

DISCUSSION PAPER REGARDING BY CATCH MANAGEMENT

The management of by-catches is complex and perhaps the most challenging issue to deal with regarding the entrance in force of the new Fisheries Policy regulation. Various fisheries may need different solutions and the permitted percentages of by-catch could vary between fisheries. We would like to analyse among this discussion paper the different systems in force that have been used in the case of Norway, NAFO, Iceland and even EU to manage by-catches before the Landing Obligation.

BY CATCH IN NORWAY. HOW IT WORKS?

In Norway, the discard ban formally applies to all catches that are dead or dying, viable fish can be released back to the sea, but in practice it is only applied to all catches of the following commercial species which have been listed in the regulation. Discard ban was preceded by a program of real time closures of fishing areas (RTCs), selectivity measures and another important issue was to allocate quotas to cover expected unavoidable bycatches in non-direct fisheries, before allocating remaining national quotas to vessels licensed to target the species in question.

All catches of fish taken outside the area defined in section 3, item 4 (the Skagerrak) shall be landed. Nevertheless, this does not apply to:

- 1. Fish caught in contravention of provisions set out in or issued under the Marine Resources Act and capable of surviving. Such catches shall be returned to the sea immediately.*
- 2. Lawfully caught fish that are capable of surviving at the time when they are returned to the sea, with the exception of snow crabs.*
- 3. Dead or dying fish of species other than:*

<i>Squid</i>	<i>Whiting</i>	<i>Fish of the family</i>
<i>Anchovy</i>	<i>Roughhead</i>	<i>Ammodytidae,</i>
<i>Greenland halibut</i>	<i>grenadier</i>	<i>including sandeels</i>
<i>Blue ling</i>	<i>Blue whiting</i>	<i>Herring</i>
<i>Northern wolf-fish</i>	<i>Ling</i>	<i>Skates</i>
<i>Angler (monkfish)</i>	<i>Capelin</i>	<i>Greater forkbeard</i>
<i>Sprat</i>	<i>Pollack</i>	<i>Grenadier</i>
<i>Tusk</i>	<i>Hake</i>	<i>Silver scabbardfish</i>
<i>Beryx</i>	<i>Mackerel</i>	<i>Lesser argentine</i>
<i>Black scabbardfish</i>	<i>Bluefin tunny</i>	<i>Cod</i>
<i>Blackspot sea-</i>	<i>Morid cods</i>	<i>Soles</i>
<i>bream</i>	<i>Orange roughly</i>	<i>Redfish</i>
<i>Spotted wolf-fish</i>	<i>Arctic cod</i>	<i>Fish of the family</i>
<i>Slickheads</i>	<i>Shrimps</i>	<i>Bothidae, including</i>
<i>Atlantic wolf-fish</i>	<i>Lumpsucker</i>	<i>- turbot</i>
<i>Sharks, including</i>	<i>Plaice and other fish</i>	<i>- brill</i>
<i>- blue shark</i>	<i>of the family</i>	<i>- megrim</i>
<i>-spiny dogfish</i>	<i>Pleuronectidae</i>	<i>Greater argentine</i>
<i>European sea-bass</i>	<i>Pilchard</i>	<i>Wreckfish</i>
<i>Horse mackerel</i>	<i>Saithe</i>	<i>Norway pout</i>
<i>Haddock</i>		<i>Common eel</i>

All catches of fish taken in the area defined in section 3, item 4 (the Skagerrak) shall be landed. Nevertheless, this does not apply to:

- 1. Fish caught in traps and pots.*

2. Fish caught with a handline, fishing rod or similar hand gear in contravention of provisions set out in or issued under the Marine Resources Act and capable of surviving. Such catches shall be returned to the sea immediately.

3. Dead or dying fish of species other than:

Blue ling	Pollack	Herring
Angler (monkfish)	Hake	Norway lobster ¹
Sprat	Mackerel	Greater forkbeard ¹
Tusk	Shrimps (Pandalus borealis)	Grenadier ¹
Atlantic wolf-fish ¹	Lumpsucker ¹	Cod
Sharks ¹ , including	Plaice and other fish of the family Pleuronectidae ¹	Soles ¹
- blue shark ¹	Saithe	Redfish ¹
- spiny dogfish ¹	Fish of the family Ammoditydae, including sandeels ¹	Tturbot ¹
Horse mackerel ¹		Brill ¹
Haddock		Greater argentine ¹
Whiting		Norway pout ¹
Blue whiting ¹		
Ling		

¹ Applies from 1 January 2015 onwards.

There are specific **permissible by-catch** levels for each fishery. The aim is to decide what level of by-catches is really needed for compliant fishermen. Therefore the permissible by-catch levels species depend on the fishing area, the gear used, the target species and the season - 10% some months and 25% in other months. For example:

- when fishing for cod, total by-catches of saithe, haddock and whiting may not exceed 20% of total catch weight;
- when fishing for sandeels using a trawl of mesh size less than 16 mm, by-catches of other species may not exceed 10% of total catch weight.

Norway sets aside the quantities required to allow for by-catches before determining the quantities for direct fisheries. The necessary quantity to cover unavoidable by-catch is calculated annually and is set aside before the fishery is opened.

According to Norwegian regulations it is prohibited to catch 'illegal' fish. **If the proportion of illegal fish in a haul exceeds a certain specified level** (depending on fishing area and fishing gear), the vessel is obliged to **move to a different fishing ground**. The distance between the fishing grounds should be at least 5 miles. If on the new fishing ground the proportion of juveniles or illegal by-catch is too high, the vessel has to move again for at least 5 miles (from both areas). If the vessel is caught by the coastguard in an area with too much illegal fish for several hauls, the skipper may be fined.

Bycatch allocations are common in many Norwegian fisheries; examples include allocation of NorthSea cod to cover unavoidable bycatches in saithe and in Northern shrimp fisheries, saithe in Norway pout(*Trisopterus markii*) trawling, and bluewhiting (*Micromesistius poutassou*) in herring(*Clupea harengus*) fisheries.

The illegal by-catch and juveniles have to be landed and **deducted from the TAC** of the given species, they are sold through the sales organisations, just like the rest of the catch, but if by-catches exceed the permitted levels as specified in the by-catch regulations (section 4.2.1) **the revenues are confiscated** by the sales organizations. These incomes are used to benefit either the organizations or the Scientist Institute as it appears but different information was founded in different sources about that. It seems that these incomes have to be use to improve the system.

BY CATCH IN NAFO HOW IT WORKS?

In NAFO most commercial species are regulated. Quota of regulated stocks is allocated by contracting parties as can be seen in Annex I of NAFO CEM below. In some cases there is “Others” quota allocated for some stocks. This quota can be used by all contracting parties without quota of this stock allocated. The use of this Others quota is ruled.

When “Others” quota is finished none directed fishery can be made and a bycatch limit is established for these stocks. This bycatch is also applicable to the contracting parties when their quotas allocated are exhausted.

(2016)

Annex IA

ANNEX I – FISHERIES MANAGEMENT

Annex IA – Annual Quota Table

GATCH LIMITATIONS – Article 5. Total allowable catches (TACs) and quotas (metric tons in live weight) for 2016 of particular stocks in Subareas 1–4 of the NAFO Convention Area.

Species	Cod				Redfish				American plaice		Yellowtail	
	COD 3L	COD 3M		COD 3NO	RED 3LN		RED 3M	RED 3O	RED 1F, 2, 3K (i.e. Sub-Area 2 and Divs. 1F+3K)	PLA 3LNO	PLA 3M	YEL 3LNO
Stock Specification			% of 3M Cod TAC			% of 3UN Redfish TAC						
Contracting Party												
Canada		111	0.80	0	4 430	42.60	500	6 000	0 ¹	0	0	16 575
Cuba		515	3.70	-	1 019	9.80	1 750		0 ¹	-	-	-
Denmark (Faroe Islands and Greenland)		3 114	22.35	-	-		60 ¹²		0	-	-	-
European Union		7 945 ¹³	57.03	0 ¹	1 896 ¹⁴	18.23	7 813 ¹⁵	7 000	0	0	0 ¹	-
France (St. Pierre et Miquelon)		-	-	-	-		60 ¹²		0 ¹	-	-	340
Iceland		-	-	-	-		-		0	-	-	-
Japan		-	-	-	-		400	150	0 ¹	-	-	-
Korea		-	-	-	-		60 ¹²	100	0 ¹	-	-	-
Norway		1 289	9.25	-	-		-		0	-	-	-
Russian Federation		901	6.47	0	2 992	28.77	9 137	6 500	0	-	0	-
Ukraine		-	-	-	-		-	150	0 ¹	-	-	-
United States of America		-	-	-	-		60 ¹²		0 ¹	-	-	-
Others		56	0.40	0	63	0.60	124	100	-	0	0	85
TOTAL ALLOWABLE CATCH	*	13 931^{13/14}	100.0	**	10 400¹⁴	100.0	7 000¹⁵	20 000	0^{1/16}	*	**	17 000¹⁴

Annex IA

(2016)

Species	Witch			White hake	Capelin	Slates	Greenland halibut	Squid (Illex)	Shrimp	
	WIT 3L	WIT 3NO		HKW 3NO	CAP 3NO	SKA 3LNO	GHL 3LMNO	SQI 3,4 (i.e. Sub-areas 3+4)	PRA 3L	PRA 3NO
Stock Specification			% of 3NO Witch TAC							
Contracting Party										
Canada		1 303	60.00	294	0	1 167	1 644	N.S. ²	0	
Cuba		-	-	-	0	-	-	510	0	
Denmark (Faroe Islands and Greenland)		-	-	-	-	-	189	-	0	
European Union		288 ¹	13.27	588	0 ¹	4 408	6 430 ¹¹	N.S. ² 611 ⁶	0 ¹	
France (St. Pierre et Miquelon)		-	-	-	-	-	180	453	0	
Iceland		-	-	-	-	-	-	-	0	
Japan		-	-	-	0	-	1 124	510	0	
Korea		-	-	-	-	-	-	453	0	
Norway		-	-	-	0	-	-	-	0	
Russian Federation		559	25.73	59	0	1 167	1 399	749	0	
Ukraine		-	-	-	-	-	-	-	0	
United States of America		-	-	-	-	-	-	453	0	
Others		22	1.00	59	-	258	0	794	0	
TOTAL ALLOWABLE CATCH	*	2 172²⁰	100.00	1 000¹⁹	**	7 000¹⁷	10 966	34 000	0	*

By catch retention on board when no directed Fishery is permitted in NAFO:

- Each Contracting Party shall ensure that its vessels, minimize bycatch of species from stocks identified in *Annex I. A*, while operating in the Regulatory Area.
- A species listed in *Annex I.A* shall be classified as bycatch when it is taken in a Division where any of the following situations exist:
 - (a) no quota allocated to that Contracting Party for that stock in that Division, in accordance with Annex I.A;
 - (b) a ban on fishing for a particular stock is in force (moratoria); or
 - (c) the “Others” quota for a particular stock has been fully utilized.
- Each Contracting Party shall limit the retention of on board species classified as bycatch to the maxima specified below:
 - (a) for **cod in Division 3M, redfish in 3LN and witch flounder in 3NO**: 1 250 kg or 5%, whichever is the greater;
 - (b) **for cod in Division 3NO**: 1 000 kg or 4%, whichever is the greater;
 - (c) for **all other stocks** listed in Annex I.A where no specific quota has been allocated to the flag State Contracting Party: 2 500 kg or 10%, whichever is the greater; (2016)
 - (d) where a ban on fishing applies (moratoria), or when the “Others” quota opened to for that stock has been fully utilized**: 1 250 kg or 5%, whichever is the greater;
 - (e) once the **directed fishery for redfish in Division 3M is closed** in accordance with Article 5.5(d): 1 250 kg or 5%, whichever is the greater; and
 - (f) while conducting a directed fishery for **yellowtail in Divisions 3LNO**: 15 % of American plaice; with some exceptions.

According to NAFO regulation, **if by-catch limits in a haul exceeds a certain specified level** (depending on the stock), the vessel is obliged to comply with a movement rule. The distance between the fishing grounds should be at least 10 nautical miles, has to leave the division for a certain hours and make trial tows if it happens in more hauls.

BY CATCH IN ICELAND. HOW IT WORKS?

Vessels with ITQ are not allowed to discard. Vessels are obliged to have enough quota for their catches in all species, which are subject to the ITQ system. There is no by-catch rule and vessels are not allowed to commence a fishing trip unless they have sufficient catch quota for their probable catches.

Nevertheless there are some flexibility options:

- ✓ Undersized fish is only partially deducted from catch quotas.
- ✓ Damaged fish is not deducted from quota.
- ✓ Species conversion converted by “cod-equivalent kilo” based on last year’s price (cap on each species and is not allowed to change into cod)
- ✓ Transfer between years 5% can be caught in excess and deducted from next year’s quota.

- ✓ 30% of each vessel unused quota can be transferred to the following fishing gear.
- ✓ Vessels can buy catch quotas for excess landings (up to three days after landing). Are not allowed to continue fishing after that period until quotas have been “fixed”.
- ✓ Permission to land up to 5% excessive quotas. These catches have to be stored separately and can be sold on auction but just 20% of value would be given to the vessel (thereof shared of crew), and 80% of value will be put into a special research and development fund, divided into four seasons per year.
- ✓ Other management measures like the ones referred to mesh size, sorting grids, closed areas, spatial closures to protect spawning biomass etc.

BY CATCH IN EU. HOW IT WORKS?

In the EU there are some references in the TAC and quota regulation to by-catches and some options depending on the waters. Apart from NAFO and Norway systems, there are other measures regarding by-catch management in ICCAT and other RMFOs in order to cover this unavoidable catches.

The main management option used in the EU regulation is the creation of “OTH/*” “OT1/*” and “OT2/*” special condition quotas to cover certain by-catch species, these catches have to be registered under (OTH/*...) and the stock area/s. As an example we have some stocks of sprat, sandeel, Norway pout or horse mackerel, able to cover by-catches of boarfish, whiting, mackerel, dab, etc.

CONCLUSIONS

We have several solution examples or mix of them in order to start thinking and analyzing the effect and suitability of these measures to manage our problems to face in order to be able to comply with the new regulation from now on.

- NORWAY EXAMPLE: Package of measures (selectivity improvements/fleet data after improvements/quota reallocation inside EU/ by-catch unavoidable resultant / Movement rules when a haul exceeds by-catch/ establishment of a percentage of by-catch levels per fleet) and in addition to that, develop a system to control the by-catches over the limit established in order to avoid encouraging this behavior. Time and funding is necessary to achieve this approach for EU fleet.
- NAFO EXAMPLE: “Others quota” for contracting parties without allocation of some regulated stocks. (use of this quota ruled/establishment of a by-catch limit after the exhaustion of regulated species or others quota/movement rules if this limit is exceeded in each haul). In NAFO we have to take into account that landing obligation is not in force so excess of by-catch is discarded.
- ICELAND EXAMPLE: ITQ System with quota trading and several flexibilities to cover the rest of the species in excess of the quotas allocated.
- UE example: special conditions to cover certain by-catch species counting against other species quotas.
- Apart from the examples showed in this presentation, there are other measures regarding by-catch management in ICCAT and other RMFOs in order to cover this unavoidable catches that could be also studied.
- Every single measure to comply with the by-catch limits or landing obligation is accompanied by a lot of other solutions regarding technical measures, flexibilities, exemptions, etc.

- Most of the examples explained have implemented as well movement rules to leave the area if by-catch is exceeded.
- These examples could be inspiring for the by catch species management, but other solutions have to be implemented for other situations like 0-TACs where we could opt for example to treat this stocks equal to forbidden species.

We have to have in mind that, every single measure to comply with the by-catch limits or landing obligations is accompanied by a lot of other solutions regarding technical measures, flexibilities, exemptions, etc.

PROPOSALS TO BE ABLE TO FULLY IMPLEMENT THE LANDING OBLIGATION 2019

Some examples of proposals that could be evaluated as a first approach are:

- Convert some small quotas in bigger OTH quotas of stocks from NWW covering groups of by-catch species, allocated by Member states. Example: All deep-sea species TACs one OTH quota.
- Study to eliminate total allowable catches of some stocks that are always present as by-catch in the haul for all vessels in certain areas.
- Establishing by-catch rules and limits according to available data to each métier in a regional basis with a system to evaluate these limits as selectivity measures are implemented.