**Overview**

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| **Fishery name:** English and Western Channel Scallop (*Pecten maximus)* | **Start date:** 01 January 2017 |
| **Fishery location:**Western Channel (VIIe) and Eastern Channel (VIId)*Presumes UoC is UK vessels only, but could be outside UK waters e.g. in Baie de Seine* | **Fishing methods:**Mechanical dredge**UoA vessels**: all UK vessels | **Annual reviews:**End Year 1: March 2018 Completed April 2018End Year 2: March 2019 Completed April 2019End Year 3: March 2020 Completed 14 April 2020 (this version)End Year 4: March 2021 End Year 5: Dec 2021  |
| **Project leaders:** Project UK Fisheries Improvements – Stage 1 | **Improvements recommended by:**  |
| **Overview of the Action Plan:**This Action Plan has been undertaken as part of Project UK Stage 1 and is applicable to UK vessels using mechanized dredge targeting king scallop in the Western (7e) and Eastern (7d) English Channel. It has been informed by an MSC pre-assessment (completed in 2017), quarterly steering group meetings and a review process at end of Year 1, 2 and 3. Actions and milestones have been completed for the MSC performance indicators (PIs) that fail to reach Scoring Guideposts (SG) 60 and/or 80. The Action Plan highlights an ambitious set of actions designed to raise the scores over a defined period to a point at which the fishery could enter MSC assessment. The focus of the action plan is outlined for each MSC Principle below. |
| **Principle 1 (target stock):**  | **Principle 2 (ecosystem):** | **Principle 3 (management):** |
| * defining appropriate reference points,
* development of **Harvest Strategy**,
* development of **harvest control rules and tools** at stock level,
 | * understanding the catch composition,
* interactions with ETP species & additional management requirements in an **ETP Strategy**.
* assessment of commonly encountered and VME habitats impacts, and management as appropriate,
* documenting current habitat management measures in place within IFCA areas and outside 6 NM,
* introduction of vessel monitoring systems on all vessels to accurately / reliably record the footprint of the fishery.
 | * development of a **Fisheries Management Plan**,
* documenting stakeholder roles and responsibilities (within the FMP),
* together with development of short- and long-term fishery objectives.
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| It should be noted that a separate FIP for UK scallops in the North Sea, West of Scotland and Irish Sea is being undertaken by Project UK Stage 2.  |
| Colour code in tables below: | Principle 1 | Principle 2 | Principle 3 |  |

**Annual Review (end of year 3)**

This section, prepared by Fiona Nimmo of Poseidon, summarises the annual review process at the end of year 3 in a five year Fisheries Improvement Project (FIP) for the UK English Channel king scallop dredge fishery (see previous page). The report provides a review of the progress made in year 3 and the focus of actions for year 3.

**Main findings**

The FIP for the Channel scallop fishery has progressed milestones during year 3; however, these milestones have not been completed fully and therefore the FIP is significantly behind target. This is principally due to Principle 1 actions, of which three PIs fail to reach SG60 at the end of year 3; 12 PIs across P2 and P3 do not reach SG80.

The stock status for each of the four stocks have been reviewed by comparing their provisional harvest rates (HR) with the defined HR MSY based on stock assessments from 2016 to 2019 with the following results: 7.e.I inshore Cornwall **60-79**, 7.e.L Lyme Bay **<60**, 7.e.O offshore **≥80** and 7.d.N eastern north **<60**.

The SG has made progress in Actions 2 & 3 in proposing a Harvest Strategy and associated HCR & tools for Channel scallops, a process which has been led by the Scallop Industry Consultation Group (SICG). Proposals are currently under consultation by Defra who will coordinate a response from other UK Fisheries Administrators. Despite this progress, a Harvest Strategy has not yet been agreed, and HCR have not been defined or related to reference points and therefore these milestones are not yet complete and remain below SG60.

Substantial and meaningful developments in understanding the effects that dredging has on Channel habitats have occurred through a 3-year PhD, which is due to finish in Spring 2020. When complete, this will represent a major step forward for all PIs in the habitat component, however, at the end of year 3, these remain within the 60-79 scoring. Progress has also been made during year 3 in developing an ETP strategy.

P3 actions continue to on addressing Fisheries-Specific Management, through development of a Fisheries Management Plan (FMP), the first draft of which is in progress.

**Recommended actions in year 4**

The current Covid-19 crisis, as well as uncertainties related to Brexit are likely to impact the extent of progress in year 4.

For Principle 1 significant work remains on agreeing the most appropriate form of management (TAC, effort, spatial, etc).

Principle 2 will be informed by analysing catch data from the long term observer program, specifically to transform numbers of individuals and length analysis to generate proportion of species biomass within the total catch. This will allow determination of primary and secondary main species, noting that minor species (<5% of catch weight) are only scored at SG100 and therefore not within the scope of the FIP. P2 will also review the ETP list to understand if developments in marine protected areas and/or priority marine features results in an extended list of ETP species, specifically invertebrate species.

Principle 3 will focus on consulting on and progressing the FMP.

**Table 1: Action Plan**

| **Standard requirement** | **Lead & partners** | **Timescale / milestones** | **Progress / outcome** | **Revised milestone** |
| --- | --- | --- | --- | --- |
| **Action 1: Stock status & stock rebuilding****Overview**Stock area identification and providing basis for management**Performance indicator**1.1.1 Stock status1.1.1 (7.e.I) **60-79**1.1.1 (7.e.L) **<60**1.1.1 (7.e.O) **≥80**1.1.1 (7.d.N) **<60**1.1.2 Stock rebuildingRequirement at SG80:1. it is highly likely that the stock is above the PRI
2. The stock is fluctuating around a level consistent with MSY
 | Action lead: CEFASPartners: DefraStakeholders: Industry, MMO, Marine Scotland | **1a.** Yr 1: Engagement with WG Scallop & other stakeholders. | **Complete**The Scallop Industry Consultation Group (SICG) has been engaging with the ICES WG Scallop via CEFAS, where SICG activities include studies of exportation rates and exploitable biomass. Engagement includes sharing work planning and results. Some members of the Steering Group also sit on the ICES Scallop WG. Engagement with them and other stakeholders is regular.Milestone has been met and is closed. | None |
| **1b.** Yr 2: Proposals for stock units developed | **Complete**Sampling programme on target, delivered early 2018 (report due in the New Year). Industry involved with sampling (inc. providing a vessel). ICES WG Scallop meeting in Oct 18, [minutes](http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/EPDSG/2018/01%20WGScallop%20-%20Report%20of%20the%20Scallop%20Assessment%20Working%20Group.pdf) available (FIP specifically discussed in relation to P2). Discussions included presentation of CEFAS stock assessment and produced joint messages, including climate change forcing, and that questions over larval transport / missing (inc. between dredged and un-dredged) still exist but is difficult to assess (maybe under Action 4). There have been a number of genetic studies in the Channel. Currently working from 2018 stock assessment (the next scallop stock assessment available end of April 2019). Areas based on these, but there is a hole in southern half in 7d. Majority is covered by French survey. **Is still best estimate of an ‘assessable stock’ area**. 2018 / 2019 stock assessment Includes some beds south of 50 deg but need additional info from French <12 nm. areas. There is a is a ‘data gap’ below 50 and 49 degrees N (where IFREMER take over). Station every 15 km. coarse but effective. Current work will capture most dynamics of scallop movement. Theory is that undredged area are virgin biomass so need less frequent survey areas. Fisheries areas need more regular survey. D&E areas are the Channel potting box. Tows in fished areas and CCTV in undredged areas. Have cross-correlated efficiency of tows vs CCTV. Both around 40-50% efficient. Uncertainty taken into account via bootstrapping against undredged areas. CEFAS stock assessment was presented at the ICES WG Scallop (Oct 18) and is published in the minutes and represents a *de facto* agreement on stock assessment areas to be used for the future. Cefas / Defra want to carry on stock assessments, refining dredged area limits every 5 years. There are voids which will be included e.g. in French area which could be addressed through cooperation with the French. Milestone has been met and is closed. | None |
| **1c.** Yr 3.Stock areas agreed  | **Complete**As above justification, achieved at end of Year 2. This data confirmed that stock assessment areas were comprehensive.Stock assessment areas are defined and agreed, with proposal for review every 5 years. Milestone has been met and is closed. | None |
| Action lead: CefasPartners: DefraStakeholders: Industry, MMO, Marine Scotland | **1d.** Yr 4: Stock areas incorporated into management planning.  | **On target**The latest stock assessment will be published 01 April 2020. The stock assessment surveys for 2020 have been confirmed and commissioned. The intention is for this to continue annually and it is understood that the industry will continue to joint-fund scallop stock assessments in the Channel.**Data gap highlighted for** French landings and activity. The EU DCF is currently awaiting an update from the 2019 STECF data call. Therefore fishery removals by the French fleet are unknown in the latest stock assessment. Some VMS data on intensity of fishing from the French has been seen by Cefas, but this is currently confidential. Noted that that the French were reporting very high catches at the moment and that the stock appears to be doing well.Noted Brexit sensitivities related to discussions and engagement with the French fisheries. IFREMER assess the French EEZ Eastern Channel (including Baie de Seine). The latest stock assessment is reporting very high catches at the moment; the stock is at a peak in biomass and catches, so doing very well and at record high levels.UK Channel stock assessments started in 2017. The latest (2019) survey went as planned, 7e and an area into the Celtic Sea are surveyed in May. Eastern Channel survey, do some work in North Sea. Actions:* FN to provide EU dredge VMS data for 2017
* AL to check if French VMS fishing intensity data can be shared with the group.
* FN to review stock assessment to be published on 1 April 2020 as part of Y3 end annual review (completed under action 1e).
 | None |
| Action lead: CefasStakeholders: IndustryResources: ICES Scallop WG | **New milestone****1e.** Yr 3 and annually thereafter: Review stock assessments to determine status of each stock with respect to available reference points. | **Milestone on target, BMT behind target for 7.d.N and 7.3.L due to stock status**Biomass reference points (Blim, Bpa or BMSY) are not defined for the Channel scallop stocks. Cefas recommend that the fishing mortality (F) Maximum Sustainable Yield (MSY) reference point (FMSY) for Channel scallop stocks is set at the fishing mortality that generates 35% of the virgin spawning potential (F35%SpR). Using this as the FMSY, the Cefas model generates an MSY candidate for the harvest rate (HRMSY) of each stock. These reference points are summarised in the table below.

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| --- | --- |
| **Reference point** | **Value** |
| FMSY | F35%SpR |
| HRMSY 27.7.d.N | 21.5% |
| HRMSY 27.7.e.I | 19.5% |
| HRMSY 27.7.e.L | 21% |
| HRMSY 27.7.e.O | 20.9% |

The HRMSY for each stock, together with the harvest rates measured on the dredged potion of the stock is presented in the figure below (Cefas, 2018; Cefas, 2019; Cefas 2020). The current position of the stock with respect to the MSY candidate reference point can be summarised as follows:* 27.7.d.N: the current harvest rate is approximately twice as high as the HRMSY, and has been above this level for all four years surveyed. 2019 saw a drop in HR, which is good progress. It would be expected that harvest control rules would be triggered to continue to reduce the fishing mortality towards HRMSY.
* 27.7.e.I: the harvest rate has been above HRMSY in 2016 and 2017, but fell in 2018 to levels consistent with MSY, and fell below in HRMSY 2019. It would be expected that efforts continue to maintain the harvest rate at this level.
* 27.7.e.L: the harvest rate has continuously increased across 2016 to 2018, and plateaued in 2019; it is currently over 3 times higher than HRMSY. It would be expected that harvest control rules would be triggered to reduce the fishing mortality towards HRMSY.
* 27.7.e.O: the harvest rate has been well below the MSY candidate in 2016 and 2017, and while it has increased in 2018, it remains below the HRMSY reference point. Current harvesting is appropriate

The use of theharvest rate reference points (35% of spawner recruit) is a proxy. Three years data is needed for certainty. Biomass reference points would need longer e.g. 5 years or more to be identified and incorporated into management, and is therefore likely to be a condition on the fishery should it move into full assessment Note that the calculated harvest rate is based on removals so is one year behind. Access to international landings data has not been possible for the last two stock assessments. The STECF database has recently been released, so hope to resolve this in the near future; currently, the latest harvest rates are provisional and will be updated.Cefas estimate the provisional harvest rates experienced by the surveyed portion of stocks by comparing international landings, or a proxy for them, to the available biomass estimates. This is undertaken either for the dredged area only, or including also the biomass from un-dredged areas. The figures below show the results for this harvest rate on the dredged portion of the stock.ICES (Ollie Tully) is looking at long-term LPUE data to support stock assessment and fisheries-independent data. There is a need to expand SICG working group to include fisheries management expertise to develop credible trigger points (with CEFAS) with regular coordination with the FAs, inc. IFCA. It was noted that MSC could provide some funding to assist with options analysis if necessary.   |  |
| **Figure 1: Harvest rates calculated for the dredged portion of stock (based on the dredge survey i.e. not including UWTV of wider stock) and candidate MSY level (based on** **2020 assessment)**Based on data provided within Cefas, 2018[[1]](#footnote-1); Cefas, 2019[[2]](#footnote-2); Cefas, 2020).  |
| **New milestone****1f.** Yr 4: Develop proposal for establishing a reference point related to point of recruitment impairment (PRI) for each stock. | **New milestone**Cefas recommend that the fishing mortality (F) Maximum Sustainable Yield (MSY) reference point (FMSY) for Channel scallop stocks is set at the fishing mortality that generates 35% of the virgin spawning potential (F35%SpR). Using this as the FMSY, the Cefas model generates an MSY candidate for the harvest rate (HRMSY) of each stock. There is therefore a proxy reference point for FMSY.Biomass reference points (Blim, Bpa or BMSY) and fishing mortality limit reference points (Flim or Fpa) are not yet defined for the Channel scallop stocks. The recent trends in fishing mortality rate may be used as a means of scoring stock status. In this case F should be low enough for long enough to ensure required biomass levels are met.Cefas confirm that when more data is available, the reference points will be reviewed, but for the moment will continue to use HRMSY. | Added in v4.1 |
| **New milestone****1g.** Yr 4-5: Define PRI reference point for each stock. | **New milestone**Note: need to agree UoAs, is Baie de Seine included within the scope? | Added in v4.1 |
| **New milestone****1h.** Yr 4-5:.Develop rebuilding plans for stocks <60 at 1.1.1 (7.d.N and 7.e.L) and stocks less than 80 at 1.1.1 (7.e.I) | **New milestone** |  |
| **Action 2: Harvest Strategy****Overview**Develop formal harvest strategies**Performance indicator**1.2.1 Harvest Strategy**< 60**Requirement at SG80:(a) 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. (b) The harvest strategy is achieving its objectives (although may not be fully tested). (f) There is a regular review of alternative measures of minimising mortality of unwanted catch. | Action lead: SICGPartners: Cefas, ICES WG Scallop, IFCA, Industry, DefraStakeholders: Marine Scotland | **2a.** Yr 2-3: Develop proposals for stock / fisheries harvest strategies, based on stock units identified in Action #1 above.  | **Milestone on target, BMT behind target** Led by SICG. In 2018 the industry commissioned a UK-wide scallop management plan, now completed and will be published shortly. This was followed by a UK Scallop Management Conference in February 2019 (proceedings available) SICG Management WG set up to develop an UK-wide scallop Fisheries Management Plan (FMP), including long-term and short-term objectives, harvest strategy, HCRs for UK scallop different fisheries. SICG management group have undertaken an assessment of interventions for the UK king scallop fishery. The draft report was circulated to industry for consultation prior to the final report being submitted to UK Government in Nov 2019. Current management can be summarised as follows per vessel length category:* Over 15m – effort restrictions in Channel and Western Waters
* 10-15m – need scallop entitlement but no effort ceilings.
* under 10m – no scallop entitlement needed

There has been a growth in 10-15m fleet targeting scallops due to enacting latent entitlements. Seafish reported falling CPUE across the UK fishery.SICG proposed interventions options are summarised as follow:Intervention 1: stop expansion of industry* Freeze latent scallop entitlements (already done in Scotland and Isle of Man).
* Cap effort in 10-15 and 10m vessels at current levels.

This is considered the prerequisite to managing the fishery, as any measure would be ineffective if the fishery is still open to new entrants.Intervention 2: management options1. TACs – catch controls. Consider hybrid to prevent consolidation within inshore e.g. inshore and offshore TAC, regional TACs (as in Norway).2. Effort system – expand to all segments and all areas. Avoid displacement.3. Harmonise technical conservation measures – dredge limitations, Scottish system tighter and more prescriptive. Deliberately reducing efficiency of vessels, makes sense in effort system as limited by time. But not for TAC, as reducing efficiency increases footprint of fishery.4. Closed areas and closed seasons.SICG next steps:* Earliest possible implementation of fleet measures to stop expansion.
* Develop management measures and timetable for implementation.

Documentation: CEFAS status reports, Poseidon report, Seafish CPUE & scallop workshop in Feb 19. | Timescale revised based on progress delayed due to Brexit (in v4.1). |
| Action lead: SICGPartners: Cefas, ICES WG Scallop, IFCA, Industry, DefraStakeholders: Marine Scotland | **2b.** Yr 3-4: Proposals put out for consultation and finalised. | **Behind target**In December 2019 the SICG presented the above interventions to Defra and other UK Fisheries Administrators (FAs).The UK Fisheries Bill and commitment to develop Fisheries Management Plans for shellfish species coincides well with this FIP work.SICG advocates earliest possible implementation of fleet measures (intervention 1), with wider discussion still to be had on management measures, and their timetable for implementation. There is a need to continue consultation and collaboration with UKFAs, and it is noted that there is no buy-in from Marine Scotland in relation to the interventions.Defra recognise there has been a delay in responding to SICG proposed management interventions (due to election and Brexit). Defra have reviewed the management proposals and put together questions and points for clarification. Defra will finish reviewing proposals and work with the other UK FAs to go through these, clarify points with industry, and prioritise management measures in terms of short & long term. Defra will coordinate this response to and from other UK FAs.France and Ireland – it is a parallel process looking at join management plan for channel scallops, although progress has entirely been taken over by Brexit / access / effort shares. Carrying on with work, but with extended timescale. There is an obligation for joint management between UK and France as it is a shared resource. Progress is expected after EU-UK fisheries agreement made.Macduff and SWFPA are still willing to sit on a join French/UK working group, but it would be good to have Jim Portus and a retailer participate too.The larval distribution work will be important in relation to this action as it could help understand how the scallop stock in the Bay de Seine might be connected to the Eastern Channel. It is considered that the complexities in the Channel may be exacerbated by Brexit. Currently the Western Waters Regime is being continued with 3.3million kilowatt days for the UK fleet until it is replaced by a new management regime.Actions:* Secretariat to ask AD and Jim Portus whether they would like to join the UK/France scallop FIP group
* BS to share his French paper on scallop connectivity in the Channel
* FN to contact Julian Addison for a review of the P1 actions and progress
 | Timescale revised based on progress delayed due to Brexit (and COVID-19). |
| **2c.** Yr 4: Preliminary harvest strategies embedded in management processes. | This action is not being addressed until Year 4 | None |
| **2d.** Yr 5. Review and finalisation of harvest strategies, inc preliminary evidence that the harvest strategy will achieve its objective.  | This action is not being addressed until Year 5. | None |
| **Action 3: HCR****Overview**Development of formal harvest control rules**Performance indicator**1.2.3 HCRs & tools**< 60**Requirement at SG80:(a) Well-defined HCRs are in place that ensure exploitation rate is reduced as PRI is approached and stock is expected to be consistent or above MSY.(b) HCRs are likely to be robust to the main uncertainties.(c) Available evidence indicates that tools in use are effective in achieving exploitation rates required under HCR. | Action lead: SICGPartners: Cefas, ICES WG Scallop, IFCA, DefraStakeholders: Industry, Marine Scotland | **3a.** Yr 2-4: Develop outline Channel scallop management plan, inc. proposals for stock / fisheries harvest control rules, based on the strategies identified in Action #2 above.  | **Behind target**A Fisheries Management Plan is being developed and in draft form, but has not yet been shared with the group.HR MSY reference points exist for each stock, which could be used to trigger management actions. Actions:* SICG (MacDuff) to submit draft FMP to secretariat
* Secretariat to circulate draft FMP when available
 | Updated timescale to Yr 2-4 to reflect delays in Action 2 (in v 4.1 |
| **3b.** Yr 4: Proposals put out for consultation and finalised. | This action is not being addressed until Year 4Update as 3a. | Updated timescale to Yr 4 to reflect 3a (in v4.1) |
| **3c**. Yr 4: Preliminary harvest control rules embedded in management processes. | This action is not being addressed until Year 4 | None |
| **3d.** Yr 5. Review and finalisation of harvest control rules.  | This action is not being addressed until Year 5. | None |
| **Action 4: Information & monitoring****Overview**Gather additional stock information to support Actions #1, #2 & #3. **Performance indicator**1.2.3 Information & Monitoring**≥80**Requirement at SG80:(a) Sufficient relevant information related to stock structure, stock productivity…..to support harvest strategy.(c) There is good information on all other fishery removals from the stock. | Action lead: CefasPartners: ICES WG Scallop, IFCA, DefraStakeholders: Industry, Marine Scotland | **4a.** Yr 1: Identify information gaps for Action #1, #2 & #3.  | **Complete**A virtual meeting was held on 12 January 2018 and a brief email summarising the substance of the discussions was received on 3 April 2018. This suggests that no major gaps in information exist to support the stock assessment processes. One gap related to scallop larval distribution has since been identified, specifically in relation to interactions between areas that are surveyed and areas that are not surveyed (or dredged and undredged areas). | None |
| **4b**. Yr 2: Conduct feasibility assessment of the research identified in gap analysis.  | **Complete**There is currently a knowledge gap in the stock assessment data around the distribution of scallop larvae and their interactions across dredged and undredged areas. While this might not impact scoring it is recognised that it would contribute to harvest strategy development (e.g. spatial management). In addition this is considered a priority for industry.The project would involve fine scale hydrographic modelling to understand hydrographic flows, coastal processes and therefore patterns in larval dispersal and distribution. Conclusion on feasibility: this project is not necessarily a FIP priority (based on PI requirements), however it is recognised as an industry priority and therefore a decision has been taken to proceed with close engagement with the SICG. | Edited in v4.1 focus on feasibility of undertaking research within FIP |
| **4c**. Yr 3-4: Undertake larval distribution project. | **On target**Cefas have developed a ToR for the larval distribution project, which is expected to cost £55-60k, be an entirely desk-based study (with significant computer processing power) and take a few months to complete.There is currently a knowledge gap in the stock assessment data around the distribution of scallop larvae and their interactions across dredged and undredged areas. While this data gap remains, from an MSC PI perspective sufficient information from the stock assessments and knowledge of the fishery exist to meet SG80 and therefore this work might represent a recommendation.However, this is recognised as a priority for industry and has been discussed by the SICG project steering board. It is thought that this work could help understand what level of connectivity there is and to further define stock boundaries. Actions:* AL to send larval distribution ToR developed by Cefas to secretariat
* Secretariat to manage ToR process (issuing of ToR and a review group for decision on tender award)
* Secretariat to contact SICG to ascertain appetite to fund and/or lead on larval distribution work before next SICG meeting
 | Edited in v4.1 milestone is now project specific and therefore updated to Yr3-4 |
| **New milestone****4d.** Yr4:Assess EU landings data on scallop removals by other fisheries i.e. French vessels | **New milestone**Cefas noted that STECF database has not been updated recently and data on removals of scallops by French vessels was not currently available beyond 2016. Some information had been seen, but not specifically entered into the assessment models.The STECF database has recently (March 2020) been updated based on the 2019 data call and now includes landings data for 2017 and 2018. This milestone has been added to check that the data within STECF is sufficient to determine French removals from each scallop stock assessment area and that this data is in an appropriate resolution for modelling needs. | Added in v4.1 |
| **4e.** Yr 4: Final report on larval distribution made available, including on-going information / monitoring needs. | This action is not being addressed until Year 4 | None |
| **Action 5: Primary & Secondary species****Overview**Gather additional information on primary & secondary species. **Performance indicator****2.2.2 Management 60-79****2.1.3 & 2.2.3 Information (primary & secondary species)****60-79**Requirement at SG80:2.2.2 e. There is regular review of the potential effectiveness and practicality of alternative measures to minimise unwanted catch.2.1.3 & 2.2.3 a. Some quantitative information is available and is adequate to assess impact of the UoA on the main primary or secondary species | Action lead: CefasPartners: Industry, IFCA, DefraStakeholders: Marine Scotland | **5a.** Yr 1: Review of existing observer data. | **On target**CEFAS have conducted an analysis of their observer programme, looking at different spatial areas, ecologies and species composition. Bell & Mangi (2018) presented the current knowledge of primary and secondary bycatch from scallop dredges from observer data.Whilst the scallop fleet is included in the Data Collection Framework (DCF) coverage it is at very low-level coverage. There is also a need to include Scottish vessels in VII d. Bell & Mangi (2018)[[3]](#footnote-3) noted that the sampling rate, particularly in 27.7.d is very low and the results of this analysis are therefore highly uncertain. Even in 27.7.e where the sampling rate is higher and covers the full year there are questions as to the representativeness of the samples. They suggest a more intensive bycatch recording program will be required to improve the robustness of the dataset and include the scope of an enhanced observer programme. There is a need for a short-term, more detailed quarterly observer project. CEFAS will propose a year’s programme which will need additional funding on top of the DCF. On particular issue that needs to be addressed in this observer programme is the number of skates and rays discarded, which is not currently quantitatively assessed (although is noted as a quota species). This has been reviewed at Year 3. The EU DCF includes discards by species and presents data as if it is in tonnage. Cefas provide this data as number of individuals, so expect the units of measure to be incorrect in the DCF. There is potential for numbers of individuals & their lengths that are recorded within the observer program to be transformed into biomass. This would be based on estimates of biomass per species and length category. This has been done before. Cefas observer sampling does not have at-sea balanced scales, so cannot record biomass at sea, hence use of lengths and number of individuals.It is expected that the data available for the Eastern and Western Channel would be sufficient to inform the species characterisation for P2 Primary & Secondary assessment purposes. The lack of data for non-English vessels is not a significant concern, as they are fishing in the same area, so observer data for English vessels would be representative.Need to agree the scale at which data is assessed. Bell & Mangi (2018) consider the English Channel to be two ecosystems: the Western and the Eastern, and therefore recommend assessing species composition separately for these two ecosystems. Other research considered a joint ecosystem management approach is more appropriate (Dauvin, 2012[[4]](#footnote-4)).Steering group to agree on whether Western and Eastern English Channel should be considered as separate ecosystems and therefore assessed as separate UoAs for P2 components.The advantage of the observer data is that it is a long term dataset and would be relatively fast and cost effective means of meeting the requirement for ‘some quantitative data’.In addition, there is also landing statistics, which records landings of retained species. The landing obligation presents further mode of verification for retained quota species.It is also noted that individual POs also maintain data on catches from their vessel members.Data sources to quantify total catch:* Observer programme data transformed from individual count and length to tonnage by species.
* Landing statistics for dredge gear.

Note that MSC Vocabulary defines quantitative as “data expressing a certain quantity, amount or range. Usually, there are measurement units associated with the data (e.g. metres) in the case of the height of a person. It makes sense to set boundary limits to such data, and it is also meaningful to apply arithmetic operations to the data”. MSC terminology appears to go in the order of some – good – comprehensive.Actions:* Secretariat to provide Bell & Mangi report to FN for review
* FN/secretariat to liaise with Cefas regarding cost of transforming data into biomass.
* AL to check what vessels and where Cefas observer data is coming from for scallop fishery in the Channel, including Scottish vessels **(and whether discard data in DCF is in tonnes or no. of individuals)**
* AL to share Marine Scotland contact with FN
* Secretariat to find data source Rhiannon Holden was using for her work, and then check with AL for any updates to the data
* BS to share Claire Szostec and Rachel Brown's work on bycatch in scallop fisheries
* AL to investigate what would be involved in converting length data to weight, and how much it would cost to fund
* Secretariat to speak to Jim Portus regarding access to member data on discards/bycatch to understand percentage of species in the catch
 | None |
| **5b.** Yr 2-3: Design and resourcing of observer program, with initial trials, if required. | **On target** Cefas have provided a preliminary costing for this and ToR. This is expected to cost approximately £150k and covers a comprehensive annual survey of total catch from the scallop Channel fishery.To determine if this goes ahead or not, based on conclusion of 5a. | Updated timescale based on 5a delayed decision. |
| **5c.** Yr 4: Collation of representative catch data to determine main and minor species, either by specific survey, observer program or other appropriate means. | This action is not being addressed until Year 4Note: focus is required on the primary and secondary species themselves. Significant work has been undertaken on the resilience of macro benthos to the effect of dredging. For example, it is understood that the seven arm starfish is quite sensitive to dredging. Irish Sea and English Channel communities are more resilient, as have experienced dredging for decades. The common starfish and sea urchin are more resilient. A study in the Irish Sea found that fluctuations in starfish were controlled more by environmental conditions, which effected recruitment every year.Action:* Obtain this research and begin to build knowledge base on primary and secondary species.
 | Updated timescale based on delay to 5b, updated text to allow variation from specific survey. |
| **5d.** Yr 4. One or more year’s data collection and formal report published  | This action is not being addressed until Year 4 | None |
| **New milestone****5e.** Yr 4. Review alternative measures for minimising unwanted catch of primary and secondary species. | **Milestone yet to commence, this has caused BMT to be behind target for 2.2.2**This action is not being addressed until Year 4This action will align with work undertaken by Stage 2 UK Scallop FIP. | Added v4.1 |
| **Action 6: ETP****Overview**Gather additional information on nature & scale of ETP interactions and impacts. **Performance indicator**2.3.1, 2.3.2, 2.3.3 ETP species outcome, management & information**60-79**Requirement at SG80:2.3.1 (b): Direct effects of the UoA are highly unlikely to not hinder recovers of ETP species2.3.2 (b) there is a strategy in place that is expected to ensure UoA does not hinder recovery of ETP species; (e) there is a regular review of the potential effectiveness and practicality of alternative measures to minimise mortality2.3.3 (b) information is adequate to measure trends and support a strategy to manage impacts on ETP species. | Action lead: TBCPartners: JNCC, MMO, Natural England, Cefas, Industry, IFCAs, DefraStakeholders: Marine Scotland | **6a.** Yr 1: GIS-based risk assessment. Listing of potential ETPs interacting with UoAs, and then mapping of ETP distribution overlap with UoA dredging effort.  | **Complete**Holden (2017)[[5]](#footnote-5) provides a report into the risk to ETP species from scallop dredging in the Channel scallop fishery. This GIS-based study includes a gaps analysis and future research priorities and an action plan.  |  |
| **6b.** Yr 2: Development of possible management approaches for reducing ETP interactions and impacts, if necessary. | **Complete** The SG reviewed the results and recommendations from Holden (2018) in April 2019. They concluded that most ETP species (e.g. skates and rays) have a commercial TAC and any unwanted catch could be discarded as it has an exemption though it is high post-discard survivability. As a result no pilot projects are needed. They also noted that, although POs have worked with the UoA on careful elasmobranch handling, this may need reinforcing.  |  |
| **New milestone****6c.** Yr 3-4:Review of ETP species list (and associated risk assessment) to determine comprehensive list which reflects current environmental legislation including qualifying species within MPAs. | **New milestone**The Stage 2 UK scallops FIP has undertaken an extensive review of ETP species and it is recommended that the Channel Scallops FIP re-assesses the ETP list, based on developments in Marine Protected Areas and environmental legislation.It is noted that many ETP species are missed from the current list, and some are not in fact ETP species (as a quota exists for some elasmobranchs).Actions:* Secretariat to ascertain where Rhiannon Holden’s ETP information came from
* AL to provide observer data for bycatch and ETP species; and check whether observer data covers invertebrates
* FN to review the ETP list and recirculate with the group
* TR to find out more about PMF introduction to English waters
* LP to collate a list of protected areas and the qualifying factors in Devon and to ask other IFCAs to do the same
* Secretariat to ask JNCC to collate a list of protected areas and qualifying factors for the Channel
 | Added v4.1 |
| **6d**. Yr 3-4. Develop an ETP bycatch management strategy in the Fisheries Management Plan (FMP).  | **Behind target**Based on the review of ETP species list, the requirement for management should be reviewed. It is noted that occurrence of elasmobranchs is considered rare and individuals are returned to sea. Industry already have skate and ray ID guides designed in collaboration with the Shark Trust but identifying can be tricky as even the MMO can struggle to distinguish species at times. Further consideration for invertebrate species is needed.Noted that management of species would need to focus on SACs and protected areas, of which there are many in the in-shore area: about 40% of Devon’s waters are closed off to protect marine features and incorporate buffer areas. The management plan should document what measures are currently in place and applicable to the dredge UoA.Discussion on wording of a percentage reported in Femke’s ETP management report. This is to be updated to ensure it reflects accurate interpretation of the data. Actions:* LP to collate a list of management measures / byelaws within Devon IFCA and neighbouring IFCAs that are applicable to scallop dredge and ETP species.
* FdB to work with FN to clarify what the 4.3% figure represents
 | Milestone revised in v6.4 to align with FMP.Timescale edited to allow for review in 6c in v4.1 |
| **6d**. Yr 4: Finalise ETP bycatch management strategy in the FMP.  | This action is not being addressed until Year 4 | Updated to ‘finalise’ in v4.1 |
| **Action 7: Habitats** **Overview**Spatial scale, intensity and impact of the fishery on habitats assessed and management measures developed where appropriate. **Performance indicator****2.4.1, Habitat outcome 60-79****2.4.2, management 60-79****2.4.3, information ≥80**Requirement at SG80:**2.4.1:** The UoA is highly unlikely to reduce the structure and function of the:(a) commonly encountered habitats and(b) VME habitats to a point where there would be serious or irreversible harm.**2.4.2(a):** There is a partial strategy in place; (b) there is an objective basis for confidence that the partial strategy will work; (c) there is some quantitative evidence that the partial strategy is being implemented successfully.**2.4.3(b):** Information is adequate to allow the identification of the main impacts of the UoA on the main habitats and there is reliable information on the spatial extent of the interactions and on the timing and location of use of the fishing gear. | Action lead: Seafish SAGPartners: Cefas, Industry, IFCAs, Defra, JNCC, MMOStakeholders: Marine Scotland | **7a.** Yr 1-3: Research commenced which reviews existing information. Fishery footprint analysis and habitat mapping. | **On target**A two-year post-doctoral study (started January 2018) commissioned from Bangor University, ending March 2020 (e.g. end Y3). Currently being undertaken by Steven Newstead (was Christina Mangano) who has made various presentations to the SG on their literature search, VMS analysis and fisher surveys. Three different actions. Habitat modelling, cameral use and fishermen interviews. * *Habitat modelling*: maps showing 56 vulnerable spp. / habitat sensitivity. Have presence and absence data. Creating species distribution models. Combining with swept area ratios to predict sensitivity (as a measure of recoverability). 68 vulnerable spp. Identified. Have longevity information for each ( to estimate recoverability). MaxEnd spp. Distribution model. 5 different environmental parameters e.g. chlorophyll, bathymetry, sea bottom temperature, substrate, bed shear stress. Calculate area swept, area coved by spp., and area covered by species and is fished. Models up and running, so turning t the analysis.
* *Cameras*. Looking at recording benthic bycatch. 6 cameras ready to go, but not been able to get on vessels as yet & need to identify range of vessels to participate. Difficult due to lack of fisher knowledge of laming obligation, esp. when quota is scarce. Piloted but no commercial uptake so far.
* *Fisher interview*. Completed & being compiled. 43 responses to date. Bycatch starfish spiders, brittle stars, urchins. Higher in unexploited areas.

The final work will be presented to the SG for consideration and then the management approaches considered. Update at Year 3. The PhD work and reporting is due in March/April 2020. This work characterised commonly encountered habitats and sensitive species within those habitats to determine extent of interaction with scallop dredging, as well as length of time to recover. Overall the work considered that ALL commonly encountered habitats meet SG100.VMEs have not been specifically looked at, but could be added to the model, if VME locations can be identified.It is noted that the footprint of the fishery is determined by the VMS data provided by Cefas (which is thought to include all vessels ≥12m). Vessels <12m are not included within the analysis, as there is no spatial data available. It was considered that the VMS for >12m vessels is representative of the scallop grounds targeted by the fleet and that <12m vessels would not skew the results.Actions:* Secretariat to support communicating the message of the report publicly
* CP to ask the fishermen to post their SD cards to SN
* SN and JH to review VMS assumptions and ICES reports to confirm the number of vessels in the channel and their level of intensity
* SN to find out how many <12m vessels are active in the Channel
* FN to locate or draft a VME map for SN and JH to incorporate into their habitat work
* SN to share the presentation with the group
* SN to follow up with Seafish for data on vessels and where they are fishing
 |   |
| **7b.** Yr 4. Development of possible management approaches for reducing habitat interactions and impacts | This action is not being addressed until Year 4.  |  |
| **7c.** Yr 4. Prepare pilot projects for habitat management approaches, if required  | This action is not being addressed until Year 4 |  |
| **7d**. Yr 4: Implementation of pilot projects, if required. | This action is not being addressed until Year 4 |  |
| **7e.** Yr 5: Mainstreaming of habitat management approaches and introduce of the risk-monitoring system. | This action is not being addressed until Year 5 |  |
| **Action 8: Ecosystems****Overview**Conduct a Scale Intensity Consequence Analysis (SICA) analysis of scallop dredging in the UoA.**Performance indicator****2.5.1 Ecosystem: Outcome status 60-79**Requirement at SG80:2.5.1 (a): 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 lead: TBCPartners: Cefas, Industry, IFCAs, Defra, JNCCStakeholders: Marine Scotland | **8a.** Yr 2: Constitute expert group and conduct SICA analysis of main ecosystems impacted by scallop dredgers. | **Complete**SICA workshop conducted for April 2018 suggested a borderline pass. Needs greater VMS (only 2 hour ping) / inshore activity data. Report by Lambert *et al*, 2019[[6]](#footnote-6). Inshore activity: it is noted that iVMS for all vessels >8 m will be introduced by 2021 & D&SIFCA is currently trialling technology (10 min ping rate). Now in byelaw since August (to determine which year) 87 units and first 2 years airtime paid for by EMFF & NGO sources. Now 136 mobile iVMS mobile gear. Succour fish or AST Marine Services units. Globavista FMC via MMO, with IFCA link. |also helps with gear conflicts. Notable increase in compliance. Also helping manage MPA areas e.g. whether to keep areas open or closed. Also trialling gear in gear out technology. Offshore: >12 m vessels ping rate only 2 hours, which is insufficient for 15 min tows. OK for effort management but is limiting for habitat management. Not needed until full management rules are available for MCZs. Need to keep eye on the Kingfisher Project. Lambert *et al*, 2019 suggest that spatially-limited scallop fisheries can offer a “sustainable option”.  |  |
| **8b.** Yr 4: Based on the SICA results (and NE analysis), identify and recommend further research and management actions that reduce ecosystem disruption to acceptable levels.  | **Milestone on target, BMT behind target** This milestone is being addressed in Year 4. Current actions discussed and agreed include:Actions:* Natural England (NE) to review spatial tracking technologies / geofencing to limit scallop dredging to areas with high recovery rates and away from vulnerable species / habitats e.g. within MCZ areas.
* Secretariat to provide above outputs to FN
* FN to review above outputs to inform action 8b.
 | Updated timescale to Yr4 in v4.1 |
| **Action 9:****Overview**Defined and agreed management jurisdictions. Other responsibilities e.g. for stock assessment and research can also be better detailed.**Performance indicator****3.1.2 Consultation roles & responsibilities: 60-79**Requirement at SG80:3.1.2 (a): Organisations and individuals involved in the management process have been identified. Functions, roles and responsibilities are explicitly defined and well understood for key areas of responsibility and interaction. | Action lead: DefraPartners: Industry, IFCAs.Stakeholders: ICES WG Scallop, Marine Scotland | **9a**. Yr 2/3: Develop management agreements for the fisheries / stock units (as identified in Action #1 above) and proposals put out for consultation and finalised.Draft FMP to be reviewed by Steering Group at the end of Y3 (March 2020) | **Behind target**Being addressed by SICG who are developing the FMP. This FMP will be aware of other fisheries, inc. the French for joint management, esp. for the East Channel. This will be based upon the stock assessment areas agreed in Action 1. CP is currently working on the FMP which will be circulate once more detail has been added, and after the SICG have a response from Defra on their management proposals. The Defra response is expected at the start of March. Action: * CP to circulate draft FMP ahead of the scoring for the annual review
 |  |
| **9b**. Yr 4: Finalisation of UoA management arrangements in FMP | This action is not being addressed until Year 4.  |  |
| **Action 10:****Overview** Development of fisheries-specific management plans.**Performance indicators****3.2.1 Fishery-specific objectives: 60-79****3.2.2 Decision-making processes: 60-79**Requirement at SG80:**3.2.1(a):** Short and long term objectives, which are consistent with achieving the outcomes expressed by MSC’s Principles 1 and 2, are explicit within the fishery-specific management system.**3.2.2 (a)** There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives. | Action lead: TBCPartners: ICES WG Scallop, Defra, Industry, IFCAs.Stakeholders: Marine Scotland | **10a**. Yr 2: ~~I~~nitiate Development of scallop fisheries management plan. Draft FMP to be reviewed by Steering Group at the end of Y3 (March 2020) | **Behind target**Being addressed by SICG who are developing the FMP.  | None |
| **10b.** Yr 3: Develop draft fisheries management plan(s) and put out for public consultation. | This action is not being addressed until Year 3.  | None |
| **10c.** Yr 4. Finalise and formalise fisheries management plan(s)  | This action is not being addressed until Year 4.  | None |
| **Action 11:****Overview**External evaluation of the management of these scallop fisheries.**Performance indicator****3.2.4 Monitoring & Evaluation ≥80**Requirement at SG80:**3.2.4(b): The fishery-specific management system is subject to internal and occasional external review.** | Action lead: TBCPartners: Cefas, Defra, Industry.Stakeholders: ICES WG Scallop | **11a.** Yr 2-4: To seek clarification on whether the steering group meetings and annual consultant reviews are sufficient. | **On target** Steering group meetings and annual consultant reviews are not sufficient to count as an independent review. An independent review of the UK scallop industry was conducted in 2018 (Cappell *et al*, 2018[[7]](#footnote-7)) which is due to be published by client SICG. SICG are also conducting a harmonisation process with other scallop FIPs. It is considered that this review – which involved both government and industry, is sufficient to count as an external review. As a result this Action is concluded. However it is recommended that further external reviews are encouraged as the SICG-led FMP is finalised and agreed at all levels. Also external pre-assessment by a CAB in Y4 would also count. Update at Year 3. The MSC standard would accept an external review from another department within an organisation, a peer organisation or an independent external reviewer. The Poseidon review commissioned by the SICG constitutes an external review. Project UK’s Stage 2 scallop Steering Group is seeking input from the ICES WG, so Stage 1 could also be included as there will be a large amount of overlap.Action: Secretariat to investigate having the ICES WG to review FMP once complete | Updated timescale to reflect FMP delivery (in v4.1) |
| **11b.** Yr 3-4: External review of Channel Scallop FMP completed and report & any recommendations made available to FIP.  | This action is not being addressed until Years 3-4.  | Combined 11b&c into 11b |
| **Recommendation 12:****Overview**Future labour requirements | Action lead: Steering groupPartners: Defra, Industry. | **12a.** Ensure the fishery remains in scope of MSC with regards to any future labour requirements and the current scope requirement: No vessel shall be eligible that has had a conviction in the last 5 years. |  |  |

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2. Cefas (2019). Lawler, A., Masefield, R. and Wynne, S. Assessment of Scallop stock status for selected waters around the English Coast 2017/2018. Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810721/Scallop_assessment_2018_updated_190619.pdf> [↑](#footnote-ref-2)
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5. Holden, R (2017). Managing UK Fisheries for Risk: An Ecological Risk Assessment of Endangered, Threatened and Protected (ETP) Species and their Interaction with the Channel Scallop Fishery. A report submitted in partial fulfilment of the requirements for the MSc and/or the DIC. Imperial College, London. 128 pp + appendices [↑](#footnote-ref-5)
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7. Cappell, R., Huntington, T., Nimmo, F., and MacNab, S. (2018) UK scallop fishery: current trends, future management options and recommendations. Report produced by Poseidon Aquatic Resource Management Ltd. [↑](#footnote-ref-7)