BROWN SHRIMP MANAGEMENT PLAN

Version 1.0 (adopted 01.12.2015, in force from 01.01.2016)

Text in italics: Explanatory remarks, outlining the intention and background to the regulations
Text in regular font: Binding regulations for the Brown Shrimp Cooperative MSC Group
Text in bold: Binding regulations for each vessel that has joined the management plan

Definitions

Brown Shrimp:	Shrimp of the species *Crangon crangon.*
Member:	A person or company that: owns one or more vessels fishing for brown shrimp; is a member of one of the Producer Organizations; and, has been listed by this Producer Organization as member of the Management Plan.
Producer Organization (PO):	A legally registered Producer Organization in the sense of the CMO (EU 104/2000 or 1379/2013) that participates in the Management Plan (directly or indirectly through one of the parties).
Party:	Body representing the members from a particular country in the Steering Committee. A Party may be a producer organization (thus representing the members directly) or formed of a group of producer organizations (thus indirectly representing their members).
The Fishery:	The brown shrimp fishery performed by the members of the Management Plan.
Vessel:	A fishing vessel owned by a member and used for brown shrimp fishing.

A. Management objective

The objective of this management plan is a sustainable North Sea brown shrimp fishery, by means of an ecologically responsible, co-managed fishery, with high long-term sustainable yield of the target species and minimized effects on the marine ecosystem.

B. Management structures and processes

B1. The Steering Committee

A Steering Committee of the Brown Shrimp Cooperative MSC Group shall be responsible for the maintenance, monitoring and control of the management plan on behalf of the members.

The Steering Committee shall consist of one representative (and one deputy) of each party to the management plan:

- CVO (Coöperatieve Visserij Organisatie) for the Netherlands
- MSC-GbR for Germany
- DFPO (Danish Fishermen – Producer Organization) for Denmark

The Steering Committee shall take decisions on matters that follow from this management plan, as well as any changes to the management plan, by consensus of the representatives (or deputy, if the representative is not present) of all three national fleets.

The Steering Committee may elect to invite other participants to its meetings as observers, experts or presenters.

The Steering Committee shall meet in person at least once every year, and may elect to meet as often as necessary.

The Steering Committee shall be aided in its responsibilities by a Working Group, as well as by the active support of each of the PO's that take part in the Brown Shrimp Cooperative MSC Group.

B2. Cost sharing

Common expenses associated with the management plan, as well as with an MSC assessment and surveillance, shall be shared by the parties according to the following key:

CVO: 47 %

MSC-GbR: 42 %

DFPO: 11 %

The key shall be re-evaluated at the conclusion of the MSC-assessment process.

C. Management of the fishery

C1. Participating vessels

Any commercial fishing vessel registered in the EU, fishing for brown shrimp along the Continental North Sea coast (France, Belgium, the Netherlands, Germany, Denmark) can participate in the management plan as long as:

C1.1 **The vessel is owned by a member of one of the parties to the plan (either directly, or indirectly through a producer organization).**

C1.2 **The member and vessel has not been excluded from the plan due to an infringement.**

C1.3 **The capacity cap in C2 below has not been reached.**

C1.4 **Vessels in the management plan are not allowed to fish for brown shrimp using trawls emitting electrical pulses.**

Fishing with electrical pulses is currently illegal, and only performed on an experimental basis in the North Sea. It is known that pulse fishing has a higher catchability of shrimp and a different profile of ecosystem effects compared to the existing trawls, but the scientific knowledge is not yet at a point where these differences can be quantified.

If a member voluntarily elects to remove a vessel from the management plan, this shall have effect for at least 12 months.

C2. General rules for capacity, effort and gears

The general rules for capacity, effort and gear provide a set of limits around the fishery, to avoid unmanaged increases in effort, catchability or ecosystem effects.

The total number of vessels allowed in the management plan, and their combined engine power, shall be limited as follows:

For each participating country, the number of vessels and combined kW shall not be higher than the number of vessels and combined kW officially registered by the authorities of the country on 1 January 2015.

If vessels from a country other than the three founding countries enter the management plan at a later stage, the same rule shall apply for these vessels.

If the number of vessels or combined kW of a particular country reaches the capacity cap, no new vessels /expanding kW shall be allowed unless the Steering Committee decides that this can be allowed on the basis that:

There is scientific advice that shows that an increase in capacity would not move the fishery away from the target of high long-term sustainable yield, or

The Steering Committee has agreed upon other measures that counter-act the effect of an increasing capacity on the long-term yield.

The officially registered number of vessels and kW for each country on 1 January 2015 was:
The Netherlands: 198 vessels, 40410 kW
Germany: 213 vessels, 41198 kW
Denmark: 28 vessels, 5213 kW

C2.1 **No vessel is allowed to fish for brown shrimp for more than 4800 hours at sea (=200 days) per year.**

C2.2 **Vessels are not allowed to have a combined length of the beams of more than 20 m including the shoes (or 18 m excluding the shoes if this is the applicable national regulation)**

C2.3 **Vessels are not allowed to have a combined weight of the gears of more than 4000 kg. The weight is determined as dry weight in air. The gear includes everything attached to the beam behind the connection to the wire. The scale shall be attached at the point where the wire is fixed to the gear (Hahnepot). The gear is lifted by the winch until all parts of the gear hangs free in the air.**

C2.4 **Trawls used by the participants for brown shrimp fishing may not contain mesh with a smaller opening than 20mm in any part of the gear. The mesh opening shall be measured with the Omega-meter according to the EU regulations. If an outer bag of large-mesh netting is attached around the cod-end, this shall have a circumference at least as large as the cod-end itself.**

C3. Sorting of the catch

The rules on sorting of the catch are intended to minimize the amount and maximize the survival of unwanted bycatch in the fishery (undersized shrimps as well as other marine organisms).

C3.1 **Trawls used by the participants for brown shrimp fishing must contain a sieve net with a maximum opening of 70 mm or a sorting grid with a maximum of 20 mm between the bars and placed in accordance with the national specifications that follow from EU technical rules (850/98 or later versions).**

C3.2 **Catches must be sorted on board using a sorting machine with a bar spacing adjusted to the size of marketable brown shrimp and a constant water flow to ensure high survival of unwanted catches.**

C3.3 **Sieving on land must be conducted on a sieve with at minimum opening of 6.8 mm over a surface of at least one square meter. Shrimps that fall through this sieve are defined as sievage.**

C3.4 **Sievage must be crushed, except if the disposition for non-human consumption can be proven by shipping notes and/or invoices.**

C3.5 **Over a period of two calendar weeks (starting with week 1+2) the average amount of sievage for a vessel may not exceed 15 % of the total landing. Sievage shall be defined as undersized brown shrimp; the total landing as sievage plus marketable brown shrimp. Spoiled brown shrimp and other marine organisms shall not be included in the calculation.**

PO's shall ensure that sievage-data are available for the independent control agencies no later than a week after the end of each two-week period.

C4. High long-term sustainable yield

The Common Fisheries Policy of the European Union aims at fishing stocks at a level that provides the maximum sustainable yield (MSY), or an approximation of this if MSY is not known. MSY is not known for the brown shrimp fishery, but recent scientific results indicate that the effort (since approx. 1995-2000) is above the level that would give the highest long-term sustainable yield. Model results also indicate that one way to achieve high long-term sustainable yields would be to increase the standard mesh-size to 26 mm. This is predicted to increase the stock size by approx. 20% and would contribute to increased egg production (meaning lower risk of recruitment overfishing).
While the model indicates that the long-term result from using a 26 mm mesh would be higher catch-rates for the vessels (because of an increased stock), the model has not been tested in actual management. It is however inevitable that a higher mesh-size leads to short-term losses in catch for the vessels, and this loss will only be reversed through growth in the stock if the model results are correct.
The strategy to achieve high long-term sustainable yield is thus adaptive – it introduces the increase in mesh-size in a stepwise fashion, monitoring the results of each increase to see if the model is validated or contradicted. This stepwise fashion also ensures that the short-term loss of landings is lower and more rapidly compensated.

C4.1 **Starting from 1. May 2016, trawls used by the participants for brown shrimp fishing may not contain mesh with a smaller opening than 22 mm in the cod-end. The mesh opening shall be measured with the Omega-meter according to the EU regulations. The cod-end shall be defined as at least the last 150 rows of mesh in the trawl net.**

C4.2 **Starting from 1. May 2018, the mesh opening described in C4.1 shall be 24 mm. The cod-end shall be at least 125 rows.**

Before 1. January 2018, the Steering Committee shall seek the advice of relevant scientific institutions on whether the results of the monitoring of the shrimp stock indicate that the model is validated and still predicts that a larger mesh size would result in a higher long term yield. If this is not the case, C4.2 shall be re-evaluated based upon the scientific advice.

C4.3 **Starting from 1. May 2020, the mesh opening described in C4.1 shall be 26 mm. The cod-end shall be at least 125 rows.**

Before 1. January 2020, the Steering Committee shall seek the advice of relevant scientific institutions on whether the results of the monitoring of the shrimp stock indicate that the model is validated and still

predicts that a larger mesh size would result in a higher long-term yield. If this is not the case, C4.3 shall be re-evaluated based upon the scientific advice.

If an increase in average effort of the vessels (hours-at-sea or other applicable metrics) is working against the target of high long-term sustainable yields, measures shall be taken to reduce effort or otherwise counteract the increase.

C5. Avoiding recruitment overfishing

There is no indication that the brown shrimp stock has ever experienced recruitment overfishing nor that it is very likely to occur. However, in accordance with the precautionary principle, it is necessary to reduce fishing when the shrimp stock gets beneath a predetermined precautionary level, indicating a decreased shrimp stock in the North Sea.
As 'Landings per unit of effort' (LPUE) indicate the amount of shrimp caught during a specific time period (kg per hour at sea), LPUE data can be used as an indicator of the status of the shrimp stock in the North Sea[1]. A high LPUE indicates a high abundance of brown shrimp, and consequently, a low LPUE indicates that the stock has decreased.
The ICES' Working Group on Crangon (WGCRAN) has concluded that management based on LPUE data and effort reductions currently is the best management practice when it concerns such a short lived species as Crangon crangon[2].

Monthly average LPUE data for all vessels will be gathered (from electronic logbook and auction data) by the Working Group, and compared to the predetermined reference values outlined in table 1 below, after the end of each calendar month.

Table 1: Monthly reference values used for management measures. Reference values represent a percentage (in between brackets) of the average LPUE value per month in 2002 & 2007, representing years where both low and average LPUE values were noted.

Month	Average LPUE per month in 2002	Average LPUE per month in 2007	Average LPUE per month in 2002 & 2007	Ref 1 (70%)	Ref 2 (65%)	Ref 3 (60%)	Ref 4 (55%)	Ref 5 (50%)
January	15,1	48,5	31,8	22	21	19	18	16
February	16,9	29,2	23,0	16	15	14	13	12
March	18,8	34,3	26,6	19	17	16	15	13
April	17,1	37,7	27,4	19	18	16	15	14
May	17,8	34,4	26,1	18	17	16	14	13
June	22,1	26,2	24,1	17	16	15	13	12
July	31,9	33,4	32,6	23	21	20	18	16
August	51,4	35,3	43,4	30	28	26	24	22
September	59,4	43,3	51,3	36	33	31	28	26
October	64,3	37,8	51,1	36	33	31	28	26
November	49,3	29,4	39,4	28	26	24	22	20
December	42,3	22,8	32,6	23	21	20	18	16

[1] Source: Neudecker, Damm, Müller, & Berkenhagen, 2011
[2] Source: ICES Advisory Committee, 2014

If the average LPUE of a calendar month (or as much of the month as is available for calculation –see below) is below reference value 1 for that particular month, fishing in the first two calendar weeks after the calculation has been performed shall be limited for each vessel to the number of hours per week outlined in the Harvest Control Rule in table 2 below.
As long as average LPUE values remain below reference value 1, the monitoring frequency is increased and the average shall be calculated over two weeks (instead of a calendar month).

Table 2: Scenario's and management measures if current LPUE values decrease below predetermined reference values. The harvest control rule is based on the ICES hockey-stick method[3] in five steps of 12 hours for simplicity, and with a lowest level of fishing at 24 hours to ensure continued monitoring of the stock .

Option	Proxy	Management measure
1	LPUE > Ref 1	No particular measure needed since stock is above precautionary limit
2	Ref 1 > LPUE > Ref 2	Precautionary buffer reference value. Vessels may be at sea for a maximum of 72 hours per calendar week, calculated from departure to arrival in the harbor.
3	Ref 2 > LPUE > Ref 3	Vessels may be at sea for a maximum of 60 hours per calendar week, calculated from departure to arrival in the harbor.
4	Ref 3 > LPUE > Ref 4	Vessels may be at sea for a maximum of 48 hours per calendar week, calculated from departure to arrival in the harbor.
5	Ref 4 > LPUE > Ref 5	Vessels may be at sea for a maximum of 36 hours per calendar week, calculated from departure to arrival in the harbor.
6	LPUE < Ref 5	Limit reference value. Vessels may be at sea for a maximum of 24 hours per calendar week, calculated from departure to arrival in the harbor.

Data for a particular month shall be gathered and the LPUE calculated during the first calendar week after the 28th of that month (including as many days as data is available for). Vessels shall be informed of changes to the maximum allowed fishing hours by electronic means at the latest on the Friday of that week, and changes shall enter into force on the following Monday.

C5.1 No vessel is allowed to fish for brown shrimp for more than the maximum number of hours at sea as instructed by the Working Group and/or Steering Committee.

D. Monitoring and research

The monitoring and research requirements are built upon the advice of ICES and national scientists, in order to be able to increase the confidence that the management plan delivers on its objective.

The effort of all vessels shall be monitored by:
Hours-at-sea and kW-hours-at-sea (for comparison with historical data), and
Hours-fishing and kW-hours-fishing (for future reference and refinement of harvest control rules)

A fleet register shall contain basic data on all participating vessels (such as name, number, length, engine

[3] Source: ICES, 2015.
http://ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/General_context_of_ICES_advice_2015.pdf

power). The register shall be expanded into a fleet inventory, including technical information on vessels that allows monitoring of changes in fishing efficiency. Beam length and gear weight shall be registered before 1 February 2016. Further measures such as deck machinery and sorting devices shall be added gradually.

The Brown Shrimp Cooperative MSC Group will acquire scientific advice from a relevant scientific institution every year to enable an evaluation of whether the management plan is delivering on its objectives, including (but not necessarily limited to):
Reaching the target of high long-term sustainable yields,
Avoiding recruitment overfishing,
Minimizing unwanted by-catch.

D1.1 Vessels must participate in any data collection deemed necessary by the Steering Committee for the monitoring of the fishery.

Exceptions to rules in the management plan for a subset of vessels can be granted by the Steering Committee for the purposes of scientific experiments / surveys.

E. Ecosystem impacts

E1. Unwanted catches

The unwanted catches in the brown shrimp fishery consists of three types: undersized brown shrimp (see C3 sorting of the catch), commonly occurring fish and invertebrates; and rare or protected species (see E2 ETP species). The increasing mesh size (See C2.4 and C4) as well as the sieve net (C3.1) and water-flow in the sorting machines (C3.2) all work to minimize the number (or mortality) of other fish and invertebrates in the catch.

The Brown Shrimp Cooperative MSC Group will undertake review of alternatives to the existing technical measures (chapter C) which are better at avoiding unwanted catches, and to incorporate these in the plan if they are sufficiently practical, safe and cost-effective. Such reviews shall be done as alternatives become available, and at least every five years.

E2. ETP species

ETP (endangered, threatened and protected) species are by nature rare catches. Since vessels are not required to record catches of less than 50 kg in the EU logbook, it is necessary to have a separate ETP recording system to assess the impact of the brown shrimp fishery on ETP species.

The Brown Shrimp Cooperative MSC Group shall supply each vessel with an ETP registration sheet (on paper or in electronic form) and an identification sheet/wheelhouse guide to help fishermen identify the rare species. The producer organizations or parties shall collate all data from the ETP sheets and a joint report on numbers, trends and geographic spread shall be produced once every year.

E2.1 Vessels must record all incidental catches of endangered, protected and threatened species in the ETP sheet. Viable specimens must be released as rapidly and gently as possible.
Each vessel shall have an ETP identification sheet/wheelhouse guide on board to ensure correct identification. ETP sheets shall be sent to the producer organization or party as instructed.

E3. Seabed habitats

The brown shrimp fishery is generally performed on relatively shallow sandy bottom types characterized by very high levels of natural disturbance. Smaller and some larger areas along the entire coast (particularly in the inner parts of the Wadden Sea) have been closed to fishing by the authorities. In addition, the weight limit (C2.3) ensures that the brown shrimp fishery continues to be a fishery with lightweight gear, and avoids penetration below the surface layer of the bottom.

The fishing activity of the members will be monitored (through VMS mapping) every year to monitor the risk of any expansion into sensitive habitats.

E4. Waste and oil

E4.1 **All in-organic waste (including that which is caught in the gear) must be brought to shore, and handed over to the relevant service (Fishing for litter, national harbor recycling initiatives etc.).**

E4.2 **Waste oil or wastewater containing oil must be stored responsibly and brought to shore for proper disposal.**

F. Other stakeholders

Stakeholders with an interest in the management of the brown shrimp fishery include other fishermen and their organizations around the North Sea, as well as NGO's and other public interest organizations. The majority of these are organized in the North Sea Advisory Council (NSAC).

The Brown Shrimp Cooperative MSC Group will at least every year present the NSAC (or a sub-group of this) with the management plan and any changes to it since last year, as well as the results of the scientific evaluation and monitoring of progress. The Brown Shrimp Cooperative MSC Group will encourage advice from the NSAC, and include any changes that the Steering Committee finds would help in fulfilling the objectives of the plan.

G. Independent control

As many of the rules in this management plan go much beyond the legal requirements of the EU and national states, it is necessary to have an independent control of vessels and organizations to ensure compliance across the entire fleet.

The control of the implementation of the management plan shall be performed by one or more independent control agency/ies. If it is performed by more than one agency, the agencies shall cooperate to ensure that the control is performed in the same way everywhere.

At least 20 % of the vessels in each country shall be controlled by the agency each calendar year. Controls must be unannounced and shall be spread out to ensure reasonable geographic coverage.

The producer organizations shall be controlled at least once every calendar year, sieving stations at least twice every year.

All participating parties and producer organizations promise to give strong support to the controlling agency and its work. The producer organizations are responsible for ensuring compliance with the management plan by their members.

G1.1 **Members are obliged to let the independent control agency check their vessel(s). If a member refuses control, the control team will automatically assume that the participant is non-compliant with the rules and regulations of this management plan.**

An inspection protocol shall ensure a standardized and comparable control of producer organizations and vessels. The inspection template shall be based directly upon the rules in the management plan. The filled out inspection reports based on the protocol shall be kept for at least 5 years.

The control agencies report every 3 months to the Steering Committee on the number of inspections and number and type of infringements in each country and producer organization.

H. Penalties

The penalty annex to the management plan sets out the applicable penalties for infringements against any of the rules in the management plan.

H1. Process

The control agency shall take up a written report of each inspection including any infringements. The member shall have the opportunity to include comments on the inspection report before signing it. The control agency electronically sends the report to the PO of which the vessel is a member, as soon as possible.

The PO is responsible for the compliance of its members. In case of an infringement the PO shall send a warning or penalty notice in writing to the member within 14 days of receiving the report.
A warning shall contain at least: the infringement found in the report and management plan rule(s) not followed; notice of the penalty that would apply for a future repeated infringement; and notice of the opportunity of the member to appeal.
A penalty notice shall contain at least: the infringement found in the report and management plan rule(s) not followed; the appropriate penalty as outlined in the penalty annex and date of entry into force; an invoice for any fine and instruction for the member to inform the PO if the penalty is taken in the form of effort reduction instead of a fine; and notice of the opportunity of the member to appeal.

The penalty shall enter into force seven days after the penalty notice has been sent. If the penalty can be taken in the form of an effort reduction, the member shall inform the PO of the intention to do so within this period; otherwise, the fine shall be paid.

Invoices for fines shall be payable 15 days after the date of entry into force. Effort reductions and suspensions shall take effect at midnight on date of entry into force, or the first working day hereafter, if the date of entry into force is not a working day. For effort reductions, this means that from the day of entry into force, and for as long as the length of the reduction, the vessel may not leave port for brown shrimp fishing.

H2. Appeal

If the member wishes to appeal the penalty decision, this must be done within seven days after the penalty notice or warning has been sent. Appeal shall be sent to the PO in writing, and will have suspensive effect on the entry into force of the penalty. The PO shall re-consider the penalty in light of the appeal and any other information it may choose to obtain, and inform the member in writing of its decision to uphold, change or cancel the penalty, and set a new date of entry into force of the penalty (unless cancelled) seven days later.

Within this second period, the member has the opportunity to appeal to the Steering Committee in writing, with suspensive effect. The Steering Committee shall consider the appeal and inform the member of its decision to uphold, change or cancel the penalty. The decision of the Steering Committee is final, and shall be informed to the member and PO in writing including a new date of entry into force of the penalty (unless the penalty is cancelled).

H3. Rules for POs and sieving stations

In the event of an infringement against the regulations of the management plan by a PO or sieving station, the control agency immediately informs the relevant party and the Steering Committee. The Steering Committee is responsible for ensuring that the appropriate penalty from the penalty regulation is applied.

PO's shall transfer the value of any fines paid by its members to the party of which it is a participant.