

Design and Methodology for the Survey of Somalia Fishing Communities Concerning IUU Fishing

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1. Introduction

The project focus is on understanding the dimensions of illegal, unreported and unregulated (IUU) fisheries activities taking place in Somalia's EEZ. As per the agreement between Adeso and TransAfrica Consultancy Services, and described in Milestone 1 of the agreement, the survey is designed to, "analyze the fundamental types of illegal fishing and identification of the key factors that foster illegal fishing" in Somalia. In addition, the survey is designed to help assess "ecosystem and livelihood impacts and evidence concerning illegal fishing."

2. Conceptual Framework

The survey framework draws from the FAO definition of IUU fishing¹ as:

- **Illegal fishing** takes place where vessels operate in violation of the laws of a fishery. This can apply to fisheries that are under the jurisdiction of a coastal state or to high seas fisheries regulated by regional organizations.
- **Unreported fishing** is fishing that has been unreported or misreported to the relevant national authority or regional organization, in contravention of applicable laws and regulations.
- **Unregulated fishing** generally refers to fishing by vessels without nationality, or vessels flying the flag of a country not party to the regional organization governing that fishing area or species.

Additionally, the survey framework draws from the socio-economic theory of regulatory compliance as described by Sutinen and Kuperan² (see Figure 1 below). These key factors, or lack thereof, foster illegal fishing. Lastly, the survey also includes a number of additional questions and topics based on discussions with Adeso staff and other key informants in Nairobi. There are a number of general questions about perceptions of changes in the fishery, general development issues, and related environmental issues such as waste dumping at sea. Several questions are also aimed at linkages between IUU fishing and piracy.

There is very little recent secondary information available on the fisheries sector in Somalia. Even recently published literature quotes statistics dating back almost a decade³. Therefore the survey is also designed to collect some basic information on the fishing industry. The survey approach used is similar to that outlined by Pollnac & Crawford⁴. This involves rapid assessment methodologies, key informant interviews and more extensive individual survey questionnaires.

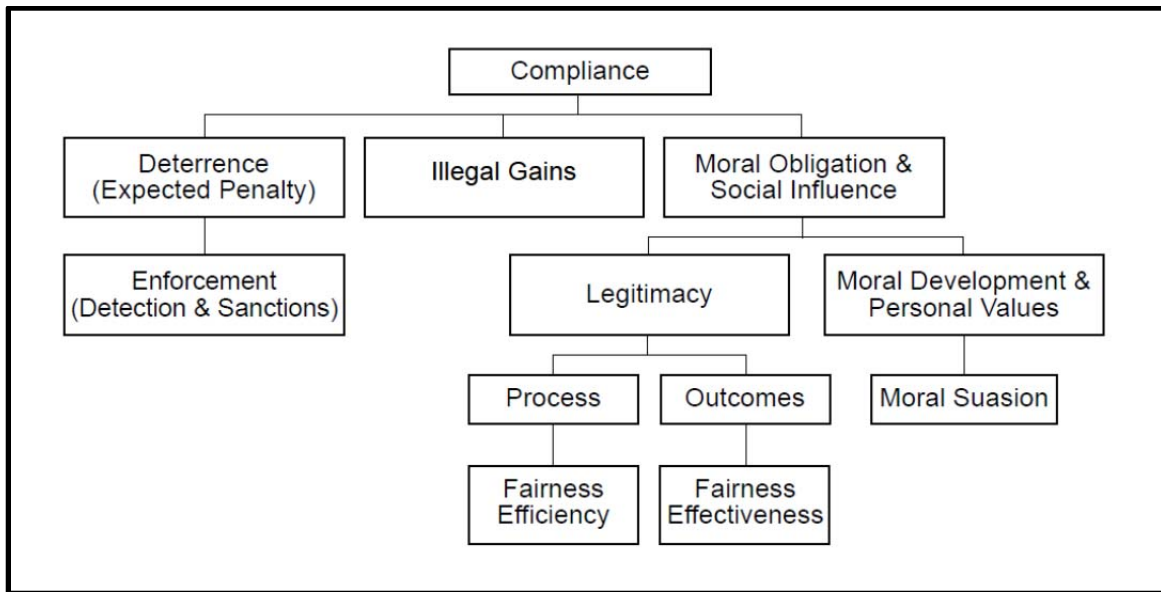
¹ http://ftp.fao.org/FI/DOCUMENT/tc-fsp/2013/VolGuidelines_adopted.pdf

² Sutinen, J.G. and K. Kuperan. 1999. A socio-economic theory of regulatory compliance. *Journal of Social Economics*. 26(1/2/3): 174-193.

³ Kaija Hurlburt, K and R. Spivak. 2013. The Fishing Sector in Somalia/Somaliland Shuraako, p.11.
Mohamed Mohamud Mohamed and Mohamud Hiram Herzi. 2005. Feasibility Report on the Fisheries Sector in Puntland. UNDP Somalia. p.17.
Ahmed H. O. Gulaid. 2005. Feasibility Report on the Fisheries Sector in Somaliland. UNDP Somalia. p.33.
FAO Fishery Country Profile – The Somali Republic.. 2005.

⁴ Pollnac, R.B. and B. Crawford. 2000. Assessing Behavioral Aspects of Coastal Resource Use. Coastal Resources Center, University of Rhode Island. p.139.
http://www.crc.uri.edu/download/Assessing_Behavioral_Aspects.pdf

Figure 1. Determinants of Compliance



SOURCE: Sutinen and Kuperan 1999.

To determine the presence of illegal fishing is somewhat difficult as individuals are often reluctant to talk about illegal activities or admit to such behaviors themselves. Hence, fishermen will not be asked if they are directly involved in illegal fishing, but survey questions are designed to ask about who does it, where does it take place and what types of illegal activities are undertaken. It will also be necessary to determine types of “illegal” fishing as perceived by the fishermen. They may use different terms to refer to local (possibly clan), national & international restrictions on fishing activity. It is also important to note that these terms may not be the same across the areas where the project will collect data, so the survey forms may need to be adapted to reflect these differences. To determine what local terms or concepts are used to refer to a fishing behavior that could be translated as “illegal”, it will be necessary to use a question format such as, are there any restrictions concerning: 1) quantity, 2) where, 3) when, or 4) how you harvest fish?

Defining illegal fishing activities may also be problematic in Somalia as some persons have questioned whether their claim over fisheries jurisdiction out to 200NM was done properly and may be questionable under international law. However, since Somalia is a signatory to the UN Convention on Law of the Sea, we will assume for the purposes of this work that Somalia has a valid and legal claim to exercise exclusive use rights to the fisheries with a 200NM EEZ. This is a generally accepted practice and acknowledged by most coastal states. Within this zone, Somalia can and should regulate fishing activities by Somali fishers, and if they so choose, denial or granting of access rights by foreign flagged fishing vessels and an associated regulatory regime for management. There may be further ambiguity in Somalia as to what different autonomous regional authorities may view as their legal right to manage fisheries within the 200NM zone compared to the views of the internationally recognized central government. Recent meetings between the central government and regional authorities may have resolved this to some extent, and it is our understanding that foreign fishing licensing in the future will be controlled at the federal level. Key informant interviews, especially at the federal and regional level, and the survey instrument will ask information about these issues but not try to fully tease out these

legal issues which are beyond the scope of this study. However, the study will examine what various fisheries stakeholder perceptions are as to what is considered “legal”, including whether any traditional use rights are asserted by clans or local leaders.

For example what is considered illegal might be related to use-rights; e.g., harvest could be restricted to members of a certain group, community, etc. with a defined area where capture is restricted or allowed. There might also be restrictions concerning the capture of certain species which are covered by some sort of management system. Necessary information is outlined below and adapted from Pollnac (1998)⁵

3. Rapid Assessment and Key Informants

Prior to administering the survey instrument, the fishery at the survey sites will be characterized via rapid assessment methods including visual walk through of the community and semi-structured conversations with key informants. The information to be collected includes the following:

1-What: What types of fishery resources are exploited by people in the community?

2-Who: Who in the community exploits the various resources? To what extent do fishermen only fish as their sole source of income and livelihood, or do they have other sources of income and livelihoods?

3-When: Time of year, month, moon, tide, day, etc.?

4-Where: Where are the resources gathered? What are the use rights?

5-Why: What are the resources gathered for? Household consumption? Selling in the market? (Approximately how much do each use?)

6-How: How are the resource gathered (fishing equipment, methods)? Source of equipment (if any)? Source of spare parts, maintenance, fuel (if needed)?

7-How: How are the resources distributed? (If sold, how is it sold? When, where, to whom?) If traded, how? (For what, when, where, & with whom?) If given to kinsmen or other families, is it reciprocal? Does local fish get processed in any way? Fishermen use ice, do drying, smoking, pickling, etc.?

The above information can best be initially acquired by going to the landing area (beach, pier, dock, etc.) at the appropriate time, observing the landings and asking questions concerning the various data types listed, obtaining local names for species, gear, boats⁶, locations, and times as well as restrictions (laws) regarding the fishery, if any exist. This information will be useful in both refining and interpreting responses to the survey, although it is likely that different species, boat types, gears, regulations, etc. may appear in survey responses and will need defining. Also, this information will possibly reveal unreported and unregulated fisheries. Local leaders via key informant interviews can also be queried concerning the above information when general contextual information is required. Prior to and during

⁵ Pollnac. R.B. 1998. *Rapid Assessment of Management Parameters for Coral Reefs*. Coastal Resources Center, University of Rhode Island. Coastal Management Report #2205 ICLARM Contribution #1445.

⁶ Boat type may not be as simple as the FAO, etc. publications usage, especially for little researched fisheries. For example in Oman, besides the reed *shasha* (of which there were several varieties), wooden plank boats (which some group as large “*huri*” were also referred to as *lansh*. Other wood plank fishing vessels (a bit smaller) were referred to as *shahuf* (but *badan* on the Batina coast). Also, *huri* were distinguished as to whether they were dugout or plank built. Similar linguistic variation applies to vessels along the Swahili coast in the far south of Somalia, but the terms are in Swahili.

the survey pre-test, and especially in the first few villages surveyed, a glossary of fishing terms needs to be developed. This will include a list of boat types, gear types and fish types with their local names and English equivalents (see Annex in this report on *“Glossary of Boat Types, Fishing. Gear Types and Fish Names.”* While most of the general information on fishing outlined above can be obtained on the beach and community walk-through, key informants can provide supplemental information to fill in gaps with what was observed.

In addition to the information to be collected above, there are additional guide questions in the Annex of this report entitled *“Guidelines for Key Informant Interviews”*. This section has a specific list of types of key informants to be interviewed at the national and regional level (a separate consultant will conduct those interviews) and another list for local and community leaders. That Annex also has a list of additional and more detailed types of questions to help guide the semi-structured interviews on topics about management and governance, illegal fishing, licensing and reporting, enforcement, waste dumping and fish kills.

The above outline of information and guideline questions serve as a guide to assembling a very brief and summative overview of this information for each village surveyed. The Field Supervisor will write up the findings of the key informant interviews in a summary brief of not more than 4-5 pages per village. The outline of the summary brief can follow these topical areas:

- General description of the community
- General description of the fishery in the community (who what when where how)
- Governance and management jurisdictional framework
- Regulations and management efforts
- Licensing and reporting
- Illegal fishing issues
- Surveillance and enforcement
- Other general Issues and topics of interest

4. The Individual Survey Questionnaire

4.1 Sampling Frame and Methodology for the Individual Survey Questionnaire

The survey design should take a representative sample of fish landing sites from each of the administrative regions of the country. This will not be a random sample but a purposeful sample that ensures all regions are covered and that there are both landings sites with artisanal and commercial fleets so that individuals from both fleets are included in the surveys. At each landing site, a systematic sampling design will be used where every third or fifth house is selected depending on the size of the community. The head of household will be interviewed. The target is to interview approximately 30-40 individuals per community with a target of 10 communities/landing sites sampled. The preliminary list of communities/landing sites from which the 10 landing sites will be selected is provided in Table 1 below. The survey plan calls for the Field Supervisor to conduct key informant interviews, and for 7-8 field enumerators to conduct individual interviews with each enumerator’s target of completing between 5-7 surveys per village. The plan assumes two days in each village/landing site to carry out the entire set of activities including courtesy call on local officials, key informant interviews, administering the survey instrument and a community meeting.

Table 1: Illegal Fishing Candidate Sampling Sites in Somalia

Site selection name	Administrated area	Operational center
<i>Kismanyo</i>	<i>Jubbaland</i>	<i>Kismanyo</i>
Madhawo	Jubbaland	Kismanyo
<i>Buurgabo</i>	<i>Jubbaland</i>	<i>Kismanyo</i>
Kanboni	Jubbaland	Kismanyo
Marka	Lower Shabeele	Marka
Muqdisho	Banadir	Muqdisho
Cadale	Middle Shabeele	Muqdisho
<i>Xarardheere</i>	<i>Hiiran</i>	<i>Muqdisho</i>
<i>Hoby</i>	<i>Galmudug/Xibin and Xeeb</i>	<i>Galkacayo</i>
Garacad	Puntland	Galkacayo
<i>Eyl</i>	<i>Puntland</i>	<i>Garowe</i>
Bender Bayla	Puntland	Bosaaso
Xafuun	Puntland	Bosaaso
<i>Caluula</i>	<i>Puntland</i>	<i>Bosaaso</i>
<i>Qandala</i>	<i>Puntland</i>	<i>Bosaaso</i>
<i>Lasqoray</i>	<i>Puntland</i>	<i>Bosaaso</i>
<i>Xiis & Maydh</i>	<i>Somaliland</i>	<i>Berbera</i>
<i>Berbera</i>	<i>Somaliland</i>	<i>Berbera</i>
Lughaya	Somaliland	Borama
Saylac	Somaliland	Borama

(The above mentioned sites were provided by Abdi Mohammed Dahir in May, 2014. Sites highlighted in **BOLD** and Italics were a second refinement of recommendations provided by Abdi Mohammed Dahir in a June 2, 2014 email.)

4.2 Translation of the Questionnaire

Prior to administering the questionnaire in the field, the English questionnaire will need to be translated into the Somali language before it is administered. Ideally, once the questionnaire is translated by one individual, it should be back-translated into English by another translator. The back-translated English version should be compared with the original and where they differ the translators should discuss and decide on the best revised final translation.

4.3 Pre-testing the Questionnaire

Once the translation from English to a local language(s) is finished, the questionnaire must be pretested in the field to gauge whether the translation is adequate or whether the translation or original questions need to be modified. This pre-test should occur in a fishing site that is not on the selected survey list. All enumerators and the Field Supervisor should do a walk-through of the community/landing site first and meet with a local authority representative and ask permission to conduct the interviews. The field

enumerators should then test interview one to two individuals and fill out the questionnaire form. This can be incorporated into their training and orientation activities (see section below). Then, all the field enumerators should regroup with the Field Supervisor and discuss whether any problems occurred with any of the questions. During this field test, the Field Supervisor should also observe quietly the field enumerators and also gauge for themselves whether they see any problems in how the questions are phrased and understood by the respondents. Field Supervisor observation of the field enumerators is also important to gauge whether they are asking the questions properly, not a phrasing or translation issue, but different potential issues (see below). To ensure that the survey instrument is administered properly and consistently, enumerators should not have to reinterpret the question or paraphrase the question for the respondent. The question should be asked in the identical way for each respondent. The question can be repeated but should not be reinterpreted for the respondent.

The length of time it takes to administer the questionnaire should be noted. The time goal for administering the survey instrument should be to complete the interview in not more than 30 minutes. Overly lengthy questionnaires may tire the respondents and can then lead to them providing not very thoughtful or truthful responses in order to finish the interview. Lengthy survey instruments will also mean more time and costs needed to reach the target goals for number of individuals sampled. If it takes more than 45 minutes to complete the survey, then consideration of shortening the form and dropping less essential questions should be considered. The Field Supervisor will need to consult with the TACS consultants should this be necessary.

4.4 Training the Field Enumerators

Training of the field enumerators will be necessary before any field work is conducted. This training and orientation should be completed in one day. Field enumerators should be local Somalis with a minimal high school education and ability to read and write. Knowledge of English and computer skills would be a plus. Life experience or education in fisheries would also be useful. Since they may or may not have any knowledge of fishing, they will need to be given a brief introduction to the fisheries sector in Somalia and in particular a review of terminologies used such as fishing gear types, fish species, and management/regulatory terminology. A useful exercise for this orientation would be a walking and talking tour of a fish landing site with the Field Supervisor / Fisheries Expert. The orientation should also include the following:

- Explanation of the general purpose of the survey and organization sponsoring the survey
- Explaining the travel requirements and field living conditions to be expected, and total time commitment needed.
- Explaining pay and travel per diems
- Explaining grounds for terminating contract employment
- Roles of the field enumerators in administering the survey instrument, assistance with coding data into an Excel database, and assistance in conducting a community meeting after the individual surveys and key informant interviews are completed.

Next, the actual survey methodology needs to be explained including:

- Rapid assessment techniques including a walk-through of the community, interviewing key informants
- Sampling strategy and procedure for selecting survey respondents
- Procedure for obtaining informed consent prior to conducting the survey – its voluntary, anonymous and they can stop if not comfortable answering questions – all or any one question

- The basic introduction with the respondent, greetings, explaining general purpose of the questionnaire, who is doing it, explaining and requesting informed consent as to whether they will take 30 minutes of time for the interview.
- Reviewing the questionnaire and each question to make sure they understand what is the intent of the questions and terminology used
- Importance of getting complete responses and to have no missing data or blank responses from individuals surveyed unless they refuse to answer any questions (and should be noted on the survey form)
- Importance of not leading the respondent to answer in any one way (there are no right or wrong responses) and being courteous but efficient
- Checking the form for completeness prior to proceeding to the next household

Next, field enumerators should each practice and role play administering the questionnaire on each other. One enumerator plays the role of respondent and the other administers the survey instrument. This should be a fishbowl approach where the Field Supervisor and at least one other enumerator observes and then gives feedback on the way the interview was conducted, including greeting, asking informed consent, and reading the questions and then a check of how they filled out the form. The entire survey instrument does not need to be administered by each enumerator during these role plays. It is sufficient to get through the introduction and greetings, informed consent and into several of the questions, then stop. The next enumerator can ask a different set of questions from the first role player and so on so by the time all have had a chance at role playing the enumerator, all questions have been asked.

Lastly, the survey instrument is pre-tested in a community after the field enumerators have gotten their initial orientation. This pre-test (see section above as well) can also be considered part of the training of the field enumerators and after each has pre-tested the survey instrument on one or two respondents, they should all regroup and discuss the experience. This debrief, led by the field supervisor should include:

- Feedback by enumerators on the survey instrument itself as described in the section above – length of time to administer the survey, any problems or difficulty of respondents understanding any of the questions or wording used, issues in explaining or obtaining informed consent.
- General feedback by the field supervisor on ways the enumerators introduced themselves, requested informed consent, asked questions, and their general deportment and courtesy shown to respondents. Feedback should be specific and constructive.
- General questions by the enumerators and discussion on the process.

At this time the field supervisor needs to determine whether the survey instrument is ready for actual implementation or whether any adjustments are needed. If adjustments are needed, immediate consultation with the TACS consultants will be required.

4.5 Administering the Survey Instrument

Once the Field enumerators are trained and the survey instrument pretested and ready for use, the field work can get started. In each community to be surveyed, permission should be secured from local authorities to conduct survey. Once permission is secured an initial walk through of the fishing community has been made, the field enumerators can administer the questionnaire. While data enumerators are administering the questionnaire to individuals, the Supervising Field Officer will conduct key informant interviews. The fiscal officer will also act as the data entry clerk and do simple and initial quality control checks along with the supervising field officer to ensure all questionnaires

have been completed and there is no missing data. The fiscal officer will also act as the data entry clerk and transfer information from the survey forms into an Excel spreadsheet, with one row per individual interviewed. A code book for coding numeric data for each variable will be used and a draft provided at the end of this document. The codebook will be updated as needed as certain responses such as gear type, boat type and fish types may vary from site to site and new names given sequential numeric codes.

Informed consent by respondents is an important part of the survey process. While it is important to have local approval by the respective authorities to carry out a survey in the community, each respondent must also give informed consent. Informed consent requires that they understand the general objective of the survey, that all responses will be kept confidential and no responses from any individual will be individually identified in any report nor shared with any officials, and if they feel uncomfortable at any time, they can refuse to answer a question or stop the interview process altogether. These conditions need to be verbally explained to each respondent before starting the survey and the respondent must verbally agree to be interviewed before starting. Since many of the respondents may be illiterate, no signed consent form will be requested as they may be reluctant to sign a statement they cannot read.

4.6 Observing and Supervising Field Enumerators on the Job

The field supervisor, both during the pre-test and when the survey instrument is administered in the first community, needs to spend some time observing the enumerators on the job. He should look for signs of whether the field enumerator is leading the respondent to provide a biased response of one form or another, is discourteous to the respondent, or demonstrates impatience with how quickly the respondent provides answers. The field supervisor should wait until the interview is completed and then provide feedback and explain corrective actions needed in private to the field enumerator. If repeated behaviors are observed that threatens sample bias from any individual field enumerator, and feedback does not result in changes, then the field enumerator's employment should be immediately terminated. Terminated field staff should be given pay up until the time they are terminated and travel expense funds to return to their home.

4.7 Quality Control and Assurance Check with TACS

Since this survey procedure is a bit unusual as the TACS consultants will not directly participate in the training of the field enumerators, the pre-test of the survey instrument, or the initial implementation in the first community surveyed, special procedures will be needed to reasonably assure quality control and assurance that the survey design is appropriate and administered correctly. In this case the following special procedures will be followed:

- The Field Supervisor will have a phone conference call with the TACS consultants immediately following the training of enumerators and pre-test. He will summarize the results of these activities and discuss any concerns about managing the field enumerators, process for administering the questionnaire and any concerns with the survey instrument itself, length, specific questions or translations. Any changes to the survey instrument prior to full scale implementation will be decided at this time.
- After the first community is surveyed, the Field Supervisor will send a coded Excel file of the responses of the individuals surveyed to the TACS consultants. The TACS consultants will review this file and data and determine if there are any obvious problems in how it is being coded and entered into the Excel file. TACS will also run a few simple statistical checks on whether there may be any obvious interviewer biases. A conference call will be arranged with the Field Supervisor with a day or two after the Excel file is reviewed with the aim of discussing any

problems or issues with data coding or interviewer bias as well as to get feedback from the Field Supervisor regarding any general issues in conducting the field work.

5. Community Meeting and/or Focus Group Discussions

The study design calls for a community meeting to be held in each village/landing site sampled. If possible, this meeting should be arranged in advance and conducted on the first day of the survey team arrival in the community. If it cannot be arranged in advance, then the Field supervisor will need to ask the local officials if a meeting can be organized later that evening or at some point the following day. This should be at a time convenient to the community and not be scheduled for longer than one hour. The agenda for the meeting will include:

- Basic introductions of who the team is, purpose of the visit , and describe what they will do in the village over the two day visit - key informant interviews and individual surveys
- General discussion with the people attending the meeting about the fishing activities in the community, development challenges, and then on IUU fishing.

In such a meeting, the exact number of people meeting may not be fully known and could be just a small group of less than 10 persons where the meeting would be more of a focus group discussion. However, the general plan is that this is a larger community meeting where anyone interested can attend. If a larger community meeting cannot be organized given timing constraints, it is suggested that two focus group sessions with between 7-8 participants each be planned and the Field Team divide into two groups to run these sessions. It is not necessary for all member of the team to participate in the focus group sessions as some will need to be working on data coding into an Excel spread sheet or continuing to conduct individual interviews. At least two members of the field team will be needed for each focus group session. One member of the team should be designated to facilitate the focus group meeting and one to only listen, take discussion notes, and prepare a summary write up of approximately 1-2 pages.

It is suggested that one focus group include fishermen and processors and marketers. It is assumed that this will likely be an all-male group and should not include any local officials, clan or community leaders to ensure participants are comfortable to speak freely. It is suggested that the second focus group be an all women group drawn from fishing households. These focus group sessions should be planned for the second day in the community after key informant interviews and surveys have been administered. Those processes could help to identify potential participants in the focus group meetings. The basic agenda for the focus group sessions is similar to the community meeting described above.

ANNEXES

The annexes below contain forms and guidelines on a glossary of local fishing terminology, guidelines for interviewing key informants, the survey instrument and data coding book.

ANNEX 1: Glossary of Boat Types, Fishing Gear Types and Fish Names

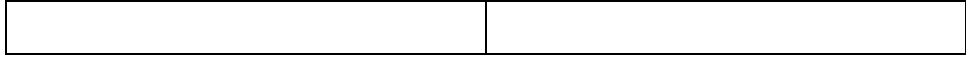
The following tables should be completed and developed at the early phases of the field work and can be compiled during the pre-testing of the survey instrument and from key informants in fishing communities where surveys will take place, and from direct observation and conversations with fishermen at the landing sites. These tables should be completed early on in the field work and serve as a guide to for field enumerators who may not be familiar with fishing terminology. This information is also important for some of the coding of the survey instruments for specific questions about vessel types, gear types and fish types

Boat type (see survey question # 3 for coding)

<i>Local Names</i>	<i>English Name</i>
<i>Small-scale / Artisanal fishing vessels</i>	
Volvo	Fiberglas with inboard engine
	Fiberglass skiffs with outboard
	Canoe/un-motorized wooden boat
Dhow	Dhow motorized
	Dhow non-motorized
	Trawler decked and wooden hull
sambuk	Wooden boat with inboard engine
hourri	Wooden boat with outboard
<i>Large-scale Commercial / Industrial vessels</i>	
	Steel hull trawler
	Steel hull Purse seiner
	Steel hull long liner

Gear type (see survey question # 3 for coding)

<i>Local Names</i>	<i>English Name</i>
	Factory/industrial trawl
	Factory/industrial purse seines
	Fish Aggregating Devices (FAD)
	Tuna long line
	Tuna drift gill net
	Medium scale shrimp trawl
	Medium scale encircling nets
	Small scale drift gill nets
	Bottom set gill nets
	Lobster traps
	Reef fish traps
	Bottom long line
	Hand lines



Fish Names (see survey question # 11 for coding)

<i>Local Names</i>	<i>English Name</i>

ANNEX 2: Guidelines for Key Informant Interviews

Introduction

It is recommended that key informant interviews be conducted at several scales, from national to community level. These interviews are semi-structured discussions using a number of guiding questions as provided below. Not all the questions have to be asked precisely as stated below but are provided to help guide the interviewer through the process. The emphasis of questions will vary as well as some are more relevant for private sector companies, some more relevant to enforcement authorities and others more relevant to the fisheries agency. The interviewer should use their own judgment of where the emphasis of each specific interview should be. In such interviews, the interviewer may decide to pursue different avenues of content and explore issues that may seem relevant but not anticipated in the guiding questions below. The number of key informants at each scale or site can vary and will be dependent on time budgeted for the interviews and availability of interviewees. Several persons should be interviewed and typically it does not need to include more than between five or ten informants altogether. At some point it will be noted that the amount of additional information gathered from each new informant becomes less and less. At this point the interviewer needs to decide whether they have sufficient information relative to the time budgeted for these interviews and have been sufficiently able to triangulate information among key informants, and then stop additional interviews.

Triangulation refers to a process where information among different informants is checked and determined whether each informant validates what others have said, increasing validity of the information, or if there are different stories that suggest the information may be questionable and therefore should not be weighted highly. Such anomalies should be noted in the final report summary

A snowball technique can be used to find additional key informants from those initially identified and interviewed. In this approach, the interviewer asks the interviewee if there are other persons she/he would recommend the interviewer talk to that may have useful information and interest on the topic at hand. The interviewee can then also be asked to provide contact details for the subsequent key informants/interviewees or even make an introductory phone call.

The interviewer should take notes during the interview process, but for reporting, it is not necessary to have separate documentation on every interview, but rather, a summary on the topic and/or place based on information provided by all the key informants. The report should be from five, but not more than 10 pages long.

National and Regional Level

Targeted Key Informants

- National Ministry or Regional Authority responsible for fisheries –senior officials at the Minister, deputy Minister or Director level, including mid-level managerial staff or Directors of the key units or divisions within the Ministry such as:
 - Licensing Division
 - Fisheries Management Division
 - Statistics Division
 - Enforcement Division
- Enforcement authorities with responsibility for fisheries (Navy, Marine Police, Coast Guard)
- Managers or owners of commercial/industrial fishing companies in the area
- Managers or owners of large scale fish export processing plants
- Heads of national/regional association of fishers, vessel owners or processor associations
- National or Regional Fisheries Management or Advisory Council members , if any
- Representatives from donor agencies and NGOs working in Somalia or the various administrative regions, and in coastal communities, or on fisheries or piracy issues

Guide Questions/Topics

General

- Brief national/regional overview of the fisheries sector – type and size of the industrial and artisanal fleets, fish type and value of all landings, main exports versus locally consumed, number employed in each sector, indirect employment, % GDP
- Somali maritime jurisdiction and EEZ/fisheries claims and issues
- What are the main fisheries laws and regulations in effect with respect to vessel licensing, data reporting, traceability of product, resource management
- General status of the stocks – over-fished, fully exploited, under-fished
- Artisanal or industrial Fisher or processing associations?
- Fisheries management advisory or management councils?
- Most recent national/regional fisheries act and regulations (get copy if available)
- A national/regional development strategy or policy on fisheries (get copy if available)
- Policies or interest in establishing co-management institutions, providing use rights regimes?
- Views on decentralization of authority and maritime jurisdiction to regional government for fisheries management and enforcement?
- Annual report on national/regional fisheries statistics? (get copy if available)
- Main issues for development and sustainable management of the fisheries?
- Ongoing related donor assistance or development projects?
- Regional and international cooperation, coordination, agreements and fisheries organizations (SWIOF, IOTC, etc.)?

Licensing and Reporting

- Who is required to obtain licenses for fishing, industrial and artisanal? local and foreign?
- Who issues the licenses?
- What reporting of fish landings is required by licensed vessels?
- Are industrial vessels required to have on-board observers (foreign and Somali?)
- Does the Ministry/Regional Authority have monitors collecting landings data at industrial and artisanal landing sites?
- What data do they collect?
- Does fish landed by industrial fleet require traceability standards?

Surveillance and Enforcement

- Who is responsible for enforcement of fishing laws at national, regional, local level?
- What enforcement assets are there at-sea and in ports?
- VMS required on industrial vessels?
- How is coordination among Fisheries, Navy, Police and Prosecutors office handled?
- How frequently are industrial vessels sanctioned – Number of cases in last year, Number of arrests, % successfully prosecuted?
- Are there local citizen surveillance groups?

Illegal fishing

- Extent done by Somali fishers versus foreign fishers?
- Who are the foreign culprits, what stocks are they after and where do they send the product?
- Causes of the problem?
- Transshipment at sea an issue?
- Lack of traceability requirements an issue?
- Any pressures from overseas buyers regarding traceability and sustainability certifications?
- Linkages to piracy and anti-piracy campaigns?
- What is being done and should be done to combat the problem?
- Do foreign vessels have to pay for or hire local on-board security against pirates?
- Are they ever extorted or held hostage by pirates?
- To what extent are fishermen harassed by pirates? Vessel or engines ever expropriated?
- If piracy is on the decline, what are they now doing for employment? Fishing? Is that where most came from originally – draw from ranks of fishermen?
- Heard any reports of fishermen migrating away from fishing as stocks are too badly exploited?
- Heard any reports of in-land migrants moving to coast to fish during drought periods?

Other

- Issues with toxic dumping of wastes in Somali waters by foreign entities?
- Concerns about habitat destruction (e.g. mangroves being cut for charcoal production and exported to GCC states/ by-catch and discard issues/ sea turtle entanglement/ Reef degradation from trawlers)

Municipal/Local Government and Community Level

Targeted Key Informants

- Mayor and Municipal staff responsible for fisheries
- Local Dept. of fisheries officer, fisheries field extension agent, and fisheries data collector at a landing site
- Local enforcement authorities – police, local fisheries agency enforcement officer
- Village headman, Chief or Clan leader, and other informal community leader whose opinions are respected by other members of the community
- Elderly fishermen (formal or informal leader) respected by their peers in the fishing community
- Person in the community that owns a large number of fishing vessels
- Respected fish marketer/businessman or processor
- Respected women leader (formal or informal) from a fishing household
- Head of the village Environment Committee
- Head of any fishermen's association or management group

Guide Questions

General

See general questions that provide an overview of the fishing sector in the community in the section above entitled "Rapid assessment and key informants." The governance, management and enforcement aspects of the fishery and other specific questions of concern identified.

Jurisdiction: What political entities have jurisdiction over the fishing area and/or fish types? National agency only, Regional Autonomous Authority, Local government, Clan or other traditional or formal management group? For instance:

- Are there any local fishermen associations in your area and if so, what do they do?
- Are there any fisheries management committees in your areas?
- Do other local committees such as the village environmental committees handle fisheries issues? Do they have any mandate to regulate local fisheries, mediate conflicts among fishers, help keep landing sites clean?

Regulations and Management efforts: Types of restriction on fishing should be determined.

Types (e.g., what, how, who, impact?) This would involve a description of the existing management system (if one exists). The key questions, in brief, are:

-**What** (e.g., what species, what activity, etc.),

-**How** (e.g., protected areas; regulation of resource exploitation)

-**Who** (central authority, co-management, community management, etc.)

- Any local ordinances related to fisheries management?
- Are you aware of co-management approaches to fisheries or concepts of providing exclusive use rights to fishermen groups?
- Do traditional groups or clans play any role in fisheries or in establishing rules for fishing?
- Main issues for fisheries development and sustainable management in your area?

Use rights:

- **Types** (open, common, group exclusive, private)
- **Boundary distinctness** (how is boundary defined? E.g., reef area, natural features (within a bay, along village beach, etc.), km from shore, etc.)
- **Transferability** (can rights be sold, loaned, given away?)
- **Surveillance & enforcement** (e.g., how do those with jurisdiction or use rights monitor users [e.g., post guards, patrol the area by boat, deploy spirits] and how do they punish violators [e.g., fines, jail terms, social or physical banishment, supernatural sanctions])

Licensing and Reporting

- Are local boats registered or licensed by the municipality?
- Are there any local taxes or landing fees required to be paid by fishermen?
- Are local fish landings data collected or reported to anyone? If yes, What data do they collect?

Illegal fishing

- How often do you see foreign fishing boats fishing close to your shoreline?
- Extent done by Somali fishers versus foreign fishers?
- Who are the foreign culprits, what stocks are they after and where do they send the product?
- Causes of the problem?
- Linkages to piracy and anti-piracy campaigns?
- What is being done and should be done to combat the problem?
- Do foreign fishing vessels have to pay for or hire local on-board security against pirates?
- Are they ever extorted or held hostage by pirates?
- To what extent are fishermen harassed by pirates? Vessel or engines ever expropriated?
- If piracy is on the decline, what are they now doing for employment? Fishing? Is that where most came from originally – draw from ranks of fishermen?
- Heard any reports of fishermen migrating away from fishing as fishing stocks are too badly exploited? If yes, where do they go and what do they do?
- Heard any reports of in-land migrants moving to the coast to fish during drought periods?

-Surveillance and enforcement

- Does the municipality engage in any fisheries enforcement activities. If so what sort of enforcement assets are there - number of people, boats, etc.?
- Are there any local citizen fisheries surveillance groups that monitor fishing activities or report illegal fishing to local authorities?
- How frequently are people arrested for fisheries violations and for what sort of violations?
- Do clan leaders ever sanction fishermen for violating rules?

- **Impact** (an assessment of the effectiveness of management and enforcement efforts).

Other

- Ever heard of issues with toxic dumping of wastes in Somali waters by foreign boats?
- Have there been reports or have you seen in your area, mass fish kills – dead fish washing up on the beaches? If yes, why do you think that is?
- Any concerns about habitat destruction (e.g. mangroves being cut for charcoal production and exported to GCC states?)
- Other development issues in your area?
- Any ongoing related donor assistance or development projects on fisheries or in fishing communities in your area?

Commercial Landing Sites: For commercial landing sites additional types of information must also be collected from key informants. Generally commercial landing sites are defined as larger scale port facilities where fish moves into processing plants or cold storage facilities for larger scale distribution nationally or for export site for Somali owned commercial or industrial vessels or licensed foreign vessels.

- Are any foreign vessels landing in your port, are they registered or licensed to fish in Somali Waters
- Are there observers aboard foreign vessels landing in your port?
- Are there observers on board Somali registered vessels?
- Do these vessels report catch? By volume and where landed? Traceability requirements?
- Are landings per vessels and for port as a whole monitored?

Sanctioning (for foreign and local industrial vessels):

- Do they pay “fees” to anyone (e.g. pirates) or required to take on board security guards?
- Do Somalia authorities, formal or traditional, ever sanction (penalties, fines, boat confiscated) them? Who? How? Frequency?

ANNEX 3: SURVEY FORM

Survey Identification NUMBER _____ (NUMBER)
INTERVIEWER _____ (INTERVIEWER)
Date _____ Time _____ Town/Village _____ (LOCATION)
Regional administrative unit: (1)Somaliland (2)Puntland (3)Galmudug (4)Jubaaland (POLITUNIT)

Informed consent statement

Trans-Africa Consultant Services has been contracted by Adeso, a Regional Non-governmental Organization with humanitarian assistance initiatives in Somalia, to conduct a baseline survey of fishing activities in Somalis. We would like you to participate in this study by answering a number of questions concerning fishing practices in community. The survey should take about 30 minutes. Participation is voluntary. All your responses will be treated with strict confidentiality and will be used for research purposes only. Your individual responses will not be revealed in any way. Only average responses will be reported. Your identity will not. The responses will be anonymous. If at any time you are not comfortable answering any questions, you can refuse to answer or decide to stop the interview altogether. If you have any complaints, you can call Kifle Hagos of TACS in the USA at +1-401-837-3419 or Abdi Mohammed Dahir, the Adeso supervisor, at +252-9077-97-305. (Hand out a card with these contact details to respondents that agree to be interviewed.) Can I interview you? (If respondent says yes – interview, if no, go to next household)

General Information about the interviewee and fishing activities

First we would like to ask you about your fishing background and your household.

1. How long have you been a fisherman? _____ (FISHYEARS)
(If female head of fishing household, how long involved in processing marketing fish)
How long have you lived in this town? _____ (RESIDENTYEARS)
2. How old are you? Years _____ (AGE)
3. Do you own a boat for fishing? Yes (1) No(0) (OWNER)
Vessel Type used for fishing _____ (BOATTYPE)
Length _____ meters (LENGTH)
Is the boat: (1)non-motorized/ paddle/oar (2)motorized (3) sail (ENGINE)
What fishing gear do you use with the boat?
GType 1 _____ GType 2 _____ GType 3 _____ (GEARTYPE 1,2,3)
4. Position on the boat? (1)Captain (2)Crew (3)Other (identify) _____ (POSITION)
Member of fishing cooperative or association? (1)Yes (0)No (COOP)
5. Was fishing a primary or secondary source of income for your household during the last 12 months?
(1)Primary (2)Secondary (FISHINCOME)
6. About how many days did you spend fishing during the last 12 months? _____ days (DAYSFISHING)
7. Where do you fish in relation to your village? Check all that apply (FISHWHERE)
(1) Always within close proximity, less than 10km from the village
(2) As far as 50km offshore
(3) I migrate along the coast seasonally as the fish move
8. What month is the fish catch usually the highest? _____ (SEASONHIGH)
9. What month is the fish catch usually the lowest? _____ (SEASONLOW)
10. Over the past year, on average, how much fish do you catch per day? (kg) _____ (AVGCATCH)
On average, how much money do you earn each day from fishing? \$ _____ (AVGINCOME)

How much of your fish catch is for home consumption versus sold in markets? _____% (SUBSIST)

Which do you eat more of? (1)Fish (2)Other sources of protein such as beef, goat, chicken (NUTRIFISH)

(If some is sold) Where do you sell your fish?

(1)In the community (2)Markets outside the community (3)Boats at sea (WHERESELL)

The price I get for my fish over the past five years has:

(1)increased (0)not changed at all (-1)decreased (PRICE)

11. What are the 5 main types of fish you caught during the past year?

Please mention in order of importance, most important, second in importance, etc. (FISHTYPE 1,2,3,4,5)

TYP1 _____ TYP2 _____ TYP3 _____ TYP4 _____ TYP5 _____

12. Total years of formal education _____ (YEARSEDU)

13. Number of people in your household _____ (HOUSESIZE)

14: Gender: (1)Male (2)Female (GENDER)

(Un)Reported fisheries

Are you **required to report landings** from your fishing trips to any authorities? Yes(1) No(0) (REPORT)

If Y, to who? (1)government official (2)clan or local leader (3)Other _____ (REPORTWHO)

If N, Were you required to report in the past? Yes(1) No(0) (REPORTPAST)

If Y, How long ago? _____ (REPORTWHEN)

Does **anyone record fish landings** and type of fish caught at your landing site? Yes(1) No(0) (RECORDFISH)

If Y, who? _____ (RECORDWHO)

If N, Was anyone collecting landings data in the past? Yes(1) No(0) Don't know(9) (RECORDPAST)

If Y, How long ago _____ (RECORDWHEN)

(Un)Regulated Fisheries

Are you required to **register your fishing vessel** with authorities? Yes(1) No(2) Don't know(9) (BOATREGREQ)

Must the registration number be painted on the boat? Yes(1) No(2) Don't know(9) (BOATREGNUM)

If yes, approximately how many boats in your community are registered with painted numbers?

(1)None (2)Few (3)About one-half (4)Most (5)All (BOATREGCOM)

Register the boat with who?

(1)Fisheries Agency (2)Maritime or Ports authority (3)Other _____ (BOATREGWHO)

Are you required to pay a fee? Yes(1) No(0) Don't know(9) (BOATREGFEE)

If Yes, amount? _____ (BOATREGAMT)

Are there **limits on the number of licenses** allowed? Yes(1) No(0) Don't know(9) (BOATLIMIT)

Are there restrictions on **who is allowed to fish** in your area? Yes(1) No(0) Don't know(9) (RESTRICT)

If yes, Who? _____ (RESTRICTWHO)

Are you required **to register as a fishermen** with anyone? Yes(1) No(0) Don't know(9) (REGISTER)

If Y, with who? _____ (REGWHO)

If Y, Are you required to pay a fee? Yes(1) No(2) Don't know(9) (REGFEE)

If Yes, amount? _____ (REGAMT)

Are you required to pay anyone a fee or tax for amount fish landed? Yes(1) No(0) (FISHFEE)

Amount _____ (FISHFEEAMT)

per ____ (box or Kg?) (FISHFEEUNIT)

Do you have to provide a share of landed fish to a local leader? Yes(1) No(0) (FISHSHARE)

If yes, Explain the rule/system: _____

Is fishing in your area restricted in any way, such as a restriction on fishing gear type, type of fish caught quantity or size caught, seasonal or area closures? Yes(1) No(0) Don't know(9) (FISHREGS)

If Yes, what type of restrictions or regulations are there in your area? (circle all that apply) (REGTYPE 1,2,3)

(1)Prohibition on type of fish caught (6)Seasonal closed area
 (2)Prohibition on type of gear used (7)Daily landing quota/limit
 (3)Restriction on gear (net length , mesh size) (8)Annual landing quota/limit
 (4)Closed season (9)Fishing rights for only some people
 (5)Permanent closed area (10)Other _____

Are there penalties for violating the rules? Yes(1) No(2) Don't know(9) (PENALITY)

If Yes, what type? (circle all that apply) (PENALTYPE1,2,3)

(1)Fines (4)Confiscation of Boat
 (2)Jail (5)Other _____
 (3)Confiscation of Gear

Illegal Fishing

Over the past year, have you ever seen foreign fishing vessels fishing near your village Yes(1) No(0) (FORFISH)

If Yes, how frequently does this occur now? (FORFREQ)

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

5 years ago? (FORPAST)

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

To your knowledge, do they have permits to fish here? Yes(1) No(2) Don't know(9) (FORPERMIT)

Who does the illegal fishing? (1)Somalis, (2)Foreign vessels (3)Both (WHOILLEGAL)

If foreigners, which countries do it? (check all that apply) (FORWHO)

(1)Yemen (2)Iran (3)Spain (4)China/Taiwan (5) Oman (6)India (7)Kenyan
 (8)Russian (9) Other _____ (10) Don't Know

How close do they come to shore? (FORWHERE)

(1)very close - within 5 km, (2)5-50km from shore, (3)very far offshore (4)everywhere

Fines

Had you ever had your fishing vessel taken or confiscated for any reason? Yes(1) No(0) If Yes: (FISHFINE)

Why? _____ (FINEWHY)

By whom? (FINEWHO)

1= Federal Fisheries agency 4= Navy
 2 Regional autonomous fisheries agency 5= foreign Navies
 3= Police 6= local clans

7= local fishers themselves

8= other _____

Was the boat ever returned? Yes(1) No(2)

(BOATRETURN)

Did you have to pay money to have your boat returned? Yes(1) No(0)

(BOATFINE)

If Yes, how much? _____

(FINEAMOUNT)

Impacts

The following statements will be read to you and you will be asked whether you agree or disagree or neither, and then whether you agree or disagree Strongly or just Somewhat

Foreign fishing vessels should be allowed to fish in Somali waters.

(FOROK)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Anti-piracy patrols by Foreign Navies protect foreign fishing vessels operating illegally in Somali waters (PIRACYPATROL)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Illegal fishing negatively impacts my livelihood.

(IUULIVE))

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Illegal fishing has no impact on marine ecosystems.

(IUUIIMPACT)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Foreign fishing has no impact on my fish catch

(FORIMPACT)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Piracy does not restrict me from fishing from where I want to fish.

(PIRACYIMPACT)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Piracy keeps away illegal foreign fishers.

(PIRACYIUU)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Anti-piracy actions by foreign Navies negatively impacts my fishing livelihood

(ANTIPIRACY)

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

Over the past year, have there been instances of large quantities of dead fish washing up on the beaches of your village? Yes(1) No(0)

(FISHKILL)

If Yes, How often has this occurred over the past year? ___ times

(KILLFREQ)

What do you think is causing this problem

(KILLREASON)

Enforcement

Who enforces the fishing regulations? Circle all that apply

(ENFORCEWHO1,2,3)

1= Federal Fisheries agency

6= local clans

2 Regional autonomous fisheries agency

7= local fishers themselves

3= Police

8= other _____

4= Navy

0= no response or don't know

5= foreign Navies

I will read you a statement, then I will give you five choices of answers. Select one.

We see the enforcers patrolling in our waters:

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

(ENFORCEFREQ)

Determinants of Compliance

I will read you a statement and ask you to Agree, Disagree or say if you are Undecided, then, if you agree or disagree, I will ask if you agree or disagree Strongly or Moderately.

Statement	Disagree		Undecided	Agree		Variable
	Strongly	Moderately		Moderately	Strongly	
Fishing rules help preserve and protect fisheries resources	1	2	3	4	5	LEGIT1
Fishing rules only benefit some fishermen	1	2	3	4	5	LEGIT2
Fishing rules will improve the wellbeing of all fishers	1	2	3	4	5	LEGIT3
The views of fishermen are not considered in the formulation of fisheries regulations.	1	2	3	4	5	LEGIT4
Fishing rules are enforced differently depending on your social status	1	2	3	4	5	LEGIT5
Fishermen who break the rules more often are penalized more severely than those who only do it occasionally	1	2	3	4	5	LEGIT6
Statement	Disagree		Undecided	Agree		Variable
	Strongly	Moderately		Moderately	Strongly	
Fines and Penalties imposed on local Somalis for violating fishing rules are not severe enough to reduce their illegal fishing	1	2	3	4	5	DETER1
Fines and Penalties imposed on foreigners for violating fishing laws are high enough to reduce their illegal fishing activities	1	2	3	4	5	DETER2
Local Somali Violators of fishing rules are ALWAYS caught	1	2	3	4	5	DETER3
Foreign Violators of fishing rules are NEVER caught	1	2	3	4	5	DETER4
Local Somali Violators of fishing rules that are caught are NEVER penalized for the violation (e.g. pay fine, serve jail time, have gear or boat taken)	1	2	3	4	5	DETER5
Foreign Violators of fishing rules that are caught are ALWAYS penalized for the violation (e.g. pay fine, serve jail time, have gear or boat taken)	1	2	3	4	5	DETER6
Statement	Disagree		Undecided	Agree		Variable
	Strongly	Moderately		Moderately	Strongly	
Despite the penalties it is economically beneficial to break fishing rules	1	2	3	4	5	GAINS1
If I engage in illegal fishing activities or not, it makes no difference in how much money I can earn from fishing	1	2	3	4	5	GAINS2
Statement	Disagree		Undecided	Agree		Variable
	Strongly	Moderately		Moderately	Strongly	
My friendship with other fishermen will not change, even if they frequently violate fishing rules	1	2	3	4	5	MORAL1
I believe it is my moral duty to obey the fishing laws	1	2	3	4	5	MORAL2
If I see a local fishermen violating fishing rules I will not report them to local authorities	1	2	3	4	5	MORAL3
If I see a foreign fishing vessel fishing in local waters I will report it to the authorities	1	2	3	4	5	MORAL 4

General Issues in the Fishing Sector and for Community Development

The following statements will be read to you. Choose one of several responses that best describe your situation

My fish catch over the past five years has *Increased(1) not changed at all (0) reduced (-1) (CATCHCHANGE)*

My income over the last five years has *Increased(1) not changed at all (0) reduced (-1) (INCCHANGE)*

Peace and Order in my community has *Increased(1) not changed at all (0) reduced (-1) (PEACE)*

Development of our village has *Increased(1) not changed at all (0) reduced (-1) (DEVELOP)*

If there have been changes in any of the above, can you explain why?

Do you agree or disagree with the following statements concerning fishing in your community:

There is a lack of capital for investing in improved fishing gears and boats
disagree (-1) Neither (0) agree (1) (CAPITAL)

There is adequate transportation to get my fish to good markets
disagree (-1) Neither (0) agree (1) (TRANSPORT)

Fish spoils as it is not adequately processed or preserved
disagree (-1) Neither (0) agree (1) (SPOIL)

There are too many fishermen in my community are trying to catch fish
disagree (-1) Neither (0) agree (1) (TOOMANY)

There are not too many Somalis from outside my community coming in to catch fish here
disagree (-1) Neither (0) agree (1) (MANYOUT)

Foreign fishing vessels fishing nearby are taking all the fish
disagree (-1) Neither (0) agree (1) (FORNEAR)

There are still plenty of fish left in the sea to catch
disagree (-1) Neither (0) agree (1) (NOFISH)

Fishermen are leaving my village as they can no longer make a living from the sea
disagree (-1) Neither (0) agree (1) (MENLEAVE)

Waste dumped from foreign boats at sea is not harming the fish and environment
disagree (-1) Neither (0) agree (1) (WASTE)

No one is in charge of management of the fish resources in my community
disagree (-1) Neither (0) agree (1) (NOMGT)

We are successfully enforcing Somali laws regarding fishing
disagree (-1) Neither (0) agree (1) (NOENF)

There is a lack of alternative income or employment for my family other than fishing
disagree (-1) Neither (0) agree (1) (LACKALT)

There are adequate water supply and toilet facilities in the community
disagree (-1) Neither (0) agree (1) (WATER)

I would like my sons to become fishermen like me
disagree (-1) Neither (0) agree (1) (SONS)

ANNEX 4: Data Codebook for the Survey Questionnaire

Instructions for coding data into an Excel file and a listing of all codes for all variables

NUMBER – enter survey number. They should be given sequential numbers and no two surveys should have the same number

INTERVIEWER – Enter number for the name of interviewer (not the person you are interviewing):

1= _____ 2= _____ 3= _____ 4= _____
5= _____ 6= _____ 7= _____ 8= _____

LOCATION – Enter Name of Village/Landing site

1= _____ 2= _____ 3= _____ 4= _____
5= _____ 6= _____ 7= _____ 8= _____
9= _____ 10 = _____

POLITUNIT – Regional Govt. units. Code as follows

1=Somaliland 2=Puntland 3=Galmudug 4=Jubaaland

General Information about the interviewee and fishing activities

1. FISHERYEARS – enter years person has been a fishermen

RESIDENTYEARS – enter years person has lived in the town/village

2. AGE– Enter age in years

3. OWNER Yes = 1 No = 0

BOATTYPE - Key informants should ID the different type of fishing boat (see Annex 2) and they are recorded here – local name and English equivalent if any. Some boat types may have several local names

1 = _____ 5 = _____
2 = _____ 6 = _____
3 = _____ 7 = _____
4 = _____ Etc..

LENGTH – enter length in meters

ENGINE – code as follows: (1)non-motorized/ paddle/oar (2)motorized (3) sail

4. POSITION – Position on the boat? CODE: (1)Captain (2)Crew (3)Other (identify) _____

COOP - member of fishing cooperative? Code: (1)Yes (0)No

GEARTYPE1, Code as below in order of gears listed

Gear types should be defined by key informant interviews (see Annex 2) – local name(s) and English equivalent. Update and add gear and codes if new types found at next landing sites.

1 = Bottom Gill Net Local names(s) _____
2 = Surface drift gill net Local names(s) _____
3 = Purse seine or ring net Local names(s) _____
4 = Long line Local names(s) _____
5 = Hand line Local names(s) _____
6 = Trawl net Local names(s) _____
7 = Lobster trap Local names(s) _____
8 = Fish trap Local names(s) _____
9 = Other _____ Local names(s) _____
Etc..

GEARTYPE2, GEARTYPE3 Code as above in order they are listed in the survey form

4. POSITION Code: 1= Capital 2 = Crew 3 = Other A (identify_____)
5. FISHINCOME Fishing as primary income source....code : (1)Primary (2)Secondary
6. DAYSFISHING Enter number of days fishing in the last 12 months
7. FISHWHERE Where do you fish in relation to your village? Code as follows:
 - 1 = Always within close proximity, less than 10km from the village
 - 2 = As far as 50km offshore
 - 3 = I migrate along the coast seasonally as the fish move
8. SEASONHIGH Enter the month with the highest fish catch e.g. January = 1.. June = 6...December = 12
9. SEASONLOW Enter the month with the lowest fish catch e.g. January = 1..June = 6...December = 12
10. AVGCATCH Catch per day (kg) Enter weight in kgs
 AVGINCOME Average income per day Enter income in Somali Shillings
 SUBSIST - How much home consumption? Enter % that is subsistence
 NUTRIFISH Code - (1)Fish (2)Other sources of protein such as beef, goat, chicken
 WHERESELL – Fish sold– code: (1)In the community (2)Markets outside community (3)Boats at sea
 PRICE - Price of fish , Code: (1)increased (0)not changed at all (-1)decreased
11. FISHTYPE1 Code first fish listed) as below. This list should be developed from Key Informant interviews (see Annex 2) and updated as new fish species are named
 - 1= tunas
 - 2= sharks
 - 3= other large pelagics (swordfish, marlins)
 - 4= small pelagics (including anchovy, sardinellas, herrings, etc.)
 - 5=shrimp/prawn
 - 6= lobster
 - 7= demersal (other than lobster or prawns) (including grouper, red snapper)
 - 8=coral reef fish (e.g. parrotfish, siganids, etc.)
 - 9=Other _____
 - Etc.....

FISHTYPE2, FISHTYPE3, FISHTYPE4, FISHTYPE5 – Code as above in order as listed in the form

12. YEARSSEDU Enter total years of formal education 0- 20
13. HOUSESIZE Enter total number of people living in the household - adults and children, relatives, etc.
- 14: GENDER Male =1 Female = 2

(Un)Reported fisheries

- REPORT required to report landings? Y= 1 N= 0 don't know = 9
- REPORTWHO if yes, who 1= government official 2 =clan/local leader 3= Other_____ 4=Other_____
- REPORTPAST if N, required in past? Y= 1 No= 0 don't know = 9
- REPORTWHEN if reported in the past, enter number of years ago it was required
- RECORDFISH does anyone in the community record fish landings Y= 1 N= 0 don't know = 9
- RECORDWHO if Yes, who? Enter generic titles not name of the specific person
 1= Government Fisheries Officer

- 2= Local government official
- 3= clan representative
- 4= processing plant officer
- 5= other _____

RECORDPAST collecting data in past? Yes= 1 No= 0 Don't know = 9

RECORDWHEN if Y, enter numbers of years ago when landings data was recorded

(Un)Regulated Fisheries

BOATREGREQ required to register your fishing vessel? Y=1 N= 0 Don't know = 9

BOATREGNUM must the registration number be painted on the boat? Y=1 N= 0 Don't know = 9

BOATREGCOM boats in community registered 1=None 2=Few 3= About one-half 4= Most 5= All

BOATREGWHO who registers boats

- 1= Fisheries Agency
- 2= Maritime or Ports authority
- 3= Other _____
- 9= don't know

BOATREGFEE required to pay a fee? Y= 1 N= 0 Don't know = 9

BOATREGAMT if Yes, Enter amount paid in local currency

BOATLIMITS limits on the number of licenses Y= 1 N= 0 Don't know = 9

RESTRICT restrictions on who is allowed to fish Y= 1 N= 0 Don't know = 9

RESTRICTWHO if yes, Who?

- 1= Local villagers only
- 2= Somalis only
- 3= Other _____
- 4= Other _____

REGISTER required to register as a fishermen Y= 1 N= 0 Don't know = 9

REGWHO register with who

- 1= Fisheries Agency
- 2= Maritime or Ports authority
- 3= Other _____
- 4= Other _____

REGFEE required to pay a fee? Y= 1 N= 0 don't know = 9

REGAMT if Yes, enter amount in local currency

FISHFEE required to pay anyone a fee or tax for amount fish landed? Y= 1 N= 0 Don't know = 9

FISHFEEAMT enter amount in local currency

FISHFEEUNIT if by box enter approximate weight per box, if by Kg enter 1

FISHSHARE provide a share of landed fish to a local leader Y= 1 N= 0 don't know = 9

Fish Share system explained - do not code in the excel spread sheet. Share systems should be written up in text by the supervising field officer and noted which villages where it applies

Regulation Types

FISHREGS Is fishing in your area restricted Code: Y= 1 N= 0 don't know = 9

REGTYPE1 type of restriction or regulations are there? First response, code as follows:

- 1=Prohibition on type of fish caught
- 2=Prohibition on type of gear used
- 3=Restriction on gear (length of net, mesh size used, etc.)

- 4=Closed season
- 5=Permanent closed area
- 6=Seasonal closed area
- 7=Daily landing quota/limit
- 8=Annual landing quota/limit
- 9=Fishing rights for only some people
- 10=Other_____

REGTYPE2, REGTYPE3, REGTYPE 4– Code second, third response, etc. same as above

PENALTY Are there penalties for violating the rules? Code: Y= 1 N= 0 don't know = 9

PENALTYTYPE 1 If Yes, what type? First response, code as follows:

- 1=Fines
- 2= Jail time
- 3=Confiscation of Gear
- 4=Confiscation of Boat
- 5= Other

PENALTYTYPE2. PENALTYTYPE3..etc Code second, third response, etc. same as above

Illegal Fishing

FORFISH foreign fishing vessels near your village? Y = 1 N = 0 Don't know = 9

FORFREQ how frequently does this occur? Code as follows:

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

FORPAST 5 years ago? Code as follows:

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

FORPERMIT do they have permits to fish here? Y = 1 N = 0 Don't know = 9

WHOILLEGAL does the illegal fishing? CODE: 1= Somalis, 2= Foreign vessels 3=Both

FORWHO If foreigners, which countries do it? Code as below:

- (1)Yemen (2)Iran (3)Spain (4)China/Taiwan (5)Oman (6)India (7)Kenyan
- (8)Russian (9) Other_____ (10) Don't Know

FORWHERE How close do they come to shore? Code as below:

- 1= very close - within 5 km, 2= 5-50km from shore, 3= very far offshore 4 = everywhere

FOROK Foreign fishing should be allowed. Code as follows:

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

PIRACYPATROL anti-piracy patrols by Foreign Navies. Code as follows

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

FISHFINE fishing vessel taken or confiscated for any reason? Y= 1 N= 0

FINEWHY Do not code . Supervising field officer should summarize descriptions of reasons stated

FINEWHO Code by generic categories of groups or by their official institutional names

- 1= National Fisheries agency_____
- 2= Local Government
- 3= Local clan leader
- 4 = Police

5 = Navy

6= Other _____

BOATRETURN Was the boat ever returned? Y= 1 N= 0

PAYFINE pay money to have your boat returned? Y= 1 N= 0

FINEAMOUNT Enter amount paid in local currency

Impacts

IUULIVE Illegal fishing impacts my livelihood.

Strongly disagree (1) Disagree (2) Neither (3) Agree (4) Strongly agree (5)

IUUIIMPACT Illegal fishing has no impact on marine ecosystems.

Strongly disagree (5) Disagree (4) Neither (3) Agree (2) Strongly agree (1)

FORIMPACT Foreign fishing has no impact on my fish catch

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

PIRACYIMPACT Piracy does not restrict me from fishing from where I want to fish.

Strongly disagree (5) Disagree (4) Neither (3) Agree (2) Strongly agree (1)

PIRACYIUU Piracy keeps away illegal foreign fishers.

Strongly disagree (1) Disagree (2) Neither (3) Agree (4) Strongly agree (5)

ANITPIRACY Antipiracy actions impacts my livelihood Code as follows:

Strongly disagree (1) Somewhat Disagree (2) Neither (3) Somewhat Agree (4) Strongly agree (5)

FISHKILL large quantities of dead fish on the beaches? Code Y=1 No=0

KILLFREQ How often has this occurred? Enter the actual number of times, if never, enter 0

KILLREASON What do you think is causing this problem. Do not code. Field Supervisor to summarize responses and include in the village rapid assessment report.

Enforcement

ENFORCEWHO1 who enforces the fishing regulations? First response entered here

1= Federal Fisheries agency

2 = Regional Autonomous fisheries agency

3= Police

4= Navy

5= foreign Navies

6= local clans

7= local fishers themselves

8= other _____

0= no response or don't know

ENFORCEWHO2 enter second response as coded above

ENFORCEWHO3 enter third response as coded above

ENFORCEWHO 4 enter forth response as coded above

ENFORCEFREQ We see the enforcers in our waters: Code as below:

All the time (5) Frequently (4) Some of the time (3) Rarely (2) Never (1)

Determinants of Compliance

NOTE: Code as per the numbers circled in the table

Variable Name	Statement	Disagree		Undecided	Agree	
		Strongly	Moderately		Moderately	Strongly
LEGIT1	Fishing rules help preserve and protect fisheries resources	1	2	3	4	5
LEGIT2	Fishing rules only benefit some fishermen	1	2	3	4	5
LEGIT3	Fishing rules will improve the wellbeing of all fishers	1	2	3	4	5
LEGIT4	The views of fishermen are not considered in the formulation of fisheries regulations.	1	2	3	4	5
LEGIT5	Fishing rules are enforced differently depending on your social status	1	2	3	4	5
LEGIT6	Fishermen who break the rules more often are penalized more severely than those who only do it occasionally	1	2	3	4	5
	Statement	Disagree		Undecided	Agree	
		Strongly	Moderately		Moderately	Strongly
DETER1	Fines and Penalties imposed on local Somalis for violating fishing rules are not severe enough to reduce their illegal fishing	1	2	3	4	5
DETER2	Fines and Penalties imposed on foreigners for violating fishing laws are high enough to reduce their illegal fishing activities	1	2	3	4	5
DETER3	Local Somali Violators of fishing rules are ALWAYS caught	1	2	3	4	5
DETER4	Foreign Violators of fishing rules are NEVER caught	1	2	3	4	5
DETER5	Local Somali Violators of fishing rules that are caught are NEVER penalized for the violation (e.g. pay fine, serve jail time, have gear or boat taken)	1	2	3	4	5
DETER6	Foreign Violators of fishing rules that are caught are ALWAYS penalized for the violation (e.g. pay fine, serve jail time, have gear or boat taken)	1	2	3	4	5
	Statement	Disagree		Undecided	Agree	
		Strongly	Moderately		Moderately	Strongly
GAINS1	Despite the penalties it is economically beneficial to break fishing rules	1	2	3	4	5
GAINS2	If I engage in illegal fishing activities or not, it makes no difference in how much money I can earn from fishing	1	2	3	4	5
	Statement	Disagree		Undecided	Agree	
		Strongly	Moderately		Moderately	Strongly
MORAL1	My friendship with other fishermen will not change, even if they frequently violate fishing rules	1	2	3	4	5
MORAL2	I believe it is my moral duty to obey the fishing laws	1	2	3	4	5
MORAL3	If I see a local fishermen violating fishing rules I will not report them to local authorities	1	2	3	4	5
MORAL4	If I see a foreign fishing vessel fishing in local waters I will report it to the authorities	1	2	3	4	5

General Issues in the Fishing Sector and for Community Development

Code each of the following variables as indicated in the scale: Increased(1) not changed at all (0) reduced (-1)

CATCHCHANGE My fish catch over the past five years has

INCCHANGE My income over the last five years has

PEACE Peace and Order in my community has

DEVELOP Development of our village has

If there have been changes in any of the above, can you explain why? Do not code this open ended question. The Field Supervisor should read responses and sum them up as part of the rapid assessment summary

Code each of the following variables as indicated in the scale: disagree (-1) Neither (0) Agree (1)

CAPITAL Lack of capital for investing

TRANSPORT Adequate transportation

SPOILS Fish spoils as not adequately processed

TOOMANY Too many fishermen in my community

MANYOUT Not too many Somalis from outside my community

FORNEAR Foreign fishing vessels fishing nearby

NOFISH Plenty of fish left in the sea to catch

MENLEAVE Fishermen are leaving my village

WASTE Waste dumped from foreign boats

NOMGT No one is in charge for management

NOENF We are enforcing Somali laws regarding fishing

LACKALT Lack of alternative income for my family

WATER Adequate water supply and sanitary facilities

SONS I would like my sons to become fishermen like me