

Marine Stewardship Council (MSC) 4th Surveillance Audit Report

Dee Estuary cockle

On behalf of

Natural Resources Wales

Prepared by

Control Union (UK) Limited

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QA

Role	Signature	Date
Originator:	B. O'Kane	01/08/2022
Reviewer:	E. Vella	17/08/2022
Approver:	T. Tsuzaki	18/08/2022

Executive Summary

The Dee Estuary Cockle (*Cerastoderma edule*) fishery was certified against the MSC Principle and Criteria for Sustainable Fishing in July 2012 and assessed against MSC Certification Requirements version 1.1. There were no conditions attached to the certification (certificate: MMI-F-124). The fishery was issued a new certificate in response to a change of CAB to ME Certification (now Control Union (UK)) in September 2015 (certificate: MEC-F-033). The fishery was re-assessed in 2017 (Gascoigne et al., 2017) using FCR version 2.0 and reduced reassessment reporting template v1.0. The default assessment tree was used with no adjustments. The RBF was not used.

The fourth annual surveillance audit since the re-assessment was conducted on-site, in combination with the 2nd reassessment. The Dee Estuary cockles and Burry Inlet cockle fishery (under current certificate number (MSC-F-31363) are currently combining and undergoing reassessment together. The assessment is currently at Client and Peer Review Draft Report stage and further information on the fishery is available at: <https://fisheries.msc.org/en/fisheries/dee-estuary-and-burry-inlet-cockles/@@view>.

The year four annual surveillance audit and reassessment occurred on 8th-10th June 2022 on-site in the Dee Estuary area. The on-site assessment team consisted of Beverley O’Kane and Hugh Jones, with Alex Caveen attending the meeting remotely.

The aim of the audit was to determine changes in the fishery since the last audit. Information was requested to evaluate whether there had been any significant changes to the fishery, for example, updated catch data, information on the stock, impacts on the wider ecosystem, management regimes and traceability. The information was provided via email by NRW and throughout the on-site audit. Stakeholders were invited by e-mail to submit information or comments on the fishery by the 29th May 2022. No stakeholder comments were received.

This fishery remains in conformity with the MSC scope requirements (FCP V2.2 7.4), no inseparable or practicably inseparable (IPI) stocks are caught in this fishery, and the fishery is not an Introduced Species Based Fishery as per the MSC FCP 7.4.2.13.

The fishery continues to operate in the same areas and there have been no changes to the gear used in the fishery. There have been no significant changes warranting a re-scoring of performance indicators. There have also been no material changes in the traceability system for this fishery. The audit team confirms that this fishery continues to conform to the MSC Principles and Criteria for sustainable fishing. No new conditions or recommendations have been raised. No Performance Indicators have been re-scored. The surveillance plan has not been revised. The audit team recommends that this fishery should continue to remain certified.

1 Report Details

1.1 Surveillance information

1	Fishery name	
	Dee Estuary Cockle Fishery	
2	Unit(s) of Assessment (UoA)	
	Species	Cockle (<i>Cerastoderma edule</i>)
	Stock	Dee Estuary, UK
	Geographical range of fishery	FAO statistical area 27, Dee Estuary
	Harvest method / gear	Hand-Raking
	Client group	Licenced fishers for hand raking of cockle (<i>Cerastoderma edule</i>) within the Dee Estuary.
	Other eligible fishers	None
3	Date Certified	Date of Expiry
	02 August 2017	01 Feb 2023
4	Surveillance Level and Type	
	Surveillance level 1, on-site audit combined with the reassessment	
5	Surveillance Number	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	
	4th Surveillance	X
	Other (expedited etc)	
6	Surveillance team leader	
	Name	Beverley O'Kane
	Areas of responsibility	Team Leader, Principle 2, Traceability

	Competency criteria (Annex PC)	<p>Beverley joined CU (UK) as a Fisheries Officer in late 2019. She has a strong background in the fisheries sector and marine sector. Prior joining CU (UK) she was involved in marine and environmental consultancy and seafood sustainability, conducting research on English inshore fisheries management and global tuna fisheries. She is experienced in assessing the sustainability of global fisheries using UK and U.S. standards and methodologies, including Seafish, Marine Conservation Society and Monterey Bay Aquarium. Her experience is focused on elasmobranch and shellfish species, particularly on stock status and management principles. She has lived and worked in the fisheries sector in Norway, Ireland and the U.S, including on a shellfish boat in Irish waters. In 2015, Bev completed an MSc in International Marine Environmental Consultancy from the Newcastle University, during which she completed modules on fisheries governance and management and conducted a thesis on the sustainability and management of a ray fishery. She has a wide experience of MSC assessments, primarily as Principle 2 expert, and has worked on the topics of bycatch, habitats and ETP species for more than 3 years, therefore Table PC3.3 Competencies and Qualification requirements for Principle 2 are met.</p> <p>Beverley will act as Team Leader, traceability, and Principle 2 expert for this assessment and will be responsible for bringing together the work of the team's principal experts. She will also be responsible for ensuring that the requirements of the MSC's Fisheries Certification Process are being met at every stage.</p> <p>Beverley O'Kane has completed the required Fishery Team Leader MSC training modules for the V2.2 Fisheries Certification Process, including the Traceability module (Table PC3.6). She has also passed ISO 9001 Lead Auditor training.</p>
	On-site or off-site	On-site
	CV	On request
	Conflict of interest in relation to this fishery	No conflict of interest has been identified for this fishery
7	Surveillance team members	
	Name	Dr Hugh Jones
	Areas of responsibility	Principle 1
	Competency criteria (Annex PC)	<p>Dr Hugh Jones has completed the required Fishery Team Leader MSC training modules for the V2.2 Fisheries Certification Process, including ISO 9001 Lead Auditor training.</p> <p>Dr Hugh Jones will act as Principle 1 expert for this assessment. Hugh has a PhD in Ecotoxicology and strong background in marine research including publications and reports on ecotoxicology, environmental risk assessments and fisheries research. Between 2011 and 2014 Hugh worked a research scientist on mollusc fisheries for the University of Tasmania and the state government. He has published stock assessment reports on three species of bivalves including oysters, estuarine bivalves and abalone. Some of these</p>

	<p>species stock assessments were externally reviewed as part of the Status of Australian Fish Stocks program. The stock assessment techniques used include development of empirical harvest strategy control rules and estimations of MSY and reference points. He has worked as a MSC Principle 1 assessor for more than 3 years.</p> <p>Table PC3.1 Competencies and Qualification requirements for Principle 1 are met.</p>
On-site or off-site	On-site
CV	On request
Conflict of interest in relation to this fishery	No conflict of interest has been identified for this fishery
Name	Dr Alex Caveen
Areas of responsibility	Principle 3
Competency criteria (Annex PC)	<p>Dr Alex Caveen has completed the required Fishery Team Member MSC training modules for the V2.2 Fisheries Certification Process.</p> <p>Dr Alex Caveen has over eight years' experience working in the seafood/ fisheries sector, having worked at Seafish as a fisheries sustainability advisor, and more recently as a senior fisheries consultant, part of this role providing support to a wide range of standard owners (including MarinTrust, Alaska RFM, and FairTrade USA) on developing their scheme procedures and guidance documentation. Alex has led the development of environmental risk assessment tools for seafood supply-chains in different markets (UK and Hong Kong), undertaken MSC assessments (e.g. P3 pre-assessment for Welsh inshore fisheries), and peer-reviewed fisheries assessment reports for MarinTrust. Alex is well versed in fisheries management and governance issues, with his previous PhD research (2009 – 2012) informing policy debates on the planning of Marine Protected Areas (MPAs). He has also published peer-reviewed journal articles on fisheries management issues.</p> <p>Table PC3.4 Competencies and Qualification requirements for Principle 3 are met.</p>
Conflict of interest in relation to this fishery	No conflict of interest has been identified for this fishery
On-site or off-site	Off-site
CV	CV available on request
8	Audit/review time and location
	<p>The onsite audit occurred on 8th – 10th June 2022. Stakeholders were invited to join either virtually or at in-person meetings with team members during the site visit. Stakeholders were encouraged to provide information either through the MSC stakeholder input form or by arranging for a virtual or in-person meeting with the assessment team in the week of the audit. No stakeholder feedback was provided.</p>

9	Assessment and review activities
	<p>During the audit, the assessment team reviewed the following:</p> <ul style="list-style-type: none"> • Any changes to the fishery and its management including those to management systems, regulation and relevant personnel assessments; • Any changes to the scientific base of information such as stock; • There are no conditions currently against the fishery; • Harmonization against the other fisheries certified on the MSC program; • Any developments or changes within the fishery impact may impact on traceability and the ability to segregate MSC from non-MSC products; • Any other significant changes in the fishery; • A greater understanding about changes to the bird model.
10	Stakeholder Opportunities
	<p>Stakeholders were encouraged to provide comments for this surveillance audit. Written submissions were required through the MSC stakeholder input form and stakeholders were reminded of the following: "Please note that comments should be factual and should be supported by data or other evidence. Comments may remain unattributed. Furthermore, information that cannot be shared with any other stakeholder will not be referenced in the surveillance report and cannot be used in determining conformity of the fishery with the MSC Standard. Information can be kept confidential if it is restricted to financial transactions about certification, the financial affairs of individual companies or information that may lead to this information being known, or information that is the subject of relevant national privacy or data protection legislation in the assessed fishery's country". The deadline for stakeholder comment was 29th May 2022 17:00 UTC. No stakeholder comments were received.</p>

2 Background

The main changes since the Year 3 audit are as follows:

- Updates to the Management Plans following a review and subsequent changes to the organisational structure of the cockle management teams in Wales;
- Updates to the bird model and an ongoing consultation on the bird model;
- EU-Exit, which has led to amendments in legislation since the last assessment, along with the transposing of legislation into UK law;

Whilst the EU-exit has occurred and EU legislation has been transposed into UK legislation, there has been little change to regulations for the cockle fishery. However, updates have occurred for the Management Plan in the Dee Estuary in 2021. This involved some changes to organisational structure within NRW: the Dee cockle management team, work within the Marine Area Management and Advice Team. The main change to the Management Plan regards ensuring consistency between cockle fisheries management within Wales. Stock surveys are conducted generally twice per year, and these have been updated in Principle 1. There are minimal updates to Principle 2 as legislation related to the fishery still remains in place since the EU-Exit. There are some important updates to Principle 3, especially regarding the Fishery Management Plan updates and enforcement.

2.1 Version details

Table 1. Fisheries programme documents versions

Document	Version number
MSC Fisheries Certification Process	Version 2.2
MSC Fisheries Standard	Version 2.01*
MSC General Certification Requirements	Version 2.4.1
MSC Reporting Template	Version 2.1

* default assessment tree

2.2 Unit(s) of Assessment (UoA)

Control Union (CU UK) confirms that the fishery under audit remains within in the scope of the MSC Fisheries Standard (7.4 of the MSC Fisheries Certification Process v2.2):

- The target species is not an amphibian, reptile, bird or mammal;
- The fishery does not use poisons or explosives;
- The fishery is not conducted under a controversial unilateral exemption to an international agreement;
- The client or client group does not include an entity that has been successfully prosecuted for a forced or child labour violation in the last 2 years and submitted a completed forced and child labour policy statement;
- The client or client group does not include an entity that has been convicted for shark finning violations within the last 2 years;
- The fishery has in place a mechanism for resolving disputes, and disputes do not overwhelm the fishery;
- The fishery is not an enhanced fishery as per the MSC FCP v.2.2 7.4.6; and
- The fishery is not an introduced species-based fishery as per the MSC FCP v2.2 7.4.7.

CU (UK) confirms that the client group has submitted the completed 'Certificate Holder Forced and Child Labour Policies, Practices and Measures Template' prior to the start of this assessment.

The current Unit of Assessment (UoA) is given in Table 2.

Table 2. Unit(s) of Assessment (UoA)

Species	Cockle (<i>Cerastoderma edule</i>)
Stock	Dee Estuary, UK
Geographical range of fishery	FAO statistical area 27, Dee Estuary
Harvest method / gear	Hand-Raking
Client group	Licensed fishers for hand raking of cockle (<i>Cerastoderma edule</i>) within the Dee Estuary.

Other eligible fishers	None
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2.3 Principle 1

2.3.1 Catch and landings

The catch and effort in the Dee fishery is shown in Table 3 and show a stable and increasing average harvest rate and total harvest across the three-year period. Fishing mortality as a proportion of biomass and the TAC are shown in Table 4. In none of the past three years, has the TAC been caught and the proportion of fishing mortality (F) to biomass not exceeded 30% of the stock.

Five short-term non-renewable licences were issued during August 2021 and March 2022. This decision was made following an appropriate stock assessment, taking into consideration over-winter and post spawning losses, as well as the conservation objectives of the European Marine Sites. No more than 54 licences were issued: as shown in Table 3, three short-term, non-renewable licences were issued as three licence holders were not able to use their licence.

Table 3. Catch, effort, harvest rate (HR) (kg/day) and TAC for Dee Estuary between 2019 and 2021. Source: NRW. *Five short-term non-renewable licences were issued during August 2021 and March 2022, which are part of the 54 licences that were issued. Three short-term, non-renewable licences were issued towards the end of the season, as alternatives for the three non-active licence holders.

Year	Number of licences	Total harvest (t)	Total effort (days)	Average HR (kg/day)	TAC (t)
2021	54 (3)*	2,673	5,138	520	4,266
2020	54	2,483	5,038	493	3,064
2019	53	2,169	4,483	484	4,159

Table 4. Biomass, Catch and TAC for Dee Estuary between 2019 and 2021. In 2019 the initial survey shows a large die off of cockles but the autumn survey revised the final TAC. Source: NRW. * Covid in 2020 prevented a spring survey from occurring the value of biomass shown here are for the autumn survey and not directly comparable to other years as a result.

Year	Biomass	Total harvest (t)	TAC	F as proportion of TAC (%)	F as proportion of biomass (%)	TAC as proportion of biomass (%)
2022	8,088	-	2,122	-	-	26.2
2021	13,523	2,673	4,266	62.7	19.8	31.5
2020	18,981*	2,483	3,064	81.0	13.1	16.1
2019	7,525	2,170	4,159	52.2	28.8	55.3

2.3.2 Stock Monitoring

Catch data is submitted to the competent authority through daily catch return reports. NRW has recently introduced electronic reporting to aid this process. This enables NRW to monitor stocks and activity and assists NRW in setting the Total Allowable Catch and daily quota. The stock structure and productivity is still monitored twice annually (together with regular walk-over surveys of the beds by NRW to monitor progress of the fishery, as well as additional surveys if required to respond to any

emerging issues e.g. die offs or disease) as required under the Dee Estuary Cockle Fishery Order 2008 (SFEW, 2008).

2.3.3 Stock Status and Assessment

Biannual stock monitoring informs the stock status. There have been no significant changes to the survey timing, or to the model used to evaluate the TAC since the last certification assessments (Collinson et al., 2018; Gascoigne et al., 2017; Hough and Holt, 2012). The spatial extent of the cockle fishery beds along with the density and abundance of cockles within the fishery continue to be closely monitored by Natural Resources Wales (NRW).

The biomass estimates in 2021 showed a stock biomass of 13,523 tonnes (lower Bca 11,603 tonnes), which is more than double the 5,600 tonnes predicted requirement of the birds and the Ecological Requirement (ER) Limit Reference Point (LRP). Recent (2020 and 2021) fishery-independent surveys have demonstrated a sustained increase in the absolute abundance of sub-legal size animals (<20 mm) following a die off event in 2019 (Table 5 **Error! Not a valid bookmark self-reference.**), indicating strong evidence of the stock's continued capacity to recruit to this fishery.

Table 5. Summary data from the 150 m survey grid across the whole Dee estuary for April 2021, percentages reflect proportion of each year class from the inlet total(s). Source: Smith (2021a).

	Counts	Mass
Stations sampled	371	371
Total cockles sampled	10,825	60.111 kg
Mean density (per m2)	29.2. Bca: lower 24.8, upper 34.6	0.16 kg. Bca: lower 0.14, upper 0.19 kg
Calculated inlet total	2.44 x10 ⁹ . Bca: lower 2.07 x10 ⁹ , upper 2.89 x10 ⁹	13,523 tonnes. Bca: lower 11,603, upper 15,777 tonnes
Year 0	0%	0%
Year 1	69.9%	44.8%
Year 2	27.8%	50.2%
Year 3 +	2.32%	5.01%

2.3.4 Stock management

2.3.4.1 Fishery Management Plan

Management is now underpinned by the updated [NRW management plan](#) (2021), which provides clear information on the basis of the management approach and the overarching objectives:

- Objective 1: to deliver and maintain a sustainable fishery which can provide regular income to licensees. This objective will be monitored through:
 - Liaison with Dee Estuary Cockle Fishery Advisory Group (DEC FAG) to agree the TAC, quotas and other management decisions
 - Stock monitoring / maintenance of exploitable stock at predicted levels and improving understanding of cockle population dynamics.
- Objective 2: to avoid adverse effects on the European designated site and local residents. This objective will be monitored through:

- Completing and implementing the latest and most appropriate bird food / stock models available with regard to calculating the TAC
- Ensuring there is no detriment to the achievement of Favourable Conservation Status (FCS) for relevant SAC, SPA and Ramsar features
- Monitoring beds for illegal fishing
- Ensuring access and exit from the cockle beds is at agreed points.
- Objective 3: to improve management, monitoring and enforcement within the Fishery. This objective will be monitored through:
 - Regulation of the Fishery according to current statutory requirements.
 - Use of resources to improve understanding of population dynamics.
 - Application of this Management Plan
 - Ensure regular monitoring of catch and compliance with the Management Plan.
 - Use the most appropriate stock model to predict food requirements for birds of the SPA and SSSI, predict effects on shorebird populations of different management scenarios, and recommend methods for setting sustainable TAC.

For Dee Estuary, the season runs from 1st July to 31st December. In order to open a season for commercial catch, NRW is still required to issue a permit for licence holders annually. This is based on the outputs of biomass available from the spring stock survey and the Bird Food Model (BFM) which are tested via a Habitats Regulations Assessment (HRA). The HRA is the legislative process that ensures the decision is compatible with providing the protection required under the legislation for the European protected sites and features. The HRA is carried out to determine the effects of the cockle licence conditions (notably the TAC but also all other possible fishery impacts) on the relevant features of the European Site (NRW, 2022), further discussed in Principle 2. The first stage of a HRA is a Test of Likely Significant Effect (TLSE) which is a screening assessment of impacts, to determine if an Appropriate Assessment is required. Unless this screening assessment enables significant effects on any European site to be ruled out, the project will need to be subject to an Appropriate Assessment. In 2022, the TLSE showed that 33 features could be impacted by the proposal and therefore an Appropriate Assessment was required on each feature. The Appropriate Assessment determined that all adverse effects could be ruled out and the proposal was therefore adopted (NRW, 2022).

In 2022 the TAC proposal from the BFM was as follows (NRW, 2022):

- The total estimated biomass on the cockle beds from the April 2022 survey was 8,088 tonnes.
- A daily TAC of 300 kg per day/licence holder (54 permits), five days per week until 31 December 2022 would require a TAC of 300 kg x 54 x 131 = 2,122 tonnes. This figure assumes that all 54 licence holders' fish all the allowed days and take the maximum daily quota.
- The bird food model predicted that 5,600 tonnes of cockle was required to sustain the oystercatchers across the winter period from the 1st September 2022 to 31st March 2023.
- The maximum required TAC of 2,122 tonnes is deducted from the estimated 8,088 tonnes biomass that was identified on the beds in the April 2022 survey then that would leave an estimated 5,966 tonnes of cockle on the beds for the overwintering birds, which is in excess of the 5,600 tonnes predicted requirement of the birds. This calculation does not

include any spat settlement, cockle growth or natural mortality across the summer months.

In addition to the principal harvest control tool of the TAC, there are a number of additional tools which enable stock management (these tools were also applied in the fishery prior to this management plan and this audit);

- There is a Minimum Landing Size (MLS) for the cockles which at Dee Estuary is '*only cockles which are retained by a gauge having a square opening of 20 mm along each side of the square can be taken*' (NRW, 2022).
- NRW can regulate the number of days per week which the fishers can fish the daily catch limit through the licence.
- NRW can close individual cockle beds within the fishery, if conditions within subareas of the fishery become unfavourable.
- Limited landing points (enabling compliance checks). The access to the fishery is by boat and all landings are required at the designated points of Greenfield Dock, Thurstaston and Connah's Quay.
- Limited licences. There are 54 licences available per annum which are renewed provided payment is made each year. Under the Regulating Order for the Dee, a licensee may use an endorsee to fish their licence. NRW conduct a 'fit and proper' person test for the licensee wait list and an endorsee must be on the wait list to fish a licence. 57 licences were fished in 2021, 54 licences in 2020 and 53 licences in 2019. The rationale for the variation in numbers of licences in 2021 is that three short-term, non-renewable licences were issued towards the end of the season by NRW. These short-term, non-renewable licences were issued to endorsees as there was sufficient TAC to allow for the addition catch after low uptake through the season. If full term license holders do not take 100% of the annual TAC this can (at NRW's discretion) be redistributed to short-term, non-renewable license holders.

2.3.5 Principle 1 overall conclusion

There is a new management plan in place and the stock surveys and HRA have been updated since the previous audit. However, there has not been any significant changes to the way the stock is managed and there was no material changes to Principle 1.

2.4 Principle 2

The fishery continues as a hand-raked operation with cockles sieved and bagged also by-hand. The Management Plan and Licence Conditions (renewed annually) determine hand-gathering as the only method of collection permitted, although a 'jumbo' (adhering to specified dimensions) may be used to agitate the sand and bring cockles to the surface. Given the Management Plan and gathering practices in place, each fisher's catch is essentially 100% cockle and there continues to be no primary or secondary species reported by fishers, within scientific surveys or by fishery inspections.

Following the exit of the UK from the EU at the end of 2020 the designations of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) can no longer fall under the EU Habitats and Birds Directives (EU 2009; EU 1992). The Conservation of Habitats and Species Regulation 2017 (UK 2017) and its (Amendment) (EU Exit) Regulations 2019 (UK 2019), transposes the land and marine aspects of the Habitats Directive and the Wild Birds Directive into domestic law. As a result of the new

legislation SACs and SPAs in the UK no longer form part of the EU's Natura 2000 ecological network. The 2019 Regulations have created a new class of habitat and species protection on land and at sea, including both the inshore and offshore marine areas in the UK these are known as the 'National Site Network'. The National Site Network's objectives are identical to those previously e.g., to maintain features in 'favourable conservation status (FCS)' and in almost all government pages and references in 2022 they are still referred to as SPAs and SACs, therefore we continue to use that term here. However, this will likely need to be updated in any potential future surveillance audits, as terminology may change following the Joint Fisheries Statements and associated updates in habitat management.

The impacts of the fishery have not changed since the last surveillance audit (Seip, 2020). The cockle fishery Management Plan remains a "plan or project" under the Habitat Regulations. Through this regulation, a Habitats Regulation Assessment (HRA) is still required to avoid adverse effects on the designated site. HRAs are completed at least once per year, but can occur more frequently via HRA updates, or addenda. HRAs are conducted after the TAC has been set and the HRA the modelled TAC against the Designated Feature criteria of the European Site each time a TAC (daily catch limit adjustment) or licence addition is proposed. This allows NRW to assess whether the fishery will cause any adverse impact (alone or in combination with other activities) to the features of interest, like the estuaries structure and function, the mudflats, and salt meadows, under the updated conditions about the fishery (such as reflecting the outcomes of the stock survey in April 2022, TAC and changes to operation within the fishery). The HRA also provides an assessment for all the designated bird species for the site and reflects updates to the outputs of the Bird Food Model and the impact of the TAC on the bird food availability. Similarly, any updates to the effects of disturbance (from fishing activities) and combined effects from other activities are also considered. Where there is an impact pathway identified for a site feature, where significant effects cannot be ruled out, the pathway has been further explored under an Appropriate Assessment.

The 2022 HRA also prescribed that there is a Minimum Landing Size in place, which is defined as "only cockles which are retained by a gauge having a square opening of 20 mm along each side of the square can be taken", a TAC, and up to 54 licence holders, among other measures (NRW, 2022). For the Dee Estuary, 33 features were assessed in an Appropriate Assessment. The HRA (including the Appropriate Assessment) concluded that there would be no adverse effect on site integrity in the most recent (2022) HRA (NRW, 2022). A review remains to be conducted by Natural England, after which, the HRA is submitted to the Welsh Government and Defra for approval, prior to the fishery being opened.

The EU-Exit is likely to impact legislation in the future, however, at the moment, NRW and the Environment Agency remain conducting monitoring of the estuary. Monitoring was previously required under their commitments to the European Water Framework Directive (WFD), now The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. There have currently been no changes to the WFD as a result of Brexit, as all legislation has been subsumed into UK legislation. However, there were some changes to the programme as a result of the Covid-19 pandemic, which have now resumed to their normal patterns. There are no changes to roles and responsibilities within the organisations involved in the WFD programme. This programme includes intertidal core sampling which provides data on the benthic infaunal communities. Therefore, if new species should appear in the cockle beds that were at-risk from the fishery, they would likely be detected at an early stage.

2.4.1 Principle 2 overall conclusion

Since there were no major changes in the fishery and its impact to Principle 2, the assessment team deemed that there was no need to rescore Principle 2.

2.5 Principle 3

The legal framework for the management of the fishery has not changed. Natural Resources Wales (NRW) remains the main management authority for this fishery, with the Dee Estuary Cockle Regulating Order (2008-2028) as the main policy framework.

The UK Fisheries Act 2020 (FA) provides the legal framework for the management and regulation of fisheries in the UK after the end of the EU-exit transition period. The FA sets out in detail a requirement for the four UK Fisheries Administrations to each develop and publish a Joint Fisheries Statement (JFS). This statement must be finalised within two years of the passing of the FA (i.e., by November 2022). The JFS will set out how the administrations will achieve the fishery management objectives set by the FA. At this stage it is unknown how the JFS will affect the management of Welsh cockle fisheries (if at all), and this should be assessed at future audits.

The Dee Regulating Order allows licensees to endorse people to fish under their licence, for example if a gatherer is unwell and unable to work, they can request for another person to fish under their licence. However, there was concern by NRW that the use of endorsees was being misused, and therefore in 2020 a 'fit and proper person assessment' (FPPA) procedure was developed to ensure NRW has better oversight of this.

The FPPA applies to any new entrant to the fishery permanent (probationary) or short-term non-renewable licence, or an endorsee put forward by the license holder. The FPPA comprises 3 separate sections:

- Unspent fisheries convictions and cautions
- Other relevant unspent criminal convictions and cautions (to include, but not be limited to: offences relating to violence, intimidation, fraud, drugs, people trafficking, modern slavery)
- A record of non-compliance or history of poor behaviour.

This information is used in combination with the fisher's experience in the fishery (to ensure they have the appropriate skills and knowledge of the estuary considering its dangers). Scores are provided based on the above matters. Fishers with the highest scores are prioritised for a licence should one become available (note: a licence becomes available when a fisher stops paying for their licence). The current list of fishers who have applied for a licence and undergone the scoring system is valid until Dec 31st 2023. The application process and subsequent scoring will be conducted again on/around 1st Jan 2024, which will be in place until June 2028 (the end of the Regulating Order).

Roles and responsibilities of key organisations and forums have not changed since the last surveillance assessment. It should be noted that the management system has improved considerably over the past 4-years since dedicated cockle officers have been in post for either site, facilitating communications with stakeholders on day-to-day management of the cockle beds and addressing any concerns of the licensees. There is a cockle officer in place specifically for the Dee Estuary fishery, who is available via a cockle phone Monday to Friday, 9am– 5pm. The reliability and stability of staff members facilitates better communication opportunities between gatherers and management.

There is a high-level of buy-in from licensees into the management system. Fishers submit an electronic catch return at point of landing, and movement document is accompanied with cockle bags as they are transported to buyers.

The main enforcement issue relates to poaching: there have been four recent (2021 – 22) fines ranging from £4k - 10k and this is thought to act as a strong deterrent. Proceeds of seized cockles go to the RNLI. Some poachers have tried to sell to buyers using forged paperwork and claiming catch was from another area (though police investigation in 2019 (Seip et al. 2019) found this not to be the case and so they were prosecuted).

2.5.1 Principle 3 overall conclusion

There have not been any changes to the legal framework impacting this fishery at this point. However, a new Fishery Management Plan has been introduced. Therefore, the following changes to Principle 3 performance indicators are summarised in Table 6 below, and full details of the changes are provided in section 3.2.

Note: since the combined Reassessment for the Dee and Burry cockle fisheries are ongoing at this time (currently at the Client & Peer Review Draft Report stage), all SIs have also been updated. However, rescoring has not been required for many of the SIs and therefore, the assessment team believed it would be most useful to only present the SIs where the scores have been changed at this point, until the peer and client review process has been completed.

Table 6 Changes to Principle 3 PI scoring issues

PI scoring issue	Previous score	2022 score	Summary of change
3.1.2c	SG 80	SG 100	Management has improved considerably over the past 4-years since dedicated a cockle officer have been in post, facilitating communications with stakeholders on day-to-day management of the cockle beds and addressing any concerns of the licensees. Communication is conducted either through the cockle phone, personal visits to the beds and via meetings (e.g. DECFAG) and there is a recently introduced electronic reporting system to aid the real-time monitoring of catches and informing the setting of the TAC and daily quota.
3.2.2b	SG 80	SG 100	Electronic monitoring enables a more timely monitoring and transparent decision-making process (e.g. setting of the TAC, daily quota limits, and closing of the fishery). DECFAG allow stakeholder representatives to raise any concerns; concerns from the individual licensees would also be picked up by fishery officers in direct communication with licensees. The serious / important issues raised during the season and the response of NRW is summarised in the Annual Report. All stakeholder concerns raised would be addressed by NRW in a proactive manner and dealt with consistently and transparently by the cockle fishery management team
3.2.2d	SG 80	SG 100	Decision-making is undertaken by the whole cockle management team (rather than one individual), drawing input from the DECFAG. This has improved consistency in how decisions are implemented between the Dee and Burry and built stronger relationships between the cockle officers and fishers. The cockle officers are viewed as the intermediary between NRW and the fishers and under no pressure to make decisions on the spot. Further, a formal annual report was produced for 2020 – 21 providing comprehensive information on the fishery's performance.

2.6 Traceability

Full details on the fishery's traceability can be found in the Public Certification Report (Gascoigne et al., 2017). There have been no changes in the traceability systems in the fishery since the re-certification. As per the Year 3 audit, the point of sale occurs at the slipways, where the vessels land the cockle catch. Cockles are landed in official labelled and numbered cockle bags that must be accompanied by a cockle transfer document. The bags therefore provide information on the gatherer. The accompanying document provides details on catch date, area, landing location and catch weight.

Since 2021, there have been changes to sales of cockles. The majority of cockles are forwarded to a processor in South Wales and Kings Lynn.

3 Results

3.1 Surveillance results overview

3.1.1 Total Allowable Catch (TAC) and Catch Data

The TAC and catch data for 2020 and 2021 are shown in Table 7.

Table 7. TAC and Catch Data

TAC	Year	2021	Amount	4,266 t
UoA share of TAC	Year	2021	Amount	4,266 t
UoC share of total TAC	Year	2021	Amount	4,266 t
Total green weight catch by UoC	Year (most recent)	2021	Amount	2,673 t
	Year (second most recent)	2020	Amount	2,483 t

3.1.2 Summary of conditions

There are no conditions in place for this fishery.

3.1.3 Recommendations

There are no recommendations in place for this fishery.

3.2 Rescoring Performance Indicators

Note: since the combined Reassessment for the Dee and Burry cockle fisheries are ongoing at this time (currently at the Client & Peer Review Draft Report stage), all SIs have also been updated. However, rescoring has not been required for many of the SIs and therefore, the assessment team believed it would be most useful to only present the SIs where the scores have been changed at this point, until the peer and client review process has been completed.

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Scoring table 1. PI 3.1.2 – Consultation, roles and responsibilities

c	Participation		
	Guide post	The consultation process provides opportunity for all interested and affected parties to be involved.	The consultation process provides opportunity and encouragement for all interested and affected parties to be involved, and facilitates their effective engagement.
	Met?	Yes	No Yes

Rationale

~~Following the difficulties with the Liaison Group, it is clear that NRW is trying to find better mechanisms for consultation with licensees, and is trying out consultation of all licensees by email alongside the Liaison Group. On this basis, it is reasonable to argue that there is opportunity for interested parties to be involved; however, the deficiency in the formal structure (for various reasons) probably doesn't help in facilitating engagement, particularly since not everyone is guaranteed to have access to email. Other stakeholders such as conservation NGOs are not involved in day today management (but it is not clear they want to be) but are involved in wider questions such as the revision of the bird food model. On this basis SG80 is met but SG100 is not met.~~

Since the last MSC assessment there have been significant changes. There is a full time cockle officer, with lots of engagement opportunities with the gatherers e.g. phone calls, emails etc. This works much better than previously because of the greater opportunities to engage. One problem is that the Advisory groups only has limited reps that are licence holders, so it's not comprehensive by itself so therefore, the phone lines and email provide an opportunity for these gatherers to voice their concerns. **SG80 is met** as the licensees are provided with the opportunity to engagement with the management of the fishery as too are other stakeholders through the DECFAG, **SG 100 is met as the full-time cockle officer facilitates the effective engagement of licensees** through regular contact with licensees and providing updates at the DECFAG. NRW are also in regular contact with universities over the bird food model.

References

Dee Estuary Cockle Fishery Order (2008) management plan. Available <https://naturalresources.wales/about-us/strategies-and-plans/dee-estuary-cockle-fishery-order-2008-management-plan/?lang=en>

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	100
Condition number (if relevant)	N/A

Scoring table 2. PI 3.2.2 – Decision-making processes

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives, and has an appropriate approach to actual disputes in the fishery		
b	Responsiveness of decision-making processes			
	Guide post	Decision-making processes respond to serious issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take some account of the wider implications of decisions.	Decision-making processes respond to serious and other important issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.	Decision-making processes respond to all issues identified in relevant research, monitoring, evaluation and consultation, in a transparent, timely and adaptive manner and take account of the wider implications of decisions.
	Met?	Yes	Yes	No Yes

Rationale

Decision making is adaptive, both during the season (responding to input from licensees) and season to season (responding to monitoring data, new research and input from licensees). The serious / important issues raised during the season and the response of NRW is summarised in the Annual Report. As would be expected, sometimes NRW may take or change a decision to respond issues (e.g. adapting the bird food model to respond to new research and concerns of stakeholders during a poor season), and sometimes they do not – but this is explained. SG80 is met. There may be issues to which NRW does not respond in full (e.g. the concerns of English licensees that they are somehow not represented); while attempts have been made to mitigate the problem (e.g. asking EA to become more involved, finding alternative methods of

~~consultation), it is clear that the entire management framework is not going to be altered for their benefit. It is a lot to ask for a management system to respond to all issues including those which are not serious and not important. SG100 is not met.~~

Decision-making is adaptive, both during the season (responding to input from licensees) and season to season (responding to monitoring data, new research and input from licensees). Electronic monitoring has enabled more timely monitoring and transparent decision-making (e.g. setting of the TAC, daily quota limits, and closing of the fishery). DECFAG allow stakeholder representatives to raise any concerns, concerns from the individual licensees would also be picked up by fishery officers in direct communication with licensees.

The serious / important issues raised during the season, and the response of NRW, is summarised in the Annual Report. As would be expected, sometimes NRW may take or change a decision to respond to issues (e.g., adapting the bird food model to respond to new research and concerns of stakeholders during a poor season), and sometimes they do not – but this is explained. **SG60 and SG80 are met** as serious and other important issues are identified through research and monitoring, as well as through communication with licensees. All stakeholder concerns raised would be addressed by NRW in a proactive manner and dealt with consistently and transparently by the cockle fishery management team. Therefore **SG100 is met**.

In addition to the monitoring of the cockle stock and adjustment of the TAC, the fishery management has been shown to demonstrate responsiveness to challenges by stakeholders, for example, dispute over the point scoring procedure for awarding licenses to new applicants. This was resolved through NRW rescoring and finding the stakeholder's concern to be legitimate.

d	Accountability and transparency of management system and decision-making process			
	Guide post	Some information on the fishery's performance and management action is generally available on request to stakeholders.	Information on the fishery's performance and management action is available on request , and explanations are provided for any actions or lack of action associated with findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.	Formal reporting to all interested stakeholders provides comprehensive information on the fishery's performance and management actions and describes how the management system responded to findings and relevant recommendations emerging from research, monitoring, evaluation and review activity.
	Met?	Yes	Yes	No Yes

Rationale

~~NRW produce an annual report which sets out the fishery performance (total catches by bed), and issues raised during the season and how management responded to them (as well as an outline of the finances of the management of the fishery). They also produce a Licence Renewal Pack before the start of each season, including all the documents the licensees need, and a covering letter summarising key points and regulations for the season. This constitutes formal reporting to stakeholders, although information is in summary form rather than necessarily 'comprehensive' in all areas. It is clear that NRW is in close contact with key stakeholders (licensees) throughout~~

the season, with information on the fishery performance and associated decision-making flowing in both directions. It was not, however, clear to the team whether there would be comprehensive, formal reporting in all areas, such as in relation to the review of the bird food model, although it is clear that stakeholders could easily obtain such information from NRW via informal channels. Overall, the team considered that SG80 is met but SG100 might not be met in full for all areas.

Decision-making is undertaken by the whole cockle management team (rather than one individual), drawing input from the Dee management groups (i.e. DECFAg). This has improved consistency in how decisions are implemented between the Dee and built stronger relationships between the cockle officer and gatherers. The cockle officer is viewed as the intermediary between NRW and the fishers, and is under no pressure to make decisions on the spot.

NRW produce an annual report which sets out the fishery performance (total catches by bed), issues raised during the season, and how management responded to them (as well as an outline of the finances of the management of the fishery). They also produce a Licence Renewal Pack before the start of each season, including all the documents the licensees need, and a covering letter summarising key points and regulations for the season. Subsidies are not relevant here, but TAC allocation information is available to stakeholders via the licence renewal packs, along with fishery management decisions; compliance information is available from request from the relevant department in NRW. **SG60 is therefore met.**

This constitutes formal reporting to stakeholders, although information is in summary form rather than necessarily 'comprehensive' in all areas. It is clear that NRW is in close contact with key stakeholders (licensees) throughout the season, with information on the fishery performance and associated decision-making flowing in both directions. It was not, however, clear to the team whether there would be comprehensive, formal reporting in all areas, such as in relation to the review of the bird food model, although it is clear that stakeholders could easily obtain such information from NRW via informal channels. **As such SG80 is met.** A formal annual report was produced for 2020 – 21 providing comprehensive information on the fishery's performance **therefore SG100 is met.**

References

Dee Estuary Cockle Fishery Order (2008) management plan. Available <https://naturalresources.wales/about-us/strategies-and-plans/dee-estuary-cockle-fishery-order-2008-management-plan/?lang=en>

NRW, 2022. Proposal for Opening of the Cockle fishery within the Dee Regulating Order. Dee Estuary Habitats Regulation Assessment: which includes a Test of Likely Significant Effect (TLSE) and Appropriate Assessment (AA) for a plan or project affecting a European Site.

<https://naturalresources.wales/about-us/news-and-events/news/shell-fisheries-closed-as-a-precaution-after-the-llangennech-diesel-spill-can-reopen/?lang=en>

Overall Performance Indicator scores added from Client and Peer Review Draft Report stage

Overall Performance Indicator score	100
Condition number (if relevant)	N/A

3.3 Principle level scores

Table 8. Principle level scores

Principle	Score
Principle 1 – Target Species	94.2
Principle 2 – Ecosystem Impacts	100.0
Principle 3 – Management System	96.7

Table 9. Performance Indicator scores

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
One	Outcome	0.33	1.1.1	Stock status	0.5	100 90
			1.1.2	Stock rebuilding	0.5	N/A
	Management	0.67	1.2.1	Harvest strategy	0.25	95 100
			1.2.2	Harvest control rules & tools	0.25	95 100
			1.2.3	Information & monitoring	0.25	90
			1.2.4	Assessment of stock status	0.25	95
Two	Primary species	0.2	2.1.1	Outcome	0.33	100
			2.1.2	Management strategy	0.33	100
			2.1.3	Information/Monitoring	0.33	100
	Secondary species	0.2	2.2.1	Outcome	0.33	100
			2.2.2	Management strategy	0.33	100
			2.2.3	Information/Monitoring	0.33	100
	ETP species	0.2	2.3.1	Outcome	0.33	100
			2.3.2	Management strategy	0.33	100
			2.3.3	Information strategy	0.33	100
	Habitats	0.2	2.4.1	Outcome	0.33	100
			2.4.2	Management strategy	0.33	100
			2.4.3	Information	0.33	100
	Ecosystem	0.2	2.5.1	Outcome	0.33	100
			2.5.2	Management	0.33	100
			2.5.3	Information	0.33	100
Three	Governance and policy	0.5	3.1.1	Legal &/or customary framework	0.33	95
			3.1.2	Consultation, roles & responsibilities	0.33	95 100
			3.1.3	Long term objectives	0.33	100
		0.5	3.2.1	Fishery specific objectives	0.25	100
			3.2.2	Decision making processes	0.25	85 100

Principle	Component	Wt	Performance Indicator (PI)		Wt	Score
	Fishery specific management system		3.2.3	Compliance & enforcement	0.25	80
			3.2.4	Monitoring & management performance evaluation	0.25	100

4 References

Collinson, K., Gascoigne, J., Doggett, M., Seip, C., 2018. Marine Stewardship Council (MSC) Public Certification Report Burry Inlet Cockle Fishery.

Dee Estuary Cockle Fishery Order (2008) management plan. Available <https://naturalresources.wales/about-us/strategies-and-plans/dee-estuary-cockle-fishery-order-2008-management-plan/?lang=en>

Gascoigne, J., M. Doggett, H. Jones, 2017. Marine Stewardship Council (MSC) Reduced Re-Assessment Public Certification Report Dee Cockle Fishery On behalf of Cyfoeth Naturiol Cymru/Natural Resources Wales

Hough, A., Holt, T., 2012. Dee Estuary Cockle Fishery Public Certification Report. <https://fisheries.msc.org/en/fisheries/dee-estuary-cockle/@assessments>.

NRW, 2022. Proposal for Opening of the Cockle fishery within the Dee Regulating Order. Dee Estuary Habitats Regulation Assessment: which includes a Test of Likely Significant Effect (TLSE) and Appropriate Assessment (AA) for a plan or project affecting a European Site.

Seip, C., 2019. Marine Stewardship Council (MSC) Year 2 Review of Information Report Dee Estuary Cockle Fishery On behalf of Cyfoeth Naturiol Cymru/Natural Resources Wales Prepared by Control Union Pesca Ltd

SFEW, 2008. The Dee Estuary Cockle Fishery Order 2008.

Smith, M., 2021a. Dee Estuary Cockle Stock Assessment 2021 - Spring.

UK, 2019. Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, UK Government. Available at: <https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017>.

5 Evaluation processes and techniques

5.1 Site visits

The site visit was held in the Dee Estuary in Rhydymwyn, on the 8th – 10th June 2022. The individuals met during the site visit and their roles in the fishery are listed in Table 10 **Error! Reference source not found.** Stakeholders were notified about the assessment via notifications posted on the MSC website, as well as via direct email contact. The last date for data collection occurred on 16th June 2022. The following notifications were made:

- Year 4 Surveillance audit announcement for the Dee Estuary Cockles certification: 29th April 2022
- Stakeholder announcement: Update of site visit timing and location: 30th May 2022

The reassessment was carried out in accordance with the MSC Fisheries Certification Procedure v2.2 for procedure and the MSC Standard v2.01 for scoring.

No stakeholder submissions were received.

Table 10. List of attendees at the on-site meetings.

Name	Position	Type of consultation
Stuart Thomas		NRW representative
Rhys Griffiths	Cockle Fishery Management Officer, Burry Inlet	NRW representative
Rowland Sharp		NRW representative
Hugh Jones	Principal Fisheries Assessment Manager, CU (UK)	Principle 1 Assessor
Alex Caveen	Consultant	Principle 3 Assessor
Bev O’Kane	Fisheries Assessment Manager, CU (UK)	Team Leader, traceability, and Principle 2 Assessor
Rob Dyer	Cockle Fishery Management Officer	NRW representative
John Gilliland	NRW compliance officer	NRW representative

Appendix 2.2 Stakeholder participation

No public announcements were made, other than through the MSC website and MSC update emails, as well as through Control Union’s fishery notifications (published on the MSC website) and emails to individual stakeholders. To determine an appropriate stakeholder list, the team conducted searches of all recent research, activities, programmes conducted in the fishery and any relevant stakeholders potentially involved in these activities. The team checked the stakeholder names with the client to determine if any stakeholders were missing from the list. In addition to these methods, the assessment team reached out to Katharine Bowgen and John Goss-Custard (who undertake research on bird interactions in the cockle fishery) to ask them for their opinions on the report and to determine if they had any recent research that ought to be reflected in the reports.

No stakeholder comment was received, nor were stakeholders interviewed at the site visit: the assessment was based on a review of publicly-available documentation and documentation provided the client and stakeholders (John and Katharine mentioned above) prior to and during the site visit. Where data analyses were carried out by the assessment team, this is indicated in the report.

6 Harmonised fishery assessments

There is no harmonisation requirement between this and any other MSC fishery.