

PERCEPTIONS OF SUBSISTENCE AND INFORMAL FISHERS IN SOUTH AFRICA REGARDING THE MANAGEMENT OF LIVING MARINE RESOURCES

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Following the legal recognition of subsistence fishers in 1998 through the promulgation of the Marine Living Resources Act, a Subsistence Fisheries Task Group (SFTG) was appointed by national government to provide recommendations on the management of subsistence fishing in South Africa. To achieve effective management, the SFTG recognized that fishers' needs, perceptions and concerns must be understood and incorporated into future management strategies. As a result, information from fishers was gathered through a five-month research programme that included questionnaire surveys, focus-group meetings, a "roadshow" and a national workshop. Research findings indicated that the fishers' responses centred on four key themes related to (1) the criteria for defining a subsistence fisher, (2) current management practices, (3) resource use and (4) livelihood strategies. Feedback from fishers revealed several issues that have led to uncertainty and dissatisfaction among informal and subsistence fishers. However, these perceptions need to be contextualized within the historical circumstances of fisheries management in South Africa, and it must be recognized that attitudes will only change when management approaches embrace the needs, perceptions and concerns of the users. The information outlined in this paper was instrumental in guiding the formulation of the SFTG recommendations regarding the definition of subsistence fishers and their future management in South Africa.

Key words: fisheries management, perceptions about fisheries, subsistence fishers

Subsistence fishers were legally recognized in South Africa for the first time in 1998 with the promulgation of the Marine Living Resources Act (MLRA). Prior to this Act, fishers harvesting marine resources for purposes other than recreational or commercial fishing were regulated through law enforcement and were considered poachers, or were not managed at all. With no strategy to manage these subsistence (or small-scale) fishers, government recognized the need to create a Subsistence Fisheries Task Group (SFTG) to advise them on the future management of this newly created sector. Appointed in December 1998, this group was assigned the task of providing recommendations on the definition and identification of subsistence fishers, areas and zones, procedures for allocation of rights, research requirements, management and monitoring systems, as well as the involvement of fishers in decision-making. The task of developing mechanisms to involve fishers in management decision-making falls in line with international and national trends to involve users in management, a process variously re-

ferred to as co-management, participatory management, collaborative management or joint management (Pinkerton 1989, Jentoft and McCay 1995, Baland and Platteau 1996). This alternative form of management refers to the sharing of responsibilities and decision-making between resource users, government and other stakeholders to manage a resource (Berkes *et al.* 1991, McCay and Jentoft 1996). Critical to this approach is the recognition that "no management scheme will work unless it enjoys the support of those whose behaviour it is intended to affect" (Hara 1999, p. 12). In other words, management regimes will be most effective if the resource users consider rules and regulations to be legitimate (Jentoft 1989).

Since the democratic elections in South Africa in 1994, several policy and legislative developments have emphasized the importance of user participation and the creation of partnerships in resource management. This is particularly evident in Section 35 (Environmental Management Co-operation Agreements) of the National Environmental Management Act 107 of 1998 (Anon.

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Table 1: Summary of SFTG research methodology

Method	Person(s) gathering information	Data-gathering technique	Size of sample
<i>Research directly with fishers</i>			
Household survey	8 Regional Fieldworkers	Quantitative questionnaire with some qualitative questions	20 pilot studies around the coast with approx. 25 interviews in each (total of 488 surveys analysed)
Focus-group meetings	Regional Fieldworkers and focus-group facilitator (consultant)	Qualitative and quantitative	One focus-group meeting in each of the 20 pilot studies (7–28 fishers per meeting)
“Roadshow” meetings	Regional Fieldworkers or SFTG members	Qualitative	25 meetings around the coast (approx. 84 fishers per meeting)
National workshop	SFTG members and independent facilitator	Qualitative	One meeting with 69 participants
<i>Research with key stakeholders/informants</i>			
“Scoping” survey	8 Regional Fieldworkers	Quantitative questionnaire; some qualitative questions	345 surveys conducted around the coast
Fieldworker debriefing meetings	Consultants	Qualitative	Two full-day meetings with the fieldworkers after the surveys
National workshop	SFTG members and independent facilitator	Qualitative	One meeting with 69 participants

1998). In addition, intensive public participation processes were embarked on during the development of the fisheries and coastal management policy processes (Anon. 1997, 2000a). Although fraught with difficulties in attempting to include a wide diversity of interest groups (Hersoug and Holm 2000), the fisheries policy formulation process, leading up to the enactment of the MLRA, reflected the government's interest in promoting public participation. Similarly, wide consultation occurred during the development of the White Paper on Sustainable Coastal Development for South Africa (Anon. 2000a), which has been instrumental in emphasizing the importance of community involvement in management of coastal resources. However, despite these positive developments, there are several gaps between policy statements, broad legal provisions and practical implementation (Njobe *et al.* 1999).

To achieve the effective management of resources, users' needs, perceptions and concerns must be understood and incorporated into management strategies (Fall 1990, Noble 2000). This underlying principle of responding to local needs perceived by fishers and communities has been embraced in a number of research initiatives aimed at understanding subsistence and artisanal fishers and developing effective management practices. Research programmes in Alaska and West Africa, for example, have incorporated key ob-

jectives that focus on documenting the perceptions of fishers, their needs and the cultural values associated with the use of resources (Fall 1990, Horemans and Jallow 1997).

The overall aim of this paper is to record insights gained during the SFTG process about the needs, perceptions and concerns of “informal” and subsistence fishers regarding the status and management of living marine resources. The purpose of gathering this information was to ensure that recommendations made by the SFTG about the future management of the subsistence sector incorporated the needs, perceptions and views of the fishers themselves.

METHODS

Several methods were utilized by the SFTG to consult with the fishers and gather information regarding their perceptions about the management of subsistence and small-scale fisheries. Although the SFTG was tasked with making recommendations on subsistence fishing, it was recognized that, in order to define and identify subsistence fishers, all “informal” fishers involved in harvesting coastal and marine resources should be included in the research. As a result, “informal” fishers,

including those who would later be defined as “small-scale commercial fishers” (see Branch *et al.* 2002a), were consulted in this process.

Information was gathered through a research programme that was implemented over five months and included the following methods: questionnaire surveys, focus-group meetings, a “roadshow” and a national workshop. It was considered essential to gain an understanding of fishers’ perceptions regarding a range of issues, because perceptions represent peoples’ reality and shape their attitudes and behaviour. Perceptions are formed not only by the structures of society, but also by personal history, world views and social and cultural contexts (Oelofse 1994). Socio-political factors also play a major role in shaping perceptions. This is particularly relevant in the South African context. Ultimately, these perceptions form the basis of our evaluations of, attitudes about, and behavioural responses to, events taking place in the environment (Veitch and Arkelin 1995). Nevertheless, these perceptions also need to be balanced with the “reality” of the environmental circumstances in which people find themselves. The manner in which perceptions are incorporated into management strategies needs to take into account local realities and an understanding of how perceptions are formed.

The research process was guided by the SFTG and their appointed consultants, with assistance from eight fieldworkers who were responsible for establishing contact with fishing communities, administering questionnaires, interviewing fishers and conducting field research in eight regions along the coast. The first phase of the research comprised a scoping exercise that aimed to identify existing and potential subsistence fishing communities as well as to obtain information from key informants who had knowledge of “informal” fisheries in each region (Clark *et al.* 2002). The second phase of the study sought to obtain a more in-depth understanding of fishers in a questionnaire survey, and included household interviews, focus-group meetings among fishers and 20 pilot cases along the coast. The objective of this second phase was to collect more detailed information on the socio-economic circumstances of fishers, resources harvested by fishers, management systems in place and fisher perceptions regarding a range of management related issues. A description of the various research methods employed in this research process as well as specific information on the survey design, questionnaire design and analysis are presented in Branch *et al.* (2002b).

A further source of information for this paper was a series of de-briefing sessions held with the regional fieldworkers responsible for conducting the research. General comments and key issues that emerged from

interaction with the fishers were documented, as were overall perceptions of the fieldworkers regarding the problems, concerns and views of the fishers.

One function of the SFTG was to ensure that fishers along the coast were informed of new subsistence fisheries legislation, proposed management procedures, the activities of the SFTG and preliminary recommendations. During this “roadshow”, fishers were given an opportunity to ask questions and comment on any issue related to subsistence fisheries. Minutes from 25 meetings held along the coast were documented and issues highlighted by the fishers were recorded. Finally, insights into fisher perceptions and concerns were also gathered from a national workshop that was attended by a number of different stakeholders. Information, both qualitative and quantitative (from these various methods) was synthesized and a preliminary analysis was undertaken for the purpose of developing recommendations that were documented in a series of reports (Clark 2000, Matthews *et al.* 2000, Russell *et al.* 2000, Venter 2000). A summary of the research methods is provided in Table I.

Although the data were gathered for the entire South African coast, it was decided not to break down the information into different regions, for two reasons. First, this paper provides a national overview of fishers’ needs, perceptions and concerns, and reports on general trends and key themes emerging. In many cases, there was general agreement among regions in terms of responses to questions. There were differing views within particular communities, but these were largely in the minority. Second, structured in-depth data were not gathered on a regional basis and then compared in any rigorous way. It is important to bear in mind that this research programme was the first of its kind in South Africa and was designed as a “scoping” exercise that should only be the beginning of more detailed work.

PERCEPTIONS ON KEY CRITERIA FOR DEFINING A SUBSISTENCE FISHER

One of the tasks assigned to the SFTG was to provide a definition of subsistence fishers. Critical to this process was gaining an understanding of what “informal” fishers themselves regarded as key criteria for determining subsistence status. As indicated in Table II, several criteria were highlighted by fishers and community members as integral to the definition of a subsistence fisher.

The first four key criteria emerged throughout the country as being the most significant indicators of “sub-

Table II: Perceptions about key criteria for defining subsistence fishers

Criteria	Northern Cape	Western Cape	Southern Cape	Eastern Cape	KwaZulu-Natal
Poor/low income	*	*	*	*	*
Dependent on fishing for livelihood	*	*	*	*	*
Live close to the resource*	*	*	*	*	*
Harvest resources to eat but some sale to meet basic food requirements	*	*	*	*	*
If sell resources, must sell locally		*		*	*
History of involvement with fishing	*	*			*
Use low-technology gear				*	
Approved by other fishers in community		*			

* Criteria advocated in a given region

sistence". The first and second criteria are clearly related, which indicates that subsistence fishers themselves recognize that a dependence on fishing to survive is a key requirement to qualify for subsistence status. Subsistence fishers were further identified as being the "poorest of the poor", not relying on "any other source of income", "need[ing] the sea to survive" and "depend[ing] on fishing for their livelihood". The third criterion identified was that subsistence fishers should live close to the resource. In other words, subsistence fishers should live in coastal communities and access resources in close proximity to where they live. One respondent stated that these fishers "live near the sea for food and basic necessity".

The fourth key criterion was that subsistence fishers harvest resources to eat, but some fish can be sold in order to meet basic food requirements. Although some respondents in two of the regions felt that subsistence fishers should consume all of their catch, the overwhelming majority stated clearly that subsistence fishers must be allowed to sell some of their catch in order to provide basic necessities for their families. Respondents felt that subsistence fishers were "people who fish for meat and sell to survive", would "sell part of catch to buy other basic needs" and "do not sell for profit". These responses indicated that subsistence use of resources meant that the majority of the catch was for consumption, but that the fishers should be allowed to sell some of the excess. A question in the household survey in which fishers were asked if they considered themselves subsistence or commercial fishers confirms this view. More than half the fishers along the South Coast (54%) defined themselves as commercial fishers, because they sold more of the catch than they consumed. It is important to note that some high-value species, notably West Coast rock lobster *Jasus lalandii* and abalone *Haliotis midae*, were targeted for financial gain by a number of informal fishers in this region, indicating that these resources are more valuable to sell than to eat. In the

other regions, <8% defined themselves as commercial. However, in practice, many of the fishers who consider themselves "commercial" fishers would still apply for subsistence permits if this was their only opportunity to gain access to resources.

Other responses on subsistence fishing criteria included recommendations that subsistence fishers should have a history of fishing, that if they sell a portion of their catch they should sell it locally, that they should use low technology gear and that subsistence status should be verified by other fishers in the community.

Clarifying what fishers considered key criteria necessary for subsistence status was important, because the current definition of a "subsistence fisher" (as outlined by the MLRA) is ambiguous. At many of the roadshow meetings, and at the national workshop, it was evident that there was a lack of understanding about the definitions and criteria for subsistence fishing. Therefore, the key criteria identified by the fishers and other community members (see Table II) were instrumental in guiding the formulation of the revised definition of subsistence fishing developed by the SFTG. The development of this definition (together with a definition for commercial fishing, including recognition of "small-scale" commercial fishing) is discussed in greater detail in Branch *et al.* (2002a).

PERCEPTIONS ABOUT EXISTING MANAGEMENT PRACTICES

During all stages of information-gathering, a number of concerns and problems were raised by the fishers regarding existing management practices. These were discussed during interviews, at focus-group meetings and at the roadshow meetings, and highlighted the overwhelming perception of fishers that management procedures are unclear and unsatisfactory. Seven key problems perceived by the fishers were evident in all

regions in the country and are therefore discussed broadly on a national basis under the following sub-headings.

Access rights

The greatest concern that was emphasized by the fishers was that of access rights. Underlying this concern was a lack of formal access to resources. The perception exists that many fishers who *should* hold legal rights to harvest resources, currently do not have such rights. In many cases respondents provided historical accounts of applying for rights but not being successful. As one respondent explained: “[we] are considered poachers by authorities not considering the fact [that we] have been denied permits”. In addition, many respondents felt that access rights were inequitable. They argued that “locals don’t have access but outsiders do”. They explained that many people from outside their community are allocated resources in their area, particularly recreational and commercial fishers. They felt that their resources were being taken away from them. The fishers also expressed some dissatisfaction with the allocation of access rights to certain people within their communities. Some felt that “the wrong people get the licenses” and government “give permits to those who do not really need [them]”. Recommendations were put forward that a verification system should be established to ensure that the “true” subsistence fishers are the ones that gain access to resources. In the Western Cape, fishers argued that subsistence fishers should only be recognized as such if they were approved by other fishers in each local community. Some fishers also expressed concern that current limits on the amount that can be harvested were unfair. There was a desire to gain access to additional resources: more of the current resources or access to new resources or extended fishing areas. This was stated clearly in the household surveys and the focus-group sessions where the fishers felt strongly that current limits to harvesting were not meeting their basic needs. This perception does, however, need to be balanced against the fact that many resources are currently overfished (Attwood and Farquhar 1999, Hauck and Sweijd 1999, Griffiths 2000, van Zyl 2000) and that an explicit intent of the MLRA is to ensure sustainable utilization of resources (Anon. 1997).

Permit procedures

Confusion exists among fishers about the process for applying for permits. Questions were raised regarding

when fishers could apply for permits, to whom they should apply and what criteria needed to be met in order to qualify for permits. This confusion was exacerbated by an uncertainty regarding the different types of permits that exist and for what permits subsistence fishers could apply. In addition, many of the fishers expressed concern about their inability to pay for permits. They suggested that they should be exempt from paying for permits or that permit fees should be low. Finally, the fishers felt that the procedures for permit applications were unclear. One respondent stated that the fishers “cannot fill in the forms correctly because it is too difficult and in English”. Many fishers agreed with this sentiment and requested that assistance be provided to fill in the forms correctly.

Conflict between resource users

The key concern regarding other resource users related to access to resources in areas adjacent to coastal communities. Fishers participating in the focus-group sessions felt strongly that they should be given priority access to resources in their area and should not be marginalized by recreational and commercial fishers from outside their community. Other than this overriding comment, issues of direct conflict between subsistence fishers or informal fishers and other resource users was not a key point of contention. Most of the participants in the focus groups reported that they had little contact with commercial fishers, generally because the commercial sector operates “out there” beyond the shore areas where subsistence fishers harvest resources. There were some exceptions, however, such as commercial fishers who harvest inshore resources like abalone, rock lobster, kelp and seaweed. On the whole, however, conflict with the commercial sector was reported to be limited.

By contrast, most of the fishers (72%) reported in the household survey that they frequently came into contact with recreational users. Although the fishers had problems with some of the management issues relating to recreational fishers, few fishers (22%) reported having direct conflicts with this sector. In areas where there were problems with recreational fishers, such as on the East Coast where subsistence fishers have been chased away from harvesting sites, they related to issues of intimidation, boat congestion at the harbours and disrespect for the subsistence fishers and their needs. This is not surprising, because the first phase “scoping” survey of the SFTG confirmed that subsistence fishers along the East Coast largely fish on, or from, the shore and they would therefore be in regular contact with recreational fishers. Subsistence

fishers also felt strongly that they should not be limited by bag limits set for the recreational sector and that subsistence fishers should not be denied access to certain areas allocated for recreational users.

There seemed to be less conflict in the areas where subsistence fishers were benefiting from the presence of recreational fishers. For example, in areas such as estuaries of the Eastern Cape, recreational users provided a market for bait species that were being collected by the subsistence harvesters. A market was also provided for fish, rock lobster and abalone when recreational fishers were not successful in their own efforts. In addition, there were cases where fishers reported being employed by the recreational sector to assist them on their boats. Therefore, the relationship between recreational and subsistence fishers is not always a negative one. Nevertheless, fishers attending the focus-group and roadshow meetings emphasized the importance of recognizing their subsistence needs over the sport interests of recreational users.

Ineffective law enforcement and mistrust of management authorities

Less than half the respondents participating in the focus-group sessions reported having a "good" relationship with the management authority in their area. Perceptions of dissatisfaction largely related to the approach taken by the authorities when interacting with harvesters. Fishers reported being "harassed", receiving "little respect" from the authorities, "feeling threatened", as well as ongoing "tension" between them and the authorities. Anger was also expressed by the fishers with respect to methods of policing that included arrest, confiscation of equipment or catches and imposition of penalties. There was also some discussion by the fishers regarding racial discrepancies between "black" and "white" officers. In some cases black officers were perceived as being more sensitive to local people's needs. Finally, corruption was highlighted by a number of fishers as a key factor contributing to their mistrust of the authorities.

It was interesting to note that participants from most of the focus groups in the Eastern Cape and KwaZulu-Natal reported a "bad" relationship with the relevant management authority. Yet, circumstances are considerably different between these provinces, with more focused and visible management and greater consultation between conservation staff and coastal user groups in KwaZulu-Natal than in the Eastern Cape. On the other hand, in the Eastern Cape, even though interaction between communities/fishers and the authorities is limited, there are high levels of conflict. This finding corresponds to comments made in the roadshow meetings. In KwaZulu-Natal, however, there

are frequent interactions between harvesters and the authorities, which could potentially lead to greater opportunities for disagreement and conflict, and explain the perception that a poor relationship exists between users and authorities. On the other hand, two of the 25 test cases conducted in KwaZulu-Natal involved communities that had implemented focused management projects promoting participation of fishers in decision-making. It is encouraging that fishers in these communities expressed satisfaction and indicated that their relationship with the authorities was improving. The improvement was ascribed to a more informative and less heavy-handed approach to management by the authorities.

Lack of communication and access to information

The participants in all but one of the 20 focus-group sessions stated that they had never been consulted by members of the responsible management authority. Throughout the research programme and during the roadshow meetings, many of the resource harvesters reported that communication was poor between the fishers and the authorities. They argued that they were not consulted about changes in regulations and were not informed when new regulations were promulgated. Some fishers indicated that they were only made aware of new rules when they were arrested or fined. Despite these perceptions, feedback from the focus-group participants and the household survey analysis suggests that fishers considered themselves knowledgeable about the regulations. "Reality testing" in the focus-group meetings, however, indicated that not all local fishers were informed about the rules and regulations, although there were one or two well-informed fishers who could share information with the others. Defining precise rules led to a great deal of discussion in the focus-group meetings. The problem of poor communication between the fishers and the authorities was also raised at the roadshow meetings and in discussions with the regional fieldworkers. Many comments and questions raised by the harvesters indicated a lack of understanding about permit procedures, rules and regulations and definitions of the different resource users (including "subsistence fishers"). This is understandable given that communities were being consulted before decisions were made about these topics, so allowing their views to influence recommendations. It does, however, raise the need for ongoing two-way communication.

In addition, many fishers reported a feeling of "isolation", and in their view "management keeps a distance between itself and the communities". This lack of communication was emphasized not only between local

management authorities and fishers, but also with the Chief Directorate Marine and Coastal Management (MCM) of the Department of Environmental Affairs and Tourism. This was particularly evident with respect to the fishers' being informed of whether or not their permit applications had been successful. Many harvesters felt angry about this lack of access to information. In addition, some fishers expressed concern that research findings were not shared with them. As one fisher remarked: "[we are] angry and tired of researchers who come looking for information and there is no improvement or feedback". This was highlighted by a number of resource users who requested information on research that was being, or had been, conducted in their areas.

Lack of knowledge about management procedures led to most fishers responding favourably to a proposal that training and capacity-building programmes be designed and undertaken to educate people about fisheries rules, regulations and management. A majority of respondents in both the household survey (77%) and the focus-group meetings (17 of the 20 test cases) were positive about a training programme. Some respondents questioned the value of such training and others were skeptical of any intervention by the authorities. In addition to training in the fields of sustainable resource management, legislative and institutional arrangements relevant to fisheries management, information on "application processes", "small business development" and "marketing" were also identified as important training topics. This desire to gain a better understanding of resource management approaches and procedures, and to explore other livelihood options (to be discussed below), pervaded the discussions with the resource users.

Unfair rules and regulations

The majority of participants in the household survey (68%) and the focus groups (17 of the 20 test cases) agreed that rules and regulations were necessary for managing the use of resources, although the majority of the fishers argued in the focus-group discussions that the current regulations were unfair and inequitable. Dissatisfaction was largely related to rules governing who could harvest, where and how much they could harvest.

When fishers were asked in the household survey whether or not they adhered to official rules, 66% of the responses were positive. Approximately 45% of the respondents to this question reported that they obeyed the rules because of the fear of law enforcement. Most of the respondents who stated that they *did* break the rules reported that they did so because the

harvesting limits (bag limits) were not sufficient to meet their family's subsistence needs. As a result, these rules, which are directly related to access rights, were considered unfair. Legitimacy of rules and enforcement emerge as key factors.

Lack of user involvement in management and rule-making

The majority of fishers participating in the focus-group meetings (17 of the 20 test cases) reported that rules and regulations for managing resources were unfair. This dissatisfaction was often linked to a feeling of being "excluded" from management decision-making. There was an overwhelming consensus among fishers around the country that "locals are not included in management", there are "no agreed-upon rules", "management is not community-friendly" and "it excludes the communities it is meant to serve". This feeling of dissatisfaction leads to a "lack of cooperation" with rules, "conflict", "lack of respect towards management" and in some instances contributes to "fear on the part of communities". One harvester summarized this by stating that "[we] do not respect rules and regulations because [we] are not part of the rules".

The fishers recommended that (1) communication between fishers and management be more frequent, (2) fishers be consulted regarding rules, (3) they become involved in research initiatives and (4) fishers develop community structures to facilitate consultation with management. Approximately half the community groups that were involved in the focus-group meetings reported that they have a local management committee in place. In most of these cases, however, the fishers reported that the committees were not representative. Nevertheless, the majority of fishers participating in the focus-group sessions wanted to be represented by a locally elected committee. In some cases, it was requested that the harvesters receive assistance from management in establishing representative structures. These committees were seen by some harvesters as an important mechanism for ensuring fisher participation in management responsibilities and decisions.

A key point that emerged from the research was the sentiment from the fishers that they wanted to be part of the decision-making process that results in determining "what is the best system for management". Fishers themselves recognized that one management arrangement may be appropriate in one area, but may not work in another area because of differing local conditions. This is supported by the range of responses obtained from two questions that were explored in the focus-group discussions. When the fishers were asked "to whom should licenses or permits be issued?",

responses ranged from "individual", "household", "groups of individuals" to the "whole community". Similarly, when the participants were asked "what should licenses or permits be issued for?", people in different areas recommended that allocations should be for "individual resources", "broad types of resources" or "all marine resources". These results indicate that procedures for allocation may differ between areas and the appropriate type of management structure and procedures should be developed with the local resource users.

PERCEPTIONS ABOUT RESOURCE USE

Four key themes highlight the fishers' perceptions regarding the status of resources and current levels of harvesting: ownership of resources, state of resources, limitations on harvest, and resource needs of subsistence fishers.

Ownership of resources

When the fishers were asked the question in the household surveys "who owns marine resources", 39% of the respondents stated "God". This answer, when combined with the other responses of "no one", "everyone" and the "local community", indicate that 59% of the fishers regard marine resources as some form of "common property". Approximately 35% of the remaining respondents identified some level of government as being the owner of resources. The regional differences in response to this question are interesting. It seems that in the areas where the fishers defined themselves as "subsistence users", they also perceived the resources to belong largely to God (particularly on the East Coast). However, in the areas where the fishers identified themselves as largely commercial fishers (who sell a large portion of their catch) they perceived the ownership of resources to be vested in government (particularly along the South-Western Cape coast). Although these results are difficult to interpret, it may reflect subsistence fishers' perceptions that "God will provide" and this may explain why they perceive resources to be more stable in their areas (as discussed below).

State of resources

The focus groups and the household surveys reflected that a number of the communities on the West and South-West Cape coasts reported a scarcity of some of their key resources (such as abalone, fish and rock

lobster). On the contrary, most of the communities on the East Coast thought that resources were relatively stable. These perceptions may be related to the fishers' understanding of who owns the resource, but in some cases it may also be based on the reality in the areas. Increased pressure on the abalone resource through organized poaching (such as has occurred on the South-West Cape coast) has undoubtedly had a great impact on the resource (Hauck and Sweijd 1999, Tarr 2000). Resources such as this are also harvested by recreational and small-scale and large-scale commercial fishers, which will result in additional effects on the stability of resources. This is the case, for example, with line-fish species on the West and South-West coasts. More than half the respondents in this area specifically noted the vulnerability and scarcity of these species in the region. This is substantiated by scientific research that has raised concern about the dramatic decrease of many fish species along the Cape West and South-West coasts (Attwood and Farquhar 1999, Griffiths 2000).

Fisher perceptions about resource sustainability on the East Coast, however, are quite different. Although the fishers in many areas perceive the resources to be stable, the reality of the situation in some cases is quite different. This is evident with mussels in KwaZulu-Natal. When the fishers were asked about the state of mussels found on the rocks in KwaZulu-Natal, 79% indicated that the resource was either plentiful, or that there was still enough of the resource to harvest although there was a decrease from 10 years ago. However, in a study conducted by consultants for the SFTG to assess marine resources in South Africa, it was reported that the brown mussel *Perna perna* harvested in KwaZulu-Natal was considered either over-exploited or fully exploited in different areas (van Zyl 2000). It is possible that this discrepancy is on account of a fear by the fishers that if they report a resource problem, their needs will be jeopardized when access rights and bag limitations are considered.

Although there was a difference between the regions with respect to perceptions about the status of marine resources, there was general agreement by the fishers that resources are being over-utilized. It is recognized that this over-use, by both outsiders and local people, is having a negative effect on fisheries stocks.

Factors limiting harvest

The most significant response that emerged from the fishers when asked what factors limit how much of the resources they harvest was the amount of the resource available for them to use. Natural features such as tide and weather were also mentioned as factors

that limit the quantity of resources harvested. Rules and regulations, from a national perspective, were considered the third most significant constraint. However, as mentioned above in the discussion on management, most fishers throughout the country recognized the need for rules and regulations. Therefore, although this was ranked only third among the factors limiting resource use (likely because of the lack of legitimacy coupled with inadequate enforcement in some areas), it was still considered an important component of management.

Resource needs of subsistence fishers

Despite the recognition that rules are necessary and, in some cases, that resources are limited and declining, fishers felt strongly that their needs (for survival) were not being met by current harvesting limits set by government. In some communities the household surveys revealed very specific increases that the fishers requested with respect to size and bag limits. Overall, the fishers expressed a strong desire to set reasonable, "livable" limits in cooperation with the regulatory body. They felt that their needs were in excess of the current limits set for recreational fishers and their need to meet basic food requirements should not be comparable to the "sport" activities of recreational fishers. Therefore, the fishers in many of the focus-group sessions recommended that subsistence fishing be prioritized over other fishing sectors, particularly in times of resource shortage. A precedent has been set for this approach in Alaska (Fall 1990).

IMPROVING LIVELIHOOD STRATEGIES OF SUBSISTENCE FISHERS

Although examination of alternative livelihood strategies was not a key focus of the research, a number of comments from the fishers during the roadshow meetings and in discussions with the regional fieldworkers revealed that this was an important issue. The most significant result that emerged was that many of the resource users reported that they would rather be small-scale commercial fishers than subsistence fishers. This was particularly true of fishers harvesting lucrative resources such as abalone and West Coast rock lobsters. They stated that they would like to improve their livelihoods by selling their catch rather than only consuming it. Although fishers requested bag limits that would meet their subsistence needs, it was clear that they did not want to be "limited by management" to a "subsistence" sector forever.

Some of the suggestions made by fishers to assist them in improving their livelihood strategies included assistance with "storing and marketing" catches, improved facilities at harbours for marketing, diversification of catch (to include more than one species), "business development" and developing mariculture ventures. These suggestions relate to their desire to sell their catch. In addition, many resource users expressed an interest in obtaining assistance to explore alternative livelihoods such as tourism. This was highlighted as an important strategy for uplifting the broader community. Overall, it became apparent that fishers wanted their subsistence needs satisfied, but at the same time they did not want to be confined to the subsistence sector if other opportunities became available. This point is addressed by Branch *et al.* (2002a) in recommending definitions for different sectors.

DISCUSSION

The preceding sections provide an overview of the most important perceptions and concerns prevailing among fishers contacted through the SFTG programme. It has not been possible to give regional comparisons in all cases because of the different types of data source and the non-quantitative approach used in most cases. For example, the capacity and involvement of management authorities with local fisher communities is very different between the provinces. Given the national scope of this research, and the fact that the survey was not specifically designed to undertake comparative analyses, it has not been possible to analyse the factors that led to these perceptions among the fishers. Nevertheless, most fishers throughout the country had a negative attitude toward the management authorities. Although this is not an unusual perception in an international context (Fall 1990, McCay and Jentoft 1996), it must be noted and addressed when devising future management strategies for the subsistence fisheries sector. Further, it must be recognized that active engagement with local fishers and communities will inevitably cause initial conflict owing to the political legacy of South Africa (as discussed below) and because many resources are currently overexploited.

The perceptions of fishers need to be viewed in the context of the history of fisheries management in South Africa. For example, a key theme that emerged from the research was that the fishers were dissatisfied with the government's approach to management. In general, there was a feeling that management decisions were made without consultation with resource harvesters and that rules were made and enforced in

a top-down manner. The history of fisheries management in South Africa has contributed to these negative perceptions of management authorities and rules. Access rights to marine resources have been distributed inequitably in South Africa, favouring white large-scale operators over black, small-scale fishers (Hersoug and Holm 2000). With 45 years of apartheid in South Africa, it is inevitable that the policies and laws of the time had a significant impact on resource management. Management strategies were based on a highly centralized, top-down approach, which resulted in little consultation with the fishers, a confrontational policing strategy and the alienation of local communities. As a result, there is a legacy of mistrust between resource users and management authorities (Hauck and Sowman 2001). South Africa's history has inevitably contributed a great deal to the negative perceptions, attitudes and concerns that were highlighted by the fishers in the SFTG research programme.

In addition, many fishing communities live in remote rural areas, have informal or traditional transport and information systems, are illiterate and do not have access to formal systems of government communication. This has exacerbated barriers between fishers and management authorities. Further, the allocation of fishing permits and rights has historically been handled and determined by government authorities (central or provincial), with little or no consultation with fishers. Increasingly, government has realized that the allocation procedure is still fraught with complexities and inequalities, and various task teams and studies have been commissioned to address these concerns (Anon. 2000b). These realities in the current fisheries management system in South Africa have a direct impact on the perceptions and attitudes of fishers.

Therefore, the inclusion of fishers' perceptions is a vital component of developing an effective strategy for the management of subsistence fisheries. The fishers provided a number of suggestions for future management, in addition to raising problems and concerns that were critical to informing the SFTG recommendations (see Branch *et al.* 2002a, Harris *et al.* 2002). The key recommendations of the SFTG that considered the perceptions and input from the fishers included: (1) a revised definition of subsistence fishing; (2) the development of new local management structures for subsistence fisheries; (3) the establishment of effective communication systems; (4) revised allocation and application procedures; (5) a training and capacity-building programme and (6) appropriate research and monitoring programmes (Harris *et al.* 2002).

Although it is recognized that the perceptions, values and needs of fishers must be considered, it is important for resource managers to realize that perceptions and values differ between and within communities.

This is particularly pertinent in South Africa, because research has shown that dominant groups, or local elites, have emerged in some coastal communities, resulting in unrepresentative local structures, skewed power relations and unequal distribution of benefits (Hauck and Sowman 2001). This situation is supported by the SFTG research in which fishers stated that most of their local fishing committees were not considered to be representative. Such power imbalances have an impact on perceptions and concerns, and also create obstacles to effective user-participation, in some cases de-stabilizing attempts to implement co-management arrangements (Hauck and Sowman 2001).

It is clear from the SFTG research results that fishers want to become more active in the process of managing living marine resources. However, implementing co-management in South Africa will not be easy. Even if access rights are formally allocated to subsistence users, security of tenure also needs to be established for harvesters to develop a sense of ownership of resources and responsibility for management (Jentoft 2000). Furthermore, with a history of disempowerment in South Africa, significant steps will need to be taken to mobilize communities, organize local management structures, establish legitimate representation and include previously marginalized groups in decision-making. These processes of mobilizing, organizing, and building strong local institutions can take years to establish (Noble 2000, Berkes *et al.* 2001). These findings are reinforced by recent research on coastal and fisheries co-management efforts in South Africa (Hauck and Sowman 2001), which highlights a number of concerns that need to be addressed before communities and governments will be able to work in partnership to manage local marine resources.

In reviewing the findings and outcomes of the SFTG research process, it is important to recognize that the implementation process will pose many challenges. Among the most critical challenges in the South African context are the willingness of government to devolve certain powers and management responsibilities to local institutions, securing property rights over resources, and providing the necessary resources and facilitation to subsistence fishers to empower them to become constructively involved in fisheries management. While it is recognized internationally that co-management arrangements have sometimes succeeded and sometimes failed (Baland and Platteau 1996), it has been identified as a promising alternative strategy to centralized management, which remains appropriate under certain conditions. Ultimately, the implementation of co-management is a political decision (Berkes *et al.* 2001), but if it has any hope of success it requires the long-term support and commitment from government (Hauck and Sowman 2001).

CONCLUSION

Information about the needs, perceptions and concerns of the fishers that was gathered in this research process has been critical during the development of recommendations for future subsistence fisheries management in South Africa. The realities of resource-users need to be considered if the aim is to develop management systems that are supported and accepted by the people who are affected (Fall 1990, Hara 1999, Borrini-Feyerabend 2000, Noble 2000). The recommendations of the SFTG are compatible with international trends in fisheries management that consider the needs and perceptions of fishers and encourage participation by fishers in management. The implementation of co-management arrangements over the past decade in various parts of the world has been a direct attempt to develop greater legitimacy of rules and regulations, to establish communication channels and information-sharing, and to increase capacity and knowledge (Jentoft 1989, Horemans and Jallow 1997, Pomeroy and Berkes 1997).

The legal recognition of subsistence fishers in South Africa in 1998, the establishment of the SFTG and the acceptance of the SFTG recommendations by national government in 2000 are positive developments in establishing an effective management system for subsistence fishers. Implementation of those recommendations, however, is the next challenge. Critical for this implementation process is government's willingness to embrace the principles of co-management and to work in partnership with local fisher communities. A number of obstacles to implementing successful co-management arrangements in South Africa have been identified, many of which have been attributed to a lack of commitment by government to experiment with this alternative approach (Hauck and Sowman 2001). It is clear that any recommendations provided by the SFTG will not be effective on their own to mobilize changes in subsistence fisheries management. A shift in management approach will require the joint commitment of government and resource users to explore new strategies that will build partnerships, which could ultimately lead to more effective and sustainable resource management.

ACKNOWLEDGEMENTS

We thank the Regional Fieldworkers and facilitators for their hard work in conducting the research. Further, we gratefully acknowledge all the fishers who contributed their time to answering questions and attending

meetings as a means of sharing their problems and concerns and making important recommendations for future fisheries management in South Africa. Finally, Drs T. Hutton (CEFAS, Lowestoft, U.K) and J. R. Nielsen (Institute of Fisheries Management, Norway) are recognized for their insights and valuable comments on a draft of this paper. Dr F. Berkes (University of Manitoba) provided comments and guided us to invaluable literature.

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