

**Marine Stewardship Council (MSC) 3037 Fourth Annual
Surveillance Audit**

Dee Estuary Cockle Fishery

**On behalf of
Cyfoeth Naturiol Cymru/Natural Resources Wales**

**Prepared by
ME Certification Ltd**

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Glossary

Acronym	Definition
CAB	Conformity Assessment Body
DEFRA	Department for Environment Food and Rural Affairs
EC	European Commissions
EA	Environment Agency
ETP	Endangered, Threatened, Protected Species
FCS	Favourable Conservation Status
HRA	Habitats Regulation Assessment
MSC	Marine Stewardship Council
MEC	ME Certification Ltd
MLS	Minimum Legal Size
NRW	Natural Resources Wales
SPA	Special Protection Area
SAC	Special Area of Conservation
SSSI	Site of Special Scientific Interest
TAC	Total Allowable Catch

1 General Information

Fishery name	Dee Estuary Cockle Fishery		
Unit(s) of Assessment (UoA)	Species – Cockle (<i>Cerastoderma edule</i>) Geographical range of fishing operations – Dee Estuary, between North Wales and the Wirral. Methods of Capture – Hand-gathering (rake and sieve) Stock – Discrete stock within Dee Estuary Management – Natural Resources Wales Client group – Natural Resources Wales		
Date certified	03 July 2012	Date of expiry	02 July 2017
Surveillance level and type	Surveillance level 1, Year 4 on-site surveillance audit.		
Date of surveillance audit	07 th December 2016		
Surveillance stage	1st Surveillance		
	2nd Surveillance		
	3rd Surveillance		
	4th Surveillance		
	Other (expedited etc.)		
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2 Background

The Dee Estuary Cockle (*Cerastoderma edule*) fishery has been certified against the MSC Principle and Criteria for Sustainable fishing since July 2012, with no conditions attached to its certification. The fishery has 53 licensees who access the fishery from vessels at low water, where cockles are hand-gathered from exposed mud flats with the assistance of a hand-rake of limited width (30cm) and 'jumbo', an implement with a flat base and vertical handle which is used to bring cockles to the surface.

Historically, the fishery was regulated under the 1967 Shellfish (Anon 1967) and the fishery tended to operate in an annual 'boom and bust' fashion, with extensive harvesting of good cockle resource one year, followed by little fishing until the next spat fall had reached an economically harvestable size. The fishery principally operated on a permit system with byelaws regulating fishing and administered by the former National Rivers Authority. As of 2008 the Environment Agency (EA) was designated the Grantee of the Regulating Order, following a public enquiry in 2007 and signing of the Dee Estuary Regulating Order 2008 (England & Wales. SFEW 2008). The Order is current until 2028. The fishery order specified three key aims:

1. To develop a sustainable fishery that provides a consistent, regular income for fishermen.
2. Ensuring the features of the Dee Estuary protected area (i.e. SAC/SPA/SSSI/Ramsar) are not negatively impacted by the Cockle fishery and minimising impacts on local residents arising from fishing activities.
3. To improve fishery management, monitoring and enforcement.

In 2013, upon establishment of NRW, a service level agreement was signed between NRW and the EA (England) whereby statutory functions for the management of the fishery were signed over to NRW with financial assistance being provided by the EA.

In 2015 an updated management plan was issued which includes Restrictions and Regulations on Harvesting, Conditions of Licences, Licence Allocation, TAC determination, Environmental and Health considerations (DEFRA 2015).

Geographically, the cockle fishery is located in the River Dee Estuary between north Wales and Wirral. The Dee Estuary fishery area is defined to the north by a line drawn between Red Rocks, northernmost point of Hilbre Island and the old lighthouse, point of Ayr, and to the south by a line drawn at right angles to the training wall intersecting the Flint channel light. Total area below mean high water springs (MHWS) is 10,656 hectares. Within the estuary there are five main cockle beds located on the West Kirby, Thurstaston, Caldy, Mostyn and Salisbury banks (NRW 2016b) (Figure 1). Fishing activity and productivity of these beds vary spatially and temporally according to spat fall, exploitation and other external factors and it is possible that new beds may develop in the future. In 2015, the Salisbury Middle fishery bed produced greater than half of the total catch (NRW 2015).



Figure 1: Dee Estuary Cockle Beds. Source: NRW (NRW 2016b).

The Total Allowable Catch (TAC) and the catch data for the four years 2013 to 2016 inclusive are presented in Table 1. The Unit of Assessment is the entire Dee Estuary cockle fishery and the unit of certification covers all licensed fishing within that fishery.

Table 1. TAC and Catch Data. *see explanation within the Principle 1 assessment process. **Year to Date.

Year	UoA share of TAC (Tonnes)	Total green weight catch by UoC (Tonnes)
2016	1,200*	1,324 YtoD** (29/11/16)
2015	600	239
2014	2,000	1,565
2013	600	545
2012	1500	820

3 Assessment Process

This report represents the findings of the Year 4 Surveillance audit for the Dee Estuary Cockle Fishery. The fishery was certified on the 03rd July 2012 by Intertek Moody Marine under certificate code, MML-F-124 (Hough 2012). The fishery was certified with no conditions.

The fishery underwent a Review of Information in July 2013 in line with its Year 1 Surveillance audit. It then underwent an On-Site Surveillance audit in July 2014 in line with its Year 2 Surveillance Audit and a further Review of Information in Dec 2015 for its Year 3 Surveillance. None of these audits identified any major changes or raised any new conditions for the fishery.

On the 1st July 2015, ME Certification Ltd (MEC) informed the former certificate holder Intertek Moody Marine that the client wished for a certificate transfer to occur and for the on-going process to be managed by MEC. This process was officially completed on the 22nd September 2015 with the issuance of a new certificate under the code, MEC-F-033. This process was completed following a desk-based review which identified no areas of concern and recommended that MEC continue with the current surveillance schedule. This certificate maintained the same expiry date of the 2nd July 2017.

MEC announced the Year 4 Surveillance audit on the 3rd November 2016 with the Year 4 On-Site Surveillance scheduled for completion on the 7th December 2016 by the MEC Lead Assessor, Jo Gascoigne and team members Matt Doggett and Hugh Jones.

The audit was completed under the process requirements as specified under Version 2.0 of the MSC Fisheries Certification Requirements. The audit used the standard requirements relating to the MSC Principles and Criteria Standard Version 2.0 and the MSC Fisheries Certification Requirements & Guidance Version 1.3.

The findings of this Year 4 Surveillance are described in this report.

No stakeholder submissions were received in response to the announcement of the Year 4 Surveillance. Instead the Assessment Team met with the client (represented by Rick Prichard) on 07/12/2016 to;

- Discuss any changes to the fishery and its management including those to management systems, regulation and relevant personnel.
- Discuss any changes to the scientific base of information such as stock assessments.
- Discuss any developments or changes within the fishery impact may impact on traceability and the ability to segregate MSC from non-MSC products.
- Discuss any other significant changes in the fishery

Specific evidence that would be needed was also requested. The findings of this process are set out in Section 4 below.

4 Results

This report contains the findings of the **fourth** surveillance cycle in relation to the Dee Estuary Cackle Fishery.

As set out in the Public Certification Report (Hough 2012), the fishery surveillance plan has been executed as in Table 2:

Table 2. Surveillance schedule for the Dee Cackle Fishery (Hough 2012).

	Surveillance Category	Year 1	Year 2	Year 3	Year 4
Score from CR Table C3	Reduced Surveillance	Review of new information	On-Site surveillance	Review of new information	On-Site Surveillance and Re-assessment

4.1 Principle 1

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 NRW using methods (West 2003) which allow application of the Stillman bird food model developed specifically for allocation of TAC in cockle fisheries (Stillman 2013; Jones 2015). Spatial extent of cockle beds was measured in February 2016 by NRW staff with the stock assessment survey completed in May 2016.

Table 3. 2016 Dee Estuary cockle survey data taken between 05/04/16 and 06/05/16. Reproduced (NRW 2016b).

Size Group	Parameter	No3 Buoy & South Salisbury	Caldy	Thurstaston	West Kirby	Mostyn	Talacre	Salisbury	Salisbury Middle	Mostyn Deep (aka Secret Garden)
Cockles >20mm	Area m ²	1128362	867385	716230	1415182	1368133	151740	289202	313031	129763
	Date Surveyed	05/04/16	14/04/2016	15/04/16	18/04/16	19/04/16	19/04/16	20/04/16	06/05/16	06/05/16
	Average Weight (g)	12.9	12.7	10.7	11.2	7.5	8.5	8.6	21.2	11.8
	Mean Cockle/ m ²	16.6	11.2	3.3	7	16	33	3.1	22.3	197.5
	Upper CI Mean Cockle/ m ²	21.4	15.7	6.7	10.4	20.8	63.1	6.1	32.3	376.8
	Lower CI Mean Cockle/ m ²	11.7	6.8	0	3.4	11.3	3.5	0.2	12.3	18.2
	Biomass of Cockles >20mm(tonnes)	240	123.4	25.4	110.4	163.9	43.2	7.8	148	302.4
	Total Biomass of Cockles >20mm (tonnes)	1164.5 tonnes								
Cockles <20mm	Average Weight (g)	0.71	0.83	0.6	0.95	1.27	0.83	0.42	0	4.62
	Mean Cockle/ m ²	54	2468.3	129	745.9	56.4	136.7	31.9	0	99.2
	Upper CI Mean Cockle/ m ²	69.3	3092.3	173.9	1006.5	73.1	247.3	44.7	0	187.8
	Lower CI Mean Cockle/ m ²	38.7	1844.4	84.3	485.3	39.7	26.1	19	0	10.5
	Biomass of Cockles <20mm(tonnes)	43	1781.3	53.5	1002.9	97.9	17.2	3.9	0	59.5
	Total Biomass of Cockles <20mm (tonnes)	3059.2 tonnes								

TAC calculations estimated through the Stillman bird food model suggested sufficient biomass was available to allow for an 1,812 t fishery in 2016. The model estimated that 6,927.5 t of cockles was required to feed 16,813 oystercatchers on the Dee estuary over the winter period from 1st September 2016 to 15th March 2017 (NRW 2016a). This oystercatcher population value is the overall mean and not the peak count for the conservation objective (NRW 2016a). Of the available 1,812 t an initial TACC of 1,200 t was agreed between NRW and Dee Estuary Sea Fishery Liaison Group (DESFLG) for 2016 (NRW 2016b; NRW 2016a). Issuing of the Habitats Regulation Assessment (HRA) and daily catch limit (500 kg) announcement to the fishers for the 2016 season allowed the fishery to open on 1st July as planned. In 2016 the fishery opened with a MLS of 14 mm riddle gauge until 03rd Aug. From 03rd Aug until 03rd Oct, the MLS was increased to cockles retained by a 16 mm gauge (17-20 mm across the shell), and from 03rd Oct until 31st Dec increased to an 18 mm gauge (19-22 mm across the shell)

(NRW 2016a). The reduced MLS was utilised to reduce the risk of density dependent die-offs in some beds where overcrowding was considered to be occurring (Table 3) (NRW 2016a). NRW conducted regular monitoring of stocks throughout the summer period to monitor the progress (NRW 2016a).

In 2015, NRW moved to a bag TAC method for reporting of catch using bespoke bag sizes built to hold the daily catch limit as agreed for that season (in 2016 = 500 kg) (Figure 2). Use of the bag TAC instead of timely and costly direct weight measurements reduces the chances of 'overtopping' of daily catch limits where enforcement is not practical (NRW 2015). This should improve compliance with daily limits.



Figure 2: Bespoke bags used to hold the daily catch limits. Example shown is a 500 kg bag.

Secondary fishery surveys which were conducted in September 2016 indicated that there were still large stocks of cockle available for the fishery and agreement was reached between NRW and DESFLG to allow an increased TAC above 1,200 t up to an upper limit of 1,800 t for 2016. As of 29th November 2016 the annual catch is recorded as 1,324 t.

The bird-food model is currently under review for cockle fisheries across the whole of England and Wales, with consultant inputs provided by Stillman and Goss-Custard and NRW, Natural England and the RSPB all involved in the process. The objective of the review is to update the model to take into account the most recent scientific information. The review is at an early stage currently, but the eventual plan is to have a base model which is then adjusted according to local conditions observed during the winter at each site. The key points under consideration for this review are reported to be the following (Rowland Sharp, NRW, pers. comm.):

- Bird diet: the species mixture in the diet at different life stages, with different availabilities and under different environmental conditions (rather than assuming that all oystercatchers eat cockles all the time);
- Environmental conditions: temperature affects the energetic requirements, also the species mix in the diet (e.g. worms come to the surface during milder periods); prolonged periods of frozen ground also have an impact on the ability to feed;

- Movement of birds between adjacent sites (rather than management in isolation);
- Patchiness: if cockles are very patchily distributed, there is strong competition and the less dominant birds lose out.

Beyond the management options selected and reported above there have been no significant changes in the stock status, harvest strategy or harvest control of this fishery which would significantly impact the fishery's P1 score.

4.2 Principle 2

Within the Dee Estuary Cockle Fishery there continue to be no primary or secondary species associated with the fishing practices of this UoA which require consideration within Principle 2 of the MSC assessment.

The Dee Estuary is an SPA under Article 4 of the EC Birds Directive (2009/147/EC) and allocation of sufficient cockles as a food resource for overwintering oystercatchers (*Haematopus ostralegus*) is the principle reason for the use of the Stillman birds model of TAC allocation (JNCC 2016; Stillman 2013; Norris & Johnstone 1998). The Conservation Objective for oystercatchers in the Dee Estuary is the 5-year peak mean population on the site at the time of SPA designation ($n = 22,667$) and must be reached at some point each winter for the species to be assessed as being of 'favourable conservation status' (Jones 2015). The 5-year peak mean bird population figures for oystercatchers derived from monthly Wetland Bird Surveys (WeBS) in the Dee Estuary show that the population has been in favourable conservation status (FCS) since 2012 with minor fluctuations prior to that date (Jones 2015; Frost et al. 2016). The overall 5-year mean at the time of SPA designation was $n = 16,813$ and this is the base value used to assess TAC availability within the birds model (Jones 2015).

A review of Wetland Bird Survey data (Frost et al. 2016) for the Dee Estuary suggests that there are two other bird species present in significant numbers and which exploit cockles as a food source: black-tailed godwit (*Limosa limosa islandica*) and knot (*Calidris canutus*) are part of the overwinter bird population and assemblage qualification for wetlands of international importance (Article 4 of the EC Birds Directive (2009/147/EC)). Black-tailed godwits spend the majority of the non-breeding season in estuarine environments feeding on benthic invertebrates which can include bivalves (e.g. cockles, *Scrobicularia plana*, *Macoma balthica*, *Mya arenaria*) and polychaete worms (e.g. *Nereis diversicolor*) and molluscs (e.g. *Hydrobia* spp.) (Moreira 1994; Gill 2001). Despite the black-tailed godwit having the potential to feed on estuarine bivalves of similar size to the commercial fishery, observations have been made of the godwits trying unsuccessfully to ingest *S. plana* >20 mm with the majority of those taken being ~14 mm in length (Moreira 1994); it is therefore unlikely they will exploit a large proportion, if any, of the commercial cockle harvest in the Dee Estuary. Furthermore, many of the sightings have recorded the flocks of black-tailed godwits throughout the entire range of the estuary from Flint Sands and Heswell in the south to the outer areas of the estuary at Hoylake; this is well beyond the commercial cockle beds, suggesting they exploit a range of food sources over the entire spatial area. Under the SPA designation black-tailed godwits in the estuary numbered 1,739 (5-year peak mean) while in 2015 (latest data available) the abundance was 6,024 with a 5-year average of 5,909. Given this population increase, it is unlikely that commercial cockle fishing has adversely affected black-tailed godwit population abundance. Knot are also cockle feeders and had a population size of 21,556 (5-year peak mean) at the estuary at the time of SPA designation. The 5-year average of knot to 2015 was 26,437. This species feeds principally on juvenile cockles <10 mm in length and therefore is not considered to be impacted by commercial operations. Both species are migratory and unlikely to be solely dependent on the estuary for food.

All statutory designations associated with European Sites designations are evaluated prior to the opening of the fishery within the Habitats Regulation Assessment (HRA). This includes a Test of Likely Significant Effect (TLSE) and Appropriate Assessment (AA) for the fishery potentially affecting a European Site.

There have been no significant changes to other ETP or habitat aspects of this fishery from time of certification which would significantly impact the fishery's P2 score.

4.3 Principle 3.

There have been no major changes to legislation or to the management system since the last surveillance audit, and the management operates broadly according to the management plan in operation when the fishery was certified (Hough 2012).

Legal Framework: There have been no changes to the Regulating Order or the grantor (Welsh Government), grantees (NRW and the EA) or managers (NRW), or any other aspects of the legal framework. A Wales-wide regime for cockle permitting has been developed by the Welsh Government and is starting in 2017, but it does not apply to the Dee Estuary because it is managed via a Regulating Order. The Welsh Government has, however, taken the fishery, along with the Burry Inlet fishery (also MSC certified), as an example of good practice in developing the Welsh system, so they should be significantly aligned. There have been no legal disputes in the fishery (aside from in relation to compliance, which is considered below).

Currently in progress is a draft proposal between NRW and EA with regard to delegations of functions within the fishery and grantee responsibilities. Its principle aim is to streamline regulatory business.

Consultation, roles and responsibilities: Roles and responsibilities have not changed. In 2016, some grievances were expressed with regard to the DESFLG process and the current arrangement is under internal review by NRW with an aim to produce a defined terms of reference for the new liaison group. Representatives of licensees are part of DESFLG, but the NRW manager expressed some concern that information does not reliably filter back to all licensees. The new forum will depart from the DESFLG model into a cockle fishery only group.

The reduced MLS implemented in 2016 did not receive unanimous support across all fishers, but no formal objections were raised.

Objectives: No change.

Decision-making processes: No change. Fishery Information is made available through a fishery information pack issued at the start of the season and updates are provided by email and post.

Compliance: NRW report that compliance by licence holders is 'generally good'. There are six officers with time allocated to Dee Estuaries fisheries. A small (unspecified) number of warning letters have reportedly been issued for minor offences, (e.g. late catch returns and lack of licence number tags on bags).

Evaluation of the management system: Reviews are underway of the bird-food model as described under Principle 1. In 2017 there is a five-year fishery review due to take place on the Dee Estuary Cockle Fishery which is an internal consultation. Sign-off by both DEFRA and the Government of Wales will only be sought if amendments or additional restrictions and regulations to the existing Management Plan are required.

As noted in the third year surveillance report the licence waiting list has been abolished in favour of an application on availability status. There are currently 53 licensees in the fishery up from 50 as a result of three apprentice cockle fishers completing their training.

None of these issues imply any revision of the scoring of the performance indicators under Principle 3.

4.4 Traceability

Table 4. Traceability Factors within the Fishery:

Traceability Factor	Description of risk factor if present. Where applicable, a description of relevant mitigation measures or traceability systems (this can include the role of existing regulatory or fishery management controls)
Potential for non-certified gear/s to be used within the fishery	The Unit of Assessment (UoA) for this fishery specifically includes only hand racks as gears used by the fishers under assessment and includes all fishers licenced to take cockles from the estuary. The risk of a non-certified gear being used is therefore extremely low.
Potential for vessels from the UoC to fish outside the UoC or in different geographical areas (on the same trips or different trips)	None - The geographical isolation of the fishery, intertidal and daylight nature of this fishery mean there is no non-UoC fishing in the area. Small boats are used to return harvested cockles to the slipways to be landed. No fishing takes place using vessels. The ability of the vessels to leave the fishery and fish elsewhere is negligible.
Potential for vessels outside of the UoC or client group fishing the same stock	None - Small boats are used to return harvested cockles to the slipways to be landed. No fishing takes place using vessels and entry into the estuary is limited to a few principle slipways which are monitored by NRW.
Risks of mixing between certified and non-certified catch during storage, transport, or handling activities (including transport at sea and on land, points of landing, and sales at auction)	Not before the first change of ownership. The hand-gathering occurs only within the estuary, and the entire estuary is covered by the UoC, so only certified product is harvested. Ownership of cockle passes to processors (the first point of sale) either at the dockside (usually) or at the processors grading yard – to which cockle would be delivered by the gatherer.
Risks of mixing between certified and non-certified catch during processing activities (at-sea and/or before subsequent Chain of Custody)	None there is no at sea processing.
Risks of mixing between certified and non-certified catch during transshipment	No transshipment occurs within this fishery and so the risk is seen as minimal.
Any other risks of substitution between fish from the UoC (certified catch) and fish from outside this unit (non-certified catch) before subsequent Chain of Custody is required	No other risks have been identified. Product is landed directly and chain of custody will be required from the first change of ownership. Risk of mixing of certified and non-certified product here is therefore minimal.

5 Conclusion

MEC has reviewed the above information, and concluded that none of it impacts significantly on the outcome of the assessment or the MSC status of this fishery. Therefore, MEC concludes that this fishery should **remain certified** for another year.

The certificate for this fishery will expire on the 2nd July 2017. The fishery has expressed a wish to be re-assessed against the MSC Principles and Criteria for Sustainable fishing and the reduced reassessment process is in train. Re-assessment is sought using the Version 2 process requirements of the MSC Standard requirements.

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