မုတ္တမပင်လယ်ကွေ့ဒေသ ရပ်ရွာအခြေပြုကမ်းရိုးတန်း စီမံခန့်ခွဲမှုစီမံချက်

Community-Led Coastal Management in the Gulf of Mottama Project (CLCMGoMP)

Indigenous Fisheries Training and Survey

By

Kenneth T MacKay, Fisheries & Livelihood Adviser,

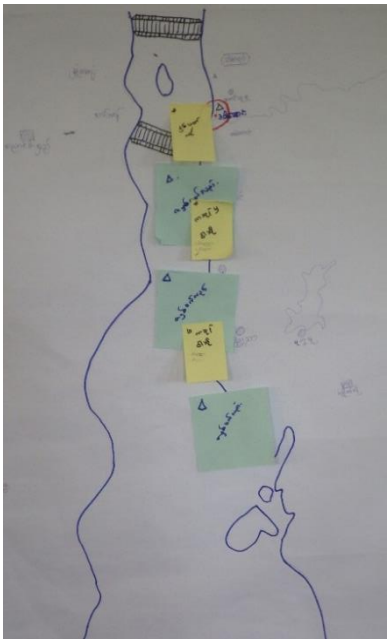
Vonu Environmental Consulting

&

Win Ko Ko

Fisheries Officer, Myanmar Department of Fisheries

Training Participants



Fishing Ground Map

CLCMGoMP Project Report: GoMP # 05/17

Approved Date: July 2017

Introduction:

At the initiation of the CLCMGoM Project there was little systematic information available on the fishery and ecology in the Gulf of Mottama (GoM). The scoping missions and baseline surveys carried out during the inception phase identified villages where coastal fishing was a major activity, identified fishing gears and prepared village seasonal calendars but they were not detailed enough to give a clear indication of fishing activity. Some additional data was added during the Value Chain Survey particularly on the local market system. However, at the start of the first phase in September 2015 there was not sufficient information available to allow development of fisheries co-management plans and have input to the Ramsar Management Plan. In order to increase the knowledge on fisheries and fish ecology the Fisheries and Livelihood Advisor, has work closely with project staff especially the Fisheries Officer, Mawlamyine University, and Myanmar Department of Fisheries staff to increase the knowledge.

The initial interviews with village fishers indicated that they held a substantial information on the fishery, the ecology, issues and current status. WorldFish has recently carried out a survey of local fishers in the Ayeyarwady Delta (Baran et al 2015) to collect information on migratory fish using a methodology developed in Cambodia for collecting local fisheries information. This approach offered a systematic approach to collecting local indigenous knowledge. It was decided to use this as a basis for training and subsequent data collection.

In order to assist with this Win Ko Ko, Department of Fisheries, Myanmar who was involved in the WorldFish project, was engaged as, a consultant to assist in the training and initial data collection. Training materials and questionnaires based on the WorldFish material was adapted to suit the GoM conditions, initially in English. This material was then translated into Myanmar by NAG staff. Annex 2 and 3 have both English & Myanmar training material and field survey questionnaire.

Training & Field Surveys

Training: A two day training followed by one day field practice, was carried out 23-25 May, 2016. The training was facilitated by Win Ko Ko (DoF) and the project Fisheries Advisor (Soe Min Oo) and supervised by the Fisheries and Livelihood Advisor (K.T. MacKay). A total of 27 participants (20 males, 7 females) from DoF, NAG, HELVETAS, & Mawlamyine University attended (Table 1). Nine DoF staff from both Bago region and Mon State attended and showed considerable enthusiasm during the training.

The training involved formal presentations some with power point, informal discussion, small group practice sessions, and field visit to view fishing boats and nets, followed by a trail interview with seven fishermen. The training agenda is given in Annex 1. The training was evaluated by: 1) using a pre-test on Day one and a post-test on day, and 2) by the performance of the

participants in the fishermen's interviews. The test indicated a significant increase in knowledge and the core team carried out successful surveys.

Table 1: Breakdown of participants in the Indigenous Fishers Training, Kyaikhto May 2016 (M=Male, F=Female)

Date	Department of Fisheries Bago		Department of Fisheries Mon		NAG		Mawlamyine University		HELVETAS		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
23 May	2	1	4	2	11	3	1	2	2		20	7
24 May	2	1	4	2	11	3	1	2	2		20	7
25 May	2	1	4	2	11	3	1	2	2		20	7
26 May Field Trip	-	-	-	-	9	3	1	2			10	5
27 May Field Trip	-	-	1	-	9	3	1	2			11	5

Field Survey: The training was then followed up with two days of field visits to villages in Bilin and Kyaikhto Townships. Surveys where carried out with two groups of medium scale fishers and six project villages. Follow up surveys were planned for June but with the advent of the monsoons and travel difficulties**,** it was agreed to delay the follow up surveys to October/November. These additional field surveys were carried out in November in Mon State by the Fisheries Officer, with assistance from the Fisheries Advisor, NAG field staff, NAGs M&E officer and the CUSO NAG communication advisor.

26 May Field Survey was carried out in Zoke Ki La, Bilin Township, meeting in the monastery with fishers from ZKL and two nearby villages. The survey teams of 15 consisted of NAG Field Staff and Mawlamyine University students. The teams divided into three groups and interviewed three groups of fishers including one women's group. Maps were drawn to indicate potential fishing areas, cell phones using google maps proved usefully in locating positions of fishing and relevant significant sites (spawning, nurseries). Data was collected on the questionnaires in Myanmar and the teams summarized the data after the interviews, and it was subsequently translated to english.

27 May Field Survey interviewed Large Scale Fishers from Sittaung, Kyaikhto Township and smaller scale fishers from three villages on the Sittaung River north of the bridge (Kha Ywae, Kha War Chaung, & Moke Ka Mawt). Two separate locations where used for the interviews, a Monastery (Large Scale) and a school (small scale). At the school the fishers where divided by village and interviewed by a team of two or three. Maps were also prepared as above and the summary of the questionnaire was translated into English.

November Field Survey: Three villages were visited Sut Pa Nu, Kyaikhto Township, Mu Tin and Kyar Si Aung, Bilin Township (Table 2). The surveys were similar to the May Field Surveys with the addition of more concise summary of the questionnaire prepared in English.

Results:

Fisheries knowledge was collected from two medium scale fishing groups (not included in original project villages) and from fishers from nine project villages (Table 2). Data on fishing grounds, important fish species, fish migration, spawning locations and fisheries issues was collected and is currently being analysed.

Fishing grounds have been mapped on google maps (Data to be available shortly) and show fishing areas from well above the Sittaung Bridge to south of Mawlamyine. This clearly indicates the wide ranging strategy of the fishes and the open access nature of the fishery. Initial information was collected on some spawning and nursery areas, and a clear picture is emerging of the different fishing approaches between medium and small scale fishers. The importance of the crab fishery to small scale fishers in the Gulf especially in Bilin was confirmed.

Issues the fishers are facing was addressed with seven of the fisher groups. Most fishers indicated catches had fallen some suggesting a drop from 100 to 20 Viis in the past five years. Two identified issues with Inns; In Moke Ka Mawt, Kyeikhto a Tender/Inn upstream of the village prevents fish migrating down the stream; in Mu Thin, Bilin the fishes have to pay the Inn owner every time they pass the Inn on the way to their fishing grounds. Two villages identified other villages as using poisons to catch Prawn & small scale fishers identified the use of electroshock in freshwater. In the Sittaung area the use of small mesh nets by fishers from further up the river from Bago Region was identifies as an issue while in Bilin, fishers identified the use of the illegal Than Za Gar Pike as the major issue. Also in the Sittaung Bridge area there has been a change in salinity in recent times that has influenced fish availability.

The preliminary data indicates differences between villages in fishing grounds, gear and species caught. In Bilin, Zoke Ka La and Mu Thin fishers were larger scale and fished from the Bilin River south to off Paung Township and while adjacent to crab habitat do not fish for crabs. The three other villages used smaller scale boats and gear to fish nearby in the Bilin River and junction with Sittaung. Species caught were also different and the small scale fishers indicated crab fishing was very important. Kyar Si Aung is a new village peopled by refugees from the erosion area on Bago side, they fish in the Gulf fairly close to their village and collect crabs on the adjacent mud flats. Mu Thin was the only village of the three that had knowledge of fish spawning particularly in the Bilin River.

The Kyaikhto town fishers were only a subset of the large fishing community there (100s of boats) but they fished most parts of the Gulf of Mottama south of Kyaikhto. There was considerable variation in the species caught between the fishers and gear types.

In the Sittaung Bridge area there is also considerable difference between the medium scale & small scale fishers in fishing area and species caught. The large scale fishers fish from above the bridge in the Sittaung River to off of Mawlamyine, while the small scale fishers fish close to their village and also on the flood plains. Sut Pa Nu fish much of the year in the Sittaung river adjacent to the village but from November to February about half the boats move south of Mawlamyine and fish for croaker and land the fish in Mu Don township.

Table 2: List of Villages surveyed during the Indigenous Fisheries Training and follow-up with details on boats, gear and species caught.

Village	Date Surveyed	Gear		Important Species
		Boats (# owners)	Nets (# owners)	
Township	**Belin**			
Zoke Ka Li	26 May 2016	20' (25) 28' (15) 32' (3) 40 (7)	Trammel Net • 0.5 (26) Mango Fish • 1-1.5 (19) • 3 (30)	Croaker, mullet, catfish, hilsa, Lizard fish, Indian tassel fish
Thein Chaung		25' (6)-motor 18' (7)-motor <10 (4)-motor <10 (7) no motor	Trammel Net • 0.5" (12) Mango fish • 1-1.5" (2) • 3 " (3) Crab Net & Hook (20-30) Fence Net 1-2" (2) Anu Hmyu Pike 0.5 (5) mullet	Mullet, crab, mango fish, croaker, prawn
Tha Pyay Kone		30 fishermen only 3 boats	Trammel Net • 1.5" (12) • 2" (12) • 3.5" (6)	Mullet, crab, river cat fish, Nga Zin< sea bass, prawn
Kyar Si Aung	16 Nov 2016	30' (14), 33' (2) Motors 7.5 hp	Trammel net • 2" inside, 6" outside, 1950-3900' length year round • Gill net 4'' Ka ka Tit 2 months –Nov-Dec	Mullet, catfish (Nga Zin?), croaker, mud crab, Mango fish, sea bass
Mu Thin	17 Nov 2016	18' (15) 21' (20) 25' (5), 30' (20) Motors: small boats 5-6hp, larger 18hp	Set Bag net (Kyar Gyi/Kar Wa) 25-30'boats Trammel Net • (Thon Htat) 2"inner,10-18 Outer, 450-750 length	Mullet, croaker, river catfish, small shrimp, mango fish, hilsa & toil, sea bass, Bombay duck, Sillago, Anchovies No crab fishing

Village	Date Surveyed	Gear		Important Species
		Boats (# owners)	Nets (# owners)	
			• (Lat Ma Chauk Pike) 1" inner,6" Outer, 3600-4080' • Beach seine 1' used without motor, 15 days fishing/month	
Township	**Kyeikhto**			
Kyeikhto town	25 May 2016	Seven fishers some crew 2 boat owners 36' & 25'	Drift Gill Net 4'' deep set 150' & shallower 45' Beach Seine net 0.75	Considerable variation between fishers • Croaker & Blotched tiger toothed croaker • Mango fish • Indian tassel fish mullet • Two species river cat fish • sea bass • hilsa
Sittaung	27 May 2016	20-25' (72) >25 (31)	Trammel net • 1.25", 2", 2.5",3", 4"	Mango fish, croaker, hilsa & toil, mullet, wallago, 4 sp of catfish
Kha War Chaung		18' (18) 33' (3)	Trammel Net • 2", 3" (15) Small gill net 0.5" (10) Seine Net 0.2" (3) Cast Net (15)	Hilsa, mango fish, croaker, sea bass, prawn, wallago, 2 sp river catfish & many fresh water fish
Moke Ka Mawt		<10' (17) no motor 10-20' (3) 20-25' (6)	Trammel net • 0.75-1.5" (6) • 3" (7) Small gill net 0.75-1.5 (30) Push Net (2)	7 fresh water species, prawn, hilsa, croaker
Kha Ywe		18' (9) 19.5' (5) 21' (4) 24' (9)	Trammel Net • 1.5" (12) • 2" (12) • 3.5" (6) Cast Net (9)	Hilsa, Wallago, Mango fish, croaker, Barb, prawn & fresh water fish

Village	Date Surveyed	Gear		Important Species
		Boats (# owners)	Nets (# owners)	
Sut Pa Nu	15 Nov 2016	75 boats, most 24', 5-27' 6-7hp	• Trammel net (Thone Htat Pike) 3'' inside, 900-1620' (Hilsa) • Trammel net 1.25' inside, 10' outside (mango fish & cat fish); length as above	River cat fish, mango fish, croaker, hilsa, wallago

Species: There are also differences in the species caught between Kyaikhto Township especially from Sut Pa Nu north, and Bilin Township (Table 3). In general in Bilin there is a mix of marine estuarine and freshwater species, while in Kyeikhto the species are anadromous (i.e. migrate to fresh water to spawn) and fresh water. Crabs are very important to small scale Bilin fisheries but are not caught by Kyaikhto fishers.

Table 3: Common species caught in the Gulf of Mottama fisheries

Abundant Fish Species in Kyaikhto Township		Abundant Fish Species in Bilin Township	
Fish Species Myanmar	Fish Species English	Fish Species Myanmar	Fish Species English
ငါးပုဏ္ဏား Nga Ponnar	Mango Fish	ကဘီလူး Ka Ba Loo & Nga Zin	Mullet
ငါးပုတ်သင် Nga Poke Thin	Croaker	ငါးပုတ်သင် Nga Poke Thin	Croaker
ငါးသလောက် Nga Tha Lauk	River Hilsa	ငါးပုဏ္ဏား Nga Ponnar	Mango Fish
ငါးဇင်ရိုင်း Nga Zin Yaing	River Cat Fish	ရှဉ့်ကဏန်း/ဒီရေတောကဏန်း Shunt Ganan	Mud Crab
ငါးယောင် Nga Yaung	Giant River cat fish	ငါးပုလွေ Nga Pa Lway	Silago
ငါးဘတ် Nga Bat	Wallago	ငါးသလောက် Nga Tha Lauk	River Hilsa
ကကတစ် Ka Ka Tit	Sea Bass	ငါးသလောက် ယာက်ဖ Par Mae	Toli Hilsa

Abundant Fish Species in Kyaikhto Township		Abundant Fish Species in Bilin Township	
ကဘီလူး Ka Ba Loo & Nga Zin	Mullet	Ye Cho Pazun Htoke ရေချိုပုစွန်ထုတ်	Freshwater Prawn
	Butter fish (Pangasius)	ငါးဇင်ရိုင်း Nga Zin Yaing	River Cat Fish
ငါးဖားမား Nga Phar Mar	barb	ငါးယောင် Nga Gyaung	Giant River cat fish
ငါးလိပ်ကျောက် Nga Lape Kyauk	Whipray		

Lessons Learned: A number of lessons were learned that will increase the efficiency and effectiveness of future surveys. In particularly the usefulness of this approach to document fisheries information. These lessons are summarised in Table 3.

Table 3 Lessons Learned:

- Working through translation is not always easy so there is a need for considerable double checking;
- A large group of interviewers is not conducive to efficient collection of information;
- There is a need for the interview team to be more familiar with fishing gear, the local fish, and (should have fish names and gear lists on their phones or tablets for reference), & fishermen's approaches;
- Considerable improvements was needed in interview techniques particularly the need to reconfirm data by re-questioning and feedback of information;
- Some fishermen are reluctant to share information with DoF (we had half the potential interviewees in Kyaikhto withdraw once they found out DoF was present);
- Revisions need to be made in the survey instrument (both instructions & survey form), include the inclusion of a section on fishing issues and problems;
- Working with fishermen may require last minute revisions to fit in with their fishing schedule;
- There are considerable logistical arrangements needed for this type of training, the NAG office did an incredible job in successful making the arrangements and responding to last minute changes;
- There is a need for delegation of responsibilities before the team arrives at the interview site, including a person to be responsible for making last minute changes and arrangements including how to split up the participants (e.g. by village, by sex, by type of fishing gear, etc).
- The team needs to meet after the interviews to finalise the data sheet including check facts, and adding additional information including maps.
- Cell phones & tablets were very useful in mapping fishing zones.
- The survey takes a considerable amount of staff time (taking them away from regular activities), and transportation becomes difficult during the monsoons.
- In spite of NAG field staff being trained in the survey it was difficult to have them involved in the November follow up. While they did accompany the field team to the villages they did not actively assist in the survey.
- A follow up in March 2017 to villages in the Sittaung area indicated that what had been marked on the maps as spawning sites where actually areas they had seen juvenile fish (i.e nursery areas).

References

Eric Baran, Win Ko Ko, Zi Za Wah, Norberto Estepa, Saray Samadee, Xavier Tezzo, Khin Myat Nwe, Edward Maningo. 2015. *Distribution and Migrations of Hilsa (Tenualosa Ilisha) in the Ayeyarwady Delta.* Draft, MyFish Document. WorldFish Myanmar

Agenda Indigenous Fisheries Fishers Survey

Topic	Presenter	Time	Presentation
Monday 23 May			
Introduction of training & participants & pretest	TCC chair/KTM	9:00-9:30	
Overview & Back Ground			
GoM Project Overview	TZP & TCC's	9:30-10:00	Verbal & Power PT
Why collect data? Co-management, Ramsar Plan	TZP/KTM	10:00-10:30	
Break		10:30-11:00	
Background: GoM • Flood Plain versus Coastal • Tides • Circulation & Erosion • Salinity • Mud flats • Birds	KTM	11:00-12:00	Power Pt with notes
Lunch		12:00-13:00	
Background: Fish • Life cycles • Biology	KTM	13;00-13:30	
Fish Species	KTM/ WKK	13:30-14:00	
Fishing Gear in Gulf of Mottama	WKK	14:00-14:30	Power Pt with notes, ,pictures & net samples
Maps, GPS & Phone apps	TZP	14:30-15:00	Maps, Install App
Break		15:00-15:30	
Fishing Licensing & regulations	DoF/ WKK	15:30-16:00	
Illegal fishing	TZP/FO	!6:00-16:30	Verbal presentation
Test	KTM	17:00-17:15	Verbal with white board
Tuesday 24 May			
Survey Techniques			
Township/Village protocols	TCC	9:00-9:30	
Confidentiality of data	TCC/TZP	9:00-9:45	

Annex 1

Topic	Presenter	Time	Presentation
Interview techniques • Planning • Creating atmosphere & Involving all • Perception • Use of questionnaire • Semi structured interviews • Gender	WKK /TCC/KTM	9:45-10:30	
Break		10:30-11:00	
Role Plays	TCC	11:00-12:00	
Lunch		12:00-13:00	
Questionnaire & Procedure			
Fishing practice & Calendars	WKK /FO/KTM	13:00-14:00	
Questionnaire--introduce & review	WKK /TZP	14:00-15:00	
Break			
Role Play Practice	WKK /TZP	15:00-16:00	
Planning for Interviews & divide into interview teams	TZP	16:00-16:30	
Wednesday 25 May			
Practicum			
Large scale fishermen Kyaikhto Township	12-15 fishermen	9:00-12:00	4 interview teams with observers
Lunch		12:00-13:00	
Report write up & review	TZP/FO coordinate	13:00-16:00	

Annex 1

Field Work			
Thursday 26 May			
Zoke Ka La & three other villages in Zoke Ka La Tract but meeting in two separate groups	6-10 fishers	AM	2 NAG teams with student observers
Report write up & review		PM	
Friday 27 May			
Field Work			
Large Scale Fishers Sittaung (@ bridge)	6-10 fishers	AM	NAG team 1 with student observers
Kha Ywae, Kha War Chaung, & Moke Ka Mouth (Mawt) (all villages on River north of bridge)	8-12 fishers	AM	NAG team 2 with student observers
Report write up & review		PM	

Instructions & Survey Sheet 1:

Introduction:

It is important before you collect specific information of fish life cycles and migration that we collect more information on the fishery. This information will also help you determine whether you will have to break the group of fishermen up into smaller groups to obtain more specific information. For this exercise we are focusing on the fishing in the Gulf of Mottama and the Sittaung River, not the freshwater.

General methodology:

Your approach will depend on the size of the group. If 4-6 fishermen you can question each individual. If a larger group 8-16 then you may get them to raise their hands, or stand in a group.
Example: What size of boat do you fish from (*note this will include crews as we are not asking if they own the boat?)*

Small group; Ask each individual & record size.
Big group:

- Ask them to go to different parts of the room depending on boat size. (Big, Medium, small with motor, small without motor, no boat, etc) Then ask each group the approximate length of the boat (e.g. big=15 m). Record numbers for type of boat.
- Or ask them to raise their hands when you ask “Who fishes from a big boat (10 m)?” etc, then record numbers to each question.

Fishing Area:

This is a good place to start as it gets fishermen involved and used to working with the maps. Start with the large scale map of the Gulf of Mottama and start with the outer areas. Ask fisherman how many fish as far south as off Mawlamyine, and then as far north as above the first bridge at Sittaung. Then gradually narrow the area this should then give you a good idea of what scale of maps to print from Google for the Seasonal Calendar exercise. The results (number of fishermen) can be recorded on the largest scale map that includes all fishing grounds.

Type of Fishing Gear

Boats:
What Size are your boats? (Record number)

Big (over 25 ft)_____: medium (20-25 ft)_____: medium-small (10-20ft)

small (less than 10 ft) with motor _____ Small (less than 10 ft) no motor_____

Type of Fishing Net: Note fishermen my use different nets at different seasons and different nets for different species, we will ask more specific questions later so this is just to determine what different fishing gear they are using. Also record if they have different local names. Mesh size & species caught. (See data table on survey form) Record

Species Caught:

Ask the fishermen to list the species caught use local names and English names? This can be recorded on poster paper or white board. Then summarised on your data sheet. Be sure to also remind them to include prawns/shrimp & crabs in their list.

Then ask them to rank them. Ranking can be done if you write all the names on sticky paper and have the fishermen arrange them from high to low based on:

a) which species they catch the most of
b) which species are most valuable (this is not just what has the highest price but what fish gives them the highest income—if there is confusion you may have to discuss with them i.e. price X quantity caught)

(There may be some difference of opinion and if so record this e.g. 5 fishermen said X was the most valuable while 4 said Y was the most valuable.

Seasonal Calendar & Location of Fishing Grounds

Seasonal calendars: Calendars of seasonal activities have already been prepared for many villages by the NAG field teams but they do not contain enough information on fisheries. This exercise will combine seasonal calendar with fishing grounds.

Equipment:

- Printed Google Maps of at least 3 scales from large scale covering whole Gulf of Mottama to the area close to the village.
- Sticky notes (Small pieces of sticky paper) or pins
- Phone with camera

Use the following six seasons (and have labels made on sticky paper with the name of the season)

Monsoon:	June-July
	August-September
Post Monsoon	October-November
	December-January
Dry	February-March
Pre Monsoon	April-May

For one season have fishermen stick the notes or pins on the map where they fish, then add the label (the name of the season) and photograph with your phone. Then repeat for the next season so that you have 6 photos. During the reporting combine all the pictures. We will explore later how to directly enter the positions into Google maps.

General Information Survey Data Form 1

If there are fishers from different villages fill in separate answer sheets for each village.

Identification: Date (Day/Mo/year) _____

Interview Leader_____ Recorder_____

Region/State_____ Township_____ Village Tract_____ Village _____

P Code_____ GPS Location:_____

No of Fishers (male) _____ No of Fishers (female)_____

Type of Fishing Gear

Fishing Area:
Record numbers fishing in various areas on a large scale map and photograph or enter directly into Google. Add that here.

Boats:
What Size are your boats? (Record number of fishermen who indicate the size). If there is a mix of boat owners and fishing crew it will be more complicated but you should try to include only the number fishing on different boats.

Big (over 25 ft)_____: medium (20-25 ft)_____: medium (10-20ft)

small (less than 10 ft) with motor _____ Small (less than 10 ft) no motor_____

Annex 2: Survey 1

Type of Fishing Net:

Note fishermen may use different fishing nets at different seasons and different fishing nets for different species. We will ask more specific questions later so this is just to determine what different fishing gear they are using, they also may have different local names. Record how many use the following:

Record how many fishing gears use the following:

Code	Gear Name/ Burmese Name	Water layer for fishing	Local Name (if different)	Number of fishermen	Mesh Size	Fish Species Caught (to be completed after the detailed species survey)
1	Trammel Net (သုံးထပ်ပိုက်) *Thone Htat Pike*					
2	Drift Gill net(မျှောပိုက်) ရေပေါ် *Hmaw Pike (Htaung Pike)*	Surface				
3	Gill net (ကွင်းစူးပိုက်) *Gwin Shu Pike*	Bottom				
4	Set Gill net(Small Gill net) (ကွင်းတားပိုက်) *Kwin Tar Pike*					
5	Stake Net (ချောင်းပိတ်ပိုက်) *(Chaung Pake Pike)*					
6	Beach Seine Net (သောင်ဝိုင်းပိုက်) *Thaung Waing Pike*					
7	Small Bag Net ကျားလုံး/ဂျွမ်းကျား *Kyar Lone/Gyun Kyar*					
8	Large Bagnet/Stowe Net (ကျားပါးစပ်ပိုက်) *Kyar Pa Sup*					
9	Crab Trap ကဏန်းမြှုံး *Ganan Hmyone*					
10	Crab Hook (ကဏန်းချိပ်) *Ganan Chake*					
11	Net Fence/Beach Surround Net (ဘဝန်းပိုက်) *Ba Wun Pike*					

Annex 2: Survey 1

Code	Gear Name/ Burmese Name	Water layer for fishing	Local Name (if different)	Number of fishermen	Mesh Size	Fish Species Caught (to be completed after the detailed species survey)
12	Giant Cast Net (ဓမ္မိန့်) *Met Kun*					
13	Others (name)					

Species Caught: List in order of importance

Burmese & English Names	
Largest Catch	Highest Value

Seasonal calendars: Add pictures of the calendars for the 6 seasons.

Annex 2: Survey 2

Instructions & Data Sheet Survey 2:

Introduction: This survey will concentrate on the species caught and what information the fishers may have on their migration and spawning.

Complete the first part of the survey form as for Data Form 1.

Species

Show the fishermen a picture of Species 1 (see the list at end for species names) and start asking questions **only** about this species.

Month

Fishermen usually refer to the first month of the season, but the beginning of the season varies from place to place. Start from whatever month they start from but be sure to record the data as indicated in the data sheet (I.e. 1=January).

Abundance when fishing

Is it, overall, a month of high or low abundance?

If it is a month during which the species is not caught, ask if the fisher fishes during that time.

Indicate when the fisher does not know about the abundance of the species in a given month

Size range in inches

Material: four segments of ruler of respectively 5 inches, 10 inches, 15 inches and 20 inches. Use these plastic segments to illustrate the size of fish.

Indicate, for each month, the average size of fish using the above categories. This allows distinguishing juveniles from adults

Yield

Indicate the monthly average number of viss per fisherman. If the catch is small or limited to big individuals, use the column per piece.

Yield Indicate the monthly number of viss per fisherman during that month (1 viss = 1.6 kg). Help the fishermen calculate the yield per day or per week before calculating the yield per month.

Peak duration days

Ask the fisher if, within the high occurrence period, there are shorter peak periods and, if yes, how many days they last. Note any relevant comment

Fishing gear used

Enter the code of the main gear used and in which the above species is caught, using the table below.

Period of fishing

Focus on the gear used to catch the species described. Detail when that gear is first used in the year, and until when (First month of use in the year and Last month of use in the year).

Predictability of the catch

Ask if the peak of the catch can be related to a predictable event such as high tides, full moon, new moon, first rains, etc.

Migration

Do you consider this species to be migratory? So far, we have not asked the fisher about migration, only about occurrence. However, in relation to migration we would like to know about the direction of the migration. Some fishers may have made observations that help them to conclude the direction of a migration.

*A*sk the fisher, if he/she considers this species migratory If yes, which months does the migration start going upstream? If species is considered migratory, ask the fishermen which months the migration starts going upstream. Ask how fishermen can tell that the fish are migrating and the direction of the migration (for confirmation of the information); *if they cannot explain, consider that they do not know.*

<u>If yes, which months does the migration stops going upstream?</u>

<u>If yes, which months does the migration start going downstream?</u> If species is considered migratory, ask the fisher which months the migration is downstream.

<u>If yes, which months does the migration stops going downstream?</u>

<u>How can you tell the fish are migrating and the direction of the migration?</u> Ask how fishermen can tell that the fish are migrating and the direction of the migration (for information confirmation); *if they cannot explain, consider that they do not know.*

Any other information concerning the migrations of this species? Note any additional information about migrations of this species that came up during the interview which could not be entered anywhere else.

Fishing Gear Name & Code

Code	Gear Name/ Burmese Name	Water layer for fishing	Mesh Size	Local Name (if different)
1	Trammel Net (သုံးထပ်ပိုက်) *Thone Htat Pike*			
2	Drift Gill net(မျှောပိုက်) ရေပေါ် *Hmyaw Pike (Htaung Pike)*	Surface		
3	Gill net (ကွင်းစူးပိုက်) *Gwin Shu Pike*	Bottom		
4	Set Gill net(Small Gill net) (ကွင်းတားပိုက်) *Kwin Tar Pike*			
5	Stake Net (ချောင်းပိတ်ပိုက်) *(Chaung Pake Pike)*			
5b	Illegal stake net Than za gar pike			Pike Bawun
6	Beach Seine Net (သောင်ဝိုင်းပိုက်) *Thaung Waing Pike*			Thaung swell pike
7	Small Bag Net ကျားလုံး/ဂျမ်းကျား *Kyar Lone/Gyun Kyar*			Kyar pa zat pike
8	Large Bagnet/Stowe Net (ကျားပါးစပ်ပိုက်) *Kyar Pa Sup*			Taing htaung kyar
9	Crab Trap ကဏန်းမြုံး *Ganan Hmyone*			Ganan paine
10	Crab Hook (ကဏန်းချိပ်) *Ganan Chake*			
11	Other please give name			

Spawning

Do you know where this species spawns?

If yes, do you know from personal observation that this place is a spawning ground?

If the answer was yes in the previous question, ask the fisher whether he know about the spawning of this species from his own personal observation.

Spawning habitat type

Enter description of habitat (i.e. small creek, river bank, etc)

Spawning habitat name In case the spawning habitat has a special name in Burmese language

Month of spawning in this habitat

Additional information: Note any additional information about the spawning habits of this species that came up during the interview which could not be entered anywhere else

Mapping of the spawning site.
Have the fisherman point out on a map the location and if possible enter it into a Google map with coordinates.
(*Optional only if the fisherman seems to have specific information on the spawning area).*
Draw with fishermen a map of the spawning site and note on the map physical and biological characteristics of the site, such as depth, current, bottom conditions, vegetation etc. This exercise can be carried out either by:
♦ Letting the fisher use the Google map already produced.
♦ Letting the fisher draw a new map.

Note: At this stage the interview about this particular fish species is over. Although a lot of specific data is needed, it is important that the species interview is carried out as a conversation with the fishermen. The Interviewer should therefore be so familiar with the form and the questions that he/she is able to carry out the interview (i.e. conversation) without referring to the forms.

Now move to the next species and repeat the questions.

List of Estuarine Species

1. *Tenualosa ilisha* Hilsa shad ငါး(Nga Tha Lauk)
2. *Tenualosa toli* Toli shad ငါးသလောက် ယောက်ဖ (Nga Tha Lauk Yauk Pha)
3. *Otolithoides pama* (Hamilton, 1822) *Pama croaker* ငါးပုတ်သင် (Nga Poke Thin) *(Rosy Jew Fish)*
4. *Otolithoides biauritus* (Cantor, 1849) နတ်ကတော် (Nat ga daw) *Bronze croaker*
5. *Protonibea diacanthus* (Lacepède, 1802) ကသမျှင် (Kat tha hmyin) Blackspotted croaker
6. *Lates calcarifer (*may be new species *L. uwisara) Giant Sea Bass (Barramundi)* ကကတစ် (Ka Ka Tit)
7. *Chelon parsia* (Hamilton, 1822) *Goldspot mullet* ကဘလူး (Ka Ba Loo)
8. *Rhinomugil corsula* (Hamilton, 1822) ငါးဇင်းလုံး (Nga zin lone)
9. *Setipinna taty* Scaly hairfin anchovy *Nga Thar Pyar*
10. *Coilia dussumieri* Valenciennes, 1848 *Goldspotted grenadier anchovy* မီးတံသွယ် *(Mee tan thwe)*
11. *Netuma thalassina* (Rüppell, 1837) (formerly *Arius*) ?? maybe *Nemapteryx caelata* (Valenciennes, 1840) *Giant catfish* ငါးရောင် (Nga Yaung)
12. Seperata seenghala (Sykes 1839) Giant River Catfish Nga Gyaung

Maybe Mystus cavasius Gangetic mystus (River catfish) ငါးဇင်ရိုင်း (Nga Zin Yaing)

13. *Polynemus paradises Paradise threadfin (mango fish)* ငါးပုဏ္ဏား (Ngar Ponnar)
14. *Leptomelanosoma indicum f*ormerly *Polynemus indicus, Indian threadfin* (tassel fish) ကကူရံ *(Ka Ku Yan)*
15. *Sillago sihama*, Silver sillago, ငါးပုလွေ (Ngar Pa Laway)
16. *Harpadon nehereus Bombay-duck* ငါးနပ် (Ngar Hnap)
17. *Lepturacanthus Savala* Savalai hairtail: ငါးတံခွန် (nga ta khun), Nga Tha Ywe Min Kyarr
18. *Himantura sp* whipray ငါးလိပ်ကျောက် (Nga Lape Kyauk)

1. Scylla olivacaea, black mud crab, ရှဉ့်ကဏန်း/ဒီရေတောကဏန်း (Shunt Ganan)
2. *Macrobrachium rosenbergii*, giant freshwater prawn, Malaysian prawn ရေချိုပုစွန်ထုပ် (Yecho Puzun Htoke)

Annex 2: Survey 2

General Information Survey Data Form 2

If there are fishers from different villages fill in separate answer sheets for each village.

Identification: Date (Day/Mo/year) _____

Interview Leader_____ Recorder_____

Region/State_____ Township_____ Village Tract_____ Village _____

P Code_____ GPS Location: _____

No of Fishers (male) _____ No of Fishers (female)_____

Species: Start with the picture of species one and if fishermen catch it complete the following, If not go on to species 2, etc.

Month	Abundance when Fishing			Did not fish	Don't know	Size range in inches				Yield Viss	Yield pieces	Comments
	high	medium	low			Less 5 in	5-10	10-15	15-20			
1 Jan												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12 Dec												

GEAR used to catch of this species: code & name_____

First month of use in the year: _____ Last month of use in the year: ____

Are periods of peak occurrence predictable from any (natural) event? Yes □ No □

If yes, which event? (Tide cycle, moon, etc)

Which tide is best for catch this species? High Tide_____ Midtide_____ Low Tide_____

MIGRATION

Do you consider this species to be migratory? Yes ☐ No ☐ Don't know ☐

Which month does the migration start going upstream? _____

Which month does the migration stop going upstream? _____

Don't know ☐

Which month does the migration start going downstream? _____

Which month does the migration stop going downstream? _____

Don't know ☐

How can you tell the fish are migrating and the direction of the migration?

Additional information concerning the migration of this species:

SPAWNING

Do you know where this species spawns? Yes ☐ No ☐

If yes, do you know from personal observation that this place is a spawning ground? Yes ☐ No ☐

Spawning habitat type

Spawning habitat name:

Which months does this species spawn there?

Do you have any other information concerning the spawning of this species?

Do you know where juveniles (small fish) of this species concentrate? Yes ☐ No ☐

Nursery habitat type____

Please draw a map of the spawning site and indicate special characteristics of the environment

ဆွေစဉ်မျိုးဆက် ငါးလုပ်ငန်းလုပ်ကိုင်သူတို့၏ အသိပညာများစုဆောင်းခြင်းသင်တန်း အကြောင်းအရာ - ငါးလုပ်ငန်းဆိုင်ရာ အထွေထွေအချက်အလက်များ စုဆောင်းခြင်းလမ်းညွှန်မှုများ

နိဒါန်း

ငါးများ၏ဘဝ ပေါက်ပွားရှင်သန်လည်ပတ်ပုံနှင့်ရွှေ့ပြောင်းနေထိုင်ပုံများကိုမလေ့လာမီ ငါးလုပ်ငန်းနှင့်ပတ်သက်သော အချက်အလက်များကို စုဆောင်းရန်လိုအပ်ပါသည်။ ရရှိသောအချက်အလက်များသည် ပိုမိုအသေးစိတ်သော အချက်အလက်များ ရရှိရန်အလို့ငှာ ရေလုပ်သားများကို ဖမ်းဆီးသည့် ငါးအမျိုးအစားနှင့် ငါးဖမ်းကိရိယာအလိုက် အုပ်စုငယ်လေးများအဖြစ် ထပ်မံခွဲ၍လေ့လာရန် လိုအပ် မလိုအပ် ဆုံးဖြတ်ချက်ချရာတွင်လည်း အထောက်အကူဖြစ်သည်။ ယခုလေ့လာချက်သည် ပင်လယ်ဒီရေအတက်အကျရှိသော စစ်တောင်းမြစ်**နှင့်** မုတ္တမကမ်းရိုးတန်းဒေသ ငါးလုပ်ငန်းကိုသာ ဦးတည်သည်။ ရေချိုငါးဖမ်းလုပ်ငန်းနှင့် မသက်ဆိုင်ပေ။

လုပ်ငန်းဆောင်ရွက်ပုံအဆင့်ဆင့်

အုပ်စု အရွယ်အစား ပေါ်မူတည်၍ မေးခွန်းများကို မေးမြန်းရမည်။ ရေလုပ်သား (၄) ယောက်မှ (၆)ယောက်ရှိပါက တစ်ဦးချင်းကို မေးခွန်းမေးမည်။ (၈) ယောက်မှ (၁၆) ယောက်ထိရှိသော အုပ်စုကို မေးလျှင်မူ လက်ထောင်ခိုင်းပါ၊ (သို့) မတ်တပ်ရပ်ခိုင်းပါ။ ဥပမာ- မည်သည့်လေ့ အရွယ်အစားနှင့် ငါးဖမ်းပါသနည်း။ (လေ့ဗားဖမ်းသောသူများသာ၊ လေ့ပိုင်ရှင်များကို မေးမည်မဟုတ်။)

အုပ်စုငယ် ; တစ်ဦးချင်းစီကို မေးပါ။ လူဦးရေ အရေအတွက်ကို မှတ်သားပါ။

အုပ်စုကြီး ;

- အသုံးပြုသောလေ့အမျိုးအစားကိုလိုက်၍ အုပ်စုခွဲပြီး တစ်နေရာစီ နေရာချထားပါ။ (အကြီး၊ အလတ်၊ စက်တပ်အသေး၊ စက်မဲ့အသေး၊ လေ့မဲ့ စသည်...) အုပ်စုတိုင်းကို ခန့်မှန်းလေ့အရှည်ကို မေးပါ။ (ဥပမာ- အကြီး= ၁၅ မီတာ)။ လေ့အမျိုးအစားအလိုက် ရရှိကိန်းဂဏန်းများကို မှတ်သားပါ။
- သို့မဟုတ် (၁၀ မီတာ) နှင့် အထက်လေ့ကြီးများနှင့် ငါးဖမ်းသူများ လက်ထောင်ပါ။ စသည်ဖြင့် ...ထို့နောက် မေးခွန်းများကို ဆက်မေးပါ။

ငါးဖမ်းဓရိယာ -

ရေလုပ်သားများကို မြေပုံနှင့် အလုပ်လုပ်တတ်စေရန် စတင်လေ့ကျင့်ရမည့် အချိန်ဖြစ်သည်။ မုတ္တမ ကမ်းရိုးတန်းဒေသ မြေပုံကြီးတစ်ပုံကို ယူ၍ အပြင်ပိုင်း ဓရိယာများမှ စတင်လိုက်ပါ။ မော်လမြိုင်မှ တောင်ဘက်

Annex 3: Myanmar Instructions Survey 1

ဘယ်လောက် ဝေးဝေးထိ ငါးဖမ်း၍ ရနိုင်သလဲ။ စစ်တောင်းမြစ် ပထမတံတား အထက်မြောက်ဘက် ဘယ်လောက် ဝေးဝေးထိ ငါးဖမ်း၍ရနိုင်သလဲ ဆိုသည်များကို ရေလုပ်သားများကို မေးပါ။ ပြီးတဲ့နောက်မှာ ငါးဖမ်းရာသီကို ကိုယ်စားပြုသော စကေးကိုက် မြေပုံ တစ်ခုကို Google မှ ရယူနိုင်မည်ဖြစ်သည်။ အကြီးဆုံးမြေပုံပေါ်တွင် ရေလုပ်သား အရေအတွက်ပါဝင်သော ငါးဖမ်းဇရိယာများကို မှတ်သားပါ။

ငါးဖမ်းကိရိယာ အမျိုးအစားများ

လှေများ

အသုံးပြုသော လှေ အရွယ်အစား ကိုဖော်ပြပါ။ (အရွယ်အစား ကို မှတ်သားထားပါ)

အကြီး (၂၅ ပေ အထက်) ---------- အလတ် (၂၀-၂၅ ပေ) --------- အလတ်-အသေး (၁၀-၂၀ ပေ)

အသေး (၁၀ ပေအောက်) စက်တပ်-------- အသေး (၁၀ပေအောက်) စက်မဲ့ ---------

ငါးဖမ်းပိုက်အမျိုးအစား - ရေလုပ်သားများသည် ရာသီအလိုက်၊ ငါးအမျိုးအစားအလိုက် ပိုက်အမျိုးအစား အမျိုးမျိုးကို သုံးကောင်းသုံးနိုင်သည်။ ထို့ကြောင့် ဘယ်ကိရိယာမျိုးကို သုံးသည်ဆိုတာကို သိရှိရန်ဖြစ်သည်။ အသေးစိတ် မေးခွန်းများကို နောက်ပိုင်းတွင်ဆက်လက်မေးမြန်းနိုင်သည်။ ဒေသအခေါ်အဝေါ်များရှိပါကလည်း မှတ်သားထားပါရန်။ (ဓာတ်ပုံပါရှိသော Survey ပုံစံတွင် အချက်အလက် ဇယားကို ကြည့်ရှုပါရန်)

Record how many use the following:
အောက်ဖော်ပြပါ ငါးဖမ်းပိုက် အရေအတွက် မည်မျှသုံးသည်ကို မှတ်တမ်းတင်ပါ။

Gear Name/ Burmese Name ကိရိယာအမည်	Water layer for fishing ငါးဖမ်းဆီးသည့် ရေအနက်	Mesh Size ပိုက်ကွက် အရွယ်အစား	Fish Species Caught (to be completed after the detailed species survey) ဖမ်းဆီးရမိသည့် ငါးအမျိုးအစားများ
Trammel Net သုံးထပ်ပိုက်			
Drift Gill net မျောပိုက်	Surface ရေအပေါ်လွှာ		
Gill net ကွင်းစူးပိုက်	Bottom ရေအောက်ကြမ်းပြင်အနီး		
Stake Net ထောင်ပိုက်			
Beach Seine Net သောင်ပိုင်းပိုက်			
Small Bag Net ကျားလုံ/ဂျွမ်းကျား			
Crab Trap ဂဏန်မြှုံး			

Crab Hook ဂဏာန်းချိတ်			
Large Bagnet/ Stowe Net ကျားပိုက်			
Other (please list) အခြား (ဖော်ပြပါ)			

ဖမ်းယူရရှိသော ငါးမျိုးစိတ်များ

ရေလုပ်သားများအား ဖမ်းယူရှိသော ငါးမျိုးစိတ်များကို ပြောပြခိုင်းပါ။ (ဒေသတွင်းအခေါ်အဝေါ် နှင့် အင်္ဂလိပ်အခေါ်အဝေါ် နှစ်မျိုးလုံး) A-O (သို့) White board ပေါ်တွင် မှတ်သားပါ။ ထို့နောက် သီးသန့် စာရွက်ပေါ်တွင် အနှစ်ချုပ်ရေးသားပါ။ ရေလုပ်သားများကို မေးသောအခါ ပုဇွန်၊ ဂဏာန်း များကိုပါ ဖော်ပြခိုင်းပါ။
ငါးမျိုးစိတ်များကို အနည်းအများအလိုက်စီပါ။ ငါးမျိုးစိတ်အမည်များကို Sticky Paper တွင်ရေးမှတ်ထားလျှင် ရေးလုပ်သားများအားအောက်ဖော်ပြပါ အချက်အလက်များ အပေါ်တွင်အခြေခံ၍ အများဆုံးမှအနည်းဆုံးထိ စီရန်ပြောပါ။

(က) မည်သည့်မျိုးစိတ်များကို အများဆုံးဖမ်းယူရှိသနည်း။

(ခ) မည်သည့်မျိုးစိတ်များမှာ တန်ဖိုးအရှိဆုံးဖြစ်ပါသလဲ။ (ဈေးနှုန်းအများဆုံးရရှိခြင်းကိုသာ ဆိုလိုခြင်းမဟုတ်၊ ဝင်ငွေအများဆုံးရရှိသည့်ငါးမျိုးစိတ်ကို မေးခြင်းဖြစ်သည်။ မရှင်းလင်းပါက သေချာစွာ ဆွေးနွေးပါ။ ဆိုလိုသည်မှာ .....ဈေးနှုန်း x ဖမ်းယူရရှိသော ငါးအရေအတွက်)

(ဤကဲ့သို့ မေးမြန်းရာတွင် အမြင်အမျိုးမျိုးကွဲပြားနိုင်သည်ကို သတိထားပြီးမှတ်သားထားပါ။ ဥပမာ- ရေလုပ်သား (၅) ယောက်က တန်ဖိုးအရှိဆုံးငါးမျိုးစိတ်က တစ်မျိုးဖြစ်နေနိုင်ပြီး တခြား (၄) ယောက်က နောက်ထပ်ငါးမျိုးစိတ်တစ်ခုကို တန်ဖိုးအရှိဆုံးတစ်ခုအဖြစ် သတ်မှတ်နိုင်သည်။)

ရာသီအလိုက် ငါးဖမ်းနိုင်သည့် ရက်များ နှင့် ငါးဖမ်းကွက်များ တည်နေရာ

ရာသီအလိုက် ငါးဖမ်းနိုင်သည့် ရက်များ - ကျေးရွာတော်တော်များများအတွက် ရာသီအလိုက်လုပ်ငန်း လုပ်ကိုင်နိုင်သည့် နေ့ရက်များကို NAG မှပြင်ဆင်ပေးပြီးဖြစ်သော်လည်း ငါးလုပ်ငန်းတစ်ခုလုံးအတွက် မူ အချက်အလက်များမှာ မလုံလောက်ပေ။ ယခု လေ့ကျင့်မှု မှ ငါးဖမ်ကွက်များနှင့်တကွ ရာသီအလိုက် ငါးဖမ်းနိုင်သည့် ရက်များကို သိရှိနိုင်မည်ဖြစ်သည်။

Annex 3: Myanmar Instructions Survey 1

လိုအပ်မည့်ပစ္စည်းများ

- မုတ္တမပင်လယ်ကွေ့ဒေသကြီးတစ်ခုလုံးကို ခြုံငုံမိသောမြေပုံမှ ရွာနှင့်အနီးဆုံး ဇရိယာ ပါဝင်သော Print ထုပ်ထားသည့် မြေပုံ အရွယ်အစား (၃) ခု။
- Sticky notes (Sticky paper အသေးလေးများ) သို့ ပင်အပ်များ
- ကင်မရာပါသော ဖုန်း

အောက်ဖော်ပြပါ ငါးဖမ်းရာသီ ၆ ခုအတွက်မှတ်သားပါ။ (ရာသီ/လအမည်နှင့်တကွ Sticky paper ပေါ်တွင် Label တပ်ပါ။)

မုတ်သုန်ရာသီ - ဇွန်-ဇူလိုင်
သြဂုတ်-စက်တင်ဘာ
မုတ်သုန်နှောင်း - အောက်တိုဘာ-နိုဝင်ဘာ
ဒီဇင်ဘာ-ဇန်နဝါရီ
ပူပြင်းခြောက်သွေ့- ဖေဖော်ဝါရီ-မတ်
မုတ်သုန်ဦး - ဧပြီ-မေ

ရာသီအလိုက် ရေလုပ်သားများအား ၎င်းတို့ငါးဖမ်းသည့် နေရာများကိုမြေပုံပေါ်တွင် Pin (သို့) ရေးမှတ်ထားသော Sticky Note များကို ကပ်ပါ။ ထို့နောက် ရာသီနာမည်ကို Label တပ်ပါ။ ဖုန်းနှင့် ဓာတ်ပုံ ရိုက်ပါ။ နောက်ရာသီများ အတွက်လည်း စုစုပေါင်း ဓာတ်ပုံ (၆) ခု ရသည်အထိ ထိုနည်းအတိုင်း ဆက်လက်လုပ်ပါ။ ပုံအားလုံးကို တပေါင်းတည်းထားပါ။ ရရှိလာသော အချက်အလက်များကို Goodle maps တွင် အားလုံးပြီးမှ နေရာချမည်။

ယေဘူယျ သတင်းအချက်အလက် ကောက်ယူမှု - ပုံစံ (၁)

အကယ်၍ အခြားကျေးရွာများမှ ရေလုပ်သားများလည်း ရှိနေပါက ကျေးရွာတစ်ခုချင်းစီအလိုက် အဖြေလွှာခွဲခြား ဖြေဆိုရန်။

သတ်မှတ်ခြင်းများ - နေ့ရက် (နေ့/လ/နှစ်) .....

ဦးဆောင်မေးမြန်းသူ ..... မှတ်တမ်းတင်သူ .....

တိုင်း/ ပြည်နယ် ..... မြို့နယ် ..... ကျေးရွာအုပ်စု .....

ကျေးရွာ .....

P Code_____ GPS တည်နေရာ:_____

ရေလုပ်သား အရေအတွက် (ကျား) ..... (မ) .....

ငါးဖမ်းကိရိယာ အမျိုးအစားများ

ငါးဖမ်းဇရိယာ

ကွဲပြားသော ငါးဖမ်းဇရိယာများအား မြေပုံအကြီးနှင့် ဓါတ်ပုံများတွင်ဖြစ်စေ (သို့) Google မြေပုံတွင် တိုက်ရိုက်ထည့်သွင်းခြင်းဖြင့် ဖြစ်စေ မှတ်တမ်းတင်ရမည်။ ၎င်းတွေ့ရှိချက်အား ဤနေရာတွင် ပေါင်းထည့်ပါ။

လှေများ

သင့်ရွဲလှေက ဘယ်ဆိုဒ်လဲ၊ (လှေဆိုဒ်အား ပြောပြသော ရေလုပ်သားများအား မှတ်တမ်းတင်ထားပါ). အကယ်၍ အဆိုပါ နေရာတွင် အမျိုးမျိုးသော လှေပိုင်ရှင်များနှင့် ငါးဖမ်းလှေလုပ်သားများ များပြားနေပါက ရလာဒ်ရှုပ်ထွေးနိုင်ပြီး သင့်အနေဖြင့် မတူညီ ကွဲပြားသော ငါးဖမ်းလှေအမျိုးအစားအလိုက် ကြိုးစား ကောက်ယူရပါမည်။

ကြီး (၂၅ ပေ အထက်) .....၊ အလတ် (၂၀ - ၂၅ ပေ) .....၊ အလတ် (၁၀ - ၂၀) .....

အသေး (၁၀ ပေအောက်) မော်တာနှင့် ..... အသေး (၁၀ ပေအောက်) မော်တာမပါ .....

ငါးဖမ်းပိုက် အမျိုးအစား -

ရေလုပ်သားများအနေဖြင့် ရာသီအလိုက်ဖြစ်စေ၊ ငါးအမျိုးအစားအလိုက်ဖြစ်စေ မတူညီသော ငါးဖမ်းပိုက်များကို အသုံးပြုတတ်ကြောင်း မှတ်သားထားပါ။ ကျွန်ုပ်တို့အနေဖြင့် ၎င်းတို့ အသုံးပြုနေသည့် အမျိုးမျိုးသော ငါးဖမ်းကိရိယာများကို သိရှိရန်အတွက် အသေးစိတ်မေးခွန်းများကို မေးမြန်းရပါမည်။ အဆိုပါ ကိရိယာများမှာ ဒေသအလိုက် ဒေသအမည်များ ရှိနိုင်ပါသည်။ ဘယ်လောက်များများ အသုံးပြုနေခြင်းအား အောက်ပါအတိုင်း မှတ်တမ်းတင်ရပါမည် -

နံပါတ်	ကိရိယာအမည်/ မြန်မာအမည်	ငါးဖမ်းဆီး သည့် ရေအနက်	ဒေသအမည် (မတူညီပါက)	ရေလုပ်သား အရေအတွက်	ပိုက်ဆိုဒ်	ဖမ်းမိ ငါးမျိုးစိတ် (ငါးအမျိုးအစား အသေးစိတ် စစ်တမ်းပြီးပါက ဤအချက်အား ပြီးဆုံးအောင် လုပ်ရမည်)
1	Trammel Net (သုံးထပ်ပိုက်) *Thone Htat Pike*					
2	Drift Gill net (မျှောပိုက်) ရေပေါ် *Hmaw Pike (Htaung Pike)*	Surface ရေအပေါ်လွှာ				
3	Gill net (ကွင်းစူးပိုက်) *Gwin Shu Pike*	Bottom ရေအောက်ကမ်းပြင်အနီး				
4	Set Gill net(Small Gill net) (ကွင်းတားပိုက်) *Kwin Tar Pike*					
5	Stake Net (ချောင်းပိတ်ပိုက်) *(Chaung Pake Pike)*					
6	Beach Seine Net (သောင်ပိုင်းပိုက်) *Thaung Waing Pike*					
7	Small Bag Ne ကျားလုံး/ဂျွမ်းကျား *Kyar Lone/Gyun Kyar*					

နံပါတ်	ကိရိယာအမည်/ မြန်မာအမည်	ငါးဖမ်းဆီး သည့် ရေအနက်	ဒေသအမည် (မတူညီပါက)	ရေလုပ်သား အရေအတွက်	ပိုက်ဆိုဒ်	ဖမ်းမိ ငါးမျိုးစိတ် (ငါးအမျိုးအစား အသေးစိတ် စစ်တမ်းပြီးပါက ဤအချက်အား ပြီးဆုံးအောင် လုပ်ရမည်)
8	Large Bagnet/Stowe Net (ကျားပါးစပ်ပိုက်) *Kyar Pa Sup*					
9	Crab Trap ကဏန်းမြှား *Ganan Hmyone*					
10	Crab Hook (ကဏန်းချိပ်) *Ganan Chake*					
11	Net Fence/Beach Surround Net (ဘဝန်းပိုက်) *Ba Wun Pike*					
12	Giant Cast Net (မက်ကွန်) *Met Kun*					
13	Others (name)					

ဖမ်းဆီး ရရှိသည့် ငါးမျိုးစိတ်များ - သေချာစွာ မေးမြန်းဖြည့်စွက်ရန် အရေးကြီးပါသည်။

မြန်မာနှင့် အင်္ဂလိပ်အမည် တွဲလျက် ဖေါ်ပြပါ	
အများဆုံး ဖမ်းဆီးရရှိမှု	အများဆုံး တန်ဖိုး

ရာသီချိန်ပြ ပြက္ခဒိန် - ရာသီ ၆ ခုစာအတွက် ပြက္ခဒိန် ခါတ်ပုံ ထည့်သွင်းရန်