FISHERY ASSESSMENT REPORT

IFFO GLOBAL STANDARD FOR RESPONSIBLE SUPPLY OF FISHMEAL AND FISH OIL

FISHERY:	**Blue Whiting**
LOCATION:	**Iceland (Subareas I-IX, XII, and XIV) (Combined Stock)**
DATE OF REPORT:	**2nd June 2010**
ASSESSOR:	**Mike Platt**

1. APPLICATION DETAILS AND SUMMARY OF THE ASSESSMENT OUTCOME			
Name: Icelandic Association of Fishmeal Manufacturers			
Address: [redacted]			
Country: Iceland		**Zip:** [redacted]	
Tel. No. [redacted]		**Fax. No.** [redacted]	
Email address: [redacted]		**Applicant Code**	
Key Contact: [redacted]		**Title:** [redacted]	
Certification Body Details			
Name of Certification Body:	**Global Trust Certification Ltd.**		
Assessor Name	**Peer Reviewer**	**Assessment Days**	**Initial/Surveillance/ Re-certification**
Mike Platt/ Dave Garforth	Deirdre Hoare	6	Initial
Assessment Period	April to August 2010		
Scope Details			
1. Scope of Assessment	IFFO Global RS Standard Issue 1.0		
2. Fishery	Blue Whiting		
3. Fishery Location	ICES Subareas I-IX, XII, and XIV		
4. Fishery Method	Pelagic Trawl		
Outcome of Assessment			
5. Overall Fishery Compliance Rating	**HIGH COMPLIANCE**		
6. Sub Components of Low Compliance	None		
7. Information deficiency	None		
8. Peer Review Evaluation	Agree with rating		
9. Recommendation	**CIRCULATE TO CERTIFCATION COMMITTEE**		

2. QUALITY OF INFORMATION

The Quality of information available to undertake the desk top study assessment was considered appropriate. A high level of material came directly from the responsible organisations for research, assessment, and Management of the Icelandic Blue Whiting Fishery.

3. COMPLIANCE LEVEL ACHEIVED

A High level of compliance has been awarded. Refer to table detailing summary level of compliance.

Recommendation

Circulate Report to Certification Committee.

4. GUIDANCE FOR ONSITE ASSESSMENT

Based on HIGH compliance findings

- The auditor should check that there are no IUU activities and that the enforcement and control systems are in place
- 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.
- The auditor should inspect a fisher log book and note any comments on interactions with ETP species etc.
- The auditor should review permits etc. to ensure they are valid
- The auditor should review a catch to ensure that no more than 20% by volume has fish less than 13cm lo does has the captain been informed that this fishery is now closed.

Based on MEDIUM compliance findings

- **Not Applicable**

Based on LOW compliance findings

- **Not Applicable**

5. ASSESSMENT DETERMINATION

Overall a **HIGH** compliance rating has been assigned at this time. The summary details of compliance achieved is provided.

HIGH Compliance

In the view of the assessment team all sections of the fishery achieved a High compliance rating.

MEDIUM Compliance

- **Not applicable**

LOW Compliance

- **Not applicable - none**

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 exist					E1
A management system for fisheries control and enforcement should be established					E2

KEY: Low Compliance: Medium Compliance: High Compliance:

FISHERY SUMMARY

This following report reviews solely the Blue Whiting (*Micromesistius poutassou*) Fishery in Iceland ICES *(Subareas V and XIV and Division IIa west of 5°W) (ICES, 2009).*

Blue whiting is a small pelagic Codfish that lives most of its life at 200 to 600 meters depth. It grows up to 30cm in length and is widely distributed in the North-East Atlantic and is therefore an important link in the marine food chain, feeding on planktonic crustaceans and small fish and being itself prey to a wide range of predatory fish, squid and marine mammals

The blue whiting is a true international fish. It is uncertain if there exists a stock of pure Icelandic strain. Most of the fish in Icelandic waters probably originate from larvae drift from the main spawning grounds off the British Isles or by the migration of adults. The adult stock migrates all over the eastern North Atlantic, up to the Barents Sea and even to the Denmark Strait. Mature blue whiting is found in the open sea, most often near the surface or in mid water, but can also be found down to depths of 1,000 meters. Migrations are irregular and probably controlled by ocean currents and temperatures.

Some limited spawning seems to occur in Icelandic waters but the main spawning grounds are to the north and northwest of the British Isles, close to the bottom at depths of 250 to 450 metres. Spawning takes place in February to March in the main spawning grounds, but earlier in warmer waters to the south and later in colder waters to the north. Upon spawning, the fish migrate north to feed and are found in greatest quantities between Iceland and Norway.

The blue whiting grows rapidly during its first year, and reaches maturity at the age of 2 to 4 years. After that growth slows down. It can reach up to 20 years of age and at seven years old it is about 32 cm long.

Large-scale fishing of blue whiting was resumed in Iceland in 1998 after almost two decades of very little fishing effort. In the past few years, fishing has increased very significantly, and in 2003 Icelandic vessels fished over 500,000 tonnes. Landings by Icelandic vessels in 2008 following the new management were 163,748 tonnes, while the total allowable catch for Iceland was 187,500 tonnes . In 2009 Icelands agreed quota this has reduced to 6213t to help ensure that the fishing mortality of the stock is reduce to F0.18.

6. RATIONALE OF THE ASSESSMENT OUTCOME

A. THE MANAGEMENT FRAMEWORK AND PROCEDURE

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

Determination **H**

The Blue Whiting fishery has an effective and established management framework and the assessment team have 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 of 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 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 other marine fisheries act.

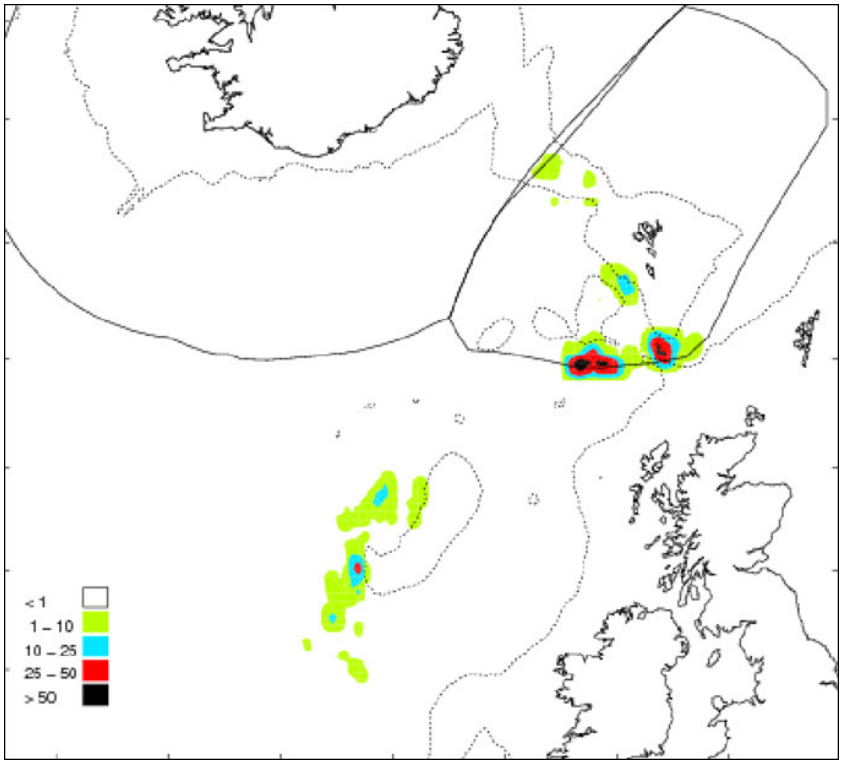
The Icelandic Fisheries Management for the Blue Whiting fishery includes International Agreements with EU, Faroe Islands and Norway and is has active participation in NEAFC (North East Atlantic Fisheries Commission).

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

H

Determination

The international agreements in place in this fishery do ensure that the entire distribution of the Blue Whiting Fishery and its biological characteristics were covered by fishery management arrangements.



Blue whiting fishing grounds by the Icelandic fleet in 2008, dark areas indicate highest catches (t/nm2)

Research by ICES (2009) stated that based on the fish genetics and growth rate of the fishery it would suggest that there was more than a single stock in the Northeast Atlantic. While more work is required to confirm the stock composition, the blue whiting populations in areas VIIk and VIIj and further south are likely to be one stock and are separate from the stock found in the Northeast Waters.
The Blue Whiting Fisheries management consists of the following parties to NEAFC, of which EU, Norway, Faroe Islands and Iceland are participatory members Jointly these parties under the auspices of NEAFC are concerned with the entirety of the distribution of the Blue Whiting stocks to ensure that if there are two stocks, as suspected, that they are covered.

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

Determination **H**

Based on this evaluation, management actions are based on long-term conservation objectives for the stock. The additional protective measures undertaken by Iceland also support the conservation objectives for spawning stock biomass. It is this information that has led to the assessment team giving the long term conservation management plan of this fishery a high compliance rating to the standard.

The former management plan set in 2002 was evaluated by ICES in 2006 and found not to be in accordance with the precautionary principles. Because at the target fishing mortality, a decrease in recruitment, which occurred for the 2005 and 2006 year classes, could present an increased risk of SSB falling below B_{pa} 2.25million tonnes(ICES, 2006a).

In this 2002 plan no catch allocations were agreed upon until 2005, during which time advised catch limits were frequently overshot (NMFCA, 2008).

It was surmised that increased recruitment prior to this period of intense over-fishing saved the stock from collapse, but catches continued to exceed recommended levels and the stock was considered to be at risk (NMFCA, 2008; ICES, 2007b). A new management plan was drafted by the four coastal states in 2008.

Therefore the new revised management plan 2008 aims to:

1) Maintain, as the previous plan intended, the spawning-stock biomass above 1.5 million t (B_{lim}) in the long-term but reduce the target fishing mortality at which the stock is exploited to 0.18 (F_y);

2) Reduce the fishing mortality by **35% a** year in 2009 and 2010 or until the fishing mortality reaches 0.18;

3) Once the target fishing mortality has been reached, implement a harvest control rule, setting F at 0.18 when SSB is expected to reach or exceed the trigger biomass (2.25 million t = B_{pa}); reducing F to 0.05 when SSB < B_{lim} and linearly reducing F between these two states (NEAFC, 2008) .

The new management plan has considered this in specifying a catch rate which sets F according to the state of the biomass, although B_{pa} has been kept as the trigger value (NEAFC, 2008). **However, ICES' advice that only a greater initial reduction in F would make the plan precautionary was not followed when the annual 35% reduction was opted for.**

Nonetheless, ICES has considered the plan to be **consistent with the precautionary approach** (ICES, 2009a).

A new TAC of 540 thousand t was advised for 2010, according to this revised management plan (ICES, 2009a).

In parallel with the management plan, access to waters within national jurisdiction is agreed between states and technical measures may be applied on a national basis (ICES, 2006b).

a) Iceland enforces a temporary area closure if 30% or more if blue whiting are smaller than 25 cm (ICES, 2008a). The Faroe Islands enforce a total fishing ban on the Faroe bank during the spawning of cod (Jákupsstovu *et al.*, 2007) and the fishery may also be subject to other closed areas or boxes which exist to protect juveniles (Kelleher, 2005).

b) A minimum mesh size of 35mm for direct blue whiting pelagic trawl fishing was fixed by Council Regulation (EEC) No 1638/87 for areas within NEAFC's jurisdiction. Within EU waters, permitted mesh size ranges from 16 to 40mm depending on region and minimum percentage of target species (EC No 850/98). No minimum landing size is enforced (ICES, 2009b).

In the view of the assessment team the new management plan is an improvement on previous management plan for the fishery. Whilst there is some debate by ICES of whether the plan is conservative in the short term, in the long term there is agreement that it has high probability of it meeting long term objectives for ensuring SSB is maintained above Blim.

B. STOCK ASSESSMENT PROCEDURES AND MANAGEMENT ADVICE

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

Determination **H**

Substantial scientific evidence is in existence which is used to support the management of the Blue Whiting Fishery.

The Marine Research Institute of Iceland, a Government Agency, is responsible for research into fisheries conservation and is supported by the Icelandic Directorate. The MRI undertakes surveys which are used in fishery management both nationally and internationally by NEAFC.

The Blue whiting stock is assessed using a Stochastic Multi-Species model (SMS) applied to data including commercial catch-at-age statistics and data from a broad range of international surveys.

The International Blue Whiting Spawning Stock Survey (IBWSSS). IBWSSS data was included for the first time in 2007 (ICES, 2007a) and these findings were accorded greater weight in the 2008 assessment, as this survey **covers the entire distribution area of the spawning stock** and the methodology used had a sound scientific background when compared to previous surveys (ICES, 2009a).

All the stock surveys and catch data indicated weak 2005 to 2008 year classes resulting in a rapidly decreasing Spawning Stock Biomass (SSB) from a historical high in 2003-2004. The catching effort could not be blamed as the Blue whiting landings had decreased slightly during the same period (ICES, 2009b).

The latest assessment has a lower fishing mortality than in 2007 and a higher SSB in 2008 than originally estimated in 2008 (ICES, 2009b). **This has led to SSB in 2008 to be revised and increased by 40% and the fishing mortality in 2007 to be revised downwards by 13%.**

Large inter-annual variability in age-structured indices would suggest that incorporating constraints on TAC changes into the management plan may be appropriate (ICES, 2009a). There may still be problems with incomplete data reporting by some countries (ICES, 2009b). Discarding estimates are also incomplete but Iceland has banned this practice within its own EEZ waters,. In general all these factors were thought not to be of major importance, and were not included in the assessment (ICES, 2009a).

The following reference points have been defined for this stock

Parameter	**Value**
B_{lim}	1.5 million t
B_{pa}	2.25 million t
F_{lim}	0.51
F_{pa}	0.32
F_y	0.18
B_y	> 2.25 million t

ICES' advice for 2010 is based on the agreed management plan and corresponds to catches of 540,000 t. **A reduction in SSB of 14% by 2011** is expected under this scenario (ICES, 2009a), but projections run to 2013 indicate that SSB will still remain above B_{pa} (ICES, 2009b).

However, despite all the uncertainties of the stock assessment models ICES believes that the blue whiting biomass is being solely maintained by the newly recruited juveniles, although the research has shown that this recruitment is slowing and further reductions in the overall SSB are still expected(ICES, 2009b).

The agreed estimated fishing mortality is F = 0.29 which is below F_{pa} = 0.32. However, the fishery plan agreed by the international states in 2008 requires a fishing mortality of F =0.18 eventually, to ensure that the SSB never goes below 1.5 million t.

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

Determination **H**

All the NEAFC members have adopted a management plan based on reducing fishing mortality gradually. The TAC for 2010 is set at 540,000t a reduction of 10% on last year and 57% reduction on 2008. Whilst, science is agreed that this will give a high probability of achieving high long term yield, in the short term it is likely that SSB will decline and, there is some uncertainty of the accuracy of the current mortality estimates and of low recruitment. However the scientific advice has been taken into account with the production of the 2008 plan and has been rated as highly compliant.

ICES evaluated the 2008 management plan and found it to be consistent with the precautionary approach as the risk of SSB falling below B_{lim} in the long term (10-20 years) was less than 5% (ICES, 2009a).

Advising on the basis of the management plan, ICES has indicated that landings should be limited to 540,000 t in 2010. This corresponds to an expected decline of 14% of SSB by 2011, though remaining above B_{pa} (ICES, 2009a). In spite of the stock being classified as having full reproductive capacity, low recruitment levels may mean that further decline is expected, even at these reduced fishing mortalities (ICES, 2009a).

Basis: Catch(2009) = 606 (Coastal States TAC + NEAFC allocation) ; Catch constraint, F_{2009} = 0.17; SSB(2009) = 3586; SSB(201 = 3041; R(2010,2011) = GM(1981–1996) = 8.83 billion at age 1.

Rationale	Catch (2010)	Basis	F (2010)	SSB (2011)	%SSB change[1]	% TAC change[2]
Zero catch	0	F=0	0	3168	+4%	-100
Status quo	816	$F_{sq} = F_{2008}$	0.29	2353	-23%	+35%
Management Plan	540	Target F (F=0.18)	0.18	2627	-14%	-11%
High long-term yield	540	$F_{0.1}$	0.18	2627	-14%	-11%
Precautionary limits	94	$F_{2008} * 0.1$	0.03	3074	+1%	-84%
	229	$F_{2008} * 0.25$	0.07	2938	-3%	-62%
	441	$F_{2008} * 0.50$	0.14	2726	-10%	-27%
	636	$F_{2008} * 0.75$	0.22	2532	-17%	+5%
	891	$F_{pa} = F_{2008} * 1.14$	0.32	2279	-25%	+47%
	921	Maintain SSB>B_{pa}	0.33	2249	-26%	+52%

NEAFC 10 NOV 2009

The table shows the rationale of the 2010 TAC being set at 540,000t and how this F 0.18 will still reduce the SSB by 14%, but if recruitment levels into the fishery increase the longer term conservation of the stock will be maintained above the precautionary SSB limit of 2.25 million t.

If this TAC is enforced according to the scientific evidence the blue whiting stock should be maintained at an acceptable level.

C. THE PRECAUTIONARY APPROACH

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

Determination **H**

It is the view of the assessment team on the evidence analyzed, the precautionary principle approach to this Blue Whiting fishery can be given a High compliance rating as these precautionary reference points have been agreed and are being incorporated into the fishery management plan, which should have a positive effect on the long term conservation of the stock

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.

Habitat

Blue whiting is mainly caught in a directed fishery by pelagic trawl and is widely distributed in the North East Atlantic, with a large migratory capacity. Its wide distribution and position in the food chain means it plays an important role in the pelagic ecosystems (ICES, 2009b; NMFCA, 2008) and changes in its abundance will therefore have wide-ranging effects on the ecosystem (ICES, 2008d).

Marine Reserves

Iceland enforces a temporary area closure if 30% or more of blue whiting are smaller than 25 cm (ICES, 2008a). The Faroe Islands enforce a total fishing ban on the Faroe bank during the spawning of cod (Jákupsstovu *et al.*, 2007) and the fishery may also be subject to other closed areas or boxes which exist to protect juveniles (Kelleher, 2005).

Agreed Reference Points

	Type	Value	Technical basis
Precautionary approach	B_{lim}	1.5 million t	B_{loss}
	B_{pa}	2.25 million t	$B_{lim}\exp(1.645*\sigma)$, with $\sigma = 0.25$.
	F_{lim}	0.51	F_{loss}
	F_{pa}	0.32	F_{med} (1998).
Targets	F_y	0.18	= $F_{0.1}$ and target F in the agreed management plan
	B_y	> 2.25 million t	= trigger SSB for F <0.18

(unchanged since 1998, targets added in 2008 on the basis of the agreed management plan; $B_{trigger}$ updated in 2009)

ICES has evaluated these agreed reference points and the latest fishery management plan and has reasoned that they comply with the precautionary principles of the FAO code of conduct for responsible fishing.

D. MANAGEMENT MEASURES

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

H

Determination

Iceland has a robust fishery management policy and reporting structure and consistently ensures that any quota its receives from the TAC is never exceeded.

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 22 Icelandic vessels share the quota and all vessels must have a permit

Conformity between the scientific fisheries advice and the authorities' decisions on the TAC is a principal factor for ensuring responsible fisheries management. The authorities' decisions on the maximum catch are based on social and economic factors, yet always focused on ensuring the long-term renewal of the fish stocks. The Icelandic authorities have implemented a utilization strategy with the long-term objective of ensuring sustainable fisheries (Icelandic Ministry of Fisheries and Agriculture).

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

Determination **H**

In the view of the assessment team all the measures detailed below will help to ensure the longer term conservation of the Blue Whiting fishery and have rated the recovery plan as highly compliant to the standard.

The fishery is jointly managed by Iceland, Norway, the European Community and the Faroe Islands, with the responsibility for waters outside national jurisdiction falling to NEAFC.

A TAC of 540 thousand t was advised for 2010, according to the revised management plan (ICES, 2009a).

In 2009 the following quotas were agreed Denmark- Faroe Islands 9196 t, Greenland 2924 t , EU 10935 t, Iceland 6213 t , Norway 9196 t and Russian Federation 40054 t within international waters. Rest of quota is within coastal waters are EU 165,628, Faroes 141,870, Iceland 95,739 and Norway 139,806. These were agreed in London in 2008.

In addition, technical measures such as a minimum mesh size of 35mm for directed blue whiting pelagic trawl fishing was fixed by Council Regulation (EEC) No 1638/87 for areas within NEAFC's jurisdiction. Within EU waters, permitted mesh size ranges from 16 to 40mm depending on region and minimum percentage of target species (EC No 850/98). 1 January 2010 it is legally required in Norwegian waters to apply sorting grids in blue whiting fisheries.

Control of access to fishing by Icelandic vessels is through a permit system. Vessels must be registered and carry a fishing permit before they can apply for quota. In addition during the monitoring of catches Iceland will enforce temporary closed areas if they detect over 30% of the catch being below 25cm in size. This is a direct action to prevent unnecessary capture of juvenile blue whiting and is a long term conservation measure. This technical measure was assessed during the onsite sight assessment and confirmed that the Icelandic authorities did rigorously enforce it.

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

Determination H

It is the view of the assessment team that on reviewing the evidence provided there are sufficient management measures in place to prevent the impact of the fishing methods and fishing practices on non target species and have rated the fishery as highly compliant

Iceland adopts various special measures 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.

As Midwater or Pelagic trawls are the principal fishing gear used in blue whiting. These operate without touching the bottom and are frequently trawled at depths of a few hundred meters, where the minimum mesh size in the cod end is 40 mm. The meshes get increasingly larger as they are closer to the opening, where they are commonly 64 meters. The opening of the net can be up to 23,000 m^2, the size of 5 football fields. A recent development, especially in the blue whiting fisheries, is for two vessels to share one trawl and divide the catch. (Icelandic Ministry of Fisheries and Agriculture website).

This pelagic gear has little direct affect on the habitat and seafloor (ICES, 2006e).

Non Target and By-catch Species

Mixed industrial fishers that take blue whiting may also target Norway pout, Mackerel, Herring to name but a few (ICES, 2006b).

Actual data on the by-catch is very incomplete for the fishery (ICES, 2006b). Research in the Norwegian fishery reports little by-catch during the blue whiting spawning season, but does report some catches of juveniles as well as saithe and redfish when this fishery has continued later in the season (NMFCA, 2008).

By-catches of both saithe and cod have been reported but are below 1% in the Icelandic blue whiting fishery in 2004 (ICES, 2006b). An average saithe by-catch rate of 3.5% was however reported by Faroese monitoring the blue whiting fleet (ICES, 2006b). Dutch fleets also report almost no by-catch of other species (ICES, 2008)

Overall ICES has stated that the Blue Whiting is a relatively clean fishery and overall the by-catch rates are minimal (ICES 2006)

Information from the onsite assessment confirmed that all the skippers must take samples to ensure that all by-catch species are recorded. This data is E mailed directly to the Directorate who will analysis the data to ensure that no adverse by-catch species are being caught.

PET Species

The broadness of blue whiting distribution implies a habitat overlap with many species of Northeast (NE) Atlantic birds and mammals. Data on effects of the fishery on ETP **species is limited** but a European Commission study group (SGFEN, 2002) considered that blue whiting pelagic trawling fishery should as a matter of priority monitor for cetacean by-catch.

However, a period of monitoring in the UK blue whiting fishery was undertaken and did not record any dolphin by-catch **(SGFEN, 2002).**
Icelandic legislation (557/2007) all fishing vessels are to keep a Fishery Log-book. Birds and Mammals that are caught in fishing gear must be reported in the Fishery Log-book.

The Fishery Log-book is returned to the Directory of Fisheries once a month. The Directory of Fisheries then sends the reports to the Marine Research Institute where the information is used in their scientific work.

The onsite audit did verify this level of documentation.

E. IMPLEMENTATION

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

Determination **H**

Iceland has a proven framework for imposing sanctions if it detects violations to the fishing regulations and as such is highly compliant to the standard

Severe penalty for breaches of the fisheries management legislation

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,).*

Clear rules on discards and the disposition of by-catch

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 Website).*

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

H

Determination

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 Icelandic 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 website).*

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 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.

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,)*

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.

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