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Profiling of small-scale fishing communities in the Baltic Sea

Study requested by the European Commission

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**Innovative Fisheries Management, IFM
- an Aalborg University Research Centre**

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List of acronyms

ACFM	Advisory Committee on Fishery Management
BS	Baltic Sea
CEC	Commission of the European Communities
CEQ	Council on Environmental Quality
CEVIS	EU FP6 Project: Comparative Evaluations of Innovative Solutions in European Fisheries Management
CFCA	Communities Fisheries Control Agency
CFP	Common Fisheries Policy
CRCRP	Coastal Resources Co-management Research Project
DAS	Days at Sea
DEFRA	Department for Environment, Food and Rural Affairs
DFO	Canadian Department for Oceans
DG	Directorate General
DK	Denmark
EEA	European Environment Agency
EEF	European Fisheries Fund
EFEP	European Fisheries Ecosystems Plan
EIAA	Economic Assessment of ACFM advice
EU	European Union
F	Fishing mortality
FIFG	Financial Instrument for Fisheries Guidance
FP	Framework Programme
IBSFC	International Baltic Sea Fisheries Commission
ICES	International Council for the Exploration of the Sea
IFM	Innovative Fisheries Management – an Aalborg University Research Centre
INDECO	EU FP6 Project: Development of Indicators of Environmental Performance of the Common Fisheries Policy
MARFIN	Marine Fisheries Initiative
MPA	Marine Protected Area
MS	Member State
MSA	Magnus-Stevens Act
MSFCMA	National Standard Eight of the Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
NGO	Non-governmental organization

NMFS	Unites States' National Marine Fisheries Service
NMFS	National Marine Fisheries Service, United States
NOAA	National Oceanic and Atmospheric Administration
NORMAC	Northern Prawn Fishery Management Advisory Council
NS	North Sea
NSRAC	North Sea Regional Advisory Council
NUTS	Nomenclature of Territorial Units for Statistics
OMRN	Oceans Management Research Network
PL	Poland
PO	Producer Organisation
RAC	Regional Advisory Council
SARA	Species at Risk Act
SBF	Swedish Board of Fisheries
SFR	National Federation of Swedish Fishermen (Sveriges Fiskares Riksförbund)
SGECA	Sub Group for Economic Assessment under STECF
SIA	Social Impact Assessment
SIN-vessels	Vessels registered in Simrishamn
SSB	Spawning-stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
UK	United Kingdom
UNCOVER	EU FP6 Project: Understanding the methods of stock reCOVERy

Executive Summary

This report was written in response to the Request for Service, “Profiling of Small-scale fishing communities in the Baltic Sea.” The European Commission has tabled a proposal for a multi-annual plan, which includes the reduction of TACs, to ensure the sustainable long-term management of the cod stocks in the Baltic Sea and the fisheries exploiting these stocks. The potential impacts of the plan to the small-scale fleet are of particular interest to Member States and stakeholders. The Commission is particularly interested in understanding the likely impacts of proposed TAC and fishing effort reductions on the small scale fleet and its communities in the Baltic region.

Experience has shown that key to the quick and efficient assessment of impacts of management plans and actions, is the availability of community profiles. Community Profiling is the first step for establishing a more generalized social impact assessment (SIA) methodology framework for use in a full fledged impact assessment exercise.

Innovative Fisheries Management (IFM), an Aalborg University Research Centre, undertook this report with the understanding that key requirements of the request for service were:

1. Examine a means to establish a social impact assessment (SIA) methodology framework for the Baltic region.
2. Design and carry out pilot baseline community profiles for Denmark, Poland, Germany, and Sweden, focusing on small-scale sectors dependent on cod.

1. Social Impact Assessment through Community Profiles - a Methodology

The social impact assessment methodology presented in this report is based upon methods developed for the EU 6FP project UNCOVER, “Understanding the methods of stock reCOVERY,” through participation on a DEFRA-funded UK Ports Data-frame project, and from previous experience in NOAA Fisheries (USA) compiling an SIA methods handbook. Standards have been adjusted for the European context, and taking a logical next step from PESCA programme (ended 1999) and the FIFG programmes, which were designed to help fishing dependent regions cope with the crisis in fishing, though they never undertook full impact assessments.

The methodology follows a three stage process: selection of communities, fieldwork, and analysis, including impact analyses.

Selection of Communities

- Background literature review on the fishery and fishing communities, including sociocultural and historical.
- EU and Member State labour regulations, regional development schemes, structural funds, and the like.
- Investigation into the overall conditions of the fleet and **view of current management conditions.**
- Defining dependency with NUTS data and pinpointing suitable field sites.
- Field visits to confirm suitable field sites and make contact with key informants and PO representatives.

This includes an analysis of the appropriate level for the definition of a “community.” In some cases, e.g. Peterhead and Fraserburgh, Scotland, a regional profile may be considered

more suitable than a port-centered community study. In other cases, a “fishery” such as with some pelagics, may be the community (e.g. Wilson et al. 1998).

NUTS data are a difficult issue to tackle as depending on the scale the data available (e.g., NUTS III) may not match the scale of community being discussed (e.g., NUTS V). In many cases, such data may be available from the MS or municipal governments; this is sometimes expensive (e.g., Denmark).

The second phase involves the fieldwork period conducted with qualitative and quantitative social science research methodology. Such methodology involves

- structured and semi-structured interviews with key individuals and groups, and
- participatory rapid appraisal methods.

In addition to textual sources, data should be gathered from key informant semi-structured interviews, surveys, and when appropriate, focus groups. Qualitative data analysis involves the use of standard social science analysis software such as QSR; quantitative data should be analyzed with a standard analysis program such as SPSS.

To focus the research and increase time efficiency, fieldwork often concentrates on key indicators, variables and characteristics:

- population characteristics;
- direct and indirect economic impacts on the fishing industry and ancillary industries;
- structure and relative importance of the fishing industry within the community;
- community and institutional structures;
- political and social resources;
- individual and family factors; and
- community resources.

Each of these variables should be a topic on interview schedules which will elicit responses on how, for example, a recovery plan or proposed MPA affects fishing communities.

These data will allow researchers to focus the analysis the key issues of **economic vulnerability** and **existence of alternatives** (within and without fishing), **resilience** and **adaptability**, and **community support** (including national and regional initiatives and the existence of structural funds) all of which provide a background for understanding potential community/individual impacts.

Indicators, of course, are also extremely useful in the data analysis process:

- | |
|---|
| <p>Indicators (full list on page 30)</p> <ul style="list-style-type: none">• Level and Type of Fishery Related Activity• Economic Role and Importance• Social and Cultural Role and Importance |
|---|

Additional Social and Cultural data and indicators - historical and current**Demographics-** community as well as fisheries sectors

- Age
- Sex
- Education level
- Gender mix
- Ethnicity
- Employment

Community Institutions

- Fishing organizations (including women's groups)
- Unions and cooperatives
- Producer's organizations
- Federations
- Governance institutions (municipal, regional, MS)

Society and Culture

- Kinship
- Social networks
- Cultural traits (e.g., religious activities)
- Social capital
- All relevant stakeholder groups- keeping in mind there are sub-groupings

Though not as easily quantified and discussed, the importance of cultural data can not be emphasized enough. When presented along with socioeconomic information, these data can provide improved understanding of how communities and individuals have, and will be, impacted. For example, social networks can be key to gaining quota shares at a “reasonable” price (as opposed to on the open market); religion can effect the days fishers are willing to be away at sea; and ethnic groupings often have differing values and ways of operating from the greater society.

Of course, social and cultural information of fishing communities is not readily available in most cases. Data which are available could usually be categorized as socioeconomic data and is often at the MS, not local, level. Socioeconomic information is vital—especially given its significance to livelihoods—yet provides only one view on communities and individuals. A holistic view on the people and society is key for having a realistic understanding of how communities react to changes in the not only the industry, but also in the greater society.

Consequently, an appropriate SIA framework will include steps to rectify the limited availability of socio-cultural data on Baltic fisheries communities. A first step would be to compile a list of fisheries communities, including grappling with the difficult questions (e.g., defining community). Workshops with key maritime social scientists would be productive for answering some of these questions.

2. Pilot Baseline Community Profiles: Sweden, Poland, Germany, and Denmark

Four fishing communities which have fishers/shore side sectors participating in small-scale Baltic cod fisheries were profiled in October and November of 2007: Simsrishamn (Sweden); Kuźnica (Poland); Freest and Heiligenhafen (Germany); and Bornholm (Denmark). There are a number of similarities in terms of adaptability and vulnerability, community support and alternative activities among these communities. The main issues uncovered surround the topics of:

- low profitability,
- lack of employment diversification, including other fisheries as well as outside employment,
- low recruitment (of fishers- tied intricately with the current management system),
- inability of fisheries-related businesses to plan for the future.

Most of these communities, and/or the small scale fishers, are highly dependent on the cod fishery, especially in Kuźnica (PL) where cod is the only stock which provides them with a profitable fishery. Other segments of the sector are also dependent, however as diversification is extremely low. Also, there is a strong ethnic identity and cultural preference for fishing in the majority of these communities; Kuźnica with its Kashubian ethnic minority is a prime example of this fact. These types of communities can often face greater negative impacts and social stress in the cases of downturns and forced closures.

Overall, in Sweden, Poland, and Germany, local officials seem committed to keeping small-scale fisheries alive, and in many ways the future of these communities are tied closely to the cod fishery. Tourism may be a business for the future (e.g., Simrishamn), and is certainly currently vital for Kuźnica given the lack of alternative employment opportunities. Bornholm (DK), in contrast, is seeing the consolidation of quotas into larger boats with fishers pessimistic about the future of fishing on the island.

Even if a local community and MS take a strong position in favour of maintaining a sustainable small-scale fishery, the necessary reforms need to come at the international level. In order for investments to take place and young persons to enter the fishery, this segment must have a predictable regulatory framework to enable them to plan for the future, and they may also require preferential treatment in recognition of their weaker position *vis-à-vis* larger vessels. But in order for investments to be sustainable, the cod stocks must recover by means of better-targeted control measures and use of efficient management tools.

Conclusion

In summary, it is worth repeating, community profiles will make productive use the European Commissions Directorate General for Fisheries and Maritime Affairs' monetary resources, as does conducting good Social Impact Assessments. SIAs will enable DG Fisheries to make decisions about how to invest structural funds in ways that reduce the pain of management actions on fishing communities while ensuring appropriate subsidies are provided; they will also mitigate negative impacts of fisheries management actions on communities and individuals.

1 Introduction

1.1 Request for Service

The European Commission has tabled a proposal for a multi-annual plan, which includes the reduction of TACs, to ensure the sustainable long-term management of the cod stocks in the Baltic Sea and the fisheries exploiting these stocks. The potential impacts of the plan to the small-scale fleet are of particular interest to Member States and stakeholders. The Commission is particularly interested in understanding the likely impacts of proposed TAC and fishing effort reductions on the small scale fleet and its communities in the Baltic region.

Experience has shown that key to the quick and efficient assessment of impacts of management plans and actions, is the availability of community profiles. Community Profiling is the first step for establishing a more generalized social impact assessment (SIA) methodology framework for use in a full fledged impact assessment exercise.

Innovative Fisheries Management (IFM), an Aalborg University Research Centre, undertook this report with the understanding that key requirements of the request for service were:

1. Examine a means to establish a social impact assessment (SIA) methodology framework for the Baltic region.
2. Design and carry out pilot baseline community profiles for Denmark, Poland, Germany, and Sweden, focusing on small-scale sectors dependent on cod.

ToR 1: Examine a means to establish a social impact assessment (SIA) methodology framework for the Baltic region

Community Profiles are a methodology for understanding how impacts that are primarily economic can be evaluated in a broader context. Economics plays a critical role in any Social Impact Assessment (SIA) and will continue to be the discipline which provides primary expertise and methodologies for bridging the gap between socioeconomic and biological data when conducting and analyzing SIAs. In general, an SIA is a systematic appraisal on the quality of life of persons and communities whose environment is affected by policy changes, such as through the fisheries management and recovery plans. Social impacts refer to changes to individuals and communities due to some management action that alters the day-to-day way in which people live, work, relate to one another, organize to meet their needs, and generally cope as members of a fisheries society. Social impact assessment provides a realistic appraisal of possible social ramifications and suggestions for management alternatives and possible mitigation measures.

A successful SIA methodology requires the use of Baseline community profiles.

ToR 2: Design and carry out pilot baseline community profiles for Denmark, Poland, Germany, and Sweden, focusing on small-scale sectors dependent on cod

Ideally, first step in conducting any SIA should be to refer to community profiles of relevant fishing communities. In the case of the Baltic, since profiles do not yet exist, the first step involves the designing and carrying out of profiles. With the aim of establishing a standard SIA framework, pilot baseline communities will be profiled in Denmark, Germany, Poland,

and Sweden. These baseline community profiles will provide the basis for future evaluations of likely impacts of long term management plans for Baltic cod.

1.2 Baltic Cod¹

The status of the Baltic cod stocks is an important issue for Member States in the region as well as the European Commission: their condition is quite poor, yet these stocks still play an important role for the industry: an economic output of Baltic cod fisheries in terms of landed value varied from 10% (Estonia, Finland) and 30-40% (Poland, Sweden, Latvia) up to 70% (Lithuania).

There are two populations of cod inhabiting the Baltic Sea: eastern and western Baltic cod. The eastern cod occurs in the central, eastern and northern part of the Baltic but not in significant amounts north of the Aalands Islands. Areas west of the Bornholm island including the Danish Straits are inhabited by western cod population. The eastern population is bigger - 90% of total resources (IBSFC-- International Baltic Sea Fishery Commission), but it may fluctuate due to differences and changes in exploitation level and recruitment. ICES classifies the eastern cod stock to suffer from reduced reproductive capacity (SSB below B_{lim}) and to be harvested unsustainable (F above F_{pa}). This assessment, however, is very uncertain. In 2004 the TAC for Baltic cod for the first time was tentatively proposed separately for western and eastern cod and the new management regime came formally into force in 2005.

There are two primary issues surrounding the management of the Baltic cod: (i) closed areas and seasons for cod fisheries and (ii) new management regime based on division of cod resources among two areas. Both ideas are innovative in the Baltic region and are aimed at improving of cod stock management. Closed areas and a prolonged ban season should ensure better protection of cod during spawning time. Division of cod resources into two separate management units should improve management of Baltic cod through more appropriate measures that could be applied separately to one or another cod stock. These two issues will affect a substantial part of Polish as well as other Baltic countries fisheries operating on both stocks and will have serious economic and social implications.

Since EU enlargement, management of Baltic fish stocks, cod management is almost entirely under competence of EU countries (Russia is the only IBSFC member being outside of EU). This means that the future of Baltic fisheries management will be based on bilateral cooperation between EU and Russia; the IBSFC was dissolved 1 January 2007.

A number of technical measures relating to the cod fisheries are in force in the Baltic Sea. These measures include minimum mesh size, minimum landing size, closed areas/seasons and gear specific measures to enhance the selectivity in the fisheries. The introduction of the B-coma trawl in 2004 (diamond meshed trawl with a square meshed window in the cod end) has been considered as a main factor that reduced the catches of undersized cod. Harvest control rules based on fishing days (DAS) were in place recently, so fishing effort may be reduced gradually by a fixed percentage every year until the recovery objectives and long-term targets have been reached. Since 2005, however, instead of effort limitation two additional closed areas were established on Baltic Sea and the third was expanded (Gotland, Gdansk and Bornholm Deeps) with a total ban for fishing throughout whole year.

¹ From Baltic Sea Test Case, CEC & FP programme, CEVIS: Comparative Evaluations of Innovative Solutions in European Fisheries Management. <http://www.ifm.dk/cevis/BalticSeaCase.htm>. 2007.

Management of Baltic Cod² is linked with sprat and the two are presently the most important commercial fish species in the Central Baltic Sea. Sprat is the main food source of immature and mature cod (Uzars and Plikshs 2000), but sprat is also an important predator on cod eggs (Köster and Möllmann 2000). Although both species, spawn in the same area at a similar time their reproductive success has shown opposite tendencies since the late 1980s (Köster et al. 2003).

The climatic conditions during the 1990s resulted in above- average water temperatures in the Baltic Sea (e.g. Matthäus and Nausch 2003). In addition, increased runoff and precipitation reduced the probability that inflows of highly saline and oxygenated water from the North Sea could re-oxygenate the deep water of the Baltic basins (Matthäus and Nausch 2003). Low salinities and oxygen contents in the deep basins (MacKenzie et al. 1996), substantial egg predation by sprat (Köster and Möllmann 2000) and low availability of the copepod, *Pseudocalanus* sp. for larvae (Möllmann et al. 2003) resulted generally in low cod recruitment during most of the 1990s (Hinrichsen et al. 2002). In contrast, the prevailing warm water temperatures caused high sprat egg survival and optimal food supply for larvae which eventually resulted in a series of large sprat year-classes (MacKenzie and Köster 2004).

The differing recruitment success for the two species in combination with the high fishing pressure on cod and low predation pressure on sprat caused a “regime shift” in the second half of the 1990s from a cod- to a sprat-dominated system (Köster et al. 2003). Clearly the ecosystem of the Central Baltic Sea changed from a state of high productivity for the cod stock, characterized by high salinity/oxygen conditions and low temperatures, to a state of high productivity for the sprat stock, characterized by low salinity/oxygen conditions and high temperatures. This shows that the carrying capacity of the system for both species changes depending on the environmental state, implying also changing potentials for recovery and changing long-term sustainable yield for both species.

The eastern Baltic cod stock remains outside safe biological limits and ICES (2004) has recommended that there should be no fishing on the eastern Baltic cod stock in 2005. The critical status of the stock suggests that despite attempts to implement recovery plans, the present management regime is incapable of increasing the stock size. Thus, there is an urgent need for considering the available knowledge underlying the stock dynamics of cod and sprat in the Baltic under differing environmental regimes for designing successful rebuilding strategies. **Further there is a clear need for investigating the effectiveness of recovery plans with regard to social, economic and governance influences, as acceptance of, and compliance to, management measures is low.**

*Current AFCM assessment and advice*³

As of October 2007, ICES’ AFCM assessment was as follows:

Cod in Subdivisions 22-24 (Western Baltic cod): The cod stock in the Western Baltic has historically been much smaller than the neighbouring Eastern Baltic stock, from which it is biologically distinct. It appears to be a highly productive stock, which has sustained a very high fishing mortality for many years. Recruitment is rather variable and the stock is highly de-

² This section drawn from CEC 6FP project UNCOVER, UNDERstanding mechanisms of stock reCOVERy, Case Study area 3: Baltic Sea. <http://www.uncover.eu/index.php?id=156>. 2007.

³ ICES Advice, 2007, Book 8

pendent upon the strength of incoming year-classes. Spawner biomass has been at or below Bpa since 2002.

Cod in Subdivisions 25-32 (Eastern Baltic cod): The Eastern Baltic cod Stock is biologically distinct from the adjacent Western Baltic (Subdivisions 22-24) stock although there is some migration of fish between areas. Spawning is confined to the deep basins where egg survival depends on oxygen concentration in the deep saline water layer where fertilized eggs are neutrally buoyant. The total and spawning stock biomass increased by the end of the 1970s due to the extremely abundant year classes of 1976, 1977 and 1980 and favorable reproduction conditions in the southern and central Baltic Sea. The spawning stock declined from the historically highest level during 1982-1983 to the lowest level on record in the most recent years. The decline of the stock was a result of an increase of effort in the traditional bottom trawl fishery, introduction of gillnet fishery, and decreased egg and larval survival due to unfavorable oceanographic conditions (i.e., low oxygen concentrations impeding egg development and low food supply for larvae). Since the mid-1980s cod reproduction has only been successful in the southern spawning areas - Bornholm Basin and Slupsk Furrow.

Although the present estimates of stock are uncertain due to misreporting of landings, discarding and age reading problems, all available information indicates that the SSB is at a very low level and the stock is considered to be below the biological reference points. Recruitment since the late 1980s has continued to be at a low level, although the year classes 2000 and 2003 may be stronger than other recent year classes.

ACFM's advised:

- for eastern Baltic cod, fishery should be closed;
- for western Baltic cod, a catch not exceeding 13 500 t; for 2007. (ICES Advice, 2007, Book 8)

In contrast, in June 2007, The EU Council of Fisheries Ministers agreed, for Eastern Baltic cod, the TAC will be cut by 5% to 38 765 tonnes, while days at sea are reduced by 20% to 178 days. For Western Baltic cod, the TAC will be reduced by 28% to 19 221 tonnes, while days at sea are cut by 10% to 223 days.

Species (common name)	Species (Latin name)	ICES fishing zones	TAC 2007 in tonnes (except for salmon)	Commission proposal for 2008 TAC in tonnes (except for salmon)	TAC 2008 agreed by Council in tonnes (except for salmon)	Difference from 2007 TAC (except for salmon)	% change from 2007 TAC
Cod	Gadus morhua	25-32 (EC waters)	40 805	31 561	38 765	-2040	-5
Cod	Gadus morhua	22-24 (EC waters)	26 696	17 930	19 221	-7475	-28

EC Press Release (<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/1595&format=HTML&aged=0&language=EN&guiLanguage=en>) IP/07/1595 Date: 24/10/2007

Many managers prefer harvest measure such as days at sea (DAS) given that control is easier. One could cynically argue that fishers are against such measures because of their limited in-

ability to “cheat” the system. Yet it can also not be denied that such restrictions can increase risks and cause hardships for the catching sector of the fisheries.

The Commission believes that a reduction in the number of days at sea will facilitate better control in a fishery which has suffered from substantial underreporting of catches in the past. The Community Fisheries Control Agency (CFCA) will take the lead next year in organising joint inspection activities in the Baltic, bringing together inspectors from all the Member States involved in the cod fishery.

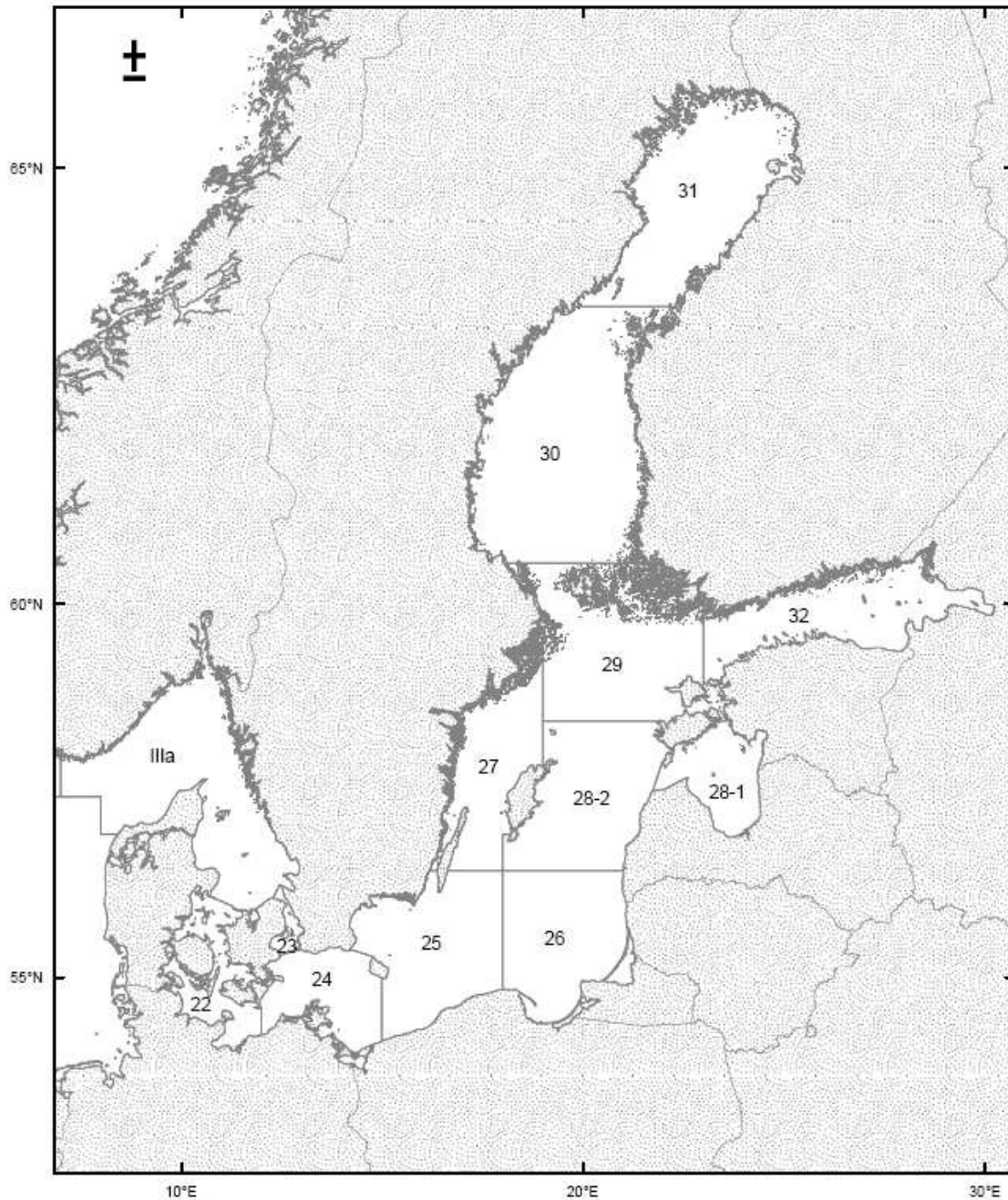


Fig. 1. The Baltic Sea with management areas

1.3 The Management System in the Baltic Sea⁴

Before 1 January 2007, the Baltic fisheries were managed by the IBSFC (International Baltic Sea Fisheries Commission). Eastern Baltic cod was regulated by gear restrictions, minimum landing sizes, and closed areas. In 1999 IBSFC adopted a long-term management strategy which identified target fishing mortalities and defined decision rules in relation to annual TACs dependent on SSB (IBSFC 1999, Resolution X). Further the introduction of technical measures was stipulated. Despite the long-term management strategy, the state of the stock worsened and a first recovery plan was adopted in 2001 which included detailed measures to recover the eastern Baltic cod stock (IBSFC 2001, Resolution XVII). The measures include a summer ban on cod fishing, closed areas, gear design and size restrictions, minimum mesh and landing sizes. However, the selectivity of the existing measures proved to be less effective than expected, fostering an urgent need for a review. In 2003 the existing recovery plan was updated (IBSFC 2003, Resolution XX) and additional emergency measures were taken to protect an incoming strong year class as a unique opportunity to accelerate cod recovery. Also for sprat, IBSFC adopted a long-term management strategy which shall ensure a rational exploitation pattern and provide for stable and high yields. The plan includes target mortality and decisions rules for setting the annual TAC (IBSFC 1999, Resolution XIII).

Currently, the Baltic Sea is managed under the European Commission's DG Fish with the Common Fisheries Policy (CFP) serving as the primary background policy. The Common Fisheries Policy shall **ensure exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions**. For this purpose, the Community applies the precautionary approach in taking measures designed to protect and conserve living aquatic resources, to provide for their sustainable exploitation and to minimise the impact of fishing activities on marine eco-systems. It aims for a progressive implementation of an eco-system-based approach to fisheries management. It also has the stated goal of contributing to efficient fishing activities within an economically viable and competitive fisheries and aquaculture industry, providing a fair standard of living for those who depend on fishing activities and taking into account the interests of consumers.

The Baltic Sea Regional Advisory Council also has an advisory role.

Baltic Sea Regional Advisory Council

The main aim of the BS RAC is to advise the European Commission and Member States on matters relating to management of the fisheries in the Baltic Sea.

The BS RAC, established March of 2006, is one of seven Regional Advisory Councils established by the European Council to increase stakeholder involvement in the development of a successful Common Fisheries Policy. The other RACs are for the Mediterranean Sea, the North Sea, North western waters, South-western waters, Pelagic stocks and High seas/long distance fleet.

The creation of Regional Advisory Councils (RACs) (Council Decision 2004/585/EC) was one of the pillars of the reform of the Common Fisheries Policy, carried out in 2002. They came about as a response to calls from stakeholders in the fisheries sector who wanted to be more involved in the way fisheries is managed in the EU.

⁴ These sections taken from IBSFC and Baltic Sea Regional Advisory Council homepages.

The main aim of the BS RAC is to prepare and provide advice on the management of Baltic Sea fisheries in order to achieve a successful running of the EU's Common Fisheries Policy.

The BS RAC consists of representatives from the fishing sector and other interest groups affected by the Common Fisheries Policy. These include fisheries' associations, producer organisations, processors, market organisations, environmental NGOs, aquaculture producers, consumers, women's networks and recreational and sports fishermen.

The BS RAC is funded by the European Commission and the Member States around the Baltic Sea. The Danish fish processing company Espersen A/S has sponsored the RAC.

Working groups

The BS RAC has three advisory Working Groups to help the Executive Committee to prepare advice: the Working Group on Demersal Fisheries, the Working Group on Pelagic Fisheries and the Working Group on Fisheries for salmon and sea trout. By having Working Groups, a wider range of people, including scientists, fishermen, environmental specialists, economists and others, are involved in the BS RAC.

The BS RAC recognizes that one of the key issues in the Baltic Sea now is the sustainability of the cod fishery. Knowing that unreported landings and compliance are major threats to the sustainability of the cod stock, the BS RAC issued statement on compliance in the Baltic Sea. In this statement they stated that non-compliance is one of the main barriers to maintaining a sustainable cod fishery in the Baltic Sea and they extend their support to the fishers who perform their activities in accordance with the rules of the CFP. They urge all fishing organizations to build up a culture of compliance in the Baltic cod fishery and urge the processing, trading, and retail companies to also be responsible in combating illegal fishing activities. Finally they urge MS to establish appropriate sanctions.

2 Community Profiles

2.1 Introduction to Community Profiles - A brief explanation of what and why

The European Commission governs the Baltic Sea and its territorial seas through the instrument of the Common Fisheries Policy. The CFP states that The Common Fisheries Policy shall ensure exploitation of living aquatic resources that provides **sustainable economic, environmental and social conditions**. Consequently, it is imperative that the Commission understand how management actions, whether they be recovery plans or reduction in TACs, impact the fisheries of the European Union. A key tool for investigating the social and economic conditions of the fisheries is the "community profile."

"Community" can be defined in innumerable ways, though it has traditionally been defined through a place-based approach. In many parts of the world (North America, Australia), this means a port, town, or city may be profiled. In fewer cases, a fishery will be assessed as a community (e.g., in the Billfish management plan of the US). Sometimes the definition rests on the availability of statistical data (e.g. NUTS level III; US census county level data), though researchers have had heated arguments over the meaningfulness and acceptability of such definitions. Detailed analysis at the community level usually focuses on those communities which are most likely to experience the most significant impacts -- an approach that is entirely appropriate given the limited time allotted to most impact assessments. Thus, there

are dozens of communities which may be impacted by policy matters that cannot be analyzed on an individual basis.

The problematic nature of “community” notwithstanding, community profiles are key to conducting successful social impact assessments. Community Profiling in the fisheries can be seen outside Europe, most notably in the United States’ National Marine Fisheries Service (NMFS) attempts to profile all fishing dependent communities. NMFS is undertaking this work directly as a result of US law and policy. The most notable of these laws are the National Standard Eight of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA); the National Environmental Policy Act (NEPA); and the Regulatory Flexibility and Small Business Acts.

Performing a baseline study to identify the socioeconomics of small-scale fishing communities in the Baltic Sea is the first step to understand the likely impacts of fisheries management plans and actions. This information is also a prerequisite to mitigate possible negative consequences on fishing communities. For example, a proposed quota reduction may result in fishermen of a certain fisheries segment to go out of business. Just as important are the perceptions and the willingness of community members to support this fisheries segment.

The Community Profiles of Baltic Small-scale cod fisheries (see Section 6 and Appendices 1-4) focused on employment in the fisheries, demographics, fisheries related organizations and the social and cultural structure of communities in forming the profiles.

- a. **Employment:** employment data compiled and analyzed, focusing on each community’s dependency and reliance on fishing and cod fishing. This will also necessarily include the shoreside sector. These data could be used to choose the community to profile; are analyzed in relation to the impacts of the proposed reduction in TACs and fishing mortality. Recent changes and trends in employment in the fishing industry will be noted.
- b. **Demographics:** the demographic make-up of each community’s fishing sector, by gender, ethnicity, and other demographic attributes compiled and analyzed.
- c. **Organisation of fishing related enterprises:** Fishing organizations, unions, producer’s organisations, federations, and the like will be investigated. Well- structured groups which work together help mitigate impacts and limit vulnerability.
- d. **Social and cultural structure:** Understanding the social and structure of the community is vitally important since the key to resilience is *community support*. Communities differ in the degree to which social capital, i.e., networks of people able to lend aid, is available to people and fishing operations affected by regulations. The more community support, the better the communities can absorb the impact of the regulation and allow fishing activities to survive long enough to enjoy the benefits of the conservations efforts.

The methodology follows a three stage process: selection of communities, fieldwork, and analysis, including impact analyses.

Selection of Communities

- Background literature review on the fishery and fishing communities, including sociocultural and historical.
 - EU and Member State labour regulations, regional development schemes, structural funds, and the like.
-

- Investigation into the overall conditions of the fleet and **view of current management conditions**.
- Defining dependency with NUTS data and pinpointing suitable field sites.
- Field visits to confirm suitable field sites and make contact with key informants and PO representatives.

This includes an analysis of the appropriate level for the definition of a “community.” In some cases, e.g. Peterhead and Fraserburgh, Scotland, a regional profile may be considered more suitable than a port-centered community study. In other cases, a “fishery” such as with some pelagics, may be the community (e.g. Wilson and McCay 1998).

NUTS data are a difficult issue to tackle as depending on the scale the data available (e.g., NUTS III) may not match the scale of community being discussed (e.g., NUTS V). In many cases, such data may be available from the MS or municipal governments; this is sometimes expensive (e.g., Denmark).

The second phase involves the fieldwork period conducted with qualitative and quantitative social science research methodology. Such methodology involves

- structured and semi-structured interviews with key individuals and groups, and
- participatory rapid appraisal methods.

In addition to textual sources, data should be gathered from key informant semi-structured interviews; surveys, and when appropriate, focus groups. Qualitative data analysis involves the use of standard social science analysis software such as QSR; quantitative data should be analyzed with a standard analysis program such as SPSS.

To focus the research and increase time efficiency, fieldwork often concentrates on key indicators, variables and characteristics:

- population characteristics;
- direct and indirect economic impacts on the fishing industry and ancillary industries;
- structure and relative importance of the fishing industry within the community;
- community and institutional structures;
- political and social resources;
- individual and family factors; and
- community resources.

Each of these variables should be a topic on interview schedules which will elicit responses on how, for example, a recovery plan or proposed MPA affects fishing communities.

These data will allow researchers to focus the analysis the key issues of economic vulnerability and existence of alternatives (within and without fishing), resilience and adaptability, and community support (including national and regional initiatives and the existence of structural funds) all of which provide a background for understanding potential community/individual impacts.

3 Social Impact Assessment

Fisheries management describes the institutions, policies and legislation that determine the way in which communities and individuals utilize fisheries resources. Fishing regulations affect fishing operations in many different ways. The desired effects are manifold. Next to biological-technical effects, e.g. rebuilding of stocks and changes in fishing gear, are socio-economic effects, e.g. employment structure or income. Social impacts refer to changes effecting individuals and communities due to some management action that alters the day-to-day way in which people live, work, relate to one another, organize to meet their needs and generally cope as members of a fisheries society.

“As human activity remains the major destructive force in nature, improving natural resource management primarily requires changing human behavior” (Röling 1994, 1996, 2000, cited in Probst and Hagmann 2003). Therefore it is necessary, that local people be in the centre of research efforts in resource management and owners of the innovations in order to improve decision-making and their willingness to participate (Probst and Hagmann 2003). Performing a baseline study to identify the socioeconomics of small-scale fishing communities in the Baltic Sea is the first step to understand the likely impacts of fisheries management plans and actions. This information is also a prerequisite to mitigate possible negative consequences on fishing communities. For example, a proposed quota reduction may result in fishermen of a certain fisheries segment to go out of business. Just as important are the perceptions and the willingness of community members to support this fisheries segment.

Conducting a social impact analysis is important for several reasons. The social impact analysis provides estimates of expected changes in demographics, employment, organization of fishing related enterprises and the social and cultural structure. The assessment can help policy makers to avoid creating inequities among different communities as well as provide an opportunity for diverse community values to be integrated into the decision-making process (Edwards 2000).

Social impact assessment in the fisheries first arose in the 1970's in response to environmental legislation. SIA has continued to develop into what William Freudenberg (1986) describes as a hybrid of the social science field and a component of policymaking. Yet while the field has continued to mature, the question of how to incorporate science into a largely political process still remains, at least within fishery management (Jepson and Jacob 2007).

Only recently has a new research agenda developed—one which focuses on fishing communities, enabling the that the collection of baseline data for comparison over time and across fisheries in the United States. This has been the result of funding through the National Marine Fisheries Service (NMFS). Although there have been many social impact assessments written, for example, for regional fishery management agencies in the United States, (e.g., Impact Assessment, Inc. 1991; McCay et al. 2002; Wilson and McCay 1998) the focus is often on a specific fishery or management action. This makes it difficult to monitor trends over a wide geographic area or update data to assess impacts in a timely fashion. Additionally, funding is usually on a one-time basis and does not provide for future data collection. Add to that, the councils and the NMFS are continually implementing new regulations, often according to strict timetables that do not allow for collection of new data, especially if it requires lengthy fieldwork. The limited time frame and lack of data make it difficult for research staff to assess the impacts of alternatives which can often be numerous (Jepson and Jacob 2007). If the

European Union is to fair better, they will also need to invest the resources of time and money.

3.1 What is social impact assessment?⁵

Social impact assessment (SIA) is a systematic appraisal on the quality of life of communities and individuals environment is affected by policy changes, such as through the fisheries management and recovery plans. Social impacts refer to changes to individuals and communities due to some management action that alters the day-to-day way “*in which people live, work, relate to one another, organize to meet their needs, and generally cope as members of a fisheries society*” (Interorganizational Committee on Guiding Principles for SIA 1994, in Wilson 1998) Social impact assessment provides a realistic appraisal of possible social ramifications and suggestions for management alternatives and possible mitigation measures. The methodology has been developed through interactions across a large number of fields, particularly those related to environmental and development policy.

When looking at stock recovery plans, and social impact and compensation mechanisms, it is imperative that the distribution of new fishing opportunities should also remain equitable among all stakeholders. It is therefore important to assess the social impact of alternative recovery plans and to ensure marginal groups have an equitable distribution of the benefits. (Wakefield 2007).

In the United States, the SIA methodology has been in use as part of fisheries management for more than a decade. In response to the Magnuson-Stevens Act, social and cultural impacts are taken into account along with environmental and economic impacts for stock management and recovery plans. Consequently, a strong methodology has been devised and there are standards for judging impacts in an equitable and scientific manner. The methodology is based in important ways on the existence of a set of ***Fishing Community Profiles*** that have been created by NOAA Fisheries and provide baseline data for SIAs. Knowing that some hold the view that in European Fisheries Management, “cultural impacts trump scientific advice;” social impact assessments can help address this concern by including scientific observation of culture and society in decision-making. **This fits with the European Commission’s commitment (2001) to undertake impact assessments of all legislative based proposals.**

It is important to involve all sub-groupings of fishers during the recovery process and address the social impacts of a recovery plan. Within the United States, a social impact analysis is required under federal law for each Fishery Management Plan. The National Environmental Policy Act (NEPA) requires Federal agencies to consider the impacts of major Federal actions on the human environment by using an interdisciplinary approach. The Council on Environmental Quality (CEQ) has defined "human environment" expansively to "include the natural and physical environment and the relationship of people with that environment" [40 CFR 1508.14]. (Wakefield, Agnew and Mees 2007).

Within New Zealand and Australia, the social impacts of management recommendations, could be addressed at various council meetings such as the Northern Prawn Fishery Management Advisory Council (NORMAC). Within Europe, compensation was not initially considered under the emergency measures and Kelly et al. (2006) consider this to be one reason that they failed to effectively reduce effort (Wakefield, Agnew and Mees 2007).

⁵ Much of this section is taken from Delaney et al. n.d. and Wilson et al. 1998.

Formal recovery plans in the EU have included provisions for effort reduction both through limited days at sea and decommissioning. EU has made available several financial instruments (e.g. Financial Instrument for Fisheries Guidance; FIFG) to help Member States permanently remove fishing capacity by scrapping vessels to meet the reductions in fishing effort under the recovery plans. The FIFG also provided re-training of fishers to develop alternative livelihoods outside the fisheries sector. Many stakeholders hope the new European Fisheries Fund (EFF) will do the same.

Examples from Around the World⁶

Canada

With the collapse of the Canadian cod fishery, Canada has learnt first-hand the severe and long-lasting socio-economic implications of fishery decline. And, although there is no systematic organisation and use of fisheries socio-economic data in Canada, there are moves to consider socio-economic impacts of policy decisions.

For example, the Species At Risk Act (SARA) 2003 requires that “a comprehensive analysis must be undertaken to estimate the socio-economic impacts of...[SARA] listing” (DFO 2005). This requirement is detailed in article 49e of the Act (DFO 2003) which specifies that an action plan must include “an evaluation of the socio-economic costs of the action plan and the benefits to be derived from its implementation”. Further, Article 55 states that “ecological and socio-economic impacts” of the action plan must be reported on five years after its implementation. Such socio-economic assessments have already taken place – for example, for both Atlantic cod and porbeagle sharks.

Second, the Oceans Act (1997) made provision for the establishment of MPAs and the Canadian Department for Oceans (DFO) has issued a framework for the establishment and management of MPAs (DFO 2007). The process for establishing such sites involves identification of areas of interest and initial screening of those areas. Once this has been completed, three assessments take place – ecological, technical and socio-economic – before recommendations are made for site designation. The socio-economic assessment is required to focus on how the MPA would affect human activities in and around it and how socio-economic benefits of the MPA could be enhanced and/or its costs reduced.

In addition to these governmental initiatives to address socio-economic impacts of policy on an ad hoc basis, there have been academic moves towards developing socio-economic indicators and improving knowledge of the response of coastal communities to policy change. One example of these developments is the work of the Oceans Management Research Network (OMRN 2006) to precipitate a conversation with policy-makers about how socio-economic indicators for Canada’s coastal and marine environments might be developed. In particular they emphasise the ‘social’, which has been marginalised in comparison to work conducted on economics.

A second example is provided by the wide-ranging Coasts Under Stress project (Ommer forthcoming), which worked for five years to produce an integrated analysis of the long and short-term impacts of social-ecological restructuring on the health of Canadians, their communities and the environment. This interdisciplinary and integrated research, which looked at

⁶ This section in its entirety taken from Hatchard et al. 2006.

the history and current lived realities of communities, produced a range of policy suggestions to alleviate or reverse negative impacts and encourage positive ones.

Europe

Outside fisheries, the European Commission has issued guidelines on impact assessments. These guidelines state that economic, environmental and social analysis should take place regarding a range of the most relevant policy options, including ‘no policy change’. Potential impacts, ways to enhance measures and mitigation methods should all be considered. The rationale behind this is that the output of assessments should provide policy-makers with “sound information on the basis of which the relevant policy options can be compared and ranked” (EC 2005:26).

The European Union (EU) has made a legislative commitment within the Common Fisheries Policy (CFP) to: “...provide for sustainable exploitation of living aquatic resources and of aquaculture in the context of sustainable development, taking account of the environmental, economic and social aspects in a balanced manner” (EC 2002 in Hatchard *et al.* 2007). However, at present in fisheries, only biological and direct economic implications of policies (using EIAA modelling) are considered in any detail.

The European Commission produces national-scale economic statistics of European fisheries on an annual basis (EC 2006a), detailing sectoral value and employment, for example. Under the Data Collection Regulation, detailed fleet economic data – costs, earnings, employment, vessel statistics and fishing effort – is also gathered by Member States. From 2007, for the first time, this data will be collected annually. This change may have resulted from the revitalisation of the Economic Analysis Unit of DG Fisheries, which was provided with more staff and resources in 2006. No systematic attempt is made to collect social information on fisheries at the European scale.

Despite this data shortfall, the Commission has stated that “analyses of the economic and social effects of significant changes in fisheries management are obviously desirable before such changes are made” (EC 2006b). Indeed, the working group of the STECF Sub-group for Economic Affairs (SGECA) was asked in 2006 to produce a combined biological, social and economic analysis of the Commission’s proposal for a plaice and sole long-term management plan. However, due to a marked absence of relevant and accessible data relating in particular to social aspects, it was not possible to draw firm conclusions regarding the social implications of the proposal (STECF 2006). The STECF Plenary also concluded that there were significant problems relating to the technical integration of the three analyses. It is clear that much methodological and data-gathering work remains to be done before effective integrated impact analysis can be conducted with regard to Commission proposals.

With the shortcomings of the STECF assessment in mind, the development of systems for the organisation and use of socio-economic data in fisheries would seem to be desirable and the flatfish social assessment made a start by detailing the data requirements that would be needed to underpin a social impact assessment process (STECF 2006:74-76). Concurrently, the North Sea Regional Advisory Council (NSRAC) has agreed a protocol for the consideration of socio-economic implications for all its advice and recommendations (NSRAC 2006) and has established a Socio-Economic Development Group to conduct further work on socio-economic issues. This group has played a key role in the development of the socio-economic dataframe being tested in this project (Hatchard *et al.* 2006). And NSRAC’s Demersal Work-

ing Group is developing long-term management strategies to enable the sustainability – economic and social as well as biological – of key commercial fisheries.

Alongside such policy developments, social science research in fisheries has also been addressing the issue of the organisation and use of socio-economic data. For example, a regional fisheries dependency database for Europe's fishing regions developed by Megapesca (Goulding *et al.* 2000) identified three sets of indicators of fishing dependence – value added indicators which measure the share of fishing in the value added of the area; social employment indicators, which look at employment in fisheries as a share of total employment; and CFP dependency indicators, which consider the share of the total catch subject to management measures. This database, which is available online, has not been updated since 1998. However, it does provide a useful example of an integrated online database of statistical tables, maps and socio-economic narrative profiles of fishing regions.

In a second example, the European Fisheries Ecosystem Plan (EFEP) project drew up profiles of 17 fishing communities in four countries to enable it to assess the likely implications of ecosystem-based fisheries management for those communities. The profiles designated the fishing communities in terms of relative dependence – heavy, moderate and light (Hatchard *et al.* 2004). Connected with this, research was conducted on four communities in the UK to assess the strategies that fishing communities adopt to manage dependence (Brookfield *et al.* 2005). These included devotion, modernisation, diversification into a virtual fishing industry more akin to tourism, and rationalisation, with those most acutely dependent opting for devotion and those with very low dependence taking the rational option.

Indicators for fisheries and marine management in the EU are also being developed. The European Centre for Information on Marine Science and Technology (EUROCEAN 2007) has established an electronic information centre on socio-economic indicators within the marine environment. This online resource acts as a portal linking users to the location of socio-economic data. And the European Environment Agency (EEA) has developed an online resource featuring 'core indicators' of environmental change (EEA 2007). Fisheries indicators, such as fleet capacity, are included here. The purpose of this resource is to provide a stable basis for EEA indicator-based reporting, to improve data flows, and strengthen the EEA's contribution to global indicator initiatives.

Meanwhile, the INDECO project (Development of Indicators of Environmental Performance of the Common Fisheries Policy) has been working to identify 'robust and operational indicators describing the links between fisheries and environment, applicable across a large range of ecosystems and fishing zones' (Bodiguel *et al.* 2006:4). A key INDECO aim was to analyse the utility of socio-economic indicators in fisheries management, with reference to the impact of fishing on the marine environment. To achieve this, the project developed economic (profitability, productivity and competitiveness of productive systems), social (social aspects related to the fisheries sector – employment, wages, age, women, safety – and other population considered as consumers – consumption, traceability, quality, price) and governance (capabilities of management institutions to respond to given problems – management and decision-making efficiency, participation, equal opportunities, transparency and openness) indicators, to sit alongside environmental ones. In addition, work is also being done at the national scale to develop indicators – for example, in Denmark (Danish Ministry 2007).

USA

A federal programme of socio-cultural research and policy-making in fisheries has been ongoing since the 1970s in the USA, with significant progress being made from the 1990s onwards. MARFIN (1990) was an early attempt to organise socio-economic data relating to fisheries and coastal communities. This socio-economic database contained decennial data from 1970, 1980 and 1990 at three different scales – labour market areas, commuting zones and place-level data. The aim of this database was to provide policy-makers with baseline information to manage and assess the socio-economic impact of fisheries policies. It had a simple interface that was aimed at non-specialists.

And, in 1996, the socio-economic agenda was advanced by National Standard 8 of the Magnuson-Stevens Act (MSA), which states that: “Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities” (MSA 1996).

To address this, the National Marine Fisheries Service (NMFS) has developed a methodology for social profiling of fisheries communities. Profiles have three constituent parts: people and place (location, demographics, education, housing, and local history); infrastructure (current economic activity, governance/institutions and facilities); and fishery involvement (community activities in commercial, recreational and subsistence fishing). Baseline data is tied in with the year 2000 national census and it is intended that data will be updated on a continuous cycle, once every 3-5 years.

Communities were selected for profiling on the basis of quantitative indicators relating to commercial fisheries landings (indicators: weight and value of landings, number of unique vessels delivering fish to a community) and the presence of participants in the fisheries (indicators: state and federal permit holders and vessel owners). Indicators were assessed in two ways, once as a ratio to the community’s population, and in another approach, as a ratio of involvement within a particular fishery. The ranked lists generated by these two processes were combined and communities with scores one standard deviation above the mean were selected for profiling (Norman *et al.* n.d.). To support this programme NMFS has developed a ‘Socio-cultural Practitioners Manual’ to clarify socio-cultural requirements and provide practical advice, including community selection methods, for regional staff on how to meet those requirements, which has led to a consensus on both data elements and indicators used in regional community profiling.

Colburn *et al.* (2006:234) explain that US fisheries change in response to a “complex ecology” of fishery, (inter)national scale and environmental structures and processes. This means that a key question is: how can communities “adapt and sustain their engagement in marine resource harvesting and processing in the face of complex pressure?” Profiles provide a means of answering this question.

Currently, profiles are “short-form” and provide “systematically compiled comparative information” for use in assessment of a range of policy options and management approaches. These include environmental justice; community/cooperative fisheries management; privatisation of fishing rights at individual and community scales; cumulative impacts of manage-

ment actions on communities; and, possibly, ecosystem-based management of fisheries. (Colburn *et al.* 2006:234). NMFS also intend to develop “long-form” community profiles for a small set of communities that represent different regional community subtypes. These profiles will be based on data obtained by a number of methods – key informant interviews, rapid assessment techniques and publicly available data – and will help provide insights into data trends identified in the short-form profiles. Also, profiles are focused on the regional scale and the aim is for cross-regional comparative analysis of fishing community databases to be possible in the future.

Finally, as Colburn *et al.* (2006:234) explain, there is a need “...to develop a model for fisheries social impact assessment that is more compatible with biologists’ and economists’ approaches...” To achieve this, a conceptual model, which uses quantitative and qualitative indicators, is being developed to predict the social impacts of management alternatives. There are also examples of a state-level drive to obtain more accurate fishery-level data on employment, labor income, and expenditures, where that information is unavailable. In 2007, Gulf Coast Alaska fisheries have initiated a one-off survey to gather data on important regional economic variables, which will be used to develop models that will provide more reliable estimates of economic impacts of fisheries on regional economies and of the effects of future regulations on fishery-dependent communities in Gulf Coast Alaska (NOAA 2007).

*SIA in Practice*⁷

Social impacts assessments involve both economic impact assessments, and social and cultural impact assessments.

Economic impact assessments are primarily concerned with fishing firms. Economic impact assessments:

- focuses on changes in the overall value to the public of the resources being managed.
- considers the efficient utilization of the resource and the monetary costs and benefits of the measures.
- takes into account the future value of the resource if and when the stock grows to a larger size.

Social and cultural impact assessments are primarily concerned with fishing communities.

Social impact assessments

- consider how the economic changes affect the community's social structure, and the culture, i.e. the meanings and understanding of the fishery that are shared within the community.
- identify any changes in these things which might affect, for examples, the sustained participation of the communities in the fishery. For example, boat owners and fishing crew, and the changing ways these two groups interact may be a concern for a study.
- assess the resilience of the community in the face of the proposed changes and their social and economic impacts.

⁷ Delaney et al. n.d.

What is found in an SIA?

- Information on overall economic impacts than their expected distribution.
- Expectations and perceptions of the alternative actions, and the potential impacts of the alternatives on both small economic entities and broader communities.
- Descriptions of the ethnic character, family structure, and community organization of affected communities as they related to community vulnerability and resilience.
- Descriptions of the demographic characteristics of the fisheries.
- Descriptions of the social structure (important polities, organizations, businesses) associated with the fisheries.
- Identification of possible mitigating measures to reduce negative impacts of management actions on communities.

To understand social impacts, you must investigate fishing communities' reactions to fisheries management measures. Fishing regulations affect fishing operations in many different ways. "Fishing regulations can affect the volume of money that is going through the community. In commercial operations this is a function of the amount and price of fish. Second, regulations can affect the flexibility of fishing operations. This is the ability of the operation to change in response to changes in the resource, the market, or their customer base. Often regulations affect the ability of fishing operations to make plans. Many systems of regulations indirectly create uncertainties for the fishing operations that make business planning more difficult. Regulations can also impose direct costs on fishing operations by requiring them to buy something or to pay someone to do something. These impacts on operations, in turn, create impacts in the broader community. Impacts on employment and overall wealth are very important, as are changes in a community's identity as a fishing community, and its perspective on the future of fishing-related activities. Social relationships such as the role of kinship, the aggressiveness of competition, and the burden of increasingly complicated management regulations can also affect the quality of life in the community" (Wilson and McCay 1998).

4 Methodology

The methods for socio-cultural impact assessments rely greatly on accessing the data necessary to show the impacts which one hopes to uncover.

Types of Socio-economic Data⁸

There is common ground between the data types being used within socio-economic research and policy programmes in fisheries management worldwide. Although many programmes do not refer to all of them, three main components are identifiable: 1) industrial, including economic costs and productivity, and fleet and landings statistics; 2) community, including measures of individual and societal well-being; and, 3) institutional, including structural support and governance structures. Components referring to the fishing industry, its communities and its institutions are set within the context of measures of the broader socio-economic context. Table 1 provides a list of the range of data used in the examples discussed in the preceding section.

⁸ Taken from Hatchard et al. 2007.

Table 1. Types of socio-economic data*

INDUSTRIAL	COMMUNITY	INSTITUTIONAL
Type of fishery	Family composition – no. dependents, 1 wage vs. 2 wage	Fisheries management structures and instruments, including main restrictions
No., gear-type, age, capacity and length of commercial vessels	Age profile, education, gender of population	Civic participation and governance structures
Value/capital investment and running costs of vessels	Individual and community well-being – including mental and physical health, job satisfaction, employment and family proximity	Fisheries specific and non-specific public investment and support structures, development plans and research investment
Fleet landings in tonnage and value, divided by home and other ports, and as a share of quota uptake for key species	Working conditions including safety	Scientific advice on key stocks
Main fishing grounds – distance and productivity	General employment levels	Location and environment
No. of firms, divided by sector (catching and onshore etc.)	Social and industrial networks– including family, social groups, industry organisations	Health and education facilities and local/government agencies outside of fisheries
Production, imports, exports and total supply in tonnes and value, divided by human consumption vs. industrial purpose	Homogeneity/heterogeneity of fisheries/general community	Legitimacy
Market orientation – e.g. Local, national, regional, international; Value of fish products	Cultural diversity and value and belief systems	Historical record of managing change in fishing communities
Onshore sector dependence on local fleet landings	Social participation	Transparency and openness
Industry employment – catching sector, processing, storage, transport, retail, vessel repair and maintenance, ports and auctions; full/part-time, gender/age, management/employee composition – as compared with general employment	Historical response to changes in fishing opportunities	Equal opportunities
Onshore sector businesses value and location	Consumption – traceability, quality price	Management and decision-making efficiency
Recreational fisheries businesses, value, employment, catch		Conflict resolution mechanisms
Aquaculture businesses, value, employment and production, by value and tonnes, and links to processing		Legal basis of management arrangements
Historical performance of sectors and responses to management change		
Other sources of income		

*Hatchard et al. 2007

Indicators⁹

A clear definition of an 'indicator' is provided by Statistics New Zealand (2007): "a parameter than can be measured...to show trends or sudden changes in a particular condition. They are reactive to change and simplify complex data into readily usable information that can be used to communicate complex trends or events. Indicators reduce the number of measurements that are normally required to give a complete picture of a situation." The organisation also points to two additional key characteristics of indicators: policy relevance and analytical validity.

These five components – measurability, communicability, relative efficiency, policy relevance and analytical validity – are all important if fisheries managers are to make use of socio-economic indicators to devise policy or to assess its potential socio-economic impact(s). In terms of measurability, using tangible indicators will facilitate monitoring of socio-economic change over time. Using the same indicators across communities and sectors will also enable comparability between them.

With regard to communicability, it is important that indicators are simple and relatively easy to understand. Although they are likely to be underpinned by complex data, stored in databases, the indicators themselves can be straightforward. For example, the INDECO project proposes that a combination of landings and employment per vessel can indicate productivity or that wages can indicate the distribution of revenue from fishing (Bodiguel *et al.* 2006:14-15). Bodiguel *et al.* (2006:4) also suggest that indicators can be useful as "communication tools to keep the wider public duly informed."

The relative efficiency of an indicator-based system of monitoring socio-economic circumstances has intrinsic value. Indicators work from the principle that it is not necessary to know everything in order to identify trends. As such, indicators represent a way to target limited resources as it would be possible to employ a relatively small number of indicators, depending on the extent of the focus of any monitoring programme.

The analytical validity of the indicators is also important. Making clear decisions about what the indicators are, how they will be measured – for example, Bodiguel *et al.* (2006:6) suggest that direction of change, rather than reference levels, should be used – and what steps need to be taken if changes occur will provide a strong basis for the indicators.

Finally, with regard to policy relevance, it is important that indicators are chosen that will continue to be relevant to the management system for the foreseeable future. Thus, it may be necessary to gather new kinds of data, as well as making use of existing data types. It is also vital to identify the most useful scale for the designated purpose of the indicator system. And, to be useful, indicators need to be an integrated part of a management system for fisheries or the marine environment, rather than an end in themselves.

With the ecosystem-based approach to fisheries management becoming increasingly prevalent in policy circles, developing socio-economic data systems and assessment processes that are incompatible with external linked systems and assessments would be counter-productive. Environmental imperatives are very strong in the current political climate and integrating socio-economic approaches with environmental ones would raise the profile of socio-

⁹ Taken from Hatchard *et al.* 2007

economic issues and increase their validity on this political stage. des Clers and Nauen (2001:12), working on indicators of change in interconnected natural and social systems and their potential use in ecosystem-based management, stressed: “To be useful, indicators of sustainable development need to link the natural production and economic dimension of fisheries activities. Integrated assessments need to rely on indicators combining natural and social systems.”

Methods of using indicators to analyse trends have also been developed for institutions. Institutions can be best understood as “arrangements” that encompass the rights and rules by which resource users and government organise resource governance, management and use (CRCRP 1998). By collecting data on institutional arrangements, and the organisations associated with them, we can improve our understanding of how they affect user behaviour and incentives to coordinate, cooperate and contribute in the formulation, implementation and enforcement of management regimes. For example, CRCRP (1998) developed a framework whereby institutional performance in coastal resources co-management can be evaluated by separating the ‘rules of the game’ from the strategies of organisations. This framework focuses on biological/technical, market and community attributes – or data variables – and associated institutional arrangements at both the fisher/community level and the external community level. It also takes into account exogenous political, economic, social and natural factors. This information enables the consideration of what incentives there are to coordinate, cooperate and contribute, patterns of interaction and outcomes.

In summary, indicators are variables that have a strong link with certain developments in the system. They have the capacity to help fisheries managers make sense of socio-economic data and identify socio-economic trends. In doing so, indicators have three potential practical applications: their primary use is to monitor socio-economic change, but they can also be used for long-term policy planning, and to conduct impact assessments of proposed changes in management instruments. However, using indicators could restrict our knowledge of socio-economic developments, and they should be subject to intermittent review, with new indicators introduced if necessary.

Profiles¹⁰

Profiles provide a narrative description of the socio-economic circumstances of, for example, a port, community or a coastal region, and are suited to any scale: community, regional, national, sectoral or regional.

A profile can be based on both qualitative and quantitative data. For example, anecdotal evidence relating to historical experiences of management change can sit alongside aggregated fleet statistics. The combination of quantitative and qualitative data represents a robust baseline from which to judge likely policy impacts of proposed changes in fisheries or marine environmental management. Imposing a common structure and data requirements on the profiles should enable comparability of data across sample areas. However, a key challenge for profiles of socio-economic information for fishing communities/sectors lies in finding a way to usefully reflect the various socio-economic linkages between those communities and sectors, which often occur at varying scales.

The inclusion of qualitative data presents participative opportunities for those people involved in the sector or community to be profiled and the possibility that the community itself will

¹⁰ Taken from Delaney et al. n.d. and Hatchard et al. 2007.

feel some sense of ownership towards the profile and some commitment to the data management process. This is because profiles are a means by which a fuller picture of a community or sector can be provided.

Profiles, being more qualitative and participative, are likely to be labour intensive to establish and maintain. Community/sectoral buy-in could address this, and it may be possible to embed profiles in communities so that information is updated from within on an annual basis. The benefits of developing a detailed understanding of the community/sector could well outweigh the costs. The commitment in the US to a profile system, embedded in institutionalised socio-economic policy analysis, would appear to indicate that they believe it to be worthwhile.

Data review conclusions

A number of key conclusions can be drawn from this literature review of the organisation and use of socio-economic data in fisheries management worldwide which have relevance to both fisheries policy.

- Socio-economic data is already being used in fisheries management decision-making, although the only established wide-ranging socio-economic data system in fisheries is the Community Profile system in the US.
- Socio-economic data includes industrial, community and institutional information, but social data is less readily available than economic data. For example, few attempts have been made to chart the historical socio-economic impacts of changes to fisheries management regimes and fishing opportunities.
- There is a significant and growing demand for reliable socio-economic data as impact assessments of policies – e.g. of MPAs – become the norm. Socio-economic data held by decision-makers tends to be at a broad, often national scale, produced by offices for statistics. This is insufficient to meet the needs of impact assessments.
- Data can be organised, accessed and understood via systems of databases, indicators and profiles and can take the form of statistics, narratives, maps, graphics and tables.
- Institutionalising socio-economic analysis requires its prioritisation in terms of time and resources at a policy level and participation can play an important role in data collection and management.

The social impact assessment methodology presented in this report is based upon methods developed for the EU 6FP project UNCOVER, “Understanding the methods of stock reCOVERY,” through participation on a DEFRA-funded UK Ports Dataframe project, and from previous experience in NOAA Fisheries (USA) compiling an SIA methods handbook. Standards have been adjusted for the European context, and taking a logical next step from PESCA programme (ended 1999) and the FIGG programmes, which were designed to help fishing dependent regions cope with the crisis in fishing, though they never undertook full impact assessments.

4.1 Selection of Communities

The selection of fishing/fisheries communities really depends upon the stated goals. In many instances, communities are chosen for their dependency or reliance on the fishery. Site selection could be based on dependence scores based on:

1. Statistical data at the municipality level
 - a) Landings
 - b) employment – fishers, processors, and marketers

If evaluating a management plan, for example, landings data includes the average of landings for all species, recovery plan species landings average, as well as species dependency. These will be measured over the course of three to five years until, for example the year prior to a management plan, and compared with data from, say 5 years after management plan, in order to evaluate change.

Employment data includes employment of capture fisheries, and when feasible, also other sectors such as the processing sector. Municipalities will be ranked according to employment dependency.

Final selection could include the community with the highest recovery plan species dependency that is also in the top 10 of employment dependency.

There are difficulties with this method, however. When looking at dependency several years after the implementation of a recovery plan, you could be biased—with such a method, you are automatically looking at a community which has managed to keep fishing. This weakness, however, is only an issue if monetary resources prevent research into multiple sites. Thus, even with statistics, community selection is often a subjective process. The ideal would be to investigate as many communities as possible to limit such said biases.

A subjective bias, however, is not necessarily negative. Sometimes a fishing community will need to be chosen for specific reasons. For example, the Polish community of Kuźnica is one whose population (95%) is of an ethnic minority group. There may be instances when such communities would be of special interest. The same can be said, for example, for those of particular historical interest.

Relevant background data which should be included in the process of choosing communities:

- Background literature review on the fishery and fishing communities.
- EU and Member State labor regulations, regional development schemes, structural funds, and the like.
- Investigation into the overall conditions of the fleet and view of current conditions.
- Defining dependency with NUTS data and pinpointing suitable field sites.
- Field visits to confirm suitable field sites and make contact with key informants and PO representatives.

The methodology follows a three stage process: selection of communities, fieldwork, and analysis, including impact analyses. The first stage has been previously discussed.

The second phase involves the fieldwork period conducted with qualitative social science research methodology. Such methodology involves structured and semi-structured interviews with key individuals and groups, and participatory rapid appraisal methods. Qualitative data analysis will involve the use of standard social science analysis software such as QSR.

To focus the research and increase time efficiency, fieldwork will concentrate on key variables:

- population characteristics,
- direct and indirect economic impacts on the fishing industry and ancillary industries,
- structure and relative importance of the fishing industry within the community,
- community and institutional structure,
- political and social resources, individual and family factors, and
- community resources.

Each of these variables will be a topic on the interview schedule which will elicit responses on how the recovery plan affects the fishing communities.

4.2 Indicators and Key data points

Using tangible indicators will facilitate monitoring of socio-economic change over time. Using the same indicators across communities and sectors will also enable comparability between them.

Indicators

Level and Type of Fishery Related Activity

1. Pounds of fish landed/processed in the community
2. Value of fish landed/processed in the community
3. Number of vessels delivering fish to that community
4. Number of permit holders residing in the community
5. Number of crewmembers residing in the community
6. Number of fishing vessel owners residing in the community
7. Number of processing workers based in the community
8. If relevant in the region, percent of households participating in subsistence harvest or consumption in the community compared to appropriate standard.
9. If relevant in the region, subsistence fish landings in the community
10. Number of fishing vessels docked in a community compared to appropriate standard.
11. Perceived importance by community members of current or recent fishing activity to the continuity or self-identification of the community compared to appropriate standard.

Economic Role and Importance

12. Amount of base economic activity generated by fishing or directly related fisheries-dependent services
13. Percent of community jobs related to fishing or directly related fisheries-dependent services

Social and Cultural Role and Importance

14. History of fishing in the community

Additional Social and Cultural data and indicators - historical and current

1. *Demographics* - community as well as fisheries sectors
 - a. age
 - b. sex
 - c. education level
 - d. gender mix
 - e. ethnicity
 - f. employment

2. *Community Institutions*
 - a. fishing organizations (including women's groups)
 - b. unions and cooperatives
 - c. producer's organisations
 - d. federations
 - e. governance institutions (municipal, regional, MS)
 - f. community support institutions (e.g., daycare; educational institutions)

3. *Employment*
 - a. catching sector - all segments (often compete)
 - b. shoreside sector

4. *Society and Culture*
 - a. kinship
 - b. social networks
 - c. social capital
 - d. cultural traits (e.g. religious activities)
 - e. all relevant stakeholder groups (catching, processing, business, support services, municipal and regional governance institutions, researchers).

5 Social Impact Assessments in the Baltic

A review (Wakefield, Agnew and Mees 2007) of worldwide of stock recovery plans has shown that there are specific instances when recovery is more likely to be ineffective. The points which are particularly applicable to the Baltic Sea include: Purely technical measures (closed areas, seasons, and changes to gear) are implemented without considering the redistribution of effort within and between similar multi-species fisheries; Industry confidence in science or the management process is so low that measures are not implemented effectively by fishers. It can also be added, however, that stakeholders need to feel invested in the process and feel they have a say. Also, not only do redistribution effects need to be considered, but also the cumulative impacts ("knock on" effects) of various management plans (e.g., Dutch Beam Trawlers impacted by both the Plaice and Sole long term management plan as well as the NS Cod Recovery Plan).

5.1 Adaptability/Vulnerability and Critical Issues

Fisheries management and policies affect fishing operations in multiple ways and on multiple levels: Fishing regulations can affect the *volume of money* that is going through the community (Wilson et al. 1998); "Regulations can also affect the *flexibility of fishing operations*. This is the ability of the operation to change in response to changes in the resource, the market, or their customer base" (Wilson et al. 1998). Often regulations affect the ability of fishing operations to make plans and this has been a major issue among Dutch Beam trawl operators, for example, with the North Sea Cod Recovery plan. Many systems of regulations indirectly create uncertainties for the fishing operations that make business planning more diffi-

cult. This often has more to do with how the regulation is administered than the regulation itself. An example from Denmark's implementation of the cod recovery plan were regulations that named specific ports for cod landings, affecting where fishers could land their catch – increasing distance (therefore, costs) and risks (safety). Management measure and regulations also “impose *direct costs* on fishing operations by requiring them to buy something or to pay someone to do something. These impacts on operations, in turn, create impacts in the broader community. Impacts on employment and overall wealth are very important, as are changes in a community's identity as a fishing community, and its perspective on the future of fishing-related activities. Social relationships such as the role of kinship and the aggressiveness of competition also affect the quality of life of members of the community.” (Wilson et al. 1998).

The degree and consequence of any impact is also a function of the characteristics of the fishing community. The critical point is the vulnerability of the community to negative repercussions of the management action and the resilience the community has in being able to absorb these repercussions.

Previous studies have documented the significance of vulnerability on fishing communities. The first aspect of vulnerability is the existence of *alternative activities* both within and outside of fishing. The more alternatives available to someone who must change their behavior because of a regulation, the better that person is able to deal with the change. The second aspect of vulnerability is the *economic vulnerability* of the fishing industry. This is the amount and sources of pressure and competition those in fishing related businesses face in getting the things they need to run their operations and in selling their products. The more vulnerable the fish-related operation is, the greater the impact of a regulation on the lives of the people related to that operation” (Wilson et al. 1998).

The key to resilience is *community support*. Communities differ in the degree to which social capital, i.e., networks of people able to lend aid, is available to people and fishing operations affected by regulations. The more community support, the better the communities can absorb the impact of the regulation and allow fishing activities to survive long enough to enjoy the benefits of the conservation efforts. This is also dependent upon the support community members have from their local municipal, regional, and national governments, through, for example, structural funds. (Delaney et al. 2006; Wilson et al. 1998).

This understanding of the vulnerability within fishing communities is not new and had been explored qualitatively in the Mid-Atlantic (McCay and Cieri 2000) and Northeast (Hall-Arber et al. 2001) regions of the United States. “A loss of fishing infrastructure and the increasing “gentrification” within coastal communities of both areas was making it difficult for commercial fishers to remain in their traditional place as waterfront property values increased. This has been recognized as a problem along the entire U.S. coast (Gale 1991), making these communities highly susceptible to adverse impacts from fishery management regulation” (Jepson and Jacob 2007).

5.2 Adaptability and Vulnerability in the Baltic Sea context

Four fishing communities which have fishers/shore side sectors participating in small-scale Baltic cod fisheries were profiled in October and November of 2007: Simsrishamn (Sweden); Kuźnica (Poland); Freest and Heiligenhafen (Germany); and Bornholm (Denmark). There are a number of similarities in terms of adaptability and vulnerability, community support and

alternative activities among these communities. The main issues uncovered surround the topics of:

- low profitability,
- lack of employment diversification, including other fisheries as well as outside employment,
- low recruitment (of fishers- tied intricately with the current management system),
- inability of fisheries-related businesses to plan for the future.

Most of these communities, and/or the small scale fishers, are highly dependent on the cod fishery, especially in Kuźnica (PL) where cod is the only stock which provides them with a profitable fishery. Other segments of the sector are also dependent, however as diversification is extremely low. Also, there is a strong ethnic identity and cultural preference for fishing in the majority of these communities; Kuźnica with its Kashubian ethnic minority is a prime example of this fact. These types of communities can often face greater negative impacts and social stress in the cases of downturns and forced closures.

Flexibility of Fisheries Operations

- In Sweden, it is not economical for small scale boats to diversify to the main other species, herring. Additionally, new entrants into the eel fishery are now banned so small scale cod fishers can not move here.
- In Poland, taking into account fishing seasons and composition of catches, there is a little possibility for the fishermen to replace cod with other species. They are limited by the area where vessels may operate, technical constraints of the vessels, fishing gears used as well as availability of substitute to cod species and economy of catches. The harvest of other species could not realistically provide an economic substitute to a reduction of cod catch. Especially since these fishers will also be affected by the drift net prohibition which comes into effect the 1 January 2008 as well as will be limited in their flatfish catch from the same point in time.
- In Germany, the small scale fishers tend to practice a seasonal-based multiple gear harvesting. They delay using their cod quota until the end of the year when there is a cultural preference for the type of meat; this means they risk being unable to fulfill their quota however.
- In Denmark (Bornholm), the fisheries sector of Bornholm has traditionally been dependent on a relatively limited number of species, namely cod, herring, sprat and salmon. Cod is by far the most important of these and the development of the sector is therefore particularly sensitive to the development of the catch and landings of cod. In addition, the operating profits of fisheries businesses have been declining, with the solvency ration now below 30%.

Economic Vulnerability

- In Sweden, Cod fishers have meager incomes; herring vessels make good profits (only 4 boats x 4 crew); Low income limits their ability to access credit; banks don't provide credit for the investment in invisibles (e.g. kW and GT); those with no mortgage are doing well; if have a mortgage, they are struggling—small scale fleet outdated—modern boats sold off to pay debts and then continue in older, and smaller boats.; many Swedes boycott Baltic cod due to calls by environmental groups

- In Poland, the small scale fishers rely on cod catches for more than 50% of their landings and income, given that they can not easily replace cod, they are particularly vulnerable to a closure. In addition, the fleet is older than average and is not as well equipped give the expense of outfitting boats with expensive equipment and new motors; they have limited ability to finance these purchases.
- In Germany, the fishing population is aging and averages in the 50s. Also, the passive gear sector has no lobby, and difficulty in planning for business investments given the changing nature of fisheries regulations.
- In Denmark, Bornholm is a peripheral island which is particularly dependent on fisheries and tourism. Employment and income rates are consistently lower than the rest of the nation of Denmark.

Alternative Activities

- In Sweden, few fishers participated in alternative activities outside of fishing; also women do not work in the home on the business (e.g., bookkeeping) as in the past, which in some part means their outside income provides some financial stability; yet on the other hand, many fishers are divorced. Fishers rely on Swedish unemployment benefits- but this does not help their fishing firms. Support for temporary cessation available through FIGG; tourism is growing- but must go hand-in-hand with fishing as much of the lure of the area to tourists is the fishing culture.
- In Poland (Kuznica), tourism is an important supplement to their household economy; this can not replace their fishing income, however. Alternative employment opportunities are severely limited and many are forced to emigrate either to larger cities (e.g., Gdynia) or outside of Poland (e.g., Peterhead, Scotland or Urk, the Netherlands)
- In Germany, one community relies on tourism in addition to the fisheries; the other is primarily fishing, with some fishers moving to Denmark in the (cod) off-season to fish. The individuals surveyed all rely solely on the fisheries for their income.
- In Denmark, Bornholm is a peripheral island facing depopulation which is particularly dependent on fisheries and tourism. Employment and income rates are consistently and significantly lower than the rest of the nation. Increased tourism, specialized agriculture, and possibly aquaculture have potential, but will not be easy solutions to a closure of the cod fishery. The processing industry had been important, but the most important part of the sector has moved offshore (to Poland).

Community Support

- In Sweden, there is public support is available for closures and fishers can receive unemployment compensation, though nothing is available for capital investments.
 - In Poland (Kuznica), the community under discussion is particularly close-knit. Traditionally kin are hired as crew, and though this is changing, community members still rely on kinship networks for support in times of need. Those without kin tend to access Polish Social Services; none from fisheries families accessed the service in 2006.
 - This data was not available for Germany.
 - In Denmark, there are social services and re-training opportunities available, though alternative employment possibilities are extremely limited on Bornholm. The new EFF could provide opportunities to expand and build new markets, such as was seen with the PESCA program.
-

In some communities, there are also some key vulnerability issues:

- fears of reduced support services in the ports (DK),
- changes in the quota structure driving people out (DK),
- some MS fishers face stricter enforcement than their counterparts in other MS,
- some small segments (e.g., passive gear) have no lobby with management,
- extreme reliance on one main stock (cod) for income (PL).

5.3 Adaptations and Adjustments to Crisis

- EFF funds could be helpful for providing re-training, and investments in new markets and products. Though could be used for de-commissioning- it has been seen in some communities (e.g. PL) even with high scrap prices they won't take part in the program given their historical preference for fishing (multiple generations)
- Larger vessels should bear larger burden of quota cuts
- In Germany, small vessels are not valued: e.g., small vessels provide an income for an entire family, while much larger vessels can only provide an income for 2 or 3 families (though they have more crew).
- Many fishers actually endorse the management regulations and believe enforcement should be stronger in other parts of the Baltic.
- In Poland, little is little trust in the management (e.g., drift net ban to protect cetaceans, which don't even occur in their area).
- Many also believed that small scale fisheries (which are more environmentally sustainable) should be treated differently; they should share a smaller share of the burden of decrease in quota shares.

Discussion

To ensure the survival of cod fishery in the Baltic, it is of course imperative that the cod management plan succeeds in improving the stock situation. Most fishers surrounding the Baltic recognise this, but they believe the main problem to be illegal and unreported catches. The sanctions associated with unreported fishing are not a sufficient enough deterrent, and a system where licenses can be revoked needs to be designed, without compromising the principles of equal treatment before the law. If this problem was dealt with in all countries around the Baltic Sea, fishers believe cod stocks would recover. The advice from ICES would change accordingly, and there would be a positive effect on consumer demand - for example, given the image problems of the Swedish fishery sector, positive developments for the Baltic cod and a decrease in unreported catches would probably have positive effects not only through an increase in the recorded landings but it would also facilitate recruitment into a profession that is no longer viewed as honourable by the public.

If cod stocks are to recover, fishing effort must decrease sharply over a period of time – the question then becomes *who* will suffer most immediately from this. Cod is an important species not just for the small-scale fishermen but also larger trawlers; in Sweden, for example west coast trawlers land 50 % of the Baltic cod TAC. The Swedish Board of Fisheries has calculated that to ensure some profitability for fishermen using passive gear, given the present

state of the resource, 50 % of the capacity among bottom-trawling vessels needs to be scrapped. The political priority is the small-scale fishery with passive gears. Therefore the Swedish government has proposed to target the trawlers for permanent cessation support, although they are more profitable. Scrapping premiums for larger vessels could work as an implicit support for renewal of the fleet, *if they are not tied to the fishermen discontinuing their enterprise.*

To ensure that the small-scale fishermen are not completely abandoned and thus unable to build a profitable operation even if they are given preferential access to the resource, changes in the regulations need to be taken. ***Today's system with closed periods creates enormous problems for smaller vessels that are more dependent on weather condition- this was seen in all four MS.*** To facilitate for these fishermen, more flexible effort-regulation is needed – that is the opinion of several respondents. If the small-scale vessels had a number of days-at-sea that they could use freely throughout the year, times of bad weather could be compensated for, and the fishermen could more easily plan their operations. The cod management plan to be implemented in 2008 is in this sense a step in the right direction, as it allows for more flexibility. Regulators should in the long run strive to replace the TAC system with a pure effort regime, with allocation of kWdays to each member state. This could be combined with the creation of marine protected areas (MPAs) in important breeding areas (which most fishers supported).

Another possibility of favouring small-scale vessels is to reserve a part of the TAC, or the opportunity to fish in certain areas, exclusively for them. A further development of such a system could be a system of individual quotas, which could also be favourable to the small-scale fleet as it would decrease competition between vessels.

Today, fishermen report they have not just the natural variability of the climate to adapt to. They must also comply with management and control systems that seem to change continuously. The high-level political negotiations result in complex compromises that are perceived by the fishermen merely as attempts to make their life more difficult. As the fishermen are far away from the decisions that govern their operations, they come into conflict with authorities enforcing these rules. As a consequence the fishermen and their organisation, the SFR, feel unfairly treated and even slandered by the SBF. That some of the main stakeholders feel entirely left out of the political process that sets the conditions for their activities is a serious democratic problem. The RAC for the Baltic Sea is a new construction and has so far made little, if any mark on most of the local fishermen. Further initiatives aiming at creating a constructive dialogue between scientists and fishery representatives could possibly have long-term positive effects on the situation. In addition, in Denmark, the introduction of vessel quota shares has meant the consolidation of quota into larger boats with the small scale fleet being the losers.

Politicians could choose to favour small-scale fisheries through some of the measures outlined above. It is however important to note that these efforts need to be combined with *long-term policy commitments* and *simplified rules*. Such a shift could in itself have a positive effect, as fishermen could then make their economic decisions on improved information. Clear rules of the game might induce a few fishermen to see investment opportunities – not in fishing capacity but in refinement and development of niche products. Others will see that the best option is to leave, perhaps with some form of compensation.

In Sweden, Poland, and Germany, local officials seem committed to keeping small-scale fisheries alive, and in many ways the future of these communities are tied closely to the cod fishery. Tourism may be a business for the future (e.g., Simrishamn), and is certainly currently vital for Kuźnica given the lack of alternative employment opportunities. Bornholm (DK), in contrast is seeing the consolidation of quotas into larger boats with fishers pessimistic about the future of fishing on the island.

Even if a local community and MS take a strong position in favour of maintaining a sustainable small-scale fishery, the necessary reforms need to come at the international level. In order for investments to take place and young persons to enter the fishery, this segment must have a predictable regulatory framework to enable them to plan for the future, and they may also require preferential treatment in recognition of their weaker position *vis-à-vis* larger vessels. But in order for investments to be sustainable, the cod stocks must recover by means of better-targeted control measures and use of efficient management tools.

6 Establishing the means for an SIA methodology framework for the Baltic Sea

As the case studies have shown (Section 5; appendices I-IV), there are significant differences within, and among, the Baltic Sea Member State fishing communities. Nevertheless, a methodological framework for the region has great potential. The main difficulties come as no surprise as they are the same as all other aspects of fisheries management in the European Union: data availability and resources for obtaining the needed data. Social and cultural data on fishing communities is extremely limited in all areas. The human and financial resources to gather these data are also limited.

6.1 Data availability

Social and cultural information of fishing communities is not readily available. That which is available, often centers on socioeconomic data. Socioeconomic information is vital—especially given its significance to livelihoods—yet provides only one view on communities. A holistic view on the people and society is key for having a realistic understanding of how communities react to changes in the not only the industry, but also in the greater society.

Consequently, an appropriate SIA framework will include steps to rectify the limited availability of socio-cultural data on Baltic fisheries communities.

6.2 Resource Needs

Resource Needs

The number of social scientists working in fisheries management and fishing communities is growing; there is increasingly a greater number of students in environmental and fisheries science involved in multi-disciplinary training. Nevertheless, it is important for social impact assessments and especially community profiles to be conducted by social scientists who are well versed in social science research methods.

Social science research methods include qualitative and quantitative methods. Qualitative data, for example, is often used to write more suitable surveys which in turn provides, more accurate results; it is also valuable data in-and-of-itself, describing community and social attributes which are not easily quantifiable. Qualitative data, however, are time consuming to gather and laborious to analyze. Consequently, appropriate economic resources are necessary

for gathering and analyzing such data. The Baltic community studies found in this document were conducted on what was really an overly limited budget; time in the communities, was limited.

It would also benefit the studies, as well as future work, if there was a feedback mechanism with local stakeholders. There are even some instances (e.g. the NOAA Fisheries FEK (fisheries ecological knowledge project) which includes schools and fishermen in research, having them take an active role in documenting aspects of their community.

A realistic rapid-assessment SIA methodology would involve a minimum number of days in each community for background research, fieldwork, and data analysis. Conducting, analyzing, and transcribing qualitative interviews are time intensive. Greater in-depth studies would be desirable; graduate student research in one way to have this completed.

Once community profiles are available, updates can be completed in a much more economically efficient manner and on a regular basis; e.g., every 5 years, or whenever a new regulation is proposed.

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Appendix 1: Swedish SIA



Community profile Simrishamn

Sub-contracted study within the project

Profiling of small-scale fishing communities in the Baltic Sea

Delivered to:

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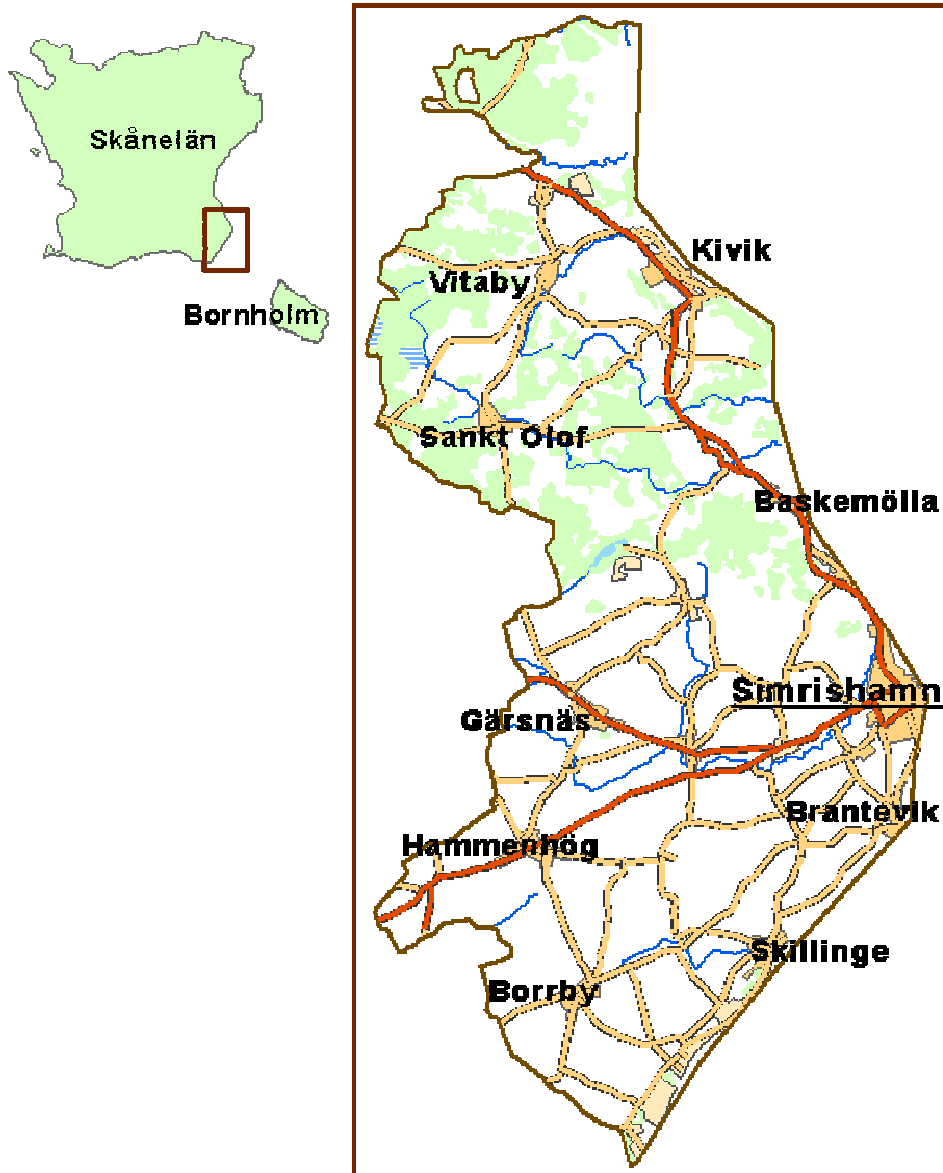
Author: Tore Gustavsson

Community Profile Simrishamn

1. Introduction

The municipality of Simrishamn (NUTS 5 region) is situated in the county of Skåne (NUTS 3 region), on the southern coastline of Sweden. This part of the region is referred to as *Österlen*, a haven for many artists, and for wealthy city people who buy summer houses along the coastline for sometimes exorbitant prices. Simrishamn is the only town in the *Österlen* area, and is a municipality with a high level of focus on marine issues. There are for instance plans to create a centre for marine biology, “promoting the sustainability of the Baltic Sea”, in Simrishamn.

Map of Simrishamn municipality



1.1 Population and employment¹¹

Simrishamn is a small town: the municipality had a population of just below 20,000 in 2006. The age structure of the population is highly uneven, with elders being overrepresented. The pattern is the same for the Swedish population as a whole, but Simrishamn differs from the national average.

Population Simrishamn 2006

Men	Women	Total
9474	9944	19418

Age groups as percentage of total population, Simrishamn and Sweden, 2006

Age	Simrishamn	Sweden
0–6	6 %	8 %
7–15	10 %	11 %
16–19	6 %	5 %
20–24	4 %	6 %
25–44	19 %	27 %
45–64	30 %	26 %
65–79	18 %	12 %
80–	8 %	5 %

As can be expected with an age structure such as this one, Simrishamn's mortality rate is higher than its birth rate. The population trend is however not negative but stable, due to an immigration surplus. There are indications, however, that many immigrants are also elderly, choosing to settle in Österlen in preparation for, or following retirement. Although the tax base of the municipality is not directly undermined by a decrease in population, the age structure puts a burden on municipal services, illustrated by the fact that the spending per inhabitant on care for the elderly was around SEK 16,500 in Simrishamn in 2005. The average public spending in Sweden on these services was around SEK 14 000 in 2005. It can be noted that Simrishamn has a rather low percentage of foreign-born inhabitants.

Nativity/mortality 2006

	Men	Women
Born	66	81
Deceased	153	132

Migration 2006

	Men	Women
Internal immigration	403	430
Immigration	66	74
Internal emigration	384	427
Emigration	19	17
Net migration	66	60

¹¹ The data are taken from SCB (2007)

Foreign born as % of total population, 2006

	Men	Women	Total
Simrishamn	7	8	7
Sweden	12	13	13

Population aged 20-64 by education level, 2006

Education level	Men (% of total)	Women (% of total)	Total
Primary	25	15	20
Secondary	51	50	50
Tertiary	23	33	28
No information	1	1	1

Employed by age group 2005

	Men (% of total)	Women (% of total)	Total
20–24 years	59	53	56
25–44	84	77	81
45–64	77	73	75
20–64	78	73	76

Number of employment seekers, Simrishamn

	Men	Women	Total
March 2006	375	250	625
March 2007	286	241	527
Change	-89	-9	-98

Personal Incomes 2005, SEK

	Men	Women	Total
Average income	225 000	165 000	194 000
Median income	211 000	154 000	180 000

The employment trend in Simrishamn is positive, as it has been also in Sweden for the past couple of years. The general employment pattern also seems to follow that of Sweden as a whole. We can see a high degree of employment among women, and a comparatively low degree of employment among under-25-year-olds. It should be kept in mind that this latter group is only 4 % of the total population in Simrishamn. The personal incomes are below both the Swedish and the Skåne averages, but in one aspect follow the general pattern in Sweden with little difference between average and median income.

1.2. History and culture of Simrishamn

Simrishamn started out as a small fishing town in the 13th century A.D. Fishing along the Skåne coastline was first recorded by Hanseatic fishermen from Lübeck, who fished for herring off the coast between Simrishamn and Kivik. Fishing declined in importance in the 18th century to rise again during the 1800s. Fishers then caught herring, cod, salmon and flatfish along the Skåne and Bornholm coasts. Another important species was eel; a fishery described by Linnaeus during his travels in the region. Simrishamn's importance as a trading harbour increased during the recession periods of the fisheries, and in the 19th century the town had the largest Swedish sailing fleet (Persson 1986; simrishamn.se).

Simrishamn is still known as the “herring town”, although the municipality coat of arms depicts a cod. One day per year is dedicated to culinary and fishery-related events around this species: the “herring day”. When entering Simrishamn by car, a monument depicting flags for marking fishing gear with the letters “SIN” – the code for vessels registered in Simrishamn – stands in the middle of one roundabout. On the shoreline outside the popular Hotel Svea, fishing nets are on display for the tourists, and the paving on the town streets here and there recreates the image of different fish species in mosaic.

1.3. Fishing communities in Sweden

The main body of material about fishing communities and economic dependency in Sweden has been produced by the Swedish Board of Fisheries (SBF, see further below). Examples are SBF (1999; 2001a; 2007), analysing the local and regional economies of fishing communities. SBF (2001b), Bruckmeier (1999) discuss general conditions for coastal fisheries, where conflicts with predators (seals) play an increasing role. Studies with a historical and/or ethnographic perspective are Hazlehurst (1994), Ljunggren (1993), and for Simrishamn Persson (1986) and Eiman (2001). The degree of analysis differs in these latter studies, which are not strictly academic. Bunte (1977), however, provides a good statistical foundation for discussions on fishing communities in the south of Sweden, and their historical development.

In latter years, the discussion on fishing communities in Sweden has focused on the co-management initiatives (see further below), where for example Píriz (2004) and SBF (2005; 2006) should be consulted.

2. Methods/quality of statistical data

The municipality of Simrishamn was selected for this study based on its centrality as a port for the Swedish Baltic Sea fleet. Within the Simrishamn municipality there are seven fishing harbours: Baskemölla, Brantevik, Kivik, Simrishamn, Skillinge, Vik and Vitemölla. We have chosen to work with the municipality as our primary unit of analysis because although there is a pattern of centralisation of fishery related activity to the Simrishamn harbour, there is a degree of interdependence between the harbours that make them difficult to analyse in isolation from one another. This is no doubt in part due to the fact that the maintenance of these harbours falls within the responsibility of the same municipal administration. It is common in Sweden that the local municipality owns the harbours. Sweden has a high degree of municipal autonomy, with questions of e.g. infrastructure, schools and social support falling within the authority of the elected members of the municipal assembly. This means that the smaller harbours within Simrishamn have seen a different development than for instance Åhus, which is a little further north up the coastline from Kivik, but in a different municipality. In terms of the NUTS-area classification system, the municipality of Simrishamn is NUTS 5.

During our stay in Simrishamn in November 2007, we interviewed 11 people, including fishermen, municipal and county officials, and people within the processing and shipyard industries. Most of the interviews were 60–90 minutes in length and were recorded on tape. We used a snowball-sampling method and for some interviews convenient sampling, that is talking to people that we met when visiting the smaller harbours. The respondents all spoke freely about every issue, and did not need to do much probing. Indeed, for our pre-scheduled interviews, we were sometimes late because our respondents wanted to continue discussing with us. We visited four of the Simrishamn harbours: Simrishamn, Brantevik, Skillinge, and Baskemölla, for observation and to meet residents.

Statistics Sweden has good data sets on the population and labour market of Simrishamn, but statistics relating to enterprises is not systematically compiled with such a degree of dissolution, because the small number of firms in the sector make individual enterprises too easy to identify from aggregated data. An important source for economic statistics concerning fisheries in this study is therefore a study by Ekstrand (2007) on the economic importance of the fishery sector in Simrishamn. The calculations of value added and employment in the sector are taken from that study, which based its calculations on interviews and a review of annual reports of the listed limited companies in the sector. For the fishing vessels, Ekstrand had access to data from the SBF (Swedish Board of Fisheries) database. The value added by fisheries was calculated by applying the average added value for Swedish fisheries, which is 55 % of total turnover in the companies. The value added for the processing industries and subcontractors has been calculated using the annual reports, and were checked during interviews with the owners. However, the reported added value of the processing sector in Simrishamn may be slightly overestimated, if we compare it with the value given by Statistics Sweden for the year before, 2005. Unfortunately, official statistics does not give a high enough degree of dissolution that enabled us to investigate the figures for Simrishamn, but only those of Skåne county.

The value added by the fisheries and onshore sectors in Simrishamn must be viewed as a rough estimate. Employment figures are also estimates, especially for subcontractors, since these take on a lot of other contracts not related to fisheries. We can expect that the employment figures lie within an interval of minus or plus 8–10 people as compared to the numbers given. Discussing the Ekstrand report with officials who have a high degree of knowledge about the industry, no significant objections to it were mentioned. The report's overall description of economic importance of the fisheries sector in Simrishamn seems correct, and is supported by our own work.

The county of Skåne has a tradition of collecting information on the number of fishermen in different localities since back in the middle of the 19th century. Data were collected through surveys in fishing ports, by officials with good knowledge of local conditions. They are separated from census data, where fishing is probably underreported since it was not a high-status profession. From 1970 onwards, statistics were gathered in a more formalised manner by the National Central Bureau of Statistics (SCB) through fishery censuses every three years. Today fishermen must have a license and are thus registered in the database of the Swedish Board of Fisheries (SBF).

Catch data for this study have been taken from the SBF database and is based on reported catches by the vessels.

This report has, with the aid of the interview material, been able to delve deeper into issues highlighted by the statistics, and we have the good quality of existing data to thank for that.

3. Swedish fisheries management¹²

During and after the First World War, fish was regarded as a strategic resource. During the economic depression during the 1930s the government recommended the creation of regional

¹² This discussion is based on Píriz (2004) and input from current SBF officials.

associations of fishermen for the marketing of fish. This was intended to moderate market competition and keep prices stable.

The National Federation of Swedish Fishermen (SFR) was created in 1949, building upon the earlier five regional fishermen's associations. The Royal or National Board of Fisheries (NBF) was created in 1948 and is the governmental agency for fishery policy and implementation of the political decisions. The Board was later renamed the Swedish Board of Fisheries (SBF). Both SFR and SBF are seated in Gothenburg on the Swedish west coast.

The SBF is governed by an Executive Board which is chaired by the Director General. The members of the Board are nominated by the government. Within the Swedish system of government, ministries are rather small units focusing on policy making, whereas the public administration authorities, such as the SBF, implement, survey, investigate and give advice on policy issues as well. The staff of the SBF is composed mainly of scientists as the SBF is also responsible for collecting and analysing data which are used for quota management and stock assessments. It also has a large R&D department which for instance produce the stock assessments and examines the selectivity of fishing gears.

The SFR became an increasingly important organisation during the sixties and seventies. During this period, the fishermen's unemployment fund was created. Through this fund, fishermen can enjoy unemployment benefits during bad weather and also during times of fishing stops due to management decisions, for example when the TAC for a species has been reached.

In the late 1970s, a voluntary licensing system for professional fishermen was introduced. A licence was mandatory for receiving government development grants and price supplements. Around the same time, in 1977, a regional organisation was created for the SBF. Each county was to have at least one fishery officer who dealt mainly with inland and coastal fisheries. The rules implemented at the local level by the county fishery councils were sometimes conflicting, however, and not always built on scientific assessments. In the late 1980s, regulatory fishery management powers therefore became centralised to the SBF.

The next major change in fisheries regulation came in 1995, when Sweden joined the European Union (EU). However the central SBF role of implementing the policy decisions was not altered but most of the management decisions are now taken by the EU. A new Fisheries Law, including the introduction of a mandatory licensing system, was approved in 1993, and in 1991 the composition of the SBF Executive Board had been changed, taking in for example the Environmental Protection Agency and expelling members with interests in the industry. Although there is no stipulation on how and when fishermen should be consulted on management issues, the SFR has the possibility to enforce restrictions in rations etc. upon their members. Thereby, the fishermen's organisation plays a part in fisheries management, although this is formally the responsibility of the Ministry of Agriculture, under which the SBF is the public implementation administration.

In 2004, the Swedish Government asked the SBF to investigate the possibility of developing a local and regional co-management of fisheries. This was done through the creation of five pilot areas. The projects were funded through the Fund for Fisheries Guidance (FIFG), and the results are currently under review and evaluation in order to shape the future pattern. Simrishamn was not included in any of these areas, however.

Since joining the EU, fisheries in Sweden are almost entirely regulated through TACs and technical regulations. About 95 % of the landed value comes from species subject to TACs. The species which bring the highest value are cod, herring, sprat, Norwegian lobster and North Sea prawn.

4. Ports and infrastructure in Simrishamn

A hundred years ago, Vitemölla was by far the most important harbour in the Simrishamn area (Bunte 1977). Today there is little activity there. The Simrishamn municipality seems committed to keep some activities in the small harbours, although there is a definite tendency towards centralisation to Simrishamn. In Skillinge, the municipality has a small slip for the maintenance of vessels. In addition it has invested in a new electric system in Skillinge and a few of the other small harbours. For investments in the harbours and other fisheries-specific investments, the municipality has been granted funds from the FIFG: around SEK 7 600 000 during the programming period 2000–2006. The FIFG funds represent 50 % of the total investments made.

When visiting the smaller harbours in November 2007, you have the impression that their significance for the fisheries is small. People within the fishery do not entirely support this view, however. Although they recognise that there has been a centralisation towards Simrishamn, many think that at least some of the smaller harbours will survive. Just before the turn of the century, the processing industry removed operations from Skillinge, forcing herring fishers who were previously based there to land everything in Simrishamn. However, the cod processor in Simrishamn makes pick-ups in all ports all the way from Trelleborg, and it keeps ice boxes in some of the smaller harbours.

There is of course some rivalry between fishermen from the different harbours, but it is mainly good-natured. Nearly all of the fishermen are organised in the local branch of the SFR. Whereas in some counties there are many branches and disagreements between the fishermen, this does not seem to be the case in Simrishamn. At the same time, there is a local identity for fishermen and also from other people in the different harbours:

“They want their boat to lie in the harbour where they live, as they want to be able to go check on it at all times” (Interview #11).

5. Development of fisheries in Simrishamn

Although the definition of a fisherman may differ slightly over time and between sources (see section on statistics above), it seems clear that there have been obvious trends within the fisheries. Statistics show that the number of fishermen in Simrishamn has fluctuated quite a lot over the years. It is equally clear that the number of fishermen today is at something of a all-time low.

Number of fishermen, Simrishamn

1886	383
1896	250
1916	200
1936	155
1956	323
1973	161
1985	205
2005	80

Source: Bunte 1977; Persson 1986; SCB 1974; SBF database

A milestone in the Simrishamn fishery was the arrival of engine-powered vessels at the turn of the last century. This influenced the work environment because the vessels could now be equipped with a shelter. During the 1920s different kinds of trawling gears came into use, initially to catch flatfish. Cod fishing increased in the 1930s, and also during World War II larger vessels from the West Coast became stationed in Simrishamn. They primarily trawled for herring and were equipped with more powerful engines than the local vessels. The new vessels in Simrishamn became bigger after the war, and they were often built or bought from the West Coast. Modern equipment like the radar came into use, greatly facilitating the work. During the 70s and 80s cod fishing increased again, as there was a peak in the cod recruitment. Herring declined in importance towards the end of this period, as the North Sea herring started to make a return after its earlier collapse. (Persson 1986; Eiman 2001)

The general Swedish trend in later years is a decrease in the number of vessels as well as that of fishermen. The number of fishermen under the age of fifty has also steadily decreased, and the negative trend is most obvious along the Baltic coast. These developments can be clearly seen also in Simrishamn, where the number of registered vessels is down to 62 in 2007, whereas in the year 2000 there were 77 (SBF database).

5.1. The small-scale cod fishery

The structure of the Swedish fleet is such that vessels from the West Coast fish in all areas open to Swedish vessels, whereas vessels with home ports in the Baltic Sea fish only in the Baltic. However this structure is not a legal construction but due to historical and local traditions. Around 50 % of Swedish cod catches in the Baltic are taken by vessels from the Baltic coastline. A majority of these vessels have their home port in Skåne (NUTS 3) or Blekinge (NUTS 3), which is situated just northeast of Skåne.

Simrishamn saw 24 % of the total Swedish cod landings in 2006. The location of Simrishamn northwest of Bornholm means that cod landings are dependent on both the Eastern and the Western Baltic cod. The great majority of catches landed in Simrishamn are from ICES subdivisions 24 (managed as the Western stock) and 25 (Eastern stock).

The vast majority of Simrishamn fishermen are what can be referred to as coastal fishers, fishing with rather small vessels in the surrounding area. For the purpose of this study, we use a vessel length of 15 metres to delimit the “small-scale” fisheries. Although a segmentation of 12 metres length and the exclusive use of passive gear is sometimes used, but we have chosen 15 metres partly to facilitate comparison with the other countries in this study. Furthermore, vessels shorter than 15 metres using trawling gear have many features in common with the under-12 metre ones using passive gear, most notably a difficulty of going out in bad weather conditions. There were forty vessels under 15 m from Simrishamn that reported catches of cod in 2006, and their landings amounted to 57,5 % of total cod landings by Simrishamn vessels.

5.2. Economy of the fishermen

Landings by SIN-vessels, weight in kg **2006**

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	9 839 809	751 100	10 590 909
Cod	1 683 109	218 568	1 901 677
Sprat	2 118 640	52 230	2 170 870
Salmon	3 000	55 512	58 512
Eel	31 270	48	31 318
Others	146 703	40 673	187 376
Total	13 822 531	1 118 131	14 940 662

2005

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	8 443 099	484 450	8 927 549
Cod	1 463 568	181 817	1 645 385
Sprat	3 025 777	17 100	3 042 877
Salmon	14 308	56 189	70 497
Eel	23 927	6 920	30 847
Others	131 580	15 160	146 740
Total	13 102 259	761 636	13 863 895

2004

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	6 850 261	900 030	7 750 291
Cod	1 975 053	224 797	2 199 850
Sprat	3 856 400	348 350	4 204 750
Salmon	30 413	86 490	116 903
Eel	15 322	-	15 322
Others	64 039	14 966	79 005
Total	12 791 488	1 574 633	14 366 121

2003

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	6 079 365	91 190	6 170 555
Cod	1 706 082	212 203	1 918 285
Sprat	5 057 230	29 600	5 086 830
Salmon	4 073	14 338	18 411
Eel	18 959	-	18 959
Others	66 333	4 653	70 986
Total	12 932 042	351 984	13 284 026

2002

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	8 131 971	108 931	8 240 902
Cod	1 932 475	94 130	2 026 605
Sprat	3 243 200	-	3 243 200
Salmon	4 184	9 270	13 454
Eel	12 980	-	12 980
Others	52 618	7 737	60 355
Total	13 377 428	220 068	13 597 496

2001

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	7 973 296	2 407 090	10 380 386
Cod	2 051 399	184 153	2 235 552
Sprat	1 203 206	2 124 020	3 327 226
Salmon	768	10 123	10 891
Eel	19 583	4 528	24 111
Others	68 651	13 121	81 772
Total	11 316 903	4 743 035	16 059 938

2000

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	5 348 664	3 436 699	8 785 363
Cod	2 016 679	148 458	2 165 137
Sprat	6 411 920	4 539 790	10 951 710
Salmon	2 768	15 253	18 021
Eel	11 138	5 436	16 574
Others	46 199	22 349	68 548
Total	13 837 368	8 167 985	22 005 353

*Landings by SIN-vessels, value in SEK***2006**

	<i>Landings in Simrishamn</i>	<i>Landnings outside Simrishamn</i>	<i>Total landings</i>
Herring	25 564 211	2 141 789	27 706 000
Cod	26 095 407	5 792 629	31 888 036
Sprat	2 254 260	50 550	2 304 810
Salmon	60 806	1 145 014	1 205 820
Eel	2 450 225	3 410	2 453 635
Others	911 981	1 132 921	2 044 902
Total	57 336 890	10 266 313	67 603 203

2001

	<i>Landings in Simrishamn</i>	<i>Landings outside Simrishamn</i>	<i>Total landings</i>
Herring	17 135 204	2 533 099	19 668 303
Cod	31 394 225	2 695 366	34 089 591
Sprat	1 971 206	1 946 582	3 917 188
Salmon	20 688	279 995	300 683
Eel	1 272 287	300 828	1 573 115
Others	486 327	46 029	532 356
Total	52 279 937	7 801 899	60 081 236

Landings of both cod and herring in Simrishamn are primarily intended for human consumption. Cod is processed for the Swedish market, but also exported to Denmark and France.

It can be noted that herring has increased its importance during the current century. Although catches have varied greatly, they have not followed the same steady downward trend as cod. It is notable indeed that the value of herring catches is almost equal to that of cod catches in 2006, as the perception along the Baltic coast is a fleet heavily dependent on cod. See further the discussion on profitability below.

5.3. Fishing Organisations and Associations

As noted above, nearly all of the Simrishamn fishermen are members of SFR, which has two branches in Skåne, one of which covers Österlen. Lack of local unity can be an issue along some parts of the Swedish coastline, but the Skåne fishermen seem to have no internal problems, and the atmosphere between fishermen from different harbours in Simrishamn seems cordial enough. SFR has throughout its history been a strong and rather vocal lobbying organisation. Today the SFR is grappling with a large image problem, as it claims that fishermen are often being depicted as “cheaters” by the media and by the SBF. A significant number of consumers in Sweden heed calls by environmental organisations to boycott Baltic cod. The reason is that TACs is set higher than the ICES recommendations topped with reports of unreported catches. All this has an effect on all fishermen, and not just those fishing for cod. Small-scale coastal cod fishers and crews on large pelagic trawlers alike feel persecuted by the public and media. To counter this image is a major challenge for the SFR, something which many of the respondents agree on. Many also blame the SBF, as they feel the authority is also treating all fishermen as cheaters. The SFR bi-weekly newspaper often attacks the SBF in its editorials, illustrating the sense of public persecution among many fishermen.

One complicated issue for the Simrishamn fishermen, and for the Baltic fleet in general, is the significant presence of large west coast trawlers in the Baltic during certain seasons. As noted above, the Baltic fleet fishes exclusively in “home waters”, whereas west coast vessels collectively use all possibilities of fishing in Swedish waters. The SFR, being composed of regional branches, represents both these interests, and by some fishermen there is a feeling that the organisation supports the economically more powerful fleet on the west coast. The views are conflicting on this issue, but there seems to be a notion that a limit for entry into cod fishing in the Baltic needs to be set somehow, to preserve the Baltic fleet. There is no general animosity towards “outsiders”, it is merely a feeling that “some vessels pick the raisins from the cake”. The special permits for cod fishing in the Baltic need to be implemented more stringently, according to local fishermen. At the same time, this is not promoted by the SFR. Notwithstanding this issue, however, the Simrishamn stick to SFR, which they on the whole feel represents their interests in the best way.

There is no Producer Organisation (PO) on the South Coast but most fishermen are members of a national PO. This PO has however not been very active in later years, as there has not been any question of cod surplus, and this particular PO has chosen to work only with the issue of price guarantees.

6. The shoreside sector

The total value added by the Simrishamn vessels in 2006 was estimated by Ekstrand (2007) at SEK 37.2 million. In addition to fisheries, the community of Simrishamn has other economic interests related to the fish resources. The most obvious one is the processing industry, which is of major importance and includes three companies. In 2006, the industry employed 57 people in Simrishamn, and two of the processing companies appear on the list of the twenty largest companies in Simrishamn in terms of employment (Ekstrand 2007; simrishamn.se). The total added value of the industry in 2006 was estimated at SEK 32.2 million (Ekstrand 2007). However the added value for the processing industry in the whole of Skåne county was SEK 26.8 million in 2005, according to Statistics Sweden. This either indicates a high growth rate in Simrishamn or that the figure of 32.2 is a little high. It is to be noted that the processing industries in Simrishamn are however the most significant within the Skåne county. Only one of the businesses in Simrishamn processes cod. Herring is again becoming the more important species, because the processing industry is guaranteed a steady supply.

Employment (full-time equivalents), fishery and onshore businesses, Simrishamn, 2006

Catching sector	70
Processing	57
Goods and service delivery, SIN vessels	12
Goods and service delivery, non-SIN vessels	16
Sum total	155

Value added in fisheries and onshore sectors, 2006

Fisheries	37.2 MSEK
Processing	32.2 MSEK
Goods and service delivery SIN vessels	4.6 MSEK
Goods and service delivery, non-SIN vessels	5.3 MSEK
Sum total	79 MSEK

Simrishamn also has a number of companies delivering goods and services to fishermen, both local and non-local. Ekstrand (2007) found the number of companies in Simrishamn making

such deliveries to lie between fifteen and twenty in 2006. Ekstrand furthermore found the employment and value added within goods and service delivery to vessels from outside Simrishamn to be slightly more important than the delivery to local vessels. All in all, he estimated the total employment generated by this sector to 28 persons in 2006.

When adding together the different sectors of fisheries and fishery-related businesses, the number of employees as well as the total value added by the sector is highly significant. In terms of employment, the sector is equivalent to the third largest single company in Simrishamn, following a plastics industry and a private caregiver.

Simrishamn is also an important centre for recreational fishing – trolling for salmon. The municipality gets some direct income from fuel sales and port fees – about SEK 1 million in 2006. The trolling fishers also bring significant incomes to other businesses in Simrishamn, cautiously estimated at SEK 2 million (Ekstrand 2007). The trolling fishing is a useful business for the port administration and the local ship yard. There is no real competition over the resource, as there is now only one fishing vessel in Simrishamn fishing for salmon. In general, the trolling fishers are positively viewed by the professional fishermen, as it brings money to Simrishamn.

There are plans of creating a Leader-area in Southeast Skåne, and eight thematic groups have been formed to develop a preparatory study. The Skåne region has decided to support a number of development projects in Simrishamn. These include the previously mentioned Centre for Marine Biology, education in marine technologies, building a restoration centre, and a tourism development project.

As was noted already in the introduction, the importance of tourism in Simrishamn is growing steadily. The weather is not very comfortable all year round, however, so the tourism is seasonal. In fact, many houses are not used permanently but only during the warmer half of the year. There exists a political struggle in Simrishamn on whether to develop the tourism industry further, not least by using the seaside for residences and seasonal accommodation. For some people, this development is in conflict with the fisheries, but for most it seems that there is a degree of mutual dependence, that the continuation of fisheries in Simrishamn is equally important to other sectors. The “herring day” has already been mentioned, and throughout the summer, tourists flock around the fishing boats in Simrishamn as well as the smaller harbours along the coast. If tourism is the future business of Simrishamn, fisheries need to form part of the holiday experience. If an important employer such as the fishery sector were to disappear, it would be bad news for the community.

“If fishing disappeared in this town it would be a crisis, equivalent to the closure of the leather factory in the 50s” (interview #9)

7. Adaptability/Vulnerability and Critical Issues

7.1. Low profitability

We saw in the section on catch data that herring was almost equal to cod in economic importance in 2006. At the same time, a majority of Simrishamn vessels fish for cod, and the small-scale ones are certainly dependent on that catch. The pelagic fishery in Simrishamn is essentially comprised of only four larger vessels, and does not employ a great number of people (each vessel has a crew of four people). This points to a large difference in profitability be-

tween the segments of the fleet, where many cod fishers have meagre incomes and a few herring vessels make good profits. This is confirmed by the respondents.

In the interviews, many fishermen state difficulties in making a living of fishing these days. The low incomes also make it difficult to gain access to credit in order to invest in vessels and other equipment. Banks are also unwilling to give credit for the investment in invisibles such as capacity (GT and kW). Fishermen who have paid off their loans report that they are reasonably well off, while those who have bought new vessels find it financially difficult. The small-scale fleet is not very modern, as the fishermen have sold off their larger, more modern vessels, paid off their debts and bought a smaller vessel to continue their enterprise. By this change they can profit from low capital costs but they are not investing in the future.

“The impression is a bunch of men in their fifties just hanging on and waiting for an opportunity to get out with some cash for permanent cessation” (interview #6)

7.2. No diversification

There are very few fishermen who have other sources of work income than fishing. In a survey to around forty fishermen in Simrishamn, only one of the respondents had income from a different type of business (not fishery-related) (Hansson et al. 2007). This is supported by the interviews made in the community. The fishermen make their money of fishing alone, and supplement their income with unemployment benefits during fishing stops. The unemployment benefits are administered by the Swedish Fishermen’s Unemployment Fund, and are financed with government funding and membership fees. These payments supplement the income of the fishermen to a considerable degree, but they do not cover capital costs. Many days with fishing stops can thus have a negative effect on the companies, although the fishermen get by.

During stop periods being decided nationally there has also been a possibility to receive support for temporary cessation through the Fund for Fisheries Guidance (FIFG), to cover also the capital costs. According to the Fishermen’s Unemployment Fund, SIN-vessels have received such payments of around SEK 7.2 million for around 120 such national stop days since 2003. It is more difficult to obtain exact numbers on the size of unemployment transfers to Simrishamn fishermen, but for Skåne as a whole, the number is SEK 12.3 million for the same period. Simrishamn, as the main fishing port in Skåne, has certainly seen a large share of this sum.

During 2007, there have been nationally regulated stops for which the fishermen have not received any compensation. This is because the FIFG money has run out, and the Swedish Operational Programme for the European Fisheries Fund (EFF) has not yet been approved by the European Commission. This has been a source of distress for the fishermen, and has squeezed them further financially.

Diversification towards other target species is not really a possibility in Simrishamn. The herring fishery is profitable, but it is a completely different kind of fishery, and the small-scale vessels that fish for cod could not switch to herring with any profitability. Eel is traditionally an important species in Skåne, but because of the severe situation for this sensitive stock, the current national eel management plan has closed the fishery to new entrants, and has further banned eel fishing for many fishermen who used it to supplement their income.

7.3. Low recruitment

There was a 1–2 year fishery education in Simrishamn that started in the 80s, but it was removed in the mid-nineties, when cod stocks had begun to dwindle. The median age for the Simrishamn fishermen was 52 years in 2006, an illustrative figure as the average age in 1986 was 36 years (Persson 1986). There has thus hardly been any real recruitment during the past twenty years. The reason for this is primarily the poor profitability within the industry. This is mentioned by all the respondents. Fishing is a tough job, and there needs to be a premium for launching yourself into the profession.

The relatively low employment level among youths in Simrishamn should mean that there is a possibility of recruiting young people into fisheries. However, the low profitability means that crews are squeezed. Vessels in Simrishamn, including the larger ones, are manned by one to three crewmen, meaning that there is a difficulty in bringing persons with less experience: crewmen have to know a bit of everything, and are not really replaceable. Foreign crew members are not present in Simrishamn. There have been a few instances where this has occurred, but it is not common.

“We would like to have more people on board, but we cannot afford it” (interview #4)

Another issue brought up by fishermen as an explanation to the low recruitment is the changing family structure. Whereas previously fishermen’s wives stayed at home and were responsible for the household, this is not something that is accepted by young women in today’s more equal society. In fact, the wives of the present fishermen have other jobs and are not really involved in fishing, but a few of them handling the bookkeeping etc. However from the point of the household, the earnings of the female means a certain degree of stability. Many fishermen are also divorcees.

Most respondents however point out that if fishing was genuinely profitable, the long hours away from home would be accepted by the family: there is a trade-off. In fact, most fishermen in 2007 do not stay out on sea for a whole week as they used to, but their fishing trips last for only a day or two, and they come back “in time for dinner”. Thus, the life of a fisherman in Simrishamn today doesn’t really pose the same problems for family life as it used to. In fact, due to the fishing stops, fishermen are on shore for a large part of the year.

“The fishermen today have more spare-time than those that work on land”. (Interview #6)

There are only a few small-scale fishermen who stay out for longer periods and during bad weather, and they are the ones who have loans to pay off and who are trying to build a profitable company. It is hard to see what separates these fishermen from their peers, and from those who like them come from fishing families but who have not taken up fishing. Perhaps it is only such a thing as entrepreneurial spirit and optimism for the future, something which seems lacking amongst the general population involved in fishing at least at present:

“I tell my son to stay the hell out of fishing”. (Interview #4)

The image problem, discussed above under organisations, is another reason for keeping out of fisheries. The fishermen and even their families feel themselves to be publicly persecuted.

7.4. Current management system and effects on small-scale fishery

The respondents unanimously bring up the current management system as the main reason for the low recruitment and poor profitability for fishermen. For small-scale vessels, the system with closed fishery during fixed periods is very unfavourable. The fishermen have the feeling that as soon as the fishery is reopened, the storms set in, and they are forced to stay in port. Statistics from the SBF indicate that an increasing proportion of catches of both Eastern and Western Baltic cod have been taken by trawlers in the last few years. This seems to confirm the problems faced by coastal fishers, and have prompted the SBF to suggest fixed proportions of the TAC to different segments of the fleet in the context of the new management plan. The days-at-sea regulation in the new management plan also allows for more flexibility and could facilitate for the small-scale fishery.

This year (2007), the fishery remained closed for the Swedish cod fishermen for over a month after the summer closure. During this period the European Commission and the SBF argued on statistical evidence that pointed to unreported fishing that was to be deducted from the Swedish TAC for cod in the Baltic. The fishermen were enraged at what they saw as collective punishment and a smear campaign in the media. When the fishery finally was reopened, it was well into the autumn, which meant that the smaller boats frequently had to stay in port due to bad weather.

None of the respondents believed that there was any significant unreported fishing by Simrishamn fishermen. It is interesting to note that a few of the respondents raised the issue of a need for more severe sanctions against those who got caught. The Swedish legal system grinds too slowly, it is felt, and the financial sanctions that result are too small to be of any real discouragement. One view is that the fishing vessel license should be invoked for repeated offenders. This critique of the present sanctions actually coincides with that of the Commission, and in 2007 a report to the Swedish government recommended that the SBF be allowed to fine fishermen overstepping the line without taking them to court. It equally asked for a withdrawal of fishing licences for offenders. The report was met with some scepticism from the SFR, mainly because fishermen do not trust the SBF to act fairly towards them, a belief that was strengthened by the prolonged summer stop. The Swedish government is now examining this issue.

The main issue that fishermen and others bring up with the present management system is that it is not predictable, and the prolonged summer stop illustrates just that. With unpredictability comes an unwillingness to invest and it can probably explain the resignation many fishermen seem to feel.

“This summer we invested in some gear, but then the fishing remained closed after September 12. Next time we will not make such an investment.” (interview #4)

Until a couple of years ago there was a producer of trawl gears located in Simrishamn, but the company could not sustain. There are efforts by public officials and certain fishermen to revive such a business, but it is uncertain whether or not this will happen:

“Of course the fishermen will not invest in gears as often as before, when they do not know how much they will be allowed to fish. Also, they spend so much time on shore that they have time to repair the gear themselves”. (interview #9)

As the fishermen feel that they have no way of influencing decision-making they become increasingly frustrated, and there is a risk that all new legislation is disputed merely on these grounds. The staff working with fisheries at the county administrative board reported receiving frequent phone calls from fishermen asking about new and coming regulations – the trouble is that they themselves have little or no insight into the political negotiations that set the rules. In addition to a harder crackdown on illegal fishing, fishermen themselves are calling for an increase in the minimum landing size, but they have the impression that no one is taking of this issue.

Certainly the fishermen and other respondents recognise that the cod populations have decreased, but this year, in 2007, they have a feeling that the fishery has been very good. The view is that the Simrishamn fleet has been and is doing the necessary restructuring. Trawlers and larger vessels have given way to small-scale boats with passive gear. The fishermen from Simrishamn are viewed to have been more cautious than others during the cod boom in the 70s/80s and when things started to go down-hill, they switched to smaller vessels, and do not have large debts to repay. However, there is a feeling of injustice in the community, as they don't believe other countries – notably Poland – have gone through the necessary restructuring and do not follow the same rules as themselves. The view is that cod populations would recover if unreported and illegal fishing was dealt with. If not, the management plan will serve no real purpose.

8. Adaptations and Adjustments to Crisis

“If fisheries disappear from Simrishamn, they will disappear from the whole [Swedish] Baltic Coast” (interview # 9)

The problems facing Simrishamn, including bad profitability and low recruitment, are the same that trouble the whole Swedish fleet operating in the southern part of the Baltic. This fleet is generally small-scale and highly dependent on cod. Many respondents however indicate that Simrishamn has the possibility to counteract these problems, as in many ways they have the most advantageous position along the coast. Strategically located, Simrishamn has seven operating fishing harbours. Even though there is centralization towards the main one, the municipality is committed, be it for tourism or other concerns, to keep a number of these in operation. It seems in a way vital to the identity of many small-scale fishermen, and of course also for maintaining vibrant coastal societies.

Although fishermen in Simrishamn are hesitant to make new investments, and have doubts about the future of their operations, the same does not really apply for the onshore sector. Although these companies recognize that they are very dependent on the future of fisheries, they do not view the future in the same bleak light as the fishermen. There are worries about management measures and unreported fishing, but on the whole the onshore sector dares to make investments for the future. The actors seem to recognize the strategic location of Simrishamn, and strive to make it a hub for their operations rather than a limiting factor. The local shipyard carries out operations along a large part of the Swedish coastline, and the processing industry also makes pick-ups over a large area and/or takes deliveries from vessels with home ports other than Simrishamn.

This study is focused on the small-scale cod fishery, but it seems clear that for the moment, the economic drive in Simrishamn is (again) becoming herring. It is to be noted however that only a few fishermen find employment in the herring segment as the vessels are very few but

highly efficient. The small-scale cod fleet can hardly switch to herring with any profitability, and although the pelagic fishery can guarantee a continuation of fishing activities in Simrishamn, it will be a very different fishery. There are differences of opinion on how much more the sector focusing on herring for human consumption can be expanded, as the demand is limited.

The onshore industries will have an incentive to diversify towards serving the pelagic trawlers, and to a degree they have already done so. Although retaining services in Simrishamn is beneficial to the entire fleet, small-scale cod fishermen might find that particular types of services needed to them are lacking, as the discontinuation of the trawling gear repair shop shows.

To survive, the cod fishery needs to find better profitability. The question is whether this can be achieved without bigger catches. There are early plans of creating a fish auction in Simrishamn, for instance. The municipality supports investigating the issue, and has applied for funding from the FIGG. Such a venue might mean that the fishermen receive a better price for their landings, and could possibly draw deliveries from a larger area than Simrishamn. As we could judge, the fishermen have not really diversified or tried to refine their production to meet challenges. Instead they have reduced the capital costs, and supplement their income with unemployment benefits. Although large-scale processing of cod hardly seems a good investment opportunity, the creation of exclusive products and catering to the wealthy visitors to Österlen has been a successful concept for one Kivik company.

9. Conclusions/ Future Scenarios

Thanks to a good infrastructure, supported by the municipal administration and entrepreneurs in the onshore sector, fisheries will probably continue to be important to the Simrishamn community. For the small-scale cod fishery, however, the future is far less certain. The fishery is simply not profitable enough to encourage young people to enter at a time when employment growth in other, more comfortable professions is positive. The population data indicate that young people on the whole are also leaving Simrishamn to look for opportunities elsewhere. In a time with increasing gender equality and shared responsibilities in the home, a life spent on board a fishing vessel is not even recommended by the people who have spent their whole life fishing – they see a different future for their sons and daughters.

The profitable fishery in Simrishamn today is done by towards large pelagic trawlers, that can guarantee a steady supply. These vessels operate with few crew members and it is not likely that the segment will expand in a significant way, neither in employment nor in production. Even if market demand for herring were to increase, the existing fishery is so efficient today that it is highly unlikely that cod fishermen could successfully switch target species. The current eel management plan in Sweden has closed this fishery to many fishermen who used to supplement their income with the species, highly valued by consumers in Skåne. The cod fishery is thus by and large the only alternative to the majority of fishermen.

To ensure a survival of cod fishery in the Baltic, it is of course imperative that the cod management plan succeeds in improving the stock situation. The respondents recognise this, but they believe the main problem to be illegal and unreported catches. The sanctions associated with unreported fishing are not a sufficient enough deterrent, and a system where licenses can be revoked needs to be designed, without compromising the principles of equal treatment before the law. If this problem was dealt with in all countries around the Baltic Sea, the respon-

dents believe cod stocks would recover. The advice from ICES would change accordingly, and there would be a positive effect on consumer demand. Given the image problems of the Swedish fishery sector, positive developments for the Baltic cod and a decrease in unreported catches would probably have positive effects not only through an increase in the recorded landings but it would also facilitate recruitment into a profession that is no longer viewed as honourable by the public.

If cod stocks are to recover, fishing effort must decrease sharply over a period of time – the question then becomes who will suffer most immediately from this. Cod is an important species not just for the small-scale fishermen of Simrishamn, and already today larger trawlers from the Swedish west coast land 50 % of the Baltic cod TAC. According to EU regulations the SBF issue special permits for cod fishing in the Baltic Sea. However, these permits are primarily based on previous catch records and therefore they do not exclude the traditionally more mobile west coast fleet. The present situation has created a tough situation for local small-scale fishermen when there is overcapacity in the fleet. The SBF has calculated that to ensure some profitability for fishermen using passive gear, given the present state of the resource, 50 % of the capacity among bottom-trawling vessels needs to be scrapped. The political priority is the small-scale fishery with passive gears. Therefore the Swedish government has proposed to target the trawlers for permanent cessation support, although they are more profitable. Scrapping premiums for larger vessels could work as an implicit support for renewal of the fleet, if they are not tied to the fishermen discontinuing their enterprise.

To ensure that the small-scale fishermen are not completely abandoned and thus unable to build a profitable operation even if they are given preferential access to the resource, changes in the regulations need to be taken. Today's system with closed periods creates enormous problems for smaller vessels that are more dependent on weather conditions. To facilitate for these fishermen, more flexible effort-regulation is needed – that is the opinion of several respondents. If the small-scale vessels had a number of days-at-sea that they could use freely throughout the year, times of bad weather could be compensated for, and the fishermen could more easily plan their operations. The cod management plan to be implemented in 2008 is in this sense a step in the right direction, as it allows for more flexibility. Regulators should in the long run strive to replace the TAC system with a pure effort regime, with allocation of kWdays to each member state. This should be combined with the creation of marine protected areas (MPAs) in important breeding areas.

Another possibility of favouring small-scale vessels is to reserve a part of the TAC, or the opportunity to fish in certain areas, exclusively for them. A further development of such a system could be a system of individual quotas, which could also be favourable to the small-scale fleet as it would decrease competition between vessels. The allocation of such quotas must in that case not be based entirely on historical catches. If management rules are not designed to be favourable for the smaller vessels, larger vessels will continue to be more competitive and grab bigger pieces of the pie.

Today, the fishermen report they have not just the natural variability of the climate to adapt to. They must also comply with management and control systems that seem to change nearly as often as the direction of the wind. The high-level political negotiations result in complex compromises that are perceived by the fishermen merely as attempts to make their life more difficult. As the fishermen are far away from the decisions that govern their operations, they come into conflict with authorities enforcing these rules. As a consequence the fishermen and their organisation, the SFR, feel unfairly treated and even slandered by the SBF. That some of

the main stakeholders feel entirely left out of the political process that sets the conditions for their activities is a serious democratic problem. The RAC for the Baltic Sea is a new construction and has so far made no mark on the local fishermen. At the same time, confronting the scientists and claiming that their results are wrong is hardly a constructive tactic. Further initiatives aiming at creating a constructive dialogue between scientists and fishery representatives could possibly have long-term positive effects on the situation.

Politicians could choose to favour small-scale fisheries through some of the measures outlined above. It is however important to note that these efforts need to be combined with long-term policy commitments and simplified rules. Such a shift could in itself have a positive effect, as fishermen could then make their economic decisions on improved information. Clear rules of the game might induce a few fishermen to see investment opportunities – not in fishing capacity but in refinement and development of niche products. Others will see that the best option is to leave, perhaps with some form of compensation. If this does not happen, there is a risk that the fishery community in Simrishamn in twenty years time will consist of a few men in their seventies, “just hanging on” waiting for the right time to get out. The national system with unemployment benefits has played a part in the development, as fishermen have downgraded to smaller vessels and can now withstand prolonged stop periods. Although this does serve to maintain small-scale operations and aid fleet restructuring, it cannot ensure recruitment and investment. The rules for unemployment benefits to Swedish fishermen should be reviewed to ensure they are no disincentive to investment in product refinement and other side businesses. They also must not keep fishermen in a business that does not generate any profits – in this regard a one-off premium for permanently leaving the fishery and recalling the license seems more cost-effective than recurring payments to a large number of fishermen for the regular EU closures. Support for recruitment in the form of public funds for apprentice schemes and the like will have no real effect if the overcapacity of the fleet is not dealt with in a consistent manner.

Simrishamn seems committed to keeping fisheries alive in the municipality, and in many ways the future of the community is tied to its fishery. Tourism may be a business for the future in Simrishamn, but part of the strong appeal is the image of Simrishamn as a fishing community. As its population grows older, the challenge for the town is also not to become merely a tourist attraction that nearly grinds to a halt during certain parts of the year.

Even if the community takes a strong position in favour of maintaining a sustainable small-scale fishery, the necessary reforms need to come at the international level. In order for investments to take place and young persons to enter the fishery, this segment must have a predictable regulatory framework to enable them to plan for the future, and they may also require preferential treatment in recognition of their weaker position *vis-à-vis* larger vessels. But in order for investments to be sustainable, the cod stocks must recover by means of better-targeted control measures and use of efficient management tools.

List of specific abbreviations used

SBF – Swedish Board of Fisheries

SFR – National Federation of Swedish Fishermen (*Sveriges Fiskares Riksförbund*)

SIN-vessels – vessels registered in Simrishamn

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Appendix 2: Polish SIA



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Community profile Kuźnica (POLAND)

Sub-contracted study within the project

Profiling of small-scale fishing communities in the Baltic Sea



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1. Overview of community

History

This study was conducted in the fishing community of Kuźnica. Kuźnica is a small village in which fishing has played a leading role since its inception and which continues to play a significant role in the socioeconomic life of its inhabitants. The village was founded in the sixteenth century when in the location of today's peninsula—at that time there were five to six small, very narrow islands comprised of sand transported to the site by tides and sea waves. In 1570, Kuźnica was inhabited by one family (1), and by 1772 the village was home to 25 fishers, sixteen of them bore the surname Budzisz (2). Since the inception of the village of Kuźnica in the sixteenth century, fisheries have continued to play a substantial role in the organization of the community life of its residents. Fisheries also have a substantial impact on the economics of most of the local households. There is likely no other locality in Poland in which fisheries plays a greater role in the standard of living and life style of its inhabitants

Demographics

In 1920 *Kuźnica* had 451 inhabitants, which made it the largest settlement on the peninsula at that time (3). In recent years the village's population was 621 residents in 2003, 625 in 2004, 633 in 2005 (4). There are no detailed statistics available about the structure of population inhabited *Kuźnica*. In the table below there are presented data showing total number of residents in the *Kuźnica* village as well as a population in a whole province (gmina) *Jastarnia* (NUTS-5 level) which *Kuźnica* is administratively belonging to.

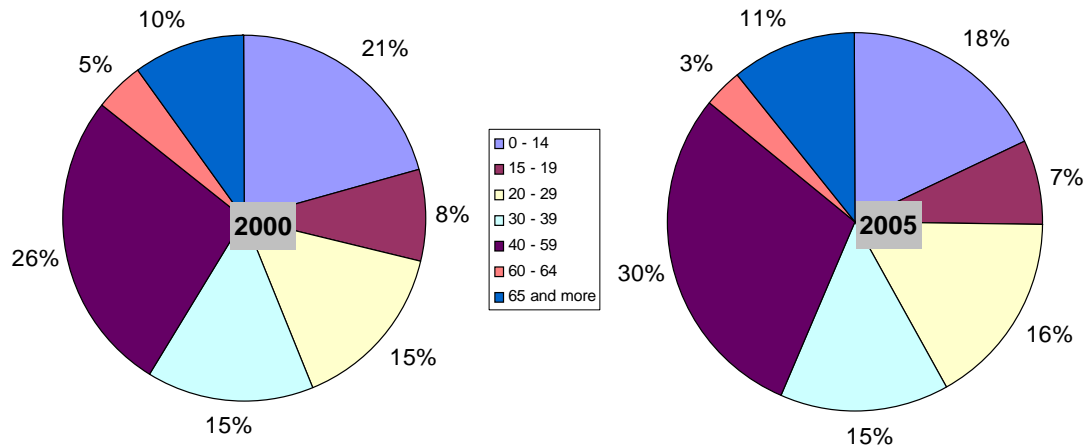
Table 1. Population inhabited *Kuźnica* village and *Jastarnia* province

year	Kuźnica	Jastarnia (province)	Age group						
			0 - 14	15 - 19	20 - 29	30 - 39	40 - 59	60 - 64	65 and more
2000	615 ^e	3996	828	331	596	583	1077	183	398
2001	608 ^e	3950	776	328	604	554	1098	187	403
2002	606 ^e	3936	759	329	620	550	1092	166	420
2003	621	4034	770	312	651	569	1147	165	420
2004	625	4035	747	312	650	577	1166	149	434
2005	633	4032	723	301	664	585	1184	133	442
2006	630 ^e	4014	na	na	na	na	na	na	na

e-estimation

Source: Central Statistical Office, Warsaw.

Age structure of Jastarnia province (gmina) residents in 2000 and 2005



Culture and religion

The vast majority of *Kuźnica* residents are Kashubians (more than 95% according to the residents themselves). Kashubians are an ethnic minority that inhabit the north of Poland. They have their own dialect which frequently differs significantly from the Polish language, a very strong sense of territorial and ethnic identity, as well as an awareness of how they are both culturally and ethnically different from other Poles.

The Kashubian inhabitants of the Hel Peninsula are known for their deep religious devotion (5), and it is their strong religious beliefs that do not permit them to fish on Sundays or important church holidays.

Nearly all of the inhabitants of *Kuźnica* declare themselves to be Catholics who take active roles in the local Roman Catholic parish. Built in 1933 with funds raised among the local community, the large brick church underscores the significance of religion to the local people. Every year the inhabitants of *Kuźnica*, along with tourists visiting on vacation, participate in the sea pilgrimage to Puck for the feast of the apostles St. Peter and St. Paul. All of the local fishing boats, decked out with religious symbols, sail in this pilgrimage. Without a doubt, the church is one of the more important institutions that organizes and oversees the social and religious lives of *Kuźnica* residents, and its priest is one of the leading local authorities.



Standard of living

There are currently 333 buildings located in *Kuźnica* inhabited by local residents and which provide lodgings for tourists. All of the living quarters are equipped with running water, connections to the sewage system, and electricity. Work to install natural gas connections in all residential buildings will be completed this year. Replacing the coal and wood fuel that has been used to date for heating and cooking will have a positive impact on reducing environmental pollution. A portion of the buildings, especially the smaller ones, provide storage for

fishing gear and are used as workshops. In many instances, during the summer season these serve as temporary shelter for *Kuźnica* residents who rent all of their living quarters to tourists.

Kuźnica has three year-round grocery stores, a post office, and a tourist information office that functions as a local community center with free Internet access and a reading room offering titles on regional history and culture. In the summer season, there are four restaurants in the village offering, among other fare, fresh fish caught by local fishers. There is also a pastry shop that serves teas and coffees, while seasonal retail outlets sell summer clothing and beach gear.

During the summer season, the tourist information office organizes art exhibitions, open-air concerts on the beach, and many contests in addition to promoting a wide variety of products. All of these events are open to tourists and local residents alike. The local church sponsors concerts of religious songs, and the number masses celebrated on Sunday increases considerably. One of the great annual tourist attractions in *Kuźnica* is the fisher pilgrimage to Puck for the feast of St. Peter and St. Paul. The residents of *Kuźnica* and their guests make the voyage across the bay aboard fishing vessels from which they participate in Holy Mass. In summer there are also two bicycle rental shops and two windsurfing schools.

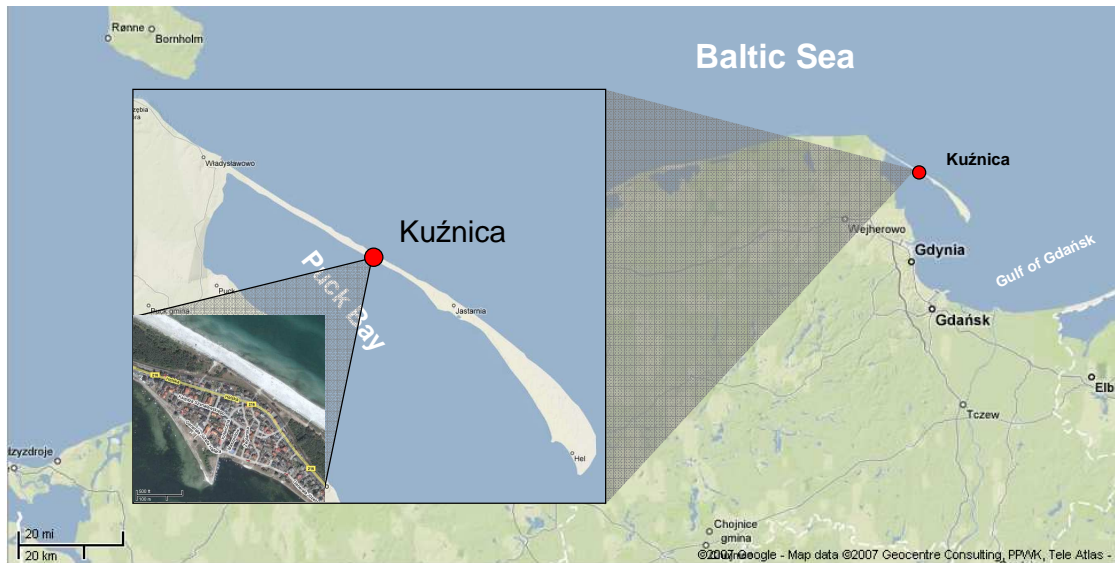
Social service and education

Some of the older, handicapped, and poor residents of *Kuźnica* take advantage of the services offered by the Social Services Center in Jastarnia. This assistance is also available to those who are in need as the result of accident or natural disaster (floods, fires). In 2006, approximately 40 residents of *Kuźnica* were given aid on 172 occasions. Assistance was given primarily in the form of financial support, care-giving services, purchases of essential medications, and financial aid to buy winter heating fuel. Those taking advantage of these services were primarily on their own; residents with family in the community or active fishers did not seek assistance. Relatively few of those who contacted the social services for aid declared having strong family ties. In most instances, it is the family that offers personal assistance to needy members of the family.

Outside of the tourist season, the local school runs a therapeutic program for children and offers computer lessons for all interested. *Kuźnica* school children have swimming lessons at the nearby pools in Jastarnia and Cetniewo. Recently the village built a football stadium where both young and old players practice and where games are played with football teams from other communities. These games provide an excellent opportunity for most local residents to meet and are a key element in building local social ties and instilling residents with a sense of community. The task of the local chapter of the Pomeranian Kashubian Association, located in neighboring Jastarnia, is to cultivate and promote identity with Kashubian ethnic culture, and a quite a number of *Kuźnica* residents are members of it.

Geography, climate and transport connection

Kuźnica (53°52' N 14°26' E) is a fishing village and seaside resort situated in the middle of the 32 km-long (300 m in width) Hel Peninsula 4 miles NW of Jastarnia on the narrow site of Hel Peninsula.



The climate of the Hel Peninsula (where *Kuźnica* is located) is decidedly milder than that of the surrounding inland terrain. The summers are substantially cooler, while the winters are warmer. However, very severe winters have been recorded when temperatures dropped to more than -20°C , and it was possible to drive sleighs over the ice to Gdynia situated at a distance of some 30 km on the opposite side of the Gulf of Gdansk.

For many years the lack of a paved road made it difficult for the residents of the Hel Peninsula to travel quickly to Gdansk and Gdynia, the larger urban centers where fish catches could be sold, shopping could be done, and schools and state administrative offices were located. The railway line built in 1922 and the asphalt road built in 1960 were significant improvements in transportation to inland locations and contributed to very substantial growth in tourism. Since then, tourism has become a substantial source of income for residents as well as a route for cultural transfer to other parts of Poland and abroad. Currently, there are eight daily railway connections to both Hel and Gdynia; in order to handle the influx of tourists in the summer this figure increases to 26, including several non-stop trains to large inland agglomerations. Buses and minibuses operating on the road that runs the length of the village guarantee connections to other locations on the Hel Peninsula and Gdynia with departures at thirty-minute intervals in the summer season. Although the timetable is more restricted at other times of the year, this is not an inconvenience for peninsula residents as the majority of households own their own vehicles.

Relationships with fisheries

Once in the village, it is plain to see from the nets, fykenets, and long poles used to deploy them that are dried and stored in the yards of private homes, that this is a fisheries village. Some of the nets still bear their *merki* that are passed down through generations of fishers and



serve to identify fishing nets and gear. (6) *Merki* are tags or a symbol which permits identifying a given object as the property of a particular fisher.

The village also has a small chapel built in a fishing boat that houses a statue of St. Barbara and the “Fishers' Cross” memorial, which commemorates those who have lost their lives at sea. A few old, disused fishing boats have been placed on the shore along the Puck Bay side of the village as a symbol of the importance of fisheries to the locality. There are ample fisheries symbols in the local church including paintings representing religious scenes with fishers and fishing boats and a highly original pulpit for delivering sermons in the shape of a fishing boat hull.

Working the fishery has been a tradition for generations in nearly all families, and all the fishers from *Kuźnica* learned their trade either from their parents or close relatives. It has always been and still is quite natural for sons to inherit boats from their fathers, while mothers teach their daughters to bait hooks, smoke fish, and repair nets damaged during fishing.

The Kashubians inhabiting the Hel Peninsula have for generations supported themselves by fishing. This was and is true of *Kuźnica*, where fisheries and tourism are the primary sources of income and, thus, are deciding factors in determining the standard of living of the villagers as well as shaping their plans for the future.

2. Methods and data quality

There are 65 landings places along Polish coastline. Most of them, except of those located at lagoons (cod does not occur in these areas) are important cod landing places. Cod dependency, structure of the industry, economic environment, homogeneity and size of the community as well as relatively short distance to the selected port were main factors that decided on the selection of the field site. The material for the Polish case study was collected on October 22 – 29, 2007. The study was conducted in the fishing village of *Kuźnica*.

The study was conducted through semi-structured interviews with village inhabitants who have been employed in fisheries and fish processing for many years. During the interviews, efforts were made to collect all the information that had been set forth in the interview plan prior to the study. In addition, many conversations were held with people who, due to current or previous duties performed, were able to provide interesting information regarding the lives and work of *Kuźnica* residents. A total of 26 people, 19 of whom are fishers or employees of local fish processing enterprises, responded to the case study questions. The rest of the respondents were representatives of the local marine administration, the social services, and educational institutions.

Unfortunately official available statistics about population, employment or other economic indicators are too general to enable investigate the figures for *Kuźnica* or even larger administrative area (NUTS-5). When it was possible these data were obtained from local administration or directly from industry. Statistical data related to fisheries are based on official catch, landings and sales reports provided by fishermen to fisheries administration. Ship owners of fishing boats less than 10 meters overall length, are obliged to provide once a month monthly catch reports. Vessels above 10 meters length (in case of cod vessels over 8 meters) are obliged to report the catch data on logbooks. These reports are accompanied by first sale notes (where amount and value of fish as well as marketing standards are reported). The value of

fish caught by vessels registered in Kuźnica was calculated using available averages first sale prices of fish landed in Kuźnica or nearby harbours (Jastarnia, Hel, Władysławowo).

Data quality, especially those related to cod volume and value is questionable. Very low individual quotas lead many fishermen to underreport their catches. A study Conducted by the European Commission in 2007 inspections of cod landings in Polish harbours, showed considerable divergences between reported, and real size, of cod landings. As a consequence EC decided to stop cod fisheries for Poland in the Eastern Baltic from July 2007 through the end of the year.

The scale of unreported cod landings in small scale fisheries operating under collective cod quota (which is not distributed on individual vessels) can be undoubtedly lower than in other fisheries that have to adhere to IQ system. This notwithstanding it is difficult to estimate the scale of unreported landings in the case study fisheries.

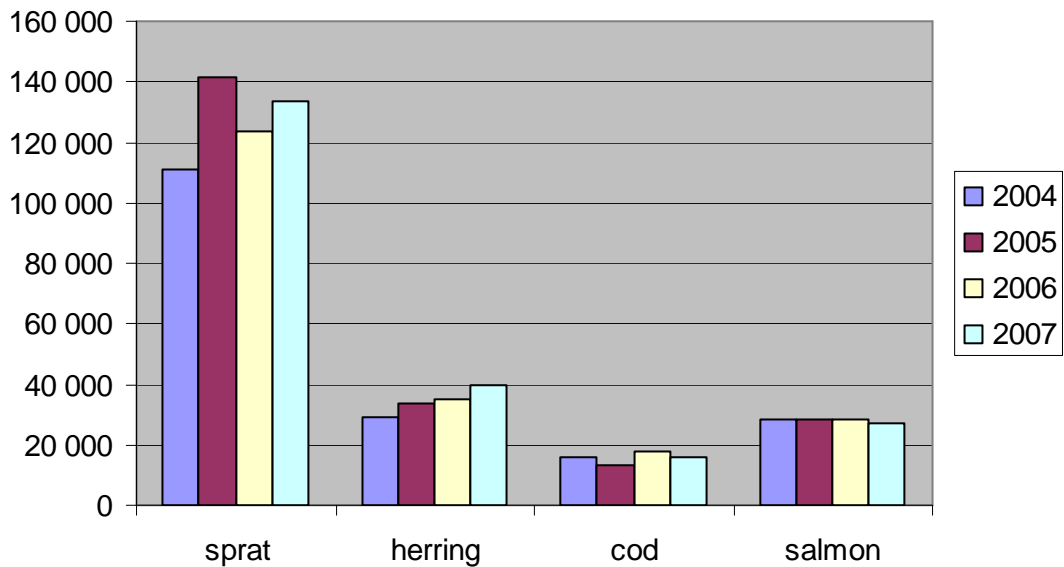
3. Fisheries management system

The Department of Fisheries in the Ministry of Maritime Economy is competent bodies for fisheries management in Poland. There are three Regional Inspectorates of fisheries located in Szczecin, Slupsk and Gdynia that are responsible for monitoring and surveillance of fisheries at territorial level. The Fisheries Monitoring Centre in Gdynia (set up in 2004) is responsible for operating of VMS (Vessel Monitoring System) and fisheries reporting system (catch and landings reports).

Since the 1st May 2004 when Poland joined the EU, its resource management policies have been harmonised with the Common Fisheries Policy (CFP). In order to protect decreasing fish resources the following measures are being taken: imposing catch limits, temporary restrictions for fishing activities and closed areas; protecting juvenile fish by establishing minimum sizes and net mesh sizes.

The Total Allowable Catch (TAC) of the five Baltic fish species – cod, herring, sprat, salmon and plaice– is established annually by European Commission according to scientific advice provided by the ICES. The limits are determined for the entire basin and then divided into national quotas according to the stocks and the nation's historical rights. The following are the percentages of the regulated species Poland received: 22 % of cod, 21% of herring, 29% of sprat and 6% of salmon and 15% for plaice. In 2006 about 90% of the fish landed comes from species subject to TACs.

Polish TACs for Baltic species, 2004-2007



From an economic point of view, cod is the most important species (cica 50% of official landings value) in Polish fisheries. Due to poor stock condition, the TAC for this fish has been set in recent years at a very low level-- primarily affecting the demersal fleet and small boats depended on cod catches. The industry has experienced severe reduction in number and capacity of the fleet in recent years. Under implemented in 2004 decommissioning programme 40% of fleet capacity has been withdrawn and the number of units decreased by 380 vessels. A smaller fleet has led to higher individual quotas for those vessels remaining in fisheries, nevertheless it is still not enough to assure an economically viable fleet at its current size.

There is an individual quota system for management of cod and salmon in Poland. Individual catch limits apply only to vessels longer than 10 meters. Small size fishing boats (vessels under 10 meters) are not assigned individual fishing limits. Since the collective quota is less restrictively enforced compared to individual ones, the small vessels are in a privileged situation compared to bigger vessels. In recent years Polish administration has never decided to close the small scale fisheries, despite the fact their catches exceeded available quotas. In such a situation the small scale fisheries usually benefited from un-utilized quotas of other (offshore) vessels.

The cod catch quota allocated to longer than 10 meters vessels are divided according to length class. The salmon catch quota is divided equally among cutters whose owners apply for a quota. There is no ITQ system in Polish fisheries. However, it is allowed to make some quota exchange between vessels on a non commercial basis. Vessel owners whose catch quotas are defined in a special fishing permit might transfer them either partially or wholly, with ministry approval, to other vessel owners who catch the same species.

Herring and sprat TACs are not divided among individual cutters or fishing boats. Catches of these species are conducted according to the so-called olympic system, which permits fishing until the quotas are exhausted (which did not happen in the last years).

Particular attention in fisheries management in Poland is given to cod fisheries, as cod stocks are considered to be in the worst condition. A number of technical measures relating to the cod fisheries are in force in the Baltic Sea. These measures include minimum mesh size,

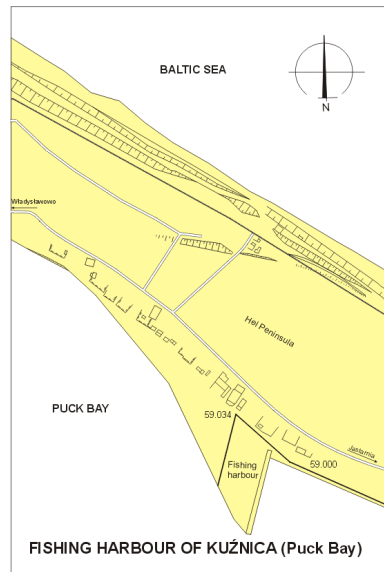
minimum landing size, closed areas/seasons (aimed at limiting fishing effort as well as protecting juveniles) and gear specific measures to enhance the selectivity in the fisheries. Introduction of the Bacoma trawl in 2004 (diamond meshed trawl with a square meshed window in the cod end) has been considered as a main factor that reduced the catches of undersized cod. The Baltic cod quota has been split between western and eastern part of Baltic for the first time in 2005 in order to better manage the two stocks which actually have little mixing.

4. Port infrastructure

The fishing port in *Kuźnica* has a concrete wharf and a slip that is used to dry dock vessels for repairs. Local fishers moor their boats in the port throughout the year, while yachts and tourist vessels also use the port in summer. The harbour does not provide fuel and ice supply. The nearest fuel is located in Jastarnia or Hel or Władysławowo ports. Fishermen cooperating with processing plant are able to receive ice directly from the plant. The cold storage capacity amount to 25 tons of chilled fish. Freezing storage capacity is available in Hel or Władysławowo.



The Maritime Office in Gdynia has a station in *Kuźnica* which is responsible for maintaining the seashore in good condition, especially with regard to the seaside dunes which comprise the peninsula as well as fishing harbour. Using the funds available from sectoral program 2004-2006 (FIG) it is planned to build breakwaters, slip and repair quayside in 2007 and 2008. Estimated costs of these investments amount to PLN 23,000,000 (EUR 6.2 million).



Source:
<http://www.maritime.com.pl/ports/index.p.php?url=kuźnica/kuźnica.php>



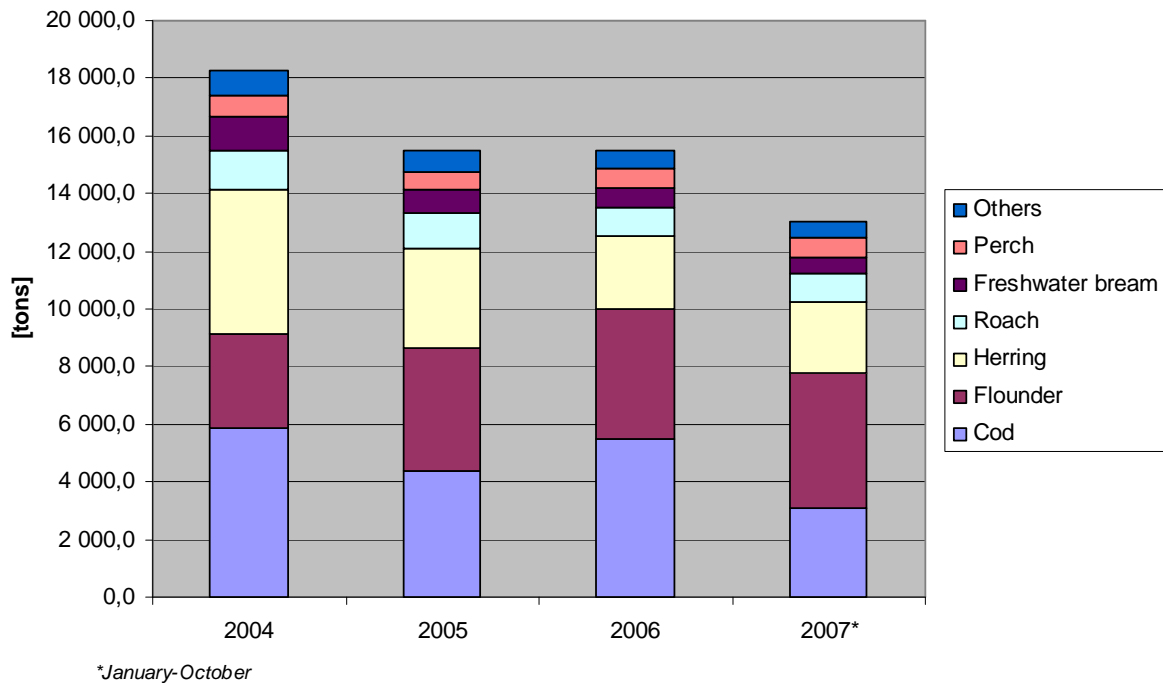
5. The local fleet and fisheries

5.1 Small scale fisheries in Poland (overview)

Small-scale coastal fishing operates within the Polish territorial sea up to 12 NM from the coastline and in the Vistula and Szczecin Lagoons, using fishing boats of less than 15 meters length. A three nautical mile zone is the water belt where no cutter or trawl fishing is allowed. In the East Coast area the belt is slightly modified over certain coast stretches and limited by relevant isobaths and in the Puck Bay by the Gdynia-Hel line. This zone is available for boat fishing only.

Small-scale coastal fisheries is localised along the coastline in over 60 localities gathered in 36 seashore gminas (communes). 657 fishing boats participated in fisheries activities as of the end of 2006. The boat fishermen numbered 1,600 in 2006 (estimated value). The number of boats has decreased over the past years, mainly due to implementation of a decommissioning program in 2004. At its start there were 863 registered fishing boats. The Polish annual small scale fisheries catches in lagoons and adjacent waters as well as in marine waters amounted to 15,000 tons of fish average in 2005 and 2006. Cod, flounder, herring and some freshwater species (roach, freshwater bream, perch) dominate in catch structure of small scale fisheries in Poland.

Landings by small scale fisheries (<15m), 2004-2007



5.2 Case study fisheries

Fishing organization

Historically, *maszoperie* were active in the village of Kuźnica. They focused mainly on eel and salmon catches. *Maszoperie* were fishing cooperatives set up by fishers in order to conduct joint catches. There were seven such organizations active in Kuźnica until the 1960s. Each *maszoperia* bore a name that was a derivative of the skipper's name or pseudonym, and the members of the collective were either close or more distant relatives of the skipper. Each member contributed gear and labor to the collective. In exchange, the fisher received payment that corresponded to his contribution to the fishing effort. The *maszoperie* fulfilled a social role in that they cared for the children and widows of their members who were lost at sea. They also represented their members in negotiations with other *maszoperie* during the annual division of fishing grounds. (6)

The *maszoperie* disappeared by the 1970s and were replaced by individual, independent fishing boats. The structure of the catches underwent further diversification, and species such as herring, flounder, pike, cod, and sprats began to be caught much more intensively than previously.

Currently there are six registered and recognized by EU law Producer Organizations in Poland, four of them associate Baltic fishermen (the other two are deep sea and inland fisheries PO). The largest PO - „Zrzeszenie Rybaków Morskich – Organizacja Producentów” -ZRM associates about 150 fishing vessels from different ports located mainly in Eastern Baltic coast. Before being transformed into PO (in 2005) ZRM was one of several fishing organization operating in Poland. Out of 31 vessels registered in Kuźnica port only 5 are members of ZRM PO. It maybe concluded that the case study fishermen are individualists and are not interested in being formally organized.

Fleet

There are thirty fishing boats ranging in length from 4 to 11 meters registered in Kuźnica. Their number remained almost unchanged in the past years, in 1998 there were 31 motor and 6 row boats registered in the harbor (in 1955 there were 28 units of which 19 sail boats). The decided majority of them fish the waters of the Puck Bay and the Gulf of Gdańsk. In recent years there has been a revolution in the outfitting of fishing boats, and that now nearly every boat is equipped with net hauling equipment, GPS, an echosounder, ultra-short-wave radio, radar, a small wheelhouse, and a powerful engine. Only three, sometimes four, boats fishing on the Baltic Sea side of the peninsula do not have any of this equipment except for the engine. These are much smaller boats than those fishing the bay and the gulf. They fish close to the shore and only in good weather. Equipping boats is increasingly expensive and with the current fishing restrictions, obtaining the financial means for making purchases is becoming a serious problem. Another problem is ageing of the fleet which is 27 years old at the end of 2006 (compared to 22 years average of Polish small scale fleet). Due to capacity restriction implemented in 2004 (after EU accession) fishermen are unable to register a new boat unless an old one is withdrawn. Investment in fishing vessels are also severely restricted by EC regulation and limited to measures aimed at improving safety, navigation, hygiene, product quality, product safety and working conditions or increasing the selectivity of fishing gear. There is no possibility to replace an engine with a new one if its power is bigger than an old engine power. Additional restrictions in capacity enhancing investments are an additional obstacle that limits possibilities for expanding fishing operations.

Table 2. Number, engine power and average age of vessels registered in Kuźnica, 2000-2006

length class	2000			2004			2005			2006		
	number	kW	age	number	kW	age	number	kW	age	number	kW	age
0-6.0 m	10	43,1	16,7	7	28	21,3	8	28	22,3	8	28	23,3
6.1-8.0 m	11	154,9	28,4	12	231	31,5	12	231	32,5	12	231	33,5
8.1-12.0 m	7	216,7	15,9	10	344	19,3	10	373	20,3	10	394	21,3
total	28	414,7	21,8	29	603	24,8	30	633	25,7	30	653	26,7

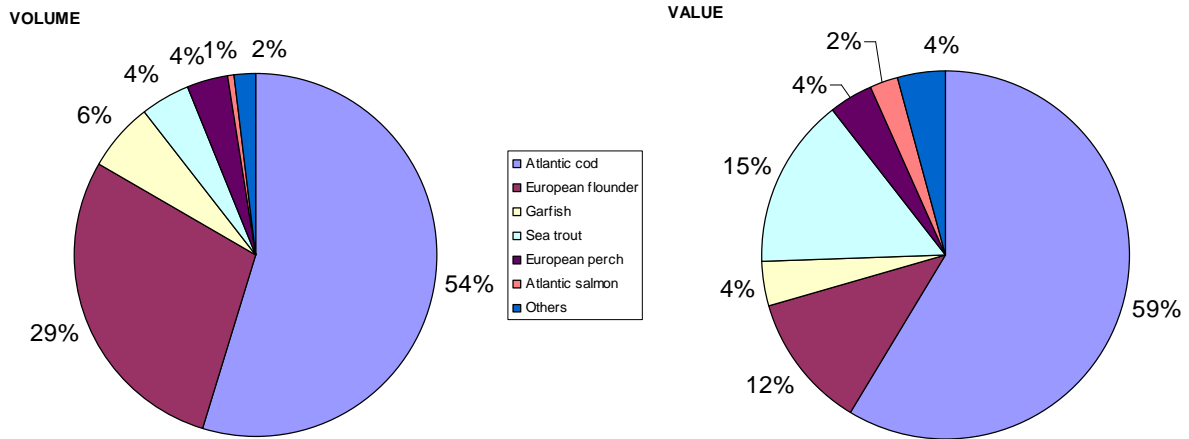
Catches

The fishers of Kuźnica specialize in catching cod and flounder (54% and 29% of the catches respectively). The total amount of fish caught in recent years has increased from 230 tons in 2004 to 370 tons in 2006. In 1999 landings of vessels registered in Kuźnica amounted to 156 tones only of which 108 tons constituted cod. More than half of fish caught by Kuźnica vessels is landed outside homeport, primarily in Hel. In 2006, 188 tons of fish was landed in Kuźnica port. On the other hand there are no landings of foreign vessels (from other ports) in Kuźnica.

Average annual catches of vessels registered in Kuźnica varies significantly from several hundred kilos up to 40-50 tones. Vessels catching small amount of fish are rather noncom-

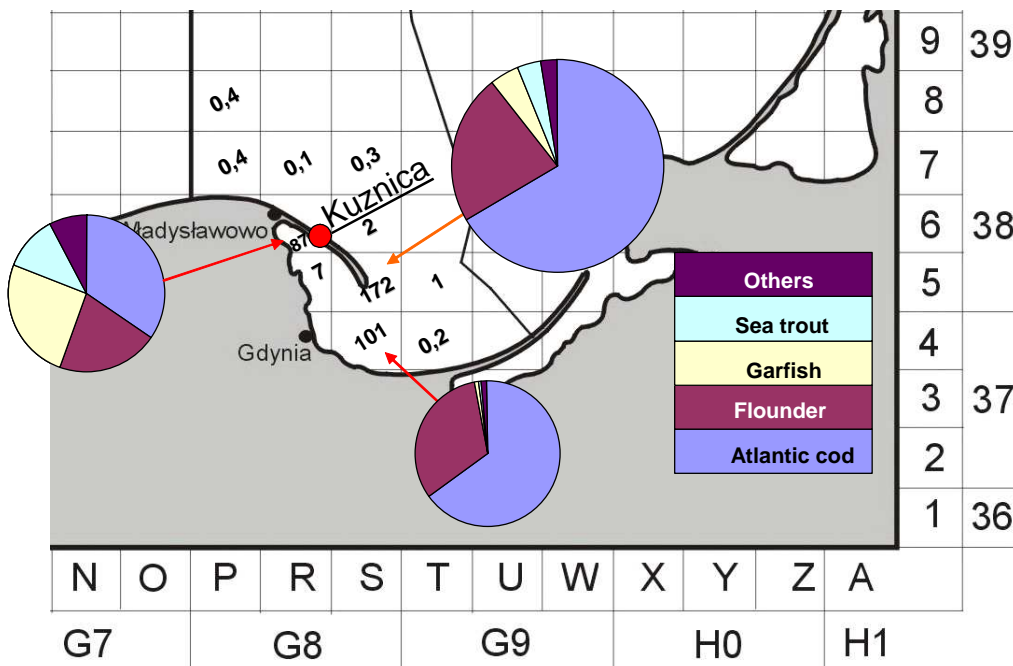
mercial units that usually use fish for own consumptions (family or tourists) or fish recreationally. Nevertheless these boats hold fish licenses and special fishing permits.

Catch composition of vessels registered in Kuźnica, 2006



The boats registered in Kuźnica port are fishing mostly in the vicinity of their homeport. However it is observed that cod has to be fished at grounds that are located a greater distance from Kuźnica. Due to this, most boats head out for catches from either from Jastarnia (3 – 4 boats) and from Hel (3 – 5 boats). The fish they catch are landed at these same ports and collected by a vehicle which then delivers the catch to the refrigerated warehouse in Kuźnica.

Geographical distribution and composition of catches, 2006 (tons)



Value of landings in the fishery has almost doubled in recent three years (2004-2006), mainly due to higher landings and prices for cod. There was also a significant increase in flatfish catches from 45 tons in 2004 up to 106 tons in 2006. Fishermen also benefited from very high growth in salmon and sea trout prices. In 2006 average per vessel income amounted to PLN 55,000. Calculated on this basis GVA (which is estimated to be 70% of total incomes in this fleet segment) amounted to PLN 38,400. Taking account that there are at least two fishermen employed on the vessel it is rather unlikely to be sufficient to live on and cover capital costs. So likely the official fishing incomes must be supplemented by unreported catches or other sources of money like tourism services. This doesn't change the fact that fisheries remain the most important source of income for most of the families in Kuźnica. Seasonal tourism provides just a seasonal supplement to income from fishery. If the summer is short due to bad weather and the damage caused by tourists is excessive, the only source of income to support families is the fishery.

Table 3. Volume and value of landings of vessels registered in Kuźnica, 2004-2006

English name	Local name	volume, tons			Value '000 PLN		
		2004	2005	2006	2004	2005	2006
Atlantic cod	Dorsz	134,7	181,9	203,6	589,6	877,7	965,8
European flounder	Stornia	45,2	82,6	106,3	70,9	168,2	196,9
Garfish	Belona	29,1	37,1	22,4	0,0	100,4	62,1
Sea trout	Troc wedrowna	19,9	21,6	16,4	204,1	217,6	245,9
European perch	Okon			13,7	0,0	0,0	68,0
Atlantic salmon	Losos atlantycki	1,3	6,0	2,5	11,3	66,3	38,8
Others	Others	2,6	4,6	6,9	21,2	41,7	68,7
Total		232,9	333,8	371,8	897,1	1 471,9	1 646,2

Boat fisher, age 30 – 60 years:

“I think that if it were only possible to earn a living fishing that even the highly educated ones will return. The desire to work on the sea and a longing for freedom will draw them back.”

In comparing the current household economic situation with that of years ago, all the respondents declared that it had worsened and destabilized. In the 1970s, the fishery guaranteed a good, stable income and work for all those willing. Additionally, the state always purchased all of the fish caught. Only a few respondents reported that in previous years the life of the fishers was not always good.

Employment

Total number of people employed in Jastarnia province amounted to 596 in 2005 of which 375 were women. Majority (556) is working in service sector. Due to methodology of statistical data collection system the mentioned numbers exclude fishermen (fishing companies usually don't exceed 9 employees threshold to be included in official statistics). The employment in fisheries can be estimated on the basis of number of vessels and average number of crew members.

There are two to four fishers employed on each boat depending on the fishing season and the species of fish caught. The number of crew members is variable depending on the type of fish caught and the fishing season. This means that of the 630 current residents of Kuźnica, about 100 are employed directly in the fishery. There are also few people (about 15) working in fish

processing plant. In the past, when four smoke houses that provided employment opportunities for local women were operational in the village, this proportion was much better, and the dependence of the villagers on fisheries was much higher.

The crews of the individual boats are still chosen along family lines, but with the current lack of workers willing to ply the fisher trade, this custom is no longer followed as rigorously as before. New crew members are still nearly all residents of Kuźnica.

Boat fisher, age to 30 years:

“Young people know our problem, which is, essentially, that there is no chance for any kind of economic stability. The increasing number of fishing restrictions does not permit making any plans for a life based on employment in fishing. More and more young people who wanted to work in fisheries are beginning to think about leaving Kuźnica”.

Boat fisher, age to 30 years:

“There are changes in my crew weekly. I have a new boat, but ten people have already worked on it. These are still locals. I can't pay them when the boat doesn't go out to fish, and this means that this work is not profitable for them. These limitations are depriving an ever widening group of people of gainful employment.”

The employment of women in fisheries also goes back generations in Kuźnica although they never participated directly in the catches, with the exception of helping to haul the beach seine called *laskorn* onto the beach that were used in salmon catches. Women, the wives and daughters of the fishers, made and repaired netting, cleaned the catch landed in the port, and baited hooks. Formerly, women were also responsible for selling the catch, and they walked for kilometers carrying baskets full of fish to sell in neighboring villages and towns. When four smoke houses were operational in Kuźnica, women comprised the majority of the employees. Currently, only in a few families are women employed in baiting hooks. The remaining jobs connected with fisheries are now done only by men. Women have taken over all responsibilities connected with tourist services in the summer, child care, and running the households.

There are no other employment opportunities in Kuźnica. Only a very few can find employment in nearby Jastarnia or Władysławowo. Even fewer still can count on stable employment in the state administration, education, or in the services sector. In summer, some women are employed in Jurata, but this is temporary work and the pay is very low. Some men try to find temporary employment on cutters based in Władysławowo and Jurata, but the fishers are only paid for days spent at sea. The increasing number of days when the cutters are not allowed to catch has rendered this work unprofitable.

The situation is particularly difficult for young people who are seeking the financial stability that will permit them to establish their own families. Increasingly employment in the fishery is unable to guarantee this. Due to the lack of permanent employment in the village, they decide to emigrate to find work in Ireland, Scotland, Germany, Holland, and Scandinavia. As well-trained fishers, they have no problems finding employment in the fisheries and fish processing sectors of these countries. To date, this emigration has been seasonal, and the families have remained in Poland. Currently, however, there is more and more talk of leaving Poland with the whole family and settling in these countries permanently. Further limitations in cod catches, inappropriate price structure for caught fish, and the lack of compensation from the state for days spent in port do not permit young fishers to dream of anything resembling economic stability or to make plans for the future.

Fisher's wife, age 30 – 60 years:

“I've noted recently that the boat crews are still people from Kuźnica, but often these are no longer family crews. The fishing limitations mean that fewer and fewer people want to stay here. There is no other work for them. The educated ones stay in Gdynia and Gdańsk. The rest emigrate to work on fishing boats or in processing factories. They are well prepared for this kind of work. For the time being, it's seasonal work, but soon they might leave for good.”

The respondents estimated that currently about 25 to 30 Kuźnica residents are working abroad. Most of them declare they intend to return to their village and families when the situation with the fisheries improves. They gave many examples of young people who, even after earning a secondary or higher education, want to return to continue the tradition of working in the boat fishery. Parents also have a strong desire for their children to find good working and living conditions in Kuźnica.

6. Shoreside sector**Fish marketing and processing**

In the 1970s, difficulties with buying and selling fish catch were unknown. In Kuźnica, the wholesale point was run by the state-owned enterprise *Szkuner* from Władysławowo. This company signed catch contracts with each boat and set a fixed price for the various fish species landed. Boat crews earned a cash bonus for exceeding the contracted catch limit. Even today, fishers have a very high opinion of this form of selling their catch.

Boat fisher, age 30 – 60 years:

*“Under the Communist Party rules, selling fish was much better. When we caught what was specified in our contract, nobody prohibited us from further fishing. Exceeding the contracted catch was rewarded with a special bonus. *Szkuner* did set the prices, but there was never any argument about them. Fishers got good money for their hard work.”*

Currently, buying the fish landed by the fishers is run by *Kotwica*, a locally-owned small (less than 15 employees) private fish processing company, which has a refrigerated warehouse and a small smoking facility. This company also brokers further sales of fish to store chains inland. Cod and flounder predominate in production of the processing plant. During the summer season, there are no problems of excess catch, as everything landed is bought by local or neighboring fish fry establishments. Problems crop up after the tourist season when *Kotwica* is periodically unable to buy all the fish landed due to limited space in its refrigerated warehouse, and, as a result, market prices of fish fall. This is not always met with understanding from local fishers, who would like to have a guaranteed minimum price for the fish they catch that would ensure their catches are profitable.

Boat fisher, age to 30 years:

“You have to love the sea and fishing to be a fisher. The financial side is not that important and that's why there are no outsiders, nobody not from Kuźnica aboard our boats. We know that our earnings aren't that high, but we love the sea and our work as fishers.”

Tourism

Officially, 98 (5) households offer rooms to rent, but in practice nearly all the residents of *Kuźnica* let rooms. Not all of them, however, have registered this as an official source of income. Some of them are involved on a very small scale with just one or two rooms available,

and they are not always able to guarantee suitable standards. In most instances, those offering rooms also provide guests with board. One of the main attractions of this type of lodging are the dishes prepared with fresh fish caught by the fishers themselves.

The tourist season is very short and lasts just two months, and when the weather is poor, it can be even shorter. Tourism is a very important source of income for the inhabitants of Kuźnica, especially now when fisheries are so unstable. The short tourist season and the unreliable weather conditions do not permit giving up fisheries in favor of tourism, just as unstable fisheries do not permit resigning from the income



generated by tourism. Both tourism and fisheries are two basic and currently essential sources of income for the residents of Kuźnica. The owners of small fishing boats cannot afford to build large inns that can provide guest rooms to a dozen or more tourists simultaneously. Small-scale fisheries limit the possibilities of gathering the necessary capital for building a modern tourism base.

For the women of Kuźnica, tourism provides an additional source of income and alternative employment opportunities. The incredibly strong ties to the tradition of working in boat fisheries, a love of the sea (which was mentioned by all respondents), as well as the impossibility of raising enough capital to develop the tourism base means that no one in Kuźnica sees the possibility of abandoning fishery and concentrating on tourism as the main source of income.

7. Adaptability/Vulnerability and Critical Issues

Cod catches are currently of strategic importance for boat fisheries in Kuźnica. Due to the high prices paid for this fish accompanied by the low prices for other fish, cod catches have become the single guarantor of a profitable fishery. As long as the current fish price structure remains in place, only cod will be able to guarantee an income level that will allow fishers to maintain their current standard of living and to invest in repairing and modernizing gear.

Boat fisher, age to 30 – 60 years:

“The fate of all the residents in Kuźnica depends on the fishery. In the 1990s, cod became the most important fish to us as its price grew significantly. There are not enough other fish and their price doesn't guarantee a return on the costs of running the boat or paying the crew. Before, good prices could be got for eel and salmon, but these fish are practically gone now. Sprats don't make any money. Our boats are too small to catch this fish in any larger quantities. There aren't enough herring or sprats. These are all caught by foreign fodder cutters [vessels catching fish for reduction].”

Boat fisher, age 30 – 60 years:

“If we don't catch a sufficient amount of cod, the existence of our families will be threatened. Only in a few families is there no fisher, so it's clear that the fate of our entire village depends on cod catches. Due to low prices, catches of other species make nearly no profit. Someone out there making the decisions has forgotten that in addition to food, we also buy gear, which is more and more expensive. It used to be before that the gear was much cheaper and the fish more plentiful.”

Only a few of the fishers concluded that there are fewer cod than in previous years. Many more respondents confirmed however that the size of the cod caught is substantially smaller than formerly. Above all, they blame the foreign fishing vessels that target small fish for use in animal fodder. The fishers believe that these small fish, primarily sprats, are the natural food of cod and that overfishing them deprives the Baltic cod of its natural sustenance.

Boat fisher, age 30 – 60 years:

“The fisheries situation is very bad. The European Union is introducing more and more new fishing restrictions while at the same time allowing 'fodder cutters' the right to pillage Baltic waters. Large foreign stern trawlers fish huge quantities of sprats and herring for animal fodder. Sprats are the natural food of the cod. If we don't stop them fishing, they will ruin the entire Baltic fishery. With the scale of the pelagic catches they are making right now, no fish will survive.”

These fishers also direct their anger toward cutter fishers who do not use selective gear and to fisheries administrations that tolerate bycatch (undersized cod that are entangled during fishing targeting other species) on a scale that far exceeds allowable norms.

Some fishers maintain that the causes of decreasing quantities of fish in the Gulf of Gdansk might also include progressing pollution and the increasing numbers of cormorants. Fishers have observed that pollution is especially troublesome during the tourist season. During this time the local sewage treatment facilities cannot cope with processing the excess sewage and most probably direct partially cleaned water into the bay. According to fishers, it is pointless to stock bay waters since all the fry are consumed by the growing cormorant population.

Boat fisher, age to 30 years:

“Pretty often in summer we pull out fish covered with sewage slime. This is not a good environment for fish spawning. Another problem is the cormorants. There are more and more of them each year, and their flocks number in the thousands. The entire shallow area in the bay is occupied by them and they eat hundreds of kilograms of fish every day. This probably includes all of the stocking fry released into the bay. It's no wonder that the effects of stocking haven't been seen for the past few years.”

The fishers do not support the idea of introducing fishing specializations. This is not a good solution for the boat fishery which is limited to a very restricted fishing basin. The natural state of these waters is the seasonal occurrence of particular fish species. Eel are fished from August to October, salmon from March to May, and cod in the winter, early spring, and late fall. Flounder is caught throughout the summer (mainly for the tourists who come to visit Kuźnica) and during autumn. According to the fishers, the seasonal occurrence of various species means that each fishing crew must be able to conduct varied fishery, which excludes the possibility of any type of specialization in catches of particular species.

Boat fisher, age 30 – 60 years:

“Specialized catches are impossible in these waters. We only catch five species of fish: sea trout, cod, flounder, eel, and roach. These fish almost never occur simultaneously. Catch specialization will be yet another limitation on the number of fishing days. 'Obligatory' specialization will deprive people of a living.”

The fishers from Kuźnica are very critical of all limitations in cod catches. The only exception here might be the closed period during spawning and the minimum landing length. Limits on the number of cod fishing days, catch size limits, restrictions on fishing methods and the gear deployed should not apply to boat fisheries. The number of boat fishers on the Polish coast is declining systematically. This process accelerated rapidly when the European Union offered significant compensation for the scrapping of fishing boats. The fishers of Kuźnica believe that the small number of boat fishers still fishing are not able to cause significant damage to the Baltic cod stocks.

Cod catches are exceptionally important to the fishers. The good prices for cod and its significantly longer period of occurrence than that of other fish mean that cod catches are essential to the profitability of the fishing profession. There is yet another limitation. The safety protocol for fishing boats does not permit the fishers to take the boats out when there is ice in the water, which is another limitation on the number of fishing days. Further limitations in the size of cod catches caused by the systematic decrease in the number of days cod catches are permitted will affect the economic situation of boat fisheries. In the case of Kuźnica, this will mean depriving the residents of their most important source of income.

The finally adopted by the Commission version of the regulation establishing a multiannual plan for the cod stocks in the Baltic Sea aggravated cod protection measures that used to be in force and will deteriorate the situation of small scale cod fisheries. According to current regulation (CR 1941/2007) during the summer ban Community fishing vessels with an overall length of less than 12 meters and fishing within the territorial sea are permitted to retain on board and land up to 20 kg or 10 % cod by live weight, when fishing with gillnets, entangling nets and/or trammel nets with a mesh size equal to or greater than 110 mm. The new cod management regulation which will apply since 1 January 2008 says that these vessels will be permitted to use gear of a mesh size equal to or larger than 90 mm and bottom longlines only

five days per month during the summer cod ban. Namely this regulation will seriously affect flatfish catches which is important component of Kuźnica fisheries during the holiday season and will have spill-over effect on tourism sector.

Another threat to the case study fishermen is complete driftnet prohibition that will come in force since 1 January 2008 (Council Regulation No 812/2004). Sea trout and salmon catches brought about PLN 300,000 in 2006 for Kuźnica fishermen, which makes up 17% of their revenues. The vast of them were taken with driftnets. There is a little understanding among fishermen on the rationale for this regulation since cetaceans occurred so much rarely in the northern Baltic, what was also confirmed by scientific investigation and results of observer programs. The consequence is that neither the fishers nor the other residents of Kuźnica have a good opinion of European Union fisheries policy, which in turn creates negative attitudes in relation to EU and jeopardize legitimacy of European law as a whole.

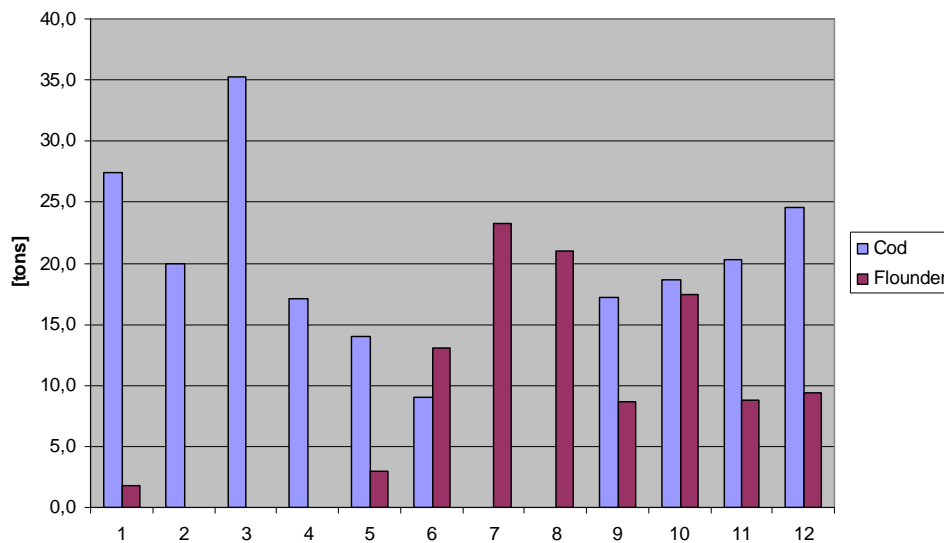
8. Adaptation and adjustment to Crisis (cod management plan)

The inhabitants of Kuźnica are hopeful that the current crisis in the fishery will soon be resolved. Repealing most of the boat fishery restrictions would ensure that the fishers could earn an adequate standard of living. According to the respondents, Kuźnica should remain a tourist-fishing village. However, substantial investment in the tourism base is needed in order to lengthen the season. Fisheries and beautiful beaches should remain the primary tourist attractions of Kuźnica. However, fisheries must remain the primary and most stable source of income for the residents.

Boat fisher, age 30 – 60 years:

“Kuźnica will remain a fishing village. There is no alternative that we would agree to. As long as the boat fisheries survive, Kuźnica will not be deserted. If we give up the fishery, it will be like nearby Jurata, where there are crowds of tourists in the summer, but afterward it is an empty, open-air museum with no soul. Additionally, as long as Kashubian fishers live here, the Kashubian language will continue to be spoken.”

Taking into account fishing seasons and composition of catches there is a little possibility for the fishermen to change fisheries from cod to another species. They are very much limited by the area where vessels may operate, technical constrains of the vessels, fishing gears used as well as availability of substitute to cod species and economy of catches. At the time being during the cod ban period, vessels shifted to flatfish and to a less extent, to sea trout fisheries. Due to economics, it is rather unjustified to expect that cod catches could be replaced by other species.

Monthly cod and flounder catches of vessels registered in Kuźnica, 2006

The summer cod ban stop periods are usually compensated by the Government through the Financial Instrument for Fisheries Guidance (FIFG). In 2006 fishing boats less than 15 meters length were able to get a financial compensation of PLN 8,500-9,800 (EUR 2,200-2,500) per boat and additionally PLN 3,100 (EUR 790) per crew member. This money was allocated in order to pay fixed costs of affected by summer cod ban vessels as well as social insurance costs. Due to administrative obstacles, late payments (for compensation of 2006 ban fishermen might applied in May 2007) as well as restrictive condition (complete stopping of any fishing activity was a condition), only about 1/3 of affected vessels were interested in these money. There was only one fisherman from the case study fisheries that decided to apply for the compensation. Nevertheless such a measure may be one of the options that may be considered when trying to help fishermen to adjust to the cod crisis situation. However, it shouldn't be treated as a permanent solution.

The difficult fisheries situation affects young people, who are seeking stability that will permit them to establish their own families, particularly hard. Increasingly employment in the fishery is unable to guarantee this. Poor perspectives of employment in the village, non attractive employment in fisheries caused that young people decide to emigrate to find work abroad. The problem of emigration is also a concern as it takes well-trained fishermen, who have no problems finding employment in the fisheries and fish processing sectors, outside Poland. This emigration has been so far seasonal, and the families have remained in Poland. However it is possible that they permanently leave Poland with the whole family (there was much talk of this, for example in Peterhead and Fraserburgh, Scotland).

The current negative situation of the cod fishery has not yet forced any of Kuźnica fishermen to withdraw their vessel with public money (FIFG capacity adjustment program), even though scrapping premiums had been set at a very high level (maximum allowed by EU regulation). This can be explained by the fact that fishery has been a tradition for *Kashubian* fishermen for generations and income may not the only reason why fisheries are present in the region. This maybe confirmed by several non commercial vessels that are still kept active in Kuźnica because of family tradition and tourist attraction.

There are some measures addressed to small scale fisheries in Polish Operational Programme "Sustainable Development of the Fisheries Sector and Coastal Fishing Areas 2007-2013" that

maybe helpful in adaptation of this fisheries to deteriorating conditions of fishing operation. These measures are directed at (8):

- improving management and control of access conditions to certain fishing areas;
- promoting the organisation of the production, processing and marketing chain of fisheries products;
- encouraging voluntary steps to reduce fishing effort for the conservation of resources;
- encouraging the use of technological innovations that do not increase fishing effort;
- improving professional skills and safety training.

The other measures available from PO are socio-economic compensations related to the restructuring of the fisheries sector. These measures include diversification of activities, upgrading professional skills for young fishers, early retirement schemes and premiums for fishermen affected by scrapping programme. Unfortunately, experience from the previous sectoral programme (2004-2006) shows that fishermen are not very interested in getting this kind of support.

9. Conclusions

There is a serious problem of unreported cod catches in Polish fisheries. This is a consequence of the fisheries administration improperly addressing this issue over the past 20 years. There had not been any capacity reduction program implemented in response to diminishing cod resources and TAC reductions before EU accession. As a consequence of long lasting imbalance between demersal fleet fishing capacity and state of cod resources the problem of IUU catches has accumulated. The first long term program tackling with the overcapacity problem was implemented in 2004. In 2004-2006 the industry has experienced severe reduction in number and capacity - 40% of fleet tonnage has been withdrawn and the number of units decreased by 380 vessels. Most of these were demersal trawlers but small scale fisheries vessels were also affected. Taking account of the declining situation of cod resources, a further reduction in demersal fleet will probably be inevitable.

Small scale fisheries play an important role in the coastal areas as a strong component of the local history and culture and as a tourist attraction. The fisheries often determine the organization of the community life of its residents as well as influences the economics of most of the local households. This is especially the case of case study fisheries in Kuźnica, a small fishing village founded in the sixteenth century and from the very beginning closely linked with the fishing activity. Working the fishery has been a tradition for generations in nearly all families in Kuźnica. There are no other employment opportunities than fisheries. Very few can find employment in nearby Jastarnia or Władysławowo. Even fewer still can count on stable employment in the state administration, education, or in the services sector.

Due to the lack of permanent employment in the village, young people often decide to emigrate abroad. As well-trained fishers, they have no problems finding employment in the fisheries and fish processing sectors of these countries. To date, this emigration has been seasonal, and the families have remained in Poland. Currently, however, there is more and more talk of leaving Poland with the whole family and settling in these countries permanently. Further limitations in cod catches, inappropriate price structure for caught fish, and the lack of compensation from the state for days spent in port do not permit young fishers to dream of anything resembling economic stability or to make plans for the future.

Cod catches are currently of strategic importance for boat fisheries in Kuźnica. Due to the high prices paid for this fish accompanied by the low prices for other species, cod catches guarantee a profitable fishery. As long as the current fish price structure remains in place, only cod will be able to guarantee an income level that will allow fishers to maintain their current standard of living and to invest in repairing and modernizing gear. Taking into account fishing seasons and composition of catches there is little possibility for the fishermen to change fisheries from cod to other species. This is very much limited by the area where vessels may operate, technical constraints of the vessels, fishing gears used as well as availability of substitute to cod species and economy of catches. At the time being during the cod ban period vessels shifted to flatfish and to a less extent to sea trout fisheries. Mainly due to economic reasons, it is unjustified to expect that cod catches could be replaced by other species.

Both tourism and fisheries are two basic and essential sources of income for the residents of Kuźnica. The short tourist season and the unreliable weather conditions do not permit giving up fisheries in favor of tourism, just as unstable fisheries do not permit resigning from the income generated by tourism. The owners of small fishing boats cannot afford to build large inns that can provide guest rooms to a dozen or more tourists simultaneously. Small-scale fisheries limit the possibilities of gathering the necessary capital for building a modern tourism base.

There is a quota management system favoring small scale fisheries in Poland. Certain amount of cod and salmon TAC is reserved exclusively for small boats. The future changing of the system towards effort control should keep at least the present privileges of the small scale fisheries. Unfortunately so far it is not possible to do so, since effort limitation that is imposed at EU level affect whole fisheries regardless vessel size. It is erroneous to apply the same restrictions to small boats as are in force for big trawlers. However, in order to tackle the problem national fisheries authorities should have more power over management of their fisheries. On the other hand fishermen should be able to participate in the management process that the any decision regarding them will be taken in consultation with them. The decisions taken should consider the state of the natural environment, but also the socioeconomic situation of those who live and work in the coastal zone. Lack of legitimacy, poor enforcement and as a consequence serious IUU problem is caused among others by lack of information available for fishermen and missed management decision (e.g. driftnet prohibition or too restrictive for small scale cod ban regulation).

Small scale fisheries should be treated differently than other fleets (bigger vessels); their environmental impact is much less harmful than the others and their ability to adapt to management changes is very limited. The adopted cod management doesn't address this problem sufficiently. Aggravated cod protection measures will affect primarily small cod boats and will deteriorate their economic situation as well as related sectors (tourism). This is especially visible in Kuźnica fisheries where summer flatfish catches will no longer be allowed during the majority of the cod ban period because of fishing gear restriction. The consequence of this situation may be gradual collapse of the fisheries or (more likely) escape into the illegal catches.

There maybe three scenarios - optimistic, realistic and pessimistic of the future development of the Kuźnica community and its fisheries. All of them are strictly dependent on the status of Baltic cod stock and future management strategies applied to the small scale fisheries. The optimistic scenario presumes recovering of cod stock in long term through substantial fishing effort decrease which is done by capacity reduction of trawlers fleet (in a relatively short

time). The small scale fisheries would be exempted from the reduction programme and benefit from dwindling competition of bigger vessels as well as better cod stock condition. If so, it may be expected that higher profits in the small scale fisheries will stimulate the capital flow into the fisheries and boost investments in fisheries as well as in shoreside sector (tourism and fish processing).

The other – realistic or status quo-- scenario assumes that the condition of cod stock will at least not deteriorate in coming years or is going to recover slowly which let keeping the fleet at the unchanged level. However, if the present size and strength of the sector is to be preserved, more preferable or less restrictive management measures should be applied. It means that effort management and gear restrictions shall be loosened or better addressed. This may be done by shifting EC competences to a lower national level, so the specific situation of small scale fisheries in different regions and MS is better reflected. This would have also positive impact on legitimacy (conformity with law) of fishermen and restrain the IUU problem.

The third – pessimistic scenario assume poor results of cod management plan, deteriorating cod stock condition and further effort limitation in cod small fisheries catches. In this situation the fisheries is able to survive, but only for a short time supported by public money (cod ban compensation premiums) and own savings consumption or tourism incomes. In the long term, it will cause a fleet reduction. If it is supported by capacity reduction programme, a growth in shoreside investments is expected as a result capital flow from fisheries to tourism. This was the case of some small fishing communities in Poland that suffered eel fisheries collapse. In consequence several fishing communities (e.g. Tolkmicko, Stepnica) located in Wisłula and Szczecin lagoon experienced fall in the number of vessels (by 60%).

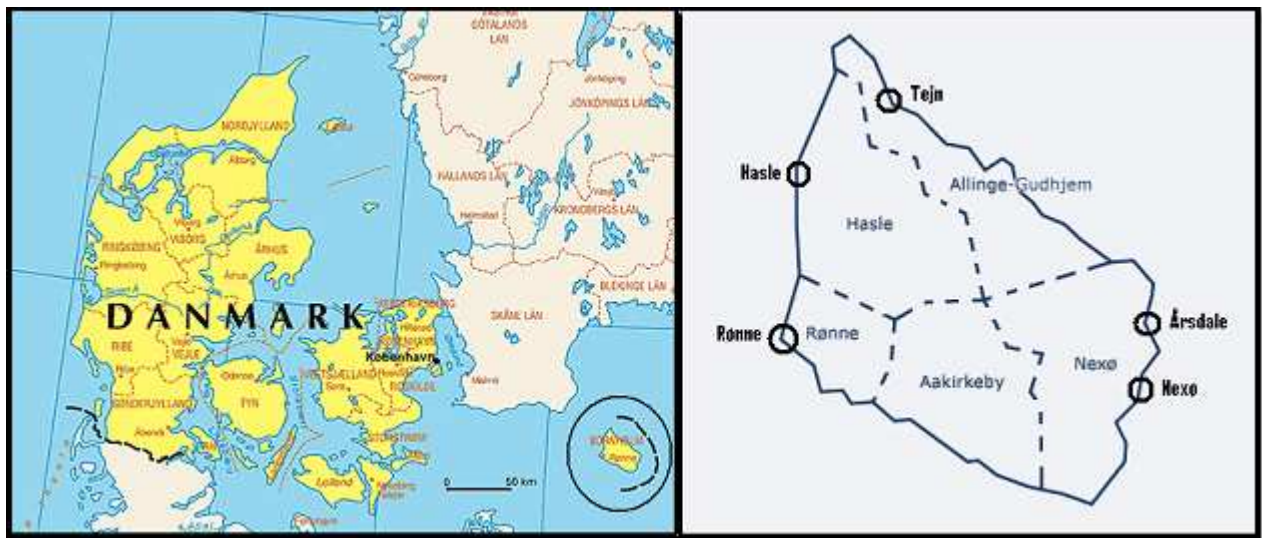
Footnotes, references:

- (1), (2), (3): Budzisz-Nadolska, *Bedeker Kuźnicki* [Kuźnica Baedeker], Kuźnica 2006.
- (4), (5): Data from the Local Administration of Jastarnia, which holds jurisdiction over Kuźnica.
- (6) Kuklik, Mirosław, *Zdobnictwo na szelkach niewodowych rybaków kaszubskich*. [in] *Rocznik helski. Morska tradycja ludowa mieszkańców Wybrzeża* [Ornamentation on the suspenders of Kashubian beach seine fishers [in] The Hel Yearbook. Marine Folk Traditions of Coastal Residents], II/2003.
- (7) Batorowicz Zdzisław, *Maszopierie kaszubskie* [Kashubian Fishing Collectives], Gdańsk 1971.
- (8) Operational Programme “Sustainable Development of the Fisheries Sector and Coastal Fishing Areas 2007-2013” Draft. WARSAW, MAY 2007.

Appendix 3: Danish SIA

COMMUNITY PROFILE: BORNHOLM, DENMARK

Anne-Sofie Christensen & Troels Jacob Hegland



Map to the left: Bornholm vis-à-vis the mainland of Denmark.

Map to the right: The main fishing ports and previous municipalities. The port of Nexø is by far the most important in relation to fishing. Rønne, which is the biggest city on Bornholm, is the most important port in relation to transport of goods as well as persons.



1. Introduction

Bornholm is a small Danish island situated in the Baltic Sea between Sweden and Poland - relatively isolated from the mainland of Denmark. The island is the only place in Denmark with mountainous areas – although the height of these mountains (max. 162 meters) would hardly impress outside Denmark.

Capture fisheries has since ancient times been an important activity for the people of Bornholm, for subsistence as well as for commerce/export of processed products. Fisheries in the waters around Bornholm have also traditionally attracted fishermen from other parts of Denmark and from other countries bordering the Baltic Sea to land their catches in Bornholm on a seasonal basis.

The island's geography has, until recently, not been considered particularly well suited for any type of aquaculture and the production has as a result hereof so far been negligible. There are no suitable freshwater streams on the island and marine aquaculture is complicated by several natural factors, i.e. the fact that there are hardly any places, which are sheltered from wind and waves. Partly because of its geographical location and partly because of the remoteness of the island a more diversified development of the economy has been difficult. Tourism is one of the few other sectors, which has benefited from the remoteness and natural conditions of the island.

The remoteness of the island from the main country must be considered a defining characteristic and discussions over the quality of the routes of transportation from the island to especially Copenhagen are often heated. The main mode of transportation is by ferry from Rønne, the largest city on Bornholm and administrative centre of Bornholms Regionskommune (region-municipality), to Ystad in Sweden. Other routes go from Rønne to Køge just outside Copenhagen, the capital of Denmark, and to Sassnitz and Swinoujscie in Poland. There are, however, also several daily flights back and forth between Copenhagen and Rønne.

1.1. Administrative structures of Bornholm

Bornholms Regionskommune - until 31.12.2002 called Bornholms Amt (county) - has 43,040 inhabitants in 2007. The administrative structures in Denmark have recently undergone reform: From January 1st 2007, the number of administrative units at the level under the state of Denmark was reduced from 16 (13 counties, 1 region-municipality, and 2 municipalities outside the counties) to 5 larger regions. The number of municipalities has likewise been reduced significantly from 271 to 98.

Bornholm got a head start on this process by joining together the five municipalities (Nexø, Hasle, Allinge-Gudhjem, Rønne and Aakirkeby, see map 2) on the island to form Bornholms Regionskommune on January 1st 2003. Nonetheless, Bornholm Regionskommune remains smaller at least in terms of population than many Danish municipalities. Bornholm has after the national reform of the administrative structures become a municipality within a region otherwise comprising of Copenhagen and its surroundings.

2. Methods and data quality

This report is based on three studies: *Statistics*: The statistics are gathered from the databases of Statistics Denmark, Institute of Food and Resource Economics, and the Directorate of Fisheries. *Key informant interviews*: Four people have been interviewed. *Desk study of grey literature*: Relevant reports regarding the situation on Bornholm.

2.1. Comments on the statistical data

Given the changes in administrative structures some of the statistics ceased to be collected as from Bornholm in 2003 and it is therefore in general not possible to analyse the most recent development by these areas. The report presents the newest data.

Just east of Bornholm is the tiny island Christiansø. The island has about 100 inhabitants. The island employs a special position within the Danish administrative system, which means that they administered under the Danish Ministry of Defence and, hence, are not included in any municipality. Consequently, statistics for Bornholm does not always automatically include these islands. Christiansø will as far as possible be included in the present case-study of Bornholm. The small size of Christiansø means, however, that it makes little difference whether it is included or not; overall conclusions will not change much either way.

Statistics related to capture fisheries continue to be registered on port level, which allows for some regionalisation. However, rather than analysing differences in the development in various parts of the island of Bornholm this case study will analyse the overall development on Bornholm, particularly in the fisheries sector. Bornholm's limited size means that it is considered as one labour market. Taxes are, furthermore, paid to Bornholms Regionskommune (as well as to the state). A job created or lost on Bornholm will therefore impact the entire island.

NUTS data

Bornholms Regionskommune (until 31.12.2002 called Bornholms Amt (county), NUTS3 level code: DK007) is currently the smallest NUTS3 region in Denmark in terms of population with 43,445 inhabitants in 2005. The administrative structures in Denmark are currently undergoing reform and as from 1 January 2007 the number of administrative units at the level under the state of Denmark will be reduced from 16 (13 counties, 1 region-municipality, and 2 municipalities outside the counties) to 5 larger regions. The number of municipalities will likewise be reduced significantly from 271 to 98. Bornholm got a head start on this process by joining together the five municipalities (previously LAU2 areas of Nexø, Hasle, Allinge-Gudhjem, Rønne and Aakirkeby, see map 2) on the island to form Bornholms Regionskommune on 1 January 2003. This means that statistics for these areas ceased to be collected as from 2003 and it is therefore in general not possible to analyse the most recent development by these areas. Nonetheless, Bornholm Regionskommune remains smaller at least in terms of population than many Danish municipalities, which are currently defined as LAU2 areas. Bornholm will after the national reform of the administrative structures enters into force on 1 January 2007 become a municipality within a region otherwise comprising of Copenhagen and its surroundings. In general, the reform will in important ways change the NUTS and LAU maps of Denmark.

The fisheries sector is important for Bornholm. The regional socio-economic studies on employment and the level of dependency on fishing calculated that Bornholm was the most dependent NUTS3 region in Denmark in 1997.

3. Demographic and employment development of Bornholm

Bornholm has experienced a negative development in terms of population. The population of Bornholm has been continuously decreasing over last decades as shown in Figure 1 beneath.

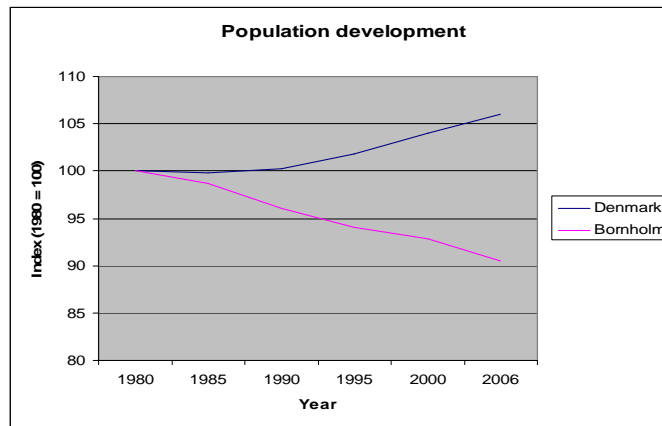


Figure 1. Population development, please note that unequal categories. (Statistics Denmark, Statbank Denmark regarding 'population and election')

The population of Bornholm has decreased by almost 10 percent over the period from 1980 to 2006. Over the latest 11 years the decrease has been nearly 4 percent. The development in Denmark over the last 11 years has been an increase in the population of nearly 4 percent.

Another important indicator of the overall development of Bornholm is the unemployment rate. The development has, as it can be seen in Figure 2 beneath, not been particularly favourable on Bornholm in the later years compared to the development on national level. Figure 2 shows that the overall unemployment trends of Denmark are reflected on Bornholm but that the level is staggered compared to the national level.

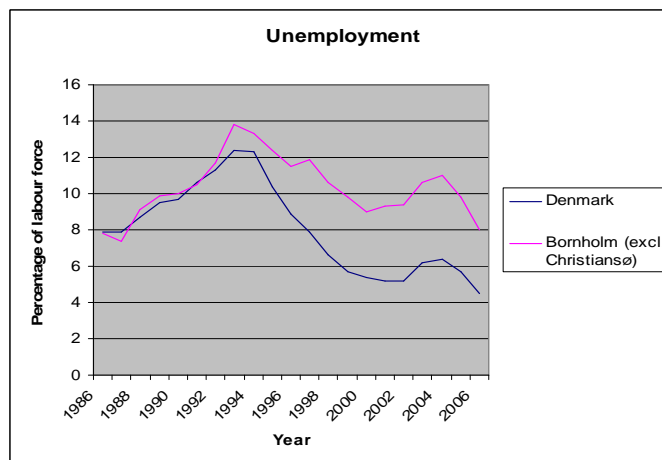


Figure 2. Unemployment in Denmark and Bornholm from 1986 to 2006 (Statistics Denmark, Statbank Denmark regarding 'labour market')

Although it is clear that Bornholm's unemployment rate to a large extent fluctuates along with the national rate according to the overall economic climate, it is equally clear that Bornholm has not been able to benefit as much from the favourable economic climate in the second half of the nineties as Denmark in general. As we shall see in the following sections, the period of favourable economic climate in the country as a whole coincided with a period of increasing difficulties related to fisheries, which at least partly explain the different developments on Bornholm and in Denmark as a whole.

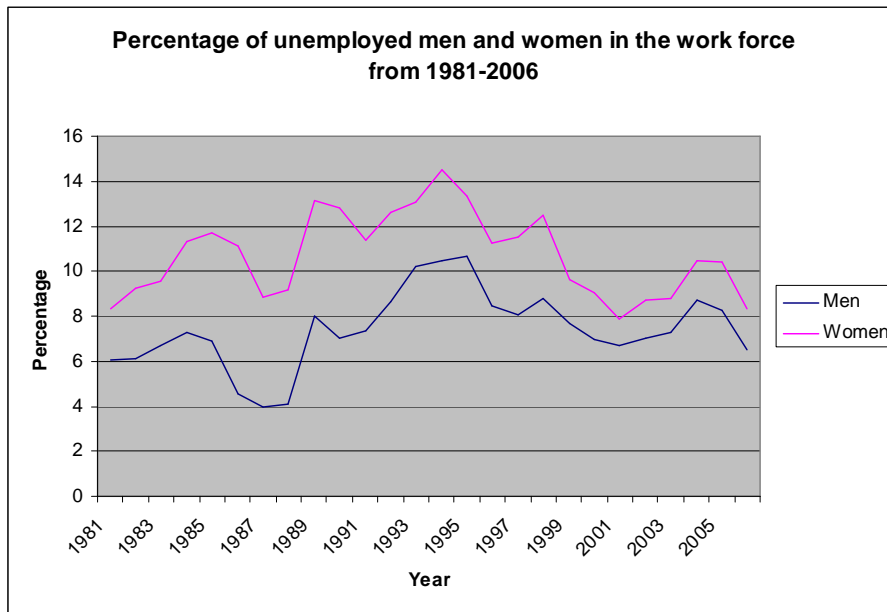


Figure 3. Percentage of unemployed men and women in the workforce on Bornholm (Own calculations based on data from Statistics Denmark, Statbank Denmark regarding 'labour market')

Figure 3 shows that relatively more women than men are unemployed. Not once in the last 25 years has the level of unemployment of women bordered on the level of men.

A final overall indicator, which highlights the situation of Bornholm, is the development of the average (disposable) family income. In general, the average family income has increased since the beginning of the nineties both on Bornholm and in Denmark in general. However, the average family income on Bornholm was already in 1991 approximately 5 percent lower than the national average. Figure 4 shows the development from 1991 until 2003.

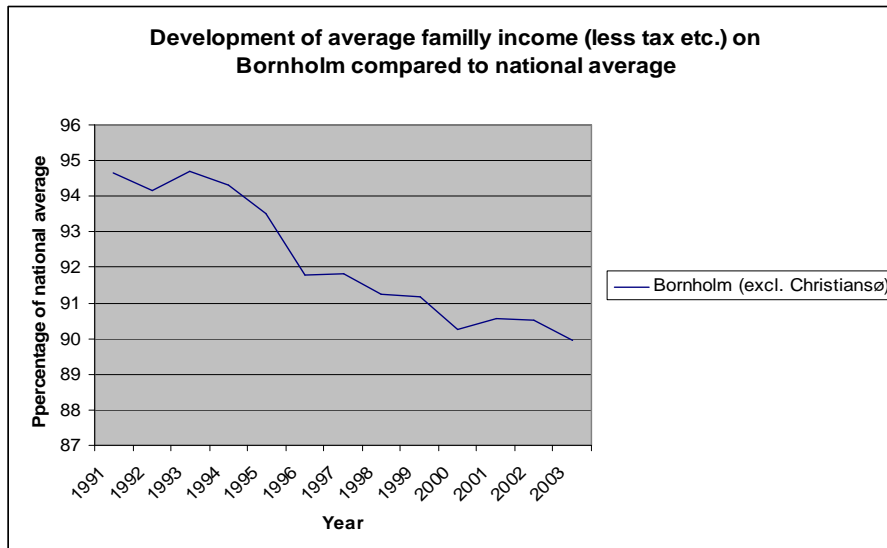


Figure 4. Development of average family income (Own calculations based on data from Statistics Denmark, Statbank Denmark regarding ‘wages’)

Figure 4 shows clearly that the increase in the average family income on Bornholm has not been able to keep up with the increase of the average family income in the country as a whole. The average family income on Bornholm was in 2003 approximately 10 percent lower than the national average.

This section has painted a picture of a region with some clear problems and challenges ahead. Bornholm suffers from depopulation as well as from higher unemployment and lower average family income than the rest of Denmark. The development in the fisheries sector is one of the explanations of Bornholm’s situation. This will be the topic of the following section.

4. Business conditions on Bornholm vs. DK and vs. periphery

The gross product for Bornholm was in 2004 about 6.4 billion DKK. This means that the average productivity per employed person on Bornholm was about 342,000 DKK in 2004. On national level, the working Dane in average made about 416,000 DKK that year. This means that the productivity was about 20 percent lower on Bornholm than in the Denmark (CRT, 2006A).

Year 2004	Gross product	Relative importance of GP	
	Bornholm	Bornholm	DK
1. Food	579	9.1%	4.1%
2. Building supplies	64	1.0%	0.6%
3. Engineering and mechanics	122	1.9%	1.9%
4. Other production	188	3.0%	9.5%
5. Hotel and catering	202	3.2%	1.3%
6. Commerce	617	9.7%	11.7%
7. Transportation	402	6.3%	9.4%
8. Financing, counselling etc	400	6.3%	16.2%
9. Public sector	1,997	31.3%	22.4%
10. Recreation	173	2.7%	1.9%
Other	1,639	25.7%	21.1%
Total	6,386	100%	100%

Table 1. The gross product for Bornholm for 2004 in terms of million DKK per industry and relative importance on the industry. The last column shows the relative importance for Denmark (CRT, 2006A:4-5)

In terms of economic value, the public sector is most important for the gross product. Almost 2 billion DKK or 31 percent of the gross product was generated in the public sector (see Table 1). Aside from the public sector, Table 1 shows that higher productivity than the national average is primarily in the tourism categories ('recreation' and 'hotel and catering') and in food production.

Through the last 10 years, the gross domestic product has increased by 20 percent; the gross product on Bornholm has only increased by 2 percent. As Figure 5 shows, Bornholm is leveling other peripheral areas.

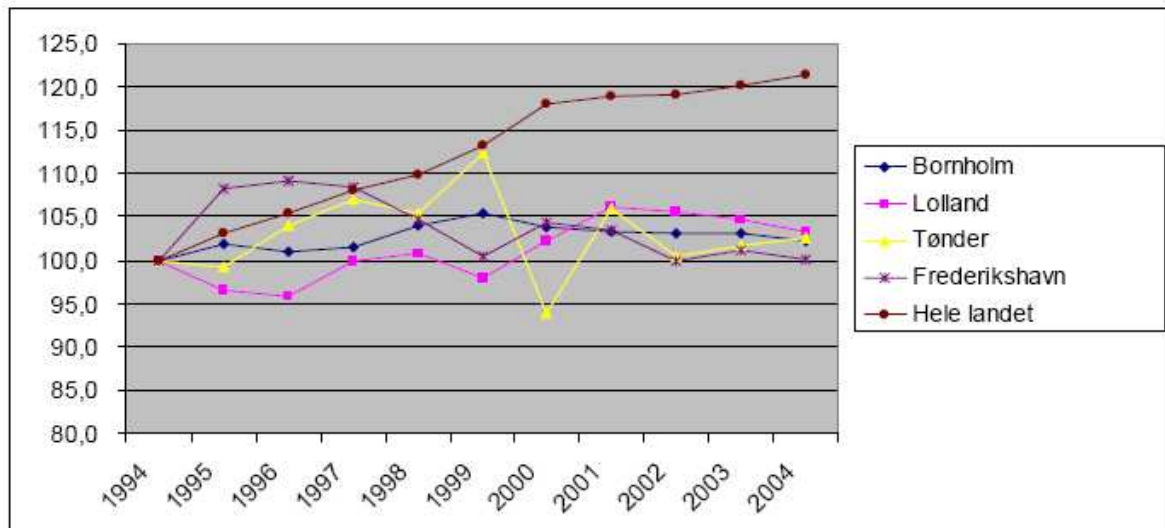


Figure 5. The figure shows the indexed development on the gross value adding in the overall country and in four peripheral areas (CRT, 2006A:p.5)

5. Fisheries management in Denmark

Danish fisheries management works within the framework of the Common Fisheries Policy (CFP) of the EU. The key instrument is a total allowable catch (TAC) for most species. TACs

are divided into national quotas and member states are being allocated the same percentages of the TAC every year under the principle relative stability.

Within the framework laid out by the CFP, the Danish government determines its own fisheries policy, which, in Denmark, is stated in 'The Fisheries Act'. According to this document, the Ministry for Food, Agriculture and Fisheries (MFAF) has the right to define access to and exclusion from fisheries through the distribution of licences. It is the responsibility of MFAF to set up operational rules and management tasks in accordance with EU rules, including the transfer of fishery rights (e.g., quota substitution with other countries). Further, the MFAF has the authority to decide on the regulation of the commercial exploitation of the Danish quotas.

Since the mid 1990'es and until January 1st 2007, the distribution of cod quotas in the Baltic Sea has taken place through two parallel systems: The smaller vessels had the option of annual quotas; the bigger vessels were given a ration to catch within a week, a fortnight, or a month. This system was introduced to accommodate the problems the smaller vessels as they before had had weather-problems fishing their quota within a short period of time.

A few regulations were connected to the system of annual quota: The smaller vessels had to fish 50 percent before the summer and about 75 percent sometime in the fall. Some time late of the year, the leftovers of the annual quotas were withdrawn and re-distributed – these regulations were introduced in order to ensure that the entire quota was caught by the end of the year.

At January 1st 2007, the FKA system was introduced in Denmark to allocate quotas to replace the ration quotas. FKA is 'Fartøjs Kvote Andele', which translated to English means vessel quota shares. The system is similar to the individual vessel quotas system (IVQ) on Iceland in the 1980es and the present allocation system in Norway: Each vessel was allocated a quota based on historical rights; the quotas follow the vessel when sold and the owner of the vessel (-s) can join several of vessels in tonnage as well as in quotas. As the system has built in mechanisms for transferability and as the system has built in mechanisms to join quotas through vessels but not to separate quotas out again, the system can be characterised as a system for centralisation of quota. The fishermen's organisation on Bornholm was a fierce opponent of the FKA system as they feared quota concentration.

Until January 1st 2008, the sea was closed fisheries for all fishermen a number of days (periods) – these were decided in the beginning of the year. From January 1st 2008, the fisheries will be closed during the summer + the individual vessel will be given a number of days at sea.

6. Fisheries sector on Bornholm

The fisheries sector is more important to Bornholm than Denmark in average. Although the dependency is not that impressive compared to dependent regions in other parts of Europe, the development of the sector is, nonetheless, linked to the overall development of Bornholm.

6.1 Previous fisheries studies

In 2004, the Centre for Regional and Tourism Research (CRTR) on Bornholm published a study on the development possibilities of Bornholm (CRTR, 2004A:37). A report containing the background material for the study contains a section on the current situation of the fisheries sector with particular emphasis on the processing sub-sector (CRTR, 2004B:139).

Bornholm was chosen as one of two Danish case studies in connection with the Europe-wide regional socio-economic studies on employment and the level of dependency on fishing (MacAllister Elliot and Partners Ltd, 1999B:16). The study was finalised in November 1999 and the most recent numbers in the study on Bornholm are from 1997. That study draws to some extent on survey data gathered by the Institute for Fisheries Management (IFM) in 1997 and published in 1998 as part of an evaluation of the development possibilities of the fisheries sector of Bornholm in the period from 1998 to 2003 (IFM, 1998).

Moreover, the Danish Technological Institute in collaboration with IFM carried out the Danish evaluations of the FIFG programme 1994-1999 (TI & IFM, 2003A:87) and the PESCA programme from 1994-1999 (TI & IFM, 2003B:56) as well as the mid-term evaluation of the FIFG programme 2000-2006 (TI & IFM, 2003C:211). However, as these were national studies detailed information on Bornholm is limited. Some information can nevertheless be derived on the impact of the structural measures under European Union's Common Fisheries Policy (CFP).

6.2 Fisheries

The fisheries sector of Bornholm has traditionally been dependent on a relatively limited number of species, namely cod, herring, sprat and salmon. Cod is by far the most important of these and the development of the sector is therefore particularly sensitive to the development of the catch and landings of cod.

In 1999, the regional socio-economic study on employment and the level of dependency on fishing calculated the quota dependency of Bornholm to be 95 percent – meaning that only 5 percent of the landings (by value of species destined for human consumption) on Bornholm were not subject to quotas. Bornholm is as a result very sensitive to the conservation policy of the CFP (MacAllister Elliot and Partners Ltd., 1999:58).

The total allowable catches (TACs) for cod in the Baltic (eastern and western stocks) were reduced significantly from 220,000 tons in 1989 to 40,000 tons in 1993 after which it went up to 180,000 tons in 1997. From 1997 and onwards the TAC for Baltic cod has declined to 61,600 tons in 2004 (International Baltic Sea Fisheries Commission). The recent and continuing decline in the TAC for cod is clearly reflected in the development of landings on Bornholm. Figure 6 shows the volume of landings from 1996 and onwards by cod and other species.

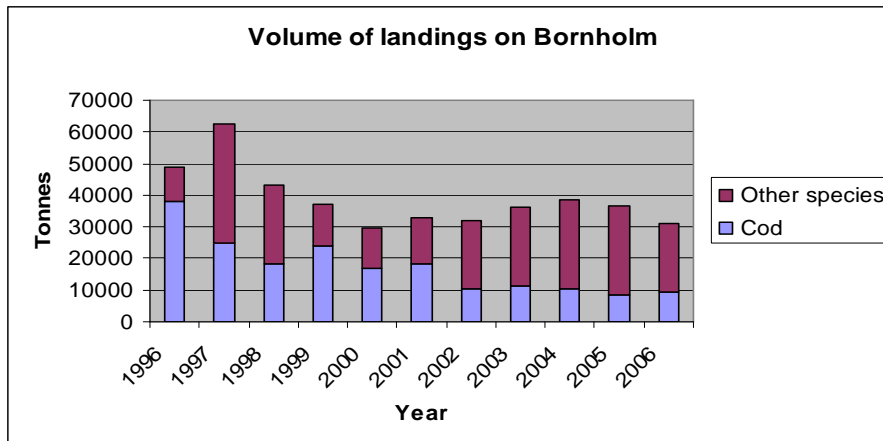


Figure 6. Volume of landings on Bornholm. (Directorate of Fisheries' dynamic landing and catch statistics)

Over the period from 1996 to 2004 the landings of cod declined from just below 39,000 tonnes to only a little more than 10,000 tonnes. In 1994, more than 40,000 tonnes of cod were landed on Bornholm (IFM, 1998). The majority of the volume of landings of other species consists of the low-value species sprat, which is not used for human consumption. The fact that a large proportion of the landings of other species consists of sprat is reflected in the contribution of cod in terms of value of landings. Figure 7 shows the value of cod and the value of other species landed on Bornholm from 1996 to 2006. In October 2007, it was decided that the TAC for the eastern cod stock was to be reduced by 5 percent; and the western cod stock by 28 percent.

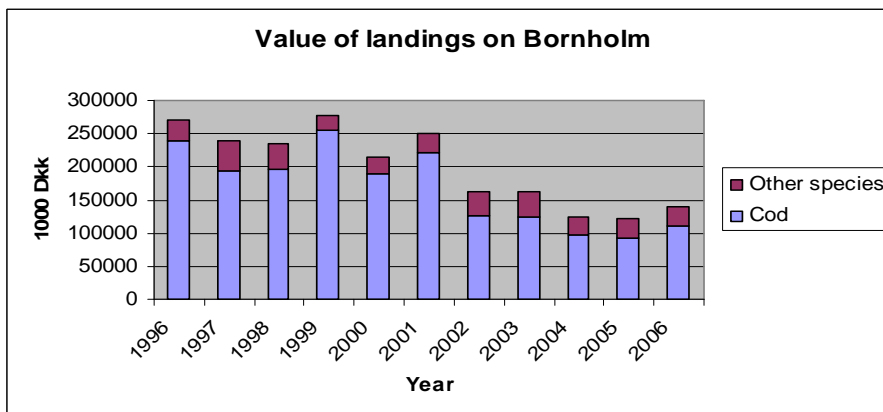


Figure 7. Value of landings on Bornholm (Directorate of Fisheries' dynamic landing and catch statistics)

Figure 7 shows that cod remains by far the most important species in terms of value. However, the relative share of the value of other species has been increasing from 1999 when the share was under 10 percent to 2004 when the share approached 25 percent. However, the increase in relative importance is mostly related to the decline in the volume and value of landings of cod. The total value of landings on Bornholm in 2004 was less than half the value in 1999 (inflation not taken into consideration).

However, the size of the TAC is not the only factor, which determines the volume of cod landings on Bornholm. The Danish quotas for cod have not always been fully utilised due to

the fishing conditions in the Baltic Sea for a fleet consisting to a large extent of smaller vessels. Furthermore, landings by foreign vessels have traditionally been an important source of cod for the processing industry of Bornholm. Figure 8 shows the volume of landings of cod by origin of vessel in the period from 1996 to 2006.

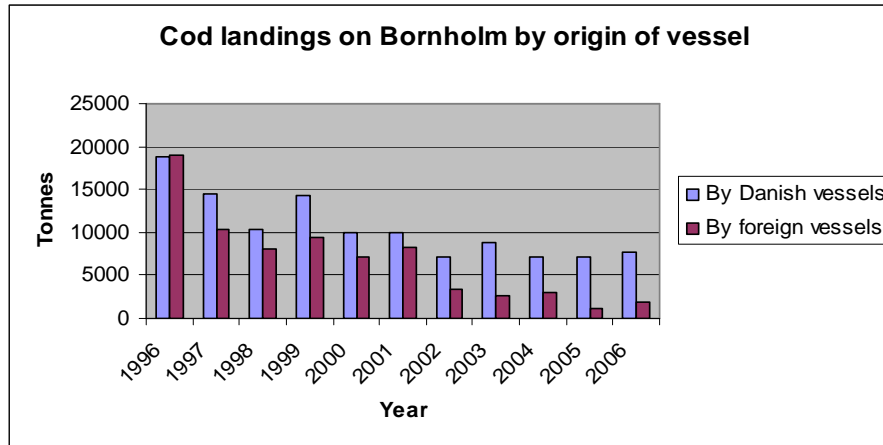


Figure 8. Cod landings on Bornholm by origin of vessel (Directorate of Fisheries' dynamic landing and catch statistics)

Landings of cod by foreign vessels accounted for more than 30,000 tonnes in 1994, approximately 75 percent of the total that year (IFM, 1998). The share of cod landed by foreign vessels relative to Danish vessels has since then been declining. In the period from 2002 to 2006 cod landed by foreign vessels represented approximately 25 to 30 percent of the total volume. Bornholm has not in the period from 1997, when the TACs started to go down again, been able to attract more foreign landings to compensate for the negative development of the national quota. IFM calculated in 1998 that Bornholm's share of the aggregated landings of Baltic cod in all the countries around the sea was reduced from 42 percent in 1992, when Bornholm could rightly be considered the centre of Baltic landings, to only between 13 and 15 percent in 1997 (IFM, 1998).

The data does not suggest that Bornholm has been able to reverse this development and regain its previous position. The foreign landings are as indicated above important because the processing industry otherwise has to source raw material from elsewhere. Foreign vessels are also important for the companies servicing the fishing fleet. IFM reported in 1998 that the employment depending on servicing the fleet in these companies had decreased from 246 in 1993 to 148 in 1997 (IFM, 1998). According to the companies themselves the decline was directly related to the decline in landings as it is not possible to attract vessels for servicing only. In the same report, IFM listed the following reasons for the declining share of landings of especially cod (before the 2004 EU-accession of several states around the Baltic):

- Increase in demand in especially Poland and Germany as well as in the Baltic countries and Russia;
- Increasing capabilities in the sector servicing the fishing vessels in the other states around the Baltic Sea;

- Complications of having to notify foreign landings in an EU member state in advance; and stricter enforcement of hygiene regulations and control in general than elsewhere in the area.

The reduced TACs have resulted in reduced employment, as well. There was in 1996 approximately 400 fishermen on Bornholm, as opposed to 1,000 in the mid-80s (IFM, 1998). Only 251 persons were in 2003 registered as full-time fishermen (7 part-time) on Bornholm (Directorate of Fisheries' static employment tables). The development of the fleet can be examined in Figure 9.

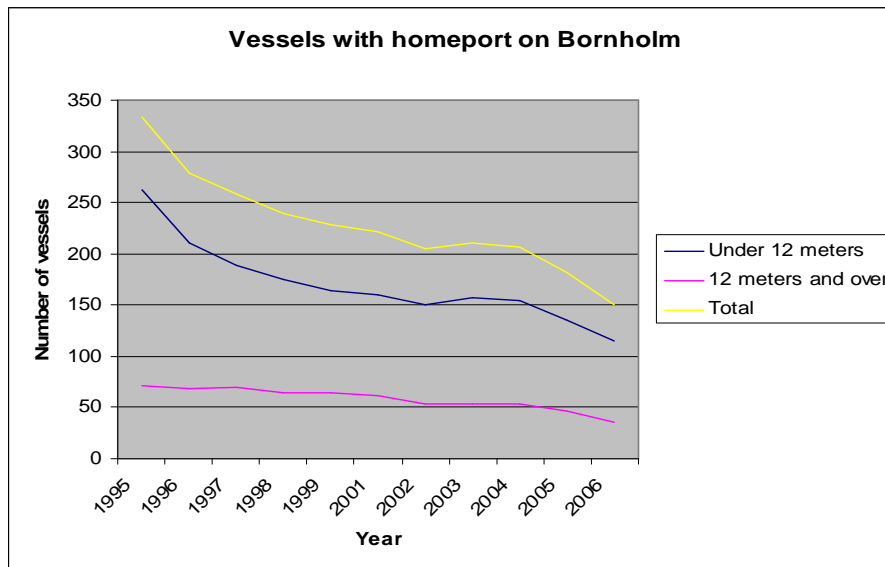


Figure 9. Vessels with homeport on Bornholm. (Directorate of Fisheries' dynamic fleet statistics)

Although there has been a significant reduction in the number of vessels on Bornholm, the total tonnage has only been marginally reduced from 1995 to 2004. However, after having peaked in 1997 the tonnage has actually decreased with more than 15 percent. The peak in 1997 probably reflects the fact that this year marked the beginning of a substantial fishery of sprat. This fishery usually takes place from larger boats, which might explain that the total tonnage of the boats indicating to have homeport on Bornholm was particularly large that and the following years.

The introduction of the FKA system for quota allocation in January 2007 has changed the fleet of Bornholm dramatically, but the figures are not yet accessible from statistical databases. The chair of the local fishermen's association, Birger Rasmussen, estimated in an interview that the fleet would consist of approximately 70 boats at the end of 2007. The 70 vessels include all fishing vessels fishermen's vessels as well as sideline fishermen's vessels. It is primarily the smaller vessels that has been bought and emerged with other vessels.

It seems clear that the capture fishing sector has been negatively affected by especially the declining quotas for cod in the later years. This is also reflected in the economy of the concerned businesses, which is evaluated each year by the Danish Food and Resource Economic Institute based on a sample survey of businesses' annual accounts. The surveyed businesses have seen a serious decline in the average gross output from cod in the period from 2000 to 2005, see Figure 10.

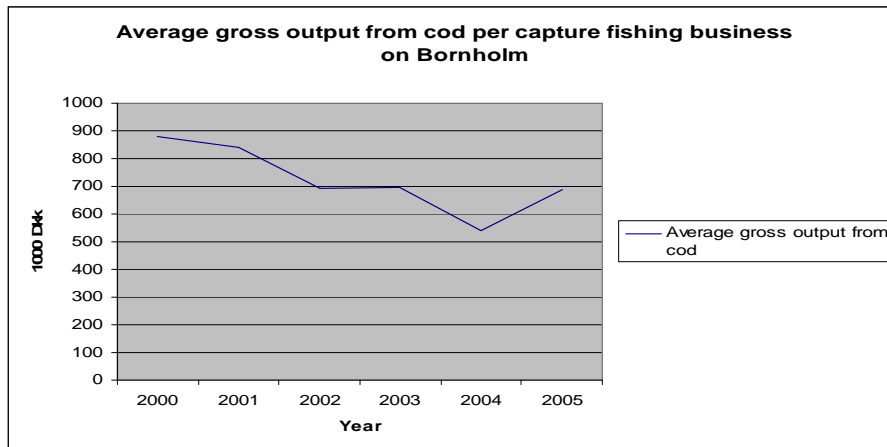


Figure 10. Average gross output from cod per capture fishing business (Food and Resource Economic Institute's fisheries accounts statistics)

Consequently, average operating profits of the businesses have been declining, too. This has over the period resulted in a severely declining solvency ratio (net capital/ total liabilities), which is now well under 30 percent – the figure considered as a rule of thumb the lower limit on sound solvency, see Figure 11. The declining solvency ratio clearly indicates that the capture fishing sector of Bornholm is in a difficult situation.

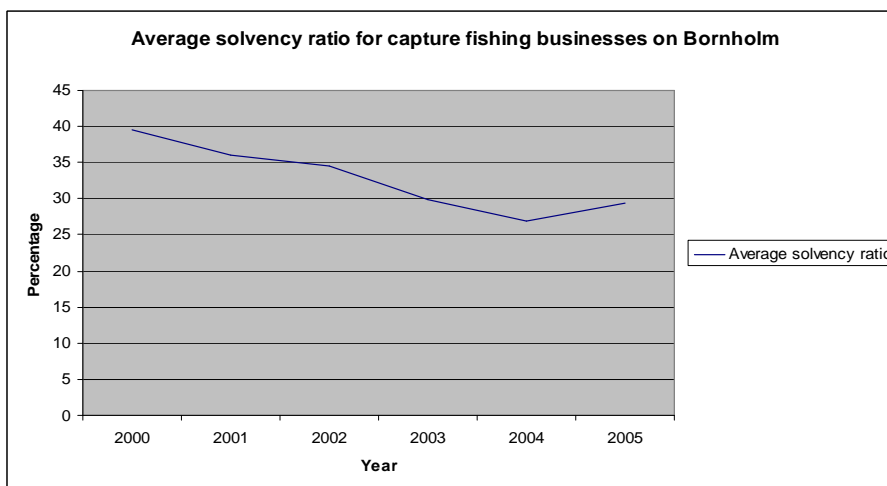


Figure 11. Average solvency ratio for capture fishing businesses. (Food and Resource Economic Institute's fisheries accounts statistics)

The TACs and quotas decided under the conservation pillar of the CFP are, as documented in the section above, closely linked to the situation of the capture fishing sector of Bornholm. Declining quotas – especially for cod – in later years have affected the fleet negatively and led to a decline in employment, a decline in the number of vessels, and a worsening of the economic situation of the businesses. However, declining TACs and quotas are not the only elements, which have contributed to this development: the capture fishing sector has also been affected by the dioxin pollution in the Baltic, which have affected mainly salmon, and the declining employment must also partly be ascribed to increases in efficiency, which means that the same amount of fish can be caught with less input of labour.

With regards to the decline in foreign landings, the main reason seems not to be the conservation measures but rather that the new EU member states in Eastern Europe are increasingly

able to attract landings. This is related to the fact that their economies have been undergoing serious restructuring as a result of the fall of the Soviet Union and also that transition funds have been available from the EU in the years prior to accession. The development in the foreign landings is thus related to the enlargement of the European Union and macro-economic developments in the accession states; however, the declining quotas are probably not without importance, either. The declining number of foreign landings has affected companies servicing the fishing fleet and other related businesses negatively. As a consequence some financial support (1.45 million Danish kroner) under the PESCA programme was directed towards providing these businesses with support to build new markets and export their services – as a first step to the rest of Denmark but also to other countries. It was estimated that these efforts on Bornholm saved just under 100 jobs, which would otherwise have been lost (TI & IFM, 2003C).

7. Fish processing

The processing industry has been particularly important for Bornholm. This is especially the case for the industry engaged in processing of cod. The study on employment and the level of dependency on fishing calculated that 4.35 percent of the total employment of Bornholm was within the processing industry in 1997 (IFM, 1998).

According to IFM 654 (not counting 12 employed in trading firms) were employed in the processing industry that year. The equivalent figure for 1992 was approximately 1000 (IFM, 1998). Comparability between the figures in the IFM report and those in the Directorate of Fisheries' static employment tables is not good because of differences in definitions of the processing industry; basically the Directorate's statistics include a broader spectrum of companies. However, CRTR gathered data in 2004, which are comparable to that of 1997. These figures indicate that the employment decreased with approximately 200 to 447 (CRT, 2004B). Today the most important part of the fish processing industry on Bornholm, the filleting of cod, has moved to Poland and other places abroad. The Figure 12 includes – besides the three (statistically defined) sub-sectors of the processing industry – also the employment in retail and wholesale of fish.

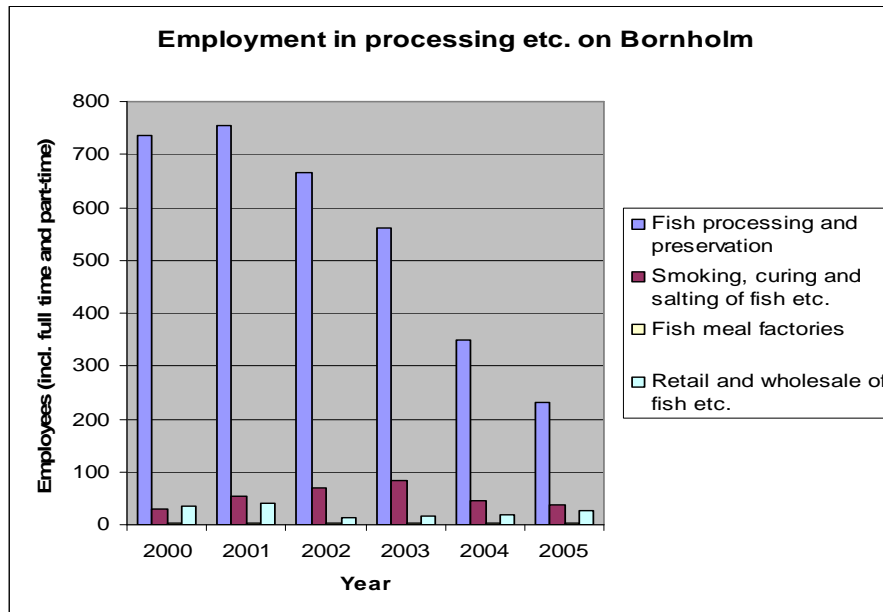


Figure 12. Employment in processing etc. on Bornholm (Directorate of Fisheries' static employment tables)

From 2001 to 2003 the employment in the sector decreased significantly. The negative development is due to a drastic decline in the employment in fish processing and preservation. Employment has on the other hand increased in especially smoking, curing and salting of fish over the same period. The total employment in the processing industry was 647 (incl. full time and part-time) in 2003.

The majority of those employed in fish processing and preservation are employed by only two firms. One firm has 400 employees on Bornholm and by means of outsourcing 800 on factories in Poland, Lithuania and Poland (CRT, 2004B). The Danish processing industry is increasingly dependent on imports of raw materials because of decreasing landings. This is also the case for the processing industry of Bornholm.

CRTR lists the strengths, weaknesses, opportunities and threats of Bornholm's processing industry. Some of the points, which are mentioned, are summed up in the following (CRTR, 2004B): Strengths: stable, qualified and loyal labour force; local raw material from local landings or import from nearby countries; high and uniform quality of products; and good contacts with customers, i.e. retail and fast-food chains. Weaknesses: local raw material is limited and highly sensitive to regulations; relatively high level of costs (due to wages) on standard products, i.e. fillets; and a need to develop technology to cut costs. Opportunities: higher quotas on and consequently easier access to cod if stocks improve; increased import of frozen fish and new species; industrial development to become able to produce the local artisan seafood specialities at larger scale; and develop new products for high-end market. Threats: pollution, i.e. dioxin; lower quotas; increased competition especially on standard products from low-cost areas such as China and Eastern Europe; and employees finding more attractive jobs.

As suggested by CRTR the processing sector is affected negatively by the low quotas on cod. However, the main challenge for the processing sector of Bornholm is not related to the CFP but rather to the globalisation of the market economy, which means that the sector is increasingly competing with low-cost countries. The enlargement of the EU has increased competi-

tion as well as made it easier to import raw material from nearby countries. Some companies on Bornholm have been able to take advantage of the new situation by means of outsourcing – but outsourcing has a negative effect for the local community. FIG support could with advantage continue to be directed towards developing some of the points mentioned as opportunities by CRTR, e.g. industrial development to become able to produce the local artisan seafood specialities at larger scale and developing new products for the high-end market. These are areas where Bornholm has a competitive advantage compared to many low-cost countries.

8. Aquaculture

Aquaculture has traditionally not been part of the profile of Bornholm. The natural conditions have, as described in the introduction, been seen as unfavourable. However, as technologies change so do the possibilities for aquaculture on Bornholm. Bornholm is according to a presentation by Bovbjerg Jensen from the Danish Institute for Fisheries Research suitable for several types of aquaculture (Bovbjerg Jensen, 2004). Bovbjerg Jensen lists the following aquaculture possibilities for Bornholm: farming of salmon type species in sea cages, farming of various brackish water species in sea cages, possibly shellfish, juvenile cod, juvenile brackish water species for restocking and aquaculture, farming of fish for put-and-take and farming of various species in recirculation installations.

Besides the fact that the technologies are available, Bovbjerg Jensen points to the fact that Bornholm has some competitive advantages compared to other areas. These advantages relate to the fact that Bornholm is an area, which is used to fisheries related businesses: there is local experience with the product (fish), the infrastructure is well developed and there is a processing industry to handle the products. Furthermore, the areas for sea cages are available as opposed to other places where there are significant conflicts over this issue.

In other words, aquaculture is insignificant at present but has growth potential. FIG support on Bornholm has already been targeted towards aquaculture development and related activities. Bornholms Lakseklækkeri (Bornholm's Salmon Hatchery) has for instance been involved in a FIG supported project with a total budget of 4 million Danish kroner on the development of methods to farm perch. This is the first experiments with farming of this species in Denmark. Perch are farmed in countries such as France and Switzerland (TI & IFM, 2004C). The same institution has also been involved in a project to breed salmon smolt to release in the wild to increase the amount of salmon, which can be caught by the coastal fleet on Bornholm. The project was a success in the sense that many of the released salmon were caught by Danish fishermen. However, Swedish fishermen have raised concerns about the possible genetic pollution of wild salmon. FIG support has as a consequence also been directed towards research into this issue (TI & IFM, 2004A).

FIG support under the CFP has contributed to raising the profile of aquaculture on Bornholm and Bornholms Lakseklækkeri is today one of the knowledge centres of Danish aquaculture. However, aquaculture has not yet taken off as a production industry on Bornholm and this is an area where FIG support would be in a position to facilitate a development, which according to Bovbjerg Jensen (2004) is fully possible on Bornholm.

The points of Bovbjerg Jensen are supported in the more recent report from DIFRES 2007.

9. Other possible industries at Bornholm

Tourism, agriculture, and niche food productions are important for the recent development. Several of informants point to these niches when explaining how Bornholm has been able to deal with the decreasing fisheries.

The research centre, CRTR (Centre for Regional- and Tourism Research) has looked into these areas in the reports CRTR 2006B and 2006C. In 2006B, CRTR formulates a business strategy for the future tourism on Bornholm. The first bullet point in the strategy shows that Bornholm has ambitions with regard to tourism: ‘We want to be the most visited destination in Scandinavia for visitors from Denmark, Northern Germany, Sweden, Norway, and Poland for individual travels’¹³ (CRTR, 2006B:9).

CRTR investigates the possibilities for development of the agriculture on Bornholm (2006C). The overall conclusions are that the agriculture on Bornholm has room for improvement of the sector. The report points out that development of competences and niche productions are and will be important in the future.

10. Conclusions

The statistics show that Bornholm is as an island facing particular difficulties, which have little to do with fisheries. However, the negative development, which the fisheries sector has experienced from the mid-90s (see for instance Figure 6 and Figure 7), corresponds to the period where the unemployment on Bornholm increased to become significantly higher than the national average (Figure 2). Furthermore, in the same period the average family income on Bornholm declined from around 94 or 95 percent of the national average up to 1994 to 90 percent in 2003 (Figure 4). This does not verify that the development is directly linked to the fisheries sector it is nonetheless a good indication. Several of the informants on Bornholm mentioned that when fisheries go down in a local area dependent on fisheries it strikes hard – and that they had already experienced the first strike during the 1990’s when fisheries almost collapsed and second time when the cod landings started moving away from the island; and therefore did not see it coming again in the future.

With the FKA, quota is transferable and the authorities cannot influence who gets to own the quotas. No statistics exist yet regarding the transferring patterns of quota. The local chair of fishermen’s association said that it seems so far that large parts of the traded vessels (with quota) have stayed on Bornholm. Whether this is an advantage or disadvantage for the Bornholm is hard to say: On one hand, there is no reason that the Bornholm vessels cannot be sold to Danish fishermen/fishing companies outside Bornholm; on the other hand, the fishermen/fishing companies on Bornholm can buy vessels in other parts of Denmark. It is too soon to tell which direction trading will go.

As described the difficulties of the fisheries sector of Bornholm can partly be ascribed to the measures adopted under the conservation pillar of the CFP. However, globalization and the enlargement of the European Union have also changed the situation for the sector. These developments have for instance increased the competition, which the processing sector is facing and redirected landings from foreign vessels to ports not situated on Bornholm.

¹³ Translated from ‘Vi vil være den mest besøgte skandinaviske destination for gæster fra Danmark, Nordtyskland, Sverige, Norge og Polen på individuelt tilpassede ophold’.

10.1 Vulnerability and Critical Issues

- The national quota allocation system (FKA): The system will change the fleet structure. So far many of the small-vessel fleet, which used to be protected by the system of annual quotas, have been traded and merged with other vessels.
- The landings of cod on Bornholm have diminished. The effect of this is primarily seen in the industries providing services to the fishing vessels. As landing and maintenance of the vessels are connected; the service industry for the vessels are also disappearing. The bigger processing companies have moved their production to mainly Poland – so the lower cod landings do not result directly in unemployment.

10.2 Adaptations and Adjustments to Crisis/Scenarios

The two small-scale fishermen, who were interviewed on Bornholm, both saw themselves as the last generation of small scale fishermen on Bornholm. Both of them referred to the good old days throughout the interviews. Their view was supported by the chair of the local fishermen's association as this is the clear and very fast moving tendency after the introduction of the FKA.

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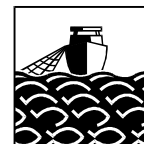
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Appendix 4: German SIA

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Profiling of Small-scale Fishing Communities in the Baltic Sea

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Executive Summary

A social impact analysis provides estimates of expected changes in demographics, employment, organization of fishing related enterprises and the social and cultural structure. The assessment can help policy makers to avoid creating inequities among different communities as well as provide an opportunity for diverse community values to be integrated into the decision-making process (EDWARDS 2000).

To identify the existing social background of fishing communities a pilot study was conducted visiting two study sites for a period of two weeks. The pilot study focused solely on small-scale fishing communities with cod as their key target species. The definition of 'small-scale' fishing in Germany refers to fishing vessels up to 12 meters in lengths. As a result, the selected fisheries segments within the two case study areas were mostly fishermen using passive fishing gear such as gill nets, trammel nets, traps, fyke nets and longlines, with a few trawlers as exception. During semi-structured interviews, observations and group discussions information of the two fishing communities was collected.

While fishermen in one community fish equally for cod, herring and flounder, the other community focuses mainly on cod as key target species. The survey revealed that the single most important issue mentioned by fishermen was the perceived strong surveillance through the marine border patrol, marine police and fisheries inspection. On the other hand respondents criticized widely the lax enforcement in Poland encouraging illegal fishing and punishing those fishermen fishing in compliance with the law.

The coastal fishery sector in particular the fishery fishing with passive fishing gear has no lobby in Germany. Other fishery segments in particular the fishery fishing with active fishing gear are better represented. The small-scale coastal fishery is not valued appropriate to its employment effect in rural and disadvantaged areas and its better utilization of natural resources and working capital. The industrial trash fish fishery in the Baltic Sea should be restricted, since the by-catch level of undersized cod is high. The compulsory fishing of allocated quota entitlements should be abolished. The entire process of European fisheries management is perceived as not very clear or transparent. Fishermen lack the integration of the fisheries sector into the political decision-making process. To mitigate social impacts of fisheries management measures several fishermen suggest the use of monetary compensation through shifting funds from other areas, for example European Fisheries Fund (EFF). More regional specific or individual issues refer to the modality of the current European decision-making process, which allows little long-term forecasts to be made and thus little planning reliability for fishermen.

Conducting social impact assessment is an effective means to identify the impacts of political decision-making on a fishing community. Combined efforts to assess social impacts while raising awareness of the relevant stakeholders in the fisheries sector bear a real potential to tackle priority areas, which require community-based solutions, while encouraging a bottom-up approach to policy assessment and implementation. Exemplary for the success of such procedure are new management forms and ideas for the reorganization of fisheries management.

1. Introduction

1.1 Profiling of Small-scale Fishing Communities

Fisheries management describes the institutions, policies and legislation that determine the way in which communities and individuals utilize fisheries resources. Fishing regulations affect fishing operations in many different ways. The desired effects are manifold. Next to biological-technical effects, e.g. rebuilding of stocks and changes in fishing gear, are socioeconomic effects, e.g. employment structure or income. Social impacts refer to changes effecting individuals and communities due to some management action that alters the day-to-day way in which people live, work, relate to one another, organize to meet their needs and generally cope as members of a fisheries society.

“As human activity remains the major destructive force in nature, improving natural resource management primarily requires changing human behavior” (RÖLING 1994, 1996, 2000, cited in PROBST and HAGMANN 2003). Therefore it is necessary, that local people be in the centre of research efforts in resource management and owners of the innovations in order to improve decision-making and their willingness to participate (PROBST and HAGMANN 2003). Performing a baseline study to identify the socioeconomics of small-scale fishing communities in the Baltic Sea is the first step to understand the likely impacts of fisheries management plans and actions. This information is also a prerequisite to mitigate possible negative consequences on fishing communities. For example, a proposed quota reduction may result in fishermen of a certain fisheries segment to go out of business. Just as important are the perceptions and the willingness of community members to support this fisheries segment.

Conducting a social impact analysis is important for several reasons. The social impact analysis provides estimates of expected changes in demographics, employment, organization of fishing related enterprises and the social and cultural structure. The assessment can help policy makers to avoid creating inequities among different communities as well as provide an opportunity for diverse community values to be integrated into the decision-making process (EDWARDS 2000).

1.2 Scope of the study

The overall goal of profiling small-scale fishing communities in the Baltic Sea is to:

1. Assess the means of introducing a systematic appraisal to identify the impacts of policy changes on the small-scale fishing communities in the Baltic Sea.
2. Design and carry out pilot baseline studies concentrating on the small-scale sector depending on cod as key target species.

The idea is to deliver the necessary social background of the fisheries sector to support the policy formulation and implementation process within the European CFP (Common Fisheries Policy) to result in fair and equitable fisheries management.

It should be noted that this pilot study focused solely on small-scale fishing communities with cod as their key target species.

1.3 Report Structure

The report is organized around four chapters. In the first chapter the objectives of the pilot study are depicted and a context for the study provided.

The second chapter describes the applied participatory methods, the role of the researcher and provides a list of the methods to make later applications more transparent and replicable for the interested reader.

Chapter three begins with some historic information of the two selected study sites. Then the empirical findings of the small-scale fishing communities are presented and in a next step differentiated into institutional and organizational structures, limitations of fisheries management and a discussion about the shortcomings of this pilot study.

And the fourth chapter presents the general conclusion and outlines some implications for future social and economic impact analysis research.

2. Methodology

The following section provides an overview of the applied methods during the two-week investigation period. The selection of methods was based on personal experience with participatory methods, the achievement of research objectives and the feasibility of methods according to the utilization of financial and human in the given time frame. All methods were extracted from the three-volume sourcebook “*Participatory Methods in Community-based Coastal Resource Management*” published by the International Institute for Rural Reconstruction (IIRR 1998). In a next step, the selected tools and techniques were modified to the circumstances at hand, i.e. cultural and societal characteristics. The following qualitative methods were applied in the research process:

- **Observation** is probably the most simple and direct empirical method to gain insight into a community and the processes within it. By observing what actually happens in a community it is possible to understand how it operates. Observation took place anywhere the subject was found, e.g. in harbors, at landing sites and marketing facilities. The observations were carried out taking notes immediately afterwards or if the situation prevented, e.g. during interviews or group discussions, memorized observations were written down on the very same day. The relatively unsystematic gathering of information through observation provides the researcher with preliminary data necessary for developing more refined research methods like semi-structured interviews or questionnaires (MCGOODWIN 2001). Furthermore, observation established the basis for developing relationships with the stakeholders and thus for interviews and follow-up visits. Observation is more than simply gathering information in the field and passively recording what people are doing and saying (MCGOODWIN 2001). The researcher needs to combine the observed events and behaviors with additional information from further questions or literature according to his personal frame of reference (MCGOODWIN 2001). In addition the researcher needs to be aware that his presence affects the social interactions. In order to avoid biased observations the researcher also needs

to be aware, that he or she selects and notes down that which precisely supports his or her research hypotheses.

- The **identification of key informants** is an important step to gather relevant information and utilize scarce resources in the research process. The IIRR (Vol. 2 1998) defines key informants as “purposely selected community members who are able to provide information on a particular research topic based on their knowledge, skills or experience”. The purpose of using key informants is to obtain accurate, relevant, and detailed information about the community or from an individual community member without talking to everybody (IIRR Vol. 2 1998). In my field study the identification of key informants was carried out using established contacts of the institute and by moving down the hierarchic ladder, i.e. calling fishermen that have previously been involved in surveys and contacting the officials from the two fisheries cooperatives. In a next step these persons were asked to identify community members that hold key positions in the fishery sector. Another method of identifying key informants was to visit the people whose names I heard repeatedly during semi-structured interviews.
- **Semi-structured interviews** can be defined as a conversation with a purpose that differs from a structured interview with a specific set of questions (IIRR Vol. 2 1998). In a semi-structured interview there is only a set of guide questions or discussion points and the interview evolves in response to the interview situation and the participant’s assertions (cf. DEFFNER 2004). For this study the thematic blocks that guided the interview were:
 - impacts of fisheries management measures on employment, demographics, the organization of and the engagement in the fishery sector,
 - vulnerability and resilience of the community and
 - ways to mitigate negative consequences.

The purpose of the semi-structured interview is to generate information by means of leaving the development of an interview to the interviewed individual and his or her personal experience. Selecting possible interview partners follows the same approach as in the identification of key informants, as described in the previous section. However, I frequently selected interview partners randomly in the harbor or during boat and net repairs, where it was obvious that the approached persons will be able to provide relevant information on the research subject. Through this procedure I could also make sure that the participants felt at ease conducting the interview in their familiar surroundings. After a short introduction I asked the informants, if he or she had some time to answer a few questions. I explained the purpose of the interview and gave a brief overview of my research. The semi-structured interview was started with general questions about the informant’s family and household and then moved to more specific questions encouraging him or her to become more descriptive. In order to deepen the conversation questions were asked in different ways especially by use of probing questions. The interviews were written up either simultaneously or in the majority of cases immediately afterwards. Most interviews lasted between one and two and a half hours. The strength of semi-structured interviews is its responsiveness to the individual and the situation at hand. Besides gathering information it can generate percep-

tions and emotions (IIRR Vol. 2 1998). A limitation of semi-structured interviews is certainly that responses may be influenced by biases (IIRR Vol. 2 1998), e.g. informants interviewed in a group of other fishermen most likely responded differently due to the surrounding people listening. On the other hand interviewing people privately does not guaranty, that the answers given are not what they think you expect to hear. Therefore applied interview technique puts a high demand on the interviewer and his communication and mediation skills incorporating the accumulated information into the interview process and establishing a form of triangulation¹⁴.

- **Group discussions**, also referred to as focus group discussions, are discussions with a selected group of community members (key informants or others chosen for their relevance to the objective of the study) following a guideline designed to generate discussion on a particular topic (IIRR Vol. 2 1998). The purpose of group discussions is to gather information on livelihood practices, decision-making structures, issues in fishery and other information (IIRR Vol. 2 1998). In addition information previously collected during group discussions may be verified or detail added. In this study one group discussion in Freest was used that had spontaneous formed when discussing contentious issues on the quayside. To keep the discussion going open-ended questions were asked. For example: What could be done to improve current fishery management? How do you see the future? In order not to lose focus my thematic blocks acted as a guideline.

3 Baltic Community Profiles

3.1 Introduction

The following findings from participant observation or group discussions, for example, are not always notably mentioned, as this would disrupt the narrative form of the text. After a short introduction to the study locations I provide a short outlook into the historical-political system before the two study locations are described in more detail.

The selected fisheries segments within the tow case study areas were mostly fishermen using passive fishing gear such as gill nets, trammel nets, traps, fyke nets and longlines. The reason for this was the definition of ‘small-scale’ fishing, which in Germany refers to fishing vessels up to 12 meters in lengths. Yet these fishing vessels are almost solely used for gill net fishing with a few trawlers as exception.

The Nomenclature of Territorial Units for Statistics (NUTS) is a unique labeling of regions within the European Union into three levels. It serves as a reference system for the socioeconomic analysis and statistical comparison of regions. Usually the member states in the European Union draw on NUTS-Level-II areas to analyze national, regional problems when deciding on joint regional political measures. NUTS-Level-III areas are only considered when regional political measures are taken. (Table 1)

¹⁴ Triangulation is the application and combination of research methods, theories, observers, or empirical material (key informants) in the study of the same phenomenon (MAYRING 2001).

Table 1. Overview of the two German Baltic states

State	Mecklenburg-Western Pomerania	Schleswig-Holstein
Capital	Schwerin	Kiel
NUTS-Level-II	DE8	DEF
Area	23 174 km ²	15 763 km ²
Population	1 694 600	2 834 305
GDP	31 billion € (2005)	69 billion € (2005)

Source: WIKIPEDIA (2007)

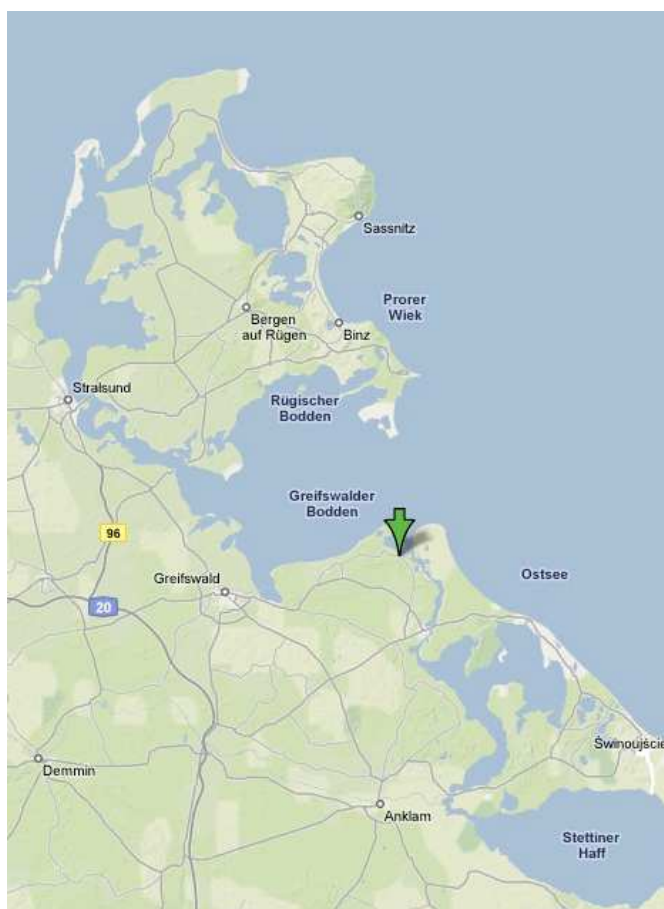
3.2 Mecklenburg-Western Pomerania: Freest

Mecklenburg-Western Pomerania is one from two federal states bordering the Baltic Sea. It is the sixth largest in size and least densely populated German state (Table 1). In the east Mecklenburg-Western Pomerania borders Poland, and in the west Schleswig-Holstein. Mecklenburg-Western Pomerania's unspoiled nature and varied coastline make it Germany's number-one tourist location. The overall coastline extends over 1 712 kilometers, whereby 1 358 kilometers account for inner coastal lagoons and 354 kilometers for the outer coast. The state was formed in 1947 under the Soviet occupation and replaced by three districts covering roughly the same area under the centralized German Democratic Republic (GDR) government. Prior to German reunification in 1990, the post-war eastern states were reconstituted, including Mecklenburg-Western Pomerania. Due to its location on the Baltic Sea and the rugged coastline with its peninsulas, inner coastal lagoons and backwaters the fishery is mainly artisanal, i.e. fishermen using fishing vessels with less than 12 meters and a moderate income. In this respect, it is little surprising that more than 800 of the 956 fishing vessels operating in Mecklenburg-Western Pomerania are undecked vessels with a length less than 12 meters.

Table 2. Overview of the district Ostvorpommern and its socioeconomic characteristics

District	Ostvorpommern
NUTS-Level-III	DE80F
Area	1 910 km ²
Inhabitants	112 225
Population density per km²	59
Unemployment rate	24,7
Available household income per capita in € (2003)	13 120

Source: FAL (2007)



The village Freest lies in the district of Nordvorpommern and is located on the river mouth of the Peene River just across the island of Usedom (Table 2, Figure 1). It was first mentioned in records in 1298. Fishing and tourism are the main income generating activities. Freest is well-known for its traditional fishing festival. In 1995 the harbor was extensively restructured. It is not only one of the most modern harbors in Mecklenburg-Western Pomerania but also serves as a tourist magnet in the area.

Figure 1. Map of the study location Freest, Mecklenburg-Western Pomerania indicated by the green arrow.

Source: <http://maps.google.de/>

The fisheries cooperative “Peenemündung Freest e.G.” was founded in 1960. During the GDR privately-owned fishing vessels were acquired. After the reunification in 1989, these fishing vessels were again privatized. Today 30 fishing enterprises with 43 fishermen and 56 fishing vessels are organized in the cooperative. Further 32 persons are employed by the cooperative, working in fish landing and processing, retailing, transport and administration. Of the total numbers of vessels there are 3 fishing cutters with 17 meters length, 18 cutters with 12 meters length and 9 cutters with approximately 8 to 10 meters in length. The rest of the fishing vessels are under 8 meters in length. The most commonly used fishing methods are passive using gillnets, trammel nets, traps and longlines. A minority of fishing vessels use active fishing gear such as beam trawls. The fishing grounds are the shallow coastal waters such as the Greifswalder Bodden, the outer coast of the Isle of Usedom and Rügen, the Peene River, the inner coastal lagoon Darßer Bodden, the Bay of Pomerania, the Arkona-bassin and east of the Island of Bornholm. The total annual landings vary between 1 900 tons and 4 200 tons (Figure 2). In comparison, the entire landings in the coastal fishery sector in Mecklenburg-Western Pomerania totaled 21 886.5 tons in 2006.

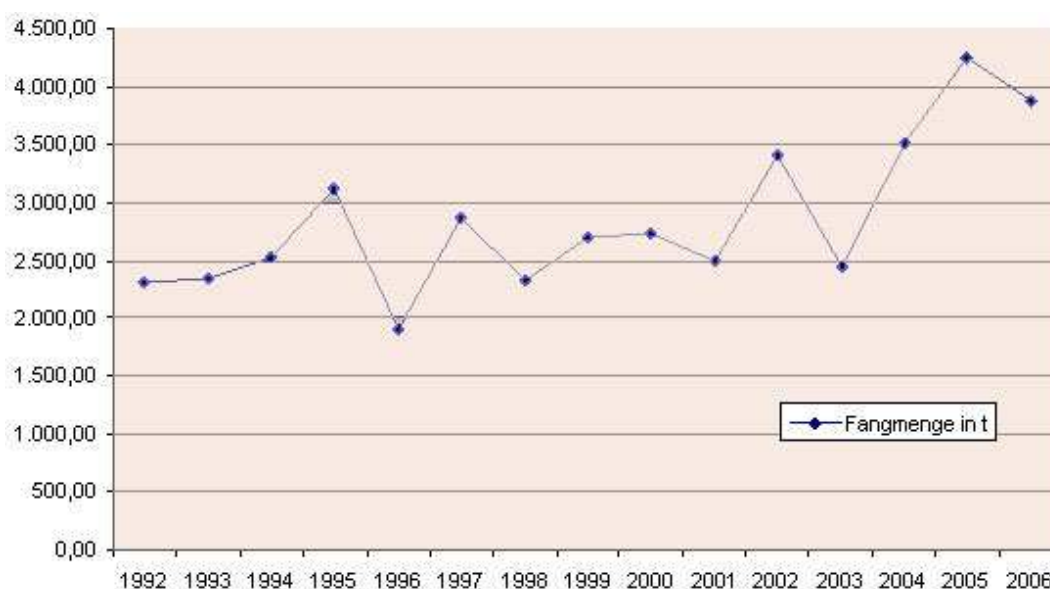


Figure 2. Total fishery production of the fishing cooperative „Peenemündung Freest e.G.“ from 1992 until 2006

Source: www.fischerei-freest.de

The main target species are herring, flounder and cod (Figure 3). Other species include walleye, perch, pike, eel, sole, turbot, garfish, roach, bream, Maraena whitefish and salmon. 95 percent of the catch is marketed abroad (Denmark, Netherlands, Poland) whereas 5 percent is marketed in Germany.

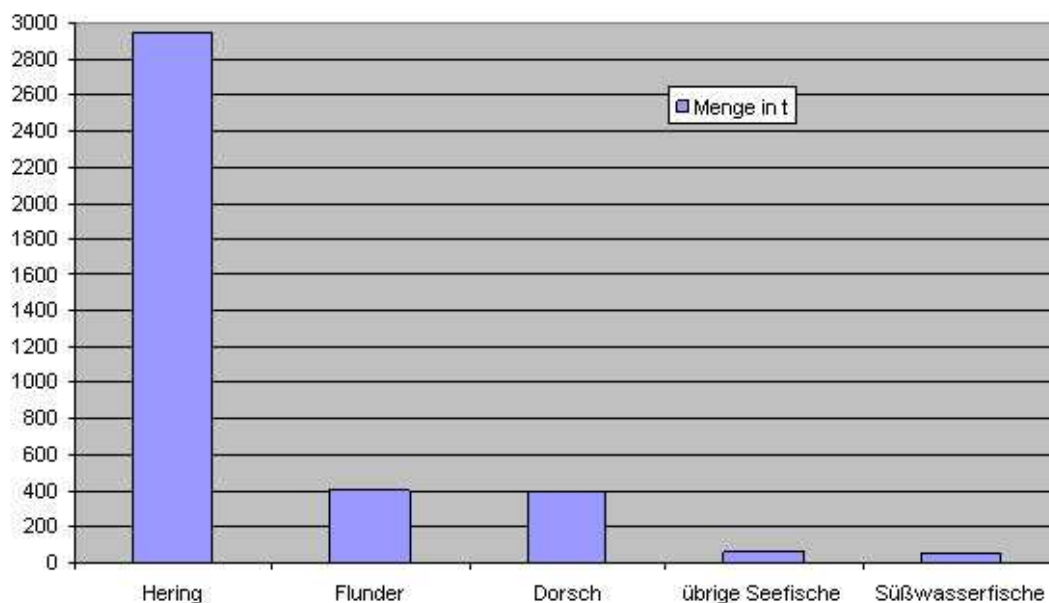


Figure 3. Total annual catch of the target species (herring, flounder, cod, other marine fish, fresh water fish) of the fishing cooperative „Peenemündung Freest e.G.“ in tons

Source: www.fischerei-freest.de

The fishing efforts follow a traditional pattern in Freest. During the spring spawning season from February until May, when the herring from the Western stock moves to the Greifswalder Bodden herring is the single most important target species. During the summer months fishermen mainly focus on flounder. According to a cooperative employee, one of the reasons is the low quality of cod during the summer months, when meet quality is described as pale, soft and executive. From autumn until the end of the year, the fishery concentrates on cod. As a result of this procedure, opinions are voiced that fishermen in Freest have not fulfilled their cod quota and should hand in the excess quota without accounting for the specific and traditional distinctions.

An interviewed fisherman in Freest relied on an annual cod quota of 6.6 tons, 70 tons of herring and 5.5 tons of flounder. A man and his son fish 13 tons of cod, 144 tons of herring, several tons of flounder and go out to set longlines for eel. Other fishermen have 5 and 10.5 tons of cod quota. They all report that cod catches have been increasing year after year. Today they even catch juvenile cod in their fish traps and fyke nets, something that has never happened before. One fisherman states that he does not believe marine fisheries research anymore since they predict that the amount of fish is constantly decreasing and that next year there will be none left.

Most of the fishermen are 50 years and older, none of their children except one have become fishermen themselves. In fact there are only two 'young' fishermen (27 and 32 years) in the entire community. In the future they expect the number of fishermen to decrease substantially. This is also one of the reasons why the 'young' fishermen are confident of a bright future.

3.3 Schleswig-Holstein: Heiligenhafen

Schleswig-Holstein is the northernmost state of the 16 federal states in Germany (Figure 1). It lies on the base of the peninsula of Jutland between the Baltic Sea and the North Sea. In the north Schleswig-Holstein borders Denmark in the east Mecklenburg-Western Pomerania (Figure 1). Its coastline extends over 637 kilometers, whereby 162 kilometers account for the Schlei River estuary and 87 kilometers for the island of Fehmarn.

Table 3. Overview of the district Ostholstein and its socio-economic characteristics

District	Ostholstein
NUTS-Level-III	DEF08
Area	1 392 km ²
Inhabitants	205 589
Population density per km²	148
Unemployment rate	9,6
Available household income per capita in € (2003)	16 038

Source: FAL (2007)

Heiligenhafen is a small town located on the eastern tip of the Wagrien Peninsula in the district Ostholstein (Figure 4, Table 3). It was founded around 1255 through the combination of several villages. Heiligenhafen has a rocky history with a flourishing trade and constant growth alternating with floods, wars and plague. Today Heiligenhafen has nearly 10 000 inhabitants and relies widely on tourism and fishery.

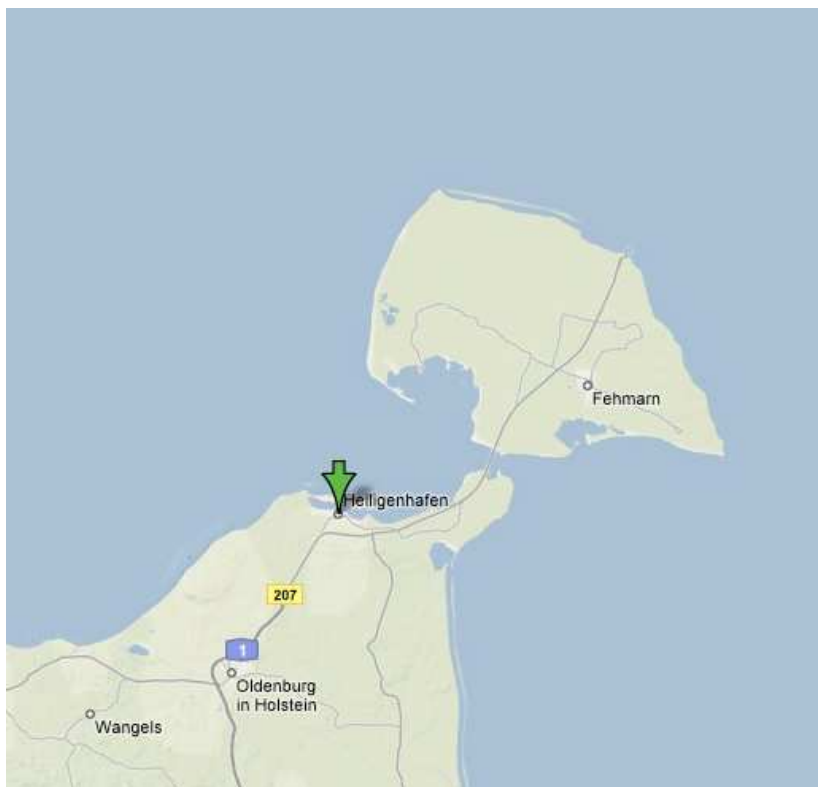


Figure 4. Map of the study location Heiligenhafen, Schleswig-Holstein indicated by the green arrow

Source:
<http://maps.google.de/>

In contrast to the fishery in Mecklenburg-Western Pomerania the small-scale fishery in Heiligenhafen focuses mainly on cod as target species. Since there are no herring spawning grounds in close proximity there is no specialized fishery for herring such as in Freest. As a result, one of the interviewed fishermen in Heiligenhafen goes fishing for plaice during the fixed closed period in April. Therefore he transfers his small fishing vessel to Thorsminde, Denmark to fish and land his catch there.

The fisheries cooperative confirms that many fishing vessels based in Heiligenhafen have or had fishing rights to go fishing in the North Sea. Although only little effort is required to maintain these historic fishing rights – namely fishing actively in the North Sea at least once a year – many German fishermen have lost their fishing rights in the last years for exactly this reason. This lack of personal effort and flexibility of German fishermen is also criticized by the fisheries cooperative. An example is a Danish fishing crew that goes gill net fishing with six men and a 16-meter fishing vessel in the English Channel and the North Sea. They fish several months a year for common sole in the English Channel and several months for cod in the North Sea achieving annual turnovers of 650 000 Euro. Apparently the German fishermen have made themselves comfortable and are satisfied by fishing in front of their doorstep.

Along these lines a fisherman explains that in the last 20 years his fishing methods and gear has not changed. He also asserts that the cod fishery has not changed much either. During a day of fishing he sets about 50 to 100 nets, whereby 15 nets (1 net = 50 meters) make up a string from about 700 to 800 meters length. The exact amount of set nets depends on his spirit and the prevailing weather. Altogether there is less fish than in the past. Therefore the size of cod he catches is increasing, which could be a sign of bad recruitment. He describes his income as moderate and relies solely on his 25 tons of annual cod quota, which is sufficient for him. Another fisherman, who also described his income as moderate, specifies that his monthly income fluctuates between zero and 2-3 000 Euro. On average he makes about 800 Euro per month. Both fishermen have in common that they rent a small apartment and have little financial scope. Some of the fish is soled directly from board the fish cutters. In the past this amount has been substantial higher but the fisheries cooperative has prohibited filleting fish on board the fishing vessels. Since customers mostly demand fish fillets the direct sales of the boats have decreased significantly. In this context, the defraud of fish catch was openly discussed, with the result that of course a small amount of fish is traded on the side but that the amount was insignificant compared to the amount of fish handled and due to imminent penalties.

Most of the fishermen in Heiligenhafen are 50 years and older. However, fishermen make yokes that their fishing fleet is even older and that Germany is fishing with a museums fleet of fishing vessels. Nevertheless, there are several young fishermen in the fishing community. One of the respondents at age 27 is fisherman in the 9th generation. Although the future does not look very bright – fishermen expect 50 percent of the fishing enterprises to go out of business – the younger brother (23 years) of the previously interviewed fisherman wants to become a fisherman himself. And another family relative who cannot find an apprenticeship position as a brick layer wants to become fisherman too.

3.4 Fisheries Management

Quota allocation

Several fishermen in the town of Freest criticized quota allocation between the two federal states that border the Baltic Sea. The main reason for this lies in the historic process of quota allocation. During the GDR herring and flounder were the key target species of the fisheries, whereas cod played only a minor role. After the reunification in 1989, many bigger fishing vessels in the new federal state of Mecklenburg-Western Pomerania went out of business so that mainly small fishing vessels remained in the fishery. At that time quota was newly allocated between the “old” (Schleswig-Holstein) and “new” (Mecklenburg-Western Pomerania) federal states. The quota was distributed according to the circumstances of the current quota and the prevailing fleet segments in the fishery sector. In the former case this meant that a larger part of the herring quota was allocated to Mecklenburg-Western Pomerania but the share of the cod quota was much lower. In the latter case this implied that according to the differing fleet segments between the two states, more and larger fishing vessels especially trawlers in Schleswig-Holstein and many small, undecked vessels in Mecklenburg-Western Pomerania, a large share of the cod quota was subsequently allocated to Schleswig-Holstein. As a result of these two factors, the distribution of the cod quota was 30 percent for Mecklenburg-Western Pomerania and 70 percent for Schleswig-Holstein. In the following years and up to now the distribution of cod quota has been adjusted. However it is still not counterbalanced, yet it is reflecting the current fleet segments.

In a second step, the allocated quota is distributed within the federal state and between the existing fisheries cooperatives. In Schleswig-Holstein, for example, the cooperatives are split into two districts named “North” and “South”. The “Fischereigenossenschaft Heiligenhafen” belongs to the southern district together with three other cooperatives. Every year they meet and agree on the actual shares each cooperative will dispose of.

Many fishermen operating smaller fishing vessels complain about those fishermen fishing with larger fishing vessels, i.e. the quota allocation between small and big fishing boats. An often, unconsidered argument in this respect is that these larger fishing vessels are always called upon if quota entitlements have not been fished and are threatened to be lost. A fisheries cooperative confirmed that there is always the possibility that due to severe weather conditions in autumn the quota cannot be fished. However, if more than five percent of the quota is not fished it has to be handed back to the government authority responsible for the national quota allocation.

During the end of the year is the peak period of the fisheries cooperatives. Until the 30th of October they have to report to the BLE (Federal Centre for Agriculture and Food) how much of each quota has been fished so far. The aim is to prevent hoarding of quota. The job of the fisheries cooperatives now is to monitor fished and outstanding quota to trade and exchange quota within the cooperative respectively with other cooperatives. This goes to such lengths that overfished or outstanding quota is traded with other countries. The following example shall illustrate this. Let us say fishermen from Heiligenhafen have overfished 200 tons of cod from the western Baltic stock. Yet there is outstanding sprat

quota. Poland still disposes of outstanding cod quota from the western Baltic stock but no sprat quota anymore. A possible deal could result in an exchange of 200 tons of cod for 2 000 tons of sprat for example.

Effort regulation

Effort regulation is part of the European Commission's fisheries management and may be divided into fixed closed periods that apply to all member states and a number of predefined closed days that are individually set by the member states. The determination of closed days is carried out in collaboration with the fisheries cooperatives.

Table 4. Overview of the closed periods and closed days in the cod fishery for 2007

ICES Area	22-24	25-27
Fixed closed periods	01.-07.01.	01.-07.01.
	31.03.-01.05.	05.-10.04
	31.12.	01.07.-31.08. 31.12.
Individually defined closed days	16.-24.02.	08.-31.01.
	16.-30.03.	01.-13.09.
	25.-30.05.	01.-30.12.
	25.06.-15.07.	
	23.-28.09.	
	23.-28.10.	
	23.-28.11.	
21.-28.12.		
Closed days	117	123

Source: BUNDESANZEIGER (2006)

Fishermen from both states criticize the individually defined closed days. They argue that especially in autumn bad weather and storms have strong implications on the fishery sector, as they produce high waves and strong winds that prevent the majority of small fishing vessels from going fishing. Unfortunately, the closed days and the stormy days often not comply with each other, so that fishermen may be detained from fishing for almost the entire month. On the other hand, a cooperative employee states that it was for the sake of the small-scale fishermen with their small fishing vessels that closed days were evenly spread across the year, so that a minimum monthly turnover would be ensured. Nevertheless, several fishermen voiced that they would prefer a consolidated period instead. Next to the reason named above this involved the amount of time needed to change the entire fishing equipment on board in order to target different species. According to them one day was needed to remove the fishing nets from the vessel and one day to fit alternative fishing gear so that only a few days remain for fishing.

The fixed closed periods during the spawning season of cod is widely accepted by fishermen. However, the fixed closed period from the 31st of March until the 1st of May (32 days) has different implications for the two fishing communities. In Freest, Mecklenburg-Western Pomerania where fishermen target herring during this time the closed period plays nearly no role. On the contrary, fishermen in Heiligenhafen, Schleswig-Holstein are strongly affected by the closed period.

Enforcement

The survey revealed that the single most important issue mentioned by fishermen was the perceived strong surveillance through the marine border patrol, marine police and fisheries inspection. Yet, fishermen expressed exceptional confidence in these local government authorities and executive bodies concerning the effective enforcement of current fishery legislation. On the other hand respondents criticized widely the lax enforcement in Poland encouraging illegal fishing and punishing those fishermen fishing in compliance with the law. In this context, fishermen highlighted the importance to strengthen the participation of fishermen in fisheries management to manage resources more effectively. This suggestion targeted their willingness to manage each other, since fishermen have a strong interest themselves to prevent IUU (illegal, unregulated and unreported) fishing. The same fishermen were questioning why fines in Poland and Germany varied substantially and demanded transparency in the current system and equal conditions for all countries fishing in the Baltic Sea.

In contrast to the perceived strong surveillance random sampling revealed that fishermen at most had been controlled once a year and at least once in ten years. According to officials from the water police in Heiligenhafen these discrepancies had several reasons. First and foremost this is owed to the circumstance that the majority of controls carried out are visual controls. Another reason lies in the vast jurisdiction of the marine border patrol, the marine police and the fisheries inspection who are all permitted to carry out fisheries inspections comparably. As a result, a single fisherman may be observed several times a day from different official bodies. Nevertheless, the incidence where several inspections on board the same fishing vessel and on the same day occurred is extremely rare. Visual controls include the identification of the observed fishing vessel, the tracking of its VMS (vessel monitoring system) signal, the documentation of its actual position and distance to the coastline and the observation of its fishing gear in use. This information is then used for cross compliance checks on shore and when landing fish to detect discrepancies, e.g. did quota exist to justify fishing in the observed area. Other activities within fisheries enforcement involve the control of set nets, traps and fyke nets. Thereby controls focus on the owner's identification of fishing equipment and the allowed number of fishing gear. Unlabeled and excess fishing gear is collected and disposed.

The responsibilities of the government authorities in fisheries enforcement vary considerably between the two federal states in Germany. In Mecklenburg-Western Pomerania the fisheries inspection carries the lead responsibility for fishery controls at sea. In Schleswig-Holstein the fisheries inspection only carries out controls on shore and the marine police is solely responsible for controls at sea. Following a government decree in 2003 this change was initiated to utilize resources more efficiently in Schleswig-Holstein. As a result, the marine police vessels carry out fisheries inspection task in conjunction to their regular duties. Various debates have been carried out concerning this circumstance. Fisheries cooperatives criticize a lack of specific fisheries knowledge of the marine police, hence little understanding of the personal situation of fishermen. Whereas the marine police accuse the fisheries inspection of being biased towards fishermen, since some of the staff members are former fishermen. Nevertheless, marine police officers have to pass

several training modules before being appointed EU fisheries inspector. According to the marine police the extent of fisheries controls has increased explicitly in Schleswig-Holstein. This is owed to the fact that the marine police go on regular patrol cruises and utilize this time for visual controls of fishing vessels.

Officials from the marine police in Schleswig-Holstein reported that up to now they had observed no technical manipulation of fishing gear and no noteworthy violation of fisheries legislation. Instead some of the inspected gillnet fishermen are using nets with mesh sizes bigger than the minimum net size of 110 mm.

3.5 *Limitations of Fisheries Management: Discussion and Further Implications*

Throughout the field study participants expressed their own strategies to manage fisheries and in particular coastal fisheries. In addition, issues and concerns of the present fisheries management system are voiced. Striking was that several fishermen stated that they have never been asked about their opinions about existing fisheries management. While some of these opinions apply to fishermen from both fishing communities some are regional specific or individually expressed. Worth mentioning is that several fishermen endorsed the majority of the existing fisheries regulations.

Fishermen from Freest and Heiligenhafen alike raised the following issues:

- There are no equal opportunities for fishermen in the Baltic Sea fisheries system. For example fisheries enforcement is very strict in Germany and other countries enforce rather lax. Moreover, Swedish trawlers with 2 000 horsepower engines go fishing in the Baltic, whereas other countries regulate the maximum permitted engine power. It is time that other countries take responsibility.
- The coastal fishery sector in particular the fishery fishing with passive fishing gear has no lobby in Germany. Other fishery segments in particular the fishery fishing with active fishing gear are better represented. Fishermen feel extremely helpless and left behind, which is also expressed in the quotation: *“The income of fishermen is determined by politics.”*
- The small-scale coastal fishery is not valued appropriate to its employment effect in rural and disadvantaged areas and its better utilization of natural resources and working capital. By this, fishermen relate to the fact that small fishing vessels with a small, allocated quota are capable of providing a living for an entire household. Big fishing vessels with nearly ten times as much quota can only provide a living for two or three family households.
- The industrial trash fish fishery in the Baltic Sea should be restricted, since the by-catch level of undersized cod is high.
- The compulsory fishing of allocated quota entitlements should be abolished. Fishermen in both communities see no sense in the compulsory fishing out of quota and being punished for non-fulfillment of their quota through quota cuts. Quite the opposite, fishermen perceive their action as more sustainable if parts of the quota are voluntarily not fished.
- The entire process of European fisheries management is perceived as not very clear or transparent. Fishermen lack the integration of the fisheries sector in the political decision-making process. A proposed solution to this problem is the re-

organization of the fisheries management to more national management where the member states are solely responsible within the 12 mile zone.

- The classification of fisheries segments should be reconsidered and as the case may be abolished and an individual view (single-case decision) adopted. Along these lines are discussions concerning fisheries regulations affecting fishing vessels with 12 meters or more. Thereby fishermen are measuring the costs for technically modifying their fishing vessels in length so that they fall into the next lower category and the associated risk that the segment classification might change.
- Large trawlers and fishing vessels should bear the better part of quota cuts. Gill net fishermen with small quota entitlements refuse to bear quota cuts in equal measure. One of the reasons is that large fishing vessels have the option to fish for different species and in different sea areas. The other reason is that the passive fishing gear used by the small-scale fishermen is associated with selective fishing and little ecosystem impacts, an argument often used by the entire fishery sector to raise public awareness.
- To mitigate social impacts of fisheries management measures several fishermen suggest the use of monetary compensation through shifting funds from other areas, for example European Fisheries Funds.

More regional specific or individual issues refer to:

- New management decisions are unaffordable such as for example the impending law to attach acoustic pingers to fishing nets to prevent harbor porpoises from becoming entangled. Despite the fact that by-catch of cetaceans is extremely low in the eastern coastal waters of Mecklenburg-Western Pomerania this new management measure would impose costs to the amount of 5-10 000 Euro per fisherman.
- A Fisherman in Freest criticizes differing minimum size limits for various fish species caught in the estuary of the Peene River or the open sea, e.g. walleye (40 cm in the sea/45 cm in the river estuary) or eel (35 cm in the sea/45 cm in the river estuary).
- Fish size limits should be abandoned and replaced by minimum mesh size limits. A fisherman explains that in former times fishermen have used larger mesh sizes in their gill nets and cod ends thus minimizing the discard of cod. Today's regulation with the minimum size limit of 35 cm for cod and no increase of minimum mesh size has led to massive discard of undersized cod.
- The bureaucracy in the EU is constantly increasing. As a result, bureaucratic hurdles more and more absorb the time from personnel working in fisheries cooperatives leaving less time to deal with actual fishery issues and real-world problems.
- The modality of the current European decision-making process allows little long-term forecasts to be made and thus little planning reliability for fishermen. This severely effects credit negotiations and leads to the refusal of credits. A proposed solution is that the EU issues regulations within a defined framework and leave large parts to the individual member states.
- Those member states that have reduced fleet capacity substantially are punished by other member states that have effectively resisted against the reduction of fleet

capacity and now exert pressure to take over quota. The paradox of this situation is that the member states that have reduced their fleet capacity are only capable of fishing a certain amount of quota. In the case of restoring stock levels and increasing the total amount of available quota these member states will be most likely to lose their quota entitlements to member states with a bigger fleet.

- The newly established Baltic Sea Regional Advisory Council (BS RAC) for the sake of stakeholder involvement in fisheries management is a stillborn child. This statement is built on personal experience where the European Commission did not listen thus consider advice from the Baltic RAC despite strong contributions and recommendations. Furthermore, it is difficult for fisheries cooperatives to exempt and finance personnel to participate.
- Scraping of excess fleet capacity in Poland and other eastern Baltic states.

3.6 Critical assessment of this pilot study

Qualitative research and data quality relies on the establishment of partnerships between the various stakeholders. The available two weeks for this pilot study was by no means enough to ensure the quality of the present data. Moreover, viewing the respondents as pure informants – that are contacted, questioned and left behind – conflicts with the demand that the researcher becomes a “*passionate participant*” within the investigation process (GUBA and LINCOLN 1994). One of the major shortcomings in this study is that there is no formal feedback loop to feed back collected data to the participants in order to establish collaborative learning. This would also help to allow the researcher to see reality through the eyes of the fishermen. In particular against the background of strengthening regional management of fisheries resources within the European CFP it makes little sense to miss the opportunity to identify key starting points for interventions. However, a strictly explorative research design is unlikely to deliver these results.

4 Conclusion

Conducting social impact assessment is an effective means to identify the impacts of political decision-making on a fishing community. These changes might be significant for the livelihood of community members. However, it is important to bear in mind that some individuals or community groups may be affected more than others and changes may also be subtle and difficult to quantify. One should also be aware that interests of various stakeholder groups in a coastal fishing community differ widely and that while some interest groups make themselves heard others may be less vocal.

The selected methods for the implementation of social impact assessment in this study are adequate to assess the coastal fishing communities and involve stakeholders. Helpful for the selection of methods is the consideration of trade-offs between the anticipated utility and the expected time and effort. However selected methods need to be adjusted to prevailing circumstances such as cultural and social characteristics.

Governments on national, member states level fail to enforce existing fishery regulations and punish the fishery in other member states. The unequal distribution of authority among member states results in unequal opportunities for fishermen in the Baltic Sea fisheries.

The coastal fishery sector in particular the fishery segment fishing with passive fishing gear has no lobby and is among the most vulnerable affected by fisheries management measures. It is also the interest group with the lowest income and little resilience to cope with political change. Regardless, small-scale fishing communities represent a main pillar of employment and prevent out-migration in the rural and little developed areas of the German coast.

Compulsory fishing of allocated quota entitlements is seen as an inadequate and out-moded method of fisheries management. The devolution of quota entitlements to local resource-users could strengthen local governance and enhance the sustainable management of fisheries resources.

The strictly explorative design of the applied social impact assessment needs widening to integrate participatory learning through feeding back collected data to the participants. Combined efforts to assess social impacts while raising awareness of the relevant stakeholders in the fisheries sector bear a real potential to tackle priority areas, which require community-based solutions, while encouraging a bottom-up approach to policy assessment and implementation. Exemplary for the success of such procedure are new management forms and ideas for the reorganization of fisheries management.

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Appendix 5: Field Guide

Baltic small scale fishing community profiles draft questionnaire schedule

Examples of types of informants who should be contacted and interviewed:

- official representatives (fishing cooperative, PO reps, etc)
- shoreside sector
- processing industry
- community businesses
- church priest (depends upon community; would be important in Poland and Holland for example, but maybe not in others)
- fishers' wives
- boat owners
- crew members
- town hall representatives (local government)

A range of ages should be attempted, especially among the fishing/processing population. Younger and nearing retirement aged individuals often have different perspectives than those in their peak working years with children. This should be kept in mind. If upon reflection you discover most of the people interviewed are in their late 30s, for example, you should ask for names of individuals who are younger/older.

Number of qualitative interviews: Minimum 10; 15-18 desirable; *dependent upon the number of days available in the community*. Most interviews should last approximately 1-1½ hours. Best if these are recorded so you can concentrate on the interview, though often people will not consent. You should always ask first.

Look for name repetition by snowball sampling. Start with recommendations from fisheries officials; fishermen's wives organization, etc.

Q1. How long have you been involved in the cod fishery? What is your position in the fishery (captain, crew, processor employee, etc.)? For those not directly employed in the fishery, ask How long have you lived in this community? (Natives are best).

THIS IS TO SET THE SCENE and FIND ELIGIBLE INFORMANTS

General information to consider in visual observation in the community:

- Numbers/ types of boats in harbor
- Fishing related services
- Fishing iconography (statues, monuments, decorations in homes/restaurants)
- Boat builders / repair

Items to consider through informal conversation:

- Social structures and or groups (unions, organizations, etc.)

Semi-structured interviews

Begin with a brief description of the project. Explain specifically looking at *small-scale cod fishery* for a Danish research institute. We should not be deceptive, however, and if they ask for more details, you should say this is a part of a Service Request by the European Commission.

- Q2. Please tell me about working in fisheries/ your fishing career.
Probe - how far from home did you travel, for how long?
- Q3. Please provide details about crew; are they local? Are they family, etc.?
- Q4. How has fishing changed since you began? What is the cod fishing like now?
Probe - changes in employment numbers and methods over time.
- Q5. How important is the cod fishery in your community/for you? Can you change to other species if you would like?
- Q6. Do you have sources of income other than fishing? What is your main source of income?
- Q7. Does cod fishing/fishing provide you with an acceptable standard of living?
- Q8. If not, what other kinds of occupations are available to you?
- Q9. Does anyone else in your household work?
Probe - who and doing what?
- Q10. Do you have children? Do they fish or work in fishing related industries? If they are still young, would you like them to work in your profession? What do you think the ideal occupation would be for them?
- Q11. Are there any cultural events associated with the fishing industry here? If not now, were there in the past?
- Q12. What has the cod fishing industry been like over your lifetime?
- Q13. What has the community been like over your lifetime?
Probe- if there were any significant changes, when, and why, did they occur?
- Q14. Can you tell me about your economic situation since you started in the fishery?
- Q15. What do you see the future of cod fishing, fishing, and the fish processing industry to be in your community? What should be changed, or done, to improve the situation of the cod fishing in the Baltic—to keep cod fisheries alive. Is there any support for fishermen or people involved in the industry from the municipality/ region/ nation?
- Q13. What is your opinion of the future of your community?
- Q14. What is your opinion about the present cod management system in the Baltic Sea. (including present EU/ Member State regulations). What, if anything, should be changed?
Probe- who should be involved in the making of fisheries policy?

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Note- These questions do not need to be asked *verbatim*. This is simply as a general guide. You may re-phrase as needed.

Also, there will probably be some cultural, and country-specific differences among the 4 Member States. Consequently, feel free to add / alter questions which you feel would get important information. And please share your ideas as these may help the other researchers.
