**Industry proposal for an adaptive approach to North Sea cod recovery**

**21st November 2019**

**Amendment: New Article 6**

1. **Introduction**

Over a decade-and-a-half, fishermen, fisheries managers and fisheries scientists collaboratively developed and implemented a successful approach to the management of the North Sea cod stocks. The combination of measures adopted during this period drove a dramatic reduction in fishing mortality and a spawning stock biomass which increased steadily year-on-year. This successful trajectory, disappointingly, has now turned down.

It is widely accepted that ecosystem changes are under way which may prove to be a key factor. Likewise, the impact of the major changes associated with the implementation of the EU landing obligation may also be having an impact. Important though are the uncertainties that exist in scientists’ evolving perception of the stock.

This is the context in which representatives of the North Sea fishing industry have, over the past few months, worked to identify a pathway that would reverse the downward trend in biomass and upward trend in fishing mortality, whilst maintaining the fabric of the fishing sector in these fisheries.

The proposed measures are intended to apply only to gear types engaged in demersal fishing operations, they should not apply to any type of pelagic fishery. They also relate only to the management of cod in the North Sea (4a,b,c) and in Skagerrak (3a). It is expected that all supporting measures will be removed once scientific advice indicates that the spawning stock is above MSY BTRIGGER.

*The challenge*

* The North Sea fishing industries (EU and Norwegian fleets) recognise the scale of the challenge involved in maintaining economically viable fleets, whilst at the same time introducing successful remedial measures – but we remain committed to working collaboratively to secure these dual objectives.
* In order to reach BLIM in a single year, ICES advice is to reduce the TAC by 70%. If implemented it would affect the harvesting of other key commercial species, causing business failure and at the same time failing to deliver SSB above MSY BTRIGGER. Indeed, SSB has not been at that level since 1982, at the peak of the gadoid outburst.
* While there is a limited targeted fishery for cod using gill nets, it is mainly caught in a number of mixed demersal fisheries in which the proportion of cod in the catch varies considerably. Within the context of the EU landing obligation, a 70% reduction in the TAC for cod would lead inevitably to the premature closure of fisheries for other economically vital fisheries, and/or displacement of many vessels from the North Sea.
* Against this difficult background, we jointly recommend a thorough review of the assumptions/models and data used in the assessment. This is not because we doubt the ability or dedication of the scientists in the ICES system but because of the emergence of a number of important factors which have an important bearing on the stocks:
* Biological changes associated with the northward shift in distribution of cod
* Changing distribution patterns of species like hake, which are a competitor of and predator on cod
* The significance of these bio-spatial changes for reference points set in relation to very different biological conditions
* The assessments’ dependence on understanding incoming recruitment and an apparent retrospective bias.
* The difficulties facing the North Sea cod stocks will not be solved in a single year. This is not a reason to delay initiating appropriate management measures but it is a reason to reflect on important factors which bear on the successful implementation of a rebuilding plan.
* We strongly support science-based management decisions. It is important, however, to distinguish between scientific advice, designed and framed to answer specific questions (such as how to rebuild a stock in the shortest possible time) and the wider responsibility of fisheries managers. It is fundamentally important that science is used to frame management measures that take fully into account other implementation factors such as socio-economic impact, discard reduction/choke mitigation and fishing industry support and collaboration.
* It is important that a timeframe for recovery measures is set in line with both the rebuilding of the stock and the economic viability of the fleets impacted by the measures.
* The EU has an objective to set TACs to achieve MSY by 2020. But that (EU) requirement is importantly qualified and constrained by overarching legal provisions in the CFP basic regulation and the North Sea MAP which we believe obliges legislators to take into account:
* Mixed fisheries dimensions
* Potential chokes
* Impact on social and economic wellbeing
* The views of third countries which share stocks (notably Norway).

*Industry position*

Against this background, and within the context of a firm commitment to keep working with fisheries managers and scientists towards the best outcomes, we advocate a balanced package of measures, incorporating:

* A TAC for 2020 of no less than 28,056 tonnes (equating to FPA). Representing a 21% reduction from the TAC in 2019. According to ICES projections, this cut would deliver an increase in biomass of 8.3% between 2020 and 2021 and would put the stock above BLIM (107,000t) by 2022. We see this as a manageable reduction of fishing opportunities which would avoid dislocation with unpredictable consequences. Importantly, this would put the stock on a recovery trajectory consistent with biological, economic and socially sustainable outcomes.
* Supporting measures, designed collaboratively with Industry to ensure that catches of cod remain within the agreed TAC. These would build on existing measures and could include:
* Seasonal closures
* Real-time closures
* Precautionary areas
* Move on provisions when concentrations of cod are identified
* Enhanced selectivity of fishing gears.

We regard this as a *package* within which a TAC set at an economically viable level will be met with a commitment across the fleets to work creatively to ensure that catches remain at a level consistent with recovery of the stock.

It is important that we learn the lessons of past cod recovery and management plans. Cod is not an easy species to select out without losing marketable catch of other species. Technical measures can play a role but the context in which they are introduced is as important as the design of the measures themselves. Closed areas come with their own complexities.

Nevertheless, gears can be made more selective, even for cod, and avoidance of aggregations of cod can be achieved. Economic incentives created consciously or inadvertently will be decisive but carefully designed measures developed collaboratively with fishermen can harness those incentives.

We remain committed to working on the specifics of how to successfully implement a package of supporting measures.

1. **Biological context**

2.1 The North Sea cod stock has been shifting northwards since the late 1970s, when over three-quarters of the cod caught in International Bottom Trawl Surveys (IBTS) was taken south of the 56 degree line. That proportion has since dwindled to around 10%. Given that cod is concentrated in a smaller area of the North Sea than in the past, fishery managers need to have the flexibility to take account of these sorts of biological changes.

2.2 Similarly, given that the combined spawning stock biomass of the four principal North Sea demersal stocks[[1]](#footnote-1) has more than doubled over the past 20 years, and that the northern hake SSB increased almost tenfold between 2006 and 2016, attempts to return cod SSB to levels of the past may be misguided. Like cod, hake is a voracious predator of other fish and is vastly more abundant in the North Sea than it used to be.

2.3 For these and other reasons, there is general concern about the modelling parameters and evidence that produced the 2019 advice. Although we recognise that challenging it now will have little or no impact on the 2020 TAC, it would be in the interests of all parties to ensure an early benchmark workshop on the North Sea cod reference points and assessment. Robust science and realistic targets are basic requirements of all fisheries management and underpin everything we believe in with regard to business and environmental sustainability.

2.4 In its June 2019 advice, ICES states that delivering MSY would require the North Sea cod stock to be larger than 150,000 tonnes (MSY BTRIGGER). The last time that level of biomass was achieved according to this latest assessment was in 1982.

2.5 Confusingly, ICES has its own ‘MSY approach’ offering guidance on maintaining stock sizes above BLIM and ideally above MSY BTRIGGER / BPA (the minimum precautionary size). To that end it has defined that if a stock is below BLIM then it has to be brought above BLIM as soon as possible, even if that results in zero catch advice.

2.6 ICES refers to this rule in its 2019 advice for North Sea cod because it estimates that the stock size in 2020 (81,755 tonnes) will be below BLIM (107,000 tonnes). It has further estimated that a 70% cut in the TAC is required to bring the stock above BLIM ‘in the short term’ (by 2021).

2.7 Fisheries managers have the responsibility to use this advice taking into account the consequences of different harvesting options. While there is a framework for harvesting decisions there is no narrow legal obligation to follow any particular approach. The advised 70% cut is derived from the ICES MSY approach (cf. 2.5 above), and hence not a legal obligation.

**3. Legal context - EU**

3.1 The CFP basic regulation[[2]](#footnote-2) contains a commitment “to ensure that exploitation of living marine biological resources restores and maintains populations of harvested species above levels which can produce the maximum sustainable yield” by 2020 “at the latest”. According to ICES, achieving MSY for North Sea cod would require a stock size well above 150,000 tonnes (MSY BTRIGGER). That is not going to happen by 2020.

3.2 The EU does have some legal obligations relevant to TAC setting. Article 2.1 of the basic regulation requires that fishing “is managed in a way that is consistent with the objectives of achieving economic, social and employment benefits, and of contributing to the availability of food supplies”. Decisions on TAC setting should be taken in this context.

3.3 Article 3.1 of the North Sea multiannual plan for demersal stocks[[3]](#footnote-3) explains that the MAP “shall contribute to the achievements of the common fisheries policy listed in Article 2 [of the basic regulation]”. While this article goes on to highlight the importance of MSY, it does not negate or overrule the status of Article 2.1.

3.4 In Article 3.2, the same North Sea MAP states that the plan “shall contribute to the elimination of discards.” We believe that a 70% reduction in the North Sea cod would have the opposite effect.

3.5 Other provisions of the MAP apply in this case, notably Article 5.3: “the management of mixed fisheries… shall take into account the difficulty of fishing all stocks at MSY at the same time, especially in situations where that leads to a premature closure of the fishery” (emphasis added).

3.6 According to Article 7.1, “all appropriate remedial measures shall be adopted to ensure rapid return of the stock… to levels above those capable of producing MSY.” Leaving aside our reservations about the realism of the BTRIGGER level for cod, we note that “rapid return” does not specify a particular timetable. In our view, cod stocks would be unlikely to respond to any particular remedial measures in a period as short as a year. A longer timeframe would be entirely appropriate.

**4. TAC recommendation**

4.1 The headline ICES 2020 advice for a 70% cut in North Sea cod TAC (also expressed as a 63% reduction in catch relative to 2019 advice) is just one of many options presented in the June 2019 advice.

4.2 Implementing the headline cut would have very serious consequences for the demersal finfish and *Nephrops* sectors, not just because of the loss of value of such a commercially important catch but also because of the implications of the landing obligation in the mixed fisheries in which North Sea cod is caught. We would expect significant economic pressure on businesses and coastal communities.

4.3 By way of example, an assessment carried out by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) suggests that under the single stock cod TAC, UK catches of haddock and whiting would be significantly below their single stock advice at 7,569 and 6,090 tonnes respectively. The model predicts a 78% reduction in haddock catches and 72% reduction in whiting catches with catches of other stocks similarly reduced. The situation is similarly detrimental for other national fleets.

4.4 It is not realistic to set a TAC of around 10,000 tonnes for the North Sea and the Skagerrak for 2020 and then expect the total cod catch to be limited to this level, unless all fishing is stopped for most of the year. Therefore a catch level must be set which, on the one hand, allows the industry to exploit the other quotas with an inevitable by-catch of cod, but which, on the other hand, also leaves the spawning biomass in 2021 larger than it is estimated to be in 2020.

4.5 **A TAC of 28,056t, in line with FPA, would be a manageable and perfectly legal outcome**. It would imply a reduction in TAC of 21% from 2019 to 2020 and a 20% reduction in fishing mortality compared to that estimated for 2019. It is important to note that according to the latest assessment, **fishing at FPA would be the lowest fishing pressure in the time series**. In the first decade of 2000, where the stock doubled from 43,000t (2006) to 88,000t (2010), fishing mortality varied between 0.58 and 0.74.

4.6 According to ICES, this cut should deliver an increase in biomass of 8.3% between 2020 and 2021 and would put the stock above BLIM (107,000t) by 2022 if the present low recruitment scenario continues. However, we note that results from the most recent IBTS indicate stronger cod recruitment in 2019 than in 2018; this suggests that recovery above BLIM is set to accelerate.

4.7 The FPA  of 0.39 sits inside the upper limit target mortality of 0.46 set by ICES. It is clear that for the North Sea fleets to avoid an early choke then a case has to be made for setting a TAC in excess of that currently suggested in the MAP, but still within the range of mortalities given in a sustainable context (i.e. not exceeding FPA).

4.8 The North Sea fishing industry is acutely aware that rebuilding the stock above BLIM is not the ultimate target. In order to comply with obligations stated in the CFP, the stock must be rebuilt above MSY BTRIGGER, but given the fact that 50% of the described decline in stock size is caused by an ICES revision rather than on actual decline, it must be acceptable to spend a little extra time on getting the development back on track.

4.9 Unless and until fresh information is received, the industry is prepared to stick to the TAC of 28,056 tonnes until the stock has grown above MSY BTRIGGER or FMSY has been reached. If the stock develops according to predictions, this would mean that the fishing mortality decreases as the stock grows. This would also lead to a speedier recovery than if TACs were based on a constant FPA.

**5. Supporting measures**

5.1 The scale of the crisis that would be visited upon North Sea demersal fleets in 2020 upon implementation of the ICES headline advice for cod is magnified by the attempt to achieve management objectives in one year. This truncated timeframe is arbitrary and runs counter to what we know about stock biology and our experience of how long management measures take to have effect.

5.2 A drastic TAC reduction may appeal because it gives the appearance of having solved a problem. But the experience of cod in the North Sea in the 1990s was that unintended consequences severely undermined the effect of management measures and delayed progress.

5.3 If the cod stock is to increase from below BLIM to above MSY BTRIGGER it requires more growth than can be reasonably expected from the individuals already present in the stock. The necessary stock growth will require recruitment from at least two incoming year classes for this target to be reached.

5.4 For this reason, a more rational and ultimately more effective approach would be to adopt a programme of supporting measures over 3-5 years. The aim should be to limit cod catches in the mixed demersal fishery whilst maintaining the overall economic viability of the fleets.

5.5 The success and effectiveness of supporting measures depend on a number of factors, including the impact they have on the otherwise normal activities of a vessel. Cod is just one of the many species caught in the mixed demersal fisheries in the northern North Sea; this adds a complexity that requires careful planning and understanding.

5.6 Industry involvement in the design and implementation of supporting measures is a precondition for their success. Poor planning and a lack of understanding in the past have led to unintended and counterproductive consequences.

5.7 Whilst fishermen support the introduction of a suite of supporting measures, they are clear that such measures require defined objectives, should apply to all fleets prosecuting the fishery in question, should take account of the wider socio-economic context and stress-checked against known and possible outcomes.

5.8 Fishermen favour area-based initiatives over technical measures.Prescriptive technical measures have in the past repeatedly failed to deliver the promised benefits particularly when they lead to an unacceptable loss of marketable catch. That said, there is merit in discussing the idea of linking improved selectivity to areas of known abundance (precautionary areas). Selective gears operate most successfully when they result from the choice of the vessel operator.

5.9 In Appendix 1 we describe the following types of supporting measures and our observations on their efficacy:

* Seasonal closures
* Real-time closures
* Precautionary areas
* Move-on provisions
* Technical measures

**6.0 Implementation timetable**

6.1 It is important not to underestimate the role that the design of spatial measures will play in ensuring the deliverability of the objective of protecting North Sea cod. We believe that a move on policy and precautionary areas have an important role to play in this but to implement them from the beginning of 2020 will mean hurried and poorly thought through design.

6.2 The industry has unanimously agreed on a series of seasonal closures to protect spawning females and these can, and should, be introduced from the beginning of 2020. The Norwegian industry have also agreed these areas. This ensures that spawning females can be protected effectively.

6.3 Within the first quarter and preferably within the first month of 2020 a workshop should be arranged with managers and industry with an emphasis on constructing a framework for the introduction of a further range of measures namely a move-on provision and precautionary areas. This should deliver a balance between urgency and good design and will maximise the efficacy of the measures and overall success of compliance.

6.4 It is accepted that the administrative and bureaucratic path to implementing these measures will take some time. We therefore suggest that this second phase of measures is introduced no later than 1st June 2020. This will mean a gap between seasonal closures being lifted and the second phase being introduced. Nevertheless, our group believe that delivering an appropriately designed approach, with the inclusion of fishermen, is more important than being seen to be doing the right thing and implementing a set of ill-fitting measures.

**Appendix 1**

**Seasonal closures**

*Description*

A number of approaches can be used to reduce mortality on cod. Like Norway, the UK has significant experience in implementing both seasonal closures and RTCs. The introduction of the cod recovery/management plans and restrictions on days at sea drove the UK industry to adopt a number of measures to reduce cod mortality in order to access additional days at sea. To satisfy those demands the industry and managers identified a number of areas where cod were known to aggregate at spawning time. Fishermen believe that seasonally focussed closures have played a significant part in the recovery of North Sea cod.

*Recommendation*

This group is prepared to support the introduction of a range of seasonal closures to protect spawning females as part of the multi-year programme described in this paper. The list of proposed closures is set out in Appendix 2.

To ensure the efficacy of these areas It is important that managers continue to liaise with the catching sector with a view to designing a method of assessment so that such areas remain valid with regard to their contribution to cod recovery.

**Real-time closures**

For similar reasons to those behind seasonal closures, countries like the UK have experience of RTCs to protect cod. Although the governing principles in previous iterations were simple, their reliance on landing and VMS information meant that their introduction was far from real time.

Norway and the EU currently implement a Juvenile Real Time Closure (JRTC)[[4]](#footnote-4) system in the North Sea and Skagerrak. The scheme has been in place since 01 September 2009 for juvenile cod, haddock, saithe and whiting. Closures apply equally to all vessels operating in the area.

*Recommendation*

This group considers the current RTC system for fish below the MCRS to be sufficient. In the wider context of this paper, the aim of supporting measures is to stimulate a reduction in the numbers of cod caught within the wider mixed fishery. With regard to RTCs in support of the current regulation it would seem counter-intuitive to prevent the targeted harvesting of large cod out-with the spawning season. This is especially so for vessels that target the highest densities of cod. The impact of closures on these vessels, or indeed any operator that has adequate quota to target large cod as part of their business model, would be disproportionate.

**Move-on provisions**

*Description*

Norwegian rules provide for the coastguard to move a vessel from an area on occasions where a 10% catch threshold of small fish has been exceeded. A vessel is expected to moveto an area where, to the best of the fisher’s knowledge, it is probable that the catch composition is within the limits of the relevant regulations. If the percentage of small fish in the catch is in excess of that threshold and is witnessed across a number of vessels in the same area, a precautionary area may be established.

*Recommendation*

A policy to move vessels from areas is seen as a reasonable measure so long as the design is appropriate. Cod below the Minimum Conservation Reference Size (MCRS) are catered for under current EU law; the component of the cod stock not afforded any protection currently are those fish above the MCRS but not yet entering the spawning biomass. It is the belief of this group that we should give some protection to these juveniles in order to improve the numbers of spawners. It is the recommendation of this group therefore that, subject to appropriate design, including discussion with the industry, a provision is introduced that moves vessels from areas where these fish are being caught. The specific design must take account of differences between the Skagerrak and the North Sea.

**Precautionary areas**

*Description*

The introduction of a precautionary area is intended to encourage vessels to deploy different tactics while fishing in a predefined area. Any such area would not be closed to fishing, but entry would be conditional on improved selectivity or undertaking an alternative approach to fishing operations whilst operating within it.

*Recommendation*

On condition of suitable design, which we suggest is linked directly to the specifics of the move-on policy, including the element of the stock we are looking to protect, we support the introduction of precautionary areas.

The approach must provide for maximum flexibility at vessel level. It is interesting that the Norwegian approach puts full responsibility on the skipper to take such action that is required to avoid the reason for the area being established. Once again the specific design must take account of differences between the Skagerrak and the North Sea.

**Technical Measures**

*Description*

Fishermen continue to innovate and develop nets that reduce the level of unwanted catch, especially fish below the MCRS. In the period 2008 – 2012 a number of ‘cod-friendly’ gears were developed, specifically aimed at reducing the cod element of the catch in the mixed gadoid and *Nephrops* fisheries. It is important to understand the complexity of the mixed fisheries and the economic pressures that can result from even minor adjustments.

*Recommendation*

While the industry is fully aware of the potential benefits of further development on the selectivity of fishing gear, it does not see it as a panacea for the situation facing North Sea cod. Changes in selectivity are effective when achieved on a fishery-by-fishery and area-by-area basis, and in some cases vessel-by-vessel. This is why we are sceptical of their introduction as a means of increasing TAC. But we do have confidence that individual vessels will be quick to realise the benefits for their own fishery and business if they are allowed the opportunity to investigate the possibilities.

Industry does not currently see any overall benefit in going a step further with regard to base mesh size. Maintaining the economics of the business at a time of stress, which 2020 will inevitably bring, will be extremely difficult even without intentionally reducing catches across a number of other species such as haddock, whiting, anglerfish and hake.

**Appendix 2**

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| **Proposed Time Limited Closures** | | | | |
| **No** | **Area Name** | **Coordinates** | **Time period** | **Additional Comment** |
| 1 | Stanhope ground | 60o 10N - 01o 45E  60o 10N - 02o 00E  60o 25N - 01o 45E  60o 25N - 02o 00E | 01 January to 30th April |  |
| 2 | Long Hole | 59º 07.35N - 0º 31.04W  59º 03.60N - 0º 22.25W  58º 59.35N - 0º 17.85W  58º 56.00N - 0º 11.01W  58º 56.60N - 0º 08.85W  58º 59.86N - 0º 15.65W  59º 03.50N - 0º 20.00W  59º 08.15N - 0º 29.07W | 01 January to 31March |  |
| 3 | Coral edge | 58o 51.70N - 03o 26.70E  58o 40.66N - 03o 34.60E  58o 24 00N - 03o 12.40E  58o 24 00N - 02o 55.00E  58o 35 65N - 02o 56.30E | 01 January to 28 February |  |
| 4 | Papa Bank | 59o 56N - 03o 08W  59o 56N - 02o 45W  59o 35N - 03o 15W  59o 35N - 03o 35W | 01 January to 15 March |  |
| 5 | Foula Deeps | 60o 17.5N - 01o 45W 60o 11.0N - 01o 45W 60o 11.0N - 02o 10W 60o 20.0N - 02o 00W 60o 20.0N - 01o 50W | 01 November to 31st December |  |
| 6 | Egersund Bank | 58o 07.40N - 04o 33.0E  57o 53.00N - 05o 12.0.E  57o 40.00N - 05o 10.9E  57o 57.90N - 04o 31.9E | 01 January to 31st March | (10 x 25 nm.) |
| 7 | East of Fair Isle | 59o 40N - 01o 23W  59o 40N - 01o 13W  59o 30N - 01o 28W  59o 30N - 01o 20W  59o 10N - 01o 20W  59o 10N - 01o 28W | 01 January to 15th March |  |
| 8 | West Bank | 57o 15N - 05o 01E  56o 56N - 05o 00E  56o 56N - 06o 20E  57o 15N - 06o 20E | 01 February-15 March | (18 x 4 nm) |
| 9 | Revet | 57o 28.43N - 08o 05.66E  57o 27.44N - 08o 07.20E  57o 51.77N - 09o 26.33E  57o 52.88N - 09o 25.00E | 01 February-15. March | (1.5 x 49 nm.) |
| 10 | Rabarberen | 57o 47.00N - 11o 04.00E  57o 43.00N - 11o 04.00E  57o 43.00N - 11o 09.00E  57o 47.00N – 11o 09.00E | 01 February-15. March | East of Skagen  (2.7x4 nm) |

A close up of a map

Description automatically generated

1. Cod, haddock, saithe and plaice. [↑](#footnote-ref-1)
2. Regulation (EU) 1380/2013 of the European parliament and of the Council of 11 December 2013. [↑](#footnote-ref-2)
3. Regulation (EU) 2018/973 of the European Parliament and Council of 4 July 2018. [↑](#footnote-ref-3)
4. Commission Implementing Regulation (EU) 783/2011 of 5 August 2011 [↑](#footnote-ref-4)