

Marine Stewardship Council (MSC)

Year 4 Surveillance Report

**Germany Lower Saxony Mussel Dredge and Mussel
Culture Fishery**

On behalf of Niedersächsische Muschelfischer GbR

Prepared by ME Certification Ltd

January 2018

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Glossary

Acronym	Definition
BLE	Bundesamt für Landwirtschaft und Ernährung
BMMP	Blue Mussel Management Plan
Ha	Hectares
MEC	ME Certification Ltd
MEP	MacAlister Elliott & Partners Ltd
NM	Niedersächsische Muschelfischer GbR
nm	nautical mile
NMELV	Niedersächsisches Ministerium für Ernährung, Landwirtschaft und Verbraucherschutz
SMC	Seed Mussel Collectors
UoC	Unit of Certification

1 General summary

Fishery name	Germany Lower Saxony Mussel Dredge and Mussel Culture		
Units of assessment	Species	Blue mussel, <i>Mytilus edulis</i>	
	Stock	Lower Saxony Mussel	
	Geographical range	UoC 1 & 2 - FAO area 27, ICES Area IVb – in the German part of the Wadden Sea around Niedersachsen/Lower Saxony. UoC 3 - FAO area 27, ICES Area IVb – The Wadden Sea	
	Method of capture	UoC 1: Dredging and trawl nets for mussel seed + bottom culture;	
		UoC 2: Collection of mussel seed using suspended ropes and nets + Bottom Culture	
		UoC 3: Translocation of mussel seed that has originated from spatfall in the Wadden Sea and has stayed in the Wadden Sea for its whole life span, from an MSC certified fishery + Bottom Culture	
	Client group	Niedersächsische Muschelfischer GbR member vessels	
	Management systems	The Niedersächsische Ministerium für Ernährung, Landwirtschaft und Verbraucherschutz has primary responsibility for the fisheries. The Staatliche Fischereiamt Bremerhaven, is the governmental organisation in the field.	
Other eligible fishers	None		
Date certified	5 th December 2014	Date of expiry	28 th October 2018
Surveillance level and type	On-site surveillance, Year 4		
Date of surveillance audit	16 th & 17 th November 2017		
Surveillance stage (tick one)	1st Surveillance		
	2nd Surveillance		
	3rd Surveillance		
	4th Surveillance	X	
	Other (expedited etc.)		

Surveillance team	Lead assessor: Kat Collinson Assessor: Ulf Löwenberg Trainee Assessor: Henry Ernst	
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2 Background

This report outlines the process and outcome for the Year 4 surveillance audit for the Germany Lower Saxony mussel dredge and mussel culture fishery.

The fishery is conducted by members of the Niedersächsische Muschelfischer GbR, which represents four mussel fishing companies operating five vessels. The fishery takes place entirely in Lower Saxony coastal waters between the German-Dutch border (Ems-Estuary) and the border between the German federal states (Länder) of Lower Saxony and Schleswig-Holstein (Elbe-Estuary). All known fishing effort falls within the 12 nautical mile (nm)-zone and hence in the jurisdiction of Germany.

The mussel fishery has traditionally been based on the fishery of wild mussel seed in the subtidal and in the intertidal (UoA 1) although seed mussel collectors (SMC) consisting of ropes or nets are increasingly being used due to low productivity of wild mussel beds (related to the expansion of the non-native Pacific oyster in the intertidal as well as poor spat fall) (UoA 2). Seed mussels can also be translocated into Lower Saxony from an MSC certified fishery in the Dutch Wadden Sea (UoA 3). Note that seed mussels may also be translocated from Schleswig-Holstein (NE Wadden Sea). Previously, these were not sold as MSC certified, however the Schleswig-Holstein fishery gained its own MSC certification in Oct 2016 (MSC certificate MEC-F-047).

The assessment team reviewed the traceability system in place; all translocations and movements of mussels in and out of the Lower Saxony area are well-documented. Grow-out takes place on subtidal and intertidal mussel plots, which are rented by individual fishermen.

Culture mussels are retrieved several times within the harvest process including being relayed on other plots. For example this includes relaying the mussels on deeper plots before the winter to protect them against storms and relaying them back in spring on the plots with the best growing conditions.

During the site visit (November 16th 2017) the assessment team was informed by the client that there have not been any changes to the following since certification, or the last surveillance:

- Its operation and output market;
- Traceability systems in place in the fishery;
- The vessel list;
- Personnel involved in the fishery;
- Number of mussels beds closed to fishing;
- The management of the fishery;
- Since 2008, no imports have taken place from outside the Wadden Sea and this currently remains the case.

The fishery was certified by FCI on the 29th October 2013 with 10 conditions and one recommendation, as indicated in Table 1.

Table 1. Assessment Conditions, scoring and status prior to this audit

Condition number	Performance indicator (PI)	Status	PI original score	PI score – year 1	PI score – year 2	PI score – year 3	PI score – year 4
1	2.4.1	On target	60	60	60	60	85
2	2.4.2	On target	60	60	60	60	95
3	2.4.3	On target	75	75	75	75	85
4	2.4.3	Closed at year 2 surveillance	75	75	80	80	Not revised
5	2.5.1	Closed at year 1 surveillance	60	80	80	80	Not revised
6	2.5.2	Closed at year 1 surveillance	60	80	80	80	Not revised
7	2.5.3	Closed at year 1 surveillance	70	80	80	80	Not revised
8	3.2.2	On target	75	75	75	75	80
9	3.2.4	Closed at year 1 surveillance	70	80	80	80	Not revised
10	3.2.5	On target	70	70	70	70	80

3 Assessment Process

The CAB formerly known as FCI completed the initial certification for this fishery in October 2013. The certification process has subsequently been undertaken by MacAlister Elliott & Partners Ltd (MEP), now known as ME Certification Ltd (MEC). The first surveillance audit for this fishery was carried out in Hooksiel, Germany in January 2015. This involved a review of updated catch information and an update on the work completed by the fishery against the conditions.

The 2nd surveillance audit took place in Yerseke, Holland with the client representatives in October 2015. All assessment team members were present on the site visit: Kat Collinson (Team leader) and Ulf Löwenberg. Stakeholders were informed of the site visit on the 10th September and were invited to meet in person or submit comments in writing. No stakeholders contacted the team prior to the site visit taking place or provided submissions; however in January 2016, a stakeholder submission from WWF Germany was received following the publication of the year 2 audit report. The submission noted WWF's intent to comment at the year 3 surveillance. MEC acknowledged this via email.

The 3rd surveillance audit took place in Bremen, Germany in February 2017. Both members of the assessment team were present, as well as the client representatives. The client presented the team with detailed updated information on the fishery prior to the site visit and the team reviewed this during the audit with the client. WWF Germany were notified in advance of the year 3 surveillance audit. WWF Germany decided not to attend the site visit, but did submit comments via email (see Appendices of the 3rd year surveillance report).

The 4th Year surveillance audit was announced on 26th September 2017 with stakeholder announcement sent out 29th September via email. The site visit was confirmed for the 16th November 2017 in Bremen and 17th November 2017 in Hooksiel and timed to follow a stakeholder meeting between the fishery representatives, NGOs and officials on the morning of the 16th. In conjunction with the 4th year audit the assessment team conducted the fishery reassessment which was announced via the MSC website on 26th September 2017 as well.

The main purpose of the annual surveillance audit process is to review the fishery to see if there had been any significant changes since certification and evaluate its progress against open conditions. The fishery remains in conformance with the Scope Criteria as per the Fisheries Certification Requirements v2.0, Section 7.4.1. The year 4 surveillance followed the MSC Certification Requirements version 2.0 for procedural stages and version 1.3 for scoring.

3.1 Principle 1

The situation has not changed since earlier this year and has not been updated since the year 3 audit in February as the fishing year for 2017 has not yet completed. Harvest information was provided to the team and is displayed in Table 1.

Table 2. TAC and Catch data.

TAC	Year	N/A	Amount	N/A
UoA share of TAC	Year	N/A	Amount	N/A

UoC share of TAC	Year	N/A	Amount	N/A
Total green weight catch by UoC	Year (most recent)	2016	Amount	2127 tonnes
	Year (second most recent)	2015	Amount	3983 tonnes

The blue mussel (*Mytilus edulis*) is distributed along the entire geographical range of the Wadden Sea, where for management purposes a number of stocks are identified including the blue mussel stocks of the Netherlands, Lower Saxony, Schleswig-Holstein and Denmark.

The blue mussel fishery in Lower Saxony is managed via the “Blue Mussel Fishery Management Plan for the Wadden Sea National Park of Lower Saxony” (Bewirtschaftungsplan Miesmuschelfischerei im Nationalpark Niedersächsisches Wattenmeer; blue mussel management plan BMMP) which sets out conditions for the issuing of mussel fishing permits (see Section 4.3 for further details), relating to *inter alia* the minimum required biomass and size of intertidal mussel beds and the closure of stable intertidal mussel beds. Note that there is no specific external stock management within the fishery, but the fishery has an internal self-analysis system designed to limit fishing pressure. Additionally, surveys are conducted by fisheries officers (Fischmeister), who collect co-ordinates and sizes of mussel beds for unstable beds where the fishery request to fish (Figure 1). No changes in areas were seen from the last surveillance audit (see Appendices for the letter from the National Park for 2017).

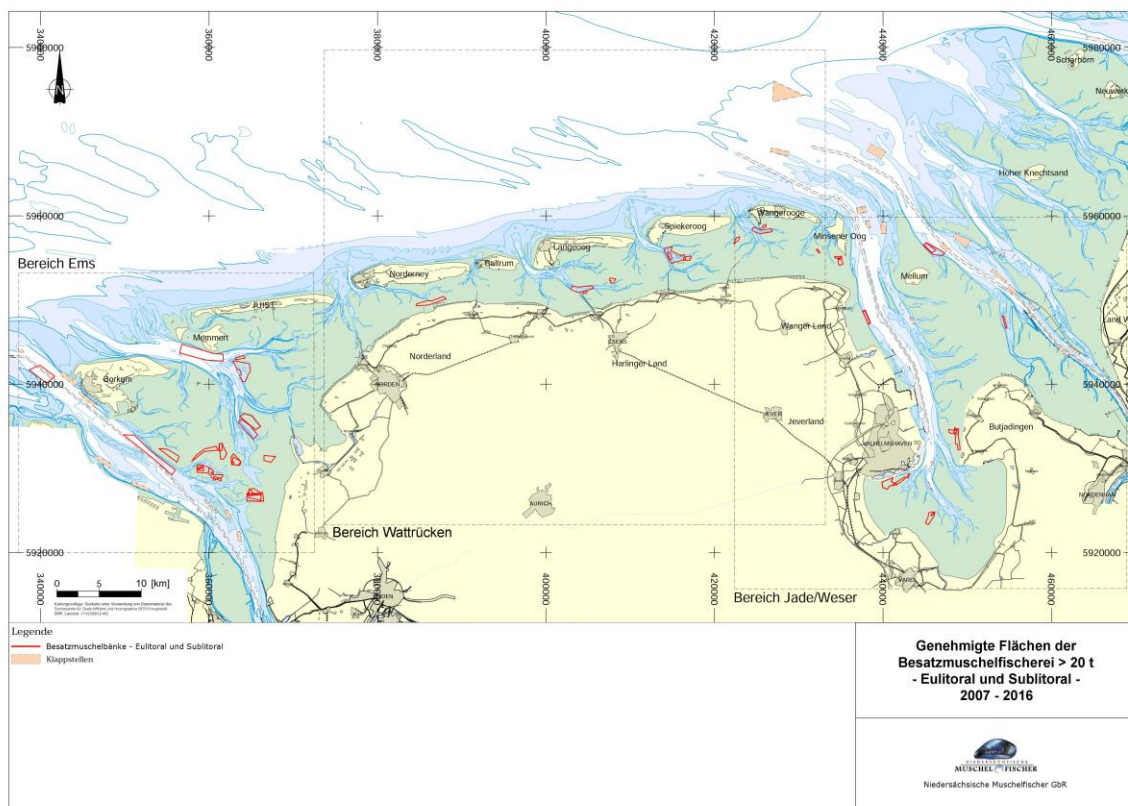


Figure 1. Approved mussel fishing areas in Lower Saxony fishery (plotted from 2007 – 2016).

The hectares investigations of the mudflats recorded by aerial image are carried out with a completely different methodology than the determination of the area by means of corner coordinates, so that the latter always has a much larger surface area than finally the mussel bank to be actually managed. This allows the lowest possible biomass to be seen, i.e. what survived the winter.

According to the National Park, the limits of total biomass 10,000t and total area 1000 ha listed in the mussel management plan were not exceeded in any of 2012 - 2016.

The determination of the aerial images is carried out during the summer months and thus only takes into account the mussel banks that have persisted through the previous winter. Mussels are generally fished twice a year, in the autumn on the newly formed spat beds, particularly in beds that are relatively unstable and therefore have a greater chance of disappearing in winter. Very little is fished by the fishery in the following spring however. This is due to the instability of the newly settled musselbeds. This is reflected in the MARINX report (van Stralen, 2016). The latter is dependent on the severity of winter weather conditions and therefore how much stock survives through to spring. The new spat stock is not covered by this methodology. As a rule, the fishing for stock mussel takes place at new breeding grounds in the autumn months. The state fisheries office inspects the mussel banks before fishing starts and estimates the amount of mussels present, and this is taken into account in total inventories. These values are only accurate in the eulittoral however, as the sublittoral values can only be estimated due to the difficulty in surveying below the water line. Therefore, the two temporal surveys cannot be related to one another, i.e. they cannot determine the percentage of the located “best catches” that have been fished. On the contrary, for a total population determination, one would have to add the data of the landing with the fishing data and add the unstable banks, which were removed by predation, flow and sedimentation. The latter are also not determined by the fishermen, since they only look for areas where the fishing is also allowed, i.e. not in the area of the Wadden Sea close to the islands “Inselwatten” or in an area close to Cuxhaven on the Lower Saxony coast called “Wursterwatt” and other restricted areas.

In addition to the closure of stable mussel beds, as stipulated by the management plan, there is also the National Park regulation (Nationalparkgesetz). In this regulation, large areas are also closed for mussel fisheries (Figure 2).

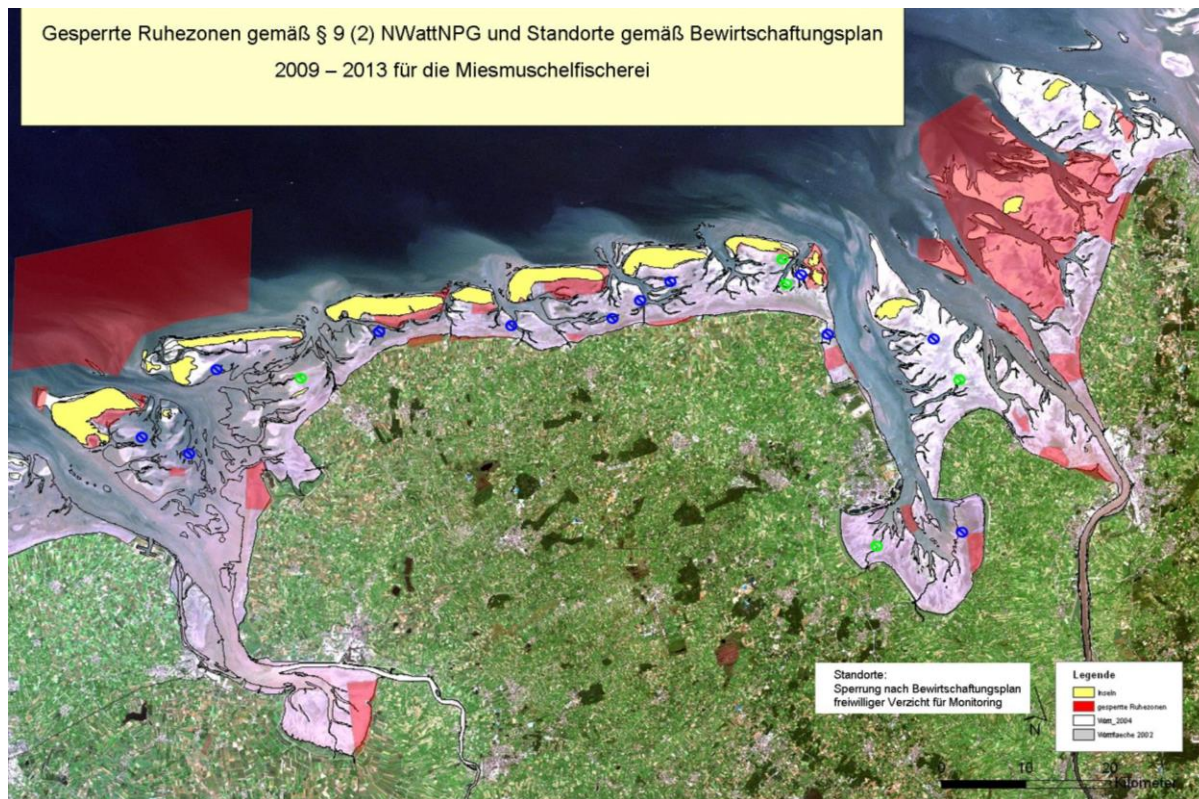
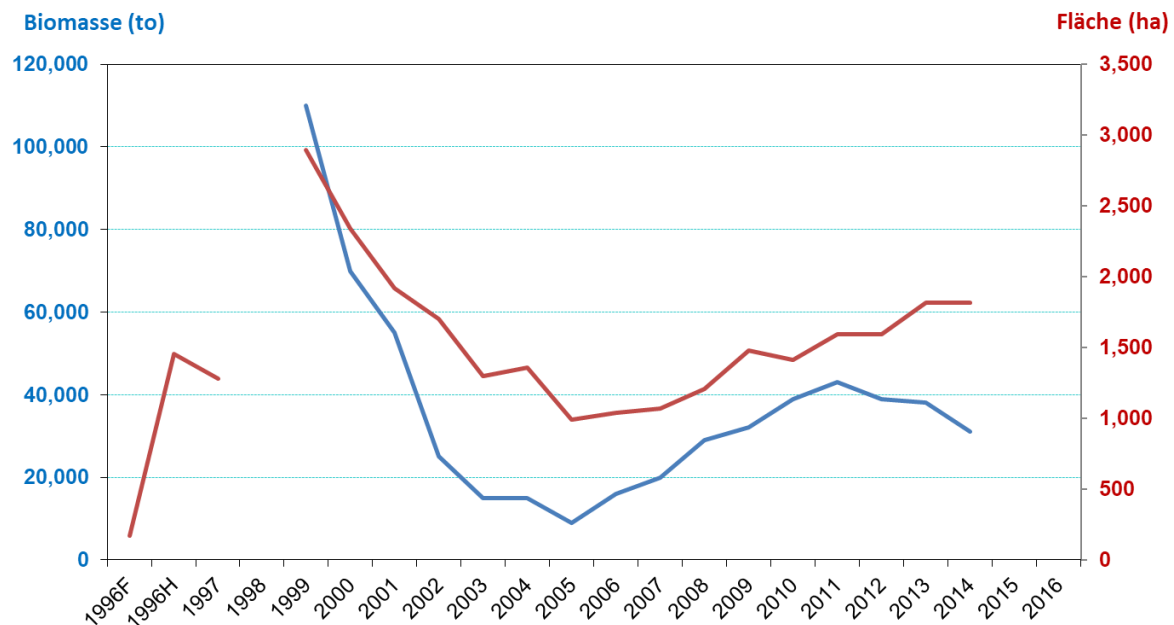


Figure 2. Closed areas (in red) designated within the fishery by the National Park regulation.

The mussel fisheries are not allowed to operate currently in 26% of the National Park (both tidal and subtidal areas), and in the vicinity of the islands (total of 25%) due to the National Park regulation (Nationalparkgesetz). By the fishermen's own will, 65% of the National Park is not fished. This does not mean the remaining 35% is subject to fishing, only that it could potentially support mussel beds and rope cultures. In actuality, the area impacted by the mussel fishery (including seed fishery and the rope grown cultures) amounts to 2% of the area covered by the National Park.

Besides the BMMP, mussel culture and fishing is regulated in the Fisheries law (Fischereigesetz). Especially for the culture plots, the 'Küstenfischereiverordnung' (Coastal Fisheries Regulations) includes provisions for closed periods, minimum size, maximum area of culture plots (1300 ha), maximum number of vessels (4), etc.

Figure 3 shows the trends in biomass (tonnes) and bed size (hectares) for intertidal mussel beds in Lower Saxony, estimated via annual aerial photography and ground surveys. Biomass has fluctuated around 60,000 tonnes in the last three years, which is well above the 10,000 tonne limit set by the management plan. Overall bed size has also remained above 1,500 hectares in this period, exceeding the 1,000 hectares minimum requirement.



Quelle: Dr. Millat, Nationalparkverwaltung 2017

Figure 3. Trends in biomass (tonnes in blue) and size (hectares in red) of intertidal mussel beds in Lower Saxony (as estimated through aerial photography and ground surveys).

To allow the “undisturbed, long-term development of certain mussel beds and sites”, the BMMP sets out the closure of some stable mussel beds in the intertidal. Out of 102 beds, 29 are still closed to the seed mussel fishery; this is the same as reported in the year 1, year 2 and year 3 surveillance reports. The client has confirmed that this has not changed since the last surveillance audit in 2017.

This is in addition to the National Park Law (Nationalparkgesetz), which has been discussed above. In practice, however, few if any of these stable beds (‘Miesmuschelstandort’) are fished in a given year, because they have for the most part been colonised by invasive Pacific oyster (*Crassostrea gigas*). Figure 4 shows that the number of Standorten over the last 17 years has remained constant at 102. Even though one location was fished in 2009, this has not affected the overall number of stable locations. Aerial surveys on the area have been carried out since 1990 but the flights didn’t take place in 2012, 2014 or 2015, due to bad weather or due to closure of the airspace for military reasons. The survey did take place in 2016, but no changes were reported (see Figure 4).

The report by MarinX (van Stralen et al., 2013; updated in 2015) presents a comparative study in the Netherlands of 40 sites open to mussel fishing, paired with research plots closed to fishing. These sites were placed in areas that had become beds for mussel spat. Between 2008 and 2010, a comparison was made to investigate the benthic composition and environmental characteristics of wild mussel beds and cultured mussel plots.

Furthermore, in 2009 and 2010 some of the larger mussel beds were permanently closed to fishing, and a study was conducted to investigate what the consequences for these mussel beds were. The study concluded that extraction of mussels through fishing does lead to a reduction in the density of the mussel beds, but not their disappearance.

For the locations where sampling began in the autumn, there were no statistically demonstrable effects of fishing. Turbulent weather in that part of the year means mussel beds are naturally temporary. As the weather calms in spring, those plots which are fished at that part of the year remain statistically significantly lower in biomass than those that are not fished. Weather and fishing are not the only factors that can cause significant declines in mussel biomass. The MarinX report documented cases where whole mussel spat beds disappeared due to starfish predation.

Lastly, large spat falls (type 1) were not correlated with the densities of existing mussels. However, low density spat falls (up to 150 seeds per m², type 2) do seem to occur in the midst of existing mussels. No difference was observed in spat fall on the reference and fished plots. This is consistent with the observation that the type 2 spat falls do not increase further with an increase in densities of older mussels above 100 g/m², and that these densities remain after fishing. There is thus no evidence that the mussel fishery affects the subsequent spat fall (van Stralen et al., 2015).

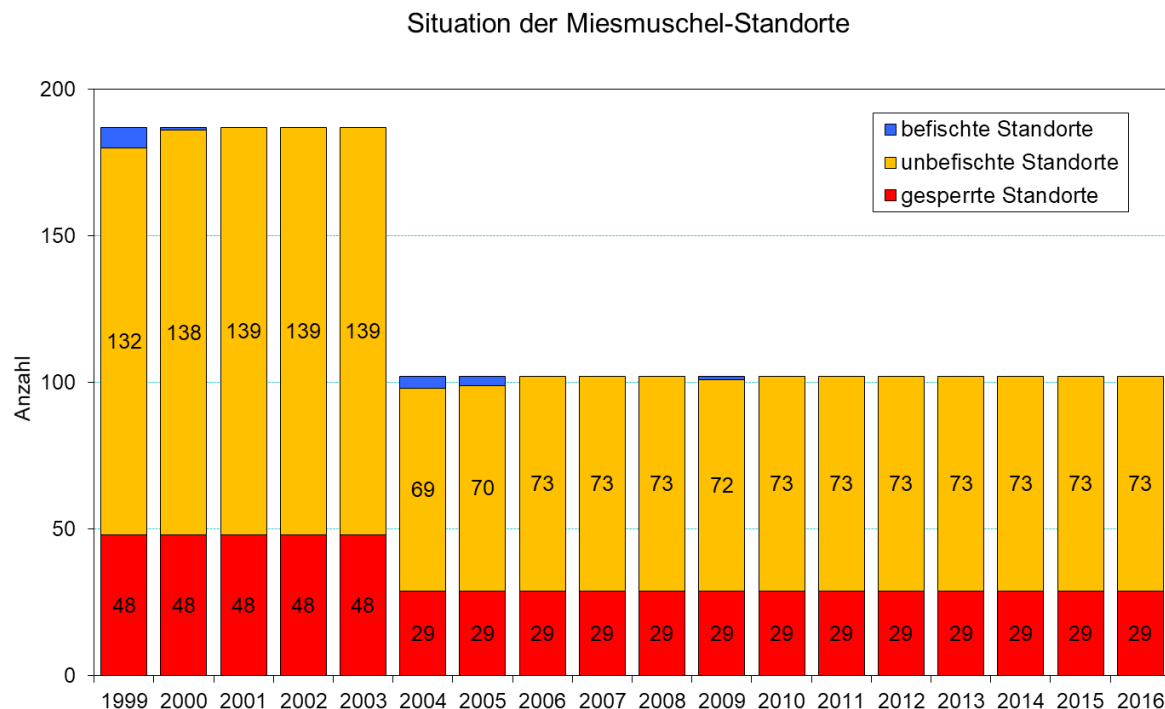


Figure 4. Number of stable intertidal mussel beds or ‘locations’ (Miesmuschelstandort) in Lower Saxony over the last 15 years (Red – closed; Orange – open to the fishery; Blue – fished).

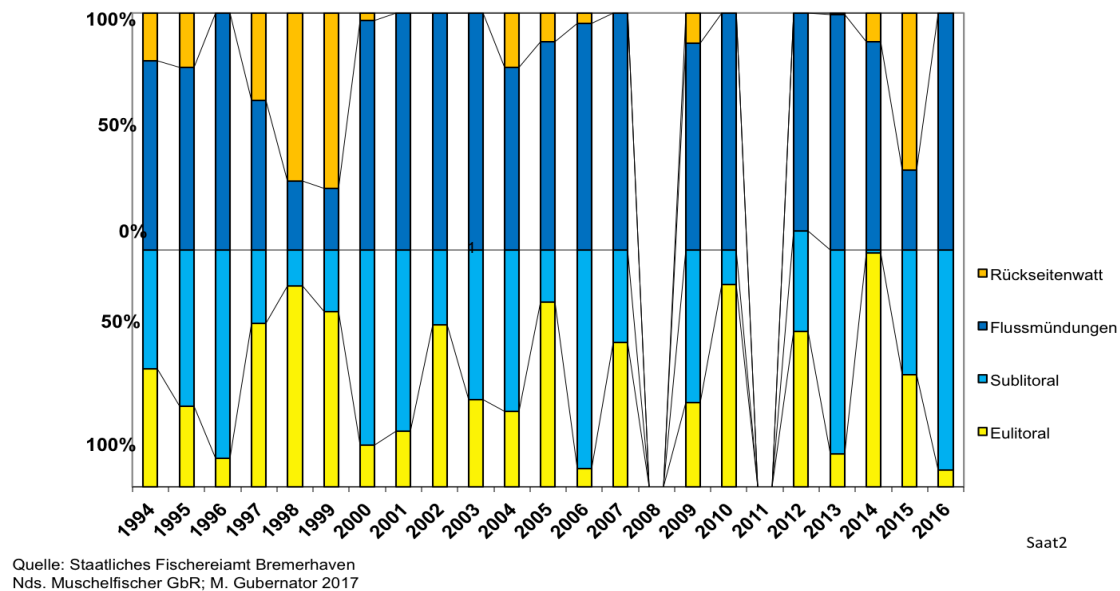


Figure 5. Seed mussel fishery in Lower Saxony 1994-2016 subdivided according to the origin: Eulittoral/Sublittoral - Backbarrier tidal flat/Estuaries

Figure 5 shows the origin of the mussel stock in the fishery from 1994 to 2016. There are annual fluctuations as seen below in Figure 6, with much of the stock coming from the estuaries. In 2016 there was a significant increase in the amount of mussel originating from the sublittoral, the highest on record.

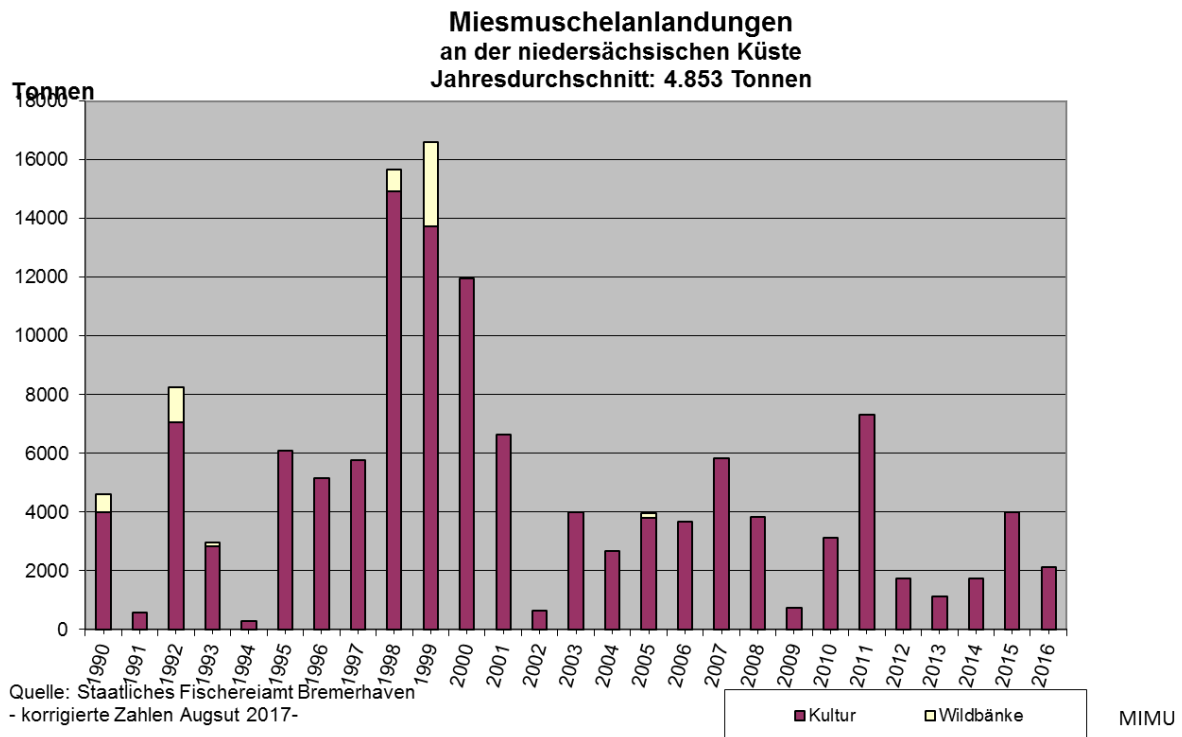
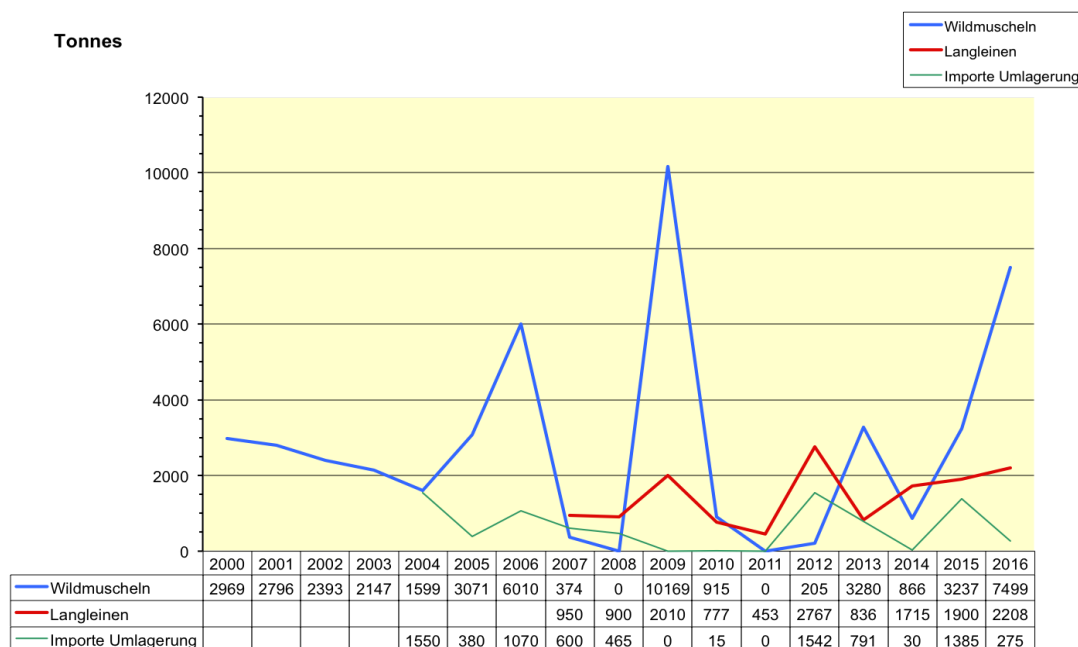


Figure 6. Blue mussel landings at the Lower Saxony coast by location type (yellow = wild mussel beds, purple = culture) from 1990 – 2016 (average mussel landings over the period is 4,853 tonnes).

Figure 7 presents mussel seed production levels stemming from each of the three UoCs from 1994 to 2016. Wild subtidal and intertidal mussel beds are shown in blue, seed mussel collectors (SMC) or longlines (Langleinen) in red, and seed imports/relocations in green. The majority of landings arise from culture plots, as production from wild beds is dependent on spat fall and survival, which is highly variable and difficult to predict. The last fishery on wild beds for adult mussels was in 2005 (and before that 1998 and 1999). The production of culture plots is also variable and depends on the availability of mussel seed, the quality of the culture plots, conditions during winter (storms, ice). 2016 figures report seed mussel and harvest volumes of nearly 10,000 tonnes.

As previously stated, most of the wild seed mussel fishery takes place in the subtidal as intertidal beds are increasingly affected by the proliferation of the Pacific oyster, one of 60 invasive species currently recorded in the Wadden Sea (van der Have et al., 2015), making most of the stable mussel beds unfishable. Winter mortality of Pacific oyster increases with latitude (Strand et al., 2012), indicating that milder climates and global warming may serve to exacerbate the issue of this invasive species in the Wadden Sea in the coming years. In addition, being in the National Park, the only species allowed to legally be commercially fished is blue mussel.

Spat fall and survival on wild beds remains highly dependent on environmental conditions (weather, predators etc.) and this variability is reflected in the data shown. Wild mussel seed production in 2016 was the highest since the 2009 peak, yielding 7499 tonnes. This year the client again confirmed that there have not been any mussel imports from outside the Wadden Sea since 2008. Imports from elsewhere in the Wadden Sea have increased from the 30 tonnes in 2014, to 275 tonnes in 2016. Longline production has also improved since the last audit, providing the second highest tonnage since 2004. The amount of seed entered into the fishery is not linked to the biomass residing in the fishery, but a decision of the growers.



Quelle: Staatliches Fischereiamt Bremerhaven
Nds. Muschelfischer GbR; M. Gubernator 2017

Figure 7. Historical mussel seed production levels of each of the three UoCs (1994 – 2016): wild seed fishery/Wildmuschelsaatfischerei (blue), seed mussel collectors/longlines (Langleinen) (red) and imported/relocated seed/Saatmuschelimporte (Umlagerung) (green). Note that ‘imports’ come from other jurisdictions in the Wadden Sea.

3.2 Principle 2

The situation in relation to Principle 2 has not changed since the initial certification and last surveillance audits. The fishery is very clean, with no perceived impacts on ETP species. Survey methods remain the same, with visual counts of birds and seals being completed on an annual basis.

The eider duck (*Somateria mollissima*) population within the National Park continues to be surveyed (Figure 8 and Figure 9) and an inventory of seals in the area, including within the UoC is on-going and has been updated up to 2016 (Figure 10). This year's data include the numbers of juvenile seals also counted, of which there are relatively stable numbers.

As in previous years, there is no monitoring of bycatch species, such as crabs and starfish, but no significant impacts to those species are perceived due to the small area that is harvested, compared to the areas closed to fishing. The client is reviewing this, in light of changes to the Fisheries Standard in version 2.0.

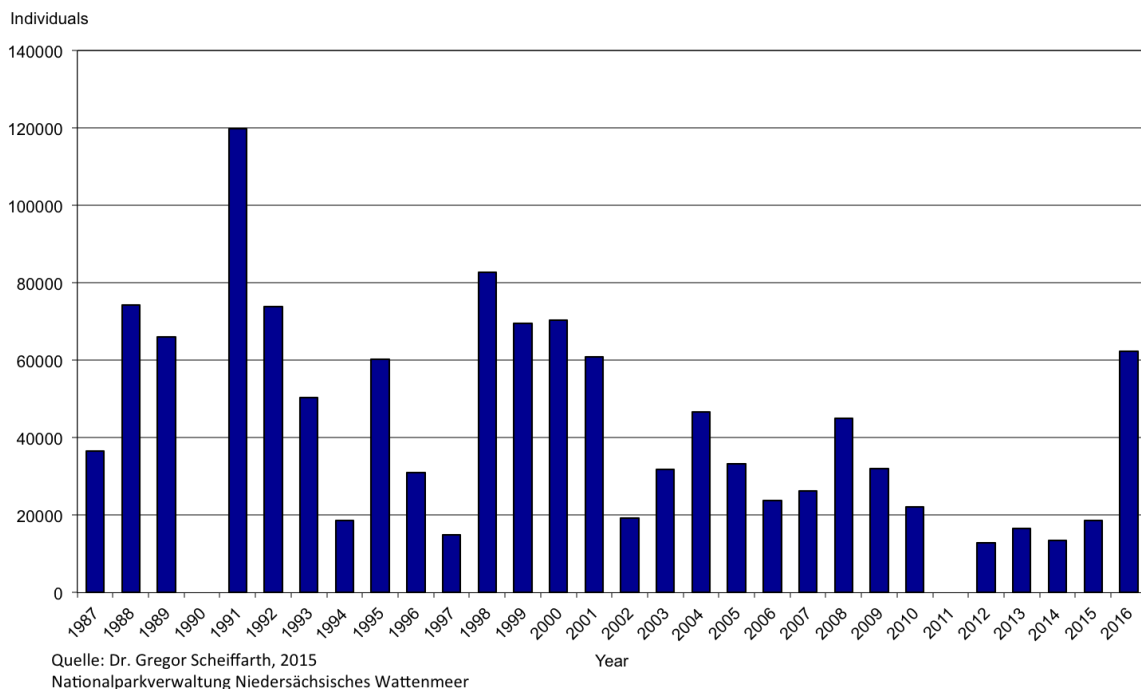


Figure 8. Eider duck (*Somateria mollissima*) populations Ems-Elbe region, winter (January/February) – Lower Saxony Coast from 1987 to 2016.



Figure 9. Eider duck (*Somateria mollissima*) populations Ems-Elbe region, moult (July/August) – Lower Saxony Coast from 1987 to 2016.

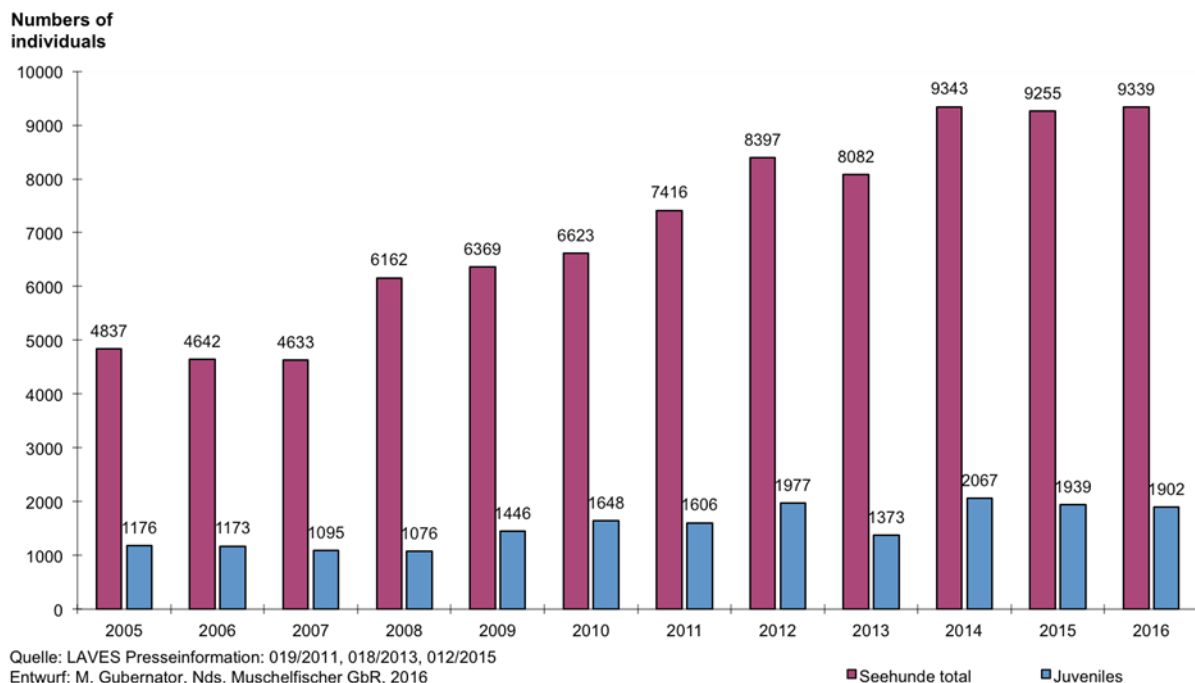


Figure 10. Number of seals in the Lower Saxony Wadden Sea. Results from aerial surveys. Maximum numbers during moulting (June – August).

Studies into invasive species in the Wadden Sea are on-going. In June 2016, a presentation was held on the inventory surveys of 2014 and 2015 (referenced in the year 2 surveillance

report: https://fisheries.msc.org/en/fisheries/germany-lower-saxony-mussel-dredge-and-mussel-culture/@_assessments). These were completed by GiMaris and the findings are attached in the Appendices.

3.3 Principle 3

Again there have been no changes in the fishery with regard to Principle 3. The new management plan (2014-2018) has never been adopted by the competent Ministry (NMELV) (see letter in Appendix). Instead, the third management plan (2009-2013) that has expired on 18 August 2014, has been renewed till August 2019 as stipulated in Article 7 of the Plan (if there are no compelling reasons for a change in content). Currently, a new management plan (2017-21) is in preparation which has more or less the same conditions as the not-adopted plan 2014-2018.

The fishery continues to apply the conditions set already in the draft version of the 2014-18 plan, namely:

- a) *Increase of precaution limits (minimum area (1,000 ha) and minimum biomass (10,000 t) of littoral mussel beds). If values fall below these limits the fishery will be suspended immediately.*

Currently, the mussel stock size is far above the critical values, the delay in adopting the new plan has therefore no consequences.

- b) *Voluntary restriction of mussel fishers only to translocate mussels that have settled naturally in a geographic limited area in the Wadden Sea in order to reduce the risk to introduce new species.*

The Lower Saxony mussel fishery acts already in this sense and will completely stop the imports in future.

- c) *The mussel fishery will be documented by means of Black Boxes*

The mussel fishery uses additional Black Boxes since June 2015

On 16 January 2017 a first meeting between the fishery and a number of NOGs took place in Bremen. Since then four more meetings have been held (01 March, 03 April, 19 October and 16 November). The objective of this “round table” is to reach a consensus on how to organize a mussel fishery within the limits of the National Park that is ecologically and economically viable. Inspired by the positive results reached in Schleswig-Holstein, the round table will fix key points for a long-term and ecologically sound mussel fishery in the National Park.

No complaints against UoCs or infringements have been reported.

4 Results

4.1 Conditions

Table 3. to Table 7 below present and discuss the status of conditions and the progress of the actions completed by the client.

Table 3. Condition 1

Performance Indicator & Score	Insert relevant PI number(s)	Insert relevant scoring issue/ scoring guidepost text	Score
	2.4.1	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	60
Condition	Although the impact on mussel beds is restricted by the closure of 29 mussel locations in the management plan the seed fishery in the intertidal could still have an impact on the development of stable mussel beds by removing seed mussels from the mussel locations that are open for the fishery. In the sub-tidal all known concentrations of mussels can be fished under the present management plan. Although it is acknowledged that a large part of the mussels will disappear by natural mortality or other causes it is not certain that this will be always the case. The fishery could prevent the development of stable banks in some areas. The client is advised further develop and implement a comprehensive spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal.		
Milestones	<p>Year 1: Provide evidence that discussions on the development of a comprehensive spatial management strategy such that it is highly unlikely that the fishery seriously impacts the development of stable mussel beds in both intertidal and sub-tidal have taken place.</p> <p>Year 2-4: Provide evidence that a comprehensive spatial management strategy is implemented such that it is highly unlikely that the fishery seriously impacts the development of stable mussel beds in both intertidal and sub-tidal.</p>		
Client action plan	<p>Year 1: Collection of all available data to produce a map of potential locations in the sub littoral for the development of stable mussel beds. Planning of a research program for partly fishing of sub littoral mussel beds.</p> <p>Year 2-4: As soon as a suitable sub littoral mussel beds are available, the NM will start the research project in which some unstable mussel beds are partly fished with the aim of understanding the likelihood of development of stable mussel beds. The experiment is coordinated by the NM (Manuela Gubernator) and supervised by H&S Consultancy.</p> <p>Year 4-5: Collection of the necessary information to implement a spatial management strategy with regard to the protection and development of stable mussel beds in the littoral areas. Start with the development of a comprehensive spatial management strategy with the result that it is highly unlikely that the</p>		

	fishery has significant impact on the development of stable mussel beds. Year 5: Complete the implementation of spatial management strategy in the fishery for seed mussels. Finish the map showing the areas with chances for the development of stable mussel beds.
Progress on Condition - Year 4	There have been no changes in the data on sublittoral mussel beds. The data have been updated in 2015, and another update is foreseen for 2018. The condition has been closed following a rescoring (see Appendix 1 for rationale). The new score is 85
Status of condition	Closed

Table 4. Condition 2

	PI number	Scoring guidepost	Score
Performance Indicator & Score	2.4.2	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above. There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or habitats involved. There is some evidence that the partial strategy is being implemented successfully.	60
Condition	Under the current management plan 29 mussel sites in the intertidal are closed for fishing. In the mussel sites that are open to the fishery a very limited fishery has taken place. Nevertheless the possible impact of the fishery on the development of stable mussel beds in the open parts of the intertidal should be taken into account in the management strategy. Currently all mussels that are located in the sub-tidal can be harvested (with a license). This practice could prevent the development of mussel banks in the sub-tidal in certain areas. For both reasons it cannot be concluded that there is a partial management strategy in place that is expected to achieve the SG 80 outcome level of performance. The client is advised further develop and implement a comprehensive spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal. This strategy could include the development of a map showing chances of development of stable mussel beds.		
Milestones	<p>Year 1: Provide evidence that discussions on the development of a comprehensive spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal have taken place.</p> <p>Year 2-4: Implement a comprehensive spatial management strategy with regard</p>		

	to the protection and development of stable mussel beds in both intertidal and subtidal. Year 5: Provide evidence that a comprehensive spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal is implemented successfully.
Client action plan	As per condition 1
Progress on condition Year 4	A literature review has been completed on the total 'free' sulphide (S ₂ -) in surficial (0-2cm) sediments on the seabeds under the rope-growing sites on installation areas with similar morphological and hydrodynamic characteristics to the UoC. The condition has been closed following a rescoring (see Appendix 1 for rationale). The new score is 95.
Status of condition	Closed

Table 5. Condition 3 (Dredge and on-growing UoC)

	PI number	Scoring guidepost	Score
Performance Indicator & Score	2.4.3	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	75
Condition	Information on the impact of mussel seed fishery on the development of stable mussel beds in the intertidal does not include a map that shows where the fishery could prevent the development of these beds. Although the locations where mussels are fished in the sub-tidal are known there is no comprehensive information about the distribution and vulnerability of mussel beds in the sub-tidal. The client is advised to liaise with the appropriate stakeholders and research institutes in order to collect the necessary information to inform a management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal. This information gathering should include the development of a map showing chances of development of stable mussel beds.		
Milestones	<p>Year 1: Provide written evidence of contacts and correspondence with relevant stakeholders in order to collect the necessary information to implement a spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal.</p> <p>Year 2-4: Collate existing knowledge and if necessary conduct research or monitoring to provide the necessary information to implement a comprehensive spatial management strategy with regard to the protection and development of stable mussel beds in both intertidal and sub-tidal.</p>		
Client action plan	As per condition 1		

Progress on Condition - Year 4	A stability map for sublittoral mussel habitat exists and the presence of stable mussel beds in the sublittoral has not been found. Another update is foreseen for 2018. The condition has been closed following a rescoring (see Appendix 1 for rationale). The new score is 80.
Status of condition	Closed

Table 6. Condition 8

	PI number	Scoring guidepost	Score
Performance Indicator & Score	3.2.2	Decision-making processes use the precautionary approach and are based on best available information	75
Condition	<p>A number of criteria are defined for decisions in mussel fisheries management, which can be seen as provisions for a precautionary approach (e.g. minimum stock sizes, maximum shell length, required documentary proof in case of translocation etc.).</p> <p>The decision-making process is based on inspections of the site, on the results of the monitoring programme and on other sources. In this sense, it can be said that it is based on the best available basis. Nevertheless, information on some important factors are lacking, such as the direct impacts of sub-tidal seed mussel fishery on the potential development of mussel beds. Such information is not generated, but also no specific restrictions are implemented, which would have to be considered as a consequence of the absence of information under a strictly precautionary approach. The client should liaise with relevant stakeholders to support the adoption of the precautionary approach in decision-making processes related to the management of the lower Saxony mussel fishery. In particular in aspects related to: 1. The potential risk that the fishery may pose on the development of stable mussel beds in the intertidal and sub-tidal zones. 2. The introduction of non-native species into the surrounding ecosystem. 3. Decision making processes related to the installations of ropes.</p>		
Milestones	<p>Year 1-2: The client should liaise with relevant stakeholders to support the adoption of the precautionary approach in decision-making processes related to the management of the lower Saxony mussel fishery. In particular in aspects related to: 1. The potential risk that the fishery may pose on the development of stable mussel beds in the intertidal and sub-tidal zones. 2. The introduction of non-native species into the surrounding ecosystem. 3. Decision making processes related to the installations of ropes.</p> <p>Year 3-5: The precautionary approach will be used in the adoption of management measures, which will be based on available information.</p>		
Client action plan	Year 1: The NM will discuss with both ministries how to embody the action plan in the management plan and how to inform the relevant stakeholders in the		

	<p>future. The results will include in the next Management plan. All relevant stakeholders are represented on the National Park Board The Board will be informed about the map with stable and unstable mussel beds and the results of the Dutch research project about the direct impacts of sub-tidal seed mussel fishery on the potential development of mussel beds. (The results of the Dutch research program PRODUS can be used for this). The NM will engage with relevant stakeholders to further develop or support research that will focus on information gaps related to all Units of Certification. Within the National Park Board the fishery specific management system will be discussed and evaluated based on relevant information. The NM is already using and will use the yearly meeting with relations, stakeholders and press at the start of the season for the presentation of research plans and results and for giving information about mussel farming, especially in Lower Saxony. A number of criteria are already defined for decisions in mussel fisheries management. The aim is to assure that the fishery on mussels will be sustainable. (e.g. minimum stock sizes, minimum shell length, required documentary proof in case of translocation, new installations for ropes, etc.). The decision-making process is based on inspections of the site, on the results of the monitoring program and on other sources.</p> <p>Year 2-5: The precautionary approach will be followed by the NM in the adoption of management measures resulting from research outcomes. The own management plan is subject to regular internal and occasional external review. The review system will be implemented by the fifth year of certification. The NM will invite the NGO's and will inform them about the mussel fishery, their problems, continuation of the conditions of the MSC certification, etc.</p>
<p>Progress on Condition - Year 4</p>	<p>As in last year's audit, the new management plan has not yet been adopted, but NM continues to apply the precautionary measures proposed by the plan. Translocation continues to be voluntarily restricted to mussels that have settled naturally in a geographic limited area in the Wadden Sea. Gittenberger (2015) proved that the mussel transport within the Wadden Sea will not import other non-native species as imported by yachts and natural currents. Additionally 'Black Boxes' are installed on all vessels since June of this year as part of an internal regulation of the PO. The third management plan 2009-2013 has been renewed till 2019. In the meantime the Ministry is working on a new management plan (2017-2021) that will have more or less the same conditions as stipulated previously (the draft of the 2014-2018 plan).</p> <p>NM commissioned a study (Ingenieurbüro Manzenrieder, 2014) that could demonstrate that seed collectors do not have a negative impacts on the ecosystem below the longlines; this was confirmed by a literature study (H&S Consultancy B.V., (2015). On the other hand, all seed collectors are placed in the area of the Jade (river) and thus outside of the National Park.</p> <p>A round table between the fishery and a number of NGOs has been organised in order to formulate key points for a long-term and ecologically sound mussel fishery in the National Park by the end of the year. This round table has met 5 times in this year and will continue until the new management plan comes into force. After that on annual meeting of the round table is planned. This shall guarantee the exchange between fishermen, government and nature conservationists.</p>

	Research is going on as in the last years, this concerns particularly stability maps, aerial surveys, inventory of species diversity, and others. The new score is 80.
Status of condition	Closed. This PI has been rescored, see Appendix 1

Table 7. Condition 10

	PI number	Scoring guidepost text	Score
Performance Indicator & Score	3.2.5	There is a system of monitoring and evaluating the performance of the fishery specific management system against its objectives There is effective and timely review of the fishery-specific management system	70
Condition	The review is undertaken by the fisheries and the environmental administration, i.e. the two parties responsible for the management system. During the first phase of the Management Plan (1999-2003), there was an advisory council to the research project accompanying the Management Plan, which critically reviewed the plan and its results. This practice, however, which could be regarded as an external review, was discontinued under subsequent plans, as it was felt that a suitable solution had been reached. A system of more regular and formalized internal reviews and of regular or occasional external evaluations of the management system should be introduced.		
Milestones	<p>Year 1: The fishery should engage with relevant stakeholders to demand a system of more regular and formalised internal reviews and of regular or occasional external evaluations of the management system should be introduced.</p> <p>Year 2-5: A system of more regular and formalized internal reviews and of regular or occasional external evaluations of the management system is to be introduced in the next review of the management plan.</p>		
Client action plan	As per condition 8		
Progress on Condition - Year 4	<p>The client is in permanent contact with the administration, the National Park Board and the competent Ministry, in order to promote the adoption of the new management plan.</p> <p>Efforts have been made to intensify the contacts with NGOs, which will lead to a Framework Agreement comparable to that in Schleswig-Holstein. This year 5 stakeholder meetings have been held in order to find a common basis</p> <p>Research results are broadly discussed with the administration and external stakeholders in order to evaluate the necessity to include them in the management plan.</p> <p>In 2017 the first external audit of the management plan has been undertaken.</p>		

	<p>The results of this audit can be and summarised as follows:</p> <ul style="list-style-type: none"> the objectives of the valid management plan (2009-2013) have been achieved, the new management plan (2017-2021) envisages only tightening of conditions, since the last certification a number of improvements in the management with regard to an ecological sustainability. <p>It is envisaged that an external audit will be organised every four to five years. The new score is 80.</p>
<p>Status condition</p>	<p>of Closed. This PI has been rescored, see Appendix 1</p>

4.2 Tracking and tracing of fishery products

MEC reviewed the traceability and separation of MSC and non-MSC products in this fishery at the last surveillance and no changes have occurred since. Traceability of fishery products remains to be ensured through the following measures adopted by the client.

1. For the duration of the 2014 – 2018 blue mussel management plan, no imports will be taking place from outside the Wadden Sea. This measure has been adopted in the draft management plan (see 4.3). This continues to be the case for the year 4 audit;
2. All Lower Saxony vessels are equipped with a black box, which monitors all fishing activities;
3. The history of mussels from the moment of fishing seed mussels to the unloading for sales can be controlled without gaps in addition to the actual log books from the Fisheries Office. A registration document is mandatory and completed for all fishers that sell mussels for human consumption. The MSC code of the source fishery is always recorded on the document. In addition, the class (grade) of mussel, whether it is wild-caught or from culture, harvest date, name of the harvesting vessel, name of the fisher, all accompany the consignment on its arrival in the auction at Yerseke, through which the mussels are sold;
4. Import of mussel seed is now MSC only, with translocated seed from Schleswig-Holstein now MSC certified (<https://fisheries.msc.org/en/fisheries/schleswig-holstein-blue-shell-mussel/@@assessments>). A written request has to be made by the farmer to the Fisheries Office, detailing the period, the quantity, the origin and the plot where the mussels will be relayed. The future of these mussels can be followed with the black box system on board the vessels;
5. Although wild adult mussels can, in theory be fished from subtidal beds (note that this is not common practice due to the instability of the beds), any wild mussels are relayed onto culture plots to adhere to sanitary requirements, but is not currently practical. A review of sales documentation satisfied the team that no mussels had been sold as MSC prior to this change coming into effect.

The commercial market for the mussels has not changed, with the Netherlands being the main destination for consumption mussels. Mussels from this fishery are currently not sold to the UK.

5 Evaluation Results

5.1 Principle Level Scores

The final principal scores are provided in Table 8.

Table 8. Final Principle Scores

Principle	UoC1	UoC2	UoC3
Principle 1 – Target Species	84.7	84.7	-
Principle 2 – Ecosystem	85.6	85.0	85.0
Principle 3 – Management System	86.4	86.4	86.4

5.2 Summary of PI Level Scores

Principle	Component	Weighting	PI number	Performance Indicator	Score UoC1	Score UoC2	Score UoC3
	Outcome	0.5	1.1.1	Stock status	91.4	91.4	Seed coming from MSC certified fisheries
			1.1.2	Reference points	80	80	
			1.1.3	Stock rebuilding	N/A	N/A	
	Management	0.5	1.2.1	Harvest Strategy	85	85	
			1.2.2	Harvest control rules and tools	90	90	
			1.2.3	Information and monitoring	80	80	
			1.2.4	Assessment of stock status	80	80	
		Retained species	0.2	2.1.1	Outcome	100	
2.1.2				Management	100	100	100
2.1.3				Information	80	80	80
Bycatch species		0.2	2.2.1	Outcome	100	100	100
			2.2.2	Management	80	80	80
			2.2.3	Information	80	80	80
ETP species		0.2	2.3.1	Outcome	80	95	95
			2.3.2	Management	80	80	80
			2.3.3	Information	80	80	80
Habitats		0.2	2.4.1	Outcome	85	80	80

Principle	Component	Weighting	PI number	Performance Indicator	Score UoC1	Score UoC2	Score UoC3
	Ecosystem	0.2	2.4.2	Management	95	80	80
			2.4.3	Information	85	80	80
			2.5.1	Outcome	80	80	80
			2.5.2	Management	80	80	80
			2.5.3	Information	80	80	80
	Governance and Policy	0.5	3.1.1	Legal and customary framework	100	100	100
			3.1.2	Consultation, roles and responsibilities	85	85	85
			3.1.3	Long term objectives	90	90	90
			3.1.4	Incentives for sustainability	80	80	80
	Fishery-specific management system	0.5	3.2.1	Fishery specific objectives	80	80	80
			3.2.2	Decision making processes	80	80	80
			3.2.3	Compliance and enforcement	100	100	100
			3.2.4	Research plan	80	80	80
			3.2.5	Management performance evaluation	80	80	80

6 Conclusion

There have been no significant changes to the fishery, in particular regard to operation or management. The client has made good progress on the closure of open conditions, all of which are now closed.

It is the MEC assessment team's opinion that the fishery should remain certified for another year.

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Appendices

Appendix 1. Rescoring evaluation tables

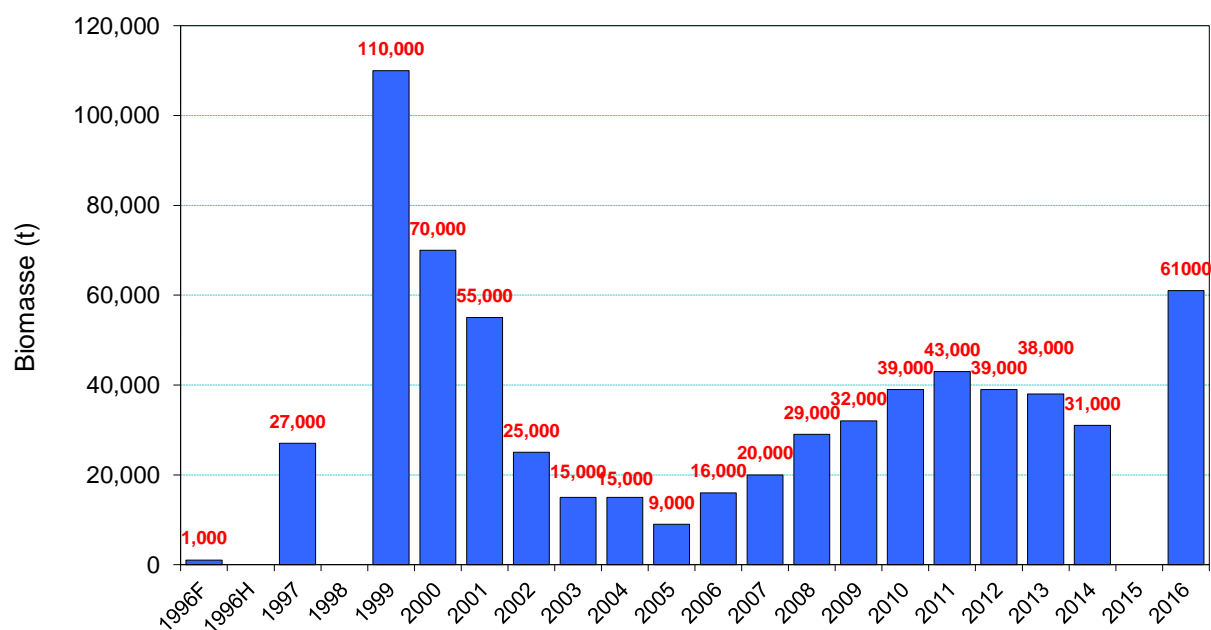
NOTE – P2 SCORING BELOW STATE INTERTIDAL, SUBLOTTORAL AND BOTTOM CULTURE AS SEPARATE SCORING ELEMENTS

Evaluation Table for PI 2.4.1

		UoA 1: Seed collection via dredging/nets and on-growing		
PI 2.4.1		The fishery does not cause serious or irreversible harm to habitat structure, considered on a regional or bioregional basis, and function		
Scoring Issue		SG 60	SG 80	SG 100
a	Guided post	The fishery is unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	There is evidence that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.
	Met?	Y – Intertidal seed collection Y – Sublittoral seed collection Y – Bottom culture	Y – Intertidal seed collection Y – Sublittoral seed collection Y – Bottom culture	Y – Intertidal seed collection N – Sublittoral seed collection N – Bottom culture
	Justification	<p>The seed mussel fishery takes place in both intertidal and sublittoral areas under permits issued by the State Fisheries Directorate, Bremerhaven.</p> <p><u>Intertidal seed harvest</u></p> <p>The mussel stock in the intertidal is monitored annually; the total biomass and the area of mussel beds are calculated every year and must remain above the 1994 threshold levels of 10,000 t and 1,000 ha. Presently (following the 2016 surveys) the levels are estimated to be ~6x this for biomass (a ten-year high) and ~2x this figure for area. Since 1997 the mussel stocks have fallen below these levels only once in 2005. Therefore, no evidence exists to suggest that serious or irreversible harm is occurring.</p> <p>In the intertidal, there are 102 ‘mussel locations’ that may be comprised of more than one mussel bed. The 102 identified mussel locations comprise those sites where, according to past experience, accumulations of mussels have a good chance to form stable mussel beds. A mussel location may comprise more than one mussel bed. Of the 102 intertidal mussel locations recorded, 29 are off limits to the fishery. Of these locations, 12 are protected by the National Park Authority, 12 are protected by the fishery Management Plan and a further five are voluntarily avoided by the fishery for the</p>		

purposes of monitoring. Of the remaining 73 intertidal locations potentially open to seed mussel fishing, only one or two are likely to be fished in any given year with none having been fished since 2009 (and evidenced through available VMS data); this results in a very infrequent and small spatial overlap of the fishery with any intertidal mussel beds irrespective of stability. Furthermore, the mussel fishery regulation only allows fishing of mussels of up to 4cm shell length (with 25% in weight of bigger mussels permitted). Thus, older mussel beds are excluded from fishing and have the potential to stabilise. Since the arrival of Pacific oysters (*Crassostrea gigas*) in the Wadden Sea any fishing of such stable intertidal mussel beds is further prevented owing to the potential to damage the fishing equipment and the lower percentage of mussels harvested.

Development of the eulittoral mussel population: biomass



Quelle: Dr. Millat, Nationalparkverwaltung 2017

Figure 1: Variations in the intertidal mussel biomass (t) estimates in the Lower Saxony Wadden Sea since 1996.

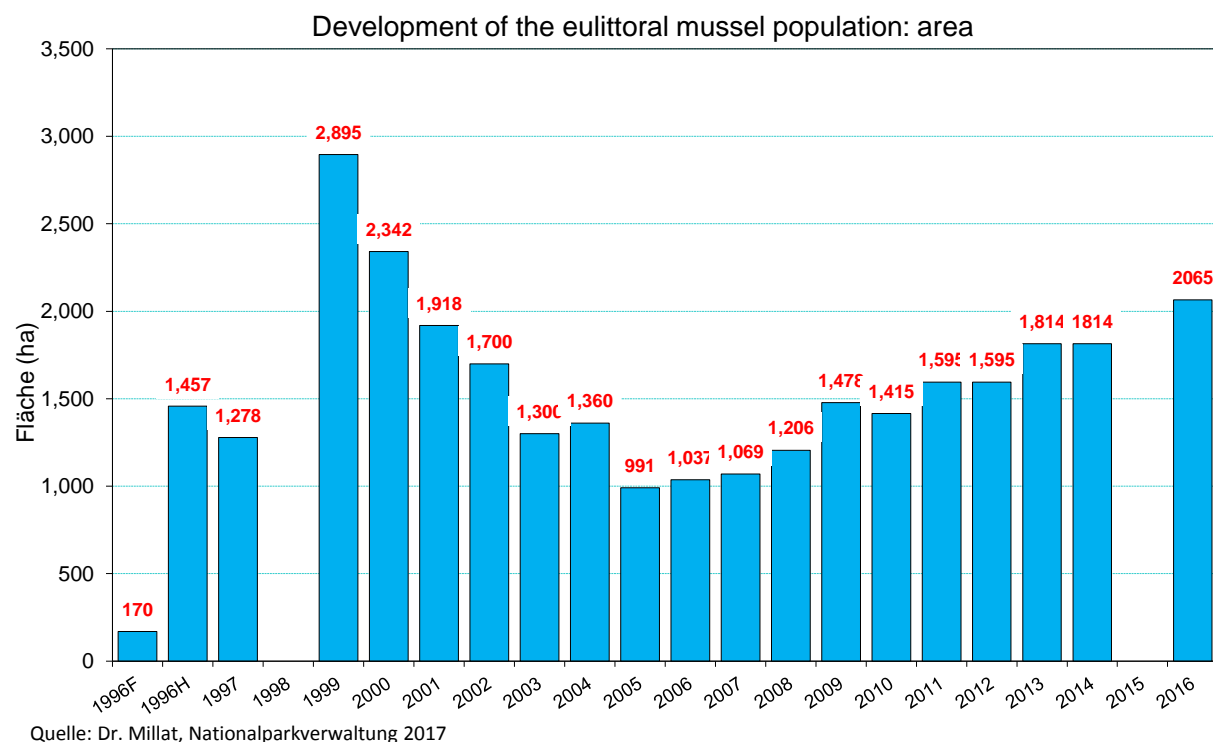


Figure 2: Variations in the intertidal mussel spatial cover (ha.) estimates in the Lower Saxony Wadden Sea since 1996.

On the basis of the mussel habitat assessments providing maps with evidence of mussel bed occurrence and distribution, the evidence of historical and present stock levels and the VMS evidence that either very few or no intertidal sites are fished for mussel seed, the assessment team considers that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm and SG100 is met.

Sublittoral seed harvest

In the sublittoral the main concern is regarding the potential impact of the seed fishery on stable sublittoral mussel beds. Following the initial fishery MSC assessment, the action plan required the development to map the sublittoral mussel beds and ascertain their stability status. The research undertaken used information provided by both shrimp fishermen and mussel farmers and does not cover the whole of the Lower Saxony Wadden Sea, rather only those areas where fishers operate (Stralen 2015, 2016). The research has nonetheless identified that no stable sublittoral mussel beds are

		<p>likely to exist in the fishery areas and that the beds that are identified are unlikely to be stable; all known sublittoral beds have been mapped with their stability categorised on a scale of 1-5. This information allows the fishery to manage its operations in the knowledge that it is highly unlikely to cause serious or irreversible harm to stable mussel beds. The Fishery Management Plan acknowledges that as no stable mussel beds could be found, no measures are presently required to prevent serious damage. Further assessment of the sublittoral habitats, including mussel beds, is planned at the beginning of the present 2017-2021 Management Plan by the NLWKN (Niedersächsische Landesbetrieb for Water Management, Coastal and Nature Conservation) Coastal Research Centre in cooperation with the National Park Administration. The fishery acknowledges that should stable mussel beds be found, then they would be unlikely to conflict with the fishery due to the likelihood of gear damage and measures would be put in place to ensure its operations did not cause them serious or irreversible harm.</p> <p>Those sublittoral beds that are fished for seed mussel are recognised by the fishery and the regulatory authorities as ephemeral and would quickly disappear as a result of strong currents and/or winter storms if they were not harvested. This is a recognised phenomenon following mussel spatfall e.g. Morecambe Bay in the UK. It is these harvested seed mussels that are then used to lay on the licensed bottom-culture plots.</p> <p>On the basis of the independent assessments made to date and in relation to stable sublittoral mussel beds, the assessment team considers that the fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm and SG80 is met. SG100 is not met as all sublittoral mussel beds potentially remain open to seed mussel harvesting yet all/most of the sublittoral areas have not been mapped (an on-going activity) and the stability status of any unknown beds remains unknown.</p> <p><u>Bottom-culture</u></p> <p>Bottom-culture of mussels is undertaken only in permitted intertidal and sublittoral areas over a very limited portion of the Lower Saxony Wadden Sea. The total area permitted for mussel bottom-culture is capped at 1,300 ha. which accounts for <0.4% of the total National Park area (~345,800 ha.). The allocation of culture areas is described below in PI2.4.2, SI(a) and is considered carefully by the National Park Authority and Fisheries Directorate to ensure that no vulnerable habitats are likely to be impacted by the proposed operations.</p> <p>Studies on mussel culture plots in the Menai Strait, UK have shown the impact on natural community diversity was confined directly to the footprint of the mussel lays and there was no evidence of any effects propagating beyond the lays (Beadman 2004). Given the low diversity of natural communities over which mussel bottom-culture plots are permitted, removal of the mussels would likely result in the restoration of natural habitats within a timescale of approximately one year.</p> <p>Based on the tight controls surrounding the location and permitting of mussel culture plots and their relatively small footprint within the National Park, the assessment team considers this activity is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm and SG80 is met. SG100 is not met as there have been no site-specific studies to provide evidence of this.</p>
References	Beadman 2004; Stralen 2015, 2016	
OVERALL PERFORMANCE INDICATOR SCORE:		85

CONDITION NUMBER:	N/A
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Evaluation Table for PI 2.4.2

UoA 1: Seed collection via dredging/nets and on-growing				
PI 2.4.2		There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guided post	There are measures in place, if necessary, that are expected to achieve the Habitat Outcome 80 level of performance.	There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above.	There is a strategy in place for managing the impact of the fishery on habitat types.
	Met?	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal N – Sublittoral Y – Bottom culture
	Justification	<p>The fishery has a Management Plan in place, which states one of its main objectives is to achieve the effective combination of economic requirements and ecological goals. The plan states that the mussel fishery is carried out in accordance with the habitat protection objectives of the National Park. Therefore, at the very least a partial strategy exists.</p> <p>The Management Plan has several measures in place to protect habitats either specifically or in part, including:</p> <ul style="list-style-type: none"> Promoting the sustainable use of resources; Requiring VMS on all vessels; States minimum mussel stock levels must cover a minimum of 1,000 hectares and have an estimated biomass of 10,000 tonnes; Denotes closed areas. <p>In the instance that the mussel fishery wishes to fish seed from an intertidal or sublittoral location, the fishery must apply for a permit. Permits are issued by the State Fisheries Directorate, Bremerhaven. The application will be reviewed by the Fisheries Directorate, which will also consult the National Park Authority.</p>		

	<p>In relation to the application, the National Park Authority will assess the following:</p> <ul style="list-style-type: none"> • Whether the seed areas are in the intertidal or sublittoral; • If seagrass is present; • Quality and size of the seed beds; • Whether the seed can be fished or not; • Is it in a protected area? • Are any man-made structures in the area (cables etc.)? • Any overlap with other activities. <p>The Fisheries Directorate will consider the location of the application and the size of the mussels, since seed mussels larger than 4cm should not be fished. Generally, no more than one or two mussel locations will be fished in a given year. In recent years there have also been several years where no mussel locations (in the intertidal) have been fished at all.</p> <p>During review of any licence applications by the Fisheries Directorate it will also be determined whether vulnerable habitats such as seagrass are present in the area applied for. No permits are issued if fishing will occur in or near to seagrass beds.</p> <p><u>Intertidal seed harvest</u></p> <p>The fishery regulations and the Management Plan contain several measures that regulate the impact of the seed mussel fishery on intertidal mussel beds. Out of 102 mussel locations (Standorte) in the intertidal, 29 are closed for seed mussel fisheries. Of the remaining locations, only a limited number are fished in any given year, if at all. Licences are issued for a specific period and a specific area marked by co-ordinates; vessel activity within the areas are monitored via VMS.</p> <p>The previous MSC assessment included a condition to map the development of stable mussel beds in the intertidal. As part of the Trilateral Wadden Sea Monitoring (TMAP), the state government conducts a comprehensive aerial survey once a year to determine the location and area of the mussel deposits in the entire eulittoral of the Wadden Sea of Lower Saxony. To determine the total biomass, on-site examinations at a total of 22 mussel locations are required. At these locations, the National Park Administration annually determines stocking and coverage in spring / summer and extracts samples from which live weight and shell lengths are determined. The State Fisheries Directorate conducts surveys on the location and extent of these areas, stocking densities, size distribution of the bivalve molluscs and quantity estimates prior to the release of stocking resources. The Fisheries Office is assisted by the mussel fisheries.</p> <p>The aerial and field surveys are undertaken each spring as part of the mussel stock assessment (and by proxy the mussel bed habitat assessment) and act as the foundation for the Management Plans (Bewirtschaftungsplan). These allow the spatial extent of intertidal beds to be calculated and the locations of any stable beds to be recorded and regularly updated. If the intertidal beds are stable they would be highly likely to be situated on hard substrate and/or among oyster beds. The fishery cannot operate over hard substrate as their gear would be damaged and/or the seed mussel catches would contain a high percentage of oysters. These areas are therefore not fished, thereby avoiding any conflict with the fishery.</p>
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	<p>Based on the fact that the present quantity of mussels recorded in the intertidal is estimated at ~6x the minimum reference value of 10,000 t and is the highest recorded value in the past ten years the strategy can also be expected to achieve the Ecosystem Outcome 80 level of performance. Given the knowledge of stable intertidal mussel beds and the specific consideration of these issues in the present Management Plan, the assessment team considers that SG80 is met.</p> <p>The collaborative process between the Fisheries Directorate and the National Park Authority regarding the various permit applications, coupled with the requirements to ensure a minimum quantity of mussel remain as well as restricting activities over or near to vulnerable habitats constitutes a specific strategy to manage the impacts of the fishery on the habitats present so SG100 is also met.</p> <p><u>Sublittoral seed harvest</u></p> <p>In the sublittoral, the management plan rules that seed mussels that will be moved to culture plots should be no larger than 4cm also applies. However, in the sublittoral a fishery for consumption mussels is allowed when the mussels have passed the minimum size of 5cm. This means that in the sublittoral in principle nearly all mussels located by the mussel sector can be fished; only beds with mussels between 4 and 5cm are exempted. As in the intertidal in all cases a licence is needed and licences are issued for a specific period and a specific area marked by co-ordinates.</p> <p>As with the intertidal, the condition raised at the initial certification, also required the mapping of stable mussel beds in the sublittoral. The aerial surveys are unable to determine if stable beds exist in the sublittoral. A stability map for sublittoral mussel beds in the Lower Saxony Wadden Sea was completed in 2015 and updated in 2016 (Stralen 2015, 2016). To date, no stable mussel beds have been identified in the sublittoral. The stability study suggested that the probability of stable sublittoral mussel locations in the coastal waters of Lower Saxony is low due to the high hydrological dynamics. The Fishery Management Plan states that further information on the presence of sublittoral mussel locations shall be provided by the habitat mapping of the sublittoral, which will be carried out during the term of the present management plan by the National Park Administration and the Coastal Research Centre of the NLWKN. Based on the evidence from the stability map, a partial strategy is not necessary, as no stable mussel beds exist in the sublittoral area of the fishery. No specific management measures are deemed necessary and the existing condition is considered to be met, and SG80 is awarded by default here¹.</p> <p>If stable beds were located then measures would be put in place i.e. for the same reasons as stated above, the fishers would not want to fish the sites due to the probability of gear damage and so would avoid the habitats.</p> <p><u>Bottom-culture</u></p>
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¹ Unless MSC guidance, if the fishery does not need to have measures or partial strategy because there is no or negligible impact on specific components, it would meet at least the SG80 level.

		<p>If a fisherman wants to start a new bottom-culture plot, in either intertidal or sublittoral locations, he must accordingly give up an equivalent area from his existing plots as the total area permitted to be fished is fixed within the National Park. To start a new plot a permit must be applied for which there is a procedure to follow:</p> <ul style="list-style-type: none"> • Other mussel and shrimp fishermen are consulted; • The National Park Authority and the Fisheries Directorate assess the benthic habitats to be affected and survey them if necessary; • The application is printed in the Fischereigazette (another legal requirement); • The Fishery Directorate has procedures for producing the maps of new and old plots, changes in areas etc. <p>On this basis, a strategy is in place to manage the impact of the bottom culture element of the fishery on the habitats present. SG100 is met.</p>		
b	Guided post	The measures are considered likely to work, based on plausible argument (e.g. general experience, theory or comparison with similar fisheries/habitats).	There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved.	Testing supports high confidence that the strategy will work, based on information directly about the fishery and/or habitats involved.
	Met?	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal N – Sublittoral Y – Bottom culture
	Justification	<p><u>Intertidal seed harvest</u> Stable intertidal mussel beds are known, mapped and are not fished by the fishery. Monitoring of vessel activity via VMS demonstrates that the fishery adheres to the permit conditions under which it operates. Both of these points provide objective basis for confidence that the strategy is working. Further to this, annual surveys of intertidal mussel beds demonstrate a ten-year high in terms of total mussel biomass present giving high confidence that the fishery is not negatively impacting these habitats. SG100 is therefore met.</p> <p><u>Sublittoral seed harvest</u> Research into the occurrence of stable sublittoral mussel beds has found no evidence of their existence (Stralen 2015, 2016) and, by way of association, there are therefore no detrimental impacts on these habitats. A partial strategy was deemed not necessary in SI(a) above. Monitoring of vessel activity via VMS demonstrates that the fishery adheres to the permit conditions under which it operates. SG80 is met. As SI(a) only scored SG80, SG100 cannot be met here.</p> <p><u>Bottom-culture</u> Prior to permits being issued for intertidal or sublittoral seed mussel harvesting or changes to bottom-culture plots, site-specific assessments are undertaken by the National Park Authority and the Fisheries Directorate to ensure no adverse impact to vulnerable habitats will occur. Regarding bottom-culture plots, these are tightly controlled by permits and not permitted to occur over or near to vulnerable habitats such as seagrass beds. On the basis of the points above, the assessment team consider that testing supports high confidence that the management strategy for the bottom</p>		

		culture will work based on knowledge about the fishery and the habitats involved. Therefore SG100 is met.		
c	Guidepost		There is some evidence that the partial strategy is being implemented successfully.	There is clear evidence that the strategy is being implemented successfully.
	Met?		Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal N – Sublittoral Y – Bottom culture
	Justification	<p>The fishery vessels are monitored constantly via VMS and all operations are controlled by permits that are only issued if the assessments of site-specific impacts conclude there will be no significant negative habitat impacts. All activities are therefore logged and provided to the authorities. Further to this, annual surveys of intertidal mussel beds demonstrate a ten-year high in terms of total mussel biomass present giving clear evidence that the strategy is being implemented successfully. SG100 is therefore met.</p> <p>In the case of the sublittoral, a partial strategy was not deemed necessary due to the absence of stable mussel beds. This was evidenced in the stability maps completed in 2015 and 2016 by Stralen. On the basis of the above, SG80 is met. In the absence of a full strategy, SG100 cannot be met.</p>		
d	Guidepost			There is some evidence that the strategy is achieving its objective.
	Met?			
	Justification	<p>As stated above, mussel biomass and spatial cover in the intertidal is at a ten-year high thereby providing some evidence that the fishery is not negatively affecting mussel beds in the intertidal. Bottom culture areas must give up an area, closing it, before they may open another. The management strategy can therefore be said to be achieving its objective of not having a negative impact on these habitats and the scoring issue is met and SG100 awarded.</p> <p>Assessments of stable sublittoral mussel beds (see SI(a)) have to date, only provided evidence of their absence. In previous SIs in this PI, SG100 was not awarded and therefore cannot be awarded here. SG100 is not met.</p>		
References		Stralen 2015, 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				95

CONDITION NUMBER:	N/A
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Evaluation Table for PI 2.4.3

UoA 1: Seed collection via dredging/nets and on-growing				
PI 2.4.3		Information is adequate to determine the risk posed to habitat types by the fishery and the effectiveness of the strategy to manage impacts on habitat types		
Scoring Issue		SG 60	SG 80	SG 100
a	Guided post	There is basic understanding of the types and distribution of main habitats in the area of the fishery.	The nature, distribution and vulnerability of all main habitat types in the fishery are known at a level of detail relevant to the scale and intensity of the fishery.	The distribution of habitat types is known over their range, with particular attention to the occurrence of vulnerable habitat types.
	Met?	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal Y – Sublittoral Y – Bottom culture	N – Intertidal N – Sublittoral N – Bottom culture
	Justification	<p><u>Intertidal seed harvest</u> All seed collection activities are licensed; therefore, the locations and the spatial extent of the collection sites are exactly known, as are the habitats within which the activities occur to approve the licence. There is yearly monitoring of the mussel stock and distribution of mussel beds in the intertidal by the National Park Authority (Millat 2017). The locations and distribution of main habitat types, such as seagrass beds, are also known as a result of the on-going monitoring. To that end, the nature, distribution and vulnerability of the main habitats in the fishery are known at a level of detail relevant to the scale and intensity of the fishery and SG80 is met.</p> <p><u>Sublittoral seed harvest</u> As with the intertidal, all seed collection activities in the sublittoral area of the fishery are licensed. Some monitoring is conducted by the fishery in its operational areas. The previous assessment required an action plan to map stable sublittoral mussel beds to improve information on their occurrence and distribution. Surveys were undertaken and did not detect the presence any stable sublittoral mussel beds in the areas in which the fishery operates. This information now exists at a level of detail relevant to the scale and intensity of the fishery and SG80 is met. For sublittoral areas information is less certain as aerial surveys cannot always detect sublittoral mussel beds or seagrass beds so SG100 cannot be awarded.</p>		

		<p><u>Bottom-culture</u></p> <p>No bottom-culture activities are allowed over sensitive habitats. The information to determine the risks posed by the on-growing phase to habitat types is identical with that evaluated under UoA2. Like the elements above, the bottom-culture activities are licensed. Therefore, the locations and the spatial extent the culture plots are exactly known as are the habitats within which the activities occur. On this basis, information exists at a level of detail relevant to the scale and intensity of the fishery and SG80 is met.</p>		
b	Guidepost	Information is adequate to broadly understand the nature of the main impacts of gear use on the main habitats, including spatial overlap of habitat with fishing gear.	Sufficient data are available to allow the nature of the impacts of the fishery on habitat types to be identified and there is reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear.	The physical impacts of the gear on the habitat types have been quantified fully.
	Met?	Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal Y – Sublittoral Y – Bottom culture	N – Intertidal N – Sublittoral N – Bottom culture
	Justification	<p><u>Intertidal seed harvest</u></p> <p>Further and more recent information is available from research carried out in the Wadden Sea (especially in the Netherlands) on the impact of seed collection (and bottom-culture on habitat types) (Ens 2004, Fey 2007, 2008, Brink 2009, Craeymeersch 2013, Drent 2013) and therefore the nature of the impacts can be identified. The spatial extent of the interaction within the fishery, the timing and location of use of the fishing gear is also known through the use of the ‘black box’ VMS system, which are installed on all vessels operating in the fishery.</p> <p><u>Sublittoral seed harvest</u></p> <p>As above intertidal seed harvest above. This also applies to sublittoral seed harvest. SG80 is met.</p> <p><u>Bottom-culture</u></p> <p>Regarding bottom culture, the habitat impacts arising from it have been studied in many countries where it occurs. Extensive work has been published in scientific articles and books. Information on the impact of mussel farming is reviewed to make this information more accessible for policy makers, the industry and the general public (Kaiser 1998). From this general information the main impacts arising from the on-growing on culture plots can be inferred. In addition, the research information cited in intertidal and sublittoral rationale above in this scoring issue, also applies. SG80 is met.</p> <p>Observations of the gear operations confirm that the catches are ‘clean’ and cause little disturbance to the substrates underlying any mussels subject to relaying/harvesting. Furthermore, the management/licence controls mean that the timing of any fishing activities and the spatial area over which they occur are tightly controlled and reliably documented. Based on the above information, SG80 is met.</p> <p>As the physical impacts of suspended mussel culture and relaying/harvesting dredges and nets have not been quantified for this specific situation in</p>		

		Lower Saxony, SG100 is not met.		
c	Guidepost		Sufficient data continue to be collected to detect any increase in risk to habitat (e.g. due to changes in the outcome indicator scores or the operation of the fishery or the effectiveness of the measures).	Changes in habitat distributions over time are measured.
	Met?		Y – Intertidal Y – Sublittoral Y – Bottom culture	Y – Intertidal N – Sublittoral N – Bottom culture
	Justification	<p><u>Intertidal seed harvest</u> In the Lower Saxony fishery, there is information on the distribution of the mussel stock in the intertidal which forms the mayor part of the total mussel stock. The locations where the sector fishes for seed mussels and the exact quantities harvested are exactly known for the intertidal and are continually monitored. Sufficient data continues to be collected and enables the detection of any increase in risk (e.g. an increase in spatial extent or intensity of the fishery). Therefore, SG80 is met.</p> <p>Changes in habitat distributions over time are measured in the intertidal are known via the aerial surveys completed by the National Park Authority. SG100 is met.</p> <p><u>Sublittoral seed harvest</u> As with the intertidal, locations and exact quantities in the sublittoral are known and monitored by the fishery and the relevant authorities. Sufficient data is therefore collected to detect any increase in risk to habitat. As mentioned above, VMS is installed and operated on all vessels in the fishery and SG80 is met. Changes in habitat distributions over time have not been measured in the sublittoral, as only one sublittoral habitat map was only created in 2015/16, so SG100 cannot be met as there is nothing to provide a comparison and measure changes over time.</p> <p><u>Bottom-culture</u> Exact plot locations are recorded via GPS co-ordinates by the fishery and indeed the Fisheries Directorate and amended as necessary. VMS again applies to the vessels carrying out bottom-culture activities and the exact amount of mussels harvested known. As bottom culture occurs in both the intertidal and sublittoral, and the sublittoral area cannot be awarded SG100 on the basis that change cannot be detected, SG100 can also not be received here. SG80 is awarded.</p>		
References		Millat 2017, Ens 2004, Fey 2007, 2008, Brink 2009, Craeymeersch 2013, Drent 2013, Kaiser 1998, Stralen 2015, 2016		
OVERALL PERFORMANCE INDICATOR SCORE:				85

CONDITION NUMBER:	N/A
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Evaluation Table for PI 3.2.2

PI 3.2.2		The fishery-specific management system includes effective decision-making processes that result in measures and strategies to achieve the objectives.		
Scoring Issue		SG 60	SG 80	SG 100
a	Decision-making processes			
	Guidepost	There are some decision-making processes in place that result in measures and strategies to achieve the fishery-specific objectives.	There are established decision-making processes that result in measures and strategies to achieve the fishery-specific objectives.	
	Met?	Y	Y	
	Justification	The decision-making process and criteria for issuing licences for the different activities of mussel fishery (seed mussel fishery, spat collection on substrates, culture lots) are designed in a way that they support the achievement of the fishery-specific objectives. SG60 is therefore met. There are established decision-making processes, defined in particular in the Lower Saxony coastal fisheries regulation and the Blue Mussel Fisheries Management Plan for the National Park, that result in measures and strategies to achieve the fishery-specific objectives. A prime example is the requirement of a minimum stock biomass of mussels in order to issue a licence under the fishery management plan. Each new licence application or new location is analysed to ensure it is in-line with the plan's objectives, and then approved State Fisheries Directorate in Bremerhaven. SG80 is met.		
b	Responsiveness of decision-making processes			
	Guidepost	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	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	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

		the wider implications of decisions.	of the wider implications of decisions.	decisions.
	Met?	Y	Y	N
	Justification	The decision-making process can react in a timely and transparent way, e.g. by refusing to grant licences for seed mussel fishing. In this way, it can react on information gathered under the monitoring programme, through consultations or in other ways, and take account of the wider implications of management decisions. Lower Saxony coastal fisheries regulation, Blue Mussel Fisheries Management Plan for the National Park and other relevant regulations contain a number of provisions (e.g. maximum shell size, minimum size of mussel beds and biomass) that by design lead to an automatic reaction on serious issues. One issue is a stock size falling below a certain baseline (10,000t and 1,000ha). As the decision making process has to permit every individual activity such as fishing of a certain mussel bed for a limited period, it has to evaluate all criteria every time and can come to a fast decision, in particular in the field of seed mussel fishery. The assessment of wider implications is a routine part of the decision making process. SG80 met. Monitoring and research on the impacts of mussel fisheries have improved since the fishery's original certification, but there are still some information gaps, in particular in relation to sublittoral mussel beds. Due to this partial lack of information, not all implications of management decisions can fully be taken into consideration. SG100 is not met.		
c	Use of precautionary approach			
	Guidepost		Decision-making processes use the precautionary approach and are based on best available information.	
	Met?		Y	
	Justification	A number of criteria are defined for decisions in mussel fisheries management which can be seen as provisions for a precautionary approach (e.g. minimum stock sizes, maximum shell length, required documentary proof of movements of mussels in and out of the fishery etc.). The decision-making process is based on inspections of the site, on the results of the monitoring programme and on other sources. In this sense, it can be said that it is based on the best available basis. Since the last certification NM has commissioned a number of studies in order to improve the knowledge on inter- and sublittoral musselbeds. There are 102 stable mussel beds in the intertidal 29 of which are closed for the fishery. In fact all 102 sites haven't been fished since 2009. The work of van Stralen showed (2014) and confirmed (2016) that the likelihood of stable sublittoral mussel beds in Lower Saxony coastal waters is low due to high hydrological dynamics.		

		The new management plan (2017-21) provides that further studies will be conducted by the National Park Administration and the NLWKN Forschungsstelle Küste (NLWKN Research Centre Coast). Another study proved that the seed collectors (longlines) do not pose any risk to the seafloor below them. Decision-making processes are therefore considered to now be based on the best available information. SG80 is met.		
d	Accountability and transparency of management system and decision-making process			
	Guidepost		Information on fishery 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 fishery 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?		Y	N
	Justification	Individual management decisions such as approval or rejection of an application for a licence are administrative acts, which are subject to German administrative laws, including to laws on data confidentiality. Applicants are provided with reasons for a decision (in particular in case of negative decisions), but these are not and must not be publicly announced. If, as a consequence of monitoring results, seed mussel fisheries would have to be closed in total, or if other management decisions of general relevance (beyond the individual application) would have to be taken, explanations would be given to a wider number of interested and affected parties, e.g. in the annual reports on the situation of fisheries in Lower Saxony, which are publicly available. Some information may be found in the mentioned annual reports of the Fisheries Office or other publications. In addition, the mussel fisheries association or other interested parties are usually informed on recent developments including management decisions. SG80 is met. However, detailed information on how the management system responded to relevant findings and recommendations is not made available in a systematic and comprehensive way to all (potentially) interested parties and so SG100 is not met.		
References		Gittenberger, 2015; H&S Consultancy B.V., 2015; Ingenieurbüro Manzenrieder & Partner, 2014; Lower Saxony, 1978, Lower Saxony, 2006; Lower Saxony, 2013; Lower Saxony, 2016; Millat & Adolph, 2011; Millat, 2011; van Stralen, 2015; van Stralen, 2016;		
OVERALL PERFORMANCE INDICATOR SCORE:				80
CONDITION NUMBER:				N/A

Evaluation Table for PI 3.2.5

PI 3.2.5		There is a system of monitoring and evaluating the performance of the fishery-specific management system against its objectives. There is effective and timely review of the fishery-specific management system.		
Scoring Issue		SG 60	SG 80	SG 100
a	Evaluation coverage			
	Guidepost	The fishery has in place mechanisms to evaluate some parts of the management system.	There fishery has in place mechanisms to evaluate key parts of the management system	The fishery has in place mechanisms to evaluate all parts of the management system.
	Met?	Y	Y	N
	Justification	<p>The Blue Mussel Fisheries Management Plan as the core part of the management system has a period of validity of five years (according to Chapter 9 of the National Park Law). After this period, it has to be reviewed, which implies an evaluation against its core criteria, the size and biomass of intertidal mussel stocks, as well as its compliance with all relevant legal provisions in force at that time. If this evaluation does not find any compelling reasons to change the plan, it is extended automatically (as the present plan provides in Chapter 7). However, in the past evaluations/reviews always led to some modifications, such as the introduction of the minimum values of mussel bed size and biomass in the present plan.</p> <p>The performance of key parts of the management system takes place every five years on the occasion of a decision on a possible extension of the Management Plan (as described above), ad hoc reviews take place when problems occur. As a consequence.</p> <p>After the first external review of the plan has been conducted this year NM plans to have such an review every four to five years. SG80 is now met.</p> <p>There are, however, no mechanisms in place to evaluate all parts of the management system. SG100 is not met.</p>		
b	Internal and/or external review			
	Guidepost	The fishery-specific management system is subject to occasional internal review.	The fishery-specific management system is subject to regular internal and occasional external review.	The fishery-specific management system is subject to regular internal and external review.
	Met?	Y	Y	N
	Justification	It was reported that there are occasional internal reviews, e.g. in discussions between national park and fisheries administration concerning a need to modify the system. Reasons for such discussions could for instance be negative developments of mussel beds in a particular location		

		<p>etc. However, as positive trends prevailed since 2005, reasons for fundamental modifications were seen recently.</p> <p>Besides the development of mussel beds as the main indicator for the performance of the management system, fishery administration also regularly takes account of yields and proceeds of the fishery, number of mussel locations fished, share of seed mussels fished in sub- und in intertidal areas etc. In addition, the results of monitoring, control and surveillance (MCS) such as number of infringements etc. are regularly reviewed for all fisheries of Lower Saxony.</p> <p>According to the information gathered from the Fisheries Office (SFA), any problems occurring in these fields would lead to a review and possibly to a revision of the plan, which, however, has not been necessary in the past years.</p> <p>The review is undertaken by the fisheries and the environmental administration, i.e. the two parties responsible for the management system.</p> <p>In 2017, the first real external review has been conducted by a German consulting firm (COFAD) confirming that the objectives of the management plan have been achieved during its term. At the same time the review identifies differences between mussel fishery and administration on one side and the nature conservation associations on the other side and considers measures to address these issues.</p> <p>SG80 is met.</p>
References	COFAD, 2017; Lower Saxony, 2013	
OVERALL PERFORMANCE INDICATOR SCORE:		80
CONDITION NUMBER:		N/A

Appendix 2. Stakeholder submissions

WWF submission and MEC's response

On 26 Oct 2017, at 16:00, Roesner@wwf.de wrote:
Dear Kat Collinson,

thanks for the opportunity to provide a statement on the occasion of the Germany Lower Saxony Mussel Fishery MSC Year 4 Surveillance and Re-assessment Audits.

Unfortunately, due to other commitments it will not be possible for WWF to take part in the meetings on 16th and/or 17th November. Therefore, on behalf of WWF Germany I comment in writing. This needs to be done today as you have set the deadline for this to 26 October 2017 – however, given the circumstances (see below) it would be preferable to provide more time for this.

Since we discussed the sustainability of this fishery during the course of the first certification process, and at the objection we had to file in 2013, WWF did not see enough progress. This concerns our fundamental argument that the fishery, as it is, does not comply with the National Park regulations and goals (though this assessment could change if the methods of the fishery would change) and that it does not meet the MSC criteria.

As you know the fishery is supposed to take place on the basis of a „Miesmuschelbewirtschaftungsplan“ from the „Bundesland Niedersachsen“ („Lower Saxony“). While the last such plan in place expired already in 2013, a new one has not been legally decided upon so far. WWF and other environmental NGOs active for the National Park (BUND, Mellumrat, NABU, Niedersächsischer Heimatbund) had then to criticise a draft version of the new plan from 24 June 2014 for a number of reasons, including that it still did not require an appropriate assessment of the fishery on the basis of the EU nature directives and of the national nature law. Though the whole draft was not part of a formal participation process, as also required, we filed a statement on 15 July 2014 (would be available in German language on request).

However, it was not before 30 November 2016 that a new version of the plan was sent to us as the basis for a meeting with the concerned ministries and the mussel fishery sector (and again this was not part of a formal participation process). The meeting took place on 07 December 2016. Unfortunately, also in the new version of the plan, our arguments concerning non-compliance with the National Park regulations and goals were not taken into account. Also, the requirement for an appropriate impact assessment was still not part of the plan. During the meeting there was also no real move on these issues. The ministry argued that in the absence of a new version of the plan the old one would continue to be valid. However, we doubt that there would be a legal basis for this decision.

As follow-up to that meeting the representative of the mussel fishery approached the environmental NGOs (BUND, NABU, Niedersächsischer Heimatbund, WWF) to come together and to discuss a solution. This was a move we several times suggested and which we considered very positive. There was a meeting then on 16 January 2017 with the representatives of the mussel fishery and the environmental NGOs concluding that both should try to find jointly a constructive solution for the critical issues within one year, i.e. until the end of 2017. Though it was not at all clear whether they will be successful at the end, both sides were of the opinion that such talks should be given a good chance. Though the environmental NGOs did not accept the new version of the Miesmuschelbewirtschaftungsplan, they suggested to accept that the present situation continues for the time span of a year, i.e. until the end of 2017. We did this with the vision

that in the end there should be a solution which serves both a then sustainable mussel fishery and a National Park which would be – as far as the impact from the mussel fishery is concerned – much better protected than it is now.

Having so far described the situation until our last stakeholder comment on the occasion of the Year 3 Surveillance Audit, in the time since then there had been several meetings between the representatives of the mussel fishery and the environmental NGOs, the last one on 19 Oct 2017. Unfortunately, as of now, there is no clear result to be reported and also the Miesmuschelbewirtschaftungsplan continues to be a kind of draft-plan without formal participation and impact assessment, and therefore no legal basis.

With regard to the latter I would like to cite the „Niedersächsischer Landtag, 17. Wahlperiode, Drucksache 17/8072“ (Link: http://www.landtag-niedersachsen.de/ps/tools/download.php?file=/ltns/live/cms/dms/psfile/docfile/41/17_80725_91d5cb465740.pdf&name=17-8072.pdf&disposition=attachment). In this report the government presented its decision on the „Entwurf eines Gesetzes zur Änderung des Niedersächsischen Ausführungsgesetzes zum Bundesnaturschutzgesetz sowie weiterer Gesetze zum Naturschutzrecht“ and commented on page 25 on the Miesmuschelbewirtschaftungsplan (named „Bewirtschaftungsplan“ there). Concerning the legal situation the government determines: *„Wegen seiner die Vorschriften des § 9 Abs. 2 NWatNPG konkretisierenden und ausfüllenden Wirkung nimmt der Bewirtschaftungsplan an der Außenwirkung dieser gesetzlichen Vorschrift teil und ist damit (auch) bei behördlichen Entscheidungen zu beachten. Der Bewirtschaftungsplan wird damit von § 36 Satz 1 Nr. 2 BNatSchG erfasst. Damit unterliegen seine Aufstellung und Fortschreibung dem Beteiligungstatbestand des § 63 Abs. 2 Nr. 3 BNatSchG.“* This statement confirms our legal view that the NGOs would have a right to comment and that there is an appropriate impact assessment required. As mentioned, there was no formal participation process and no appropriate impact assessment so far.

The whole issue translates also into that conditions 1, 2, 3, 8 and 10 – in my impression all of them being related to these issues – are not fulfilled yet.

Though the focus of this comment is on the Miesmuschelbewirtschaftungsplan, I also have the impression that there are even more conditions, e.g. those related to translocation/import, that had not been fulfilled to the necessary extent.

In summary, as of now a valid Miesmuschelbewirtschaftungsplan cannot be assumed to exist at least from January 2018 onwards. However, I would not like to give up to be optimistic that during the remaining year 2017 the discussions between the mussel fishery and the NGOs could have a result which would allow in the near future to find a common solution, which would over some time both improve the situation for nature and would make the mussel fishery truly sustainable. This is why I had noted above that it would be better to have more time for stakeholder comments. But for the moment being the situation unfortunately is as described above.

I hope this helps you with evaluating the situation.

Kind regards,
Hans-Ulrich Rösner

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Dear Dr Rösner,

Thank you for your email. I am sorry you will not be able to attend the site visit, but we are of course happy to take WWF's comments into account for these assessments.

Your email was very informative and will of course take WWF Germany's views into account when we go to re-score the fishery. There is a fishery/NGO meeting on the morning of the 16th November, just before the RBF meeting so I hope we will have some good news.

I will of course keep you informed of the upcoming assessment.

Kind regards,

Kat

Appendix 3. Surveillance audit information

MSC Conditions 2017 – Implementation/actions

1st March: Meeting: Internal Round Table Mussel fishery: Representatives of the mussel fishermen, National Fisheries Association, representatives of the nature conservation associations. Theme: Management of mussel fisheries, demands of environmental organizations

3rd March 2017 Annual General Fisheries Association: News on Fisheries, Fisheries, Authorities and Ministries, Politics

3rd April 2017 3. Session: Internal Round Table Mussel fishery: Mussel fisherman, National Fisheries Association, representatives of the nature conservation associations, Topic: Situation of mussel fisheries, relation to demands of the environmental associations. April 2017 Revision homepage: Data updated, pictures ...

8th May 2017 GbR Internal Session: Fisheries Issues, Roundtable Shellfish Mooring, Management

22 May 2017 GbR Session: Update on Fisheries, Management, Nature Conservation. Participants: GbR, Ministry, State Fisheries Office, Landesfischereiverband, Chamber of Agriculture, German Fisheries Association,

19th June 2017 Advisory Board Meeting of the Niedersächsisches Wattenmeer National Park: Announcement Discussion Round Table Mussel Fisheries

5th July 2017 Meeting with head of the National Park Administration "Niedersächsisches Wattenmeer" (Dr. Peter Südbeck) and Muschelfischer GbR (Gubernator): Managementplan and Eckpunktevereinbarung July 2017 Revision homepage: Information 2016

16th July 2017 Internal round table mussel fishery: written proposal of a key point agreement of the environmental associations

17 July 2017 Internal round table shellfish fishery: presentation of draft environmental agreements: RA Büsing, Wadden Sea Coordinator H. Wesemüller (Environmental Affairs), Gubernator

25th July 2017 Internal Round Table shellfish fishery: written proposal of a key points agreement of the environmental associations with comments

31st July 2017 Meeting GbR intern: Attitude to the written proposal of a key agreement of the environmental association

4th August. 2017 Musselfest Schleswig Holstein: Farewell mussel management SH; Representatives of the fisheries, authorities, ministries, politics: talks management; Gubernator, de Leeuw

8th August 2017 Discussion Written suggestion of a key point agreement of the environmental associations with the Land Fishery Association and shrimp fishermen: D. Sander, P. Oberdörffer, Gubernator

14th August 2017 Discussion GbR intern: Written proposal of a key point agreement of the environmental associations

15th August 2017 Meeting Ministry of Agriculture Possibilities of approximation to the proposal of a key agreement on the part of the environmental organizations; State Secretary Schörshusen, dr. Prawitt, RA Büsing, Gubernator

21st August 2017 Discussion Yerseke MSC, Management mussel fishery: KJ van Ijsseldijk, Jaap Holstein

September 2017 Revision homepage: figures updated, pictures

8th September 2017 Discussion GbR intern: written proposal of a key point agreement of the environmental associations

September 2017 Documentation Fisheries 2017, Cultures + Seed Fishing August-October Material reassessment/4th Audit, external review management 2017

26th September 2017 Meeting National Park Administration: Shellmonitoring, Managment; Ministry of the Environment (Hebbelmann), Ministry of Agriculture (Dr. Prawitt), State Fisheries Office (Brandt), National Park Administration (Dr. Südbeck, Abel, Scheiffahrt), Mussel fisherman (Gubernator)

19th October. 2017 4th session: internal round table Mussel fishery: representative of the mussel fisherman , National Fisheries Association, representatives of nature conservation associations. Theme: Demands of the environmental associations from the perspective of fisheries.

27th October 2017 National Fisheries Union: Shellfish Management, Monitoring, MSC; Gubernator, board members of the Weser-Ems National Fisheries Association

16th Nov. 2017 5 Session: Internal Round Table Mussel fishery: Representatives of the mussel fishermen, National Fisheries Association, representatives of the nature conservation associations. Topic: Demands of the environmental associations, further action, long-term plan, joint action against dumping.

**Submission from Dr Prawitt of the Niedersächsisches Ministerium für Ernährung,
Landwirtschaft und Verbraucherschutz****Niedersächsisches Ministerium für Ernährung,
Landwirtschaft und Verbraucherschutz**Niedersächsisches Ministerium für Ernährung, Landwirtschaft und Verbraucherschutz
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Frau Manuela Gubernator
Am Gräberfeld 1
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Dr. Olaf Prawitt
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Ihr Zeichen, Ihre Nachricht vom

Mein Zeichen (Bei Antwort angeben)

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2017
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99 2017Hannover
05.01.2017**Verabschiedung Bewirtschaftungsplan Miesmuschelfischerei 2017-2021**

Sehr geehrte Frau Gubernator,

Sie baten mich um einen Sachstandsbericht zum Bewirtschaftungsplan für die Miesmuschelfischerei im Nationalpark Niedersächsisches Wattenmeer. Hintergrund Ihrer Frage sind Ihre Dokumentationspflichten im Rahmen der Zertifizierung der Muschelfischerei als nachhaltige Fischerei nach den Regeln des Marine Stewardship Councils (MSC).

Die im Gesetz für den Nationalpark Niedersächsisches Wattenmeer festgelegte Laufzeit von fünf Jahren endete für den am 19.08.2009 in Kraft getretenen „Bewirtschaftungsplan 2009-2013“ mit Ablauf des 18.08.2014. Da zu diesem Zeitpunkt keine zwingenden Gründe für eine inhaltliche Veränderung vorlagen, verlängerte er sich gemäß seiner Verlängerungsklausel¹ automatisch um weitere fünf Jahre, also bis zum 18.08.2019. Formal ist folglich gegenwärtig noch immer der Bewirtschaftungsplan 2009-2013 gültig.

Diese Verlängerungszeit soll jedoch nicht ausgeschöpft werden, da es den übereinstimmenden Wunsch der Umweltverwaltung und der Fischereiverwaltung gibt, den Vorsorgeansatz in der Besatzmuschelfischerei in einigen Punkten noch weiter zu erhöhen. Ein erster Entwurf für den nächsten Bewirtschaftungsplan wurde bereits im Jahr 2014 im Nationalparkbeirat vorgestellt.

¹ Bewirtschaftungsplan vom 19.08.2009, Ziff. 7, Satz 2: „Er verlängert sich automatisch um weitere fünf Jahre, sofern keine zwingenden Gründe für eine inhaltliche Veränderung vorliegen.“

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- 2 -

Die Überarbeitung dieses Entwurfs unter Berücksichtigung der Stellungnahmen der Naturschutzverbände und der Niedersächsische Muschelfischer GbR nahm aus den in meinem Schreiben vom 24.09.2015 genannten Gründen einen wesentlich längeren Zeitraum in Anspruch als ursprünglich beabsichtigt, wurde aber im Laufe des vergangenen Jahres fertiggestellt. Der gegenwärtig aktuellste Entwurf wurde Ihnen mit der Tagesordnung zum „Runden Tisch Muschelfischerei“ am 30.11.2016 übersandt.

Gegenüber dem Entwurf von 2014 wurden etliche Definitionen und Formulierungen überarbeitet. Inhaltlich ist die für die Muschelfischerei bedeutsamste Änderung, dass dem Staatlichen Fischereiamt bis zum 28. Februar des Folgejahres nun nicht nur eine aus den Black Box Daten berechnete Karte über die räumliche Verteilung der Besatzmuschelfischerei vorzulegen ist, sondern auch eine Flächenberechnung der eu- und sublitoralen Besatzmuschelfischerei. Wie mit Ihnen besprochen, wird diese Flächenberechnung durch die Muschelfischer bereits rückwirkend für das Jahr 2016 durchgeführt.

Gegenwärtig werden auch die weiteren Bestimmungen der Entwürfe für den neuen Bewirtschaftungsplan in den vorliegenden Fassungen vom 15.01.2015 sowie in der überarbeiteten Form vom 22.08.2016, die über die Bestimmungen des formal gültigen Bewirtschaftungsplans 2009-2013 hinausgehen, in der Praxis bereits erfüllt bzw. umgesetzt:

- 1.) *Erhöhung des Vorsorgeansatzes bezüglich Mindestfläche und Mindestbiomasse der eulitoralen Miesmuschelbänke (sofortige Einstellung der Besatzmuschelfischerei, sobald diese beiden Werte unterschritten werden).*

Gegenwärtig liegt der eulitorale Miesmuschelbestand weit oberhalb der Grenzwerte.

- 2.) *Freiwillige Beschränkung der Muschelfischer, ausschließlich Besatzmuscheln auszubringen, die sich in einem geografisch begrenzten Gebietes im Wattenmeer natürlich angesiedelt haben. Diese Beschränkung dient der Minimierung des Risikos, Neobiota einzubringen.*

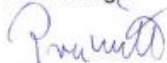
Das Handeln der niedersächsischen Muschelfischereibetriebe findet bereits jetzt im Sinne dieser freiwilligen Beschränkung statt. Ein Abweichen würde vom Staatlichen Fischereiamt auch bereits jetzt nicht genehmigt werden.

- 3.) *Dokumentation der Besatzmuschelfischerei mit Hilfe von Black Boxen*

Die Muschelfischerei agiert bereits jetzt nach diesen Regeln.

Mit freundlichen Grüßen

Im Auftrage



Dr. O. Prawitt

Translation for Dr Prawitt's letter.

You asked me for a progress report of the management plan for the Blue Mussel fishery in the Lower Saxony Wadden Sea National Park. You require this information as a part of the necessary documentation around your fishery for your upcoming Marine Stewardship Council (MSC) certification.

The five-year term laid down in the law for the Lower Saxony Wadden Sea National Park (Management Plan 2009-2013) between 19.08.2009 and 18.08.2014 has run its course. As, until now, there are no overwhelming reasons to change this legislation, it will be extended for an additional five years, up until 18.08.2019. Thus, the Management Plan 2009-2013 is currently the relevant/established plan to follow.

However, the management plan is likely to change before the end of this extension period (the literal translation here is the extension period may not be exhausted so I took the liberty to paraphrase), as there is a concurrent desire of the environmental administration (NGOs) and the fisheries administration to further increase the precautionary approach to certain aspects of the stock/seed mussel fishery. The first suggestions for the new management plan were presented to the national park advisory board in 2014.

The revision of this draft taking into account the comments of the NGOs and the Lower Saxony Mussel fishermen GbR took much longer than initially expected (for reasons outlined in my letter on 24.09.2015), but was completed last year. The most recent draft was sent to you with the agenda for the Mussel fisheries Round Table on 30.11.2016.

Several definitions and formulations of the 2014 draft have been revised. The most substantial change to the management plan for the mussel fishery is that by February 28th of the following year, not only must a general spatial distribution map of seed mussel fisheries (from black box data) be provided to the State Fisheries Office, but a spatial distribution of eu- and sublittoral stock mussel fishery must also be produced.

At present, supplementary measures to the 15.01.2015 management plan and in the 22.08.2016 revised version, which go beyond the provisions of the formally valid management plan 2009-2013, are implemented:

- (1) Increased precaution regarding minimum area and biomass of the eulittoral mussel beds (immediate reduction of seed mussel fishery effort as soon as the lower limit is exceeded). The mussel stock status is currently well above the limit.
- (2) Voluntary restriction of mussel fisheries, except for the provision of mussels, which have naturally settled in a geographically limited area in the Wadden Sea. This restriction serves to minimise the introduction and spread of invasive species. This restriction of fishing effort is taken on a voluntary basis. Any change in fishing effort would not be approved (allowed?) by the State Fisheries Office.
- (3) Logging the seed mussel fishing using Black Boxes. The mussel fishery has put this initiative into action.

