Hooked on Markets
Alexander Dobeson

Hooked on Markets
Revaluing Coastal Fisheries in Liberal Rural Capitalism
Natural resource–based economies are typically embedded in rural networks of production. In recent years, however, the privatisation of access rights and the organisation of markets have substantially transformed some of these rural economies.

By using the case of the Icelandic coastal fisheries, this ethnographic study shows, on one hand, how property rights–based management regimes and markets have reconfigured rural economies by disentangling fishers from their community ties, leading to increasing investment and technological development in the industry. On the other hand, the case shows how daily economic ‘coping’ has re-entangled fishers in a web of money-mediated relations that have economised economic expectations from cost-awareness to increasing profit-making in the industry.

This economisation of the fisheries’ economy, however, not only reconfigures forms of coordination and network ties, but also changes the social practices that lie at the heart of economic value itself: fishing and processing. Hence, the study shows how artisanal and labour-intensive industries cope with the ‘primacy of the economy’ not only by rationalising their operations towards economic efficiency, but also by recontextualising traditional forms of knowledge and technology for the collective construction of a new ‘quality’-oriented market-niche.

The consequences of this coping, however, are twofold: while on one hand this development has led to the valorisation of line-caught fish, coastal fisheries have become objects of financial speculation, leading to a paradoxical cycle of investment and technological problem-solving that is pushing the temporal and spatial boundaries of coastal fisheries in local networks of production. As a consequence, the meaning of ‘small boats’ as social backbone and symbol of rural independence is being contested.

This study is not only of interest to scholars dealing with processes of economisation and marketisation of rural networks of production and natural resources, but also for those interested more generally in the role of markets, technology and changing economic practices of evaluation and valuation in contemporary capitalism.

Keywords: marketisation, economisation, valuation, evaluation, practice theory, technology, quality, relational ethnography, natural resources, fisheries, rural capitalism
Improvements in the technique of rowing boats do not lighten the labour, which is required of those who desire to hold a good position in a great race

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Before this journey into the world of fishing, my knowledge of the subject was limited to my humble experience as buyer and consumer in grocery stores and restaurants. After setting sail as a PhD student, however, I was soon known as ‘the fish guy’ among my colleagues, as I was absorbing any publication I could find on fisheries, contacting scholars in the field and, most importantly, started hanging out and fishing together with people living in the rural peripheries of the North Atlantic where I learned what it means to live and work in a rough and unpredictable environment. All of a sudden, I was the legitimate contact person for questions such as ‘What fish can I still eat without having a bad conscience?’ and other culinary issues among my family, friends and colleagues. In addition, other ‘fish scholars’ soon accepted me as one of their peers with whom they could engage in discussions on current issues in fisheries management. And after initial doubts, I think I managed to convince most of my non-fish colleagues that analogies from the world of fishing can very well make a contribution to our general understanding of the role of markets and technology in contemporary society. Nevertheless, it is up to the reader to decide whether I have succeeded or not.

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I dedicate this book to my parents Birgit and George Dobeson who have always supported me no matter what. Thanks for everything!

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Alexander Dobeson
Chapter 1. Introduction

Sooner shall all the hummocks on Summer-houses land hop up to heaven and all the bogs sink down to bottomless bloody hell than I shall renounce my independence and my rights as a man.

Bjartur of Summerhouses of Halldór Laxness’ Independent People (1946)

Bjartur’s metamorphosis

Some place far away from the night crawlers and bohemia of Reykjavík’s infamous nightlife scene in a rural Icelandic fishing community, situated in the remote Westfjords. After a restless winter’s night just below the Arctic Circle our main character – we shall call him Bjartur (‘the bright’) after the tragic hero of Summerhouses from Halldór Laxness’ epic novel¹ – decides to get up around 3:30 am and evaluate whether or not the weather conditions will finally allow him to follow his occupation as an independent fisher.² For the past fourteen days, strong westerly winds up to 30 metres per second have produced giant swells rolling into the fjord, making it virtually impossible to put out the hand-baited longlines on his small ten metre-long coastal fishing vessel. The struggle with the weather is nothing new for Bjartur who grew up in the harsh Arctic environment. The villagers are continuously confronted with the omnipotence of nature and the constant potential for disaster louring from the ocean and the mountains that embrace the fjord. Especially during wintertime when the sun disappears behind the mountains from November until February, and blizzards can cut off the village from the rest of civilisation for days. Bjartur knows that one can never influence the

¹ Halldór Laxness’ novel Independent People (1946) (Icelandic original: Sjálfstætt folk, 1934–1935) deals with the life and hardships of the peasant farmer Bjartur of Summerhouses who is struggling against the forces of nature, economic turmoil and the socio-political pressures with a desperate will to live an independent life in the countryside at the cost of his family, ending up debt-bound and financially devastated. Laxness remains the only Icelandic winner of the Nobel prize for literature (1955).
² I will use the forms ‘fisher’ and ‘fishers’ throughout the text in place of the traditional ‘fisherman’ to account for the few women in the industry. For the general role of women in the Icelandic fisheries see Skaptadóttir (1996).
forces of nature, and although most city dwellers visiting the Westfjords in the summer cannot imagine living in a remote place like this, for Bjartur it is just his way of life, being his own master as an independent small boat, a childhood dream that eventually came true. The web of relations and practices through which Bjartur sails today, however, has changed dramatically in the past 30 years, and with it also practices that constitute Bjartur as independent coastal fisher.

Not only Laxness’s stubborn small-scale farmer, but also Bjartur’s independent small boat fisher reminds us of the struggle for independence that is deeply inscribed in the cultural semantics of the small island state that was settled by Norwegian tax refugees around 850 AD. As far back as Bjartur can remember it has been his childhood dream to make a living on his own boat based on hard but honest work at sea, just as his family and ancestors have done over the generations. Being born just a few years after the first major crisis of the Icelandic fishing industry in the 1960s when the herring fisheries collapsed, Bjartur grew up in a time when small boat fisheries were being rebuilt on the cod- and lumpfish fisheries that were mainly a seasonal, though widespread business in local communities. In those days, however, large stern trawlers brought prosperity and wealth to rural coastal areas all around the country. As a consequence of unregulated fisheries and increasing capture capacity, however, fishing pressure grew too high and fish stocks started dwindling by the beginning of the 1980s. As an emergency measure, access to the fishing grounds that used to be a commons of the Icelandic people was closed. Consequently, a quota system, which allotted relative amounts of the Total Allowable Catch (TAC) based on historical catch records was implemented on a trial basis in 1984. As a result, the fish stocks literally became privatised overnight, and it did not take long for vested interests to secure the emergence of a market on which rights to future catches, called Individual Transferable Quotas (ITQs), could be traded just like any other asset on a stock market from the early 1990s.

Bjartur’s family and most of the other members of the community in the Westfjords soon began to fear that this development would be detrimental for the rural areas of the country. A market-based system, the main concern was, could adversely affect the countryside by giving a competitive advantage to big capital holders around the capital region. Nevertheless, during his teenage years Bjartur’s community was thriving as two larger longline vessels provided many jobs, and it was still common for locals to run their own small coastal vessel as part of their seasonal full- or part-time occupation. Soon, Bjartur started helping out as deckhand on his parent’s small

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3 In Iceland, coastal fishing vessels are commonly referred to as small boats (smábáta). In the following, I will therefore use “coastal fisheries” and “small boats” synonymously.

4 For a detailed description of the historical development and architecture of the Icelandic quota system see Chapter 4.
coastal vessel during his school holidays, which remained – as were all coastal vessels below 15 metres in length – widely protected from the regulatory framework of the ITQ system. After graduating from school, Bjartur finally attended navigation school in Reykjavik to becoming a captain himself and later made it to first mate on a large fishing vessel. But even though the pay was extraordinarily good, life on board a huge swimming metal box that included long trips away from home and his girlfriend soon reminded him of his childhood dream of being independent and his own master on a small fishing vessel based in his home community.

Recent developments in the fishing industry made this development even more attractive to him: the emergence of fish auctions in the late 1980s gave independent coastal fishers a much better standing and higher prices per kilo as they have liberated them from the power of the local processors. On the other hand, legal loopholes allowed large-scale investors to buy into the coastal fleet and start operations, ironically leading to a revival of the coastal fisheries. Hence, it was just a matter of time before the government started to implement stricter regulations, and many coastal fishers who had not been fishing much lately on their own vessels feared losing their right to fish as catch quotas were allocated based on historical catch rights with the implementation of the mother ITQ system in 1984. It was therefore about time for Bjartur to quit his job and start to pursue his dream on his parent’s old wooden fishing vessel.

With increasing capitalisation and professionalisation of the coastal fleet, many of the newer vessels were able to fish all year round, and above all, the efficiency of state of the art capture technologies increased season by season. As expected, it was just a matter of time before the government adopted new regulations for the coastal fisheries. As a consequence, the regulations started moving successively towards the market-based rationale of the ITQ system, going from a period of a limited numbers of days at sea for each vessel to a fully-fledged coastal ITQ system for all vessels under 15 metres. Eventually, in 2004 fishing rights could be fully transferred or leased between small boats, independently from a vessel’s homeport and geographical location.

Based on their historical catch records, Bjartur and his family were allotted a relative quota share that literally overnight turned them into members of a privileged class with access to the nation’s most valuable resource, being totally free to decide whether they wanted to buy more quota or sell out of the industry. In contrast to others from the community, however, the latter option was out of the question for Bjartur and his family with regard to what they have built up over the years. And besides that, it seemed that fishing on small boats had never been as comfortable before: in contrast to the olden days of ‘derby style’ fishing, in which small boat owners had to race against their competitors at sea, making them extremely vulnerable to taking risks in bad weather, the limitation of fishing rights had already secured the catch for
the season; Bjartur simply needed to decide when to put to sea and harvest it until his quota for the season was used up.

Today, Bjartur is one of the few remaining full-time fishers in the village, after the big local quota owner and processor sold out in 2007, leaving hundreds of people unemployed. Although the situation still remains rather bleak in the small fishing community, with its dwindling population, Bjartur and his family have been lucky, managing to keep their independent business as debts remained fairly moderate. And in contrast to the hot air created by the financial alchemists in the capital region, the fish remained not only relatively abundant and real in the sea, but also brought in fresh foreign currency in the booming export industry for ‘fresh’ and ‘line-caught fish’ – the main reason why Bjartur’s sister decided to move back from the financially devastated capital region to the Westfjords to find a job in the fishing industry. But is it only Bjartur’s stubbornness and hard work at sea that accounts for their success?

1.1 Coastal fisheries – from homo ruralis to homo oeconomicus?

Against all the odds of the classical sociological canon in which large-scale capitalist logic leads to a ‘disembeddedness’ (Polanyi, 2001) of the market economy from society, the ‘colonisation of the lifeworld’ (Habermas, 1981) through the ‘system’s logic’ and consequently a ‘primacy of the economy’ (Beckert, 2009) over all spheres of modern society, the case of Bjartur suggests that the traditional Icelandic coastal fisheries have mysteriously survived the radical market-based reforms of the 1980s, the financialisation of the Icelandic economy in the 1990s and the financial crisis of 2008. Moreover, instead of being wiped out by more efficient forms of resource allocation and market competition, in which the situation used to be rather bleak after the implementation of the quota system in 1984, they have even managed to kindle an entrepreneurial spirit and rebuild their local economies based on coastal fisheries, bringing economic wealth and prosperity to otherwise desolate rural regions.

But does the case of the Icelandic coastal fisheries empirically falsify the hypothesis of the primacy of the economy? Or has the primacy of the economy even rescued Bjartur from sinking in an otherwise out-dated industry?

At first glance, it seems that Bjartur could become the new poster figure of neoclassical economists and market ideologues alike, representing the metamorphosis from the poor, inefficient and community-bound homo ruralis⁵ – the country-cousin of Ralf Dahrendorf’s (1973) famous homo soci-
logicus – to the atomised fisher who rationally decides on buying and selling quota and putting to sea with regard to changing auction prices, making him truly independent from local ties and long-term agreements. So, must we now thank market ideologues for finally writing the happy ending for Laxness’s paragon, Bjartur, the independent fisher who lives happily ever after, after all?

It seems that we must admit that mainstream sociology has a hard time explaining why labour-intensive industries such as the community-based Icelandic coastal fisheries are still afloat and even rebuilding fishing communities in times of increasing marketisation and capitalisation of the fishing industry. On the other hand, can it be explained merely by introducing homo oeconomicus to the fleet?

Based on Garret Hardin’s (1968) famous diagnosis of the ‘Tragedy of the commons’ published in Science, according to which a resource will be depleted by rationally acting individuals as long as access to it remains unregulated, fisheries economists and orthodox proponents of privatised access rights believe that the ‘greedy’ utility maximising fisher can only be stopped by strict regulations and limited fishing quotas. Furthermore, if fishing quotas are made tradable, they maximise the profit of the industry as fishing quotas are valorised, letting the market mechanism sort out the most efficient businesses (e.g. Hannesson, 1991, 2004). As a positive side effect, so-called Individual Transferable Quotas (ITQs) even ‘create wealth’, as profits have proven to be used for investments in- and outside the fishing industry (Arnason, 2008).

While we must indeed admit that the quota system has somehow changed the structure and practices in the Icelandic fishing industry with regard to the valorisation of fishing rights – for better or worse (more on this later), we can still question the empirical validity of the theory of the atomised fisher that underlies the theory of homo oeconomicus. Can we really explain the resilience and revival of coastal fisheries in Iceland merely by pointing to the economic incentive structure of the quota system? Why have they not proven to be inefficient and out-dated by more efficient capture methods? And, above all, isn’t it somehow a strange idea that Bjartur suddenly started behaving more ‘rationally’ and ‘atomised’ than before since the fishing industry has always been a world of fierce competition since the dawn of modern capitalism?

Now the preoccupied reader might think that there is only one possible answer that explains Bjartur’s survival: subsidies – money from the state that allows small boat owners to stay afloat, even though their businesses have turned out to be highly unprofitable. Thus, the state must be wasting ‘taxpayer’s money’ in order to maintain an ancient rural tradition. But although some money is spent on keeping fisheries-related jobs in the communities, the answer cannot be found merely in vast subsidies, as in other European fisheries such as Norway or the European Union. Rather, today’s coastal
fisheries can claim to be standing financially more or less on their own two feet. In fact, they can even claim to be a highly profitable and valuable object of financial investments, bringing wealth into structurally weak rural areas all around the country (see chapter 4).

To sum up, the case of the Icelandic small boat fisheries indicates that we cannot find the answer to the resilience and revival of the Icelandic coastal fisheries simply by calling on our old friend homo sociologicus and his rural relative, or by relying on his popular atomised counterpart homo oeconomicus. Of course, both homo ruralis and homo oeconomicus are model figures, simplifications of reality that provide cognitive frames and reduce complexity in the process of decision-making. But in order to understand the revival of a centuries-old tradition in the coastal communities, we must turn to a more integrated perspective, a relational perspective that understands processes of economic- and cultural valorisation as changes in economic practices: harvesting and production. To do so, the first step will be to contextualise Bjartur’s metamorphosis in the context of a broader transformation: the transformation of the North Atlantic fisheries in the context of liberal rural capitalism.

1.2 Fishing in liberal rural capitalism

In contrast to his predecessor coastal fishers for whom fishing was merely a seasonal occupation, Bjartur exemplifies ideal-typically the contemporary, though dwindling species of the independent Icelandic coastal fisher who is able to freely coordinate his fishing activity all-year round with regard to his fishing quota, changing market prices, fishing techniques, weather conditions and fishing seasons. Not to say that Bjartur’s struggle for independence is less arduous than that of the peasants in the olden days, but ways of engaging with his world have changed tremendously with the implementation of the quota system in 1984 and the growing techno-scientific apparatus attached to it. Consequently, Bjartur must not only have an eye on his competitors at sea, but also on changing regulations, market prices, weather conditions and political decisions. Put differently, Bjartur has to engage in different domains of social life and deploy a wide range of relations and practices in order to stay afloat both at sea and financially. Thus, new forms of organisation and social order have surpassed the ‘good old days’ of the organic fishing community.

Today, fishing in the North Atlantic largely takes place in cybernetic organisations (Johnsen, Murray, & Neis, 2009) based on digital communication technologies and continuous informational feedback loops, formalised rules and mutual surveillance. At the heart of this discursive transformation stands the nature-culture hybrid of the cyborg fish (Holm & Nolde Nielsen, 2007) that was invented in the laboratories of population ecologists and re-
source economists in order to challenge the problem of overfishing by limiting access to the fishing grounds through property rights–based Individual Transferable Quotas (ITQs) based on Virtual Population Analysis (VPA) of valuable marine species. Thus, the *governmentalisation* of the fisheries (Johnsen, 2013) has shifted responsibility for the protection of the coastal communities that are mostly completely dependent on the fisheries largely to the level of individual entrepreneurship in the communities. Seemingly, the fisher is more and more being reduced to a cog in the *harvest machinery* (Johnsen, 2004) of rules, regulations, scientific models, economic calculations, financial investments and high-tech capture technologies.

In contrast to the Norwegian fisheries, however, in which institutionalised reforms have protected coastal fishers widely from the booms and busts of the market system (Hersoug, 2002; Holm, 1995), the Icelandic fishing industry has undergone a far more radical transformation in terms of marketisation since fishing rights are – in harsh contrast to the Norwegian management system – fully transferable independently of their owners, fishing vessels or geographical location. With the implementation of the quota system in 1984 and the full tradability of fishing rights as Individual Transferable Quotas (ITQs) since 1991, the system has undergone a massive transformation in terms of capitalisation and fleet structure, leading to continuing public controversy about the ownership of the nation’s most valuable resource (Einarsson, 2011b; Eythórsson, 2000; Helgason & Pálsson, 1997; Pálsson, 1993). As a consequence of free market ideology and institutional reform, fishing rights have been used as collateral in the financial sector (Einarsson, 2011b).

With the full integration of the Icelandic coastal fleet into the quota system in 2004, a similar trend has led to vast investments in quota shares, larger and faster vessels and state of the art fishing and processing technologies. Furthermore, the emergence of local fish markets in Iceland in the late 1980s had a positive impact on prices (Knútsson, Klemensson, & Gestsson, 2010) and helped to empower fishers from their local processors and engage freely in market activities. At least with the integration of all vessels up to 15 metres into the quota system, this development has led to local initiatives of banks and fishers in some rural villages to invest in fishing rights and new fishing gear by which a revival of traditional line fisheries on small vessels

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6 Michel Foucault (2009) coined the term *governmentality*, which denotes a combination of ‘governance’ and ‘mentality’ to describe a new form of governance in which power is not exercised through direct control and punishment, but through individual discipline and self-control of the subjects by incentives. For Foucault, neoliberal thought is the ideal type of this new ‘art of governance’, whose hallmark he describes as ‘state phobia’ as the market becomes the site of veridiction of governmental practice.

7 This will be elaborated in detail in Chapters 4, 5, 6, 7 and 8.

8 In contrast, prices in other Nordic fishery nations such as Norway are collectively negotiated with the help of the Norwegian sales organisation (Norges Råfisklag).
was fostered that helped these communities to rebuild their infrastructure with processing plants and local fish auctions.

All in all, the Icelandic coastal fisheries represent an outstanding case in which the primacy of the economy seems to have paved the way for what I call a new culture of liberal rural capitalism, in which the community-bound coastal fisher has been transformed into an independent entrepreneur and investor, who can now engage freely in economic decision-making, investment and financial speculation. So must we, after all, admit that property rights and markets have truly liberated coastal fishers?

To repeat the mystery of the case again: How could a traditional labour-intensive industry which still relies on traditional artisanal fishing gear such as hand-baited longlines stay afloat in an incentive-driven culture of liberal rural capitalism that is characterised by self-responsibility, financial investments, modern technology and profit-making?

1.3 Getting hooked on markets

For understanding the transformative dynamics of this new culture of rural capitalism we as sociologists need to leave our urban bias behind, travel to the modern rural landscapes and get down to the nitty-gritty of daily eco-nomic coping in order to understand how markets have reconfigured traditionally labour intensive, small-scale oriented and locally bound networks of production. From here on, we can ask more generally:

1. How can we explain market-dynamics in rural networks of production?

2. And what are the consequences for the traditionally artisanal and locally bound culture of coastal fisheries?

To answer these questions, we will need to unravel the complex mesh of socio-material relations that have eventually hooked Bjartur and his fellow independent fishers on markets. ‘Being hooked’, however, neither implies some sort of one-sided penetration of rural independence by the ‘primacy of the economy’, nor a reduction of the fisher to a cog in an abstract harvest machinery. If we assume with Schatzki (2001: 53) that ‘social orders are arrangements of people and of artefacts, organisms, and things through which they coexist, in which these entities relate and possess identity and meaning’ and that these orders are ‘instituted within practices’ (ibid: 45), we can shift the focus of our analysis to the contingent openness of daily human coping in which the fishery economy is anchored and materialised. Thus, like fish that can move with the slack of the fishing line, fishers can move freely within the boundaries of their economic entanglements. And like a
fish that manages to shake off the hook in its struggle for survival, fishers can either sell out of the industry, or must learn to economise their energy and find alternative ways of coping in order stay afloat in the culture of liberal rural capitalism. In the latter case, however, both fish and fishers need to be aware that the hooks will hold on more tightly the more pressure they put on the lines when trying to expand the boundaries of their freedom.

With regard to the thriving field of a Sociology of Valuation and Evaluation (SVE) (Antal, Hutter, & Stark, 2015; Beckert & Aspers, 2011; Lamont, 2012; Stark, 2009; Zuckerman, 2012) and increasing interest in matters of quality construction in markets (Beckert & Musselin, 2013b), this study can be seen as a contribution to the discussion on economisation and marketisation (Beckert, 2009; Çalışkan & Callon, 2009 2010; Schimank, 2014; Schimank & Volkman, 2012) by shedding some light on the relations between markets, technology and economic (e)valuations. From here on, a more general discussion of the role of markets as policy instruments in contemporary rural capitalism is addressed that is likewise of interest for researchers, policy-makers and resource economists.

1.4 What the reader can expect

The reader should not expect a book defending the romanticised ideal of the organic fishing community against a bunch of greedy capitalists and bankers. The reader will soon learn that identifying the villains is not that simple. Nor does the author intend to promote artisanal fishing techniques and small-scale fisheries as especially ‘sustainable’ or ‘environmentally friendly’ – judgement on these important issues is surely beyond the modest capabilities of the sociologist. In the end, it is up to the reader to decide to what extent the distinction of ‘small’ vs ‘large’ still makes sense and how ‘beautiful’ today’s small coastal vessels really are.

What the reader can expect, however, is to dig deeper into the story of Bjartur’s metamorphosis, by providing an encompassing account of the social dynamics, practices and tensions that characterise and challenge the boundaries of today’s rural economies. For this purpose, more ethnographic material from the Icelandic coastal fisheries is meshed into the storyline and discussed in relation to accounts and theories dealing with issues such as economisation, marketisation, natural resources, technology and (e)valuation. The structure of the book is as follows.

Before we return to the main plot, chapter 2: the sociology of fishing assesses to what extent fisheries have been subject to social scientific research

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9 The idea that ‘small is beautiful’ was promoted by the economist J.F. Schumacher (1973), who contrasts large-scale economies and technologies with an allegedly more humane, empowering and sustainable world of small-scale economies.
and what role sociological theory has played in this area. We ask: What general sociological insights have been generated in the field? And what conceptual blind spots can be identified with regard to the questions raised above?

Getting to know Bjartur and his fellows is not an easy task, and one can easily lose one’s reputation in a small community. For this reason chapter 3: a relational ethnography of market-based fisheries attempts to reflect on how to navigate as an ‘alien’ observer through a fishing community. Instead of overemphasising the role of the individual fisher, we will see that it is crucial to unravel the web of socio-material relations in order to gain a comprehensive understanding of the dynamics and practices that constitute contemporary coastal economies. Last but not least, the chapter describes field strategies, dataset and analysis and finishes with some ethical considerations and dilemmas regarding fieldwork and text production.

Chapter 4: hooked on markets finally brings us back to the main plot and investigates how the processes of economisation and marketisation have transformed rural networks of production. We ask: is there an intrinsic cultural value in coastal fisheries? And to what extent has this value changed with the privatisation of access rights and the organisation of markets as the central form of coordination in rural networks of production?

Any account of the fishing industry would remain incomplete without taking into account the practice that lies at the heart of the value chain: fishing. For this reason, chapter 5: the phenomenology of fishing takes the reader onto a day’s adventure on a coastal fishing vessel and provides a first-hand experience of the practice of fishing itself. We will reflect on questions such as: how can we describe the relation between the fishers and their environment? How do fishers coordinate their work? And what role does modern technology play in relation to traditional forms of knowledge and skill?

We will soon learn that modern market-based fishing is no longer an isolated activity that is merely based at sea. For this reason, chapter 6: fishing in contingency investigates the tensions between the economy and an ever-changing and unpredictable environment. We ask: what problems do arise with the organisation of markets in the harvest economy? And how do fishers and quota-owners cope with this increasing complexity in modern fishing?

While the practices of daily coping show how fishers, quota owners and processors deploy flexible strategies that allow them to stay afloat in this rapidly changing world, we will learn in chapter 7: harvesting quality why ‘quality’ has become the key issue for understanding the survival of the Icelandic coastal fisheries. For this reason, we will first investigate the general role of quality in natural resource–based economies. We ask: what distinguishes quality in the garment industry from a fish or a piece of meat? Is quality a natural feature of the produce? And what does all of this imply with regard to the economisation of the coastal fisheries in Iceland?
Although quality upgrading is the key to revaluing this traditional rural industry, it has yet again opened up new uncertainties in the production network. In Chapter 8: fishing in scopic markets we will learn about the importance of digital information technologies for the new quality-regime. We ask: what does this digitalisation of fisheries economies imply for the coordination of resources in rural networks of production? And do we even have to modify our understanding of markets in the digital age?

Chapter 9: a new culture of coastal fisheries concludes and asks to what extent our stubborn anti-hero of the rural coastal fisher has managed to defend his independence – or if he is doomed to fail, like his literary cousin.

Last but not least, the Appendix will give the unfamiliar reader the chance to get acquainted with the basic capture methods used in the Icelandic coastal fisheries, which will play an important role in the struggle for rural independence.

1.5 Back to business…

This morning, fish fever has taken full control of Bjartur. First, he will take a look outside the window in his living room, which allows an encompassing view over the fjord. The moonlight shines brightly on the snow, making the shapes of the surrounding mountains and some scattered clouds visible to his sleepy eyes. But the mountain to the east side of the fjord seems clear and no clouds are covering its peak, which indicates better weather, as experience has taught him. He opens the window and carefully listens to the gently breeze moving through the village’s streets, leaving unassigned clatter and occasional howls. Although the worst part of the storm seems to have moved away from his home, he knows that the sheltered fjords should not fool him, since weather conditions at sea can vary tremendously within miles. And even if the fjord looks calm, it can literally be like sailing straight into a wall of strong winds and giant swells at its mouth. For this reason, he switches on his notebook and checks the website of the Icelandic Marine Administration, where he will get the latest information on wave height and intervals per second, two factors that Bjartur evaluates against each other. At the same time, a look at the vessel tracking website marinetraffic.com lets him see whether any of his colleagues around the country have already put to sea – and indeed he can see that two of the newer bigger longliners owned by a larger processing company from a neighbouring village have already left port. Although Bjartur does not trust these vessels, as they are infamous for being risk takers – some rumours say they are just ‘crazy’ people in this village, others say it is because of the pressure from the owners – Bjartur knows that he cannot compare his boat to these considerably larger ‘small boats’ weighing up to 15 tonnes. The wind forecast, however, looks good for the day and the waves seem to have flattened out so that Bjartur decides to
call his deckhand and tell him to pick up the fishing lines from the baiting house and meet him at the docks in about thirty minutes…
Chapter 2. The sociology of fishing

A very simple idea is changing the world’s fisheries. The Common Property Theory (CPT) has turned the world upside-down for coastal communities in many countries.


There is a long-standing tradition of academic interest in fisheries and fishing communities in the social sciences. Typically, research concerns national conservation policies that occur in nations where the fisheries look back on long traditions and still play a socially and economically important role. Therefore, most research on fisheries more or less directly addresses the public and political arena participating in these discourses. This does not mean, however, that the academic discourse is less important for this sort of policy-oriented research, as controversies in and between the disciplines also characterise this field. Furthermore, ethnographic studies of fishing communities have given researchers access to a microcosm in which rural economies, cultures and traditions face the challenges of the modern world. Hence, the study of fisheries as an empirical field not only provides scholars and policymakers with fruitful insights, but is also of great value for the general understanding of society and social processes such as rationalisation, modernisation, societal change, cultural conflict, social organisation and nature-culture relations.

The purpose of this section is to briefly sketch the most prominent contributions in the sociology of fishing and to critically assess their explanatory value with regard to our story of modern coastal fisheries. The research presented in 2.2 Fishing in social relations outlines a general sociological critique of the image of the fisher as an asocial rational being and digs into issues of coordination and identity in rural networks of production. Section 2.3 Fishing in institutions discusses the changing power relations during the process of modernisation and the implementation of modern resource management regimes with regard to the resilience of coastal communities. Section 2.4 Fishing in discourse presents different theoretical accounts that highlight the controversial nature of modern fisheries between discourse and practice. Last but not least, the section concludes with a critical appraisal in
which the extent to which fisheries have made a contribution to the general understanding of social life is discussed. It will be shown that the research presented follows three threads found in contemporary economic sociology: (i) network embeddedness; (ii) institutional embeddedness and (iii) discursive embeddedness. Based on the reviewed literature, finally, the extent to which the theories presented can account the transformation of the Icelandic coastal fisheries is assessed. For an understanding of the broader academic context of the sociology of fishing, Section 2.1 Fishing in modern resource economics will provide a brief overview of the sociology of fishing’s main point of departure and critique.

2.1 Fishing in modern resource economics

Amidst the neoliberal revolutions of the 1980s and 1990s in which so-called ‘market’-based solutions to societal welfare and order were widely promoted and implemented in Western societies (Harvey, 2005), the adherence of fisheries economists to market-based policy instruments grew and became one of the major paradigms in contemporary fisheries and resource economics (Arnason, Hannesson, & Schrank, 2000; Arnason & Runolfsson, 2008; Hannesson, 1991; Moloney & Pearse, 1979). Economic approaches to fisheries governance commonly assume that open-access fisheries would necessarily lead to a tragedy of the commons (Hardin, 1968), as there is no economic incentive for rationally acting individuals to stop putting pressure on fish stocks unless those stocks are either devastated or access to the fishing grounds is limited by state authority. Key to the reasoning of property rights-based approaches to fisheries governance is the conceptualisation of the fisher as homo oeconomicus, namely a rational, utility-maximising agent who considers no utility but his own. In other words, the fisher is considered an asocial atom and has no other motivation than maximising profits through increased fishing pressure. Consequently, the privatisation of common resources is seen as a means of regulating and distributing fishing rights in a sustainable and efficient fashion (Hannesson, 2004). Accordingly, the paradigm shift from open access to closure of the fishing grounds is achieved through the implementation of harvest rights on relative shares of a given fish stock. The distribution of future catches is based on the concept of Maximum Sustainable Yield (MSY), by which the theoretically largest share that can be harvested from a specific stock can be determined by at the same time ensuring the future reproduction of the stock. Based on scientific estimations, the Total Allowable Catch (TAC) – the absolute quantitative amount of fish to be harvested in the next fishing season – is determined and allotted to the quota-owners based on their relative share of the future catch.
Orthodox proponents of property-rights based approaches see a system of *Individual Transferable Quotas* (ITQs)\(^{10}\) – freely exchangeable fishing rights that can be traded like any other commodity independently of mother vessel and owner – as the most sustainable and efficient way of utilising a nation’s marine resources (Arnason & Runolfsson, 2008; Hannesson, 2004). Ragnar Arnason (2008), the intellectual architect of the Icelandic quota system, has even claimed that the ‘ITQ system creates new wealth’ as quota shares have been used as collateral and consequently traded as stocks that made it possible to increase investment in- and outside the fishing industry. Thus, the total commodification of the fish stocks fits perfectly in the world of liberal financial capitalism, as they make it possible to capitalise not only on the urban regions, but also on the seaside and rural areas. The consequences of this capitalisation process are predictable: capitalisation, rationalisation and private and geographical concentration of ITQs. For many liberal economists, such as Ragnar Hannesson (2004) – an orthodox proponent of ITQs and markets – this development is to be welcomed rather than lamented, as it is by many opponents of the quota system:

As a rule, small communities have suffered more than large ones. This is easily blamed on the quota system; when a quota is sold permanently out of a certain community the plant is left without its traditional food supplies and people are thrown out of work. This is, however, probably an unavoidable and indeed desirable consequence of economic development. (…) Small and isolated fishing communities are not particularly attractive, especially for young people because of few and uniform work opportunities and poor availability of services. (…) The quota system in Iceland may very well have accelerated the decline of these communities, but it would probably have happened anyway, unless the Icelandic economy had stagnated or backtracked. Seen in that light, the structural changes following the quota system are to be welcomed rather than deplored. (ibid.: 134)

Today, property-rights, or *de facto* property rights–based management regimes have become a reality in major modern fisheries nations such as Iceland, New Zealand, Norway and the United States (Hannesson, 2004). Nevertheless, societal effects can be dramatic, as Hannesson himself suggests, and the implementation of property rights in relation to marine resources has not been without public controversies and heated debates about the legal ownership status of natural resources (Helgason & Pálsson, 1997; Hersoug, 2005; Pálsson & Helgason, 1996). As a consequence, a considerable number of social scientists have dedicated their work to contrasting the reductionist models of resource economics with rich empirical studies of social life, coordination and controversies in modern fishery economies. The most influential accounts will be presented in the following sections.

\(^{10}\) A more detailed account of the rationale behind TACs and ITQs will be given in subsequent sections.
2.2. Fishing in social relations

More than thirty years before Marc Granovetter’s (1985) seminal article on social embeddedness was published in the American Journal of Sociology, anthropologist J. A. Barnes (1954: 42-3) pondered the relations between what he referred to as the fluctuating, functional and highly competitive industrial system of the herring fisheries and the conservative and hierarchical territorial system of the community during his field study of an Norwegian island parish. In more contemporary language, Barnes was interested in the social coordination between markets and hierarchies (Williamson, 1975). Based on his field observations, however, Barnes discovered a unit of social organisation that seemed to be not only different from the aforementioned, but also the missing link that allowed coordination between these seemingly hostile worlds:

The third social field has no units or boundaries; it has no coordinating organization. It is made up of the ties of friendship and acquaintance which everyone growing up in Bremnes society partly inherits and largely builds up for himself (...) It is convenient to talk of a social field of this kind as a network. (Barnes, 1954: 43; italics in original)

Although these ties, as Barnes (1954: 43) notes, are usually between ‘persons who accord approximately equal status to one another’, persons with different social status positions, such as fisher and employer, may occur. Barnes (1954) concluded that hierarchies in his Norwegian parish remain rather flat and there were no clear signs of a class in the Marxian sense. It is important to note, however, that Barnes’ (1954: 43, fn.3) conception of a network is, in contrast to a two-dimensional ‘spider’s web’, conceptualised with multiple dimensions. Furthermore, the size and quality of the ‘mesh’, that is, ‘the distance around a hole in the network’, differs in various types of societies, being rather small in simple and rural, and rather large in modern societies (Barnes, 1954: 44). As Bremnes is described as an ‘intermediate society’, it has no clearly developed class structure as the network consisted mostly of people that considered each other approximate equals. Class, in this sense, is a merely subjective category. With proceeding industrialisation, however, Barnes (1954: 57) concludes that ‘some form of class society develops as industrialisation proceeds’. This was also evident for Bremnes, where ‘the mesh of the network’ was growing larger (Barnes, 1954: 5).

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11 It needs to be pointed out, however, that some Norwegian fishing communities, which were controlled by plant owners resembled more a class society than others, in which fishers were more or less financially independent land owners (I am grateful to Jahn Petter Johnsen for this comment).
Based on similar observations, James M. Acheson (1988) later criticised the Tragedy of the Commons narrative in his seminal life work on the Maine lobster fisheries, which made an important general contribution to contesting the idea of economic man as isolated rational utility maximising agent. His basic argument is rooted in anthropological considerations about the nature of fishing as a socially coordinated activity. In an earlier contribution, Acheson (1981: 276) states that fishing takes place in a very heterogeneous and uncertain environment. This uncertainty stems not only from the physical environment, but also from the social environment in which fishing takes place. (ibid.)

Once discovered, an oil stock is fairly controllable and can be exploited relatively independent of the weather conditions. In contrast, weather conditions at sea can change rapidly and pressure skippers to stay ashore or return to their homeports. Furthermore, fish stocks move around, some of them migrate considerable distances, and even if modern fishing technologies have facilitated harvesting, the needle in the haystack has to be discovered first. It is always uncertain where the fish are, and it is always a risk for a skipper to choose a destination for fishing. If his decision proves wrong, he loses time, which represents an economic loss that gets bigger the more competitors are chasing the valuable resource. So how is stability and order possible in this highly volatile and unpredictable environment? Acheson (1981: 307) concludes that while one cannot control the weather and fish, one can use social ties to organize an effective crew, obtain information on concentration of fish and have privileged access to them, and be assured of a secure market for the catch. (ibid.)

In line with Barnes, this perspective challenges the economic and folk view of the individualistic outlaw-fisher who fights nature while being in severe competition with his fellows at sea. Rather, Acheson (1977, 1988, 1998) has demonstrated in decades of comprehensive fieldwork and numerous academic contributions how lobster fishers organise themselves as ‘harbour gangs’ to solve the distributional conflict at sea. Hence, fishing rights are distributed by the gangs, which are tied to specific – though not uncontested – territories and fishing communities and even enforce self-imposed rules on lobster trap limits that have successfully regulated pressure on and secured reproduction of the stocks for decades.

Having the right to fish, however, is only half the battle. Due to its informal nature, success in the Maine lobster fishing industry depends on ties with fellow lobstermen, the ability to negotiate with lobster dealers, and the sharing of certain skills. (Acheson, 1988:1)
These ties are densely knit to their homeport communities, which have their own identity, value and kinship systems that can make it fairly difficult for newcomers to enter the fisheries. The same holds true of market relations between producers and fishers, for whom mutual ties are of critical importance for lowering risk and uncertainty in the highly volatile industry. Accordingly, producers
do not act like economic optimizers, who buy from the lowest-priced source and sell to the highest bidder. Rather, the industry is characterized by many small enterprises – fishers, dealers, wholesalers, truckers – who have long-standing ties to one another. (Acheson, 1988: 144)

Hence, the lobster industry cannot be described in terms of the neoclassical market model, either, in which prices are the main information provided and contractors only meet for short-term exchanges, nor as a hierarchy, in which supply of resources is exchanged between vertically integrated units of production based on long-term relations, as famously distinguished by Williamson (1975). Following Macneil (1978), Acheson states that the industry can rather be described in terms of a relational market, in which ‘personal relationships strongly influence exchange’ (Acheson, 1988: 144). Furthermore, Acheson has pointed out how the identities of fishing communities serve as markers for these territories that go together with the mutual ascription of idiosyncrasies by the members of each community (Acheson, 1988: 27). Within the fishing communities, hierarchies mark the status of each fisher: a distinction is drawn between so-called ‘highliners’, experienced, very successful and highly respected fishers, and ‘dubs’, often young, inexperienced and unsuccessful fishers of low status (cf. Acheson, 1988: 52-7). Even though a fisher can climb up the status ladder by demonstrating progress in experience and success, he can also be stigmatised and fall victim to relentless jokes by insiders in the prevailing harbour gang:

Since the lack of fishing success results in low incomes, such fishermen often live in very poorly maintained houses, drive old automobiles, and invariably have small boats and poor fishing gear. Their lack of success is exposed for all to see. The prestige accorded them is especially low if they also conspicuously violate essential norms. Marital problems, problems with the law, odd personal mannerisms, being known as a ‘goddammed hippie’, or coming from ‘out of state’ can be the final nails in the coffin. (Acheson, 1988: 53)

Nevertheless, in principle, any ‘dub’ has the chance to climb up the status ladder. This does not imply, however, that any fisher can gain access to the socially, culturally and politically mostly very conservative core community, for kinship and historical ties are inherited entry requirements that cannot be compensated for by newcomers and outsiders (Acheson, 1988: 42-7).
In a similar fashion, Miller and Van Maanen (1982; 1979) have also stressed the heterogeneity of fishermen’s identities beyond formal classifications of vessel size, fishing gear and target species. In contrast to a traditional fisher, who is often ‘born’ and socialised into his profession and draws clear boundaries between his work at sea and his private life, a non-traditional fisher, often referred to as a ‘hippie’ or ‘freak’ by the former and typically a younger White Anglo-Saxon Protestant (WASP) middle class male, is typically as ‘prone to wear a rock ‘n’ roll T-shirt while fishing as he is to wear a fishing knife on his belt while on a date’ (Miller & Van Maanen, 1982: 36). Hence, working clothes, fishing gear, storytelling, cars, drinking patterns and even boat names serve as important markers of fishers’ identities (Miller & Van Maanen, 1982: 35-8). Especially in multi-ethnic countries such as the United States, status differences between fishers are typically demarcated around ethnic boundaries. Hence, fishers in Gloucester, Massachusetts, who are mainly of Sicilian descent, but consider themselves Americans, distinguish between ‘guineas’ (themselves) and ‘greasers’, who represent newly migrated fishers who maintain strong ties to their country of origin and are seen as ‘greedy, anti- or at least un-conservation minded, and, in general, uncivilised’ (Miller & Van Maanen, 1979: 380). When conservation measures were enforced to try to limit pressure on the ground fish stocks in 1977, ‘greasers’ were identified as the main violators of the restrictions, causing anger among the ‘guineas’ who stayed ashore (Miller & Van Maanen, 1979: 381-2). In this case, however, identities seem to be variable as a ‘greaser’ can become a ‘guinea’ if he is willing to assimilate to the core values and lifestyle of the established community members (Miller & Van Maanen, 1979: 380).

It has become clear that fishers’ and industry’s identities are meshed in the communal network of social relations and form important markers for social coordination in fishing communities. The contributions of Barnes, Acheson and Miller and Van Maanen have pointed out the meaning of social relations and identity as backbones of social order in modern fisheries. But how have forms of social coordination changed in fishing communities in which state-organised resource management policies, such as property rights, have been implemented?

2.3 Fishing in institutions

Another branch of sociological research on fisheries emphasises the broader historical context in which modern fishing has been developed and institutionalised. In this section we shall look at the most important contributions.
2.3.1 Disembedding fisheries

Apostle et al. (1998) have studied the consequences of modernisation in a comprehensive study of the North Atlantic fisheries in Canada and Norway. Taking an institutionalist perspective, the authors (ibid.: 8–10) discuss the changing relations between fishing communities, nation-states and market structures that have occurred in the course of this transformation, implying a shift from the community level towards government control and market rationality at the organisational level. While sharing Granovetter’s key argument that all economic relations are always embedded in a social context, Apostle, Barret, Holm, et al. (1998: 238) nevertheless conceptualise modernisation in line with Polanyi (2001) as a movement towards disembeddedness, that is, as ‘a process through which the economic activities, rationalities, and social relations are “lifted out” from the local context of interaction’. The concept of embeddedness is further specified in terms of a comparative institutionalist framework (Hollingsworth & Boyer, 1997), in which two levels of embeddedness are distinguished: first, the embeddedness of individuals in a specific group or community, and second, the embeddedness of ‘institutional interconnectivity, to the ways in which rules and procedures and normative standards of conduct in various institutional realms such as economic, cultural, and social life impinge on and shape each other’ (Apostle, Barret, Holm, et al., 1998: 236).

During the process of modernisation, the main argument runs, the rational norms and values of the market sphere have created new institutions that have disembedded the coastal communities from their environment while becoming the dominant ordering principle in a capitalist society, consequently ‘undermining traditional forms of resource management, and eroding the social and cultural bonds on which communities are based’ (Apostle, Barret, Holm, et al., 1998: 238–9).

As noticed by Weber (1921: 821) early on, the emergence of a capitalist economy both presupposes and entails a high degree of rationalisation, bureaucratisation and organisation. In line with Acheson (see above) who pointed towards uncertainty as the fundamental challenge to fisheries, Apostle, Barret, Holm, et al. (1998: 23) point to the twofold uncertainty that fisheries organisations need to manage in order to sustain themselves: fish stocks and export markets. Nevertheless, ways of controlling these uncertainties have changed significantly over time, and it is important to understand that before the breakthrough of large-scale production patterns, the impact of market uncertainty on the coastal communities was buffered by flexibility in the traditional coastal economy. When the fishing failed or when prices dropped, people could resort to other means of subsistence, particularly agriculture and forestry. The dependence on the fishery, and thereby the vulnerability to fluctuations, was kept low by maintaining alternative occupations. This always meant a low degree of specialization, a broad-based but
non-intensive utilization of resources, low efficiency, and, quite often, a fairly low standard of living. (Apostle, Barret, Holm, et al., 1998: 23)

The dual structure of the coastal economy could be found particularly in the salt- and stockfish producing communities along the North Atlantic coastline, such as Nova Scotia, New England, Iceland and Norway. These economies were strongly dominated by commercialist principles, in which the merchants took their place as key actor with their main interest in trade and speculation, but not production, ‘as the merchant preferred to leave fishing and preservation to the fishers, while he himself concentrated on trade of the finished product’ (Apostle, Barret, Holm, et al., 1998: 30). Even though production was left to the fishers, the prevailing truck system tied them tightly to merchant’s who ‘were able to control the exchange so that the fisher was never out of debt’ (Apostle, Barret, Holm, et al., 1998: 32). Thus, the merchants could use their power over the often indebted fishers to keep prices low in order to maximise their profits and gain more influence in the fishing communities as major creditors, resulting in the development of a wide-ranging network of privileges, rules and regulations.

This small-scale production-based commercialist order was prevalent until the introduction and development of a new industry based on frozen fish. Different from the production of dried- and salted fish, the production of frozen fish required a higher degree of organised management and formal control that not only affected practices in retail, but also dictated the means and ends of production. Thus, the restructuring of the production process required ‘larger investment requirements that followed the introduction of modern technology in fishing (trawlars) and production (mechanised filleting and freezing)’, which fostered the breakthrough of a ‘large-scale and centralised pattern of operation’ (Apostle, Barret, Holm, et al., 1998: 33).

The breakthrough of large-scale industrial capital in the Maritimes, however, did not follow a structural ‘logic’ of modernisation in which communities necessarily lose their integrative function in favour of the calculative logic of large-scale industrial capital and rationalist production regimes. Rather, coastal communities along the Northern European coastline – such as Iceland and Norway – can be seen as strong empirical cases in which the socio-political and historical context of modernisation was mitigated by their specific socio-political and cultural settings. The cases of Norway shows how the cultural and political context of the industrialisation process has fostered the establishment of a petty capitalist class of fishers that shaped the institutional setting in order to prevent large-scale capitalists for taking over the industrial system during the interwar period (Apostle, Barret, Holm, et al., 1998: 36-58).

Sverisson’s (2002) analysis of the Icelandic fisheries points in a similar direction, showing how the Icelandic small boat fleet has managed to stay
afloat during modernisation through gradual technological adaption to a specific socio-economic context:

In Iceland, the technological complex that evolved from the peasant fisheries of the nineteenth century proved particularly resilient. Incremental evolution of the old fishing techniques actually continued to a point where little remained of the original technology. More was retained of the social relations in which that technology was embedded. The small-scale fishermen improved their boats and gear continuously, eventually achieving a comprehensive metamorphosis of vessels and techniques. This happened within a framework defined by strong social and political continuities. (2002: 249)

In rural economies, people are very likely to be sceptical about new technologies and therefore rather improve their current gear gradually than replace it. These developments carve out trajectories that influence further developments in these industries. Thus, especially small-scale industries play an important role for latecomers to modernisation for buffering the uncertainties of the great transformation in the fisheries.

In recent years, however, new forms of market-based management have set off a second wave of modernisation in the fisheries. How these have been implemented and institutionalised despite strong resistance from the fisheries and public in countries such as Iceland and Norway will be the theme of the next sections.

2.3.2 Institutionalising rights-based fisheries

Whereas in Iceland (see Chapter 4) and New Zealand (Hersoug, 2002) access to the fishing grounds was literally privatised overnight, the closure of the Norwegian coastal cod fisheries was never intended to be a permanent solution. This was due not only to the strong resistance of the coastal fishers from the north, but also to the resistance of key government decision-makers. Nevertheless, the limitation of access as a reaction to crisis management at the beginning of the 1990s triggered an institutional development that led to ‘a system of individual transferable access rights’ (Hersoug, Holm, & Rånes, 2000: 327; emphasis in original), thus defining de facto property rights in the form of Individual Vessel Quotas (IVQs). These rights, however, differ from fully-fledged ITQs as their transferability is constrained to regions and thus cannot be freely traded on a quota market.

From an institutional perspective, the question arises of how this development was possible if important interest groups were opposed to it from day one. Instead of economic institutional theory, which defines institutions as mere bearers of rules and incentives that regulate the rational behaviour of actors, institutions are conceptualised as ‘embedded’, providing cognitive, normative and regulative structures representing socially defined goals that lead to gradual social change (Hersoug, Holm, & Rånes, 2000: 320-23).
From this perspective, institutions consist of interrelated ‘nested systems’ (Holm, 1995) that are both frameworks for and products of social practices and thus subject to the dynamics of modern societies, including economic factors such as market forces, competition and science. Thus, the manifestation of property rights in the Norwegian fisheries appears to be the outcome of an historical process, in which actors have been ‘locked in’ to the historically determined time path that is eventually moving towards a fully-fledged ITQ-system even though key actors and interest groups remain strongly opposed to the ideology of property rights (Hersoug, 2005; Hersoug, Holm, & Rånes, 2000).

2.4 Fishing in discourse

Although institutionalist accounts have provided important historical studies on the modernisation of the fishing industry and the rise of market-based solutions, Holm (2001) criticised the fact that also multidimensional institutionalist frameworks have not overcome the problematic division between the ‘hard’ world of rationality, which includes science, technology and market forces, and the ‘soft’ world of values and norms as the basis for the legitimacy claims of institutions. In a similar fashion, Johnsen (2004) criticised institutionalist frameworks for explaining increasing investments by fishers in larger vessels despite policy goals of reducing capture capacity as a ‘tragedy of soft choices’ (Standal & Aarset, 2002), conceptualised by the authors as the result of individual adaptations and adjustments made under the prevailing institutional setting. Hence, Johnsen (2004: 483) concludes that despite ‘being critical to attempts to use the Tragedy of the Commons as the basis for fisheries management, their own understanding of actors ends up being very similar to that of Hardin and his followers’ (Johnsen, 2004: 483). For this reason, Johnsen (2004: 483) argues ‘that more integrated perspectives taking into account the dynamics of technology development, knowledge, policy, and economy are needed’ in order to decentralise the fishers as the core actors in the fisheries. Hence, the next two sections will present some perspectives that decentralise the one-sided view of both fishers and institutions by taking into account the controversial issue of societal discourse.

2.4.1 Fishing as regime of production

Following a Marxist interpretation of Foucault’s genealogy of knowledge, Pálsson’s (1991) general anthropology sheds light on the question of how knowledge in different systems of production is reproduced and represented through social practices. Based on these assumptions, Pálsson can show how categories such as fish, production and gender are represented as reflected in
different ‘folk models’ of production. In most cultures, for instance, fish serves as a highly ambiguous category loaded with symbolic value and in many fishery economies – not only modern Western fisheries – the work of women is considered as secondary and ‘unproductive’ in contrast to the ‘productive’ physical activity of fishing itself, which is dominated by men (also see Skaptadóttir, 1996).

While all folk models represent valid descriptions, it can be the task of a scientific observer to examine which folk models are more ‘authentic’ than others. Thus, the important question regarding the folk model is not whether it agrees with ‘reality’ but the extent to which it encourages people to act in accordance with the rationality of their social systems. (Pálsson, 1991: 81)

Rejecting the classification of systems of production based on technology (Pálsson, 1991: 69) Pálsson distinguishes analytically between two dimensions (i) mode of circulation with the possible values a) for use and b) for exchange, and (ii) access to natural resources, with the values a) non-ownership and b) ownership. Thus, four different types of fishery economies can be distinguished:

a) Non-ownership/for use: this production system is to be found in hunter-gatherer societies and is characterised by an egalitarian ethos and generalised reciprocity among the members of the community.

b) Ownership/for use: in this system of production access to resources is typically owned and distributed by certain clans or families with a long history and is inherited from generation to generation and legitimised through myths (for example, the ‘first inhabitants’ of a territory). Like in system a), not much attention is paid to differences in success, but unlike the former system, the relationship between hunter and prey is not personal. Rather, and if acknowledged at all, success is considered a natural economic fact (Pálsson, 1991: 73-4).

c) Non-ownership/for exchange: This system of production is typical of market economies, where access to the resource base is open. In this system, labour is commodified and equipped with a certain accreditation, mostly in terms of power and of a personal and psychological nature that is more or less equivalent to luck (Pálsson, 1991: 75). Hence, in the ‘hierarchical model’, the status of a skipper is evaluated with regard to his catch, and, in contrast to models a) and b), his role is active.

d) Ownership/for exchange: this model is based on private ownership of the resource base in modern market economies where exclusive fishing rights
are distributed by nation-states that rely on knowledge of scientific stock assessment. In this regime, capital and capture technology replace individual skill as explanatory variables to success (Pálsson, 1991).12

In Icelandic public discourse, for instance, feudal metaphors such as ‘quota kings’ or ‘lords of the sea’ are used to describe the power relations of the new property regimes (Pálsson & Helgason, 1995, 1996). Furthermore, Helgason and Pálsson (1997) demonstrate how the commoditisation of fishing rights has led to an individualised discourse on ‘greed’ and ‘laziness’ as some quota-owners have taken advantage of leasing out shares of their quotas, which is known—in the eyes of those actually fishing—as ‘fishing for others’ (veiða fyrir aðra). Fishers and large parts of the public consider this form of profit-oriented exchange as immoral. Hence, the new property regime collides with folk accounts rooted in open-access to the resource base, in which those who put out to sea and fish are the rightful owners of their catch (Helgason & Pálsson, 1997: 458-9). In this sense, fishing rights are incommensurable for some participants in the Icelandic discourse, giving them a ‘contested’ status that has provoked a wide range of ongoing controversies that have been accompanied by acts of resistance in the form of disobedience and legal cases ranging from national courts up to the UN Court of Human Rights (Einarsson, 2011b).

All in all, Pálsson’s work has shifted the emphasis away from social actions and points at the relations between regimes of production and societal discourse for understanding how representations of nature are constructed and manifested. We do not learn, however, how the regimes of production are constructed and stabilised over time. The next section will try to shed some light on this matter.

2.4.2 Unscrewing the fisheries Leviathan

In recent years, a number of sociologists have criticised the ‘anthropocentric bias’ in the social scientific understanding of modern resource management regimes that put the fisher at the centre of the understanding of fisheries dynamics or essentialise resource management regimes as ungovernable leviathans (Holm, 2001, 2007; Holm & Nolde Nielsen, 2007; Johnsen, 2004, 2013; Johnsen, Murray, & Neis, 2009). Instead, so the claim goes, a relational understanding of modern resource management regimes is needed that

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12 Pálsson and Durrenberger (1982, 1990) sparked a controversial academic debate by claiming that capital and fishing effort account for success in capitalist fisheries and not individual skill, as the folk myth of the ‘skipper effect’ suggests. However, authors such as Thorlindson (1988), Bjarnason and Thorlindson (1993) and Gatewood (1984) have convincingly demonstrated the remaining role of skill for success in contemporary fisheries. Accordingly, talented skippers will be rewarded with good positions on state of the art vessels, leading to a concentration of capital and skill.
takes into account the interrelations between the human and the non-human world (Holm, 2001; Johnsen, 2004).

In keeping with Actor–Network theory (ANT) (Latour, 2005; Law & Hassard, 1999), Holm (2001) rejects the Kantian divide between nature and culture/society that has led to the modernist struggle between naïve realism, which denies the power of symbols and ideas, on one hand, and radical constructivism, which downplays the role of the objective world, on the other. Instead, the success of the current fisheries management system is explained through the construction of ‘reliable and stable translation chains’ (Holm, 2001: 132) that mediate between the material and the symbolic world. Thus, the success of the Norwegian resource management regime can be explained neither through the naturalisation and taking for granted of norms in an institutional setting, nor through interest groups and power relations that shape the knowledge base of science. Moreover, the current resource regime is successful because it works in practice, as its actor-network was able to establish a stable and reliable alternative to the former regime.

To analyse these translation chains, Holm draws on ANT’s principle of extended symmetry, which takes both human and non-human actors (fish, vessels, computers, storms and so on) into account and abolishes any division and hierarchy between the social and the natural, respectively. Accordingly, this principle is able to trace back the translation process that has led to the purification and naturalisation of scientific claims about fish, fish stocks and fishers, which in turn has ruled out the old network with a new stable and reliable network of nature–culture hybrids. Thus, Holm (2001: 180) concludes that the construction and stabilization of resource management is a revolution. It transforms people – the fishermen, the fishing communities, the economic and organizational structure of the sector, the scientific community, the state and the global political and economic order. But not only that. In addition, it transforms the fish, the ecosystem, nature itself. When fisheries resource management appears as a stabilized network, nature and society have been transformed and redefined: A revolution has occurred.

According, to Holm and Nolde Nielsen (2007) and Holm (2007), the construction of Individual Transferable Quotas (ITQs) lies at the heart of this revolution. The most influential device in the resource management revolution is Virtual Population Analysis (VPA), which allows scientists to estimate the current state of fish stocks based on standardised samples in the oceans. In VPA, the condition of a fish stock for a specific cohort is predicted by the impact of the estimated ‘natural mortality’ (based on different factors that are very hard to predict with any accuracy) and ‘fishery mortality’ (based on landings). Even though VPA is far from operating under the conditions of an exact science, its policy impact was tremendous and key to the resource management revolution:
With the stock assessment macroscope in place, the fisheries Leviathan could become powerful because he now could see and measure the object to be managed: the fish stock. (Holm & Nolde Nielsen, 2007: 179-80)

Even though a proposal for a fully-fledged ITQ-system was strongly opposed by fisher’ organisations due to fears of quota concentration, centralisation and the possibility of a European takeover in 1991, fishing rights could be transferred on approval by the authorities. Ironically, the fishers themselves started showing an interest in trading quotas, which led to the development of an informal quota market. The introduction of the quota system led to a series of smaller reforms, which consolidated the system and reconstituted the fishers as economic and political agents with an interest in protecting and expanding their quota shares. Hence, also the fishers’ organisation had to represent the interests of a group of privileged fish owners (Holm & Nolde Nielsen, 2007: 184-87). Thus, the construction of the Norwegian quota market is an attempt to cool down the ‘hot’ controversies about over-fishing and stock preservation that have emerged around the fish in question.

Consequently, the cyborg fish has emerged as a powerful actor that ‘goes hunting for the best owners’ (Holm, 2007: 237-8). But has the cyborgisation of the fisheries moved modern resource management beyond the limits of governability?

2.4.3 The harvest machinery

In contrast to proponents of the co-management school and interactive governance theory, which claim that modern resource management ignores the social and ecological dynamics of fishery systems (cf. 4.3; 4.4), Johnsen (2013: 2) argues that ‘governability is not limited by system properties but rather it is achieved through the objects and instruments that are deployed to make it possible’. Thus, ironically it is exactly its reductionism that has turned modern resource management into a successful governance regime. Inspired by Michel Foucault’s (2008, 2009) lectures on the genealogy of the art of governance, Johnsen outlines how the new resource management regime has developed from the modernist hierarchical system of direct control into a new form of governance based on indirect control and self-discipline, namely neoliberal ‘governmentality’ (also see Lemke, 2001). The notion of governmentality was coined by Foucault to indicate that the ‘new art’ of governance is based on discursively mediated and mentally self-imposed techniques of the self, which are indirectly stimulated by economic incentives based on monetarist reasoning and deregulation policies. In combination with an ANT perspective, which emphasises the artefacts and devices of this new art of fisheries governance, the research conducted on this theme clarifies how the reorganisation of fisheries governance has changed and how it affects the practices of harvesting.
Johnsen, Murray, and Neis (2009) describe, on the basis of biographical interviews with fishers from northern Norway and Canada’s east coast, how contemporary advances in modern resource management regimes have developed from organic fisheries associations, which are tightly embedded in the knowledge system of the coastal communities and characterised by informal ad hoc coordination and community ties, through hierarchical mechanistic fisheries associations, which can be characterised in terms of a high degree of differentiation, formalisation and professionalisation, to cybernetic organisations (Johnsen, Murray, & Neis, 2009:72). In contrast to the former ideal types, cybernetic fisheries organisations are described as ‘techno-scientific systems’, in which human and non-human relations are more tightly knit than in the previous regimes:

Cybernetic fishery associations interact with the fish and the biophysical environment through relationships organized by more formal ownership versus usufruct property relations, science, rhetoric, control and monitoring, and mechanisms for risk assessment, modelling and handling. They are full of symbolic and material mechanisms like rules, prescriptions, procedures, advanced information and calculation systems and computers that shape, control, govern and structure action and relations. (Johnsen, Murray, & Neis, 2009: 70)

As a consequence, this techno-scientific apparatus opens the way for new forms of coordination by new means of communication and feedback-based performance measures. In their most radical form, cybernetic fisheries organisations are based on the privatised distribution of fishing rights (ITQs), which tie fishing operations directly to the worlds of finance and change the relation between fish and fisher fundamentally:

Creating a formal, contractual property relation between harvesters and fish and then making property transferable integrates the fish and the fisher more tightly into larger corporate and financial networks. Fish become an ‘asset’ of the enterprise to be bought, sold and speculated on in new ways. (ibid.: )

As a consequence, active members of the fishing industry must accept a certain set of rules and regulations to maintain their business under the auspices of formalised and quantifiable performance measures such as legal rules, technology and quality standards, medical tests, security checks and accounts of financial institutions (Johnsen, 2013: 11-3; Johnsen, Murray, & Neis, 2009-3).

Unlike mechanistic fisheries associations, however, power is only partly vertical in cybernetic organisations as it is implicitly delegated ‘in the work procedures on board and built into contractual property relations’ (Johnsen, Murray, & Neis, 2009: 70) by means of professionalisation and formalised roles. Thus, fishers become ‘co-producers’ of the blurred boundaries of the
governing system and the system to be governed, respectively (Johnsen, 2013: 14). The remaining question, however, is to what extent can fisheries governmentality be seen as a success with regard to policy goals and values such as sustainability?

Johnsen (2004) has pointed out in a study of Norwegian gill net fisheries how financial incentives paired with technological innovations and increasing investments have replaced the typical small-scale, labour intensive and weather dependent fishing vessels with highly efficient ‘capture machines’ that have ‘reduced the physical workload and standardised and increased the speed of operations’ (ibid.: 487). As a result, today’s resource management regime ‘can be characterised as integrated harvest machinery within which fishers are not placed outside the machinery as users and masters, but must instead be seen as integrated parts of the machinery’ (ibid.: 488; emphases in original). Thus, fishers have become increasingly dependent on technology that ‘conveys values, goals and interests’ (ibid.: 488). As a consequence, a vicious circle is initiated as ‘more intensive resource exploitation becomes necessary to meet the increased cost’ (ibid.: 491). Thus, the governmentatisation of the Norwegian fisheries has, paired with financial incentives for investments in new fishing vessels equipped with state of the art technology, constructed a harvest machinery in which the fisher is obliged to follow the rules of the game to stay afloat or quit the industry. In this light, the failed policy of capture capacity reduction is the outcome of a bigger discourse on governance and technologies, rather than being an individualised ‘tragedy of soft choices’ (Standal & Aarset, 2002) on the part of rationally acting fishers.

It could be shown that social scientific fisheries research has covered a broad range of topics and has made important contributions to understanding current resource management regimes. But to what extent has this research contributed to general sociological theory? To what extent can the study of modern resource management regimes sharpen our understanding of contemporary economic processes in both fisheries and other societal domains?

2.5 Critical appraisal: the sociology of fishing as contribution to general sociology

Although the sociology of fishing varies in scope and emphasises different questions and topics, it is easy to detect the lowest common denominator, which mainly revolves around a critique of the ‘tragedy of the commons’ narrative that serves as the basic paradigm of modern resource economics. Accordingly, the models developed by resource economists neglect the social dimension of economic action and the endogenous nature of preferences that are shaped by social norms and cultural values, respectively. According-
ly, the methodological individualism deployed by economic models reduces social reality to the rational and efficient world of ego-centred and ahistorical homo oeconomicus, who can be governed by incentives, while down-playing the conflict potential of modern society. The review has shown that the image of the fisher as economic man can be challenged from different theoretical perspectives, which can be summarised under the labels (i) network embeddedness; (ii) institutional embeddedness and (iii) discursive embeddedness. For this reason, a critical appraisal will be made to underscore the theoretical contributions and clarify the explanatory value and conceptual blind spots of the accounts presented with regard to modern market-based fisheries and beyond.

2.5.1 Network embeddedness

In particular, Barnes’s (1954) work pioneered the idea of network embeddedness that decades later became the hallmark of New Economic Sociology. Hence, network approaches have proven to be fruitful analytical tools for describing social relations and informal flows of information in fishing communities (cf. 4.2). Accordingly, fishers are not the rugged and self-sustaining outlaws often pictured in folk mythology, nor are they the utility maximising atoms presupposed by contemporary resource economics. Moreover, they are highly dependent on establishing stable networks that allow them to buffer uncertainties that stem from highly unpredictable natural environments and volatile market structures. In this constant struggle against multiple uncertainties, identities play an important role as social markers around which organisation takes place and conflicts arise and conflicts are solved (for example, Miller and Van Maanen 1979; 1982; Acheson 1988). Despite the deep insights one can gain from ethnographic work about the social and cultural logics in fishing communities, the description of economic institutions in the work presented remains rather vague and does not give any insights about how social coordination works under modern resource management regimes. For instance, Acheson’s work focuses mainly on a fishery in which skippers are not directly involved in market transactions, but engage in long-term contracts with producers in rural networks of production.

2.5.2 Institutional embeddedness

Following the revitalisation of the notion of ‘institutional embeddedness’ by Karl Polanyi (1957) around the works of Hollingsworth and Boyer (1997), the accounts presented in 4.4 and 4.5 are interested in explaining the modernisation and emergence of contemporary resource management regimes and their impact on coastal communities, respectively. The Norwegian case in particular has attracted the attention of many scholars who have tried to
explain the paradox of how the current property rights–based management regime could get established even though the most influential interest groups and policy-makers were strictly opposed to it. Here, explanations revolve around theoretical notions such as ‘path dependency’ (Hersoug 2005), ‘nested systems’ (Holm 1995) and ‘tragedy of soft choices’ (Standal and Aarset 2002) and give deep insights into the historical peculiarities of the Norwegian fisheries. This, however, happens at the cost of more general theoretical considerations about the broader role of property rights–based resource management regimes and their anchors in the social contexts in which they are constructed. Besides the fact that coastal communities have been ‘disembedded’, implying an institutional shift from the community level towards institutions resulting from interaction in markets and the state, it remains unclear how coordination between these three pillars is actually taking place. This has surely something to do with the fact that the term ‘market’ as used by the authors simply presupposes the neoclassical market model, which consequently is opposed to notions such as ‘state’ and ‘organisation’ and is falsely equated with the ideology of ‘capitalism’. Moreover, these conceptual problems point at a more general problem with social scientific accounts of economic phenomena. Thus, the conceptual problems aligned with the embeddedness approach, be it network embeddedness or institutional embeddedness, reflect some general problems with one of the most prominent concepts in economic sociology. As Aspers (2011: 76-7) remarks, it seems as if economic sociological accounts have a tendency of simply adding ‘flesh and blood’ to economic man, rather than coming up with a theoretically sound alternative to this taken-for-granted dichotomy. In this light, it is no wonder that alternative approaches to fisheries management such as the co-management school (for example, Jentoft 1989; Hersoug 1997), which has highlighted democratic decision-making as key to legitimate fisheries management, have not yet developed a promising alternative to the reductionist rationale of contemporary resource economics. A promising way out of this dilemma is shown by accounts standing in the tradition of French post-structuralism, which reject essentialist notions of the subject and the actor respectively. These will be discussed in the next section.

2.5.3 Discursive embeddedness

The works around Pálsson (1991) presented in Section 4.5 put emphasis on the discursive embeddedness of regimes of production. Hence, societal discourse is not detached from societal production, but is grounded in the practices of production itself. Moreover, Helgason and Pálsson (1997) have pointed out the conflictual potential of property rights–based regimes of production and the controversies around them. These works have painted a rich empirical picture of the culture and conflicts aligned with different regimes of production and have stimulated a fruitful discussion about folk
models of success in them. The description of the architecture of these regimes and forms of coordination, however, remains rather vague.

In recent years, especially the works around Michel Callon (1998c) and Donald MacKenzie (2009b) have sparked a fruitful discussion on the role of science, technological devices and artefacts in the construction of markets and calculative agents, respectively. These approaches do not simply assume that economic agents as presented by neoclassical and resource economists are mere fictions and abstractions, as in classical sociological critique, but that they are real in the sense of discursively mediated cognitive maps according to which social practices are materialised. In particular, Holm and Nolde Nielsen (2007), and Holm (2007) have made an important contribution to the performativity discussion by showing the limits of a strong reading of the performativity theorem. Instead of simply assuming that *Economists make markets!* (Callon 1998a), it is shown that a broader conceptualisation of market performativity has to be taken into account which includes the socio-historical setting and other human/non-human agents to fully understand the evolution of the new resource management regime, in which more than one constructor is involved.

In this light, Johnsen, Murray, and Neis (2009) have shown how the evolution of the new resource management regime has changed the fisheries of the North Atlantic from organic associations over hierarchical associations to cybernetic organisations, in which power is delegated by formalised performance measures to the fishers. This development is amplified by policies promoting property rights–based management approaches that create economic incentives for excessive investments in new fishing vessels, capture technologies and information systems. Thus, the fisher has become part of an ‘integrated harvest machinery’ (Johnsen, 2004), which runs the risk of going against the conservation plans it was originally designed for.

This ‘cyborgisation’ of the fisheries in complex actor-networks between humans (fishers, fish workers, politicians, households, families) and non-humans (fish, computers, statistics, mathematical models) can be interpreted in terms of what Foucault described as ‘neo-liberal governmentality’, that is, as a new art of governance in which power is delegated not by direct command and control, but rather by discursively mediated control and performance measures. Thus, Johnsen’s observation fits in with the ongoing ‘explosion’ of governmentality studies, that stand in the context of the rediscovery of Michel Foucault’s (2008, 2009) inaugural lectures at the Collège de France and echo the trend of Western capitalist societies towards ‘marketisation’ and quantitative performance measures in fields such as governance, the economy, health care and work relations (e.g. Bröckling, 2007; Burchell, Gordon, & Miller, 1991; Dean, 1999; Lemke, 2001; Power, 1997). Hence, the construction of quota markets in a way resembles the construction of emissions markets in that they are ‘politically attractive, making possible coalitions of ‘left wing’ environmentalism and ‘right wing’ pro-market sen-
timent’ (MacKenzie, 2009a: 176) by ‘depoliticising’ responsibilities for conservation policies to the level of economic performance. Market participants, however, ‘have to be “taught” to behave as economically rational agents’ (MacKenzie, 2009a: 174) by implementing rules, regulations and surveillance technologies. Despite its institutional successes, the case of property rights–based management regimes has shown, however, that markets for fishing rights seem to be more susceptible to overflowing into public controversies due to the high symbolic value of fishing in historical fishing nations such as Iceland and Norway.

Acknowledging the shifting focus to a fresh perspective that takes into account the role of materiality and science in the construction of markets, however, these accounts altogether remain rather vague regarding how the outcomes of these framing processes are structured and materialised in practice: how have markets changed daily coping and practice in market-based fisheries? Furthermore, these accounts remain blind to problems of coordination in what Polanyi (1957) has referred to as the ‘empirical economy’: to what extent have markets changed social coordination in rural networks of production? What problems arise? What role does technology play in this? And what are the consequences for the culture of coastal fisheries?

This methodological limitation must be seen as a consequence of the underlying so-called ‘anti-essentialist’ methodology, (Latour, 2005; Law & Hassard, 1999), which does not strive for explanations of existing structures such as groups, but rather to describe group formations; the production of science and not the explanation of scientific facts (Latour, 1999), but the ‘performative’ construction of markets through economic agents and market devices, rather than providing phenomenological descriptions and explanations of social structures such as markets (Laux, 2009: 373) in the sense of a ‘structural’ network sociology developed around Harrison C. White (White, 1992, 2002, 2008).

I will argue nevertheless that all accounts presented in this chapter complement each other and contribute to an encompassing understanding of modern fisheries by addressing networks, institutions and discourses. For this reason, the next chapters will develop a relational ethnographic perspective that not only takes into account the institutional frameworks and societal discourse, but also problems of coordination and coping practices that constitute the dynamics of contemporary liberal rural capitalism. We will see that Bjartur’s metamorphosis has to be understood in the broader context of economisation and marketisation, which is first and foremost to be understood as a result of the changing expectations and practices that have come along with the privatisation of access rights.
Chapter 3. A relational ethnography of market-based fisheries

3.1 Why study contemporary capitalism in Iceland?

In 2010, Paul Krugman, Princeton economist and renowned columnist for the *New York Times*, proclaimed a ‘Post-crisis Miracle’ (2010) taking place on a small island state in the middle of the North Atlantic, which had been severely hit as one of the first national economies to go down as the result of excessive financial speculation and public debt, which let the banking sector grow about 10 times bigger than national GDP, the Republic of Iceland. Krugman argued that the island state, which had turned into ‘one of the great economic disaster stories of all time’, seemed to have caused a situation in which ‘orthodoxy was out of the question’ as the government ‘devalued its currency massively and imposed capital controls’. Since the financial meltdown of the economy the government devalued the Icelandic króna to about 50 per cent of its previous value, from which the export-based fishing industry and the booming tourism industry benefited in particular. This, the conclusion was, has led Iceland into a situation in which, despite its dire situation, it has suffered much less than other national economies in similar situations.

One might wonder why an influential American public intellectual should even bother about a tiny little economy with a population of roughly 320,000, but it appears to be that the interest of international academics and commentators started to grow for its role as ‘canary in the coal mine’ (Jónsson, 2009: 211) and economics lab for the global economy. Although the suffocation of the island state did not prevent the global mine from serious financial turmoil, Krugman’s column raised the question of the extent to which economists and policymakers could learn a lesson from the developments in the North Atlantic. Hence, Krugman’s comment, which indicates a development from ‘economic miracle’ over ‘economic disaster’ back to
‘miracle recovery’, stimulated a controversial discussion among economists. Has Iceland really found a way to exorcise the ‘business Vikings’ that were unleashed during the útrás (outbreak) under Prime Minister Davíð Oddsson (1991–2004) in a decade of deregulation of the Icelandic economy? Was the post-crisis government’s unorthodox monetary policy really the key to recovery? And is the ‘moral of the story’ to ‘have a really really bad’ crisis’ instead of ‘taking the advice of people who assure you that even more suffering will cure what ails you’ (Krugman, 2010)? Or were these just ‘liberal’ pipe dreams neglecting the fact that Iceland ‘has half the people and one-seventh the real output of the District of Columbia, and fish and fish products account for nearly half of its exports’, leading Ryan Avent (2012) of The Economist to the conclusion that it would be better to ‘retire’ ‘Iceland from the macro discussion altogether’? Put differently, did Iceland benefit from being too small to not fail? as Ásgeir Jónsson (2009), former head of research and chief economist of the bankrupted and nationalised Kaupþing bank put it?

Leaving the macroeconomic discussion to the economists, I nevertheless argue that precisely due to its small size and history of market-based reforms and financial deregulation Iceland makes an exceptional case for a deeper understanding of contemporary capitalism, in particular its impact on rural regions and natural resource-based economies, as the following sections will make clear.

3.1.1 The strength of the small case

Although Iceland is a fully modernised society attached to global media and Western popular culture, it has maintained itself as a more or less closed entity in the middle of the North Atlantic with its own language, history and folk mythology since the settlement by Norwegian refugees in the ninth century, today carried on by a population of roughly 320,000 (Statistics Iceland, 2013b). For this reason, Pálsson and Durrenberger (1996: 1) have remarked that ‘If ever there was a bounded, self-contained society, it might be Iceland’ (ibid.).

This does not mean that the islanders share exactly the same norms, values and opinions. Rather the opposite is the case, in particular with regard to controversies around natural resources and contemporary resource management (Helgason & Pálsson, 1997). Especially the implementation of property rights in the fisheries in the 1980s and 1990s spearheaded the deregulation of the Icelandic economy long before the so-called ‘business Vikings’ became the leaders of the aggressive expansion of the Icelandic banking sector (Benediktsson & Karlsdóttir, 2011; Einarsson, 2011b). And in contrast to other export-oriented countries, such as Germany, Iceland has no industrial sector and is largely dependent on the export of its resources, in particular fish and aluminium. Thus, studying Iceland is not only an extreme case for a
general understanding of contemporary capitalism, but also for the understanding of market dynamics and property rights in natural resource-based economies.

All in all, studying this micro-version of a modern nation-state provides a comparatively straightforward case for studying the elusive arrangements of contemporary capitalism with all its ruptures, contradictions and conflicts, which oscillate between the economy’s booms and busts. And as the financial meltdown of the Icelandic economy and its aftermath has shown, social change manifests itself rapidly in this rather small and relatively homogeneous society. Thus, studying contemporary capitalism in Iceland with its peculiar mix of strong community ties and radical market-based policies gives us the chance to observe and unravel the local dynamics and consequences of contemporary capitalism more sharply than macro-oriented studies of large industrial nations (Hall & Soskice, 2001; Hollingsworth & Boyer, 1997). But why then study traditional small industries such as the coastal fisheries?

3.1.2 Why study coastal fisheries?
The impact of this new regime of liberal rural capitalism can be especially observed along the rural peripheries, which have been suffering substantially from market-based policies (see below). What is often ignored in the study of contemporary capitalism is the role of traditional small industries, which often play an economically important role as last resort at the peripheries of the global economy. Hence, small industries such as the coastal fisheries play an important role in developing countries as a ‘safety valve’ in times of dire economic situations (Béné, Hersoug, & Allison, 2010). Likewise, coastal fisheries have remained economically important in many rural coastal regions of the developed world, where they can often look back on long-standing traditions and culture and symbol of rural resilience (see Chapter 4). Put differently, coastal fisheries are simply ‘too big to ignore’ (Chuenpagdee, 2011; Jentoft & Chuenpagdee, 2015) for both policymakers and social scientists. Thus, small-scale industries such as the Icelandic coastal fisheries provide the soil for outstanding case studies, as they mirror the dynamics and cultural conflicts between the rural peripheries and the cosmopolitan centres of contemporary capitalism.

3.1.3 Built on fish: the Icelandic Westfjords
Because the Icelandic coastal fisheries represent a complex case in themselves, I strategically limited the scope of fieldwork to a region in which they abound and the consequences of economisation and marketisation are displayed as sharply as possible: the rural Westfjords.
Off the beaten track of the ring road, which connects the villages and towns around the island, the landscape, with its numerous fjords and rugged coastline, sticks out from the mainland like a giant claw (see image 1), with its fingers stretching into the Arctic Ocean, while pointing towards the east coast of Greenland, at roughly 280 kilometres’ distance.

Image 1. The Westfjords. (Google Earth 2013)

Hence, lying in the outer northwest of the island state in the middle of the North Atlantic, the impression shared by most urban dwellers when arriving in the Westfjords is probably best described as ‘remote’. This feeling is usually amplified during the winter months when Atlantic storms and heavy snow falls occasionally shut down both car and air traffic and increase the danger of avalanches\(^\text{13}\) from the numerous mountains along the coastline, behind which the sun disappears for months over the winter.

The harshness of the environment has also shaped the local economies, which almost exclusively depend on fisheries: being geologically the oldest and northernmost parts of the country just below the Arctic Circle, the Westfjords are a comparatively ‘cold’ region due to the delayed and even shorter summers, in which the midnight sun often hides behind the clouds hanging

\(^{13}\) In 1995, the fishing village Suðavík was hit by a large avalanche that left fourteen people dead and destroyed several buildings in the centre. One year later, an avalanche fell on the fishing village Flateyri to the southwest of Suðavík, leaving twenty people dead and numerous houses destroyed. Ever since, the government has put much effort in installing avalanche protection that is supposed to provide a shield in potential danger zones.
over the mountains and the lack of hot springs, making agriculture even less an option than in the rest of the country.

With the implementation of the quota system in the 1980s, however, the region suffered significantly as the bulk of fishing rights were moved to larger companies in the capital region due to better infrastructure, leading to an overall decline in population for the region: since 1998, the population in the whole Westfjords region has decreased steadily, from 8,656 in 1998 to 6,955 in 2012 (Statistics Iceland, 2013e). Although these figures indicate a general economic decline for the Westfjords region, a positive trend can now be observed for the first time in 15 years, leading to a population of 7,031 in 2013 due to positive developments in some fishing communities.

Despite its general economic decline and struggle, the Westfjords region traditionally holds the largest amount of fishing vessels around the country (see image 2). The fleet, however, consists of mostly small undecked (58 per cent) and small and medium-sized decked vessels of 0–10 GT (19 per cent) and 11–25 GT (12 per cent) (see image 3) that maintain the historical reputation of the region with its shelter-providing fjords as the hub of the coastal fisheries in Iceland (see Appendix).

![Image 2. Fishing vessels by regions, 1999–2014.](image)

The graph clearly shows the Westfjords region holding the largest number of vessels (total 400 in 2014) of all regions in Iceland (including decked and undecked vessels and trawlers) (Statistics Iceland, 2015d). While vessel numbers in the Westfjords generally decreased with the consolidation of the quota system in the small boat system in the early 2000s, vessel numbers started rising again with the implementation of the summer coastal fisheries in 2009.
Image 3. Fleet structure, Westfjords 2014. The fishing fleet consists of 234 undecked vessels (58%), a total of 160 decked vessels (40%), that is 19% 0-10 GT, 12% 11-25 GT, 6% 26-100 GT, 101-500 GT 3% and only six trawlers (2%) (Statistics Iceland, 2015e).

Image 4. Trawlers by regions, 1999–2014. Although most fishing vessels are situated in the Westfjords, most of the trawler fleet is situated in the Capital region and the Northeast with Reykjavík and Akureyri as the most populated centres of the country (Statistics Iceland, 2015d).
After the general decline of the trawler industry in the 1990s (see image 4), small boats started to provide the main source of labour and income in many rural economies relying on nothing but fisheries, such as the Westfjords. Thus, the socio-economic environment of the Westfjords and its dependency on fisheries and small boats makes the region the most obvious case for studying processes of economisation and marketisation of coastal fisheries.

The fieldwork conducted for this study was conducted mainly around the municipalities of Bolungarvík and Ísafjörður, where the main fishing activities in the region take place. The municipality of Ísafjörður is the administrative centre and the most populated place in the Westfjords, with a total of 3,748 inhabitants (Statistics Iceland, 2013d), including the fishing villages Flateyri, Þingeyri, Hnífsdalur and Suðureyri. Despite its size of only 2,624 (Statistics Iceland, 2013c), the town has a fairly urban infrastructure and atmosphere, including a town centre with shops, bakeries, a hotel and cafés, a town hall, guest houses, a library, a hospital, a pharmacy, a swimming bath, a fish monger, two supermarkets, several restaurants, a museum, a small airport and is the only place offering higher education in the region.

Although temporary road closures still occur due to the rough climate in the region, traffic improved tremendously with the opening of the Westfjordstunnel (Vestfjarðagöngi) in 1995, which connects the municipal villages Flateyri, Þingeyri, Suðureyri and the southern region (Patreksfjörður, Tálknafjörður, Bildudalur) that initially could only be reached seaways or by crossing a dangerous mountain pass with the administrative centre. Furthermore, in 2010 the 5,435 metre long Bolungarvík tunnel (Bolungarvíkurgöng) was opened, replacing the infamously dangerous Óshliò pass along the coastline, which was formerly the only land connection to the northernmost town of Bolungarvík.

It is now easy to see why the Westfjords region provides an extreme case for studying the consequences of liberal rural capitalism: first, its secludedness; second its strong dependence on fisheries; third, its general economic downturn with the quota system; and fourth, the importance of coastal fisheries for the Icelandic post-crisis economy. But how shall we study capitalist dynamics in contemporary rural networks of production, such as the Westfjords? The following section will give an insight into the methodology, field strategies and analysis of this study.

3.2 A relational ethnography of markets

Standing in the light of a ‘relational turn’ in the social sciences (Emirbayer, 1997; Fuhse & Mützel, 2010), which rejects substantialist explanations and ontological claims about agency in favour of putting the emphasis on the evolution and dynamics of associations and social formations, the methodological framework of this study can therefore be seen in light of what Des-
mond (2014) has summarised under the label ‘relational ethnography’. Accordingly, relational ethnographies give ‘ontological primacy, not to groups or places, but to configurations of relations’ (ibid.: 554). The aim of a relational ethnography is therefore not to engage in a comparative framework for comparing the social conditions of different ‘winner’ and ‘loser’ communities. Nor is it to unveil some sort of latent objective forces that drive the marketisation process. Rather, the aim of this study is to unravel the relations and practices across different economic domains that co-constitute the transformation of the rural network of production.

Instead of understanding modern fisheries merely as a single producer market network (White, 1981, 2002), however, emphasis shall be put on the relation between multiple autonomous market and non-market environments, such as the harvest economy, politics and science and technology. Thus, if we define markets in the narrower sense as a ‘social structure for the exchange of rights in which offers are evaluated and priced, and compete with one another’ (Aspers, 2011: 4), it becomes clear that, for example, fishing constitutes an autonomous economic domain different from market exchange.14 In this sense, the harvesting sector cannot be reduced to a mere ‘upstream’-based relation that is integrated into the producer market (White, 1981, 2002), but rather forms an autonomous socio-cultural domain, an ‘epistemic culture’ (Knorr Cetina, 1999) with its own set of implicit and explicit knowledge and socio-material practices (see Chapter 5). Hence, a relational ethnography of markets is not limited to only studying the internal constitution or boundary formation of solitary market structures, but also directed towards the interfaces in which these different economic domains connect and co-constitute each other.

For heuristic reasons, the storyline will nevertheless be structured around the fisher as central node in the rural network of production. This choice can be further justified as follows: the fisher stands at the beginning and the end of the fishery economy. Without people putting to sea and catching fish, there are no fish to be sold at auction, no quota markets to be constructed, no resource economists tinkering with algorithms, no marine biologists measuring fish, no fisheries ministries and no international agreements on fishing grounds. In this sense, the changing practices of the fisher literally embody the changing relations of the production network, and with it the transformation of a culture. This, however, does not mean that the fisher can be seen as isolated actor or primary source of agency. Rather, the modern coastal fisher, like any other role, is conceptualised as the result of a complex relational arrangement of banks, resource economics, science, technology, markets, governmental decision-making and ever-changing eco-systems.

14 The narrow definition of markets as proposed by Aspers (2011: 42-44) also implies that there are other forms of economic exchange, such as reciprocity, gifts, barter and trade, which follow a different logic from market exchange.
3.2.1 Field strategies for the study of rural economies

*Participant observation* was the most common method of data collection for getting acquainted with the broader context of the field. Spending time in the field and participating in some of the daily activities was not only a good method for identifying key nodes, actors and domains, but also for making sense of the web of daily routinised practical coping and meaning structures that are central to the field and lie beyond the reflexive capabilities of the interviewee and the artificial frame of the interview situation.

Key to systematic observations and analysis was the collection of field notes, which were compiled in a field book. Observations were based on basic reference points: (1) the *practices* (what do people do?) and (2) the *situation* of the interviewing episode (for example, who is participating? Where do people meet? What happens when? Who interacts with whom? What artefacts frame the episode?).

The best strategy of observation was simply ‘hanging out’ in the field. The most important location where ‘it happens’ was of course the harbour area, in which the main business around the vessels takes place. By spending time at the harbour, I learned about the ‘rhythm’ of the production network, which varies and changes depending on location, day, time and season. For instance, also in crowded harbours activity can vary a lot during a single day. Usually, nothing much happens around noon, but it may turn into a crowded and noisy environment of roaring vessel engines, cars, trucks, forklifts, fish boxes and people running hectically all over the place when the first vessels arrive in the afternoon.

Although engaging in harbour life proved to be a first step into the world of fishing, any ethnography of a fisheries economy would remain incomplete if one excluded the central practice of fishing from their observations. Engaging in participant observation on a fishing vessel is without question the only way to gain first-hand insights into the dynamics, practices and problems that lie at the heart of the harvest economy. To be invited on a fishing trip, however, I first needed to establish trust with skippers. While some remained suspicious about the ‘foreigner’ in the community, others learned to accept me after I had showed constant interest in their daily lives and eventually invited me on their fishing boats on the principle that ‘If you really want to learn something about fishing in Iceland, you have to go to sea with us!’

Although harbours and fishing vessels are certainly the main junctions of social coordination in coastal communities, other locations in fishing communities were well worth spending time at. Especially for gaining access to the wider community, it turned out to be very fruitful to start by visiting typical social institutions where people meet on a daily basis, for instance the typical Icelandic ‘hot tubs’, common outdoor swimming pools that can be found in many rural areas and villages around the country. These places are
very social and used for exchanging local gossip and politics among the members of the community. I was usually immediately identified as the ‘outsider’, and locals were usually keen on knowing the reason I was visiting the region. And especially days with bad weather were a sure bet for meeting a fisher who is forced to stay ashore due to rough seas.

Due the hospitality of the people living in the coastal communities, I could also engage in leisure activities with locals such as watching English Premier League football – the true Icelandic league, which has a lot of supporters among the fishers, who even print club emblems on their fishing vessels – or simply being invited for coffee, lunch, dinner, parties or attending community festivals such as the Seaman’s Holiday (Sjómannadagurinn), which takes place annually on the first Sunday of June.

While in the field, I conducted a large number of informal interviews, in which questions usually emerged from the context. While it was usually difficult to get hold of informants via phone or e-mail, direct ‘on the spot’ face-to-face interaction at the harbour was usually the best way of creating contacts and gaining access to local economies. This strategy allowed me to engage in observations of local fish auctions, processing plants, weighing stations, harbour administrations and baiting facilities as important nodes of the Icelandic coastal fisheries. For instance, I would typically start a conversation at the docks by asking simple questions such as: ‘How was the catch?’, ‘Do you have your own quota on this boat?’ or ‘Are you selling your catch to the market or to a processor?’ When engaged in small talk, fishers may start unfolding the complexity of the coastal economy by automatically referring to the weather, market prices, other vessels fishing nearby them, or technical problems with their vessels. For instance, one fisher told me that it has been ‘very strange fishing’ lately and that he needed to go out very far due to closed down fishing zones near the shore. Although he told me that it did not take very long to fill up the boxes with his jigging machines as the fish were ‘very large out there’, it created an economic problem for the fisher as the market prices for large cod were down due to the re-orientation of the processing industry (see Chapter 7). This example shows that it does not require very long in-depth interviews to unfold many of the critical contingencies with which the modern fisher is confronted on a daily basis, including conservation measures, political decisions, fishing techniques, fish auctions, export markets, the global economy and of course the ever-changing environment of the Arctic Ocean.

While interviewing informally, I also maintained the overall perspective of the ethnographer by taking field notes. To maintain the informal atmosphere, however, I preferred to take field notes after the conversation. And holding a recorder in front of a tired fisher who just returned after a long day at sea might not be the best way of gaining trust.

While being the perfect tool to gain access to spontaneous information and daily practices, however, it can be difficult to maintain a conversation
over a longer period of time, especially ‘at the docks’ when people are in the middle of their work. For this reason, a number of formal interviews were an important method of gaining more reflexive and thorough elaborations on certain issues that allow more detailed analyses based on records and transcripts. In formal interviews, informants elaborate in a much more prepared and reflexive way. The formal interviews in this study follow a semi-structured framework, which systematically allows issues of interest based on theories and previous knowledge of the field, while allowing flexibility and shifting between different topics during the interview. Hence, the conversations could follow a more ‘natural’ flow, which leaves room for spontaneous thoughts of both interviewer and interviewee, while at the same time creating a more informal atmosphere.

3.2.2 Dataset and analysis

The empirical material presented was collected during a total of 16 weeks of ethnographic fieldwork between April 2012 and July 2014. The dataset comprises 31 semi-structured in-depth interviews ranging from one to four hours and a comprehensive collection of field notes, including 62 informal ‘on the spot’ interviews with a broad range of stakeholders, including quota-owners, skippers, deckhands, representatives of fish auctions, harbour managers, processors, factory workers and other members of the communities. Furthermore, 55 observations from fishing boats, processing plants, harbour facilities and general community life were documented as field notes.15

Constant exchange with researchers dealing with fisheries-related issues from the University of Iceland in Reykjavík, the Stefansson Arctic Institute in Akureyri and the University Centre of the Westfjords in Ísafjörður not only facilitated gaining access to local debates and state-of-the-art research conducted on the Icelandic fisheries, but also to the fishing communities. Although Icelanders have retained a strong relationship to their cultural heritage and mother tongue, almost everybody except the older generations of 60 years of age and over were more or less fluent in English and were willing to cooperate once I had made their acquaintance in the typically hectic business environment. In very few cases, people felt insecure with their language skills and asked somebody if he or she could help with interpreting for them, which worked out well without any noticeable problems.

Furthermore, the data set consists of statistics, reports, legal texts and websites on fisheries-related issues that complement the ethnographic part of observation. With increasing digitalisation, the internet in particular has turned out to be an important reference for observation. News feeds of fisheries-related websites on ‘social networks’ such as Facebook have turned out

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15 Quotes from the transcripts will be marked M for manuscript, followed by its number in the data set, which is marked with a roman digit; field notes will be quoted as FN.
to be a valuable source of information on news and contemporary debates on the Icelandic fisheries. Especially the websites of the Directorate of Fisheries (Fiskistofa; fisheries.is), the Quota market (kvotamarkadur.is), the Icelandic Meteorological Office (Veðurstofa Íslands; vedur.is), the Icelandic Marine Administration (Siglingastofnum; sigling.is), the fish market RSF (Reiknistofa ísmarkaða; rsf.is) and marinetrack.com provided valuable information on weather data, sea conditions, vessel statistics, market developments and harvesting activities. Especially the latter privately run vessel-tracking website has proven to be a valuable means of observation not only for key actors in the fishing industry, but also for coordinating fieldwork with regard to current vessel positions (see Chapter 8).

I have outlined the general methodological framework, field strategies and dataset; in the following sections I open the black box of analysis, coding and presentation.

3.2.3 On the pragmatic relation between theory and empirical observations

A well-known attempt to describe the relationship between theory and empirical data in qualitative research was made by proponents of *Grounded Theory* (GT) (Glaser & Strauss, 1967). Accordingly, researchers are supposed to free themselves of all theoretical predispositions before they start analysing empirical data according to a specifically developed frame of analysis. In a way, GT implies a set of ‘scientific’ methods according to which the underlying truth hiding in the data itself can be revealed. The maxim of full theoretical impartiality, however, can be questioned with regard to the hermeneutical tradition. Rather, the ethnographer is ‘always already’ in a meaningfully disclosed world (1927: §§12-3) and predisposed by existing values, theories and concepts. Moreover, ethnographers can only see what they can see on the basis of their own socio-historical dispositions. Thus, ethnographers observing and analysing data 50 years ago had a completely different mind-set and it is plausible to assume that they would come to different conclusions based on the same material. In this sense, the technique of ‘bracketing’ pre-given scientific knowledge seems to indicate a peculiar and naïve realism, as if concepts and theories ‘lie’ in the material itself while neglecting their construction in a societal context. For these reasons, I followed a *hermeneutical* strategy of analysis, implying an interpretative circle between already known concepts and empirical observations (Gadamer, 1990). Hence, pre-given concepts and theories can help in framing research questions, interview guidelines and be operationalised for a first coding and analysis. The relationship between theory and empirical data, however, is not only ‘top-down’, but also ‘bottom-up’: during the research process, theories and concepts can be rejected, fine-tuned or complemented
based on empirical observations. Thus, the hermeneutic circle is turned until the point of interpretative saturation is reached and no additional theory or observations seem to contribute significantly to further understanding a phenomenon anymore.

Empirical observations, however, do not represent some sort of naturalistic ‘truth’ speaking out of a given subject or represent ‘folk knowledge’ that can be tested by means of scientific observations. Rather, the transcriptions represent the social itself as it unfolds in the discourse and practice of the research process. If, for instance, a quota owner mentions that she feels responsible for the jobs in the fishing community, or a fisher explains that the clouds over the mountains are indicators of the state of the sea, it is not important whether these statements are ‘true’ as representations of their real opinions or descriptions of the world. The important aspect of these utterances is that they are representations of discourses and practices of the Icelandic fisheries economy that are reproduced during the research process. It is then the task of the researcher to understand and interpret the meaning of these utterances and practices in the broader relational context of the fisheries economy.

Last but not least, the hermeneutical method not only implies a pragmatic relation between theory and empirical data, but also between different theoretical approaches that are incorporated into the relational framework. While this ‘eclectic’ form of theorising may be seen as a weakness by scholars focusing on theoretical stringency and exact interpretations of certain thinkers, I rather see it as a strength as it openly admits to the pragmatic reality that characterises the logic of discovery in the sciences (Knorr Cetina, 1981). For instance, when I was starting my research, I was interested in processes of economisation and marketisation in rural networks of production. During the fieldwork, however, I noticed that I could not ignore the role of technology – in particular, modern navigation technologies – in order to understand the relationship between markets and fisheries (see Chapter 8). Technology, however, has been neglected by conventional market theories, so I incorporated concepts such as ‘scopic media’ (Knorr Cetina, 2003) into my conceptual apparatus for explaining the changing relations and practices that characterise contemporary rural networks of production in the fisheries.

3.2.4 Coding and presentation

Field reports and transcripts were coded with the computer software Atlas.ti. Accordingly, three main types of codes have been used in the process of analysis: (a) descriptive codes, which identify subjects and structure the material according to a given subject such as ‘vessel category’, ‘fishing technique’, ‘quota market’ or ‘fish auction’; (b) theoretical codes, which are based on pre-given concepts, such as ‘coordination’, ‘observation’ or ‘uncertainty’; and (c) in-vivo codes, which signify ‘native’ theories about the
world, such as causal explanations of market developments or ‘folk knowledge’ of the environment.

Based on this framework, I found that four cycles of coding sufficed for reaching interpretative saturation. The first cycle of analysis followed an open coding process, in which the material was analysed and codes were created according to themes identified in transcripts and field notes. In a second cycle, the material was analysed by both using the codes from the first cycle and constructing new codes, if necessary. The same was repeated in a third cycle. In a fourth cycle, I reduced the number of codes by systematising and merging sub-codes into fewer encompassing theoretical meta-codes.

For the presentation of the empirical material I have selected typical quotations that are representative of the dominating discourses and practices in the field. While quotations from formal and informal interviews are mostly used for illustrating general discourses, ethnographic observations were mostly deployed for the description of common practices in the field. The selection of quotations was made by sorting out reoccurring codes and themes in the empirical material, which were compared and evaluated with regard to the rest of the material. In some instances, I have contextualised the presentation of empirical material with descriptive quantitative data to underscore its general validity. In some cases, descriptive data also stand alone to illustrate general tendencies, such as the historical development of the fishing fleet.

3.3 Ethical considerations

Although rural economies in Iceland are quite accessible to foreigners and people usually showed great hospitality and trust, the empirical framework of the study induces some ethical issues that deserve special attention: since the issue of the current fisheries management has been subject to heated political debates in Iceland since the implementation of the quota system in 1984, people sometimes expressed very strong opinions about the current resource management system. For this reason, the researcher must be very sensitive towards his informants as personal political standpoints might be expressed during the interview and violating the confidentiality of the informants may not only harm their reputation in their home communities, but also their position in the industry. The need for this is amplified because information is known to spread rapidly in and between small communities, in which opinions, practices and positions can easily be traced back to a particular person. Thus, the anonymity of all informants has to be guaranteed throughout the research process; all quotes in the text are anonymised and, if needed, decontextualised to guarantee the highest possible degree of confidentiality.
Chapter 4. Hooked on markets

I think these small boats are mainly about being independent; if that was not the main reason, then I think there will be no more boats

Skipper

4.1 A life in the harbour: small boats as symbol of rural independence

Traditionally, being a small-boat fisher in Iceland is not merely about profit-making or living an outlaw lifestyle apart from society. Rather, small boats embody a culture of living together with others in an independent community in which a fleet of vessels contributes to the local economy, as the following small-boat owner explains:

And this is what we’ve been fighting for [the small boats], because the small boats [we] say, it’s a life [in] the harbour – can you imagine how it is to have 12 boats? All boats go out in the morning and come in the same night, then it’s a lot to do in the harbour. But when you’re alone, then there’s nothing much happening – you know what I mean? (MII)

Hence, a thriving small-boat port is constantly in motion and provides reliable work for the community in contrast to harbours with one or two bigger vessels that return to port every few weeks; being independent implies a form of collective solidarity that provides work and stable income for the members of the community.

Although many coastal communities had their heyday with the trawler fisheries, they were also a source of instability and bankruptcies for many of them. In this sense, small boats have long been a safety net for many coastal communities, which provided relative flexibility and stability in times of economic recession. In this context, the same fisher remarks that ‘it’s also that you can live in place like this, you can’t rely always on the big companies’ (ibid.) – and he certainly knows what he is talking about, as the big trawler company that used to provide the economic backbone of the community decided to sell the company overnight just before 2008 recession, leav-
ing dozens of locals who previously worked on the trawler or in processing and services without a job from one day to another.

And even today, the fear of being dependent on a single quota owner is widespread in many coastal communities in which bigger companies dominate the local economy. As a skipper working for a bigger quota owner puts it:

I mean, the company can decide tomorrow: ‘Ah, we are done now, we are closing the company’ – then what? Then the town is, you know, kaput! It’s so dependent on [the quota owner] because people are not allowed to go and fish, … So I believe that it’s very, very important that the seamen have their own boats; I believe that is what we need for this small town. (MXX)

It becomes clear that being independent on a small boat is seen not only as a means of profit-making, but also as a form of resilience and rural independence. In a similar vein, another skipper highlights the labour-intensive and artisanal aspect of the coastal fisheries as part of a culture of rural economic development:

I believe that it’s a culture for our business to have a small boat like this! And it also makes much work for people, so we need a lot of people to work with and that’s good for Iceland, it’s much better for Iceland to have all the people in work than unemployment. (…) I believe that we don’t need this technique to do it, a lot of things we can do by hand, and I think that’s good! Everything, everyone has, must have something to do, that’s much better for Iceland overall! Of course, we can put things in the factories and have some robots to do things – that’s not good [hitting the table with his hand]. I believe you would prefer to work with your hands than sit at home doing [no]thing! (XIX)

From this perspective, small boats are not meant to be primarily directed towards economic efficiency and profit-making, as they are ‘all about independence because they own these boats free from these big companies!’ (MVII). Moreover, small boats are cultural signifiers representing ‘part of a lifestyle’ (MXX), a tradition that is passed on from generation to generation and that is not mainly oriented towards making a profit and driving economic growth, as a veteran recapitulates:

Making a profit has never been the main thing. The family tradition of having a boat, fishing for your own consumption and pleasure, being in direct contact with nature and being able to charge your own batteries for the winter has been more important. (MXIV)

Accordingly, small-boat fishing signifies more the intrinsic value of living a life in close communion with nature and maintaining the life of a communi-
ty, although cost awareness goes without saying and fishing is not supposed to produce economic losses.

Before the quota system, small-boat fishing was mainly a part-time occupation practiced over the summer months. In contrast, today small-boat fishing has become a full-time occupation for many professional fishers in the quota system equipped with modern, more seaworthy boats and with the potential for high profits. But even for fishers for whom the money-making aspect prevails, being on a small boat still has an intrinsic value: although many small-boat fishers had experience of working on one of the well-paying trawlers in their younger years, they often consider small-boat fishing as more compatible with their values and private life: ‘It is not the same, you are just one of a hundred workers there … It is much better for your family life, much better’, MVII). In this sense, small boats still signify a way of life and symbol of rural independence for many fishers around the island state.

Today, however, it seems that the traditional meaning of small boats as a symbol of rural independence is increasingly being challenged by a new set of cultural values emerging due to the marketisation of the fishing industry. Although many coastal fishers in the rural regions were against the quota system in fear that they could not compete with the capital-strong companies around Reykjavik, today many of them themselves belong to the exclusive class of quota-owners with a vested interest in maintaining the system. In other words, the rural coastal fisher has been turned literally overnight into a petty capitalist and entrepreneur, leading many people to believe that they have switched sides in favour of money-making. Many small-boat owners with fishing rights, however, think that these accusations are based on the ignorance of many people of the reality of life for small-boat owners when the quota system was implemented. As a member of a family-owned small-boat company recapitulates:

I was standing with a fire [torch] in front of the parliament [protesting against the quota system]. But now we bought quotas, took loans and so. People do not understand. It was a decision between life and death. We didn’t want to be slaves and move to Reykjavik. We are too old to get jobs there. (FN: 71)

It becomes clear that the market-based reform has left the family-run businesses with a tough decision: either sell off the allotted quota-share or maintain the family business to the detriment of their moral integrity. As the interviewee remarks, like many other quota-owners I met during my fieldwork, ‘[w]e didn’t ask for it [the quota]!’ and no matter how the family would have decided they would have probably been criticised by someone. Anyway, it is clear that the possibility of becoming a quota owner also indicated a new opportunity for the family to maintain their livelihoods. The decision to stay in the industry, however, did not mean that the family could simply rest on its new status as independent market actors with privileged
access to the nation’s symbol of wealth and prosperity. Rather, they were now confronted with a complex set of new rules and regulations, which changed the expectations of what it meant to be independent small-boat owners.

This chapter attempts to contextualise the cultural values of the coastal fisheries in the context of an increasingly marketised fisheries economy. We will see that by making the decision to go along with the quota system to maintain their status as independent fishers, small-boat owners have become disentangled from their local ties and reconfigured as free and independent market actors. With increasing investments in quota and the modernisation of their fleet, however, the small-boat owners have become successively re-entangled in a complex money-mediated web of multiple market structures, banks, global investments, scientific discourse and political decision-making. As a consequence of the practical coping with the ITQ system, they have been hooked on markets. The consequences of this are paradoxical: while the marketisation of the small-boat economy has disentangled the rural small-boat fishers from their local ties and has led to a revival of the small-boat fleet, the cultural value of small boats as symbol of rural independence is being challenged by the expectations of financial institutions and market developments.

The chapter is structured as follows. First, the contemporary literature on what is commonly referred to as economisation and marketisation is discussed. Thereafter, a brief historical sketch illustrates how the small-boat fisheries have become disentangled from their local ties and transformed into a new culture of ‘free’ market actors. Subsequently, the reader learns how this new class of independent small boat fishers has become successively re-entangled and hooked into a new network of money-mediated expectations.

4.2 Economisation as disentanglement and re-entanglement of economic expectations

Ever since the dawn of modernity, large-scale industrial capitalism has been the dominant institutional arrangement in many Western fisheries (Apostle, Barret, Holm, et al., 1998), which has transformed and ‘dismembered’ coastal communities from their community ties. Although some communities in the North Atlantic managed to re-embed their local economies, a shift towards market-based models of resource management marks the new regime of liberal fisheries management as a reaction to overfishing (see Chapter 2). But how can we conceptualise this development towards increasing market-orientation in fisheries management? And what does it imply for the culture of small-boat fisheries?
According to Beckert (2009), modern society can be characterised by a ‘primacy of the economy’, in which the economy as driving force of social change creates conflict – just as overcapitalisation of the fishing industry has created social conflict paving the way for overfishing and regulation. While holding on to the idea of functional differentiation of modern society into more or less autonomous sub-systems such as law, politics, education and religion, the conception of a primacy of the economy claims, in contrast to classical theories of society that either presuppose a normative centre (Parsons, 1951) or claim the poly-centric structure of modern society (Luhmann, 1997), that the economy is the driving force of modern society and attains analytical priority in attempts to explain societal change. The mechanism behind the dynamics are as simple as they are consequential: in line with Schimank (2008), Beckert (2009: 186-187) argues that the economy has the means to ‘infiltrate’ other societal sub-systems by means of money, which has a more universal character as symbolically generalised medium of communication provided by other functional sub-systems. The more these sub-systems rely on money as ‘fuel’ for maintaining their system operations, the more they need to find ways to acquire money – from the state, the public or in direct exchange with the private sector. Thus, despite the importance of all sub-systems in modern society, the economy gains dominance over all other sub-systems creating expectations directed towards the acquisition of money, which is by definition scarce. According to Schimank (2008), this creates a pressure towards increasing economisation (Ökonomisierungsdruck), which is characterised by changing expectations aligned with the goals of sub-systemic goal-orientations. These changing expectations can be analytically distinguished in five different stages (ibid.: 13, translation by author):

**Stage 1.** No consciousness of cost-orientation for system-specific performances. Actors with access to sufficient resources do not frame monetary liquidity as a problem.

**Stage 2.** Cost-awareness becomes a ‘should-be expectation’ that frames actors’ decision-making. Costs should be acknowledged and reduced in easy cases.

**Stage 3.** Cost-awareness becomes a ‘must-expectation’ and activities must not produce economic losses.

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16 The argument is nevertheless inspired by Luhmann (1970) himself, who early pointed to a potential primacy of the economy based on the dependence of other societal sub-systems on the medium of money.

17 For a more elaborate sketch of conceptualising modernity as a ‘functionally differentiated capitalist society’ see Schimank (2014).
Stage 4. Profit-making becomes a ‘should-be expectation’. Besides avoidance of losses, modest profit-making is welcome.

Stage 5. Profit-making becomes a ‘must-expectation’. Activities ought to produce as much profit as possible.

Actors in public institutions typically follow the expectation-structure of stage 1 or 2. Today, however, empirical evidence indicates that non-economic domains such as art, elderly care, higher education and death are being increasingly economised and increasingly underlying the expectation-structures of stages 3–5 (Schimank & Volkman, 2012). In contrast, economic enterprises oriented to the production or exchange of goods and services have to be at least situated in stage 3 or 4. The analytical framework makes clear, however, that cost-reduction and profit-making allow for variations towards stricter ‘must’-expectations. In this sense, empirical evidence suggests that even the economy itself has been economised with the rise of New Public Management, shareholder value conceptions of control and financialisation as policy instrument (Davis, 2009; Fligstein, 1993; Fligstein & Shin, 2007; Krippner, 2005) and consequently is more oriented to stage 5. In this sense, economisation is to be understood as an increasing transformation of the expectation-structure towards a must-expectation of profit-making in the sense of stage 5.

Increasing tendencies towards economisation and marketisation, however, do not simply imply that societies are determined by the economic system. Drawing on Karl Polanyi’s (2001) argument that market economies tend to destabilise social orders and therefore require containment by institutional arrangements, Beckert (2009: 1987-190) argues that the economy is dependent on a functioning legal system, a state making political decisions and an education system that provides knowledge and expertise as backbones of skill and expertise in the economy. In this sense, the economy is morally and functionally contested by other functional sub-systems, which tend to resist the one-sided logic of accumulation by political mobilisation and protest, as, for instance, the implementation of market-based reforms in the Icelandic fisheries have shown (Helgason & Pálsson, 1997; Pálsson & Helgason, 1995). Hence, modern capitalism must be conceptualised as a historically-grounded institutional arrangement that can vary in terms of its cultural embeddedness and is constantly contested by the dynamics of the economy as driving force of societal change.

At the same time, empirical studies of banking supervision and corporate regulations suggest that economisation is not necessarily to be understood in terms of conflict, but can also be seen in the light of complementary interests, as Strulik (2012: 68-69) points out. In this sense, the reduction of a ‘functional antagonism’ (Schimank) and the ‘infiltration’ of other societal domains such as politics do not fully capture the dynamics of economisa-
tion. Furthermore, it is questionable that processes of marketisation and economisation can be logically deduced as the outcome of some sort of evolutionary process or structural logic that is inherent in a functionally differentiated capitalist society (Schimank, 2014). Rather, markets are organised and the outcome of a historical decision-making around rules, monitoring, sanctions and hierarchies, around which different forms of markets and quasi-markets are structured (Ahne, Aspers, & Brunsson, 2015; Aspers, 2005).

In addition to this, culture-oriented studies of governance regimes have led some authors to the conclusion that economisation can not only be reduced to the structural dynamics or objective forces determined by the economy, but must also be understood as the emergence of a competitive culture of liberal capitalism and subjectified self-control that has increasingly challenged traditional forms of social solidarity, welfare regimes and governance since the late 1970s (e.g. Boltanski & Chiapello, 2007; Bröckling, Krasmann, & Lemke, 2000; Marttila, 2013; Münch, 2009; Rose, O’Malley, & Valverde, 2006). In this sense, economisation does not necessarily carry elements of conflict, but also of cultural consent that is internalised and reproduced within the socio-material ‘practices of the self’ (Bröckling, 2007; Reckwitz, 2006).

Akin to culture-oriented accounts, Çaliskan and Callon (2009 2010) provide an alternative perspective that bridges the gap between conflict- and consensus-oriented approaches to understanding economisation and marketisation by highlighting what they refer to as ‘socio-technical agencements’ that frame and shape economic actors. Rather than taking a stance in the substantialist/formalist debate opened up by Polanyi (1957), in which the driving force of the economy can be identified either in the rationality of individualised actors (formalism) or societal structures (substantialism), the authors highlight the role of cognitive frames that allow the ‘disentanglement’ and re-shaping of actors and objects into economic entities as perceived by social scientists and economists. Thus, economisation and marketisation can rather be understood as a process of translation (Callon, 1986) of an actor-network into the language of the ‘economic’, rather than a martial infiltration of non-economic domains by the economy. This translation process, in modern fisheries management provided by resource economists, thus provides the backbone of a process of framing, in which calculative agents are constructed by being disentangled from their environment as profit-maximising agents that are isolated from the externalities of their decision-

18 Based on his systems-theoretical perspective, however, Strulik rejects the idea of a primacy of the economy from a difference-theoretical perspective. While acknowledging that all societal sub-systems are equal and autonomous on the level of system communication, one can still assume – as Luhmann (1970) himself does – that the economy indirectly dominates societal communication on an empirical level: art cannot communicate in the medium of money, although what is communicated as art may very well be shaped by money. The same holds true for science, education and politics.
making (Callon, 1999). In this sense, the neoclassical textbook model of homo oeconomicus is neither a fiction, nor does it describe the essence of man, but is a model according to which reality is created and calculations are performed. Hence, by providing a strictly deconstructivist account, Çaliskan and Callon reject any conceptualisation of ‘the economy’ or ‘the market’ because any attempt to do so itself becomes stuck between the reductionist pitfalls of the formalism/substantialism debate and thereby refines and performs the economy itself instead of ‘objectively’ describing it (Callon, 1998b). Thus, marketisation can be understood as a political response to societal controversies around issues such as air pollution (MacKenzie, 2009a) or overfishing (Holm, 2001; Holm & Nolde Nielsen, 2007), in which socio-technical agencements frame, translate and stabilise actor-networks by cooling down controversies and offering solutions that allow for relatively stable coalitions between science, politics and the public (Callon, 1998a).

Although a strictly deconstructivist account allows for a historical reconstruction of ‘the economic’, it remains rather weak with regard to conceptualising and understanding the societal dynamics of what I refer to as re-entanglement as a consequence of economisation and marketisation. In this sense, re-entanglement describes the economic practices that weave economic agents into a complex set of economic expectations of future payments that turn profit-making into a ‘must-expectation’ to produce as much profit as possible and consequently frame their daily coping and practices. In order to understand the processes of re-entanglement, I propose a middle way between Çaliskan and Callon’s and Beckert’s and Schimank’s accounts. The analytical advantage of understanding modern society as driven by a monetarised economy is therefore to be found in a sharper conceptualisation of the dynamics and problems of coordination and control that can be observed and described in what Polanyi (1957) has referred to as the ‘empirical economy’. This perspective not only allows us to reconstruct a historical genealogy of marketisation processes as the results of institutionalisation and stabilisation of actor-networks by means of socio-technical agencements, but opens up an analytical understanding of the dynamics underlying processes of marketisation by providing descriptions of concrete market environments and the expectations and practices actors face in their daily coping. We can therefore ask more specifically: what does it imply for the economic expectations of coastal fishers to be disentangled from their local ties? And what are the consequences for the culture and practice of small-boat fishing?

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19 Locus classicus and main inspiration for this claim is Garcia-Parpet’s (2008) ethnographic study of the construction of a perfect market in the sense of neoclassical economics in Fontaines-en-Sologne, France.

20 For a detailed summary of how the techno-scientific ‘invisible revolution’ (Holm) has transformed the Norwegian fisheries, see Chapter 2.
The next sections will show empirically that the primacy of the economy does not necessarily imply a dominance of large-scale industrial capitalism over cultural traditions, as these may be protected and defended in societal discourse and political negotiations. With increasing consolidation of the ITQ system, however, small boats have been gradually disentangled from their rural ties with the construction of markets that have reconfigured the daily practices of the community-bound small-boat owners into becoming financial investors and agents of the economisation and transformation of the culture of the Icelandic small-boat fisheries. In turn, this development has changed economic expectations and led to a re-entanglement of small-boat fisheries in a complex web of financial investments and market transactions that have successively transformed the cultural meaning of small-boat fishing from a symbol of rural independence to a symbol of investment and financial speculation.

4.3 Disentangling coastal fishers

Although fishing did not form the bedrock of the nation’s prosperity and wealth until the industrialisation of the fisheries in the late nineteenth century (Sverrisson, 2002; Þór, 2013), numerous coastal communities flourished and became dependent on the fisheries as the primary source of income by the turn of the century. ‘Herring towns’ such as Siglufjörður in north Iceland emerged in the 1940s and 1950s and attracted a lot of people to work in the fishing industry, both seasonally and permanently. Even though this period is referred to as ‘the good old days’ among Icelanders, competition between fishers was harsh as more and more vessels gathered around the Icelandic shoreline, trying to make a living from the rugged, but highly profitable Icelandic waters. Most of the coastal communities, however, had to participate in direct competition not only with their own people, but also with foreign fishing vessels, most notably from Britain and West Germany. At the same time, new technologies fostered a rapid increase in fishing efforts and the emergence of new mass markets put a lot of pressure on the stocks. Not only were the fishing communities aware early on that the foundation of their wealth was not infinite, but also government authorities started to realise that the fish stocks have to be protected if the nation’s most important source of prosperity and wealth was to be maintained.

To protect this wealth, the government made great efforts to limit access to its fishing grounds by the steady expansion of an Exclusive Economic Zone (EEZ). The implementation of the 12-mile zone marked the starting point to the notorious ‘cod wars’ between Iceland and the UK, Germany and Belgium – who have been fishing off the Icelandic shore for centuries – in 1958. After the conflict was resolved, foreign vessels were allowed to maintain their fishing activities for a few more years (Ingimundarson, 2008). But
after the few rather benign incidents between the Icelandic coast guard and British and German vessels in 1958, the conflict heated up again after Iceland declared the expansion of its EEZ from 12 to 50 nm in 1972 and from 50 to 200 nm in 1975. The so-called second and third cod wars were accompanied by net-cutting and serious ramming incidents between the Icelandic coastguard and British fishing vessels that continued their fishing activity within the Icelandic EEZ, and boycotts of Icelandic produce in the UK’s domestic market. This long-lasting conflict was not fully resolved until 1976, when the Icelandic government threatened to close down a strategically important NATO base in Keflavik in the midst of the Cold War if the expansion of the nation’s EEZ to 200 nautical miles was not accepted. Even though Iceland, backed by the United States, finally prevailed, the 200 nm zone was not enough to mitigate catch efforts and control fish stocks effectively as the national fleet continued to expand its catch capacity and fishing efforts steadily.

As a consequence, the herring stocks collapsed due to the fishing boom in 1968 and marked the starting point of systematic attempts to reduce catch capacity by the implementation of Total Allowable Catches (TACs), which were first introduced for herring (1969) and supplemented by a TAC for cod in 1976, which was to become the new anchor currency of the Icelandic fisheries. These restrictions, however, did not prevent fish stocks from over-fishing as fleet capacity increased steadily and finally turned out to be far too big for the total quota, and hence shifted its fishing efforts to other species, notably cod. The fishers engaged in so-called ‘Olympic’ fishing, and slowly but surely, it seemed that history was about to repeat itself in the early 1980s.

In direct response to the Marine Research Institute’s (Hafrannsóknastofnunin, or MRI) ‘Black Report’ in 1983, in which the poor condition of the cod stock was announced, the government took the initiative to prevent the cod fisheries from the fatal consequences of the herring bonanza by implementing a vessel quota in the demersal fisheries in 1984, which represents the starting point and bedrock of the current Icelandic resource management system. Initially, the idea of vessel quotas was thought of as an ‘experiment’, which was to last for at least one year.

In the beginning, the system gained much support among boat owners and was only opposed by a minority from the Officers Union (FFSÍ) and regional representatives of small rural fishing communities, such as the Westfjords, who in the end accepted the trial at least until the cod stock had recovered again (Eythórsson, 2000: 485). The outcome of this crisis management was the Fisheries Management Act (FMA) of 1983, which entitled any boat that had been fishing Icelandic waters for the previous three years to a quota share based on the catch history of each individual vessel. Alternatively, boat owners could also choose to fish within a system of ‘effort quotas’, which
was an option especially for those who have not been fishing much over the previous three years.

Small boats under 10 tonnes could continue their operations without being subject to either of the two systems in the beginning, but were integrated into the quota system in 1985 by a special kind of effort quota, which made small boats extremely popular among boat owners. According to Eythórsson (2000: 486) ‘it might seem that the quota system would “wither away”, as a majority of boat owners opted for the effort-quota alternative in order to increase their share of the TAC at the expense of those regulated by ITQs’. Hence, the small-boat fleet increased tremendously21 as a more liberal management regime and improvements in fishing gear appeared to be very attractive to many boat owners. As a consequence, the system failed as fleet size and catch capacity increased continuously. These developments called for a revision of the FMA in the period 1988–1989. As a result, the FMA of 1990 abolished the effort quota system with the exception of small boats up to 6GRT and turned vessel quotas into permanent and freely transferable property rights.

The disentanglement of the fishers and their translation into quota-owners in the sense of modern resource management went hand in hand with the consolidation of the quota system. Similar to the discourse on emission markets (MacKenzie, 2009a), the quota system made it possible to create a stable network that not only included environmental interests, but also the fishers by opening up new business opportunities for those with privileged access to it. Due to the permanent status and potentially increasing value, quotas could be used as collateral, which led to investments that soon exceeded the total value of the fishing industry. Consequently, the ITQ system created ‘new wealth’, as one of the academic fathers of the Icelandic quota system claimed in an article published just before the financial meltdown (Arnason, 2008). Thus, so Arnason concludes, parts of the investments must have left the industry and swapped over to other parts of the booming Icelandic economy and abroad. The mobilisation of capital by translating the fish in the sea into financial assets soon became the symbol and paragon of the new era of financial capitalism and aggressive expansion of the Icelandic economy for the political right (Benediktsson & Karlsdóttir, 2011: 231). As Hannes Hólmsteinn Gissuaarson, one of the main ideologues of the political right stated in Ísland i dag at the peak of the financial bubble:

> We activate capital that was previously dead … The fish stocks did not have a price tag, they were non-transferable and could not be used as collateral – non-tradable. Then the quotas are allocated, which creates capital … Here in Iceland, capital was handed over to private owners, and then it became alive (cited after Benediktson and Karlsdóttir 2011: 231).

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21 ‘While 964 small boats were registered in 1984, their number had increased to 1956 in 1990’ (see Eythórsson 2000: 486).
Hence, the ITQ system somehow spearheaded the policy reforms of decentralisation and financialisation that transformed the hitherto still rather centralised and closed economy. This is not to say, however, that the implementation and consolidation of the quota system was friction-free, as it sparked public controversies about the ownership of the nation’s most valuable export product. Early critiques of the quota system highlight the injustice of the system as it had led to the concentration of quotas in the hands of a small number of privileged ‘quota-kings’ who could make sky-high profits for their own benefit with the nation’s property, and the emergence of neofeudal tenancy relations in the industry, as well as the concentration of capital in ever fewer fishing communities (Benediktsson & Karlsdóttir, 2011; Eythórsson, 1996; Pálsson, 1993; Pálsson & Helgason, 1995). Past and present public controversies can only be understood when seen in the context of the cultural heritage and history of the fisheries as part of the collective identity of the Icelandic people (Auth, 2012: 57). Thus, it is nothing less than §1 of the FMA itself that the counter-protesters and critics of the ITQ system attack, stating that

the exploitable marine stocks of the Icelandic fishing banks are the common property of the Icelandic nation (Fiskistofa 2006).

A cultural expression of the ‘right to fish’ are the so-called ‘small boats’ (smábáta), which have formed the backbone of the Icelandic economy since the early settlements and have managed to stay afloat during the era of large-scale industrial modernisation (Sverisson, 2002; Þór, 2013). But how did they cope with the rather sudden implementation of the market system?

4.3.1 Between resilience and resignation

With implementation of the ITQ system in 1984, many inhabitants of rural regions along the coast were afraid that their right to fish as independent fishers would be contested through closure and capitalisation of the fishing industry. In particular, fishers from the Westfjords, which traditionally held the bulk of the coastal fleet, feared that the quota system would destroy the foundations of their living and a centuries-old tradition, as they saw capital-strong investors from the Reykjavik region buying up quotas from rural communities or selling out of the industry and consequently weakening the coastal communities.

The resilience of the small-boat fishers in the face of the market system must be seen in light of the cultural embeddedness of the Icelandic small-
boat fisheries as a symbol of independence and autonomy (see above), in particular in the rural parts, such as Westfjords, in which it was common among many families to work part-time on a privately owned small boat.

This cultural meaning was reason enough for many small-boat fishers, who saw the ITQ system as a threat to their autonomy to live and work in solidarity with each other. As a result, the National Association of Small Boat Owners (NASBO) was founded in 1985 as a protest movement against the quota system and has become a strong oppositional force against large-scale corporate activities and fishing restrictions and a lobbying organisation representing small-boat owners in parliament and the media. In this role, NASBO engages in political mobilisation and manages to maintain the autonomous status of the coastal fisheries as different from the large-scale industrial fleet. To protect coastal fishers, access was first kept open for all coastal fishing vessels.

Nevertheless, due to increasing lobbying from the LÍU (Icelandic Federation of Fishing Vessel Owners) and the discursive shift of policymakers towards property-rights-based management solutions (Eythórsson, 2000), however, small boats were successively disentangled from the rural open access culture and translated into carriers of exclusive fishing quotas. First, quotas were allotted based on a vessel’s individual fishing catch records from the past three years in 1991. In this period, fishers could choose between fishing days at sea or ITQs. With lower TACs and rising prices for quotas, more and more fishers decided to opt for quotas over the years, as days at sea got fewer and fewer. According to NASBO (personal communication), only about 30–40 vessels remained fishing for about 19 days per boat in the 1999/2000 season.

Today, coastal fisheries still form an important pillar of the Icelandic fisheries economy and are managed in a separate ‘small-boat’ system (see Image 5). The institutional architecture of this sub-system will be briefly sketched in the following section.

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23 According to NASBO (LS 2011) their members owned 1150 vessels in 2010/2011, which makes about 70% of the total fleet in 2010 (Statistics Iceland 2011).
Image 5. The Icelandic fisheries economy.
4.3.2 The architecture of the small-boat system

Since 2004, the small-boat ITQ system has been legally divided into two separate systems:

a) The small-boat ITQ system including vessels of up to 10 GT, which are allowed to use any kind of legal fishing gear. In 2012, 215 vessels were registered in the small-boat ITQ system, contributing to about 12 per cent of total landings in the small-boat sector (Þórðarson & Viðarsson, 2014: 7).

b) The Hook-and-line (Krókaaflamarkskerfi, H&L) ITQ system for vessels of up to 15 GT (changed to 30 GT in 2013), which are restricted to the use of hook-based capture technology, such as long-lines and jigging (handfæri). The H&L system accounts for the bulk of catches in the small-boat system, with 77 per cent of total landings in the small-boat sector in 2012 (Þórðarson & Viðarsson, 2014: 7).

In principle, ITQs can be transferred freely in the small-boat ITQ system and from the large-scale system to the small-scale system. In order to maintain the ‘free market’ in the neoclassical sense and protect the culture of small boats, however, transfers from the small-boat system to the large-scale system are prohibited. Moreover, quota-owners in the small-boat ITQ system must not exceed the limit of owning more than 4 per cent of the total H&L share for cod and 5 per cent of total share for haddock or not exceed 12 per cent of the total value of the catch share to prevent the centralisation of fishing rights and monopolies (cf. Fiskistofa, 2006: Articles 12-3).

Furthermore, quota-owners must land at least 50 per cent of their quota share at their homeport over two years in order to maintain their rights. If this obligation is not fulfilled, the quota will be withdrawn from the owner without compensation and allotted among other quota holders accordingly (Fiskistofa, 2006: Article 15).

Despite the legal framework that is supposed to protect the small-scale fleet from mergers and large-scale investments, statistics on the distribution of quota nevertheless indicate a strong concentration of quota in the small-scale system: within the H&L system, the ten largest boat operators own 34.71 per cent of the total quota quota-share (Fiskistofa, 2012; own calculations). These figures indicate a concentration of quota shares in a few

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24 See appendix for a detailed description of fishing gear; see also Chapter 5.
vertically integrated companies running their own fleets and processing plants.  

On top of these protective legal measures, the government has created some economic incentives to maintain small boats as the backbone of rural community development, most importantly the ‘quota discount’ for hand-baiting for the creation of jobs in the fishing industry. Accordingly, small boats that land their catch within 24 hours at their homeport community may land 16 per cent (20 per cent in 2014) in excess of their fishing quota if the fishing line was hand-baited in the same community (Fiskistofa, 2006: Article 11). In addition to this, fishing communities in decline may apply for a special ‘community quota’, which is allocated to local fishers, who are not allowed to trade these allotted quota and must land their catch within the same community for processing.

To further mitigate the effects of closure, the Icelandic government implemented non-market elements in the management system in order to maintain general access to the fishing grounds for non-quota-owners.

4.3.3 Non-market elements

Although the small-boat ITQ and the hook-and-line ITQ form the economic backbone of the small-boat fisheries in Iceland, two more sub-systems form important socio-economic pillars for maintaining the culture of small-boat fishing and enabling access for part-timers and newcomers besides the ITQ system:

a) Vessels smaller than 12 MT can hold a special lumpfish license, which is limited to 400 in total and 50 days at sea for each license. Lumpfish are usually caught near the coastal region with gill nets and make an important contribution to small-boat fisheries, especially with few or no quotas in the ITQ system. The total landing value in 2010 was US$ 24 million (14 million in 2011), making an export value of US$ 33 million from its precious roe and caviar and makes an important economic contribution to many small-boat fishers with low quotas (NASBO, 2011).

b) As a political reaction to the closure of the fisheries, a new so-called Coastal Fishing (Strandveiðar, or CF) system was established in

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25 For instance, Stakkavík ehf from Grindavík in the south west is the largest operator in the H&L system with 7.31 per cent of the total share and 23rd with 0.96 per cent is currently running nine small boats plus an additional trawler running in the conventional quota system.

26 Alternatively, baiting machines can be used. The economic incentive of the quota discount is so attractive, however, that almost all vessels in the hook & line system observed during fieldwork exclusively rely on hand-baited lines.

27 Transfer of fishing quota to another species, however, is allowed based on cod equivalents (Fiskistofa 2006: Article 10).
2009 to enable newcomers and part-timers to join the industry on a seasonal basis. In the CF system, any boat complying with the regulations for a professional licence can apply for a CF licence – also those allotted with ITQs – making a total number of 648 vessels in 2014. Over the years, quota-owners in the hook-and-line quota system have been increasingly entering the system as an additional source of income (Fiskistofa, 2015b). In fact, the number of regular quota-owners in the CF has increased steadily, with the exception of 2011, from 261 in 2009 to 362 in 2014. In contrast, the number of vessels in the CF without any quota steadily declined from 334 in 2010 to 146 in 2014 (Fiskistofa 2015), suggesting a low economic incentive for maintaining a vessel exclusively for the summer fisheries.

Although the CF system is based on competition between boats for a limited amount of fishing quotas, it does not follow the logic of market exchange, which presupposes that fishing rights can be freely transferred from one vessel to another. Nevertheless, in particular the CF system is indirectly tied to the market system, as the quota share is based on a relative share of the overall TAC set by the government for each fishing year. Consequently, the share is split up and distributed among four different fishing zones for each season, starting from 1 May to 31 August. Each licence is only valid for one zone, which has to be decided before the season. Boats with a CF licence are only allowed to use handlines, that is, a maximum of four jigging computers for each boat. Boats must return to port after 14 hours, and their catch may not exceed 773 kg of cod in 2013.

Acknowledging the socio-economic importance of the non-market elements in terms of their contribution especially to the livelihoods of smaller quota-owners, this study will focus mostly on the construction of markets and consequences of the small-boat ITQ system, in particular the H&L fisheries, which are strongly represented in the Westfjords region and account for most landings in the small-boat system. Both quota systems are based on permanent property rights that can be freely transferred permanently or temporarily for a season as leases between vessels. However, in order to protect small boats from monopolisation, the Fisheries Management Act provides a number of rules and regulations intended to protect the culture of small-boat fishing as the backbone of rural community development from the consequences of capitalisation and market dynamics.
4.4. Disentangling rural networks of production

In the previous section we pointed out how small-boat fishers have been successively disentangled to become free market actors around a complex set of rules and regulations. Another important aspect of disentanglement is the construction of fish auctions, which has disentangled the fishers from the ties of their home port community.

4.4.1 The organisation of fish auctions in Iceland

In contrast to many other fishing nations, in Iceland fish auctions can be seen as a fairly new institution as fishers used to be directly contracted to a producer or – if running a vessel independently – on a contractual basis with their own vessels for the local producers in their homeport communities. The literature identifies two structural features that delayed the emergence of fish auctions in Iceland: (i) the mode of production, which was mainly directed towards markets with stable prices, such as for canned and frozen fish, and (ii) the geographical dispersion of many small fishing ports, which are partly still linked only by poor road networks that make transportation difficult, in particular during winter (Cassady, 1967: 20; Graham, 1999: 198). Local entrepreneurs and politicians nevertheless saw the commercial potential and hoped that fish markets would help to restructure regions in decline since the implementation of limited fishing quotas in 1984 by increasing landings to their local ports. Based on this initiative, the government passed a bill in 1986 that would allow the establishment of local fish markets (Arnason & Trondsen, 1998; Graham, 1998: 198). In 1987, the first fish markets were opened in the capital region, namely in Reykjavik, Hafnafjörður and Suðurnes. Spearheading this development, Fiskmarkadur Suðurnesja (FMS) opened three markets situated along the Reykjanes peninsula. In these harbours, fish markets allowed fishers to sell their catch independently to the local market, in which not fixed prices, but supply and demand would determine the value of the catch, which is usually much higher than the direct sales price.28

One factor certainly is that the auction price includes all kinds of services such as ice, grading and gutting. In comparison with the auction price, contracted fishers are paid a fixed price, regulated by the government, that simply represents the crew’s share and does not include other cost factors. Knútsson, Klemensson, and Gestsson (2010: 5) nonetheless see the crucial fact – in comparison with other forms of exchange – as the relatively large

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28 According to the fishers interviewed, it is not uncommon for the auction price to be twice as high as the contract price. This statement is supported by the study by Knútsson, Klemensson and Gestsson (2010) who calculated the price differences for the period 1997–2009, finding the auction price to be at a constantly higher level, and being lowest in 2004 with 25 per cent and highest in 2001 with 70 per cent.
number of buyers, which encourages competitive bidding to the benefit of sellers.

For this reason, there was a strong economic incentive for independent vessel owners to sell their catch on the local market. Consequently, more and more boats from communities without fish markets started landing and selling their catch in one of the three communities where the fish markets are based. In turn, processors from villages lacking fish markets started pushing for the establishment of fish markets in their communities as it became difficult for them to contract local fishers and secure their supply of raw materials (Graham, 1999: 199). To avoid the concentration of trade in only a few markets, it was considered early on to link auction markets to one joint auction. This idea was strongly supported by the processing industry, as linking fish markets would enable the simultaneous observation of different markets by only one buyer. On the initiative of FMS, the computer system Tengill was developed and launched in January 1992 by linking five markets into one joint auction. The Tengill system was based on the traditional English auction system with one auctioneer and local buyers at each market. Lots were described by standardised criteria and could be offered prior to a vessel’s landing based on the information provided by the skipper. This information was made available to the buyers prior to the auction as a printout. The auctioneer was connected to the other markets via the Tengill system and forwarded information orally. Buyers bid by raising their paddles to the auctioneer, who connected to the other markets through an electronic data transfer system. When the highest bidder was identified, the auctioneer forwarded the information on the buyer’s identity to the market where the fish was sold (ibid: 199). In 1991, a deal between RSF and two other traditionally organised fish markets from Faxmarkadur Reykjavik and Fiskmarkadur Hafnarfjörður, who wanted to buy a 50 per cent stake, failed. Instead, both markets believed that developing their own system was cheaper, so they invested in developing a new system with the fish market in Breiðarfjörður. The result was the so-called BÔÐI system, which was based on a Dutch auction system with falling prices and each local market was connected via a computer to the overall system. Bidders used special mini-computers equipped with a bidding button, to which they could log in by using their electronic identities. Even though fewer auctions were connected to the BÔÐI system, the volume traded was much higher as it included the two largest markets (ibid: 201).

In 1997, negotiations for merging the two systems into one joint auction failed, as both parties would not abolish their own system in favour of the other. Drawing on a network-based argument Graham (ibid: 203) remarks:

Once two separate networks had formed and both sides could see advantages in a single national system the embeddedness of the social networks and their incompatibility became barriers to their merger. (ibid.)
However, the two companies still saw the business advantages of a joint Icelandic auction market and eventually merged in 2000. Consequently, a choice had to be made between Tengill and BODI. According to a survey, 72 per cent of buyers preferred the Tengill system (ibid.: 202), and according to RSF (2013b), the BODI system was technically not as reliable as Tengill. Hence, the Tengill system survived the merger, but stakeholders nevertheless saw the advantage of a Dutch auction system for trading fish, which would allow much faster trades. Thus, the online auction interface Fisknet was developed by the Belgian company Aucxis. The new software, which was launched in 2003 and is still in operation, allowed the integration of all information provided by the Tengill database into the interface with a Dutch auction clock. Thus, the Fisknet system allows bidders to have access to all relevant information on their home computers, making bidding completely independent of their geographical location.

The only prerequisite for participating in bidding is an account and a valid bank guarantee for an individual amount registered at Tengill. After the merger, the only remaining problem with Tengill was that its software had aged. Consequently, there were only a few people left who had the knowledge to maintain it (RSF, 2013b). For this reason, RSF decided to modernise its database and contracted Aucxis to develop a new system based on software called AFISH. It was modified to RSF’s needs and launched in 2012 under the name BODI, taking over the name of the old system. The new BODI does not require a VPN connection or other software for remote computers to connect. RSF now represents one joint Icelandic fish auction that integrates all the fish markets in Iceland.

In 2013, RSF connected 14 fish auctions in 28 different locations, bringing together 200–300 buyers in one joint auction daily. Total sales volume in 2012 was 102.116 metric tonnes, worth 28.7 billion ISK (RSF, 2013a). According to most interviewees, the current system seems to have a good reputation among both fish markets and buyers. Furthermore, fish markets have become service providers for gutting the fish, providing ice for the boats and coordinating transportation.

4.4.2 From rural peasant to market observer

According to RSF (2013b) roughly 50 per cent of the catch sold at the fish market comes from boats smaller than 15 tonnes using artisanal fishing techniques such as long lines, hand lines (jigging computers) and nets for catching lumpfish in shallow coastal waters.29 Going hand in hand with the privat-

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29 For the fishing season 2012/2013 the proportions of the fish sold through RSF were 22 per cent from trawling, 16 per cent from seine, 18 per cent from hand line, 9 per cent from net fisheries and about 35 per cent from long lining, of which roughly one-third is accounted for by bigger long liners that are not classified within the small-boat system (RSF 2013b).
isation of fishing rights, the emergence of linked fish auctions in the late 1980s has liberated small-boat fishers from their peasant-like relations with the local processors. Thus, the emergence of fish auctions has broadened the horizon of small-boat fishers, who can now coordinate their fishing operations with regard to fluctuating market prices, rather than being forced to accept the local prices of the processors. In other words, the old rural network of production has been disentangled by the construction of a new market, in which the harvest economy is mediated through the interface of the auction market.

As a consequence of the disentanglement of production and fishing, most independent fishers choose to sell their catch on the auction market, which according to most fishers interviewed is usually more lucrative than being contracted at a fixed price. This price autonomy is generally perceived as a positive development by many fishers and even considered an integral part of the resilience and modernisation of the small-boat fisheries, as the following quotation makes clear:

[W]hat I can say about the fish markets or the auction market is that this is one of the best things that has (sic!) happened to the small boats because before they were only selling their catch directly to the processors and the processors just had their way with the pricing, they could only do this because of, you know, lack of good communications, I mean with the old system and that, but with the auction market this has started to turn the tide and today this is really one of the main factors why the small boats survive: they get the highest price through the auction market. (MV)

Although fishers usually tend to put to sea whenever they can to fish off their quota share, field observations suggest that some boat owners indeed observe market prices and stay ashore, especially in the summer season when a lot of smaller part-timers flood the market with raw materials when the weather is good. In this context, websites such as RSF.com provide information on average market prices that build ‘prosthesis’ (Çalişkan, 2010: 22-24) for orientation and actual price realisation in the auction market (see image 6).

30 Older fishers with long-lasting relations, or quota owners in poorer communities fishing on subsidised ‘community quotas’, however, may still have fixed arrangements with local processors, and vessels owned by processors of course deliver most of their fish to the company’s plant, although by-catch or species not suitable for production are usually sold off to the auction market.
Image 6. Observing the auction market. On rfs.is, stakeholders can observe the average market price on the fish auction, in this case for cod (Þorskur). The image displays nicely the ups and downs in December 2014, in which several storms made fishing on small boats around the island state all but impossible for several periods. During this time, the market price usually increases due to lack of supply. With the beginning of the holiday season by the end of December, in which most boats don’t fish, market prices typically sky-rocket and fall sharply as soon as the sea starts to calm down. (rfs.is, 5 January 2015)

During this period it is common for full-timers to take out their boats for maintenance rather than fishing for lower prices. In turn, some fishers may take the risk and put out in rough seas, especially in areas where deep fjords provide shelter. Under normal conditions, these vessels would achieve lower prices, as buyers believe that fish caught in the fjords or close to the shore is of mediocre or poor quality (more on this issue below). When supply is short, however, the fish will be sold anyway, which creates a considerable economic incentive for fishers to take the risk. As one fisher puts it: ‘You get few fish, but the price is almost double so that it covers the costs and your salary’ (FN: 90).

This section has described how the techno-scientific construction and organisation of a market for ITQs has disentangled and translated the fisher into a free market actor who can independently decide if, how, and when to buy, sell or lease his fishing quotas. But how do coastal fishers cope with their new freedom?
4.5 Re-entangling small boats

With the successive integration of the small-boat fisheries into the ITQ system and the construction of fish auctions, fishers have been disentangled and framed as fully-fledged market actors who can buy, sell, rent and invest in transferable fishing quotas and decide when to put to sea with regard to changing market prices. From this perspective, fishers are not naturally born as homo oeconomicus, but have been framed to behave successively as if they were rational economic actors in the neoclassical sense. However, we will see how financialisation of the fishing industry has not only reconfigured the context, but also the expectations and practices of small-boat fishers, who must now not only put to sea, but play along with the market in pursuit of monetary independence. As a consequence, the community-bound small-boat owner has not only become disentangled from his rural ties, but also re-entangled in a complex network of financial expectations and debt that transform the expectations of profit-making in order to stay afloat. Hence, many small-boat owners who fought against the system at the beginning have now become advocates of consolidation in their daily coping with the quota system.

4.5.1 Investing in independence

Equipped with fishing quotas and the auction market, it seemed that coastal fishers had finally become truly independent entrepreneurs. And even better, access was limited and quota shares allotted so they did not have to worry any longer about rushing out to sea every morning. Soon, however, it would become clear that it would be difficult to make a living from the allotted quota share, as the government would put on new regulations that closed down other fisheries that supplemented the cod quotas, which were increasingly reduced by the government on the advice of the Marine Research Institute. For many independent fishers this simply meant that fewer and fewer fish could be landed based on their share of the quota cake. And after a decade of changing rules and regulations the government finally decided to put all small boats on ITQs:

Let me explain: we go fishing, we put the boat out in the water in May, April–May and we go out fishing and over the summer we’re fishing like 20 tonnes ... And then they say we have to change the system into a day system, you have like 80 days you can fish from, then they put it down to 40 days, then it was going to 20 days, and from that time they, we were put on fewer and fewer days, the government says ‘You can choose if you want the days or do you want to have the quota ... I don’t remember when we had it, I think 1996 or something like that, we have a quota on the old tree [wooden] boat, and it was 35 tonnes and they were cutting the quota down, more and more, and we had maybe 20 tonnes and we just finished it. When I had the boat I just finished it in 1 month and I rented another boat to fish and the fishing
was getting better on a small boat, because in the old days it was just 20 tonnes over the summer, and when it was coming in 1990 something, 6 or 7, then we were fishing more over the summer with the computers [jigging machines], and in the end [2004, AD] they say: ‘All boats who have days, now you have quota’, and they say ‘You just have to have this quota’. And that was not so much and they have taken from the big one [the original ITQ system for boats over 15 tonnes] and put it in the small one, ...And then they started to sell the quota and people start to make a bigger plast(ic) boats like they have and in Bolungarvík. And when we built [our plastic vessel], we bought quota, it was just in cod. And then we can [sic!] fish free in catfish and haddock, you can fish as much as you want in these kinds, and we were fishing 100 tonnes of haddock and 100 tonnes of catfish. And in the community, we had 12 boats this time, then the government decided to say ‘Now we put in quota for haddock and catfish, and we have so short experience in catfish, we didn’t get any quota in...

It becomes clear that it is not merely ‘the laws of the market’ or some sort of individual rational profit-maximising interest behind the decisions fishers take when confronted with a market-based management system. Rather, our ideal typical independent fisher has become faster re-entangled in a complex network of markets, scientific stock measurement, government regulations and fishing quotas than she could ever have dreamed of. This process of re-entanglement of expectations was the reason many fishers who only got small quota shares with the implementation of the ITQ system would sell out of the industry, as they did not see a way to stay afloat and maintain a profitable business on only a few fishing days a year and rather cashed in on the sky-rocketing quota prices as starting grants for another life. This development was typical: especially for individuals with very low quota shares for whom it was difficult to engage in a profitable business (‘I was, you know, with my own boat, and I sold the boat because the quota was so expensive, I couldn’t buy enough quota for the boat so I sold it’ MXX).

In contrast, other fishers could look back to some busy years with previous catch records that put them in a better position compared with others. Nevertheless, it would soon become clear that they had to start playing along with the quota system if they wanted to stay afloat. Moreover, technological developments in fishing vessels and the emergence of fish auctions pointed towards a promising and profitable future for the small-boat fleet. As time went by, the family would start playing along with the quota system by investing in more and more fishing quota and exchange their old wooden boats for a new state-of-the-art plastic vessel equipped with the latest technology in order to maintain their independence in the small boat system. Those depending on jobs around the family business in the baiting house, the harbour or the local processing plant were grateful that some of the quota remained in the village, although some fishers ended up alone in their dream of rural independence:
We have no quota for catfish, and we have like 16 or 20 tonnes in haddock, and we buy 50 tonnes of quota for catfish, and the price, we got it on a very good price, the price just goes up in 1–2 years, and our community was then dead, because we have to stop fishing free in haddock and catfish. So they stop going out because they have no quota, so I was ending at one time alone here, and I think this was because the one guy who had this boat he sold (sic!) it, he sold it out and I ended alone, 1 boat...(MII)

The fisher’s reconstruction of the family’s investments makes clear that the gradual disentanglement and transformation of the small-boat fishers into quota-owners and free market actors also opened up a new horizon of potential choices based on the family’s quota and bank account: the family was allotted a secure amount of fishing quotas, had autonomy concerning when to fish off their fishing quota and no longer had to fear that other vessels would fish off their potential share from the ocean as in the old times. On the other hand, this property rights–based form of independence came along with a set of expectations that constrain the horizon of potential choices with regard to the legal framework of the quota system and the allotted quota share. Furthermore, due to the decreasing number of Total Allowable Catches – absolute fishing volume per relative quota share – the family had not only to find ways of utilising their fishing quota to cover operating costs for maintaining the boats, bait, fuel and labour. The family also had to learn how to distribute their fishing operations over the year in order to maintain a truly independent lifestyle that provides a stable year-round source of income for the family, the line baiters and the workers in processing (see Chapter 6).

The story presented above is not an individual case of only one community in decline, as many coastal fishers decided to sell off their quota share, instead of carrying on the tradition in the community. Some of these shares went to small family-owned companies in the region or to larger processing houses. Some of these companies, however, started buying more and more quota and started growing excessively. But where did all the money for these investments come from?

4.5.2 Capitalising on small boats

In the midst of the Icelandic banking útrás (that is, the aggressive expansion of the Icelandic financial sector by the turn of the millennium) banks were more than eager to issue loans to almost anyone who could rely on some sort of income – and even better if borrowers had something relatively stable in value that could be used as collateral in case of default. As the wife of a fisher and quota owner describes the atmosphere of the post-crisis era:
In the gold rush before the crisis it was considered rather ungraceful to still follow the ‘dirty’ profession of the fisherman instead of increasing one’s wealth with dubious banking transactions. Many sold off their quota shares and blew their money on sports cars. On the other hand there were those who tried pushing fishermen to borrow money to buy a lot of quotas. (MXI)

As long as fishing quotas were kept scarce and there were still fish in the sea, one could bet on an increasing valorisation of fishing rights. In other words, highly valuable tradable fishing rights became a welcome asset in the accounts of the rapidly expanding Icelandic banking system. This development went hand in hand with the general development and role of the ITQ system, which spearheaded the wave of decentralisation and venture capitalism that hit Iceland in the mid-1990s, when the doctrine of financial deregulation became more and more influential in other sectors of the hitherto still very centralised economy. As a former entrepreneur in the fishing industry put it:

I think it has been running the whole [of] Iceland, but the difference is: we cannot put our properties at risk for the bank like you can do in Reykjavik, but quota and cars and boats you can move from area [sic!] here, you can put up some lease contracts too, that’s not all, but if you want to go to a bank to have 100,000,000, take some debts in some properties, you cannot do it like in Reykjavik. (MXXI)

With a good fishing record from past years and a solid quota share, however, fishers were the perfect customers during the aggressive expansion of the Icelandic banking sector in the early 2000s:

AD: And when did you, when did you take loans on this company, I guess it was for buying quota, right?

Quota owner: We take a loan to buy our boat [name of the company's boat] in the year … 1999. And then we take another loan from the bank, bank in 1999 to buy quota and we take 6 time, ja, we take 6 time loan from the bank, from 1999 to 2005, and then we stop, we don't have taking more since ... We stop 2005 and then the quota (price) was going up up up and we say: we stop here, and then it was falling down, and I don't know how much, it doesn't matter where it is now. (MVIII)

It soon becomes clear, however, that investments were not merely ‘rational’ decisions made by the fishers who stayed in the industry, as they were actively encouraged by the banks looking for valuable assets in their portfolios, as the following example makes clear:
Quota owner: They came here in the year 2006 or 2007 from two banks, knocking on the door and say: do you want to change to our bank? We will give you more loan if you have security in your boat and my quota, and then you have money from us and then you can buy ah, what do you call it hlutabréf (stock) (…), that means paper in the bank...

AD: A stock in the bank?

Quota owner: Yes! And I said: no! We are small, we want to be small, no risk, just leave me alone, say goodbye! I was very lucky! (…)

It seems that banks found a cunning way of capitalising on the rural areas by turning coastal fishers into investors with fishing quotas and vessels as valuable mortgages in their portfolios. These deals played a crucial role for the small-boat revival in some coastal communities, in which even local community-held saving banks known as ‘Sparisjóður’ engaged in this new way of managing their clients’ assets, as the chairman of a community council recalls:

So the bank, especially the bank here in our village was ready to lend money to those that they thought could make it as fishermen, and so they, the fishermen had to borrow a lot of money, but it was because the bank believed that they could pay back. … This was happening between 1990 and 2000, so they saw here, maybe the ones that were on the trawlers and they knew they were seamen and they knew they had what it took to be fishermen and they said to those guys: ‘You invest with your money, I trust that you [pay back], I’ll lend you some money, but also have to invest with your money to make sure that they would stay on the boat and do whatever they could to make it. (XXII)

With the first investments made, quota-owners could expand their business and rebuild the community around small boats, which all of a sudden started growing larger and larger:

So slowly, they [fishers] went from small boats to a little bigger boats, a little bigger, and ahm, dealing with the quota system, taking it on as you could say, because we here in the Westfjords, we were always very much against the quota system in the beginning, everyone was against it. (ibid.)

‘Taking it on’, as the chairman put it, however, not only involved investments in quota and gear, but also playing the quota market and taking risks like a stockbroker.
4.5.3 Speculating on ITQs

The financialisation of the small-boat fisheries has not only opened up opportunities for banks to capitalise on the countryside, but also created new investment opportunities for fishers to engage in speculative investments in quota prices. While doing fieldwork in one of the villages renowned for rebuilding the local economy on small boats, I asked a skipper fishing for one of the local companies how the recovery of the village, which was left devastated when a bigger trawler company sold out in the 1990s, had taken place. He explained that small boats had always been an integral part of community life besides the large trawlers. Accordingly, his cousin’s family got lucky with playing the quota system by speculating on market developments and sold off their shares when the ‘price was really high!’ (XVI), just before the financial meltdown, and re-invested the money in new quota and a state of the art fishing vessel shortly after the crisis. The example shows that fishing quotas have not only become an object of financial speculation for banks, but also for the fishers themselves who today are not only rural entrepreneurs, but speculators on future market movements. This practice is also confirmed and justified by the CEO of a larger quota owner in the small-boat system, who engaged in such practices:

And it happens all over the world, you buy an apartment in Manhattan and the prices go up and you sell off, make a profit, so this is the same thing that happened with the quota system, but most, or many of the bigger firms today, they only bought and bought and bought quota, they didn’t sell off, they just believed that it would be wise to buy up those prices. So, but when this happened [falling prices], then you had the collapse, that was what, after 2008. (XXII)

The quotation not only seems to justify such practices, but also points to the flipside of such quota-speculation: with the meltdown of the banking system in 2008, both bigger and smaller companies started shaking due to the devaluation of the króna because many investments made in the fishing industry were based on foreign currencies, especially in Japanese yen and Swiss francs. While these types of investments enabled some people to build up companies who did not invest too much or sold off their shares beforehand and reinvested them in new boats and quota thereafter, others were not as lucky with playing the quota roulette. One of the latter is a skipper I will call Einar, with whom I established a relationship during my different stays in the field.

Einar was born and raised in the Westfjords and worked in every imaginable job in such an environment: he worked in processing plants, as an engineer and as a sailor on large ships. Like many other sailors, however, his dream was to become an independent fisher. He remarks that this choice ‘is very hard to understand, [but] I always wanted to be alone’, FN: 63). Conse-
quently he invested in a small boat and got allotted a small amount of quota with the implementation of the system. As banks were eager to lend as much money as possible, he saw an opportunity not only to be an independent fisher, but also to build up a bigger company. Soon, he could convince his brother to join the company: from now on, Einar could concentrate on the fishing, while his brother was in charge of all the paperwork. After a while, they decide to expand and invest in a new fishing vessel and new quota. Opportunities seemed endless and banks were eager to lend more and more money based on loans in yen and Swiss francs to the growing company, which soon was one of the biggest quota-owners in the small-boat system in the region, with a share of approximately 800 tonnes of cod. For the two-man company, debt was already high before the crisis, but after the crash their creditors decided that they could no longer hold the company up and were forced to sell off everything at a much lower price to one of the other bigger quota-owners in the region that managed to survive the crisis.

Others, however, such as the following skipper who today is contracted to a quota owner, resisted the temptation to take risks on the promise of becoming one of the new quota kings and reaping sky-high profits:

AD: So I heard about these stories that people from banks came to you and said: ‘Do you wanna buy quota’?

Skipper: Yeah, but I couldn’t, I didn’t see the point because I didn’t see how to pay off the loan!

AD: So you didn’t do that?

Skipper: No, no! The bank wanted to loan [sic!], but then I was, it was so expensive that I didn’t, couldn’t pay the guys, you know … couldn’t pay the guys, the banks, salaries and bills. Jau, so it was I said no and sold [sic!] the boat!

AD: So was it very tempting doing it, were a lot of people doing it?

Skipper: Yeah, a lot of guys, lot of guys taking big loans to buy a quota, and so today some of them got their loans fixed, they were, you know, cut-off, but some didn’t, they just cut the head off them, not the loan, just the head! It’s very strange time in Iceland and has been very strange since the collapse of the Icelandic economy. (MXX)

Other small companies, however, withstood the promise of future profits in the new era and tried to regulate their investments in accordance with cultural boundaries:

AD: And what was your limit, about when you said...
Quota owner: Ah, we just stop, we say this is too high and we did not buy more...Because that was ah, money from another country … and I said: no! We are small, we want to be small, no risk, just leave me alone (…), say goodbye! I was very lucky! (MVIII)

Despite the temptations of the financial world, the family somehow resisted the promise of future profits. ‘Keeping it small’ therefore is not only a matter of the size of the boat, but of the balance sheets of a company, which needs to be controlled accordingly. This ‘control’ is not only based on accounting, but also shaped by cultural evaluations of what it means to different people to be a small-boat fisher. Nevertheless, already smaller investments from this era put companies at risk. In contrast to Einar who had to sell off quota and boat, however, other quota-owners got lucky and became part of recovery programmes from the banks, in which debts were either written off or converted into Icelandic króna. As the same quota owner as above explains:

They change it because I have to pay the loan to the, it was, it was Swiss money, euro and Japan, and I have to take another loan to pay everything and they change it to Icelandic loan, Icelandic króna ... And I have paper they cannot come and say: you have to pay more, because I say: ‘Now I'm finished, you have everything you need, I have pay you everything, you will let me have this money and I will always pay you every month and leave me alone’, and they have to do it! (ibid.)

Although the family ‘got lucky’ under the circumstances, they are, like many other fishers and quota-owners today, literally fishing for their creditors. As the wife of a skipper who invested a lot of money in a new boat, quota and fishing gear put it, ‘You could say that a lot of the boats you see in the harbours are actually owned by the banks, and the fishermen are forced to fish even in bad weather, as they are up to their necks in debt’ (MXI).

These tales from the field make clear that within the financialised world of market-based fisheries, it can be a very thin line that separates the dream of independence from the nightmare of bankruptcy. Although the investment opportunities provided by some local banks have helped in revitalising otherwise devastated fishing communities around a centuries-old and labour-intensive tradition, fishers and fishing communities have been increasingly tied to the volatile and inherently unstable world of globalised financial markets. The consequences for the small-boat economy will be sketched in what follows.

4.5.4 Economising expectations

Data on fleet structure (Fiskistofa, 2015a) show a downward trend for vessels operating in both the small-boat ITQ and H&L systems (see image 7). After a peak in 2004 when all small boats were integrated into the ITQ sys-
the number of vessels in the H&L system steadily declined from over 715 to a low of 342 in the fishing year 2012/2013. A similar trend can be observed in the small-boat ITQ system, although the consolidation year 2004 had no positive impact on fishing vessels, leading to a steady decline from 321 vessels in 2002/2003 to 84. Nevertheless, the fishing season 2013/2014 points to a slight increase in the number of fishing vessels in both systems (87 in small-boat ITQ and 354 in H&L).

Mergers that took place with the increasing capitalisation of the fishing industry in 2004 and its role in the deregulation and financialisation of the Icelandic economy in the pre-crisis era can explain this general trend, leading to massive investments in fishing quotas and state-of-the-art fishing vessels. Although no differentiated data for the small-boat system are available, field interviews suggest a similar trend of investments and mergers, as can be seen from the aggregated debt and liabilities for fisheries and processing since the integration of all boats into the market system in 2004 (see image 8).

In addition to this, the general trend towards increasingly efficient long-line vessels in the H&L system eventually resulted in changing regulations on vessels of less than 15 metres from 15GT to 30GT under pressure from bigger quota-owners in the sector in 2014.

All in all, the data suggest a trend towards increasing capitalisation and rationalisation within the small-boat ITQ system that has led to increasing profitability in the sector. According to NASBO (2011), the small-boat ITQ system landed 3650 MT, worth US$ 8.8 million, and the H&L system 57,000 MT, worth US$ 146 million in 2010.

**Image 7. Small-boat fleet structure according to quota category, 2002–2014.**
(Fiskistofa 2015b)
The image suggests a steady increase from 39.368 to 54.1783 million ISK in debts, making for an increase of 1276.2 per cent in the fishing industry, boosted by deregulation of the Icelandic economy and privatisation of banks in the early 2000s. A similar trend can be seen for long-term liabilities. The post-crisis development suggests a rather steep decrease, though debt and liabilities in the industry remain high (Statistics Iceland, 2013a).

Although the figures indicated by NASBO (2011) indicate a general profitability in the small-boat fisheries, the marketisation of the fishing fleet has led to a general trend towards high operating costs in the small-boat sector based on wages, quota rentals and state-of-the-art fishing gear, oil, maintenance, office costs and insurance that range between 75.4 per cent and 92 per cent of total revenues in the operating accounts in the largest vessel category of small boats under 10 metres from 2003 to 2012, leading to overall thin profit margins when looking at the general picture after depreciation (Bórdarson & Víðarsson, 2014). Accordingly, profits remained negative from 2003 to 2008 (except 2005), ranging from –1.8 per cent in 2007 to a record loss of –82 per cent in the crisis year. Interestingly, the trend seemed to have turned towards positive profits after 2008, from 5.1 per cent in 2009 to 10.4 per cent in 2010 and 4.9 per cent in 2011, although 2012 suggests yet again a turn to negative profits (–3.8 per cent) (ibid.). Although the data used above exclude the newer bigger small boats up to 15 metres that play a crucial role for the larger quota-owners in the small-boat system, it corresponds with interviews and field observations conducted during this study. Never-

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31 With close to 1600 registered vessels, the vessel category under 10 metres is by far the largest category of vessels equal or under 15 metres in 2013, followed by about 280 vessels between >10 >13 metres and around 100 vessels <13<15 (Bórdarson and Víðarsson 2014: 7; data include vessels without fishing licences).

32 These figures, however, include all registered fishing vessels under 15 metres, thus including part-time vessels fishing in the summer coastal fisheries or lumpfish licences besides the market-based ITQ system (see below).
theless, it is difficult to make general claims about profitability in the small-boat system due to the diverse history and background of fishing vessel owners (ibid.), for example, that profitability is generally higher for those who got fishing quota allotted with the implementation of the system, whereas newcomers relying mostly or exclusively on costly quota-rentals are struggling (see Chapter 6).

In this sense, investments, debt and liabilities have re-entangled fishers by shifting the expectation structure from general cost-awareness to profit-making, which are increasingly translated into must-expectations the more quota-owners need to serve their creditors and cover increasing operating costs to stay afloat. In order to fulfil this expectation, field observations and interviews suggest two strategies:

a) Generating new costs by investing in new fishing gear, state-of-the-art technologies and fishing quotas. For instance, the operating costs reveal a general downward trend of wages for vessels under 10 metres from 42.9 per cent in 2003 to 29.3 per cent in 2012 to compensate for other increasing costs, in particular gear and oil as consequences of investments in new vessels, gear and changing market prices.33

b) Maintaining old gear and reducing overhead costs for bait and salary to the detriment of overall landings and competitiveness due to the lack of quota and capture efficiency (FN: 69; see also Chapters 5 and 6).

These two strategies cannot be viewed in isolation from each other, as the investment strategies that allow for more ‘efficient’ fishing operations enlarge the gap between two. Paradoxically, this does not mean that strategy (a) takes the pressure off quota-owners, as they need yet again to find ways of coping with their costs and thus reproduces the ‘must’-expectation of profit-making.34

To summarise: increasing investments in the small-boat fisheries have increasingly re-entangled small-boat fishers’ economic expectations from cost-awareness to profit-making. Basic strategies are to keep operating costs low and engage in rationalisation and profit-maximisation in order to pay off long-term liabilities as a consequence of investments in order to stay afloat.

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33 The data indicate a rather steady increase in oil from 2.4 per cent in 2003 to 11.6 per cent in 2012 (Börðarson and Viðarsson 2012). This can be explained by investments in newer vessel with stronger engines that go on longer trips, as described in Chapters 5 and 6, and increasing oil prices.

34 As will be further elaborated in Chapter 6, it is therefore likely that strategy (b) is introduced as a way of coping rather than strategy (a).
4.6 Conclusion: Unfulfilled expectations

This chapter has shown that the marketisation of the small-boat fisheries must be understood in the broader historical setting of a culture of small-boat fisheries, which were successively transformed by means of market-based ideas on modern resource management. It has been shown that the organisation of such markets presupposes the disentanglement and translation of rural fishers into fully-fledged market actors who can freely engage in market transactions. On the other hand, the chapter has shown how this marketisation process is prone to stimulate a prompt re-entanglement of fishers, who try to cope with their new role by engaging in investments to secure their future share of the catch in money-mediated relations. This, in combination with the deregulation and financialisation of the Icelandic economy, has stimulated massive investments in fishing gear and fishing quotas. With the meltdown of the Icelandic economy in 2008, however, the quota bubble burst and many companies who engaged in speculation on rising quota prices were doomed to fail. On the other hand, other quota-owners who either sold out of the industry before the crash or only had moderate debt profited from post-crisis prices and could remain afloat. These companies, however, are tied to their financial liabilities and must fish off their debts accordingly. Thus, the culture of independent small owners is being challenged by tendencies towards increasing capitalisation and rationalisation, which has changed the economic expectations from general cost-awareness to an imperative towards profit-making in an increasingly professionalised year-round small-boat fishing industry that has hooked small-boat fishers on markets.

Furthermore, it has become clear that the marketisation of the small-boat fisheries not only implies a re-entanglement in a money-mediated system of profit-oriented expectations, but also a transformation of the culture of small-boat fisheries that has turned the former opponents of the quota system into investors and fierce defenders of it. While it still remains the dream of many fishers and quota-owners, as well as an important symbol at the rhetorical level, the reality of today’s small-boat fisheries is very different. In a way, one could say that small-boat owners are now forced to be independent.

All in all, the culture of small-boat fisheries is increasingly losing its role as symbol of independence and significance as a safety net for the coastal communities in decline. This development can also be observed on the political level, where new lobby groups of larger quota-owners have started challenging the privileges and protective measures of the small-boat system, which implies a fragmentation of social solidarity.  

35 The consequences of this development can also be observed on the political level. At the time of writing, a new lobby group of larger quota owners was about to split from NASBO, as they no longer wanted to follow the one-vote-per-boat rule within the organisation (FN: 101). Furthermore, a new lobby group (Landssamband línubáta) of quota owners using baiting
Another sign of this cultural transformation is that it is almost impossible for newcomers to enter the industry. Although the market system is in principle open to everybody, entrance costs have become way too high for anyone without fishing quotas or other financial assets. This fact has caused a lot of frustration among the increasing workforce of fishers who need to sell their labour on a contract basis to one of the quota-owners. However, the desire to be one’s own master remains strong, although people are aware of the risks involved with such investments (‘I have thought of that, I am still thinking of it’, MVII). All in all, the situation remains difficult for those left out. Although buying a small boat and renting quota seems to be an option for some, buying quota seems all but impossible for a start-up company trying to enter the industry. As a successful and respected small-boat skipper puts it desperately with regard to his chances of being becoming his own master:

Why can’t the guys that go to sea own the quota? If we would go to a bank and ask for a loan, they would laugh at us. (FN 75)

Today, the only option for entering the industry is through the non-market system, in particular the part-time summer coastal fisheries. Some of those who invested in a small boat for this system did so because they speculated that these boats would eventually be integrated into the ITQ system. Lobbying efforts from quota-owners of both LÍU and NASBO, however, are strictly opposed to this, as this would mean cutbacks on their own quota-accounts, and, as it stands today, there seems no sign that the hopes of these coastal fishers will be fulfilled. Others saw the part-time fisheries as a chance to finance a fishing vessel as a starting point to slowly get a foot into the industry (‘I am trying to own something, maybe later I get, when I finish pay the loan’, MXVI). Because of low quotas and only a few days at sea, however, competition for the limited quota is fierce and every missed open day at sea means a significant loss for those who invested in vessel and gear. For this reason, fishers who took loans to enter the system are forced to engage in competitive fishing to secure their free quota share in order to pay off their liabilities. In this system, however, fishers cannot choose when to put to sea and therefore often put to sea in bad weather, turning the fishery into an often brutal grind. As one skipper, who was almost dozing off after spending four long days at sea told me: ‘I am getting really tired of it’ (MIX), indicat-

machines have split from NASBO to challenge the quota discount for hand-baited lines (ibid.).

36 According to estimations from NASBO, the minimum entrance cost for entering the small-boat quota system in a profitable way lies around 190 million ISK for a boat with quota – about €1.273 million at the time of writing (Stéfansson 2015).

37 This is especially true for vessels stationed in the Westfjords region, which is the fishing zone with the most vessels.
ing that his hopes and expectations for the part-time system were different at the beginning.

While this chapter has shown how the web of relations and expectations has changed, it still remains to be seen how our new cultural figure of the independent small-boat owner is coping with her new entanglements. The next chapters will therefore map out the coping strategies and practices in which the cultural transformation of the new world of modern small-boat fishing is gaining momentum.
Chapter 5. The phenomenology of fishing

*It’s not rocket science!*

Deckhand

On a bright polar day in June, I arrive at the harbour around midnight, where a local skipper is waiting for me to join him on a longlining trip. In contrast to the privileged class of independent fishers, the skipper, like many others putting to sea today, does not own the means of production and is hired to fish off what is left of the owner’s quota for the season. We grab our provisions for the trip, board the boat and drive over to the other side of the harbour, where the other member of the crew, the deckhand, is already awaiting us at the docks to put the 32 bala – buckets of longlines – on board with the help of a small crane at the docks, making a total of 9 kilometres of longline and 16,000 hooks that were hand-baited in the village. After finishing his job, the deckhand boards the 14.96 tonne and 12.45m long boat and we are ready to sail.38

After gathering at the wheelhouse, where the skipper will make the obligatory call to register that his vessel has put to sea at the Icelandic marine administration, the skipper will inform the crew that he has decided to sail much further than usual, about 60 miles offshore, just above the Arctic Circle, as the forecast is quite good and ‘heavy lines’ were reported from that area recently, which used to be reachable only for the large steel vessels of the fleet just a few years ago. It will turn out during the trip, however, that it is not only the range of the small-boat fleet that has changed over the years.

Although the technique of longline fishing has essentially remained the same for centuries, the modern world of small-boat fisheries has little to do with the world of open rowing boats of pre-modern days, when fishers had to rely on nothing but their faith in God and experience of ‘reading nature’ before putting their lives and fortunes at the mercy of the sea. In this – to borrow an expression of Foucault (1970/2002) – *order of things*, fishing was a duty before God, who, if merciful, maintained the livelihood of the people,

38 If not noted otherwise, all observations of this fishing trip are taken from the field book, pp. 75–80.
rather than being a source of wealth and prosperity in the modern sense. The fish were caught, gutted, salted and stored by the same man at the fishing station, where they would try to make a living during the winter months before they returned as peasants to their mainland farms in the spring.

Today, longline fishing on small boats is a highly professionalised year-round economic activity that takes place in a highly industrialised and technologised environment. By joining a fishing crew on their daily grind, this chapter makes a humble attempt to understand the world of modern small-boat fishing from an ‘inside’ perspective. The argument for doing so is simple and straightforward: actual fishing forms the backbone of the entire fishing industry. Hence, the value of the quota and the raw material is essentially grounded in the doings and landings of the fishers. Without people putting to sea, there would be no wharf building fishing boats, no fish markets, no fish processors, no quota market and no global value chain connected to the export industry.

The phenomenological analysis presented in this section stands in light of what has been widely summed up under the label ‘Theories of Practice’ (Reckwitz, 2002; Schatzki, 1996; Schatzki, Knorr Cetina, & Savigny, 2001). Accordingly, social order can be explained neither as the sum of cognitive and conscious interaction patterns between atomised individuals, nor as some abstract reality sui generis that is separated from human agency. Thus, the world cannot be simply conceptualised as a more or less static, taken-for-granted, objective lifeworld separated from the mind (Schütz, 1932/1974; Schütz & Luckmann, 1975/2003), nor as an incorporated habitus that is independent of the material engagement and contingent situatedness of social practices (Bourdieu, 1977).

The key argument of the chapter is as follows: the social order of modern fishing is grounded first and foremost in skilful copings that are mostly prior to any form of intentional object-directedness or cognitive representations. In fact, instead of simply presupposing a formal hierarchy and clear-cut chain of command, we will see that most activities are rather structured around what I will refer to as circumspection (Umsicht). In recent years, however, digital information technologies have created new pathways for practices that have not only changed the spatio-temporal relations between the fishers and their environment, but the world of modern fishery economies as such.

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39 A historical artefact of this ancient world around an ancient fishing station be found in the Westfjords at the Ósvör outdoor museum near Bolungavík. As one of the oldest documented fishing stations in Iceland Ósvör was rebuilt for an excellent historical documentary entitled Íslands þásund ár (1997; English title: Give us this day) that gives an insight into life and work around the station before the advent of capitalism and the motorisation of the fishing fleet.
5.1. The floating workshop

Once the vessel leaves port, the crew and their vessel will remain tightly knit until they return. The physical boundaries of movement are clearly constrained by the material expanse of the vessel itself from the stern to the bow, from port to starboard. If the crew crosses these boundaries, there is nothing but the icy water and the strong currents of the North Atlantic, bearing the serious risk of hypothermia or drowning within minutes.\(^{40}\)

While the rookie fisher on board seems to be a little nervous about putting his life at risk in a plastic hull for the next 15 hours, the skipper and the deckhand do not seem particularly concerned about the deep reflections of their new crew member. Instead of feeling separated from their material environment and thinking about all the potential perils of the sea, the mood of the crew is rather relaxed as they engage in fairly mundane activities, such as putting away the provisions, starting the engine, checking the weather forecast, talking on the wireless, discussing fishing strategy and exchanging the latest community gossip. In other words, the crew does not seem to be aware of the fishing vessel in the same sense as the ethnographer, who has already objectified the vessel and the crew in his mind. Instead of being merely a constraining space, the relation of the crew to their environment seems to be first and foremost of a practical nature and reminds one of the doings in a workshop – a floating workshop, in which tools and machinery are used for harvesting and manufacturing raw materials.

As in any workshop, there are different areas for work, such as the wheelhouse, the deck and the hold, which all have different functions in the manufacturing process. In contrast to the traditional conception of a ‘stationary’ workshop in which goods are crafted with the help of tools, however, the floating workshop goes beyond manufacturing as it provides shelter from the sea and allows for the spatial relocation of the workshop through navigation. But how can we understand this mundane relation between fishers and their workshop?

5.1.1 Skilful coping in the wheelhouse

As the name indicates, the wheelhouse is not only the central site for social gathering, but also for navigation, communication and control. Today, the architecture of the wheelhouse allows for a 360° view around the boat, while at the same time displaying a multitude of information via electronic devices providing information about course, weather forecast, fuel, level of sea water on board and the state of the engine room (see image 9). Based on similar observations from modern marine navigation and the aviation industry,

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\(^{40}\) To prevent hypothermia in case of emergency, all fishing vessels in Iceland are required by law to be equipped with special floating dry suits.
Hollan, Hutchins, and Kirsh (2000); Hutchins (1995a, 1995b) have made the point that cognition is distributed among socio-technological arrangements.

Cognitivist theories of perception that include cultural-material aspects of cognition (Hollan, Hutchins, & Kirsh, 2000; Hutchins, 1995a, 1995b; Knorr Cetina, 1989, 2008), however, by definition presuppose one or another form of representation in the minds of intentionally – in the technical sense of object-directed – subjects (Dreyfus, 1993, 2004). There is, however, no evidence that the skipper engages in some more detailed analysis or distributed ‘computation’ (Hutchins, 1995a) of information or fixation of a certain aspect of reality, as the skipper’s orientation towards many tasks implies dispersion within a unified environment rather than fixation on an isolated aspect of reality, as the following example illustrates.

While leaving port, the skipper must manually navigate his vessel by utilising the steering wheel and the lever. To do so, he does not first have to understand the mechanical functioning of the devices. Hence, when the skipper is utilising the wheel and the lever, it seems that the lever somehow ‘disappears’ as an object of a theoretical nature (Knorr Cetina, 2001: 178). The observations, however, suggest that the relation of objects as representations and human practices is reversed, meaning that objects are not first conscious and then disappear in the sway of practical coping. Rather, the wheel and the lever seem to build a relation with the skipper that is prior to his theoretical understanding. We can therefore say with Heidegger (1962: §15) that the wheel and the lever – like the famous hammer in Heidegger’s workshop – are essentially ready-to-hand. Hence, instead of being perceived as two separated objects, wheel and lever can be better understood in terms of what Heidegger (ibid: §15: 97) calls equipment (Zeug). Accordingly, equipment is defined formally as something ‘in-order-to’ (ibid.): the wheel is equipment in order to change the direction of the boat; the lever is equipment in order to change the speed of the boat. In this sense, the wheel and the lever are not isolated atoms in an objective space, but gain their meaning in relation to other equipment, such as the sonar, the propeller, the buoy, the fishing lines – in other words, in the totality of equipment (ibid.), which itself is equipment in order to catch fish: the floating workshop of the fishing vessel. Hence, instead of presupposing first engagement in some rule- and object-oriented behaviour, it rather seems that the relation of the skipper to the wheelhouse is rather grounded in a pre-intentional (what one might loosely call pragmatic) relation with equipment, which Heidegger (1962: §16; §69) has called the circumspection of concern (Umsichtigkeit des Besorgens).

The circumspection of concern designates a pre-reflexive form of involvement with the world on the part of human beings (Heidegger refers not to human beings but to Dasein – literally ‘being-there’ – in order to try to get to the phenomenon without being pre-empted by the familiar subject/object pattern). Pre-reflexivity, however, does not mean that circumspection remains ‘sightless’, as Heidegger (1962: §15: 99) remarks. Rather, circum-
spection designates a state of dispersed awareness within the surrounding environment. It is for this reason that the skipper can engage with a multitude of equipment at the same time: while steering the boat, the skipper will talk on the wireless to other fishers, check the control panel and retrieve information from his chart plotter and navigation software.

Thus, in contrast to the ‘theoretical gaze’, which Heidegger characterises as ‘just looking’ (ibid: 98) at an isolated aspect of reality, the skipper feels with his body how to move the boat against the current by being constantly attached to the physical movement of the vessel, while at the same time being aware of the vessel’s distance from the docks – just as an experienced driver has a sense of distance and space when parking his car without deliberately measuring the distance to the car in the next parking lot. Space, however, is not encountered in the Cartesian sense of a container-like extension, but as a qualitative phenomenon, which shows itself first and foremost as what Heidegger calls *Ent-fernung*, that is, as a ‘de-distancing’ or ‘bringing-close’ of something (the original translation of *Sein und Zeit* renders this ‘de-severence’, but Hubert Dreyfus prefers ‘dis-stance’) (Heidegger, 1962: §§22-24). In this sense, the vessel can rather be described as an extension of the skipper’s body that allows him to gauge distances and movement in the form of a bringing-close, rather than being a cognitive attachment in an extensive spatial coordinate system of abstract relations.

In this sense, the observations from the wheelhouse confirm the deckhand’s statement that the doings on board do not involve ‘rocket science’. Nor does the skipper seem to engage in any form of theoretical reflection that separates him from the boat and the environment. It would be wrong, however, to assume that fishing is ‘easy’ and does not require any form of skill. In fact, it is physically demanding and requires considerable mastery in order to ensure a smooth coordination of activities around heavy machinery in a potentially rough and dangerous environment. Hence, fishers know how and when to use the machinery ‘by heart’, just as they have a feeling for how to adjust their bodies to a rolling boat while working on deck. In line with Hubert L. Dreyfus’ Heideggerian phenomenology of everydayness (Dreyfus, 1991, 1993; Dreyfus & Dreyfus, 1984), I will therefore refer to this specialised involvement with equipment as *skilful coping*. 
Image 9. The wheelhouse as focal point of circumspection. The skipper monitors the wheelhouse while the boat is sailing on autopilot towards the fishing grounds. The skipper has full responsibility for the boat and always keeps an eye on the equipment above the steering wheel, although most devices have a voice alarm (for example, when too much sea water has flooded the hull). To the upper right, the monitor displays the engine room, which according to the skipper is ‘very important. You really don’t want a fire on your boat’. The computer screen to the upper left and the two to the lower left have multiple usages and programs can be switched according to individual needs. To make his monotonous job more bearable and because the sea is fairly calm, the skipper has decided to watch a movie (upper left) and to get in contact with his social network community (lower middle). This, however, does not imply that the skipper is losing awareness of his surroundings (see below).

In contrast to Bourdieu’s (1977)\textsuperscript{41} class-based notion of habitus, which reduces the logic of practices to incorporated forms of pre-conscious ‘regulated improvisation’ as the basis for the symbolic reproduction of a given social order, skilful coping refers to more general mode of awareness (ibid.) and comportment that is not to be confused with ‘mindless, mechanical behavior’ (Dreyfus, 1993: 88-89). Thus, comportment ‘is adaptable and copes with the situation in a variety of ways’ (ibid.), as skilful coping is not merely a chain of passing singular events, but embedded in a temporal reference structure of

\textsuperscript{41} Needless to say, Bourdieu’s practice theory was strongly influenced by Heidegger’s phenomenology of everydayness. In contrast to other practice theorists, such as Dreyfus and Schatzki (1996), however, Bourdieu never really engaged in developing a fully-fledged theory of practice in the tradition of the early Heidegger and therefore seemed to return more and more to the French structuralist tradition he had once departed from.
previous dealings that allow for flexible adaption to an ever-changing environment. Using the example of the skipper, skilful coping therefore is not merely regulated by certain values, understandings, aesthetic tastes or a ‘social’ logic of a field, but a socio-material practice that allows flexible adaption to the contingent and potentially dangerous environment in which fishing takes place.

Thus, rather than first needing to engage in some sort of mental act or calculation before moving the vessel, the observations from the wheelhouse suggest that the skipper is always already situated in an already meaningful disclosed world that lies before any form of subject/object divide (Heidegger, 1962: §§14-27). Thus, the skipper does not need to observe his environment in the sense of a conscious subject contemplating an object in order to have a feeling for the movement of the boat, but engages in a, first and foremost, pre-reflexive pragmatic involvement with equipment in an already meaningfully disclosed world that lies before any form of ‘habitual’ behaviour or cognition. Heidegger (1962: §§14-27) has called this primordial relation of man (Dasein) with the world being-in-the-world (In-der-Weltsein). This, however, does not merely imply a primacy of practice over theory, but points at a more fundamental relation of our skipper with the world.

5.1.2 The worldliness of the fisher

The further we go, the rougher the sea becomes and the boat starts rolling heavily. As an inexperienced rookie, I make the mistake of leaving my lunch box unsecured on the table and only manage to save it at the last moment from being spread all over the wheelhouse when a large swell hits the boat and our bodies are forced out of their comfort positions. The skipper smiles at me and says: ‘You cannot just watch a movie on autopilot in bad weather’, indicating that his involvement with the computer screen has just been shifted to the sea state, which caught his attention by being mediated through the vessel to my lunch box and our bodies, in which our primary involvement with the world is grounded (Merleau-Ponty, 2012/1945).

This little episode makes clear that the skipper is not merely a mental subject that engages in conscious observation of his environment. Rather, it highlights a form of pre-reflexive involvement with the world, which is not necessarily based on the direct use of artefacts and material devices. In this sense, Heidegger (1962: §18, 118) remarks that ‘involvement’ (Bewandtnis) ‘is itself discovered only on the basis of the prior discovery of a totality of involvements’ (Bewandtnisganzheit) and it is this ‘pre-discoveredness’ in which ‘there lurks an ontological relationship to the world’ (ibid.). This implies that the world is always already pre-understood in a non-reflective way: the skipper already has an understanding of how the boat moves, in which weather conditions and what this means for his involvements and dealings at the wheelhouse. In this way, the world does not simply ‘act’ on the skipper.
in the sense of stimulus and response, as any stimulus from the world requires a pre-understanding in order to be perceived at all. In this sense, the perception of the factual world is itself based on a phenomenal structure, which Heidegger (1962: §14) refers as the *worldliness of the world*. This implies that the world does not belong to some external objective sphere, but to the skipper himself. In other words, the skipper is not only in a factual world of socio-material relations. Rather, the analysis suggests that the skipper himself has a world.

‘Having’ a world implies that the relation to the world cannot be described in terms of mere behaviour, as is the case with animals (Heidegger, 1983: §42). In this sense, a fish’s behaviour takes account of the currents of the sea, but it remains bound by its physical environment. And although machines that make up the fishing vessel may have some sort of primitive actor quality, their functioning requires a construction plan (ibid.: §51). The world of man (Dasein), however, lacks any construction plan, although in one aspect it is its constructor (ibid.: §42). In other words, having a world implies that man is world-constitutive, as it is not only bound to a physical world of material relations, but able to create and understand its own meaningful world. It is this constitutive openness and self-reference that characterises its primary relation with the world. Thus, instead of assuming methodological symmetry between human- and non-human actors (Latour, 2005), the phenomenological analysis is directed to the practices of humans with their socio-material world. Only from this perspective can we understand how fishers cope with and adapt to the constantly changing environment in which fishing takes place. In the next section therefore we illustrate how the skipper encounters and deals with his factual world at sea, using the example of disturbances and malfunctioning of equipment, which can put the lives of the crew at serious risk and danger from one moment to another.

5.1.3 When the fishing line gets tangled: coping with disturbances and malfunctions

While the skipper is absorbed in a state of skilful coping, a squawking seagull will not draw any special attention, although he might well hear it. The seagull bears no reference to the equipment ready-to-hand and does not interfere with his coping. In contrast, a screaming alarm from the wheelhouse – for example, when too much seawater has flooded the hold – will attract the attention of the skipper, as the signal bears a reference to the safety of the vessel. Usually, the signal will stop, as the seawater is pumped automatically out of the vessel and the skipper will just maintain his routine at the wheel-

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42 Here I follow Dreyfus’ (1991) translation as it literally refers to the German term ‘Weltlichkeit’ rather than using the term ‘worldhood’ as used in the English translation of *Being and Time* from 1962.
house, as he is used to the alarm occurring when sailing through rougher waters. In case of a persisting alarm, however, the signal becomes conspicuous (auffällig) and shows itself in the mode of obtrusiveness (Aufdringlichkeit) (Heidegger, 1962: §16). Hence, the skipper’s attention is shifted from what Dreyfus (1991: 70) refers to as ‘absorbed coping’ to ‘deliberate attention’ in case the hold actually is flooded, a fishing line is snagged or tangled (see image 10), the steering does not work or the engine breaks down.

Image 10. When the fishing line gets tangled. After the first string is almost hauled in after more than three hours of non-stop work on deck, the routinised order is broken and turned into a tense state of danger as the fishing line and the anchor line of the buoy turn out to be entangled and stuck in the winch. The risk of losing the buoy and the fishing line can be a substantial economic loss to the crew, but it is also a threat to the safety of the crew on board the fishing vessel as line tension is growing on the winch. The skipper and the deckhand must now improvise and see whether the fishing line and the buoy can be safely disentangled. The skipper reacts rapidly by pausing the grid winch, freeing the lines by cutting them with the knife used for cutting the fish, tying the loose ends back together with the assistance of the deckhand securing the lines from not slipping away and putting the repaired end back on the winch. Shortly afterwards, the rest of the fishing line is brought back in and the order of routine and practice seems restored. While looking more than relieved, the skipper merely remarks ‘You can imagine how it is if this happens in bad weather!’ (FN: 78).
In these drastic cases, the reference of equipment to the totality in which it has its being or makes sense becomes obvious, as the lives and safety of the whole crew are at stake. For this reason, deliberate attention will be focused on restoring the primary function of equipment. In these cases, equipment becomes present-at-hand (vorhanden), that is, isolated and problematised by means of reflection and objectification (Heidegger, 1962: §16, §69b), which is also a basis for causal problem-solving. This, however, does not mean that the object is separated from the world as abstract entity; abstraction itself is only possible in the context of the world in which it is essentially grounded.

If the problem can be fixed, practical problem-solving will eventually fuse back into absorbed coping, for example, when the boat has been stabilised, the steering wheel has been fixed, the fire in the engine rooms is under control or the fishing line has been repaired. If the problem remains, however, the fishing line will probably be lost, or the crew must call on other vessels and the coast guard to either tow them back to port or rescue them. In any case, however, ‘making sense’ – practical and reflexive – can never be seen merely as the result of some sort of isolated cognitive act in which the world as external entity ‘reacts’ on a closed cognitive system. Nor can we simply presuppose a primary relation of practice over theory, as both stances are fundamental features of human coping (Heidegger, 1962: 238).

In this section we have pointed out different forms of involvement on the part of the fishing crew, which are based on a set of routinised practices and experience at sea. But what distinguishes the fishing crew’s circumspective involvement and skilful coping with disturbances from the coping of an inexperienced rookie?

5.1.4 The difference between skilled fisher and rookie

Training a rookie with little or no experience at sea is always a risk for a skipper as he does not know beforehand how his apprentice will cope with the new environment. Especially in rough seas, seasickness seems to be a problem for rookies, who either quit the job or learn how to cope with it over time. In case of nausea or any other reason for malaise, the skipper has to show solicitude for the rookie and make sure that he can rest. But how can we characterise the difference between skilful coping and rookie coping?

We have already pointed out that the rookie’s perception of the fishing boat as a new place that needs to be discovered and understood is different from the ‘absorbed’ state of being and coping that characterises daily and routinised activities. The examples above have shown, however, that not all coping takes place in a state of absorbed coping, as irregularities may arouse more deliberate attention on the part of the skipper. But it is especially the rookie on board who engages in many more reflexive acts such as observing the actions of the skipper and the deckhand to try to understand how things
are done. Furthermore, he will try to follow general advice from the crew and try to remember rules and guidelines and try to acquire skill by imitation.

In order to acquire the skill of longline fishing, however, the crew will show the rookie by demonstration how to execute the tasks that structure the fishing operation. For the sake of safety, the rookie will of course start with easier tasks such as gaffing (see image 11) and cutting the fish, but it is important for the crew to remain circumspect in relation to the doings of the rookie and give advice in case of problems or failure. For instance, when gaffing the fish, the deckhand was standing beside me with a long pole to secure the fish I kept losing with the hook – a practice that the experienced gaffer would do himself.

Image 11. The rookie. The author working with the gaff hook to secure the fish while the lines are hauled in. It is no secret that the crew had great fun watching the rookie miss a considerable amount of fish (‘We have some experience’) – in this case the deckhand would react rapidly and use a long pole equipped with spikes at the end (to the right of the author) to ‘rescue’ the valuable catch that had fallen off the hooks from the sea. To ensure the best quality, it is important to hit the fish with a single hard and precise stroke around the head so as not to damage the filets (see chapter 7). When the lines hold only a few fish, the sailor in charge will often practice hitting the blank hooks with the tip of the gaff.
In line with these observations, Dreyfus and Dreyfus (1984: 30) write that

One must (…) abandon the traditional view that a beginner starts with specific cases and, as he becomes more proficient, abstracts and interiorises more and more sophisticated rules. It might turn out that skill acquisition moves in just the opposite direction: from abstract rules to particular cases. (ibid.)

It is important at this point to repeat that, independently from its level of mastery, skilful coping is always grounded in a temporal structure that bears reference to previous dealings. It is because of the temporality of man, as Heidegger (1962: §65, 403-408) remarks, that the rookie is not completely at the mercy of a meaningless and alien environment, as he also has some sort of more or less advanced pre-understanding of what it means to be on a boat and fish for cod.

With Pálsson (1994) we can therefore say that the process of enskillment is rooted in the social- and natural environment, in which the rookie enters a master–apprentice relation. Only on this basis can the rookie learn to ‘get his sea legs’ in form of a bodily disposition. After all, it remains the privilege of the skilled expert to not only understand a given situation, but also to swiftly associate appropriate actions without engaging in any form of mental representations or calculative evaluations (ibid.: 34).43

5.2 The Care of the skipper

In modern fishing, heavy machinery is deployed in a potentially rough and dangerous environment. Working out on the ocean not only requires a lot of skill and awareness of the surroundings, but also a strict set of routines, around which the fishing operation are structured. Hence, the skipper must take care of the machinery and his surroundings to ensure that overall safety is maintained on board.

In a similar way, the skipper carries the responsibility for the success of the fishing operation as such: the skipper decides not only when and under which conditions the crew will put to sea, but also strategy and fishing location. All these responsibilities require that the skipper has attained knowledge about crew, equipment and the natural environment. In a way, the role of the skipper can be compared to the daily routines and practices of scientists in particle physics, who lack direct access to their object of study and therefore engage in a set of routinised practices centred around control, observation and documentation of their detectors (Knorr Cetina, 1999). As Knorr Cetina (1999: 56) puts it, ‘they substitute the care of the objects with the care of the self’ (italics in original). The care of the self, however, is not only an idiosyncratic quality of scientists, but a general structure that charac-

43 Dreyfus and Dreyfus (1984) distinguish between four different stages of skill acquisition: the novice, the advanced beginner, proficiency and expertise.
...terises our self-understanding (Heidegger, 1962: §41). Hence, all practices directed to equipment and others form the basis for the hermeneutics of self-understanding, which is first and foremost based on taken-for-granted ways and opinions concerning how ‘one does things’ (Heidegger, 1962: §27). In this sense, the care of the skipper compensates for the lack of access to and control over a highly volatile and unpredictable environment through a set of highly routinised practices, which form the basis for his individual knowledge and skill. In modern market-based fisheries, however, the care of the skipper is not limited to the fishing operation at sea, but also includes a set of routinised activities and practices on land.

If we follow Knorr Cetina (1999: 61), the care of the skipper can be analytically decomposed into three categories: (a) self-understanding, (b) self-observation and (c) self-description (see image 12).

a) *Self-understanding* concerns the understanding of technical, market and environmental components and processes. In order to ensure a successful fishing operation, it is important for the skipper to understand under which circumstances and season a fishing spot provides better results than another, which fishing spot produces better quality fish (also see chapter 8), or under which conditions a certain type of bait will provide better results than another. Although the practices of the skipper are far from the meticulous research designs and controlled settings of a physics lab, skippers have hypotheses about the world that are based on experience and tested and fine-tuned in the daily practices of fishing.

#### Image 12. The structure of the Care of the skipper. (after Knorr Cetina 1999: 61)
For instance, when asking a skipper whose company was trying to save money by buying lower quality fresh bait if the different quality grading (A, B, C and D) make any difference to the fishing he explains:

Yeah, especially when you are near, you know, I have learned that if I have not the same bait as they have like in Bolungarvík, I cannot go near them, because the fish, it’s just hurting my fishing, because the fish is not very happy with my bait if they have the other, you know, better [bait], so it’s better for me to stay away from these guys. I have, but it’s okay, I know if I have the same bait, it’s okay, I can be near the boats, but that is, that is really really a big issue! If your bait is not 100 per cent, then you have to think: okay, it’s much better for me to be on my own, no one around, then the fish have no other choice: bait – ah! [laughter]. (MXX)

Here, the skipper has developed a hypothesis about the relation between bait and catch over time, which in turn impacts his fishing practices. In a similar way, another skipper has a similar hypothesis about the age of his fishing line and the catch:

Yeah, a new line is expensive, but it is expensive not to have it! Old line, we call it, it is in the sea it can be ‘dead’. The sea has put so many things into the line and she is getting old, and you say she is ‘dead’ in the sea, so she is not moving, and a new line is moving and fishing more, fishing like 30 per cent more than the old one. (MII)

Although the percentage suggests some sort of empirical value, the fisher does not engage in exact testing or measuring the impact of new lines, but trusts his experience and folk knowledge. In a similar way, there seems to be no definite indicator of when to change a line: ‘We see it, we just see it with our eyes’ (ibid.).

Another important aspect of fishing is to understand when and under what conditions a fishing technique can be deployed. For instance, fishing with jigging computers is usually only effective over the summer months when the fish are active and the seas calm. In rougher seas, however, the current is too strong to get the lead down, and over the winter months the fish are typically quite inactive and can only be attracted with fresh oily bait on a line.

Other important aspects of self-understanding include knowledge of the technical aspects of the fishing vessel, which is important in case of malfunction and emergency when out on the sea. Most importantly, understanding under which circumstances one can put to sea is one of the most important tasks of the skipper. This understanding, however, does not have the status of articulated knowledge, but is for the most part tacit knowledge that gains its meaning in its contextual embeddedness (see below).

b) *Self-observation* concerns being aware of one’s doings in one’s own routines and practices. For this purpose, the skipper engages in a number of
offline- and online practices in order to maintain the safety and success of the fishing operation. As shown above, these practices are first and foremost based on circumspection but may include more deliberate attention in situations of crisis or strategic decision-making. Offline practices include awareness of weather, cloud movements, currents, sea birds (as indicators for bait fish), the activities of other fishers (also through phone/wireless) and so on. Online practices include retrieving information of the weather forecast, vessel tracking websites, radar, sonar, GPS, market prices and so on (see also Chapter 8).

c) *Self-description* concerns the documentation of a fishing trip. The skipper fills out a logbook after every trip, in which he notes data on day, fishing time and catch. Furthermore, the catch needs to be reported to the Directorate of Fisheries, which publishes all data on the catches of each vessel online. While this documentation is required by law, it also provides a platform for observing the rest of the fleet and planning future transactions and fishing operations. Especially with the construction of the quota market, fishers increasingly take care of calculations and paperwork not only in order to report their transactions to the Directorate of Fisheries, but also for keeping track of their own transactions (MVIII). For this reason especially the ‘online quota calculator’ (see image 13) represents an important device for making strategic decisions about fishing operations and market transactions and avoiding fees or losses, as the complex example of buying and renting quota from a small family-owned fisher family makes clear:

I make a paper, fax it to Fiskistofa [Directorate of Fisheries ] and write in the computer how much I pay for the quota, or if I rent it to [or] from me, sometimes we change if we, if we need more cod, or if we need more haddock. Sometimes we change, with the cod for haddock if we need them for the dry fish, or ocean catfish and I have to take care about if I rent more from me than to me ... And I have to take care about [that], if I rent more from me than to me I don’t [get] byggðakvóti [community quota] ... so I will always have to take care about it in the computer to see in Fiskistofa [website of Directorate of Fisheries] how much is in the boat, can I change or... (MVIII)

To simplify this complex issue: the company needs to take care about how much they rent and lease, as they might violate the conditions for being part of the community quota programme, which is distributed by the Ministry of Fisheries to help fishing communities in decline and requires quota-owners to fish off most of their own quota, rather than leasing it out. This, however, can be rather complicated when leasing in the system, which is based on so-called ‘cod-equivalents’ (*þorskigildi*), the anchor currency of the exchange system.
Image 13. The quota-calculator. This public online device gives skippers and quota owners an overview of their allotted and remaining annual quota shares and allows simple calculations with regard to future catches and transactions.

Because for the time being a haddock quota is usually more valuable than a cod quota, it can create the statistical effect that the company is fishing less tonnage when renting out the quota. In this section we have pointed out that to compensate for lack of control and knowledge over the highly volatile environment in which fishing is taking place, fishers – in particular, skippers – engage in a set of routines and practices that allow them to gain knowledge and understanding of their environments. Based on this knowledge, fishers create what we might loosely call hypotheses and theories about the world, which are confirmed or falsified in the daily routines at sea. At the same time, the care of the self creates the basis for the skipper’s self-understanding and individual skill. Many of these daily copings are not limited to the daily routines at sea, but transcend the spatio-temporal boundaries of the fishing vessel to encompass land-based practices. Depending on the complexity of the company, the routines and practices that are basic for the understanding of the skipper can also be differentiated. For instance, the unpopular paperwork is often taken care of by a third person, typically the mother, the wife or siblings who do not work at sea but are shareholders in the company, while bigger companies have professionals taking care of the paper work. It is, however, important for the fishers to be informed roughly about the ‘business’ and ‘politics’ that underlie fishing in order to plan their fishing operations according to the available resources. Many of the routines and practices that structure the fishing operation, however, are not based on ex-
plicit knowledge and documentation, but on unarticulated and incorporated forms of tacit knowledge and evaluations, as the next section will show.

5.2.1 Fishing to the limit: circumspective evaluations

Ever since people started putting to sea, weather has been an important factor in maintaining the safety of the fishing crew. Especially the comparatively small coastal vessels are quite vulnerable when it comes to rougher seas or sudden weather changes. Although vessels today are connected to a wide range of devices that synchronise skippers with a wide range of information on sea states and weather forecasts, skippers must be able to interpret and make decisions on their own.

Although the ITQ system has put an end to the so-called ‘Olympic system’, in which fishers compete in a race for a finite amount of fish or total quota, fishers in some communities in the outer northern Westfjords even earn the reputation for having really ‘tough’, ‘crazy’ or ‘reckless’ skippers. The reputation of the fishing community of Bolungarvík was thematised over and over again by many different people from different fishing communities during the period of fieldwork. The explanations of this behaviour, however, vary: while some interviewees just considered them ‘tough’ and ‘crazy’, others considered them ‘greedy’ (MXIX, IX) and saw their way of fishing as irresponsible (‘Something will happen’ FN:44). In contrast, skippers from Bolungarvík often showed pride in their reputation and tended to consider skippers from other communities as idle and not economically smart, as the following statement sums up:

[They] are just always drinking coffee and relaxing – ‘Oh it’s good weather’ – they just go home. And in Bolungarvík it is like, you know, when the weather is not good, then you get higher prices in the markets, it’s all, the you fish a little bit less, but the higher price, so it’s very good. (MI)

These different styles and attitudes towards rough seas makes clear that the definition of limits also depends on cultural framings and local identities that are diffused through different communities and may even vary from vessel to vessel. In this sense, fishers define and reproduce their limits depending on their socio-cultural embeddedness and economic means: a heavily indebted fisher will have more pressure to push his boundaries than one who has paid off his loans. In any case, it is obvious that skippers in any fishing community have a clear economic incentive to put to sea, as their income

44 In the open coastal summer fisheries, however, the Olympic system still exists. Here, fishers compete for a limit amount of catch quota that are based on different zones, creating a higher incentive to fish in bad weather the more boats have registered for the annual season. The logic behind the system can be summed up as follows: if one fisher puts to sea, all need to follow in order to get their share of the allotted quota.
depends on the catch, and it is for this reason that fishers are prone to fish at their personal limits. But how are these limits defined in practice? When I asked a skipper whether he has a limit for putting to sea, he was not able to give a clear response:

AD: What is your limit (for putting to sea)?

Skipper: [tentative] The limit! It's very [flexible]! Can be here, it can be here… (IX)

The general ambiguity of defining a clear limit is confirmed by another skipper:

AD: And just for you personally, is there a limit like wave height or something, where you say: Okay, I just don't do this (…)

Skipper: Yes! Yes some, it's not not, you cannot count, write it down, say this is the limit… (MX)

The quotation points to the fact that the skipper knows very well for himself when to put to sea or not, but he is unable to verbally formulate a clear rule. Only when one pushes the skipper will he start to isolate different parameters:

AD: Yeah, you check different parameters...

Skipper: Yeah, check, yeah...

AD: Like what do you check, like?

Skipper: There's a wave buoy out the sea, you you can check that...

AD: On the computer [on the website of the Icelandic Meteorological Office].

Skipper: Yes, if the metres [of the waves] is (sic!) higher than two metres, three metres, then you maybe don't go. If the wind is more than 10 metres or something, it's ah, you have to, you have to check both, the wave high, and the wind, how strong is the wind...

AD: And the interval between the waves probably...

Skipper: Yes...

AD: If it's long or...
Skipper: And then you can, sometimes you can go behind the mount-
ain, you have little bit...

AD: Yeah, shelter... (ibid.).

Although the skipper has now suggested some parameters and some rules of
thumb, the quotation still suggests that there is no clear rule that allows for
exact calculation. Nor is there a device that, as an isolated artefact, tells the
skipper what to do in a certain situation. Furthermore, the decision is also
based on the environment of the fisheries. For instance, fishers have often
highlighted that the fishers from Bolungarvík also have better shelter for
fishing, as their home port is situated at the mouth of a grand fjord and is
therefore better protected than other ports which are either located directly
on the open sea, or lie in small shallow fjords where fishing is considered
unprofitable (for example, MIV, MXXII, XIX). However, a mountain or
fjord that can provide shelter for one wind direction can turn out to be a da-
gerous choice in case of turning winds, and in any case, a fishing crew can
also be ‘locked in’ to a fishing situation, as the following example makes
clear.

No, usually it is around, if the weath-
er is not more [than] 10–15 met-
res [of
wind speed per second], when we go out on the sea ... Then we usually won't
go out if it's, especially if it's over 15 metres, then we usually wouldn't go out
in the, in the morning, but ... If you go out in the morning and the weather is
okay and then you start pulling the line in and suddenly you’re hit, there
comes a big wind, maybe up to 18 metres (per second), you try to, you al-
ways try to hang on, always try to finish it if you can! (MIX)

Nonetheless, if the skipper decides that the situation is getting too dangerous,
the crew must cut off the line and head back to port.45

The examples have made clear that there is no clear parameter, rule or
formula for decision-making. Rather, reconsider the circumspective practices
of the fisher from the introduction. In order to decide whether to go to sea or
not, he will wake up in the middle of the night, try to gain information on the
activities of other boats, check the weather forecast and even check the
movement of the clouds over the mountains:

And if you look into the sky and you see the movement of the skies [clouds],
are they moving fast or are they moving slow, they are moving slow now, so
that should not be so strong wind outside. But you can also on the left hand,
here over the mountain, you can see the sky is very dark and that tells you –
this is not very beautiful to see when you’re going to see this, but on the other

45 Although fishers try to avoid losing lines, there is still a chance to retrieve a line when the
weather conditions have calmed down again. To do so, the skipper can navigate back to the
exact spot based on GPS data and drag a modified anchor over the bottom of the spot in hope
of entangling the fishing line in the device (FN: 67, MIX).
side you can see it’s a lot like this, it’s a different, it’s a cloud there, if you look there, it’s better, you can see a difference, just by … the left side of the fjord, on the right side it’s very bad … but you can also look at the mountain and I think the wind is coming from the top and going down, you cannot see anything now, but sometimes you can see it and you can, you can listen if you put your head out the window if the sea is broken. (MII)

The quotation makes clear that although forecasts nowadays are rather accurate, experienced skippers engage in the complex art of ‘reading nature’ just as their ancestors did in pre-modern times. To do so, skippers not only rely on visual observations, but also on acoustic signals that stem from their closer environment.

The practices that structure Bjartur’s care make clear that rather than focusing on one aspect, Bjartur engages in circumspection around a set of routines and practices according to which he evaluates different parameters. Hence the decision whether to go to sea or not is based on circumspective awareness and the bodily relation to a specific situation that makes up the equation of whether to put to sea or not, rather than being based on some explicit rule or limit. Hence, the limit itself must be seen as a social construction based on the contingent situatedness of local knowledge and socio-material practices. For this reason, I will call this way of coping with a highly contingent environment circumspective evaluations.

Circumspective evaluations are evaluations first and foremost based on tacit knowledge (including folk and local knowledge) and structured around a routinised set of socio-material practices in specific contexts. Circumspective evaluations are based on experience and skill at sea and of course can be proven false when skippers try to push their vessel closer to the limits of technology. Although safety measures have improved significantly throughout the years and digital technologies allow for all sorts of information on sea state, wave speed and weather forecast, unpredictable rapid weather changes may surprise a skipper when out in the Arctic Ocean. In case a vessel gets into trouble, it can usually still rely on a wide range of assistance from other larger vessels that provide shelter and the coastguard. This, however, has become a rather rare event, and circumspective evaluations seem to provide a more or less reliable knowledge base.

This section has shown that evaluation of the environment for safety concerns is not based on some form of quantifiable objective indicators that allow for clear calculations, but on tacit knowledge and the particular circumstances of a specific situation. Hence, circumspective evaluations are a form of skilful coping, which is based on incorporated forms of explicit knowledge that is gained and reproduced in the daily routines and practices of the fishers. This, however, does not mean that circumspective evaluations can be understood as somehow ‘private’ in nature, as they are by definition part of the care of the self. For this reason, not only the evaluation of the
immediate environment, but also reputation in the community, economic incentives and pressures have a big impact on a skipper’s evaluative standards. In this sense, any form of evaluation must be understood as a form of convaluation (Aspers, 2008), that is a form of valuation that is directed towards others. Thus, the social context co-constitutes the evaluative parameters in which skippers base their judgements and decision-making. The next section will elaborate further on the social nature of fishing.

5.3 Fishing with others

It is certainly correct that the idea of the a-social outlaw fisher proves wrong because he is embedded in rural networks of production (Acheson, 1988; Barnes, 1954). This section argues even more strongly that fishing itself is a social endeavour. In order to understand the social aspect of fishing, let us return to the beginning of our fishing trip.

When leaving port, it strikes me that the skipper is talking constantly to other fishers on the wireless at sea. Intrigued by this, I ask him whether he sees the other fishers more as competitors or colleagues. After a short pause and obviously puzzled by the question he responds: ‘It’s strange, it’s both’ (FN: 76).

Information about current fishing activities is key to success and skippers engage in all sorts of domestic networks and social institutions such as the local swimming pools or coffee places. At sea, however, modern communication technology (also see below) is key to success not only in finding a free stretch for putting out the fishing lines (see above), but also for gaining information on current fishing activities, as the following example from a jigging trip in the summer makes clear.

After the first drift remains rather slow and below the skipper’s expectations, the skipper decides to call on a trusted skipper located about 10 miles away from us. To gain information about fish activity in that area, we were invited over to fish next to him. After a first busy drift at the new spot, the distance between the vessels was so close that we could even communicate orally and threw jokes at each other while working the fish coming up on deck (FN: 95-96). The little episode shows that the social organisation of modern fishing exists not only in networks and institutions that tie each individual fisher to the domestic world of production, markets and politics. Rather, the practice of fishing itself is mediated through the local ties and networks, through which information flows.

The field examples altogether show that, despite local rivalry, fishers depend on each other and rely on trusted relations and network ties to gain access to information on current fishing activities. But it is not only for this reason that it is wrong to conceptualise fishers as individualistic loners that tend to hide information from others.
Even the most ‘solitary’ fisher putting to sea is always already related to the social origin of the devices that make up the floating workshop (Heidegger, 1962: §15): the hull of the fishing vessel refers to the people who built it; the fishing lines refer to the baiters in the community; the computer software on the chart plotter refers to its programmers and so forth. Unravelling all sorts of relations between fishers and their socio-material environment, however, runs the risk of being a rather descriptive endeavour. If we follow Heidegger (1962: §15) further, sociality is not first discovered in the process of interaction (Strauss, 1978) or based on integration in a normative system (Parsons, 1951). Rather, human beings are inherently social and by definition entrenched in a meaningful shared world with others.

Assuming that human beings are essentially social, reverses the order of meaning production and singularisation: people are always already in an ordered world of shared meaning, which forms a pre-condition for singularisation and becoming a self (Heidegger, 1962: §128). Thus, the private is based on taken-for-granted opinions, beliefs and doing things that are rooted in the public we-world. Thus, fishing, like any other form of skilful coping must itself be understood as a social practice (Reckwitz, 2002; Schatzki, 1996), that is, a set of routinised activities that are grounded and reproduced in a shared and always already discovered meaningful world of contingent socio-material relations.

The existential analysis has pointed out the social nature of fishing as a practice. Although fishing is by definition a social practice, as shown above, activities must be coordinated between fisher and technology and other crewmembers, respectively. So how can we understand the coordination in modern coastal fishing?

5.3.1 Beyond formal hierarchy: circumspective coordination

Large naval vessels are traditional examples of total institutions par excellence; that is, ‘a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life’ (Goffman, 1961a: IX). While this definition may also fit some larger industrial fishing vessels, in which clear cut-hierarchies and chains of command structure coordination on board (Barnes, 1954), empirical observations suggest that life on small boats takes place on an almost exclusively informal basis. Hence, social organisation on small boats neither follows an ‘over-all rational plan’ (Goffman, 1961b: 6), nor is it based on a clear-cut division between a ‘large managed group’ or ‘staff’ (ibid: 7). Space on board ship is simply too narrow to even allow for spatial separation of the kind found on

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46 Heidegger (1962: 70) also remarks that the practical use of equipment also refers to its material and origin in ‘nature’.
cargo ships (Sandberg, 2014) or larger fishing vessels. Instead, all spaces – the deck, the wheelhouse and the small space with two bunks and a little cooker and a microwave for the preparation of simple meals – are shared by the crew regardless of rank or social position. Although the skipper is usually respected as the main authority having the last word on every decision and responsibility for navigation, there are no uniforms or any other visible symbolic distinctions made between the crew and the skipper, who both wear more or less the same working clothes on deck. Verbal communication is highly informal on board and fishing strategies and schedules are usually openly discussed among the crew. But how are practices coordinated when hierarchies are rather flat in an industrialised environment that requires smooth and fast decision-making?

A typical longliner classified in the Icelandic small-boat system typically consists of 2–4 sailors depending on vessel size and quota share. Within the crew, different roles ascribe a set of expectations to each crewmember during the fishing operation. Typically, the skipper is in general charge of the fishing operation and decides on schedule, strategy and fishing grounds and takes care of all navigation-related issues at the wheelhouse, while a deckhand is in charge of all deck-related activities, such as loading the boat, putting out the lines and working the fish.

Modern small-boat fishing has some structural similarities to heterarchies (Stark, 2009), forms of organisation that are not based on a top-down hierarchy, but on multiple, equally ranked units of command. The complete decoupling of work units, however, would be counterproductive if not dangerous in the context of heavy machinery and rough seas, and no signs of different evaluative order of worth among different ethnic groups can be found on small fishing vessels, as reported by Sandberg (2014) in the case of cargo vessels. Hence, a successful and efficient fishing operation is rather based on the frictionless coordination of tasks that requires attentive observation of the environment and mutual understanding of each other’s doings, for instance when setting the lines (see image 14).

Hence, modern longlining on small boats is highly dependent on a routinised and smooth coordination of activities that are grounded in what I call circumspective coordination.

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47 For instance, Sandberg (2014: 102-103) reports the spatial separation of different ethnic groups on cargo vessels during coffee breaks.
48 Even smaller or older vessels usually lack bunks and usually have no cooking space or only a microwave.
49 Depending on the vessel and size of the crew, activities of course will be more or less differentiated, and some of the bigger small boats consist of a skipper, a marine engineer and one or two deckhands.
50 From the wider perspective of a producer market, fishing vessels has always been embedded in a heterarchical structure as producers have little to no direct influence over where and how a fishing vessel fishes – even if contracted or vertically integrated into a company.
Circumspective coordination designates a mode of highly routinised and flexible skilful coping that allows the coordination of multiple activities in a highly uncertain environment. *Routine* in this context refers to taken-for-granted roles and ways of ‘doing things’; that is, the daily routine of repetitive practices with equipment and other people that structure the overall framework of a given social order. Flexibility refers to the versatility of roles and practices with regard to the exigencies of a given situation. Thus, coordination of practices on a small fishing boat is not so much based on static role structures and formalised chains of command, but on a dynamic set of flexible roles that provide orientation for the changing situational dynamics in which small-boat fishing takes place, as the following examples make clear.

After a hearty meal in the wheelhouse around 6 am, we start hauling in the lines with the help of a special grid winch machine in the front part on the backboard side of the vessel. First, the buoy is picked up, and after the first ‘blank’ line is hauled in, the first fishing line will soon break the surface. Although the fishing vessel is equipped with heavy machinery, a large part of the labour out on deck is based on artisanal and physically demanding labour, in which the skipper does the same work as the deckhand. The organisation of labour is fairly simple and flexible: one gaffes the fish by the winch to make sure the fish slip safely on board into the metal storage box, while the other waits to cut the throat of the fish and throw them through a metal tube underneath the deck, where boxes with ice and sea water make sure the fish can bleed out and is cooled down immediately (see Chapter 7).

On a small fishing vessel, however, the amount of tasks outnumbers the crew, which needs to rely on teamwork and improvisation: depending on the amount of lines, the crew will rotate between the tasks of gaffing the fish, cutting the fish’s throats for bleeding before forwarding them to the hold, shovelling ice in the hold (see image 15), ordering the boxes and having an eye on the wheelhouse and the movement, speed and direction of the vessel for the next 6–7 hours.
Setting the lines. After almost four hours’ sailing, at around 3:45 am the skipper wakes up the deckhand to prepare everything for releasing the lines. First, the buoy is prepared for release; a heavy lead as anchor is attached to a line, to which the first fishing line of the string is attached. The system has retained its core simplicity, ‘not rocket science’, as the deckhand puts it, but mechanisation has added a new quantitative dimension to this fishery. Each of the 32 bala is put under a special appliance at the stern of the vessel. Now, the skipper has to manoeuvre the vessel much more slowly so that the line can be released in an orderly fashion over the fishing spot. When a bala is emptied, the next one will start running and the deckhand will exchange the empty bala with a full one until the desired stretch of water is covered. It is very important that the baiter has tidily rolled up the fishing line into the bala to avoid entanglement and ensure an accurate release. At the end of each line, the new line is attached, so that all lines create one single longline. The line, however, is not laid out in one single stretch, but in parallels (in this case running north to south). After the first stretch is set, the deckhand will merely signal orally that the skipper can now turn the boat for the second stretch. Releasing all lines will take us about one and a half hours. After this work is done, the deckhand will come back into the wheelhouse and prepare himself for a long day on deck: ‘Now you have to eat a lot, it will be 6–7 hours work then’.

Hence, informal chains of command, flexible roles and rotation not only bring relief to the long hours of hard, monotonous and repetitive work, but also allow for more flexibility on deck. Short brakes for consuming a dose of snuff or the satisfaction of other needs are usually executed without stopping the grid winch and usually when only a few fish are coming up with the lines. The winch and the fishing line, however, must be under the constant surveillance and control of at least one sailor as long as lines are hauled up.
Not only would a missed fish mean an economic loss; a tangled or snagged line may even cause serious injury or even disaster. In cases of danger and mechanical failure, however, the crew needs to improvise and sense rapidly what has to be done in a given situation without waiting for a clear command from a superior or explicit coordination of tasks (for instance when the line gets tangled; image 10.) For this reason, circumspective coordination implies that crew members are aware of their work places and sense when to shovel more ice into the fish storage, cut the fish, take care of the winch or when it is appropriate to take a break. Thus, circumspective coordination is not merely some formal organisation of consciously executed tasks by different roles, but a coping strategy based on incorporated skills that responds to the structural needs of a narrow workplace situated in a potentially dangerous environment of heavy machinery and unpredictable seas.

Image 15. Teamwork. Out on deck, the crew works together as a team. Skipper and deckhand usually switch between different tasks, mainly gaffing the fish, cutting the fish, checking on the load of the boxes in the hold and making sure that the fish are cooled down with ice. In this case, the deckhand has switched from cutting the fish during a period of blank lines to shovelling ice into the hold without a direct order or command by the skipper, who is watching the line. To make the long, monotonous and physically demanding work and the lack of rest on a heavily rolling boat more bearable, the crew sings along with the songs coming from the wheelhouse’s radio or enjoy a good dose of strong snuff.
5.4 Enframing fisheries

While hanging out at the wheelhouse shortly after we started our long journey back to port after a long day of work, I cannot hide my excitement about all the computer screens in the wheelhouse (see image 16):

AD: This place reminds me of the cockpit of a space shuttle!

Deckhand: Oh, this is nothing!

Skipper: You should see the new bigger small boats of the fleet, they have even more screens with 3D technology – they can really see more!

AD: But do you really catch more fish?

Deckhand: Oh yes!

Skipper: If you know how to use it!

Today, the wheelhouses of small fishing boats are packed with observational scopes (Knorr Cetina, 2003) such as chart plotters and computer screens that a few years ago would have been found only in coastguard ships and large fishing trawlers. Our vessel is equipped with no fewer than six (!) additional screens and chart plotters displaying a broad range of information: (i) a radar displaying nearby vessels; (ii) a sonar/fish finder displaying current depth, seabed structure and fish underneath the boat; (iii) a GPS; (iv) a special marine navigation software displaying the vessel’s past and current positions and other real-time vessel movements at sea based on GPS data and sonar; (v) a second screen used for displaying either an extension of (iv), or displaying the Icelandic Meteorological Office’s weather forecast, in particular the wind forecast, the website of the Directorate of Fisheries or other websites not necessarily used for navigational purposes; and (vi) a screen in the middle of the wheelhouse mostly used for recreational use while sailing, such as streaming movies via the vessel’s satellite internet connection and a small screen to the upper right connected to a camera for monitoring the engine room (‘This is very important, especially if you are going long way out’).\(^{51}\)

As the skipper remarks, however, using computer screens require skill and do not per se lead to a more successful fishing operation. Chart plotters, sonar and GPS have to be understood not only in their technical aspects, but must be related to the continuously and rapidly changing environment in which modern fishing takes place.

\(^{51}\) During the period of fieldwork the author several times witnessed vessels being towed back to port by other vessels due to mechanical failure in the engine room. As the skipper explains to me with regard to the camera in the engine room, the worst nightmare of any sailor, however, is fire on board a vessel – an incident that had just occurred a couple of days before on a boat from a neighbouring community. Luckily, the fire could be extinguished and the boat towed back to port without anyone getting injured.
Modern navigation technology broadens the perspective of the skipper to not only observe other vessel activity in the closer environment (radar to the lower right), but also to gain information on the sea bed structure (sonar in the upper middle) and water temperature in different areas (monitor, lower middle). Furthermore, modern navigation software allows skippers to store positioning and vessel tracks based on GPS data (monitor, lower left).

Up to this point we have described the phenomenology of fishing in terms of the skilful copings and routinised practices in which the world of the floating workshop is constituted and reproduced. This perspective is based on a rather instrumental conception of technology or equipment as something that is deployed ‘in-order-to’ (see above). Our little episode above, however, raises a more fundamental question about modern technology itself: how can we understand this constant desire to ‘see more’? And what does it mean for the being-in-the-world of small-boat fishing? We will see that modern navigation technology can be understood neither as something that determines social action, nor by simply reducing it to a means that serves the fulfilment of human ends. Rather, technology is a form of enframing of human existence, which changes the temporal and spatial orientation of the world of fishing itself.

5.4.1 Modern technology as enframing

Whereas technological determinists tend to understand technology as something ‘hard’ and ‘objective’ that is not only independent of society itself but causally determines social action per se, scholars such as MacKenzie and Wajcman (1999) associated with the Social Studies of Technology (SST) have pointed out that technology is fabricated in a social context, rather than
simply imposing itself on society. Hence, technology is a *human doing* rather than a deterministic *doing human*. In the second edition of the book, the editors correct this yet again one-sided view with regard to ANT (Latour, 2005; Law & Hassard, 1999) by taking into account the actor qualities of technology and artefacts for the co-constitutiveness of technology and society (ibid: 23-24). This perspective has opened up some fruitful insights into the role of human/non-human relations for the construction and stabilisation of controversies around socio-technical arrangements (Callon, 1998a; MacKenzie, 2009b). In line with this, also the works of Donna J. Haraway (1985), which challenge human–nature–technology distinctions have been recognised by a number of scholars for pointing out processes of ‘cyborgisation’ of the fisheries that blur the lines between nature and culture (Holm, 2001; Holm & Nolde Nielsen, 2007; Johnsen, Holm, Sinclair, & Bavington, 2009). Instead of being masters over nature and technology, Johnsen (2004) has even come to the conclusion that fishers are increasingly reduced to being cogs in ‘harvest machinery’, which is driven by quantification, financial interests and ever-more efficient capture technologies. While these accounts do provide good ‘macro’ descriptions of the emergence and stabilisation of actor-networks over time, their conceptualisation of technology and practice remains unclear. So how can we understand the mutual relations between human coping and technology?

Decades before SST was established as a field and the role of technology and material artefacts gained wide acceptance among social scientists, Martin Heidegger (1977) criticised mainstream conceptions of technology for reducing technology to means–end relations, which is inherent in the classical anthropological definition that sees modern technology as a toolbox serving the fulfilment of human needs. Heidegger traces the etymology of the word ‘technology’ back to its primordial meaning, which derives from the Greek word *technikon*. Accordingly, *technikon* implies everything that belongs to a technique (*technē*) (ibid:12): ‘*technē* is the name not only for the activities and skills of the craftsman, but also for the arts of the mind and the fine arts’ (ibid: 13). *Technē*, however, is no mere means or just a certain way of doing, but primarily related to *poiēsis*, that is, bringing-forth, which adds an active dimension to the meaning. In this sense, the artist can use a certain technique for painting a picture, but the way of doing so is grounded in the temporality of a *bringing-forth* of meaning. Thus, the bringing-forth of an artwork or a good is a revealing of a distinct historical truth and is therefore grounded in time itself. It is for this reason that *technē* is a way of revealing, a way in which the ‘truth’ and the meaning of an epoch is materialised.53

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52 In the context of Haraway’s (1985) seminal text, the ‘cyborg’ refers to a political anti-hero that is ought to challenge hegemonic essentialist dualist conceptions of gender, humans, technology and society.

53 On the issue of art also see Heidegger (1936–37).
Only on this ground can technology become an instrument as a means of materialisation of what is revealed. It is for this reason that technology in general cannot be reduced to being a mere means, its fundamental aspect itself is that of revealing: ‘It reveals whatever does not bring itself forth and does not yet lie here before us (…)’ (ibid:). In this sense, the manufacturing of a piece of art or a pair of shoes is a bringing-forth, but technology can never be grounded in the process of manufacturing itself, nor can it be reduced to being equipment in the form of a means. Rather, technology marks a new way of revealing, a new relation of man to being that Heidegger calls en-framing (Ge-stell).

Understanding technology as en-framing points at the world-constitutive aspect of technology. The wording makes clear that it is not only the frames as such that are of importance for the understanding of technology, but the process of framing. Hence, en-framing implies that something is put in place by means of a frame, like a piece of art that is mounted to a wall. The wording also makes clear that it is not primarily a human being who puts the artwork into its place, but the frame as such. In this sense, the frame creates a forum in which the piece of art reveals meaning. With the dawn of modern technology, the form of revealing changes towards a challenging of nature:

The revealing that rules throughout modern technology has the character of a setting-upon, in the sense of a challenging forth. That challenging happens in that the energy concealed in nature is unlocked, what is unlocked is transformed, what is transformed is stored up, what is stored up is distributed, and what is distributed is switched about ever anew. (ibid: 16)

To clarify what Heidegger means by understanding modern technology as a challenging-forth of nature, it is useful to recall an example from the text that is based on the difference between an old wooden bridge and a hydroelectric plant on the Rhine. Whereas the old wooden bridge was built into the river to enable the crossing of the river, the relation of the river to the hydroelectric plant is reversed:

The hydroelectric plant is not built into the Rhine as was the old wooden bridge that joined bank with bank for hundreds of years. Rather the river is dammed up into the power plant. (ibid.: 16)

Thus, the plant materialises the setting-upon of modern technology, which regulates the water flow while transforming it into a disposable standing-reserve (Bestand) ready for utilisation (ibid: 16). It is in this sense that the
way of revealing of modern technology is a setting-upon, which reveals a
distinctively modern condition that is grounded in the exact sciences.\textsuperscript{54}

We can now understand better the role of modern technology in our small
boat.; while in pre-modern times, open rowing boats were at the mercy of the
current, the tides, the waves and the movement of the fish, the world of
modern fishing tends to reverse the process: with the advent of motors, the
sea has become more and more a subject of order that can be mastered by
machine power, turning the fish more and more into a standing reserve that
can be mastered and controlled. In this sense, the relationship between the
fishing fleet and the ocean is somehow reversed: rather than the fishing fleet
being challenged by the mercy of the sea, the sea is challenged by the mercy
of the fishing fleet, which runs year-round operations with ever more effi-
cient vessels. It is also in this light that we have to understand modern re-
source management, which is not fundamentally changing the relation be-
tween the fishing industry and the ocean as a resource; it is invented to con-
serve the ocean as a standing-reserve that can be managed and controlled by
scientific means (see Chapter 2). This, however, does not mean that modern
technology is something separated from human existence, but it does not
‘happen exclusively in man, or decisively through man (ibid.: 24), as we find
ourselves always already in a world that is largely constituted by modern
technology. In this sense, not only the ocean and the fish, but also the fisher
are enframed by modern technology.

In contrast to the olden days, when man had to cultivate a field with the
seasons or live with the tides of the sea, modern technology makes crops and
fruit available for supply and distribution all year round by means of modern
communication and transportation technology. The challenging-forth of na-
ture is the constant accessibility of ‘nature’ as a resource, which is pushed to
the extreme by extracting all sorts of energy from nature and storing it when
the market as central form of coordination has a demand for it. Large mod-
ern fishing vessels, which can put to sea in strong winds and metre-high
waves allow the stabilisation of international markets by providing a con-
stant supply of raw materials. Freezing technology today allows processors
and sellers to stack and store fish for international markets. It is this constant
availability that characterises modern technology and the temporal relation
of man with ‘nature’. This challenging forth also holds true for daily com-
munication and transportation, which redefines the spatio-temporal bounda-
ries across different social worlds.

The next section will point out how digital technology has changed the
temporal and spatial boundaries of the world of fishing, in which the practices
of fishing are increasingly linked and synchronised with their environment.

\textsuperscript{54} For Heidegger (1977: 16), the essence of modern technology was prepared long before the
dawn of its age by the rise of physics ‘for already in physics the challenging gathering-
together into ordering revealing holds sway’.

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5.4.2 Fishing with scopes

What Heidegger could not foresee was how digitalisation would add a new qualitative dimension to modern technology. Today, digital technology has redefined the ways we live by linking and synchronising the world in one all-encompassing digital network, which allows us to exchange information in a split second and redefines business relations as a pioneering field of a globally linked ‘network society’ (Castells, 2001). Especially ‘scopic media’ such as chart plotters and computer screens mirroring digital information play a crucial role in redefining the successive ‘pipe-logic’ of networks towards a more flow-like structure of information exchange (Knorr Cetina, 2003). In other words, modern information and communication technologies enframe and challenge social relations towards a globally synchronised whole by means of computer screens and mobile phone displays. The same development can also be observed in the fisheries, in which the temporal and spatial boundaries between the fish and the fisher have diminished.

During my period of fieldwork in the summer of 2014, I witnessed a new development in the coastal fisheries, in which skippers took their crew and their state-of-the-art long line vessels far out, 40–60nm off shore, breaking one record after another with single-haul landings well over 20 tonnes.\(^{55}\) According to the fishers at the docks, this is a new strategy, which was enabled by the faster and stronger engines deployed on the newer, slightly larger coastal vessels used for longlining. While it is certainly new that coastal fishers are no longer limited to fishing in the 12nm coastal zone,\(^ {56}\) modern information and navigation technology is also playing an important role in disclosing new areas at sea. This becomes clear in the following exchange with a young fisher working as engineer and deckhand on one of these boats:

AD: I heard about people catching so much fish here, like on few boats. Does that have something to do with the way they are fishing, or is there only a lot of fish right there?

Fisher: Yeah, we do it differently now than the last years. The sea is hot here and cold here, you know [pointing towards a map on a monitor with a heat map, where one can see different zones coloured from dark blue to red] (...)

AD: Yeah, but there are different kinds of areas in the sea with different water temperatures.

Fisher: Yeah, and the fish is in the water with the difference (...) I can just show you here...

\(^{55}\) At this time, the maximum tonnage in the hook & line system was only 15 GT. I witnessed some of these ‘record hauls’, in which the vessel was lying very deep in the water while approaching the harbour very carefully and slowly.

\(^{56}\) In Iceland, the fishing grounds within the 12nm zone are exclusively reserved for boats classified in the small-boat system.
AD: Ja...

Fisher: Here's Bolungarvík, we've been here on the long liners, here [pointing at fishing spot]. See, there's the cold sea coming here, putting the fish here in [between warm and cold water]...

AD: Okay...

Fisher: And there's the hot sea, and the cold sea is pulling in here, so it's get a lot of fish in this, in this small area, and we are crossing the lines here [between the hot and the cold sea].

The fisher explains how recently fishers from the area have discovered that fish tend to congregate in a small area about 40nm from their homeport in the summer. Although the fisher has only a vague idea why the fish congregate between the colder and warmer zones, he nevertheless knows that this is the case and that it is important for ensuring the best possible placement of the lines. Different from the seabed structure, which changes rather slowly, the strong currents of the sea can change the temperatures in different zones rapidly. For this reason, it is important for skippers to gain knowledge of their environment to ensure the best possible spot for their fishing lines.

In general, scopic media are meshed into the circumspective concern of the skipper (see above), who not only monitors the course and state of the vessel, but also stays aware about what is happening underneath the vessel. Standard equipment such as the sonar provide information on fish activity and sea bed structure, and more advanced software enables the display of heat maps, sea bed structure, 3D images and so on.

Also on our long lining trip, the skipper looks at the different monitors to decide where to release the lines most effectively. The same holds true for fishing with jigging computers, in which the skipper has to decide from which spot to start the drift. For instance, the sonar can detect shoals of moving baitfish that give good evidence of active target fish such as cod. Furthermore, maps of seabed structure can, in combination with GPS positioning, help to detect distinct seabed structures such as drop-offs, slopes and banks that typically hold fish. Although certain areas such as the ‘fruit basket’ just outside the north-western fjords are commonly known among skippers as good jigging-spots (FN: 86), modern navigation technology can help to save time and fuel costs to exactly locate one of the known structures in the area such as the ‘banana’, the ‘apple’ or the ‘pear’. Hence, scopic media change the temporal and spatial relations between the fish and the fishers, who are increasingly synchronised with the fish. With Heidegger (1977) we can therefore say that modern information technology enframes the ocean by turning the fish more and more into a synchronised standing-reserve that becomes constantly detectable and retrievable. This technological development goes hand in hand with the development of stronger and faster fishing
vessels and safety equipment that enable coastal fishers to put to sea in much rougher conditions far-off the traditional coastal fishing grounds within 12 miles from shore. Thus, modern technology opens up new pathways for practices of fishing by redefining traditional forms of knowledge and skill and literally pushing the boundaries of coastal fisheries into deeper waters (see Chapter 6). In this sense, ‘effectiveness’ in the first place not only refers to one or another form of cost-reduction, but to a changing temporal- and spatial horizon that increasingly synchronises the fishing operation and reveals fish stocks as potential standing-reserve. Thus, the role of modern technology cannot simply be understood in terms of increasing rationalisation, but as a way of changing the temporal and spatial horizon of the fisheries towards increasing synchrony with the environment, which allows the opening up and rapid exploration of new fishing grounds beyond the traditional boundaries of the coastal fisheries.

5.5 The long way back: coping with exhaustion

Although the boat is far from being filled-up after six hours of restless work, the way back to port is much slower with an average speed of 12.6kn, adding an additional two hours to our sailing time. During this long journey back, it is not seldom a struggle for crew members to avoid dozing off in the wheelhouse due to exhaustion after a long day on deck, especially when the vessel is sailing on autopilot – a dangerous situation when approaching the rugged coastline of the Westfjords! In fact, in the summer of 2013, a brand new vessel from the nearby village of Bolungavík ran aground on its way back to port as both crew members fell asleep after a long day at sea. Luckily, both crewmembers could be rescued by the Icelandic coastguard’s helicopter, though the vessel was a total loss. Besides this dramatic case, this was certainly not the only time a crew or skipper has lost control over a boat due to total exhaustion. Moreover, field observations and interviews suggest that exhaustion and fatigue are a common problem across the fleet. Accordingly, a skipper reported that he felt ‘like a zombie’ (FN: 96) after fishing throughout the last few days, and two others likewise reported feeling ‘really tired’ (MIX; FN:62), but had to go to sea the next morning. During fieldwork, I myself even witnessed a skipper waking up a skipper on another boat who dozed off at the wheelhouse on his way back to port (FN: 97). Apparently, long workdays at sea seem to demand their tribute, and exhaustion and fatigue seem to mark the human limits to both skill and modern technology.

Field observations suggest, however, that fishers deploy strategies to cope with exhaustion. One of these strategies is, if the skipper is not out alone, based on rotation: after taking a meal, the skipper, who was in charge of monitoring the wheelhouse on the way out, chooses to get some rest in one of the bunks. From now on, the deckhand is in charge of monitoring the
vessel during the long journey back to port. Like the skipper on the way out, he will entertain himself most of the time by watching movies, browsing the internet, making phone calls, eating, drinking coffee and engaging with all sorts of equipment in order to stay awake and aware of his surroundings.

The watch of the deckhand, however, will end after approximately three hours, as manual navigation remains the untouchable competence of the skipper. Now, the deckhand will wake up the skipper to get ready to manoeuvre the vessel manually into the fjord. The weather is getting better and the boat starts cutting more and more smoothly through the sea the closer we get back to the coastal region. Shortly before we arrive, the skipper will fill out his (analogue) logbook with information on date, catch and position. Just before we arrive, he will call the coastguard to report that the boat is about to return to port.

Back at port, however, the workday is not over yet. The catch, which is stored in containers of approximately 250 kilos each, has to be unloaded manually with the help of a crane at the harbour and will be picked up by a forklift that will bring it either to a local processing plant or to the local fish auction; the fish boxes and the deck are hosed with seawater and the wheelhouse is cleaned. Finally, after almost 16 hours at sea, I am finally off duty. For the crew, however, the rest is short, as the next fishing trip is already scheduled for the upcoming night.

5.6 Concluding remarks: fishing as socio-technical practice

This chapter has attempted to take the reader on board a long lining vessel to gain an ‘inside’ perspective on the world of modern coastal fishing. The fishing trip shows that rather than becoming a mere attachment to some sort of integrated ‘harvest machinery’ (Johnsen, 2004), modern fishing is still based on skill and tacit knowledge that enable fishers to cope in a rough industrial and unpredictable environment. The ethnographic analysis suggests two analytical concepts that add to the understanding of skilful coping in a professional context: (i) circumspектив evaluations, which denotes an absorbed mode of practical coping within a highly contingent environment, and (ii) circumspектив coordination, which denotes a routinised, team work–based form of flexible coordination that lies before formal chains of command and decision-making.

All in all, our fishing trip has shown that fishers are always already in an disclosed meaningful world that forms the basis for their daily coping that is structured around circumspектив concern with equipment and others. Hence, experienced fishers encounter their environment mostly from a practical stance, rather than engaging in some sort of intentionally directed and
cognitively closed act. In contrast to pragmatist accounts that focus on the creativity of daily problem-solving, however, the Heideggerian analysis points at a more general relation of man with his world that not only provides a richer phenomenological description of pragmatic coping (Blattner, 2008) and ‘creative’ problem-solving (Joas, 1992), but locates the relation of daily coping and technology in human temporality.

Finally, it has become obvious that the meanings and practices of today’s coastal fisheries have little to do with the ancient coastal fisheries. Part of this transformation can be found in technological development, which has not only translated fish stocks into a manageable resource and commodity, but has also transformed the world of fishing itself. Rather than seeing technology as something separate from culture and society or merely a means–end relation, we have learned that technology itself is world-constitutive and deeply entrenched in the socio-historical context in which it is deployed. The ethnographic material has shown that, in combination with more engine power, digital devices today play an important part in the technological enframing of the ocean as standing-reserve. Hence, in combination with digital information technologies such as AIS, scopic media such as chart plotters and computer screens link and synchronise fishers with the fish and their competitors equally. As a consequence, the spatio-temporal boundaries of the world of coastal fishing are redefined and opened up for new fishing practices.

But why do fishers fish themselves to exhaustion if technology is providing them with ever-more efficient capture technologies, complex navigation software and ever-faster vessels? The Heideggerian analysis of technology stops short with regard to this question, as it does not take into account the structural conditions of modern societies. When understanding the economy as a more or less autonomous domain of coordination, however, issues of risk and uncertainty come to the centre of attention in understanding the dynamics of modern market societies. The next chapter will attempt to map out the flows and tensions between modern technology and human coping in contemporary rural capitalism.
Chapter 6. Fishing in contingency

This fucking quota system, it’s unbelievable!

Skipper

When abundant resources become a problem...

Summer has finally arrived at the Westfjords. June has been tremendously warm with temperatures of up to 17° and unusually calm seas – a relief for the fishers around the Westfjords region who spent most of the wintertime tied to the docks due to long periods of relentless storms. Although fishing on small boats has widely become a year-round, full-time profession, usually the largest part of the quota is caught during the winter season when the fish are moving slowly and are willing to take a lazy bite on some fresh oily bait. Due to the harsh winter, however, many were not able to fish as much as they would have liked to. As the fishing season will end with the last day of August, many now start feeling the pressure to finally finish off the season’s quota share.

It seems that the most rational way to catch a lot of fish in a short time would be to gear up for a lot of longlining trips to make sure to cash in as rapidly as possible. Fishing in the summertime with 24 hours of daylight for most months, however, does not necessarily mean that fishing on calm seas is more convenient, as other forces than weather have troubled the coastal fishers of the Westfjords region in recent years. Nevertheless, it is certainly not the lack of fish outside the fjords that is the problem. In fact, rather the opposite is the case as the Westfjords have had the reputation among Icelanders of having short access to some of the most productive and stable fishing grounds ever since the days of settlement. What, then, is troubling the fishers?

Icelandic folk mythology tells the tale that when the Devil tried to catch a haddock, it was so slimy that it slipped out of his hands, leaving a black mark of the Devil’s thumb by the gills, followed by a long black line over the lateral organ. And today, it might seem to the superstitious that the Devil has cast a spell on the haddock: what used to be a welcome by-catch and traditional basis for the production of traditional dry fish (harðfiskur) in Iceland and a popular ingredient for fish ‘n’ chips in the United Kingdom, today
is becoming more and more troublesome on the lines of the small-boat fishers in the Westfjords region.

Despite the daunting prognoses of the Marine Research Institute on the development of the haddock stocks,\(^ {57}\) which has impelled policymakers to cut the haddock quota in recent years, many fishers, paradoxically, have become troubled by the rich fishing grounds just outside their fjords, where the highly priced haddock seem to congregate despite the predictions.\(^ {58}\) When the quota system was implemented, however, haddock were not really an issue in the area and most fishers chose to invest primarily in their cod quota instead, which has formed the backbone of the industry for decades. As a consequence, many quota-owners are not among the lucky ones who invested in a lot of haddock quota and today are struggling with the paradoxical situation of catching too many fish, as a skipper explains:

AD: I heard that people sometimes want to catch cod and then they get too much haddock?

Skipper: Yeah, that’s a big problem now everywhere, for the last two years! They are always putting down the quota on haddock, but there is haddock all over. But it seems that people who are making the quota, they don’t want to listen to the fishermen, it’s strange, they never listen to people who know most about it, that’s my experience! (MIV)

Not only does the skipper point to the typical conflict between scientific and local knowledge that characterises modern resource management regimes all over the world (e.g. Acheson, 2003: 145); he also points out an economic problem for many fishers that is the result of a mismatch between the political construction of scarcity and the actual environmental conditions that confront many quota-owners and fishers from the Westfjords region:

We are supposed to bring the whole catch ashore and have to match the amount of fish we bring ashore with allotted, leased or bought quota. Haddock is a well-known problem, a lot more is caught than your quota can cover, so you have to lease or buy to balance the difference. (MXIV)

Although the quota market generally allows free transfers and leases of fishing quotas from boat to boat, the haddock crisis has heated up the lease market too much to make it a long-term solution, as another skipper explains:

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\(^ {57}\) The Total Allowable Catch for haddock has seen a steep and steady decline from 93,765 tonnes in the fishing year 2007/2008 to a mere 27,404 tonnes in 2014/2015 (cf. Fiskistofa 2015).

\(^ {58}\) According to marine biologists, the abundance of a species around a certain region does not necessarily contradict the results of stock assessment, as fish are known to congregate in a few areas in times of declining stocks (pilot interview at ICES, Copenhagen, 2011).
AD: So it’s expensive to lease quota for haddock?

Skipper: Yeah, it’s soo expensive!

AD: And do you sometimes have to if you get too much?

Skipper: We try no, because it costs you 315 crowns to rent the haddock – and listen carefully now – we are getting 270 on the market! You have to rent it in a higher price than you are getting fish on the market! (…) You are losing money in every kilo you are fishing!

The skipper’s calculation makes clear that, no matter how one puts it, the haddock has been transformed from being a welcome and valuable by-catch to a costly loss in the accounts of many fishers and quota-owners from the Westfjords, as additional quota must be leased from bigger companies who can afford the profitable business of renting out some of their quota shares at sky-high prices. Hence, due to the dire need of many quota-owners to rent haddock quota, the lease price sometimes even exceeds the price for raw materials (see images 17 and 18). But how do fishers and quota-owners cope with the haddock’s abundance in the long run?

Image 18. Haddock auction market price, 2012–2014. The diagram shows the auction market prices for haddock during the period of fieldwork. Auction prices fluctuate a lot, and prices can be well above the lease price, which usually occurs during storms or holidays – times when coastal fishers usually stay ashore. When the prices are low – around 300 ISK – the rent price (see diagram 14) is likely to be on a par with the lease price of around 300 ISK, leaving no surplus to the coastal fishers (based on RSF, 2015b).

Although the literature on fisheries gives a good overview of how institutions and networks construct markets around property rights–based management regimes (see Chapter 2), it remains unclear how actors in harvesting and processing cope with the fundamental problem of market uncertainty (Beckert, 1996; Knight, 1921) in natural resource–based economies. For this reason, this chapter will show that the analysis of coping strategies in fisheries cannot be reduced to the economy itself, but must be seen in the broader context of environmental contingency, which takes into account the general unpredictability of the socio-ecological environment in which fishing takes place.

6.1 Environmental contingency

In recent years, Jens Beckert (Beckert, 1996, 2003) has revitalised Frank Knight’s (1921: 101-120) seminal distinction between incalculable uncertainty and calculable risks as fundamental concepts of New Economic Sociology. Accordingly, although actors can rationally calculate the risks of economic transactions, the future can never be known and remains uncertain. Thus, it is this fundamental uncertainty that forms the driving force of the economy, rather than a state of equilibrium between supply and demand, as suggested by neoclassical economics. For Beckert, however, it is not enough for economic sociologists to endlessly point out that the rational actor is empirically wrong. Instead of simply assuming some form of ‘bounded rationality’, economic sociologists should rather look at the
cognitive, structural and cultural mechanisms that agents rely upon when determining their actions without knowing what to do in order to maximize their outcome. (Beckert, 1996: 814-815)

Thus, intentional actors rely on ‘social devices’ such as norms, conventions, institutions and power relations that limit choices to cope with the problem of economic uncertainty. Consequently, this approach opens up the embedding of an action-theoretical framework to more qualitative descriptions of the empirical economy, but also shows that the problem of economic uncertainty is connected more generally to the problem of social order in society.

Although Beckert criticises the core assumption of neoclassical economics, it remains limited to the concept of the intentional actor, which must be questioned with regard to the anti-cognitivist approach illustrated in Chapter 4 in which it was demonstrated that skilful coping cannot be understood as the mere result of intentional framings of a situation, nor to the blind rule-following of a distinct set of habits and cultural scripts. Rather, economic practices are embedded in a social-technical environment in which routinised copings allow flexible adaption to an ever-changing environment. Hence in particular the role of technology as world-constitutive element and coping device seems to be not only neglected in Beckert’s account of risk and uncertainty, but conceptualisations of uncertainty remain limited to market uncertainty, while neglecting other important sources of uncertainty stemming from other non-market environments.

Especially the haddock crisis makes clear that in market-based fisheries, skippers and quota-owners are confronted not only with the unknown futures of investments and exchange in markets, but with multiple, in particular political, scientific, technological and ecological uncertainties (Luhmann, 1993: 6). The sources of these uncertainties are grounded in what I refer to as environmental contingency.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contingency</td>
<td>Events (stemming from contingent environments)</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Decision-making (as a result of contingency)</td>
</tr>
<tr>
<td>Risk</td>
<td>Potential losses (as a result of uncertainty)</td>
</tr>
</tbody>
</table>

Environmental contingency cuts deeper than the decision-making bound notion of uncertainty and refers to the general unpredictability of future events stemming from the environment of the economy—inter alia politics, law, ethics, ecology and science and technology, which are of particular importance in modern resource management (see image 19). While especially the economy, politics and law can be influenced, depending on individual resources, science and technology assume a special role in attempts to control environmental contingency for the purpose of risk reduction.

Technology, however, only represents a ‘functioning simplification in the medium of causality’ (italics in original), as Luhmann (1993: 87) puts it. Thus, technology always reduces the complexity of its environment by simplification and attribution of simple causalities. What remain bracketed in these simplifications, however, are the incalculable arrangements that make up the complex environment of modern society.

For instance, although marine biologists and resource economists have developed astonishing tools such as Virtual Population Analysis (VPA)\(^{59}\) for assessing and predicting the development of fish stocks, they must simplify ‘nature’ to isolated parameters in order to cope with the highly complex nature of marine eco-systems. These models are fed empirical data based on standardised samples taken over the years. As a consequence, models, samples and data represent only a fraction of a globally cross-linked and highly complex eco-system. Furthermore, generalisations tend to neglect individual variations and are therefore prone to provoke repercussions from other societal domains. As a consequence of these simplifications, technical solutions tend to provoke new solutions provided by technology itself, and scientists start developing better models that allow for better predictions. Thus, ‘problems of technology reveal themselves in the paradoxical attempt to solve the problems of technology by technical means’ (Luhmann, 1993: 90).

As a consequence, practical coping with environmental contingency creates feedback loops, in which both problems and solutions tend to be caused and solved by technology itself. In money-mediated societies, technology also becomes an important means for the reduction of economic risk (Luhmann, 1993: 95). The more the context of decision-making is economised, however, the more technology becomes a means for new risks and opportunities, as an example from the coastal fisheries makes clear.

(1) Pressure to go to sea is high due to economic pressures (context of economisation); (2) engines cannot withstand increasing pressure during fishing operations and break; (3) new, stronger engines are developed and deployed on fishing vessels; (4) vessels fish more and in rougher conditions than before; (5) engines break; (6) stronger engines are developed and in-

\(^{59}\) For a brilliant sociological account of the role of VPA in the construction of markets in the fisheries, see Holm and Nolde Nielsen (2007).
stalled; (7) new investments add to context of economisation; (8) vessels fish more and in rougher conditions than before, and so on.

The example shows that attempts at risk reduction bracket the fact that environmental contingency can never be fully controlled: one can build up the perfect market, but what can one do if the fish don’t know about it, as the recent case of ‘Irish’ mackerel moving north to Icelandic waters has shown? Or just think about our coastal fishers, who invested in cod quotas: what they could not foresee was the contingent interplay of multiple environments that characterise modern resource management.

The next section will illustrate how the tension between environmental contingency and the paradox of technology unfolds by using the example of the haddock crisis. We will see that three coping strategies can be distinguished analytically with regard to their reference in time and their relation to economic risk and uncertainty.

6.2 Economic coping in the harvest economy

In the previous section we pointed out that modern fisheries are embedded in multiple contingent environments, such as politics, science, eco-systems and technology; fish stocks move and change, and with them the evaluations of the marine biologists who issue recommendations to policymakers. While risks and uncertainty may be influenced and controlled depending on resources, uncertainties stemming from the natural environment largely lie beyond human control (see above).

In the Westfjords region, these different dynamics today have led to the paradoxical situation of fishers with too many fish – the wrong fish due to the lack of fishing quotas for haddock in their accounts. In fact, the problem of landing haddock has started to create serious problems for some small-boat owners, who not only need to cover the costs of baiting the lines and the sailors, but are facing financial pressure due to their financial entanglements (see Chapter 4). Moreover, fishing crews’ wages depend on the total value of a vessel’s catch, which makes them share a common interest in avoiding the landing of haddock. For this reason, coastal fishers with low haddock quotas have developed at least three (legal!) coping strategies in order to reduce their haddock share in their daily business, as the following will show.

6.2.1 Three coping strategies: tinkering with accounts, technological hybridisation and redefining boundaries

This section will present three empirically derived coping strategies that have emerged in the context of the ‘haddock crisis’: a) tinkering with accounts; b) technological hybridisation and c) redefining boundaries.
a) Tinkering with accounts

From a short-term economic point of view, it seems rational to invest in more haddock quota for the next fishing season when the fish abound in a region. The reality of small-boat fishers, however, looks different. Often already carrying the burden of substantial debt in their accounts, investing in more quotas while at the same time seeing a steady reduction of the Total Allowable Catches (TAC) from the government seems to be far too costly a solution, which only big companies can afford. Instead, quota-owners rather look for short-term solutions over the season in order to keep their operations running. I call this coping strategy *tinkering with accounts*.

In contrast to long-term planning strategies, tinkering with accounts is a way of taking into account the contingent situatedness of fishing in relation to rules, regulations and market movements. The most basic strategy of tinkering with accounts to cope with the abundance of haddock in their region is renting quota on the lease market in order to keep the operations running, although the transaction as such is not profitable, as the lease price tends to exceed the market price for raw materials. Hence, leasing quota is an economic trade-off between potential losses from the lease price and the income provided by the core business of a company, which usually is the cod fishery. A skipper explains this strategy:

Ja ja, some guys, you know, on the longlines, they have to have haddock (quota) because you cannot say (to) the fish: I just want the cod on the long-line, no haddock, you can leave! – You just cannot do that. What bites on the hooks comes up and you have to have quota for it, and they are renting the quota in haddock so they can fish the cod, that is the only reason they are renting haddock. So if they don’t have the haddock, they cannot fish the cod they have, you know what I mean? (MII)

In this case, quota-owners renting haddock quota for a higher price than they can sell the raw material is seen as a necessary cost that allows fishers and quota-owners to keep up with their daily business of catching cod. If the catches of haddock become too high, however, the overall profit of the company is reduced. When interviewing a former fisher who is a shareholder and accountant in a family-owned company, I ask her if there ever are any problems because her son who is the skipper is catching too much haddock:

Always like that, always! I never had a problem because I have a very good friend who is in quota selling in Reykjavík, I just call her and say: I need this today, uh, you have to be quick! And I always fix it, I never have a problem! (MVIII)

Because there is no official market platform on which all lease offers are collected and information is distributed, leasing quota is highly dependent on network ties and brokers that mediate between the different parties. Hence,
the contact with the broker in Reykjavík gives her the advantage of fulfilling the legal requirements on time. When asking whether her connections in Reykjavík put her in a better bargaining position for prices, however, it becomes clear that due to the scarcity of quota the lenders are in a much more powerful position, which leaves no room for negotiating prices:

AD: So do these personal ties sometimes help you to get a better price or something?

Quota owner: No!

AD: No, that’s impossible? So you have to take what is offered?

Quota owner: Ja ja…(ibid.).

The closer the fishing year comes to its end in August, however, leasing quota increases operational costs, as larger shares have already been fished up during the season. Sometimes, vessels have already exceeded their allotted quota and are running the risk of costly fines for the owner by the end of the fishing season. Especially for small companies trying to finish their regular cod quota but have caught excessive haddock this can be a problem because they lack the financial means to rent large amounts of increasingly expensive fish. In this case, quota-owners with strong ties may help out tinkering with each other’s accounts to avoid costly fees:

And sometimes if you have [a] problem [by] the end of the fishing year, if you know someone who trust[s] you, he can let you have quota and you can give it back, you know … If some fisherman want[s] quota, they can know they can have it after few days I can put them, put the quota on their boat and they can put it back and the same if I need quota and someone can help me to let me have quota on my boat and they have to write the papers, and you have to fax it with fax – I always can fix, it’s no problem, not for me (ibid.)

When leasing haddock, tinkering with quota accounts may also include renting out fishing quotas that are of little use-value for the quota owner. In this case, ‘market devices’ (Muniesa, Millo, & Callon, 2007) such as the ‘quota calculator’ (image 16) become an important means for tinkering calculations:

‘[S]ometimes I need haddock, and then I put another kind, what you call it, saithe, we cannot fish that fish so much and then I rent it away and take another kind into my boat and then I have to look into my computer and see how much, and in end of August [final month of fishing season] I do this’ (ibid.).
It becomes clear that the marketisation of the coastal fisheries has created a system that requires quota-owners not only to engage in long-term planning for a fishing season, but to engage in short-term transactions, networking and market observations to tinker with accounts because of the contingent nature of an ever-changing and unpredictable natural environment to maintain profitable businesses. Although the accountant’s remarks suggests that her network ties help her to fix any quota-related problem, it is obvious that the company has an interest in avoiding these type of transactions, which nevertheless involve a high level of uncertainty and economic losses. Furthermore, the more the annual haddock quota is reduced by policymakers and the more the demand on the lease market increases due to increasing catches, even the best network ties will not help a company from running into high extra costs if a vessel lands a lot of haddock. Instead of asking for new loans to invest in expensive haddock quota, fishers have developed strategies of avoidance to reduce their annual haddock landings. Two of these strategies will be presented in the following.

b) Technological hybridisation
A common strategy for reducing costs in the Icelandic coastal fisheries is technological hybridisation. Unlike Stark’s (2009: 35-80) Hungarian factory workers, who deploy the same tools in a different order of worth for the production of alternative goods, however, hybridisation in this context refers to a coping strategy that allows flexible adaption to different environmental contexts. In this case, it allows fishers to switch between different types of fishing gear depending on the weather situation and the fishing season. As one skipper explains:

And then the best catch is normally in the winter for lining, but when the ocean is getting warmer in the summer, then it’s good for jigging. (MXX)

Fishing with long lines is considered by far the most efficient capture technique over the winter months when the metabolic system of the fish is rather low. On average, a fisher expects 700–800kg fish per fishing line. When the water heats up over the summer months, the catch can fall below 100kg per line, which is not considered profitable anymore (FN: 41). For this reason, fishing with ‘active’ bait by means of jigging computers has proven to be more cost-effective in terms of catches over the summer months, when the cod is chasing after huge shoals of baitfish. Hence, when the fish are active, skippers can cash in on an extra profit due to the lower costs of labour, fuel and bait:

Under 15 tonnes I can choose long line and I can choose computers … I have a lot of quota in cod and now I’ve started to choose computers because I don’t need two persons to baiting a long line, I can be on one [boat] just my-
self on the boat alone and I can make a good process, you know, for me myself and the company, because I don’t have to pay as much salary with the computers, and last summer we worked with the computers and we had 60% or 50% of the money that was left in the company, but with the long line, we are sometimes going down to 10% left of the money into the company, which makes it, when it’s so low, so low, just 10%, you are not manage to pay the credit to pay the, to buy a new line, to buy the oil, to pay the new skatt (tax), which the government has put on all the fishing (…) (MII)

Due to the legal statutes of the hook-and-line quota system, small boats under 15 (now 30) tonnes can choose freely between either longlining or jigging (see Chapter 4 and Appendix). Accordingly, jigging is a much more cost-efficient alternative to longlining, as it involves only a fractional part of the cost for labour, bait and fuel that comes together for a single longlining trip, as another skipper points out:

Ja, it’s a more expensive fishery [i.e. longlining], and when you are jigging your only cost is fuel, so if you take a long trip and burn fuel for 100,000 [Icelandic króna] or something, it is not so much comparing (sic!) to longlining. You are also baiting about 30 stacks [bala] that cost about 200,000, and then you have almost the same fuel cost there (…) (MVII)

Hence, in contrast to a longlining operation, the boat drifts when using the jigging computers and the artificial rubber baits can usually be used for many trips until they are lost or worn. Due to the high operating costs of longlining and its lower effectiveness in the summer months, many coastal fishers in the hook-and-line quota system therefore deploy hybrid vessels, which allow them to switch between different types of fishing gear, depending on fishing season and weather situation, as jigging itself requires a fairly calm sea state to allow the smooth and slow drift that is key to success (see images 20 & 21).

Lately, however, hybrid vessels have not only become an important means for general cost-reduction, but also a strategic means of coping with haddock in the region:

So this position we are in now is very very difficult and very weird and that’s why I’m saying to you we want to fish with the computers, because we just get the cod on the computers, there is no haddock…” (MII)

Although the skipper shows little interest in my theories of why the haddock are not taking the bait – ‘It is like that’ and ‘fact is that the cod is taking on the computers’ (MII) – he tells me that the family is ‘thinking to change the boat over to computers, maybe for 6-7 months over the year and have the long line for the rest, yeah, for 5 months’ (MII). In fact, it will turn out that the skipper is not alone in his knowledge of the haddock’s behaviour, because other vessels from the region are following a similar strategy – even if
their vessels are not really suitable for hybridisation. For instance, when talking to a skipper about the vessel at the docks, I was wondering why one of the newer 15 tonne longliners – similar to the one illustrated in Chapter 4 – is equipped with jigging computers (FN: 97). He replies: ‘They don’t have so much quota, and they do it because of the quota, their haddock quota is very low’ (ibid.). Due to its wide hull and half-deck, however, the skipper has some difficulty controlling the vessel for a good drift as it is very sensitive to wind due to its size, or in the words of the skipper: ‘It is like a sail’ (ibid.).

Although hybridisation has created ways of coping with the haddock in the region, it has to be seen in the broader context of economisation; that is, creditors putting financial pressure on quota-owners, and the government, which at that time was planning to put a new tax based on the total profit of a company in the fishing industry. Thus, hybridisation is first and foremost a way of reducing operating costs. This, in turn, has social consequences in the community-bound coastal fisheries, in which community members make a living from the services provided to the fishers. Far from being opportunistic, fishers are aware of this dilemma:

Skipper: That makes it difficult because you have people who is working for you and the what are you gonna do with the people, ja. So that makes it very difficult, and they cannot wait for seven months and come again when I need them, so it’s confusing, you know, it’s not working together … It’s okay to take maybe two, three months and we say ‘You take off free one month’ but 7 months, 6 months is too long…’

AD: You cannot leave the people, especially not the young ones…

Skipper: No, no, no! They need to have the money, especially now [referring to the financial crisis], it’s a tough time and everybody needs to have money in every month!

AD: Ja …
Image 20. The hybrid fishing vessel. A typical smaller hybrid vessel (8,44BT) in the winter waiting at port for better weather to go out longlining. Over the summer months (June, July and August), the skipper will install jigging computers on the port side of the vessel (see image 21).

Image 21. Summer jigging. The same vessel as shown in image 20 equipped with jigging computers for the summer season. Although the overall operating costs are lower than for longlining, a jigging trip lasts much longer than a longlining trip (up to 48 hours) to land an average catch of only 2–3 tonnes (MVII).
The fact that this conflict is not unique to a single individual becomes clear when talking to a skipper from another community:

AD: You say there are … hybrids that in the winter use long lines and in the summer jigs?

Skipper: Yeah, it’s really good, it’s a smart move, but it’s not good for, you know, the guy who is working, you know, in land, you know, with the baiting, you know, so you have, you have to think about them, what they do…

AD: Okay…

Skipper: So if you stop with the line in the summer, what do you say to them? No job, just come in September! That’s bad! (MIX)

While it is clear there is a tension between perceived economic pressures that push quota-owners towards increasing cost reductions, on one hand, and social responsibility towards the members of the community on the other hand, hybridisation itself seems to be an attempt to balance cost-effectiveness with community responsibility:

Skipper: So many, they try to have both jigger and line in the summer, like the boat they have here, they do that, they go maybe once or twice a week with the line so the baiter will have some work, then he is jigging.

AD: So there is some kind of responsibility towards these guys…

Skipper: Yeah, I mean he is thinking about the people, very very good! (ibid.)

At the time of writing, it was unclear to what extent the rhetoric of responsibility could withstand the pressure towards increasing economisation. By the end of the field phase, however, I witnessed the launching of a new vessel. In contrast to the family’s previous, smaller vessel, which certainly showed signs of heavy usage over the years, the new vessel appeared to be not only bright and shiny when sailing over from the wharf, but also slightly larger (11.78 BT) and more than twice as fast as the old vessel (27kn compared with 12kn). Of course, it also outclasses the old vessel in terms of navigation technologies and scopic devices. Most interestingly, however, was a special device underneath the wheelhouse by the bunks, which was proudly presented to me at the launching: a drift bag, which can be launched manually when seas turn rougher to maintain a smooth and slow drift to preserve perfect conditions for jig-fishing (FN: 82-83).
c) Redefining boundaries
A third strategy for reducing the landings of haddock is simply fishing where it does not abound: in high seas. For this reason, I call the third strategy for reducing landings of haddock *redefining the boundaries* of the coastal fisheries, which describes the practice of transgressing the traditional boundaries of the coastal fisheries further into the open waters of the Arctic Ocean (see image 22).

In fact, it would even turn out that the reason for going out a long way offshore in Chapter 5 was not merely the promise of a good catch, but a strategy for avoiding catching haddock.

**Image 22. Redefining the boundaries of coastal fisheries.** The upper group of vessels (Hrofurfur Einarsson, Frida Dagmar, Sirry IS-84, Tjold, Tryggyi Edvards) north off the Strandir region (the northernmost tip) to the north shows a pattern of newer coastal-classified longliners congregating about 50–60nm offshore in June 2013 (source: marinetraffic.com). Below, there is another group of vessels fishing fairly far out (Smari IS-144, Steinunn, Hjortur Stapi). In contrast, one can also clearly see some traditional ‘coastal’ vessels fishing very close in to the coastline (marinetraffic.com, 2015).
As a skipper makes clear:

[W]e have to go very long to get cod … Today the haddock … I don’t know how … He is everywhere! So it is very difficult if you are just fishing cod. I think maybe in the summer it’s not a big problem for us to go to sea, [but now] maybe you have to go like 30–40 miles to just go over [the] haddock…(MI)

While fishing offshore has become a widespread practice in some regions for these reasons, it can only be practiced by those who have the technological and financial means, as another skipper with an old boat puts it, who attributes a certain degree of ‘craziness’ to these fishers:

It is very risky to go out 50nm. But they have good boats, and they have the quota to do it. (FN: 63)

Sailing offshore on coastal vessels not only involves danger, but also additional economic risks: the crew must land more fish than when fishing closer by in coastal waters to compensate for extra fuel costs. As it will turn out, this is not always the case despite modern technologies such as fish finders on board: during our fishing trip in Chapter 5, the previous motivation and euphoria of the crew already faded after the first line was hauled up: instead of heavy lines, the skipper was only gaffing some odd smaller fish, and his experience was telling him that he had laid the lines in the wrong spot, although a friend of his reported a really good haul just one day before. He remarks:

It is always a risk you take when you go that far out. Either you hit the jackpot or get nothing! (FN: 77)

To make the extra costs, labour and time spent on the high seas worth the journey, the crew had to literally ‘fill up the boat’ with 10–15 tonnes of fish. Instead, we only landed around 5 tonnes, which would be a good catch in coastal waters but way below the expectations in this case. But not only high economic risks are at play with this strategy.

While sailing back to port I ask the crew if they have ever been in trouble when fishing far out offshore. The deckhand just grins and looks at the skipper: ‘Tell him about it!’ The skipper tells me that he once ended up being in distress at sea when fishing a similar spot. On that particular day about two years previously, big winds turned up and a wave of about three metres hit the boat so that it almost capsized and half of the bala and fish went overboard. After putting on the survival suits and requesting the coastguard helicopter in case of disaster, it was only because of the skipper’s skill and the nearby trawlers shielding the vessel from being turned upside down by the
growing waves that the vessel made it back to port. When asking the same skipper if he did not foresee that a storm would be coming up, he explains:

Yes I knew that it was coming, but it was nice weather like this and I thought I could get away with it. But see, it also has something to do with this quota system: we've been catching a lot of haddock that time closer to shore, but the haddock quota on this boat was very low. So I had to take some risk and go far out to get more cod. (FN: 80)

Obviously, fishing always takes place in a potentially hostile and dangerous environment and is inherently risky. But this example makes clear that physical danger and economic risk lie very close to each other, as the margins of seaworthiness for a coastal vessel are very slim in the unpredictable and rough environment of the high seas. The example shows how tightly intertwined economic uncertainty, risk and environmental contingency are. The skipper never knows where the fish are, and even the latest navigation technology providing underwater maps is no insurance against potential economic losses. Nevertheless, it has become a widely-practiced strategy to take risks and avoid the haddock in the hope of a good cod-haul, especially for the newer, bigger longliners in the coastal fleet.

While the ‘haddock crisis’ is one clear example, redefining boundaries can also be rooted in other events. For instance, during the pilot study in North Iceland, a skipper told me at the harbour that the fishing has been ‘very strange’ lately, as he needs to sail out quite far – about 2–3 hours – before he can start fishing (FN: 28). According to the skipper, the fishing in these waters is exceptional, as very large fish fill up the boxes rapidly. The paradox is, however, that large cod do not achieve as high prices as they used to at auction, because the Icelandic processing industry is moving more and more towards alternative markets from the traditional salt fish industry, in which large cod used to be the most valuable fish (see Chapter 7). Today, however, the new filleting machines cannot handle the large fish so well, and it is for this reason that the demand for smaller- to medium-sized fish has been skyrocketing lately. Hence, the tension between economic uncertainty and environmental contingency is unfolding in a very similar way, as political regulations, eco-systems and markets lead to paradoxical outcomes that tend to be passed on to the weakest link: the fishers.

The examples presented in this section point clearly to the paradox of technology as pointed out by Luhmann (see above): technology provides solutions to problems by opening up new problems that in turn can only be solved by technology. In this sense one must also understand the political pressure of interest groups pushing to change the legal classifications of ‘small’ vessels.  

\[60\] For example, during the period of fieldwork, the maximum tonnage in the hook & line quota system was increased from 15 up to 30 tonnes in 2014.
6.2.2 Resultant problems of economic coping

The examples of the haddock crisis point towards three different coping strategies that address the problem of environmental contingency: *tinkering with accounts*, *technological hybridisation* and *redefining boundaries* (see image 23).

The examples show that coping strategies respond to the tensions created between environmental contingencies and economic coping. In this sense, tinkering with accounts is to be understood as an *a posteriori* response to government regulations on TACs and ITQs to avoid the risk of high extra costs after a fishing operation. In contrast, technological hybridisation and the redefinition of boundaries are to be understood as *ad hoc* responses related to the ecological conditions in a certain region. Furthermore, these two strategies have a future orientation, as any reduction of landings eases the environmental reference problem for the next fishing operation.

<table>
<thead>
<tr>
<th>Coping strategy</th>
<th>Environmental reference problem</th>
<th>Temporal reference</th>
<th>Technique</th>
<th>Risk/Uncertainty</th>
<th>Resultant problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinkering with accounts</td>
<td>Stock assessment (MRI), government regulations, scarcity of fishing rights</td>
<td>A posteriori</td>
<td>Matching of accounts with landings, regulations and markets</td>
<td>Fluctuating market prices- and changing regulations</td>
<td>High costs</td>
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<tr>
<td>Technological hybridisation</td>
<td>Congregation of haddock in region</td>
<td>Ad hoc</td>
<td>Cost-reduction by fishing method (selectivity, fuel cost)</td>
<td>Weather, sea state, fish activity</td>
<td>Conflict with baiters, Vessel might not be suitable</td>
</tr>
<tr>
<td>Redefining boundaries</td>
<td>Congregation of haddock in region</td>
<td>Ad hoc</td>
<td>Selectivity, chance of exceptional haul</td>
<td>Weather, sea state, fish activity; economic risk and danger</td>
<td>Attrition of engine</td>
</tr>
</tbody>
</table>

Image 23. Coping with the ‘haddock crisis’.

All three strategies include a distinct practice: as the name indicates, tinkering with accounts is based on the skilful matching of a company’s account with the landings of the company and the rules and regulations dictated by the government. Technological hybridisation includes a modification of the fishing operation by means of switching between alternative equipment that
adapts to the environmental conditions and allows for selective fishing to reduce overhead costs. Redefining boundaries solves the problem of spatial congregation by ‘sailing over’ the stocks, which leads coastal vessels far out onto the high seas.

Although all three coping strategies are responses to reducing economic uncertainty, they paradoxically open up new risks: tinkering with accounts is based on the uncertainty of changing rules and regulations and volatile market prices; technological hybridisation is highly dependent on resources and materiality, which determine feasibility and success; redefining boundaries comes with a high economic risk of having to compensate for the extra costs of the fishing operation and an increasing danger with regard to sailing offshore. Furthermore, coping strategies not only involve higher risks, but also come with a number of long-term problems: tinkering with accounts is usually associated with high costs due to scarce resources and sky-rocketing lease prices, which can become a problem for a company in the long-run with regard to mortgages and salaries to be paid. Technological hybridisation bears the problem of creating a social vacuum, as baiters, as members of the community, cannot only be employed during the longlining seasons over the winter months. Furthermore, as the examples have shown, some vessels – in particular, bigger long liners with wide hulls – might not be suitable for jigging after all and increase pressure and stress on fishing crews. And redefining boundaries bears the danger of technical failure, in particular of the engine due to attrition and to rapidly changing weather conditions out on the Arctic Ocean. In addition to this, long trips bear an economic risk that cannot always be accounted for with regard to the uncertainty of a vessel’s catch. In the empirical economy, the three analytically constructed coping strategies of course intersect in the daily copings of today’s quota-owners and fishers. But in what ways are processors affected by the tensions between environmental contingency and economic uncertainty?

6.3 Processing contingency

While the examples above have focused on the problems of fishers short of haddock quota, some quota-owners specialised and invested in haddock quota before the quota was cut by the government. Today, the shortage of quota and increasing market prices for raw materials creates problems for these companies, as the example of a medium-sized processor from the Westfjords makes clear in the following.

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61 I witnessed engine failures on numerous occasions during my time in the field, in particular of larger vessels known to be exposed to a lot of pressure to go to sea and fish offshore over the summer months. This problem even led to a fishing trip I was invited on being cancelled, as the vessel’s engine broke down completely so the crew had to wait more than a month for the new parts to arrive (FN: 51; also FN 63, 70; MXVI).
**Putting everything on one card**

In contrast to the bulk of investors, the remaining members and coastal fishers of a small fishing community in decline saw the potential of specialising in haddock due to the good fishing grounds just outside the fjords. For this reason, they started to rebuild their business collectively in the early 1990s based on coastal fishing vessels and their remaining quotas. As the CEO explains:

> 1994 we didn’t have anything to do here: no quota, no minimum quota, nothing to build on. Then we decide with lot of individuals here, guys who was working on the sea and had small boats and things like that, we decided to bet on small boats and say: now we buy some, buy some boats and we go out fishing, because there was a system on that days for the small boats they could go out for days (...)  

In contrast to the fishers from the villages above, the fishing grounds close to the company’s fjord were known among locals as good and productive haddock spots, which led the local processing plant and the fishers from the community to specialise in haddock:

> So we actually decide, because the haddock, and we say, there is always a lot of haddock in this area, we try to focus on haddock. We put everything on one card. (ibid.)

With the emergence of the fish auctions and the shift in global markets, the company created a market niche and invested in more and more haddock quota over the years after a number of ups and downs and merging with a bigger company in 1997. The merger allowed the company to invest in more haddock quota to expand the company’s business, and the strategy of specialisation in haddock was paying off with large contractors in the United States and the United Kingdom. With the decline of the TAC for haddock, the company’s vessels were forced to land fewer fish, as one skipper explains:

> Skipper: We are specialist (sic!) in fishing haddock, mainly building a market for haddock, but ah, they have cut down the quota so much for haddock…

> AD: Yeah, the price is really high…

> Skipper: Extremely high, so it’s difficult to grow, because we need more quota in haddock, and maybe the price is getting higher and higher for haddock, so we are trying to fish haddock, but it’s not really much fishing, maybe one and a half tonnes per boat, per day! (MIX)

In a similar way, another skipper fishing for the company says that:
Two years [ago], when this boat came here, this big one [one of the newer 15 tonne vessels as described in Chapter 4], the first of the big boats who came in here, we were fishing around 1000 tonnes a year, now we are only 400 to 450. (MIX)

This, of course, gives the fishers less work and consequently reduces the amount of raw materials for processing. To cope with this problem, the company is forced to buy more and more raw materials at the fish auction to keep the factory running and fulfil the contracts with their buyers. As the overall TAC for haddock was lowered over the years, however, the general supply at the fish auction decreased and raised prices. After all, the company is facing the luxury problem of specialising in a product that has become too valuable for the international export market.

In general, processors are highly vulnerable to the fluctuations brought about by environmental contingencies. Processors are in particular vulnerable to bad weather, as they require raw materials in order to keep their production running in order to meet contracts with domestic and international buyers and maintain employment for the members of the community. In particular, processors working together with coastal fishers or owning their own coastal fleet are highly vulnerable to the weather situation in contrast to processors relying on large trawlers that are much more resilient to bad weather and can more easily be moved to the other side of the island in hope of calmer seas. As a consequence, the ‘haddock crisis’ directly impacts the international business relations of the processing industry. International buyers are aware of price fluctuations, as the CEO of a medium-sized processing plants from the Westfjords region explains:

I can tell you about our haddock loins: the usual price is 8.4 British pounds per kilo. The price for last month has been around 12–13 pounds because of the price on the auction. And it has gone once up to 17 pounds per kilo. So they are flexible, they raise the prices if they need, they trust us to decide it. And of course all the information are (sic!) on the internet, they can just see the prices on the auction. (MXIX)

While the quotation suggests a rather high degree of acceptance of buyers with regard to price fluctuations, however, it will soon become clear that there are limits to what buyers will accept. In fact, just after finishing the interview, the CEO will receive a phone call from a broker. After a few minutes of tense conversation on the phone, he will look at me and say:

I was waiting for that call. Now the prices for haddock are so high that they won’t take it anymore. (FN: 62)

The example shows that not only fishers need to cope with the consequences of environmental contingency. In fact, especially the processing industry is
facing a high degree of economic uncertainty with regard to the fluctuating income of raw materials, the political organisation of markets and international economic developments such as currency movements and consumer demand. The only options left for the company are keeping the fish in the ‘bank’, as one employee calls the freezing house until prices stabilise again, or selling it at a lower price, which means a short-term loss. These two options of course bear the problem that the future development of prices, government regulations and supply of raw materials, which all impact the market price, are unknown.

There are also a number of general long-term strategies for reducing overheads that have been deployed as crisis measures: one of them is reducing the overall cost of harvesting fish, for example, by buying cheaper bait and not investing in newer technologies for the boats, stagnating salaries for employees and even selling-off company share and fishing quotas to ensure liquidity with regard to the banks. This, however, is detrimental to the fishers, who suffer from outdated fishing vessels and generally lower catches and salaries. Consequently, fishers are the weakest link in the value chain, forced to finding new adaptive strategies in order to stay afloat in an ever-changing and unpredictable environment.

6.4 Concluding remarks: the paradox of technology

The case of the Icelandic coastal fisheries well illustrates the tensions between economic uncertainty and environmental contingency, which is particularly important for understanding the dynamics of natural resource–based economies, in which institutions tend to be too inert to synchronise with an ever-changing environment. As one fisher and quota owner puts it:

So it’s a … It’s a very complicated … Maybe after five years, then we have a totally different position, you know, then we maybe have no cod and a lot of haddock, because it’s always changing and you have to control your company with that in mind that it’s always changing and you have to find a way, which is a good way so the company will survive, you know what I mean? (MII)

This quotation not only illustrates the constant struggle for survival of coastal fishers, in which short-term profit orientation turns out to be a dead-end. It also points out that staying afloat in the industry means constant adaptation to changing conditions. After all, one might question with regard to these multiple contingencies whether it will ever be possible to come up with a perfectly stable management regime in the fisheries. This chapter has shown, however, that the solution certainly cannot be found in technology itself.
While the phenomenology of daily coping has shown how fishers, quota owners and processors cope with a fully marketised fishery economy by recombining skills, local knowledge, network ties and technology for ensuring flexible adaption to multiple contingent environments, it still remains a bit of a mystery how the coastal fisheries could be transformed into a highly profitable business by still relying on rather labour intensive and inefficient capture methods. The following chapters will however show that precisely these ancient ways of catching fish have become the backbone for revaluing the coastal fisheries towards a highly valuable, quality oriented market-niche.
Chapter 7. Harvesting quality

Yeah, I think it’s quality now, isn’t it – Icelandic fish!

Skipper

Making it white
At the beginning of December the mountains along the fjord are yet again covered in snow and ice. As on so many days during this season, many fishers stayed ashore due to rough seas. This, however, does not mean that there nothing to do, as many tasks need to be organised around the fishing boat. On a day like this, I meet a local fisher from a small family-owned business at the house, where he is helping his employees to attach hooks to the newly purchased fishing lines – a way of saving money on the fee the line producer would otherwise add for attaching hooks to the lines.

Besides helping his employees, the fisher also takes care of the family’s small processing business. Although fishing can slow down for a while during the winter, cold and dry air provides the perfect conditions for traditional dry fish processing. For this reason, we go out in the winter twilight to look at the company’s small dry fish house, in which mainly haddock and catfish are hung out to produce the traditional dry fish (hárðfiskur), which still is a popular snack among young and old in contemporary Iceland. Although the bulk of dry fish for the domestic market is produced by bigger companies accelerating the drying process with special mechanised equipment, this artisanal way of processing can still be observed along many fishing communities all around Iceland, the wooden racks calling to mind that this is an ancient tradition.

The fisher is convinced that this craft of ‘drying it slow’ produces a much better and tastier quality than the more industrialised way. As with small-boat fishing, this type of processing requires a lot of skill and knowledge of the environment to produce a top quality product, he explains while checking on the development of his produce:

AD: So is it important where to place the dry house?

Fisher: Yeah, the dry house has to be at a good place where it is windy and cold, not on a place where there’s no wind, maybe in the shadow or something, and when you fillet the fish and put it on a dry house it is better to have a cold
weather, then the fish get more white, when you put the fish outside when it’s hot outside, it cannot be as white as when it’s cold weather, so it can be maybe more yellow, and we don’t want any – we want to have white fish… (MII)

Apparently, the practice of drying fish not only influences the overall taste and quality of the product, but also its physical appearance. I therefore wonder whether this makes any difference to the value of the product:

AD: Do you get different prices when the fish doesn’t look so white?

Fisher: No, you just, you can sell the fish better when it’s white…

AD: Ja…I guess it’s a part of your reputation to have a good fish…

Fisher: Jaja, like if you take Norway and Iceland with the salt fish, Iceland is always with the better fish because we always have a white fish and the process to work with the fish, all the process from it’s been fish from the sea and when it is sold to the cus[tomer] (...). We have a good process[ing] and then we can sell it white and in Norway, they are not selling as well as we are doing, because they are not having it as white as we do… (MII)

Accordingly, it is the ‘whiteness’ of the filet that builds the trademark of Icelandic fisheries (see image 24). Hence, he points to an important feature of the economy that has been overlooked by the neoclassical market model, which assumes the homogeneity of products in the market. In other words, the whiteness of the filet signifies an important quality that represents the identity of the Icelandic fishing industry as producer of top-grade quality products that mark a difference to other products on the market (more on this later). Moreover, the quotation also makes clear that the ‘quality’ of Icelandic fish also signifies a marker in relation to a collective ‘We’ identity that marks a difference to the constitutive ‘Other’, in particular the Norwegian fisheries.

Naïve as I am, as an ethnographer I wonder whether this perceived difference between Norwegian and Icelandic fish could be explained by different fish stocks or environmental influences:

AD: But the whiteness has nothing to do with the fish?

Fisher: No, no, no, it’s the processing! The fish is the same thing in the water, it’s how you control the fish, and line fish is better than trawl fish, and the fish with the [jigging] computer is very good, because you take the fish, it comes up right away and it’s very well alive when it comes up and you cut the fish, you get the blood out of it, the blood goes out of the body and you put it in ice water, which is very cold and then you have the fish very white and very cold, that makes a huge difference in the process! And when you come with the fish in the fish company, he (sic!) can make a good fish if we come with the good fish. He not make a good fish, if you come with a bad fish, you know what I mean?
For the fisher, it is clear that the whiteness of the fish in fact has nothing to do with the genetic coding of different fish stocks or the environmental circumstances of the fish’s natural habitat. Nor can it be explained simply by the knowledge and skills of a single entrepreneurial individual. Instead, we can say that *making it white* is grounded in a distinct ‘epistemic culture’ (Knorr Cetina, 1999). Moreover, within the process of refinement, the product becomes *qualified* and differentiated as a singularity compared with other products in the market (Callon, Méadel, & Rabeharisoa, 2002). In this sense, *making it white* materialises and reproduces the culture and quality-oriented global identity of the Icelandic coastal fisheries. But does increasing economisation imply a downward trend towards lower-quality products in the name of profit-making?

Instead of suggesting an increasing orientation towards economies of scale, this chapter points out how processes of economisation and marketisation have reconfigured the discourse and practices in the small-boat fisheries from a *quantity*-increasingly to a *quality* orientation. As a consequence, increasing quality orientation today forms the backbone of a new market niche focusing on exclusive ‘line caught’ and ‘fresh’ chilled fish. Thus, quality-orientation can be understood as a collective survival strategy for coping with the increasing economisation of the coastal fisheries. Hence, instead of destroying the century-old tradition of hook-and-line fisheries, it seems that economisation and marketisation rather form the driving force behind a quality-oriented market identity and fisheries culture.

The chapter is structured as follows: first, the chapter will give a brief overview of the growing sociological literature on valuation and quality. We will see that natural resources have been widely neglected in this literature and need to be further conceptualised in order to understand practices of
evaluation and valuation in the fisheries. Thereafter, it will be demonstrated how quality is constructed in a relational web between producers, markets and the fisheries, in which technology and skill constitute the backbone of new forms of quality orientation in the small-boat fisheries.

7.1 The sociology of quality

Standing in the light of the growing field of a sociology of valuation and evaluation (Antal, Hutter, & Stark, 2015; Beckert & Aspers, 2011; Fourcade, 2011; Lamont, 2012; Stark, 2009; Zuckerman, 2012), the role of quality in markets has been raised by a number of scholars dealing with market organisation and economic coordination (Ahrne, Aspers, & Brunsson, 2015; Beckert & Musselin, 2013b; Callon, Méadel, & Rabeharisoa, 2002). Most commonly, quality is defined in contrast to quantity. Whereas quantity merely involves the amount of something, quality refers to a differentiation according to a standard or distinct property or attribute. Of what nature are these qualities?

Callon, Méadel, and Rabeharisoa (2002) point to an increasing tendency towards what they refer to as an ‘economy of qualities’. Accordingly, ‘socio-technical devices’ enable the detachment and singularisation of products towards more cognitive and reflexive frames, in which consumers actively renegotiate their tastes and choices that form the basis for increasing product and market differentiation. In this sense, ‘qualities’ are the outcome of a construction process involving not only human agents, but also technical artefacts that create digital forums in which qualities are constructed and choices are made. From this perspective, market differentiation appears as a collective process involving the interplay of human and non-human actors that frame economic agents as increasingly reflexive rational actors that co-construct the qualities around which products are singularised and markets structured.

In a similar way, Beckert and Musselin (2013a) state that ‘quality’ does not describe any form of intrinsic property of a good that can be objectively assessed, but an attribute that is constructed and (re)negotiated over time:

Quality’ is not something that is naturally given, but the outcome of a collective process in which products become seen as possessing certain traits and occupying a specific position in relation to other products in the product space. Hence goods and services become ‘qualified’. (Beckert & Musselin, 2013a: 1)

62 According to the New Oxford American Dictionary (version 2.1.3), ‘quality’ is defined (1) as ‘the standard of something as measured against other things of a similar kind; the degree of excellence of something’ or (2) as ‘a distinctive attribute or characteristic possessed by someone or something’.

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While Callon et al. emphasise the increasing role of reflexivity in consumer markets, however, the empirical studies conducted around Beckert and Musselin (2013b) also highlight the problem of economic coordination in other markets, in which quality standards are unknown or remain highly opaque. Accordingly, standard economic models overemphasise the role of prices for market coordination and thus cannot account for the problem of quality uncertainty in highly ambiguous markets, such as antiques (Bogdanova, 2013) or wine (Rössel & Beckert, 2013). Hence, the relation between quality and price is often unclear and informational asymmetry between buyers and sellers can become a reason for market failure (Akerlof, 1970).

In contrast to information-based market theories, however, Beckert and Musselin (2013a: 22) stress that prices cannot be used credibly as signals of quality; instead, contingent quality assessments precede the economic valuation of products and constitute the basis for price formation’ (ibid.). Thus, so-called ‘judgement devices’ (Karpik, 2010) such as quality-classification systems in wine markets structure price formation, not vice versa (Rössel & Beckert, 2013). In a similar way, Bogdanova (2013) shows in her study of the market for Russian antiques how credible institutions with interpretational sovereignty stabilise the market by constructing stories around objects whose origin and quality are highly ambiguous. Qualities and qualifications, however, are always in flux and may be renegotiated over time, as studies of markets dealing with morally contested services such as funerals (Akyel, 2013) or ethical goods (van Waarden & van Dalen, 2013) have pointed out. But what distinguishes natural resources such as timber, meat, vegetables and fish from other goods?

7.1.1 Quality in natural resource-based economies

Aspers (2013) has pointed out that economic sociologists have neglected the study of natural resources. In contrast to aesthetic goods, which are characterised by their status as singularities in the aesthetic sense (Karpik, 2010), markets for natural resources operate with more standardised criteria of quality evaluation (such as age, size, temperature, texture, density) that can be assessed independently of the status of a seller or producer. A key aspect that determines the quality and availability of natural renewable resources is their *temporal character* (Aspers, 2013: 64). Hence, top-quality timber requires a fairly long time span before it can be harvested from the forests in which it grows, just as the reproduction of a fish stock requires time until the fish have reached a size that is valuable for the processing industry. Thus, the temporal character of the good plays a crucial role in the organisation of markets for natural resources, as overharvesting can lead to market failure due to collapse of stocks and/or quality deterioration due to too thin logs or small fish.

Markets for raw materials are typically characterised by quality uncertainty. According to Aspers (2013: 58), however, it is not so much the quality
per se that creates a problem for economic coordination, but the *temporality of the deal*, as the quality of goods such as timber in the forest is unknown before contracts are closed and trees are cut down. The quality uncertainty created by the temporality of the deal can also be observed in other markets dealing with natural resources: the quality of meat can be exactly determined only after slaughter, just as the quality of fish can only be examined by direct assessment of the raw material. While this is possible at ‘spot markets’, in which buyers can directly examine the quality of the raw material (e.g. Bestor, 2004), quality uncertainty becomes a problem in electronic markets such as electronic fish auctions, in which buyers and sellers are spatially separated from the raw materials and often make contracts before the catch is landed. Strategies for overcoming quality uncertainty are typically found in the generation of trust through the maintenance of long-lasting network ties with sellers – forest owners, farmers and fishers – though there seems to be an increasing tendency towards remote (real-time) observations through satellite technologies that allow the remote evaluation of forests (Aspers, 2013: 69) and also fishing vessels (see Chapter 8).

### 7.1.2 Quality and time

Although the temporality of the deal plays an integral part in quality uncertainty in many markets dealing with natural resources, the relation between quality and time also plays an important part in the construction of quality as such. For instance, harvested logs need to be relatively fresh for processing and can only be stored for a few weeks until their quality deteriorates for processing (Aspers, 2013: 73). This problem increases for industries producing for human consumption: unlike a piece of art or a bottle of wine, fish and other raw materials such as vegetables or meat have a tendency to decrease in quality over time and pass the stage for processing and human consumption with increasing age as organic decomposition through bacteria already begins shortly after the harvest. For this reason, the freshness of the raw material depends strongly on the time period between catch and processing. To cope with the tension between quality and time, practices have been developed to delay the process and extend the timeframe in which quality is preserved, for instance by freezing the catch directly on board large trawlers or shortly after domestic processing. In this sense, the time-quality function literally becomes ‘frozen’ and quality preserved until the consumer defrosts the product. Hence, the quality of fish is not only influenced by environmental factors such as sea temperature, food chain and pollution, but also by the practices of harvesting, which build the starting point of the value chain and differentiation of products and markets, respectively. Coastal fishing vessels, however, are far too small to carry a whole processing plant with them and need to find alternative ways of preserving the quality of their catch.
7.2 Revaluing quality

For over a century, the trademark activity of Icelandic fisheries has been the production of salt fish for southern European markets, in which salted cod used to be in high demand as a basic ingredient of the traditional cuisine. Big line-caught cod used to be the most valuable landing for producing the typically snowy white delicacy, for which especially Spanish, Portuguese and Italian consumers were willing to pay high prices. Today, Icelandic salt fish still holds the reputation of a luxury product that is commonly known and marketed in distinction from other products, such as ‘baccalao de islandia’ in Spain, which is still one of the main export markets for salted cod. With the enduring economic crisis in Southern Europe and changing consumption patterns, however, the golden era of the salt fish industry seems to have passed, as the demand for cheaper alternatives is putting pressure on prices:

‘Now most of the prices [for salt fish] are getting really lower because … the crisis in Europe and Spain is very bad, Portugal is very bad where we have been selling fish’ (MI). However, the salt fish crisis does not mark the end of the role of the longline fisheries in the Icelandic fisheries economy:

We are selling fish to France and Germany, that’s I think a better market … The crisis makes a huge difference, and we have a crisis in Iceland and Iceland krona is getting low, so we get more crowns because we sell the fish to Europe in euro … (MI)

This statement makes it clear that the small-boat fishers benefit from the devaluation of the króna in the post-crisis economy, which has opened up ways of reorienting the Icelandic fishing industry to rich Western countries. Salt fish, however, is widely unknown to consumers in countries such as the United Kingdom, France or Germany. For this reason, a new market niche had to be invented to compensate for the declining salt fish business.

7.2.1 The booming fresh fish market

For this reorientation of the Icelandic small-boat economy, the emergence and boom of the fresh fish market has been of particular benefit to the coastal fishers and small- to medium-sized processors who are increasingly shifting from salt-fish processing to a high quality niche for fresh chilled fish (see image 25).

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63 Based on interviews with three salt fish producers conducted during a pilot-study in South-west Iceland in 2012.

The diagram illustrates the decline of processed salt fish and the back-to-front rise of fresh fish processing (based on Statistics Iceland, 2015b).

Fresh, iced fish exported by air, 1992-2013.

According to the data provided by Statistics Iceland (2015c), the air exports for both cod and haddock were below 5000 tonnes in 1992. From the mid-1990s, however, the data point to a slow but steadily increasing trend for both species, with cod peaking at 28,500 tonnes in 2005, then decreasing steadily until 2008. From 2009, however, exports increased and since 2011 have skyrocketed to almost 45,000 tonnes. For haddock, a similar trend can be observed during the mid-1990s, though exports decreased generally with the cuts in fishing quotas in 2007, decreasing from a record high of almost 22,000 tonnes to 10,632 tonnes in 2013.
Since 1990, the export value of fresh chilled cod has increased steadily, though even more rapidly during the financial expansion of the fishing industry in 2007. In 2013, the export value for fresh chilled cod even exceeded the export value for frozen and today remains high at over 300,000,000.00 ISK (approximately 203,000,000 euros) per year (based on Statistics Iceland, 2015c).

Although the annual export value of frozen cod exports remains at a similar level to the annual export value for chilled fresh fish (see above), the quantities for chilled fish remain at a considerably lower level, with a difference of 20,528 tonnes in 2014 between the product categories (based on Statistics Iceland, 2015c).
In cooperation with the airline Icelandair, which has been steadily increasing the air transport of chilled fish to Europe and the United States on a daily basis (see image 26), processors can ensure their contractors that the fish can be offered to their customers for high prices in as little as 48 hours from its landing. Due to this increasing demand, fresh fish has become the most valuable product segment that more or less equals frozen products despite significantly lower quantities (see images 27 and 28).

Today, processing for the fresh fish market has become a highly profitable substitute for the declining salt fish business and allows smaller- to medium-sized producers more flexible production than the highly cost-intensive and economies of scale–oriented freezing market, as the following exchange makes clear:

AD: Why did this company enter the fresh fish and not the freezing market?

Processor: Okay, [with] the frozen fish normally the price is lower; normally it’s [like] that, you know. But the fresh fish you have to have a very stable quantity of fish coming in and because you have to supply the costumer, but in the frozen you have hundreds of tonnes in the freezer and just ship it out … Also in the salt fish, it takes 28 or 30 days to produce it, then comes some days, you know, two or three weeks in transport and it comes another 30 days in payment, so it’s three months almost – when you [knocks on the table] catch the fish until you get the payment! But in the fresh fish, you know, transport fish today and you know, the cash flow is much quicker! (XIX)

Thus, the fresh fish segment allows smaller- and medium-sized companies that do not have the means to buy, process and store large quantities of raw materials to operate on a more flexible, future-oriented basis that make it easier for them to cope with the volatility of supply and prices that characterise modern fisheries. In the same way, another processor, whose company shifted from salt fish to fresh fish processing, also highlights the future-orientation as a positive aspect of the fresh fish market for his company: ‘We can produce it every day’ (XII) – making the company more adaptive to a changing market environment and avoiding costs for refining and storing the produce. Thus, many smaller- to medium-sized companies engage in flexible just-in-time specialisation to cope with the fluctuations that characterise the fishing industry.

The same processor also points out why the company is focusing exclusively on the fresh fish market and not – like some of the large-scale processors that have begun entering the fresh fish market – engaging in both frozen and fresh fish processing by using the most valuable part, the loins, for the fresh fish segment and the rest for the freezing segment: ‘We don’t have the freezing machines to do it. … This costs a lot of money to do that’ (ibid.). The processor points out, however, that this is not necessary or worthwhile for the company because ‘the price [on the freezing market] is that lower,
and you know, the demand for our fish is so high, so we don’t have any [incentive] – it’s that much that we [can barely cover the demand]’ (ibid.).

Despite booming exports, however, getting involved in the fresh fish market is not a suitable strategy for everyone in the industry, as the processor explains:

For example, you know, if guys in the northern side of Iceland, they gotta transport one, maybe two tonnes every day before two o’clock to the airport – that’s quite different – difficult for them! So it’s much easier for them just to put the fish [into the freezing house] because of the weather! Sometimes [there] is, you know, much snow and maybe [the trucks] cannot come for two or three days and the customer is very unhappy and, you know! It’s unstable!

(XII)

Thus, companies concentrating on the fresh fish segment are usually located in the capital region or the Southwest to ensure regular access to airport facilities. In contrast, the Westfjords in particular tends to be precarious and unstable with regard to weather and poor road conditions, which make it risky to invest in such a business. This does not mean that fishers based in remote rural regions are not affected by the demand for high quality fish, however, as they serve this market segment through the national fish auction (see Chapter 4). At the time of writing, however, no processing company from the Westfjords region was specialising exclusively in production for the fresh fish market. While some companies still serve the traditional markets for frozen and salted fish, a new niche has emerged that serves the increasing international demand and willingness to pay much higher prices for ‘line-caught fish’.

7.2.2 Authentic protein: line-caught fish as singularity

Current research in marketing indicates that capture technology accounts for product differentiation in final consumer markets. According Grundvåg, Larsen, and Young (2013), the attribute ‘line-caught’ accounts for a price premium in UK supermarkets of 18 per cent for cod and 10 per cent for haddock, compared with other fishing gear. Thus, this research indicates that consumers are willing to pay more for fish caught by ‘sustainable’ and ‘environmentally friendly’ capture technologies than for fish caught with conventional industrial gear, such as trawls and gillnets. Hence, fishing gear as become an important marker of difference, which equips the fish with a special singular quality (Callon, Méadel, & Rabeharisoa, 2002; Karpik, 2010) that is directly reflected in the market price.

Increasing consumer demand and willingness to pay for ‘line-caught fish’, however, is not only the result of changing consumer values in rich countries, but also the result of a restructuring of processing companies and a marketing campaign that constructs and places the quality of line-caught fish
as an environmentally friendly and sustainable alternative to other conventional ‘mass products’ in the product sphere. For instance, brands such as Icelandic market line-caught fish from Iceland as top-quality premium products (Icelandic, 2015), and Demeter, a German certifier for ‘biodynamic products’ exclusively markets Icelandic line-caught fish from coastal vessels with the slogan ‘natürlich. sozial. nachhaltig’ (‘natural. social. sustainable’), referring to what they believe are the socio-economic and environmental benefits of coastal fisheries as part of their marketing strategy (Demeter, 2015). These certifications and marketing campaigns differ from conventional eco-labels such as the Marine Stewardship Council (Gulbrandsen, 2009), as they highlight the uniqueness, quality and ecological and social sustainability of line-caught fish and coastal fisheries as distinct from conventional mass products.

The boom in line-caught fish, however, is not merely the result of strategic marketing campaigns, but must be seen in light of the broader transformation of the fishing industry and its consequences for smaller coastal communities. Thus, especially in the structurally weak rural areas, such as the Westfjords, fishers, quota-owners and producers needed to revaluate their market strategy and positioning to keep their companies afloat. Hence, investments in fishing quotas and new technologies, such as processing equipment and fishing vessels, have opened up new ways of processing and marketing based on local knowledge, as the CEO of a small boat-based processing plant makes clear:

And the most change was, I believe, that this company is not owned anymore by some sales company in Reykjavík, but by individuals here, and we changed the strategy that we were on market prices and that means the guys on the boats always get the highest price for the fish, and of course we get the highest price here [for the processed fish], because the thinking, the thinking of how things here were more or less: ‘It doesn’t matter, this is just the fish!’ We changed the thinking about the fish, it is food! We are not just a processing plant, we are a processing plant for high quality fish, it started here! (XIX)

Hence, the company has changed its strategy from ‘conventional processing’ to serving a high quality–oriented market niche that has enabled an upgrade in the value chain. In a way, this strategy can be compared with the fashion industry, in which design is used for upgrading and avoiding competition with standard-oriented mass markets (Aspers, 2010). With the quality-oriented processing, the company could now serve a different market niche for exclusive fish products that can be sold at high prices in wealthy industrial nations such as the United Kingdom, Germany and France. In addition

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64 ‘In today’s demanding market place, we excel in the quality of our chilled, line-caught fish’ (Icelandic 2015).
to this quality-upgrading, the company took part in a marketing campaign that not only highlights the ‘quality’ of the raw material as such, but also other qualities referring to the ethical dimension of coastal fisheries. Accordingly, coastal fisheries using hook & line–based capture techniques not only provide a better raw material for processing and consumption, but also create jobs for the coastal communities and allow the maintenance of a sustainable fishery in distinction to the large-scale industrial fleet, as becomes clear in this statement by another processor working exclusively with coastal fishers:

Because you don’t use as much oil on this one [coastal vessels] is because you don’t go as far, first of all. And you don’t use this huge power to drag the trawl, you know, on the ground. And you don’t spoil the bottom like the trawl is doing and, it’s been calculated that we are using between 20–25 króna per kilo cost for oil, while they do like 40–50 króna per kilo on the trawler. And of course, we don’t pollute as much then with CO₂, so it’s environmentally friendly in many ways. (VI)

Today, many smaller- to medium-sized processors benefit from the increasing boom for high quality produce from small and artisanal companies, and many consider the new focus on quality as a win–win situation for both fisheries and consumers: ‘You know what you buy, you are buying good quality and I have a good price for it because it, ja, this is just real food’ (VIII). This statement makes clear that line-caught fish from coastal fishing vessels today is not only one product among others in the product sphere, but stylised as a more authentic source of protein that stands in opposition to the unsustainable and artificial world of mass production. It is for this reason that line-caught fish from coastal fisheries has become a highly valuable singularity in the product sphere.

7.2.3 The valorisation of line-caught fish

The changing processing and marketing strategies of smaller- to medium-sized producers have not only created new market segments for fresh line-caught fish, but have also boosted the domestic demand for fish from coastal fishing vessels. Although some processors have their own small fleets with one or more longline vessels, the demand is usually much higher, so that raw materials need to be bought at the local auction. In particular, companies serving the fresh fish market are highly dependent on the supply of line-caught fish due to the higher quality of the raw material, as a processor makes clear:

Processor: Usually we just buy it from the line-caught [segment] … because that’s the only [kind] we [use].
AD: But do you do marketing with this, having this kind of corporate identity? Or is there a demand for that from your customers?

Processor: Usually there’s a demand, because the fish is much whiter, the – what you call it? – the fish themselves (sic!) is not, [but] the filet is much whiter than the net fish because the blood has been over the filet…

AD: So is it better quality?

Processor: Much better quality! That’s why we always have line-caught fish! (MXII)

The attitude of the processing company towards line-caught fish is not merely a niche preference by a single company, but reflects a general high demand for fish, especially for producers serving the fresh- and line-caught markets. This is also reflected in the auction prices, where hook and line-caught fish usually achieve a higher price than other, more efficient capture technologies such as gill nets and trawls ‘because it's more fresh when it's line fish’ (MXVI). Accordingly, buyers can see at auction what fishing gear was used before they make an offer, usually leading to higher prices for line-caught fish compared with trawl fish, according to an auctioneer (MXVII).

All in all, the booming demands for line-caught fish has led to a steady valorisation of catch in the hook-and-line quota class since the year 2000 (see image 29). Thus, to ensure the delivery of a top quality product and maintain stable ties with buyers and high prices, especially companies involved in the fresh fish market depend exclusively on the supply of line-caught fish for processing. Likewise, companies marketing their products as ‘line-caught’ are obliged to provide a product caught with hook and line-based fishing gear.

Especially during the wintertime when weather tends to turn rougher, however, the stable supply of raw materials can be problematic, leading usually to the highest prices at auction (see image 30). But even during the summer months, when a lot of part-time fishers are flooding the market with fish, supply is always short and processors are willing to pay high prices to ensure a stable supply to their customers abroad.

The development of new market niches has brought with it changing requirements and higher standards regarding the handling and quality of the fish. Especially the market for fresh chilled fish requires other quality indicators than the emblematic whiteness. For this reason, we now have to shift our attention ‘upstream’ from the producer market to where the construction of quality is primarily rooted, namely the harvest economy.
Image 29. **Value of catch in hook-and-line quota class.** The graph illustrates the valorisation of hook-and-line landings since the year 2000 (no data are available prior to this year). Since 2007, the total catch value for cod has increased continuously to almost 99,000,000 ISK (approximately 66,900,000 euros in 2015). Note the increasing value of landings for haddock despite the steady cuts in haddock quotas, which have nevertheless increased the total value of raw materials to around 36,000,000 ISK (approximately 24,000,000 euros). (based on Statistics Iceland, 2015a).

Image 30. **Annual average auction prices for line and trawl fish (cod), 2002–2014.** Although auction prices for both trawl- and line-caught cod follow almost identical fluctuations and achieve the highest prices of all fishing gear used in the Icelandic fisheries, the graph shows a tendency to higher prices for line-caught fish from 2004 to 2011, leading to a difference of up to 37.19 ISK in 2009. In 2011, annual average prices for line fish peaked at a record average of 381.05 ISK. (based on RSF, 2015a; note that with 2012 the dataset distinguishes between 'line' and 'land baited line', with the latter being used for the analysis).
7.3. The qualitative turn in the fisheries

One just needs to ask members of the older generation of Icelandic fishers how fishing was in the often romanticised good old days of the herring rush. They will soon explain that the fishing was literally ‘insane’ and boats were filled with so much fish that they were often on the brink of capsizing. In the system of open access, so the cliché goes, ‘rational’ fishers typically try to fish as much as possible in order to get their share of the profits. This may be intensified when fishing in a system with limited days at sea, in which fishers engage in so-called ‘Olympic fishing’ – that is, highly competitive fishing – until the quota is fished up and the fishery is closed again for the season. Moreover, fishers would not really pay particular attention to the quality of the fish, which were simply lying on deck no matter what temperature it was during the day, as local processors had already set the prices. In other words: quantity dominated quality.

Today, property-rights management regimes such as the Icelandic ITQ system are often contrasted with systems characterised by ‘Olympic’ fishing. In this system, so the theory goes, fishers are under less pressure to put to sea because their quota share is individual and set for a fishing season, leaving the fisher to decide when to put to sea. Although fishers – or in this system, the quota-owners – are thus disentangled from their community ties, I have already pointed out that the process of economisation tends to re-entangle them in a web of money-mediated relations that reconfigure the economic expectations more and more towards profit-making (see Chapter 4). One way of coping with the increasing pressure towards economisation are investments and the rationalisation of operations by means of technological adaptation and risk-taking (see Chapter 6). These rationalisations, however, are caught up in a cycle of never-ending investments and technologies that further fuel the process of economisation. Another coping strategy for dealing with the increasing pressure towards profit-making is controlling the harvesting operation:

Fisher: And this is so small place, the names are always shown when they are selling fish on the fish market, and the buyers, if they have a bad fish, they just say ‘Fuck you!’ [laughter]. So, and all fisherman in Iceland, especially from the small boats, they want to come with the good fish, good big fish, so you can have a good price for fish because if you have ex-quota maybe 100 tonnes, it makes a huge difference to have a good price for these 100 tonnes you have…In the end, if you come with a good fish, maybe you get 3 million more and if you have come with a bad fish… (MII)

65 That this is not necessarily the case in a market-based system has already been pointed out in Chapters 4 and 6.
The episode makes clear that the focus on quality is not a way of maintaining ties with buyers, but also of constantly achieving a higher price at the fish auction by delivering in accordance with the quality standards demanded by the buyers. Hence, fulfilling these standards can be understood as a strategy of coping with the scarcity and limited availability of fishing quotas by means of quality-upgrading: fishers simply try to achieve the highest market price for their catch. But how do the fishers know what quality their buyers demand?

7.3.1 The role of intermediaries

Today, the focus on quality has become a mainstream strategy for professional fishers to maximise their profits in the industry, leading to a ‘qualitative turn’ in the discourse of the Icelandic small-boat fisheries. Issues of quality and quality orientation were raised by almost all interviewees when discussing issues such as the quota system or the fish auction as one of the key issues regarding long-term economic stability. In this sense, the slogan ‘You have to think quality, not quantity’ (FN: 101), indicates not only a changing rhetoric and mind-set, but also a changing practice different from the olden days of quantity orientation that was characterised by low market prices and little care for the catch on board.

That the qualitative turn has a direct impact on market identities from the harvest economy becomes clear in the following conversation with an experienced processor who has followed the Icelandic fishing industry through recent decades:

AD: Has there been a change since the quota on the small boats, how they treat and handle the fish?

Processor: Yes, that has, that has changed much! When we had a day system, it was an Olympic catching, that was not good to treat the fish, he (sic!) was very hot when he came in. Now when the fish is landing now, we measure all the heat in the fish, we started last year to measure every every boat that came in!

AD: You take samples?

Processor: We take samples, we said them what sample would you like us to measure, they chose that and we just okay! And I think everyone is really pleased with that [knocking on the table], as I said earlier: everyone will do his best! (MXIX)

The quotations from the processor also point to a changing practice regarding quality since the implementation of ITQs in the small-boat system. It
also points to another aspect of the qualitative turn: the role of intermediaries:

Fishers do not know what quality is being demanded by simply observing the market. Neither do they all of a sudden admire quality as an intrinsic value of the fishing industry. Instead, quality is constructed in a collective process, in which standards are actively negotiated by a set of different interest groups and passed on to the fishers, as the conversation with the same processor makes clear:

AD: I heard that from other fishermen, the other system was horrible [regarding quality], they say that themselves!

Processor: But there was no one telling them, there was no one forcing them to do that, but now, we have a pressure on them, you should take ice with you and you should do it well, and we measure it when it comes in: we do that, no problem! And we have a research for May and June this year [2013], that was pretty good, over 95 per cent of the boats – someone has accidents and things like that, of course that happens, but 95 of the boats are splendid and the fish is around zero, so we like it like that. (MXIX)

The processor points out that he actively engages in communicating quality standards and even puts pressure on the fishers to conduct certain practices such as taking ice on the boats to keep the fish chilled over the summer months. In order to do so, processors and local auction markets either provide ice for free or against a small fee to facilitate the delivery of chilled raw materials. Furthermore, the processor points towards other actors who co-construct the discourse on quality: the Icelandic Food and Veterinary Authority (Matvælastofnun or MAST) and Matís, a government owned R&D-oriented agency dealing with food-related issues. These organisations have gained importance in the discourse on quality only in recent years, especially because quality issues have been reported by processors since the implementation of the part-time summer coastal system. According to some producers (see, for example, MXVIII, MXII), the fish were not cut and cooled down correctly in the beginning – an aspect often used by critics to argue against the system. To improve the system, however, the National Association of Small Boat Owners and processors engaged in cooperation with the aforementioned government agencies to control and educate fishers to improve quality-related issues.

The role of the MAST lies in the measurement and control of landings at local fish markets. For this purpose, local representatives take samples at auction markets on a regular basis over the summer months, a practice I wit-

66 Like fishers, local auction markets compete with each other and thus also have an interest in maintaining high quality standards as a basis for their reputation among fisher and buyers.
nessed several times during my time in the field. Furthermore, researchers from MAST monitor fish processing activities and evaluate the collected data in the form of reports (MAST, 2012).

As a further consequence of poor quality landings in the summer coastal fisheries, Matis was assigned to developing information material and workshops for fishers to improve the quality of landings (Matis, 2010, 2015). In the beginning, the workshops were organised by Matis employees who travelled around the coastal communities, but today they are organised on a voluntarily basis by local education centres. An important feature of these programmes are justifications and scientific explanations of the importance of quality, as displayed in the information brochure Mikilvægi gðdarar meðhöndlunar á fiski (Matis, 2010) (The importance of good treatment of fish). In order to explain ‘good’ treatment, ‘bad practices’ are contrasted with ‘good practices’, illustrated with images and photographs of how to use ice and the ‘right’ cutting of fish – a heuristic method also used in other publications on quality issues (e.g. MAST, 2012).

Although these education programmes and campaigns were directed mainly towards part-time fishers, interviews with fishers and field observation suggest that the involvement of government institutions has changed the discourse towards an increasing awareness of quality issues among fishers. But what practices result in the production of ‘top-quality Icelandic fish’?

7.3.2 Harvesting quality

The quality of a natural resource can depend on a number of parameters of its ecological environment: seasons, rainfall, sunshine, air pollution, food chains and so on. For instance, the quality of a codfish can depend on its location, which influences important parameters such as sea temperature, food chain or parasitic infestation (see Chapter 8). In natural resource–based economies, however, quality is not merely something naturally given from the resource base, nor is it merely the outcome of market differentiation. Rather, quality is the result of relational construction processes involving processors, government agencies and fishers.

The process of harvesting stands at the beginning of the value chain, which allows farmers, forest owners or fishers to treat and manipulate the product in different ways. In this sense, the market value of the hardest grown timber, a well-fed cow or fish from the best-quality water becomes worthless for processors when harvested the ‘wrong’ way. Hence, harvesting quality depends on implicit and explicit knowledge and skill (see Chapter 5): experienced fishers know how to evaluate the quality and value of their

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67 Controlling the fish also means controlling the market. Once during an interview with the manager of a market (MXVIII), a researcher interrupted the interview and raised some issues about the ice, leaving the interviewee rather upset.
catch in terms of the conventions of the industry and can try to manipulate the process of harvesting accordingly. Hence, harvesting does not imply some form of isolated relation of fishers with their environment, but a set of routines and social practices that structure the harvesting operation and the treatment of the raw materials as the basis for quality construction. Social practices, however, always point towards a material reference, an aspect that has been neglected for the construction of quality. This section will emphasise the role of capture technology and harvesting practices.

7.3.2.1 The role of capture technology
In modern fisheries, harvesting typically involves industrial capture technologies. Modern large-scale fleets are usually equipped with trawling nets and freezing plants that plough through the oceans. This section shows that different capture technologies not only affect efficiency, but also shape other qualities that are important for the construction of markets. For instance, while fishing with dynamite may be an effective way of harvesting fish, it is not necessarily a good one when taking the quality of fish into account, as fish are likely to be damaged by the explosion and shockwave. When fishing with a net or fishing rod instead, the condition of the fish is likely to be different, as it is usually landed alive.

In the Icelandic fishing industry, different fishing gear is used as a discursive marker that leads to observable differences in quality, as the common distinction between trawl- and net-caught fish and line-caught fish makes clear. As one fisher explains:

And we can also bring much better fish than the trawler bring, I’m sure, because the fish in the trawler is squeezed and it’s more red in the, in the muscles, it’s dead when it comes up in the trawl, most of it ‘cause they are catching so deep while we cut it all alive, so excellent, top excellent quality. (MVI)

Hence, small boats usually do not fish as deep as the large industrial trawlers, which can harm the inner organs through changing air pressure when being hauled up; they also use hook-and-line based techniques that shorten the timespan between hook-up and landing. This is also the main reason why quality-oriented processors tend to prefer line-caught fish to cheaper alternatives caught by gillnets and trawls (cf. p. 199).

In demersal longlining (Chapter 4), the lines are usually retrieved shortly after they have been set. While the fish are hooked, they can – in contrast to being captured in a net – move fairly freely without getting squeezed or otherwise damaged. Fishing with jigging computers, furthermore, shortens the timespan between hook-up and landing to a minimum, as the fish are brought up by the jigging machine almost immediately.68

68 Modern jigging computers even allow the programming of sensitivity.
Accordingly, the way in which the fish are harvested plays a crucial role in the aesthetic appearance and ‘whiteness’ of the fish, as the fish are captured alive before the blood starts to saturate the filet. Put differently, although there are much more efficient capture technologies than hook-and-line based harvesting, they harvest a different type of raw material that is recognised among fishers and processors for its superior quality.

7.3.2.2 Caring about quality

While different capture technologies impact the quality of the fish in the most profound way, the care after the landing also plays a crucial role in maintaining its value. Large-scale trawlers solve this problem by directly processing and often freezing the catch on board, basically producing the end product for the final consumer market at sea. According to their size, however, smaller boats do not have this option and need to try to land the fish as fresh as possible for the processing plants. Hence, the crew needs to care about quality, which implies a set of routines and practices that evolve around the care of the fishing crew (see Chapter 4). As a skipper sums up:

So it comes automatically up [the fish], and what you should do is to [makes gesture of cutting the fish] throw it in a box and throw it in, in here [the hold], with ice, so this is quite advanced and a good way of catching fish, and you get excellent quality! (MVI)

Hence, in order to deliver the highest possible quality, the fishing crew must land, cut, cool down and store the fish. What sounds simple, however, requires not only a lot of tiring manual labour, but also knowledge and skill that is directly tied to the quality standards of the fishing culture. In order to facilitate understanding of the impact of these practices on the quality of the raw material, these routines and practices are explained in what follows.

(i) Landing the fish

In hook-and-line based fisheries, caring about quality starts with the gaffing of the fish with the landing hook, and the skill of the fishers lies in safely landing the fish with the landing hook without damaging its most valuable parts (see image 11). In order not to damage the valuable filets, the fisher therefore always aims at the head of the fish, which is of less value and usually sold to dry-fish factories, where physical damage is of no importance for the quality of the end product.

If the fisher misses the head and hits the torso or the tail, however, the hook might destroy the inner organs of the fish and cause internal bleeding, which means the processing house will not be able to sell the fish for the highest price (see image 31). In contrast, unhooking the fish is fairly unproblematic for the quality, although it may require some skill when a lot of fish are coming up, in particular when jigging for cod.
Poor quality cod. The processor explains that the damage comes from mishandling of the fish during the catch, especially when the landing hook hits the body rather than the head of the fish.

(ii) Cutting it clean
To ensure the emblematic ‘whiteness’ of the filet, it is important that the fish bleeds out alive to let the organs pump out the blood from the organs and the muscles. To achieve this, a single clean cut with a sharp knife through the throat of the fish is conducted directly after landing. The experienced fisher will therefore sharpen the knife multiple times during the fishing operation to ensure a clean, fast and safe cut.

‘Cutting it clean’, however, is not an easy task and requires a lot of practice to achieve swift coordination, in particular when a lot of fish are coming up on deck (see Chapter 5). Hence, a misjudged cut not only slows down or even prevents a clean bleeding of the fish, it may also damage the valuable parts. Part-timers and rookies in particular may struggle with this task, to the chagrin of the vessel owners, skipper and processors (see below).

(iii) Storing and cooling the fish
While the whiteness of the fish is more of an aesthetic criterion important for sales, its temperature plays an important role in maintaining freshness by stopping the development of harmful bacteria after death. Furthermore, keeping the fish chilled also slows down rigor mortis, which plays an important role in quality and texture in processing.

While cooling the fish is not so much an issue during the cold season, it becomes more problematic during the summertime, when temperatures rise above the accepted level. During this time, processors are especially keen on controlling whether the catch has been cooled down and stored correctly.

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69 Gutting and filleting, however, are mostly left to the processors or fish markets, which often provide this service against a fee for the buyers.
70 According to FAO (2015), ‘the higher the temperature the more the flesh will gape’ (during rigor mortis, AD). Furthermore, with cod, there is a critical temperature of about 63°F, above which the contractions become so strong and the connective tissue so weak that it breaks down completely, resulting in a fillet so ragged that it is worthless for processing.
Experienced fishers know about this, as their reputation as reliable sellers depends on fulfilling these quality standards:

Did you cool it down? Did you put a lot of ice over the fish? Because the summertime it’s 20 degree, the sea is 12 degree hot, and when you come and land you want to have the fish maybe 1–3 degree hot, 1–3 degree hot the fish, and then you have to cool it very down, you know, you know what I mean? Because it comes from the water with 12 degrees and yeah, that makes a huge difference (MI).

In order to reduce damage to the fish from heat, it is important to cool it down immediately, which is commonly achieved by storing the fish in a ‘combination of ice and sea water to cool down the fish as fast as possible to guarantee best quality of fish (ibid.)’ (see image 32).

Image 32. Cooling down the fish. Fresh cod stored in boxes filled with seawater, ice and blood.

71 To improve the quality of fish from small boats, a 3X Technology, a local company from Ísafjörður has developed special machinery for small boats that is supposed to optimise the cooling and bleeding process: after the fish is manually landed and cut, the fish is forwarded through a washing tank where it stays about 10–15 minutes. In contrast to the conventional storage of fish, which is simply lying in a mix of ice, water and blood, the fish is constantly in motion during the bleeding process: similar to a washing machine, a spiral ensures that the fish is cleaned with seawater that is constantly running through the system. According to the manager of the company, the system also delays rigor mortis and therefore the production of bacteria, which is of major importance in ensuring the highest quality when the fish is landed. In 2014, one bigger long-liner from the village of Bolungarvik had already installed the system, while other orders were pending. At the time of writing, the system seems to be attractive only to bigger longliners of around 15 tonnes in the small-boat system (FN: 92).
All in all, it has been demonstrated that quality in natural resource–based economies is neither an inherent quality of the resource itself, nor something that is merely constructed by marketing experts. Rather, quality is constructed in a web of relations between different economic domains, in which ways of ‘doing quality’ are negotiated, grounded and reproduced. One of these domains is the market, in which prices and ties between buyers and sellers are indicators of whether quality standards have been met. In today’s fishery economy, practices of handling fish have become widely habitualised and engraved in a unique ‘epistemic culture’ (Knorr Cetina, 1999) that is structured around specific devices and ways of controlling and caring about the quality of the catch. These practices and devices not only construct the quality of the fish in markets, but also serve as markers in which the difference from other fishery cultures and thus the identity of the Icelandic coastal fisheries are grounded and reproduced.

7.4 Concluding remarks: coping with quality

This chapter has shown how the Icelandic small-boat fisheries found a collective way of coping with economisation by carving out a new quality-oriented market niche, in which the freshness and top-grade Icelandic ‘white’ fish is constructed as a singularity in contrast to the large-scale oriented mass market. It has been shown how the revaluation of line-caught fish as an authentic, fresh and sustainable way of harvesting has led to an overall valorisation of the value of catches in the coastal fisheries. Furthermore, it could be shown that especially the booming and highly valuable fresh fish market is not simply the result of increasing consumer demand, but has been constructed in the relational practices and daily copings of the fishing industry, which likewise has to find ways to cope with the demands of economisation and ever changing markets. Hence, the construction of quality not only requires a changing mind-set in processing, but likewise changing practice in the harvest economy; that is, a ‘qualitative turn’ in the coastal fisheries in which fishers strive to fulfil certain quality standards to maintain long-lasting ties with buyers while achieving the highest possible price for their landings. More generally, it has been pointed out how the practice of harvesting in natural resource–based economies such as fisheries is directed towards the temporality of the harvesting operation as the most important variable in the construction of freshness as an indicator of quality. In this sense, it has been shown how certain techniques and technologies are not only used to manipulate the aesthetic appearance of the fish as pure and white, but also to slow down its biological deterioration. Thus, fishers do not merely follow an economic incentive for delivering high quality products, but also reproduce the social order and local identity of their fishery culture.
Like any coping strategy, however, quality-upgrading remains entangled in a web of money-mediated relations. This became especially clear with the crisis of 2008, which not only struck Iceland, but also economies on the European continent that at the time of writing are still suffering from the aftermath and the austerity politics of the EU. While the Icelandic export economy benefited from the low króna in the post-crisis era, the value of the currency has increased again. The situation at present has created a lot of uncertainty in the industry, and fishers have started to fear that their quality orientation might become a disadvantage for them with regard to changing markets and international competition:

Fisher: And I think in Norway, they have put more quota in the Barent’s Sea, they are raising the quota about 200 thousand tonnes, that’s just the same as all Iceland are (sic!) fishing, 200 thousand tonnes of cod. And in Norway, they have raised the quota in cod for 200 thousand tonnes, they gonna fish millions of tonnes! That is one reason why the prices is (sic!) going down … But Iceland has always come up with a better fish than Norway, so we have one step [ahead]. But the crisis makes them want to have cheaper fish, so we want to go a little [down with the prices]…

AD: So now you have a problem with your good quality?

Fisher: Jaja! We have to step back if we’re going to sell the fish, we have to step back and get a lower price! (MI)

It becomes clear that the fishers are directly impacted by the valorisation of line-caught fish, government decisions and international market developments that all affect market prices and demand for landings and domestic sales. Thus, quality upgrading is yet another paradoxical strategy for coping with the problem of economisation and market uncertainty.

While international market developments lie out of the control of fishers and processors, they can at least try to exert influence in internal markets. For this reason, the next chapter will return to the role of technology as a response to the problem of quality uncertainty in markets.
Chapter 8. Fishing in scopic markets

There are no more secrets!

Skipper

Before the organisation of auctions, coastal fishers landed the catch at their homeports, where the fish was weighed and forwarded to local processors who evaluated quality and dictated prices. Access to the fishing grounds was free and fishers did not care as much about the quality of their landings, leading to fairly low prices in the overall value chain. These rural networks of production, the ideal-typical ‘producer market’ (White, 1981, 2002), were based on a clear temporal and spatial positioning of information and resources that successively trickled ‘downstream’ to processing plants, international distributors and final consumer markets. After all, the fishers form the weakest link in the value chain, exposed to the fluctuations of international trade and the monopoly of their buyers.

Today, as we have seen, the frame of reference has changed dramatically for coastal fishers in Iceland, who can decide freely when to put to sea in response to fluctuating market prices. Within this new regime of market-based distribution, fishers from the Westfjords even have opportunities to strike exceptional deals, for instance when bad weather on the east- or southwest coast limits supply. From this perspective, it almost seems that coastal fishers have gained power over the processing sector, as they form the backbone of the supply and quality of raw materials in the value chain. On the other hand, the market system also implies that fishers may lose out if the weather is good and many boats are flooding the market with produce. And with the development of a quality-oriented market niche (Chapter 7), processors have become very selective with regard to the resources they buy, as one skipper remarks:

And when the boats come and land, then the buyers know where they were fishing, and they buy from the boats that was more outside with the bigger fish and they also know who was coming with fish who (sic!) was cooled down, that was one part where they were fishing and one part was how do you, how do you say it, how do you take care of the fish on the boat. (MII)
This makes it clear that processors are very keen on gaining as much information as possible on the quality of the catch. But how can buyers know about the quality of raw materials before they strike a deal?

This chapter addresses the empirical question of how digital vessel-tracking devices have changed market practices in the fishing industry by enabling market actors to identify the vessel type, name, position and course of any given vessel based on real-time information. With these changing practices, a new form of what I call scopic markets has emerged in which market actors observe fishing activities and estimate the quality and potential availability of a vessel’s catch by means of observational scopes, that is, instruments ‘for seeing and observing’\textsuperscript{72} (Knorr Cetina, 2003: 8), such as chart plotters and computer screens. Hence, scopic markets not only change the form of interaction from face-to-face to face-to-screen based coordination and replace the locally bound and successive temporal logic of market networks with a more globalised, flow-like exchange of information (Knorr Cetina, 2003, 2005; Knorr Cetina & Bruegger, 2002); they also alter the temporal structure of the economy by increasingly linking and synchronising different market- and non-market domains such as fish auctions and the harvesting sector in what I call synthetic spaces of observation. Furthermore, the ethnographic material presented in this chapter points towards increasing reflexivity with regard to the role of scopic markets in fisheries, as fishers control their vessel’s virtual identities by adapting fishing practices to meet the expectations of potential buyers. Thus, in order to understand contemporary fishery economies, we cannot limit our attention to studying the internal processes of identity constitution within producer markets (White, 1981, 2002), nor to describing the so-called ‘socio-technical agencements’ that frame and co-constitute markets in societal discourse (Çalişkan & Callon, 2009 2010). Rather than simply playing out White’s phenomenological market theory against Çalişkan and Callon’s deconstructivist account of marketisation, I argue that an adequate understanding of contemporary markets requires an analytical framework that takes into account both the role of technology for the construction of markets and a phenomenology of identity formation and network ties that is directed towards the fundamental problem of market uncertainty (Beckert, 1996; Knight, 1921) and economic coordination in the ‘empirical economy’ (Polanyi, 1957).

\textsuperscript{72} The notion of ‘scopes’ is used by Knorr Cetina (2003:8) as in ‘periscope’, ‘telescope’, ‘microscope’ and so on.
8.1 The material construction of synthetic spaces of observation

Today, the joint Icelandic fish auction brings together buyers and sellers from all over the country by means of a digital bidding platform (see Chapter 4). Graham (1999: 206-7) sees an advantage in the network structure of Icelandic society for implementing digital fish auctions with remote bidding schemes. Thus, the emergence of remote fish auctions cannot be explained by technological developments alone; the dense network of Iceland’s homogenous society and industry are also responsible for the emergence of remote bidding systems based on description and trust. By contrast, the fishing industry in the United Kingdom remains too diverse, complex and specialised, consisting of different types of supply chains, products and buyers, so that the emergence of trust-based relations as a prerequisite for remote auctions remains quite difficult. The empirical material of this study supports this observation: buyers and sellers are not anonymous; they have market identities shaped by their history (see below). I argue nevertheless that the network-based explanation falls short of providing a deeper understanding of how electronic markets are constituted in practice. Although network ties may have been important for the implementation of the auction system, the case study suggests that the rise of vessel-tracking technologies and scopic media have created synthetic spaces of observation that synchronise different economic domains and go beyond the long-lasting and trust-based logic of rural networks of production typical of many modern fishery economies (e.g. Acheson, 1988). The construction of these new observational spaces will be presented in what follows.

8.1.2 The role of vessel-tracking technology

Originally, AIS technology was designed to improve safety and avoid collisions at sea by providing information about vessel positioning, course, type, speed and identity to other vessels and domestic coordinators of marine traffic. The difference between AIS and regular radar or GPS navigation is that AIS does not merely receive information on the geographical positioning of a vessel and its surrounding traffic, but provides information on its own positioning to a communication network, which allows remote tracking and communication between other AIS-equipped vessels and third parties ashore. In combination with special navigation software, the transfer of data to a computer screen thus enables not only the display of other AIS-equipped vessels, but also the storage and recall of navigation data (image 33).
According to the Directorate of Fisheries (Fiskistofa, 2013), AIS transponders have been obligatory on Icelandic vessels since 2008, when the AIS network replaced an older monitoring system based on automatic radio signals that was implemented in 1998. Today, AIS network seems to cover most parts of the coastal waters, but especially rural areas, such as the Westfjords, where, depending on weather conditions, in numerous fjords surrounded by mountains, reception can be hindered. If a vessel drops out of the system, the coastguard will call up the vessel by radio to check on its current state.

8.1.3 The ‘Facebook’ of maritime affairs

While research and reports have highlighted the importance of AIS technology for safety-related matters and monitoring (Dziewicki, 2007; European Commission, 2012; Norris, 2007; Tetreault, 2005), no attention has yet been paid to the meaning of AIS technology as ‘market device’ (Muniesa, Millo, & Callon, 2007). Today, however, the development of public vessel-tracking websites based on AIS technology not only allows fishers to observe each
other, but also enables observers from different economic and non-economic domains to track vessels based on real-time information.

In the Icelandic fishing industry, the use of AIS-based technology has become not only a technical standard on all fishing vessels, but also an important means of observing and communicating for other parties related to the fishing industry since the rise of privately-run vessel-tracking websites. In particular, the website marinetraffic.com, which is run by Maltenoz Limited, a Cyprus-based software company, has become very popular and the dominant vessel-tracking site in Iceland.\(^7\) In contrast to the original purpose of AIS, however, marinetraffic.com does not see itself explicitly as an information portal for accident prevention (Marinetraffic.com, 2013).

The success of marinetraffic.com may be explained by the fact that the basic functions and recalling of information are free of charge and do not require – as with other vessel-tracking sites – user registration to get started. Users basically type the address into their browsers and can immediately see what is going on at sea. The website has integrated the Google Maps API, on which vessels are displayed according to the information provided by their AIS transponder. Handling the website is very intuitive and allows for quick orientation and immediate retrieval of information (see image 34).

The basic functions are filtering vessel types and searching for specific areas, ports, areas and vessels. When clicking on a vessel, a sub-menu with basic information on the vessel opens up, and further information can be retrieved, for example, on the vessel’s speed and current and past course (see image 35).

Users also have the opportunity to create a free account that provides extended functions, such as long-time observations of selected ports and vessels and even SMS alarming, for example, when a vessel of interest leaves its port or enters and leaves a specific area. More recently, marinetraffic.com has expanded its services by launching a smartphone application that enables the mobile observation of vessels.

\(^7\) During the period of fieldwork in summer 2014, however, several fishers started to use the newer vessel-tracking website vesselfinder.com, which, in their opinion, provides more accurate data and ‘more information’ (FN: 97).
Image 34. Synthetic space I. The toolbar to the left allows filtering of the type of vessel to be displayed. The search function to the upper left enables the user to find a specific area, port or vessel. Light red triangles represent fishing vessels, green triangles cargo vessels and purple triangles yachts and others. By clicking on a triangle, the user can reveal the identity of each vessel, in this case the Icelandic long-line fishing vessel Sirry IS-84 from Bolungarvík, fishing north of Hornstrandir in the Westfjords. The menu provides information on the flag, ship type, status, speed/course, length and breadth, vessel class and time of the latest synchronisation. If the vessel owner has uploaded one, a picture of the vessel – as in this case – will be displayed with the head menu. The fact that most profiles are equipped with profile pictures indicates that vessel owners care about their identities on the site (source: marinetraffic.com, 2014).

Image 35. Synthetic space II. Marinetraffic.com allows the display of the past course of each vessel, here of the fishing vessel Sirry IS-84. One can nicely see the zigzag pattern where the vessel put out its long lines. Consequently, even when the ship is on its way back from the fishing grounds, any user can easily trace back where the vessel did leave its lines (marinetraffic.com, 2013).
In Iceland, fishers make a point of registering their vessel at marinetraffic.com and often also upload pictures of their vessels. During the period of fieldwork, literally everyone within the fishing communities – fishers, buyers of raw fish, processors, harbour managers, fish line baiters, family members, people in the tourism sector (and indeed a sociologist) – were engaging in online vessel tracking and synchronising their land-based activities accordingly. Hence, the rise of online vessel tracking has made the activities of fishers not only transparent to other vessels, but potentially to everyone connected to the World Wide Web, 24 hours a day. In a way, marinetraffic.com can therefore be described as the ‘Facebook’ of maritime affairs. In contrast to online social networks, however, vessel-tracking websites involve no interaction in the form of messaging or postings. Rather, they remain interaction-free synthetic spaces of remote observation.

8.1.4 Scopic competition at sea

Although the Icelandic fisheries are no longer based on open-access competition at sea and regulated through a strict quota system (Eythórsson, 1996), observing other fishing vessels remains crucial for keeping track of their competitors and gaining access to information on potentially productive fishing grounds. In this light, the emergence of AIS has led to the development of new ways of seeing and observing in the fisheries. Today, scopic media such as chart plotters and computer screens are standard equipment, even on the older and smaller vessels of the fleet. This is seen as indispensable for success by many fishers, as the following episode makes clear:

AD: You cannot run a profitable boat without [a computer] … ?

Skipper: No ...

AD: Aha ... So what do you need a computer for?

Skipper: You can get much better maps and, and things and do things what you cannot do, you know, then you can have the AIS system, then you can get that up, on the screen and then you can get all the boats up and name of every boat and... (MIX)

Nonetheless, there were some difficulties with implementing full coverage at the beginning. Especially small fishing communities in rural areas had problems due to bad reception, as they needed ‘some equipment on the mountains here to catch the signal from the boats’ (MXIX). According to a manager of a processing plant who is using AIS-based online services for his business, the reception ‘is very good now, it was not good [before]; it was not receiving every signal from every boat’ (ibid.), but ‘we started to use it every day three years ago (2010) or so’.

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Hence, in contrast to the old radar system – which is still obligatory on every boat – AIS allows fishers not only to see what surrounds them in a range of up to 12 miles, but to track the exact position, name and course of any vessel fishing in Icelandic waters. Furthermore, special AIS-based software allows skippers to keep a logbook of their former positions and fishing spots, which can be retrieved at any time. Consequently, digital vessel-tracking technology has not only changed navigation at sea, but has also revolutionised the ways in which information is stored and distributed among skippers. In contrast to analogue days, when fishers could have privileged access to information on a productive fishing ground or be part of a cooperative between fishermen that shared information by word of mouth or via wireless, AIS-based systems have created almost full transparency between vessels, as the same skipper makes clear (ibid.): ‘You have no secrets – not for long, maybe just for one day (...) Now everybody knows my secret spots [laughter]’ (MIX). Another skipper states: ‘You can go on the computer and you can see where all the boats are, no secrets anymore. Just if you find someone, you have to wake up early to go first, find, go to the spot...’ (MI).

Hence, fishers not only make use of AIS-based information sources while at sea, but also rely on AIS-based websites, such as marintraffic.com, to plan and coordinate their future fishing operations. Especially in larger harbours with bigger fleets, competition for popular or temporarily very productive fishing spots can be very high, and fishermen of course try to be as efficient as possible with their fishing operations. For this reason, skippers often get up in the middle of the night to get access to as much information as possible to make decisions about whether or not to put to sea on a particular day.

Furthermore, vessels displayed on scopic media not only provide information on vessel positioning to skippers, but also mirror identities of fishing vessels, as an example from the field makes clear: while explaining what information he retrieves from the internet to evaluate the sea state, a skipper pointed out that he observes other vessels on marintraffic.com for this purpose. While clicking on a particular vessel on the map to retrieve its name, the skipper reacted with ‘Oh, I don’t trust this boat’ (FN: 667), as it apparently was from a fishing village where the skippers are notorious for taking high risks and being pushed by their owners to go out in rough seas.

The examples make clear that skippers make use of scopic media displaying AIS-based data sources. This, of course, does not mean that skippers do not make use of their network ties anymore to obtain access to more precise information on conditions at sea. Nevertheless, digital scopes seem increasingly to pre-structure information that skippers use in order to frame which ties are worth activating and which not, for example, by identifying vessels that can be relied on to obtain further information after being spotted on the computer screen.

We have shown how AIS-based data sources have changed ways of seeing and observing in the fisheries. We shall now show how AIS technology
has paved the way for the construction of synthetic spaces of observation that allow the synchronisation of other economic and non-economic domains with the fisheries.

8.2 From rural ties to scopic markets

Although market prices are the most important information on which fishers, processors and buyers base their decisions, they have the problem that they do not include any information about the future supply of raw materials. For this reason, both fishers and bidders are keen on gaining as much information as possible on potential supply before the market opens. In the fisheries, however, synthetic spaces of observation now enable actors from different economic domains to track vessels before the market opens and new prices are formed. As a consequence, a new form of scopic market has emerged that not only allows fishers to keep track of other vessels’ activities, but synchronises different markets with the harvest economy of fishing and therefore transgresses the locally bound and successive temporal structure of analogue rural networks of production. In turn, a new temporal and spatial regime of scopic markets has changed evaluative practices both ashore and at sea, as the following will demonstrate.

8.2.1 The problem of uncertainty in fish markets

One of the fundamental problems of economic action remains that the future can never be known (Beckert, 1996; Knight, 1921). In the fishing industry, buyers such as fish processors are confronted with this fundamental uncertainty with regard to the potential availability and quality of raw materials, which can vary significantly in the weather-dependent small-boat fisheries. While processors cannot directly influence the price or quantity of the raw materials offered on a given day, however, they can try to control the quality of the raw materials they are planning to acquire instead. In digital markets, grading addresses the problem of quality assessment by allowing buyers in the auction to obtain information on different parameters such age, size and capture technique, which can affect the quality of the raw material. Based on this information, buyers learn by experience which vessels they can trust, as a processor makes clear:

There are (sic!) a lot of information you get on the auction: you have the boat’s name, for most of the market you have the heat, you have the size of the fish and et cetera et cetera, and with that experience you learn about the boat, you know: it’s okay to buy from this one, it is not okay to buy from this one – you will see! (MXIX)
Put differently, links between buyers and sellers are not anonymous, but involve a history of past transactions that bestow a market identity on a vessel. Hence, buyers know which boats they can trust to meet their quality standards. Especially when supply is short due to bad weather, or when large numbers of part-timers start flooding the market over the summer months with relatively cheap fish, buyers might need to acquire information on vessels they have not had any previous relations with. In other words, buyers take risks when buying fish from boats they have no previous experience with. Field observations have shown, however, that with the advent of digital vessel-tracking websites, buyers no longer rely only on previous transactions, but engage in real-time observations that provide valuable information that is neither based on past transactions nor on relations of trust, nor is it captured by the formalised grading systems of the auction market. But what advantage can buyers gain by observing vessels on the internet?

8.2.2 The scopic evaluation of quality

In an interview about his use of the fish auction a processor explains that the quality of the fish depends strongly on the fishing grounds (MXIX):

AD: But you don't get that information at the auction, where they fish?

Processor: No, but we know the boat's name…

AD: Aha.

Processor: And we can see it, we can see it! You know, boat's name: okay, he was there – we can see it!

The processor turns his computer screen towards me, where the website of marinetrace.com displays current vessel activity around the Icelandic Westfjords. He clicks on one of the red rectangles, which signifies a fishing vessel. Promptly, a small box displays a photo, name, course and speed of the vessel.

AD: So you try to get all this information?

Processor: Yeah, it's a lot of information, both the auction, and since we got the marinetrace, it's, it's very good, and also just to see what is happening.

How buyers use information from vessel tracking technology for buying fish can be further illustrated by an example from a local fishmonger, who buys smaller quantities for his store and delivers to local restaurants and canteens. In his small office behind the counter, which only contains a few folders, a small desk and a PC displaying the interface of a vessel-tracking website, he
explains to me how he evaluates from what boat to buy what type of fish on a particular day, based on the information displayed on the website. Accordingly, he tries constantly to keep track of vessel activities for three main reasons. First, to obtain general information about the availability of raw materials on a specific day. Second, to select which vessels might be of interest on a specific day. In this case, he might call a vessel of interest in order to obtain more information about the catch. Moreover, he can use his informational advantage to head off a vessel of interest directly at the harbour and use his temporal advantage to strike a deal directly with the fisher before the catch is put on auction, where he would risk losing out to another bidder. Most importantly, however, the information provided by the vessel-tracking site gives him information on the potential quality of a vessel’s catch based on its fishing location. He explains this with a current example on the computer screen: clicking on one of the red rectangles located not far from a small island in the Ísafjarðardjúp, the biggest and deepest fjord of the Westfjords region, the fishmonger explains that some small boats tend to fish inside the fjord during bad weather, especially during the wintertime when Arctic blizzards make fishing on small boats all but impossible for weeks in the open waters of the Arctic ocean. Under normal circumstances, he would generally avoid buying fish from the fjord, which usually holds only smaller fish that are usually infested with parasites that come along with the large population of seals in the area. This, however, does not mean that he would not buy any fish from the boat displayed. In fact, the opposite is the case: especially haddock, a pelagic species feeding in open waters, is known to be of good value from these grounds, which are known to hold a reliable stock of high quality fish when that water is cold inside the fjord over the winter. He tells me, however, that in no circumstances would he buy ground fish such as cod from the boat, as these are known to be highly infested with parasites from these fishing grounds (FN: 36). This avoidance-strategy is confirmed by another buyer, who states that ‘we can see [the boats, AD] on marinetraffic, we know the parasites area’ (MXIX).

8.2.3 Recontextualising local knowledge in scopic markets

The field examples together show how vessel-tracking websites are used as market devices for coping with the problem of uncertainty. Technology, however, can never be understood as neutral or isolated from its social context, but must be seen as entrenched in the historically contingent social orders in which it is deployed. In line with Heidegger’s (1977) account of technology as an enframing (see Chapter 5), we can say that buyers’ local knowledge and community ties are recontextualised and confronted with new pathways based on the spatial and temporal synchronisation of market structures and harvesting activities. In order to evaluate quality by means of vessel-tracking websites, therefore, it is not sufficient to rely only on the
information displayed on the computer screen. Rather, one must draw on local knowledge (‘we know the parasites area’, XIX) in order to engage in meaningful interpretations of the data. For instance, field interviews show that many buyers know the fishing grounds from their own experience as fishers: ‘I’ve been to sea also, if I see the boats on the marinetraffic, I know how the fish are’, MXV. Fish stocks, however, are dynamic entities (‘Yeah, it changes a lot’, ibid.), so buyers try to maintain good ties with the fishers to keep up their local knowledge of the fishing grounds: ‘But you keep track of that. It’s important to talk a lot with people at the harbour’ (ibid.).

To repeat the main argument: before the advent of scopic markets, buyers’ knowledge of fishing grounds was detached from fishing activities, and market making was based on the temporal and spatial separation of harvesting and auctioning, leaving buyers to rely on nothing but their trust, local knowledge and network ties. Today, this local knowledge is recontextualised in scopic markets, in which buyers are synchronised with harvesting activities and engage in remote real-time observations and evaluations of quality as a new strategy for coping with the fundamental problem of market uncertainty in digital economies.

8.2.4 Fishing in scopic markets

Scopic markets have not only opened up new ways of coping with market uncertainty for buyers of fresh fish, but have also transformed the practice of fishing itself. The ethnographic material shows that fishers generally show a high degree of reflexivity about their market identities and know that they can achieve high auction prices only by maintaining high-quality standards over time, as the following makes clear:

AD: But I guess if you’re not directly involved in the processing, then you probably don’t really care [about the quality, AD]?

Skipper: No, I think every fisherman in Iceland they want to come with the, to land with the good fish because if you come with good fish and sell it on the market, the person who is buying the fish, he know the names of boats, and if he sees it’s a bad fish that have not been cut right away, not been put in a, in a cool water and ahm, he has not, maybe he says ‘Okay, I’m not going to buy fish from this boat again’ or maybe just put a lower price. If you come with good fish into land, then there’s more possibility to get a higher price for the fish…(MII).

Furthermore, fishers are aware that potential buyers might observe their activities in synthetic spaces and that these activities might affect their market positioning. As one skipper makes clear:
Because now we have the ‘eyes’, you can see the boat on marinetraffic, and the fish buyers, they go on the computers, they see where the boats are, they read the names of the boats, they see this boat is very close to land and they didn’t want the fish that was caught very close to the land because they have worms inside the fish, so they say ‘Okay, we’re not going to buy fish from these boats because they are very close to land’ and they look out whether the boat was far out and say ‘Okay, these boats have far better fish’ – more outside, there is the good fish! And when the boats come and land, then the buyers know where they were fishing, and they buy from the boats that was more outside and with the bigger fish and they also know who was coming with fish, who has cooled it down, that was one part where they were fishing and one part was how do you, how do you say it - how do you take care of the fish on the boat (MII).

The quotation indicates that although skippers have no information on whether and when they are being ‘watched’ and evaluated by potential buyers, they know that they could be observed at any time. For this reason, fishermen do not try only to meet the expectations of potential buyers for singular transactions, but engage in long-term control of their identities (White, 2002, 2008) by not only adopting certain practices for handling fish, but also controlling their virtual identities on websites. It is therefore important for a vessel to be visible on vessel-tracking websites, and uploading pictures of vessels can also be understood in terms of creating credibility in relation to market observers. Hence, scopic media not only mirror the current position of a vessel by means of direct presentation in a given synthetic situation (Knorr Cetina, 2009), but may transcend the present by imprinting a history of a vessel’s positioning in a vessel’s market identity. Buyers learn where boats tend and if they are reliable sources for daily transactions not only based on previous transactions, but also based on daily observations of their virtual identities in synthetic spaces.

8.2.5 Controlling the harvest economy

Remote monitoring of vessel activities is not limited to exchange markets, but can also be found in producer markets, especially among processors with a vertically integrated fishing fleet. These vessels are widely decoupled from market transactions, as skippers work only on a contractual basis. This does not mean, however, that these fishers are under less pressure to put to sea. Often, quite the contrary is the case with regard to the high demand for raw materials in the processing plants. Hence, if a company’s vessels cannot put to sea for a longer period of time, processors are forced to buy fish for comparatively high prices from the fish auction to fulfil their contracts with foreign buyers. Although processors or quota-owners can never force their skippers to put out to sea, they can put indirect pressure on them by comparing them with other boats:
AD: But ... If you talk to the owners, they tell you I can never demand or tell them that they have to go out, I mean how does this pressure look like, I mean how do you pressure people in this system?

Skipper: It is ... Like in [names of company and owner] he is, when the guys are at home and the weather is bad, he sometimes calls them to tell them that the boats in [name of a village] are at sea, so he is calling them to let them know that the boats … are at sea, he is automatically pressing!

AD: Aha, because he is comparing it with something else and...

Skipper: Yeah, and then they start to think, and sometimes he calls, calls them too, to tell them to go to sea, need fish for the factory ... (MVII).

The rumours around this practice, however, are no secret, as the following quote from a plant owner makes clear:

No [you cannot force them], but you can ask them: why are you not at sea today with the others [laughter]? Na, we, hire man to do that, you know, we hire the captain, and we really believe if he don't go out he will not get paid, so, that's very easy! He goes out if it's possible, and they do that! (MXIX)

Hence, scopic media allow for a comparison of boats around the country and amplify the expectations and pressure put on fishers, who discipline their practices accordingly, as one skipper makes clear: ‘I mean, he doesn't have to pressure me, I will do it myself, I will pressure myself … it has been like you say, maybe two or three weeks [of inactivity], I will try!’ (MXX)

All in all, scopic markets not only open up new pathways for more dynamic forms of economic evaluation, but also of market control by creating feedback loops for fishers, who control their identities by adapting their practices to the expectations of buyers and quota-owners, respectively. Hence, scopic markets add a new dimension to processes of marketisation, as they transcend the temporal and spatial boundaries characteristic of analogue rural networks of production and allow market observers to observe and control other economic domains, such as the harvest economy of fishing.

8.3 Concluding remarks: quality control in synchronised networks of production

This chapter has shown that a relational understanding of markets and other economic domains, such as the harvesting of natural resources, is needed in order to grasp the temporal and spatial transformation of economic structures that is brought about by the rise of scopic markets, in which traditional forms of face-to-face coordination are supplemented with synthetic spaces of ob-
ervation that create pathways for new forms of economic evaluation and control. Thus, in contrast to White’s (1981, 2002) seminal account of producer markets, in which market identities and niches are constituted in relation to other producers, the emergence of scopic markets in the Icelandic coastal fisheries shows how buyers try to reduce market uncertainty by acquiring real-time information on harvesting activities. The empirical material shows that buyers keep track of fishing vessels not only to obtain information on potential supply, but also as an evaluative device that makes it possible to draw conclusions about the potential quality of a vessel’s catch. In turn, the ethnographic material points towards increasing reflexivity among fishers who control their vessel’s virtual identities and adapt harvesting practices to the expectations of potential buyers.

We can now see that the independent fisher has not only become re-entangled in a global financial system, but is also constantly monitored, evaluated and assessed. Thus, instead of assuming some sort of ‘desynchronisation’ (Rosa, 2003) between the harvest economy and markets, the case of the Icelandic coastal fisheries shows how digital technologies amplify the primacy of the economy by leading to the emergence of a new, more dynamic form of scopic markets that changes the temporality of rural networks of production towards increasing synchrony with different economic environments.

All in all, the construction of scopic markets can be seen in light of what Johnsen (2013) has diagnosed in line with Foucault (2009) as a general shift towards an increasing governmentalisation of the fishing industry, in economic and juridical incentive structures that call for technologies of indirect surveillance and control. In this sense, scopic markets form an important pillar of the increasing economisation and marketisation of the Icelandic coastal fisheries and their revaluation towards a high quality–oriented market niche.
Chapter 9. A new culture of coastal fisheries

*Independence, and plenty of it. But where is their independence, may I ask?*

Old Fritha in Halldór Laxness’s *Independent People*

The romanticised ideal of the independent rural dweller as a primordially free and locally rooted farmer has a long tradition in modern literature. In particular, Knut Hamsun’s anti-modern hero Isak, in his Nobel prize-winning novel *Growth of the Soil* (1921) embodies the image of good old farm life, which – in contrast to alienated city life with its unproductive work and ambiguous talk – helps him to find a primordial relationship to a harmonious nature in the rural north of Norway through hard but honest work.

In contrast to Isak, however, our fishers – like Laxness’s Bjartur – face a continuous struggle with the unpredictability and harshness of the Arctic environment, while at the same time being entangled in a highly volatile economy: prices change, debt grows, businesses go bankrupt. In other words, Laxness’s observations of rural life have more in common with our observations than Hamsun’s, as he does not paint an image of the rural dweller as antithesis to the alienated world of modern society. Rather, the opposite is the case, as fishers get increasingly entangled in their struggle for rural independence. From this perspective, the closed organic fishing community remains an illusion of anti-modern resentment.

This study has shown, however, that the way of entanglement has changed with the organisation of markets and new technologies, which have not only transformed the production network, but also the culture of the coastal fisheries. In order to understand how this transformation was possible, this chapter will recapitulate the main observations around the two guiding questions posed in the introduction: (1) How can we explain market dynamics in rural networks of production? (2) And what are the consequences for the traditionally artisanal and locally bound culture of coastal fisheries?
9.1 Summary: the dialectics of (dis)entanglement

Natural resource-based economies are typically embedded in rural networks of production made up of social relations (Acheson, 1988; Barnes, 1954), institutions (Apostle, Barret, Holm, et al., 1998; Hersoug, 2005; Hersoug, Holm, & Rånes, 2000; Holm, 1995) and discourses of production (Einarsson, 2011a; Helgason & Pálsson, 1997; Pálsson, 1991; Pálsson & Durrenberger, 1982). Most recently, accounts highlighting the discursive embeddedness of fisheries have emphasised the role of science and technology for the construction of contemporary resource-management regimes (Holm, 2001; Holm & Nolde Nielsen, 2007; Johnsen, 2004; Johnsen, Holm, Sinclair, et al., 2009). In order to understand how markets have reconfigured the dynamics of rural economies, however, I argue that we need to emphasise the practices of daily coping, in which these socio-technical arrangements are grounded and reproduced.

In a first step, I have shown how the organisation of markets for fishing rights and raw materials has reconfigured the role of the fisher from rural peasant to independent entrepreneur and investor: while in traditional rural networks of production coastal fishers were bound to sell their catch to local processing plants, the organisation of markets for fishing rights and raw materials has disentangled coastal fishers from their community ties and emancipated them from the locally bound network of production by translating hierarchical and long-term trust-based relations into short-term oriented relations mediated by money-exchange. The more fishers started playing along with the market system, however, the more they were re-entangled in a new web of money-mediated relations with their creditors to guarantee financial liquidity to stay afloat. As a consequence, fishers and quota-owners had to increasingly re-orient their economic practices from cost-awareness towards profit-making, which opened up an endless cycle of investments in fishing quotas and increasing debt. Moreover, some quota-owners even saw the opportunity to speculate on rising quota prices until the financial bubble burst in 2008. As a consequence, the cultural ideal of coastal fisheries as backbone and symbol of independence has been challenged by increasing economisation, which has re-valued small boats from being humble means and symbols of rural independence to highly valuable objects of investment and profit-making.

In a second step, I have shown that processes of marketisation and economisation cannot be sufficiently understood in isolation from the economic domains that lie at the heart of value-creation: fishing and processing. The phenomenology of fishing has therefore shed some light on the practices and technologies that constitute the world of modern market-based fishing. In line with Heidegger’s (1962) existential analytic, ethnographic observations suggest that daily economic coping always already takes place in a highly routinised setting of a meaningful and pre-discovered relational environment.
of equipment and Others. Moreover, I have shown that, despite the mechanisation of labour activities and the use of digital equipment, the swift coordination of activities and the spontaneity required for adjusting to the ever-changing and potentially dangerous environment of the sea requires skills that are acquired ‘on the job’ in an apprentice–master relation. Within this routinised coping, circumspection rather than intentional fixation on a certain device or event characterises the primary relation of the fisher with her environment. It is only in the case of failure – for instance, when a fishing line gets tangled – that the social order of routinised coping collapses and the fishers engage in reflexive activities that isolate and objectify their environment as means of causal problem-solving. In this context, ethnographic observations suggest that modern technology cannot be reduced to a means–end relation that increases the efficiency of the fishing operation, but must be understood in line with Heidegger (1977) as enframing of economic practices, which is henceforth directed to the objectification of nature as a resource that can be extracted and stored over time. In addition to Heidegger’s analysis of ‘analogue’ technology, the case shows how digital technologies intensify this enframing of the marine environment by not only synchronising fishers with their competitors at sea, but also with the fish that can be tracked and observed in real time.

In modern fishing, however, the contingency of an ever-changing environment not only interferes with practices at sea, but is intertwined with the domestic world of changing rules, regulations, stock predictions, banks and multiple market structures, as the example of the ‘haddock crisis’ has shown. Thus, processes of economisation do not simply imply rationalisation of operations towards economic efficiency, but point towards flexible adaption through practical coping to an ever-changing contingent environment.

In a similar way, traditional capture technologies are not simply replaced by more efficient ones, but recontextualised within their current socio-technical environment. Hence, changing market structures and new technologies in fisheries and processing have come along with a transformation of practices and a revaluation of the identity of the coastal fisheries as suppliers of a high-quality market niche for ‘line-caught fish’ that is materialised in the socio-material practices of harvesting and processing. In contrast to durable goods, however, easily perishable raw materials such as fish require special treatment for maintaining high quality and value after harvesting. Thus, due to the increasing economisation of the coastal fisheries, fishers adjust their practices from a quantity- to a quality-orientation in order to achieve the highest possible prices at auction and create long-term ties with buyers engaging in the marketing of ‘sustainable’ and ‘line-caught products’. Thus, the construction of a top-quality market niche is not the result of individual entrepreneurship, but must be understood in light of a broader collective transformation of economic practices.
Within this transformation, a new ‘scopic’ valuation regime reduces quality uncertainty by linking and synchronising buyers with fishing activities at sea. Hence, digital information technologies such as AIS and scopic media such as chart plotters and computer screens are not only used by skippers for observing each other, but also used as evaluative devices by market actors. Hence, although network ties still play an important role for the generation of trust between fishers and buyers, scopic media allow experienced buyers informational advantage on the auction market and the remote evaluation of quality based on a vessel’s positioning at sea.

The dialectics of (dis)entanglement

Disentanglement
- Disentangles fisher from community ties
- Broadens horizon of economic operations
- Rationalisation of operations
- Creates new economic opportunities towards valuation
- Means of economic coping

Economic coping
- Marketisation
- Investments
- Economisation
- Revaluation
- Paradox of technology

Re-entanglement
- Re-entangles fishers in money-mediated relations
- Tie economic operations to debt and liabilities
- Profit-making becomes must-expectation for staying afloat
- Re-entanglement of industry in new markets
- Creates new uncertainties

Cultural transformation of the economy
From symbol of rural independence to object of investment and profit-making

Image 36. The dialectics of (dis)entanglement. The ‘motor’ of this dialectic is not determined by the ‘structural forces’ of the economy, but grounded in the daily economic copings that respond to the contingent nature of markets and their environments, leading to an endless cycle of disentanglement and re-entanglement of economic expectations. Note that the image does not indicate a clear linear causal relation between the different forms of (dis)entanglement in the empirical economy, in which the horizon of economic coping is simultaneously enframed by all five dimensions (marketisation, investments, economisation, revaluation, paradox of technology).
Furthermore, quota-owners use the information provided for controlling their vessels by comparing them with the activities of their peers at sea. Thus, digital technologies enframe fishers, fish and processors towards increasing synchronisation of different economic domains to optimise their choices towards quality-upgrading in response to increasing economisation. The new quality-regime, however, confronts fishers and processors alike with new economic uncertainties with regard to the development of new socio-technical arrangements and practices as means of coping with environmental contingency.

All in all, the case of the Icelandic coastal fisheries shows that traditional forms of production have not been simply replaced by economically more ‘efficient’ alternatives. Rather, existing cultural and socio-technical pathways have been re-evaluated in the context of marketisation and materialised in the sway of daily practical coping. Thus, economisation is neither a one-sided universal structural force that has simply infiltrated coastal communities, nor simply a conglomerate of individual rational choices. Rather, it is a translation of socio-technical arrangements, institutions, identities and network ties that has been unfolded in a dialectical process of disentanglement and re-entanglement of economic expectations that transforms the culture of the coastal fisheries from symbol and means of rural independence to a liberal culture of market-based entrepreneurship and profit-making, as image 36 illustrates.

To sum up, the study has made five contributions to the fields of economic sociology, the sociology of valuation and evaluation and science and technology studies, respectively:

Above all, the study sheds light on the widely neglected field of natural resources in economic sociology. By doing so, it adds new empirical knowledge to our understanding of the dynamics of marketisation and economisation in rural networks of production. The case of the Icelandic coastal fisheries shows clearly that processes of marketisation cannot be reduced to an ‘infiltration’ of the community by the economy (Schimank, 2014), nor to the disentanglement and translation of rural ties towards the neoclassical market model (Çalişkan & Callon, 2009 2010). Rather, the case of the Icelandic coastal fisheries points towards a dialectical relation of disentanglement and re-entanglement of economic expectations, in which ‘traditional’ networks of production are revaluated and transformed. What is different from the abovementioned accounts is that processes of economisation are relative to their contextual embeddedness, which creates historically contingent pathways in which the small pragmatic adjustments of daily economic coping take place. Hence, the study has shown that the ‘primacy of the economy’ in modern society (Beckert, 2009) does not contradict the survival of small artisanal industries depending on their embeddedness in networks, institutions and socio-material discourses of production. The economisation of the fisheries economy by markets and property rights has shown, howev-
er, that gradual pragmatic coping and changing practices do not only recon-
figure institutions and network ties, but also transform the culture of coastal
fisheries itself (see below).

Second, the study shows that modern technologies do not simply deter-
mine human actions in the sense of a ‘harvest machinery’ (Johnsen, 2004)
that simply replaces traditional forms of knowledge, technology and skill
(Pálsson & Durrenberger, 1982, 1990). Rather, ethnographic observations
indicate that new technologies gain their meaning and momentum only in
relation to their local ‘epistemic cultures’ (Knorr Cetina, 1999), in which
implicit and explicit forms of knowledge are developed within the practices
of daily coping. Hence, only within the contingent situatedness of daily skil-
ful copings do new technologies gain their meanings and may open up new
pathways for practices in which traditional knowledge is recontextualised
relative to its historically contingent regime of production.

Third, the study contributes to the literature on risk and uncertainty
(Beckert, 1996; Knight, 1921) by highlighting the role of environmental
contingency in the economy. Accordingly, fishers not only rely on cognitive
frames and coping devices to reduce economic risks in markets, but deploy
coping strategies that respond directly to contingent events stemming from
their environments: tinkering with accounts, technological hybridisation and
redefining boundaries. Furthermore, the study points more generally at the
role of technology for the dynamics of contemporary capitalism than the
literature on market devices suggests (Callon, Millo, & Muniesa, 2007).
Accordingly, economic coping is characterised by the ‘paradox of technol-
ogy’, which on the one hand solves economic problems by means of function-
al simplification, and on the other hand creates new economic problems by
ignoring the complexities of an ever-changing environment.

Fourth, this study adds to the vibrant field of a sociology valuation and
evaluation (Antal, Hutter, & Stark, 2015; Beckert & Aspers, 2011; Beckert &
Musselin, 2013b; Lamont, 2012; Zuckerman, 2012), which has mainly treated
economic valuation independently of the materiality and practices of produc-
tion. The case of the Icelandic coastal fisheries shows clearly, however, that
economic value, in particular in natural resource-based economies, cannot be
understood as detached from the practices that lie at the heart of value crea-
tion in rural networks of production, as they are grounded and materialised in
the fundamental practices of harvesting and processing. The same holds true
for the construction of quality (Beckert & Musselin, 2013b), which has to be
seen as the result of a collectively negotiated process that is shaped and mate-
rialised within the ‘epistemic cultures’ (Knorr Cetina, 1999) in which daily
economic coping takes place. Hence, the changing practices towards quality-
upgrading have to be understood in response to the increasing economisation
of the Icelandic fishery economy, in which traditional forms of knowledge on
processing and fishing are reconfigured in order to adapt to a changing eco-
nomic environment.
Finally, the study indicates a transformation of the temporal and spatial configurations of traditional rural networks of production, in which exchange of information and resources was based on lagged distribution through temporally and spatially separated network ties (Acheson, 1988; Bestor, 2004; White, 1981, 2002). The case shows that, with increasing media institutionalisation of the economy, buyers and sellers today are increasingly connected independently from their network ties in synthetic spaces of observation and control, which link and synchronise activities based on remote real-time observations. This insight is not only of major importance for understanding the transformation of the Icelandic coastal fisheries towards a quality-oriented market niche, but also for the general trend towards an ‘economy of qualities’ (Callon, Méadel, & Rabeharisoa, 2002), in which buyers and sellers evaluate and classify goods mutually.

We have now provided an explanation of how markets and property rights reconfigure relations and practices in rural networks of production. In the next section we will dig deeper into this transformation, which is materialised in a new culture of rural capitalism.

9.2 The transformation of rural independence

The construction of markets and property rights–based resource management regimes implies a deeper cultural transformation towards a culture of liberal rural capitalism in which private ownership structures, individual entrepreneurship and market performance decide who stays afloat, rather than collective belonging, community-based forms of solidarity and national redistribution (Münch, 2009). Hence, the culture of rural independence is no longer based on the principle of solidarity as represented in the culture of the independent small-boat owner who owns and fishes her quota and contributes with her catch to the local economy, but justified increasingly by the ‘veridiction of the market’ (Foucault, 2009: 32) and its core principle of profit-making that judges who can stay afloat.

In this regime of market-based inclusion, quota-owners and fishers govern themselves by disciplining their practices in order to stay afloat and cash in on the increasingly profitable industry. Standing in the shadow of their creditors while being entangled in international markets, however, quota-owners can decide from one day to another to move fishing vessels and landing ports to cut costs, leaving little work for the people in peripheral coastal communities.

Empirical evidence of this de-solidarisation can be found not only in the prioritisation of economic ends over the needs of the community and the development of (electronic) control regimes (see Chapters 4, 7 and 8), but also in the political fragmentation of the representative organs, such as the National Association of Small Boat Owners (NASBO), as larger quota-owners have founded their own lobbying organisations to communicate their
economic interests in the political domain (see chapter 4.5.4). One of these interests is the abolition of the subsidies for hand-baited lines, which would put many people in communities depending on coastal fisheries out of work. Another is the political mobilisation of large quota-owners for bigger vessels in the coastal fisheries.\footnote{At the time of writing, the Icelandic government had doubled the maximum weight for coastal fishing vessels from 15 to 30 tonnes.}

In the end, the increasing fragmentation and instability of the coastal fisheries not only create problems for the fisheries as such, but also for the service people, whose jobs largely depend on the wealth created in the fishing sector. Evidence for this can be found in the rural real estate market, in which market prices correlate highly with the accumulation of fishing rights in the communities (Benediktsson & Karlsdóttir, 2011). Quota-owners can decide to sell off their quotas for any reason, be it due to financial speculation, miscalculation or simply because of unforeseeable government decisions or market developments. Of course, booms and busts lie in the nature of capitalist economies, although in this case the initial function of coastal fisheries as solidaristic safety net is undermined by the logic of capital concentration: the more fishing quota are concentrated in the hands of a few owners, the more a fishing community will be vulnerable to economic decline in case of bankruptcy.

9.3 How big can small be?

The case of the Icelandic coastal fisheries has shown that, once implemented, property rights can create robust networks that mesh fishers and fish into a complex network of money-mediated relations, while at the same time transforming them into agents who themselves drive economisation in their daily copings. As the result, the boundaries of the coastal fisheries have not only been stretched far out in the Arctic Ocean, but also in the world of large-scale capital accumulation. Seemingly, the successive marketisation of the coastal fisheries has indeed turned a century old ‘inefficient’ tradition into a profitable business that competes indirectly with its large-scale industrial counterpart by establishing and maintaining a quality-oriented marketniche – but at what cost? Put differently, how can the rural communities benefit from the fruits of the market in a sustainable fashion?

In the end, coastal fisheries are a cultural form that has grown and survived the process of modernisation in the sway of political discourses and economic practices. The question therefore should not be whether one is for or against the ‘free market’, but about the boundaries and the regulations that frame and define the cultural form of the coastal fisheries in a market-based economy. The people of Iceland and of other fishing nations flirting with
market-based solutions to resource management may ask themselves the following questions: What are the cultural and social values of modern coastal fisheries? How shall we define their boundaries? What is their function in contemporary society? Furthermore, should a few quota-owners have the power to accumulate large amounts of fishing quotas and vessels? Or even more critically, should not those who go to sea own the right to fish, as an old Icelandic proverb suggests \((\text{Þeir fiska sem róa})\)?

These questions ultimately come down to the most fundamental question, which bridges political discourse and academic sociology: in what kind of society do we want to live? Do we want to live in a hyper-urbanised society in which all resources are harvested by a few large companies, workers and machines? Or do we want to live in a society in which people have the right to choose where they want to live and are able to contribute to a thriving rural landscape\(^{76}\) that is not merely dependent on seasonal income through the tourism sector?

9.4 What needs to be done

Our case study of market-based fisheries has come to an end. This does not mean, however, that the research on contemporary rural economies has been exhausted. With few exceptions (e.g. Aspers, 2013; Çalişkan, 2010; Holm & Nolde Nielsen, 2007), rather the opposite is the case with regard to the neglect of natural resources and rural production networks in contemporary economic sociology.

While this study has gained first insights into the relations between markets, technology and (e)valuation processes in contemporary rural capitalism, more comparative research is needed to fill the gaps and blind spots that go along with a singular case: how do other rural production networks dealing with natural resources cope with processes of marketisation and economisation? What role do markets as governing devices play in contemporary rural economies? Can we find similar traces of a culture of liberal rural capitalism in these production networks? If yes, how and to what extent has it changed practices such as harvesting and economic (e)valuations? And are there differences with regard to the marketisation and economisation of different natural resources such as fish, timber, crops and different forms of livestock, such as cattle and farmed fish? Furthermore, we can ask, in line with Çalişkan (2010): how we can describe the relations and dynamics between global markets, exchange and local forms of production in contempo-

\(^{76}\) This is of course not necessarily an argument against large-scale industrialism. The case of the Icelandic fisheries even suggests that the large-scale industrial fleet forms the backbone for stable markets and prices. From this perspective, large and small corporations represent a successful synthesis, serving different market niches.
orary rural capitalism? And finally, what role do science and technology play in what Asdal (2015) has referred to as processes of ‘bio-capitalisation’, namely the enactment of ‘nature’ as capital in these economies? And what are the implications of this for our understanding of contemporary rural modernity?
Appendix: Hook-and-line fisheries

Jigging

Jigging (Icelandic *Handfæri*, literally meaning ‘handline’) is among the oldest fishing techniques. Jigs are a kind of artificial fishing lure that is typically made out of rubber that is attached to a hook. Most commonly, plain but flashy colours, such as yellow, red, white, green and blue are tied to a monofilament that is weighted down with a sinker. To increase capture efficiency, several – on average, 8–10 – jigs are tied in a row to a so-called paternoster-rig. Depending on the number of jigs used, paternoster-rigs allow the catching of several fish in one turn. During fishing activity, jigs are jerked up and down to imitate living bait to enhance their attractiveness to the fish.

Traditionally, one or more baited hooks and a sinker are tied to a long line. When the vessel – in the olden days an open rowing boat – has reached the fishing grounds and the foreman has given the signal to start fishing, the hook and sinker are let down to the desired depth by a single fisher, who controls the line with his hands. In a way, modern sea angling, which is practiced for recreational purposes, resembles this traditional technique in its basic form, with the only difference that the angler uses a fishing rod and a reel for line control. In both cases, the fisher is dependent on his own perception that is mediated through the fishing line, which tells him whether a fish has taken the bait so that he can pull up and reel in the line.

In contemporary coastal fisheries, jigging still plays an integral part in the summer fishing season and is typically used on smaller vessels of around 5–10 tonnes. Although the old denomination *handfæri* is still used for classification in Iceland, technological innovations, in particular jigging computers, have increased efficiency tremendously (see image 37). Jigging computers not only make it possible to pull up the catch by machine power, but also to program the desired depth, among other functions. In the latest models, electronic sensors in the sinker provide information that is displayed on the computer screen. For instance, if a skipper sees a shoal of cod at a certain depth on the plotter of his fish finder, he can rapidly drop the bait down to the desired depth and gain information about the weight of fish already

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77 Other ground species may be caught as by-catch. For some reason, the haddock, which is caught together with the cod, saithe and wolfish on the baited longlines, is seldom caught on handlines.
hooked. Thus, the uncertainty when reeling in the line with manual jigging machines is reduced and allows the much more efficient coordination of fishing turns. Furthermore, only one fisher – often the skipper of the vessel – is needed to unhook the fish while the other jigging machines are operating. Hence, jigging vessels are often controlled by only one, at most two fishers.

In Iceland, commercial jigging fishing is practised almost exclusively from May to August when the sea is warmer and the cod and saithe are actively feeding on big shoals of capelin, herring, mackerel, shrimps and other bait close to the coastal regions. According to the fishers interviewed, the fish do not take the jigs in the winter as they lie more passively on the sea bottom, waiting for something to feed on to pass. Furthermore, jigging is dependent on relatively good weather with slow winds and smaller waves to ensure optimal operation of the jigging computers during a drift. If the drift is too strong, however, the vessel may be slowed down with a drift anchor to allow maximum performance of the jigging computers. When drifting, the skipper not only saves fuel, but also makes sure that the roaring engine does not spook the fish.

All in all, jigging is considered to be especially economic and environmentally friendly as it – unlike bottom trawling – protects the seabed when fishing for demersal species, minimises by-catches and saves (in comparison with longline fishing) a lot of oil.

**Image 37. Jigging computer.** Fully computerised jigging machine.
Longlining

When the short Arctic summer passes and the seas get rougher, slightly bigger vessels fishing with baited long lines for more passive fish in colder waters take over. Longlining is a traditional capture technology that has been of particular importance for both past and current developments of the small-scale fisheries in the Westfjords. As the name indicates, a longline is a comparatively long fishing line equipped with perhaps hundreds of baited hooks that is put to sea to the stern while the vessel is slowly moving forward. After the line is set in the ocean, it is marked with a buoy and left in the sea until it is hauled aboard again to manually unhook the catch.

According to Sævaldsson and Valtýsson (2013), the first usage of longlines can historically be dated back to at least the late fifteenth century. Even though longlines were much more efficient than the manual handlines from which they originated, operating them remained quite expensive due to the increasing cost of labour and fresh bait, which was not always available and storable in large quantities over time. In addition, it was very difficult to control the longlines from open rowing boats in the strong currents and drift of the open ocean as lines would get snagged due to the drift when ‘lying’ on the sea bottom. Thus, a combination of these factors made longline fishing too costly for most boat owners as the risk of losing costly lines was high (Þór, 2013, personal communication). The usage of longlines became more common in the nineteenth century, when fishing from sailing boats was booming, but it was not until the early twentieth century that two major technological breakthroughs laid the foundations for the triumphal march of the longline for the socio-economic development of twentieth century fisheries in Iceland. First, the invention of reliable freezing technologies, which not only revolutionised the processing industry and consumer markets in Western countries, but also allowed the storage of bait over longer periods of time; and second, the advent of motorised vessels, which gradually replaced sailing and rowing boats in the commercial fisheries and hence facilitated recapturing lost lines in the sea. Ever since, longlines have been of major importance for smaller decked vessels, particularly during the rise of the trawler industry, and could even outnumber them in catches for longer periods until the usage of gillnets during the spawning season grew popular in the 1960s (Sævaldsson & Valtýsson, 2013).

In the Westfjords region, however, the longline was able to establish itself much earlier as primary capture technology (Þór, 2002: 236). This socio-economic Sonderweg in the development of the fisheries in the Westfjords can be explained mainly by the geographical features of the region: in comparison with the unsheltered fishing grounds, in particular in the south-west, where most of the fishing activity was taking place, the rich fishing grounds in the Westfjords region were naturally sheltered from the strong currents of the open ocean by the numerous fjords in which they were located. This
peculiarity of the region made it technically and economically viable to control the longlines from the open rowing boats putting to sea from the fishing stations inside the fjords – even during the wintertime, when seas usually get rougher.

**Image 38. Modern longliners.** Two ‘small’ long liners the Fríða Dagmar (left) and the Hrólfur Einarsson (right) in the harbour of Bolungarvík, Westfjords, June 2013. These vessels were among the most successful and efficient in the fishing season 2012/13 in the small-scale system, with the Fríða Dagmar topping its own Icelandic record from the same season by landing 24.9 tonnes in a single fishing turn, taking an average of 500kg of mainly cod on 48 bala (line buckets) (Víkari.is, 2013).

Besides the main target species of cod and haddock, longlines in Iceland have also been used for capturing Greenland shark, whose liver oil used to play an important export role during industrialisation, in particular for illuminating street lights in the Continent’s urban centres in the nineteenth century (Þór, 2002: 239). Especially from the fishing stations in the Westfjords region open rowing boats would sail offshore to bait with seals or other large and bloody pieces of meat for the northernmost shark species. Today, however, only a few vessels seasonally bait for Greenland shark as the demand for producing Hákarl, a traditional fermented fish dish, is covered by the by-catches of the trawler fisheries.

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78 The flesh of the Greenland Shark is poisonous as it contains neurotoxins, which can be seriously harmful if consumed raw. The toxins can be decomposed by fermentation of the shark’s meat. For this, parts of the shark are first buried for a few weeks and then hung up in wooden huts to let them dry in the cold Artic winds. In Iceland, Hákarl is traditionally eaten on special occasions like national holidays, in particular at Porrablót in mid-February, during
Today, longlining is one of the traditional capture techniques that have survived both the revolution in the freezing trawler industry and the crises of the Icelandic fisheries in the twentieth century. Moreover, it has remained the most efficient and widespread technique in the small-boat sector for vessels under 15BT (now 30 BT) and has proven to be of particular importance for the small-boat revival in some prospering villages in the Westfjords.

A modern longlining vessel’s crew usually consists of at least two fishers, one of whom is usually the skipper and the other a deckhand who helps the skipper with setting and retrieving the line, unhooking and cutting the catch to let it bleed dry to ensure the best quality and highest prices. On larger vessels up to 15BT, the crew can consist of 3–4 fishers, one of whom is usually the skipper, another an engineer and one or two deckhands.

Whereas in the olden days seasonal longlining was usually practiced in the sheltered fjords during the winter months, today most fishing operations take place all year round on the open ocean as the quality of the fish, in particular cod, is believed to be of higher quality. Thus, fishing inside the fjords is commonly seen as a stopgap solution when the weather turns too rough, but the economic incentive for maintaining the fishing operation is high.

Like jigging, the longline fisheries have undergone a period of rationalisation, fostered by capital-intensive investments and technological innovations, which mainly resulted in comparatively cheap, plastic-hulled and fast decked vessels, which were capable of going out in rough weather, such as the Cleopatra-type fishing vessels built by the Icelandic company Trefjar from Hafnarfjörður (see image 38) Thus, the latest developments in the industry allowed a revitalisation of the longline fisheries, which, unlike the seasonal jigging fisheries, gave investors the chance to invest in a year-round business harvesting fish and securing a more or less constant supply of fish for the local processing facilities.

Today, longlines are almost exclusively used for demersal fisheries. Cod and haddock are the main species caught, with catches lowest in the summer. However, also other valuable species, in particular wolfish in the spring, monkfish, tusk and ling are valuable by-catches (Sævaldsson & Valtýsson, 2013).

Artisanal longlining as a means of rural development

Today, artisanal baiting is subsidised by the government as a means of rural development. Accordingly, quota-owners can land an excess of 20 per cent if lines are baited ashore, which most quota-owners do instead of using auto-

which the shark’s meat is typically consumed and washed down with some Icelandic snaps (Brennivin), but it is usually available all year around and popular for offering to sceptical foreigners.
mated baiting machines. Lines are usually baited in special baiting houses or shacks, which are typically directly situated alongside the homeports of the vessels. This allows spontaneous communication and coordination between fishing crews and baiters, and transport distances are short. In general, baiting is low-skilled work that does not require any training and is typically done by teenagers, migrant workers or older people such as retired fishers who are paid per bala, the native term for the buckets in which the longlines are stored (see image 39). In the Icelandic demersal longline fisheries, each bala contains a fishing line of 500 metres equipped with 500 hooks at one metre intervals. Especially for the younger generation, working in a baiting house is an important social space where they can establish contacts with the fishers and dream of being offered a position as deckhand on one of the highly paid and respected fishing vessels.

**Image 39. Baiting the line.** A worker baiting a line in the baiting house in a small fishing village in the Westfjords. After a chunk of squid or fish is attached to the hook, the baiter has to make sure to lay it into the bala in an orderly fashion to ensure that the line can be released smoothly during the fishing operation without getting tangled.
Gill nets

Another important technique for more capital-intensive vessels without a hook & line license in the small-boat ITQ system are gillnets. These nets, each about 50m long, are put out on the sea bottom like a flat tent, which is kept vertical through buoys on the top. A big entrance is left for the fish to swim inside and get entangled in the mesh with their gills. There are different mesh-sizes for different kinds of fish. The main target fish is cod, but also saithe, while haddock, ling and monkfish are caught in lesser amounts (Sævaldsson & Valtýsson, 2012). Other techniques such as purse seines are – in contrast to Norwegian regulations - generally prohibited in the Icelandic cod fishery, but used by large trawlers fishing for capelin, an important commercial fish for fishmeal and fish oil processing.


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