



MSC FISHERY SURVEILLANCE REPORT

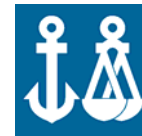
Norway North East Arctic
and
North Sea Saithe Fisheries

Third Surveillance Report

Norwegian Fishing Vessel Owners
Association
&
Norwegian Seafood Export Council

REPORT NO. 2011-013

REVISION NO. 01 – 28.06.2011



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Date of first issue: 24.06.2011	Project No.: 41921181	DET NORSKE VERITAS AS DNV Certification AS Veritasveien 1, 1322 HØVIK, Norway Tel: +47 67 57 99 00 Fax: +47 67 57 99 11 http://www.dnv.com
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Client: Norwegian Fishing Vessel Owners Association (Fiskebåt) c/o Norwegian Seafood Export Council	Client ref.: Webjørn Barstad/Fiskebåt Ingrid Dahl Skarstein/EFF	

Project Name: Report for 3rd Surveillance audit for Norway North East Arctic and North Sea Saithe Fisheries

Certificate info:

FISHERY	CERTIFICATE NR.	ISSUE DT.	VALIDITY DT.
Saithe Trawl Fishery	DNV-NOR-MSC-F-60001-2009	24.08.2009	15.06.2013
Saithe Purse-Seine Fishery	DNV-NOR-MSC-F-60003-2009	24.08.2009	15.06.2013
Arctic Saithe Danish-Seine Fishery	DNV-NOR-MSC-F-60004-2009	24.08.2009	15.06.2013
Arctic Saithe Gill-Net Fishery	DNV-NOR-MSC-F-60005-2009	24.08.2009	15.06.2013
Arctic Saithe Handline Fishery	DNV-NOR-MSC-F-60006-2009	24.08.2009	15.06.2013
Arctic Saithe Purse-Seine Fishery	DNV-NOR-MSC-F-60007-2009	24.08.2009	15.06.2013
Arctic Saithe Trawl Fishery	DNV-NOR-MSC-F-60008-2009	24.08.2009	15.06.2013
Saithe Danish-Seine Fishery	DNV-NOR-MSC-F-60009-2009	24.08.2009	15.06.2013
North Sea Saithe Gill-Net Fishery	DNV-NOR-MSC-F-60010-2009	24.08.2009	15.06.2013
North Sea Saithe Handline Fishery	DNV-NOR-MSC-F-60011-2009	24.08.2009	15.06.2013

The objective of this project has been the third surveillance audit of the Norway North East Arctic and North Sea Saithe fisheries, harvested by trawl, purse seine, gill nets, hand line, Danish Seine, long line and others.

Report No.: 2011-013	Date of this revision: 28.06.2011	Rev. No. 01
Report title: Third surveillance report for Norway North East Arctic and North Sea Saithe Fisheries		
Work carried out by: Stephen Lockwood, Independent expert Ms. Sandhya Chaudhury, DNV Lead auditor		
Work verified by: Anna Kiseleva		

Key words:

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ABBREVIATIONS

ACOM	Advisory Committee on Management (ICES)
B_{lim}	Limit Biomass
B_{msy}	Maximum Sustainable Yield Biomass
B_{pa}	Precautionary Biomass
CFP	Common Fisheries Policy
CR	Council Regulation
CRISP	Centre for Research-based Innovation in Sustainable fish capture and Pre-processing technology, at IMR, Norway
DNV	Det Norske Veritas
DoF	Directorate of Fisheries, Norway
EC	European Communities
EFF	Export Fisheries Council, Norway
eNGO	Environmental non-governmental organisation
ETP	Endangered, threatened and protected species
EU	European Union
F	Fishing mortality
F_{MSY}	Fishing mortality rate consistent with maintaining B_{MSY}
FAM	Fisheries Assessment Methodology
FD	Fisheries Directorate
ICES	International Council for the Exploration of the Sea
IMR	Institute of Marine Research, Norway
ITQ	Individual Transferable Quota
MCS	Monitoring, Control and Surveillance
MFCA	Ministry of Fisheries and Coastal Affairs



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MSC	Marine Stewardship Council
NFVOA	Norwegian Fishing Vessel Owners Association (Fiskebåtrederens Forbund)
NGO	Non-Governmental Organisation
NINA	Norwegian Institute for Nature Research
NSS	Norges Sildesalgslag
PI	Performance Indicator
RAC	Regional Advisory Council
SG	Scoring guidepost
SSB	Spawning Stock Biomass
SSB _{MSY}	Spawning stock biomass supporting maximum sustainable yield
TAC	Total Allowable Catch
VMS	Vessel Monitoring System
WWF	World Wildlife Fund



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1 GENERAL INFORMATION

This report contains the findings of the third surveillance audit for the Norwegian saithe fisheries – North East Arctic saithe (NEAS) and North Sea saithe (NSS), harvested by trawl, purse seine, gill nets, hand line, Danish seine, longline and others. The client for this certification is the Norwegian Seafood Industry and the certification is being coordinated by the Fiskebåtredernes Forbund (Norwegian Fishing Vessel Owners Association) and the Norwegian Seafood Export Council (EFF).

The purpose of this annual Surveillance Report is:

1. To establish and report on any material changes to the circumstances and practices affecting the original complying assessment of the fishery;
2. To monitor the progress made to comply with any Conditions raised and described in the Public Report of June 2008 and in the corresponding Action Plan drawn up by the client;
3. To monitor any actions taken in response to any Recommendations made in the Public Report;
4. To re-score any Performance Indicators (PI) where practice or circumstances have materially changed during the intervening year, focusing on those PIs that form the basis of Conditions raised.

As Conditions are met, future surveillance assessments will focus more and more on the overall ongoing operation of the fishery in relation to the MSC Principles and Criteria.

1.1 Name and contact information for the certified fishery:

Client name Norwegian Seafood Industry (NSI)
% Fiskebåtredernes Forbund and Norwegian Seafood Export council (EFF)

Contact person: Jan I Maråk/Fiskebåt
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2 GENERAL BACKGROUND

2.1 The Owners' Organisation

Fiskebåtredernes Forbund, the Norwegian Fishing Vessel Owners Association (NFVOA), is an employers' organization and representative body for the vast majority of Norwegian fishing boats over 27.5 meters. In this context, it coordinates the process of certification and certificate maintenance for NE Arctic and North Sea saithe for the Norwegian Seafood Industry and on behalf of the Norwegian Seafood Export Council.

The NFVOA represents its members in all consultations and negotiations concerning management of the fishery and provides members with up-to-date information whenever there is a change in regulations. The organization is active in a number of reference groups and takes every opportunity to contribute to further development in the relevant science, assessment and management of demersal stocks, not least with respect to gathering and providing high-quality data. In this context, NFVOA works effectively with the Ministry of Fisheries and Coastal Affairs (MFCA), the Directorate of Fisheries (DoF) and the Institute of Marine Research (IMR). In particular, NFVOA tries to influence the government to grant more resources for stock assessments since this is crucial to the setting of quotas, and promotes the message that sustainability and accuracy is in everyone's interest, including that of the fishing.

2.2 Previous Assessments

The Norwegian Seafood Industry's application for MSC certification of its North Sea and NE Arctic saithe fisheries was announced in February 2006, and it received its certificate in June 2008. Four conditions and one recommendation were set at the initial certification covering the two fisheries and specified gears. For ease of reference, the two fisheries are separated here although some conditions are common to both.

The assessment process for this surveillance audit was performed according to the requirements set out in the MSC Fisheries Certification Methodology.

2.2.1 The first surveillance audit - 2009

The first surveillance audit was undertaken *via* a telephone conference with the client and stakeholders on August 2009, as well as a meeting in Bergen with other stakeholders later the same month. Also, Graham Piling, a member of the original assessment team, was consulted and contributed with information on changes that had occurred in the year since certification as well as proposals for follow-up actions on the conditions from the full assessment.

The conclusions of the first surveillance audit was that NFVOA had taken appropriate measures to address the conditions of certification raised during the MSC certification

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assessment and therefore remained compliant with its MSC certification. Satisfactory and timely progress had been made with the Conditions attached to this certification.

2.2.2 The second surveillance audit - 2010

The surveillance audit was announced on the MSC website on April 2010 followed by a supporting notice to stakeholders issued by the MSC. Direct email notification was also sent to the stakeholders that had previously been identified for this fishery inviting interested parties to contact the audit team.

The audit team held meetings with the Institute for Marine Research and the Fisheries Directorate and with the client and Ministry of Fisheries and Coastal Affairs in May 2010. The four conditions and one recommendation set at the initial certification were reviewed by the assessment team against the commitments made in the client's Action Plan, 2008. The scores allocated to the corresponding Performance Indicators in the original MSC assessment were also re-evaluated.

Following the assessment, it was concluded that all aspects of Condition 1 had been met as the corresponding PI scores exceeded 80. Consequently, **Condition 1 was closed and requires no further action.**

2.2.3 The third surveillance audit, 2011

The third surveillance audit was announced on the MSC website on 29th March 2011 followed with a supporting notice to stakeholders issued by the MSC on the same date. Direct email notification was also sent to the stakeholders that had previously been identified for this fishery, inviting interested parties to contact the audit team. The audit team carried out a site visit and consulted the client, DoF, IMR and MFCA on the 19th and 20th May 2011.

3 ASSESSMENT OF THE NORTH SEA SAITHE FISHERY

3.1 Summary of the North Sea Fishery

A variety of gears are used in Norwegian saithe fisheries but North Sea saithe (ICES Sub-area IV, North Sea, and Division VIa, West of Scotland) are mainly taken in a directed trawl fishery in deep water at the edge of the continental shelf in the northern North Sea and along the Norwegian Trench. Norway has 52 % of the total allowable catch from the North Sea saithe stock and in a typical year, about 78% of the Norwegian catch is taken by bottom trawl, 13% by gillnet and long-line, 9% from purse seine and 1% from other fishing gears.

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Norway has introduced a 120 mm cod-end mesh size in trawls used by Norwegian-registered fishing vessels and all vessels fishing in Norwegian waters. Within EU waters, the regulations permit 110 mm cod-end mesh in trawls.

Since the fish are distributed inshore and are virtually inaccessible to commercial fishing gear (or monitoring methodologies) until they are about 3 years old, discarding of young fish is assumed not to be a problem in this fishery (ACOMnss, 2010).¹ By-catch of other demersal species occurs in some saithe trawl fisheries and saithe is also taken as unintentional by-catch in other demersal fisheries. In EU waters, discards may occur if vessels do not have a saithe quota; in Norwegian waters discarding is prohibited by law. Discarding appears to be a problem primarily associated with Scottish trawlers (WGNSSK, 2010).²

The Norwegian Coastguard maintains a vigorous surveillance and at-sea catch monitoring programme for all vessels fishing in Norwegian waters; this includes biological sampling on behalf of IMR. For its part, IMR operates an observer programme aboard a reference fleet of demersal fishing vessels comprising a representative range of gears. The saithe fishery, however, has a low priority in this programme as catches are invariably clean saithe catches with very low by-catch of other species – fish, birds or marine mammals (IMR pers. Comm.)

3.2 Stock developments and fishery management

The total landings reported to ICES in recent years have been less than the internationally agreed TAC (ACOMnss, 2010). It is sometimes suggested that when this happens it is indicative of errors in the scientific assessment. In this instance, however, a survey of the fishing industry (Napier, 2010)³ suggests it is a combination of very low prices for saithe coupled with high fuel prices that is causing these reductions in targeted fisheries. The survey also found that the industry perception is of increasing saithe abundance in the central and northern North Sea in 2009, with low or stable abundance in the south western North Sea. Insofar as Napier's (2010) survey covered areas fished by the Norwegian saithe fleet, it reflects the views expressed by the NFOVA during this audit.

¹ ACOMnss, 2010. Ecoregion: North Sea; saithe in Subarea IV (North Sea, Division IIIa (Skagerrak) and Subarea VI (West of Scotland and Rockall). ICES Advice Book 6.4.12.

<http://www.ices.dk/committe/acom/comwork/report/2010/2010/sai-3a46.pdf>

² WGNSSK, 2010. Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak. ICES CM 2010/ACOM:13.

<http://www.ices.dk/reports/ACOM/2010/WGNSSK/Sec%2011%20Saithe%20in%20Subareas%20IV%20VI%20and%20Division%20IIIa.pdf>

³ Napier, I.R., 2010. Fishers' North Sea Stock Survey 2010. North Atlantic Fisheries College, Shetland, UK.

<http://www.nsss.eu/files/2010/NSSS-2010-FINAL-1.pdf>

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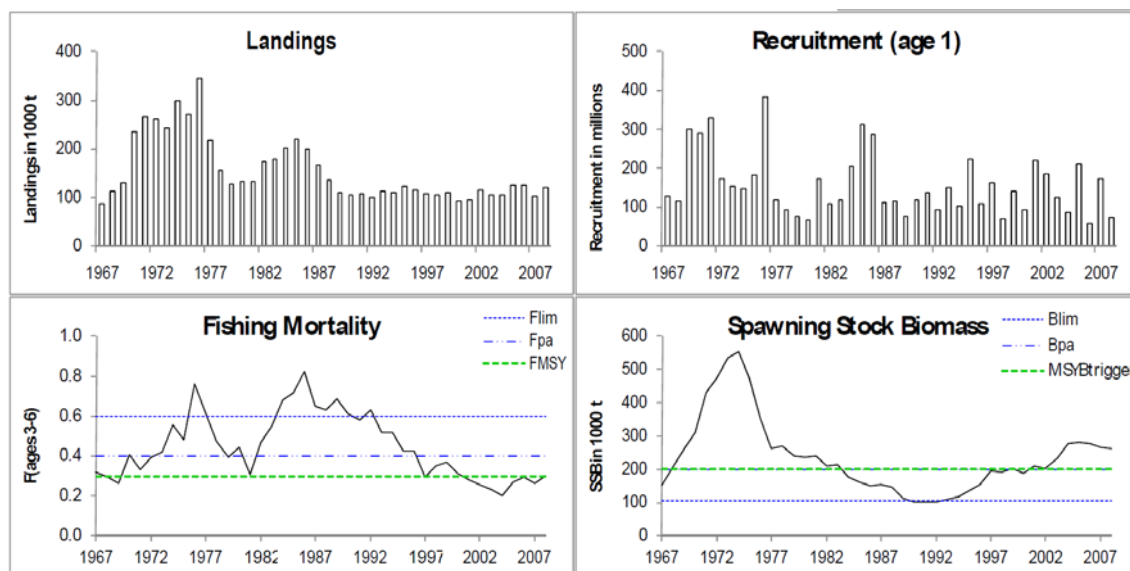


Figure 3.2 Saithe (in Subareas IV and VI, and Division IIIa. Summary of stock assessment (weights in 000 tonnes) up to 2008 (ACOMnss, 2010).

The fishery is managed according to an agreed EU – Norway management plan that was reviewed and renewed in 2008. ICES has endorsed the plan as being consistent with the precautionary approach. ICES follows established age-based analytical methodologies that take uncertainties into account in its assessment. The assessment and management plan utilise MSY-based reference points, which is consistent with MSC policy. Under normal circumstances various assumptions governing input parameters for the analysis are validated by the results from an annual IMR acoustic stock survey and catch-per-unit-effort data from the French commercial fleet. These data were not available for 2009 (but were available once more for the 2010 assessment – not yet published); consequently, the results from the previous year’s working group meeting was used as a basis for the forecast run and that was extended to 4 years (ACOMnss, 2010). SSB was estimated to be above $B_{trigger}$ (previously B_{pa}) over the past decade. Similarly, F has been at or below the management plan fishing mortality target, $F_{MSY} = 0.30$, the ICES surrogate for B_{MSY} . Recruitment is variable but tends to maintain a relatively stable mean over time.

With respect to environmental interactions, ICES has noted (ACOMnss, 2010) a decrease in the mean weight-at-age has been observed since the mid-1980s, but the trend has stopped during the last 2–3 years. There is insufficient information to establish whether these reductions are linked to changes in the environment. There is no indication that the observed decline in weight-at-age is density dependent. No other observations or concerns were raised.

Insofar as there is by-catch in the saithe fishery, it is principally cod and haddock, for which all vessels engaged in saithe fishing have quota (and *vice versa*) and must abide



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by the corresponding rules. The North Sea and Subarea VI (West of Scotland–Rockall) cod stocks remain below all biological reference points (there are no MSY-related reference points) and ICES continues to advocate a zero TAC for these stocks (ACOMnsc, 2010; ACOMrc, 2010; ACOMwsc, 2010).^{4,5,6} Nevertheless, the EU–Norway has agreed TACs and any cod taken in the saithe fishery counts against the vessel and Norwegian quotas. There is also an internationally agreed cod recovery plan, which includes closed areas, to which Norway is a signatory.

In contrast, the North Sea haddock stock is in a relatively robust condition, SSB is above and fishing mortality is below MSY-related reference points (ACOMnsh, 2010).⁷ In Subarea VI, however, the stocks are at or below the MSY-related reference point $B_{trigger}$ and is advocating a precautionary approach relative to the (precautionary) draft management plan (ACOMrh, 2010; ACOM,wsh, 2010).^{8,9}

Within Norwegian waters, the Coastguard maintains a commercial catch monitoring and sentinel fishing programme that informs its decisions to establish real-time closures to protect juvenile fish, including cod.

3.3 Conditions set for the North Sea Saithe Fishery

- Condition 1: uncertainties in assessment relating to estimation of recruitment and the effect of migration in and out of the stock;
- Condition 2: need for more detailed data on the by-catch of all species and a need for sampling programmes to estimate consequences on the stock and ecosystem;
- Condition 3: promotion of rebuilding of the North Sea cod stock through separate recordings of all catches of cod in saithe-directed fisheries, and evaluation in terms of its contribution to fishery effects on cod stocks.

No recommendations were made with respect to the North Sea fishery

3.4 Audit of North Sea Saithe Fishery Conditions

3.4.1 Condition 1: Uncertainties in assessment

⁴ ACOMnsc, 2010. Ecoregion North Sea: cod in Subarea IV (North Sea), Division VIIId (Eastern Channel), and IIIa West (Skagerrak). ICES Advice Book 6.4.2. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/cod-347.pdf>

⁵ ACOMrc, 2010. Ecoregion Celtic Sea and West of Scotland: cod in Division VIb (Rockall). ICES Advice Book 5.4.22. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/cod-rock.pdf>

⁶ ACOM,wsc, 2010. Ecoregion Celtic Sea and West of Scotland: cod in Division VIa (West of Scotland). ICES Advice Book 5.4.21. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/cod-scow.pdf>

⁷ ACOMnsh, 2010. Ecoregion North Sea: haddock in Subarea IV (North Sea), Division VIIId (Eastern Channel), and IIIa West (Skagerrak) ICES Advice Book 6.4.3. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/had-34.pdf>

⁸ ACOM, rh, 2010. Ecoregion Celtic Sea and West of Scotland: haddock in Division VIb (Rockall). ICES Advice Book 5.4.24. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/had-rock.pdf>

⁹ ACOM, wsh, 2010. Ecoregion Celtic Sea and West of Scotland: haddock in Division VIa (West of Scotland). ICES Advice Book 5.4.23. <http://www.ices.dk/committe/acom/comwork/report/2010/2010/had-scow.pdf>



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PI 1.1.5.2 Does the assessment take into account major uncertainties in data and have assumptions been evaluated?

PI 1.1.5.5 Does the assessment include the consequences of current harvest strategies?

Condition closed 2010, no further assessment required.

3.4.2 Condition 2: By-catch (i.e. non-target species; fish, birds, mammals)

PI 2.1.2.1 Is information available on the nature and extent of by-catch (capture of non-target species)?

PI 2.1.2.2 Is information available on the extent of discard and slippage (the proportion of the catch not landed)?

PI 2.1.4.1 Are management strategies in place to identify, avoid and reduce adverse effects?

PI 2.1.5.2 Does the removal of non-target stocks have unacceptable effects on ecosystem structure and function?

PI 2.2.1.3 Do interactions pose an unacceptable risk to ETP species?

PI 3A.3.4 Do procedures include for a precautionary approach in the absence of sufficient information?

Action required: Sampling programmes should be initiated to provide statistically robust estimates of the by-catch of all species, including estimates of discards and slippage. Information should be sufficient to allow an assessment of the effects of by-catch in relation to the distribution, ecology and abundance of the species and populations affected (commercial and non-commercial fish, mammals and birds).

The potential effect of non-target species removals on the populations affected and the wider ecosystem should be evaluated.

Where assessments of effects on by-catch are shown to be significant, and for all species identified as ETP, appropriate measures to reduce by-catch to acceptable and precautionary levels shall be developed and implemented.

Timescale: Sampling programmes should be designed and initiated within 12 months of certification and an initial evaluation of any potential effects completed within 3 years of certification. Where mitigation measures are required to reduce or avoid effects, these should be identified within 3 years of certification and fully implemented within 5 years of certification.

Action Plan: Within 12 months following final certification NFVOA shall propose further developments of the reference fleet programme to include a programme of registration of non-target species removals in the saithe directed fisheries. Non-target



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species in this context being non-commercial species, in particular any PET species that may occur, and not catches of other commercial species that by the nature of the fishery occurs in the normal course of the fishery.

Within 3 years (2011) potential effects of such non-target removals shall be assessed. Where negative effects are found, potential mitigating measures shall be identified.

Within 5 years identified necessary mitigating measures should be implemented.

Observations: NFVOA submitted a proposal to IMR, MFCA and DoF February 2009 for the registration of by-catch in all Norwegian fisheries, including saithe fisheries, not just the reference fleet. Since that proposal was made, it has become mandatory for all vessels fishing in Norwegian waters, and all Norwegian vessels fishing elsewhere, to retain (other than undersize fish or excess quota in EU waters, where they are discarded) and record all fish brought on board. In addition, IMR observers embarked on reference-fleet demersal fishing vessels, record any incidence of marine mammal (ETP) by-catch. Such records are extremely rare – *n* per decade rather than *N* per year (IMR, pers. comm.). Hitherto, IMR observers have not recorded bird (ETP) by-catch; such estimates as have been made have been based on dock-side interviews carried out by staff from the Norwegian Institute for Nature Research (NINA). Hitherto, NINA has not identified any specific cause for concern associated with the North Sea saithe fishery. Nevertheless, IMR has agreed with NINA to add birds to the list of species recorded by observers embarked on reference-fleet vessels.

On the basis of its reference-fleet observer records and from Coastguard catch monitoring reports, both IMR and DoF confirm NFVOA's view that the targeted saithe fishery is a very clean fishery with relatively small amounts of non-target species (mainly cod and haddock) taken. If the saithe stock declines, however, the proportion of by-catch might increase, particularly so if the cod stocks establish any recovery.

Insofar as there is a problem with unwanted by-catch in this, or any other Norwegian fishery, the DoF policy is to try and eliminate the problem rather than introduce further measures for catch monitoring and recording. To this end, on 1st May 2011 the Centre for Research-based Innovation in Sustainable fish capture and Pre-processing technology (CRISP) was established as a specialist unit within IMR.¹⁰ The Norwegian Research Council has guaranteed 8 years core funding over the next five years and other organisations, including industry bodies, are also making financial contributions. The principal aim of CRISP will be to eliminate discarding and all other wasteful practices across all gears in all Norwegian fisheries, including this fishery.

Conclusions: Norwegian legislation now requires that all fish species caught are enumerated. IMR observers on embarked on reference-fleet vessels record any occurrence of marine mammal (ETP) by-catch and henceforth will also record bird

¹⁰ http://www.imr.no/filarkiv/2010/08/hi_nytt_11_web.pdf/en



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(ETP) by-catch. The client was encouraged to introduce an ETP recording scheme across the entire fleet to augment the data collected by IMR. No specific problems relating to retained or by-catch species have been identified. **The client is on schedule to meet the obligations of this condition.**

3.4.3 Condition 3: By-catch of North Sea cod

PI 2.3.1.3 Are management measures in place to modify fishery practices in light of the identification of unacceptable effects?

PI 2.3.1.3 Do management measures allow for recovery of affected populations?

Action required: Interactions of this gear with North Sea cod populations are expected to occur and catches of North Sea cod in these 'saithe-directed fisheries' are currently recorded separately. North Sea cod is recognized as being in a depleted state and MSC certified fisheries are required to be prosecuted so as to promote rebuilding of depleted target and by-catch species.

The North Sea cod by-catch in the saithe-directed fishery should be evaluated in terms of its relative contribution to effects on cod stocks.

Stock rebuilding measures (the cod recovery plan) have been implemented for North Sea cod. There are indications in the North Sea that the decline in cod stock status has recently stabilized, and that the recent year class could promote stock recovery if recruited into the fishery (ACOMnsc, 2010). Nevertheless, measures should be identified and implemented to minimize catches of North Sea cod and future catches should be reported in relation to the proportion of cod in saithe catches, data from previous years and the relative status of the cod stock. Measures should remain in force until cod recovery has been achieved.

Timescale: Evaluation of the extent and significance of cod catches in saithe directed fisheries should be initiated within 6 months of certification. If the evaluation indicates a significant effect, identification and testing of further measures to minimize cod by-catch should be completed within two years of certification. Measures should be fully implemented within 3 years of certification.

Action plan: Within 2 years following final certification NFVOA shall propose further developments to the fleet reference programme to include an examination of the extent of North Sea cod catches in the North Sea saithe directed fisheries.

Within 2 years an appraisal of opportunities for further reductions in North Sea Cod by-catch shall be conducted if findings in the above examination leads to the conclusion that reductions are needed (by-catch are of significance). Such measures shall, if needed, be implemented within 3 years.

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Timeline:

Proposal by June 2010.

Appraisal of extent of North Sea cod by-catch, and if necessary, opportunities for reductions, by July 2012.

Mitigation measures, if necessary, to be implemented by July 2013.

Observations: The actions taken by NFVOA with reference to this condition are the same as for Condition 2: By-catch.

In short, NFVOA supports the reference fleet monitoring programme and is compliant with current cod stock management, conservation and recovery measures.

3.5 Conclusions from 2011 Audit of North Sea Saithe Fishery

As noted in the previous audit (2010), the EU–Norway agreement management plan was updated in December 2008 and the EU has reinforced its commitment to the plan through Council Regulation (EC) 1342/2008. ICES evaluated both plans in 2009 and concluded they were in accordance with the precautionary approach if implemented and enforced adequately.

Given that Norwegian North Sea cod by-catch are included within the TACs for this stock, and hence included within the assessment and management process, adherence with the overall TACs set should lead to a recovery of the stock. Thus, **the client fleet is meeting the requirements of Condition 3** through compliance with current legislation and regulations and supporting IMR data-gathering initiatives.



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4 ASSESSMENT OF THE NORTH-EAST ARTIC SAITHE FISHERY

4.1 Summary of the North-east Arctic Saithe Fishery

Norway accounts for more than 90% of the landings of NE Arctic saithe. Saithe are widely distributed throughout the NE Arctic but most of the fish is taken in offshore waters (i.e. > 12 miles from baselines) of the Norwegian Sea (ICES Sub-area II). Norway accounts for more than 90% of the landings with about 40% of the Norwegian catch coming from bottom trawl, 25% from purse seine, 20% from gill net and 15% from other conventional gears (long line, Danish seine and hand line). The gill net fishery is most intense during winter, purse seine in the summer months while the trawl fishery takes place more evenly all year around (ACOMneas, 2011).¹¹ In the Norwegian fishery, quotas may be transferred between one gear grouping and another if it becomes clear that the quota allocated to one of the fleets will not be taken. In addition to quotas, the fisheries are managed by minimum mesh size, minimum size of fish in the catch, by-catch regulations, area closures, and other area and seasonal restrictions. Furthermore, sorting grids are used in the trawl fishery.

Since the early 1960s, purse seiners and trawlers have dominated the fishery, with a traditional, gillnet fishery for spawning saithe as the third major component. The purse-seine fishery is conducted in coastal areas and fjords. Historically, purse-seiners and trawlers have taken, approximately, equal shares of the catches. Regulation changes led to a reduction in the amounts being taken by purse-seiners after 1990.

In the purse-seine fishery, slipping has been reported, mainly related to minimum size of fish in the catch. There is little quantitative information on discarding, which is illegal, other than what is gathered by IMR observers on reference-fleet vessels.

Since 1999, the minimum size of fish in the catch has been 45 cm for trawl, Danish seine and static gear. For purse seiners, the minimum size is 42 cm (north of Lofoten) and 40 cm (between 62° N and Lofoten) but for the first 3000 t between 62° N and 66° 33' N the minimum size is 35 cm.

The Norwegian Coastguard maintains a vigorous surveillance and at-sea catch monitoring programme of all vessels fishing in Norwegian waters; this includes biological sampling on behalf of IMR. For its part, IMR operates an observer programme aboard demersal fishing vessels comprising a representative range of gears. The saithe fishery, however, has a low priority in this programme as catches are invariably clean saithe catches with very low by-catch of other species – fish, birds or marine mammals (IMR pers. Comm.)

¹¹ ACOMneas, 2011. Ecoregiona Barnets Sea ans Norwegian Sea: Saithe in Subareas I and II (Northeast Arctic). ICES Advice Book 3.4.4. <http://www.ices.dk/committe/acom/comwork/report/2011/2011/sai-arct.pdf>



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An aspect of the Coastguard surveillance duty is operation of the real time closure system that has been in force along the Norwegian Coast and in the Barents Sea since 1984, aimed at protecting juvenile fish. Based on scientific research data and mapping by Coastguard-chartered fishing vessels. Fishing is prohibited in areas where the proportion by number of undersized cod, haddock and saithe combined exceeds 15% (the size limits vary by species). The time of notice before a closure of an area comes into force is 24 hours for vessels for national vessels and 7 days for foreign vessels. Before formal closure, the Coastguard requests vessels not to fish in an area with too much small fish observed during their inspections. A closed area is not opened until there is documentary proof of low juvenile catch rates from Coastguard trial fishing vessels. A preliminary evaluation of the effectiveness of the system up to 1998 shows a clear decrease in the discarding of small cod and haddock. The current, historically good conditions of NE Arctic stocks indirectly indicate the success of the joint Norwegian–Russian area closure system in the northeast Arctic (ACOMneas, 2011).

4.2 Stock developments and fishery management

In 2009, Norway took *c.* 144 kt of NE Arctic saithe from a total international catch of *c.* 161 kt. In 2010 total international catch of NE Arctic saithe was equal to *c.* 193 kt, where 193 kt are landings (46% trawl, 28% purse-seine, 19% gillnet, and 7% other gear types). Norwegian total catch of NE Arctic saithe amounted to *c.* 174 kt in 2010. Even though it was a slight increase in international catches of NE Arctic saithe from 2009 to 2010, total international landings are still below agreed for this stock TAC, which in 2010 was agreed to 204 kt (ICES Advice 2011, Book3).

It is sometimes suggested that when the catches landed are less than the internationally agreed TAC, it is indicative of errors in the scientific assessment. As with the North Sea fishery, however, it is more probably a function of very low prices for saithe, coupled with high fuel prices, causing these reductions in targeted fisheries (Napier, 2010). Insofar as Napier's (2010) North Sea findings can be applied to the NE Arctic saithe fishery, they reflect the views expressed by the NFVOA during this audit.

The fishery is managed according to a Norwegian management plan (harvest control rules – HCR) that has been reviewed and endorsed by ICES as being consistent with the precautionary approach (ACOMneas, 2011). At present, neither IMR nor ICES has defined MSY-based reference points for this stock but the HCR is based on well-established biological reference levels (B_{pa} , B_{lim} , F_{pa} , F_{lim}) including F_{pa} , which, in many fisheries, is at the same or similar level to that subsequently defined as F_{msy} , the ICES proxy for B_{msy} . Similarly, B_{pa} is often comparable with $B_{trigger}$, the level at which corrective measures are initiated to rebuild stock towards B_{msy} .

Since 1995, SSB has been well above B_{pa} but has decreased in recent years (Figure 4.2). Fishing mortality has been well below F_{pa} since 1996, although it has shown a rising trend since 2004–5 (Figure 4.2). As with any saithe stock, recruitment cannot be

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estimated until the fish join the exploited stock due to the littoral–cryptic distribution and behaviour of the juvenile fish. Over time, the stock has maintained a relatively robust mean recruitment, albeit with inevitable peaks and troughs (Figure 4.2). The 2002 year class was the highest in the time-series 1960–2004 but the 2003 and 2004 were among the lowest and the 2005 year class is estimated to be around average. Poor year classes may be a function of reduced inflow of warm Atlantic water to the Norwegian Sea and Barents Sea (ACOMneas, 2011).

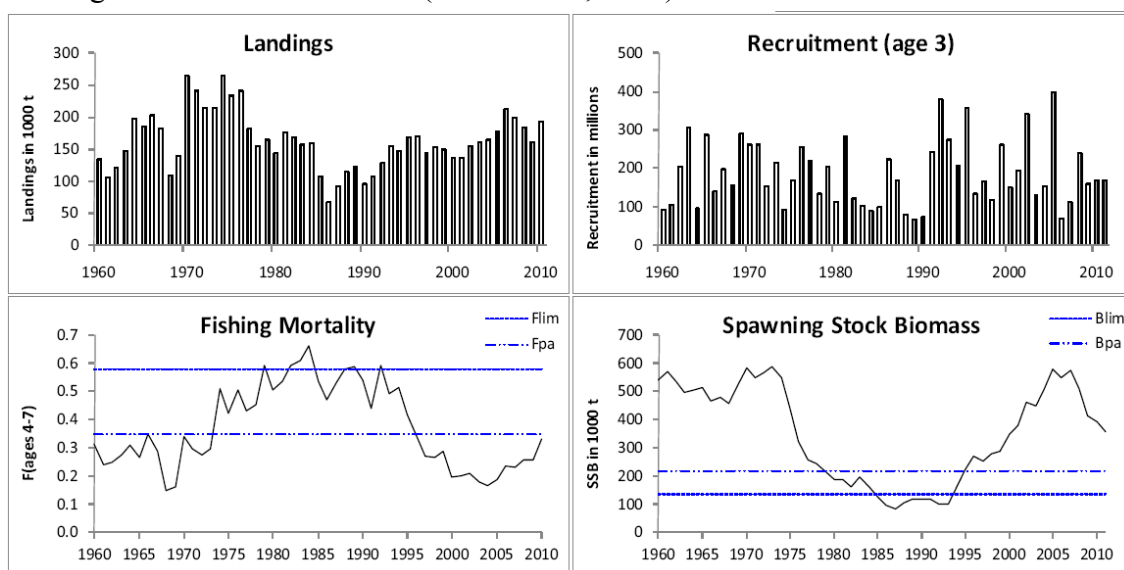


Figure 4.2 Summary of saithe stock assessment in Subareas I (Barents Sea area) and II (Norwegian Sea area); weights in kt (ICES Advice 2011, Book3).

The lack of any credible recruitment index in advance of recruitment to the fishable stock is an ongoing, but unavoidable, weakness in the annual assessment process. In addition, the closure of the Norwegian harbour sampling programme in favour of the at-sea monitoring programme maintain by IMR–DoF–Coastguard possible results in catches from some (coastal) sector catches being under represented in the data.

The recent negative trend in recruitment has resulted in a comparable negative trend in spawning stock biomass although it is currently still *c.* twice B_{pa} . ICES advice for 2012 is based on the management plan implemented by the Norwegian Ministry of Fisheries and coastal affairs and suggests that catches in 2012 should be no more than 164.000 t, i.e. slightly less than the total international catch in 2010. Bycatches of coastal cod and *S. marinus* advised to be kept as low as possible (ICES Advice 2011, Book3).



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4.3 Conditions and recommendations set for the NE Arctic saithe fishery

- Condition 1: uncertainties in assessment relating to estimation of recruitment and the effect of migration in and out of the stock;
- Condition 2: need for more detailed data on the by-catch of all species and a need for sampling programmes to estimate consequences on the stock and ecosystem;
- Condition 3: promotion of rebuilding of the North Sea cod stock through separate recordings of all catches of cod in saithe-directed fisheries, and evaluation in terms of its contribution to effects on cod stocks;
- Condition 4: an assessment of potential effect of saithe directed fishing within the coral protection areas and identification and implementation of appropriate management measures to prevent adverse effects if found to be significant.

Recommendation 1: It is suggested that there be an evaluation as to whether the areas of coral currently protected are sufficient, in terms of population and habitat requirements to provide adequate protection for associated biodiversity.

4.4 Audit of the North-east Arctic saithe Fishery Conditions & Recommendations

4.4.1 Condition 1: Uncertainties in assessment

- PI 1.1.5.2** Does the assessment take into account major uncertainties in data and have assumptions been evaluated?
- PI 1.1.5.5** Does the assessment include the consequences of current harvest strategies?

Condition closed 2010, no further assessment required.

4.4.2 Condition 2: By-catch

- PI 2.1.2.1** Is information available on the nature and extent of by-catch (capture of non-target species)?
- PI 2.1.2.2** Is information available on the extent of discard and slippage (the proportion of the catch not landed)?
- PI 2.1.4.1** Are management strategies in place to identify, avoid and reduce adverse effects?
- PI 2.1.5.2** Does the removal of non-target stocks have unacceptable effects on ecosystem structure and function?
- PI 2.2.1.3** Do interactions pose an unacceptable risk to ETP species?
- PI 3A.3.4** Do procedures include for a precautionary approach in the absence of sufficient information?



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Action required: Sampling programmes should be initiated to provide statistically robust estimates of the by-catch of all species, including estimates of discards and slippage. Information should be sufficient to allow an assessment of the effects of by-catch in relation to the distribution, ecology and abundance of the species and populations affected (commercial and non-commercial fish, mammals and birds). The potential effect of non-target species removals on the populations affected and the wider ecosystem should be evaluated.

Where assessments of effects on by-catch are shown to be significant, and for all species identified as ETP, appropriate measures to reduce by-catch to acceptable and precautionary levels shall be developed and implemented.

Timescale: Sampling programmes should be designed and initiated within 12 months of certification and an initial evaluation of any potential effects completed within 3 years of certification. Where mitigation measures are required to reduce or avoid effects, these should be identified within 3 years of certification and fully implemented within 5 years of certification.

Action Plan: Within 12 months following final certification NFVOA shall propose further developments of the reference-fleet programme to include a programme of registration of non-target species removals in the saithe directed fisheries. Non-target species in this context being non-commercial species, in particular any ETP species that may occur, and not catches of other commercial species that by the nature of the fishery occurs in the normal course of the fishery.

Within 3 years (2011) potential effects of such non-target removals shall be assessed. Where negative effects are found, potential mitigating measures shall be identified.

Within 5 years identified necessary mitigating measures should be implemented.

Observations: NFVOA submitted a proposal to IMR, MFCA and DoF February 2009 for the registration of by-catch in all Norwegian fisheries, including saithe fisheries, not just the reference fleet. Since that proposal was made, it has become mandatory for all vessels fishing in Norwegian waters, and all Norwegian vessels fishing elsewhere, to retain and record all fish brought on board. In addition, IMR observers embarked on reference-fleet demersal fishing vessels, record any incidence of marine mammal (ETP) by-catch. Such records are extremely rare – *n* per decade rather than *N* per year (IMR, pers. comm.). Hitherto, IMR observers have not recorded bird (ETP) by-catch; such estimates as have been made have been based on dock-side interviews carried out by staff from the Norwegian Institute for Nature Research (NINA). Hitherto, NINA has not identified any specific cause for concern associated with the NE Arctic saithe fishery. Nevertheless, IMR has agreed with NINA to add birds to the list of species recorded by observers embarked on reference-fleet vessels.



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On the basis of Coastguard catch monitoring reports, DoF support the NFVOA view that the targeted saithe fishery is a very clean fishery with relatively small amounts of non-target species (mainly cod and haddock which count against the appropriate quotas) taken. If the saithe stock declines, however, the proportion of by-catch might increase, particularly so if the cod stocks establish any recovery.

Insofar as there is a problem with unwanted by-catch in this, or any other Norwegian fishery, the DoF policy is to try and eliminate the problem rather than introduce further measures for catch monitoring and recording. To this end, on 1st May 2011 the Centre for Research-based Innovation in Sustainable fish capture and Pre-processing technology (CRISP) was established as a specialist unit within IMR.¹² The Norwegian Research Council has guaranteed 8 years core funding over the next five years and other organisations, including industry bodies, are also making financial contributions. The principal aim of CRISP will be to eliminate discarding and all other wasteful practices across all gears in all Norwegian fisheries, including this fishery.

Conclusions: Norwegian legislation now requires that all fish species caught are enumerated. IMR observers embarked on reference-fleet vessels record any occurrence of marine mammal (ETP) by-catch and henceforth will also record bird (ETP) by-catch. The client was encouraged to introduce an ETP recording scheme across the entire fleet to augment the data collected by IMR. No specific problems relating to retained or by-catch species have been identified. During the audit meeting, both IMR and DoF expressed the view that this fishery is highly compliant and raises no specific concerns with respect to by-catch–ecosystem interactions. The client is on schedule in meeting the obligations of this condition.

4.4.3 Condition 3: Gillnet and handline by-catch of coastal cod

PI 2.3.1.3 Are management measures in place to modify fishery practices in light of the identification of unacceptable effects?

PI 2.3.1.3 Do management measures allow for recovery of affected populations?

Action required: Interactions of these gears with coastal cod populations occur and catches of coastal cod in these saithe-directed fisheries are currently allocated and recorded separately *post hoc*. Coastal cod is recognized as being in a depleted state and MSC certified fisheries must promote rebuilding of depleted target and by-catch species.

The coastal cod by-catch in the saithe directed fishery should be evaluated in terms of its relative contribution to effects on cod stocks.

It is recognized that rebuilding measures (the cod recovery plan) have been implemented for coastal cod. There are indications the decline in coastal cod stock status has recently stabilized, and that the recent year class could promote stock recovery if recruited into the fishery. Nevertheless, measures should be identified and

¹² http://www.imr.no/filarkiv/2010/08/hi_nytt_11_web.pdf/en



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implemented to minimize catches of coastal cod and future catches should be reported in relation to the proportion of cod in saithe catches, data from previous years and the relative status of the cod stock. Measures should remain in force until cod recovery has been achieved.

Timescale: Evaluation of the extent and significance of cod catches in saithe-directed fisheries should be initiated within 6 months of certification. If the evaluation indicates a significant effect, identification and testing of further measures to minimize cod by-catch should be completed within two years of certification. Measures should be fully implemented within 3 years of certification.

Action plan: Within 2 years following final certification NFVOA shall propose further developments to the reference-fleet programme to include an examination of the extent of coastal cod catches in the coastal saithe directed fisheries.

Within 2 years an appraisal of opportunities for further reductions in coastal cod by-catch shall be conducted if findings in the above examination leads to the conclusion that reductions are needed (by-catch are of significance). Such measures shall, if needed, be implemented within 3 years.

Timeline: Proposal by June 2010; appraisal of extent of coastal cod by-catch, and if necessary, opportunities for reductions, by July 2012; mitigation measures, if necessary, to be implemented by July 2013.

Observations: Norwegian coastal cod continue to be in a depleted state with long-term poor recruitment. A rebuilding plan for coastal cod was agreed by the Norwegian authorities and put into operation in 2011. ICES evaluated the plan and found the proposed plan to be provisionally consistent with the precautionary approach. The ICES review states that: “Based on simulations, ICES concludes that the plan, if fully implemented, is expected to lead to significant rebuilding. Nonetheless, accounting for realistic uncertainties in the catches, surveys, and the assessment model, a rather long rebuilding period is required even if fishing mortality is markedly reduced within the next several years. Whilst not fully quantifiable, the needed reductions in fishing mortality will require accompanying reductions in the catches”.

“ICES considers the proposed rule to be provisionally consistent with the precautionary approach. The basis of this evaluation is the precautionary approach, and not the new ICES MSY framework. However, it is anticipated that ongoing work will provide a basis for revisiting the consistency of the proposed rule with the ICES MSY framework in the next year or two”.



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“ICES notes that there is no basis at present for deriving absolute estimates of F_{msy} . However, it is likely that the current F is above any candidate values of F_{msy} and the plan therefore represents a step towards MSY” (ACOMadv, 2010).¹³

ICES advises on the basis of the Norwegian rebuilding plan: “If the spawning stock index in the 2011 autumn survey (results available in early December) is lower than the index in 2010, the fisheries regulations should aim at a reduction of F in 2012 of at least 30% relative to 2009. If the survey index is higher than in 2010, the measures taken in 2011 should continue in 2012” (ICES Advice 2011, Book3).

The actions taken by NFVOA with reference to this condition are the same as for Condition 2: By-catch. In addition, NVFOA vessels are compliant with the terms of the Norwegian coastal cod recovery plan (DoF, pers. comm.).

Conclusions: The Norwegian scientific and management authorities are actively pursuing a strategy to minimise coastal cod by-catch and to optimise conditions that will facilitate stock recovery and rebuilding. The NFVOA supports these efforts and vessels are compliant with the corresponding controls. **The client vessels, specifically gillnet and handline vessels, are meeting the terms of Condition 3.**

4.4.4 Condition 4: Cold water coral (static gears)

- PI 2.1.4.1:** Are management strategies in place to identify and correct shortcomings within the fisheries management system to address and restrain any significant negative effects of the fishery on the ecosystem;
- PI 2.1.5.4:** Are associated biological diversity, community structure and productivity affected to unacceptable levels?
- PI 3A.3.4:** Do procedures include a precautionary approach in the absence of sufficient information?

Action required: An assessment of the potential effect of saithe directed fishing within the coral protection areas should be undertaken. If potentially significant effects are identified, appropriate precautionary management action should be implemented.

Timescale: An assessment should be completed within 3 years of certification. The identification and implementation of appropriate management measures should be completed within the term of the current certification.

Action Plan: Within 2 years following final certification NFVOA shall propose further developments to the IMR coral reef mapping programme to include an assessment of fishing effort and effects from fishing with gear other than trawl and Danish seine, in

¹³ ACOMadv, 2010. Ecoregion Barents Sea: Request by the Norwegian ministry of fisheries and coastal affairs – evaluation of a rebuilding plan for coastal cod. ICES Advice Book 3.3.3.1.
<http://www.ices.dk/committe/acom/comwork/report/2010/Special%20Requests/Norway%20NCC%20plan.pdf>



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areas protected from fishing with these two gear types as a measure to protect cold water corals. Within 3 years, if significant negative effects from these other gear types are found to exist, appropriate management measures shall be developed and implemented.

Timeline: Proposal by June 2010. Management measures, if necessary, by July 2011.

Observations: The NFVOA has written to the MFCA in which it declares its commitment to assisting with the protection of sensitive marine habitats (including coldwater coral reefs), not least by gathering further information on their distribution. This information of contributed through its membership of the Norwegian working group on fishing in vulnerable habitats in the Norwegian zone. Skippers' information on coral-reef distribution contributes to the national MAREANO programme,¹⁴ which is run by IMR. MAREANO, *inter alia*, is mapping sensitive marine habitats in Norwegian waters, not the least of which are the coral reefs.¹⁵ In the past year, the number of coral-reef areas given statutory protection has been increased from seven to nine; it is anticipated that further areas will be added as prime sites are identified. It is illegal to use towed fishing gear in these areas already but the possibility of a more general prohibition that would include static gear has not been ruled out.

The DoF is maintaining its annual lost fishing gear (mainly gillnet and longline) recovery programme. It is illegal to abandon fishing gear in Norwegian waters, skippers are expect to make all reasonable efforts to recover such gear and report its loss and position to the Coastguard when it has not been recovered. These reports help DoF target its lost-gear recovery effort. The NFVOA requires all its members to be fully compliant with these regulations.

Conclusions: DoF and IMR (pers. comm.) acknowledge the support that NFVOA is giving to support the MAREANO programme and its efforts to safeguard coral reefs and other sensitive marine habitats. **The client is complying fully with the terms of Condition 4.**

4.4.5 Recommendation 1

“It is suggested that there be an evaluation as to whether the areas of coral currently protected are sufficient, in terms of population and habitat requirements to provide adequate protection for associated biodiversity.”

The Norwegian MFCA continues to fund IMR to maintain the MAREANO programme, a primary objective of which is to map sensitive marine habitats in Norwegian waters and to identify further prime areas that merit protection from, *inter alia*, fishing. The

¹⁴ <http://www.mareano.no/english/index.html>

¹⁵ <http://www.mareano.no/kart/viewer.php?language=en>



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NFVOA support the MFCA and IMR, not least through its participation in the associated working group.

5 Any consequential rescoring of performance indicators

5.1 North Sea saithe fishery

Condition	PI	Gear	Rescoring
1	1.1.5.2	All	Condition met 2010
	1.1.5.5	All	Condition met 2010
2	2.1.2.1	All	Not rescored
	2.1.2.2	All	Not rescored
	2.1.4.1	All	Not rescored
	2.1.5.2	All	Not rescored
	2.1.5.4	Gear specific	Not rescored
	2.2.1.2	Gear specific	Not rescored
	2.2.1.3	All	Not rescored
3	3A.3.4	All	Not rescored
	2.3.1.2	All	Not rescored
	2.3.1.3	All	Not rescored

5.2 North-east Arctic saithe fishery

Condition	PI	Gear	Rescoring
1	1.1.5.2	All	Condition met 2010
	1.1.5.5	All	Condition met 2010
2	2.1.2.1	All	Not rescored
	2.1.2.2	All	Not rescored
	2.1.4.1	All	Not rescored
	2.1.5.2	All	Not rescored
	2.1.5.4	Gear specific	Not rescored
	2.2.1.2	Gear specific	Not rescored
	2.2.1.3	All	Not rescored
3	3A.3.4	All	Not rescored
	2.3.1.3	Gillnet & handline	Not rescored
4	2.1.4.1	All excluding.	Not rescored
	2.1.5.4	trawl & Danish	Not rescored
	3A.3.4	seine	Not rescored



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5.3 Conclusions

NFVOA has taken appropriate measures to address the conditions of certification raised during the MSC certification assessment and therefore remains compliant with its MSC certification. Satisfactory and timely progress has been made in progressing the conditions for this certification. MSC Certification should therefore continue, subject to satisfactory compliance with outstanding conditions, and surveillance audits continue to the same schedule.

For North Sea saithe fisheries this can be summarized as follows:

- 1 Conditions where requirements are deemed to have been met on target and are closed in this surveillance audit.
Condition 1
- 2 Conditions which are considered to be on-target and which will be subject to full review in future surveillance audits.
Conditions 2 and 3
- 3 Conditions where work is currently falling behind target and which will be subject to full review at the next surveillance audit.
None

For North East Arctic saithe fisheries this can be summarized as follows:

- 1 Conditions where requirements are deemed to have been met on target and are closed in this surveillance audit.
Condition 1
- 2 Conditions which are considered to be on-target and which will be subject to full review in future surveillance audits.
Conditions 2, 3 and 4
- 3 Conditions where work is currently falling behind target and which will be subject to full review at the next surveillance audit.
None



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INFORMATION SOURCES

Field Inspections:

Name	Affiliation	Date	Key Issues
Elisabeth Wilmann Sverre Johansen	Ministry of Fisheries and coastal Affairs, Norway	20 May 2011	<ul style="list-style-type: none"> - Management system review; - Management system transparency; - Decision making process;
Jan I. Maråk, Jørn E. Petersen	Norwegian Fishing Vessel Owners Association (Fiskebåt)	19 May 2011	<ul style="list-style-type: none"> - Fishing operations; - Status of the stock; - Bycatch, habitats and ecosystem; - Fisheries management; - System of tracing and tracking of fish.
Ingrid Dahl Skarstein	Norwegian Seafood Export Council		
Thorbjørn Thorvik, Senior Advisor	Norwegian Directorate of Fisheries	19 May 2011	<ul style="list-style-type: none"> - Performance of the harvest strategy; - Bycatch, discards and slipping; - Control, Enforcement and Surveillance; - Respect for laws; - Dispute mechanisms.
Åge Fotland /Scientist Sigbjørn Mehl/Scientist Cecilie Kvamme/ Scientist Erling Kåre Stenevik/ Scientist Asgeir Aglen/ Scientist Gert Endre Dingsør/ Scientist Tore Jacobsen/ Senior scientist Leif Nøttestad/ scientist Kjell Nedreaas/ scientist	Institute of Marine Research, Norway	19 May 2011	<ul style="list-style-type: none"> - Status of the stock; - Harvest strategy; - Target and limit reference points; - Information and Monitoring; - Assessment methods; - Impact of fisheries on ecosystem.



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MSC Standards and guidelines used:

1. MSC Principles and Criteria for Sustainable Fishing
2. MSC Fishery Certification Methodology Version_ 6(1).1 May 2010
3. TAB Directives – all

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