



Comments on discards of whiting and other species where there may be mismatch between scientific assessments and fish abundance

1. Introduction

1.1 This paper stemmed from a discussion of discard initiatives by the NSRAC Demersal Working Group at its meeting in Ostend in February 2010. Fishers drew attention to the high abundance of whiting in western parts of the North Sea and the Channel despite the low TACs set for this species. Low whiting quotas for the fishing fleets operating in this region means that when heavy catches of whiting are taken they cannot be landed and must therefore be discarded. It is illegal to retain fish onboard for which there is no entitlement – that is what promotes discarding. Such discards represent unwanted fishing mortality and lost revenue. They are detrimental to fish stocks and disruptive to marine ecosystems. The apparent mismatch between the scientific assessments and reality on the fishing grounds also undermines industry confidence in the ICES stock assessment process and the management measures which result. Discards undermine the industry's reputation with the general public. Moreover, discards may go unrecorded, exacerbating the problems for scientific stock assessments.

1.2 A NSRAC Focus Group was set up to look at the roots of this problem and to seek possible solutions. The problem of discarding is not a new one and has been discussed often by the NSRAC without a solution presenting itself. A draft report prepared from the Focus Group was discussed at a further meeting of the Demersal Working Group in May 2010 and subsequently at the Boulogne ExCom in June 2010 before this final version was completed and agreed by written procedure.

2. State of North Sea whiting

2.1 ICES scientists have said that contradictory trends have been observed for North Sea whiting from research vessel surveys and commercial catch data. Surveys show that whiting are abundant in some areas but not others. Overall, the commercial

landings remain low, but there is an incomplete record of current discard levels in the North Sea whiting fisheries. There is no management plan for North Sea whiting and there are no explicit management objectives. In the absence of defined reference points the state of the stock cannot be evaluated. Moreover, there are no reference points to enable MSY advice. An analytical assessment in 2009 estimated spawning stock biomass as being near the lowest level since the beginning of the time-series in 1990. Fishing mortality had declined and the current level of fishing mortality was appropriate, but there might be advantages in reducing it further in the longer-term if recruitment remained low. Because of declining abundance and poor recruitment ICES in 2009 recommended a strong reduction in fishing mortality (F). It advised on the basis of precautionary considerations that a significant reduction of the TAC was required to remedy the decline in spawning stock biomass. In the most recent assessment (2010) it is reported that spawning stock biomass in 2009 is slightly higher than in 2008 but remains below average. Fishing mortality has been stable over the last 4 years. Recruitment has been very low between 2003 and 2007 with stronger recruitments estimated in 2008 and 2009. However the size of the recruitments is uncertain. Compared to the 2009 assessment, the spawning stock biomass in 2009 has been revised upwards by 83% and F in 2008 downwards by 16%. The 2009 advice was based on preventing a decline in spawning stock biomass. The 2010 advice is based on the same assumption in lieu of other reference points. In the light of the Commissions policy paper on fishing opportunities for 2011 this stock may be classified under category 6. The resulting TAC would be 14 600 t (11 000 t for IV and 3 600 t VIId). Remarkably, the human consumption TAC for whiting has not been taken for at least 20 years.

- 2.2 ICES has noted that the localised distribution of the population results in substantial differences in the quota uptake rate. This is likely to result in local discarding problems that should be monitored carefully. Currently, whiting are concentrated in the western parts of the North Sea and the Channel and catch rates along the eastern coasts of England and Scotland are high although catches elsewhere are lower. The background is either one of a stock which is declining but redistributing itself, or of separate stocks which are behaving in different ways. The distribution pattern has led to a situation where only 60-70% of the total quota is taken. As TACs for a number of demersal species are very restrictive, there is a limit to the exchange possible by trading quota for other species. Some countries are discarding whiting while other countries are not catching their full quota.
- 2.3 In the 120 mm demersal roundfish fishery in the northern North Sea there have been large reductions in the catches of small whiting and the discarding of under-sized whiting has largely been eliminated. In that fishery it is the discarding of marketable size whiting which is the problem. The fish are being discarded simply because of lack of quota. In the *Nephrops* fleet and other smaller mesh fisheries in the southern North Sea (which have been favoured with more days at sea under the current effort regime) there is discarding of under-sized whiting but even in this case a significant proportion of the discards include good-sized marketable fish of high quality. In that fishery there are essentially two problems. One is the discarding of marketable fish

caused by insufficient quota; the other is the inadvertent capture of young undersized whiting from emerging year classes.

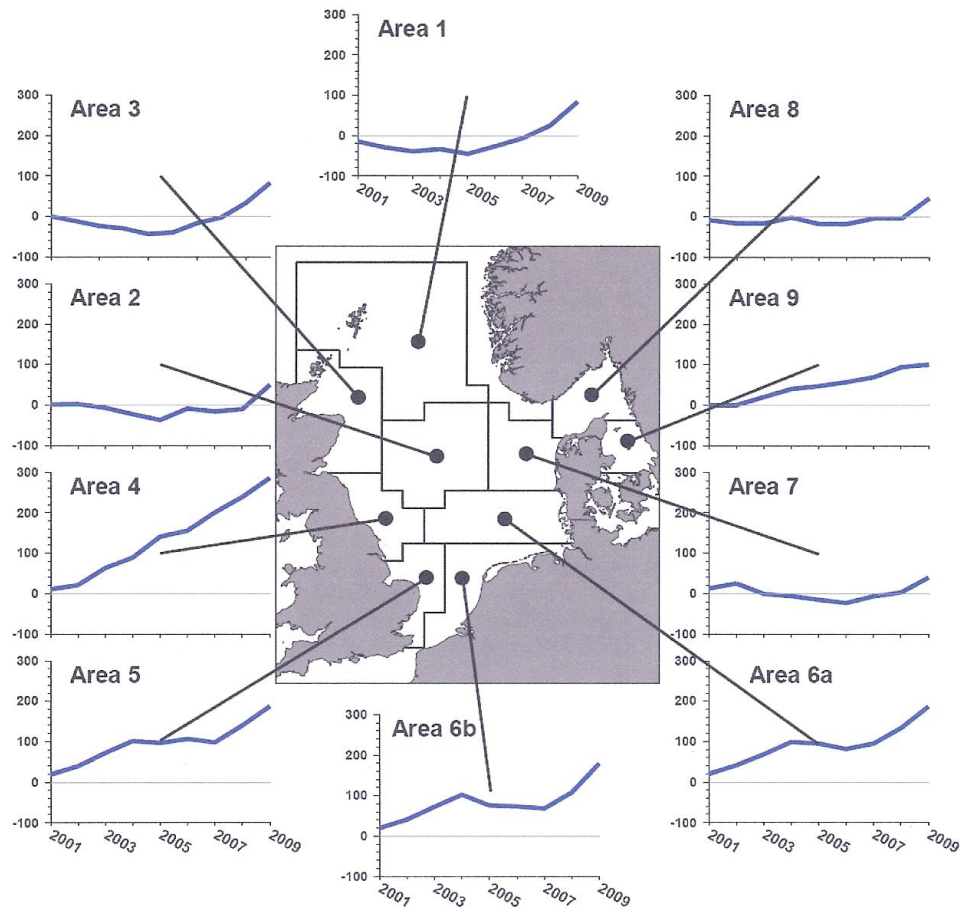


Figure 1: Whiting in Subarea IV and Division VIId. Results of the North Sea Fishers' Survey for 2009.

2.4 The North Sea Fishers' Survey shows that the industry perception of whiting abundance since 2001 has been at odds with the scientific assessment. The main source of information for the survey is a questionnaire based on fish abundance, eg. 'has the abundance of this stock changed since last year?'. For whiting the answers from fishers have been only "no change" or "more" (Figure 1). In contrast the scientific assessments indicate a declining stock. The perception of an increasing stock around the eastern English coast and to the east of Shetland is reflected in survey distribution plots (Figure 2). In the northern North Sea the perception of increasing whiting abundance is at odds with evidence from the IBTS surveys which show a general decline. Because fishers are catching large quantities of whiting in these areas they have lost faith in the scientific assessments for this species. Tensions have developed between fishermen on the one hand and scientists and fisheries managers on the other. This friction underlines the importance of aligning economic incentives with management objectives.

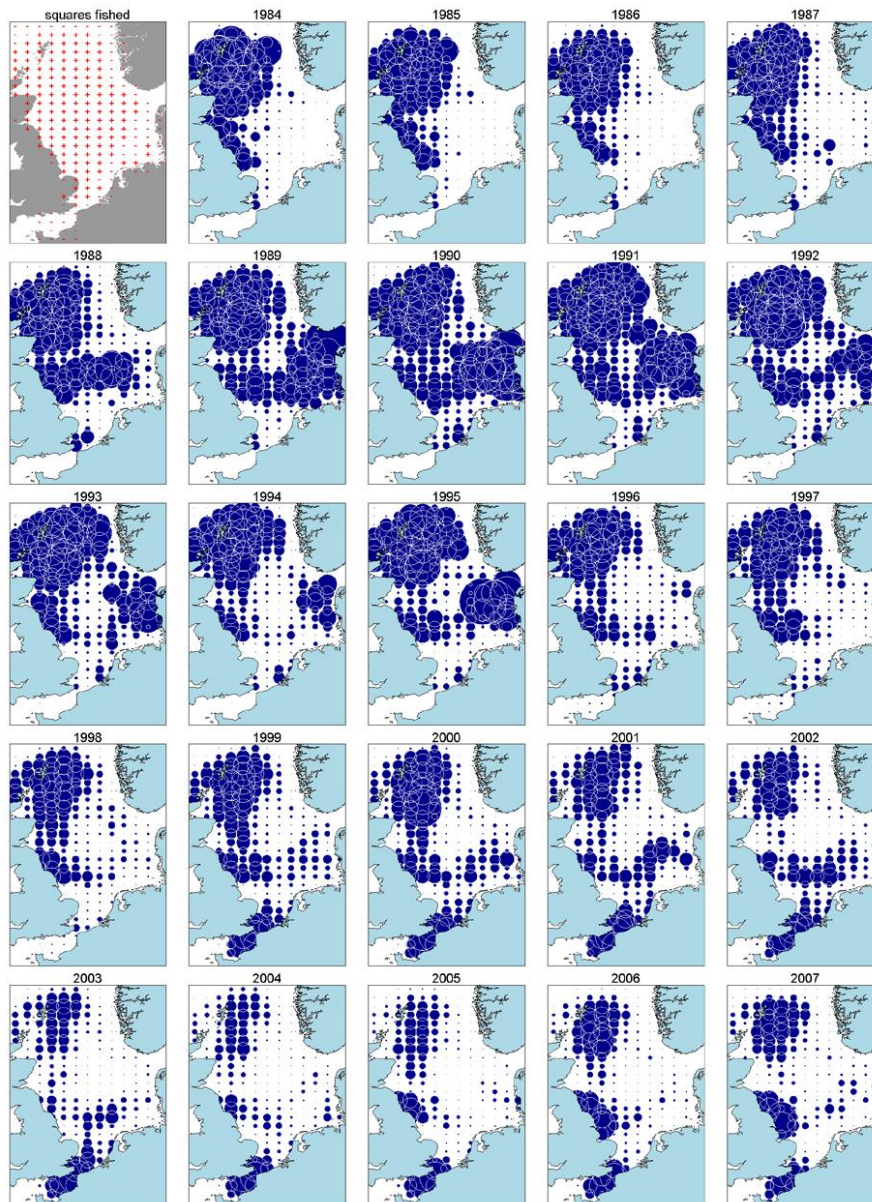


Figure 2: Whiting in Subarea IV and Division VIId. Commercial landings (human consumption and industrial fisheries in tonnes) by ICES statistical rectangle over the years 1984 to 2007.

3. Finding solutions

- 3.1 There is some evidence that discarding is decreasing in the North Sea. Levels of discards by the UK fleet decreased year on year between 2002 and 2008. Gear developments have already been aimed at reducing the capture of under-sized whiting and other roundfish. Some Scottish vessels are moving to 160-mm and even 200-mm square mesh panels to reduce the capture of whiting, and 300-mm and 600-mm belly mesh to reduce catches of cod and other species where quotas are restrictive. Vessels in the *Nephrops* fishery are deploying square mesh panels and larger meshes to reduce fish discards and there is evidence - from observer trips -

that 120mm mesh panels have largely eliminated discards of immature whiting by these vessels,. Such panels do work. A substantial amount of work has been done in Scotland which indicates that a 120mm mesh is the optimum mesh size in the northern North Sea mixed fishery. There may not be much more that can realistically be done through technical measures in terms of reducing discards of mature whiting in the TR1 fishery. Whiting is largely a by-catch component of a wider mixed fishery, there is very little directed fishery for whiting. The outcome of attempting to limit mortality on whiting by systematically reducing the TAC is an inevitable increase in discards and waste in those areas where the species is abundant.

- 3.2 However, expert-led attempts to introduce square mesh panels have not always been successful. In the English 80 mm mesh fleet there has been an attempt to introduce the Seafish cutaway cover-less trawl, but although initial trials were successful the industry have not been convinced of its efficacy. Demonstration projects and competitions to introduce more selective gears have been tried, but have not always worked. As well as tangible incentives and technical support, fishers need the time and opportunity to seek their own gear solutions. Initiatives to introduce more selective gears are best undertaken by fishers themselves.
- 3.3 The NSRAC is aware of many examples of further initiatives already under way by the industry, in cooperation with scientists, to reduce discards of whiting, cod and other species through technical adaptations to fishing gear:
1. The UK and France made a statement to the Council of Fisheries Ministers in December 2008 which made a commitment to carry out trials to reduce whiting discards by 30% in the North Sea with a view to identifying sustainable technical measures. Both countries have trialled a variety of gear modifications building on existing research.
 2. An English trial (Project 50%) has used social marketing techniques to encourage the uptake of selective fishing gears. The project resulted in discards being reduced by an average of 51%.
 3. The French SELECMER project was aimed at improving the selectivity of artisanal trawlers working in the North sea regarding whiting discards. A selective grid was tested and results were quite encouraging but some improvements were needed to reduce losses of commercial fishes and to facilitate practical use of the grid. Trials are still ongoing in the framework of the SELECCAB project aimed at dealing with cod discards.
 4. Trials of more selective gears have been conducted by Denmark. Although they have not specifically reduced whiting discards they have demonstrated the potential to significantly reduce the by-catch of whiting in the Danish industrial fishery.
 5. In Scotland the Conservation Credits Scheme allows skippers to top up their days fishing at sea in return for adopting conservation measures including the use of more selective gear and square mesh panels.

6. In the Netherlands an industry think-tank has been set up to consider technical, seasonal and spatial measures for reducing discards.
- 3.4 In addition, other measures for reducing the capture of juvenile fish have been adopted. The UK has implemented a number of Spawning and Real Time area Closures (RTC's) to protect under-sized/juvenile cod. This has been achieved through the Scottish Conservation Credits Scheme and English/ Northern Irish equivalents. Under the EU/Norway agreement a system of real time closures has been set in place since August 2009 to protect juvenile cod, haddock, whiting and saithe. In addition; Norway continues to run, in parallel, its own measures to protect juveniles. Norway continues to routinely close large sea areas (1300 square miles) in the Norwegian zone of the North Sea.
- 3.5 Another approach which has been suggested is to move to a system of multi-species quotas. Where the price differential between species is not too great then quota for two or more species could be consolidated. Whiting might be coupled with haddock. The least common species would need to be protected, which might have adverse implications for larger stocks. Moreover, whilst this measure might help, it will not address the fundamental issue of TACs being out of line with the actual abundance of fish on the ground.
- 3.6 A more radical solution is for fishers to be allowed to land all the fish that they catch. A catch-quota scheme is a different way to manage fishing. It is a quota that accounts for the mortality of all fish caught, rather than just fish landed at port. With such schemes fishers are given higher quotas and are expected to maximise the value of their catches by using their professional knowledge and skills. When transferring from traditional landings quota to a catch-quota system, the quota is increased to include the estimated mortality in a fishery (e.g. landings mortality plus estimated discard mortality or all the fish removed). Fishers can land more fish while eliminating discards, but overall stock mortality does not increase.
- 3.7 With catch-quotas, fish above the minimum landing size which are currently being discarded are landed and may be sold. The *quid pro quo* is the adoption of robust measures to monitor fish being discarded and fish being retained. The placing of observers on board the vessel or the introduction of remote electronic monitoring systems is necessary to demonstrate compliance. There is also pressure for such fishers to move to more selective gears to reduce the proportion of undersized fish in the catch.

Pilot studies which are implementing a 'catch quota' system are currently underway, primarily aimed at cod. The main elements are:

- An increase in quota for those vessels currently discarding significant quantities of fish in both target and by-catch whiting fisheries
- Fish which would otherwise be discarded are retained on-board

- As a *quid pro quo* for the increased quota allocation the vessels involved in the pilot are required to eliminate all discards from their operations using the means of their choice.
- Vessels involved in the pilot are obliged to demonstrate that all catches are recorded under a CCTV or observer programme.
- Vessels are required to stop fishing where catch quota limits are reached.
- As part of the arrangement the Member State might receive a proportion of the total removals. Then some of that could be allocated and some held back to enable flexibility. The retained proportion acts as a buffer to be deployed to avoid the effort ceiling being exceeded.

This arrangement can deliver the win-win-win of an increase in revenue for the vessels, a reduction in discards, and an overall reduction in fishing mortality within a framework that provides confidence that the terms of the project were being followed.

- 3.8 The NSRAC endorses pilot studies of catch-quotas but is aware that not all fishers are able or willing to contemplate such initiatives. This solution is not appropriate to all circumstances. Catch-quotas may not work where there is a very large discrepancy between fish catches and quotas, or where there is a mismatch between fishing capacity and fishing opportunity. Where quota is held and allocated communally then it may be difficult for individual vessels or groups of vessels to adopt these arrangements. Some fishers may be reluctant or able to accept observers on board or be prepared to endure constant TV monitoring. Such initiatives are likely to be more successful if they are implemented with the full support of the industry. There is sufficient interest in this solution for trials of such a catch-quota system to be underway both in the UK and Denmark. It is the intention of the NSRAC to review these pilot studies early in 2011.
- 3.9 At a different level, initiatives are also needed to improve the poor scientific assessments for species like the whiting and the interaction between species within an ecosystem. Lack of knowledge of these stocks, and mismatch between abundance on the ground and the ICES advice which are factors contributing to discarding of this species. The NSRAC notes that the Commission and Norway have agreed to ask ICES for advice on how to deal with the regional imbalances in catches in the North Sea and to develop a long-term management plan for whiting and other gadoid species across the regional sea. The NSRAC endorses this initiative.
- 3.10 A particular solution which should be considered, and its impact examined, is the implementation of a split or change in TAC areas to account for changes in the distribution of whiting. Different allocation keys might be applied in different TAC areas. There is undoubtedly a need for a flexible approach, which we believe could be part of the solution to this problem.

4. Problems with governance

- 4.1 A key factor responsible for exacerbating the discard issue for whiting is that the distribution of the fish has changed with time. Those fishers who are now catching whiting do not have sufficient quota to land the fish. The same problem may be encountered in the future if climatic change is accompanied by changes in the distribution of a variety of fish stocks.
- 4.2 Currently under the CFP these regional differences in abundance cannot readily be dealt with. Transferring quota for whiting and other species from one place to another within the existing arrangements for quota exchange is undoubtedly difficult. Fishers have no currency in terms of other species of fish to exchange for whiting quota, and some countries simply do not trade. The NSRAC is hopeful that CFP Reform will address these issues; it is clear that the current system of allocation and transferability of quota within a region is incapable of dealing with the dynamic nature of fish stocks and the businesses which rely on them.
- 4.3 The issue is essentially one of poor governance. The framework of the CFP is standing in the way of resolving this major issue, which has now persisted for a number of years. Fishers in some regions are catching large numbers of whiting of marketable size but are unable to obtain quota by any of the means available to them. The fish have therefore to be discarded to comply with the law. Any solution has to work at a number of levels for all the parties involved: fishers, member states, the Commission, Norway and the scientific and civil communities. The construction of an approach that delivers to each of these parties the outcome that they desire is the challenge and goal that we face. The objectives for the different sectors are:
- **Fishing industry:** authority to land a higher proportion of the marketable whiting currently caught and discarded in order to generate revenue
 - **Member states:** security for their national allocations under the principle of relative stability; a reduction of discards, reduced fishing mortality on whiting and other stocks
 - **Commission:** a secure and safe way to ensure that a reduction in fishing mortality and discards is achieved
 - **Norway:** the elimination of discards within the framework of the annual reciprocal fisheries agreement between EU and Norway
 - **Scientists and civil organisations:** reduction of discards and fishing mortality in a way that provides verifiable data on the magnitudes of both

5. Conclusions

- 5.1 The NSRAC recognises that the Commission and Norway together have a strong commitment to the reduction/elimination of discards. That commitment is shared by

the NSRAC. What steps can be taken to improve the position and reduce discarding in the North Sea?

- 5.2 Firstly, industry needs the flexibility to allow industry-led discard initiatives and experiments to go ahead. There must be recognition that different solutions will have to be sought to these problems by different sectors of the fleet. One size does not fit all. Incentives are required to allow industry to develop its own solutions within a framework which provides confidence in the results which are being achieved. The NSRAC urges the Commission to support and encourage pilot schemes aimed at reducing discarding. Those initiatives should include trials of catch-quota systems.
- 5.3 Flexibility is also being sought over quota transfers between the EU and Norway with respect to whiting, bearing in mind that the major issue is whether anything can be achieved in terms of quota transfer within the CFP; without de-stabilising key principles like relative stability.
- 5.4 The NSRAC has, on many occasions, expressed concern over the gap in perception between fishers and scientists over the state of some fish stocks. Whiting is the classic examples of this gap, but it also exists for other species. It is important that experts giving advice within both ICES and STECF should be fully aware of circumstances in the fisheries and within particular fleets. Scientists are not currently making full use of the 'know-how' of fishers. The North West Waters RAC has already raised with the Commission the issue of data deficiencies. Many of the ICES assessments are poor because of a lack of data on catches. The first stage in seeking a solution is for Member States, scientists and RAC members to join together to identify critical data deficiencies and decide how these might be dealt with. The second stage is to collect those data and feed them to scientists via the ICES Benchmark Meetings. There is considerable scope for improving working relationships between fishers and scientists, and for making fuller use of the information on fish stocks held by fishers. Currently, scientists - and managers – are reluctant to acknowledge that the scientific advice on some fish stocks is extremely poor. There is also a lack of will to resolve this problem on the part of the Commission.