80	≥80	≥80	60-79	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		3.2.4 Management performance evaluation **(Action 11)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
Total number of PIs equal to or greater than 80			10	10	12	12	16	15	17		10	12	14	24	27	≥80	≥80
Total number of PIs 60-79			14	15	14	15	10	12	10		16	14	13	3		12	
Total number of PIs less than 60			3	2	1		1				1	1					
Overall BMT Index			**0.63**	**0.65**	**0.70**	**0.72**	**0.78**	**0.78**	**0.81**		**0.67**	**0.70**	**0.76**	**0.94**	**1.00**	**0.78**	**1.00**

Figure 3: BMT (UoA 5 MON (GN))

Note: based on new pre-assessment scores and revised Action Plan targets

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Actual Year 5	Actual Year 6	Actual Year 7	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	Expected Year 6	Expected Year 7
1	Outcome	1.1.1 Stock status **(Action 1)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	≥80	≥80	≥80	≥80	≥80
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	---	---	---	---	≥80
	Management	1.2.1 Harvest Strategy **(Action 2)**	60-79	60-79	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		1.2.2 Harvest control rules & tools **(Action 3)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	≥80	≥80	≥80	≥80	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥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	≥80	≥80	≥80
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Secondary species	2.2.1 Outcome **(Action 4)**	<60	<60	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		2.2.2 Management **(Action 5)**	<60	<60	<60	60-79	≥80	≥80	≥80	---	<60	<60	60-79	≥80	≥80	≥80	≥80
		2.2.3 Information **(Action 6)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
	ETP species	2.3.1 Outcome **(Action 7)**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.2 Management **(Action 7)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	60-79	60-79	≥80
		2.3.3 Information **(Action 7)**	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	60-79	60-79	≥80
	Habitats	2.4.1 Outcome **(Action 8)**	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.4.2 Management **(Action 8)**	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.4.3 Information **(Action 8)**	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Ecosystem	2.5.1 Outcome **(Action 9)**	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥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	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.2 Consultation, roles and responsibilities	≥80	≥80	≥80	≥80	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.2 Decision making processes **(Action 10)**	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	≥80	≥80	≥80	≥80	60-79	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		3.2.4 Management performance evaluation **(Action 11**	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
Total number of PIs equal to or greater than 80			14	14	16	16	18	23	23		14	16	18	23	25	23	28
Total number of PIs 60-79			11	11	10	11	9	4	4		12	10	9	4	2	4	
Total number of PIs less than 60			2	2	1						1	1					
Overall BMT Index			**0.72**	**0.72**	**0.78**	**0.80**	**0.83**	**0.93**	**0.93**		**0.74**	**0.78**	**0.83**	**0.93**	**0.96**	**0.93**	**1.00**

Figure 4: BMT (UoA 6 ANK (gillnets))

Note: based on new pre-assessment scores and revised Action Plan targets

Principle	Component	Performance Indicator	Pre-Assessment Year 0	Actual Year 1	Actual Year 2	Actual Year 3	Actual Year 4	Actual Year 5	Actual Year 6	Actual Year 7	Expected Year 1	Expected Year 2	Expected Year 3	Expected Year 4	Expected Year 5	Expected Year 6	Expected Year 7
1	Outcome	1.1.1 Stock status (Action 1)	60-79	60-79	60-79	60-79	≥80	60-79	≥80	---	60-79	60-79	≥80	≥80	≥80	60-79	≥80
		1.1.2 Stock rebuilding	---	---	---	---	---	---	---	---	---	---	---	---	---	---	≥80
	Management	1.2.1 Harvest Strategy (Action 2)	60-79	60-79	≥80	≥80	≥80	60-79	60-79	---	60-79	≥80	≥80	≥80	≥80	60-79	≥80
		1.2.2 Harvest control rules & tools (Action 3)	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
		1.2.3 Information and monitoring	≥80	≥80	≥80	≥80	≥80	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		1.2.4 Assessment of stock status	60-79	60-79	60-79	60-79	60-79	60-79	≥80	---	60-79	60-79	≥80	≥80	≥80	60-79	≥80
2	Primary species	2.1.1 Outcome	≥80	≥80	≥80	≥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	≥80	≥80	≥80
		2.1.3 Information	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Secondary species	2.2.1 Outcome (Action 4)	<60	<60	≥80	≥80	≥80	≥80	≥80	---	60-79	≥80	≥80	≥80	≥80	≥80	≥80
		2.2.2 Management (Action 5)	<60	<60	<60	60-79	≥80	≥80	≥80	---	<60	<60	60-79	≥80	≥80	≥80	≥80
		2.2.3 Information (Action 6)	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
	ETP species	2.3.1 Outcome (Action 7)	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		2.3.2 Management (Action 7)	60-79	60-79	60-79	60-79	60-79	60-79	60-79	---	60-79	60-79	60-79	≥80	≥80	60-79	≥80
		2.3.3 Information (Action 7)	60-79	60-79	60-79	60-79	≥80	60-79	60-79	---	60-79	60-79	60-79	60-79	≥80	60-79	≥80
	Habitats	2.4.1 Outcome (Action 8)	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.4.2 Management (Action 8)	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.4.3 Information (Action 8)	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Ecosystem	2.5.1 Outcome (Action 9)	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.2 Management	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		2.5.3 Information	≥80	≥80	≥80	≥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	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.2 Consultation, roles and responsibilities	≥80	≥80	≥80	≥80	60-79	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
		3.1.3 Long term objectives	≥80	≥80	≥80	≥80	≥80	≥80	≥80	---	≥80	≥80	≥80	≥80	≥80	≥80	≥80
	Fishery specific management system	3.2.1 Fishery specific objectives (Action 10)	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	60-79	≥80	≥80	≥80
		3.2.2 Decision making processes (Action 10)	60-79	60-79	60-79	60-79	60-79	≥80	≥80	---	60-79	60-79	60-79	≥80	≥80	≥80	≥80
		3.2.3 Compliance and enforcement	≥80	≥80	≥80	≥80	60-79	60-79	60-79	---	≥80	≥80	≥80	≥80	≥80	60-79	≥80
		3.2.4 Management performance evaluation	60-79	60-79	60-79	60-79	≥80	≥80	≥80	---	60-79	60-79	≥80	≥80	≥80	≥80	≥80
Total number of PIs equal to or greater than 80			14	14	16	16	19	19	21		14	16	19	24	27	19	28
Total number of PIs 60-79			11	11	10	11	8	8	6		12	10	8	3		8	
Total number of PIs less than 60			2	2	1						1	1					
Overall BMT Index			**0.72**	**0.72**	**0.78**	**0.80**	**0.85**	**0.85**	**0.89**		**0.74**	**0.78**	**0.85**	**0.94**	**1.00**	**0.85**	**1.00**

Appendix A: Revised pre-assessment (conducted April 2022)

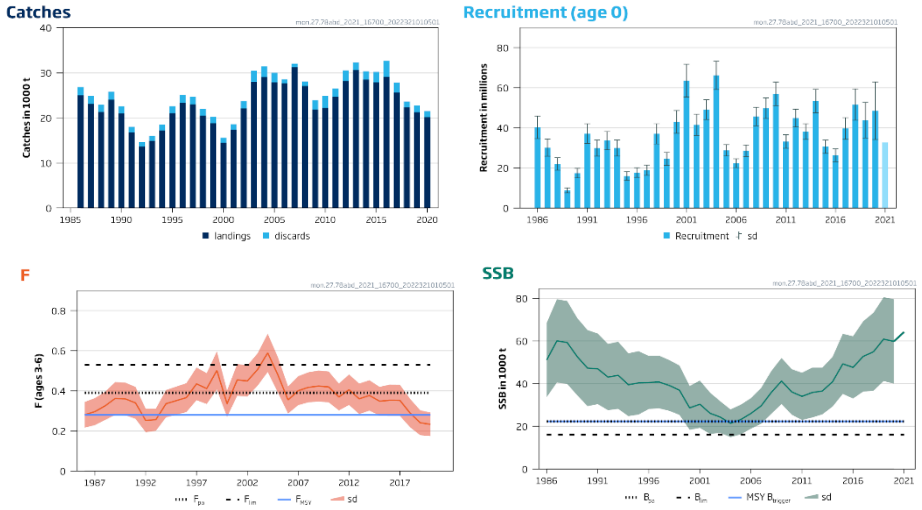
Summary of Performance Indicator level scores

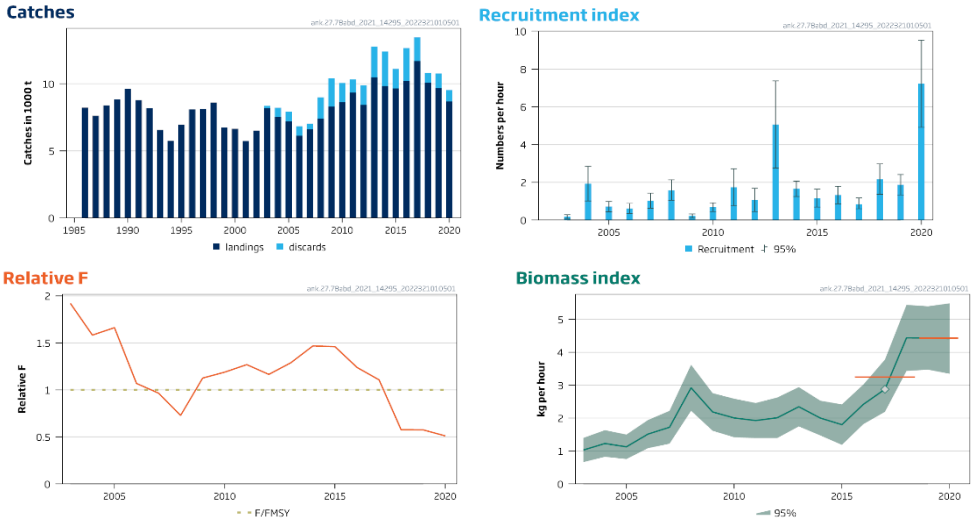
Principle 1

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60		SG80	
				MON	ANK	MON	ANK
1.1.1 – Stock status	MON: ≥80 ANK: 60-79	MON: N ANK: Y	a	✓	✓	✓	×
			b	-	-	✓	×

Rationale:

L. piscatorius: Not impaired with a high degree of certainty. F is well below F_{MSY} and the SSB well above the MSY $B_{trigger}$, B_{pa}, and B_{lim} and increasing (see below). Recruitment consistent over recent years (ICES, 2021) Certainly meets SG 80, probably SG 100.



Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60		SG80	
				MON	ANK	MON	ANK
L. budegassa: Currently only have fishing mortality reference points (proxy), with relative fishing mortality well below $F_{MSYproxy}$. Recruitment has been reasonably strong over the past 5 – 10 years. Biomass index (in kg/hour) is also increasing from around 4 in 2003 to > 4 since 2018. Based on this (ICES 2021) will met SG 60 in SI (a), but not enough information to meet SG 80. Undergoing full stock assessment with Part 1 benchmarking stage over 2022, data compilation in Autumn 2022. Part 2 will be actual stock assessment expected in Feb 23, completed by March 2023 for assessment working group meeting in May 2023. Have enough to develop an assessment.  Industry can attend the benchmarking. Should include a FIP industry representative.							
1.1.2 – Stock rebuilding	**MON: NA** **ANK: NA**	MON: N ANK: Y	a	NA	NA	NA	NA
			b	NA	NA	NA	NA
Rationale: ***L. piscatorius***: Not applicable. ***L. budegassa***: Although ANK scored < 80, rebuilding is likely not needed so has not been scored.							
1.2.1 – Harvest Strategy	**MON: ≥80** **ANK: 60-79**	MON: N ANK: Y	a	✓	✓	✓	✗
			b	✓	✓	✓	✗
			c	✓	✓	-	-
			d	✓	✓	-	-
			e	N/A	N/A	N/A	N/A
			f	✓	✓	✓	✓
Rationale: ICES have separate F advisories but combined by EU/UK at quota level. No desire to split TAC, as can be managed via mixed fishery MSY. Mixed fisheries management approach includes MSY of multiple species and at present only includes *L. piscatorius,* there is a likelihood that *L. budegassa* will be included if the benchmark workshop is successful in developing a category 1 stock assessment or if the mixed fisheries model used for the Celtic Sea can successfully integrate category 3 stock assessments. Mixed fisheries models make use of the single species reference points, assessment outputs and fishing patterns to reduce the discrepancy in fishing effort needed							

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60		SG80	
				MON	ANK	MON	ANK
between the most and least restrictive catches advised for each species. A number of scenarios are presented showing the trade-offs between catches such providing fishing effort and respective catch levels for the limiting stock, the one not doing well, along with an advised catch level lower than would be estimated from the single species assessment for stocks considered doing well. ***L. piscatorius***: Mixed fishery approach has been in place and has included MON for last 2 years. Reviewed annually ***L. budegassa***: ANK not in the mixed fishery model at present. There is a higher likelihood of inclusion in to the mixed fishery management system, with a successful assessment benchmark process scheduled for 2022/23, but inclusion might be delayed into 2024 owing to the complexity of the process to integrate new stocks in to the modelling framework.							
1.2.2 – Harvest control rules and tools	**MON: 60-79** **ANK: 60-79**	MON: N ANK: Y	a	✓	✓	✓	×
			b	-	-	✓	×
			c	✓	✓	×	×
Rationale: Last 5 years quota remained stable. ***L. piscatorius***: MON fishing pressure below F_{MSY} and SSB well above MSY $B_{trigger}$ (SIa). Robust to most uncertainties (SIb). But with ANK not included in mixed fisheries assessment both species may not score >80 in SIc. ***L. budegassa***: ANK has proxy F_{MSY} and has been below in recent years, so also good (SIa). Stock status has some uncertainties (SIb). But with ANK not included in mixed fisheries assessment may not score >80 in SIc.							
1.2.3 – Information and monitoring	**MON: ≥80** **ANK: 60-79**	MON: N ANK: Y	a	✓	✓	✓	×
			b	✓	✓	✓	✓
			c	✓	✓	✓	✓
Rationale: New research that shows potential for rehybridization makes this complicated. Smaller fish are more difficult to distinguish (via spine and fin ray counting). MON / ANK ratio is estimated from sampling, but there is some uncertainty in the mainly port-based sampling (there is also some limited on-board sampling. Forster's work showed there is little that industry can do., esp. with hybrids. Could be possible to use REM cameras e.g. after head and tail removed to show black membrane and test via the new FISP REM project (very obvious for the larger fish, but smaller fish just above MLS is less obvious). REM 6 vessels across different gear types and POs. Is industry-driven. Will need good lighting. Need a representative sample to support port sampling. Need to be aware that the UK only lands a small portion of the total TAC. FR & ESP. separate landings by species in some ports. Genetic studies still on-going (Cefas contributed). Overall, not much more that can be done. ***L. piscatorius***: Is sufficient information across all SIs to meet SG 80. ***L. budegassa***: Insufficient information on stock biomass to meet SIa, although this is being addressed over the next year or so. Should meet SG 80 on other SIs.							
	MON: ≥80	MON: N	a	-	-	✓	✓

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60		SG80	
				MON	ANK	MON	ANK
1.2.4 – Assessment of stock status	**ANK: 60-79**	ANK: Y	b	✓	✓	✓	✗
			c	✓	✓	✓	✗
			d	-	-	-	-
			e	-	-	✓	✓

Rationale:

L. piscatorius: Used to be issues with the assessment, but much improved. Takes into account uncertainties. Is subject to annual internal review and periodic external review. Reaches SG 80 in all SIs, but as still looking at fine-tuning data assessment mechanisms may not achieve SG 100.

L. budegassa: The current assessment is appropriate for the stock (SIa) but does not yet estimate stock status relative to reference points so does not reach SG 80 in SIb, no account for uncertainties (SIc), although this is likely to change upon reaching a successful conclusion of the upcoming benchmark workshop. Is subject to annual internal review and periodic external review so SG 80 in Sie.

Principle 2

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
2.1.1 – Primary Outcome	**≥80**	No	a	✓	✓
			b	-	-

Rationale: A review of the catch composition of the three UoAs provided by the MMO in March 2021 suggests the following **main** and minor primary species:

Species	Gear type					
	% OTB >80 mm	Class	% TBB >80 mm	Class	% GN >220 mm	Class
Haddock	**7.5%**	**Main**	1.4%	Minor	0.3%	N/A
Hake	1.8%	Minor	0.2%	N/A	**7.3%**	**Main**
Whiting	3.9%	Minor	0.8%	N/A	1.1%	Minor

SIa. Both main species (haddock and hake) are clearly above the PRI level, defined as Blim and are fluctuating around MSY level and met SG 80.

2.1.2 – Primary Management	**≥80**	No	a	✓	✓
			b	✓	✓
			c	-	✓
			d	N/A	N/A
			e	✓	✓

Rationale: All main primary species are managed through a standard harvest strategy applicable to commercial important stocks. Standard monitoring procedures provide data for stock assessment. Stock assessments are undertaken by ICES, which provide the scientific advice, specifically the TAC. The ICES scientific advice has been followed for these stocks, limiting exploitation to sustainable levels. Additional

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
controls are applied, such as seasonal closures of spawning areas. Generic controls, notably mesh size, have been chosen to protect the most important commercial species. The system takes into account the multispecies nature of these fisheries, so different parts of the harvest strategy work together to maintain all main species stocks above their PRI. Al SIs meet SG 80.					
2.1.3 – Primary Information	**≥80**	No	a	✓	✓
			b	-	-
			c	✓	✓
Rationale: Full quantitative information, in the form of landings and discard data, is available to measure the impact of each gear on each stock of main primary species identified. In addition, there are fisheries independent scientific demersal surveys, and catch composition sampling (length, age) for both surveys and commercial catches is carried out, covering all main species. These data are suitable to quantitatively assess the impact of the UoAs being assessed on main primary species with a high degree of certainty. SG 80 is met for the two SIs relent to main species.					
2.2.1 – Secondary Outcome	**≥80**	Yes	a	✓	✓
			b	✓	✓

Rationale: A review of the catch composition of the three UoAs provided by the MMO in March 2021 suggests the following **main** and minor secondary species:

Species	Gear type					
	% OTB >80 mm	Class	% TBB >80 mm	Class	% GN >220 mm	Class
Small-spotted catshark	**11.2**	**Main**	**14.1**	**Main**	0.5	Minor
Megrims nei	**8.7**	**Main**	3.5	Minor	0.05	Minor
Gurnards	**8.4**	**Main**	**9.2**	**Main**	0.12	Minor
Spider crab	**5.2**	**Main**	1.2	Minor	**8.7**	**Main**
Plaice	4.9	Minor	**8.4**	**Main**	0.8	Minor
Cuttlefish	4.7	Minor	**18.0**	**Main**	0.1	Minor
Lemon sole	2.4	Minor	1.6	Minor	<0.1	Minor
Thornback ray	2.2	Minor	0.7	Minor	1.4	Minor
Boarfish	2.1	Minor	0.5	Minor	<0.1	Minor
Pouting	-	Minor	**8.1**	**Main**	<0.1	Minor
Common sole	0.8	Minor	**5.3**	**Main**	1.3	Minor
Pollack	0.1	Minor	<0.1	Minor	**7.3**	**Main**
Edible crab	0.6	Minor	1.3	Minor	**6.9**	**Main**
Turbot	.2	Minor	1.0	Minor	**5.9**	**Main**
Pilchard	<0.1	Minor	<0.1	Minor	4.9	Minor
Blonde ray	1.8	Minor	1.2	Minor	4.5	Minor

The 12 main species are small-spotted catshark, megrims, gurnards, edible and spider crabs, plaice, pouting, common sole, pollack, turbot & cuttlefish. Based on the recent pre-assessment of the Round 3 FIPs in SW waters (Cappell, Scarcella, Gaudian & Huntington, 2022) all these species are likely to meet SG 80. It is noted that some main species are data-deficient e.g. cuttlefish (for TBB).

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
2.2.2 – Secondary Management	**60 – 79 OTB + TBB**	Yes	a	✓	×
			b	✓	×
			c	✓	×
	≥80 GNN		d	✓	✓
			e	-	✓
Rationale: It is unclear whether management strategies exist for different gurnard species. Pouting is thought to have very minimal management measures and cuttlefish are currently not managed at all. While generic management measures may apply e.g. restricted licencing, monitoring of catches, MPAs, technical regulations (i.e. restrictions on gear) and the Landing Obligation it is unclear whether these are effective to the specific species and initial reviews of the Landing Obligation have suggested limited effectiveness. This is not likely meet to SG80 for SIa, SIb or SIc. The small-spotted catshark is a secondary main, but it is highly likely that shark finning is not taking place due to the strict EU regulations in place (EU Regulation No 605/2013), so meets SG 80 for SId. An analysis by Caslake & Trebilcock (2018) suggests that alternative measures are available to the two trawl fisheries for the target species. This is therefore likely to meet SG 80 for SIe.					
2.2.3 – Secondary Information	**60 – 79 OTB + TBB**	Yes	a	✓	✓
			b	-	-
	≥80 GNN		c	✓	×
Rationale: PSA's have been conducted for all secondary main species, both by Ribeiro Santos (2019) and the current project team. These PSAs included the use of quantitative information to assess both productivity and susceptibility scores. As such this should meet SG 80 for SIa. There is sufficient information on the biology of each of the main secondary species (e.g. length at maturity, maximum length, common length, maximum weight, maximum age, distribution, depth range, distribution, life cycle and mating behaviour). According to MRAG Americas (2020), based on availability of biological data and also taking into consideration the lack of spatial extent, especially those species not covered by ICES assessments (such as cuttlefish and gurnards), the two mobile gears would not meet SG 80 for SIc.					
2.3.1 – ETP Outcome	**≥80**	Yes	a	✓	✓
			b	✓	✓
			c	-	✓
Rationale: The common dolphin and harbour porpoise are recorded as bycatch in other gill net fisheries (see for example: Cornish hake fishery). The larger vessels (e.g. >12 m) use acoustic deterrent devise (ADDs, or pingers) and this is highly likely to achieve national and international requirements for the protection of these ETP species. Spurdog (in TBB) and undulate ray (in OTB and TBB) are ETP species that are caught in this fishery. All would be discarded and none landed, with >50% post-discard survival likely. Both are subject to					

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
considerable conservation attention at present, including specific work on spurdog management. Likely to met SG 80.					
2.3.2 – ETP Management	**≥80 OTB & TBB**	Yes	a	✓	×
			b	✓	✓
			c	✓	×
	60 – 79 GNN		d	-	×
			e	✓	✓
Rationale: The common dolphin and harbour porpoise are recorded as bycatch in other gill net fisheries (for example the Cornish hake fishery) and it is therefore considered here that the UoAs in this Pre-assessment are likely to also interact with these species, albeit rarely. Given over 70% of GN vessels are <12 m and therefore do not need pingers this may fail to reach SG 80 for SIa, SIc & SId. For the elasmobranch species the prohibition on landing and high post-discard survival rate suggests this would meet SG 80 for SIb. The process for reviewing the effectiveness of the mitigation measures in place for managing impacts on groups of ETP species, such as marine mammals and seabirds, is set out in Article 4 and Article 31 of EU Regulation 1241/2019 (transposed and updated post UK leaving EU). In addition to these requirements, Annex XIII of the Regulation requires EU Member States to establish schemes for monitoring both the interactions of fishing vessels with cetaceans (Part A); seabirds (Part B); and marine turtles (Part C) and is likely to meet SG 80.					
2.3.3 – ETP Information	**≥80 OTB & TBB**	Yes	a	✓	✓
	60 – 79 GNN		b	✓	×
Rationale: There is some quantitative information on ETP catches, based on the catch profile estimates, which is adequate to assess UoA related mortality and impact on ETPs and will likely meet SG 80 for SIa. The information available is not sufficient to determine trends and support a strategy to manage ETP interactions. It is not clear whether the observer coverage is sufficient to represent the intensity of all UoA activities, in particular as no records of marine mammal / seabird interactions were available for this pre-assessment, so will failed to meet SG80 for SIb.					
2.4.1 – Habitats Outcome	**60 – 79 OTB & TBB**	Yes	a	✓	×
			b	✓	×
	≥80 GNN		c	✓	-
Rationale: For the two mobile gears, the Round 3 FIP pre-assessment for mixed fisheries in the SW and Celtic Sea (Cappell, Scarcella, Gaudian & Huntington, 2022) suggests that the larger scale location and intensity of all the vessels need to be available in order to correspond these with underlying main habitats and meet SG 80. However this does not meet SG 80 for SIa (commonly encountered habitats) or SIb (VMEs).					

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
2.4.2 – Habitats Management	**60 – 79 OTB & TBB** **≥80 GNN**	Yes	a	✓	✓
			b	✓	×
			c	-	×
			d	✓	×
Rationale: The network of designated areas, including MPAs and SACs, and fisheries management measures, together form a partial strategy, that if applied as intended would be expected to meet SG80 for SIa. While measures are likely to work (SI b at SG60 is met), no site-specific management measures have been proposed by Defra for any of the MCZs, other than a generic objective of "Recover to favourable condition" for most of the habitats described and this is likely to fail at SG 80 for SIb, SIc & SId.					
2.4.3 – Habitats Information	**60 – 79 OTB & TBB** **≥80 GNN**	Yes	a	✓	✓
			b	✓	×
			c	✓	×
Rationale: There is detailed knowledge in relation to habitat distribution within English inshore and offshore waters - including vulnerable habitats, VMEs. Much of this data is now combined and presented at The EMODnet Seabed Habitats website (http://www.emodnet-seabedhabitats.eu), which provides a single portal for the outputs of the EUSeaMap and MESH projects and includes a seabed habitats mapping portal. This mapping portal also enables OSPAR priority habitats (VMEs) to be mapped. SG80 is met for SIa. There is detailed information available on the spatial and temporal patterns of fleet operations for vessels >12m via VMS, iVMS for smaller vessels is supposedly being rolled out across the UoAs. There is an expanding body of research into the impacts of different gear types onto different seabed types and the resulting rates of recovery. However, reliable information on the spatial extent of interaction and the location of use of the fishing gear is not yet available for <12m vessels. Therefore SIb does not meet SG80. Considering that the habitats management PI requires "information directly about the UoA", this would imply that, although the broad scale level of information of habitat impact may be sufficient, for OTB and TBB (the more impacting gears UoAs) more specific information is required with respect to monitoring of risk and fails to meet SG 80 for SIc.					
2.5.1 – Ecosystems Outcome	**60 – 79 OTB & TBB** **≥80 GNN**	Yes	a	✓	×
Rationale: The demersal trawl gears UoAs in particular will have to demonstrate restrained impact on the ecosystem, which in terms of the gear types involved, would, for example, be a case of clearly demonstrating the footprint of the demersal gears UoAs as well as demonstrate active gear development / configuration to restrain impact across the wider benthos. SG 80 is not met.					

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
2.5.2 – Ecosystems Management	**≥80**	Yes	a	✓	✓
			b	✓	✓
			c	-	✓
Rationale: There is an increasing focus on ecosystem management at the EU CFP and ICES advisory level, and post leaving the EU, the UK is currently continuing with this approach to marine management. Recent evidence for this includes the issuing of ICES of mixed fisheries advice. This meets SG80 for all SIs.					
2.5.3 – Ecosystems Information	**≥80**	Yes	a	✓	✓
			b	✓	✓
			c	-	✓
			d	-	✓
			e	-	✓
Rationale: The Channel and Celtic Sea ecoregion is a well-studied ecosystem. Good quality information is available for key elements e.g., abiotic & biotic productivity modelling, plankton recording; CEFAS trophic work, habitat mapping & fish stock assessment. The impacts of fisheries on these elements is adequately understood e.g., habitat damage, biomass removal, species size & maturation studies, etc. The nature of impacted communities is understood, e.g. target and bycatch spp. (composition, volume & function), ETP e.g. seal & skates / rays / birds are known; Consequences can be inferred from gear studies, impact assessments (and key elements in some cases), but not many specific studies; Some spatial data, seabird and cetacean surveys, WQ assessments, hydrographic and oceanographic studies. Biodiversity assessments can show ecological risks. Information covers both fisheries-dependent and fisheries-independent variables. This meets SG80 for all SIs.					

Principle 3

Performance Indicator	Draft scoring range	Data deficient?	Issue	SG60	SG80
3.1.1 – Legal and customary framework	**≥80**	No	a	✓	✓
			b	✓	✓
			c	✓	✓
Rationale: The UK has exited the EU with resulting amendments to UK legislation, but retains a robust framework in relation to P1, mainly based on the Marine & Coastal Access Act (2009) and the Fisheries Act (2020), and in relation to P2 through several pieces of legislation that where necessary have been updated to reflect the UK's new position as an independent coastal state. Co-operative roles with the EU are defined in the Trade & Cooperation Agreement and are now established with the Partnership Council and Specialised Committees becoming operational (first meeting in July 2021 set out how the SCF would be organised and operate; second meeting in October 2021 set out a work plan and procedures). This illustrates organised and effective cooperation between devolved administrations for UK stocks – SG80 is met for SIa. In English waters the MMO is the main fisheries					

management authority established under the Marine and Coastal Access Act (2009) which also sets out an independent appeals mechanism in relation to MMO licensing decisions. The MMO also operates a transparent complaints procedure for complaints against itself or IFCAs. For English inshore waters within 6 nautical miles, Inshore Fisheries and Conservation Authorities (IFCAs) make bylaws, which are also subject to a transparent dispute resolution mechanism with right to appeal. SG80 is met for SIb. The UK Fisheries Act (2020) allows SIc to be met at SG 80.					
3.1.2 – Consultation, roles and responsibilities	**≥80**	No	a	✓	×
			b	✓	×
			c	-	✓
Rationale: Defra sets fisheries policy for UK and English waters with the MMO & IFCAs implementing that policy as management authorities. Scientific advice is provided by Cefas on various fisheries matters; by the Joint Nature Conservancy Council (JNCC) for UK offshore waters and by Natural England as statutory consultee on wildlife and habitat conservation matters including protected sites & species. Meets SG80 for SIa. Scientific advice and international collaboration on fisheries science continues with the UK's MoU signed with ICES (UK was always an independent member of ICES) in which Cefas, England's scientific advisory body on fisheries, remains an active participant. Changes to legislation and the development of fishery management plans are subject to UK government consultation processes which provides opportunity for interested parties to be involved Consultation on Joint Fisheries Statements and Fisheries Management Plans, so meets SG 80 for SIb. As described above and evidenced by the ongoing JFS consultation, interested and affected parties are invited to respond to legislative changes, which are then reviewed and considered by the authorities before it can be finalised. SG80 is met for SIc.					
3.1.3 – Long term objectives	**≥80**	No	a	✓	✓
Rationale: The Fisheries Act 2020 has MSY and precautionary objectives in line with the MSC criteria. The JFS (draft currently out for consultation) sets out the fishery policy authorities interpretation of the eight objectives set out in the Act and how they will deliver them. SIa is met at SG 80.					
3.2.1 – Fishery-specific objectives	**60 – 79**	No	a	✓	✓
Rationale: The Fisheries Act and Marine Strategy set environmental objectives that are consistent with achieving P2 outcomes. The (draft) JFS suggests that fishery-specific management for monkfish is currently framed by the Fisheries Act (SG60 is met), which explicitly states objectives that are consistent with achieving Principles 1 & 2. Short-term P1 objectives are in place to review and if necessary change the TAC, so this meets SG 80.					
3.2.2 – Decision making processes	**≥80**	No	a	✓	✓
			b	✓	✓
			c	-	✓
			d	✓	✓
			e	✓	✓

Rationale: Rationale: General fishery management arrangements through Defra, the MMO and the IFCAs are well established for Southwestern waters, which include decision-making processes that are proven to result in measures to achieve fishery-specific objectives. This includes Defra introducing measures following UK/EU negotiations (such as new technical measures for mixed demersal fisheries in the Celtic Sea) (Defra, 2021) and IFCA bylaws to address specific fishery management requirements. SG80 is met for SIa.

For monkfish annual TAC decisions show transparent and timely response to serious and other important issues, so SG80 is met for SIb. The UK Fisheries Act is precautionary, so meets SG 80 for SIc. For monkfish information is published on the ICES and EU websites in the form of ICES advice on stock status and the fishing opportunities subsequently agreed in response to this advice so SG80 is met for SId.

There is no evidence that the fishery or management system is subject to any legal challenges so SG80 is met for SIe.

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

Rationale: The MMO recently revised and updated its Compliance and Enforcement Strategy (MMO, 2020), which sets out its approach to monitoring and enforcement via a risk-based enforcement process. The IFCAs also operate a risk-based enforcement system. However in 2018 the European Commission found limited evidence of the effective implementation of the landing obligation by Member States and that there are concerns about the capacity of national and EU agencies to monitor and enforce compliance with the landing obligation (European Commission, 2018). Statements in the (draft) JFS suggest that UK authorities could introduce additional measures to ensure the MCS system is able to enforce all relevant management measures, strategies and/or rules, but there is no evidence to date that these are applied. The MMO recently revised and updated its Compliance and Enforcement Strategy (MMO, 2020), which sets out its approach to monitoring and enforcement via a risk-based enforcement process. However, we have found no recent evidence on the effectiveness of UK enforcement, including in relation to the LO and consequently SG80 is not met for SIa.

Section 19 of the Fisheries Act (UK Government, 2020) gives the powers to fisheries authorities to apply penalties (including disqualification of holding a license) and fines to those committing offences under the Act. Due legal process is followed to ensure sanctions are consistently applied. SG 80 is met for SIb.

There is some evidence available from the MMO (submission of logbooks, sales notes with corroboration through VMS & inspection) and IFCAs to demonstrate compliance with the management system and the provision of information important to the effective management of the fishery. SG 80 is met for SIc. There has been no evidence provided or identified of systematic non-compliance within these fisheries, so SG80 is met for SId.

3.2.4 – Management performance evaluation	**≥80**	No	a	✓	✓
			b	✓	✓

Rationale: The (draft) JFS states that “the fisheries policy authorities will implement appropriate monitoring against the specified indicators. The effectiveness of the FMPs will be regularly assessed, and the results reported at least every three years as part of the JFS report, as require by the Act. These reports will be laid before the UK’s legislatures. The report will set out the extent to which the policies contained in a FMP have been implemented and have affected sea fish stock levels in the UK.” SG80 is met for SIa.

The (draft) JFS states “Each FMP will be reviewed at least every six years or sooner if relevant evidence, international obligations, or wider events require a change in the policies set out in the FMP.” As the JFS states that “these reports will be laid before the UK’s legislatures” it is assumed that this could be considered as ‘regular external review’, and so SG80 would be met when the JFS is implemented.

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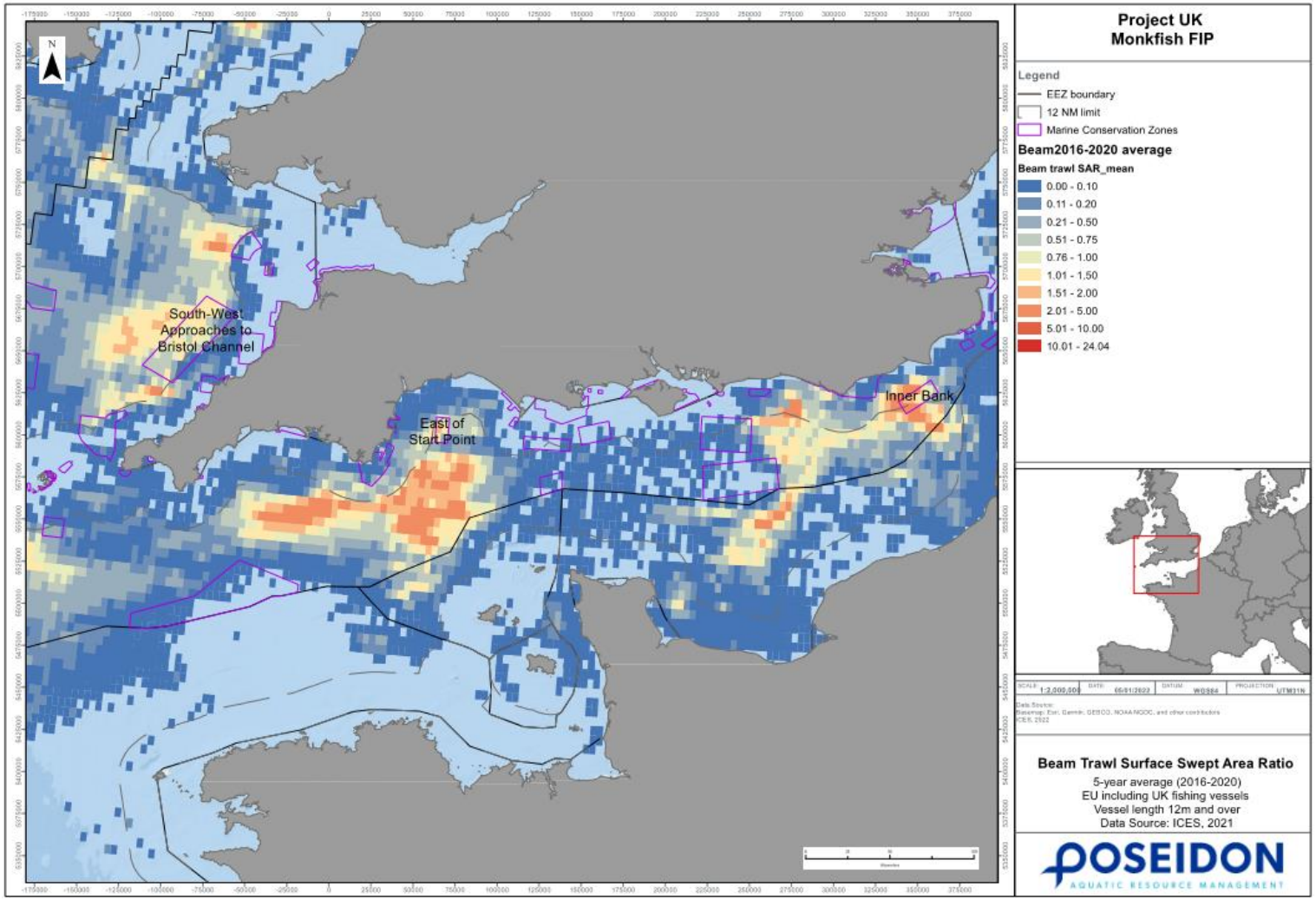
Appendix C: Key tables and figures

Figure 5: Beam trawl surface swept area ratio (average over 2016 - 2020) showing overlap with MCZs



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