

## THE NORWEGIAN COASTAL EMPLOYMENT SYSTEM: What It Was and What It Is

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*Abstract* Norwegian fisheries have undergone tremendous changes, due to technological developments and the introduction of resource management. In addition, societal changes and in particular the introduction of formal requirements and the formalization of training and education, have also greatly affected the fishing fleet. Jentoft and Wadel (1984) described the Coastal Employment System. This system was characterized by mutual dependency among actors, flexibility of the system and mobility of labour, and primary socialization. The question we ask is therefore: have the above mentioned changes affected the employment and recruitment patterns in the fishing fleet? If so, what do they look like today? And is the concept of the Coastal Employment System still relevant?

### Introduction

For ages, fishing has been the foundation for economic activity, employment, and settlement along the Norwegian coast. Although access was initially open, in the sense that anyone could more or less freely establish themselves as part of a crew or as vessel owners within the existing fisheries, the fisheries have increasingly been closed. The closure was mainly a management reaction to stock collapses, as capture had exerted high pressure, and was designed to reduce the number of people and vessels directly involved in the fisheries (Apostle *et al.* 2002:17; Caddy and Cochrane 2001; Hersoug 2005b; Holm 2001; McCay 1999; Wright 2001). Subsequently, a number of licence and participation schemes were applied to the Norwegian fisheries. By 2005, over ninety percent of the fisheries were closed, but there was still an overcapacity in the fleet (Hersoug 2005a; Johnsen 2004). Thus, to further reduce capture capacity, and thereby improve profitability, more management measures were introduced via restructuring policies. The main feature of the restructuring policies after 2004 was the possibility to transfer and trade quotas. This enabled the most efficient vessels to further increase

their resource base and to better utilize their technical capacity. As a result, the profitability of the fleet has increased, both in terms of operating margins and wage paying ability (Directorate of Fisheries 2006).

Parallel to the closure and reduction in fleet size, a discussion regarding recruitment to the Norwegian fishing fleet has taken place. The debate has focussed on how the combined measures of closure, capacity reduction policies, technological improvements and obligatory public education have led to a recruitment problem in the Norwegian fishing fleet. Contrary to this argument, in the short run we could expect that closure, improved productivity and technical efficiency and fewer vessels would produce an excess of fishers<sup>1</sup> and unemployment, instead of a shortage of fishers and a recruitment problem. Some claim that the root of the recruitment problem lies in the destruction of what we call the Coastal Employment System (Fiskeribladet/Fiskaren 2009; Pedersen 2009; Aasum 2008). The fisheries authorities, however, assume that recruitment is regulated by supply and demand, comparable to the ordinary labour market (White Paper [St. meld.] nr. 19 [2004–2005]; White Paper [St.meld.] nr. 20 [2002–2003]; White Paper [St.meld.] nr. 51 [1997–98]).

The employment system narrative, linked to recruitment, has been a concern for several decades, but was put on the agenda by Jentoft and Wadel's (1984a) work on local employment systems in the 1970 and 1980s. In their perspective, the employment system was a holistic and interdependent system in which recruitment functioned as the crankshaft. Their work, situated within the Local Community Paradigm, has influenced until recently how employment and recruitment are treated in studies on fisheries and coastal communities. Most work within the field has consisted of thick, comprehensive descriptions of local employment systems (Sørensen 2000). Johnsen (2004) pointed to the lack of quantitative data in this field, which makes generalizations regarding recruitment and employment difficult. With a few exceptions (for example, Johnsen and Vik 2008), this is still the case; thus, this paper will examine what we can call the contemporary Coastal Employment System. Since technological and organisational developments in the Norwegian fisheries have been more drastic in terms of technological change, efficiency improvements and reduced demand for manpower than in many other North Atlantic states, our findings and methodology may yield lessons to be learned by others.

This paper will present the recruitment debate and contrast this debate with the empirical pattern of today's Coastal Employment System. The question to be answered is how well the grand narrative about recruitment captures important aspects of the contemporary recruitment system in the fleet. Thereby, we address the knowledge gap that Johnsen (2004) identified and contribute to establishing an updated conceptual starting point for more profound studies into this field. Furthermore, this paper will contribute to adapting the recruitment narrative from the employment system theory of the past to better match the present situation. Thus, the objective is to describe the employment system in the fishing fleet anno 2007 and contrast it with the grand recruitment narrative that started with Jentoft and Wadel (1984a). Due to the lack of time series data we cannot determine anything conclusive about changes from one period to

another, but we will paint a picture of the present system as accurately as possible, with the concepts developed by Jentoft and Wadel (1984a) and the recruitment discourse that was to follow as a backdrop. The article is structured as follows: the next section will present the theoretical and methodological approach. The third section presents the Coastal Employment System of the 1970 and 1980s, followed by a section describing the radical changes in the Norwegian fisheries in the last ten to twenty years and the ways in which these changes are interpreted as radical changes in the recruitment and employment systems. Particular attention is paid to restructuring policies, technological developments, and formalization of the education system. These qualitative sections are then followed up by a quantitative section describing the contemporary Coastal Employment System, which analyses and discusses the present recruitment mechanisms. The article is rounded off with a concluding section that sees the employment system from a new perspective.

### Theoretical and Methodological Aspects

This article uses a mixed approach, qualitative and quantitative. The qualitative, and mainly abductive, Actor-Network Theory (ANT) approach is used to present the elements, the development and the position of the coastal employment narrative with a focus on recruitment. This is combined with an inductive, quantitative approach to describe quantitative and structural patterns in the present recruitment system. The patterns we find are discussed with the recruitment narrative as a backdrop. Primary data in form of a survey and systematic observations of the developments in the Norwegian fisheries in the last few decades have been used, as well as secondary sources of information, such as former research and official statistics.

The article's theoretical and methodological position is within the relational perspective of ANT, a useful tool when examining societal changes (Latour 2005). The social is made of networks of associations, or relations and may be material or discursive. It is the networks of relations that defines the actors, or gives the actor an identity. The networks are dynamic and continually changing in time and space; hence, actors are continually subject to change. Consequently, the relationships and associations that defined a fisher in the former employment system narrative may differ from how contemporary relationships and associations define the fisher. The Participation Act of 1972, which in Norway regulates and defines who is in a position to own vessels, identifies a certain set of practices and relationships as constitutive for fishers. For instance, defined as fishers are only active fishers or those who derive a significant portion of their income from fishing. Hence, if these regulations are changed, networks may change, and so may the identity of the fisher and the practice of fishing. Therefore, if new elements are introduced into this set of relationships, or existing ones are weakened, the networks will change, weaken or even disappear (Callon 1986). This is the danger that Jentoft and Wadel (1984a) had in mind. Fewer people directly involved in the fisheries would lead to weaker relationships between fish, people, and fishing practices,

which in turn would weaken the ties between the fishers and their communities. This could, according to the narrative, again lead to recruitment and employment problems. It was therefore essential for the vitality of the community to maintain the network called the Coastal Employment System through active and strong actors. As a result, the social or the community is not a given, but something that requires continuous work to be maintained. 'Society is not what holds us together, it is what is held together' (Latour 1986: 276 in Murdoch 1997).

The quantitative data was collected in the spring of 2007 through a telephone survey among (500) active fishers (crew) and (500) owners of full-time operating fishing vessels. The Norwegian fishing fleet is diverse in terms of fishers' ages and experience levels, vessel size, technology, gear type, fishing pattern and geographic distribution. Thus, a large and representative sample was considered necessary in order to make generalisations. We also wanted to be sure that we had a sufficient number of respondents to be able to break down the sample into different groups by gear type, age or geography. One thousand telephone interviews were carried out by a professional opinion poll agency, Norfakta Markedsanalyse (NM). The sample was drawn from the official Norwegian fishery registry<sup>2</sup> using semi-stratified sampling. At first, NM sampled randomly from the entire registry until 500 crew members had been interviewed – there are more crew members than vessel owners. Then, NM sampled randomly only from the vessel owners registry until the specified number of interviews was obtained. The interviews were structured interviews in which some questions were general for all the interviewees, whereas other questions were only for the vessel owners. Questions were asked on issues such as age, income and size of vessel, as well as from where vessel owners recruit, through what channels they recruit, why they started fishing, and various value questions related to politics. The data was submitted electronically by NM.

Crew data was compared to the official fisheries registry data and vessel owner data was compared to the annual economic survey for fishing vessels. The data was found to be representative with respect to important variables such as age, geography, crew and vessel owner (Johnsen and Vik 2008).

SPSS was used as a tool for statistical processing and analysis, describing the patterns and test correlations. This article presents data that sheds light on the existing employment system and issues related to contemporary recruitment, but also on the former employment system, as it investigates motivations for entering the fishing occupation in the first place.

## **The Construction of the Coastal Employment System**

Studies within the local community paradigm pointed out how recruitment and employment in the fisheries depended upon social relations (Anderson and Wadel 1972; Chiaramonte 1980; Høst 1980; Kristiansen 1985; Nilsen 1980; Trondsen 1980; Wadel 1980). Social relations were the basis of Jentoft and Wadel's (1984b) conceptualisation of the Coastal Employment System. The Coastal Employment System described a local network of mutual relationships between the fishing

fleet, the household, the processing and service industries and the local school. In Jentoft and Wadel's view the fishing fleet had a central role in the system, as it was the site of the constitutive capture activity, which gave identity and meaning to the system as a whole. And as the name Coastal Employment System indicates, the relationships were of an ordered and systemic character with defined interdependent roles to be performed and enacted in specific ways, thus guiding and structuring actions in the system (Jentoft and Wadel 1984a; Layder 1994).

Jentoft and Wadel and their followers saw the Coastal Employment System as organizing employment and labour differently than other industries in the modern society. Modern societies are characterized by formalised and impersonal ties between people and market mechanisms regulating the supply and demand for labour. Employment relations are therefore dominated by calculating individuals, market mechanisms and formal contracts.

On the contrary, the Coastal Employment System, as they described it, depended on informal and affective social relations and mutual dependencies between buyer and seller in a local labour market. The relations were characterized by affection and a high degree of social commitment. Knowledge and skills were practical and local, and transferred through implicit mechanisms and experience (Apostle *et al.* 1998). Thus, recruitment and employment depended on social relations. Inspired by Burns and Stalker (1994) these relations may be labelled as *organic* (Johnsen *et al.* 2009a; Johnsen *et al.* 2009b). Moreover, the Coastal Employment System depended on economic and social activities, with the local community acting as the hub between land and sea. It was a social system with symbiotic relations between actors. Although each fishing unit was an independent decision-making unit, each unit would also be influenced by the decisions of other units in the system.

According to Jentoft and Wadel (1984a), the Coastal Employment System had four main characteristics: mutual dependency between actors, flexibility and mobility, primary socialization and low system vulnerability. For instance, in traditional coastal fishing, the combination of occupations, for example, fishing and agriculture, would allow occupational shifts and secure full-time employment. That labour was mobile and easily movable between sectors was seen as positive. Surplus labour in one sector would be absorbed by other sectors. According to Jentoft and Wadel (1984a), this gave stability to the local economy and allowed for individual adaptations. Moreover, recruitment was the fulcrum of the Coastal Employment System; without recruitment the entire employment system would crumble.

Empirical studies showed that the four main characteristics were founded in empirical reality. Firstly, mutual dependency in the recruitment process has been observed: recruitment to the fisheries has been found to take place through social networks, highly influenced by kinship and friendship (Doeringer *et al.* 1992; Hersoug 2005b; Johnsen 2004). Recruits started their careers onboard vessels belonging to family and friends; thus, the household and the fleet were mutually dependent upon each other for supply and demand of labour. Similarly, the fleet and the local processing industry had mutual dependency for delivery of raw material to the industry – although the Raw Fish Act from 1938 strongly

regulated this relationship.<sup>3</sup> Mutual dependency also existed within the fleet segment. Larger and more profitable, possibly paid off, vessels had the space and the financial margins to recruit and train young crew, which benefited the entire fleet later on. To limit the negative impacts of seasonality and ensure full-time employment, labour moved between vessels and fisheries. Vessels also depended on each other for catch information and safety. As mentioned before, there was also a dependency upon other economic sectors, as fishing was combined with other economic activities to secure full-time employment and mitigate the cyclic nature of the fisheries.

Secondly and closely tied to dependency, the employment system was flexible and the labour was mobile. In historical records and empirical descriptions of Norwegian fisheries, unemployment was avoided through seasonal mobility within the fleet and between the fleet and other economic sectors (Jentoft and Wadel 1984a; Lønnsomhetsutvalget 1937; Rabben 1983; Thorsvik 1982). One could compensate for low season in one fishery by taking work in another fishery or another economic sector. Thus, a decline in one sector did not lead to unemployment; rather it resulted in labour mobility. These patterns could be repeated annually, thereby ensuring stability of crew, as the same fishers would return to the same vessels year after year (Hersoug 1985). The specific organization and the organic nature of the Coastal Employment System allowed a system dynamicity that was essential in order to avoid unemployment and recruitment problems. Thus, the composition of the local fleet and the close dependency between actors in the system allowed for an adaptive flexibility and the sustainability of the system and ensured coastal settlement (Hersoug 1985; Jentoft 1984a).

Thirdly, inspired by Berger and Luckman (1967), knowledge transfer in the scholarly perspective of the Coastal Employment System was characterized by the prevalence of primary socialization. Primary socialization is the fundamental transfer of knowledge, such as learning a mother tongue, and is a learning process based on experience. It is characterized by face-to-face interaction and strong emotional ties, involving significant others (parents). Through primary socialization the fisher was slowly introduced to a knowledge collective of shared common ideas, values, symbols and culture to develop the fisher's identity (Berger and Luckmann 1967; Johnsen 2004). The socialization of the recruit took place in and was a part of the local fisheries activities. Training was tied to everyday activities, locally, and knowledge and skills were versatile (Hetland 1984). Youths were recruited from the households and local communities onto vessels belonging to family and friends, which ensured transfer of knowledge between generations. The Coastal Employment System in mind, and its focus on the various roles in the system and the forces structuring these roles, suggests that the fishers were practically *born to be fishers* and, if the fishing activity disappeared, so would the fishers and the fishing community.

Finally, according to Jentoft (1984b), the vitality (or low vulnerability) of a fishing community was due to the organizational strength of the Coastal Employment System – through mutual dependencies and flexibility in particular. A downscaling of the fishing fleet would, in this model, undermine the vitality of the Coastal Employment System, which could cause problems with regards

to delivering catches, fishing careers and recruitment (Hersoug 1985). Fewer fishers and fewer actors in the fisheries would weaken the social relations between the fishing community and the coastal community and would exacerbate the recruitment problems and the vulnerability of the community: *a domino effect* (Jentoft 1984b). This problem could be exemplified by the Cod Crisis in 1989–90. A significant reduction in spawning biomass led to a corresponding reduction in cod quotas, effecting a chain of negative events. First, the small quotas were fished quickly, leaving the vessels and crews idle. Reduced landings led to unemployment in the local processing and service industry. As a result, the unemployment skyrocketed in many fisheries-dependent communities and was seen as an increase in the vulnerability of local communities (Jentoft 1994; Jentoft 2001). However, growth in the public sector during the 1980s gave employment alternatives to the fisheries-related work that traditionally had taken place either in the household or in the fish processing industry, especially for women (Tjelmeland 1994). Thus, the Cod Crisis did contribute to downsizing and increased concentration of ownership in the fishing fleet, but changes in the relationship between coastal communities and the fisheries cannot be seen solely as a consequence of changes in the fisheries and in fisheries policy, but must also be seen in terms of changes in society and the development of a public sector. Rather, we see a cumulative effect of several causes (Jentoft 2001; Johnsen 2004; Wadel 1980).

In summary, Jentoft and Wadel's (1984a) Coastal Employment System conceptualises a network of mutually dependent actors from the coastal community – the actions of one actor affected other actors. Moreover, the coastal communities and the Coastal Employment System were seen as merged from the collective activities of the actors in the system (Murdoch 1997), with the fishing fleet as a core element.

However, radical changes have altered all the main elements of the Coastal Employment System: the fishing fleet, the processing and service industries, the school system and the functioning of the households. What then is left of the Coastal Employment System today? The following section will now consider these changes in more detail.

### **A Sea Change<sup>4</sup> in Norwegian Fisheries**

In the previous chapter we presented the Coastal Employment System as described in the 1970 and 1980s and we gave examples of empirical work supporting the concept. Since then, several changes in the fisheries sector have affected employment and recruitment to the fisheries – some have been continuous processes since the 1950s and others have taken place since 1990; which in turn have contributed to shaping how recruitment and employment patterns look today. We will now briefly present some major changes: the collapse of the spring spawning herring in 1972, due to overharvesting and changed migratory patterns (Bjørndal *et al.* 2004; Sissener and Bjørndal 2005); the collapse of the coastal cod in 1989, due to exceptional catchability and historically low total allowable catch (TAC) (NOU



[Green Paper] 2006:16); and the resulting resource management measures (Bjørndal *et al.* 2004; NOU [Green Paper] 2006:16), including the implementation of a new property regime in the Norwegian fisheries (Hersoug 2005b; Holm and Nielsen 2007). These changes together with several attempts to reduce overcapacity and modernize the fleet have greatly affected fishing practice, as well as employment and recruitment.

Increased technological sophistication is exemplified in Figure 1 below. The picture to the left shows a sixty-four-foot vessel in 1981 and the picture to the right shows a forty-nine-foot vessel in 2007. In 1981, at least five fishers were needed to handle about 200 nets. In 2007 three men could easily handle 120 to 180 nets with at least the same, or perhaps higher, catch potential. The main differences between 1981 and 2007 were new materials (monofilament) and the introduction of integrated floaters and sinkers, which allowed automated handling of nets. Thus, a forty-nine-foot vessel fished more efficiently in 2007 than a sixty-four-foot vessel did in 1981.

Figure 1: *Semi-Manual Harvest Systems in 1981 (left) and Automated Harvest Machines in 2007 (right) (Both photos: Jahn Petter Johnsen, 1981 and 2007)*



On an aggregated level, this means that, only since the turn of the millennium, 2000 vessels (thirty percent of the active vessels) and 6000 fishers (thirty-two percent of the active fishers) have left the fisheries. Simultaneously, productivity increased by thirty-three per cent (catch per fisher) in the same period ([www.fiskeridir.no](http://www.fiskeridir.no)). The catch capacity increase, however, has not been evenly distributed. For vessels under twenty-eight meters, capacity has increased by thirty percent between 1988 and 2002. For vessels over twenty-eight meters the capacity increase amounted to seventy-two percent and for vessels over sixty meters the capacity has increased by 300 percent in the same period (NOU [Green Paper] 2006:16).

As we stated earlier, historically most fishermen entered the fisheries by socialization through exposure to and experience with the fisheries. Recruitment was characterized by an early start, little formal education and close social relations with community members. Hersoug (2005a) showed a clear connection between exposure to fisheries and occupational choices, as ninety-five percent of the fishers were raised in a fishing community, eighty-three percent had fathers who were fishers and seventy-five percent started their careers together with family or

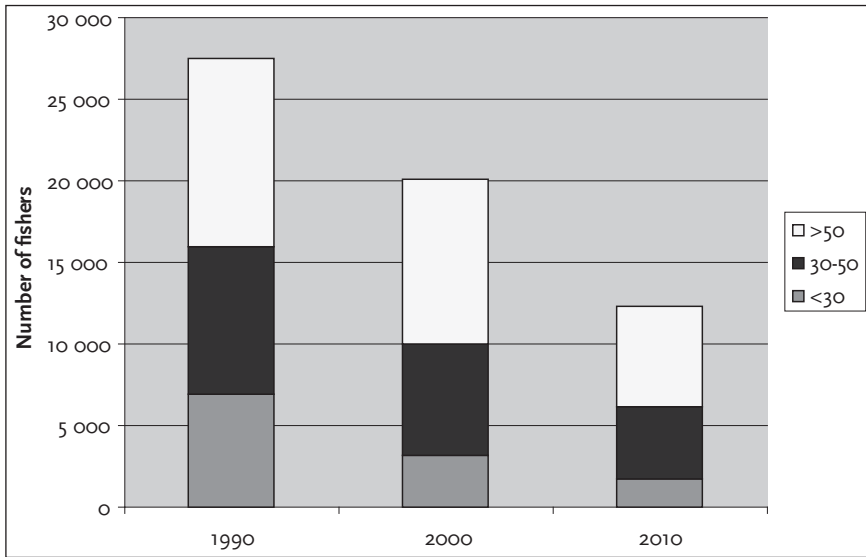


community members. Throughout the 1970 and 1980s, the formal school system (secondary socialization) increasingly replaced primary socialization (Heggen *et al.* 2001; Johnsen 2004; Wiborg 2000). Actually, the formal school system has been accused of being a major reason for reduced recruitment to the fisheries by weakening the ties between fisheries and communities. Secondary socialization is not as all-encompassing as primary socialization and often role specific; thus, knowledge and skills depend upon the role of the actor and is therefore more easily replaced than knowledge gained thorough primary socialization (Berger and Luckmann 1967). Formal education also results in later entry into the fisheries and fishers who enter late are typically less stable labour (Hersoug 2005a). An investigation in 2003 showed that fifty percent of a recruited cohort departed the fisheries within the first two or three years (NOU [Green Paper] 2008:3); thus, education directs youth out of the community (Johnsen 2004).

From the perspective of the local community paradigm, the above-sketched developments in the fisheries and society at large, as well as the increasing closure of the fisheries since 1973 (Hersoug 2005b), were seen as developments that could change the social relations and break up the Coastal Employment Systems as well as coastal communities. These developments were seen as threats for traditional knowledge transfer and recruitment and would further disembed the fishers from their local community, as well as weakening traditions and local networks (Hersoug *et al.* 1993; Jentoft 1984a; Jentoft 1993; Jentoft and Wadel 1984a; Rossvær 1998). Also more contemporary scholars have asserted that the fisheries are being increasingly disembedded from local communities (Apostle *et al.* 2002; Jentoft 2000; Johnsen 2004; McCay 1999; Neis *et al.* 2005; Sinclair 2002; Sinclair *et al.* 1999). Expected effects of the disembedding of fisheries from communities is that knowledge and employment systems become more explicit and formalized (Ministry of Fisheries and Coastal Affairs 2006; NOU [Green Paper] 2006:16; NOU [Green Paper] 2008:5; Sørensen 2000).

Technological developments, restructuring policies and societal changes have reduced the number of vessels and fishers, but catch capacity has not been reduced proportionally. Even after years of attempting to reduce the capture capacity in the fleet, fisheries authorities and organizations agree: there are still too many fishers (Fiskeribladet/Fiskaren 2008; Johnsen 2004; White Paper [St. meld.] nr. 51 [1997–98]). In seeming contradiction, general consensus also has determined that the fleet is having a recruitment problem, as fewer young people are choosing a fishing career and the average age of the fisher is increasing (Figure 2). Moreover, actors in the fishing fleet are addressing the problem of *brain drain* (Halstensen 2007). Thus, on the one hand there are too many, but on the other there are too few – *the recruitment paradox*.

Figure 2: *Development in Number and Distribution of Age of Norwegian Fishers from 1990 to 2010*<sup>5</sup>



(source: [www.fiskeridir.no](http://www.fiskeridir.no))

Certainly these developments indicate a worrisome trend in recruitment and employment, but do not give a very accurate picture of the whole and the present situation. Although the arguments are contradictory, they are likely to have some foundation in the reality of the actors. Besides, the contradicting arguments hint to the heterogeneous nature of the sector, to which we will turn to in the next section.

### The Contemporary Coastal Employment Patterns

Following the above discussion regarding the Coastal Employment System and factors that may have changed the employment and recruitment patterns, the crucial question remains: if the concept of the Coastal Employment System can be used to conceptualise contemporary patterns. Therefore, this section will report and discuss these contemporary patterns in light of the presentation in the two previous sections. We also address the inevitable question: does the Norwegian fishing fleet have a recruitment problem?

Concerning the latter question, a look solely at the large decline in numbers of fishers and the increase in their average age, with the Employment System Theory as the basis, suggests an affirmative answer. However, keeping in mind the explicit policy to reduce overcapacity and increase efficiency in the fleet indicates the opposite. According to our data, seventy-one percent (N=219) of the vessel owners reported that they have not experienced any problems recruiting crew,

equally suggesting a negative answer. This exemplifies the difference between the expected outcome of the processes we have described and what we actually find. However, a large number of actors in the sector still claim recruitment to be *the* main future challenge in Norwegian fisheries (FiskeribladetFiskaren 2009; FiskeribladetFiskaren 2010).

All of the above arguments and numbers, whether perceived as correct or not, do tell a story; namely that the sector is still heterogeneous in terms of recruitment and employment. We may describe this heterogeneity empirically as seen in Table 1.

Table 1: *Recruitment Problem in the Norwegian Fishing Fleet in Relation to Size Categories (N=219)*

		u/10m	10-14.99m	15-20.99m	21-27.99m	o/28m
Do you agree or disagree that you have experienced recruitment problems?	Disagree	57%	75%	62%	93%	67%
	Agree	0%	10%	20%	3%	19%
	N	7	68	61	30	52

The answer to our question whether or not interviewees had experienced recruitment problems varied. Some segments were experiencing recruitment problems, while other segments were not. In the coastal fleet,<sup>6</sup> among vessels between fifteen and twenty point nine meters, twenty percent have experienced recruitment problems. The number was nearly the same for the offshore fleet (twenty-eight meters and over) (Table 1). To make sense of these findings, they must be seen in context of the type of fishing in which they engage, but in general it should be expected that larger vessels with a larger crew would more often experience recruitment problems.

Table 2: *An Illustration of the Perceived Recruitment Problems in Selected Fisheries (N=219)*

		Coastal fishing			Offshore fishing		
		Jigging	Seine u/90 ft	Shrimp Trawl	Auto Line	Purse Seine	Trawl
Do you agree or disagree that you have experienced recruitment problems?	Disagree	69%	66%	56%	50%	100%	68%
	Agree	12%	20%	25%	30%	0%	18%
	N	26	35	16	10	17	28

Looking at the type of fishing performed on a vessel reveals varying perceptions of the recruitment problem. The coastal fleet has in general not experienced recruitment problems. This may be explained by their smaller vessel size and a lower demand for recruits. Still, it should be recognized that twenty-five percent of the vessels in the shrimp trawl segment and twenty percent of the vessels under ninety feet fishing with purse seine have experienced recruitment problems. For the offshore fleet, we find that thirty percent of the auto line vessels have recruitment problems, whereas none in the purse seine fleet (Table 2). The purse seine fleet segment has at times been very profitable, with great wage-paying abilities and modest physical strain, whereas the auto line fleet has struggled with profitability and is physically strenuous, usually carried out by young fishers. These charac-

teristics may explain that one fleet segment experiences recruitment problems whereas the other does not. Moreover, as the supply of young fishers shrinks, the auto line fleet may be the first to experience recruitment problems. Recruitment is a complex problem.

Recruitment in the 1970 and 1980s was largely dependent upon social relations and mutual dependencies between actors. What is the situation today? A dependency between the fleet and local community persists to some extent, as eighty-four percent<sup>7</sup> of vessel owners recruit from family or home municipality (local community). Additionally, sixty-eight percent of vessel owners recruit through social networks. Thus, dependency upon social networks for recruitment also persists. These patterns are most prevalent in the small-scale, coastal fisheries, but are also strongly present among the larger coastal vessels (over twenty-one meters) and offshore vessels. The latter categories, however, have more complex recruitment patterns, as they also recruit from a large geographical area (including international scope) and use a variety of recruitment channels, such as social networks, vocational high schools and advertising (the pattern can be seen in Table 3 and Table 4 below).

Table 3: Where Vessel Owners in the Different Fleet Categories Recruit (N=219)

	u/10m	10-14.9m	15-20.9m	21-27.9m	o/28m
Own family	33%	22%	19%	13%	9%
Home Municipality	33%	42%	51%	45%	23%
Home County	0%	13%	19%	25%	24%
Norway	0%	13%	7%	18%	26%
Abroad	11%	5%	2%	0%	17%

Table 4: Channels Used by Vessel Owners in the Different Fleet Segments when Recruiting (N=219)

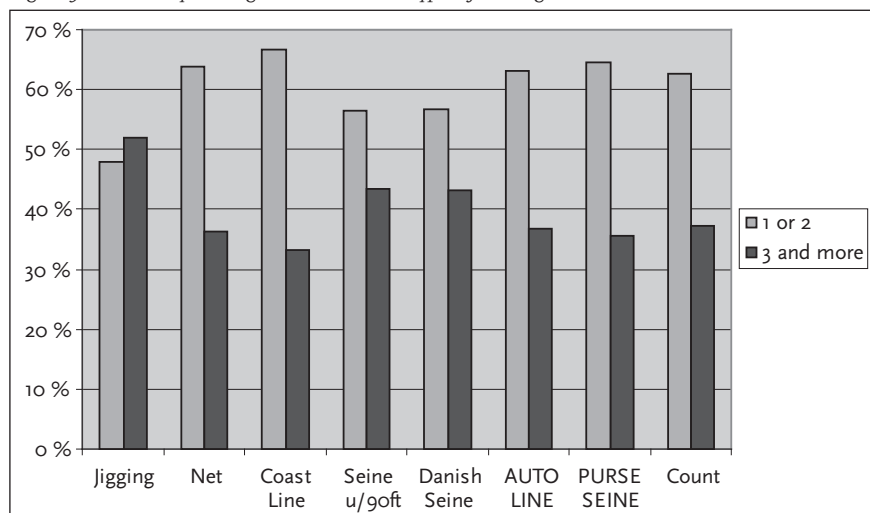
	u/10m	10-14.9m	15-20.9m	21-27.9m	o/28m
Acquaintances and contacts (networks)	14%	67%	72%	74%	45%
Requests from potential recruits	29%	6%	6%	3%	9%
Cooperate with other vessels	0%	1%	0%	0%	2%
Vocational high schools	0%	1%	0%	6%	11%
Advertising	0%	4%	10%	10%	16%
NAV (unemployment office)	0%	0%	3%	3%	2%

Recruitment from a larger geographic area may be a result of a general labour shortage due to high the conjuncture in Norway in 2007. However, the trend of recruiting from a wider geographic area was first observable over a decade ago (Corneliussen 1995; Jentoft 2001; Johnsen 2004), thus indicating a development affected by more than conjuncture swings.

The employment system of the 1970 and 1980s was also characterized by flexibility and high labour mobility as fishers worked on several vessels or even in several economic sectors. The practice of combining coastal and offshore

fishing was still prevalent in the 1990s (Johnsen 2004), but is mostly absent in our material. Of our respondents (N=1000), only seven percent were combining coastal and offshore fishing. Although, the contemporary fisher seems to be stable, as forty-six percent had worked on only one vessel in the last five years, thirty-eight percent of the fishers have actually worked on two or three vessels in the last five years. We find older fishers to be more stable labour<sup>8</sup> than younger fishers and that fishers who recently entered the fisheries more frequently switch vessels.<sup>9</sup> Several reasons may explain this pattern. First, skills needed today are more specialized, which makes it difficult to switch between vessels later in the career. Older fishers may simply be more settled. Or, young fishers, not having found their niche yet, may be testing out and accumulating skills. This latter mobility, however, does not seem to be a concerted effort by the vessel owners as only one percent (N=500) of them cooperated with other vessels for recruitment.

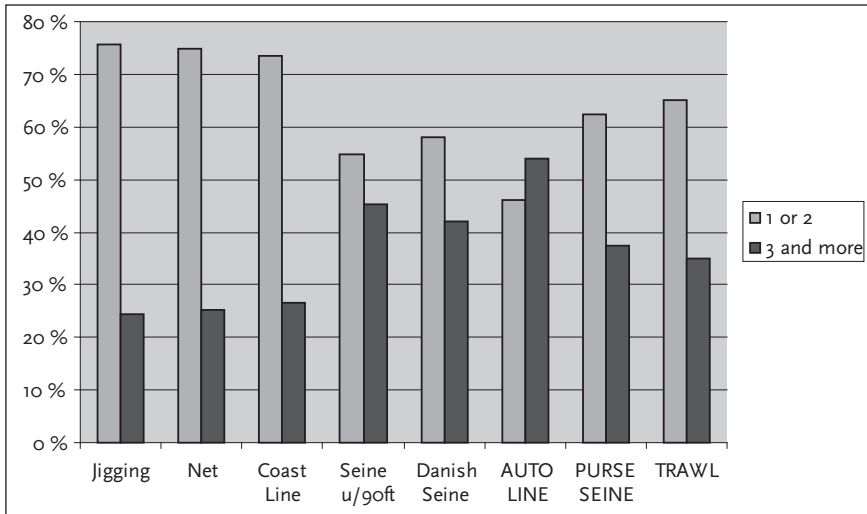
Figure 3: *Mobility Among Crew in Various Types of Fishing in the Last Five Years*



(N=500, regular case = coastal, all caps=offshore)

If we look at crew and vessel owner data separately, we find that both categories are generally stable labourers, but vessel owners more so (Figure 3 above and Figure 4 below). Although, the majority of the crew have worked on only one or two boats in the last five years, a significant share of them have also worked on several boats. The least stable labourers among crew members are found in jigging in the coastal fleet (Figure 3).

Figure 4: Mobility Among Vessel Owners in Various Types of Fisheries



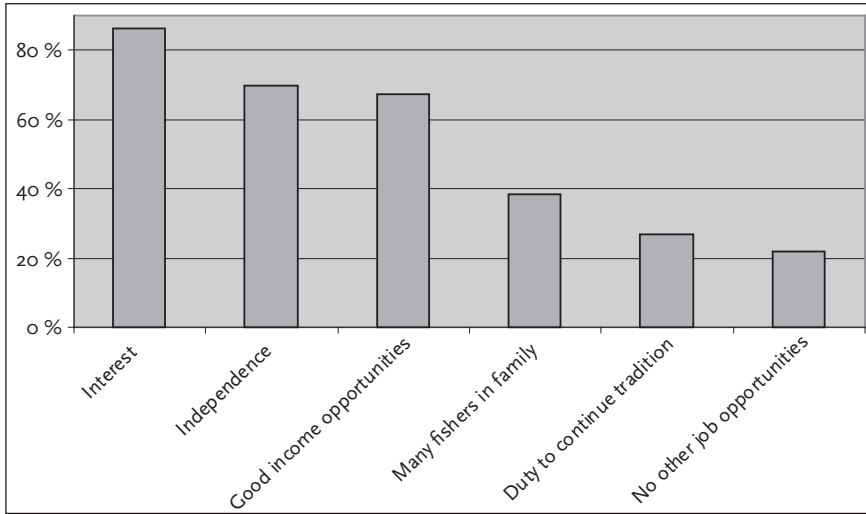
(N=500, regular case = coastal, all caps=offshore)

Vessel owners are in general more stable than crew members, with the exception of the offshore auto line segment. Different reasons may explain this, but few auto liners exist and few appear in our material (thirteen out of about thirty-five auto liners); thus, although representative, a few may significantly affect the result. The other explanation may be that this segment has been subject to heavy restructuring and shipping companies have purchased several vessels upon which the owners work.

Due to specialization, fishing has become the sole occupation for most fishers; thus, we could expect non-fishing income to be low. It is therefore interesting to find that thirty percent of the respondents (N=1000) have income from other sectors. This was most prevalent among crew under thirty years of age in the offshore fleet and among vessel owners, without crew, over sixty years of age in the coastal fleet. This may be because crew and vessel owners without crew are more mobile as they have fewer obligations, in particular no obligations to crew. In addition, crew in some types of offshore fishing have long periods onshore at their disposal and may therefore engage in other economic activities, whereas older vessel owners are downscaling the fishing activity in preparation for retirement.

Previous research has found that formal education (secondary socialization) directs youth away from local work practices and thereby reduces their interest in fisheries (Gerrard 1993; Heggen 1993; Johnsen 2004; Paulgaard 1993; Wiborg 2000). A report from 2001 (FINKO) found that sixty-five percent of students at vocational high schools studying fisheries and aquaculture gave experience as the main reason for choosing that field of study. Thus, experience and interest are closely related variables.

Figure 5: Important Reasons for Becoming a Fisher (N=1000)



Consequently, our data shows that primary socialization may still be a main channel into the fisheries, as over eighty percent of the fishers chose this occupation because of their interest in the fisheries. The wish to be independent and the prospective earnings in the sectors were also important factors affecting the occupational choice (Figure 5).

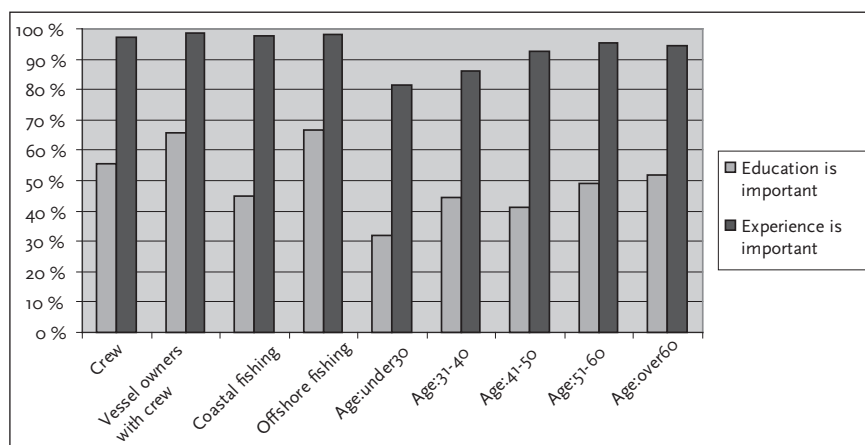
Looking at the factors that affect the different types of fishers we find that good income opportunities are more important for young crew in the offshore fleet. For older fishers, usually vessel owners in the coastal fleet, a main reason for entering the fisheries was the perception that they had no other job alternatives. The difference between the young and old may be interpreted in two ways: it may be a result of different motivations between then and now (a cohort effect), but it may also be an effect of aging respondents.

With respect to experience and formal education we find that all categories of fishers rate experience as the most important qualification a fisher may have (Figure 6) – whether it is primary socialization or part of the secondary socialization system. In addition, vessel owners also value abilities not necessarily taught in the formal school system, abilities that are difficult to select through formal selection processes (Hersoug 1985) such as: *willingness to work* and *interest*. The ability to *cooperate* is particularly valued in the offshore fleet. With respect to education we find that vessel owners with crew in the offshore fleet and older fishers value education the most (Figure 6). In general we found that larger and more technologically complicated vessels value formal education<sup>11</sup> the most. Despite the increased influence of the formal school system, experience is still highly valued – whether through primary socialization or secondary socialization. Consequently, recruitment strategies ignoring the importance of experience or primary socialization, perhaps becoming too theoretical, are not likely to be successful. Rather than closing and limiting the arenas for transfer of practical



knowledge, these should be opened and broadened. How these arenas can be used may have to be rethought.

Figure 6: Importance of Education and Experience in Relation to Categories of Fishers (N=1000)<sup>10</sup>



Whereas recruitment and training were activities internal to the fishing sectors, a new type of dependency may be developing in so far as recruitment and training depend on systems external to the fisheries. Several informants interviewed by Johnsen (2004:272–275) in 1997, claimed that new technology made it easier to train crew members, thus making each fishing unit more self-sufficient in terms of training but more dependent upon the formalized system and technology.

Vulnerability of local communities was discussed by Jentoft (Jentoft 1984b; Jentoft 2001). Jentoft used the decline in the number of fishers over a short period of time as an indicator of community vulnerability. Given the significant reduction in the number of fishers and fisheries recruits (Dagens Næringsliv 2007; *nou* [Green Paper] 2008:5; Skjærvik 2009), this could indicate an increased vulnerability of coastal communities. The closing of the cod fisheries in 1989–90, which made unemployment soar in a number of coastal communities in the short run (Jentoft 1994) and many small coastal communities disappear in the longer run, may also be an indicator of community vulnerability. Today, however, an increasing number of economic activities in the coastal communities are no longer tied to the fisheries sector (Hersoug 1985). Moreover, the developments of the welfare state and a public sector have diversified incomes in coastal communities. Thus, vulnerability of the contemporary coastal communities depends on a multitude of factors of which fisheries employment and recruitment are only two.

Whether more or less vulnerable, the fact still remains that fewer fishers from the local communities are directly involved in the fisheries, thus disembedding the fisheries from local communities. Moreover, in terms of economic contribution and employment, the fisheries are contributing less to the coastal communities, which in turn may further weaken the links between

the fisheries and the coastal communities. And to further complicate matters, recruitment and community are much like the chicken and the egg: we can't have one without the other. If recruitment from local community is reduced, ties to the community could be expected to be weakened. But if ties to community are weakened, then we could expect fewer recruits to come from coastal communities.

### **Employment System Theory Abandoned? – Toward a New Understanding of Employment and Recruitment**

Our findings indicate that the contemporary recruitment patterns are different from the empirical descriptions of the 1970s and 1980s. Here we will summarize our findings and discuss some implications of the key points. But, firstly we ask, does the Norwegian fishing fleet have a recruitment problem? The study found no recruitment problem in the Norwegian fishing fleet in general, but due to the heterogeneity of the fleet, some fleet segments are experiencing recruitment problems. Consequently, the heterogeneity of the sector implies that *one size* of recruitment strategies will most likely not *fit all*.

Secondly, although recruitment to the fishing fleet still depends upon local communities and social networks, the larger offshore fleets are increasingly recruiting from a larger geographic area, as well as abroad, and through a variety of channels. Thirdly, there are indications that the employment system has become less flexible in terms of labour mobility and local adaptations. Due to formal regulations and requirements, the fisheries labour market has become more segmented and it has become more difficult, or perhaps not as necessary, to combine various types of fishing or economic activities. Fishers are relatively stable labour with a low degree of mobility – contrary to the employment system literature, which suggests that mobility of fishers was a key feature and determinant of system stability. Finally, the fishers used to qualify for the fishing occupation through accumulation of experience. In the contemporary system, experience seems not to be as closely tied to primary socialization. It may also come through training in the formal school system. Either way, experience is still *the* most important qualification in the contemporary employment system. Consequently, due to the increasingly formalized requirements and demand for certificates, formal training and education is also important, especially for owners, skippers and navigators.

Thus, although we find some similarities between the described employment patterns of the 1970 and 1980s and the contemporary employment pattern, findings do not show the strong mutual dependence between actors, or a system that is as flexible, or labour as mobile, as literature has described. Rather, we find other mechanisms for selecting fishers – mechanisms that are far more formalized and contractual than previously. Whether these mechanisms are new, or had simply been neglected in prior research, we cannot say.

The Coastal Employment System theory was developed in a special situation, where access to work in the local fishing fleet was in practice closed to those not belonging to the social network of the local community. In other words,

employment in the fisheries was open for community youth but closed to those outside of the community. The situation today is almost the opposite. Barriers to entry, through limited access measures and increasing prices of vessels with quotas, have made it more difficult to enter, especially as vessel owner (Nou [Green Paper] 2006:16). Thus, fisheries in some communities have become increasingly closed, also for the average youth from the local community. The social networks, locally, seem to have grown even narrower, as often only children of fishers are recruited into the fisheries. In addition, formalization and standardization of the system through certification requirements and specialized training of skippers, officers and other trained specialists enable youth originating outside of the coastal community to obtain the necessary skills to enter the fisheries. This shows that knowledge transfer is not dependent solely on social relation within the local community, but also depends on formal and standardized knowledge, relevant across time and space.

Property rights, fishing rights and increased capital investments, have also turned the fisheries sector into a specialized and professionalized sector with weaker links to the coastal community. Thus, the situation in which the coastal employment theory was developed no longer exists. Moreover, it can also be asked whether it was developed in a special regional context. Was the concept originally derived from observations made in the coastal communities in Northern Norway? If so, the concept was perhaps more specific than general. Compared to the situation described by Jentoft and Wadel (1984a), the social relations between the fisheries and the communities seem to have become weaker.

The broken social relation between fisheries and local communities may disembed the fisheries from communities, but that does not mean that social networks are disintegrating. Rather, social networks may change or new ones may be constructed -networks not necessarily tied to a geographic community, but rather uniting actors through fisheries politics or modes of operation. Thus, it may not make sense to talk about local or territorial recruitment anymore (Fossåskaret 1992 in Heggen 1993:85–86).

A new network for recruitment and training has evolved; one which is increasingly disembedded from community, but embedded in formal structures, policies, organizations and technology. Thus, instead of a Coastal Employment System we may see the emergence of a *Fisheries Employment System*. This Fisheries Employment System includes new types of actors, such as politics, science, technology, finance and banking and health authorities, which become central to the system. It seems to us that, since the 1970 and 1980s, the actors and the network may have become increasingly heterogeneous, while the fishing units themselves have become more homogeneous. Structuring policies have defined what a fisher shall be and effectively reduced the variation in the fleet (Nou [Green Paper] 2006:16:71). The bottom line is that contemporary employment and recruitment strategies are less connected to the traditional coastal communities, but more connected to a modern, specialised Fisheries Employment System. Thus, future requirement strategies have to be rethought and decisions regarding *who shall be in* and *who shall be out* in the future have to be made.

What may be the implications of a Fisheries Employment System that is disembedded from local communities? In the short run, this may imply employment and recruitment problems at the local level. It may also imply employment and recruitment problems for the fleet, unless effective formal recruitment systems are developed. In the longer run, due to the broken social relations between fleet and community, the coastal communities and their representatives may no longer be *guardians* of the fisheries sector, as the fisheries become just like any other business, contributing no more or no less to the coastal communities. In addition, if the private property regime is strengthened (for example, a full ITQ system) further weakening the ties to community, society may no longer be willing to *subsidize* the fishing sector through the squandering of resource rent and demand the fisheries to pay back to society on equal terms as any other ordinary business. Thus, further restructuring will be necessary.

## Notes

- 1 Whether to use *fisher* or *fisherman* is under discussion. We have chosen to use *fisher* as this is a direct translation from the Norwegian *fisher*.
- 2 Fiskemantallets blad B
- 3 The Raw Fish Act from 1938 has until today given the right to first-hand sales of fish to mandated sales organisations owned by the fishers. These organisations have had an exclusive right to fixing the minimum price for fish for the benefit of the fishers.
- 4 From Shakespear's *The Tempest* (1610) meaning 'a change brought about by the sea' (archaic) or 'a marked change', for example, 'a sea change in public policy' ([www.merriam-webster.com](http://www.merriam-webster.com))
- 5 These numbers include fishers who are categorized as having fishing as their main occupation as well as fishers who are categorized as having fishing as their secondary occupation. The numbers for 2010 are provisional as of 13.01.2011.
- 6 In 2007 when this data were collected, vessels under 28 m were characterised as coastal vessels, while vessels of 28 m and over were characterised as offshore or deep sea vessels. Coastal vessels in Norway can in principle fish with all types of gear without a specific licence -- except otter trawl, which require a special licence. Vessels over 28 m were only allowed to fish with specific types of gear. This distinction had relevance for the management arrangements for the different fleet groups. In 2011 the 28 meter regulations are changed.
- 7 Of all vessel owners (N=219), 54 had recruited from family and 129 from their own municipality.
- 8 Correlation between age and number of boats worked on in the last five years:  $r_s = -.268$ , at the 0.001 level, 2-tailed.
- 9 Correlation between the year the fisher entered the fisheries and number of boats worked on in the last five years:  $r_s = .342$  at the 0.01 level, 2-tailed.
- 10 Importance of Education and Experience in Relation to Categories of Fishers (N=1000).
- 11 We found a significant positive correlation between the size of the boat and valuation of education in recruitment ( $r_s = .331$ ,  $sign = .001$ , N=500).

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