Profiling of Small-Scale Fishing Communities in the Baltic Sea the Case of Freest and Heiligenhafen, Germany

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Abstract

Fishing regulations affect fishing operations in many different ways. Next to biological-technical effects, e.g. rebuilding of stocks and changes in fishing gear, are socioeconomic effects, e.g. employment structure or income. 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 for policy makers to mitigate possible negative consequences on fishing communities. For a period of two weeks a pilot study was conducted visiting two study sites on the German Baltic Coast. 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 national authorities. On the other hand, 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 in Germany 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. 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.

Keywords: *small-scale fisheries, fishing communities, social impact analysis, Germany, Baltic Sea, cod*

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1 INTRODUCTION

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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.
"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). Carrying out community profiles 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.
This work is part of a Request for Service from the European Commission to perform pilot baseline community profiles in Denmark, Germany, Poland and Sweden. Based on these community profiles a social impact analysis (SIA) will be conducted providing estimates of expected changes in demographics, employment, organization of fishing related enterprises and the social and cultural structure. The idea is to deliver the necessary social background of the fisheries sector to support the policy formulation and implementation process within the European Common Fisheries Policy (CFP) to result in fair and equitable fisheries management. It should be noted that this pilot study focused solely on small-scale fishing communities in the Baltic Sea with cod as their key target species.

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. contacting officials from the two fisheries cooperatives and calling fishermen that have previously been involved in surveys. 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 perceptions 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 triangulation[2] by means of asking a number of people the same questions to crosscheck information and to avoid bias.

- *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[3] or detail added. In this study one group discussion in Freest was used that had spontaneously 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 the thematic blocks as used for the semi-structured interviews acted as a guideline.

Empirical data were collected using the 'choice of methods' mentioned above. In addition, desk-based literature reviews were carried out prior to the field study and throughout the entire research process. Next to the usual sources of literature, e.g. scientific journals, project reports, articles and web-based materials more use was made of official documents. The latter were decrees published by the European Commission Directorate-General for Maritime Affairs and Fisheries and the German government particularly.

3 COMMUNITY PROFILES

3.1 Introduction

[2] Triangulation is the application and combination of research methods, theories, observers or empirical material (key informants) in the study of the same phenomenon (MAYRING 2001,8; DENZIN and LINCOLN 2005,5).

[3] Perhaps "verifying" is misleading in this context, since human phenomena are the subject of controversy, i.e. cocreated constructions of empirical phenomena versus single experiences. So we should rather ask the question, if the findings are sufficiently authentic that we may feel safe in acting on them or better yet if we feel confident to develop social policy or legislation based on them? (GUBA and LINCOLN 2005,205)

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.

Germany's outer coastline runs 724 kilometers alongside the Bay of Pomerania, Bay of Mecklenburg, Bay of Lübeck, Bay of Kiel and the Flensburg Fjord. Together with its twice as long inner coast the overall German Baltic coastline extends for nearly 2000 kilometers.

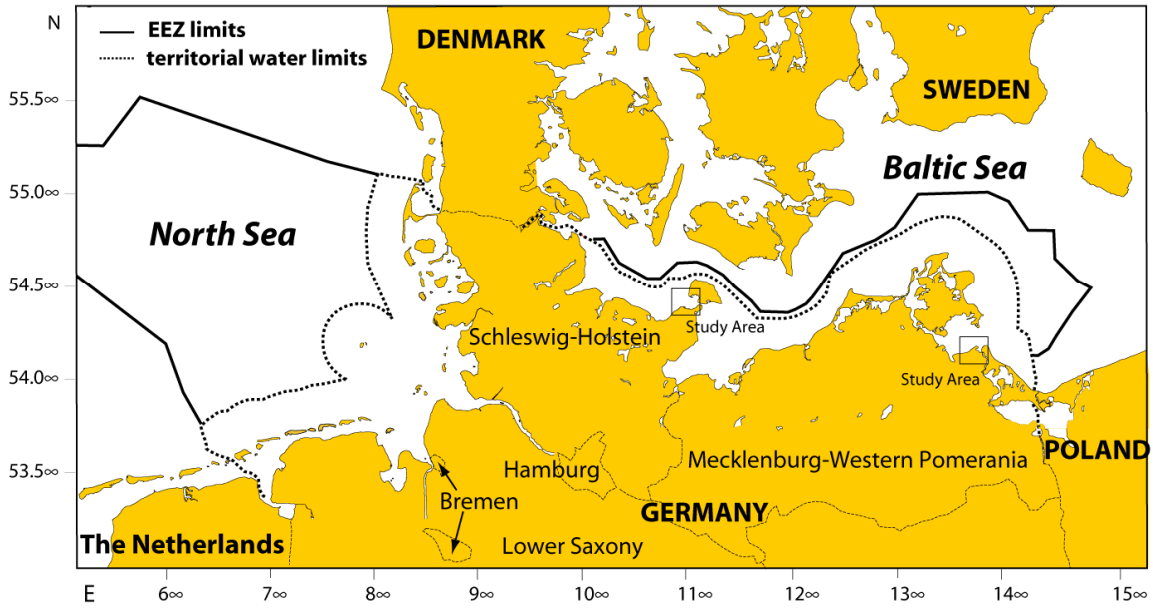

Figure 1: Map of the German coastline, EEZ and territorial water limits with indicated study areas.
Source: adapted and modified from C. ZIMMERMANN

About 2 500 laborers are directly employed in the German marine fishery sector. Of the 2 200 German fishing vessels about 80 percent go fishing in the Baltic Sea. Thereby trawlers account for 100 vessels, fishing the coastal waters, while a majority of 1 600 vessels uses passive fishing gear. According to the Federal Centre for Agriculture and Food the total annual catch in the last few years has remained relatively stable with 250 000 tons and a value of about 200 million Euro. (FAL 2007,2-5)
The two study locations are located in the each of the two federal states bordering the Baltic Sea, i.e. the village Freest in Mecklenburg-Western Pomerania and the town Heiligenhafen in Schleswig-Holstein. The exact location of the village, respectively town is illustrated in Figure 1. Further characteristics of the two federal states are displayed in Table 1.

Table 1: Overview of the two German Baltic states.

State	Mecklenburg-Western Pomerania	Schleswig-Holstein

Capital City	Schwerin	Kiel
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)

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. 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.

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. Mecklenburg-Western Pomerania borders Poland in the east and the federal state Schleswig-Holstein and Lower Saxony in the west, as well as Brandenburg in the south. 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 small fishing vessels and having 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.
The total marine fisheries production in Mecklenburg-Western Pomerania in 2007 was 18 708 tons, including landings from the North Sea, with a value of 12.2 million Euro. The total landings from Mecklenburg-Western Pomerania in the Baltic Sea amounted to 12 470 tons. Of these landings the majority of 8 773 tons accounted for herring and 1 266 tons for cod. (LALLF 2008)

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

District	Ostvorpommern
Area	1 910 km^2
Inhabitants	112 225
Population density per km ^{2}	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 (Figure 2). 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 3).

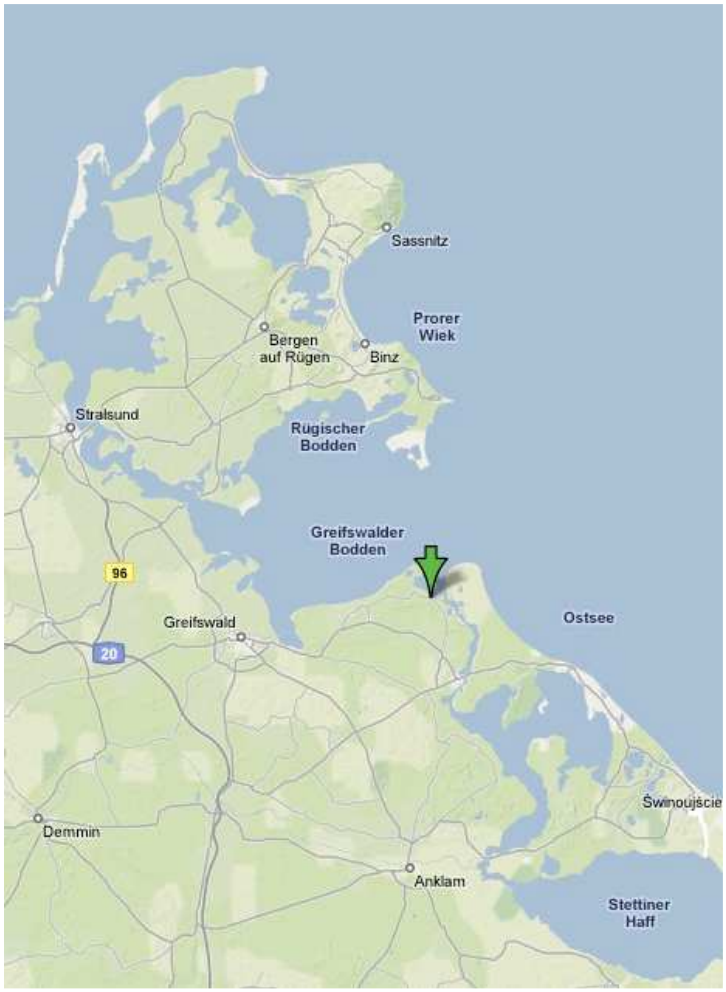

Figure 2: Map of the study location Freest, Mecklenburg-Western Pomerania.
Source: http://maps.google.de/

Figure 3: The harbor of Freest with its maritime flair and prevalent fishing cutters under 12 meters in length.
Source: H. V. STREHLOW

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 uses active fishing gear such as bottom 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 4). In comparison, the entire landings in the coastal fishery sector in Mecklenburg-Western Pomerania totaled 21 886.5 tons in 2006.

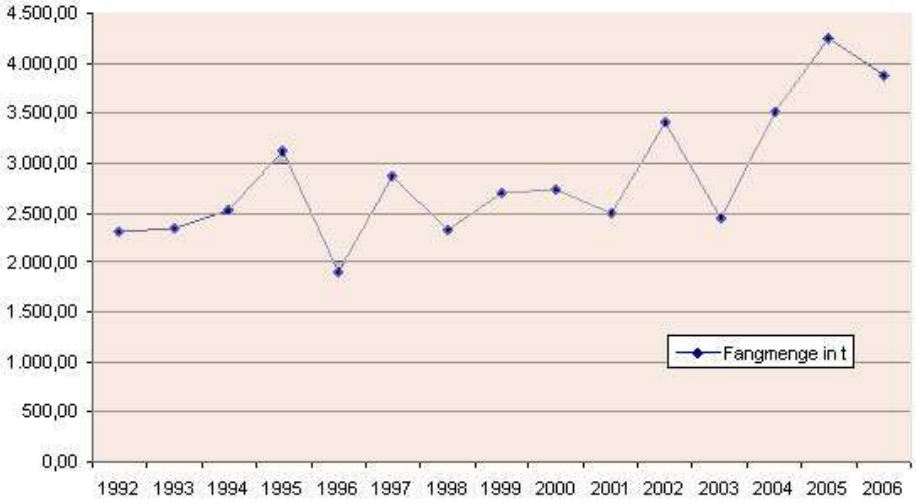

Figure 4: Total fishery production of the fishing cooperative „Peenemündung Freest e.G.“ from 1992 until 2006.
Source: www.fischerei-freest.de

The main target species are herring, flounder and cod (Figure 5). 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 5: 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 Baltic stock moves to the Greifswalder Bodden for spawning, herring is the single most important target species. During the summer months, fishermen mainly focus on flounder with cod as bycatch. 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 elsewhere 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 and the stock assessment 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. One interviewed fisherman is quite happy that both of his sons have not become fishermen themselves. 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 the Baltic Sea and Mecklenburg-Western Pomerania (Figure 1). The North Sea marks its western boundary and in the south Schleswig-Holstein borders Lower Saxony and Hamburg. Its Baltic Sea 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 socioeconomic characteristics.

District	Ostholstein
Area	1 392 km^2
Inhabitants	205 589
Population density per km^2	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 6, 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.

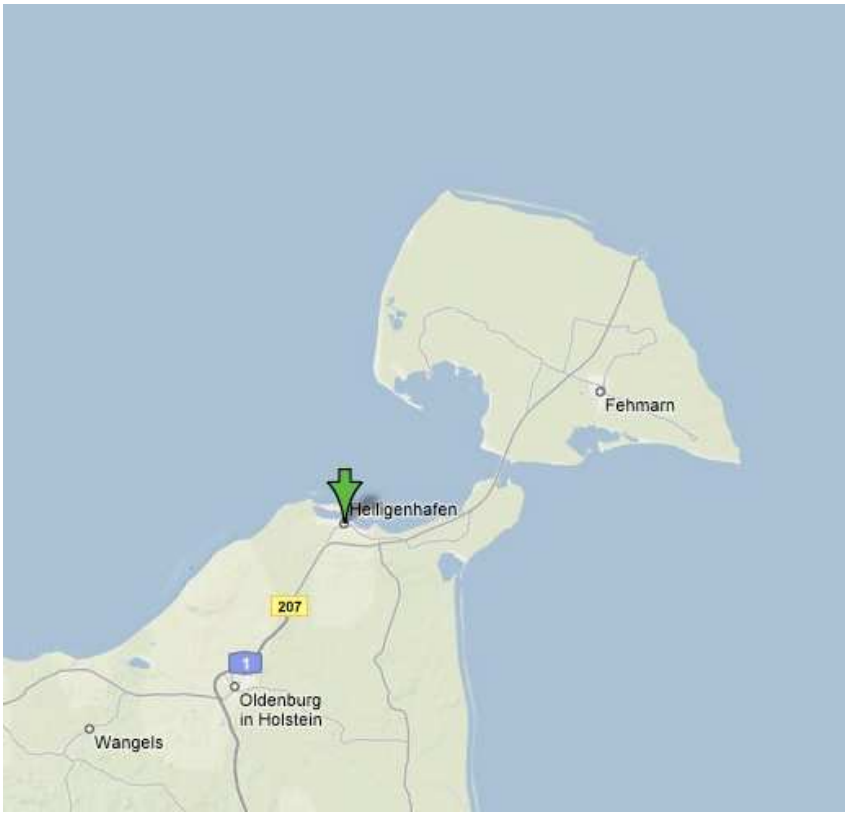

Figure 6: Map of the study location Heiligenhafen, Schleswig-Holstein.
Source: http://maps.google.de/

According to the Offices for Rural Areas in Schleswig-Holstein the total marine catch for 2007 was 48 083 tons with a value of 59.2 million Euro, of which 27 392 tons with a value of 16.2 million Euro were landed in the Baltic Sea. Landings and revenues in harbors on the Baltic Coast from Schleswig-Holstein amounted to 7 899 tons, respectively 9.7 million Euro. Thereby cod not only delivers the biggest share but also the highest revenues, namely 4 119 tons and 7.7 million Euro. (ALR 2008)
Of the total number of fishing vessels in Schleswig-Holstein 669 operate in the Baltic Sea of which 60 are stationed in Heiligenhafen. The majority of boats are organized in the fisheries cooperative “Fischereigenossenschaft Heiligenhafen”. Large fishing vessels make up 40 percent of the boats in the cooperative, generating 70 to 80 percent of the annual turnover, whereas small fishing vessels (Figure 7) make up 60 percent of the organized boats generating only 20 to 30 percent of the annual turnover.

Figure 7: A typical gillnet vessel in the harbor of Heiligenhafen (9.7 meters).
Source: H. V. STREHLOW

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 in the North Sea during the fixed closed period for cod 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 have 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 met with complete incomprehension by the fisheries cooperative. A good example for personal effort and flexibility 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 conditions. Altogether there is less fish than in the past. Yet 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, in order to market the fish themselves. 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 fishermen admitted that 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. Correspondingly only few young people are entering the overaged workforce of the fisheries sector. 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 wants to become fisherman too.

3.4 Fisheries management

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 history of quota allocation. During the GDR herring and flounder were the key target species of the fisheries, whereas cod played only a minor role[4]. 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 and subject of complaints from fishermen in Freest, though 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

[4] Noteworthy is that in the past cod was an unpopular food fish in Germany with a negative connotation originating from the use of cod liver oil to supplement the diets of children, adolescents and pregnant women in the 19th century.

with three other cooperatives. Every year they meet and agree on the actual shares each cooperative will dispose of.[5]
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. In this respect, smaller fishing vessels are more susceptible to severe weather conditions than larger fishing vessels. 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.

The role fishery cooperatives play in underpinning the livelihoods of fishermen is difficult to comprehend and assess. The cooperatives in the German fishery sector are producer cooperatives focusing on marketing. They organize the small-scale fishermen, allowing them a means to compete in the marketplace. It is not compulsory for a fisherman to be member of a fishery cooperative. Although the majority of quota is distributed and allocated by the fishery cooperatives and the general believe is that this is the only option, there is the possibility for independent fishermen to apply for quota directly at the State authority. Exemplary for the controversial role of fishery cooperatives is a case in Warnemünde, located in Mecklenburg-Western Pomerania. A fisherman there recently abandoned the local fishery cooperative “Wismarbucht” because he feels himself unfairly treated. He pays an annual membership fee of 1 000 Euro. In the past, this amount was paid back through deficiency payments compensating for bad weather events or closed seasons. Nowadays he does not receive any deficiency payments anymore, which is why he perceives the annual membership fee as a waste of money. The fisherman is not only angry about the restrictive quota allocation to individual fishermen but also dissatisfied with the common marketing of fish, since he markets his fish directly. In other words, he does not see any benefits accruing from his membership in the fisheries cooperative. Along these lines are some impressions from interviewed fishermen both in Heiligenhafen and Freest that were marketing proportions of their catch directly knowingly infringing against the rules and guidelines of their own cooperatives. On the other hand the fishery cooperatives in Freest and

5 In addition to this primary quota allocation there is the legal alternative to apply for quota directly at the competent Federal State authority the “Bundesanstalt für Landwirtschaft und Ernährung” (BLE).

Heiligenhafen are constantly investing in fish handling and processing facilities and have both set up a cooperative run shop.

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 Baltic cod fishery for 2007[6].

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

[6] Exempted from these regulations are fishing vessels under 12 meters of length using gill or trammel nets with a minimum mesh size of 110 millimeters. Thereby these vessels are permitted to land only 20 kilogram of cod or up to 10 percent of the total catch, whereby the total catch has to be landed. In general, exempted from these regulations is the use of fishing gear not specifically designed to catch cod, i.e. fishing gear with mesh sizes below 90 millimeters.

closed period plays nearly no role. On the contrary, fishermen in Heiligenhafen, Schleswig-Holstein are strongly affected by the closed period.

During the implementation of this study, in autumn 2007, it already became apparent that the existing effort regulation with fixed closed days would be abolished. As a follow up to this work, the latest fisheries regulations were included (Table 5). In many respects the new regulations are a direct answer to some of the issues mentioned above.

Table 5: Overview of the closed periods and permissible fishing days in the Baltic cod fishery for 2008[7].

ICES Area	**22-24**	**25-28**
Fixed closed season	01.04.-30.04.	01.07.-31.08.
Permissible fishing days (individually scheduled)	223	178
Closed days	**173**	**250**

Source: BUNDESANZEIGER (2007)

In addition to the maximum permissible fishing days there are some exceptions that affect the small-scale fishing sector. Thereby fishing vessels with a length less than 12 meters are permitted to fish for five days a month – for a minimum of two subsequent days – during the fixed closed seasons. In general, exempted from these regulations are fishing vessels under 8 meters in length.

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, i.e. fishing vessels are surveilled at sea via without boarding the ships. Another reason lies in the vast jurisdiction of the marine border patrol, the marine police and the fisheries inspection who are all permitted to

[7] Exempted from these regulations are fishing vessels using fishing gear not specifically designed to catch cod, i.e. fishing gear such as trawl, gill or trammel nets with mesh sizes equal or below 90 millimeters and/or drifting long lines.

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. Small-scale 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 reorganization 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.[8]
- 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.[9]
- 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.

[8] Exemplary is a fisherman in Freest who owns a 12.5 meter long fishing vessel and is considering its modification – that would cost about 20 000 Euro – in order to avoid certain fisheries regulations. However, there is neither a guarantee that the fisheries segments classification will not change, nor that the costs for this modification will outweigh the few benefits from relaxed fisheries regulations.

[9] In this respect, the small-scale fishing sector, in particular the passive gear segment fishing with gill nets or traps too often serves as a fig leaf for officials to argue against quota cuts or gaining public acceptance.

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 set gillnets 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. At that time the minimum size limit for cod was 35 centimeters. Today's regulation with the minimum size limit of 38 centimeters for cod while not increasing the 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 gives little planning reliability for fishermen. This severely effects credit negotiations and leads to the refusal of credits and loans. 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 loose 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 the 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 1994,112). 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.

What remains are the existing discrepancies between the various fisheries segments, i.e. small-scale versus large-scale and passive versus active fishing gear. One can certainly argue, if the cooperative really serves the common needs of its members, when the individual interests of fishermen differ substantially. Several fishermen underline this assertion feeling not well represented within their fishery cooperative. Moreover, these respondents perceived decision-making processes dominated by large-scale fishermen with high annual turnovers.

The observed quota trading on different scales and across national boundaries suggests that there is an unofficial market for fishing quotas. Although these quotas are neither traded for money, nor have any price, this undertaking shows the potential for the introduction of individual transferable quotas (ITQs) as a form for fisheries management.

The European fisheries management and decision-making processes are without doubt intransparent and difficult to comprehend. Although fishermen lack the integration into the political decision-making process, they are at least theoretical involved through their memberships in the fisheries cooperatives (cf. ENS et al. 2007,66). In this context, further clarification is needed to rule out that local elites – owners of larger fishing vessels, in particular those fishing with trawl nets – exert pressure on fishery cooperatives and associations to assert their interests, thus dominating the decision-making process. These power structures are well known and have been described by various authors (cf. BÉNÉ 2003; BERKES 2004; CORBIN 2002; ENS et al. 2007). The discrimination process that may constrain or limit individuals or groups from participation in decision-making is best described as political disempowerment *"(…) leading to low/poor opportunities to control and govern their own commands over resources".* (BÉNÉ 2003,961). Béné attributes this to *"asymmetrical power relationships based on social stratification"*, where local elites try to maintain their own social, economic or political advantages (BÉNÉ 2003,961-965). This does not imply that every single fishermen needs to participate directly in all stages of the decision making process, however it does require that decision making needs to be transparent and it should be possible to hold decision makers responsible (ENS et al. 2007,72-73). Although Ens and his colleagues come to these conclusions in a study exploring the impacts of regulated fisheries on the ecosystem, their findings could not be more applicable today. In the light of shifting towards an ecosystem-based approach for fisheries management within the European Common Fisheries Policy (CFP), fishermen involvement in policy making processes may ensure both, the integration of local knowledge into a framework of governance consisting of public and local-level management leading to a more

sustainable management of fisheries resources, as well as developing a form of environmental stewardship if fishermen can reap the benefits of restraint.[10]

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 baseline community profiles – as the first steps of a 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 in Germany 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 outmoded 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 bears 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 – brought up by participants and respondents – for the reorganization of fisheries management.

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[10] Principals to guide the organization of institutions and the establishment of good governance can be found in the European Union's White Paper. They apply to all system levels from global, European, national, regional to local level. These principles are openness, participation, accountability, effectiveness and coherence and should be applied according to the principles of proportionality and subsidiarity. (COM 2001,10)

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