

Strategies and flexibility in Finnish commercial fisheries

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Strategies chosen by Finnish commercial fishermen in order to adapt to the changes and uncertainties in their occupation, and in society were analyzed by using a reclassification of the material obtained from the earlier interview-based survey. The data were collected by means of structured questionnaires and qualitative thematic interviews. The characteristics of the strategies and the transition between the groups were examined. The low profitability of fishing in monetary terms of, for instance, static fishing strategy and the withdrawers was interpreted through the high importance of the work itself and the values it offers for the fishermen. Most of the Finnish commercial fishermen depend on the availability of other incomes in addition to fishing revenues, which act as a 'buffer' against fluctuations in the fishing revenues. The strategic response of the fishermen had expanded the activities of their enterprises in two main ways: investing in more efficient and larger vessels or forward integration closer to the needs of the consumers. Structural heterogeneity and differences in orientation and strategies form a challenge for the planning and management of commercial fisheries. In addition to the common way of categorizing the fishermen according to gear or fishing area, consideration of fishermen also as differently-oriented groups could help the decision makers to better assess the consequences of their actions.

Introduction

The efficiency of fisheries management systems requires the support and adherence of the fishermen. Consequently it is essential to understand the basic models of the fishermen's behaviour. According to Symes (1998) a primary task for social sci-

ence is the identification and analysis of the new strategic responses of fishermen to their changing economic, social and cultural conditions and to their increasingly restricted but uncertain futures.

The roots of the research work on Finnish commercial fisheries lie in the ethnographical, anthropological and social historical research traditions,

which have thrown light on, for instance, the development of vendace seine fisheries (Pennanen 1979, 1986), the work and fishing methods of fishermen along the Bothnian coast (Tuomi-Nikula 1982) and the social change in the Swedish-speaking fishing population in the archipelago area (Eklund 1994). However, most of the studies on commercial fisheries aim at collecting information for the decision makers (Salmi and Salmi 1995a). An annual profitability study on professional fisheries was started in the 1970s and lasted until the year 1988 (e.g., Ranta *et al.* 1983, Setälä *et al.* 1993). This study brought economic perspectives to the mostly biologically-oriented field of fisheries research (e.g., Tuunainen 1983). In addition, in the 1970s a review on the economic circumstances and prospects of fisheries livelihood was published (Kehitysaluehasto 1976).

The studies on commercial fisheries in the 1980s concentrated mostly on descriptions of fishery on limited geographic areas or fishing methods and used mostly quantitative survey methods (Salmi and Salmi 1995a). Similarly it became clear that such quantitative approach methods, the figures on economic profitability for example, could reveal only a limited sector of the preconditions and performance of commercial fishermen. In order to reach a better understanding of the perspectives and decisions of the commercial fishermen and on the position of the fishermen in society, the scope of the subject was widened in the 1990s by using qualitative methods of social sciences (e.g., Grönfors 1993, Salmi *et al.* 1994). This paper utilizes the material of a large study on commercial fisheries which collected both quantitative and qualitative data about the structure of commercial fishery, as well as the problems of the fishermen and their attitudes towards the future (Salmi *et al.* 1996).

This study focuses on the strategies chosen by the commercial fishermen in order to adapt to the changes and uncertainties in the occupation and the surrounding society. The social and economic characteristics of groups of fishermen following different strategies is compared using a reclassification of the material obtained from an earlier interview-based survey. The approach aims to analyze the recent development of the strategies as responses (or non-responses) to different pressures and hence to throw light on the possibilities

for the future of commercial fisheries. One important aim of this classification and analysis is to help decision-makers to get more reliable information that can be used to design and develop fisheries also in a culturally appropriate way. However, the background and causes of uncertainty will first be outlined.

Commercial fisheries in Finland

Fisheries are of great importance to Finns: about one third of the population is involved in fishing as recreational or subsistence fishermen (Tuunainen 1991). Fishing has also played an important role in the mixed, self-supporting rural economy. Still, the recreational, subsistence and commercial fisheries form a continuum in which clear boundaries between the groups are difficult to detect. This is especially the case in gill-net fishery, which is popular as a leisure activity as well as a source of livelihood.

The structure of Finnish commercial fishery changed dramatically after World War II owing to changes in the structure of society and for example declining anadromus fish stocks. The industrialization and urbanization processes affected both the production of and demand for fish and the number of commercial fishermen declined rapidly. Since the 1950s, the development towards more effective fishery has been fostered through innovations such as nylon and monofilament nets, trawls and drift nets (Tuomi-Nikula 1982, Eklund 1994). A shift to open sea fishery was facilitated in the 1970s by low interest loans and subsidies. In particular, the system of price subsidies contributed to structural change in fishery, with capital-intensive trawling becoming increasingly important (Hildén and Mickwitz 1990).

In the 1980s and 1990s commercial fisheries have been facing substantial and rapid changes, particularly concerning the markets and fisheries management. Also the structure of the fisheries and the fishery workforce have changed during recent years. In 1980 the number of fishermen was still about 7 500 but in 1993 only slightly over 4 000 fishermen earned income from commercial fishing (Söderkultalahti *et al.* 1993). In 1993 there were about 1810 households operating in the Baltic and 730 in lake fishery.

Finnish fishery has developed technically and become more capital-intensive, but still comprises mainly family-based small scale fisheries with a large range of strategies. Most of the enterprises harvest more than one fish species and combine various fishing methods on a seasonal basis. However, since the 1980s the structure of commercial fishery has become polarized, since the more capital-intensive open sea operators no longer practise traditional small-scale fishery (Salmi and Salmi 1995b).

Although 90% of marine fishermen operate near the coast, open sea fisheries have high importance especially in the supply of Baltic herring and salmon. Open sea fishermen harvest herring with trawls, salmon with drift nets or lines and cod with gill nets. Coastal fishermen use most generally gill nets for whitefish, pike-perch or herring. Also pound and fyke nets for salmon or whitefish are common fishing methods. There are also fishermen who combine open sea and coastal fishing methods.

In lake fishery the more professional and technically developed fishing methods, pair trawlers and winter seine-nets for vendace have increased in importance. The less professional lake fishermen use more often gill nets, fyke nets, pound nets and summer seines.

Uncertainty and flexibility in fisheries

Fishery is inherently a profession with much uncertainty. Unpredictability can be an attractive aspect of fishing, but it also includes many risks, which can be associated either with natural circumstances or society. Hanna and Smith (1993) divide risks into three general categories: physical risks, economic risks and resource-related risks. Risks involving natural circumstances include uncertainty concerning fish stocks and their availability. The uncertainties connected with natural resources could be partly reduced by collecting more and better information. However, contemporary fishery problems increasingly concern society and management (e.g., Finlayson 1994).

Also in Finnish fishery, uncertainty and controversy have lately been caused by decisions in fisheries management or market forces rather than changes in fish stocks or the natural environment.

Fishermen are used to adapting their fishing to fluctuating fish stocks, but it has been more difficult to find strategies to cope with increased social involvement. The fishermen claim that myopic and unpredictable regulatory actions have complicated the planning of their livelihood.

Competition has strengthened within fisheries and also in relation to other industries. This is partly due to the globalization of markets and Finland's joining the European Union in 1995, which also has a substantial impact on the regulative policy concerning commercial fisheries. Capital-intensive open sea fishery, in particular, is under scrutiny: one of the targets of the new fishery policy is to reduce the fishing effort of the marine salmon fleet by 30% and the cod fleet by 20% between 1997 and 2001.

Flexibility can be understood as strategies to cope with the uncertainties and risks of the livelihood. According to Eikeland (1998) flexible strategies in modern fishing refer to modes of participation, diversification and mobility. On the other hand, in her study of fishery in the Lofoten region, Norway, Pettersen (1996) identified four household strategies: expansion, retrenchment, diversification and withdrawal. Expansion increases fisheries related activity, often requiring the restructuring of the family's involvement, while retrenchment implies survival on the basis of stable or reduced activity. In these two studies the concept of diversification is used in different contexts: Pettersen refers to other sources of income as a 'buffer' against fluctuations in the fishing revenues while Eikeland stresses the diversity in harvesting. Eikeland characterizes the reliance on other sources of income as a question of flexibility in participation: the opportunities to move 'in and out' of the fishery.

In Finland the combination of fishing revenues with other incomes is a traditional strategy to adapt to change in fishing conditions without larger strategic alterations in fishing, although the modes of combination have diversified. 'Peasant combination' with agriculture is still common, but fishermen increasingly earn seasonal income by working for other employers or by engaging in some other small-scale business activity or else rely on social welfare payments (Salmi *et al.* 1997). Moving 'in and out' of fishing has been relatively inelastic, mostly due to the traditional character of

the profession. However, participation in fisheries used to be more open, but recently the use of commercial fishing gear is being increasingly controlled through legislation and the registration of fishermen.

Although Finnish coastal and freshwater commercial fishery is multi-species fishery in character, the more recently expanded and relatively capital-intensive open sea fishery is more specialized. Open sea fishermen have fewer opportunities to diversify fishing activity through vessel type and gear in changing circumstances. Another expansion strategy, small-scale processing of fish and marketing direct to consumers, has been of increased importance to fishermen's families during the last ten years. This kind of diversifying by forward integration (Toivonen 1998) is one sustainable type of flexible strategy, although it requires favourable circumstances and a new kind of entrepreneurship.

Mobility is a flexible strategy especially for open sea fishermen. Increased vessel sizes and specialized technology may be rigid in terms of changing fishing methods or target species, but they provide better opportunities to change fishing areas. However, due to the gradually increased uncertainty and risks among the more capital-intensive open sea operators, some of these fishermen have withdrawn partly or totally back into coastal fishery.

Material and methods

The material of a large survey on Finnish commercial fishery, i.e. the group of fishermen who have sold fish, was initially divided into nine groups according to fishing method and living area. Fishermen were interviewed personally using both structured questionnaires and taped thematic interviews. The material was collected from October 1994 to November 1995, i.e. the year that Finland joined the EU (Salmi *et al.* 1996). The sample used in this analysis consisted of 264 fishermen (260 men and four women), whose age ranged from 23 to 79 years.

The classification of fishermen according only to the fishing methods used is insufficient for understanding the strategic responses of the fishermen in the changing circumstances. In addition

to the fishing gear and target species, or more often their various combinations, fishermen are also affected by the availability of other income sources in their households and their orientation towards the occupation, which is to a large extent supported or restricted by the local community and the prevailing fishery policy.

According to previous analysis (Salmi *et al.* 1997) three main adaptation strategies have been adopted by Finnish commercial fishermen, namely (1) they intensify and rationalize their fishery, (2) they process and sell their products actively, or (3) fishermen combine fishing with other income sources. On the other hand, in addition to these strategies there are fishermen who have turned from capital-intensive open sea fishery to coastal fishery, partly or totally, and there are also fishermen who have continued fishing with their traditional methods.

For the purposes of this study fishermen were divided into three categories of fishing strategies according to same criteria in Baltic and lake fisheries (Table 1). First, the 'side-liners and hobbyists', for whom the economic importance of fishing was defined as relatively low, were identified using three criteria connected with the importance of income other than that from fishing. These criteria rise, for instance, from the definitions of professional fishing laid down in the legislation.

Secondly, the 'consumer-oriented' group comprised those fishermen for whom active marketing and processing of fish was of importance. They either processed fish worth more than USD 2 000 (at the 1997 exchange rate FIM 5.2 = USD 1) in the year of the survey or sold most of their fish products directly to consumers, retailers or catering kitchens (Table 1).

The third category was named 'fishing-oriented' in lake fisheries and further divided into three subcategories in the Baltic fisheries, namely 'fishery intensifiers', 'withdrawers' and 'static fishermen' (Table 1). Fishing-oriented fishermen sell their catches mostly fresh to wholesalers or processing companies. The fishermen in this group are more dependent on their catches than side-liners and hobbyists or consumer-oriented fishermen.

The intensifiers have increased their fishing efficiency and mobility. Also those fishing-oriented fishermen who took up commercial fishing during the ten years prior to the survey were in-

cluded in the group of intensifiers, most of whom entered the sector of trawl fishing for Baltic herring. Those who had decreased their fishing efficiency and mobility, for instance by shifting from open sea to coastal fishery, were classified as withdrawers. The static fishermen in the Baltic have not experienced significant changes in the efficiency or mobility of their fishing during the last ten years (Table 1).

Typologies of fishermen were formed mainly according to the quantitative data of the study. Qualitative thematic interviews and notes written by the interviewers were used for the classification in ambiguous cases in order to identify changes in fishing strategies in 1985–1994. Qualitative material was used also as the primary data to illustrate the links between strategy groups. Although the criteria are different from group to

group, they do not overlap in practice. For example, there were no fishermen in the material who both processed fish and intensified their fishing business at the same time.

Fishing-oriented fishermen formed the largest and consumer-oriented the smallest group in the sample both in the Baltic and lake area (Table 2). Static fishermen formed the largest subcategory in the sample of Baltic fisheries. Belonging to a strategy group is not linked with fishing area or method. For instance, there were both open sea and coastal fishermen in the group of static fishermen. Over half of the intensifiers were engaged in open sea fishery and one out of four were engaged in coastal fishery exclusively. The latter segment of the intensifiers have increased their mobility along the coast or started to practise more professional fishery. The majority of fishing-ori-

Table 1. Definitions and criteria for classification into strategy groups.

Strategy groups	Definitions	Criteria of classification
Side-liners and hobbyists	Low economic importance of fishing	<ul style="list-style-type: none"> fishermen who earned less than 15% of their income from fishing, or main occupation was outside fishing industry, or they earned more than half of their income from pension.
Consumer-oriented	Active fish marketing and processing of importance	<ul style="list-style-type: none"> fishermen not fulfilling the criteria of 'side-liners and hobbyists', and their most important marketing method was to sell their products directly to consumers, retailers or catering kitchens, or they earned income from self processed products over the value of FIM 10 000 (USD 2000).
Fishing-oriented	Relatively high dependency on catches	<ul style="list-style-type: none"> fishermen not fulfilling the criteria of 'side-liners and hobbyists' or 'consumer oriented'.
Sub-groups of the fishing oriented fishermen in the Baltic:		
Intensifiers	Tendency towards higher effectiveness or mobility in fishing	<ul style="list-style-type: none"> 'fishing-oriented' fishermen who have taken up commercial fishing during the last ten years, or have changed from coastal methods to open sea during the last ten years, or operated on distant sea areas or discharged their catches at a distant harbour.
Withdrawers	Tendency towards lower effectiveness or mobility in fishing	<ul style="list-style-type: none"> 'fishing-oriented' fishermen who have reduced their open sea mobility during the last ten years, or have totally moved from open sea to coastal fishery during the last ten years.
Static fishermen	Catch and dependency minor changes in effectiveness or mobility	<ul style="list-style-type: none"> 'fishing-oriented' fishermen who do not fulfill the criteria of 'intensifiers' or 'withdrawers'.

ented lake fishermen used other gear than trawls or winter seines (Table 2).

Social and economic characteristics

In so far as the number of enterprises is concerned, side-liners and hobbyists formed the most important group in the lake area and in the Baltic (Table 3). In addition, one half of the fishermen in the Baltic and one out of three in the lake fisheries belong to the heterogeneous group of fishing-oriented fishermen. Static fishermen in the Baltic formed nearly as large a group as side-liners and hobbyists. Less than one in five of the Finnish commercial fishermen fulfilled the definitions of consumer-oriented fishermen.

The average age of the fishermen was highest among the side-liners and hobbyists and lowest among the fishing-oriented, especially in the group of intensifiers in the Baltic (Table 3). The Baltic and lake areas differed clearly in the case of consumer-oriented fishermen: they were substantially younger in lake fisheries than in Baltic fisheries.

Nearly one half of the fishermen received less than 30% of their income from the fishing industry. On the other hand there are professionals (18% of the total) who receive all their income from fishery. The professionals are spread equally among the groups in this study, excluding the group of sideliners and hobbyists. In the lake area,

fishermen receiving at least 30% of their income from fishery are most commonly represented in the consumer-oriented group (Table 3).

The value of fishing property ranged from, on average, USD 17 000 for the side-liners and hobbyists in the lake area to USD 145 000 for the consumer-oriented fishermen in the Baltic. The average value of fishing property is almost as high among fishing intensifiers as among the consumer-oriented group (Table 3).

The majority of both marine and lake fishermen have inherited their skill and fishing property. Against this background, it is easier to understand why only two interviewed marine fishermen out of five had loans in order to finance investments in fishery. Among lake fishermen borrowed capital was even more uncommon. However, loans were more common among those fishermen (consumer-oriented or fishery intensifiers) who have switched over to a more capital-intensive strategy, especially skippers fishing Baltic herring with vessels longer than 28 meters (Table 3).

Baltic fishermen earned on average USD 7 500 from fishery, i.e. nearly twice as much as lake fishermen (Table 3). The highest annual revenues were received in the more capital-intensive and all year round fishery: the marine intensifiers earned on average over USD 17 200 and consumer-oriented USD 13 800. In other groups fishery is more sea-

Table 2. The strategy groups, numbers of interviews and distribution of enterprises according to fishing groups.

	Number of interviews	The distribution in fishing groups (%)			
		Open sea ¹⁾	Combination ³⁾	Coastal ²⁾	Total
Baltic fisheries					
Side-liners and hobbyists	63	23	7	70	100
Consumer-oriented	21	14	9	77	100
Fishing-oriented	123				
Fishery intensifiers	27	57	17	26	100
Withdrawers	21	2	42	56	100
Static fishermen	75	22	9	69	100
Total	207	—	—	—	—
Lake fisheries					
Side-liners and hobbyists	19	20	22	58	100
Consumer-oriented	12	23	11	66	100
Fishing-oriented	26	5	11	84	100
Total	57	—	—	—	—

¹⁾ Fishing with trawls, drift nets or lines. ²⁾ Fishing with gillnets, pound nets or fykenets. ³⁾ Combination of coastal and open sea fishing methods. ⁴⁾ Fishing with summer seines, gill nets, pound nets or fykenets

sonal and the annual level of income is quite low. The lowest annual incomes were received among hobbyists both in the Baltic and lake fisheries. The differences in the returns between different groups become more even when average revenues are calculated per fishing month. But even then, the group of side-liners and hobbyists still have the lowest incomes.

A large proportion of the interviewed fishermen lived in detached houses in rural areas. They were generally self-employed and the role of the family was important. Only 15% of marine and 3% of lake enterprises had employees. Workers not belonging to the household are employed most generally in open sea fishery. Only seven per cent of Finnish commercial fishermen have been formally trained for the profession.

Side-liners and hobbyists

There are two basic types of fishermen in the group of side-liners and hobbyists: firstly fishermen to whom fishery has always been primarily a hobby and secondly those who have previously been more professionally-oriented. The more recreationally-oriented fishermen fish only on weekends and days off and occasionally sell their overcatch. Most of them want to keep their fishing on a small scale.

The previously more professional fishermen have adapted to changes by acquiring more and more income or a regular occupation outside the fishing industry. The mean age of the fishermen in this group is higher than on average.

Many gill net fishermen who have a regular occupation outside fisheries do not feel the need or even find it possible to intensify their fishing. Most of them are satisfied with the recreational and subsistence benefits of fishing. However, those who are interested in becoming more professionally-oriented find gear restrictions and unavailability of fishing subsidies for less professional fishermen problematic.

Although most of the fishermen who belong to the group of side-liners and hobbyists sell their catches to wholesalers, they sell smoked or fresh fish direct to the consumers more often than their fishing-oriented colleagues. Their marketing is facilitated by their contacts with sectors outside fishery. Also smaller catch sizes and numbers of fishing days may provide better opportunities for fish processing and marketing.

Consumer-oriented fishermen

The processing of fish has long-lasting roots in marine fishery. Also marketing fish direct to

Table 3. The share of enterprises in each fishing group, average age of the fishermen and the proportion of the enterprises which receive at least 30% of their income from fishery. Fishermen's average revenues, average fishing property and enterprises with loans in different groups.

	Share of all enterprises (%)	Average age of a fishermen	At least 30% of the income from fishery	Average fishing property (USD)	Enterprises with loans (%)	Average revenues (USD)
Baltic fisheries						
Side-liners and hobbyists	38	52	9	36 000	18	2 400
Consumer-oriented	12	52	82	145 000	82	13 800
Fishing-oriented						
Intensifiers	7	41	70	143 000	79	17 200
Withdrawers	9	49	89	76 000	41	6 500
Static fishermen	34	48	78	80 000	42	9 200
All average*	100	50	52	75 000	40	7 500
Lake fisheries						
Side-liners and hobbyists	45	52	5	17 000	16	1 100
Consumer-oriented	19	39	93	57 000	45	8 100
Fishing-oriented	36	39	59	37 000	35	5 200
All average*	100	45	41	32 000	28	3 900

* The average of all fishermen was calculated by weighing the average fishing property by group with the share of all enterprises

consumers was until quite recently a normal part of the livelihood when the majority of Finland's inhabitants lived in rural areas along the lakes, rivers and coastal area. Nowadays however, consumer-oriented fishermen operating in the lake areas typically live in a town with their families.

Although processing of fish is an important part of the strategy, only a minority of the group specialize only in fish processing. Specialization is most common among coastal fishermen, who salt and marinate Baltic herring for marketing events. The enterprises are generally family-based and the wife's contribution in processing and marketing is essential. Fish processing and marketing is labour-intensive and therefore, on many occasions, also other relatives of the fisherman take part.

Fishing-oriented fishermen

Fishing-oriented fishermen, the largest group in the Finnish Baltic fisheries, are mostly interested in fishing as a livelihood and a way of life. Most of them appreciate the traditional fishing methods and the benefits that fishing work provides. Because independence and time spent in fishing is highly valued, the fishing-oriented fishermen are not willing to direct their activities more towards the consumers. Hence they sell their fish mostly to wholesalers and consider, for example, that, taking the loss of harvesting effort into account, arranging trips for tourists is not profitable enough.

The fishing-oriented fishermen cope with changing and uncertain circumstances by changing their fishing methods, target species or moving to new fishing grounds. In the Baltic fisheries the opportunities to change the fishing waters are better than those in the lakes.

Fishing intensifiers

Fishing intensifiers are mainly open sea fishermen who have commonly specialized in one single fish species. They have invested in a larger vessel and at the same time increased their mobility in order to follow fish schools even as far as the southern parts of the Baltic. In the words of one fishermen: "There we go where the fish are. We follow the fish like little pigs."

The majority of intensifiers live in a town with

a large fishing port. The skipper generally employs a crew of two or three men. The family of the fisherman rarely takes part in the fishing work. At least partly due to the more homogeneous structure of the fisheries, unofficial and institutional co-operation is more common among the intensifying fishermen than among other groups.

The fishermen in this group are relatively young and also include newcomers to fishing, which has brought new innovations to the sector. The intensifying strategy has led to benefits in the form of a more stable supply of fish to the buyers, but also to tighter commitments with the wholesale or processing company doing the buying. However, the fishermen stress the importance of independent decision making in their occupation.

The intensifiers consider that the possibilities offered by mobility and better equipment support their independence, although larger investments and debts also restrict the scope for changes in strategy. Many of the intensifiers are affected by the management decisions concerning investment subsidies and regulative policy. During the last ten years, especially salmon fishermen have encountered increased restrictions and control mechanisms, which has led to strengthened mobility and partly to withdrawals.

Withdrawers

Withdrawers have moved from open sea fishery, for instance, to coastal whitefish fishery in the Gulf of Bothnia or salmon fishery in the Gulf of Finland, where the fishing regulations have been less restrictive. Also a slump in the fur industry in the 1990s decreased the demand for Baltic herring used for fodder, which led to withdrawals. In this context withdrawers changed their strategy in the opposite direction as compared with intensifiers, to small-scale coastal fishery. "We trawled five years ago, everything changed when the price of herring for fodder decreased, the profitability of fishing weakened ... we were dependent on the mink business ... after that we sold the trawl vessels. Now we fish salmon and whitefish with pound nets."

A few of the more elderly fishermen who have withdrawn from the more intensive fishery referred to the demanding characteristics of open sea work. They considered that open sea fishing is more suit-

able for the younger and healthier fishermen. Also the lack of business-successors in the family has discouraged the fishermen to stick by their more intensive fishing strategies. Over one half of the withdrawers have considered giving up commercial fishing totally. However, difficulties in selling the fishing vessel and lack of other occupational openings have hindered their intentions.

Static fishermen

The largest proportion of fishing-oriented marine fishermen belong to the group of static fishermen, which includes fishermen with various fishing methods and occupational profiles in both coastal and open sea fisheries. Many of the static fishermen have coped with changes in external conditions using fishing equipment acquired many years ago and traditional working patterns. The fishermen are commonly tightly connected to their community and they also value their independence and the opportunities to be close to nature in their occupation.

The tight ties to a traditional lifemode are connected to avoidance of economic risks, especially debts, satisfaction with a moderate income level without a tendency to maximize profits, and appreciation of fishing activities as such. As one trawl fishermen stresses: "With old vessels like this, when you've reached a certain income level you can continue next year and you are not trapped with a large debt because of which you are forced to go fishing whatever the weather is like."

However, external pressures have formed the strategies of even the static fishermen. The increase of regulations in salmon fisheries and the decrease of demand in herring fisheries have strengthened the importance of gill net fishery for whitefish and pikeperch. Yet, according to the fishermen, the increased competition has created problems in the fishing grounds near the towns and in the markets. Hence static fishermen call for restrictions for the more recreationally-oriented fishermen.

Transition between the groups

The adoption of strategies is not a question of the fisherman and his family simply choosing from various alternatives. As Pettersen (1996) points

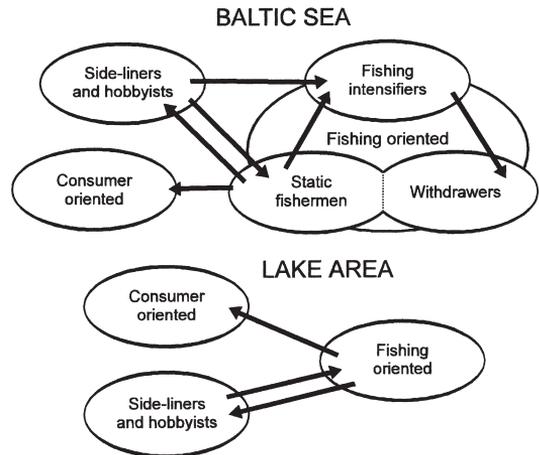


Fig. 1. The mobility between strategy groups in the Baltic and lake fisheries during 1985–1994.

out, for many families the opportunity for choice is strictly limited: external conditions, like the structure of the local economy, the household structure and the individual's resources, are important constraints. The movement between the groups is partly connected with short term interests and changes in the operating environment and partly reflect the larger changes and trends in the livelihood and society.

The strategies in Finnish commercial fishery presented above are connected to the circumstances in the late 1980s and early 1990s. The classification of fishermen into the strategy groups represents an average situation because of the dynamic character of strategies. The borderlines between the groups are elastic and mobility between the groups has been common.

Since the mid-1980s fishing-oriented strategies have increasingly differentiated. In the Baltic the mobility between intensified open sea fishery and more static coastal strategies has strengthened (Fig. 1). Like the consumer-oriented strategy, also withdrawing from the group of intensifiers is an 'end strategy'. However, the fishing gear and target species of the withdrawers become similar in time.

Fishermen have moved actively between the group of side-liners and hobbyists and the group of fishing-oriented fishermen both in the Baltic sea and the lake area due to the relatively open participation in commercial fisheries. This connection generates new entrants with different

backgrounds into the livelihood in contrast to the father-to-son tradition (Salmi *et al.* 1998). Finnish fishermen rarely give up commercial fishing totally but rather leave their occupation gradually, due mainly to the traditions, difficulties in realizing their fishing property and lack of other occupational openings. A rapid abandoning of the occupation occurs more often among the open sea fishermen in cases where they are able to sell their fishing property.

Discussion

Non-economic orientations and requirements of profitability

In addition to external structures, the adopted strategies are largely determined by the orientation of the fisherman making his decisions. According to Ruuskanen (1995), the politico-administrative economic ethos of entrepreneurship stresses innovations and competitiveness, while the discourse of Finnish rural entrepreneurs rejects or ignores the spirit of capitalism: the entrepreneur prefers to earn his and his family's living in his own native place without feeling the need to expand their business or develop new marketing and cooperative strategies.

Similar emphasis of non-economic dimensions has been revealed in interviews of fishermen in many countries (e.g. Hanna and Smith 1993, Valatin 1990, Jurvansuu 1997, Salmi and Salmi 1995a). In addition, Bærenholdt (1991) uses the concept of lifemode in order to represent the cultural dimensions of the fishing livelihood and Eythorson (1991) emphasizes that the aim of the fishermen securing the needs of the family rather than making profit represents the still-existing strong influence of peasant motivations. Consequently, the ideal type of instrumentally-rational (Weber 1978), economically-calculating entrepreneur does not meet the versatile reality of commercial fishermen.

The low profitability of fishing in monetary terms, of e.g. static fishing strategy and the withdrawers, can be interpreted through the high importance attached to the work itself and the values it offers for the fishermen. The Finnish small-scale fishermen are flexible in their require-

ments of profitability, in the same way as in the 'retrenchment' strategy in the Lofoten fishery (Pettersen 1996), largely due to the non-economic valuations and the low amount of debts. The existence of this survival strategy, leading to stable or reduced activity, is likely to have increased the employment in fisheries compared with the hypothetical situation of behaviour based purely on instrumentally-rational maximization of monetary profits.

Expansion and elasticity through other income sources

The strategic responses of the fishermen have expanded the activities of their enterprises in two main ways: investing in more efficient and larger vessels or forward integration closer to the needs of the consumers (Salmi and Salmi 1998). Among the intensifiers, dependence on one fish species increases vulnerability to changes in fish stocks or fishing restrictions while the consumer-oriented fishermen are more vulnerable to market changes. However, investments have been conducted on a relatively small family-scale.

In addition to fishing revenues, most Finnish commercial fishermen also depend on the availability of other incomes. This type of diversification, acting as a 'buffer' against fluctuations in fishing revenues, will be an option also in the future, where the sources of uncertainty can only be guessed at. However, the importance of 'peasant combination' will inevitably decrease along with the clear reductions in the agricultural employment. This can be partly compensated for with more service-oriented strategies.

According to Högbäck and Siiskonen (1996), the most promising areas of rural entrepreneurship in future are food processing and rural tourism. The potential of tourism integrated with fishing experiences is frequently emphasized by fishery planners and managers but not commonly appreciated among Finnish commercial fishermen. In favourable circumstances, however, fishing tourism may be combined with, for instance, fish processing and become a part of a service-oriented strategy in rural areas. Especially in the lake areas this kind of shift from production towards service-oriented strategies is strengthening, sup-

ported by the existence of a relatively young and dynamic group of consumer-oriented fishermen.

Implications for fisheries management

The decision making in fisheries is commonly based on a simplified picture of fishermen as actors maximizing their economic interests and thus acting homogeneously according to changes in the 'business environment' (e.g., Hanna and Smith 1993, Holm 1996). However, structural heterogeneity and differences in orientation and strategies form a challenge for the planning and management of Finnish commercial fisheries. In addition to the common way of categorizing the fishermen according to gear or fishing area, consideration of fishermen also as differently-oriented groups could help the decision makers to assess better the consequences of their actions. Although the consideration of multiple strategies increases the management task of the supportive and regulative fishery policy, it also includes options for more flexibility in confronting unpredictable risks in future.

The target of the Common Fishery Policy (CFP) of the EU is modernization, rationalization and renewal of the fishing fleet. Also enhancement of the quality and marketing of the fish products is supported by the authorities (Kaasinen 1997). Both consumer-oriented and fishing intensifying strategies require relatively high investments and are generally favoured by the managers when deciding on, for example, subsidies. Yet the small scale and traditional character of even the more expansive strategies should also be considered in the decision making due to its importance for the local employment and community.

The speed of changes in the fisheries and society in general has been increasing and thus presently fishermen have less time to adapt their strategies to new situations, such as regulations. In line with increasingly restrictive policies, for example, the salmon open sea fleet is gradually being scrapped. Consequently fishermen are forced to reduce their mobility, which may lead to withdrawals. This leads to increasing competition among the static coastal fishermen, withdrawers and the side-liners and hobbyists, while at the same time increasing the number of fishermen in the latter group.

On the other hand, the pressure on sideliners and hobbyists will presumably increase along with the tightening restrictions and control mechanisms. Yet high barriers for 'hobby oriented' fishermen to become more professional could deter new blood from entering the profession and prevent the integration of fishing with other income sources of the rural economy. The problems among part-timers and in relation to more professional fishermen could be mitigated with the support of more cooperation, including participation in the decision making on a regional basis (Salmi *et al.* 1998). While the participation of the commercial fishermen in the decision making has been weak or non-existent, more co-operative management arrangements ('co-management', see e.g. Jentoft 1989; Pinkerton 1994) have been presented to reduce uncertainty from the fishermen's perspective and to take the various strategies better into account in the decision-making process.

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