When fishing means resilience: the evolution of small boat fishing practices in Iceland since 1990 and the new development of longline fishing

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Received October 2013; first published online 27 May 2014

ABSTRACT. This article analyses the historical conditions and technical, social, commercial and political factors that have contributed to the revival of longline fishing in Iceland. Longline fishing practices have had important consequences at both the local and the national levels. This article deals, firstly, with the juridical and historical conditions of the development of small boat fishing practices since the beginning of the 1990s and the process through which small boats became progressively larger. Secondly, the paper describes the evolution of longline fishing practices and focuses more specifically on the technical, commercial, social and professional aspects of a *new* version of longline fishing that was developed in response to new marine management rules. It then deals with a specific kind of competitiveness that those living in coastal villages established to re-boost the local economy and discusses what has happened to small boat owners since 2000. The conclusion highlights the way longline fishing, by reconnecting social ties, takes part in the construction of contemporary Icelandic culture.

> In retrospect, it can be argued that fisheries management has evolved from being an issue of great consensus and national unity during the 1970s to becoming the most divisive and conflict-laden issue in Icelandic politics and public debates in the 1990s (Eyþórsson 2003: 133)

Introduction: when 'small' boats became bigger and bigger . . .

In Iceland, small boat fishing has for a long time been a traditional, seasonal part-time activity, but since the early 1980s, this occupation has been practiced on a year-round basis. It has been reshaped through an informal technical and social coproduction process resulting from a long battle between small boat owners, ship owners, local communities and public authorities.

In particular, longline fishing was re-implemented and re-developed at the end of the 1990s, both through governmental policies and the action of small boat owners, to support fishing activities in many coastal villages dependent on fish and on the fish-processing industry. The longline fishing industry has gone through periods of expansion and contraction since the development of trawl fishing in the twentieth century, but the longline is still considered the best tackle for the salt fish industry; and longline fish is the most valued fish on the fresh fish market.

After the implementation of the Individual Transferable Quota (ITQ) system in the 1990s, the government intended to strengthen further the protection of marine resources and to accelerate the profitability of the fisheries sector. The longline has become an interesting tackle in many aspects in a context of fish-catch reduction where the 'most' is not the 'best' anymore. Boat owners, especially small boat owners who mostly sell fish on the fresh fish market, try to get the highest price for their catches. Many small boat owners, who are highly in debt because they have purchased or are renting fishing quotas, consider longline as an acceptable compromise from an economic point of view.

This article deals with small scale fisheries facing the privatisation of marine resources in the post ITQ era. It discusses the social background of technical uses and practices related to fisheries and demonstrates their close interrelations. Many relevant articles deal with the consequences of the privatisation of the oceans (Hannesson 2004) or with the nationally expected economic benefits of ITQs in Iceland (Arnason 1995), and are more critical about the serious social consequences of the ITQ model in Icelandic coastal communities (Helgason 1995; Pálsson and Pétursdóttir 1997; Helgason and Pálsson 1998; Eyþórsson 2003). Through an ethnographic approach and descriptive account, we propose to cross scales and follow a diachronic approach in order to learn from local lessons (Ostrom and others 1999).

Marine resource policies in Iceland have evolved more by trial-and-error than by design. The implementation of the first quota system in 1984 and of the ITQ system in 1990 led to an intense interplay between small-boat owners and the Icelandic government: the National Association of Small Boat Owners (NASBO) – *Landssamband Smábátaeigenda* – was created in 1984. Facing the recommended restriction of the national Total Allowable Catch (TAC) – from 300,000 tons in 1989 down to 130,000 tons in 1994–1995, and the increasing of cod (*Gadus morhua*) quota prices which immediately followed the implementation of ITQs, the permanent quota values almost quadrupled between 1991 and 2001 (Arnason 2008). Small vessel operators reacted very quickly and efficiently. Indeed, not only did they respond to new national rules, they sometimes even anticipated them, adapting their fishing

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

technology and methods to local socioeconomic purposes and demand.

Since the early 1980s, the development of small-scale fisheries can be considered as a *coproduction process* of a social-technical system. According to the definition given by Akrich (1989), the study of a *technical object* requires the consideration of longline fisheries 'in their environment' or context, which means beyond their technical aspects (1989: 21). This coproduction process, associating technical and social aspects, has made it necessary to consider, as Akrich calls it, 'the simultaneous genesis of the object and of its environment' (1989: 21), which enables any technical choice to be shown as embedded in a knot of constraints and problems of all kinds.

Its spontaneous and informal dimension, however, made the Icelandic phenomenon different in many aspects from the concept of the coproduction process in its classical sense as elaborated by sociologists who have studied the development of sciences and innovations in contemporary contexts. Within this tradition, sociologists like Latour (1987) have studied the implementation of new technologies from a point of view in which public authorities organise, control and anticipate the development and implementation of new technical objects targeting specific or wider social groups by involving a wide range of experts within an *ad hoc* protocol. From that point of view, longline fisheries in their new version are an innovative technical object of an original kind. No special protocol was designed by politicians, technicians or scientists. No preliminary research was undertaken by the Icelandic State to anticipate the consequences of national policies on coastal communities and small boat fishing practices. Entrepreneurs from the fisheries sector, fishermen, vessel operators and fish-processors, supported by town-councillors followed their own strategies. Responding to local strategies, politicians tried to find compromises respecting both national economic goals of the ITQ model and local realities.

My research dealt with the social and economic consequences of Icelandic marine resource policies on coastal communities, focusing on ITQ effects on small vessel operators' strategies. This article will analyse the historical conditions and technical, social, economic and political factors that have contributed to the growth of longline fishing. It will first deal with the juridical and historical conditions of the development of small boat fishing practices in general, then it will focus more particularly on longline fishing practices and will subsequently show what a 'new version' of longline fishing means, in its technical, commercial, social and professional aspects. In a social climate of conflict, resulting from the policies of *distribution* of marine resources in the form of reallocation of fishing rights (quotas) and *redistribution* of the profits from exports of seafood at a national level, longline fishing on small boats has become a conciliation procedure to cope with the privatisation of marine resources.

Methodological framework: a tailor-made methodology

A methodology was required to the study of an object which involved a number of different parameters and kept evolving. A systemic approach was followed, with a study of the consequences of marine resource policies in order to understand the dynamic interaction between local strategies and national policies. Carried out in seven Icelandic fishing harbours during the fishing years 2005 and 2006, the study shed light on the diversity of the responses of boat owners and local populations in the context of the reduction of fishing rights (ITQs). I observed and analysed the individual and collective forms of mobilizations and strategies of coastal communities facing national marine resource policies. I studied how vessel owners used their fishing rights and employed different tactics. This study led me to focus on what was at stake when ITQs were exploited and transferred.

I met numerous people who followed a wide range of occupations and who were related to the fisheries sectors directly or indirectly, through labour unions, professional associations, the Fisheries Directorate, the Fisheries Ministry, employers, employees, entrepreneurs, but also scientists, politicians and village inhabitants. I compared the situation of seven fishing harbours in order to understand the unity and diversity of social and technical local systems. I conducted more intensive fieldwork in a village on the Icelandic Westfjords and stayed in two communities in the Westfjords, Bolungarvik and Patreksfjördur, two communities in the western region, Grundarfjördur and Rif, and three communities in the eastern region, Eskifjördur, Nordurfjördur and Reydarfjördur.

I tried to follow various processes, activities, employment, and evolution of the fleet and quota transfers in different places. As I stayed in the same village for several months, I could study the fluctuations of activity and the seasonal variations of the relationships between members of the fisheries sectors, boat owners, fish-processing company directors, fresh-fish market directors and employees. Since marine resource management policies are unstable and use numerous parameters it is necessary to use a systemic approach to study them and also to examine them from a diachronic and dynamic point of view. And finally, it was essential to compare policy spirit with practices in order to understand the ecological, economic and social goals of policies.

Evolution of small boat fishing practices since 1984

Fishing practices and Icelandic fisheries policies are so deeply intertwined that taking into account the co-evolution of fishing practices and management policies of the marine resources is a methodological key to an understanding of the dynamic development of small boat fishing. This intertwining grew even stronger when Iceland became a flourishing 'specialized-fish-exporting country' (Magnússon 1995: 15) after the World War II.

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

Iceland extended its maritime frontier to 200 miles when it adopted the Exclusive Economic Zone (EEZ) in the 1970s. EEZ matters became a national priority in Iceland, as nations were now responsible for managing their marine resources within these new and wide limits. During the same period, Icelandic marine biologists published a 'dark report' which declared cod stocks in great danger of collapsing. State and public authorities worked increasingly hand in hand with the biologists of the Marine Research Institute *Hafrannsóknarstofnun Íslands* and took on a new management role.

In 1984, in order to prevent overfishing and to boost the profitability of the fisheries sector in the long term, public authorities implemented a fishing quota system called *Aflamarkskerfið* or literary 'system of catch limitation'. In this model, the fishing quota allocated to a boat on the basis of its *historic fishing activity* or *fishing track records* was a fraction of the national TAC. This juridical standard was calculated on the basis of the average annual total catch of the previous three years of a vessel's fishing activity. This calculation system was considered as a guarantee of equity in the distribution of fishing resources. Since the implementation of Individual Transferable Quotas (ITQs) in 1990, boat owners had to buy more and more quota if they wanted to fish more. In fact, however, the *historic fishing activity* did not reflect practical reality, as a boat owner starting a new fishing venture did not have any other choice but to buy fishing rights (ITQs). That is the reason why some disappointed fishermen today say that money has replaced 'hard work' which used to be socially very highly valued. It also means that 'equity' on the basis of the *historic fishing activity* of a vessel that had to be a guarantee of fair balance in national TAC allocation to boat owners and moral standard is not a reference anymore.

During the late 1980s, boats smaller than six tons belonged to the part-time fleet and were mostly seasonal open boats equipped with hand lines. These boats were active between March-April and August-September and they fished 'free'. At that time, the size was the common reference for small boats, along with low engine power. They were operated by elder fishermen and fishermen who worked on bigger industrial boats for the rest of the year.

When the Fisheries Management Act was passed in 1991, the competition for ITQs immediately caused high local quota concentrations to the detriment of some communities: bigger private companies were able to buy big amounts of fishing rights while other companies which did not invest enough in quota purchase to remain competitive gave up and sold quotas or went bankrupt, provoking economic crises in many coastal villages having lost fishing rights. This phenomenon particularly affected the Westfjords, where there were no alternatives to the fishing industry.

After the implementation of ITQs, the number of small boats which were not under quota restrictions almost doubled because running a small open boat was

Fig. 1. Rapid boat or *hraðbátur*.

the only chance to enter the profession. Because of this critical increase, fisheries ministers progressively locked this 'open' or 'free' system and implemented successive restrictions on small boat owners by setting some fish species under quota on the basis of a boat's historic fishing activity, for cod in 1995 and for both haddock (*Melanogrammus aeglefinus*) and Atlantic wolfish (*Anarhichas lupus*) in 2001.

These new rules led to the reduction of the small boat fleet, but, at the same time, the technical profile of small boats was altered, since the legal gross tonnage limit went up, from 6 up to 15 tons between 1984 and 2004. During this period, bigger and more powerful boats fishing on a year-round basis tended to replace part-time open boats. These 'rapid boats' (Fig. 1) were usually involved in longline fishing between autumn and the end of spring, and sometimes for a longer period.

In 2004, the ITQ model was extended to the small boat fleet but, in order to protect and stabilise it, public authorities established two distinct quota systems, a 'big' one called 'big system', or *Stórakerfið*, which was in fact the same as the earlier *Aflamarkerfið*, and a 'little system', called *Lítlakerfið*, also called 'hook system', or *Krókaaflamarkskerfið*. Only boats of less than 15 tons could be part of the 'little' system, which was designed especially for the small boat fleet in rural areas. Moreover, small boats also had to fish either with a longline or a handline. Since quotas within the 'little' system were less expensive than in the 'big' one, longline fishing became the ultimate financially bearable option for new applicants and for those who wanted to extend their working period in fishing activities.

That same year, public authorities established the 'longline supplement', or *Linuívilnun*, a measure encouraging boat owners to fish with hand-baited lines, awarding them fishing quota in return for supporting local employment that is fish processing, gutting and baiting activities. The 'longline supplement' measure was firstly intended to support independent fishermen by helping them to create their own companies and to lengthen their activity within the year in order to prevent, as much as possible, periods of scarcity when there were

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

no quotas left for the year of reference called 'quota year', or *Kvótaárið* (from 1 September to 31 August). Such periods of scarcity, which are characteristic of late spring and summertime, are feared because when quotas are exhausted fishermen are not allowed to fish anymore and fish is no longer processed in the local fish-plant: boat owners have to wait until the beginning of the next 'quota year' to start fishing again. The 'longline supplement' aimed at stabilising employment at sea and on land in some villages and at strengthening a sustainable activity.

By implementing this new juridical option and after having created the coastal community support in the early 1990s, public authorities intended again to repair unanticipated damage caused by the implementation of ITQs. The bankruptcy of some of the biggest operating vessels and fish processing companies led to a rise in unemployment among the fishermen that were hired by the industrial sector. Without fishing rights, people could no longer work at sea or on land: there was no fish to catch, to sell or to process. Furthermore, the ITQ business created a strong feeling of instability among village inhabitants who feared that the leaders of the main companies would sell their quotas, considered by villagers as local fishing rights, at a high price to another entrepreneur. When fishing rights created locally on the basis of collective work were sold, the company leaders could move away from the village so that nothing could be sure anymore. When the fishing rights were moved from one boat to another, a boat which remained in the harbour was like an empty shell. This was the drama of ITQs for many villages: fishing rights had become tradable and mobile.

The measures supporting the small fleet were conceived as compensations to redress issues encountered by coastal communities having lost important amounts of quotas during the 1990s. It is written in the Marine Management Law Code, or *Fiskveiðistjórnun*, that public authorities must guarantee a sustainable economic activity intended to ensure the viability of rural districts. Section 1 of the Fisheries Management Act reads as follows: 'The fish stocks on Iceland's fishing grounds are a common property of the Icelandic Nation. The main objective of Fisheries Management in Iceland is to promote conservation and efficient utilization of exploitable marine stocks and thus ensure stable employment and settlement throughout the country' (Iceland 2006).

To sum up, the period between 1984 and 2008 can be divided into two: a first period, a 'spontaneous' one, in which public authorities implemented rules *a posteriori;* and a second one, in which public authorities anticipated and set the ground for new rules in order to tame the development of the small fleet. First overwhelmed by the increase in small independent companies operating small boats, public authorities progressively took control of the situation. During the first period, from 1984 to 2004, the reactions and initiatives of boat owners put pressure upon public authorities, who acted and implemented new rules *a posteriori* in order to re-organise the small boat sector and control its development so that it would be in balance with the national fishing fleet. Deals between public authorities and small boat owners were often done urgently. Each set of regulations had an immediate impact on fishing practices, and boat owners reacted to the actions of the public authorities in an unstable context of rapid changes.

In the second period, from 2005 to 2008, public authorities, which had previously been overtaken by events, shaped a legal framework that would determine a new regime. They created the 'little' quota system or 'hook system', which resulted from the partition of the fishing fleet into two juridical and technical systems. The 'little' quota system aimed at reallocating a part of the national TAC to coastal communities so as to guarantee some equity among villages in the access to marine resources. To sum up, a set of social, commercial, technical and economic evolutions led to the creation of 'new' small boat fishing practices which in turn led to the rise of a new juridical regime of marine resource exploitation, the so-called 'little system'.

The 'little system' was tailored for small boats due to their important role in local economies. The local mobilisation of different actors put pressure upon public authorities and influenced them for some time: we can therefore consider the implementation of these policies supporting rural areas as an informal co-production process. Longline fishing worked as a temporary solution supported by public authorities to back up the struggle of small boat owners and rural communities who tried to protect local activities. Small boat fishing was the ultimate possibility to operate a boat and 'enter the system', as people said: boat owners had to 'buy work' by purchasing fishing rights in the form of ITQs. Locally, boat owners, their families, local public authorities and local bank directors co-operated in order to fight for their home village against unemployment which threatened rural districts with impoverishment. Both handline and longline fishing played an essential role in this battle against strong emigration from villages to the southwest of Iceland. At the same time, longline small boat fishing started to depend entirely on the political context.

The restoration of longline fishing: a collective creation of competitivenes

The longline, called *lína* in Icelandic, is the second oldest fishing gear in Iceland after the handline, called *handfæri.* A longline belongs to the category of static gear that means that it does not need to move to catch fish. It is composed of several sections of lines. Each section of a line is 540m long and has 500 hooks; it is composed of 5 sub-sections of a line. Small-scale fishermen working on 6 to 14,9-ton boats usually employ between 12 and 24 sections of longlines and can use this gear over the whole year. What is called longline in this paper refers to the bottom longline, a tackle whose hooks lie on the sea ground.

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

After World War II, longliners were replaced by trawlers, which were considered as the most competitive type of boat and as a step further into modernity because it increased fishing capacity and improved the working conditions of the crew. At that time, people reasoned that 'a village without a trawler was as poor as a farm without a cow' (Gudmundsson 1981: 103).

The trawler fleet declined and longliners again gained prominence during the 1960s before declining once more in the 1970s and 1980s, when trawler factories and frozen-fillet production took over. Catching much more fish in a shorter period of time and being less expensive to operate per unit caught, trawlers became emblems of technical progress and the pride of coastal village inhabitants to the detriment of longlines, which came to be considered old-fashioned and less efficient fishing tackle in a context of extension of the national maritime territory and intensive fishing. Besides these aspects, trawlers also became the symbol of fierce nationalism.

However, longline fishing never completely disappeared. It was traditionally sought after for the production of a high-value export product, salt fish, *bacalhau*. Later, at the end of the 1990s, longlines flourished again and became a popular gear which offered many advantages. It was economically friendly as it helped boat owners to maintain a profitable business. The development of the markets for processed fillet fish and fresh fish and the commercialisation of by-catch species and 'flight fish', fish exported by aircraft, contributed to the revival and development of longline fishing. These species, haddock, wolfish and saithe (*Pollachius virens*), were not new since they had always been exported but they were *new* as 'new' commercialization opportunities were developed in order to diversify the supply of producers and decrease the catching pressure upon cod. Longline has become a noble gear whereas trawl has become the symbol of voracity and rapacity: in the popular mind, longline fish is beautiful when trawl fish is crushed. Last but not least, its reputation as low-impact gear added to its value among consumers on foreign markets: all these factors created a positive 'little system' effect.

We can assert that the necessity to keep on fishing in order to keep 'living the fishing' (Thompson and others 1983) led to a change in the use of technical innovation in fishing gears in coastal villages where the scarcity of quotas was most severe after the implementation of the ITQ system. Technical innovation was stimulated by a harsh economic and social climate.

After the mid-1990s, longline fishing once more gained popularity: since the amount of the national TAC was low, it became better, for small independent producers in particular, to sell fish at the highest price since they did not earn money from its processing. Fishing less and with lower quotas but for a more valuable product on the fresh fish market became a new objective, because line fish, or *linufiskur* is 'the best fish' according to most fishermen and people who have an extensive knowledge of fishing gear.

The practice of longline small boat fishing all year round became possible thanks to two technical factors: an improvement of the fishing tackle itself and an increase in the engine power of small boats. These two factors, combined with the high commercial value of longline fish, paved the way for the intensification of longline small boat fishing. In villages where important ITQs had been sold, public authorities supported the development of small-scale entrepreneurship, which became a key strategic sector to redress the local economy.

After the mid-1990s, the transfer of technical tools such as a swivel line and curved hooks called 'O' hooks, from bigger automated longliners to small boats had a decisive impact. These tackles were supposed to increase the fishing capacities of longline fishing and convince fishermen that longline fishing could become profitable. The introduction of a swivel line played a decisive and strategic role. Thanks to this new element, the snood, which is a string connecting the hook to the main line, does not twist or get entangled with the main line when the fish is caught. This improvement made the line fishing tackle system, also known as the Scandinavian system, more efficient. It played a dynamic role as well and had further implications that improved this fishing method: according to fishermen, the use of a swivel line made it possible to use bigger hooks, with larger baits, in order to catch bigger fish. From the mid-1990s, boat owners used 'normal usual', less curved size-7 hooks, but from the beginning of the 2000s, fishermen started to increasingly use the 'revolutionary' 'O' curved size-12 hooks as they learned from their everyday fishing that this new tackle afforded a better selectivity than any other hook. In these times of scarcity and restriction of marine resources, selectivity became an important matter for economic and ecological reasons, and small boat owners understood that very quickly. Selectivity in fishing practices and businesses started to be considered as a must for the fishermen who wanted to optimise the exploitation of the annual amount of quotas in different species and still be able to meet the administrative requirements of the Icelandic Fisheries Directorate, *Fiskistofa*, whose employees closely follow the ITQ level of each vessel within a quota year. Fishermen intended to earn more money by using a smaller catching capacity, and this challenge became possible through the use of the new generation of longline. Longline fishing appeared to be an adapted and efficient response to new fisheries policies.

The new regulations for longline fishing, which were implemented in 2004, rapidly came to be considered revolutionary. Small boat fishing became an intensive activity and many things were scaled up: fishing gears and catches became bigger, boats larger, horsepower superior and fishing trips more expensive. This phenomenon led an older fisherman to declare that small boats were in reality 'much bigger and powerful than what they look like' (O. Pétursson, personal communication, 15 January 2005). As mentioned above, the legal tonnage and the engine power of small boats continued to increase, from

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

Fig. 2. Tubs or *ballar* on board.

6 gross registered tons (GRT) in 1991 up to 15 GRT in 2004. The biggest 'small' engines are between 350 and 450 horsepower (HP): in comparison, automated 300-ton longliners tend to have engines of around 550 HP. According to older fishermen, going out to sea on a 6-GRT boat all year round and, last but not least, 'in the darkest days of winter' was absolutely unknown because this period is considered dangerous with difficult weather at sea. The new generation of small but powerful boats goes faster and can sail in difficult weather. Thanks to engine power, boat owners have increased their productivity by increasing their fishing effort and catching possibilities to up to 1000 tons per year, for the biggest catches, which is unprecedented for small boats. For example, on a 14-GRT boat, two men use between 24 and 36 tubs, or *ballar* (Fig. 2) supporting 500 hooks each: the corresponding capacity for a boat of less than 12 m in length is between 12,000 and 18,000 hooks for a line of 12,9 up to 19,4 km in length. This capacity is hardly 'believable' for people familiar with small-scale fisheries.

Both improved selectivity of fishing tackle and an increase in catches favoured the development of longline small boat fishing, a practice that fishermen themselves *re-invented*, reshaping it as local contexts and needs evolved. For instance, if the level of unemployment was high, longline boats were not automated whereas boats were automated if there was no local need to support and protect employment. Small boats that have remained active all year round since 2005 belong to an original and pioneering category: they are not so 'little' anymore and have little in common with the traditional small boats, or *trillur*, of the seasonal part-time fleet. Furthermore, these boats are *neither small nor big*: the fishermen's resistance and determination to maintain their activity in spite of a wide range of difficulties led to technological innovations which produced these Icelandic boats, which are so peculiar if not monstrous, since they are difficult to place into any traditional or classical boat typology. Too big to be classified as 'small', too small to be considered 'big', Icelandic small boats are the pure result of the quota system and a temporary compromise: something which is always discreetly but constantly biting the borderline in its struggle for life. These boats are a proof and the result of the constant bargaining of independent fishermen who operated small boats and tried to get larger shares of the national TAC. 15-GRT small boats registered within the little quota system altogether hold nearly 20% of the national cod TAC. The TAC share of the small fleet has been constantly increasing since 1991, when small boats held only 12% of the national TAC. Long line small boats caught from 44700 tons of fish in 2003 up to 74450 tons in 2006 and their catch value more than tripled between 2003 and 2012.

Paradoxically, in a context of scarcity due to local restrictions on quotas, line fishing is 'luxury fishing'. It is socially highly valued for being a difficult, exigent and expensive method: the baiting and the hiring of teams of baiters make it more expensive than net or trawl fishing. In a context in which quotas had been sold away and local labour forces were unemployed and tempted to leave and emigrate, the re-building of that local activity was a major challenge. Developing employment implied some restrictions on wages. Then, the reduction of labour costs was agreed upon on the basis of a consensus between the local bank directors, local public authorities, boat owners and baiters. The new version of longline fishing became the last chance for individuals and for communities to remain in the fishery. If longline was a very popular gear in the Icelandic Westfjords, it now re-created social ties and became a national symbol of fishing for survival.

Longline fishing in a homemade version: social and professional aspects

After focusing on longline fishing technical features, let us now look into the social and professional aspects of this *re-invented* fishing method, which is at the crossroads of innovation and tradition. Longline small boat fishing under the little quota system became the fishing method of last resort in the context of increasing fishing quota prices. It also meant resistance to the process of individualisation which resulted from the implementation of ITQs, as small boat fishing made it possible to rebuild social ties in coastal villages. The inhabitants of coastal villages have for a long time criticised the ITQ system for destroying social ties and encouraging individualistic practices.

The year-round fishing pattern, boosted by small-scale longline fishing, was the result of a battle of small boat owners, both at the local and the national levels and of unemployed shipmates and skippers who lost their jobs when their companies went bankrupt after many local 'rescue' plans. These men, as they said, 'bought work', by buying fishing rights in order to keep on fishing as long as possible during the 'quota year' and keep on living in the same village with their families and business/working partners or employees. Many of these fishermen, who tried to cope with difficulties and went fishing in any

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

weather conditions, are seen as local heroes: by buying fishing quotas and sometimes being heavily in debt, they participated in the revival of the local economy and played a major role in the re-creation of ties of solidarity and cooperation. Since in coastal villages, fishing, both at an individual and a collective level, means being still alive, such a local victory is of great meaning for the inhabitants, whether they work in the fisheries sector or not. As inhabitants from one of the Westfjords village declared in 2005 to underline the huge financial and physical effort carried out in order to re-boost the local economy: 'Our guys worked so hard that they almost managed to re-build the village.' 'They operated step by step making it possible to buy more and more fishing quotas and gathering them onto our boats' (J. Olafsson, personal communication, 23 April 2005).

In the end of the 1990s, in many places, the development of longline small boat fishing was due to the willpower of local investors. These were various local actors, from local bank directors to ordinary baiters. Some of them, in a context of tradability or transferability of fishing rights, quickly developed strategic skills that were essential to the success of purchasing and keeping very volatile transferable fishing rights at home. They worked together in order to prevent the ITQs from moving to another village when a boat owner was facing financial difficulties. With the support of partners who were highly qualified in financial matters and who knew the national ITQ market, some of the fishermen had the feeling that they were working in complementary relationships with local experts who helped them stabilise or strengthen their situation and the local economy as a whole: experts 'hunted' quotas, fishermen exploited them. These common efforts in the general interest made sense at the local level because they contributed to the re-building of the community and to the revival of the sense of community among inhabitants.

The example of the development of longline fishing demonstrates that playing with the quota system cannot be reduced only to gambling with quotas through selling and buying them in an infinite circle. Playing with the quota system also means fighting, reacting and creating in order to protect individual and collective interests. Boat owners operating non-automated longliners hire baiters and, since it is considered as a major priority for coastal villages coping with unemployment and exodus, they have been granted more quotas when they use hand baited lines. Non-automated longline fishing is an expensive method but since it contributes to the revitalisation of coastal villages, boat owners have been rewarded with quotas which help to support their effort and locally maintain a positive dynamic. Last but not least, the longline is seen as an efficient means to prevent overfishing. For many people, longline fishing deserves political promotion.

For instance, in the village of Bolungarvík, sharing work has recreated a sense of solidarity and community that was destroyed after the bankruptcy of the main fishing and fish processing company in the early 1990s. Furthermore, professional baiters sometimes let their brothers, wives, husbands, children and even retired old fishermen bait to earn some money, or get an extra salary. 'I gave my daughter some work: that's a poor job but it is the only way to prevent her and her family from emigrating to Reykjavik and its suburbs' (L. Ingolfsson, personal communication, 10 March 2005).

Longline small boat fishing presents a mixture of modern and traditional features since some boat owners work with hand-baited lines to get additional quotas. The genesis of these practices is based at the same time on social and technical aspects. The incorporation of 'O' hooks and swivel lines gave longline fishing a second life but it did not determine *how* boat owners would fish and neither of these items determined the organisation of fishing and its function and meaning. The creation of the 'little system' and of the 'longline supplement' were the result of a compromise between the NASBO and public authorities, after a 20-year struggle for the sake of small boat owners and coastal communities, which are closely intertwined. State and local authorities, public and private actors gave this technical innovation a social purpose so that small boat fishing became a socio-technical compromise and a return to basics: *fishing is work*.

In such a local context, automated longline fisheries would not make sense socially since baiters would be fired because they would not be useful labour anymore. Unemployment would increase. Longline fishing from non-automated boats temporarily helped to boost local activity and restore solidarity and socio-economic relations in harbours with lower quotas: it demonstrated that fishing differently was possible at a time of fierce individualism and it proved that social matters can still be regarded as a priority.

The existing variety of small boat fishing practices in Iceland does not confirm the hypothesis of economic determinism often claimed by scholars like Arnason (1995), who thinks that the ITQ system will help to keep only the best and get rid of the rest. In some places, small but powerful and efficient longliners are not fully automated and not equipped with baiting machines in a context of high technology and profit.

This balance remains fragile, however, and is threatened since larger vertically-integrated companies which combine catching, processing and sales activities invest and buy more and more quotas from the 'little system' to operate small boats. Designed for small-scale independent fishermen, the 'little system' is exploited by a wider range of entrepreneurs looking for new investment opportunities: this was the perverse effect of these measures. Boat owners and fish processors specialised in fresh-fish processing took over and accumulated 'little' less expensive quotas onto automated powerful longliners just under the legal maximum tonnage of 15 GRT operated over the whole quota year. Buying these special quotas, they stepped into the juridical breach to the impoverishment of the status of the fishermen hired on these

https://doi.org/10.1017/S0032247414000321 Published online by Cambridge University Press

boats of a new kind, and to the increase in 'little' quota prices. In coastal villages where the 'little system' flourished, inhabitants experienced the ITQ effect once again.

It became more and more difficult either to buy or to rent quotas, and to maintain fishing activities all year round, especially after the financial crisis of 2008. In spring 2009, public authorities designed a new reallocation system for fishing rights for the summer part-time activity called 'Coastal Fishing System', or *Strandveiðikerfið* with handlines. They took a part of the national TAC to create a new 'pot' aimed at encouraging young vessel operators and strengthening the support for seasonal coastal fishing during a period when there are no quotas left anymore in many villages. This new system has helped small boat owners to work and earn money during the summer. This new post-crisis measure has helped the part-time fleet to expand again: from 1134 open boats in 1999, their number went down to 700 in 2008 and then up to 756 in 2009.

The financial crisis of 2008 has weakened independent fishermen economically and professionally. They are more and more divided and act in a less and less collective spirit. These independent entrepreneurs are greatly endangered. Many fishermen and their descendants have lost their fishing territories, and subsequently their strategic and decisive knowledge which was exclusively built on exchanges and practices at sea. These skills and their transmission make it possible to inherit sea-use rights, which is a first step for fishermen to get access to fishing territories. That is why, if it remains impossible for new generations to inherit these skills, this could have a dramatic impact, leading to 'technical regression and to the extinction of a profession' (Geistdoerfer 1982: 89).

Conclusion: Small-scale fishing as a highly flexible activity and a socioeconomic safety valve

Based on empirical data, this largely descriptive article aimed at showing that technical uses and practices are linked to social logics and that technique is a media to *embody* social ties and social cohesion (Lemonnier 1994: 254). According to Geistdoerfer (1983: 88), 'Fishing techniques hold special functions in fish production'. We have seen that this is true for the example of the development of a new kind of small-scale fishery in connection with new fishing options aiming at protecting the social and economic balance in coastal villages. We have seen that there is a high flexibility of the fishing techniques and that longline fishing from non-automated boats is not a simple return to the past. Instead, longline fishing is practiced in a new political context, as it has been opportunely re-defined according to economic and social needs.

The creation and conservation over time of a special regime for small boats by public authorities had a twofold purpose on the local and national level: to support local employment and subsequently settlements, and to demonstrate the social functions of fisheries and fishing activities. All the measures concerning the small fleet have always been temporary technical, social and juridical solutions resulting from a social consensus. Thus, these fishing activities were not only ecologically, socially and economically friendly at a local level; they were also a political demonstration that marine resources were not concentrated in the hands of a few 'quota kings' and that low-impact fishing activities had to be protected for their numerous benefits.

The development of longline fishing has been accelerated by local needs and supported by public policies and discourse about common resource management and low-impact fishing gears. 'Small-scale' and 'longline fishing' are largely considered vital practices in a context of intensive quota concentration which leads to social injustice and discrepancy against the principle of an egalitarian society whose marine resources are supposed to be a national property. In this context, small boat owners gained the confidence of the government and large support from the Icelandic population beyond local boundaries because their claims met larger social demands and moral standards of equity in the reallocation of fishing rights and the welfare of coastal regions. The social discourse about the management of marine resources preconfigured the way the Icelandic post-crisis government tried to find a social consensus after 2008. The fisheries, a critical bone of contention, became an issue to re-build the dialogue between politicians and public opinion.

Small-scale fishing provided an alternative image of fishing in this context. The part-time coastal fishing system created after the financial collapse of 2008 was part of the reaction of the public authorities, who were eager once again to show that marine resources were an accessible common property in a context in which social justice was at stake. In public opinion, the ITQ system led to the privatisation of the commons which profits only to a few business families. The 'Coastal Fishing System' implemented in 2009 was designed to create social peace at a local and a national level. For the first time since the implementation of the ITQs, fishing rights in this new system are not tradable anymore: they consist in a limited amount of TAC in different species allocated to defined areas each month between May and August. As a consequence, it is not possible to make any business with fishing rights and when the amount of TAC of the region is reached, fishermen have to stop and wait until the beginning of the following month. Time will tell if this practice will efficiently operate as a transitional stage for independent fishermen aiming at living from fishing activities. One thing is for sure: the role of this regime is to demonstrate that fishing is a noble occupation and not only a matter of endless business.

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