



# Scheveningen Group

## **Joint recommendation of the Scheveningen Group**

### **Discard plan for the industrial fisheries in Kattegat, Skagerrak and the North Sea**

#### **Background**

With the adoption of Regulation (EU) No. 1380/2013 on the Common Fisheries Policy<sup>1</sup> the European Parliament and the Council finalized the reform of the Common Fisheries Policy (CFP) outlining the specific time frame for the introduction of the landing obligation for different fisheries as well as provisions for possible exemptions and the general framework for regional cooperation.

The Scheveningen Group of North Sea Member State representatives, with consultation of the North Sea AC and the Pelagic AC have formulated this outline of a discard plan in accordance with Article 18 of Regulation (EU) No. 1380/2013 and the Memorandum of Understanding on principles and working methods of the North Sea Scheveningen Group.

The Scheveningen Group recommends that a discard plan introducing the landing obligation in the sand eel, sprat and Norway pout fisheries in Kattegat, Skagerrak and the North Sea should be based on the elements outlined below.

With the elements outlined in the plan a continuation of the fisheries with small mesh for sand eel, Norway pout and sprat, is feasible. The plan will ensure the most sustainable exploitation of the three targeted stocks as well as make sure that no direct exploitation of any by-catch species will take place. It is recommended, that the development of the fisheries is monitored closely and evaluated regularly based on fishing data from the Member States.

#### Consultation with relevant Advisory Councils

Being aware of the importance of solid input from stakeholders in the process of drawing up the Discard Plan for the industrial fisheries in Kattegat, Skagerrak and the North Sea especially in relation to de minimis and high survivability exemptions and in light of Article 18(2) of the Basic Regulation, the Scheveningen group has consulted the Pelagic Advisory Council and the North Sea Advisory Council (AC). Both the Pelagic Advisory Council and the North Sea Advisory Council attended a technical meeting in Copenhagen on May 9 2014 where a draft of the future discard plan was discussed. After the technical meeting an updated draft was sent to the AC's on June 4 2014 requesting comments. In response to this request only the North Sea Advisory Council submitted comments. The North Sea Advisory Council agreed with all the main elements in the draft, but also made it clear that the discard plan was only a small part of the work needed to implement the discard ban. There are outstanding issues regarding among other things technical

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<sup>1</sup> Regulation (EU) No. 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy

rules, by-catch regulations, and interspecies flexibility that need to be clarified before the discard ban comes into effect. These issues fall outside the proper scope of a recommendation on a draft discard plan as defined in Article 15 of Regulation (EU) no 1380/2013 and are therefore not addressed in this plan.

### **Overview of the elements of the discard plan**

Acting in accordance with Article 43(3) of the Treaty on the Functioning of the European Union and taking into account the authority granted to the European Commission by Article 15 and 18 of Regulation (EU) No. 1380/2013 to adopt discard plans by means of delegated acts, the Member States of the North Sea submit a joint recommendation, as per Article 18(3) of Regulation (EU) No 1380/2013, to the European Commission for a specific discard plan for the industrial fisheries in the North Sea.

According to article 15(5)(a)-(e) of Regulation (EU) No. 1380/2013 it is mandatory that a discard plan includes the five elements mentioned below which can be adopted by the Commission as a delegated act:

1. Fisheries and areas to be included in the discard plan.
2. Species to be exempted from the landing obligation.
3. De minimis exemptions.
4. Documentation
5. Minimum conservation reference size.

In association with this discard plan, it is anticipated that there will be complementary changes in technical conservation and control measures, to be specified in revisions to the Technical Conservation Regulation and the Control Regulation, and potentially further specified via specific technical measures to be adopted at EU level. This is to ensure there is no conflict between the technical and control measures and the proper implementation of the landings obligation.

It is intended that the Commission delegated act giving effect to this discard plan shall remain open to revision and adaptation at any time during its duration of up to three years in order to retain flexibility in addressing the challenges that will be posed by the introduction of the landing obligation for industrial fisheries. It is considered to be the joint responsibility of the Commission and the Member States concerned to maintain oversight of the implementation of the provisions of this discard plan and to review and amend any element that evidence and/or improved data show is not fit for purpose.

# Proposal for a discard plan for industrial fisheries in the North Sea, Skagerrak and Kattegat

## 1. Fisheries and areas to be covered by the discard ban from 2015

The Scheveningen Group recommends that the fisheries carried out by any vessel targeting

- sand eel (*ammodytes spp.*),
- sprat (*sprattus sprattus*) (not directed for human consumption) and
- Norwegian pout (*trisopterus esmarki*)

normally fished with the use of trawl with a mesh size less than 32 mm and purse seines in EU waters of the North Sea (ICES areas IV), Kattegat and Skagerrak (ICES area IIIa) should be covered by the discard ban as from 1 January 2015.

A detailed description of the fish stocks and the fisheries are found in annex 1.

Table 1: Industrial species quotas (tons) and percentage by member states in 2013

	BEL	DNK	DEU	FRA	NLD	SWE	UK	Total
Sand eel	-	249.006 (94,33%)	381 (0,14%)	-	-	9.144 (3,46%)	5.443 (2,06%)	263.974
Sprat North Sea	1.726 (1,15%)	136.572 (90,75%)	1.726 (1,15%)	1.726 (1,15%)	1.726 (1,15%)	1.330 <sup>2</sup> (0,88%)	5.694 (3,78%)	150.500
Sprat Skagerrak/Kattegat	-	24.390 (72,44%)	51 (0,15%)	-	-	9.229 (27,41%)	-	33.670
Norwegian pout	-	167.345 (99,9%)	32 (0,02%)	-	123 (0,07%)	-	-	167.500

## 2. Exemptions from the landing obligation for certain species (art 15(5)(b))

The Scheveningen Group recommends that no exemptions for species with high survival rate are needed in the fishery with active gear as there is very low survival in the small mesh fisheries with active gear.

A generic rule as the so-called "Norwegian 7/8 rule is not considered in line with the objectives of the CFP. However, as scientific and anecdotal evidence indicate that under certain conditions and in certain fisheries a release rule can have beneficial implications for the status of a stock, this position might be revised in the light of new scientific research on this issue. Such research should look into specific fisheries, in particular into the purse seine fisheries for sprat. It should identify the conditions under which an exemption for high survival could be granted. Particularly the biology of the species, the size of the catch, gear type, crowding densities and duration should be taken into account when formulating criteria under which a fish shoal surrounded by a purse-seine may be released.

The Scheveningen Group recommends that where there is a case of high survivability exemptions should be recommended by Member States on a case-by-case basis.

## 3. De minimis exemptions (art 15(5)(c))

According to recital 31 of the Basic Regulation the de minimis exemptions from the landing obligation should be established in order to cater for unwanted catches that are unavoidable even if all the measures for their reduction are applied.

Article 15(5)(c) provides for a de minimis exemption of up to 5 % of total annual catches of all species subject to the landing obligation in cases where scientific evidence indicates that increase in selectivity is very difficult to achieve or to avoid disproportionate costs of handling unwanted

<sup>2</sup> Sweden has a flat rate of 1330 t

catches. The percentages are up to 7% in the first two years and 6% in the subsequent two years. Catches under a de minimis rule shall not be counted against the relevant quotas, but shall be fully recorded.

The Scheveningen group recommends that the de minimis rule should not be applied in the small mesh trawl and purse seine fisheries at present.

#### **4. Documentation (art 15(5)(d))**

According to the present technical rules Member States are obliged to calculate the quantity of by-catches in the small mesh fisheries on the basis of samples taken from the vessel either at sea or upon landing the fish<sup>3</sup>. This system is well established and could continue when introducing the landing obligation in the fisheries.

The Scheveningen Control Group is working on a proposal for a strategy on how to control the landing obligation in the pelagic fisheries based on risk analyses for the fisheries. Similar work should be done for the industrial fisheries. The Scheveningen group may wish to take account any advice issued by the Scheveningen Control Experts Group in relation to the documentation of catches in due course.

The Scheveningen group recommends that the present technical rules on calculating the quantity of by-catches in the small mesh fisheries should be preserved.

#### **5. Minimum conservation reference sizes (art 15 (5)(e))**

Given the nature of the fisheries with all catches taken on board and landed unsorted for reduction purposes, minimum sizes (future minimum conservation reference sizes) has not been set for sand eel, sprat and Norway pout and should not be set.

In relation to by-catches, it is noted, that according to Article 15 (11) of Regulation (EU) No. 1380/2013 for the species subject to the landing obligation, the use of catches below the minimum conservation reference sizes shall be restricted to purposes other than direct human consumption, including fish meal and fish oil.

The Scheveningen group recommends that no minimum conservation reference sizes are set in the small mesh fisheries for sand eel, sprat and Norway pout.

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<sup>3</sup> Art 5 of Regulation (EC) No. 850/98.

## Annexes

### Annex 1 - Description of the small mesh fisheries for sand eel, Norway pout and sprat in the Kattegat, the Skagerrak and the North Sea

#### 1. Sand eel (*ammodytes spp.*)

Lesser sand eel is one of the most abundant of all fish species in the North Sea and the main target for a large range of predators and a large North Sea industrial fishery. Annual catches peaked in the 1980s and 1990s exceeding one million tons in some years. All fishing takes place in spring and early summer.

The sand eel fishery in the North Sea was established in the 1950s and has been monitored since the beginning of the 1980s. In 2001 the spawning stock biomass dropped, for the first time in the entire assessment time-series, to below the critical reference point  $B_{lim}^4$  (of 430000 t) and recruitment to the stock reduced dramatically in size in the subsequent years. Since 2007 the stock has gradually been climbing back up and spawning stock biomass was above  $B_{lim}$  again in 2008. The cause of the drop in stock size is still largely unknown, although environmental fluctuations appear to play a major role.

##### 1.1. Biology

Lesser sand eel is considered a short-lived species. They rarely exceed lengths of more than 15-20 cm. They are capital breeders and spawn during a narrow time window around January 1st, and onset of gonad development occurs in July/August. In the southern North Sea 50% mature around age 1, while 50% maturity in the northern North Sea occurs around age 2. The eggs stick to the substrate on the banks, often partly buried. They normally hatch during February and March. Following hatching, the larvae enter the pelagic environment and are found in most of the water column. Metamorphosis occurs around June or around 33 to 90 days from the time of hatching and at a length of approx. 45 mm.

Sand eels spend a large part of their juvenile and adult life buried in the seabed in areas with well-oxygenated bottom substrate consisting of gravel or coarse sand. They remain buried throughout the diel cycle in winter, except during spawning around new-year. However, in early spring they start to emerge on a daily basis to feed on the zooplankton (mainly calanoid copepods), and become one of the most abundant fish species in the water column of the North Sea for the following three to four months. When burrowed, sand eels are motionless and their metabolism is reduced to a minimum. This cryptic energy saving behavior potentially renders sand eels more efficient as food-web energy conveyers compared to forage fish with a more active behavior.

##### 1.2. Stock size and distribution

The North Sea is at present by ICES divided into seven sand eel assessment areas (SA 1-SA 7) as indicated on the map below in figure 1. TAC's are set for each of the areas by the EU.

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<sup>4</sup> Limit reference point for spawning stock biomass (SSB).

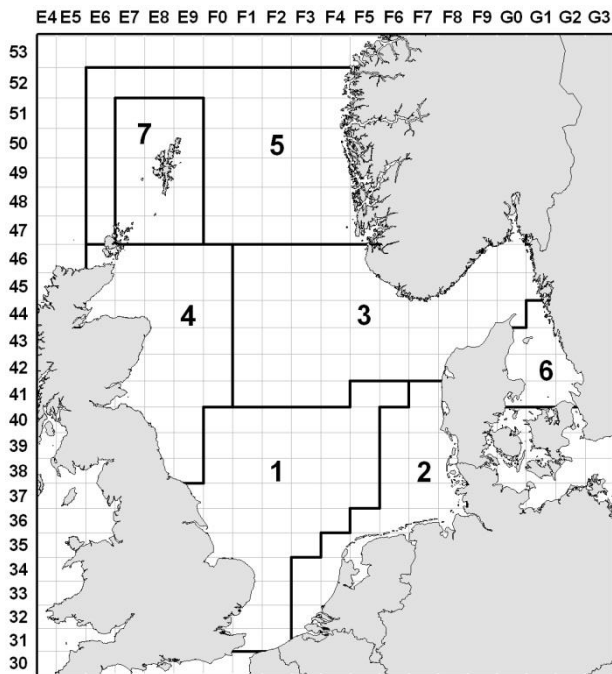


Figure 1. Assessment areas for sand eel.

The stock display heavily fluctuations in size, mainly driven by recruitment, which is largely unpredictable and can be very large in one year and low in the next year. In spite of a low fishing mortality since 2007 and the strong 2009 year class, spawning stock biomass in 2013 was below  $B_{pa}$ . This is the result of two subsequent extremely small year-classes and low mean weights in 2013. In general the average stock size has found a significantly lower plateau in the last decade compared to the two previous decades.

Catch distribution (geographic and by quarters) is presented in figures below. The geographic catch distribution is the sum of catches from 2007-2012 (figure 2). Distribution by quarters shows the average situation from 2007-2012 (figure 3).



Figure 2. Geographic distribution of the sum of catches from 2007-2012.

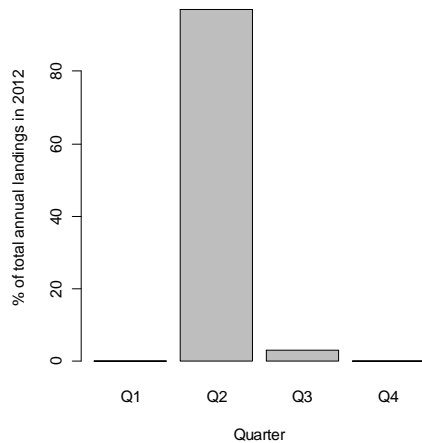


Figure 3. Distribution by quarters shows the average situation from 2007-2012 for the North Sea.

### 1.3. Management

Following the advice from ICES, since 2009 the North Sea sand eel in the EU Waters has been managed as seven separate stock components based on stock structure identified using published information on larval distribution, connectivity, and growth differences. Analytical assessments are only possible in three areas (SA 1-SA 3; see the map above). The quality of the present assessment is considered quite high mainly due to the fact that the present division of stock assessment areas better reflects the actual spatial stock structure and dynamics of sand eel. In addition fishery independent data from the scientific dredge survey in November/December has also improved the quality of the assessment and the basis for the advice.

Although ICES provides an advice for SA 3 as a whole, Norway has implemented a national management plan for the Norwegian EZZ of SA 3 (The Norwegian EZZ makes up roughly half of SA 3) and gives an independent advice. The national management plan for the Norwegian EZZ was fully implemented in 2011, but was also used in 2010. Based on historical fishing patterns and local stock developments 6 areas are defined, each consisting of "a" and "b" subareas. The main objective of the Plan is to rebuild the spawning stocks in all 6 areas and thereby enhance the total recruitment and catch potential. Acoustic surveys and catch information (if available) are used to estimate the abundance, age structure and geographical distribution of the sand eel population. The opening period for the fisheries is from 1 April to 23 June.

### 1.4. Fisheries and catch data 2013

The size distribution of the Danish fleet has changed through time, with a clear tendency towards fewer and larger vessels (ICES WGNSSK 2006b). The table below provides an overview of sand eel catches in 2013 based on ICES working group estimates. 85% of the catches were taken by Denmark (all SA areas), 12% by Norway (mainly SA 1 and SA 3). In recent time catches in SA 5 and SA 7 has amounted to zero.

Table 1 Catch distribution on management area

Area	Tons caught
SA 1	177.000
SA 2	22.000
SA 3	39.000
SA 4	5.000
SA 6	100

### 1.5. Selectivity

By-catches in the sand eel fishery are in general very low and there is currently no obvious way of further increasing selectivity.

### 1.6. Mixed fisheries issues

By-catches in the sand eel fishery are in general very low. Though in years with low abundance of sand eel by-catches of sprat, herring, mackerel and whiting may occur. Further, in the beginning and at the end of the season limited by-catches have been recorded.

Table 2. By-catch species composition in the Danish sand eel fishery is shown in the table below in tons and percentages of the sand eel quota for the period 2000-2013 (Source ICES).

Year	Sprat	Horse mackerel	Whiting	Haddock	Mackerel	Herring	Cod
Tons							
2000	2376	266	1531	1205	363	2021	53
2001	16060	651	2761	1557	394	3046	7
2002	1010	149	1404	222	395	1657	12
2003	2285	497	444	103	316	863	5
2004	11872	987	652	33	288	2446	10
2005	2788	272	261	0	486	729	2
2006	3905	516	274	97	314	1252	1
2007	244	35	326	20	146	128	0
2008	56	12	619	5	217	196	5
2009	4902	3	913	0	140	1176	70
2010	4438	3	320	2	345	365	1
2011	1690	19	821	8	1032	376	0
2012	50	5	20	0	49	109	0
2013	39	140	736	0	501	411	30
Percentage of sand eel quota							
2000 (%)	0.4	0.0	0.3	0.2	0.1	0.4	0.0
2001	2.5	0.1	0.4	0.2	0.1	0.5	0.0
2002	0.2	0.0	0.2	0.0	0.1	0.3	0.0
2003	0.8	0.2	0.2	0.0	0.1	0.3	0.0
2004	4.1	0.3	0.2	0.0	0.1	0.8	0.0
2005	1.9	0.2	0.2	0.0	0.3	0.5	0.0
2006	1.5	0.2	0.1	0.0	0.1	0.5	0.0
2007	0.2	0.0	0.2	0.0	0.1	0.1	0.0
2008	0.0	0.0	0.3	0.0	0.1	0.1	0.0
2009	1.7	0.0	0.3	0.0	0.0	0.4	0.0
2010	1.6	0.0	0.1	0.0	0.1	0.1	0.0
2011	0.6	0.0	0.3	0.0	0.4	0.1	0.0
2012	0.1	0.0	0.0	0.0	0.1	0.2	0.0
2013	0.0	0.1	0.4	0.0	0.3	0.2	0.0

## 2. Sprat (*sprattus sprattus*)

Sprat is a short-lived clupeoid species with large inter-annual fluctuations in stock biomass, mainly driven by recruitment variability and less influenced by the level of fishing effort. Sprat is predominantly caught with a variable by-catch of herring, in a small meshed trawl fishery, and for use in fish meal and fish oil production. However in Sweden a directed purse seine fishery also exists, which is mainly targeting sprat for human consumption. The human consumption fishery only takes a minor proportion of the total catch.



## 2.1 Biology

Sprat in the North Sea has a prolonged spawning season ranging from early spring to late autumn. Early in the year the start of the spawning is triggered by the water temperature. Sprat is a batch spawner, producing up to 10 batches in one spawning season and 100-400 eggs per gram of body weight. Sprat resides mainly in the southern parts of the North Sea, where they feed on calanoid copepods.

## 2.2 Stock size and distribution

In 2013 an analytical stock assessment for the North Sea sprat stock was developed and approved by ICES<sup>5</sup>, and subsequently fully implemented in 2014. At the same time an attempt to set up an analytical assessment for the IIIa stock failed, wherefore this stock is still considered a datalimited stock by ICES.

The North Sea sprat assessment is conducted using SMS with quarterly time steps. Three surveys are included, IBTS6 Q1 ages 1-4+, IBTS Q3 ages 1-3 and HERAS7 (Q3) ages 1-3. The advice is given based on an escapement strategy modified to fit a short-lived species (WKMSYREF2 20148). According to the stock assessment the North Sea sprat stock (spawning stock) fluctuates between 150.000 and 350.000 t and has been at or above Bpa9 since 2004 (142.000 t).

Several attempts were made to produce a quarterly or annual SMS stock assessment for sprat in IIIa. However, so far all attempts have failed due to lack of consistency between the surveys. The IIIa sprat stock is currently treated by ICES as a 'data limited' stock.

Catch distribution (geographic and by quarters) is presented in figures below. The geographic catch distribution is the sum of catches from 2007-2012 (figure 4). Distribution by quarters shows the average situation from 2007-2012 (figure 5).



Figure 4. Geographic distribution of the sum of catches from 2007 – 2012

<sup>5</sup> International Council for the Exploration of the Sea

<sup>6</sup> International Bottom Trawl Survey Quarter 1 and 3

<sup>7</sup> Herring Acoustic Survey

<sup>8</sup> ICES CM 2014/ACOM:47

<sup>9</sup> Precautionary reference point for spawning stock biomass (SSB)

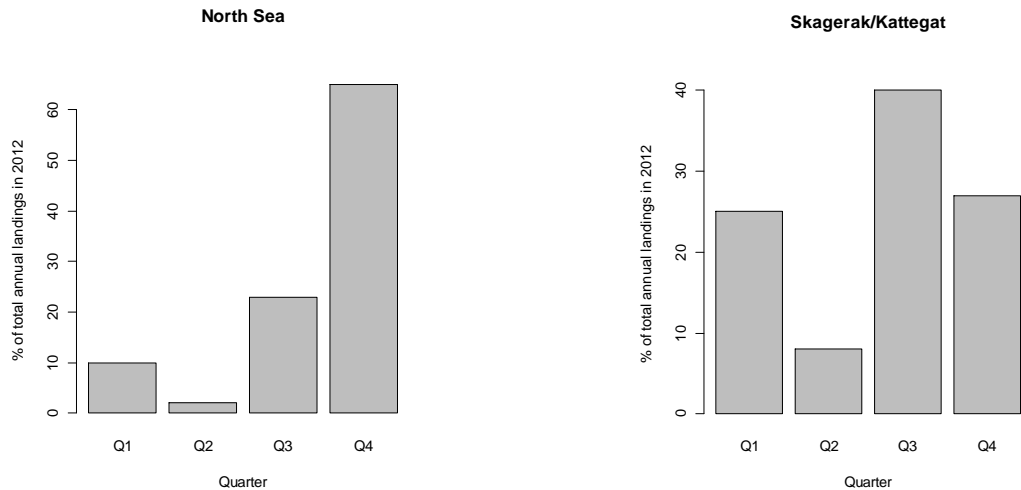


Figure 5. Distribution by quarters shows the average situation from 2007-2012 for the North Sea and the Skagerrak/Kattegat respectively.

### 2.3. Management

Sprat in ICES subarea IV (North Sea) and division IIIa (Kattegat and Skagerrak) are treated as two distinct management units. The North Sea TAC for sprat for 2013 was 161.500 t and the by-catch quota of herring (EU fleet) was set at 14.400 t. In the Kattegat and Skagerrak the TAC for sprat for 2013 was 41.600 t and the by-catch quota of herring (EU fleet) was 6.659 t.

In recent years the sprat fisheries have not been limited by the sprat quota, since this quota has not been taken. The by-catch ceiling limitations of herring as well as by-catch percentage limits are the limiting factors for the sprat fishery.

### 2.4. Fisheries and catch data in 2012 and 2013

In 2012 the total landing of sprat caught in the North Sea was 86.000 t, of which 77.500 t was taken in IVb (the central parts of the North Sea) and the rest in IVc (just north of the eastern English Channel). The Danish landings dominate the total North Sea landings (69% in 2012). The second largest sprat fishery in the North Sea is the Norwegian fishery (9% in 2012). In the last decade, also the UK, Sweden, Germany and the Netherlands occasionally landed small amounts of sprat. In Kattegat and Skagerrak 10.400 t of sprat were taken in 2012, mainly by Denmark (85%). The Swedish fishery for sprat in Skagerrak and Kattegat is mainly conducted with purse seine and used for human consumption (85 % of the catch 2010-2013).

In 2013 total landings of sprat caught in the North Sea only amounted to 66.000 t. Of the total landings Denmark took 60.000. Sweden, Norway, Germany and the Netherlands landed less than 2.000 t each. Sprat landed from fishery in the Skagerrak and the Kattegat amounted in 2013 3.900 t which is the lowest figure for the last 20 years. Danish landings amounted to 1.900 t.

The Norwegian North Sea sprat fishery is also mainly carried out by purse seiners and in the southern part of the North Sea.

### 2.5. Selectivity

Currently, no method that can facilitate increased selectivity in the sprat fishery is available.

A technology that can identify school species-composition before capture has been proposed as a mean to increase the selectivity in the sprat fishery. Such a method is presently not available.

### 2.6. Mixed fisheries issues

The Danish sprat landings are taken in small-meshed trawl fishery. In this fishery there is about 5-10% by-catch of herring. For sprat fishery in the North Sea by-catch of other species than herring rarely exceeds 3 %.

Sprat fisheries in both the North Sea and in the Kattegat and Skagerrak are in most years limited by herring by-catch restrictions. By-catches of herring are practically unavoidable and depend on the sprat abundance and/or the herring recruitment level.

By-catches in tons and percent for the North Sea and the Kattegat and Skagerrak sprat fisheries are given in table 3 and 4.

Table 3. By-catch species composition in the North Sea sprat fisheries is shown in the table below in tons and percentages of the sprat quota for the period 2000-2013 (Source ICES).

North Sea (IVa, IVb, IVc)								
Year	Horse mackerel	Whiting	Haddock	Mackerel	Herring	Sand-eel	Cod	Other
Tons								
2000	3239	2107	66	766	11662	423	4	1911
2001	67	1700	223	312	13953	17020	4	1141
2002	2078	2537	27	715	16644	4102	0	801
2003	718	1106	15	799	10244	5357	11	3504
2004	474	334	0	4351	10144	3836	3	1821
2005	2477	545	4	1009	21035	6859	16	974
2006	577	343	25	905	8983	5384	4	576
2007	168	900	6	126	6596	6	18	253
2008	26	380	10	367	7928	23	0	1735
2009	44	307	3	116	7222	1526	1	407
2010	11	119	2	18	4410	1236	0	577
2011	35	191	0	127	8073	1881	0	345
2012	2	352	0	245	8500	93	0	407
2013	47	443	0	276	5093	1	2	360
Percentage of sprat quota								
2000	1.6	1.0	0.0	0.4	5.6	0.2	0.0	0.9
2001	0.0	1.0	0.1	0.2	8.2	10.0	0.0	0.7
2002	1.2	1.5	0.0	0.4	9.9	2.4	0.0	0.5
2003	0.4	0.6	0.0	0.4	5.3	2.8	0.0	1.8
2004	0.2	0.2	0.0	2.2	5.0	1.9	0.0	0.9
2005	1.1	0.2	0.0	0.4	9.0	2.9	0.0	0.4
2006	0.5	0.3	0.0	0.8	7.5	4.5	0.0	0.5
2007	0.2	1.1	0.0	0.2	8.0	0.0	0.0	0.3
2008	0.0	0.5	0.0	0.5	11.1	0.0	0.0	2.4
2009	0.0	0.3	0.0	0.1	5.9	1.2	0.0	0.3
2010	0.0	0.1	0.0	0.0	3.7	1.0	0.0	0.5
2011	0.0	0.2	0.0	0.1	6.7	1.6	0.0	0.3
2012	0.0	0.5	0.0	0.3	11.1	0.1	0.0	0.5
2013	0.1	0.7	0.0	0.5	8.3	0.0	0.0	0.6

Table 4. By-catch species composition in *Skagerrak/Kattegat (IIIa)* sprat fisheries is shown in the table below in tons and percentages of the sprat quota for the period 2000-2013 (Source ICES).

Skagerrak/Kattegat (IIIa)								
Year	Horse mackerel	Whiting	Haddock	Mackerel	Herring	Sand eel	Cod	Other
Tons								
2000	5	1062	308	8	8034	13	52	3556
2001	75	1266	50	13	8196	4281	35	1271
2002	21	1164	3	6	12982	606	30	2280
2003	340	252	4	4	4928	1	4	567
2004	97	976	18	24	4620	116	27	2155
2005	244	871	63	18	6171	746	20	1758
2006	215	276	13	3	2852	1	45	232
2007	34	190	31	8	2043	1	4	469
2008	14	285	0	0	1948	462	11	39
2009	37	169	15	0	3016	53	1	47
2010	25	142	6	1	2134	135	2	171
2011	0	43	0	7	2461	141	1	40
2012	9	149	7	10	5495	0	5	228
2013	2	46	0	0	1751	1	1	27
Percentage of sprat quota								
2000	0.0	4.1	1.2	0.0	31.4	0.1	0.2	13.9
2001	0.2	3.8	0.2	0.0	24.5	12.8	0.1	3.8
2002	0.1	4.1	0.0	0.0	45.5	2.1	0.1	8.0
2003	2.4	1.8	0.0	0.0	34.5	0.0	0.0	4.0
2004	0.5	4.6	0.1	0.1	21.6	0.5	0.1	10.1
2005	0.6	2.2	0.2	0.0	15.4	1.9	0.0	4.4
2006	2.1	2.6	0.1	0.0	27.3	0.0	0.4	2.2
2007	0.3	1.9	0.3	0.1	20.6	0.0	0.0	4.7
2008	0.2	3.8	0.0	0.0	25.8	6.1	0.1	0.5
2009	0.5	2.1	0.2	0.0	36.9	0.6	0.0	0.6
2010	0.5	2.6	0.1	0.0	39.0	2.5	0.0	3.1
2011	0.0	0.6	0.0	0.1	33.0	1.9	0.0	0.5
2012	0.1	1.3	0.1	0.1	47.3	0.0	0.0	2.0
2013	0.1	1.6	0.0	0.0	58.9	0.0	0.0	0.9

### 3. Norway pout

Norway pout (*Trisopterus esmarkii*) is a small, short-lived gadoid species, which rarely gets older than 5 years. It is an abundant species in the North Sea and it is an important prey species for a variety of fish species such as saithe, haddock, cod, and mackerel. It is also an important fishery resource in the small meshed fisheries for reduction purposes (fish meal and fish oil) mainly conducted by Denmark and Norway. It has been fished for reduction purposes since the 1950's and the fishery has been monitored since the beginning of the 1960s. Annual catches peaked in the 1970'ies with landings up to 500-700 000 t. The stock size of Norway pout in the North Sea and Skagerrak is very dependent on changes caused by recruitment variation and variation in predation (or other natural) mortality, and with the low fishing mortality in the last decades, the stock size is more determined by natural processes and less by the fishery. In recent years landings have varied between zero and 125 000 t (2010). The spawning stock biomass declined in the early 2000s, but the stock has since 2007 recovered to a high level again above the precautionary reference level ( $B_{MSY-Escapement}$ ) varying between 150 000 to 400 000 t.

#### 3.1. Biology

Norway pout is a short-lived species that most likely only spawn once from the age of 2. The population dynamics of the stock in the North Sea and Skagerrak are very dependent on changes caused by recruitment variation and variation in predation (or other natural) mortality, and recently less by the fishery. Only limited knowledge is available on the influence of environmental

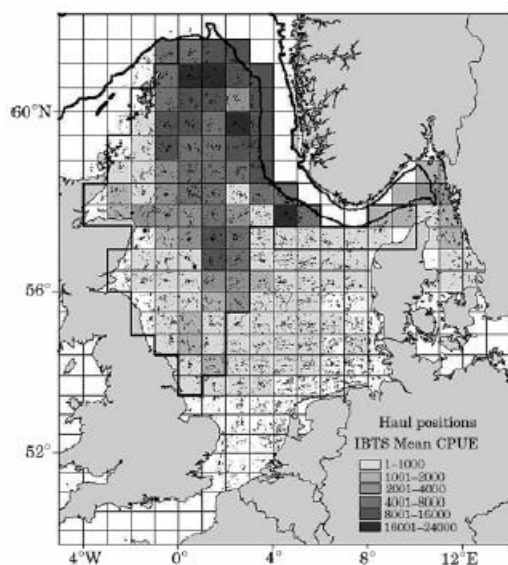
factors, such as temperature, on the recruitment. Recruitment is highly variable and influences the spawning stock biomass (SSB) and the total stock biomass (TSB) rapidly because of the short life span of the species. Furthermore, 20% of age 1 is estimated mature and is included in the SSB. Therefore, the recruitment in the year after the assessment year influences the SSB in the following year. Norway pout is also, to a limited extent, exploited from age 0. Norway pout is an important prey species for a variety of fish species in the North Sea such as saithe, haddock, cod, and mackerel. However, the growth and mean weight-at-age for the above-mentioned predators seems independent of the stock size of Norway pout.

### 3.2. Stock size and distribution

Norway pout is distributed from the west of Ireland to the Kattegat and from the North Sea to the Barents Sea including the Faroe Islands. The distribution for this stock is in the northern North Sea (>57°N) and in the Skagerrak at depths between 50 and 250 m. Spawning in the North Sea takes place mainly in the northern part in the area between Shetland and Norway in coastal waters (along the 120 m isocline). The species is not generally considered to have specific nursery grounds, but pelagic 0-group fish remain widely dispersed in the northern North Sea. ICES (IBTS) trawl surveys (Fig. 6) only cover areas within the 200 m depth zone. However, very few Norway pout are caught at depths greater than 200 m in the North Sea and Skagerrak on shrimp trawl survey. In the Norwegian Trench Norway pout has been found at depths greater than 200 m, but very few deeper than 300 m.

The main bulk drifts as larvae from more western areas to which they return mainly during the latter part of their second year of life before becoming mature (Poulsen 1968). The IBTS CPUE map (Figure 6) shows, however, a relative high CPUE in the Skagerrak area in the third quarter, where the 0-group dominates the catches. Norway pout in the eastern Skagerrak is only to a very small degree a self-contained stock. Results from analyses of regionalized survey data on Norway pout maturity gives no evidence for a stock separation in the whole northern area (ICES Division IIIa, IV, and VIa). This conclusion is supported by the depth distribution limits of the species. There is an adult spawning migration out of Skagerrak and Kattegat as no spawning occurs in this area. Otherwise there is no indication of adult migration. Based on IBTS data, the main aggregations of settled fish are distributed around the 150 m contour, with a slight preference for deeper water for the older fish.

Figure 6. Mean CPUE (numbers) of Norway pout fished at the International Bottom Trawl Survey (IBTS)



first quarter by rectangle, 1981–1999 (this is the longest time series analyzed).

### **3.3. Management**

The Norway pout fishery is regulated through a single-species TAC and technical measures such as minimum mesh size in the trawls, sorting grids, fishing area closures (e.g. the Norway pout box in the north-western part of the North Sea), and by-catch regulations in the fishery to protect other species. By-catch regulations in force have contributed to reduce by-catches in recent years.

For 2014 EU has set the TAC according to a strategy based on an escapement biomass of 150,000 t, which provides for a TAC within the range of 20,000 to 200,000 t, with the additional constraint of a ceiling on fishing mortality of 0.6. In the light of the latest ICES advice, based on the MSY approach, catches in 2014 should not exceed 216,000 t. This would lead to a nominal TAC of 171,000 t in 2014, corresponding to the fishing mortality ceiling of 0.6 and resulting in an EU quota of 128,250 t. At the same time the TAC year will be changed to 1 November – 31 October. This would allow the TAC to be set on the best available advice, and obviate the need for a mid-year review.

Norway has set a quota of 108,000 t for 2014 on the basis of the latest advice from ICES.

### **3.4. Fisheries and catch data 2013**

The fishery is nearly exclusively carried out by Danish and Norwegian (large) vessels using small-mesh trawls in the north-western North Sea especially at the Fladen Ground and along the edge of the Norwegian Deep in the north-eastern part of the North Sea. Main fishing seasons are 3rd and 4th quarters of the year with also high catches in 1st quarter of the year especially previous to 1999. The catches for the last ten years have varied from closure of the fisheries in some years to very limited fisheries on other years and only few years with significant catches. The Norway pout fishery is a mixed commercial, small meshed fishery. Norway pout is caught in small meshed trawls (16-31 mm) in a mixed fishery among other with blue whiting, i.e. in addition to the directed Norway pout fishery by Denmark and Norway, the species is also taken as by-catch in the Norwegian blue whiting fishery. The fishery in more recent times is mainly carried out by Denmark (~70-80%) and Norway (~20-30%) at fishing grounds in the northern North Sea especially at Fladen Ground, while the long term average shows more equal proportions between the two countries with more fishery along the edge of the Norwegian Trench.

In recent years landings have varied between 0 and 126 000 t (2010) due to recruitment fluctuations and seasonal fishing closures. The directed fishery for Norway pout was closed in 2005, the first half of 2006, and in 2007, as well as in the first half of 2011 and 2012. The TAC was not taken in 2008, 2009, 2010 and 2012 which is related to a number of circumstances, high fuel costs, by-catch regulations, late seasonal opening of the fishery, as well as implementation of individual quotas in the Danish Norway pout fishery.

The TAC was set at 324.500 t in 2013 (EU 167.500 and Norway 157.000 t) and the landings amounted to 82.100 tons (ICES estimate). The very majority of the fisheries take place in the North Sea.

### **3.5. Selectivity**

By-catches in the Norway pout fishery were a problem in the past in some seasons and some years. However, the introduction of the sorting grid has substantially reduced the by-catches of other species. At the moment there is currently no obvious way of further improving the selectivity.

### **3.6. Mixed fisheries issues**

Historically, the fishery includes by-catches, especially of haddock, whiting, blue whiting, saithe, and herring. However, by-catches of these species have been low in the recent decade. The use of a sorting grid has been mandatory in the Danish fishery since 2012.

Experimental fishery indicates that by-catches can be reduced additionally by concentrating the effort allocation in time and space, especially in relation to day-night differences in by-catch levels.

Table 5. By-catch species composition in the Danish North Sea Norway Pout fishery in tons and percentages of the Norway Pout quota for the period 2000-2013 (Source: Danish AgriFish Agency).

		Species									
		Argentine	Atlantic Herring	Blue Whiting	Common Dab	Haddock	Long-Rough Dab	North Deepwater Prawn	Whiting	Other	
ton	2000	13,7	3.458,00	1.895,80	29,1	1.733,90	182,5	439,4	2.934,80	604,3	
	2001	226,2	2.321,10	4.024,90	7,5	1.252,20	55,4	132,9	1.558,50	693	
	2002	49,7	3.193,00	4.676,20	22,8	1.544,90	29,1	82	1.675,10	483,5	
	2003	23,8	336,4	48,7	104,4	16,2	10,4	6,5	265,4	285,1	
	2004	3	736,5	65,8	0,3	57,2	4,2	3,5	231,5	23,9	
	2006	32,1	1.839,40	16,5	82,7	243	117,1	14,2	1.536,10	150,8	
	2008	.	689,4	.	.	183,4	17,3	22,6	17,2	77,7	
	2009	13	1.348,80	.	.	49,5	14,9	3,9	125,1	36,2	
	2010	65,8	4.391,70	17,1	.	430,2	53,1	22,2	1.324,50	256,6	
	2011	11,6	511,5	27,7	.	8,8	8	6,6	82	25,2	
	2012	51,8	1.920,40	59,1	.	10,5	140,8	90,9	736,6	129,8	
	2013	130,1	1.372,90	66,4	15,7	0,5	118,1	162,1	467,4	107,7	
	pct	2000	0	2,6	1,4	0	1,3	0,1	0,3	2,2	0,4
		2001	0,5	4,9	8,4	0	2,6	0,1	0,3	3,3	1,5
2002		0,1	5,8	8,5	0	2,8	0,1	0,1	3	0,9	
2003		0,3	3,7	0,5	1,2	0,2	0,1	0,1	2,9	3,2	
2004		0	8,2	0,7	0	0,6	0	0	2,6	0,3	
2006		0,1	4,7	0	0,2	0,6	0,3	0	3,9	0,4	
2008		.	2,3	.	.	0,6	0,1	0,1	0,1	0,3	
2009		0,1	7,1	.	.	0,3	0,1	0	0,7	0,2	
2010		0,1	6,1	0	.	0,6	0,1	0	1,9	0,4	
2011		0,3	12,8	0,7	.	0,2	0,2	0,2	2,1	0,6	
2012		0,2	7,6	0,2	.	0	0,6	0,4	2,9	0,5	
2013		0,4	4,4	0,2	0,1	0	0,4	0,5	1,5	0,3	

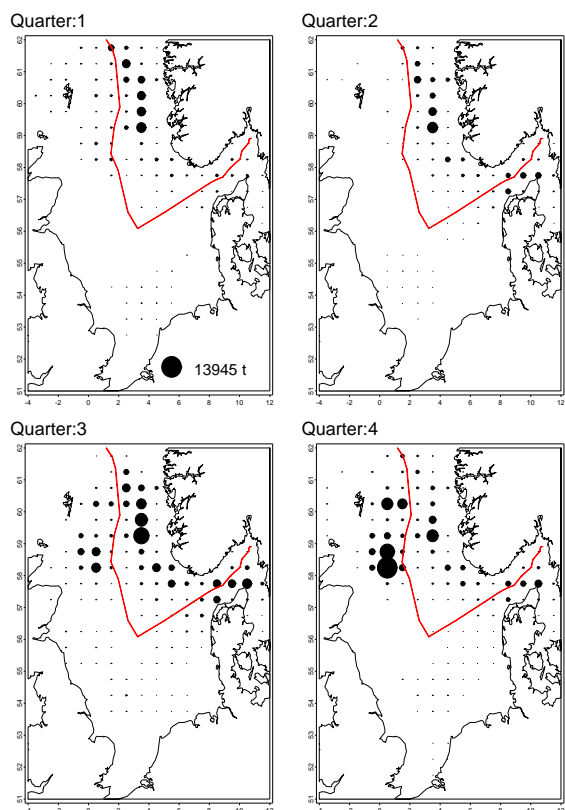


Figure 7. Average Danish and Norwegian landings of Norway pout by quarter of the year and ICES rectangles for the period 1994-2003 period where the fishery has been open all year round (catches for the period 2004-2013 have varied significantly). The area of the circles represents landings by rectangle. All rectangle landings are scaled to the largest rectangle landings shown at the quarter 1 map.

## Annex 2 Descriptions of vessels

Numbers of vessels that have landed Norwegian pout (NOP), Sprat (SPR) and Sandeel (SAN) in 2013 by flag state, species, waters and overall length.

Denmark	Length over all.			
Species/Area	Under 15 m	Between 15-24 meter	Over 24 meter	Total number of vessels
NOP /North Sea and 3A	2	5	24	31
SPR/ Nordsøen	6	18	26	50
SPR/3A	11	16	1	28
SAN/ North Sea and 3A	16	50	44	110

Sweden	Length over all.			
Species/Area	Under 15 m	Between 15-24 meter	Over 24 meter	Total number of vessels
NOP /North Sea and 3A	1	1	3	5
SPR/ Nordsøen	0	0	2	2
SPR/3A	11	1	5	17
SAN/ North Sea and 3A	0	0	12	12

MS	Length over all.			
Species/Area	Under 15 m	Between 15-24 meter	Over 24 meter	Total number of vessels
NOP /North Sea and 3A				
SPR/ Nordsøen				
SPR/3A				
SAN/ North Sea and 3A				