

Self-regulation of the Danish matjes herring fishery from success to collapse

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1. INTRODUCTION

The Danish matjes herring fishery has a season that usually starts in May and continues for approximately 12 weeks. It is a Scandinavian fishery as it is conducted by vessels from Denmark, Norway and Sweden. The fishery is undertaken in the North Sea, Skagerrak and along the Norwegian coast. A matjes herring¹ is a particular quality of herring and has a high fat content and satisfies various other subjective criteria. In the Netherlands, the Matjes herring are mainly sold as a snack on the streets during the summer. There is also a minor market in Belgium. The market is dominated by 8–10 Dutch buyers who have a market share of approximately 80–90 percent. The matjes herring are sold at public fish auctions in Hirtshals or Skagen in Northern Jutland, Denmark. Despite the fact that matjes herring are sold at two geographical locations the matjes market in Northern Jutland is considered one market.

There are strong links between vessel owners, processors and the Dutch buyers in order to ensure the high-quality (and high-value) product. Dutch buyers purchase the herring at the fish auctions and the majority is processed in Northern Jutland. The processors remove the gills from the herring, salt them and grade them as contract work for the Dutch buyers; 400–500 persons are employed in this operation throughout the matjes season.

The processors from Northern Jutland and the Dutch buyers have a long business record (often more than 20 years of collaboration), which to some extent creates a matjes brotherhood.

The coordination and self-management of the matjes herring fishery began in the 1970s and in 1992 it was institutionalized on a voluntary basis by the creation of the Matjes Committee (MC). The MC was based in Northern Jutland and is composed of regional representatives from the Danish Fishermen's Association and the Association of Danish Fish Processing Industries and Exporters. The MC voluntarily undertook

¹ We only include the matjes herring for the Dutch market. On the German market a matjes herring is something different.

management responsibility for the matjes herring fishery within the framework of EU and Danish regulations, and the MC informed the Ministry of Food, Agriculture and Fisheries about its imposed regulations.

2. AN OVERVIEW OF THE DEVELOPMENT OF THE MATJES HERRING FISHERY

During the period from 1992–97 approximately 25 vessels were participating in the matjes herring fishery, 11 from Denmark, 6–10 from Norway and 6 from Sweden. The Norwegian Herring Sales Organisation decided the number of participating Norwegian vessels based on the size of the total Norwegian catch quota. As more than 100 Norwegian vessels were potential participants, only a fraction of the Norwegian vessels was allowed to participate at a time.

As is clear from Figure 1, the landing of matjes herring has developed from being dominated by Danish vessels to being heavily dominated by Norwegian vessels, the Danish landings having almost disappeared, whereas the share of the Swedish vessels has been relatively stable during the period. Photo 1 shows the type of purse seiner involved in this fishery.

Prior to 1992 the ex-vessel sale of matjes herring in Northern Jutland was not exposed to any major competition from other countries. However, during the early 1990s some Dutch buyers were active in establishing another centre for firsthand sale of matjes herring in Egersund, Norway. The objective of the Dutch buyers was to increase competition on the supply side and subsequently to move the first ex-vessel sale of matjes herring from Northern Jutland to Egersund. Figure 2 shows this trend.

Since 1994 a continuously larger share of the matjes herring has been sold on the market in Egersund. Consequently the share of matjes herring sold in Northern Jutland

has dropped from 75 to 60 percent. However, the largest proportion of Norwegian landings has remained in Northern Jutland.

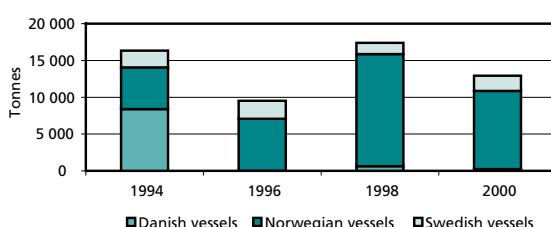
Landings of matjes herring have also become less important compared to landings of herring for filleting. In 1994 approximately 80 percent of all herring landed in the matjes season was sold as matjes, whereas this percentage declined to approximately 40 percent in 2000.

3. 1992–97 – THE GOLDEN PERIOD FOR SELF-MANAGEMENT IN THE MATJES FISHERY

The rationale for establishing self-regulation in the matjes herring fishery was (a) to coordinate the fishery in order to ensure catches of high-quality herring, (b) to control market supply and thereby preserve a lucrative, high-price market, and (c) to ensure full transparency of the quantity and quality in ex-vessel sale of matjes herring in Northern Jutland.

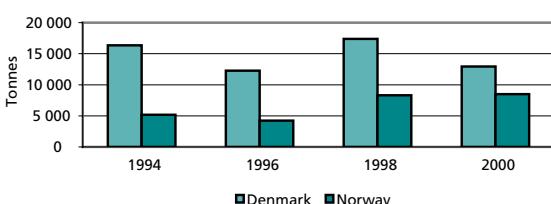
The core of the self-regulation of the matjes herring fishery is a set of operational rules contained in “The Ten Commandments” of the matjes fishery, which was accepted by all parties.

FIGURE 1
Landings of matjes herring in Northern Jutland



Source: Hirtshals and Skagen Fish Auctions and the Norwegian Herring Sales Organisation.
Note: Since 2000 there has not been kept specific landing records herring landed for matjes, as all herrings are been recorded alike. This is also relevant for Figures 2 and 4.

FIGURE 2
Landings of matjes herring in Denmark and Norway respectively



Source: Hirtshals and Skagen Fish Auctions and the Norwegian Herring Sales Organisation.



PHOTO 1

"The Ten Commandments" of the matjes fishery:²

- i. Herring for matjes shall be landed in fish boxes.
- ii. Herring for matjes shall be sold at the public fish auction.
- iii. The Matjes Committee decides the maximum weekly quota for all vessels landing herring for matjes.
- iv. Herring for the Danish processing industries (non-matjes) must be sold at the tele-auction or directly to the processors; in all cases the buyer takes possession of the herring from the hold of the vessel.
- v. Herring for non-matjes markets can be landed in addition to the maximum weekly ration for matjes.
- vi. Herring landed for non-matjes markets cannot be used for matjes.
- vii. Vessels that want to land matjes herring on a given day are required to sign up for landing at the public fish auction before 06:00 on that day.
- viii. Vessels signed up for landing at the public fish auction shall land the quantity signed for and are only allowed to land that quantity.
- ix. The quantity signed up for shall be landed at one time.
- x. Two weeks before the matjes season starts sale of herring in fish boxes is prohibited at public fish auctions in Northern Jutland.

These rules were drafted by the MC and discussed and later revised in close collaboration with representatives from all involved parties. In 1992 the various players had a mutual interest in ensuring the highest quality of the landed matjes herring and thereby maintaining the matjes herring as an exclusive high-value product. The incentive for the fishers was obvious – to ensure highest possible prices for herring sold as matjes; the incentive of the processors was to maintain as much as possible of the processing in Northern Jutland (see Photo 2).

The incentive for Dutch buyers was to ensure the highest possible quality of herring landed for matjes, realizing that they would not get prime quality without paying a premium price. However, the Dutch buyers also had an interest, at least to a certain extent, in having an oversupply of the market in order to be able to choose the best quality at lower prices.

The third rule of "The Ten Commandments" concerning maximum weekly catch quotas cannot be questioned. This rule is the core method to sustain prices at a high level by regulating supply according to demand. The weekly catch allocations are decided by the MC.

While Danish and Swedish vessels were given weekly vessel quotas, the Norwegian vessels were given a collective quota, which is distributed among the interested vessels, in reality this was done by the Norwegian Herring Sales Organisation. Disputes have arisen, in particular when the weekly quota was reduced. However, in general the MC

² Source: The Matjes Committee.

PHOTO 2



was able to resolve disputes and reach agreements that balanced the various interests regarding setting the operational rules and ensuring their enforcement.

An important component of the coordination of the matjes fishery was the weekly “coffee-meetings” as they are called to emphasize their highly informal structure. At these meetings – taking place in Hirtshals or Skagen usually on Thursdays – representatives from the vessel owners, the processors and the Dutch buyers meet to discuss the quantity and quality of the landed herring during the past week.

The Norwegian vessels are represented at the weekly coffee meetings by a Danish shipping company as their local agent, whereas Swedish participation is more sporadic. Four to five Dutch buyers usually attended the meetings and a similar number of Danes representing fishers and processors. The coffee meetings became the focal point for exchange of information between the fishers and the Dutch buyers. The fishers are informed about where the herring have been caught and in which sizes and quantities and about the fishing activities and their expectations for the coming week. The Dutch buyers are informed of the quality of the landed herring, e.g. size, stomach and fat content, appearance and taste (which is hard to measure) as well as the market prospects for the coming weeks. This gives the fishers and the buyers an opportunity to coordinate fishing activities in accordance with the anticipated fishing situation and the quality requirements of the buyers.

Based on the discussions at the coffee meetings – when fixing the weekly catch quota – the MC balances the interest of the fishers in maintaining high prices through undersupply and the interest of the Dutch buyers in ensuring that sufficient quantities of fish are landed to accommodate the demand. The last coffee meeting in the season often becomes an evaluation meeting as well.

In addition to the weekly coffee meetings held during the season a pre-season meeting was held between the MC and representatives from the Swedish and Norwegian fishermen’s organisation to prepare and plan the forthcoming matjes season from the supply side. This meeting was usually held in Sweden in early spring. Shortly after, the MC meets with the Dutch buyers in the Netherlands to obtain information of their expectations for the coming season in terms of demand (volume and quality) of matjes herring. These meetings aim at reaching an agreement on the operational rules for the coming matjes season.

An after-season evaluation meeting was held in Norway in the autumn. At these meetings representatives from the Norwegian and Swedish fishermen’s organisations and the MC discuss the past season and prepare for the next one. In particular, the effectiveness of the operational rules are discussed in detail and alternatives were considered.

The MC has found it particularly important that to ensure cohesion among the participants, activities are coordinated throughout the year, and minutes from

all meetings are distributed to all parties involved to ensure full transparency and minimise the Danish dominance by including the Norwegian and Swedish fishermen's organisations and the Dutch buyers in determining the operational rules for regulating the Danish matjes fishery.

The day-to-day management was conducted by the Purse Seiners' Producers' Organisation³ (PSPO) on behalf of the MC in close collaboration with a representative from the regional processing industry. The day-to-day management includes monitoring of fishing activities, collection of catch data, determining the size of the weekly landing allocations and distribution of information to fishermen's organisations in Norway, Sweden and Denmark, Danish processors and Dutch buyers.

Enforcement of the operational rules is the responsibility of the respective national organisations representing the fishers: the PSPO only has enforcement authority over its own members and can only inform Norwegian and Swedish fishermen's organisations to encourage them to take action against the violators if some of their members break the rules. The coffee-meetings were also used to discuss quay-side rumours regarding non-compliance, particularly with the 6th commandment that states that herring landed for non-matjes purposes cannot be used for matjes. Both Hirtshals and Skagen are small communities, and thus stories (true or false) easily circulate. To prevent mistrust that potentially could undermine the self-regulation of the matjes fishery, the companies involved in the rumours were approached and given the chance to explain themselves. This also contributed to the transparency of the system.

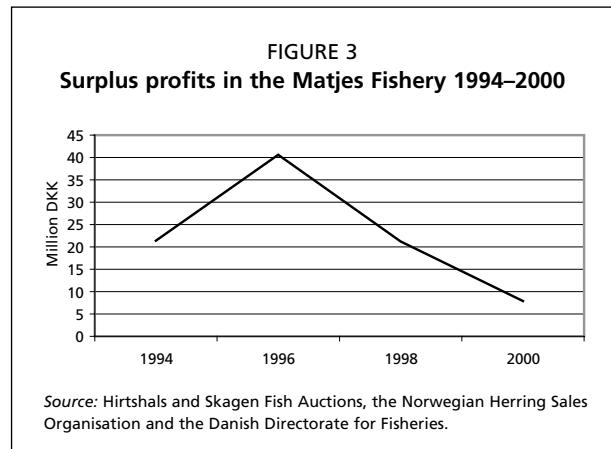
The Danish processing industry ran two types of production during the matjes season: the matjes herring for the Dutch buyers and processed herring for their regular markets. The fact that both products used herring that was caught on the same fishing grounds sometimes created rumours that the herring bought directly from the vessels were used to produce matjes. This would have been a contravention of "Ten commandments" as all herring used for matjes should be bought at the public fish auction. Matjes herring bought at the fish auction were more expensive than herring bought directly from the vessels and an economic gain could be made by cheating the system through use of herring brought directly from the vessels to produce matjes. The authors do not remember any case where there was substance to the rumours, but by discussing the rumours in the open as part of the coffee-meetings cleared the air and maintained legitimacy and trust in the system."

As the MC is a 100 percent voluntary agreement it only holds the power delegated to it by the organisations involved. Thus, the enforcement of rules is an integral part of the agreement and is built upon trust and confidence among all the participants, not only within the MC. Enforcement is undertaken by the respective organisations involved. Swedish vessels always complied with the regulations, and if Norwegian vessels were discovered violating regulations, the Norwegian Herring Sales Organisation excluded the vessel from participating in the matjes fishery in coming weeks. The Danish Purse Seiners' Producers' Organisation confiscates the profit obtained by Danish fishers with non-complying behaviour.

The open exchange of information and equal participation from all organisations created trust and confidence among participants and this mechanism has generated an economic surplus in the matjes fishery. This has only been reached through close cooperation among the parties involved. The institutional arrangements were an important factor in balancing the different interests in the matjes fishery.

Figure 3 shows clearly that it is possible to generate an economic surplus from this fishery. In 1996 the price paid for matjes herring was 2.5 times higher than the price

³ In 2001, the Purse Seiners' Producers' Organisation was renamed the Danish Pelagic Producers' Organisation as membership is opened to all pelagic vessels independent on the type of fishing gear used.



paid for herring for filleting, thus generating a surplus profit of 40 million DKK by the vessels involved.

Raakjær Nielsen and Vedsmann (1999) found that “The Ten Commandments” were crucial for the success of the self-management of the matjes herring fishery and for maintaining a lucrative market for the fishers and a high quality of the herring landed for matjes for the Dutch buyers. The self-regulation of the matjes fishery was outstanding because Norwegian and Swedish fishermen’s organisations voluntarily accepted to comply with regulations introduced by a regional

Danish management committee, which proved that it is possible to increase profit in the fishery by collaboration and market adjustment.

4. 1998–2000 – THE PERIOD WHERE THE MATJES FISHERY LOST ITS EXCLUSIVENESS AND SELF-MANAGEMENT FELL APART

In 1997 very strong external pressure influenced the fishery, and the participation in the matjes fishery was changed dramatically. The recovery of the Atlanto-Scandian herring⁴ and the fact that fishing rights to this stock were not allocated – neither inside the EU nor among EU, Iceland, Norway and the Faroe Islands – had the consequence that the Danish vessels entered this fishery to establish historical catch rights. The fishery for Atlanto-Scandian herring outside the Norwegian EEZ peaked in the same period as the matjes season. The increased competition for the matjes market in Egersund led to a demand to reduce the landing and handling costs, which were quite high due to requirements in the “The Ten Commandments”.

The herring processing industry changed its production strategy during the 1990s and moved from having fresh herring fillet as the primary product to producing marinated herring. This had the effect that the processing industry, in contrast to the situation before, now was able to use a higher fat content herring in their production. Further, the herring stocks in the North Sea were low and the Danish processors were generally undersupplied with herring. Both the Danish processing industry and the Dutch buyers had an interest in sharing the landings among them: the Danish processors would secure more raw material and the Dutch would benefit from lower prices. In addition the economic significance of the contract work for Dutch buyers became less important for the economic performance of the processing plants.

In the view of the Danish processing industry and the Dutch buyers, “The Ten Commandments” gave little flexibility and the Danish vessels were no longer active participants, the essential actors – the Danes – in the self-management of the matjes fishery withdrew from the daily management process. This lead to a major change in the self-management of the matjes fishery and in 1998 “The Ten Commandments” was abolished, and a new set of landing rules was introduced.

The 1998 landing rules

These were as follows. Auction sales can take place in 3 different ways:

- in boxes (as usual)
- in containers and
- according to samples taken from fish tanks.

⁴ The TAC increased to approximately 1 000 000 tonnes in only a few years.

According to the samples

- Every tank is offered for sale separately.
- At least 160 kg are sampled from every tank.
- The vessel decides the smallest (minimum 5 tonnes) and the largest volume to be sold as a sale lot.
- If the volume in a vessel hold is larger than stated, the buyer is not obliged to buy the extra volume – but has a right to do so.
- The buyer has no right to receive compensation if the volume is smaller than stated.
- The buyer decides how to unload the herring and pays all associated costs.
- Unloading takes place in the order the matjes herring has been sold at auction.
- The vessel can be requested to unload its catch immediately after the fish auction has finished.
- The sample remains in the auction hall as a reference until unloading is finished.

Thus, the self-management of the matjes fishery has become reduced to the introduction of a set of sales principles rather than self-management of the matjes fishery. From 1998 no coordination or matching of supply to demand has been undertaken that would have maintained a high-price market, and subsequently the ex-vessel sales of matjes lost their exclusivity. As a consequence the matjes market has developed into a bulk market, characteristic of the herring market in general – a high volume low-price situation. Another factor was that by allowing three different sales methods the ex-vessel sale process became less transparent, which contributed to undermining the system.

In 2000 the self-management of matjes fishery completely collapsed and the MC was dissolved. In reality, the self-management of matjes fishery was irreversibly damaged in 1998 when “The Ten Commandments” were abolished. As the self-management became only a sales principle, it was no longer possible to coordinate or manage, and consequently there was no possibility of collective action.

5. EVALUATION

The fact that there are many unquantifiable factors determining the quality of matjes herring may be one reason for the need for a close user-producer relation among the fishers, processors and the Dutch buyers in the matjes fishery as it was the case in the period 1992–97. The fact that the fishery was conducted by a small number of technologically homogenous vessels also made it more manageable.

The self-management undertaken by the MC seemed to be successful in creating incentives for collective action. The process of cooperation among different nationalities and *ceteris paribus* division of economic interests in the context of clearly defined operational rules with the possibilities of refinement was important. The self-regulation of the matjes fishery clearly demonstrated that it is possible by collective action to increase the economic output of a fishery by controlling the supply to the market, but this requires clearly defined rules.

Raakjær Nielsen and Vedsmand (1999) found that the reasons for the successful performance of the MC during the period 1992–1997 were as follows:

- i. Clearly defined boundaries concerning the institutional set-up that made it possible for the MC to manage the matjes fishery.
- ii. A limited number of vessels using the same gear participating in the fishery.
- iii. A single-species fishery concentrated in a short period, with the herring sold to a single market with relatively few buyers.
- iv. A high degree of participation by all parties involved in the decision-making process together with a transparent decision-making process and open distribution of information to all participants.
- v. The creation of a set of clear and specific operational rules.
- vi. Large economic benefits to the fishers from taking collective action.

In addition, the success of the self-management of the matjes fishery in the period 1992–97 can be traced back to the efforts of a few individuals and their professional capabilities, personal enthusiasm and the interpersonal relationships within the group. These people managed to ensure compliance and enforcement of the rules.

As in most fisheries it is important to have clear and simple rules such as “The Ten Commandments”. Their importance became obvious when the management measures were changed and the key-person withdrew from the MC.

However, the success of this example of self-management was also due to the fact that the external environment made it easy to create strong incentives for collective action. In practice the increased herring stocks in the North Atlantic, in particular for Norwegian vessels, created a situation where the importance of a high-price matjes market became almost non-existing for Norwegian vessels as lower matjes prices could be compensated by larger landings and the increased market share of the matjes market in Egersund is a good example of this.

The close user-producer relation, especially on quality aspects, might lead to increased discards as a way to maintain high-grade quality in the future, in particular if vessels have low catch allocations and can easily catch another school of herring. If this becomes a habit it will have a negative impact on the preservation of the herring stocks in Skagerrak and the North Sea and might create a political pressure on the matjes fishery e.g. from environmental lobby groups.

6. LESSONS LEARNED

The matjes fishery provides some general lessons for successful self-management.

- The more specific management objectives user-groups are given, the more important is homogeneity of the user-groups involved in terms of gear type and vessel size.
- Giving users competence in rule-making should lead to simple and clear rules, e.g. “The Ten Commandments”.
- Giving fishermen's organisations competence in rule-making can increase responsible performance of the involved organisations, as they encourage their members to comply with the rules.
- Multi-user-group participation in co-management arrangements increases the legitimacy of decision-making and thus compliance with decisions.
- The co-management process depends heavily on the commitment of a few essential people and is best when driven from the bottom up.
- It is of major importance that user-groups can see the economic benefits of cooperation, not least in a short-term perspective.
- Self-management lead to improved economic performance of the fishery, in the case of the matjes fishery through coordination and market adjustment.

To integrate information and knowledge of resource fluctuations, fishing patterns and market trends in decision-making, institutions need to be flexible and able to adapt to external conditions. The close user-producer linkages and the weekly meetings in the matjes fishery provides strong resiliency in adapting fishing effort to market demand. However, the matjes case also illustrates that self-management arrangements are vulnerable to changes in the external environment, and that institutional resiliency is low in such situations.

7. IS THERE ANY FUTURE FOR (SELF-MANAGEMENT IN) THE MATJES FISHERY?

A number of external factors have changed in this fishery and some are likely to have a positive effect.

- i. The Danish regulatory system for herring changed from 2003 with the introduction of ITQs. This should encourage fishers to do their utmost to

maximize the value of their quotas and thereby have incentives to get involved in self-management to re-establish matjes herring as an exclusive product – and a consequential high-price.

- ii. The Atlanto-Scandian herring stock has been allocated internationally including to EU member states. The Danish and Swedish vessels are therefore now free to pursue the matjes fishery and indeed, in 2003 there has been participation in the matjes fishery by Danish vessels.
- iii. In the past, the Danish parties took all initiatives – and the others followed. When the Danish effort decreased, no one took over. However, in 2003 the Norwegian Herring Sales Organisation approached the Danish Pelagic Producers' Organisation to investigate how the two organisations could re-introduce self-management in the matjes fishery with the objective of obtaining a higher price in the market and a meeting was held to this end in March 2005. However, the meeting was unsuccessful in re-establishing joint Norwegian-Danish self-regulation of the matjes fishery.
- iv. With the decrease in prices, the Dutch buyers have experienced increased difficulty in attracting sufficient supplies of herring to meet their demand, both in terms of volume and in terms of quality.

Others changes will have a negative impact.

- i. The introduction of ITQs in the management of the Danish herring fishery means direct competition between the matjes market and the other herring markets through the year, i.e. the fishers are now free to decide themselves which market to supply.
- ii. The production of matjes herring is becoming less and less important for Danish herring processing companies and the processing industry in the matjes season are ready to process large volumes of herring.
- iii. The renewal and technological up-dating of the pelagic fleet has increased their capitalisation and lead to improved handling and cooling facilities. The result is that the low-volume matjes fishery is no longer financially attractive even if the landing price were to be higher as it cannot compensate for the higher costs associated in landing a substantial lower volume.
- iv. The income obtained from fishing the North Sea herring is of minor importance to the fishers involved – irrespective of nationality. This is a consequence of the substantial increase in the price of mackerel in the last couple of years, the huge quantities of Atlanto-Scandian herring to be caught and the development of the fishery for blue whiting.

We believe that the change in external factors such as the implementation of IT/ITQ schemes for the pelagic fisheries in Denmark/Norway/Sweden, which has lead to fleet concentration and capitalisation, will make it impossible to reintroduce the matjes market as a high-price product. From a fisher's perspective the present matjes market is characterised by relatively high production costs per volume, production of small quantities per day and a high risk of unsold product. The herring fillet market, in comparison, offers lower costs, higher daily quantities and practically no risk of unsold product and, most importantly, the possibility of landing high volumes.

Fishers will only supply the matjes market if they are sure to be compensated with a much higher price that will compensate for the reduced volumes. Taking into account the structural development in the pelagic fleet, which is composed of a relatively small number of new or small vessels with large quotas, it will be impossible to obtain a price for matjes that will be attractive compared to supplying high volumes to the processing industry.

We are convinced that the days of the matjes fishery as an exclusive lucrative and well managed fishery are gone and will never return as the market niche has become too small for a fishery depending on economics of scale as is the case for the main pelagic fisheries.

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