# FISHERIES ASSESSMENT REPORT

## IFFO GLOBAL STANDARD FOR RESPONSIBLE SUPPLY OF FISHMEAL AND FISH OIL


R1

| | |
|---|---|
| **FISHERY:** | **Sprat (*Sprattus sprattus)*** |
| **LOCATION:** | **North Sea, ICES subarea IV** |
| **DATE OF REPORT:** | **September 2016** |
| **ASSESSOR:** | **Deirdre Hoare** |

| 1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME | | | |
|---|---|---|---|
| **Name:** | | | |
| **Address:** | | | |
| **Country:** Norway, Denmark | | **Zip:** | |
| **Tel. No.** | | **Fax. No.** | |
| **Email address:** | | **Applicant Code** | |
| **Key Contact**: | | **Title:** | |
| | | | |
| **Certification Body Details** | | | |
| **Name of Certification Body:** | | Global Trust Certification Ltd. | |
| **Assessor Name** | **Peer Reviewer** | **Assessment Days** | **Initial/Surveillance/Re-certification** |
| Deirdre Hoare | Sam Dignan | 2 | Surveillance |
| **Assessment Period** | September 2015 – September 2016 | | |
| | | | |
| **Scope Details** | | | |
| **1. Scope of Assessment** | | IFFO Global Standard for Responsible Supply – Issue 1 | |
| **2. Fishery** | | Sprat (*Sprattus sprattus*) | |
| **3. Fishery Location** | | North Sea ICES subarea IV | |
| **4. Fishery Method** | | pelagic trawl, purse seine | |
| | | | |
| **Outcome of Assessment** | | | |
| **5. Overall Fishery Compliance Rating** | | Medium | |
| **6. Sub Components of Low Compliance** | | None | |
| **7. Information deficiency** | | None | |
| **8. Peer Review Evaluation** | | Approve | |
| **9. Recommendation** | | Maintain approval | |

## 2. QUALITY OF INFORMATION

Good; primarily ICES and EU websites and reports.

## 3. COMPLIANCE LEVEL ACHEIVED

Medium

**Recommendation**

Maintain approval and approve Norway

## 4. GUIDANCE FOR ONSITE ASSESSMENT

**Based on HIGH compliance findings**

**Based on MEDIUM compliance findings**

**Based on LOW compliance findings**

## 5. ASSESSMENT DETERMINATION

The status of the North Sea Sprat fishery remains similar to the surveillance assessment carried out in September 2015. In this report Norway has been added and assessed from an initial assessment perspective. The issues identified in the initial assessment remain, and are reflected in the compliance ratings awarded. The landing obligation may, in time, mitigate the issue of not including discarding in stock assessments; however, at this stage it is not possible to conclusively state that this is the case, and a medium compliance rating remains appropriate in A2. There are no explicit long-term management objectives in place, meaning a medium compliance under A3; the TAC period does not match the advice period, meaning a medium compliance under D1; and there is still concern over the potential impacts of the fishery on the wider ecosystem given that sprat is an important prey species, meaning a medium compliance under D3.

**HIGH Compliance**

A1, B1, B2, C1, D2, E1, E2

**MEDIUM Compliance**

A2, A3, D1, D3

**LOW Compliance**

| SUMMARY OF LEVEL OF COMPLIANCE | | | | | |
|---|---|---|---|---|---|
| | The Management Framework and Procedures | Stock assessment procedures and management advice | Precautionary approach | Management measures | Implementation |
| legal and administrative basis | A1 | | | | |
| Fisheries management should be concerned with the whole stock unit | A2 | | | | |
| Management actions should be scientifically based | A3 | | | | |
| Research in support of fisheries conservation and management should exist | | B1 | | | |
| Best scientific evidence available should be taken into account when designing conservation and management measures | | B2 | | | |
| The precautionary approach is applied in the formulation of management plans | | | C1 | | |
| The level of fishing permitted should be set according to management advice given by research organisations | | | | D1 | |
| Where excess fishing capacity exist, mechanisms should be in established to reduced capacity | | | | D2 | |
| Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment | | | | D3 | |
| A framework for sanctions of violation of laws and regulations should be efficiently exists | | | | | E1 |
| A management system for fisheries control and enforcement should be established | | | | | E2 |

**KEY:** Low Compliance: Medium Compliance: High Compliance:

## 6. RATIONALE OF THE ASSESSMENT OUTCOME

### A. THE MANAGEMENT FRAMEWORK AND PROCEDURE

| LEVEL OF COMPLIANCE | |
|---|---|
| *A1. The management of the fishery must include a legal and administrative basis for the implementation of measures and controls to support the conservation of the fishery.* | |
| **LOW** | An administrative framework that ensures an efficient management of the fishery for its conservation is not established. |
| **MEDIUM** | An administrative framework that ensures an efficient management of the fishery for its conservation is somehow established, but there is evidence of not being efficient to ensure the conservation of the stock. |
| **HIGH** | A legal and administrative framework that ensures an efficient management of the fishery for its conservation is established and works efficiently toward the conservation of the stock. |

***Determination: There are robust legal and administrative frameworks in place at the EU, Danish and Norwegian levels.***

**Europe:**

Denmark is a Member State of the European Union, and therefore in Community waters implements the Common Fisheries Policy (CFP). In force since 1983, the CFP aims to reconcile resource conservation with the preservation of income and jobs in coastal zones that offer few alternatives in terms of production or employment. It therefore covers not just resources but also markets and structures.
With regard to resource management, the CFP regulations comprise:

- A traditional management tool based on TACs and quotas;
- Technical measures relating to gear or catch;
- Effort-related management, based on vessel engine power and the number of days at sea.

The CFP also provides for the introduction of measures to rebuild, over a period of several years, stocks that are threatened in terms of sustainable harvesting, and for recourse to effort-related management rules to supplement TACs and quotas.
The CFP is periodically reviewed and reformed. The most recent CFP reform process was completed in 2013 and came into effect from the 1st January 2014. Key changes include:

- The introduction of an objective to 'ensure high long-term fishing yields for all stocks by 2015 where possible, and at the latest by 2020' (i.e. movement towards an MSY-based approach).
- The gradual (2015-2019) introduction on a fishery-by-fishery basis of a 'landing obligation', which effectively bans discarding.
- An overhaul of the management structure, including increased regionalisation and more extensive stakeholder consultation.

**Denmark:**
The responsible authority for monitoring and enforcing EU and national conservation policies is the Danish Agrifish Agency, which is a part of the Ministry of Food, Agriculture and Fisheries, under the 1999 Fisheries Act. The Agency carries out inspection at sea and landings, as well as verification of EU marketing standards. The Ministry also works for Danish fisheries and aquaculture through

- Regulation and inspections of the fishing industry
- Support for research in fisheries and aquaculture production
- Support for the development of fisheries, the fish industry, fishery harbours and aquaculture
- Fish management and fishing license arrangements for recreational fisheries

The primary provider of scientific information and advice at the national level within Denmark is the National Institute of Aquatic Resources at the Technical University of Denmark (DTU Aqua). DTU Aqua's stated mission is to conduct research, provide advice, educate at university level and contribute to innovation in sustainable exploitation and management of aquatic resources. DTU Aqua directly advises the

Danish Ministry of Food, Agriculture and Fisheries and other public authorities.

**Norway**

The management of fisheries in Norway falls under the jurisdiction of the Ministry of Trade, Industry and Fisheries. The Directorate of Fisheries acts as the Ministry's advisory and executive body with the objective to "promote profitable economic activity through sustainable and user-oriented management of marine resources and the marine environment". The Directorate and Ministry develop and apply fishery laws and regulations through an ongoing administrative process referred to as the regulatory chain (see section B2). This process is largely stakeholder-driven, and includes national and international stakeholder engagement. Final decisions made by the Ministry are based on quota negotiations with other states (90% of Norwegian fish stocks are shared internationally), discussions from the stakeholder meetings, Directorate recommendations, and industry input. Regulations are usually valid for a year at a time, but are also often updated in-year.

The key legal implement at present is the Marine Resources Act (2008). The Act states that its purpose is "to ensure sustainable and economically profitable management of wild living marine resources and genetic material derived from them, and to promote employment and settlement in coastal communities". The Act also makes explicit the Norwegian commitment to manage fisheries according to the precautionary approach, and to consider the potential impacts of gear on living marine resources. Finally, the Act also outlines the other essential powers described throughout this assessment, including quota-setting, a ban on discarding, licencing, and the prohibition of the use of explosives, poison, and other highly damaging fishing practices.

The main research body within the Norwegian fisheries management framework is the Institute of Marine Research (IMR). The IMR is the largest marine research institute in Norway, and conducts a variety of scientific research in support of the management process. The main task of the IMR is "providing advice to the Norwegian authorities on aquaculture and on the ecosystems of the Barents Sea, Norwegian Sea, North Sea and the Norwegian coastal zone". IMR scientists also fully participate in the ICES stock assessment and advice working groups for fisheries in which Norway is involved – including sprat.

***R2-5***

| **LEVEL OF COMPLIANCE** | |
|---|---|
| *A2. Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account fishery removals and the biology of the species.* | |
| **LOW** | Fisheries management is not concerned with the whole stock unit over its entire area of distribution and do not take into account any of the matters listed in 'A1'. |
| **MEDIUM** | Fisheries management is concerned with matters listed in 'A1' but not entirely. Fisheries, in relation to 'A1' statement, should improve to ensure the long term conservation of the marine resource. |
| **HIGH** | Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account:<br>• All fishery removals<br>• The biology of the species |

***Determination: The stock management unit reflects the current best scientific understanding of the biological stocks. Discard data are not currently available but discarding is generally thought to be limited.***

North Sea sprat is considered an independent stock. This is discussed in WKSPRAT report (ICES, 2013). In addition, there are several peripheral areas of the North Sea where there may be populations of sprats that behave as separate stocks from the main North Sea stock. Local depletion of sprat in such areas is an issue of ecological concern. There is a necessity to determine whether the sprat in the North Sea (area 4) constitute a stock or whether they encompass one or both of the adjoining populations of sprat (i.e. 3.a or 7 (English Channel)). This is vital for establishing the correct assessment/stock units in the area.

Discards are not included in the stock assessment. Discarding was known to have taken place prior to 2015, but the amount was not quantified. In 2015 discarding is assumed to be negligible.

R6

| LEVEL OF COMPLIANCE | |
|---|---|
| *A3. Management actions should be based on long-term conservation objectives* | |
| **LOW** | Management actions are not based on long term management objectives. |
| **MEDIUM** | Management actions are based on long term management objectives. However, the actions are not scientifically formulated. |
| **HIGH** | Management actions are based on long term management objectives, and actions are science based. |

***Determination: Management of the North Sea sprat fishery remains largely unchanged since the initial assessment, and so a medium compliance rating continues to be appropriate.***

As at the time of the initial assessment, there is currently no stock- specific management plan or long-term objectives for sprat in the North Sea. The TAC year (calendar year) and the advice year (July to June) do not correspond. New information indicates that the current TAC (355,500 t), which includes the first half of 2016, is substantially above the advice of 125,541 t, which includes the second half of 2016. Taking the remaining TAC for 2016 in the second half of the year would result in overfishing, hence ICES advises an in-year revision of the 2016 TAC. The TAC for the period 1st July – 31st December 2016 should be set according to the advised catch 2016/2017 minus the assumed catch in the first half of 2017 (125,541 t – 16,800 t = 108,741 t). The assumed catch in the first half of 2017 is based on the 2004 – 2015 average catch.

In order to be in accordance with the MSY principles, a TAC in year revision will be required for July 2016 to June 2017. There is no management plan for sprat in this area, however, the within year TAC setting rule ($B_{escapement}$ with an $F_{cap}$) has been evaluated by ICES to be precautionary (ICES, 2014b).

R6

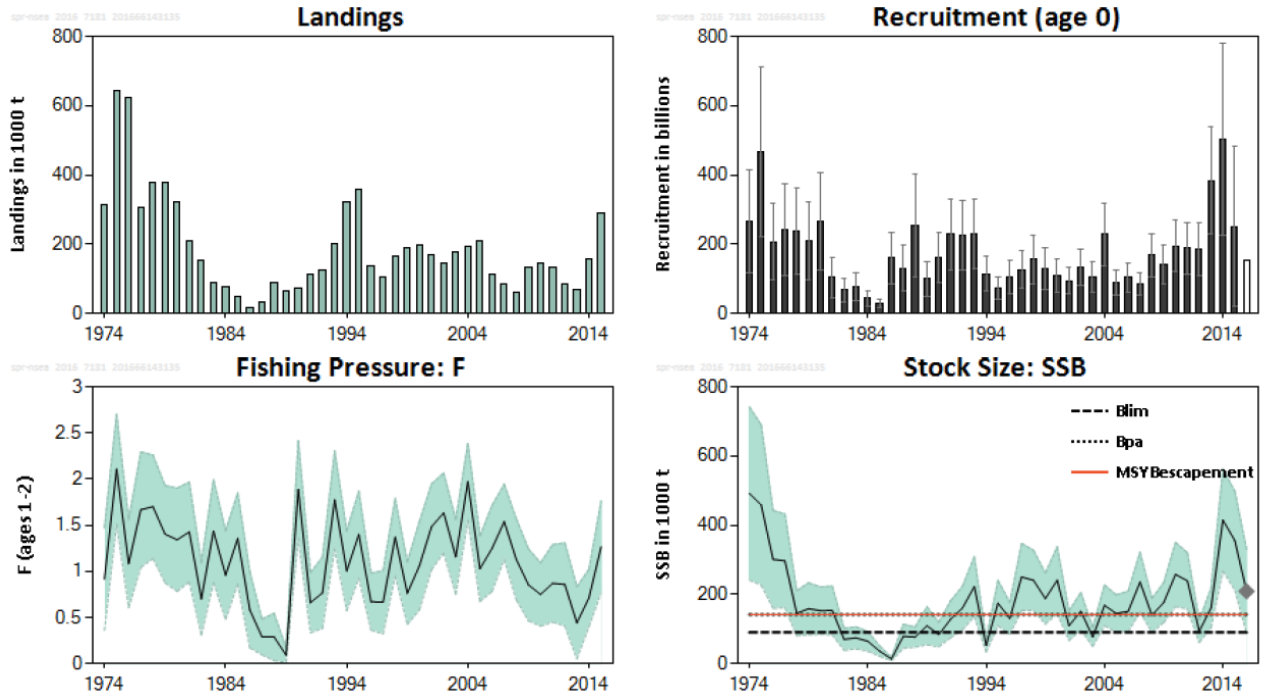
## B. STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE

| LEVEL OF COMPLIANCE | |
|---|---|
| *B1. Research in support of fisheries conservation and management should exist.* | |
| **LOW** | Research to support the conservation and management of the stock, non-target species and physical environment does not exist |
| **MEDIUM** | Research to support the conservation and the management of the stock, non-target species and physical environment exists, however research programmes could be significantly improved to decrease scientific advice uncertainty. |
| **HIGH** | Research to support the conservation and the management of the stock, non-target species and physical environment exist, and existent research is considered most adequate for the long term conservation of the target, non-target and physical environment |

***Determination: The data collection and stock assessment activities identified in the initial assessment continue to be carried out and still appear sufficient to permit informed management of the stock.***

Historical landings data are available for the fishery, and ICES considers sprat landings data reliable from 1996 onwards. Commercial catches are also sampled for biological parameters by some nations; in the most recent years Denmark, Norway and Scotland have sampled their sprat catches. The sampling intensity for biological samples, i.e., age and weight-at-age is mainly performed following the EU regulation 1639/2001, requiring one sample per 2,000 t. No catch per unit effort (CPUE) data is available for the stock.

Three surveys cover this stock. Two International Bottom Trawl Surveys (IBTS) cover the stock in the first and third quarters of the years, respectively. Additionally, the herring acoustic survey (HERAS) covers the same area during June – July. For more detail on the fishery-dependent or fishery-independent data collection for the stock, please refer to the initial assessment (R7)




**Sprat in Subarea 4. Estimated landings, recruitment, fishing mortality, and spawning-stock biomass from the stock assessment (weights in thousand tonnes). NB: Years on the x-axes refer to the model years (i.e. 2009 corresponds to: 07/2009 to 06/2010). Predicted values for recruitment and SSB are shown as unshaded bars and a diamond shape.**

R6

| LEVEL OF COMPLIANCE | |
|---|---|
| *B2. Best scientific evidence available should be taken into account when designing conservation and management measures.* | |
| **LOW** | Scientific advice is not taken into account when designing conservation and management measures. |
| **MEDIUM** | Scientific advice is taken into account, when designing conservation and management measures. However some areas of discrepancy are identified that could have a significant impact in the long term conservation of the marine environment. |
| **HIGH** | Scientific advice is taken into account, when designing conservation and management measures, in a comprehensive manner. |

***Determination: Management continues to utilise the advice provided by ICES, and there is no evidence of any significant recommendations being ignored.***

The European Commission receives scientific advice on EU fisheries from its Scientific, Technical and Economic Committee for Fisheries (STECF). On biological issues, STECF depends to a great extent on advice from ICES for the North-East Atlantic, North Sea and Baltic Sea. The advice provided by ICES includes the stock assessments and deeper analysis on which the Commission bases both its annual recommendations for setting TACs and quotas, and more long-term proposals on how fisheries in European waters can be managed sustainably.

Specific technical measures in place in the North Sea sprat fishery include gear restrictions, prescribed fishing seasons, a 'sprat box' within which sprat fishing is not permitted at any time of the year (with the intended purpose of protecting juvenile and spawning herring), and bycatch limits, both on the amount of sprat which can be landed in other fisheries and the amount of herring which can be landed in the sprat fishery.

R6,7

| C. THE PRECAUTIONARY APPROACH | |
|---|---|
| **LEVEL OF COMPLIANCE** | |
| *C1. The precautionary approach is applied in the formulation of management plans.* | |
| **LOW** | The precautionary approach is not applied in the formulation of management plans. |
| **MEDIUM** | The precautionary approach is applied, however not all uncertainties are taken into account. |
| **HIGH** | The precautionary approach is applied, taking into account uncertainties relating to the dynamic of fish population (recruitment, mortality, growth and fecundity), and the impact of the fishing activities, such as discards and by-catch of non-target species as well as on the physical environment (Habitats). |

***Determination: As detailed in the previous assessments, the precautionary approach is applied, taking into account uncertainties relating to SSB estimates and estimates of natural mortality.***

Management strategy evaluations for this stock were made in autumn 2013 and presented at the WKMSYREF2 meeting in January 2014 (ICES, 2014). These evaluations clearly show that the current management strategy ($B_{escapement}$) is not precautionary unless an additional constraint is imposed on the fishing mortality (referred to as $F_{cap}$). In 2014 a value of 0.7 was proposed as an optimal $F_{cap}$ value (according to FMSY criteria), which is a revision of the 2013 value equal to 1.2. This means, that the fishing mortality (Fbar(1–2)) derived from the $B_{escapement}$ strategy, should not exceed 0.7.

R8

| D. MANAGEMENT MEASURES | |
|---|---|
| **LEVEL OF COMPLIANCE** | |
| *D1. The level of fishing permitted should be set according to management advice given by research organisations.* | |
| **LOW** | The level of fishing permitted is not set according to management advice given by research organisations. |
| **MEDIUM** | The level of fishing permitted is higher than management advice given by research organisations. However, the difference is not considered to have a significant impact of the sustainability of the stock |
| **HIGH** | The level of fishing permitted is set according to management advice given by research organisations. |

***Determination: The level of fishing continues to be set in line with the ICES advice, but there continues to be a discrepancy between the ICES advice period and the TAC application period. A medium compliance rating is still appropriate.***

The TAC year (calendar year) and the advice year (July to June) do not correspond. New information indicates that the current TAC (355 500 t), which includes the first half of 2016, is substantially above the advice of 125 541 t, which includes the second half of 2016. Taking the remaining TAC for 2016 in the second half of the year would result in overfishing, hence ICES advises an in-year revision of the 2016 TAC. The TAC for the period 1st July-31st December 2016 should be set according to the advised catch 2016/2017 minus the assumed catch in the first half of 2017 (125 541 – 16 800 = 108 741 t). The assumed catch in the first half of 2017 is based on the 2004-2015 average catch.

The Norwegian vessels are not allowed to fish in the Norwegian zone until the quota in the EU-zone has been taken. They are not allowed to fish in the second quarter or July in the EU and the Norwegian zone. There is also a maximum vessel quota of 550 t when fishing in the EU-zone.

**Table 1. Sprat in Subarea 4. History of ICES advice, the agreed TAC, official catches, and ICES estimates of landings. All weights are in thousand tonnes.**

| Year | ICES advice | Predicted catch corresponding to advice | Agreed TAC* | Official catches | ICES landings |
|---|---|---|---|---|---|
| 1987 | Catch at lowest practical level | 0 | 57 | 78 | 32 |
| 1988 | TAC < recent catches, preferably zero | 0 | 57 | 93 | 87 |
| 1989 | No advice | - | 59 | 50 | 63 |
| 1990 | No advice | - | 59 | 49 | 73 |
| 1991 | No advice | - | 55 | 92 | 112 |
| 1992 | No advice | - | 55 | 72 | 124 |
| 1993 | No advice | - | 114 | 127 | 200 |
| 1994 | No advice for sprat; maintain bycatch regulations | - | 114 | 184 | 320 |
| 1995 | No advice | - | 175 | 190 | 357 |
| 1996 | No advice | - | 200 | 141 | 136 |
| 1997 | Enforce bycatch regulations | - | 150 | 123 | 103 |
| 1998 | Limited by restrictions on juvenile herring | - | 150 | 175 | 163 |
| 1999 | Limited by restrictions on juvenile herring | - | 225 | 167 | 188 |
| 2000 | Limited by restrictions on juvenile herring | - | 225 | 208 | 196 |
| 2001 | Catch prediction | 225 | 225 | 180 | 170 |
| 2002 | Catch prediction | 160 | 232 | 167 | 144 |
| 2003 | Catch prediction | 175 | 257 | 201 | 177 |
| 2004 | Catch prediction | 171 | 257 | 208 | 194 |
| 2005 | Catch prediction | 244 | 257 | 242 | 206 |
| 2006 | Catch predictions | < 250 | 175 | 135 | 114 |
| 2007 | Catch prediction | < 195 | 175 | 99 | 84 |
| 2008 | Catch prediction | < 170 | 170 | 75 | 61 |
| 2009 | No advice | - | 170 | 140 | 133 |
| 2010 | No advice | - | 170 | 155 | 143 |
| 2011 | Reduce catches | - | 170 | 143 | 134 |
| 2012 | Reduce catches | | 162 | 95 | 86 |
| In year | No increase in catches (2011) | < 134 | | | |
| 2013** | MSY approach, $F_{cap}$ (catches) | < 144 | 162 | 70.6 | 66 |
| 2014** | MSY approach, $F_{cap}$ (wanted catch#) | < 227 | 144 | 157 | 140 |
| 2015** | MSY approach, $F_{cap}$ (wanted catch#) | ≤ 506 | 227 | 299 | 290.380 |
| 2016** | MSY approach, $F_{cap}$ (catch) | ≤ 125.541 | 356 | | |

* TACs are set for January–December whereas the advice since 2013 has been given for July (of the TAC year) to June of the next year.

** Advice for 1 July to 30 June.

# The term "wanted catch" is used to describe fish that would be landed in the absence of the EU landing obligation.

R6

| LEVEL OF COMPLIANCE | |
|---|---|
| *D2. Where excess fishing capacity exist, mechanisms should be in established to reduced capacity to allow for the recovery of the stock to sustainable levels.* | |
| **LOW** | Mechanisms to allow for recovery of the stock to sustainable levels are not established. |
| **MEDIUM** | Mechanisms to allow for recovery of the stock to sustainable levels are somehow established. However there is no evidence of the efficiency of the methods used. |
| **HIGH** | Mechanisms are established to reduce capacity to allow for the recovery of the stock to sustainable levels and there are evidences of recovery. |

***Determination: Excess fishery capacity continues to be managed using the mechanisms identified in the initial assessment, and as such a high compliance rating remains appropriate.***

In the EU, fishing capacity is rationalised using the entry- exit regime, which requires that any entry of capacity into the fleet of a Member State has to be compensated by the previous exit of at least the same amount of capacity. As a general rule, the capacity of the national fleets cannot increase with respect to its levels on 1 January 2003, for 'EU 15' Member States and on the accession date for Member States which acceded to the Community after 20033. Additionally, any capacity leaving the fleet with public aid cannot be replaced. The level of effort exerted by a fleet is also restricted by the TAC system. For more detail on EU and Denmark fishing capacity management mechanisms, please refer to the initial assessment (R7).

***Norway***

Norway significantly reduced the number of vessels in all fisheries with the introduction of an individual vessel quota system in the early 1990s.

The law on trawling, which dates back to 1951, prohibits all use of trawls without a license issued by the fisheries authorities. Since then the license has been transformed from a kind of general rights document into several sub-categories where each sub-category grants the right to trawl for identified species only. However, the most important reform to license regulation was the introduction of vessel quotas for the coastal fleet in the fishery for Northeast Arctic cod, in the late 1980s. The cod stock was at a serious state and in 1989, the coastal fishery was closed after only three and a half months. Because of this, an individual vessel quota system was established in the costal fleet. This represented exclusive rights to fish distributed to a limited number of fishermen based on tradition. More than 3000 vessels were excluded from the vessel quota arrangement. This caused upheaval in fishing communities and provoked public debate on fisheries management. Today all fisheries of importance require every vessel to hold a license that allows it to participate in the fishery. Limitations on access to fisheries are critical to management as well as to the economics of the fleet. Other measures of access limitation are certain registration requirements set out in the annual regulation for each fishery. The most common requirements relate to the vessel and/or the owner/master of the vessel. The annual regulation requires the vessel to be listed in the official register of fishing vessels, and similarly require the master of the vessel to be officially registered as a fisherman. These mandatory registrations were introduced in order to reserve fishing rights for professional fishermen and thereby reduce effort.

R9, 10

| **LEVEL OF COMPLIANCE** | |
|---|---|
| *D3. Management measures should ensure that fishing gear and fishing practices do not have a significant impact on non-target species and the physical environment.* | |
| **LOW** | There are no management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. |
| **MEDIUM** | There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. However it is not science based. |
| **HIGH** | There are management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment. Measures are based on scientific information. |

***Determination: There is no substantial new evidence relating to the management of the fishery to prevent non-target and habitat impacts, and so a medium compliance rating remains appropriate.***

**Non-target species**

The by-catches in the Danish industrial small-meshed trawl fishery for sprat (1998-2009) have been estimated from samples of the commercial catches. The major bycatches are herring (4.2-11.1% by weight), horse mackerel (0.0-1.6%), whiting (0.2-1.5%), haddock (0.0-0.1%), mackerel (0.2-2.2%), cod (<0.0%), sandeel (0.0-10.0%) and other (0.3-2.4%). Although these catches are relatively small by weight, due to the nature of the fishery they are often juveniles, and therefore can represent a significant number of individuals. A herring by-catch of up to 10% in biomass is allowed in Norwegian sprat catches. Most sprat catches are taken in an industrial fishery where catches are limited by herring by-catch quantities. By-catches of herring are practically unavoidable except in years with high sprat abundance or low herring recruitment. By-catch is especially considered to be a problem in area 4.c.

In Norway the Directorate of Fisheries plays a key role in the work of developing and introducing more selective fishing gear, working closely with the fishing gear producing industry and a number of research institutions both in Norway and internationally. In the coming years the directorate intends to continue to develop more selective fishing gear.

**Ecosystem Considerations**

Multispecies investigations have demonstrated that sprat is an important prey species in the North Sea ecosystem. Many of the plankton-feeding fish, including sprat, have recruited strongly in recent years (e.g. sandeel, Norway pout). This is in contrast to a previous period of poor recruitment. The implications of the environmental change for sprat and the influence of the sprat fishery on other fish species and sea birds are at present unknown.

In the North Sea, the key predators consuming sprats are included in the stock assessment, using SMS estimates of sprat consumption for each predatory fish stock, and estimates for seabirds. Impacts of changes in zooplankton communities and con-sequent changes in food densities for sprats are not included in the assessment, but it may be useful to explore the possibility of including this, or a similar proxy bottom-up driver, in future assessments.

**ETP**

Information on the frequency of occurrence of endangered species bycatch in the North Sea sprat fishery was not available to the assessment team. Several studies have reported the interaction of dolphins with midwater/pelagic trawl fisheries in the NE Atlantic, and a European Commission study group considered monitoring for cetacean by-catch to be priority issue in other pelagic fisheries. The information on the overall impact of this fishery on ETP species is still insufficient, although marine mammals and seabirds in EU waters are currently protected by a set of directives, conventions (e.g Bern Convention and the Habitats Directive) and multilateral agreements between countries.

**Physical environment**

Direct effects on habitat and seafloor are typically minimal for pelagic gears, although occasional contact is known to occur and, in these cases, can potentially cause damage to fragile ecosystems (e.g. corals).

R7

## E. IMPLEMENTATION

| LEVEL OF COMPLIANCE | |
|---|---|
| *E1. There should be a framework for sanctions of violation of Laws and regulations.* | |
| **LOW** | A framework for sanctions of violation of Laws and regulations do not efficiently exist. |
| **MEDIUM** | A framework for sanctions of violation of Laws and regulations do exist but do not work efficiently. |
| **HIGH** | A framework for sanctions of violation of Laws and regulations exists and is proven to be efficient. |

***Determination: The EU, Denmark and Norway have a framework of sanctions in place, which are effectively applied.***

In the EU, infringements of CFP rules are dealt with by the Member State concerned, and the Danish Directorate of Fisheries is the competent authority with responsibility of enforcement of sanctions and penalties with respect to the prosecution of fishery rules. Sanctions include fines, confiscation of catch and gear, removal of fishing privileges and imprisonment. For more details on sanctions in the EU and Demark please refer to the initial assessment (R7).

Norway constantly seeks to regulate its own fisheries sustainably and ensure efficient control of resources both on landing and at sea through the Coast Guard. Moreover, a number of measures have been implemented to deter Norwegian vessels from participating in IUU fishing and to prevent illegally caught fish from entering the Norwegian market. The Norwegian Government's Plan of Action on Economic Crime has been used in order to enforce measures against Norwegian actors in IUU activities. Norway has also adopted a black-list of vessels involved in IUU fishing since 1994, banning such vessels from fishing in Norwegian waters. Vessels that have taken part in fishing outside quota arrangements in international waters for a stock which is subject to regulations in Norwegian waters, or which contravene any other international regulatory measures in such areas, are blacklisted. The consequences of blacklisting are the

refusal of a license to fish or conduct transshipment in the Norwegian EEZ, and the withdrawal of the ability to be registered as a fishing vessel under the Norwegian flag.

R 7,9,10

| LEVEL OF COMPLIANCE | |
|---|---|
| *E2. A management system for fisheries control and enforcement should be established.* | |
| **LOW** | A management system for fisheries control and enforcement is not established. |
| **MEDIUM** | A management system for fisheries control and enforcement is established but do not work efficiently. |
| **HIGH** | A management system for fisheries control and enforcement is established and work efficiently. |

***Determination: The EU, Denmark and Norway have a management system for fisheries control and enforcement.***

In the EU, fisheries rules and control systems are agreed on at the EU level, but implemented by the member states through their national authorities and inspectors. The Danish Directorate of Fisheries, part of the Ministry of Food, Agriculture and Fisheries, was established in its present form in 1995 and is the competent authority with responsibility of enforcement of the CFP and fishery management measures in Danish waters. The Directorate examines vessels at sea and in port.

The Norwegian Coast Guard, together with the Directorate of Fisheries and the sales associations, is responsible for control and enforcement in marine fisheries. On average, any ocean-going trawler fishing in Norwegian waters is inspected three or four times a year, with other vessels inspected once or twice. Together these total around 1,800 inspections per year. Around 70% of the Coast Guard's resources are used on these inspections, with the remainder fulfilling its other responsibilities such as search and rescue and medical response. The priority of inspections is to ensure that fishing has not been conducted in closed areas, and to ensure that catches were made in the zones from which they are reported to have been made. This is aided by the mandatory installation of VMS in all vessels 24m or larger (15m for vessels from the EU). Physical inspection of landings is the responsibility of the Directorate, which in addition to recording catch statistics ensures the correct completion of other monitoring paperwork.

R7, 9,10

## 7. KEY STAKEHOLDERS

## 8. REFERENCES

R1 – Image of *Sprattus sprattus* from the GICIM Database of the Muséum National d'Histoire Naturelle

R2 – Ministry of Trade, Industry and Fisheries, About:
http://www.fisheries.no/About/Fisheries_authorities/the_ministry_of_trade_inustry_and_fisheries

R3 – Directorate of Fisheries, About: http://www.fisheries.no/About/Fisheries_authorities/directorate_of_fisheries

R4 – Institute of Marine Research, About:
http://www.fisheries.no/About/Research_institutions/Institute_of_Marine_Research

R5 – IMR information pamphlet: http://www.imr.no/filarkiv/2003/12/Institute_of_Marine_Research.pdf/en

R6- ICES advice 2016 Sprat (Sprattus sprattus) in Subarea 4 (North Sea)
http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/spr-nsea.pdf

R7 – IFFO RS initial assessment, Denmark North Sea sprat:
http://www.iffo.net/files/iffoweb/approved-raw-materials/whole-fish/denmark-north-sea-sprat-initial-assessment.pdf

R8 - Report of the Workshop to consider reference points for all stocks (WKMSYREF2), 8-10 January 2014, ICES Headquarters, Copenhagen, Denmark. ICES CM 2014/ACOM:47. 91 pp.

R9 – The regulatory chain of Norwegian fisheries management:
http://www.fisheries.no/resource_management/setting_quotas/The-regulatory-chain

R10 – Norway control and enforcement:
http://www.fisheries.no/resource_management/control_monitoring_surveillance/Control_and_enforcement