

# The North Sea Advisory Council



## NSAC Advice Ref. 8-1415

### Advice on the Brown Shrimp roadmap provided by ICES

This paper was approved at the NSAC Executive Committee meeting on the 22<sup>nd</sup> September 2015.

#### **1.0 Background**

- 1.1 In 2013 ICES held a workshop to create pro bono advice on the need of management for brown shrimp (*C. crangon*). At the initiative of the fishing industry the German and Dutch Member States agreed that this workshop would be a good starting point to present ICES with a request to provide them with advice on the potential need for management of the brown shrimp fisheries in the North Sea.
- 1.2 ICES was asked to list the pros and cons of management, to describe the role of brown shrimp in the ecosystem (specifically whether brown shrimp could be considered as a key Low Trophic Level species), and to determine the impact of this fishery on other commercially exploited stocks in relation to multispecies and mixed fisheries considerations.
- 1.3 Additionally, ICES was asked to provide information on potential management approaches if management was shown to be useful.
- 1.4 In October 2014 ICES provided advice to the Member States. Within this advice a roadmap was included, describing how best to implement a Harvest Control Rule based on Landings per Unit of Effort (LPUE) reference values.
- 1.5 In the ICES report of 2014, growth overfishing is not connected with recruitment overfishing, rather it is connected with a less than optimal harvest strategy. *“There are indications that the current lack of management system has led to uncontrolled effort increase and growth overfishing of the target species. As a consequence, shrimp are being harvested at a suboptimal (too low) average size”*. This is further explained in 2.2 and 2.3.



1.6 The NSAC Brown Shrimp Focus Group has agreed to form an opinion on the ICES advice before developing a possible operational action plan.

## 2.0 ICES advice October 2014

2.1 It was noted that all countries report effort differently so it is difficult to compare between Member States, for example effort has been noted in hours, in days at sea, etc.

2.2 The ICES report states “*Although the number of active vessels in the North Sea brown shrimp fishery has been rather constant in the recent years, the engine power has increased constantly and older cutters have been replaced by more effective vessels. Additionally .... the power of deck equipment has increased. This has resulted in an unmonitored increase of standardized effort*”. NSAC however, is of the opinion that the number of vessels is not constant (decreasing in the last 10 years), whilst in member states where a licence system for brown shrimp fisheries exist, the number of licences is. There appears to be an increase in effort which needs to be managed.

2.3 Since 1990 recruitment of gadoid species has been decreasing, and stock sizes were low thereby increasing the portion of brown shrimp that is taken by the fishery. “*They have experienced F/M (fishing mortality to natural mortality) ratios larger than 1 and up to 5...*”. This increased F/M ratio means that the fraction of the fishing mortality has been increasing whilst the fraction of brown shrimp taken by natural mortality has decreased. Since the fishery mostly targets the large individuals of a population, this has resulted in a decline of the abundance of large shrimps.

2.4 The ICES paper mainly focussed on shrimps of commercial landing size, i.e. shrimps of 50 mm or bigger. Little is known about the mortality of juvenile brown shrimp. Which are of a much higher importance as a food resource for other species. Shrimps of more than 50 mm are only consumed by big gadoids.

2.5 Further information is required of the ICES Working Group, the levels of uncertainty are not clearly explained and more detail regarding levels of insecurity are required.

2.6 It was also noted that in one previous study<sup>1</sup>, by-catch in the brown shrimp fisheries had been estimated to be responsible for a reduction of spawning stock biomass of fish species. NSAC notes that a recent study estimates a reduction of 21% spawning stock biomass in plaice (<http://edepot.wur.nl/332091>). However, more data on bycatch is needed to confirm the results. Benthic effects were not extensively discussed in the advice but there were potential effects. Over all there were signs of growth overfishing.

2.7 There is a need for a specific ecosystem based approach to fit with the ICES report.

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<sup>1</sup> <http://edepot.wur.nl/332091>



### 3.0 Challenges of *C. crangon* management

- 3.1 All Member States are committed to the Common Fisheries Policy (CFP), and are committed to reaching MSY before 2020. However, for the brown shrimp stock there are no clear proxies for MSY. Scientific authorities stated that additional research is needed before these proxies can be determined.
- 3.2 Institutional or EU management under the CFP is mostly rigid. Since there are so many uncertainties of how best to manage brown shrimp the incorporation of some sort of (adaptive) result-based management would be preferred *that allows for learning and experimentation. For this reason we recommend that, at this stage, brown shrimp fishery is not managed at a State or EU level but through a form of self-regulation. Notwithstanding the above, management of such a widely dispersed population should be an international endeavour. It is not possible to monitor the effect of management when a country manages its stock all by itself.*
- 3.3 The trade and processing companies of brown shrimp urge the fishery and the scientific authorities to gain better understanding of the possible proxies for MSY since this is crucial in procuring the MSC certificate for brown shrimp. The retail industry is reluctant to take any risks with a product that does not hold MSC certification. The NSAC however finds that sustainability certification and/or recognition of a viable fisheries management should not be restricted to acceptance of just one entity issuing such certification.
- 3.4 Due to the patchy distribution of fishing vessels large numbers of samples are needed to reduce “noise” in VMS and logbook data. Additionally, the Belgian fisheries for brown shrimp is a seasonal fishery and the information gathered from this fishery is therefore patchy in time.
- 3.5 There is a lot of information on which management could be based. However, there are also many assumptions. ICES has advised the NSAC not to wait until the scientific information is adequate enough but to create an adaptive management that can be updated constantly based on the latest information.
- 3.6 There is also the UK situation, the ICES advice suggested that there is one stock but did not take into account the fact that there is a geographical separation of fisheries in the UK and on the continental shelf. Therefore assumptions in the ICES advice might not be applicable in the UK.
- 3.7 Usually limit reference points would be based on years and years of data. However, due to the short life span of the brown shrimps, annual TAC's based on annual stock assessments are not applicable. Therefore a new management system is needed as none of the usual fisheries management systems apply to the fishery on this species.
- 3.8 A management system based on a Harvest Control Rule (HCR) is considered to be a good starting point. Since the size of the population of brown shrimp is unidentified, the limit reference points for this HCR are hard to identify.



- 3.9 A considerable part of the brown shrimp fishery takes place in Natura 2000 sites and national protection areas. It is important that these areas are adequately protected in a management plan.
- 3.10 The NSAC agreed that a management plan must aim to significantly improve the current situation of non-management and growth overfishing and to safeguard against potential recruitment over fishing.
- 3.11 According to ICES, there are indications that the brown shrimp stock of the North Sea is experiencing growth overfishing. As a solution ICES suggests a decrease in effort. However, a decreasing effort does not necessarily lead to reaching MSY, this needs to be underlined with scientific data and not just assumed.
- 3.12 Although genetic studies have not shown that there is more than one stock of brown shrimp within the North Sea, different patterns have been seen, for example landings of brown shrimp in 2007 were best in the UK while lowest in the continental fisheries. Thus even if it is one genetic stock the fisheries have no overlap and should be managed separately.
- 3.13 Currently it is not clear if the forthcoming discard ban will be applicable to brown shrimp, this will have to be monitored and if required accounted for within any future management plan.

#### **4.0 Benefits of *C. crangon* management**

- 4.1 Regulating this fishery will counteract growth overfishing and has the potential to increase the sustainability of the fishery.
- 4.2 As gadoid species stocks recover, the need to implement some sort of fisheries management might become more pressing, because of the direct competition. This gives the possibility of implementing ecosystem based management.
- 4.3 As previously mentioned in 2.2, the brown shrimp fishery has undergone considerable technological improvement over the last decade, which has led to an effort creep. This issue can be addressed in a management plan. ICES assumed a considerable effort creep, therefore a management plan would induce the possibility to manage this aspect of the shrimp fishery.
- 4.4 A more intense managed brown shrimp fishery in the North Sea would be beneficial in procuring sustainability certifications such as the MSC certificate, Friends of the Sea etc. A certified North Sea brown shrimp fishery might create new market possibilities as sustainable sourcing of the stock would be assured.
- 4.5 Increased sustainability would improve the image of the fishery, this would motivate fishermen, giving recognition that they are managing their businesses.
- 4.6 Currently, trade and processing companies consider brown shrimp to be a risky product to invest in due to the lack of proof of sustainable sourcing. Investors want to make sure that their investments are safe for the long term. Therefore the fishing industry needs to provide information on how the brown shrimp fishery is managed. If



the fishing industry has no data which they can provide to the trade and processing companies, they in turn have no information to assure the retail that the brown shrimp fishery is sustainably managed and thus comes from a reliable source. This leads to the assumption that the fishery needs some form of structure, more than is present at the moment. Thus, the trade and processing companies urge the fishing industry to further develop a dedicated management and put a plan in place.

## **5.0 Conclusion**

- 5.1 The NSAC and ICES conclude that an improved long-term fisheries management is needed and that management should be long-term, adaptive, quick to respond to changes and driven from the bottom up.
- 5.2 Additionally, the NSAC is of the opinion that this management should not be institutionalised but bottom up driven, led by the fishing industry itself. Thereby taking into account the most recent scientific developments and stakeholder consultations in a NSAC context. The NSAC finds that the PO are best placed to take the required initiatives, taking into account the fair competition rules and practices.
- 5.3 The ICES advice of October 2014 is the best information currently available. But it would be best to further explore the sensitivities and the range of uncertainties that could affect the brown shrimp stock in the North Sea (e.g. what happens when temperature changes?).
- 5.4 When management is implemented this management should not be rigid but take on a form that is more adaptive and that can be adapted quickly when new scientific information is available. For instance: a management system run on a fishery/ stakeholder level, supported by science. No detailed regulation should be pursued yet. Additionally, logical and sensible management goals need to be set. In this respect special consideration should be given to the position of stakeholders in such a management set up.
- 5.5 Management needs to be further developed in the context of the NSAC process. An agreement needs to be reached in the NSAC on how best to manage the development of the brown shrimp fishery of the North Sea. It is thereby important that the fishing industry closely collaborates and works with Member States to take steps in collecting data and deciding on what will be the best management system to operate in, using the most recent scientific data available.
- 5.6 The ICES advice is considered to be a good starting point. Now the focus needs to be on how management should evolve. However, extra data should be gathered on the natural mortality, gadoid predation on juveniles and adults, etc.
- 5.7 Furthermore, any advice would need to take into account the different issues faced by the different member state fishing industries. Therefore, additional research is needed.
- 5.8 With best knowledge available at the moment an LPUE based management contingent on appropriate operational arrangements is currently the most suitable,



this can communicate real time information on the fisheries. At the same time an evolution from LPUE to CPUE based management should be assessed.

- 5.9 There have been many changes over the last few years with the new Common Fisheries Policy (CFP), the Marine Strategy Framework Directive (MSFD), and thoughts on how to regulate Natura 2000. The ICES paper could be a useful starting point, a roadmap on which the NSAC could provide advice. In terms of management the NSAC could improve what currently is available and advise the fisheries sector to keep management adaptive. From a markets (e.g. trade and processing companies) point of view, sustainability certification is a fact of life and proof of sustainable sourcing is required to meet market and customer demands. The NSAC advice could draw out some aspects of the ICES advice and develop it. Moreover, the NSAC would like to see a results based management approach (i.e. bottom-up based management).
- 5.10 Since the NSAC is an internationally recognized body this would be a good platform to give advice on management of the brown shrimp fishery. Thereby consulting with fishermen to get them involved in the decision making process.
- 5.11 The NSAC recognised difficulties experienced in the past and suggest the development of an international management strategy prior to the institutional structure. We would request that Member States assist with this development.
- 5.12 The NSAC advises to only target the bullet points of the roadmap of ICES that are 'need to know' and not start giving advice on the 'nice to know' issues.

