**REVIEW OF THE FAROE ISLANDS’ FISHERIES GOVERNANCE SYSTEM:  
OBJECTIVE SETTING AND IMPLEMENTATION**

Authors: **Christopher C.E. Hopkins**➀**, Troels J. Hegland**➁ **& Douglas C.K. Wilson**➁

➀AquaMarine Advisers, Åstorp, Sweden. E-mail [chris.hopkins@aquamarine.se](mailto:chris.hopkins@aquamarine.se)

➁Innovative Fisheries Management, Department of Development and Planning, Aalborg University, Denmark. E-mail T.J. Hegland: [tjh@ifm.aau.dk](mailto:tjh@ifm.aau.dk); E-mail D.C.K. Wilson: [dw@ifm.aau.dk](mailto:dw@ifm.aau.dk)

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# Introduction

The European Union (EU) FP7 project ‘Maximizing yield of fisheries while balancing ecosystem, economic and social concerns’ (Acronym: MYFISH) has received funding for a four-year period starting on 1 March 2012. Part of the work of the MYFISH project includes, as a constituent of its Workpackage 1, Task 1.2, ‘*reviewing existing and proposed MSY variants, constraints and management measures. In this context, the experience of objective setting and implementation processes in Australia, Alaska and the Faroe Islands will be reviewed for lessons learned via text reviews and interviews with managers and stakeholders from the fishing industry, NGOs, retail businesses and community leaders to get a balanced picture of the these different approaches to objective setting and potential lessons for Europe.*’

Accordingly, in the MYFISH project’s Task 1.2, we are looking outwards from the EU to selected fisheries in other parts of the world to investigate as ‘case studies’ which illustrate various aspects of sound governance from which the EU can potentially learn. The overall aim of our work is to discover best practices and lessons learned with respect to variants of maximum sustainable yield (MSY), objective (i.e. aim or goal) setting and implementation processes (i.e. means to achieve objectives), including the strengths and weaknesses, constraints and trade-offs, concerning the overall governance system for the particular fishery. We consider these ‘practices’ with regard to the three pillars of sustainable development (c.f. Brundtland, 1987). For the purpose of this fishery-related study, we refer to these three sustainability objectives as being a) bio-ecological; b) economic; and c) social. In order to gain this information, for each fishery case study we first produce a desk-top study on each fishery’s management and overall governance from the available literature, and then interview involved stakeholders, spanning the fishing industry at sea and ashore, environmental non-governmental organizations (NGO), and fishery managers and scientists (see Section 2 for further information).

For the Faroe Islands’ fishery, which concerns this specific report, we have selected the mixed-fishery for gadoids (cod, haddock and saithe) which is based *inter alia* on input (days-at-sea) management, as the focus of our governance study.

The term ‘governance’ is defined in various ways in dictionaries. ***For the sake of the current study, we consider fishery governance as the sum of the legal, social, economic and political arrangements used to manage the fishery. The establishment of institutions, legislation/policies, management plans and processes through which management may be realized at appropriate levels (e.g. national and local) is fundamental to effective fishery governance. Governance also concerns how power, knowledge and decision-making are shared amongst the key stakeholders.***

***We view fishery-related stakeholders as persons and/or groups which believe they have a legitimate interest in the fishery.***

**Readers of this report who wish to discover the summarized outcomes should go directly to Section 5. The evidence on which we base our conclusions is provided in Sections 3 and 4.**

Due to the use of frequent acronyms in this report, we refer the reader to **Annex 1** where these acronyms are explained.

# Methodology

This case study involves a) the production of a literature review of the fishery management system, followed by b) interviews with key stakeholders using a standard set of questions which are used for all of the case studies. In addition to the standard questions, in a number of interviews more specific fact finding questions were posed for clarification purposes. After the interviews, the literature review part of the report was updated where necessary to reflect either new knowledge or evolution of the system.

## 2.1 Literature review of the Faroe Islands’ fishery management system

A comprehensive and systematic desk study of the literature and web-pages is a fundamental aspect in conducting the review process. The literature search, and subsequent critical analysis and synthesis of information provided by the literature text, informs *inter alia* about the current state of knowledge, from uncovering many different but relevant sources, in an evidence-based research context. Thus, the literature review is an assessment procedure concerning the particular topic, and thereby forms an essential step-stone to the following stage of posing a series of appropriate questions to various stakeholder groups, and evaluating their responses, concerning the strengths and relative shortcomings of the considered system and its constituent parts.

A systematic approach, by using selected keywords and Boolean logic, was applied to conduct an electronic search of catalogues, bibliographies, and discriminating use of internet search engines. All references sourced were reviewed and copies of all relevant references obtained either electronically or on paper. All relevant material sources (articles in peer-reviewed scientific journals, books, and grey literature reports) were read and new references identified through the citations. Finally, all material was organized in preparation for analysis, and integration in the review.

The desk studies were conducted prior to the interview-based field study in order to get acquainted with the subject. The *a priori* desk study resulted in a draft report on the main characteristics of the fishery management/governance system. The draft *a priori* report was subsequently revised after returning from the field study by taking into account additional knowledge gained therefrom including the opinion and insights provided by the interview respondents.

The outcome of the literature review, informed also by fact finding from interviews with stakeholders, is presented in Section 3.

## 2.2 Interviews with various stakeholders

During the fieldtrip to the Faroe Islands in August 2012, a series of eleven interviews (on average 1½ hours in length) were carried out with selected stakeholders and experts. Four of the interviews were with multiple (two to three) respondents. In total there were 17 interview respondents, of which four were representatives of the community of ‘fisheries biologists’, seven represented the ‘fisheries sector’ (including catching sub-sector representatives, processing sub-sector representatives, *etc.*), three represented the ‘fisheries administration’, and three represented a broader more societal perspective from ‘outside observers’. It was not possible to identify relevant respondents from conservationist/environmental NGOs operating in the Faroe Islands. The respondents were granted anonymity and will therefore not be quoted by name in this report but rather by their affiliation with one of the abovementioned categories.[[1]](#footnote-1) An overview of the interviews and respondent groups is provided in **Annex 2**.

The interviews were semi-structured, indicating that they were guided by a list of standardized questions/topics (see **Annex 3**) that the two interviewers introduced. However, in a semi-structured interview the respondents are not limited to talk only about the subject matter of the questions in the guide; rather, the respondents were encouraged to focus on what they found to be of most importance. As a result, the different interview questions were dealt with to a varying degree in the different interviews.

The interviews, which were recorded and subsequently transcribed[[2]](#footnote-2) and organized by means of textual analysis software (QSR Nvivo 9), served a dual purpose. As mentioned above, on one hand the interviews served as a source for filling in gaps in the factual knowledge obtained through the literature review. Equally important, however, the interviews also served as a means to uncover controversies and different perceptions on issues related to the Faroese system. The main discursive themes are described and discussed in Section 4.

# The Faroe Islands’ fishery management system

## 3.1 Preamble

The Faroe Islands (Faroes) are 18 islands covering 1,399 km2 located north-west of Scotland, midway between Norway and Iceland (Guttesen, 1996; UNEP, 2004; Edwards, 2005). Populated by only about 48 000 people, the Faroes are a self-governing territory with its own Faroese Home Rule Government (FHRG) and parliament (Løgtinget) under the sovereignty of Denmark, in which powers are divided between the Faroe Islands and Denmark within the framework of the home rule system. The Faroe Islands are not part of the EU (Anon., 2008).

Few other countries have such a high level of dependency on the sea and its resources as the Faroe Islands (Anon., 2008). Fishing, including fish processing, has been the main source of income for the Faroes since the 1920s, with fish and fish related products representing over 94% of Faroese merchandize exports in 2012, and in 2009 wages paid within the fishing industry accounted for 16% of total Faroese wages (Anon., 2008; Fish.info, 2012[[3]](#footnote-3)). Fisheries, and to a much lesser extent aquaculture, represent the basis for about 20% of the gross domestic product (GDP) (Anon., 2008). The economy is vulnerable to cyclical changes in the fisheries-related industry, especially the volatility of catches and prices of the most important fish stocks (UNEP, 2004; Búskaparráðið, 2010).

From about 1996 to about 2002, the Faroe Islands gained a reputation for near the forefront of fisheries management and sustainable fishing. This was mainly due to the performance of the new fisheries management system that was initiated in 1996, based primarily on fishing effort control via regulating the allocation of days-at-sea to fleet segments (Chuenpagee and Alder, 2001; UNEP, 2004). However, in the last decade, various concerns have been expressed with respect to weaknesses in the Faroese system, including insufficient adaptability and evolution of fisheries management for conserving declining and overexploited demersal fish stocks, as well as the poor economic performance of certain fisheries (Jákupsstovu et al., 2007; Baudron et al., 2010; Búskaparráðið, 2010; Nielsen et al., 2012).

***In the following sub-sections of Section 3, we provide a synthesis of knowledge and views about the relative strengths and weaknesses of the Faroese fisheries management system of relevance to Task 1.2 of the MYFISH project. Particular focus is placed on providing the underlying evidence necessary to make conclusions in Section 5 on objective setting and implementation processes.***

## 3.2 The Faroese fisheries resource base, policy and management system

### 3.2.1 Fishing areas and resource base focused on in this study

Faroese fishing has traditionally taken place in the immediate area of the Faroe Islands, in middle areas (e.g. Northern North Sea and waters west of Britain and Ireland) and in distant waters (e.g. Canada, Barents Sea, Greenland, Svalbard) (Maguire, 2001; Anon., 2008). The Faroe Islands had a substantial distant water fishing fleet in the 1960s and 1970s, but the widespread extension of national fisheries jurisdictions during the second half of the 1970s, together with the introduction in 1977 by the Faroe Islands of their own 200 nm exclusive economic zone (EEZ), changed the pattern from dependency primarily on the middle areas, to relatively more dependency on the area within the EEZ (i.e. Faroese national waters) and the near area (Maguire, 2001; Reinert, 2001; Jákupsstovu et al., 2007).

In this study, focus is directed primarily at waters within the Faroese EEZ (i.e. those under national jurisdiction), and particularly to the fishing, resource base and management system in the area of the so-called Faroe Plateau Ecosystem (UNEP, 2004; ICES ACOM, 2008a), primarily in ICES Division Vb (comprising ICES Division Vb1: Faroe Plateau; and ICES Division Vb2: Faroe Bank). Cod (*Gadus morhua*), haddock (*Melanogrammus aeglifinus*) and saithe (*Pollachius virens*) are the most commercially important stocks in Faroese waters, and are almost exclusively caught demersally in mixed fisheries in waters <200 m deep on the Faroe Plateau and Faroe Bank (Jákupsstovu et al., 2007; ICES ACOM, 2012a, b). ***Thus, any fishery management measures should take account that these three species are caught in mixed fisheries*** (Maguire, 2001).

### 3.2.2 Organization of fisheries and environmental policy and management

Fisheries policy and management of the Faroese fishing territory is the responsibility of the FHRG (Anon., 2008). Environmental protection, including protection of the marine environment, is under Faroese jurisdiction, and is administered by the Ministry of the Interior. As a curiosity, the fact that the Faroe Islands are not a member of the EU but has its own fisheries policy under the home rule system, means that Denmark in cases of EU - Faroe Islands conflicts over fisheries policy can find itself in a situation where Denmark, as a member of the EU, will have to apply sanctions against a part of the Danish realm itself.[[4]](#footnote-4)

The Ministry of Fisheries is responsible for the management of all fisheries in Faroese waters and fisheries by Faroese vessels in other waters. ***The Commercial Fisheries Act of 1994*** (FHRG, 1994)***, and its subsequent amendments, provides the framework for the regulation of commercial fisheries in the Faroese EEZ*** (Anon., 2008). Based on this legislation, detailed regulations are implemented governing vessel and fishing licenses, area closures, gear and data requirements and other technical regulations for commercial fisheries. Fishing vessels under the Faroese flag must be at least two-thirds Faroese owned and controlled and subject to taxation in the Faroe Islands (Anon., 2008).

### 3.2.3 Transition of the fisheries management system to total allowable catches (TAC) and then effort management

The development of the various elements of the fisheries management system in the Faroese EEZ has been reported on by numerous authors (Maguire, 2001; Reinert, 2011; Løkkegaard et al., 2007; Jákupsstovu et al., 2007; Gezelius, 2008a,b; Christensen et al., 2009; Zableckis et al., 2009; Eliasen et al., 2009; Johnsen and Eliasen, 2011).

#### The TAC management system: 1994-1996

While most governments in the North Atlantic adopted TAC-based fishery management following establishment of 200 nm EEZs in 1977, the Faroe Islands continued to manage its demersal fisheries in its EEZ through traditional technical regulations, including application of minimum mesh sizes and closed areas (Gezelius, 2008a). Thus, the Faroese regulations had the objective of controlling the catch composition, such as reducing the catch of juvenile fish, rather than constraining the amount of the catch. Following the establishment of the Faroese 200 nm EEZ, the demersal fisheries in national waters are almost exclusively conducted by Faroese vessels (Jákupsstovu et al., 2007).

A licensing system for demersal fisheries was first implemented in 1987, thereby providing a means to regulate catch levels (Gezelius, 2008a). Thereafter and prior to 1994, the demersal fisheries in the Faroese EEZ were managed by a combination of license limits which restricted the number of fishing vessels, area restrictions for trawl fisheries (e.g. closed areas and seasons), minimum mesh sizes, and measures to protect juvenile fish (Maguire, 2001; Jákupsstovu et al., 2007). To reduce fishing mortality (F) and rebuild declining stocks, a new TAC management system, based on individual transferrable quotas (ITQs), with establishment of a discard ban, was introduced in 1994 when the Faroe Islands constructed its first, comprehensive legal framework for fisheries management, the so-called Commercial Fisheries Act (FHRG, 1994). However, this output-based (i.e. TAC related to fish quantities) system of ITQs was abandoned after only two years, not only due to the substantial costs and administrative effort necessary for this form of management, but also because it received considerable criticism and met with resistance from the fishing industry. It was not helped by unusually low primary production on the Faroe Plateau Ecosystem during the early 1990s which subsequently had a devastating effect on the Faroese gadoid fisheries and society in the mid-1990s (Gaard et al., 2002). The latter was described by one of our interview respondents as a *“socioeconomic collapse”* (Respondent 10, outside observer).

It is widely recognized that management by TACs of species caught in mixed fisheries is problematic because the quota of different species may be exhausted at different rates. Thus, fishers face a dilemma when the quota for one species is exhausted: stop fishing and underutilize the quota for other species, or continue fishing and discard or illegally land overquota fish (Daan, 1997). With the latter option, the fishing mortality (F) dictated by the TAC will be exceeded, and the scientific basis for stock assessment and future management advice will be compromised if the stock assessment is based only on official landings data, assuming that landings equal the catches (Kraak et al., 2008).

***In the Faroe Islands, the TAC-based system resulted in extensive discarding as well as under- and misreporting of substantial parts of the catch, related to bycatch problems that were increasingly difficult for fishers to handle in the mixed demersal fisheries, particularly when single species quotas had been used up*** (Maguire, 2001; Jákupsstovu et al., 2007; Gezelius, 2008; Johnsen & Eliasen, 2011).

#### The total allowable effort (TAE) management system: 1996 and ongoing

##### The basis of the system

***In response to the wide-reaching criticism of the TAC-based ITQ system, there was a general desire to establish a new system that was easy to administer and enforce, and should remove incentives for discarding incidental catches, misreporting and black landings*** (Gezelius, 2008a). This led the FHRG to amend the Commercial Fisheries Act to adopt and implement, from 1 June 1996, a new effort-based management system — replacing the TAC system — for fleet categories/segments (i.e. vessel groups) targeting demersal fish (especially cod, haddock, and saithe) in the Faroese EEZ, resulting from close collaboration with the fishing industry (Jákupsstovu et al., 2007). This system regulates days-at-sea (i.e. fishing days) based on total allowable effort (TAE) for specific fleet segments/groups (**Table 1; Figure 1; Table 2; Figure 2**). ***In essence the Faroese TAE system consists of limited entry licensing regulating the number of participating vessels (assigned to diverse fleet categories/segments) in particular areas/depth zones, a system of fishing days regulating the amount of time each vessel in a fleet category/segment is allowed to fish in approved areas/depth zones, and regulations for the conservation of juvenile and spawning fish and protected species including comprehensive use of closed areas. The existing ban on discards was continued.*** ***With the exception of small fish regulations and protected species, fishers are allowed to land and sell whatever they can catch within their quotas***. ***The precondition for the use of the TAE system is that the total fleet is under Faroese control***.

Besides the specific operational aspects of the TAE-based management system, it is important to emphasize that ***the Faroese Commercial Fishery Act*** (FHRG, 1994) ***states that the living marine resources in the EEZ (and indeed in allocations outside the fishery zone) are the property of the Faroese people and that these fisheries should be sustainable in both biological and economic terms. Socio-economic factors should also be taken into account.*** However, besides this relatively simple declaration of policy, the Commercial Fishery Act does not explicitly provide further elaboration in terms of formal objective setting.

***In reviewing the main pertinent literature*** (Løkkegaard et al., 2007; Jákupsstovu et al., 2007; Gezelius, 2008a, b; Christensen et al., 2009; Zableckis et al., 2009; Johnsen and Eliasen, 2011; ICES NWWG 2012) ***it is possible to summarize that the Faroese TAE-based fisheries management system has the following important characteristics:***

* **Fleet segmentation**. Different regulations apply to different fleet segments, but within a given segment the same rules apply. Currently, the fleet operating in ICES division Vb (Vb1 Faroe Plateau and Vb2 Faroe Bank) is comprised of six major segments, of which segments 4 and 5 have various sub-groups (**Table 1**). ***The main fleet segments involved in the individual transferable effort quota system fleet are:*** a) Longliners <110 gross registered tonnage (GRT), jiggers, and single trawlers <400 horse power (HP) (Groups 4, 5); b) Pairtrawlers (Group 2); c) Longliners >110 GRT (Group 3); and d) Single trawlers >400 HP which were in 2011 included into the fishing days system and were allocated a number of fishing days. The latter are not allowed to fish within the 12 nm limit and the areas closed to them, as well as to the pairtrawlers, have increased in area and time. Their catch of cod and haddock is limited by maximum bycatch allocation. This fleet has now started to pairtrawl, and in 2011/2012 they have been merged with the pairtrawlers group. Single trawlers <400 HP are given special licenses to target flatfishes inside 12 nm with a bycatch allocation of 30% cod and 10% haddock. In addition, they must use sorting devices in their trawls in order to minimize bycatches. One fishing day by longliners <110 GRT is considered equivalent to two fishing days for jiggers in the same gear category. Thus, longliners <110 GRT could double their allocation by converting to jigging. These conversions provide fishers with flexibility in selecting which gear type to use and how to deploy their effort. Holders of individual transferable effort quotas who fish outside the so-called ‘ring’ line (**Figure 1**) can fish for three days for each day allocated inside the ‘ring’. Trawlers are generally not allowed to fish inside the 12 nm limit. Inside the innermost thick line, only longliners <100 GRT and jiggers <110 GRT are permitted to fish. The Faroe Bank <200 is closed to trawling. ***In summary, we conclude that the fleet segmentation is a central element in controlling and dispersing fishing effort and the fishing pattern (e.g. where and when fishing takes place, and by which segment or group), and in limiting conflicts between fishing segments/groups and active and passive gears.***
* **Capacity regulation**. ***This aims at maintaining the fleet capacity, in principle, within each segment at the 1997 level***. ***In doing so, it is taken for granted that the fleet capacity and effort are sustainable by not resulting in overfishing of the targeted stocks in the long-term***. There are rules, however, for allowing vessel transfers between groups (e.g. vessel replacement) and merging of capacity. The capacity policy is based on vessel licenses[[5]](#footnote-5).
* **Effort regulation and tradability of effort**. ***Maximum total effort as days-at-sea is fixed annually for the coming fishing year (running from 1 September in a calendar year to 31 August the following calendar year) for each of the fleet segments/groups*. *Excepting the non-artisanal fleet segments, the total effort is then allocated equally between individual vessels in each of the fleet segments*.** For the coastal fishery, 60% of the total effort is allocated to full-time fishers (Group 5A) who receive individual and equal-sized effort quotas. However, artisanal part-time fishers (Group 5B) receive a common effort quota, i.e. not individually allocated, and their fishery is closed when the quota has been exploited. ***The fishing days may be traded within fleet segments and, with some restrictions, between segments. Fishing days can be leased out for one year or sold permanently.*** Official effort conversion keys are used when trading effort between fleet segments/groups in order to account for differences in fishing capacity across vessel sizes, engine power and gear types. Individual vessels can meet restrictions from effort limitation regulations by purchasing days at sea from other vessels. ***Thus, the TAE system allocates individual transferrable fishing effort (ITE)***. The effort regulation is maintained through the fishing license system (see footnote 5). ***The allocation of fishing days in a long-term licensing system provides a rights-based management (RBM) system*.**
* **Area closures**. ***An important characteristic of the Faroese fisheries regulation is the comprehensive use of closed areas***. Such areas have been used since the establishment of the 200 nm Faroese EEZ in 1977. ***Initially the main purpose was to avoid gear conflicts between longline and trawl fishers, but it is now mainly based on access rights to fishing areas***. ***Furthermore, additional uses of area closures include protection of aggregating adult fish on spawning grounds and juvenile fish in nursery and feeding grounds, as well as limitation of bycatch, and protection of vulnerable species and habitats, have played an increasing role in the case of temporary and seasonal closures***. Up to about 1993, the extent and number of area closures in the EEZ gradually increased. Since about 1996 the closed areas are basically unchanged, with the exception of establishment of three new areas in 2005 closed to trawling to protect corals and additional area closures in 2011 within the 6 nm boundary.
* **Additional technical measures**. ***These span regulations regarding mesh sizes, obligatory, permitted or banned fishing gear, and bycatches***. Specific minimum mesh size regulation and use of sorting grids, is applied to particular fisheries. Use of beam trawls and Danish seine is banned. The general discard ban includes real-time rules for changing fishing areas when bycatch occurs, with obligations for fishers to report when bycatch levels reach 30% of the catch being under a certain size limit, and a system of minimum landing sizes for target species. ***In the context of discarding being illegal, all catch including bycatch is required to be landed. The resulting landings information is used for enhancing fishery statistics and for assessment purposes****.*

**Table 1**. Definition of main fleet segments and sub-groups used in the Faroese EEZ, including those in the Faroese effort management system (i.e. segments 1-5), and the main tools for regulating their activities. Modified after ICES NWWG (2012).

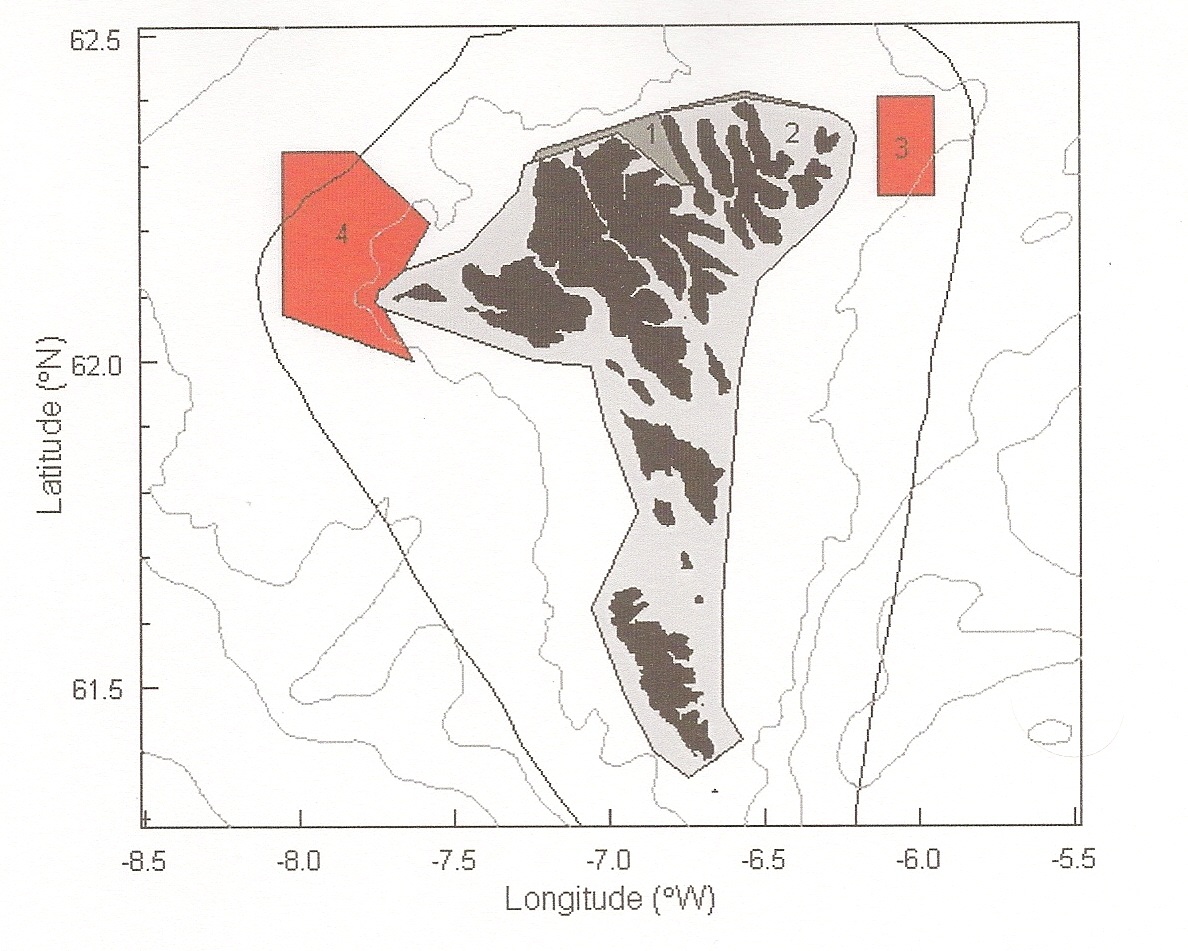
|  |  |
| --- | --- |
| ***Fleet segments and sub-groups*** | ***Main regulation tools*** |
| 1. Single trawlers >400 HP | Fishing days (from 2011/2012 merged with the pairtrawlers), area closures |
| 1. Pairtrawlers >400 HP | Fishing days, area closures |
| 1. Longliners >110 GRT | Fishing days, area closures |
| 1. Coastal vessels >15 GRT |  |
| 4A-Line) Longliners & jiggers 15-40 GRT | Fishing days |
| 4A-Trawl) Trawlers 15-40 GRT | Fishing days |
| 4B-Line) Longliners & jiggers >40 GRT | Fishing days |
| 4B-Trawl) Trawlers >40 GRT | Fishing days |
| 1. Coastal vessels <15 GRT, longlining & jigging |  |
| 5A) Full-time fishers | Fishing days |
| 5B) Part-time fishers | Fishing days |
| 1. Others: Gillnetters | Bycatch limitations, fishing depth, no. of nets. |
| Others | Bycatch limitations |



**Figure 1**. Fishing area regulations on the Faroe Plateau (ICES Division Vb1) and Faroe Bank (ICES Division Vb2). Allocation of effort management (fishing day quotas) on the Faroe Plateau (surrounding the Faroe Islands) applies to the area inside the outer thick black-line (the ‘ring’) in waters that are generally shallower than 200 m. Holders of effort quotas who fish outside this line can triple their numbers of fishing days. Longliners >110 GRT are not allowed to fish inside the thick black-line. On the Faroe Plateau, many areas are closed for parts of the year to protect spawning grounds and exclude trawling (see **Table 2**). The Faroe Bank <200 m depths (areas ‘a’ and ‘aa’) is regulated separately from the Plateau: it is closed to trawling and longline vessels are regulated by individually allocated day quotas. After ICES NWWG (2012).

**Table 2**. Temporal and spatial coverage of spawning area and trawling area closures on the Faroe Plateau and Faroe Bank as designated in Figure 1. After ICES NWWG (2012).

|  |  |
| --- | --- |
| ***Trawl closure areas*** | ***Period*** |
| *a, c, d, f, g, h, i, j, k, l, o, p, r, s, C1, C2, C3* | Closed throughout calendar year. |
| *aa.* | Closed 1 June to 31 August. |
| *b.* | Closed 20 January to 1 March. |
| *e.* | Closed 1 April to 31 January. |
| *m.* | Closed 1 February to 1 June. |
| *n.* | Closed 31 January to 1 April. |
| ***Spawning closure areas*** | ***Period*** |
| *1* | 15 February to 31 March. |
| *2, 3, 6, 7* | 15 February to 15 April. |
| *4* | 1 February to 1 April. |
| *5* | 15 January to 15 May. |
| *8* | 1 March to 1 May. |



**Figure 2**. New fishing area regulations in ICES Division Vb, introduced in 2011. The outer black-line defines the extent of the 6 nm area. These areas (1-4) are closed to all fishing except for jiggers. Closure periods: Area 1+2: 1 February to 30 April; Area 2: 1 May to 31 January; Areas 3+4: 1 January to 31 December. After ICES NWWG (2012).

##### Institutional and procedural framework for allocation of fishing days

The initial allocation of fishing days originated from the recommendations from a regulatory committee (*Skipanarnevndin*) comprising managers, scientists, and key representatives of the fishing industry (Jákupsstovu et al., 2007). In the first year of implementation, the initial allocation was based on an estimated historical allocation from data on partial fishing mortalities based on statistics on the number of days fishing used by the various vessel segments in the period 1985-1994 (Jákupsstovu et al., 2007). ***With regard to the 1994 Commercial Fisheries Act’s*** *(FHRG, 1994)* ***stipulation that care should be taken that the fisheries are biologically sustainable, Skipanarnevndin indicated that this is achieved when the spawning stock is larger than an unspecified minimum, and estimated that sustainability of the fisheries could be achieved by setting the number of fishing days initially allocated so as to exert an average annual fishing mortality (F) rate of 0.45 on each of the three demersal gadoid stocks (cod, haddock and saithe), corresponding to an annual average harvest of approximately 33% of the haddock exploitable stock in numbers*** (Jákupsstovu et al., 2007).

In addition to the number of fishing days allocated by law, the target distribution (i.e. shares) of the main demersal stocks between the vessel segments/groups was set out in the Commercial Fisheries Act (**Table 3**). The effort regime was designed to take these shares into account as well as the spatial and temporal distribution of areas where trawling was banned. ***Thus, the TAE framework combines measures to influence both the catch quantity with those to affect catch composition*** (Gezelius, 2008b). ***Built into the system is also an assumption that*** ***the TAE system is self-regulatory because the fishing effort exerted on any of the three target stocks will shift according to that stock’s availability, so that no stock will be overexploited*** (Jákupsstovu et al., 2007). Following its implementation, the number of fishing days allocated has been regulated annually. The number of fishing licenses was frozen in 1996, but the allocation of fishing days has varied, as has the proportion of the fishing days which have been exploited (i.e. actually used). There have been large reductions in the number of allocated fishing days in order to reduce the fishing mortality, and for the most recent fishing years a considerable number of fishing days have not been used (ICES NWWG, 2012).

**Table 3**. The percentage of total catches of cod, haddock and redfish each fleet category on average is expected to fish, with respect to the effort management system, as set out in the 1994 Faroese Commercial Fishery Act. After ICES NWWG (2012).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Fleet category*** | ***Cod*** | ***Haddock*** | ***Saithe*** | ***Redfish*** |
| Longliners <110 GRT, jiggers, single trawlers <400 HP | 51% | 58% | 17.5% | 1% |
| Longliners >110 GRT | 23% | 28% | 0% | 0% |
| Pairtrawlers | 21% | 10.25% | 69% | 8.5% |
| Single trawlers >400 HP | 4% | 1.75% | 13% | 90.5% |
| Others | 1% | 2% | 0.5% | 0.5% |

The annual process for allocating fishing days is illustrated in **Figure. 3**. This figure is taken from the Ministry of Fisheries website and slightly adapted for this report in terms of the various symbols used. The description of the process itself is the result of our interviews conducted with key persons in the main institutions shown in the figure. The first step in the annual process occurs when the Ministry of Fisheries receives an annual report from the Faroe Marine Research Institute (FAMRI) (see Section 3.2.3.3). This report is passed on to the Committee on Fishing Days (*Fiskidaganevndin*) which is appointed by the Minister of Fisheries, and consists of representatives from the fishing industry as well as a chairman who is not from the fishing industry. The Committee on Fishing Days creates its own report based on the fishing industry’s own views and experiences. On the basis of the FAMRI report and the report from the Committee on Fishing Days, a proposal is made by the Minister of Fisheries for the coming year’s fishing effort in terms of days-at-sea. Generally, the Minister’s proposal has tended to lie closer to the views of the Committee on Fishing Days than to those of FAMRI. The Minister’s proposal is evaluated by the Fisheries Advisory Council (*Fiskivinnurádid,* a council under the Minister of Fisheries, which includes industry representation) with regard to any potentially associated changes in fisheries policy and legislation matters involved in the eventual new bill, before the resulting bill (i.e. proposal) is presented by the Minister to the Faroese Parliament, which makes the final decision. This institutional process concerning the annual allocation of fishing days, and associated fishing licensing administered by the Ministry of Fisheries, works as a repetitive process with regard to the relevant provisions of the amended Commercial Fisheries Act (FHRG, 1994). There was unanimity among our interview respondents that the process sketched above provided little incentive for integration of varying views between scientists, managers and industry stakeholders in order to reaching consensus, thereby leaving politicians in the parliament free to make up their own minds regarding the final decision-making between the positions of the scientists and industry stakeholders.



**Figure 3**. Flow chart of the institutional system for proposing and deciding on the setting of the number of Faroese fishing days. After Faroese Ministry of Fisheries (2012[[6]](#footnote-6)).

The Faroese Fisheries Minister and the Parliament have commanding roles when setting the number of fishing days, after consulting with biologists and active fishers (Christensen et al., 2009). Prior to the submission of the proposal on fishing days to Parliament, all participatory stakeholders who have taken part are from the fishing industry, with the result that commercial fishing interests have particular influence in the decision-making processes. The breadth of stakeholder representation has historically always been narrow in the Faroe Islands, even before the introduction of the fishing days' system. This reflects how the fishing industry is organized into special interest associations (e.g. Shipowners Association, Fishermen’s Union, Fish Processors Union, Association of Coastal Fishermen), and representation remains within these groups, and would, in an EU context, be considered narrow (Christensen et al., 2009). According to our own investigations and our interview respondents, conservationist/environmental NGOs are almost completely absent from the process.

There is a growing feeling in the Faroe Islands that the institutional organizational arrangements of the fishing days’ system are not satisfactory regarding the discourse on best practices for achieving sustainable fisheries (Anon., 2011a; Olsen, 2011). The reasons for this are varied but mainly reflect the views that the allocation of fishing days quickly turns into a political game, in which the fishing industry and politicians are easily able to overturn the official scientific advice from FAMRI/International Council for the Exploration of the Sea (ICES) without the need to provide transparent and well-founded arguments for doing so. Furthermore, there is an overall feeling among the public at large that the current institutional arrangement for setting fishing days is at odds with the view that Faroese marine resources are the property of the Faroese people, as emphasized in the Commercial Fisheries Act, and not simply the fishing industry (Skorini and Helgason, 2009; Olsen, 2011).

According to Olsen (2011), a major mistake occurred after the fishing-related economic crisis in the early 1990s, whereby the catch-licenses were allocated cost-free to the ship-owners that were active in the business at the time (Olsen, 2011). These licenses gave the owners the right to a yearly license for 10 years. In 1998, the law was amended so that annually the fishing licenses distributed would provide the recipient with the right to fish for the following 10 years. This resulted in an annual ‘rolling system’ providing rights to fish for a 10-year period unless the Faroese Parliament rescinded the license, which could only be done subject to 10 years notice (Skorni & Helgason, 2009). After years of economic deficit in many of the fleet segments (Búskaparráðið, 2010), and a tendency for overfishing of cod, haddock, and saithe stocks in the EEZ (ICES ACOM, 2012a), a radical amendment to the Faroese legislation states that the fishing permits currently in use by the fishing fleet may, as at 1 January 2018 be withdrawn by the State, if so decided by the political system[[7]](#footnote-7). What will happen then forms the grounds for major uncertainty, which has, according to some of our respondents, for the moment limited the availability of capital through the banks.

##### Spatial distribution of fleets and fishing gears, and use of closed areas

Satisfying the desired distribution of catches over fleets and species specified by the Faroese Parliament required extension and modification of the areas closed for trawling (Jákupsstovu et al., 2007; ICES NWWG, 2012). A further intention was to minimize area/resource conflicts between passive (e.g. longlines) and active gears (e.g. trawling such as pairtrawling and deep-sea trawling).

***The Faroese objective of separating the fleets (and by association their respective fishing gears) geographically appears to have been met*** (Jákupsstovu et al., 2007). ***There is no report of resource conflicts related to the introduction of the effort management system*** (Zableckis et al., 2009). Longliners have operated mainly along the northwest and southwest areas of the Faroe Plateau within the area of the trawling closure and on the Faroe Banks in depths <200 m, targeting mainly cod and haddock. Over 90% of the total catch of longliners is taken within the area closed to trawling in the form of both year round and temporary closures. Pairtrawlers operate mainly in the deep waters off the Faroe Plateau and on the banks southwest of the islands, fishing mainly for saithe. Deep-sea trawlers are widely distributed in the waters outside the ‘ring’, targeting saithe and several deepwater species.

***The system of closed areas established on the Faroe Plateau and Faroe Bank, covering about 12 000 km2, is wide-reaching and innovative in terms of regulating access of fleet segments, conserving fish stocks and protecting vulnerable species and habitats*** (Geselius, 2008a; Johnsen and Eliasen, 2011). These include closures a) to trawling which, depending on the area, may be year-round or temporal; b) seasonal all-gear closures in the fish spawning seasons; and c) real-time closures, whereby the fishery is banned temporarily (1-2 weeks) if numbers of small cod, haddock and saithe in the catches exceed 30% of the total. The latter has been used increasingly in recent years (Johnsen and Eliasen, 2011). ***The success of the closures for a) and b) require a well-developed system for monitoring vessel behavior (e.g. vessel monitoring system (VMS)) as indeed exists for relevant fleet segments, while c) appears to work well concerning self-reporting incentives related to bycatches as mentioned elsewhere in this report. However, the Faroese Ministry of Fisheries notes that there is no scientific estimate of the effect of these closed areas on the overall fishing mortality***[[8]](#footnote-8). The desire by the fishing industry for FAMRI scientists to provide evidence that the various closed areas operate in accord with their postulated intentions has become increasingly manifest in recent years, something which was also highlighted by several interview respondents.

##### Allocation and use of fishing days: efficacy and responsiveness

Jákupsstovu et al. (2007) concluded, 10 years after introduction of the effort management system, that the total number of fishing days allocated (i.e. nominal effort) was reduced on several occasions, by about 15% in all. However, an average reduction of 1.5% in fishing effort per year was almost certainly insufficient, given that the starting fishing effort allocated in 1996 was too high (Jákupsstovu et al., 2007) and that fishing effort ‘creep’ of about 2-4% per year is probably normal (Pauly and Palomares, 2010). Nonetheless, the extent to which the number of fishing days has or has not been reduced sufficiently — and if not, then how problematic this is — forms the background for an important debate, as further discussed in Section 4.1.

In a study of days-at-sea allocated and exploited (i.e. actually used) in vessel groups 2-5 (subject to the days-at-sea regulation), Zableckis et al. (2008) showed that the allocated days decreased slightly by about 8% between the start and the end of the period 1997-2003, whereas days exploited varied over this period from a minimum of 68% to a maximum of 98% for all of these vessel groups together. However, there was substantial variability between groups with Group 4A having an exploitation rate as low as 49-61% and Group 4B having exploitation rates varying from 86% to 115%. ***When exploitation rates are clearly under 100%, which has been more common than not in several fleet segments in several periods, one can infer that insufficient fish are available to sustain economically justifiable levels of catch per unit effort (i.e. the TAE allocation exceeds the resource situation).*** Whether this is an acceptable situation, or if this indicates that days should be cut, forms part of the debate referred to above and further discussed in Section 4.1.3. Where exploitation rates are clearly over 100% (e.g. 115% for Group 4B in 2002/2003) overshooting of the TAE limit has occurred, despite the control system.

There have been substantial, and periodically systematic, deviations between the realized and intended catch (c.f. **Table 3**) by fleet categories (Jákupsstovu et al. (2007), at least in the first decade after introduction of the TAE system. For example, for saithe this discrepancy between realized and intended catch generally favored pairtrawlers and single trawlers >400 HP. However, for cod, saithe and haddock this discrepancy tended to disfavor (i.e. they landed less than their intended shares) the grouping of longliners <110 GRT, jiggers and single trawlers <400 HP.

Given the variability in the resource situation for the major demersal stocks since implementation of the TAE management system in 1996, and taking into account the ICES advice (see section below) and the above-mentioned information, ***one can conclude***, in accord with the views of Jákupsstovu et al. (2007), ***that the objective of constraining exploitation on the major demersal stocks by the effort management system, via controlling F at a level ≤ 0.45 on each of the three component stocks, has not been achieved, partly because the original number of days allocated was too high***. ***Furthermore***, Jákupsstovu et al. (2007) pointed out, in this general connection, that ***the market for fishing days was not working properly***.

***Effort regulation incentivizes fishers to increase their catchability because they are limited by the time they are allowed to fish*** (Nielsen et al., 2006). So called ‘technological creep’ coupled with improvement of knowledge regarding best fishing practice to maximize potential catches over time, acts to increase fishing efficiency of fishing vessels, and thereby increased fishing capacity in terms of catch levels per fishing day (Jákupsstovu et al. 2007, Nielsen et al., 2012).

Thus, in an effort system, efficiency can be increased by: 1) modernization of vessels and equipment; 2) better utilization of time at sea in fishing activities; and 3) accumulation of fishing days through allocation and trading by the most efficient vessels (Jákupsstovu et al. 2007). Although there are indications that substantial increases in catching efficiency may have been achieved due to vessel modifications and replacements in some fleet sectors (e.g. pair-trawlers) (Thomsen, 2005), it has been difficult to demonstrate that changes in catchability have been associated with the introduction of the effort management system *per se* (Jákupsstovu et al., 2007). This is due, in part, to the influence of environmental variability on recruitment, growth and biomass of gadoids in ICES Division Vb, comprising the Faroe Plateau and Faroe Bank (Gaard et al., 2002; Steingrund and Gaard, 2005; ICES ACOM, 2012a).

In a study of fishing power increases from technological development in the Faroe Islands longline fishery from before implementation of effort management in 1996 up to 2002, Eigaard et al. (2011) revealed that a substantial increase in yearly effort (fishing days) and a shift in targeting behavior from secondary to primary (high value) target species occurred in response from the output (i.e. TAC) to input (i.e. effort management) control. However, substantial technological creep also occurred in the TAC-based regulatory regime, and new technological introductions were not correlated to regulation shifts. Accordingly, Eigaard et al. (2011) concluded that, rather than the management system in force, an ongoing technological development seems to be the principal driver of fishing power trends. Thus, there is a need to explicitly address the technological development and targeting behavior when attempting to meet conservation objectives through input control of fisheries. ***In this context, it is recognized that a major flaw of the Faroese TAE management is the failure of the system to set up a credible system for monitoring changes in effective fishing effort*** (ICES ACOM, 2012a). However, as pointed out by respondents in some of our interviews, it could be argued that the potential for effort reduction improvements might not be the same in the different fleet segments, which might make across the board cuts in fishing days to counter effort creep ‘unfair’.

***Thus,* we conclude *that the Faroese effort management system has been impaired by a) application of excessive levels of effort from its first implementation; and b) this potentially has been exacerbated by substantial scope for increasing the efficiency of the catching process, related to the lack of a system for monitoring and effectively regulating changes in fishing effort.***

##### Acceptance of the system and compliance

###### Acceptance by the fishing industry and society

Jákupsstovu et al. (2007) reported that ***the current individually transferrable TAE quota system — developed jointly by Faroese fishers, managers and scientists — is accepted by the industry and by the general public***. This is undoubtedly true, but it is further abetted by the traditionally close family ties in the small Faroese community whereby fishers and the public at large are closely related, and that the green NGO movement in the Faroe Islands ― which elsewhere in Europe would be likely to argue against the setting of fishing effort (fishing days) too high when stocks are in decline ― is poorly represented (Christensen et al., 2009; Olsen, 2011).

Christensen et al (2009) concluded from interviews in the Faroe Islands that ***there is an exceptionally high level of acceptance of the fishing-days (i.e. TAE) system among the commercial actors***. The reasons for this were many. ***Fishers found the system to be practical. Both fisheries inspectors and fishers argued that it was not possible to cheat the system owing to the extensive satellite monitoring system. The fishing days' system came in response to some difficult years for the fisheries with the demise of the cod stock and bankruptcies among vessel-owners, followed by the ITQ system which was perceived as setting too low TACs. This frustration may have created willingness for the fishing industry to engage in a new management system as long as it tackled their perceptions of the old system’s shortcomings.*** The economic situation for all fishers improved when the fishing days' system was introduced. However, this was mainly because the cod stock was then increasing, after having quite recently declined to historically low levels. This may account for why the allocation of fishing days between the fishers, not least in different fleet segments, did not cause conflicts as it did in New Zealand (Aranda and Christensen, 2009). The introduction of the TAE system in the Faroe Islands did not force vessels to exit the fisheries, and even the small non-commercial vessels were included and granted a common pool of fishing-days which is extensive enough as to not normally be fully exploited. Facilitation of new entrants was not viewed as essential by the industry as new entrants, in the ITQ system, must either buy or inherit fishing rights. Retirement options are attractive as vessel owners, who want to give up fishing, can sell their fishing days and/or vessel. Additionally, pension schemes are provided for the commercial fishers.

###### Compliance and illegal, unreported and unregulated (IUU) fishing

Under- and misreporting of catches and discarding of bycatch have been negligible since introduction of the TAE quota system, as there are very limited incentives to discard fish suitable for the market in fisheries that are subject to effort regulation involving ITE (Løkkegaard et al., 2007; Gezelius, 2008a; Zableckis et al., 2009; Johnsen & Eliasen, 2011).

Enforcement of the fishing days' system and closed areas is primarily carried out by monitoring the location of vessels (Gezelius, 2008a; Zableckis et al., 2009). Since 2003, all vessels over 15 GRT are obliged to continuously submit position reports via vessel satellite monitoring (VSM), and to notify the fisheries inspection authority when fishing activities start and end. Vessels under 15 GRT, fishing mainly on a day trip basis, are monitored through sale slips submitted by fish buyers. The fisheries inspection continuously controls the balance of days-at-sea for the larger vessels, mainly segments/groups 2-4 inclusive. The transfer of days-at-sea between vessels must be approved by the fishery inspection authority, thereby verifying the remaining ‘assets’ on the balance of the involved vessels.

Faroese enforcement of small-fish (i.e. undersized) regulations focuses on actions for which clear criteria of liability for punishment can be applied (Gezelius, 2008a). Faroese trawlers are allowed a maximum of 30% cod under 55 cm in length in a single haul. Thus, enforcement is related to the obligation for self-reporting of large incidences of juvenile fish in hauls immediately to the fishery inspection authority, with a view to closing the fishing ground and moving the fishing effort elsewhere. A trip limit of 5% cod under 40 cm also applies, so that onus is placed on fishers with a catch of small fish to withdraw from risky fishing grounds in order not to surpass the trip limit. In general our interview respondents confirmed that IUU fishing is not a great problem in the Faroe Islands. However, a few respondents indicated that there had been and probably continued to be some problems with vessels using illegal gear, such as using shrimp trawl when fishing for demersal fish.

Jákupsstovu et al. (2007) concluded that the combination of the fishing-days system with closed areas for trawling and incentives to fish outside the ‘ring’ (> 200 m depth) has helped to maintain appropriate shares of the catch by fish stocks/species for each fleet segment, even if they may deviate somewhat from the ideal ones originally envisaged, and additionally it has kept conflicts between active and passive gear to a minimum.

***We conclude that, in line with the high degree of acceptance of the TAE system by the fishing industry, there is a high level of compliance as evidenced in negligible levels of IUU fishing including discarding. The functioning of the catch-shares system, regarding generally being in operational accord with the aims of the Commercial Fisheries Act, provides further evidence of overall acceptance and compliance***.

##### Economic performance and profitability of the fishing industry

The theory of economic efficiency in fisheries suggests that—in a system with transferable, long-term user rights—the fishing fleet’s economy will improve for the vessels left in the fleet. This would be due to adaptation of the capacity of the fishing fleet and its utilization, leading to reduction of costs of operation and maximization of revenues from fishing (Eliasen et al, 2009). In an ITQ (or ITE) system, access to the fishery is restricted to fishers who own a quota (effort) and flexibility is ensured by the opportunity to trade quota. Efficient producers will, in the long-run, buy quotas from less efficient producers. This will bring about long-term economic efficiency and a fleet capacity that is in balance with the biological catch possibilities (Nielsen at al., 2012).

In the Faroe Islands there are no indications that the economic performance (i.e. efficiency) of the fisheries has increased with the introduction of the regulation system for TAE, including the possibility of transferring effort rights (Eliasen et al., 2009). For large vessels subject to effort regulation, no significantly improved profitability has been seen compared with vessels which are not subject to effort regulation. According to Eliasen et al. (2009), a major reason for this could be that both catch quantity and prices were on their way up in the decade prior to the production of the report, and so there was not external pressure for improving economic efficiency. However, in addition to this reasoning, one can also contend that the unrealized economic performance of the bulk of the Faroese fleet has been due also to the maintenance of excess fishing effort/capacity in the system based on the current licensing system, the restrictions on trading of days at sea, and that prevalent perverse subsidies distort the market (c.f. *Búskaparráið*, 2010).

The Faroese Council of Economic Advisers (*Búskaparráið*, 2010) has emphasized repeatedly that it is essential to ensure sustainable fisheries as well as a fishing industry that is profitable and unburdened by subsidies. The Council has noted that many attempts have been made to address the issue, for example in spring 2000 when it drew up a proposal on a market for trading fishing rights (fishing days). Additionally, the Council (*op. cit.*) has noted that structural problems such as excess industry capacity and too high fishing pressure on stocks surrounding the Faroe Islands, contribute to the fact that profitability in the domestic fishing industry is not at the same level as it could have been with lower fishing pressure and better fish stock management. The Council has further suggested that a potential structural measure to achieve revenue may be achieved by selling of fishing rights or licenses, in such a way that the price can adjust to supply, thereby allowing the public sector to reduce revenue through equivalent income tax cuts. It is imagined that the reduction of income taxes in the first years will be fully balanced by the increased revenues for sales of rights to natural (i.e. fishery) resources. Eventually, it is likely that such changes would bring about economic growth and also increased public revenues. The Council reasons that this is due to the fact that reduced income taxes increase the supply of labor and the market-based pricing of fishing rights should lead to lower levels of capital being committed to unnecessary fishing capacity.

The Council of Economic Advisers (*op. cit.*) argues that subsidies to the fishing industry should be gradually lowered with a view to their abolishment, as the subsidy schemes not only distort choices with regards to capital, investment and labor, but also cause the industry to maintain an unreasonably high pressure on fish stocks. In addition to saving public money, such changes facilitate the movement of labor into more efficient industries and the likelihood of achieving sustainable fisheries is increased.

According to the information obtained through our interviews, systematic subsidies seem to be declining and on their way out. Most recently a subsidy in the form of a guaranteed minimum wage for fishers was changed from being based on public funding to being based on industry self-funding from a fee of 1% of the landing value. ***We conclude that there is no evidence that the TAE – ITE system has resulted in increased economic performance (i.e. economic efficiency of the fisheries). This is due inter alia to structural problems such as overcapacity of the fleets (i.e. too many vessels chasing too few fish), use of perverse subsidies, and restrictions on tradability of fishing days. The volatility of international markets related to supply and demand of cod, haddock and saithe also affects profitability.***

#### Scientific assessments and the provision of scientific advice for management

##### System for providing advice, and extent of accord of F-levels with the TAE aim

Scientific advice is provided by FAMRI directly to the Ministry of Fisheries, based on assessments of the status and trends regarding fish stocks and marine ecosystems around the Faroe Islands (Anon., 2008). Such stock assessments are mainly directed at the commercially most important demersal fish species (e.g. cod, haddock, saithe, and redfish) in Faroese waters, and of straddling stocks (e.g. blue whiting, herring, and mackerel) and are coordinated and conducted under the auspices of the International Council for the Exploration of the Sea (ICES).

The assessments and associated analyses are reviewed by the ICES North Western Working Group (NWWG) and ICES subsequently provides advice via the Advisory Committee (ACOM, since 1 January 2008; prior to that via the Advisory Committee on Fishery Management, ACFM) which generally guides national advice from FAMRI.

Advice provided by FAMRI and by ICES for the mixed fisheries for cod, haddock and saithe in ICES Division Vb, and its sub-divisions Vb1 and Vb2, is then taken into account in the decision-making process, which ends in the concluding ‘judgment’ by the Faroese Parliament on the TAE (days-at-sea) allocation for the forthcoming fishing year. However, decision-making in setting effort levels in the days-at-sea management system when the stock has been declining has generally not been proportional to the reduction in F-levels recommended by the scientific advice (see **Figure 4**, and the following section on ICES advice).

A major objective of the Faroese TAE system, as intended by the Commercial Fisheries Act and its amendments (FHRG, 1994) is to regulate fishing effort so that the annual catch of the three most important demersal stocks (cod, haddock and saithe) does not exceed 33% of the stocks corresponding to F = 0.45. Use of ICES assessment data (ICES ACOM, 2012a) for F-levels for cod, haddock and saithe since 1987 (the year when licenses were first introduced in the Faroese EEZ) and up to and including the latest available data for 2011 allows one to evaluate the extent to which the F = 0.45 target has been met (**Figure 4**).

**Figure 4**. Variation in fishing mortality (F), from 1987 to 2011, for cod (ICES Division Vb1 comprising the Faroe Plateau, accounting for the majority of cod landings in the Faroese EEZ), and saithe and haddock (ICES Division Vb, comprising both the Faroe Plateau and Faroe Bank). The average F in the period 1997 to 2011, inclusive, for cod, haddock and saithe, was 0.56, 0.41 and 0.34, respectively. The ‘F aim TAE’ line shows the F = 0.45 target set by the Faroese total allowable effort (TAE, days-at-sea) management system which was implemented in mid-1996. Fishing licenses were first implemented in 1987. The TAC-based ITQ management system ran from 1994 – 1996. Note that the TAE-based management system was implemented from mid-1996 onwards. Data from ICES ACOM, 2012a.

From the data in **Figure 4**, we conclude that F-levels of all these demersal stocks have varied substantially since the implementation of the TAE system, and accordingly that the effort management has not contributed to stability in fishing mortality. Thus, there are grounds to question whether the Faroese objective has been met of achieving long-term stability of effective fishing effort, and by association also of days-at-sea and F, with regard to attaining stable landings as desired by the fishing industry. Regarding the intention of meeting the F = 0.45 target in the TAE system, cod mortality has overshot the ceiling in 73% of the years from, and including, 1997 onwards, with the overshoot frequently being by substantial amounts. However, F-levels have only exceeded F = 0.45 for haddock and saithe in 20% and 27%, respectively, in the period.

***We conclude that compliance with the F = 0.45 objective of the TAE management system, since the change-over from TAC management in mid-1996, has not been met for cod, whereas for haddock and saithe it has generally been met***. ***Examining the period 1987 to 2010 overall, there is no conclusive evidence[[9]](#footnote-9) to support the contention that the TAE-based management system (implemented in mid-1996) has had a major influence in regulating fishing mortality over time compared with the period prior to 1996.***

##### ICES advice for cod, haddock and saithe in Division Vb

###### An advisory system mainly advising on MSY and output regulation

All of ICES 19 Member Countries and international client Commissions mandated with managing fisheries (e.g. European Commission, North East Atlantic Fisheries Commission) are parties to the 2002 Johannesburg Declaration of the World Summit on Sustainable Development (WSSD) concerning the aim to ‘*maintain or restore stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals on an urgent basis where possible not later than 2015*’ (FAO, 2003). The current ICES approach (ICES ACOM, 2012b) to providing fisheries-related advice is based *inter alia* on the 2002 WSSD’s Johannesburg Declaration concerning maximum sustainable yield (MSY), taking into account extensive consultations between ICES and its Member Countries and client international regulatory commissions, particularly Norway and the European Commission. Thus, ICES fisheries-related advice is described in terms of MSY and the precautionary approach (PA). In essence, MSY relates to optimizing yield, while the PA relates to avoiding stock depletion. MSY means fishing at levels that catch the maximum proportion of a fish stock that can safely be removed on a continuous basis while, at the same time, maintaining its capacity to produce sustainable returns in the long-term. The general strategy for MSY concerns having fixed catch rates, enabling fish stocks to reproduce so that exploitation can occur in sustainable economic, ecological/environmental and social conditions. The EU has a plan for transition to MSY in four steps from 2011 to 2015. ***Thus, there is growing pressure for fisheries management in the Faroese EEZ to conform to PA and MSY-based management in accord with international best practices regarding sustainability considerations***.

The ICES advisory system is tailored mainly to the TAC-based system (i.e. output system regulating catches and/or landings) that is used for managing fisheries by the majority of its 19 Member Countries and international client Commissions. ***The Faroe Islands have not, so far, entered into a dialogue with ICES on the form of advice which would be most appropriate in meeting the needs of its fishing effort (i.e. TAE) based management system (i.e. input system involving fishing days-at-sea exerted by the fishing fleet or its fleet segments)***. *The ‘missing link’ requiring solution is a credible formulation of the relationship between fishing days (effort) applied by the fleet (and its segments) and the resultant fishing mortality (F) on each of the three targeted gadoid stocks in a mixed-fishery situation*. In particular, the regulation of the larger trawlers (including pairtrawlers) needs to be incorporated into the equation. In this context, there is a lack of necessary data (e.g. logbook data) from several fleet segments. Another important factor to be included is the balance between the presumable (existent) ‘overshoot’ of the cod, on the one hand, and the ‘undershoot’ of haddock and saithe stocks, on the other hand. F-levels and biomass levels for each of these stocks will be expected, in due course, to reach levels which are in accord with MSY practice (see following section).

It is pertinent to note that, although Denmark as a Contracting Party of ICES pays a national contribution to ICES annually, the ICES Council agreed that additional contributions be made to the ICES budget regarding the Faroe Islands and Greenland with the explicit purpose of allowing the Faroe Islands and Greenland, as individual entities, to a) be represented in the ICES advisory system as Observers having participatory rights, and b) have the right to receive advice and request advice, in line with the prerogative of ICES Member Countries and certain international advisory commissions. ***Although the Faroe Islands routinely receive ICES advice in line with this agreement, the appropriate Faroese authorities have not made, as yet, requests for specific advice pertaining to their EEZ***. This appears inexplicable considering the potential benefits of receiving advice in a form that is better suited to Faroese TAE management requirements. However, initiating the opportunity for fully transparent advice of this nature from ICES may have been seen as opening a ‘can of worms’ in the Faroese political arena. Additionally, the production of credible and robust advice by ICES suited to effort management is not a simple matter. A substantial amount of research and development (R&D) would be required first in the form of a pilot project, and then — after ICES decided that it was in a position to meet the challenges of providing high quality, objective scientific advice in this novel arena — the official advice emanating from ICES would have to be fully approved by the ICES advisory system represented by all its Member Countries. ICES would also expect to provide its advice in respect to a stock-related management plan incorporating harvest control rules (HCR), which it would need to evaluate as being in accord with the appropriate international best practices (e.g. PA and MSY).

The ICES vehicle for conducting and analyzing the stock assessment of cod, haddock and saithe in the Faroese EEZ (among others) is the ICES NWWG. In the current procedure, the Faroese authorities have the benefit of simply acquiring the basis for advice directly from the annual reports of the ICES NWWG, which is less official, and then using it, or not, as the Faroese Committee on Fishing Days sees fit.

###### Summary of ICES advice on the main demersal stocks and their management

The status and trends regarding landings, recruitment, fishing mortality and spawning stock biomass for cod, haddock and saithe stocks in the Faroese EEZ during approximately the last 50 years are shown in **Annex 4** (Section 8.4).

***For cod, haddock and saithe in ICES Division Vb, ICES has persistently underlined*** (as evidenced in ICES ACOM, 2012a) ***that there*** ***are no specific Faroese management plans for these stocks***. This is pertinent as stock management plans are essential in order to safeguard the sustainability of stocks through the setting of reference points (e.g. precautionary, limit and target). Such management plans, in the form of HCRs, with associated rebuilding/recovery plans for stocks depleted beyond specified levels, have tended to form the norm in terms of best practice in fisheries management. The Faroese effort (fishing days) management system was implemented before ICES introduced the PA and MSY reference values. ***However, ICES noted (ICES ACOM, 2012a) that a group representing the Faroese Ministry of Fisheries, the Faroese fishing industry, the University of the Faroe Islands, and FAMRI, has developed a management plan (for the three demersal gadoid stocks) based on general MSY principles developed by ICES***. However, the plan has not yet been discussed by the political system in the Faroe Islands. Further information on the draft management plans are provided in Section 3.3.

Regarding cod in Division Vb1 (Faroe Plateau):

***For Faroe Plateau cod (where most catches traditionally have occurred), ICES emphasizes that the Faroese TAE of an average F = 0.45 is not consistent with the PA and MSY approaches as it transgresses Fpa = 0.35 and FMSY = 0.32*** (ICES ACOM, 2012a). Since 1996, when the Faroese TAE system was implemented, ICES has consistently advised diverse measures, at various times, including: F at the lowest possible level; F < Fpa, large reductions in effort; the need for rebuilding plans involving large reductions in F or effort. Currently, ICES ACOM (2012a) emphasizes that F is above the MSY target (FMSY = 0.32) and that there is increased risk of F transgressing precautionary levels regarding Fpa. Regarding the spawning stock biomass (SSB), levels have been below the MSY Btrigger level since about 2002 and there is increased risk of the SSB falling below the PA levels. ***So, for 2013, it has been has advised that effort should be reduced such that fishing mortality in 2013 will be no more than F=0.20, corresponding to a 63% reduction in the present fishing mortality*** (ICES ACOM, 2012a)***.***

Regarding cod in Division Vb2 (Faroe Bank):

***Fishing has been closed, with minor exceptions, since 1 January 2009, and ICES considers that the fishery should remain closed and has advised against considering reopening fishing until biomass is at or above the average for 1996 – 2002*** (ICES ACOM, 2012a).

Regarding haddock in Division Vb (Faroe Plateau and Bank):

***For haddock, ICES emphasizes that the Faroese TAE of an average F = 0.45 is not consistent with the PA and MSY approaches as it transgresses Fpa = 0.25*** (ICES ACOM, 2012a). Since 1996, when the Faroese TAE system was implemented, ICES has consistently advised diverse measures including, at various times: F<proposed Fpa (0.25); No fishing; F < 0.20; No fishing and need to produce a recovery plan; and since 2009, No direct fishing, minimize bycatch, implement recovery plan. Since about 1997, F-levels have, with few exceptions, exceeded Fpa 0.25. Since about 2007, SSB levels have fallen below Bpa and in the last few years levels have fallen below Blim. ***So, for 2013, it has been advised that: there should be no directed fishery on haddock in 2013; measures should be placed to minimize bycatches of haddock in other fisheries; and a recovery plan should be developed and implemented as a prerequisite to reopening the directed fishery*** (ICES ACOM, 2012a).

Regarding saithe in Division Vb (Faroe Plateau and Bank):

***For saithe, ICES emphasizes that the Faroese TAE of an average F = 0.45 is not consistent with the PA and MSY approaches as it is above the Fpa and FMSY of 0.28*** (ICES ACOM, 2012a). Since 1996 when the Faroese TAE system was implemented, ICES has consistently advised various measures including, at various times: substantial reductions in F levels; reduction in fishing effort to generate F below Fpa and FMSY (0.28). Since 1980, F-levels have been above Fpa/FMSY levels. On the other hand, recruitment has been relatively high since the mid-1990s and SSB has increased well above Btrigger. Accordingly the stock has full reproductive capacity. ***So, for 2013, it has been advised that, on the basis of the precautionary approach, effort should be reduced such that fishing mortality in 2013 will be no more than F=0.28, corresponding to a 44% reduction in the present fishing mortality*** (ICES ACOM, 2012a).

ICES ACOM (2008b) has noted that the resources in the Faroe Plateau area have in general been managed on the basis of long time-series of commercial catch-at-age information. There are few relatively annual groundfish surveys available from the mid-1990s. Several commercial catch per unit effort (CPUE) series are available. The commercial CPUE series include larger vessels (fleet segments 1-3) only and are based on logbooks from a few selected vessels that are considered representative for the fleets. Detailed CPUE statistics that cover all vessels in these segments as well as the gillnetters exist, but are not presently available for assessment. No detailed CPUE information is available for segments 4 and 5; logbooks have since 2005 become mandatory for segment 4, but the vessels in segment 5 are not obliged to keep logbooks. ***Thus, patchy availability of CPUE and logbook information*** ***impedes a comprehensive analysis of the development in catchabilities that is necessary to evaluate the implementation of the effort system used in the Faroe Islands***.

***ICES has emphasized*** ***that for the Faroese effort regime to work properly in a mixed fisheries context, the relative effort directed towards each species has to remain nearly constant, to ensure that the catches of each species are adapted to the abundance of each stock*** (ICES ACOM, 2008b)***. In this context, ICES noted that the recent decline in the cod stock was associated with a marked increase in fishing mortality on cod, indicating that the management system has not functioned properly in that respect***.

In an effort management regime with a limited numbers of fishing days, it is expected that vessels will try to increase their efficiency (catchability) as much as possible in order to optimize the catch and its value within the number of days allocated. ***Technological creeping should therefore be monitored closely in such a system*** (ICES ACOM, 2008b)**.** However, catchability of the fleets can change for other reasons (e.g. availability of the fish to the gears). If such effects are known or believed to exist, catchability changes may need to be incorporated in the advice on fisheries (ICES ACOM, 2008b).

Despite a marked increase in fishing effort on cod and haddock, the landings have not increased correspondingly. The long-term landings of cod usually have fluctuated between 20,000 and 40,000 tonnes during the 20th century and of haddock between 12,000 and 25,000 tonnes since the 1950s. Thus, ***the catches of cod and haddock in particular have for a long time reached the limit for long-term production within the ecosystem*** (ICES ACOM, 2008a, b). Variability between years in catches of cod and haddock, and to a lesser extent saithe, reflect variability in production of the fish stocks (Gaard et al., 2002; Steingrund et al., 2003; Steingrund and Gaard, 2005). These demersal stocks are affected by productivity of the ecosystem related to diverse environmental factors, and recruitment success depends on the SSB as well as the state of productivity of the Faroe Plateau ecosystem. Growth of individual cod is linked also to primary production. Thus, there is potential to incorporate use of environmental drivers into improving the fish stock assessments.

###### Conclusions from the ICES outcome with respect to the Faroese TAE system

***From the above-mentioned discourse one can draw the following conclusions:***

* ***The Faroese TAE management system has not so far conformed to the PA and/or MSY management. ICES views the stated objective of exerting an average F = 0.45 for demersal stocks as not being consistent with the PA and MSY approaches. Thus, the Faroese TAE management system is out of step with major international agreements and best practice standards concerning fisheries and ecosystem-based management.***
* ***The Faroese TAE-based fisheries management system, being an input-based system is currently poorly served by the ICES advisory system which is primarily TAC-related (i.e. output-based). It is potentially possible for the Faroe Islands to request appropriate advice from ICES, but this has not yet occurred for gadoid stocks in their EEZ. Tailoring ICES advice to the Faroese TAE-based management system is not a trivial pursuit and will require substantial R&D and, not least, substantial transparency from the Faroe Islands regarding inter alia precisely how partial F is realistically allocated to the various fleet segments with respect to effort, and how the system has actually worked in the seeming absence of scientifically-based schemes for monitoring fishing effort and catchability. Without these aspects in place, the credibility of the TAE system to convincingly regulate effort, so that there is an appropriate balance between fishing effort/mortality and the production of the targeted living resources, is questionable.***
* ***Based on examination of comprehensive ICES assessment data, there is no evidence that the Faroese TAE management system has had a major discernible effect on regulating F, and therefor by inference fishing effort, with respect to its objectives since it was implemented in mid-1996.***

### 3.2.4 Certification of saithe fisheries in the Faroese EEZ

Certification and branding (labeling) potentially offer a market- and information-based system for products which are harvested from sustainable resources, and that are healthy, safe and of good quality, and promote good animal health and welfare standards (EFARO, 2010).

#### Marine Stewardship Council (MSC) certification

The MSC has two ‘standards’ against which each fishery applying for MSC certification is evaluated:

1. *The MSC environmental standard for sustainable fishing*. Fisheries are required to demonstrate that their practices are sustainable and access market benefits by getting certified to the MSC standard for sustainable fishing.
2. *The MSC chain of custody standard for seafood traceability*. When seafood is sold with the MSC ecolabel every business in the supply chain must have undertaken a detailed traceability audit against the MSC chain of custody standard. This ensures that only seafood from a certified fishery is sold with the MSC ecolabel.

Assessments against both standards are carried out by independently accredited certifiers. The MSC’s ‘third party’ approach is established to ensure that the certification and ecolabeling program is robust and credible, and meets best practices guidelines.

*The MSC environmental standard for sustainable fishing* (MSC, 2010; MSC, 2012) has three overarching principles that every fishery must prove that it meets:

1. Principle 1 (P1): Sustainable fish stocks [Target species]. The fishing activity must be at a level which is sustainable for the fish population. Any certified fishery must operate so that fishing can continue indefinitely and is not overexploiting the resources.
2. Principle 2 (P2): Minimizing environmental impact [Ecosystem]. Fishing operations should be managed to maintain the structure, productivity, function and diversity of the ecosystem on which the fishery depends.
3. Principle 3 (P3): Effectiveness of the fishery management system [Management]. The fishery must meet all local, national and international laws and must have a management system in place to respond to changing circumstances and maintain sustainability.

Under the MSC, fisheries are assessed against 31 criteria which underlie the three above-mentioned principles.

A ‘third party’ certification body (certifier) and its independent assessment team, in consultation with the fishery clients and other stakeholders, build a structured hierarchy of ‘sub-criteria’ and ‘performance indicators’ (PI) in order to conduct the assessment of the fishery. The PIs represent specific statements or questions in the assessment against which specific elements of a fishery’s performance are measured.

Each PI has three ‘scoring guideposts’ that define the main performance thresholds in the assessment process. These scoring guideposts are characterized as follows:

* Perfect practice, representing the level of performance that would be expected in a theoretically ‘perfect’ fishery (100);
* Exemplary or best practice (80);
* Minimum sustainable practice (60).

The scoring requirements that constitute the MSC’s minimum threshold for a sustainable fishery are:

* The fishery must obtain a score of 80 or more for each of the three MSC Principles, based on the weighted aggregate scores for all PIs under each Criterion in the Principle; and
* The fishery must obtain a score of 60 or more for each PI.

*Additionally, after meeting these requirements, in order to be granted a certificate a fishery client must meet any identified need for improvements. If a fishery fails this basic ‘sustainability test’, the certifier defines improvements that would be needed to raise the relevant scores to meet the minimum thresholds, thereby defining a potential pathway for the fishery to become certified.*

Improvements are identified for PIs concerning P1 to P3 where the fishery achieves a score of less than 80, but at least 60. They typically address potential risks to future sustainability and key uncertainties.

*In order to be granted and maintain a certificate, the fishery client must establish an agreed surveillance program for the fishery. Surveillance audits ensure progress towards meeting the required improvements, as well as assessing whether any changes in the status of the fishery have taken place which may affect the original assessment decision.* Such audits occur at least annually throughout the certification period. Short-notice monitoring may also occur by the certifier should it be considered necessary.

#### MSC certification in the Faroe Islands with focus on saithe in ICES Division Vb

Before the saithe fishery, the Faroese fishery for Great silver smelt (*Argenta silus*) is the only fishery conducted in ICES Division Vb (comprising Vb1: Faroe Plateau; Vb2: Faroe Bank) which has been successfully certified (certification granted August 2012) in accordance with the MSC’s global standard for sustainable and well-managed fisheries. However, in August 2012, the Faroese fishery for North East Arctic cod and haddock within the Barents Sea (ICES subareas I & II) also received MSC certification.

***In April 2012, the Faroe Island saithe fishery conducted in the Faroese EEZ (i.e. stocks in ICES Division Vb) was entered, by client groups JFK/Kósin and Faroe Origin, for full assessment for potential MSC certification***. The conformity assessment for the Faroese saithe fishery was conducted by DNV, with three experts being appointed, one for each for P1 to P3. Additionally two Peer Reviewers were appointed. ***The assessment process was completed in March 2013***. Subject to being successful, products from the fishery are eligible to carry the MSC ecolabel.

The Faroe Island saithe fishery fleet consists of 14 pair-vessel trawlers and 14 single vessel trawlers, four longliners and four jiggers, fishing for saithe within ICES Division Vb1 and Vb2, comprising the Faroe Plateau and Faroe Bank, respectively. In 2011, the total Faroese landings for saithe was 27 550 tonnes, of which the client share is more than 50%. About 75% of the landings in 2011 were from pairtrawlers.

#### Some a priori considerations of the conformity assessment

***To be acceptable for MSC certification, a stock must be non-recruitment overfished, which implies that the SSB is greater than 50% of BMSY or 20% of the biomass of the stock if no fishing would take place. Exceptions for lower values are possible, but fisheries eligible for exception need to provide an approved rebuilding/recovery plan before certification***.

***Prior to the report of the independent assessors and their determination in March 2013, we hazarded some perspectives pursuant to certification***:

1. **On the positive side**: ***The SSB of the stock is considered by ICES to have been consistently above the estimated MSY trigger-point*** (Btrigger) ***since dependable records started in 1961, and that the stock has full reproductive capacity according to the PA*** (i.e. SSB > Bpa) (ICES ACOM, 2012b). ***In this aspect, it is anticipated that one of the key essentials of MSC certification will be met***. ***As indicated earlier in this report, the saithe fisheries have negligible IUU fishing problems and insignificant bycatch and discarding problems.*** ***Thus the saithe fishery is likely to meet the MSC’s environmental criteria, not least regarding use of closed areas to protect cold-water corals.***
2. **On the negative side**: The F-levels have exceeded the Fpa and FMSY reference points in the ICES advice. ***Thus, ICES considers that the stock is harvested unsustainably according to the precautionary approach (i.e. F > Fpa) and that fishing levels are above target (FMSY) according to a MSY approach*** (ICES ACOM, 2012b). ***As the F-levels for the fishery have generally met with the F= 0.45 target of the Faroese Commercial Fisheries Act this may be interpreted as meeting ‘local’ management objectives. However, the extent to which ‘local’ F-management objectives will be weighted compared with the ICES internationally-based F-management ‘benchmark’ concerning PA and MSY is unknown***. ***Another potential hindrance for certification is that there was no explicitly approved management plan (e.g. HCR) for the stock as of the April 2012 entry into full MSC-related assessment***. ***However, the emergence of the draft Faroese management plan/HCR for the stock (subject to eventual political approval and being evaluated by ICES as being consistent with the PA and MSY) is likely to support the Faroese cause regarding MSC certification, even if it is anticipated that it may take several years before the actual status of the fishery/stock conforms with best practice criteria***. ***Additionally, there is a major challenge in managing saithe in a mixed-fishery (including also cod and haddock) whereby the fishing effort of various fleet segments requires to be scientifically formulated with respect to the partial F applied to all three stocks*** (see Section 3.2.3.2).

#### DNV assessment/determination for MSC certification: A pragmatic proposal?

On 12 March 2013, the Conformity Assessment Body (DNV) announced that the Public Comment Draft Report for the Faroe Island Saithe Fishery (DNV, 2013) was available for comment for a period of 30 days. Any stakeholder wishing to comment on the report was advised that they must provide objective evidence in support of any additional claims or any claimed errors of fact in their response to the Public Comment Draft Report.

***The Faroe Islands Saithe Fishery achieved a score of >80 for each of the three MSC Principles (i.e. P1-P3), and did not score under 60 for any of the set MSC Criteria. Thus, the assessment team recommended certification of the Faroe Islands Saithe Fishery with a number of conditions*** (noted below).

The DNV report (DNV, 2013) drew attention in its Executive Summary to a number of Strengths and Weaknesses. ***Under ‘strengths’ the following aspects were noted***:

* A small amount of the saithe catch from the Faroe Islands stock is taken by non-Faroese vessels and the greater part is landed in the Faroe Islands;
* All vessels are fitted with VMS and are subject to constant monitoring and at-sea and in-harbour inspection;
* Discarding is prohibited and all fish are landed. The management authority has a comprehensive monitoring and control of every stage in the fishery;
* The stock assessment is supported by research vessel survey data and commercial fleet CPUE abundance indices. Landings are monitored and a comprehensive biological sampling programme is maintained in support of the ICES working group’s stock assessment:
* There are complementary biological research studies examining multispecies relationships involving saithe and other fish with birds, mammals and lower trophic level components in the ecosystem. Efforts are being made to integrate ecosystem monitoring data into the stock assessment and forecasting process.

***Under ‘weaknesses’ the following aspects were noted***:

1. Juvenile saithe distributions are not amenable to monitoring and so there are no recruitment abundance indices with which to moderate the stock assessment year-on-year.
2. The days-at-sea are defined as days away from harbour and fishing continues even in bad weather which increases risk to fishers;
3. Although a harvest strategy has been in existence since 1996, it needs to be linked to achieving MSY-related management targets regarding achieving sustainable exploitation (in the new but not yet agreed management plan) at FMSY (=0.28). Additionally, although the MSY biomass trigger (55K tonnes) is defined in the new plan, there is no defined minimum acceptable biomass level set to minimize the risk of recruitment failure. As a consequence, the strategy lacks a probability estimate to safeguard the stock against recruitment failure. The new MSY-related plan needs to be urgently adopted subject to evaluation including robust testing and endorsement by ICES. The evaluation should include simulations of the validity of the new reference points which should include both biomass and fishing mortality levels;
4. Ling (*Molva molva*) is the main ‘retained’ species in the Faroese saithe fishery, but no there is insufficient information to estimate reference points for a sustainable management strategy. Thus research is needed to ascertain these reference points: and
5. Realistic priorities must be set and assessment levels pitched appropriate to the relative importance of non-target ‘retained’ species within the fishery.

The conditions for certification included:

* Regarding c) above, that the client must provide clear evidence that they have worked to influence the appropriate Faroese authorities to adopt the draft [new] management plan as a matter of urgency. Progress of implementation should be produced at the first surveillance audit. Evidence must be produced at each annual audit until a new management plan is adopted and endorsed by ICES. The client must produce the letter requesting the appropriate Faroese authorities to adopt the management plan and letter from the authorities confirming the status for the management plan;
* Regarding d) above, that the client should, in consultation with Havstovan [FAMRI] develop a sampling programme to deliver sufficient information from which biological reference points might be estimated for ling in Faroese waters. Once sufficient fundamental data have been collected, the client should commission a competent organization to estimate the reference points and draft a management plan;
* Regarding e) above, that the client should, in consultation with Havstovan, ensure that all species sampling programmes meet Havstovan’s requirements with respect to their scientific advisory responsibilities and international obligations.

***With respect to the MSC certification process for Faroe Islands saithe, we can conclude that the Conformity Assessment Report (DNV, 2013) appears to be providing a ‘carrot and stick’ to the Faroese regarding meeting the ‘international’ requirement to adapt to PA and MSY-related management ‘best practices’***. As highlighted by Peer Reviewer No. 1’s views in the Conformity Assessment Report, there are grounds to consider that the independent assessors were rather lenient in scoring P1 and P3 (*c.f.* the ‘carrot’ aspect). On the other hand, the ‘stick’ lurks in the sense that the Faroese are expected to conform in a relatively short space of time with international best practice. ***It is interesting to note, in this connection, that the Conformity Assessment Report does not make an explicit reference to the fact that MSY-related management of the saithe fishery in reality also must encompass — as a component of a mixed-fishery — the eventual management of cod and haddock (see Section 3.2.3.2). Thus, the MSC process for Faroe Islands saithe is also putting great pressure on the two other components of the mixed-fishery which have not yet determined whether or not to ‘join the fold’.*** Thus, the Faroese gadoid mixed-fishery appears, in colloquial terms, to be ‘*caught between a rock and a hard place*’.

## Adapting the Faroese TAE system to conform with international best practice

### 3.3.1 The main criticism of the Faroese TAE system

***The main issue regarding fisheries management in the Faroe Islands is not the TAE system itself, but rather its inability to adjust to scientific recommendations and to variability and trends in catchability*** (Baudron et al., 2010). This in turn is linked to the fact that the initial effort was set too high by the Faroese decision-makers, and that it was not decreased sufficiently thereafter. Baudron et al. (2010) underline that:

‘**A sustainable TAE system is accommodated if the initial effort level is set sustainably. Only then, and allowing for adequate year-on-year flexibility, the TAE would appear to be a more sustainable than economically robust management strategy than TAC-based management, considering the fluctuations in the single species HCR and the extensive discarding this would create.**’

### 3.3.2 Q*uo vadis*: Operationalizing mixed fisheries MSY management plans/HCRs?

The Faroese authorities have on several occasions set up committees to investigate and review the performance of the effort management system implemented in 1996. Most of the results, until recently, have been inconclusive.

However, there is ongoing Faroese work to move away from the target F = 0.45 and to formulate a management plan for cod, haddock and saithe based on the recently advised PA- and MSY-related reference points by ICES, but it is not known as yet when this work will be finished, particularly regarding necessary political agreement before its implementation (ICES ACOM, 2012b). This appears to be related also to a comprehensive discussion that was initiated in the Faroe Islands in 2010, and associated with the Nordic Council of Ministers fisheries forum, concerning a major revision to the institutional and procedural aspects of the TAE management system (Anon., 2011a). As we have indicated in this report previously, the current governance system in decision-making with respect to setting appropriate fishing effort is not appropriately integrative and accordingly does not lead to consensus-based outcomes.

***It has been increasingly apparent in recent years that a major deficiency in the Faroese TAE-related management system is the lack of a management plan, and especially the absence of related harvest control rules (HCRs) for the three demersal gadoid stocks*** (see Section 3.2.3.3 on ICES advice). Such a management plan is necessary for relating the status of cod, haddock and saithe stocks to the fishing mortality/fishing effort exerted on them, and *vice versa*. In response to this deficiency and pressure to adopt MSY-related management by 2015 stemming from broad-based international accord from the 2002 Johannesburg Declaration (WSSD, 2002), in October 2011 a group[[10]](#footnote-10) appointed by the Minister of Fisheries formulated a management plan, based on general MSY principles developed by ICES, for cod, haddock and saithe including HCRs (Anon., 2011b; ICES NWWG, 2012). The outcome awaits discussion and approval at the political level before eventual implementation.

***This draft Faroese management plan*** (Anon., 2011b) ***includes a proposal for a stepwise reduction of the fishing mortality of each of the three stocks to FMSY in 2015 and a recovery plan if the SSB declines below the MSY Btrigger. The MSY Btrigger (the former Bpa) and FMSY levels for cod, haddock and saithe have been defined by ICES. If the SSB declines below the MSY Btrigger, the fishing mortality will be reduced by the relationship FMSY \* Bact/Btrigger until the SSB has increased again above the MSY Btrigger and is thereafter kept at FMSY.*** Key parameters concerning fishing mortality and biomass of the three stocks are shown in **Table 4**.

***However, the above-mentioned draft management plan avoids tackling the critical issue of how the Faroese TAE system is translated, for example, into appropriate F levels (partial F) for MSY-related management in a mixed fisheries, multi-gear and multi-fleet/segment context as conducted for the three gadoid species.***

**Table 4**. Parameters for fishing mortality rates (F) and stock biomass (B, in tonnes) specified in the harvest control rules of the draft Faroese management plan. The specified F and B values are identical with those provided by ICES ACOM (2012b).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Gadoid stock*** | ***Fpa*** | ***FMSY*** | ***Btrigger*** | ***Blim*** |
| Cod | 0.35 | 0.32 | 40,000 | 21,000 |
| Haddock | 0.25 | 0.25 | 35,000 | 22,000 |
| Saithe | 0.28 | 0.28 | 55,000 | Undefined |

***Theoretically, a TAE system should be able to produce a MSY-conforming fishery as should any other regulatory measure. This will normally mean that the fishing pressure shall be kept within certain bounds with a view to obtaining relative long-term stability in yields. One could potentially adjust the fishing effort periodically, for example, to reflect changes in the stock biomass (and associated needs to achieve partial Fs) and relative management priorities for each of the three gadoid stocks.***

Theory, however, is weak in the area of inter-relating fishing mortality and fishing effort. Frequently it is assumed that fishing mortality (F) is proportional to fishing effort (E) (e.g. Beverton and Holt, 1957):

Economists (e.g. Eide et al., 2003 and pertinent references therein) are frequently critical of this and tend to favor relationships of the Cobb-Douglas form relating yield (Y) to E and B:

together with relating Y to F and B:

Furthermore, for multispecies, multi-gear fisheries, measuring effort is complicated as it needs to take into account the number, power and size of vessels and diversity of gears, and the time actually fished: actively for some gears, or as ‘soaktime’ for others.

As pointed out by Shepherd (2003) distributing allowable effort fairly is often a major stumbling block. ***A simple manner to achieve this may be by requiring that all changes of effort (whether up or down) shall apply pro rata to all those affected***. Thus all entitlements to fish with a particular gear in a particular area should be adjusted up or down by the same proportion. The benefit is that it implements the principle of relative stability and also avoids the need to decide on the equivalence between different vessels and gears (i.e. to solve the long-standing problem of determining fishing power).

In mixed fisheries the single species objectives are difficult to meet simultaneously due to differences in dynamics and initial state of the various stocks. These would depend on the relative status of the stocks and operative management priorities for these stocks. In theory, a single precautionary effort (c.f. setting it compatible with Fpa for haddock in **Table 4**) applied to all fleets would ensure biological sustainability and low risks, but it would result in underexploitation and economic losses of some species in the short-term. On the other hand, a high effort level would potentially threaten the most depleted stocks. Theoretically, setting at an intermediate level of effort, and with additional measures to protect a depleted stock, would reduce underexploitation of particular stocks and facilitate sustainable and profitable fisheries, provided that there is some spatial and temporal separation of stocks and fleet segments on the fishing grounds. Thus, information on effort allocation by vessel and fleet/métier behavior requires to be detailed and disaggregated.

On a more scientific and practical evidence-based level, it is notable that in 2012 ICES presented, for the first time, options for mixed fisheries in the North Sea (ICES ACOM, 2012c) in the form of *scenarios* of fishing opportunities taking into account the single stock advice for fisheries catching several species, existing management plans and the MSY framework related to the precautionary approach. This was underpinned by the Fcube (Fleet Fishery Forecast) mixed-fisheries advice framework (Ulrich et al., 2011). Potentially, a similar methodology could be used for the Faroese mixed fisheries for cod, haddock and saithe, taking into account the fishing pattern and catchability of the various fleets/segments.

Two basic concepts of primary importance to Fcube are the Fleet (or Fleet segment), and the Métier defined as:

* *A Fleet segment* is a group of vessels with the same length class and predominant fishing gear during the year. Vessels may have different fishing activities during the reference period, but might be classified in only one Fleet segment.
* *A Métier* is a group of fishing operations targeting a similar (assemblage of) species, using similar gear, during the same period of the year and/or within the same area and which are characterized by a similar exploitation pattern.

The exploitation pattern of each species is the distribution of fishing mortality over the different ages of that species.

***The basis of the Fcube model is to estimate the potential future levels of effort by fleet corresponding to the fishing opportunities based on:***

* ***The results of the single species advice and management plans.***
* ***The fleet's effort distribution across métiers.***
* ***The catchability of each species by each métier.***
* ***An assumption regarding the behavior of each fleet in the forecast year.***

ICES ACOM (2012c) emphasizes that the scenarios established are based on central assumptions that fishing patterns and catchability remain approximately constant over the short-term, requiring that these aspects are appropriately monitored and analyzed. ***It is noted that options that result in under- or over-utilization of particular species are useful in identifying the main points of friction between the fishing opportunities of the various stocks. They indicate in which direction fleets may have to adapt to fully utilize catch opportunities.*** However, the adaptation mechanisms themselves – largely occurring at the level of individual vessels – cannot be predicted easily. ICES ACOM (2012c) points out that improved mixed fisheries management should act towards reducing these areas of friction, to limit risks of not achieving the single-stock management objectives. ***In an effort management context, studies indicate that linkages between effort and F change depending on fleet and species. Spatial and temporal changes in where and when métiers exert their fishing effort have an influence on the species composition of the catch and will change the ability of vessels to target (spatially) the different species. Thus, investigations are needed to be able to include spatial decoupling between species in the scenarios. In this context, it is pertinent to note that the Faroese TAE management system has contributed to substantial awareness of the concerning the spatial decoupling of fleet segments and their main target species.***

# Discourse analysis based on stakeholder interviews

Based on the interviews carried out on the Faroe Islands in August 2012 (see Section 2.2 and Annex 2 for more detailed information on the interviews and the composition of respondents), we present on the following pages insights on two of the most interesting debates that are currently unfolding in relation to the Faroese TAE system.

It should be noted that the Faroese system is - in particular by industry stakeholders - viewed as a highly integrated system, in which all constituent elements contribute to a perceived equilibrium and subsequent sustainability of the system. This means that discussions around certain elements of the system are by default perceived as related to the whole system. As a consequence, there is a certain overlap between individual discussions, as they basically are seen as relating to the system, as such.

In addition, as laid out in Section 3.2.3.2, the TAE system includes only a very general mentioning of objectives and no further elaboration in terms of formal objective setting. As a consequence, open discussions on the setting of objectives of the TAE and whether they are adhered to did not come out strongly in the interviews. One respondent put it like this:

*“The objectives stated in the Fisheries Law are so broad that you can read pretty much anything into them. There are both sustainable fisheries, and there are social concerns, and something about spreading activities throughout the islands, so it is not only certain areas that benefit. And depending on your perspective you can read whatever you want into this”* (Respondent 1, fisheries sector, translated).

The interviews conveyed that there is in particular one overarching disagreement, which seems to be central to the discourses on the Faroe Islands, namely the disagreement over whether (or to what extent) the TAE system can be considered partially or fully ‘self-regulating’. We will present and examine the discursive claims of this debate immediately beneath in Section 4.1. The second discussion that we will look into (Section 4.2), which potentially seems to significant impact on the future TAE system, relates to the question of to what extent and how the Faroe Islands should embrace MSC certification.

## 4.1 To what extent is the TAE system self-regulating?

The most fundamental controversy related to the Faroese TAE system appears to relate to what extent the system, which, as described in Section 3.2.3.2, consists of several elements[[11]](#footnote-11), can be considered as being sustainably ‘self-regulating’, meaning that it is an in-built feature that the system prevents an application of a level of fishing pressure on a particular stock high enough to drive it to depletion.

It should be noted that ‘self-regulating’ does not to anybody in reality imply that the system should be static, as all involved parties seem to agree that there is a continuous need to monitor the fish resources and act appropriately. However, what are ‘appropriate actions’ within the frame of the TAE system remains an issue of significant conflict. Most importantly, there is significant disagreement on whether fishing days should be cut or increased in response to stock developments, or if fishing days should only be cut in response to fishing effort creep so as to keep the maximum fishing effort that can be exerted by the combined fleet at any point in time stable.

In the following, we will investigate three discursive claims, which seem to be defining for the discussion of the self-regulating nature of the TAE system.

### 4.1.1 The continuous adjustment of the number of fishing days

Each year the number of fishing days for the coming fishing year for the combined Faroese fishing fleet is decided at the political level, in principle based on input from respectively the scientists and the fishery sector(s) (see Section 3.2.3.2). This yearly process is a crucial element of the TAE system and the importance of this can hardly be underestimated. Interestingly, the two advisory parties, biologist and the sector, strongly disagree on the whole point of this exercise.

**The discursive claim discussed in this section is: ‘It has never been the intention that the overall number of fishing days should be linked to fluctuations in stock levels’.**

On the side of the industry (and most clearly the catch industry), the dominating perspective is that reductions in fishing days should as a matter of principle not be used as a response to fluctuations in fishing stocks (i.e. cutting fishing days to reduce F).

The argument of the industry is that the Faroese fleet has traditionally always shifted its effort towards where the greatest fishing opportunities were. So if there are few cod, vessels target other, more abundant species, which is perfectly possible because of the absence of quotas. One respondent put it like this: *“To be a fisherman on the Faroe Islands is like being a wolf in Scandinavia. If there are no moose, then you eat something else”* (Respondent 10, fisheries sector, translated). Another respondent - referring to a conversation with a fisheries biologist who was worried about the level of fishing days - stated:

*“He was worried that the cod would have a hard time recovering. And I can understand that. That is his opinion, but I am not so worried, because I am fully aware that almost the entire Faroese fleet stays away from cod. That is, they catch very few cod”* (Respondent 2, fisheries sector, translated).

From the perspective of the fishery sector, the large areas that are either completely closed for commercial fishing or closed for certain types of fishing ensure that the stocks cannot be driven to depletion:

*“What we have done on the Faroe Islands* […] *is to close the spawning areas. They are closed. So 40 percent of the available fishing areas around the Faroe Islands are closed for trawling all year round. We believe that we in this system have regulated so that we will never catch so large a share of the stocks that they will collapse”* (Respondent 9, fisheries sector, translated).

As a consequence, the fishery sector argues that the closed areas at the very least reduce the effective fishing pressure that can be exerted on a fishing day (for instance by preventing access to the best fishing spots) to an extent that has to be accounted for in the scientific advice, something which the fisheries sector argues is not the case:

*“The recommendation from FAMRI builds on intervening directly in the number of fishing days, while what we are saying is that when you close a giant area for longliners* [in this case inside 3 nm] *then this will – all things being equal – have an effect on effort. Because you might very well still have a 100 days but you cannot go to the best spots to fish. Clearly, this must have an effect”* (Respondent 10, fisheries sector, translated).

As a result, the current low level of cod is, at least for significant parts of the fisheries sector explained not by reference to overfishing by Faroese vessels but by changes in the natural environment. The industry and others advocating this find support in the fact that massive cuts in fishing days from around 49,500 at the outset of the system to around 23,300 today (Respondent 10, fisheries sector) has not resulted in a positive development of the cod stock. Similarly, some industry actors point to the fact that the saithe stock has been overfished in periods *vis-à-vis* the F = 0.45 target (which is in itself is higher than what is advised by the scientists today (see Section 3.2.3.3)) without this having led to a reduction of the stock.

These observations have led to a fundamental skepticism regarding the scientific system and the conclusion: *“What is the point of reducing the number of fishing days, if we have not seen an effect of the reductions so far?”* (Respondent 10, Fisheries sector, translated). The above, in combination with a much referred to failure by Faroese biologists to predict a swift recovery of the cod stock in the mid-1990’s, has created a situation, where the industry generally is of the opinion that the system is already more or less sustainable, at least biologically – or at the very least that shifting to a system that is regulated based on stock assessments would not be more biologically sustainable – but would surely result in lower levels of landings with negative impacts with respect to social and/or economic concerns.

The industry does, however, generally accept that it is in principle necessary to continuously cut capacity to make up for capacity creep (see Section 3.2.3.2). However, the industry generally operates from the perspective that the number of fishing days allocated from the outset of the system was appropriate and sustainable (see Section 4.1.2 beneath). And given that the number of days has been cut significantly over the years (see above), the industry remains largely of the opinion that it is not necessary to cut days further to compensate for capacity creep:

*“We clearly accept that if there has been an increase in efficiency, there has to be a reduction of days. That is what the system should be doing. From the perspective of the biologists, you look at how the fish stock is doing; the traditional ICES approach. Then you say: ‘Well, cod is not doing so well, therefore we have to cut fishing days.’ We are sort of not on the same page. That is the problem”* (Respondent 10, Fisheries sector, translated).

An additional problem in relation to this is, however, that currently there is no clear and systematic way of monitoring effort creep in the Faroese system. Furthermore, there has been and likely remain big differences in regards to the potential and actual efficiency gains across the different catch segments. This makes cutting fishing days across the board feel evermore illegitimate for certain parts of the fleet - in particular in Segment 5 (see Section 3.2.3.2), which does not see themselves as able to increase effort. The problem of the variable effort creep of the different segments was also mentioned by a fisheries administrator as a big problem and something that was in itself a reason for the unwillingness to cut days:

*“The problem is that whenever you have to cut days, you have the lawnmower-model and that is difficult to use. My personal opinion is that as long as you do not have another model to take days away, then it will be complicated to cut them”* (Respondent 4a, fisheries administration, translated).

In contrast to the industry, the scientific community remains of the opinion that the number of allocated days must (at least to some degree) in some way reflect how stocks are fluctuating. This reflects the assumption that fishing pressure is a contributor to these fluctuations - or at the very least that too high fishing pressure can have detrimental effects at low stock levels. This is, however, as mentioned above, not readily accepted by the industry at large, which highlights the closed areas in this regards.

One respondent from the fisheries administration (Respondent 4a) mentioned that it was in fact unfair to refer to the Faroese system as an ‘effort system’, as the significant usage of closed areas was equally important to the system.

### 4.1.2 The initial level of fishing days agreed

When the TAE system was originally set up, one of the key issues was to decide on the initial number of fishing days. Since shortly after the adoption, there has, however, been disagreement on whether the number set from the beginning was correct.

**The discursive claim discussed in this section is: ‘The overall number of fishing days allocated from the outset of the TAE system was too high’.**

From the perspective of the scientific community, one of the fundamental problems of the TAE system is that the number of days allocated from the outset of the system was too high. From the scientists’ perspective, too many days were distributed in order to get everybody on-board. However, over the following year(s), when the number of days should have been cut to better reflect the resource situation, there was no will to do this. This created a noticeable conflict between the scientific community, which found that the industry was violating their joint agreement, and the fisheries sector, which is partly of the opinion that the scientists turned their back on the system they had themselves been part of designing:

*“From the outset of the system - when it was set in place - there were far too many days in the system. And that gave a tremendous throwback; because the unanimous decision to take the system on led people to believe that the system was self-regulatory, which of course it is not. So when* [after the first year] *we advised from the fisheries research side to reduce the days, so it was more in agreement… so the number of days at sea agreed with what the law said, this was met with opposition and although the days have been reduced gradually over the years, they have not been reduced to the extent to which we thought was necessary”* (Respondent 3, fisheries biologists).

And further:

*“It is my personal opinion that what you did was really to violate the law. You took both the biological agreement out and the biological objective out. But that again made both the economic objective and the social objective unattainable.* […] *Because you cannot have a viable, economical object without a solid biological object”* (Respondent 3, fisheries biologists).

According to one respondent, the Faroese scientists found themselves squeezed between loyalty to the TAE agreement and loyalty to colleagues in the ICES system (who were unable to understand/accept the TAE model): *“However, what was wrong was that when the Faroese scientists came to ICES they were kicked in the butt”* (Respondent 9, fisheries sector, translated). Although this might be an exaggeration, it does appear that the fact that ICES advice, which is basically geared towards TAC systems, has created a complicated situation for Faroese fisheries scientists (see also Section 3.2.3.3 above). The latter find themselves in a situation where they have to balance between the ICES system - which really is not able to give targeted advice with respect to the Faroese TAE system - and domestic expectations without clear guidance on how to do this as there is a lack of clear legislative or policy objectives and procedures.

As a result, the two sides start from very different perspectives when discussing the TAE system: the industry sees it as inherently in balance from the outset, while the scientific community sees it as inherently out of balance.

### 4.1.3 The interpretation of the presence of ‘unused fishing days’

Each year, a number of fishing days remain unused in the TAE system. The interpretation of what unused days indicate is yet another issue that divides scientists and the fisheries sector.

**The discursive claim discussed in this section is: ‘Unused fishing days indicates that the number of days should be reduced’.**

The above differences in perspective (see Section 4.1.1 and 4.1.2) result in competing interpretations on how to interpret the presence of ‘unused fishing days’, i.e. fishing days that are available to individual vessels without actually being utilized within the fishing year. To the scientists, the presence of unused fishing days is an indicator of the fact that there are too many available days in the system. As a result, fishing days should be removed from the system to bring the level of days more in accordance with the available fishing opportunities.

To the fishing industry, the presence of unused days is on the contrary seen as an indication that the system is working: *“This is the core of the system. If there are few fish, then we use few days; if there are many fish, we use many days”* (Respondent 10, fisheries sector). Similarly another respondent explained: *“Even though you could say that if all fishing days were utilized, then the fishing pressure would be very high, it is not the case that all days are used. That is what you call a self-regulatory system. We like using that word”* (Respondent 4a, fisheries administration, translated).

Although both the scientific community and the fisheries industry to some extent agree on the fact that excess days are an indication of the availability of fish being at a level where it is economically inefficient to chase it, they fundamentally disagree on what should be the response – basically returning to the disagreement on to what degree fishing pressure in the current TAE system is in reality a major determinant of the state of the stocks. The skeptics of the idea of a self-regulating system, also finds support in the fact that it is not only the state of the stock that determines whether it is economically viable to fish it:

*“This is where they say that it is self-regulating, because you would not go out unless it is economically viable. But the problem is just that this is not just determined by the stock; it is also dependent on oil prices and other things, so it is possible to fish the stock down for the wrong reasons”* (Respondent 11, outside observers, translated).

Similarly, there are also differences from fleet segment to fleet segment, when it comes to the issue of when fishing on a particular stock becomes economically unviable.

The ever-present conflict over the number of fishing days (see also Section 4.1.2 above), and if and how to cut them, has resulted in political discussions on whether to remove fishing days from the system by in a targeted fashion taking them away from the vessels that do not utilize them within the fishing year. The logic being that it would in principle meet less resistance to take away days from those who do not use them. These deductions would from this perspective also be from the vessels / segments with actual excess capacity.

This idea, however, is also met with significant resistance from the industry because the whole idea for the industry is that a share of days is left unused if the stocks are low. From this perspective, the above suggestion penalizes those who contribute to a lower pressure on the stocks than if all capacity was utilized: *“To say that if one does not utilize so many percent of one’s fishing days, then that should be lost… I think that is totally crazy. It does not matter that they are not utilized. Is that not what they want?”* (Respondent 8a, fisheries sector, translated). Or as another respondent put it: *“We believe that every fishing day that is unused benefits the stock”* (Respondent 9, fisheries sector, translated).

The industry does recognize that the excess availability of fishing days contributes to the fact that the system might not appear sustainable if you look at single years, where fishing pressure on one stock might surpass the F = 0.45 threshold (or any other F considered sustainable). However, in the long-term the industry argues that the system is in equilibrium, where stocks are not in a risk of collapse (at least not due to fishing pressure). So, despite ‘overfishing’ in some years, over the long run the system is sustainably self-regulating. From the perspective of the industry, the excess capacity rather than being the problem is the feature that will allow the fleet to fish on the tops whenever stocks are in good condition:

*“We are back to this issue of how you look at things. The biologists would say that when stocks decline you should reduce capacity; however, the fishermen’s’ logic is: ‘we need to have enough capacity to fish the stocks, when they are at their maximum, we cannot decrease capacity just to suddenly need it two years later; that is no good’”* (Respondent 11, outside observer, translated).

In addition, the industry has little hope that the number of days will be increased again after having been cut. This situation, of course, might result in a more stable catch but stability does not seem to be a highly valued objective of the industry, at least not in a situation where it fears that stability will be at a much lower level than the present.

### 4.1.4 A system impaired by a failure to promote transparent negotiation of compromises

A feature in the current setup of the Faroese TAE system, which seems to have reinforced the differences described in the three sections above, is the fact that the final decision on fishing days is taken by the political level based on separate input from the two sides: biologists and the fishery sector. As described in Section 3.2.3.2, the decision-making system, which entails a political decision being taken on the basis of separate inputs from the sector and the scientists, provides little incentive for integration of views, which has created a situation where the two parties position themselves solidly in opposing camps. As one respondent put is: *“It sort of becomes a trade-off. If you give in too much* [when submitting recommendations] *you risk losing ground”* (Respondent 11, outside observers, translated).

It does, however, appear that there is a development towards more communication and active seeking of consensus between the sector and the scientists, an example being the current work on an actual management plan for the demersal stocks (see Section 3.3.2). As described further beneath, this development may in part be driven by the pressure for MSC-certification.

## 4.2 Marine Stewardship Council certifications

The Faroese TAE system is under pressure from various international developments. As we have indicated above, there is for instance a distinct pressure to adapt management so that it lives up to ICES advice, although ICES advice may similarly need adaptation to the Faroese context of effort management. In addition, the Faroese system is also challenged by the global trend towards certification of specific fisheries, in particular MSC certification (see Section 3.2.4.1).

The possible move towards MSC certification divides the Faroese fisheries sector in various ways. This is in particular the case when the issue is the possible MSC certification of fisheries related to the main, effort-managed demersal species in Faroese waters: saithe, haddock and cod. MSC certification is, however, not new to the Faroese, as Faroese vessels are already carrying out a MSC certified fishery for great silver smelt (by agreement among the administration and the participating vessels effectively carried out as a TAC managed fishery) in Faroese water and take part in MSC certified TAC fisheries for cod and haddock in the Barents Sea (see Section 3.2.4.2).

In the following, we will investigate the two discursive claims, which seem – although not being mutually exclusive - to be confronting each other in the debate:

**Claim 1: ‘MSC stands for a false or at least reductionist perception of sustainability’.**

**Claim 2: ‘MSC certification is increasingly a precondition for gaining market access’.**

Enthusiasm about MSC certification appears, in general, limited on the Faroe Islands. This is, not surprisingly, in particular the case within the fisheries sector. However, within the sector there is, nonetheless, a significant difference between the attitude of those adopting a pragmatic attitude and arguing that this is increasingly the way to go to develop new opportunities, protect existing market shares and get the highest prices, and those arguing that MSC is disruptive and counterproductive to the Faroe Islands’ fisheries. One respondent summed up the state-of-affairs like this:

*“Well, MSC is perhaps not particularly popular up here, as it is generally seen as a money-machine. If you look at some of the fisheries, which are certified elsewhere, you have to wonder how they can be approved as being sustainable. However, one might still see the necessity of going for certification, nonetheless. If you can get a higher price by getting MSC certified, then it might still be economically rational to go for it. But there are somewhat different perspectives on whether it is worth doing it – whether it is worth the price. For some species the price we can get for a certified product is only marginally higher than what we get at the moment. And if it entails that we have to cut with…let’s say 60 per cent in fishing days, then it is not worth it, some say”* (Respondent 1, fisheries sector, translated).

The least negative perception of MSC is found in particular among processing companies and vertically integrated businesses (of which some have experience with MSC from participating in certified fisheries outside the Faroese EEZ), but even here the enthusiasm is limited:

*“We have a representative in* [cityname] *where we sell our fish and he meets more and more people and they say: ’It has to be MSC. Without MSC it is no good’. I do not think it changes anything for the fish whether it is MSC or not. Personally. But it does change… You know, MSC has managed to get customers in England, Germany, France…* […] *They have made them understand that this is important, and therefore you have to do it. Personally, I think a lot of it is silly…”* (Respondent 8a, fisheries sector, translated).

Similarly another respondent simply stated: *“You just have to have it* [MSC certificate]. *I think so*” (Respondent 8b, fisheries sector, translated). The above quotes show a relatively pragmatic attitude towards MSC. It is not really seen as something that can be used strategically but rather as something that the sector simply has to embrace to maintain its current position.

However, some parts of the industry, in particular but not exclusively the small scale fleet, remain highly skeptical (or even hostile) towards MSC. The criticism that the respondents raised can basically be sorted in two: 1) Issues with the criteria upon which a fishery is deemed eligible or not eligible for certification; and 2) issues with MSC as an organization and the way it operates.

As for the first stream of criticism, it is argued that the fisheries that receive the MSC certificate are not fully sustainable and that the choice of criteria to some extent is arbitrary or even designed as to allow only *“the most profitable* [for MSC] *fisheries to be certified”* (Respondent 9, fisheries sector, translated). As evidence, respondents mentioned the lack of (or at least lack of weight on) criteria related to ‘fair trade’ or social standards, the lack of criteria related to oil consumption and related greenhouse gas emissions, and the fact that MSC certifies fisheries with high discard rates or with - compared to for instance passive gear - high bottom impact (Respondents 2 and 9, fisheries sector).

The second stream of criticism relates to the MSC as an organization, rather than the specific criteria behind certification. On the most general level, one respondent indicated that the MSC exploits its strategic position between the fishers and the market (retailers) to put massive pressure on uncertified (but nevertheless, in the respondent’s eyes, sustainable) fisheries and compared it to organized crime: *“I look at MSC as a mafia organization. You know: ‘If you are not part of our gang, we’ll blow up your business.’ That is the kind of methods they use”* (Respondent 9, fisheries sector, translated). The same respondent also pointed out that in his opinion, MSC is not a democratic organization and that it is generally too costly for small fisheries to enter into the process of MSC certification. Another respondent highlighted that traceability is a weakness for MSC and that one could not really be sure if labeled products originated from certified stocks (Respondent 4a, fisheries administration, translated).

In general, although the issues mentioned earlier in the section definitely shape the attitude of much of the fisheries sector (some parts more than others), the lukewarm reception of MSC can likely also in part be attributed to the fact that it has not - until very recently - been a problem for the Faroese vessels to sell uncertified products. There is still a demand for uncertified products and it is therefore mainly the parts of the sector, which are most directly linked into the international markets, which are affected by the changing demand structure – or at the very least is beginning to become aware of the changes. And even these parts of the industry appear highly conscious of the cost of getting certifications (in terms of fees to MSC or in terms of having to reduce fishing effort) compared to the benefits in shaping better market access and higher prices.

Nevertheless, although not really being viewed as a sustainability enhancing development by the sector, the pressure for MSC-certifications might very well still be driving a sustainability agenda. It was, as an example, mentioned that the emerging requirement of international recognition of the TAE system being ‘sustainable’ and therefore certifiable was one of the driving forces behind the current, on-going work on a management plan for the demersal stocks (see Section 3.3.2). On a question of whether the industry was supportive of the process towards a new management plan, which is an attempt to bring the TAE system in conformity with the international commitment to MSY-based management, one scientist stated:

*“I think that they had to be. They pushed it. Because we have very big problems in getting high enough prices on fish, because we did not have a sustainable fishery according to the definition by the international community. So there was pressure from the industry on the political system, and therefore they came with this request”* (Respondent 6a, fisheries biologists).

In addition, moving outside the fisheries sector, one respondent indicated that MSC might, irrespectively of its merits or lack of merits, be a vehicle for necessary institutional change in the way the TAE operates:

*“When the consumers demand MSC certification, then the fishers and vessel owners will have to arrive at a modus vivendi with the biologists. And I believe that this is perfectly possible in the Faroe Islands.* […] *For instance, lately there has been a positive dialogue around the new management plan.* […] *There we have a golden opportunity, as this with MSC is coming in* […] *It is a golden opportunity for the politicians to say: ‘We could just pull completely out. They have to figure that out on their own’* [see Section 4.1.4 above]*. Because the vessels owners bloody well have to get the stamp of approval from the biologists on what they are doing, or else they cannot sell their fish”* (Respondent 11, outside observers, translated).

This respondent argued that the increasing need to be able to deliver certified fish would be the one thing that in the future would be able to force the industry to approach the biologists to work on figuring out how the TAE system could be made sustainable in a certification context – either in an effort to certify individual fisheries under the TAE system, or - as another, centrally placed respondent (Respondent 10, fisheries sector) indicated had been under discussion within the fisheries sector - to go for certification of the TAE system as a whole.

## 4.4 Conclusions

On the basis of the above, **we conclude that the constructive development of the system and in particular constructive interactions between scientists and stakeholders within the TAE system has been significantly impaired by the conflict over what was actually the intention vis-à-vis the regulation of the number of fishing days - a disagreement that appears to have more to do with the mechanisms of the TAE system than actual disagreement on the objectives of it, which are as mentioned elsewhere generally vague. Similarly, the disagreement on whether the initial number of fishing days was set too high has inhibited the development of the system. We also conclude that the TAE system has self-regulating elements to it but that evidence on the extent of the self-regulating mechanism is lacking. The differences in perspectives between biologists and fishers have possibly been further sharpened by the fact that the decision to adjust fishing days is a political decision based on these two contrasting inputs; a feature which does not prompt willingness to compromise. As such, the system discourages consensus.**

**We further conclude that there is limited support for MSC certification in the Faroese fisheries sector. Even among those who are pragmatically positive about the development, particularly processing enterprises, MSC certification is generally not seen as an opportunity but rather as a threat that you can ‘get around’ by signing up. Within the sector, the certification issue is generally not viewed as a sustainability issue. Nonetheless, changes in the demand for certified products might lead to changes in the system. As a result, the outcome of the on-going assessment of the saithe fishery could potentially be an important indicator of future development, as this will be the first real test of what it will require to reconcile MSC certification with the Faroese TAE system. Similarly, the development towards a new management plan will point out a direction for future Faroese fisheries management. Outside the fishery sector, the perception of the MSC is somewhat more positive, although the attitude remains rather pragmatic.**

### 4.4.1 The Respondents Take-Home Messages

As the last question during the interviews (See Annex 3 for the full list of questions), we asked our respondents to consider what were respectively the strong and the weak points of their management system and based on those considerations offer us some take-home messages. The following is a brief report on the responses.

Several respondents highlighted that one of the most admirable features of the Faroese system is its ability to avoid discarding. This is an area where all respondents across-the-board were of the opinion that the Faroese system outperformed the EU. One respondent put it like this:

*“Well, I think it is really difficult, because if I say, ’in the name of God, stop discarding!’, then that would mean that nobody could fish for the moment. So I would rather say, ‘you got to find a way to fish so that you do not have to throw fish back in the sea’. It might not be possible for the present, but please try to design something, so that the fish is not tossed back. Because I think it is unethical”* (Respondent 2, fisheries sector, translated).

It was generally advised that you should not in any case design a system in which discarding is an institutionalized feature. The main arguments - besides the sheer waste of good fish - were, on one hand, that a system based on institutionalized discarding will be inherently illegitimate and unethical, and, on the other hand, that the accuracy of scientific data is compromised by discarding.

Another issue, which was highlighted by more than one respondent, was the need to base any changes to the EU system on extensive dialogue and as far as possible on consensus between the scientists, the fisheries sector and the public authorities:

*“You see, if we take our fishing days system, which we agree is a good system, then it demands certain things: It demands that there is a certain consensus among the groups in and around the fisheries sector on, ‘This is how we want it to be’. And our weakness was probably that FAMRI had a too passive role in this. I mean, we had the politicians and we had the industry on board. The side of the scientist was less clearly committed. So that could be one piece of advice: If you establish a fishing days system, it really requires consensus”* (Respondent 4a, fisheries administration, translated).

Based on Section 4.1 above, it seems particularly pertinent to get clear consensus on the initial level of days as well as clarify under what circumstances days should be increased our cut and how this process would play out.

Another respondent highlighted that the benefit of the TAE system compared to the EU system and other TAC systems was its ability to immediately adapt fishing pressure to the state of the stock, not least when the stock is increasing, to some extent indicating that the EU system as a minimum needs to be able to act faster and more ‘real-time’:

*“One of the advantages of our system is that you are able to fish both on the ‘tops’ of the stocks and when they are low. What is happening in the EU and in quota regulated fisheries is that you never get to fish on the ‘tops’. If I have to explain, then I think that this is because the fisheries… Advice is always two to three years behind compared to practical fishing. When a stock is on the way up, you very often see that advice is much lower.* […] *What happens, if you follow quota advice all the time, is that you never get the tops, because the advice chops the top off the system”* (Respondent 9, fisheries sector, translated).

Finally, one respondent (Respondent 3, fisheries biologists) highlighted that the TAE system should - in the first place - have included a mechanism for collecting more of the revenues from the fisheries sector to benefit the society at large and offered that as a lesson that others could learn from.

1. **Conclusions on objective setting and implementation processes in the Faroese TAE system**

This section provides a summary and our conclusions regarding the main features of the fisheries management system relating to the three main demersal species in the Faroese EEZ, namely cod, haddock and saithe; i.e. the Faroe Islands TAE fisheries management system. ***The interested reader wishing to simply read our summary and conclusions, without all the underpinning detail, should focus on this section of the report***.

Section 5.1 *focuses mainly on providing a tabularized summary of the report*. This builds on sections 1-4 of this report where the evidence for our findings is documented.

Section 5.2 *highlights our overall findings with respect to MYFISH Task 1.2, with regard to this fishery, under the specific headings of bio-ecological, economic, and social objective (i.e. goal) setting and the implementation processes (i.e. measures or means) to achieve the objectives*. *Similarly, we discuss governance. Finally, we provide a short-list of the lessons that can be learned from the Faroe Islands TAE system with respect to the European Union*.

***5.1 Summary of governance characteristics and operational efficacy***

Our summary conclusions on the strengths and weaknesses of the system, with respect to best practices and lessons learned in the context of objective setting and implementation processes for the studied Faroese fisheries are tabulated below (**Table 5**). Our task has been especially challenging due to the lack of formalized, specifically-defined policy and supporting operational objectives for the mixed fisheries managed by the TAE system. Thus, we provided our own views on appropriate ‘good’ governance, in the context of the studied fisheries, and rank these concerning their actual operational efficacy (i.e. how they function in reality).

**Table 5**. Governance characteristics for the Faroe Islands’ TAE management system. In the left column the first two measures summarily set the scene regarding the operational policy and the TAE management system as a whole, respectively. The remaining measures summarize the key components which potentially contribute to good governance. The measures are ranked regarding their actual efficacy: Good ☺; Neutral 😐; Poor ☹.

|  |  |  |
| --- | --- | --- |
| **Governance characteristics for Faroe Islands’ TAE management system** | | |
| ***Measure*** | ***Rank*** | ***Clarification*** |
| *Definition of fisheries and environmental policy objectives* | ☹ | Regulation of all fisheries in the Faroese EEZ, and by Faroese fishing vessels outside the EEZ, is based on the Commercial Fishery Act from 1994, with subsequent modifications. The Act states that living marine resources in the EEZ and Faroese allocations in waters outside the EEZ are the property of the Faroese people and that these fisheries should be managed sustainably in both biological and economic terms. Socio-economic factors should also be taken into account. However, specific formal objectives regarding fisheries, environmental and ecosystem considerations are not defined either in the Act or in fisheries management plans. Thus, the management objectives are opaque. |
| *TAE management system with IFQs.* | 😐 | The precondition for the TAE system, based on regulation of fishing days (i.e. input control), is that the total fleet is under Faroese control. The system is implemented for mixed fisheries for cod, haddock and saithe, and is theoretically easy to administer and enforce. It was assumed that the TAE system is self-regulatory such that effort exerted on any of the targeted stocks will shift according to the stock's availability, so no stock will be overexploited. The TAE framework combines individual fishing quotas (IFQs, as fishing days) with measures to influence not only catch quantity but also catch composition. Fleet segmentation (vessel types/gears) is connected with specified access/closures to geographical and depth zones. The comprehensive use of technical measures is aimed to conserve juvenile and spawning fish and protected species. Discarding is banned so that all catch must be landed. Effective regulation of TAE requires fishing capacity to be monitored and maintained at sustainable levels regarding the prevention of overfishing of targeted stocks. But initial effort (fishing days) was set too high in 1996 and has not decreased sufficiently thereafter. Management has not been sufficiently adaptable to scientific advice. Compliance with the F = 0.45 objective of the TAE management since the change over from TAC management in mid-1996 has not been met for cod, whereas for haddock and saithe it generally has been met. |
| Fishing days | 😐 | A system of fishing days (i.e. effort as days-at-sea) regulates the time each vessel in a fleet segment/group (i.e. vessel types and gears) may fish in approved areas/depth zones. Maximum total effort, as fishing days, is fixed annually for the coming year for each fleet segment/group. However, the number of fishing days remains unsustainable with regard to status of stocks. |
| Share allocations | ☺ | The target distribution (i.e. shares) of the stocks between the fleet segments/groups was proportionately set out in the Commercial Fisheries Act. The effort regime was designed to take these shares into account as well as the spatial and temporal distribution of areas where fishing (e.g. trawling) was banned. Share allocations contribute to maintaining the relative *status quo* regarding the rights-base of fleet segments/groups, and individual fishing vessels, to fish specified proportions of the target stocks. Additionally, the share system is designed to apply a particular fishing pattern on the stocks. |
| Fleet segmentation | ☺ | Five fleet segments are regulated by fishing days. Fleet segmentation is a central element in maintaining fleet diversity and controlling and dispersing fishing effort and its patterns (i.e. where and when fishing takes place and by which fleet segment/group) and in limiting conflicts between fishing segments/groups and active and passive gears. Fleet segmentation is closely related to fishing zones regarding spatial/temporal access/closures. |
| Fleet zonation | ☺ | Underpins the spatial separation of fleet segments/groups, and their respective gears, by designating particular geographical areas/depth zones in which they are permitted to fish. Zonation contributes to maintenance of fleet diversity, dispersal/pattern of fishing effort, etc. |
| Limited entry licensing | ☺ | Restricts the number of vessels in various fleet segments and underpins regulation of fishing days (effort). Forms the basis for rights-based management (RBM), counteracting the 'race for fish' by providing long-term access to fishing opportunities in the form of shares and individual fishing quotas (IFQs) for fishing effort regarding particular target stocks in given zones/areas using specified gear. |
| Tradability of fishing effort | 😐 | Quotas for fishing days (effort) may be traded within fleet segments and, with some restrictions, between segments. Fishing days can be leased out for one year or sold permanently. However, market-driven trading of fishing days is not allowed. In a market system nominal effort units (accounting for the differences between nominal effort units of differing sized vessels) can be used to determine the point of zero net excess supply/demand in an effort market. The market objective is to allow for increases in fleet efficiency through market trades, to simplify fishery regulation, and to provide a tool for removing excessive/unutilized fishing effort. |
| Limiting discards | ☺ | Discarding is illegal: all catch, including bycatch, must be landed. Discarding is very rare. Thus, landings = catches and data used for enhancing fishery statistics and assessments. The discard ban includes real-time rules for changing fishing areas when bycatch occurs, with self-reporting obligations when bycatch reach 30% of the catch under a certain size limit. |
| Technical measures | ☺ | An important characteristic of the regulation system is the comprehensive use of spatio-temporal closed areas for conserving fish stocks (e.g. juveniles and spawners) as well as protecting vulnerable species and habitats. Initially the purpose was to avoid gear conflicts between active and passive gears, but most closed areas are now mainly based on access rights to fishing areas. Other measures span regulations regarding use of minimum mesh sizes and approved/banned gear, and limiting bycatches. |
| Acceptance and compliance | ☺ | The TAE system has a high level of acceptance by fishers, managers and scientists. The TAE system removes incentives for discarding incidental catches and there is a low incidence of IUU fishing. A good monitoring, control/enforcement system exists, including VMS and real-time electronic catch reporting for most fleet segments. However, the log-book system needs better implementation for particular fleet segments. The functioning of the catch-shares system (c.f. Commercial Fisheries Act) provides further evidence of overall acceptance and compliance. |
| Provision and acceptance of scientific advice | 😐 | Well-elaborated scientific assessments of status of fish stocks, taking into account relevant multispecies and ecosystem considerations, is provided by FAMRI within a peer review advisory system conducted by ICES. However, the strategic roles and responsibilities for science are unclear as scientific advice often is subservient to fishing industry views, such that fishing effort remains unsustainable. Cooperative research between science and fishing industry poorly developed. National authorities have not, so far, entered into dialogue with ICES on the most appropriate advice form for meeting the needs of the TAE-based management system. The 'missing link' requiring solution is a credible scientific formulation of the relationship between effort (fishing days) applied by the fleet/segments and the resultant (partial) F on each of the three targeted gadoid stocks in a mixed fishery situation. Scientific evidence on the effectiveness of closed areas is lacking. |
| Economic performance | 😐 | No evidence that economic performance/efficiency has increased since TAE introduction including possibility of transferring effort rights. Unrealized performance due to fleet overcapacity based on current licensing system, restrictions on tradability of fishing days and market-distorting subsidies. The volatility of international markets related to supply and demand of fish resources also affects profitability. Establishment of a market for trading fishing rights has been proposed but not adopted. |
| Governance system | ☹ | Institutional organizational arrangements are unsatisfactory with a view to transparent, inclusive consensus-based decision-making. The system does not facilitate understanding and uptake of science-based advice and lacks appropriate processes for integration of differing viewpoints. Public and wider stakeholder participation is lacking. Decision-making is highly politicized regarding balancing short-term decisions and long-term actions. |
| Precautionary approach (PA) | ☹ | The Faroese TAE management system, in its current form, is out of step with major international agreements and best practice standards such as the PA and/or MSY. ICES considers the cod, haddock and saithe fisheries non-precautionary and unsustainable. |
| Management plans (MPs), harvest control rules (HCRs) and maximum sustainable effort (MSY) | ☹ | Approved MPs with HCRs currently are not in place. However, draft single species MPs, with HCRs, have been elaborated by a Faroese committee regarding PA and MSY criteria in accord with ICES estimated parameters. Substantial reductions in fishing effort for target stocks are necessary to meet MSY related parameters. The draft MPs are awaiting political approval. However, the draft MPs do not tackle the overarching and essential need to interlink the single species MPs together in the context of a mixed fishery approach relating (partial) fishing effort to F, in which there will be a variety of options in a mixed fishery for setting the (relative) exploitation levels. |
| Impact assessments (IAs) and management strategy evaluations (MSEs) | ☹ | Neither IAs nor MSEs are applied to the TAE management system. 'Cost-benefit' IAs (e.g. environmental, social and economic aspects) provide an important review process concerning impacts of fishery management plans/objectives/measures or impacts of other human activities on fisheries. MSE approaches are useful to identify and operationalize strategies for managing fisheries that are robust to several types of uncertainty and capable of balancing multiple economic, social and biological objectives. |
| Certification systems | 😐 | The Faroese Saithe fishery (ICES Region Vb) has undergone conformity assessment for MSC certification as the first whitefish fishery in the Faroese EEZ. Certification and branding (labeling) potentially offer a market- and information-based system for products which are harvested from sustainable resources, and that are healthy, safe and of good quality, and promote good animal health/welfare standards. Besides sustainability aspects, the perceived market-based benefits of certification for the saithe fishery primarily concerns improving positions relative to competitors.  In the March 2012 draft conformity assessment report, the Faroe Islands Saithe Fishery achieved a high score for each of the three MSC Principles (i.e. P1-P3). *The conformity assessment team recommended certification of the fishery with a number of conditions*. *The assessment report noted several strengths including that*: which have been drawn attention to in our MYFISH report. Under ‘weaknesses’ it was *inter alia* noted that: *the harvest strategy in existence since 1996 needs to be linked to achieving MSY-related management targets regarding reaching sustainable exploitation (in the new but not yet agreed management plan) at FMSY (=0.28). Additionally, although the MSY biomass trigger is defined in the new plan, there is no defined minimum acceptable biomass level set to minimize the risk of recruitment failure. Thus, the strategy lacks a probability estimate to safeguard the stock against recruitment failure. The new MSY-related plan needs to be urgently adopted subject to evaluation including robust testing and endorsement by ICES. The evaluation should include simulations of the validity of the new reference points which should include both biomass and fishing mortality levels*.  *The conditions for MSC certification included* that: the Faroese client must provide clear evidence that they have worked to influence the appropriate Faroese authorities to adopt the draft [new] MSY-related management plan as a matter of urgency. Evidence must be produced at each annual audit until a new management plan is adopted and endorsed by ICES. The client must produce the letter requesting the appropriate Faroese authorities to adopt the management plan and letter from the authorities confirming the status for the management plan. *We conclude that the draft Conformity Assessment Report provides a strong incentive to the Faroese regarding meeting the ‘international’ requirement to adapt to PA and MSY-related management ‘best practices’. The Faroese are expected to conform in a relatively short space of time with international best practice. Notably, the draft Conformity Assessment Report does not make an explicit reference to the fact that MSY-related management of the saithe fishery in reality also must encompass — as a component of a mixed-fishery — the eventual management also of cod and haddock. Thus, the MSC process for Faroe Islands saithe is also putting great pressure on the two other components of the mixed-fishery which have not yet determined whether or not to ‘join the fold’.* |

***5.2 Wrap-up***

As evident from the report in general and the overview in Section 5.1 in particular, the ‘results’ of this review of the Faroese TAE system are somewhat mixed. This, however, should not conceal the fact that the authors of this report have generally been impressed with the Faroe Islanders’ ability to develop and operate an innovative fisheries management system targeted at solving the specific challenges of the islands’ fisheries system. The magnitude of this task is not least put in perspective by the fact that fishing is on the Faroe Islands by no means a ‘marginal’ business, as is the case in many other countries. Rather the dependency on fishing is very high. Irrespective of some of the ‘flaws’ of the TAE system in its current shape, the system does not seem to have - when looking back over the years - performed worse (perhaps rather on the contrary) than for instance the fisheries management system of the EU, which has decidedly more institutional capacity behind it.

As also outlined in the tabular overview in Section 5.1 above, in relation to some of the key elements of sustainable fisheries management the TAE system does not at present meet current international ‘best practices’. However, in other respects the system has been able to tackle some of the challenges that other management systems are struggling with. It remains in many respects a highly interesting system, which has moreover — due to the very limited number of main actors—shown itself able to make swift reforms if the context requires it, as exemplified by swift paradigmatic shifts in the mid-nineties, see Sections 3.2.3.1 and 3.2.3.2.

In essence, the Faroese TAE system consists of limited entry licensing regulating the number of participating vessels (assigned to diverse fleet categories/segments) in particular areas/depth zones, a system of fishing days regulating the amount of time each vessel in a fleet category/segment is allowed to fish in approved areas/depth zones, and regulations for the conservation of juvenile and spawning fish and protected species including comprehensive use of closed areas. A ban on discards is upheld. With the exception of small fish regulations and protected species, fishers are allowed to land and sell whatever they can catch within their quotas. The precondition for the use of the TAE system is that the total fleet is under Faroese control.

It should be noted that our review of the system has been carried out at a point in time, where the Faroe Islands might very well be on the way to adopt a new management plan for the three main demersal species currently managed through the TAE system (see Section 5.2.1.1 beneath). This management plan might, if adopted as formed, tackle some of the most critical concerns that have been raised *vis-à-vis* the TAE system in this review and from other sides, in particular ICES. If the Faroe Islands manage to take yet another drastic turn in their fisheries management and adopt the new management plan, the system will potentially swiftly be able to move from being out of step with international requirements to yet again, as it did after the adoption of the TAE system in 1996, position itself at the forefront of innovative, sustainable fisheries management.

In the following sections, we conclude on the Faroese system *vis-à-vis* the three pillars of sustainability: the bio-ecological pillar, the economic pillar and the social pillar. In addition we discuss governance issues of the Faroese system. In considering the three pillars of fishery sustainability, it is pertinent to note that each pillar is not completely distinct or independent (‘stand-alone’) from each other as there are often overlaps, linkages, dependencies and synergies. For example, it is intuitive that it is necessary to have a sustainable stock (a bio-ecological aspect) in order to generate the necessary biomass yield to provide the basis for a profitable fishery (an economic aspect), which in turn contributes to food security and livelihoods in fishing communities (social aspects, if not socio-economic aspects). Additionally, if we view these just-mentioned aspects as being some of the basic, aspirational objectives (goals) of fisheries, we can instinctively anticipate from this reasoning that a substantial number of the measures to achieve these objectives will be common, to varying extents, across several of the pillars. In addition to the three sustainability ‘pillars’, we also emphasize the importance of ‘governance’, which is discussed in Section 5.2.1.4.

Finally, in Section 5.2.2, based on both the positive as well as the less positive aspects of the system, we suggest some lessons for the Common Fisheries Policy (CFP).

**5.2.1 The performance of the TAE system**

The Faroese Commercial Fishery Act (FHRG, 1994) states that the living marine resources in the EEZ (and indeed in allocations outside the fishery zone) are the property of the Faroese people and that these fisheries should be sustainable in both biological and economic terms. Socio-economic factors should also be taken into account. However, besides this relatively simple declaration of policy, the Commercial Fishery Act does not explicitly, or indeed implicitly, provide further elaboration in terms of formal objective setting.

Nevertheless, in reality a range of objectives are pursued through the Faroese TAE system. In the following, we discuss how the system has performed.

***5.2.1.1*** ***The bio-ecological pillar: objectives and supporting measures***

Clearly, bio-ecological sustainability is a central objective of the Faroese TAE system. However, according to conventional scientific practice, the Faroese TAE system allows too high fishing pressure on the three main dermersal stocks.

A group target F = 0.45 for cod, haddock and saithe is one of the central components of the TAE system. The TAE system has, in particular for cod, not been able to live up to its intentions. The F-levels of all these demersal stocks have varied substantially since the implementation of the TAE system. Accordingly the TAE system has not led to stability in fishing mortality. Regarding the intention of meeting the F = 0.45 target in the TAE system, cod mortality has overshot the ceiling in 73% of the years from, and including, 1997 onwards, with the overshoot frequently being by substantial amounts. However, F-levels have only exceeded F = 0.45 for haddock and saithe in 20% and 27%, respectively, of the years in the period. In addition, the international advice, which follows the precautionary approach, indicates that the target F is set much too high compared to the international practice of following the precautionary approach and setting FMSY as the target (see Table 4 earlier in this report for an overview of the ‘appropriate’ F’s).

A new management plan is currently under discussion, which may solve most of these problems. The plan (Anon., 2011b) includes a proposal for a stepwise reduction of the fishing mortality of each of the three stocks to FMSY in 2015 and a recovery plan if the SSB declines below the MSY Btrigger. The MSY Btrigger (the former Bpa) and FMSY levels for cod, haddock and saithe have been defined by ICES. If the SSB declines below the MSY Btrigger, the fishing mortality will be reduced by the relationship FMSY \* Bact/Btrigger until the SSB has increased again above the MSY Btrigger and is thereafter kept at FMSY.

As described earlier in this report one of the operators on the Faroe Islands is currently having its saithe fishery MSC certified. In the recent Public Comment Draft Report (i.e. draft conformity assessment report) for the Faroe Island Saithe Fishery (DNV, 2013), the assessment team recommended certification of the Faroe Islands saithe fishery with a number of conditions, the most noticeable of the latter being the fact that the new management plan must eventually be adopted and endorsed by ICES. It is interesting to note, in this connection, that the report does not make an explicit reference to the fact that MSY-related management of the saithe fishery in reality also must encompass — as a component of a mixed-fishery — the eventual management of cod and haddock (see Section 3.3.2). Thus, the MSC process for Faroe Islands saithe is also putting great pressure on the two other components of the mixed-fishery which have not yet determined whether or not to ‘join the fold’.

Another very significant element of the TAE system *vis-à-vis* the bio-ecological objectives is the system of closed areas established on the Faroe Plateau and Faroe Bank, covering about 12,000 km2, which is wide-reaching and innovative in terms of regulating access of fleet segments, conserving fish stocks and protecting vulnerable species and habitats (Geselius, 2008a; Johnsen and Eliasen, 2011). These include closures: a) to trawling which, depending on the area, may be year-round or temporal; b) seasonal all-gear closures in the fish spawning seasons; and c) real-time closures, whereby the fishery is banned temporarily (1-2 weeks) if numbers of small cod, haddock and saithe in the catches exceed 30% of the total. The latter has been used increasingly in recent years (Johnsen and Eliasen, 2011). The success of the closures for a) and b) require a well-developed system for monitoring vessel behavior (e.g. VMS) as indeed exists for relevant fleet segments, while c) appears to work well concerning self-reporting incentives related to bycatches as mentioned elsewhere in this report.

Finally, in line with a high degree of acceptance of the TAE system by the fishing industry, there is a high level of compliance as evidenced in negligible levels of IUU fishing, including discarding.

***5.2.1.2 The economic pillar: objectives and supporting measures***

The fisheries managed under the TAE system are highly important for the economic performance of the Faroe Islands. As described earlier in this report, the Faroese exports consist almost exclusively of fish products (94%). Similarly, the fisheries sector (including processing and a small aquaculture sub-sector) contributes roughly 20% of GDP. As such, the Faroese economy to a large extent stands and falls with the fisheries sector and is highly vulnerable to the volatility of catches and prices of the most important fish stocks. It goes without saying that an increasingly economically efficient fisheries sector would reflect positively on the overall Faroese economy.

In general, the objective of long-term stability of effective fishing effort, and by association also of days-at-sea and F, with regard to attaining stable landings has not been achieved. However, stability of landings may not be highly valued by the Faroese fisheries stakeholders (at least from the catch sub-sector), which pride themselves of having designed a system where it is possible to fish ‘the peaks’ (when stock as are high) because of the presence of significant excess capacity in the fleet (primarily in the shape of unused fishing days). Excess capacity is thereby not necessarily viewed as ‘overcapacity’ or equated to an efficiency problem.

It is, however, of concern that the TAE system has so far not respected the scientific advice on the target fishing mortality, as further discussed above in Section 5.2.1.1. The fact that the TAE system in its current form does not live up to the precautionary approach is worrisome from an economic perspective, in so far that this according to conventional scientific thinking increases the risk of (further) stock decline and collapse. Such events would potentially have huge impact on the Faroese economy given its high dependence on fisheries. As described, however, there is currently a political process, which will potentially lead to the adoption of a new management plan, which builds on current scientific advice. This will of course not remove volatility of catches, as not least nature has its say in this, as well. But in general, application of the precautionary approach should lead to more stable longer term yields, as future Faroese fisheries will in principle contribute less to the volatility. Though several stakeholders seemed to doubt if the Faroese fishing pressure is at all having a noticeable effect on the stocks, and these are of course worried if the proposed cuts in fishing effort, which will follow implementation of the new management plan, will be ‘in vain’ and simply remove the possibility to fish ‘the peaks’.

In terms of volatility in prices, the Faroe Islands are dependent on how the World market prices fluctuate and compete with other providers. The Faroe Islands does not have the volume to steer market prices and the best strategy is to optimize prices that the products are sold for. In this respect, the move towards certification of fisheries is one way to secure the highest possible price for the products, and this seems indeed to be the direction that the Faroe Islands is taking—although there is little enthusiasm about MSC on the Faroe Islands.

When it comes to efficiency, we have not found evidence that the TAE system has led to the increases which might have been expected, due to limitations on the possibilities to trade fishing days. The explanation for this can possibly be the existence of distorting subsidies, which have, however, mostly been removed in later years, as well as restrictions on tradability, which have mainly been put in place to maintain a diverse (and thereby flexible) fishing fleet but also to cater for social objectives and secure legitimacy of the system. As such, there might be gains to garner by further enabling trade of days-at-sea (and possibly licenses), but likely this would be at the expense of other concerns such as those related to social or legitimacy. It has to be mentioned, that there is also an economic argument for maintaining a varied fleet, as a diverse fleet would possibly be better at coping with changes in the surrounding environment. An example could be large increases in oil prices, which affect trawlers the most, whereas long-liners and jiggers for instance would be better at coping with the situation.

We conclude that there is no evidence that the TAE system has resulted in increased economic performance (i.e. economic efficiency of the fisheries). This is due *inter alia* to structural problems such as overcapacity of the fleets (i.e. too many vessels chasing too few fish), use of perverse subsidies, and restrictions on tradability of fishing days. The volatility of international markets related to supply and demand of cod, haddock and saithe also affects profitability.

***5.2.1.3 The social pillar: objectives and supporting measures***

As indicated in our report and in the previous sections, fisheries have great social (socio-economic) implications on the Faroe Islands due to the high economic dependency on fisheries. However, for the most part, the achievement of social objectives is seen as a function of pursuing the bio-ecological and the economic objectives, for which there is of course competing interpretations of how it is best done.

The objective of maintaining a diverse fleet structure, which is the reason for a number of restrictions on tradability within the TAE system, can to some extent be seen as an attempt to pursue a social objective of maintaining traditional fishing traditions and fleet elements, which also to some extent maintains geographical dispersal of the fleet. However, although this might be a social (or socio-economic) element, this feature is generally portrayed as being part of, on one hand, keeping the system in balance, as a major philosophy behind the system is that it was ‘in balance’ at the outset in 1996, and, on the other hand, making sure that the system is seen as legitimate and serving everybody’s best interests, which might not be the case if certain segments of the fleet could be squeezed out by other segments (even though that this might possibly appear optimal from a narrow economic point of view). We also note that, particularly for the smaller vessels and nearer shore segments, they represent a way to provide statutory ‘quota shares’, albeit effort-based, to fishers who in one form or other are ‘part-time’ particularly operating during the summer.

#### 5.2.1.4 Governance: objectives and supporting measures

Christensen et al (2009) concluded from interviews in the Faroe Islands that there is an exceptionally high level of acceptance of the fishing-days (i.e. TAE) system among the commercial actors. However, this does not appear to be the result of ‘good’ governance but rather the combination of various pragmatic reasons: Fishers found the system to be practical. Both fisheries inspectors and fishers argued that it was not possible to cheat the system owing to the extensive satellite monitoring system. The fishing days' system came in response to some difficult years for the fisheries with the demise of the cod stock and bankruptcies among vessel-owners, followed by the ITQ system which was perceived as setting too low TACs. This frustration may have created greater willingness for the fishing industry to engage in a new management system as long as it tackled their perceptions of the old system’s shortcomings.

There are no specific objectives regarding governance within the TAE system, but in the EU setting ‘good governance’ is often defined as describing a governance practice applying the following principles: openness, participation, accountability, effectiveness and coherence (Commission of the European Communities, 2001).

Measured by the above yardstick the Faroese TAE system, or rather the overall governance system around it – *in this section basically equating to the decision-making system* - appears to have some shortcomings, which is in part related to the small size of the Faroe Islands. These include that the set of stakeholders actually involved in making key recommendations for political decisions appear narrow. Importantly, there are no influential environmental organisations. Moreover, political processes can, it appears, be put on ice in the political system without any apparent explanation – and much policy-making goes on in closed networks, bordering on nepotism. In addition, there is no automatic uptake of scientific advice.

On the other hand, it should not be ignored that the governance system has its strengths, as well. Not least, it has shown an impressive ability to adapt to changing circumstances when required – and do this in innovative ways. In the first instance by setting up the TAE system within a very short timeframe, secondly by incrementally adapting the TAE system not least by increasing use of closed areas, and now, finally, it appears likely that the system will move towards the use of HCR to respond to changing international circumstances. Likely, some of the features, which are presented above as weaknesses, are key features in terms of facilitating this.

#### 5.2.1.5 In summation

In summation, there is in practice (at least in the short to medium term) a trade-off between economic objectives and bio-ecological objectives, as the bio-ecological objective at present calls for reduced fishing pressure (at least according to conventional fisheries science, see Section 4.1.1 for details on the ongoing debate). However, the possibility to certify fisheries if more emphasis is put on the bio-ecological objective serves to reduce the magnitude of this trade-off by securing higher prices for Faroese fisheries products or securing outlets, which would otherwise not be available. There is similarly also a trade-off between the economic objectives and the social objectives pursued. Further liberalization of the TAE system in terms of allowing more free trade of quotas would likely not be possible without jeopardizing some of the social objectives in terms of maintaining a varied fleet structure manned by the Faroese, which also allows smaller vessels to have its place without being bought out. However, it appears that there is some movement towards focusing more on getting the most out of what is increasingly portrayed as the Faroese people’s fisheries resources. This seems to indicate that the economic and bio-ecological objectives might be gaining strength at least compared to the traditional social objective of accommodating different fleet segments and fishing for all, i.e. fishing cultures.

**5.2.2** **Conclusions on best practices for EU fisheries**

The Faroe Islands TAE - ITE control for a mixed gadoid fishery offers several useful possibilities for the EU to consider. The TAE - ITE system is particularly valuable as managing mixed fisheries are a major challenge globally, and the EU aims to minimize bycatch and prevent discarding particularly in mixed fisheries. The TAE - ITE (input control) system offers an advantage over the TAC-related (output control) system, which may or may not have ITQs and has increasingly been favored in Europe, in that input control substantially reduces incentives to discard whereas output controls tend not to in situations when the quota limit approaches. The precondition for a sustainable TAE - ITE system, and indeed other systems, is that the effort level should not exceed that which will achieve a MSY target. The approach in the mixed fishery is to manage on a ‘basket’ approach (e.g. the suite of target gadoids) where it is acknowledged that not all target stocks will be able to achieve either their own or a ‘pooled’ MSY target at the same time. In reality, the mixed fishery will be managed such that the various stocks which are in the ‘basket’ oscillate within a band as close as possible to the MSY target with respect to the exerted fishing effort, while ensuring that the biomass of individual stocks do not fall below their particular limit reference points. The specific level of fishing effort set for the ‘basket’ of stocks depends on how one wants to optimize the relative catch of the particular stocks. Effort levels must be monitored credibly and periodically adjusted to compensate for ‘effort creep’ and achieve necessary optimization. A properly functioning TAE - ITE system should contribute towards autonomous effort regulation.

The Faroese TAE - ITE system is an effort share-system which provides ‘durable entitlements’ to fish and thereby counteracts the ‘race to fish’ and provides incentives to positive ‘stewardship’.

As highlighted throughout our report, the TAE exhibits both good and less good practices. On the basis of our study of the TAE system, we provide the following ‘take home message’ to the EU concerning a few key lessons, which we believe merit particular consideration by the MYFISH project and fishery interested stakeholders:

* Large closed areas are not incompatible with prolific fisheries, but the positive effects of the areas need to be documented to maintain legitimacy.

*Closing areas with a particular, well-founded reason makes intuitively sense - also to fisheries stakeholders. When the areas are as wide-ranging as in the Faroese context, they definitely have an effect in relation to the bio-ecological objective. Nevertheless, to maintain legitimacy, the effects need eventually to be documented, something that has not happened sufficiently on the Faroe Islands.*

* Effort (input control) management can under some circumstances be a competitive approach; it goes a long way in solving the discards issue.

*Although quota (output control) management for a variety of reasons is the preferred option in most European fisheries, the Faroe Islands have shown that it is possible—and in some cases makes good sense—to use effort management especially in mixed fisheries due to problems that would otherwise occur with discards. There is theoretically no reason that a TAE - ITE fishery cannot be set up to autonomously handle effort creep and adjustment challenges.*

* The Faroe Islands experiences show that self-regulation can be an important element in a TAE management system.

*Although there may in general be too many days available in the system, it is argued that the TAE system is an example of a system where the presence over overcapacity does not lead to overfishing due to a combination of vessel owners deciding not to use their days and the presence of large closed areas etc.*

* Overall acceptance and ownership over management is crucial in fostering compliance.

*The fact that the TAE system to a large extent came out of industry itself has resulted in a management system that is considered highly legitimate and this has led to only negligible problems with compliance.*

* Clear common understanding of the mechanisms of the system between scientists and fishers is needed from the outset.

*One of the problems of the TAE - ITE system has been the lack of agreement on to wjhat extent the system was ‘self-regulating’ and there disagreement on the conditions on which the (from the outset) available pool of days at sea should be adjusted.*

* Allocation of durable rights based on the overall TAE helps to overcome the tragedy of the commons.

*On the Faeroe Islands this has been done by ITEs. The actual transferability has been restricted to ensure the maintenance of a varied fleet structure.*

* Systematic monitoring of effort creep in different fleet elements is a vital element of an effort based system.

*The Faroe Islands failed to set up a system for monitoring effort creep and this has contributed to the problems of getting a systematic approach to adjusting the available pool of fishing days.*

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# Annexes

## 8.1 Annex 1. List of acronyms and explanation

|  |  |
| --- | --- |
| **Acronym** | **Explanation** |
| ACFM | Advisory Committee on Fishery Management (ICES) |
| ACOM | Advisory Committee (ICES) |
| B | Biomass |
| CFP | Common Fisheries Policy |
| CPUE | Catch Per Unit Effort |
| E | Effort |
| EEZ | Exclusive Economic Zone |
| EU | European Union |
| F | Fishing Mortality |
| FAMRI | Faroe Marine Research Institute (in Faroese: Havstovan) |
| FHRG | Faroese Home Rule Government |
| GDP | Gross Domestic Product |
| GRT | Gross Registered Tonnage |
| HCR | Harvest Control Rule |
| HP | Horse Power |
| IA | Impact Assessment |
| ICES | International Council for the Exploration of the Sea |
| IFQ | Individual Fishing Quotas |
| ITE | Individual Transferrable Fishing Effort |
| ITQ | Individual Transferrable Quotas |
| IUU fishing | Illegal, Unreported and Unregulated fishing |
| MP | Management Plan |
| MSC | Marine Stewardship Council |
| MSE | Management Strategy Evaluation |
| MSY | Maximum Sustainable Yield |
| MYFISH | Maximising yield of fisheries while balancing ecosystem, economic and social concerns |
| NGO | Non-Governmental Organization |
| NWWG | North Western Working Group (ICES) |
| PA | Precautionary Approach |
| PI | Performance Indicator (MSC) |
| RBN | Rights-Based Management |
| R&D | Research and Development |
| SSB | Spawning Stock Biomass |
| TAC | Total Allowable Catch |
| TAE | Total Allowable Effort |
| VMS | Vessel Monitoring System |
| VSM | Vessel Satellite Monitoring |
| WSSD | World Summit on Sustainable Development |
| Y | Yield |

## 8.2 Annex 2. Overview of stakeholder groups interviewed

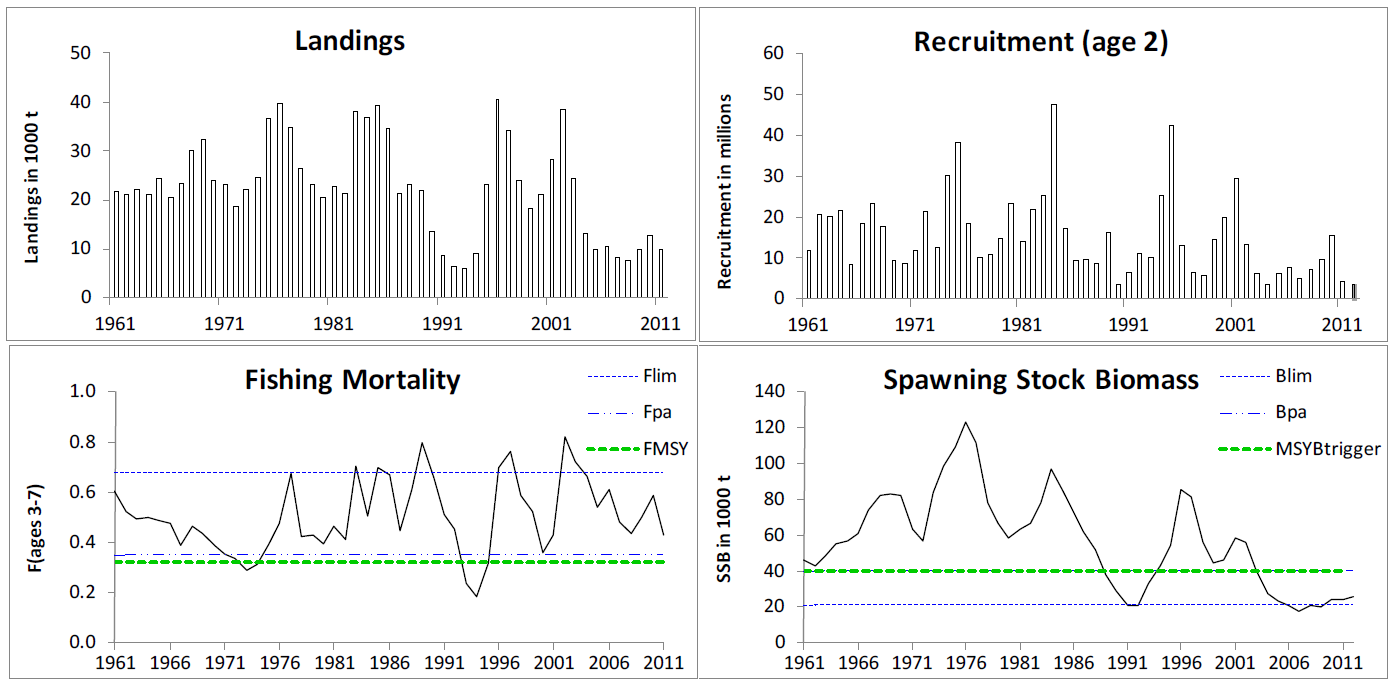
|  |  |  |
| --- | --- | --- |
| ***Interview No.*** | ***Group*** | ***Respondent No.*** |
| Interview 1 | Fisheries sector | Respondent 1 |
| Interview 2 | Fisheries sector | Respondent 2 |
| Interview 3 | Fisheries biologists | Respondent 3 |
| Interview 4 | Fisheries administration | Respondent 4a  Respondent 4b  Respondent 4c |
| Interview 5 | Fisheries sector | Respondent 5 |
| Interview 6 | Fisheries biologists | Respondent 6a  Respondent 6b  Respondent 6c |
| Interview 7 | Outside observers | Respondent 7a  Respondent 7b |
| Interview 8 | Fisheries sector | Respondent 8a  Respondent 8b |
| Interview 9 | Fisheries sector | Respondent 9 |
| Interview 10 | Fisheries sector | Respondent 10 |
| Interview 11 | Outside observers | Respondent 11 |

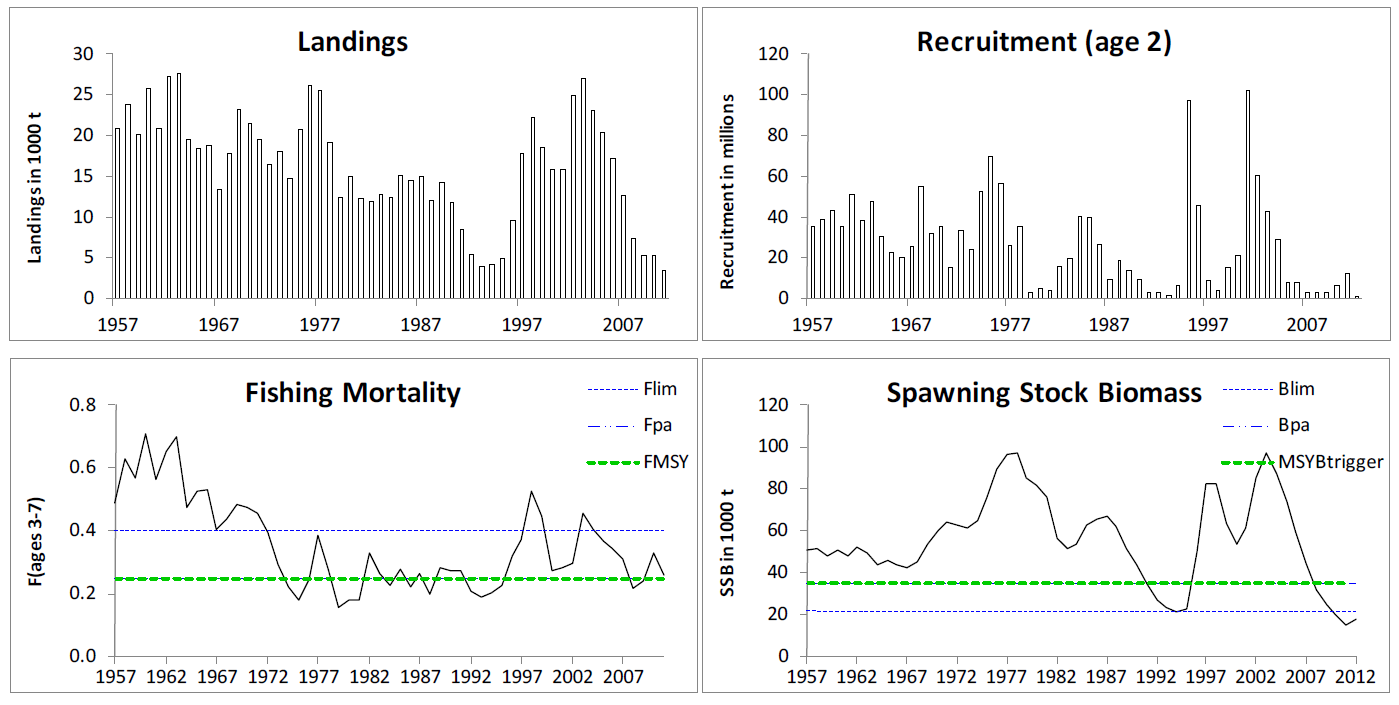
## 8.3 Annex 3. Standard, primary level questions used for interviews

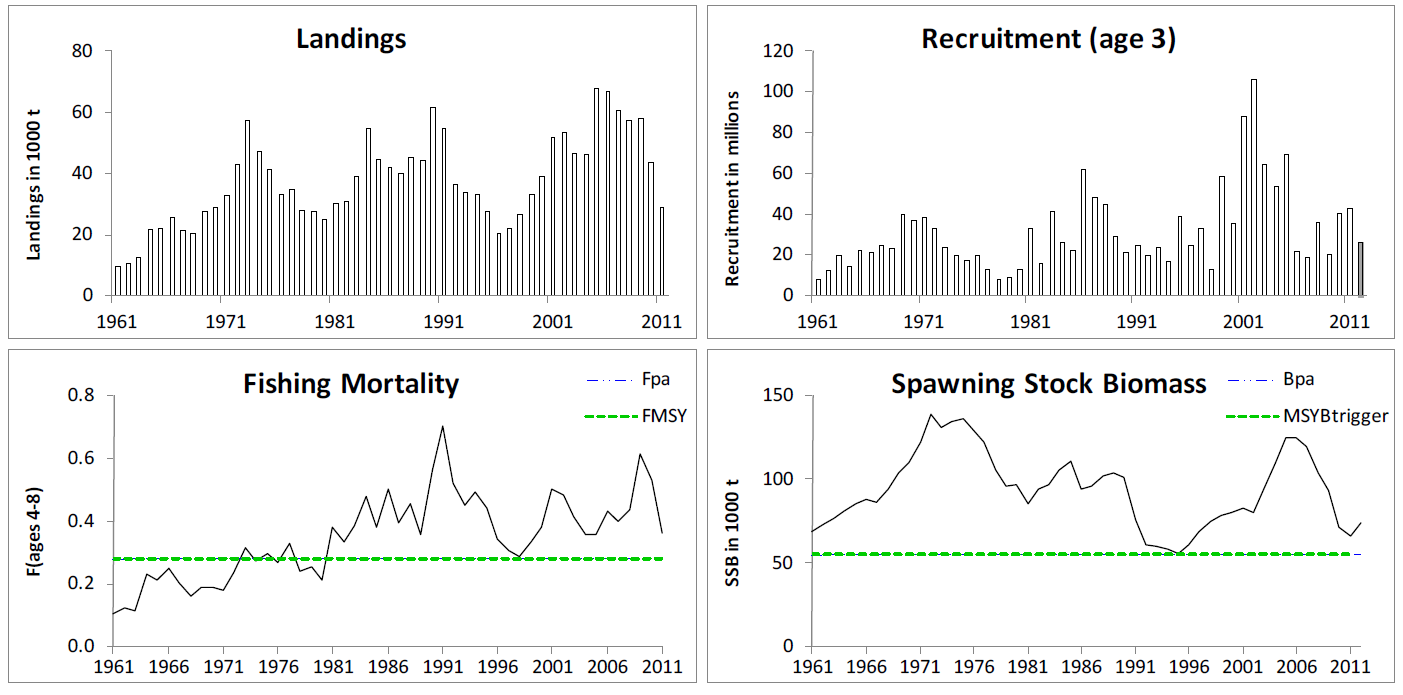
*The following questions are designed as primary level (i.e. wide-reaching, entry-level lead-in) questions, to allow the interviewed respondents to provide their view on the main factors and challenges (i.e., objective setting, implementation process, constraints and trade-offs, best practice and lessons learned) concerning the investigated fisheries management/governance system. These questions may be elaborated on, depending on the background/expertise of the particular respondent.*

1. What do you think are the actual, operating objectives of the management of the ***Faroe Islands TAE mixed-fishery for gadoids (cod, haddock and saithe)***? Are these objectives formal, informal or both? Who has the greatest influence on the setting of these objectives? What are the major areas of conflict among interested parties in objective setting?
2. How have the objectives developed and changed over the last 10-15 years? What were the major turning points and what caused them. What role did formal policy statements play? National? Bilateral? International? Have there been important policy changes? Economic changes? Political changes?
3. How wide is the gap between the formal, articulated objectives and their implementation in the fishery? What does the most to enable the objectives to be implemented? What are the most crucial blocks to implementation? What changes would you make so that the objectives would better match outcomes?
4. What do you see as the best practices used here in objective setting?
5. What do you see as the worst mistakes made here in objective setting?
6. How does objective setting differ according to the following dimensions:
   1. Mixed fisheries v single stock?
   2. Long-term v short-term?
   3. Recreational v commercial fisheries?
   4. In-shore v off-shore fisheries?
   5. Provincial/state v federal?
   6. Are there other important dimensions?
7. What roles, if any, are played (or have been played) by the following in fisheries management objective setting:
   1. The ecosystem approach to management?
   2. The precautionary approach?
   3. Socio-Ecological System level analyses?
   4. Other scientific achievements?
   5. Economic considerations?
   6. Social considerations?
   7. Stakeholder participation?
   8. Politicians in the administration? In the legislature?
   9. Courts?
8. What would be the most important advice you could give us in Europe as we seek to implement objective setting based on MSY and its variants?

## 8.4 Annex 4. Stock assessments of cod, haddock and saithe (ICES ACOM, 2012)

**Figure 8.4A**. Cod in ICES Subdivision Vb1. Summary of stock assessment. From ICES ACOM (2012).

**Figure 8.4B**. Haddock in ICES Division Vb. Summary of stock assessment. From ICES ACOM (2012).

**Figure 8.4C**. Saithe in Division Vb. Summary of stock assessment. From ICES ACOM (2012).

1. As an example, ’Respondent 4b, fisheries administration’ indicates that the reference is to one of the respondents - ’b’ - in interview 4, which included 3 people from the fisheries administration (see also Annex 1). [↑](#footnote-ref-1)
2. Most of the Faroe Islands interviews were conducted in Danish/Norwegian/Swedish. In case of quotes from these interviews, the original quote has been translated to English by the authors and this will be indicated together with the quote. [↑](#footnote-ref-2)
3. <http://www.fishin.fo/Default.aspx?ID=6745> Accessed 15 June 2012. [↑](#footnote-ref-3)
4. <http://www.bt.dk/politik/faeroeerne-risikerer-eu-sanktioner-i-makrelkrig> Accessed 22 January 2013. [↑](#footnote-ref-4)
5. Licenses are of two types: a *harvesting license* and a *fishing license*. The harvesting license is a license for a specific vessel > 15 GRT which follows the vessel, but it is possible to seek permission from the Ministry of Fisheries to transfer harvesting rights to another vessel or vessels. The harvesting licenses are transferable and there are no statutory limitations to transferability, except that it has become practice not to allow harvesting rights to be transferred from vessels < 60 GRT to larger vessels. The owner of a vessel must acquire a fishing license, which allocates a certain number of days in the EEZ and tonnes of fish outside the EEZ. The allocations, originally set in 1996) are simply the number of total fishing days for a given category of vessels, as decided by Parliament, divided by the number of licenses in that category. The transferability of fishing days is restricted, and they cannot be transferred freely between gear and vessel categories. [↑](#footnote-ref-5)
6. <http://www.fishin.fo/Default.aspx?ID=8669> [Accessed 15 June 2012] [↑](#footnote-ref-6)
7. <http://www.industry.fo/Default.aspx?ID=4406> [↑](#footnote-ref-7)
8. <http://www.fishin.fo/Default.aspx?ID=8670> [Accessed 15 June 2012] [↑](#footnote-ref-8)
9. Examined statistically in terms of coefficient of variation, based on considering the frequency and extent of F-variability, including F overshooting or undershooting the F-ceiling. [↑](#footnote-ref-9)
10. The group consisted of scientists from the Faroe Marine Research Institute (FAMRI), and one representative each from the Ministry of Fisheries, the University of the Faroe Islands, and the fishing industry (trawlers). [↑](#footnote-ref-10)
11. Fleet segmentation, capacity regulation, effort regulation and tradability of effort, area closures, and additional technical measures. [↑](#footnote-ref-11)