
6. COMMUNITY AND SOCIAL DATA UPDATE

According to National Standard 8 (NS 8), conservation and management measures should attempt to both provide for the continued participation of a community and minimize the economic effects on the community. Complying with NS 8 is contingent upon the availability of community studies and profiles as well as regional economic analyses. The information presented here addresses new data concerning the social and economic well-being of participants in the fishery and considers the impact of significant regulatory measures enacted in the past year.

6.1 Overview of Current Information and Rationale

The Magnuson-Stevens Act requires all fishery management plans (FMPs) to include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§303(a)). When establishing any new regulations, the cultural and social framework relevant to the fishery and any affected fishing communities (§303(b)(6)) must be taken into account.

The National Environmental Policy Act (NEPA) also requires federal agencies to consider the interactions of natural and human environments by using a “systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making” [NEPA section 102(2)(a)]. Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequence of such changes need to be examined in order to mitigate the negative impacts experienced by the populations concerned.

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to the ways in which people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts which may involve changes in values and beliefs which affect people’s way of identifying themselves within their occupation, communities, and society in general are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the Status Quo with the projected impacts. Although public hearings and scoping meetings provide input from those concerned with a particular action, they do not constitute a full overview of the fishery.

While geographic location is an important component of a fishing community, the transient nature of HMS may necessitate permitted fishermen to shift location in an attempt to

follow the fish. Because of this characteristic, management measures for HMS often have the most identifiable impacts on fishing fleets that use specific gear types. The geographic concentrations of HMS fisheries may also vary from year to year as the behavior of these migratory fish is unpredictable. The relationship between these fleets, gear types, and geographic fishing communities is not always a direct one; however, they are important variables for understanding social and cultural impacts. As a result, the inclusion of typical community profiles in HMS management decisions is somewhat difficult as geographic factors and the use of a specific gear type have to be considered.

NMFS (1994) guidelines for social impact assessments specify that the following elements are utilized in the development of FMPs and FMP amendments:

- Information on distributional impacts, non-quantifiable considerations such as 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;
- Descriptions of the demographic characteristics of the fisheries;
- Descriptions of important organizations and businesses associated with the fisheries;
- Identification of possible mitigating measures to reduce negative impacts of management actions on communities.

To help develop this information for the HMS FMP and the Billfish Amendment, NMFS contracted with Dr. Doug Wilson, from the Ecopolicy Center for Agriculture, Environmental and Resource Issues at Rutgers, the State University of New Jersey. Dr. Wilson and his colleagues completed their field work in July 1998. Their study considered four species groups (tunas, swordfish, sharks, and billfish) that have important commercial and recreational fisheries extending along the Atlantic and Gulf coasts from Maine to Texas and in the Caribbean. The study investigated the social and cultural characteristics of fishing communities in five states and one U.S. territory: Massachusetts, New Jersey, North Carolina, Florida, Louisiana, and Puerto Rico. These areas were selected because they each have important fishing communities that could be affected by measures included in the HMS FMP and the Billfish Amendment, and because they are fairly evenly spread along the Atlantic and Gulf coasts and the Caribbean. For each state or territory, a profile of basic sociologic information was compiled, with at least two coastal communities visited for further analysis. Towns were selected based on HMS landings data, the

relationship between the geographic communities and the fishing fleets, the existence of other community studies, and inputs from the Advisory Panels for HMS and Billfish. Complete descriptions of the study results can be found in Chapter 9 of the HMS FMP and Chapter 7 of the Billfish Amendment.

6.2 Social Impacts of Selected 2001 Regulatory Actions

Emergency Rule to Adopt and Implement the Terms of the Settlement Agreement Regarding Commercial Atlantic Large Coastal and Small Coastal Shark Fisheries (March 6, 2001; 66 FR 13441)

This measure adopted and implemented the terms of the settlement agreement reached between the NMFS and the Southern Offshore Fishing Association and other plaintiffs in December 2000. The terms of the settlement include independent reviews of stock assessments, new stock assessments for large coastal and small coastal sharks, and establishing interim commercial quotas for the large coastal and small coastal shark fisheries at the levels previously established for 1997 (1,285 mt dw and 1,769 mt dw respectively). In the settlement agreement, NMFS agreed not to implement the lower large coastal and small coastal shark quotas (816 mt dw and 329 mt dw, respectively) forestalling the anticipated social and economic impacts described in the HMS FMP. The independent reviews completed in October 2001 found that the scientific conclusions and management recommendations from the 1998 stock assessment were not based on scientifically reasonable uses of appropriate fisheries stock assessment techniques and the best available information. Thus, in 2002, the large coastal and small coastal shark quotas will be maintained at the 1997 level pending the completion of new assessments, consistent with the best available science and court-approved settlement agreement.

Interim Final Rule Requiring Vessels in the Atlantic Pelagic Longline Fishery to Possess and Use Dipnets and Line Clippers and Modifying the Level of Observer Coverage in the Atlantic Shark Drift Gillnet Fishery (March 30, 2001; 66 FR 17370)

A Biological Opinion issued on June 30, 2000, found that the continued operation of the Atlantic pelagic longline fishery is likely to jeopardize the continued existence of the loggerhead and leatherback sea turtle. An emergency rule that became effective on October 10, 2000 (65 FR 60889), implemented measures to reduce the mortality of incidentally captured sea turtles while NMFS reinitiated consultation on the pelagic longline fishery. This interim final rule served to implement the dipnet and line clipper requirement from the emergency rule to reduce the post-release mortality of sea turtles taken in the pelagic longline fishery. Also, it modified the definition of pelagic longline gear and reduced the observer coverage necessary for the shark drift gillnet fishery outside of right whale calving season.

The implementation of a requirement for pelagic longline vessels to carry onboard and use dipnets and line clippers is expected to have minimal economic and social impacts on fishing practices, costs, and revenues. The dipnet and line clipper standards allow fishermen to fabricate the devices from materials they already have or can easily obtain (as opposed to requiring use of a specific device they would have to purchase), as long as they meet NMFS design and performance standards. The design specifications from the Hawaii pelagic longline fishery, from which the dipnet and line clipper standards were taken, were estimated to cost approximately \$250 for both devices (65 FR 16346, March 28, 2000). The affected permit holders should already possess this equipment because it was required by the October 10, 2000, emergency rule. To the extent that use of dipnets will require more time during gear haulbacks to bring turtles on board, fishing costs may increase. However, the time required to bring small turtles on board and any resulting increases in fishing costs are expected to be minimal.

Modifying the pelagic longline definition will have no measurable economic or social impact on the pelagic longline fishery. The change in definition serves to clarify the intent of NMFS in implementing time and area closures. The economic and social impacts associated with the area closures were previously considered and are discussed in detail in the HMS FMP and Final Supplemental Environmental Impact Statement issued for the August 1, 2000, final rule.

Modifying the requirement for 100 percent observer coverage in the shark drift gillnet fishery to a statistically significant level of coverage will decrease the economic and social impacts for both the agency and the participants in the fishery. By implementing a reduced level of observer coverage, NMFS will reduce administrative and enforcement costs. The participants in the shark drift gillnet fishery will have reduced costs by potentially gaining storage space on their vessel, being able to add a crew member to increasing fishing capacity, and/or by not having to provide food for the observer during trips that are not covered.

Emergency Rule to Reduce Sea Turtle Bycatch and Bycatch Mortality in the Atlantic Pelagic Longline Fishery (July 13, 2001; 66 FR 36711)

On June 14, 2001, NMFS completed the consultation on the HMS pelagic longline fishery and issued a Biological Opinion (BiOp) which concluded that the continued operation of the pelagic longline fishery is likely to jeopardize the continued existence of the loggerhead and leatherback sea turtle. The BiOp required the implementation of several elements of a reasonable and prudent alternative (RPA) to reduce the levels of sea turtle bycatch and bycatch mortality. On July 13, 2001, NMFS issued an emergency rule that closed the northeast distant statistical reporting (NED) area and implemented gear requirements which will reduce sea turtle takes and associated mortality. Following the promulgation of this regulation, NMFS established an experimental pelagic longline fishery in the NED area to test measures that could be adopted by domestic and international longline fleets to reduce incidental sea turtle captures.

Depending on the course of action taken by individual vessels, this action could have large economic impacts on the vessels that normally fish in the NED area (10 vessels in 1999; Cramer and Adams 2001). The vessels that volunteer to participate in the experimental fishery would be able to continue fishing in the NED area, pursuant to the terms of the experimental fishery, and could receive some monetary compensation to offset lost revenues attributable to gear modifications. Thus, participating vessels should not be significantly affected by this action. Affected vessels could also decide to fish in the open areas either near shore (compared to the NED area) or farther away from their current homeports (e.g., the Caribbean). Those vessels that stay near shore would probably have fewer variable costs and could spend time usually spent transiting on fishing. However, none of the ex-vessel gross revenues from these other areas are, on average, as large as those expected from fishing in the NED area. These impacts of increased costs and decreased revenues may be enough to put some of the vessels out of business. Vessels could also reflag to another country. NMFS is unsure what net economic costs or benefits might arise for the individual vessel under this circumstance. As 20 percent of all landed U.S. swordfish is caught in the NED area, dealers may be impacted by the closed area pending the success of the experimental fishery. Thus, the closure could have a noticeable impact on the communities that depend on the vessels that fish in the NED area, pending the course of action taken by each individual vessel.

One of the gear requirement measures requires gangions to be moved two gangion lengths away from floatlines. NMFS believes that this action would have minimal economic impacts on fishermen or communities. Fishermen may decide to buy additional monofilament to extend the length of the mainline if they decide to keep the same spacing of hooks between floatlines. However, NMFS expects that many fishermen will decide to set hooks closer together, thus minimizing the need for any additional gear. NMFS does not expect this action to affect the catch rates of target catch. Thus, ex-vessel gross revenues and variable costs would not change as a result of this action.

The second gear modification requires gangion length to be 110 percent of the floatline length in sets with a hook depth of 100 meters or less. NMFS does not expect this action to have large impacts on fishermen or their communities. To comply with this regulation, fishermen could lengthen their gangions. This option would require fishermen to buy additional monofilament and cause an increase in labor in the short term to replace existing gangions. Alternatively, they could shorten their floatlines. The second option would not require any additional monofilament but would require labor to adjust the length of the existing floatlines. While either alternative could affect the number of target fish caught, NMFS does not expect a significant reduction.

Finally, NMFS is requiring all bottom and pelagic longline vessels to post the sea turtle guidelines for safe handling in longline interactions inside the wheelhouse. This action should have no economic or social impacts to fishermen or communities because NMFS is supplying copies of the guidelines.

6.3 Summary of New Social and Economic Data Available

6.3.1 Social Science Publications

In an effort to improve the understanding of the social impacts upon HMS fishermen, their families, and the related communities, NMFS synthesized recent scientific publications examining social science topics.

Hall-Arber, M. 2000. Who Talks the Talk? The Voice of Community in Two New England Fishing Ports. Pages 45-55 in S. Hanna and M. Hall-Arber, editors. Change and Resilience in Fishing. Oregon Sea Grant, Corvallis, Oregon.

Communities represent an important factor in the success of fisheries management. Based on this assertion, the author of this study examines the similarities and differences between the organizational response to change in Gloucester, MA and New Bedford, MA with regard to the groundfish fishery. The level of complexity or the structure of a community can impact its effectiveness. For example, homogeneous communities are more successful than heterogeneous ones (communities based on similar gear type or fishery style versus those based on geography). The term “community” (e.g. comprised of fishermen, dealers, marina owners, etc.) implies a greater degree of complexity than an “organization” (e.g. comprised of longliners). However, the interests of the organization are usually better represented in fisheries management due to their defined leadership and the aligned interests of the members. When comparing Gloucester to New Bedford, Gloucester is better organized (with local groups and political support) and has a stronger perception of itself as a fishing community. These factors greatly contribute to more active participation by members of the community and a greater impact on management decisions. To maintain an accurate perception of a specific community or of participants in a particular fishery, managers need to talk with a variety of organizations and stakeholders.

Harms, J. and G. Sylvia. 2001. A Comparison of Conservation Perspectives Between Scientists, Managers, and Industry in the West Coast Groundfish Fishery. Fisheries 26(10):6-15.

Each stakeholder in a fishery has assumptions regarding other stakeholders and themselves. These assumptions can provide insight into the effectiveness of the whole management process. This study examines the survey responses of scientists (including managers) and industry members involved in the west coast groundfish fishery to determine the attitudes towards conservation and resource use, the perception of each others beliefs, and the implications for the management of the fishery. The authors reported that both scientists and industry respondents rated the conservation ethic of the scientists and managers highly. Individual members of the fishing industry expressed that their personal conservation ethic was strong, but that the problem must reside with other

sectors of the fishery, which they rated as moderate. Generally, the industry members with a higher conservation ethic tended to be more involved in the management process or planned to have a longer anticipated participation in the the fishery. The scientists and managers felt the industry conservation ethic was moderate; however, several respondents noted that existing management measures could influence industry behavior (e.g. discards).

When the authors examined the responses concerning the present state of the fish stocks and the impact of uncertainty on quotas, the industry and scientist perspectives yielded differing opinions. Industry members felt that scientific uncertainty is reducing harvest quotas rather than an actual decline in the fish stocks. Scientists disagreed with this statement. The authors point out that industry perspectives are formed through observed abundance which may not be typical throughout the entire range of the species while scientists rely on the analysis of stock assessment data, the validity of which is frequently questioned. The different perspectives of scientists and managers with regard to conservation ethic may damage the working relationship between the stakeholders. This may lead to the development of management plans implementing measures not deemed necessary by the industry which could lead to compliance problems. The authors recommend that both scientists and industry members improve the working relationship and information sharing between the two groups.

Jacob, S. and M. Jepson. 2000. Defining and Identifying Fishing-Dependent Communities in Florida. Urban Anthropology 29(3): 221-253.

National Standard 8 of the Magnuson-Stevens Act requires fishery management plans to identify and consider social and economic impacts on fishing communities. The authors feel that implementing this requirement has proven difficult as a universal definition of community has not been developed. Three necessary elements for a community have been described: a locality, a local society, and a process of locality-oriented collective actions. When employing these criteria as a model, it is difficult to find a community within a pre-existing category (for example counties are not a community for they usually possess several locales and societies).

The authors utilized central place theory (central places are where a variety of needs are met for residents of that central place and those in nearby areas) to develop a protocol to identify fishing communities. Federal and state fishing permit data was coupled with census employment data and applied to zip codes to determine “central places” dependent upon fishing in the state of Florida. Key informant interviews were conducted to validate and assess the usefulness of the procedure.

Determining the level of community reliance upon natural resources (in this case, fisheries) is another factor in this study. One approach is called “incrementalism” which assumes what natural resource extraction is the initial step in a community’s economy. This will then lead to the creation of “backward” linkages with other businesses (for example bait and tackle shops,

marinas, boat building) that support the resource utilization. Eventually, “forward” linkages are created that improve the value of the resource (for example wholesalers, restaurants, exporters). The authors feel that the technique they utilized to isolate each community involves defining a large geographic area that represents that particular regional economic base. Because of the size of the selected regions, it is important to examine the economic linkages of the relevant fisheries to assess their importance to each community and assess the level of community dependence.

Kitner, K.R. 2001. Ethnographic Tracing of an Interesting Social Network of South Atlantic Commercial Fishermen. Bureau of the Census and National Marine Fisheries Service. 27pp. DRAFT

Commercial fishermen exhibit a high degree of mobility which makes this population not easily enumerated by current census methods. This report describes field research conducted to examine the characteristics contributing to residential mobility in a southeastern U.S. fishing community. As some level of mobility is usually necessary to pursue fish stocks, this study focuses on the social factors that contribute to this behavior. An understanding of these factors should assist the Census Bureau in improving the coverage of “highly mobile” people which are often cited as undercounted.

A common hypothesis concerning the mobility of fishermen is that they move to follow the fish. However, due to the lack of information on this topic, it is difficult to assess the extent or cause of this behavior. Federal or state regulations may close areas or fisheries necessitating a move to a different area. Weather, market conditions, vessel conditions, and social ties contributed to some residential mobility as well. While captains and vessel owners would tend to own or rent a permanent home to stay when the vessel was in port, the crew would stay on the boat, with friends, or in transient quarters and not establish a base location, thus remaining more mobile.

In examining the census, many of the study participants (35 of 45) were not recorded. The Census Bureau refers to residence as where that person lives and sleeps most of the time. As fishermen spend much of their time on vessels either at sea or tied to a dock, they have no official residence. While the fish house at the dock was the focal point of most activities, the fishermen in this survey displayed a high degree of residential mobility thus were not enumerated in the 2000 Census.

Mederer, H.J. and C. Barker. 2000. Reconstructing Identities, Families, Communities, and Futures in the Wake of Fisheries Regulation. Pages 69-81 in S. Hanna and M. Hall-Arber, editors. Change and Resilience in Fishing. Oregon Sea Grant, Corvallis, Oregon.

To gain a better understanding of the impact of fisheries regulations, it is necessary to examine the social consequences of management actions. In a social context, regulatory impacts are felt in three areas: the self (identity), family, and community. This study examines 23 families in Point Judith, Rhode Island from 1992 to 1997 who were dependent upon the groundfish fishery for most of their family income. In 1994, Amendment 5 of the NEFMC groundfish plan decreased effort, restricted mesh size, and implemented several other regulations to eliminate overfishing. In 1996, Amendment 7 closed a large area of Georges Bank, made more restrictive quotas, increased mesh size, and further decreased effort to augment Amendment 5. About 80 percent of the respondents were boat owners and 90 percent of the sample of families suffered a decline in income as the study progressed.

The role of identity is very important to fishermen who take pride in their occupation and generally feel they would not be comfortable in another profession. Amendments 5 and 7 threatened the occupational identity of many of the participants in this fishery by challenging the characteristics the industry members value (for example independence, self-determination, control, etc.). In addition, the regulations extend the short-term unpredictability and uncertainty normally associated with fishing to the ability of fishing families to make an acceptable living.

The amendment regulations also impacted the family life of the effected fishermen. The effort reduction measures caused the husbands and/or fathers to be home more often than usual which necessitated a renegotiation of prior roles and duties in the household. This disruption, along with decreased income, increased the amount of stress already present within the family unit, testing the resiliency of many families.

The impacts of regulations on fishing communities can vary depending on the strength of community ties. In general, the increased prevalence of regulatory actions negatively impacts fishing communities through a sense of lack of involvement. While public hearings were held, fishermen felt that their comments were not incorporated which resulted in some measures that are wasteful and inconsistent. Despite the regulatory impacts, several core components of the community still exist which help provide some measure of support for local fishermen.

Amendments 5 and 7 have created harmful impacts on individuals, families, and the community of Point Judith. Because of these impacts, it is important to assess the social dimensions of the regulatory effects.

6.3.2 2000 Census Data

The Census Bureau completed the decennial census last year and released the results for public review. Table 6.1 includes a small amount of the data provided by the census to give an idea of what information is available and what is applicable. The data are difficult to apply to

HMS fisheries due to the lack of detail in the census categories. For example, it is not possible to determine how many fishermen are in a particular state or county from the census information. However, the data can be utilized to examine social trends on a larger scale, such as population flux in coastal counties. As census data continues to be released, NMFS hopes to continue its examination of the updated findings.

Table 6.1 Sampling of Data from 2000 Census. Source: Census Bureau

State	Total Population	Population 16+ years	Employed	Unemployed	Farming, Fishing, and Forestry Occupations	
Alabama	4,332,379	3,347,012	1,945,685	132,812	19,249	33,193
Connecticut	3,297,626	2,544,195	1,638,358	77,906	3,316	53,108
Delaware	759,017	588,404	374,911	17,207	2,328	47,629
Florida	15,593,435	12,370,441	7,148,012	396,484	47,546	37,346
Georgia	7,952,628	6,037,192	3,850,413	198,994	15,301	40,827
Louisiana	4,333,010	3,268,885	1,847,657	145,434	16,987	31,034
Maine	1,240,011	978,564	618,998	27,275	10,274	36,400
Maryland	5,162,430	3,959,750	2,638,231	141,494	6,275	52,436
Massachusetts	6,127,881	4,791,580	3,149,307	116,119	9,630	49,505
Mississippi	2,749,243	2,060,004	1,223,937	102,206	13,894	31,955
New Hampshire	1,200,247	932,582	653,380	23,251	2,290	49,509
New Jersey	8,219,529	6,371,881	3,986,760	227,047	2,254	54,226
New York	18,395,994	14,219,392	8,488,590	503,692	23,299	43,640
North Carolina	7,795,432	6,041,750	3,786,403	194,700	40,942	37,847
Rhode Island	1,009,503	788,813	497,190	23,288	1,395	43,185
South Carolina	3,876,975	2,984,921	1,796,252	94,491	10,643	36,385
Texas	20,290,713	15,061,939	9,422,318	570,512	63,412	39,120
Virginia	6,847,117	5,305,429	3,402,344	154,840	13,083	46,693

6.4 Evaluation of Current Level of Social Data

As was mentioned previously, there are not many current social science studies addressing the HMS fisheries. From a management perspective, this makes it difficult to assess the impact of promulgated regulations on the individual fishermen, their families, and the community. While NMFS can assume the economic effect of a specific regulation will create a negative impact in the social arena, the only venue available to receive constituent feedback is public hearings. Because these are only scheduled as a result of promulgated regulations, it is difficult to receive comments concerning the social environment of HMS fisheries.

To improve the assessments of the social impacts upon HMS communities, continued research needs to be conducted to update current knowledge. Ideally, the work will specifically target HMS fisheries and assess the impacts of the existing regulations, particularly determining the accuracy of the social impacts assessments. To increase the level of social knowledge, NMFS needs to increase its demographic data. The raw census data exist, but the information is not in a format conducive to examining the importance of one particular fishery to a community. Also, to improve the understanding of fishing behavior, NMFS should improve its knowledge of use patterns (for example who fishes, with what gear, how frequently, and where in the ocean). This would assist NMFS in determining the overall social impacts of fishing regulations. Until these areas are addressed, NMFS must utilize the current available information.

6.5 Conclusion

Social impact analyses should continue to be conducted and refined in terms of the techniques employed and how they can best be incorporated into management measures. The census and sampling data utilized in the regulatory actions are necessary and required to examine the impacts and benefits of proposed and selected alternatives. The continued process of updating existing data and supplementing it with new information is vital to improving the knowledge of managers with regard to each specific fishery. For example, the census and other public data, when combined with per-trip crew information, will allow fisheries managers to estimate regional differences in fishing effort and movement between fisheries. In addition, it will allow assessment of differing social service, employment, and retraining needs in different communities. Ethnographic data will further the understanding of regional and even extra-regional patterns of fishing and attitudes toward fishing and fisheries management, as well as the place of fishing within individual communities. These data will also provide the detailed information necessary to allow fishers' knowledge of fishing and the environment to be usefully incorporated into fisheries management.

Chapter 6 References

- Hall-Arber, M. 2000. Who Talks the Talk? The Voice of Community in Two New England Fishing Ports. Pages 45-55 in S. Hanna and M. Hall-Arber, editors. Change and Resilience in Fishing. Oregon Sea Grant, Corvallis, Oregon.
- Harms, J. and G. Sylvia. 2001. A Comparison of Conservation Perspectives Between Scientists, Managers, and Industry in the West Coast Groundfish Fishery. Fisheries 26(10):6-15.
- Jacob, S. and M. Jepson. 2000. Defining and Identifying Fishing-Dependent Communities in Florida. Urban Anthropology 29(3): 221-253.
- Kitner, K.R. 2001. Ethnographic Tracing of an Interesting Social Network of South Atlantic Commercial Fishermen. Bureau of the Census and National Marine Fisheries Service. 27pp. DRAFT.
- Mederer, H.J. and C. Barker. 2000. Reconstructing Identities, Families, Communities, and Futures in the Wake of Fisheries Regulation. Pages 69-81 in S. Hanna and M. Hall-Arber, editors. Change and Resilience in Fishing. Oregon Sea Grant, Corvallis, Oregon.
- NMFS. 1994. "Guidelines and Principles for Social Impact Assessment". *mimeo*.