

# FISHERY ASSESSMENT REPORT

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



<b>FISHERY:</b>	Capelin
<b>LOCATION:</b>	Iceland- E. Greenland- Jan Mayen (Subareas V and XIV and Division IIa west of 5°W)
<b>DATE OF REPORT:</b>	11 <sup>th</sup> August 2010
<b>ASSESSOR:</b>	Mike Platt

Global Trust Certification Ltd, Rivercourt Business Centre, Riverlane, Dundalk, Co. Louth, Ireland Tel: 042 932 0912 Fax 042 938 6864

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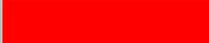
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1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME			
<b>Name:</b> Icelandic Association of Fishmeal Manufacturers			
<b>Address:</b> [REDACTED]			
<b>Country:</b> Iceland		<b>Zip:</b> [REDACTED]	
<b>Tel. No.</b> [REDACTED]		<b>Fax. No.</b> [REDACTED]	
<b>Email address:</b> [REDACTED]		<b>Applicant Code</b>	
<b>Key Contact:</b> [REDACTED]		<b>Title:</b> [REDACTED]	
Certification Body Details			
<b>Name of Certification Body:</b>		Global Trust Certification Ltd.	
<b>Assessor Name</b>	<b>Peer Reviewer</b>	<b>Assessment Days</b>	<b>Initial/Surveillance/ Re-certification</b>
Mike Platt/Dave Garforth	Deirdre Hoare	6	INITIAL
<b>Assessment Period</b>	April to August 2010		
Scope Details			
<b>1. Scope of Assessment</b>		IFFO Global RS Standard Issue 1.0	
<b>2. Fishery</b>		Capelin	
<b>3. Fishery Location</b>		ICES Subareas V and XIV and Division IIa west of 5°W	
<b>4. Fishery Method</b>		Purse Seine, Pelagic Trawl	
Outcome of Assessment			
<b>5. Overall Fishery Compliance Rating</b>		<b>HIGH</b>	
<b>6. Sub Components of Low Compliance</b>		NONE	
<b>7. Information deficiency</b>		NONE	
<b>8. Peer Review Evaluation</b>		Accept	
<b>9. Recommendation</b>		<b>CIRCULATE TO CERTIFICATION COMMITTEE</b>	

<b>2. QUALITY OF INFORMATION</b>
The Quality of information available to undertake the desk top study assessment was considered appropriate. A good level of material came directly from the responsible organisations for research, assessment and management of the Icelandic Capelin Fishery.
<b>3. COMPLIANCE LEVEL ACHIEVED</b>
A <b>HIGH</b> level of compliance has been awarded. Refer to table detailing summary level of compliance.
<b>Recommendation</b>
<b>Circulate report to the Certification Committee.</b>
<b>4. GUIDANCE FOR ONSITE ASSESSMENT</b>
<b>Based on HIGH compliance findings</b>
<ul style="list-style-type: none"> <li>• The auditor should check that there are no IUU activities and that the enforcement and control systems are in place</li> <li>• The on-site assessment should confirm that there is a procedure and records that demonstrate that each supplying vessel is legally entitled to fish in the fishery.</li> <li>• The auditor should inspect a fisher log book and note any comments on interactions with ETP species etc.</li> <li>• The auditor should review permits etc. to ensure they are valid</li> <li>• The auditor should review a catch to ensure that no more than 20% by volume has fish less than 13cm long, if it does has the captain been informed that this fishery is now closed.</li> </ul>
<b>Based on MEDIUM compliance findings</b>
<ul style="list-style-type: none"> <li>• <b>Not Applicable</b></li> </ul>
<b>Based on LOW compliance findings</b>
<ul style="list-style-type: none"> <li>• <b>Not Applicable</b></li> </ul>
<b>5. ASSESSMENT DETERMINATION</b>
Overall a <b>HIGH</b> compliance rating has been assigned at this stage of the assessment.
<b>HIGH Compliance</b>
All sections of the fishery assessment have been given a high compliance rating.
<b>MEDIUM Compliance</b>
<ul style="list-style-type: none"> <li>• <b>Not Applicable</b></li> </ul>
<b>LOW Compliance</b>
<ul style="list-style-type: none"> <li>• <b>Not Applicable</b></li> </ul>

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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
<b>KEY:</b>	Low Compliance: 	Medium Compliance: 	High Compliance: 		

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**FISHERY SUMMARY**

This following report reviews solely the Capelin (*Mallotus villosus*) Fishery in Iceland – E Greenland- Jan Mayern areas (**Subareas V and XIV and Division IIa west of 5°W**) (ICES, 2009. R12) and cannot be used to assess any other Capelin Fishery in the North Atlantic, due to their quite distinct geographical locations of each fishery.

Capelin are pelagic, migratory, planktivorous fish, and changes in their physical and biological environment may have profound effects on their abundance, migrations, distribution, and growth. Because of this, their ecological importance, and the large fishery (Gudmundsdottir and Vilhja’lmsson, 2002; Vilhja’lmsson and Carscadden, 2002), intensive research on, and monitoring of the state of, the Capelin stock in the Iceland–East Greenland–Jan Mayen area has been conducted since the late 1970s. As in other locations, Capelin play a key role in the marine ecosystem in the area. They not only fall prey to several species of marine mammal and seabird, but they are also the main single item in the diet of Icelandic cod (*Gadus morhua*) and of importance as food for several other commercial fish species in Icelandic and Greenland waters (Vilhjalmsson, 2002; R2).

The stock of Capelin that inhabits the area between Iceland, East Greenland, and the island of Jan Mayen spawns in shallow coastal water south and west of Iceland. Juveniles grow up over the continental shelf off north Iceland and off East Greenland west of the Denmark Strait. The main feeding area of adults is the Iceland Sea, the oceanic area from about 68 to 72°N, between the Jan Mayen Ridge and the East Greenland continental shelf. After the feeding season, the adult stock assembles over the outer shelf off north Iceland and migrates to the spawning grounds along the south and west coasts from December to March (Vilhjalmsson, 2002; R2).

The stock migrates to Greenlandic and Norwegian waters close to Jan Mayen, and therefore it is managed by agreement between these nations (Icelandic Ministry of Fisheries and Agriculture, R1.1).

**6. RATIONALE OF THE ASSESSMENT OUTCOME**

**A. THE MANAGEMENT FRAMEWORK AND PROCEDURE**

LEVEL OF COMPLIANCE	
<i>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.</i>	
<b>LOW</b>	An administrative framework that ensures an efficient management of the fishery for its conservation is not established.
<b>MEDIUM</b>	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.
<b>HIGH</b>	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**

**The Capelin fishery has an effective and established management framework and the assessment team has agreed to give a high compliance rating to this section of the standard.**

Iceland has developed a Marine Policy, there are 6 key Ministries with responsibilities for the Marine; Fisheries, Environment, Foreign Affairs, Industry and Justice. Principally the Ministry of Fisheries and Agriculture is responsible for the management fisheries and is responsible for development and implementation of legislation and annual decisions on TACs. The Ministry is supported by the Directorate of Fisheries, the Marine Research Institute (MRI) and the Icelandic Fisheries Laboratory (IFL).

The Marine Policy acknowledges and has been developed to be in accordance with key International

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Agreements such as; UN Convention of the Law of the Sea and the Code of Conduct for Responsible Fisheries to deter and eliminate Illegal, Unregulated and Unreported Fishing.

In addition, this Marine Policy also includes The UN Fish Stocks Agreement, The Ecosystems Approach and the Precautionary Approach to fisheries management.

The 2006 Icelandic Act has given the Marine Policy a legal basis and this supersedes any our marine fisheries act.

The Icelandic Fisheries Management for the Capelin includes international agreements with Norway, Greenland and is call the Jan Mayen-Iceland Marine Resources Arrangement.

This arrangement was set up in 1980 and established a Joint Icelandic-Norwegian Fisheries Commission and a Joint Development Zone dealing with outer continental shelf resources.

A three party accord was set up which stipulated that any TAC's set must reflect two Scientific calculations, and agreed to set a TAC for the Capelin each season. If the tri party agreement was unable to agree a TAC then as the largest interested party Iceland would set its own level.

Before 1 June and 1 December of each year, the provisional and final TAC, respectively, for each season beginning on 1 July and ending on 30 April of the following year. The maximum total allowable catch shall be apportioned among the parties as follows:

All of the capelin fishing is conducted in Icelandic controlled waters. Iceland has 81% quota, Norway has a 9% and Greenland 11%. Faroe and Iceland have an agreement giving Faroe a share of the Icelandic quota ( 2004 TAC).

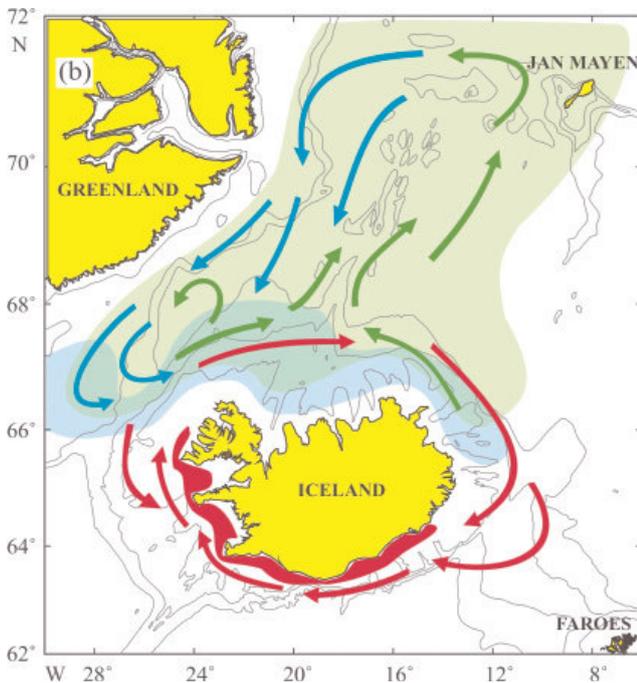
There have been two fishing seasons; the main winter season in January-April, fishing mainly 3-4 year old Capelin, and the summer season in the second half of the year for 2-3 year old Capelin, this is located at the northern limits of the fishery.

In recent years the majority of the catch has been from the winter season (*Icelandic Ministry of Fisheries and Agriculture, R1.1*). (*Subareas V and XIV and Division IIa west of 5°W*) (*ICES, 2009. R12*)

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.	
<b>LOW</b>	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'.
<b>MEDIUM</b>	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.
<b>HIGH</b>	Fisheries management should be concerned with the whole stock unit over its entire area of distribution and take into account: <ul style="list-style-type: none"> <li>• All fishery removals</li> <li>• The biology of the species</li> </ul>

**Determination**

The assessment team concluded that the management arrangement agreed upon in The Jan Mayen-Iceland marine resources arrangement, and on reviewing the biology of this Capelin stock that the entire fishery was covered by the fishery management program.



The Capelin is an ecologically important fish in Icelandic waters. It is a small pelagic fish, and has a very short life cycle (*Icelandic Ministry of Fisheries and Agriculture, R1.1*).

Distribution and migrations of Capelin in the Iceland–East Greenland–Jan Mayen area. Red area, spawning grounds; green area, adult feeding area; blue area, distribution and feeding area of juveniles; green arrows, adult feeding migrations; blue arrows, return migrations; red arrows, spawning migrations. Depth contours are 200, 500, and 1000 m. (*Vilhjalmsson, 2002; R2*).

Spawning peaks in March and the larvae hatch in about 3 weeks, where after they drift with the surface currents in a clockwise direction to the shelf area north and east of Iceland, and to a varying degree across the northern Irminger Sea to the East Greenland plateau. Most juveniles grow up over, or in the vicinity of, the continental shelf off northwest, north, and northeast Iceland and on the East Greenland plateau, west of Vestfirðir.

Growth is fastest during the first two years, but slows thereafter. The larger part of each year-class matures and spawns at age 3, the remainder at age 4; there are few spawners aged 2, and 5-year-old spawners are rare. After spawning mortality is high, as in other Capelin stocks, so in practical terms, the spawning stock is renewed annually.

**LEVEL OF COMPLIANCE**

<i>A3. Management actions should be based on long-term conservation objectives</i>	
<b>LOW</b>	Management actions are not based on long term management objectives.
<b>MEDIUM</b>	Management actions are based on long term management objectives. However the actions are not scientifically formulated.
<b>HIGH</b>	Management actions are based on long term management objectives, and actions are science based.

**Determination**

**It is the view of the assessment team that the management regime does take into account the long term conservation of the fishery and rigorously enforces all these measures. Hence a high compliance rating has been given to this section.**

The fishery is managed according to a two-step management plan which has set a requirement that a minimum spawning-stock biomass of 400 000 t is required by the end of the fishing season, so as to ensure a good level of recruitment for subsequent years. This target spawning stock was agreed by all nations 1979 and its basis was determined from research on other capelin stocks notably the one in the Barents Sea.

Two basic reasons for underlying the establishment of this 400,000t target:

- a. The Norwegian and Russian Capelin fishery on the Barents Sea had been successfully managed using a target residual stock of 500,000t. The Barents sea stock was believed to be larger than the one spawning in Iceland, so the target in Iceland was set lower;
- b. Although there were few acoustic estimates of the stock size available then, these estimates indicated that a residual spawning stock of 400,000t would not constitute spawning failure and therefore would conserve the long term stability of the stock.

**First Step of Management Plan**

Set a preliminary TAC based on the results of an acoustic survey carried out to evaluate the immature (age 1 and age 2 fish) part for the Capelin stock, as this stock will not enter the fished stock for approximately 1 year.

The initial quota is set at 2/3 of the preliminary TAC, calculated on the condition that 400,000 t will be left after the fishing season to spawn.

**Second Step**

Is based on the results of another survey of the same age group conducted during the fishing season. This result is then used to REVISE the preliminary TAC if required to ensure a spawning biomass of 400.000 t by the end of the fishing season.

These surveys are carried out by the Icelandic MRI ( Marine Research Institute) MRI is an active participant in the work of the International Council for the Exploration of the Sea (ICES) and its advisory Committee on Fisheries Management. The stock assessment findings of the MRI are subject to review by ICES before the TAC recommendations are made.

ICES has not evaluated the management plan with respect to its conformity to the precautionary approach (ICES, 2009. R12).

In addition, the Icelandic fisheries management system has many supporting measures designed for specific fisheries. There are extensive nursery areas permanently closed for fishing.

A regulation calling for immediate, temporary area closures when high abundance of juveniles are measured in the catch (more than 20% of the catch composed of fish less than 13 cm in length) is enforced, using on-board observers.

**B. STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE**

**LEVEL OF COMPLIANCE**

*B1. Research in support of fisheries conservation and management should exist.*

<b>LOW</b>	Research to support the conservation and management of the stock, non-target species and physical environment does not exist
<b>MEDIUM</b>	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.
<b>HIGH</b>	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

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**Determination**

**It is the view of the assessment team there is scientific work in existence for the entire Capelin stock and it is conducted by a nationally recognized organisation.**

The MRI undertakes research into the marine environment, including the state of the stocks. This includes the TAC setting process to which ICES reviews results and makes joint recommendations on the TAC levels that are set.

Scientific basis of Data and methods

Unlike most fisheries the Capelin fishery is not managed using traditional reference points Bmsy and Fmsy. Mainly due to their high spawning mortality and highly variable year class size, stock abundance can drastically change from year to year. As such Bmsy reference point may be highly variable and as a result would be an unreliable measure of stock status.

Catch per unit Effort (CPUE) is also not a suitable measure of stock status. Capelin’s schooling nature makes them easily targeted during their fishable phase of life, resulting in very high catches.

Instead the MRI use hydro-acoustic surveys to project mature Capelin stock biomass. The surveys measure the abundance of juveniles, and mortality estimates are used to predict the size of the next maturing population (Gjosaeter et al 2002).This method of surveying a stock has its uncertainties and is just an estimate of the total stock biomass.

In addition acoustic surveys take place during the fishing season .These in season results are then used to set the second TAC, which maybe a revised figure to the preliminary TAC, to ensure a spawning biomass of 400.000 t by the end of the fishing season, which has been agreed as the minimum biomass that must be present at the end of the fishing season, to ensure the long term conservation of the stock.

LEVEL OF COMPLIANCE	
<i>B2. Best scientific evidence available should be taken into account when designing conservation and management measures.</i>	
<b>LOW</b>	Scientific advice is not taken into account when designing conservation and management measures.
<b>MEDIUM</b>	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.
<b>HIGH</b>	Scientific advice is taken into account, when designing conservation and management measures, in a comprehensively manner.

**Determination**  
**It is the view of the assessment team that the scientific approach adopted in this fishery is based on sound judgements that will ensure that the fishery is managed appropriately in the long term**

Acoustic survey results showed that the 2007 year class is estimated to be very low and it was deemed not sufficient to start a fishery in 2009/10. In addition there should be no fishery until new information on stock size becomes available after the planned survey in November 2009.

The MRI stated the Institute’s ships have only counted somewhere between 200,000 and 270,000 t fish since early January, leading them to believe that fishing cannot continue in a sustainable manner.

As result the MRI did not recommend a TAC for the 2008/2009 Capelin fishing season, and only a 15 000 t quota was issued to commercial vessels participating in Capelin surveys. The fishable Capelin stock has now been at a low level during the last 4 seasons.

The results of the 2008 autumn surveys also found a spawning stock biomass of less than 400,000t so the MRI advised that the fishery is not opened until further acoustic surveys confirm sufficient abundance of age 1 and 2 juvenile Capelin(Marine Research Institute, R7).

Due to the uncertainty of the size of the stock the scientific advice has edged on the side of caution and did not set a TAC for the Capelin to ensure the long term conservation of the species.

C. THE PECAUTIONARY APPROACH	
LEVEL OF COMPLIANCE	
<i>C1. The precautionary approach is applied in the formulation of management plans.</i>	
<b>LOW</b>	The precautionary approach is not applied in the formulation of management plans.
<b>MEDIUM</b>	The precautionary approach is applied, however not all uncertainties are taken into account.
<b>HIGH</b>	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**  
**It is the view of the assessment team that from the evidence analysed, the precautionary principle approach to this Capelin fishery does apply and it has been rated highly compliant to the standard.**

Fisheries management in Iceland has a long history and the fisheries management system has been under development for decades with a focus on the fisheries being both economical and sustainable with respect to the natural resources’ utilization and renewal.

In recent years, measures have been taken in strengthening an ecosystem approach to the fisheries management in Iceland. Increasing emphasis is placed on research and development of methods in this field, and on fisheries advice that takes into account various interrelated factors in the ecosystem, such as the interaction of the species, environmental change and multi-species impacts. The focus is furthermore on strengthening research on the effects of fishing gear on the ecosystem, particularly on the seabed and the living bottom communities.

In the absence of defined reference points, the state of the stock can only be evaluated by using acoustic sonar to estimate the size of the stock. It is estimated that 328000 t were left for spawning in spring 2009, which is below the management target of 400,000 t. therefore the MRI did not advise a TAC and this resulted in no commercial fishing in 2009.

No Bmsy is set as already described as it is not an advisable measure to be used in the stock assessment predictions within this fishery due to the high spawning mortality and highly variable year class size, stock abundance can drastically change from year to year. Likewise the shoaling nature of the stock will also make CPUE an inappropriate measure.

Therefore the minimum biomass of 400,000 t is the fisheries key indicator as to whether or not a TAC for Capelin will be set and is rigorously observed by the MRI. However, the using of this spawning stock biomass figure as a reference point has not been formally tested, by ICES. In spite of this, historical evidence from the past 33 years has indicated that this minimum biomass of 400,000 t to fish recruitment ratio has been successful.

**D. MANAGEMENT MEASURES**

**LEVEL OF COMPLIANCE**

*D1. The level of fishing permitted should be set according to management advice given by research organisations.*

<b>LOW</b>	The level of fishing permitted is not set according to management advice given by research organisations.
<b>MEDIUM</b>	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
<b>HIGH</b>	The level of fishing permitted is set according to management advice given by research organisations.

**Determination**

**It is the view of the assessment team that quota set for the Capelin fishery does comply with the scientific evidence.**

The Capelin fisheries are managed by a simple catch rule The MRI, often in cooperation with fishing companies, assesses the size of the spawning stock with acoustic methods. Fisheries are then allowed if more than 400 thousand tonnes are found, if not the fishery is closed for that season. If more than 400 thousand tonnes are found the quota is set to the amount exceeding 400 thousand tonnes. As an example, if the spawning stock is measured at 600 thousand tonnes, the quota is set to 200 thousand tonnes. (Icelandic Ministry of Fisheries and Agriculture, R1.1).

Year	ICES Advice	Predicted catch1 corresp. to advice	Agreed 2 TAC	ICES landings3
1986	TAC	1,100	1,290	1,333
1987	TAC1	500	1,115	1,116
1988	TAC1	900	1,065	1,036
1989	TAC1	900	*	808
1990	TAC1	600	250	314
1991	No fishery pending survey results1	0	740	677

1992	Precautionary TAC1	500	900	788
1993	TAC1	900	1,250	1,179
1994	Apply the harvest control rule	950	850	842
1995	Apply the harvest control rule	800	1,390	930
1996	Apply the harvest control rule	1,100	1,600	1,571
1997	Apply the harvest control rule	850	1,265	1,245
1998	Apply the harvest control rule	950	1,200	1,100
1999	Apply the harvest control rule	866	1,000	934
2000	Apply the harvest control rule	650	1,090	1,071
2001	Apply the harvest control rule	700	1,300	1,250
2002	Apply the harvest control rule	690	1,000	988
2003	Apply the harvest control rule	835	900	741
2004	Apply the harvest control rule	*335	985	784
2005	Apply the harvest control rule	*No fishery	235	238
2006/07	Apply the harvest control rule	*No fishery	385	377
2007/08	Apply the harvest control rule	*207	207	202
2008/09	Apply the harvest control rule	*No fishery	15	
2009/10	Apply the harvest control rule	*No fishery		

(ICES, 2009. R12).

According to this data and the agreement between the fishing nations, the ICES advice on catching is now complied with to ensure the long term conservation of the stock.

The evidence points to the fact that all the fishery managers take into account all the required scientific advice and have followed it very closely over the past 2 decades.

**The quota system in Iceland**

The total allowable catch (TAC) is set by the Minister of Fisheries and based on the recommendation from the Marine Research Institute (MRI)

All commercial fishing activities are subject to these quotas. Fishing vessels are allocated a fixed quota share of the species subject to TAC. The combined quota share for all vessels amounts to 100% of each species. The quotas were initially allocated on the basis of catch history prior to the institution of the quota system. The quota share is multiplied by the TAC to give the quantity which each vessel is concerned during the fishing year in question. This is referred to as the vessel’s catch quota. Permanent quota shares and annual catch quotas are divisible and transferable to other fishing vessels. The allocation of quotas is subject to a fishing fee. Individual enterprises may not control more than the equivalent of 12% of the value of the total quotas allocated for all species, and 12% to 35% for individual species (*Samherji HF website*)

Currently 33 Icelandic vessels share the quota and all vessels must have a permit.

LEVEL OF COMPLIANCE	
<i>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.</i>	
<b>LOW</b>	Mechanisms to allow for recovery of the stock to sustainable levels are not established.
<b>MEDIUM</b>	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.
<b>HIGH</b>	Mechanisms are established to reduce capacity to allow for the recovery of the stock to sustainable levels and there are evidences of recovery.

**Determination**

**It is the view of the assessment team that this stock is not meeting the precautionary minimum biomass limit and the fishery managers will not set a commercial TAC until the levels have recovered.**

A catch limitation system is the cornerstone of the Icelandic fisheries management system. The system is intended to limit the total catch and to prevent more fishing from the fish stocks than the authorities allow at any given time. The catch limitation system is based on the catch share allocated to individual vessels.

Each vessel is allocated a certain share of the total allowable catch (TAC) of the relevant species. The catch limit of each vessel during the fishing year is thus determined on basis of the TAC of the relevant species and the vessel’s share in the total catch. The catch share may be divided and transferred to other vessels, with certain limitations (*Icelandic Ministry of Fisheries and Agriculture, R1*).

A regulation calling for immediate, temporary area closures when high abundance of juveniles are measured in the catch (more than 20% of the catch composed of fish less than 13 cm) is enforced, using on-board observers (ICES, 2009. R12).

The MRI strictly adhere to the SSB of 400,000t and they stop commercial fishing activity, even if they did initially set a TAC. If results from subsequent acoustic stock surveys indicate that the SSB is below the 400,000t limit.

All these measures indicate that the fishery has management measures that will stop fishing to ensure the long term conservation of the stock.

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LEVEL OF COMPLIANCE	
<i>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.</i>	
<b>LOW</b>	There are no management measures to prevent the impact of the fishing methods and fishing practices on non-target species and the physical environment.
<b>MEDIUM</b>	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.
<b>HIGH</b>	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**

**From the evidence provided the assessment team have decided that there are suitable systems in place to minimize the risk of ETP species being caught, and the impact of the fishing operations on the rest of the ecosystem are described as minimal. From the evidence provided from the onsite audit verification all the catches in Iceland are sampled and all by catches are landed and recorded. In addition, interviews with skippers did show that they are committed not to capture TEP species and if they do they will record such encounters for the Directorate. The assessment team has therefore rated the fishery as highly compliant.**

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Various special measures are taken to ensure the protection of small fish and vulnerable habitats, such as regulations on the type of fishing gear allowed in different areas and the closing of fishing grounds. Such measures include rules on the minimum mesh size and the use of small-fish sorting grids.

If monitoring reveals that the percentage of small fish in the catch or the by-catch exceeds guideline limits, the Marine Research Institute may close the relevant fishing area for a short period of time. Such a fishing prohibition enters into force within a few hours. If small fish or by-catch repeatedly exceeds guideline limits, the relevant area is closed for a longer period of time.

Various area closures are in effect for longer periods of time and the Ministry of Fisheries enters the decisions on such long-term closures into force. The closures may apply to specific fishing gear, fishing-vessel size or all fishing for certain periods of time.

Capelin is an important forage fish and declines in stock may be expected to have implications for the productivity of their predators e.g. Cod (ICES, 2009. R12).

**Effects of fishing and by-catch**

The majority of Capelin from Iceland is caught using purse seines, which cause little or no damage to the benthic habitat. Mid-water pelagic trawls are used less often and like the purse seine have minimal impacts on the seabed ecology.

The level of by catch in the Capelin fishery in Iceland is estimated to be very low by the Fisheries and Aquaculture Department of the United Nations, being less than 2%. Icelandic authorities state that if a boat catches a by-catch species it must have a quota and the true by-catch rate would be closer to Zero.

**Effects on ETP species.**

The assessment team did find some evidence that on average 1-2 Humpback whales are caught each year in a Capelin Purse seine nets, but could not find any evidence on the injury sustained by the mammal. Some reports have stated that as many as 5 whales may have been caught (Anon 2000).

Evidence supplied by the Icelandic Authorities has no records of whales ever being captured by pelagic trawls.

If a purse seine boat does capture a whale the captain is instructed to release the net and catch of fish. The use of sonar makes this possible interaction very easy to avoid and if a whale is caught the boat will make every effort to open the gear and allow it to swim out unhurt.

Evidence supplied by the Icelandic Authorities have no reports of seabirds being captured - and suggest that it is highly unlikely that they get captured in the purse seine or midwater trawl. Captains have informed the authorities that this type of bird capture has never occurred.

In addition Icelandic legislation (557/2007) states that all fishing vessels must keep a Fishery Log-book. Birds and Mammals that are caught in fishing gear are to be reported and recorded in the Fishery Log-book.

This Fishery Log-book is returned to the Directory of Fisheries once a month. These reports are then sent onto the Marine Research Institute where the information is used in their scientific work.

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<b>E. IMPLEMENTATION</b>		
<b>LEVEL OF COMPLIANCE</b>		
<i>E1. There should be a framework for sanctions of violation of Laws and regulations.</i>		
<b>LOW</b>	A framework for sanctions of violation of Laws and regulations do not efficiently exist.	
<b>MEDIUM</b>	A framework for sanctions of violation of Laws and regulations do exist but do not work efficiently.	
<b>HIGH</b>	A framework for sanctions of violation of Laws and regulations exists and is proven to be efficient.	
<b><u>Determination</u></b>		<b>H</b>
<p><b>Iceland has a proven framework for imposing sanctions if it detects violations of the fishing regulations and as such is highly compliant to the standard.</b></p> <p>In order to prevent undue consolidation of fishing rights by a few fishing companies certain upper limits have been set for the holding of quota shares in major fishable stocks by a fishing company or a group of companies closely linked by ownership. The upper limit is 12% of the quota share for cod, 20% for haddock, saithe and Greenland halibut, 35% for redfish, 20% for herring and Capelin and 20% for offshore shrimp. A further measure stipulates that each fishing company or a group of companies is not permitted to hold more than 12% of the value of the combined quota shares for the stocks utilized by TAC allocations (FAO, 2004; R5).</p> <p><b>Severe penalty for breaches of the fisheries management legislation</b></p> <p>Breaches of the law and regulations on fisheries management are subject to fines or revoking of the fishing permit, irrespective of whether such conduct is by intent or negligence. Major or repeated intentional offenses are subject to up to six years imprisonment. If the catch of a vessel exceeds the allowable catch of the said vessel of individual species, the relevant fishing company must obtain an additional catch quota for the relevant species. If this is not done within a certain timeframe, the fishing permit may be revoked as well as a charge having to be paid for the illegal catch. (Icelandic Ministry of Fisheries and Agriculture, R1.2).</p> <p><b>Clear rules on discards and the disposition of by-catch</b></p> <p>Collecting and bringing ashore any catches in the fishing gear of fishing vessels is obligatory. Discarding catch overboard is prohibited and such conduct is subject to penalty according to law. If a vessel catches any species in excess of its fishing permit, the relevant fishing company has the option of obtaining additional quota within a certain period of time after landing the catch. Vessels are authorized to land a small percentage of the catch, usually by-catch, without the use of quota. The catch in question is sold at auction and the proceeds go to a research fund that supports marine research. The Directorate of Fisheries and the Marine Research Institute conduct research and estimate discarded catches. The results indicate insignificant discards by the Icelandic fishing fleet (Icelandic Ministry of Fisheries and Agriculture, R1.2).</p>		

LEVEL OF COMPLIANCE	
<i>E2. A management system for fisheries control and enforcement should be established.</i>	
<b>LOW</b>	A management system for fisheries control and enforcement is not established.
<b>MEDIUM</b>	A management system for fisheries control and enforcement is established but do not work efficiently.
<b>HIGH</b>	A management system for fisheries control and enforcement is established and work efficiently.

**Determination**

H

**Iceland has a substantial management frame work to oversee the management and the controlling of fisheries under its jurisdiction and as such is highly compliant to the standard.**

The Icelandic Directorate of Fisheries is responsible for monitoring and inspecting vessels while at sea, as well as landings. The Directorate also issues fishing permits and allocates catch quotas. Landing data is submitted to the Directorate on a daily basis, forming the basis of a near real-time overview of quota uptake.

All catches of Icelandic fishing vessels are weighted and recorded at the port of landing. The port authorities record the catch in a computer that is directly linked to a centrally located database at the Directorate of Fisheries. Thus 60 ports of landings in Iceland send electronic data daily to the Directorate. A total of approximately 50.000 landings are registered in the system every year.

No one may pursue commercial fishing in Icelandic waters without having a general fishing permit

**Permits**

All vessels are required to hold a commercial fishing permit regardless of what fish species they are targeting. A permit can only be obtained if the vessel is included in the Vessels Registry with the Directorate of Shipping and has been proven seaworthy (FAO, 2004.).

All commercial fisheries are subject to authorization by the Directorate of Fisheries. The Iceland Coast Guard, which falls under the auspices of the Ministry of Justice, monitors the fisheries of vessels operating in Icelandic waters, as well as monitoring closed areas. Additionally, it inspects the fishing gear, for example the mesh size of the nets (Icelandic Ministry of Fisheries and Agriculture, R1.2).

There are also strict requirements for the keeping of logbooks on-board all fishing vessels and they must be made available for fishery inspectors. Furthermore, the logbooks are important for scientific assessment purposes (Responsible Fisheries, R8).

The Fisheries Association of Iceland represents the fishery sector’s interests domestically and internationally. The areas of discussion include environmental issues and responsible resource utilization. The Fisheries Association is a member of the International Coalition of Fisheries Associations (ICFA). The Association represents seven main organizations in the fisheries sector, including both employers and employees.

The Fishery Association provides a mutual board for discussions for these organizations and enables local and international coalitions and multi-cooperative work (FAO, 2004; R5).

Regular sampling is conducted from landings and the individual’s length measured and weighed as well as determining their sex and gonad maturity. Moreover, otoliths or scales are sampled for age determinations. With available statistics on landings the total catch can be divided into age groups both by numbers and weight.

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In addition to regular sampling of landings and data on catch per unit of effort (e.g. kg of cod per each hour trawled) from mandatory skipper's fishery log-books, a great amount of fishery independent information is obtained from research surveys. These include demersal fish and benthic invertebrate trawl surveys as well as pelagic fish acoustic surveys. The various data are utilized in stock abundance estimates using a number of different stock assessment models based on a one species or multi-species approach.

An increasing attention is paid to research on behavior, availability and migration of fish by tagging as well as on species interactions, feeding and growth within the food chain. Finally, research is aimed at minimizing the catch of juveniles by improving fishing gear as well as by regular closure of spawning and juvenile areas (*Marine Research Institute, R6*).

Factors affecting the fisheries and the stock Regulations and their effects.

Discards are allowed when catches are beyond the carrying capacity of the vessel. Methods of transferring catches from the purse-seine of one vessel to another vessel were invented long ago, and since skippers of purse-seine vessels prefer to operate in groups, discards are practically zero. In the pelagic trawl fishery, such large catches of Capelin rarely occur.

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