North Western Waters
Fisheries Control Experts Group

Recommended Measures to Achieve Compliance with the Landing Obligation in Demersal Fisheries in North Western EU Waters

Submission to NWW High-Level Group

23 December 2015

The NWW Control Expert Group has convened two meetings in the second half of 2015, with the Netherlands as its chair, on 22-23 September and 3-4 November in Utrecht the Netherlands, to discuss possible strategies for monitoring, control and surveillance (MCS) of the landing obligation for demersal fisheries.

The first session focused on mapping the different types of fisheries in the region and conducting the risk analysis. EFCA has supported this exercise by gathering all data from Member States, analysing and presenting it in various tables and fact sheets. The risk analysis has produced four risk categories: low, medium, high and very high. The outcome of this exercise is included in Annex I.

During the second session, the application of possible control tools has been discussed. Since the Scheveningen CEG had already concluded the exercise of rating the control tools and many of the same Member States and its experts were part of that Group, that same rating table was adopted by the NWW Group as well, with one element added to that table. This extra element concerned to potential (by-)effect of a control tool on control of measures other than the Landing Obligation. This table is included in Annex II.

The Group recognised that some of the recommendations it had produced for pelagic fisheries in the report from April 2015, would likewise apply to demersal fisheries. Therefore, the Group revisited those recommendations and decided which ones should be included for demersal fisheries. Some of those recommendations required reformulation to adapt them to demersal. Those recommendations appear at the end of this report (pages 8-10).

REM: Pelagic and Demersal

When it comes to the risk categories and applicable control tools, the Group recognized that the key element for discussion on control of the LO, tends to be the application of REM/CCTV systems and control observers, i.e. a methodology of *continuous monitoring*. The Group agreed that while this approach had been recommended for high risk pelagic vessels, this would not necessarily mean that the same would apply to demersal fisheries.

Therefore the Group discussed whether an identical or alternative approach to developing a strategy for Monitoring, Control and Surveillance (MCS) should be adopted, in comparison to what had been done for pelagic vessels.

In the case of pelagic fisheries, for each category of risk, a specific category of control tools was to apply. For example, the High Risk category, required Category A control tools, meaning REM systems or control observers.

Although for pelagic fisheries, this approach appears appropriate, the Group considered that this was not necessarily the best approach for demersal fisheries. One reason is that for these fisheries, the dynamic seems to be very different. For example, the fleet of vessels (in a possible high risk category) is much larger than in pelagic fisheries. The segments in demersal are also much more diversified than pelagic. It is gear-based, which means that very small vessels can be included in the high-risk category. REM would probably be less proportionate for very small vessels.

The demersal fleet being much more diversified, may make this linear approach less suitable. Views were taken that demersal fisheries would require a more diversified control–toolbox approach, that is the application of a mixture of different tools. Also, different tools can apply

to a single fleet segment. In this respect, all available control tools should be considered as parts of a complementary matrix to deter and detect noncompliance with the landing obligation.
The Group carried out an analysis of how the available control tools can be combined, that is the extent to which they are complementary to each other. This analysis is visible in the table in Annex III.

Discussions of the Group focused on possible mid-term strategies for monitoring the landing obligation in demersal fisheries. The strategy to adopt for MCS of the landing obligation will depend on the mid-term goals which are to be embraced from a policy perspective. Considering that the landing obligation will be phased in these coming years, with 2019 being the year of full implementation, this period will be one in which the fleet will need to adapt its practises to these crucially new circumstances at sea. Realistically, this will take time.
According to the Group, a range of three options for strategy can be considered, which will be discussed further down.

Data Gathering and Cooperation with Science
An important discussion has been held about the gathering of data during inspections at sea. This refers to the project of *last haul analysis* – inspectors observing the most recent haul when on board the fishing vessels during the fishing trip - carried out by EFCA in cooperation with Member States, in various regions. These additional actions of data gathering on board the vessels, follows from low levels of compliance, especially in mixed fisheries, with the obligation of logging discards.
In this project, the focus is on gathering data by inspectors during inspections at sea. The last haul will be inspected and the catch-composition will be accounted for. This exercise helps to develop intelligence on the actual catch of the fishermen - what kind of and how much by-catch is there, which is, or will be subject to the landing obligation. This gives the inspection services insight in the actual situation that the fisherman is confronted with at sea and has to act upon. This helps establish an informed risk assessment for practises at sea.

The Group has had discussions on the role of science in this regard. The question is whether inspectors are not actually playing the role of scientists, while carrying out such tasks. On the one hand this is certainly true, data collection is primarily a scientific task. On the other hand, data gathering for intelligence and risk assessment plays a decisive role in MCS practises.

An important question is, whether scientists are not actually already gathering this kind of data. In principle the MCS community should be able to resort to scientific data for this practise. It appears to the Group that this is not the case. While data on discards has been extensively gathered, patterns in the catch composition of a haul in specific fisheries does not seem to be recorded. Against this background, gathering such last-haul data is complementary to data on discards collected by scientific research.

The Group considers that it would merit the work of both inspection and of science, if there would be a closer dialogue between these communities on data gathering and data needs. It is of course essential that each is able to stick to its own tasks and the idea would certainly not be to have scientists perform inspection tasks, on the contrary.
Yet it could be of benefit when the scientific community would be aware of the data needs for analytical MCS purposes, so that scientific research could take this into account when

appropriate. In reverse, it should be of benefit to the scientific community to be aware of the kind of data gathered through inspection.

Therefore, the Group recommends that a closer direct dialogue and cooperation will be facilitated between the two communities, specifically in the context of the landing obligation, with a dedicated focus on data gathering and data analysis.

Role of EFCA

Even though in the region of the North Western Waters no SCIP/JDP is in place for demersal fisheries, the Group has adopted the view that EFCA should play a key role in the coordination of cooperation between Member States in the region, while dealing with demersal fisheries. The platform of EFCA has proven to be very efficient already in other regions, as well as in the process for Risk Assessment for demersal fisheries in NWW.

EFCA should continue to play this role and should be mandated to do so. The exchange of information and analysis of aggregated data will be continued practise in this region and the most effective way to do this is by using EFCA as an exchange hub.

Options for an MCS Strategy for the LO in NWW Demersal Fisheries

The Group recommends to consider three options for a possible strategy to Control, Monitoring and Surveillance of the Landing Obligation in demersal fisheries.

Option 1: Continuous monitoring of Fisheries for all vessels in Very High Risk segments
It might be considered that the practise of managing high risk vessels will have to be enhanced immediately when the landing obligation comes into force, because of those risks of non-compliance. After all, the acceptance of this new policy seems to be rather dramatically low amongst the fishermen.
This viewpoint would mean to affirm that the fishermen will need to be enforced straight from the beginning, using the full means which are available – i.e. fully documented fisheries tools like REM (Remote Electronic Monitoring; CCTV and/or sensors and/or photograph taking tool) and Control Observers.

It should be taken into account that the amount of vessels for each Member State to which this would apply will be large, up to over 100 vessels at least. That means that a clear methodology will need to be developed for the way all this data will be processed. From a financial perspective limitation might exist as to the amount of data one could analyse. It seems that REM requires a more selective use and it can be questioned whether it is practical to implement it on too large a group of vessels.

However, it is also relevant to point out that having REM on board of these vessels, may at the same time come to include effective monitoring of other kinds of inherent risks in these fisheries. For example, the occurrence of fishing with illegal gear, fishing in prohibited areas, misreporting of catch. These infringements may be additionally *prevented* by the REM systems. The application of REM may therefore on the long term imply that physical inspections at sea – which are very expensive – can be substantially reduced. This is all dependent on the efficacy of the REM system.

If this option 1 is chosen, the Group would recommend these tools be made available, legally and practically, including the financial and personnel means needed for REM monitoring of a large fleet.

High, Medium and Low risk category vessels will be subject to existing enforcement methods following a risk based approach

Option 2: No additional control and monitoring tools in the current stage
At the other side of the spectrum of option 1, it can be considered that at the current stage of implementation, it is not yet the time to start introducing additional new control tools. In this scenario, the landing obligation will be controlled using existing instruments, which is control at sea using patrol vessels and aerial surveillance. This will be complemented by inspections at landing.

This is an option; with inspections at sea, a degree of control will be in place. It should be pointed out however, that the rating of these control tools is not very high for effectively controlling the landing obligation, as demonstrated in Annex II. This means that gradual

voluntary compliance with the landing obligation will need to be a relevant dependent factor, when this option is chosen.

If there will be no additional control tools like CCTV or observers, then the main burden for surveillance will be on the Coastal State. The Port State has the role of analysing what is being landed. The Flag state has the role of developing vessel profiles, input risk analysis, including for the benefit of the coastal state.

Option 2 will be a status quo, and is not a sufficient option for detecting non-compliance in the Demersal Landing Obligation.

Option 3: Compliance Evaluation of the LO with a goal of developing intelligence as a basis for future risk based control actions

Instead of immediately implementing continuous control systems through REM or observers on the whole Very High Risk fleet; or instead of not doing anything additional to the current control setting, it can be a consideration first to implement a strategy for monitoring compliance of the landing obligation through increased intelligence.

The landing obligation is a very new obligation for the demersal vessels, which will have to drive fishermen to change their practises at sea - in the way they fish and the way the process the catch on board. The coming years will be a period of transition, where the vessels will be adapting to the new framework. Very little is known how the behaviour at sea will be, how the fishermen will adapt, what the level of compliance will be. In this option, an approach will be adopted for putting in place instruments to *monitor* compliance with the landing obligation. This will help increased intelligence, which will be needed when in 2019 the landing obligation will be fully in force.

This option should include actions to increase awareness of fishermen and actively promote compliance.

This option will not preclude any enforcement actions taken where appropriate starting 1 January 2016.

Reference Fleets:

The proposals mentioned under option 3 will be coordinated by the NWW control expert group with the assistance of EFCA.

This approach will require the creation of reference fleets or group of reference vessels and development of methodologies of data gathering. The reference fleets will need a high level of assurance that they are fully documented to establish a reliable baseline for catch data based on full compliance. Then the catch data of the rest of the (similar) fleet will need to be analysed in comparison with the data of the reference fleet.

This approach will enable the enforcement agencies to develop intelligence on the degree of compliance of individual vessels with the landing obligation. Subsequently, these vessels can be targeted for increased or enhanced control measures. The result can be that the high risk

vessels coming into perspective through this monitoring program, will consequently be equipped with REM or covered by regular observers trips.

Initially, this kind of analysis may not be sufficient to detect infringements in a way that it will produce proof to hold in court, as it will be based on intelligence retrospectively and not on detection of the actual act when it occurs.
Option 3 should be much more valuable in developing a strong position of information on the overall behaviour of the fleet, so that at a later stage well informed decisions can be taken on enforcement measures.

The question is how a reference fleet can be created. This can be done either by installing REM on a small but representative section of the fleet, or by the use of control observers, or a combination of both. While REM will ensure more continuous monitoring of a specific group of vessels, working with observers may enable more flexibility. The observers can be moved around different vessels and fishing trips (from week to week).

Ideally, the REM system would also be installed in a flexible way. The Group considers that it should be feasible to move the system around. For example, a group of vessels might be covered by REM during half a year, after which the system moves to a different set of vessels.

Apart from establishing reference fleets, this approach may also have a behavioural effect. That is, a fisherman who may not be tempted to comply with the landing obligation initially, will need to do so during the period of REM or observers on board. During this period he will have to adapt his modus operandi to the landing obligation, including finding proper outlets for the unwanted bycatch. When the period of REM ends, of course it is a risk that he will return to non-compliance; however, it is also reasonable to consider that a behavioural change may have come about and his practises have come to be adapted in such a way that they have become common and standard.

For the non-reference vessels (not monitored by REM and/or observers) , some behaviour effects may be visible due to the peer effect of the availability of reliable data of the monitored vessels.

Final observations on option 3
A reference fleet will contribute to a more result-based approach..

Monitoring the gear and selectivity measures being used can be an indicator for compliance and will be used for the risk-based approach.

When option 3 is brought to practise, of course this will still be combined with the application of existing control tools (as referred to in option 2), like inspections at sea using patrol vessels and aircraft.

Option 3 would involve a significantly lesser initial deployment of REM/CCTV than option 1.

EFCA can play an important role in developing this tool of compliance evaluation. Here the goal needs to be to develop a standardised tool for monitoring compliance.

If this option is adopted, a joint operational plan shall be established detailing a.o.;

- The degree of coverage by REM and/or observers by member state, with likely not more than 5% of the vessels in each reference fleet,
- Protocols for data collection and data management,
- Rules for data sharing
- Methods of analysis.

Recommendations

The report produced by the NWW Control Expert Group in April 2015 regarding Pelagic Fisheries contained a number of recommendations, some of which will also apply to demersal fisheries. Below is the list of recommendations taken from that report, some of which have been reformulated as discussed by the Group. The number within brackets refers to the recommendation in the April report. Apart from these, a number of new recommendations for demersal have been added (in which case, 'new' is written within brackets).

Recommendation 1 (3, 5, 6)
Specific targeted comprehensive compliance programmes, harmonised at the regional level, will be necessary to generate the necessary changes in demersal fisheries and ultimately achieve compliance with the LO. Key components might include purpose-designed leaflets describing fisher's obligations, translated into the various languages and made available through the websites of the various control authorities; promotional campaigns to provide clarity on the practical ramifications for fishermen; and clarifications to be provided to fishermen on the benefits of logging discards.
Responsibility: CEG, HLG & EFCA

Recommendation 2 (2)
The NWW control group recommends a common approach to non-direct human consumption.
Responsibility: HLG, DG Mare

Recommendation 3 (7)
NWW Compliance and Control strategies should be implemented in a harmonious manner and without conflict with strategies implemented in adjacent regions particularly NS and SWW.
Responsibility: HLG of different regions

Recommendation 4 (new)
The activities and cooperation between member states in the region will need to be coordinated. A dedicated role for EFCA should be foreseen to facilitate this process of regional coordination, including for fisheries not covered by a SCIP/JDP.
Responsibility: CEG and EFCA

Recommendation 5 (8)
Data exchange systems should be developed within the region to optimise risk analysis by all control authorities. A useful starting generality would be that all relevant fishing data which might augment the accuracy of risk analysis should be available to all relevant authorities as rapidly as possible.
Responsibility: HLG to Enable, CEG to Enact

Recommendation 6 (9)
The EFCA platform should be used as the central exchange hub, and repository of all data which might inform risk analysis. In addition to raw data sharing e.g. logged vessel catches, automated analytical systems capable of detecting patterns consistent with compliance risks should be developed to provide real-time risk analysis information to the various state authorities in the region.

Responsibility: EFCA and CEG

Recommendation 7 (16)
Automated algorithms should be developed under the framework of the EFCA coordination to interrogate existing ERS and VMS data, and identify variances in catches logged which might indicate risks of non-compliance with LO. Member States will have to run the algorithms.
Responsibility: CEG & EFCA

Recommendation 8 (18)
Costs of implementing controls systems designed around implementation of the LO should be subject to a specific assessment by EFCA using methodologies developed assessing JDP costs. Such LO cost assessment should begin after an appropriate time-lag to allow for transition, at the latest end 2018.
Responsibility EFCA & CEG

Recommendation 9 (11)
At-sea inspection procedures should be developed and harmonised within the region. These procedures should incorporate agreed best practice in verifying compliance with the LO.
Responsibility: CEG & EFCA

Recommendation 10 (17)
Landing control procedures should be developed and harmonised within the region. These procedures should specifically incorporate agreed best practice in verifying compliance with the LO, with special attention to the handling of fish below MCRS
Responsibility: CEG & EFCA

Recommendation 11 (4)
Assuming individual MS decide on the de-minimis management procedures for their flag vessels, such information should be available to the control authorities of all regional MS. Information will be on the level of detail as available and needed for consideration of the coastal- and port state authorities.
Responsibility: HLG

Recommendation 12 (14+19)
Where CCTV systems are operational on vessels, coastal state input to risk-based review of footage by Flag State authorities should be facilitated to maximise effectiveness. Control authorities within the region should collaborate to ensure maximal sharing of experience in implementation of REM/CCTV and harmonisation of deployment strategies across the region.
Responsibility: CEG

Recommendation 13 (13)
For those vessels with CCTRV on board, programs should be put in place for the provision of haul-by-haul information where appropriate, not transmitted but retained on-board and provided along with the CCTV data.
Responsibility: HLG to enable, CEG

Recommendation 14 (27)
Dedicated programmes to measure compliance should be implemented to assess compliance with the landing obligation. A reference fleet should be created for the fleet segments, most predominantly in the high and very high risk categories, by the installation of REM systems on board or an observer program covering the fishing trip, or a combination of both (MCS

Strategy Option 3). Appropriate methodologies for data gathering and analyses should be developed to give shape to compliance evaluation.
Responsibility: EFCA with assistance of CEG

Recommendation 15 (21)
In the approach of securing continuous control of the vessels in the very high risk category (option 1), the vessels should be installed with REM/CCTV systems, supplemented by data analysis and inspections at-sea and after landing. Sufficient means should be made available for the analysis of footage.
Responsibility: HLG to enable, Flag State to implement REM/CCTV

Recommendation 16 (22+24)
The low, medium and high risk categories should be subject to existing control practises. They should be part of the program for compliance evaluation, as described in recommendation 14. Strategies to verify compliance with LO in low risk vessels should include application of data-analysis and inspection protocols, to specifically address LO risks.
Responsibility: CEG,

Recommendation 17 (25)
In order to ensure enforceability and hence compliance throughout the region, those Control recommendations proposed by CEG which are subsequently ratified by the HLG should be enacted within an EU legal instrument, directly applicable in the region, when this is not already the case.
Responsibility: HLG and DG-Mare

Recommendation 18 (26)
NWW Control authorities should consider harmonised approaches to assessing gravity of LO non-compliances. This issue is wider than the LO only.
Responsibility: NWW Control Authorities

Recommendation 19 (new)
Facilitate a direct dialogue between the control authorities and the scientific community, with the primary topic of the complementarity of data gathering and data analysis.
Responsibility: HLG to enact. CEG and EFCA

ANNEX I

NORTH WESTERN WATERS CONTROL EXPERTS GROUP

REPORT ON:
1- RISK ASSESSMENT IN THE CONTEXT OF THE LANDING OBLIGATION

Background

In order to comply with the mandate given to the North Western Waters Control Expert Group (NWWCEG), EFCA has been requested by the North Western Waters control working group to develop a risk assessment of non-compliance with the landing obligation for demersal fisheries in Northern Western Waters.

With the support of the Dutch Presidency, and the previous Irish presidency of the NWWCEG, and in cooperation with the group, a first control risk assessment was held in Utrecht on the 22nd and 23rd of September 2015. During this workshop, the EFCA methodology for risk assessment was used by the group.

The report below follows the outline in the guidelines for risk assessment and presents the outcomes of the discussions.

The next step in the process is to discuss on control tools and risk treatment measures related to each segment.

Risk Definition

1.1 - Scope of the Assessment

The assessment group was comprised of NWWCEG appointed experts. The objective of the assessment was to determine the risk associated with non-compliance with the landing obligation for the demersal fisheries in the North Western Waters. Since the landing obligation is subject to a progressive introduction until 2019, the group considered that all species should be addressed, including those which will not be subject to a landing obligation in 2016 (e.g. cod). For such species, the threat was perceived to be high-grading and not recording discards in logbook (>50Kg).

The group agreed to organise the exercise in accordance with gear area and species as presented in ***Annex I-A.***

The exercise consisted of 8 gear segments in waters in VI and VII (NWW). To score each metier, discard rates based on STECF data were used and are considered the best data available along with stock status from ICES. Species considered were the ones cited in article 15 of Regulation 1380/2013 as species defining fisheries in the North Western Waters: cod, hake, nephrops, haddock, whiting, saithe, sole and plaice.

The assessment was done for a full year period and should be considered valid for the year 2015 or until a new analysis is made. This assessment was done at a regional level with the idea of potentially support the national risk analysis and assessment of the segments that are important for the individual Member States.

1.2 – Fisheries description

Factsheets for each segment were produced (see ***Annex I-B***); the fact sheets indicate the latest stock status along with TAC and catch data from 2014. The fact sheets also contain the monthly catches by species and the share taken by each MS in relation to the TAC. Factsheets may be updated with the latest information as it becomes available in the future.

A summary including the stock status of species caught by the different segments and covered by the scope of this assessment exercise is presented in ***Annex I-C***.
EFCA also produced a discard matrix per gear segment including an analysis of data aggregated from STECF/DCF data on discards (2008-2012), presented in ***Annex I-D***.

1.3 – Regulatory framework

References to appropriate and current EU legislation are included in the corresponding fishery fact-sheets, and were considered appropriate by the participants at the meeting.

1.4- Fleet segmentation

Fleet segmentation was already agreed under the Irish presidency of the group.

2. Risk Analysis

The risk analysis was carried out considering 2 main dimensions: probability of occurrence (likelihood) and impact.

2.1– Probability of occurrence (or likelihood)

Building on the risk characterisation exercise, the following likelihood factors were agreed upon:

- Level of occurrence of discards in the segments for the species concerned

Mixed / single species fisheries Other possible factors were also considered, but not fully addressed at this stage in the risk evaluation exercise:

- Degree of technical measures in place (gear selectivity, seasonal closures)
- Degree of social pressure (level of policy legitimacy, level of non-compliant behaviour of others, personal reputation)

The trigger levels for discards rates to be considered high (>15%), Medium (>5% < 15%) and low (<5%) were used.

2.2 – Impact

Based on EFCA methodology proposal impact factors were discussed and agreed as follow:

- Stock status: done in accordance with the CFP detailed reference points(e.g. SSB < Blim and F > Flim for stock outside safe biological limits)
- Volume of catches by fleet segment for a given species in relation to total stock TAC (or total catches reported).

3 Risk Evaluation

3.1– Scores scale and method

The group used set of scoring groups, with the definition of a set of factors for which the fishery segments should align to. The trigger / range levels for the different likelihood and impact factors were also discussed and agreed upon as presented in “guidelines for evaluation” in ***Annex V***.

A 4x4 method was agreed upon. The below table presents the final scoring matrix:

RISK LEVEL	IMPACT AND LIKLIHOOD VALUES	RISK LEVEL VALUES (CAN BE RESET)	
		FROM	TO
LOW	1.0	0.00%	24.90%
MEDIUM	2.0	25.00%	49.90%
HIGH	3.0	50.00%	74.90%
VERY HIGH	4.0	75.00%	100.00%

3.2- Risk rating

The group concluded the risk rating against the previously agreed set of criteria. The comments made by the group are summarised in Table 1 (see section 3.3)

3.3- Ranking and conclusions

Table 1 presents the overall risk evaluation and different comments discussed when rating likelihood and impact of the different gear segments.

SEGMENT CODE	GEAR GROUP	GEAR DEFINITION	AREA	LIKELIHOOD		Impact		RISK LEVEL
				LEVEL	COMMENTS	LEVEL	COMMENTS	
1	GN, GNS, GND, GNC	Generic Gillnets	VI	LOW	No fishery in VIb	LOW	Low % of TAC	LOW
			VIIa	LOW		LOW	Low % of TAC	LOW
			VIId	MEDIUM	COD & PLE at med value for DR.	LOW	Low % of TAC	LOW
			Rest of VII	MEDIUM	Gadoid fishery	LOW		LOW
				LOW	HKE and POK fishery	MEDIUM	Due to HKE & POK fishery.	LOW
2	GTR	Trammel nets	VI	LOW	No fishery in VIb	LOW		LOW
			VIId	HIGH	High DR due to choke	MEDIUM		MEDIUM
			Rest of VII	HIGH	High DR due to choke	LOW	Low catches	LOW
3	LL, LLS, LLD, LTL, LX, LHP, LMH	Generic longline	VIa	LOW	No fishery in VIb, DR close to 0	LOW		LOW
			Rest of VII	LOW	No fishery in VIIa, d, & e. DR close to 0	MEDIUM		LOW
4	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl < 100mm	VI	VERY HIGH	No fishery in VIb. Future technical measures may reduce level	HIGH	Due to NEP	VERY HIGH
			VIIa	VERY HIGH	Review of technical measures ongoing	HIGH	Low TAC WHG	VERY HIGH
			Rest of VII	VERY HIGH	No fishery in VII d & e.	HIGH	Due to COD	VERY HIGH
5	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl ≥ 100mm	VIa	VERY HIGH	DR are generic for bottom trawl	MEDIUM	Distinct fisheries, including dedicated POK, DR may be low. DR are based on generic data.	HIGH
			VIb	LOW	Rockall HAD	MEDIUM	Stock status of HAD	LOW
			VIIa	VERY HIGH	By catch of Ray fishery	LOW		MEDIUM
			Rest of VII	VERY HIGH	No fishery in VII d & e.	HIGH	Due to COD stock status & HAD % of catch.	VERY HIGH
6	TBB	Beam trawl 80-99 mm	VIIa	VERY HIGH	Need better data, precautionary approach	MEDIUM	Ray fishery IRL, COD by catch.	HIGH
			VIId	VERY HIGH	Need better data, precautionary approach	MEDIUM		HIGH
			VIIe	VERY HIGH	Need to split UK data, likely to increase catches in VIIe and reduce rest of VII	HIGH		VERY HIGH
			Rest of VII	VERY HIGH		HIGH		VERY HIGH
7	TBB	Beam trawl ≥100mm	VII		Insignificant catch reported in VIId with very low catches in rest of VII. Could consider merging with segment 6,			NA
8	FRO, FIX	Pots & traps	VIa	LOW		LOW		LOW
			VII	LOW		LOW		LOW

Table 1- Risk evaluation of LO in the context of North Western waters demersal fisheries (September 2015)

The fisheries were scored with the outcome reflecting the expertise of the group. Along with expectations, nets and longlines scored low, with the exception of trammel nets in VIId where a medium score was achieved due to the possibility of catches of choke species. In general towed gears scored high or very high. Segment 7 (Beam trawl >100mm) was not scored due to the insignificant catches reported, however the group considered that the segment should remain as it may be significant in the future. A merge with Segment 6 (Beam trawl 80-99 mm) may also be considered in the future. Pots and traps scored low along with expectations.

The group was satisfied that the outcome relates to expectations, giving confidence in the process.

Annex I-A - Gear segments groups in demersal fisheries in NWW

CODE	GEAR GROUP	GEAR DEFINITION	SEGMENT	AREA	SPECIES
1	GN, GNS, GND, GNC	Generic gillnet	All	VIa	Cod Haddock Whiting Saithe Norway lobster Sole Plaice Hake
				VIb	
				VIIa	
				VIId	
				Rest of VII	
2	GTR	Trammel nets	All	VIa	
				VIb	
				VIIa	
				VIId	
				Rest of VII	
3	LL, LLS, LLD, LTL, LX, LHP, LMH	Generic longline	All	VIa	
				VIb	
				VIIa	
				VIId	
				Rest of VII	
4	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl	< 100mm	VIa	
				VIb	
				VIIa	
				VIId	
				Rest of VII	
5	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl	≥ 100mm	VIa	
				VIb	
				VIIa	
				Rest of VII	

6	TBB	Beam trawl	80-99 mm	VIIa	
				VIId	
				VIIe	
				Rest of VII	
7	TBB	Beam trawl	≥ 100mm	VIIa	
				VIId	
				VIIe	
				Rest of VII	
8	FPO,FIX	Pots & traps	All	VIa	
				VII	

Annex I-B - Gear segments fact sheets (in separate files to this report)

Annex I-C - THE NORTH WESTERN WATERS STOCK STATUS – BASED ON ICES ADVICE (JUNE/NOVEMBER 2014)

STOCK						
SPECIES	**AREA**	**Fishing mortality in relation to F_{MSY}**	**Fishing mortality in relation precautionary limits**	**Spawning biomass in relation to MSY $B_{trigger}$**	**Spawning biomass in relation to precautionary limits**	**STATUS**
COD	VIa	Above target	Harvest unsustainable	Below trigger	Reduced reproductive capacity	RED
	VIb	Undefined	Undefined	Undefined	Undefined	RED
	IV &VIId	Above Fmsy	Undefined	Below trigger	Increased risk	RED
	VIIa	Above target	Harvest unsustainable	Below trigger	Reduced reproductive capacity	RED
	VIIe-k	Above Fmsy	Increased risk	Below trigger	Increased risk	RED
HAD	IV, IIIa N, VIa	Appropriate	Below reference	Above trigger	Full reproductive capacity	GREEN
	VIb	Above target	Increased risk	Above trigger	Full reproductive capacity	AMBER
	VIIa	Undefined	Undefined	Undefined	Undefined	AMBER
	VIIb-k	Above target	Above Fmsy	Above trigger	Undefined	AMBER
POK	IIV & VI	Appropriate	Harvested sustainably	Below trigger	Increased risk	AMBER
WHG	VIa	Undefined	Undefined	Undefined	Reduced reproductive capacity	RED
	VIb	Undefined	Undefined	Undefined	Undefined	AMBER
	IV and VIId	Undefined	Undefined	Undefined	Above Blim	GREEN
	VIIa	Undefined	Undefined	Undefined	Undefined	AMBER
	VIIb,c,e-k.	Appropriate	Below possible reference points	Above trigger	Full reproductive capacity	GREEN
HKE	IV, VI, and VII, and Divisions VIIIa,b,d	Above target	Undefined	Above trigger	Full reproductive capacity	AMBER
PLE	VIId	Appropriate	Below reference	Above trigger	Full reproductive capacity	GREEN
	VIIa	Undefined	Undefined	Undefined	Undefined	AMBER
	VIIb-c	Undefined	Undefined	Undefined	Undefined	AMBER
	VIIe*	Above target	Undefined	Above trigger	Undefined	GREEN

	VIIf-g	Undefined	Undefined	Undefined	Undefined	AMBER
	VIIh-k	Undefined	Undefined	Undefined	Undefined	AMBER
SOL	VIIa	Below target	Harvested sustainably	Below trigger	Reduced reproductive capacity	AMBER
	VIIb-c	Undefined	Undefined	Undefined	Undefined	RED
	VIId	Above target	Harvested unsustainably	Above trigger	Full reproductive capacity	AMBER
	VIIf-g	Above target	Increased risk	Above trigger	Full reproductive capacity	AMBER
	VIIh - k	Undefined	Undefined	Undefined	Undefined	AMBER
NEP	VIa	Below target	Undefined	Above trigger	Undefined	GREEN
	FU 14 Irish sea east	Below target	Undefined	Undefined	Undefined	GREEN
	FU15 Irish sea west	Above target	Undefined	Above trigger	Not defined	AMBER
	FU16 Porcupine Bank	Appropriate	Undefined	Undefined	Undefined	AMBER
	FU17 Aran grounds	Above target	Undefined	Undefined	Undefined	RED
	FU19 southeastern & southwestern coast of Ireland	Above target	Undefined	Undefined	Undefined	RED
	FU22 the smalls	Appropriate	Undefined	Undefined	Undefined	AMBER

*2014 ADVICE

Annex I-D

Demersal gear segments in NWW with average discard rates 2008-2012 (source: STECF)

SC	GEAR GROUP	GEAR DEFINITION	SEGMENT	AREA	Discard rates by species (%)							
					COD	HAD	HKE	NEP	PLE	POK	SOL	WHG
1	GN, GNS, GND, GNC	Generic gillnet	All	VIa	0.0	0.2	0.0	-	-	0.0	-	0.0
				VIb								
				VIIa	6.8	0.4	0.9	0.0	14.4	0.3	0.0	5.8
				VIId								
				Rest of VII								
2	GTR	Trammel nets	All	VIa	0.0	0.2	0.0	-	-	0.0	-	0.0
				VIb								
				VIIa	44.5	0.0	46.4	0.0	10.1	0.1	0.6	66.1
				VIId								
				Rest of VII								
3	LL, LLS, LLD, LTL, LX, LHP, LMH	Generic longline	All	VIa	0.0	0.0	0.0	0.0	-	0.0	-	-
				VIb								
				VIIa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				VIId								
				Rest of VII								
4	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl	< 100mm	VIa	48.3	0.2	21.6	0.0	25.7	16.4	0.0	0.0
				VIb								
				VIIa	20.7	21.4	0.4	6.1	95.3	0.1	7.1	28.1
				VIId								
				Rest of VII								
5	OT, OTB, OTT, PTB, PT, TBN, TBS, TX, SDN, SSC, SPR, TB, SX, SV	Generic bottom trawl	≥ 100mm	VIa	48.3	0.2	21.6	0.0	25.7	16.4	0.0	0.0
				VIb								
				VIIa	20.7	21.4	0.4	6.1	95.3	0.1	7.1	28.1
				Rest of VII								
6	TBB	Beam trawl	80-99 mm	VIIa	5.9	7.4	9.8	0.0	0.1	0.4	0.0	0.0
				VIId								
				VIIe								
				Rest of VII								
7	TBB	Beam trawl	≥ 100mm	VIIa	5.9	7.4	9.8	0.0	0.1	0.4	0.0	0.0
				VIId								
				VIIe								
				Rest of VII								
8	FPO,FIX	Pots & traps	All	VIa	-	-	-	-	-	-	-	-
				VII	-	-	-	-	-	-	-	-

Annex I-E – Guidelines for evaluation

Likelihood

		Other possible factors
Very high (4)	• Discards occur in the fishery for at least 2 TAC species at level higher than 15% of the total catch **or** 1 single species at a level higher than 15 % where this species represents more than 50 % of total catch • Mixed fisheries with more than 1 by-catch TAC species with low commercial value • High concentration (>15 %) of catches under MCRS for at least 2 TAC species • High likelihood that discard exemptions are open to abuse	• No technical measures in place or selectivity difficult to achieve • Very low social pressure (very low policy legitimacy, wide-spread non-compliant behaviour of others, personal reputation)
High (3)	• Discards occur in the fishery for at least 1 TAC species at a level higher than 15 % of the total catch • Mixed fisheries with at least 1 by-catch species with low commercial value • High concentration (15%) of catches under MCRS for at least 1 TAC species • Discard exemptions may be open to abuse	• Minimal technical measures in place (gear selectivity, seasonal closures) • Low social pressure (low policy legitimacy, high non-compliant behaviour of others, personal reputation)
Medium (2)	• Discards occur in the fishery for at least 1 TAC species > 5 % < 15 % • Mixed fisheries with occasional by-catch species with low commercial value • Presence of catches under MCRS (> 5 % < 15 %) or at least 1 TAC species may occur	• Some technical measures in place (gear selectivity, seasonal closures) • Some social pressure (some policy legitimacy, average non-compliant behaviour of others, personal reputation)
Low (1)	• Discards occur in the fishery < 5 % for all TAC species • Presence of catches under MCRS negligible	• Technical measures in place (gear selectivity, seasonal closures) • Social pressure (high policy legitimacy, no non-compliant behaviour of others, personal reputation highly important)

Impact

		Other possible factors
Very High (4)	• Very bad stock status: More than 1 TAC species (**or** target species for single species) clearly outside safe biological limits (SSB < Blim and F > Flim) • Fishery representing > 60 % of volume of catches for more than 1 TAC species with more than 15% discards	• More than 1 TAC species subject to multiannual plan • Presence of protected species in the fishery
High (3)	• Bad stock status: with at least 1 TAC species clearly outside safe biological limits (SSB < Blim and F > Flim) • Fishery representing > 40% and < 60 % of volume of catches for at least 1 TAC species with more than 15 % discards	• At least 1 TAC species subject to multiannual plan
Medium (2)	• Stock status with at least 1 TAC species with 1 of the parameters outside safe biological limits (SSB < Blim **OR** F > Flim) • Fishery representing > 20% and < 40 % of volume of catches deployed for at least 1 TAC species with estimated discard rate > 5% <15%	• At least 1 TAC species subject to multiannual plan
Low (1)	• Stock status within safe biological limits (SSB > Blim **and** F < Flim) • Fishery representing <20% of volume of catches for at least 1 TAC species with discard rate < 5 %	• No TAC species subject to multiannual plan

ANNEX II - Control tool scoring matrix
(transferred from Scheveningen Group Matrix, with line I added)

	Criteria/tool	REM systems + CCTC sensors	Control Observers (assuming sufficient)	At sea inspection with patrol vessels	At-sea controls with aircraft	UAV / Drones	Catch composition comparison based on a reference fleet	Controls at landing	VDS
A	% of voyage that can be monitored. *Fishing trips of single vessel*	5	4	2	2	2	5	0	
B	Technical reliability / tamper proof	4	4	4	4	4	2	4	
C	Staff costs. *Total costs, not marginal costs*	3	1	0	1	2	4	3(vessel diff, size/catches)	
D	Non-staff system/ equipment costs.	3	5	1	1	2	4	5	
E	Contribution to overall control strategy of monitoring discard plans	3	4	3	1	1	2	2	
F	Behavioural impact on fleet (discarding)	5	5	2	1	1	3	2	
G	Expanding capacity *Technical and practical feasibility*	4	3	2	2	2	5	3	
H	Evidence admissibility as proof	5	5	5	5	5	1	1	
I	*Potential Effect on control objectives, other than landing obligation*	*5*	*5*	*4*	*3*	*3*	*2*	*4*	
	Total sub-score (I exluded)	***32***	***31***	***19***	***17***	***19***	***26***	***20***	
	Total score (I inluded)	**37**	**36**	**23**	**20**	**22**	**28**	**24**	

Score 0: not suitable, score 5: very suitable.

ANNEX III
Control toolbox – interdependency
Which tools can be effectively combined in a toolbox approach:

Criteria/tool	REM systems CCTC + sensors	Control Observers (assuming sufficient)	At sea inspection with patrol vessels	At-sea controls with aircraft	UAV / Drones	Catch composition comparison based on a reference fleet	Controls at landing	
REM systems CCTC + sensors	**-**	**2**	**2**	**1**	**0**	**5**	**5**	
Control Observers (assuming sufficient)	**1**	**-**	**0**	**1**	**1**	**5**	**1**	
At sea inspection with patrol vessels	**3**	**4**	**-**	**2**	**2**	**5**	**5**	
At-sea controls with aircraft	**1**	**4**	**4**	**-**	**0**	**1**	**4**	
UAV / Drones	**1**	**4**	**4**	**0**	**-**	**1**	**4**	
Catch composition comparison based on a reference fleet	**5**	**5**	**5**	**1**	**1**	**-**	**5**	
Controls at landing	**5**	**5**	**5**	**2**	**2**	**5**	**-**	

0 = not suitable/useful to combine / 5 = very suitable/useful to combine
From left to right (left column is the main tool referenced)

Reading Guideline: when tool in first column is used as primary tool, rating of the added value of the tool on top line, complementary to the primary tool.