Pre-survey of the Community to Formulate Implementation Plans and Activities of the LBCRM Project: Project Site in Pathew District, Chumporn Province






Southeast Asian Fisheries Development Center

Department of Fisheries Thailand

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LBCRM-PD No. 7

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By

Phattareeya Suanrattanachai
Research Division, Training Department,
Southeast Asian Fisheries Development Center

Jinda Phetchkamnerd
Marine Division, Chumporn Marine Fisheries Development Center,
Department of Fisheries, Thailand

Kongpathai Saraphaivanich
Research Division, Training Department,
Southeast Asian Fisheries Development Center

Jirapa Kamhongsa
Marine Division, Chumporn Marine Fisheries Development Center,
Department of Fisheries, Thailand

Baramee Khunnirong
Marine Division, Chumporn Marine Fisheries Development Center,
Department of Fisheries, Thailand

Under

Locally Based Coastal Resource Management in Pathew District, Chumporn Province (LBCRM-PD)

Collaborative Project Between
Southeast Asian Fisheries Development Center

and

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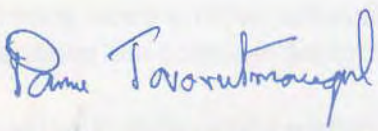
FOREWORD

Under the Fisheries Consulting Group (FCG) scheme, SEAFDEC/TD and the Department of Fisheries (DOF) has planned and implemented involvement in "Locally Based Coastal Resource Management, Pathew District, Chumporn Province (LBCRM-PD)". This project is intended to enhance people's awareness of the sustainable use of coastal resource management and to develop an effective management framework at the project site.

In the first year of Phase I, the project staff plan to concentrate their efforts on a base line survey, training and educational matters. The base line survey is to obtain the necessary information and data, both for the establishment of sustainable resource management, and for community development. The Survey Team consists of three groups, i.e., 1) socio-economic, 2) oceanographic, 3) fishing techniques. Since January 2002, the socio-economic group began to conduct a series of regular and topic surveys. The members of the group prepared a pre-survey and interviewed fishers, to outline the current socio-economic and environmental situation in Tambol Pakklong. This description includes the results and outcomes of the pre-survey.

I expect that this description will be the first step toward further, deeper, surveys.



(Panu Tavarutmaneegul)
Secretary-General
Southeast Asian Fisheries Development Center

PREFACE

The collaborative project between SEAFDEC/Training Department (TD) and Department of Fisheries in Thailand (DOF), with the title "Locally Based Coastal Resource Management in Pathew District, Chumporn Province", started in October 2001. The project staff then prepared for the activities of the first year in Phase I, focusing on a base line survey, training and educational matters. Members of the socio-economic group survey team became involved in basic data and information collection, together with other members of the project.

As the first step, members of the socio-economic group decided to conduct a pre-survey to characterize the socio-economic status and environmental conditions in Tambol Pakklong, Pathew District. Prior to the pre-survey, the members collected basic statistical figures from the National Statistical Office (NSO), the DOF, Chumporn Provincial and Pathew District Offices. They also tried to interview fishers to design a questionnaire sheet. In January 2002, 13 project staff conducted the pre-survey.

By joining the pre-survey that adopted a rapid and simple method, we came to learn about the diversity of fishing and related activities, including utilization of multiple fishing gears on a daily, monthly and seasonal basis, and the multiple channels of fish marketing. Differences in terms of productivity between Moobaans (communities) are extremely wide. Dependence on the fisheries resource economy ranges from minor to total. Cost-intensive fisheries are widespread over the Moobaans. Fishers (fishermen) expect as high a return as possible from their commercial fishing operation. They use coastal fisheries resources as a "marketable commodity". In great contrast and using primitive methods, the women and the old collect fish and shell in shallow beaches for "tonight dishes" and for "pin money".

Yet another surprising fact is that most of fishers and their families have multiple membership of people's groups and community-based arrangements-whatever the purpose and the type. We believe that such cohesion, uniformity and unity among the people will be conducive to the establishment of self-regulating and sustainable fisheries management.

Referring to the results of the pre-survey, the socio-economic group plans to conduct deeper surveys hereafter. The Local Business Team arranges a series of training courses to fulfil the people's demand for fish processing. The Training Team puts together a mobile training program for enhancing awareness about the project purposes and objectives.

The pre-survey was only a starting point of the base line survey. At present, we have accumulated more and more accurate and comprehensive information on socio-economic aspects than in January 2002. However, the results and outcomes of this survey are also useful and helpful to undertake the project activities.

On behalf of the project staff, I must say thank you to all fishers and their families who kindly and honestly answered our questions.

JICA's Expert

Masahiro Yamao

Acknowledgement

We (the author and co-authors) waued like to present our deepest gratitude to all the local people at Pakklong Sub-district, Pathew District, Chumporm Province for their help and participation during the conduct of the pre-survey, but also for the full support and friendship given without reservation.

All the colleagues named below have given their unstinting encouragement to finish conducting the pre-survey in the field and complete this paper. All of you have our profound respect.

Department of Fisheries, Thailand

Ms. Amporn Laowapong	Fishery Economist
Ms. Laddawan Nupankhao	Fishery Biologist
Mr. Boonyarit Panutnachee	Fishery Biologist
Mr. Chaiyan Kaeyai	Fishery Biologist
Mr. Boonyarit Charoernsombat	Fishery Biologist

Southeast Asian Fisheries Development Center, Training Department

Prof. Dr. Masahiro Yamao	JICA's Expert
Ms. Sumitra Ruangsivakul	Socio-economic Researcher
Ms. Pattarajit Kaewnuratchadasorn	Oceanographic Researcher
Mr. Sukchai Arnupaphboon	Oceanographic Researcher

The Project's employee

Mr. Sirisak Sae-Jeah	The project's employee

And to all people who directly and indirectly have helped us to complete this paper.

SEAFDEC/TD and CMFDC

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P. Suanrattanachai[1] and J. Phetchkamnerd[2]
And
K. Saraphaivanich[1], J. Kamhongsa[2] and B. Khunnirong[2]

Abstract

The pre-survey of the community is a rapid and simple method to characterize the socio-economic status and environmental conditions in Pakklong Sub-district, Pathew District. The results of the pre-survey are fundamental information useful for arranging implementation plans and activities to execute phase I of the LBCRM project. The project staff uses the results as preliminary data for conducting research, training and extension plans.

The parameters of the fisheries sector that are in part II of the questionnaire, are very useful to the research teams for arranging research activities and planning that suit the community's environmental conditions. The socio-economic research team conducts Activity I (Base line survey) through considering fishing seasons and types of fishing gear. The team uses these two parameters to design plans for regular community surveys. Therefore, these parameters help to make plans for activity III (To encourage local business). The project staff know what kinds of catch are secured and when. Then, they know what kinds of catch should be used as material for promoting fish processing products in the community. Activity III is implemented through Activity IV (To enhance human resource capacity and participation). Educational level of local residents is a parameter to enable effective levels of training course arrangements for them. The training staff find suitable resource persons and provide simple methods of knowledge and practice transfer to local trainees. Activity V (To develop extension methodologies and strengthening of the extension system for the sustainable use of coastal resources) focuses on common interests of local people to define strategies and methods to attract local people and encourage them to participate in the LBCRM project.

The pre-survey results give clarification of parameters as a focusing guideline to design and implement plans to approach each activity.

Keyword: LBCRM, pre-survey of community, base line survey, socio-economic status

[1] Socio-economic Section, Research Division, Southeast Asian Fisheries Development Center/ Training Department (SEAFDEC/TD)

[2] Chumporn Marine Fisheries Development Center (CMFDC), Department of Fisheries, Thailand

Pre-survey of the Community to Formulate Implementation Plans and Activities of the LBCRM Project: Project Site in Pathew District, Chumporn Province

I Introduction

A pre-survey of communities was conducted at 6 targeted villages (moobaans) in Pakklong sub-district, Pathew district. The pre-survey of communities is a simple and easy method to collect data and assesses the socio-economic status of the community through the categories of local people's engagement in the communities. The results of the pre-survey will clearly indicate features, problems and needs of the communities and are very useful in prioritizing and arranging activities under the Locally Based Coastal Resource Management (LBCRM) project and to implement those activities in the right place and at the right time.

II Objectives of the Pre-survey of Communities

1. To identify socio-economic status, environmental conditions in the communities.
2. To identify opportunities of employment for local people in the communities
3. To identify how local people utilize available resources through fishing operation and catch distribution
4. To identify common problems and the capacity building of local people for their participation in community development.

III Envisaged Outcome of the Pre-survey

The general information focuses on the socio-economic status and educational levels. The socio-economic status is used to assess how frequently fishers utilize available resources and how much they need. The educational level of local people is helpful in arranging appropriate training courses and in the provision of simple and easy information to the local people.

The fisheries sectors data focuses on the categories of fishing gear; fishing seasons and the channels of catch distribution. This data helps the project team to make a calendar for regular base line surveys and sets up special topics for surveys at each target moobaan.

An establishment of people' s groups existing in the communities assesses the common interest of the local people. Characteristics of the groups' member participation indicate how they understand the group's functions and responsibilities. The project team will provide activities and encouragement to strengthen those exiting groups to further support local people in community development.

IV Methodology of the Pre-survey

1. Components of the target group sampled

The target group component means a head or member of a household engaged only in fisheries and/or both fisheries and agriculture. Also, the head or member of a household who earns income from the fisheries sectors.

2. Size of the sampled group

The project team staff reviewed data of Kor.Chor.Chor.2Kor in 1998, which was a 2 yearly household survey data of a moobaan nationwide. The Department of Rural Development, Ministry of the Interior takes the responsibility to conduct the household survey. The data of Kor.Chor.Chor.2Kor in 1998 was the latest data. The team staff reviewed the household number data of the Pakklong sub-district, Pathew district, Chumporn province from the Kor.Chor.Chor.2Kor year 1998.

The Number of fishing household is the targeted number to assess the number of sampled groups to conduct the pre-survey. 30% of the total number of fishing household is assigned to be representative of Pakklong sub-district. Random sampling is the method to identify a respondent in Pakklong sub-district.

3. Target areas

The target areas are 6 Moobaans in Pakklong sub-district. 6 Moobaans are Moobaan Thungmaha Moo1, Moobaan Bosamrong Moo2, Moobaan Thumthong Moo 3, Moobaan Nampoo Moo 5, Moobaan Bonrai Moo6 and Moobaan Tha-at Moo7 (see Figure 1, page 17). Domestic zones I and II are demarcated areas with local people's consensus. These zones prohibit the encroachment of trawls, push nets, cockle cast nets and anchovy purse seines & falling nets during nighttime. These zones are waiting for a provincial announcement, certified by the Ministry of Agriculture and Cooperatives to enforce illegal fishing boats rules.

4. Design of the questionnaire

The set of questionnaires is composed of three parts. Part I, related to the general information of respondents in which most of questions in part I are aimed at objective 1. Part II is mainly concerned with the fisheries sector and the respondent's engagement in that sector. Questions in part II are aimed at objectives 2 and 3. Part III emphasizes the people's participation and group establishment. Objective 4 is the framework of the question design of Part III (see Annex I, page 42).

5. Process of data analysis

A number/code is run on a questionnaire to enable the data to be re-checked or to find out. Therefore, each question in the questionnaire is given a code or identification to make it easy to identify raw data and to read/count the data for analysis and interpretation.

A simple identification manual is provided as a handy and simple way to understand the raw data.

The raw data of the pre-survey is analyzed into percentages and presented in tables or a matrix of data. The tabulation of data is a simple way to easily understand socio-economic, environmental conditions of the community in Pakklong sub-district.

The results of the data analysis are useful to determine the time of interviews, appropriateness of the questions for conducting regular surveys and specific topics of the survey.

6. Administration of conducting the pre-survey at the project site

The staff conducting the pre-survey must complete the questionnaire by interviewing during one day and returning the completed questionnaire to the administrator the next day.

The staff arranges a short meeting at the end of the day to discuss problems encountered in conducting the survey

All staff organize a meeting on the final day of conducting the pre-survey to discuss what the problems are in conducting the survey, what are the staffs' impressions and comments.

The conduct of the pre-survey carried out on 7-11 January 2002.

V Results of the Pre-survey

1. The actual size of the sampled number and its limitations

Table 1 shows the total number of fishing households obtained from the data from Kor.Chor.Chor 2 Kor., Department of Rural Development, Ministry of the Interior, 1998. 30% of the total fishing households are assigned to be the number of the sampled group. However, this number of the sampled group is very low as in Moo 3, 5, 6 and 7. Because of the low number of the sampled group in Moo 3, 5, 6 and 7 it is difficult to define the characteristic of each moobaan. Then, the number of the sampled group in Moo 3,5,6 and 7 are increased in numbers. The actual number of the sampled group is 80 respondents in a total of 6-moobaan.

Table 1 Total Number of Fishing Households and Number of Sampled Size,1998

(Household)

Village No.	Moo1	Moo2	Moo3	Moo5	Moo6	Moo7
Total No. of fishing households	94	35	25	10	20	20
30% of Total fishing households	28	11	8	3	6	6
Actual number of sampling	22	9	16	11	8	14

Source: Department of Rural Development, Ministry of Interior, 1998

2. Part I General Information

2.1 Migration, Marital Status and Educational Level

Migration of each moobaan is to characterize the number of local people and non-local people, which considered based upon place of birth. The number of migrations is an indicator to describe how population change occurs in communities (Chitambar, 1993). Thus, the number of migrations in the community of Pakklong sub-district means the change of population in the community. The result of the pre-survey shows the percentage of local and non-local respondents (see Table 2). Moo 5 and Moo 7 had a greater percentage of non-local respondents than local respondents did. Moo 5 and Moo 7 have geographical areas, which are divided into two land uses. One land use is mainly agricultural and the other is coastal area. 45.46% of Moo 5 and 78.57% of Moo7 are respondents who have residences located in the coastal areas.

Marital status is a supportive indicator to describe the numbers of population change in the community. The marital status of all respondents is that 55.56% to 100% of 6-moobaan have married. The single status is to characterize the trend of number of population change, which may increase if single fishers marry. Divorce status is to forecast the problems of a family perhaps these have effect on the development of society. Moo 1 is the only moobaan where 4.55% of respondents are divorced.

The educational level is vital factor to recognize the reading and writing capacity of respondents. This factor is informative to policy makers and development officers in arranging training courses and information to the right people and at the right level. The educational level of this community is categorized into four levels, which are primary, junior, high schools, and university levels. Respondents of Moo1, 2, 3, 5, 6 and 7 mainly graduated at primary school level followed by junior and high school levels.

Table 2 Place of Birth, Marital Status and Educational Level of Sampled Households, Pakklong Sub-District

%

Village(No.-Moo)	Place of Birth		Marital Status			Educational level			
	Non-local	Local	Marry	Single	Divorce	Primary School	Junior School	High School	University
Ban Thungmaha (Moo1)	36.36	63.64	90.9	4.55	4.55	90.48		9.52	
Ban Bosamrong (Moo2)	11.11	88.89	55.56	44.44		55.56	33.33	11.11	
Ban Thumthong (Moo3)	25	75	75	25		81.25	18.75		
Ban Nampoo (Moo5)	45.46	54.54	100			90.91	9.02		
Ban Bonrai (Moo6)	25	75	100			75	25		
Ban Tha-at (Moo7)	78.57	21.43	92.86	7.14		71.42		14.29	14.29

2.2 Occupation

The characteristics of respondents' occupations give a profile of local resource utilization and features of the community economic based development.

The occupations of the sampled households are composed of seven main categories. These are fisheries, agriculture, fish cage culture, fisheries-and-agriculture, fisheries and fish cage culture, fisheries & grocery and fisheries & laboring. Moo 1 respondents engage in a variety of occupations. 32% and 27% of Moo 1 respondents engage in fisheries-and-agriculture and fisheries only (see Table 3).

Respondents of Moo 3, 5, 6 and 7 are 75%, 64%, 55%, and 50% occupied in fisheries only. 67% of Moo 2 respondents depend mainly upon fisheries-and-agriculture. This result shows that the fisheries resource base is very important to develop the community economics and support and create opportunities of employment for local people.

Table 3 Occupation of Sampled Households in Pakklong Sub-District

%

Village(No.-Moo)	Fisheries	Agriculture	Fish cage culture	Fisheries & Agriculture	Fisheries & Fish cage culture	Fisheries & Grocery	Fisheries& Labor	Total
Ban Thungmaha (Moo1)	27	5	5	32	9	5	18	100
Ban Bosamrong (Moo2)	33			67				100
Ban Thumthong (Moo3)	75			25				100
Ban Nampoo (Moo5)	55			45				100
Ban Bonrai (Moo6)	50			25			25	100
Ban Tha-at (Moo7)	64			36				100

2.3 Source of Daily Income

Table 4 illustrates that respondents of 6-moobaan have their main source of daily income from fisheries. 100% and 91% of Moo 3 and Moo 5 respondents earn their daily income from the fisheries sector. Moo 1 is a moobaan where there are a variety of daily income sources. 9% of Moo 1 respondents get their daily income from both the fisheries and agricultural sectors. These respondents have their main source of daily income from the agricultural sector. This means that they are not full-time fishers. They go fishing in high fishing seasons and wait for the harvesting season for plantation products.

Respondents, who earn their daily income from fisheries and agricultural sectors, work very hard. Each day they harvest the plantation products in the early morning and go fishing in the afternoon. Thus, they earn two incomes.

Table 4 Source of Daily Income of Sampled Households, Pakklong Sub-District

%

Village(No.-Moo)	Fisheries	Agriculture	Grocery	Fisheries&Agriculture	Labor	Total
Ban Thungmaha (Moo1)	77	5	5	9	5	101
Ban Bosamrong (Moo2)	89	11	0	0	0	100
Ban Thumthong (Moo3)	100	0	0	0	0	100
Ban Nampoo (Moo5)	91	9	0	0	0	100
Ban Bonrai (Moo6)	88	13	0	0	0	101
Ban Tha-at (Moo7)	79	14	7	0	0	100

Remark: Total number of each village refers to actual number of sampled households in Table 1

2.4 Local Knowledge about the Implementation of the Project

The "One-tambol, one-product" project is under the national policy for the development of community economics. The conceptual framework of this policy is the utilization of the local resource base to produce unique local products.

The Royal project in Chumporn Province is well known by local people. The Department of Fisheries (DOF), Thailand and SEAFDEC have agreed to join with the Royal project to implement the locally based coastal resource management project. The pre-survey also checks the ratios of knowledge of the two projects and to know how many local people get information on them. The ratio is useful to the project team to prioritize training activities and subsidies to support the two projects.

The results of the pre-survey shows that respondents get some information concerning the two projects (see Table 5). The ratio of don't know-and-know of the one-tambol, one-product is greater than 50%. The ratio of don't know-and-know of the Royal project is a minimum rate at 75% and a maximum rate at 94%.

Table 5 Acknowledgement of One-Tambol, One-Product Project and The Royal Project (LBCRM)

%

Village (No.-Moo)	Acknowledgement			
	One-Tambol, One-Product		The Royal project	
	Unknown	Know	Unknown	Know
Ban Thungmaha (Moo1)	36	64	6	94
Ban Bosamrong (Moo2)	11	89	13	88
Ban Thumthong (Moo3)	44	56	6	94
Ban Nampoo (Moo5)	50	50	9	91
Ban Bonrai (Moo6)	25	75	25	75
Ban Tha-at (Moo7)	50	50	7	93
Total	37	63	9	91

Table 6 Existence of Employied Fishing Gear, Pakklong Sub-District

%

Type of Fishing Gear	Fishing Zone				Total
	I	II	III	IV	
Large cast net (SCN)	4.2	6.2	7.8	5.6	23.8
Indo-Pacific mackerel encircling gill net (IGN)	3	6.7	6.2	2.8	18.8
Mullet gill net (MeGN)	0.3	2.5	1.1	0.3	4.2
Grouper trap (GT)	0	0.6	0.8	0.3	1.7
Push net (PN)	0	0.3	0.6	0.3	1.2
Anchovy falling net (AsBN)	2	0.8	1.1	0.6	4.5
Hand and line (HL)	0.6	0.8	0.8	0.8	3
Krill push net (KPN)	0.3	0.3	0.3	0.3	1.2
Squid jig (SJ)	0.3	0.3	0.3	0.3	1.2
Collapsible crab trap (CC)	0.3	1.4	1.7	0.6	4
Anchovy purse seine (APN)	1.1	0.8	0.8	0.8	3.5
Sand whiting gill net (SWG)	0.3	1.1	1.4	0.6	3.4
Shrimp trammel net (STN)	2.2	3.1	3.4	1.7	10.4
Crab gill net (CGN)	1.4	4.8	3.1	2	11.3
Squid trap (ST)	1.7	1.7	0.8	0.6	4.8
Pomfret gill net (PG)	0.3	0	0	0	0.3
Sardine gill net (SG)	0	0.3	0.6	0.3	1.2
Four finger treadfin gill net (FTG)	0	0	0.3	0.3	0.6
Sea cucumber diving (SCD)	0.3	0	0	0	0.3
Shrimp mud ski (SMS)	0.3	0.3	0.3	0	0.9
Total	18.7	32	31.4	18	100

Remark: % of 357 counting fishing gear units

3. Part II Fisheries Sectors

3.1 Fishing Gear and Fishing Grounds

The result of the pre-survey identifies twenty types of fishing gear actively employed in the whole of the 6-moobaan. The types of fishing gear are illustrated in Table 6 the main types being falling net, cast net, gill net, trap, hand line (Marine Fisheries Division, 1997). Each type of fishing gear is also shown and the fishing gear employed in four main fishing grounds along the coast of Pathew Bay. This coastal area is simply divided into four zones.

Zone I is from Khao Bangbird Mt. to Khao Thumthong Mt. where this area is the most covered demarcated area I. Zone II is from Khao Thumthong Mt. to the area of Ko Aeung island. Zone III is from Ko Aueng island to Ko Rang island. Zone IV is from Ko Rang island to Ko Khai island (see Figure 2, page18).

Zones II and III are important fishing grounds where large cast net, indo-pacific mackerel encircling gill net, shrimp trammel net and crab gill net are heavily used. Table 6 confirms that Zones II and III have ratios of employing fishing gear at 32% and 31.4%, respectively

Note: 1. Some respondents do not give information concerning all the types of fishing gear owned. Some of these respondents just give the names of fishing gear types that he most often and recently operates in the sea. Actually, when the interviewers go to interview him he has fishing gear that is not used.

2. Four zones of fishing ground areas are divided without considering latitude/longitude positions. These zones are used in the field survey to obtain information on where local fishers often go to utilize the aquatic resources.

3.2 Fishing Seasons

Respondents give clear information of the fishing seasons in Pathew Bay, which is based upon their experience in fishing operations. Figure 3 illustrates fishing season by type of fishing gear. Indo-pacific mackerel encircling gill net, hand and line, collapsible crab trap, sand whiting gill net and four finger treadfin gill net are fishing gears that can operate throughout a whole year.

Figure 1 Location of Tambol Pakklong, Pathew District, Chumporn Province

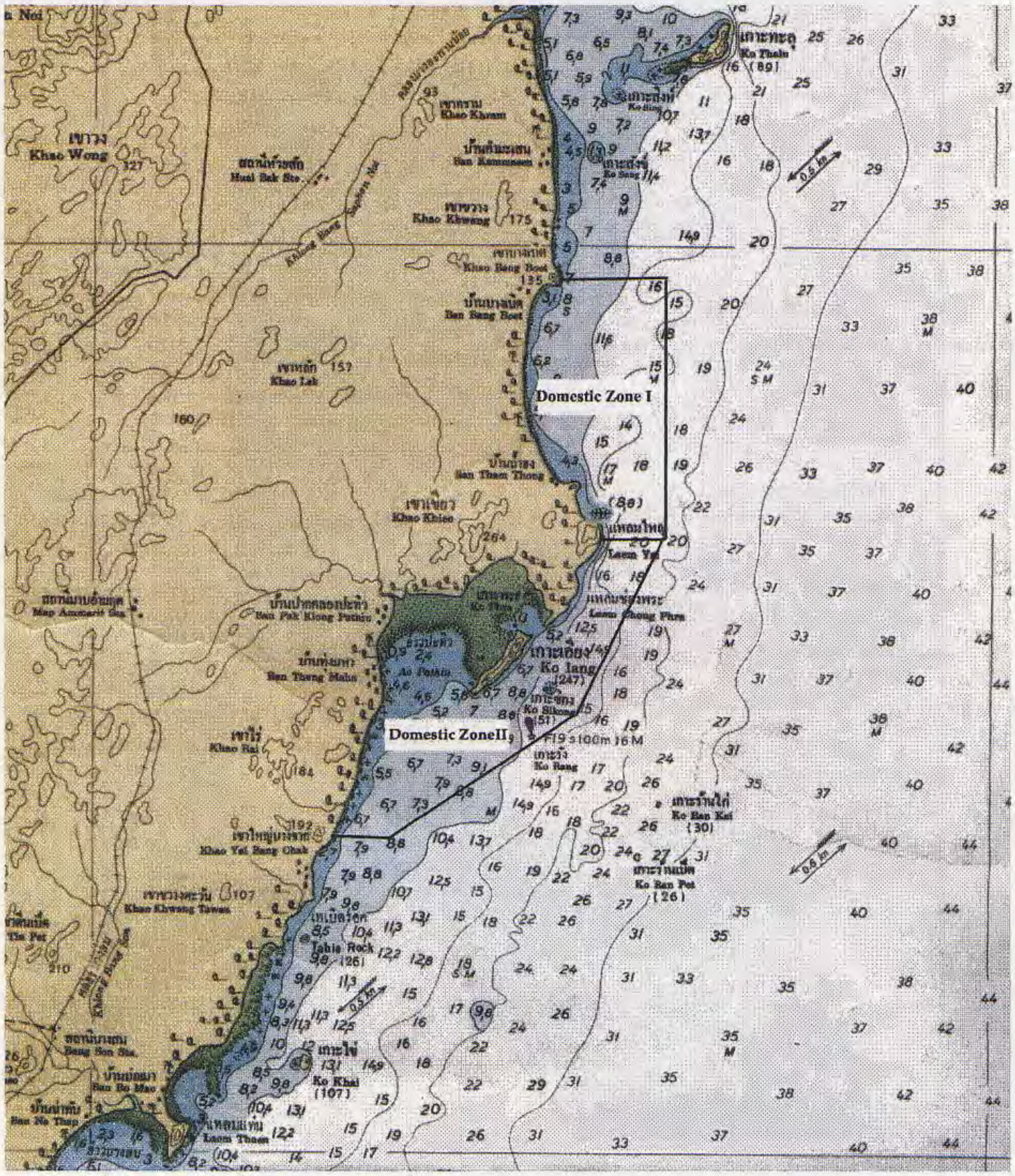


Figure 2 Fishing Grounds Utilizied by Local Fishers in Pathew District

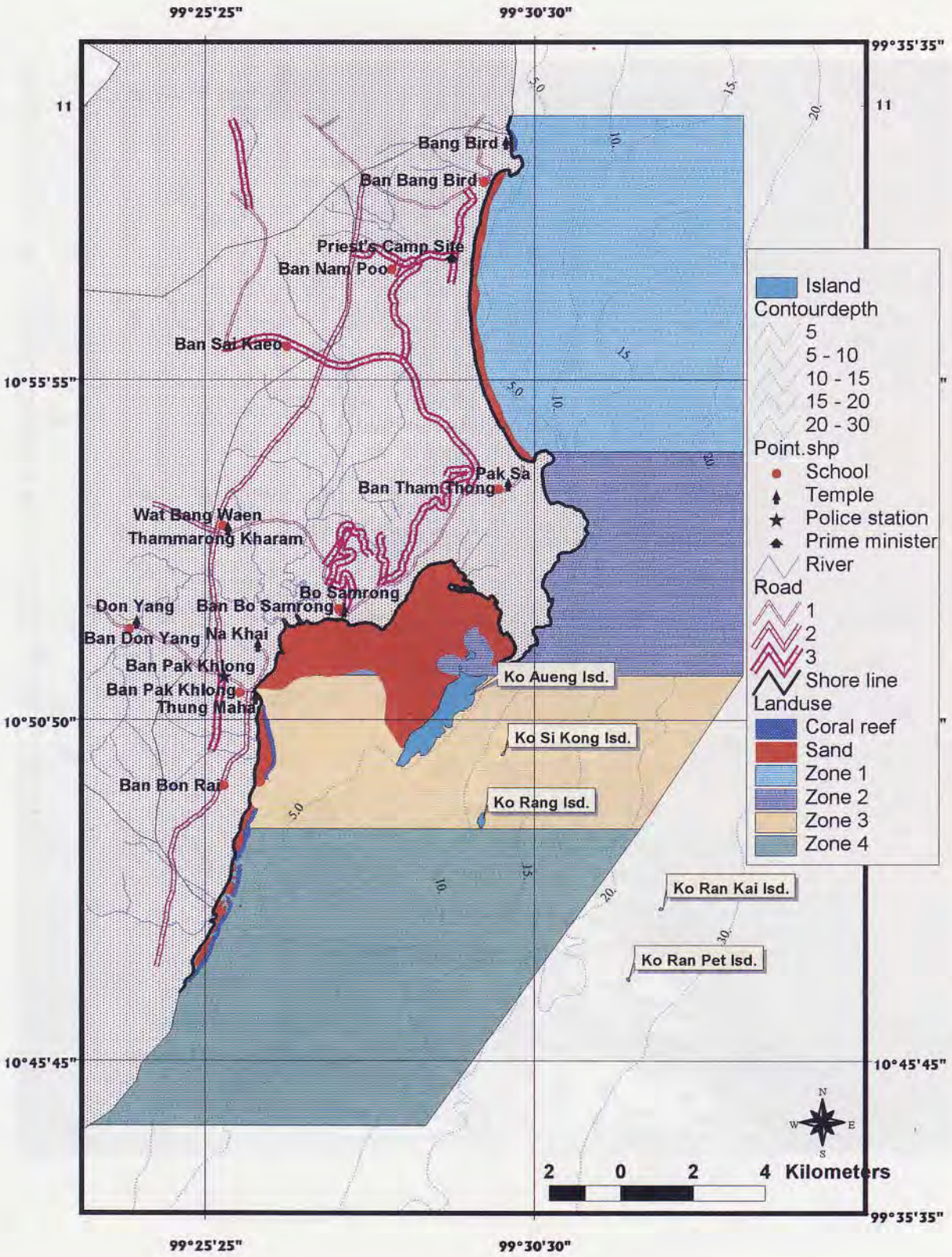


Figure 3 Fishing Season by Type of Fishing Gear

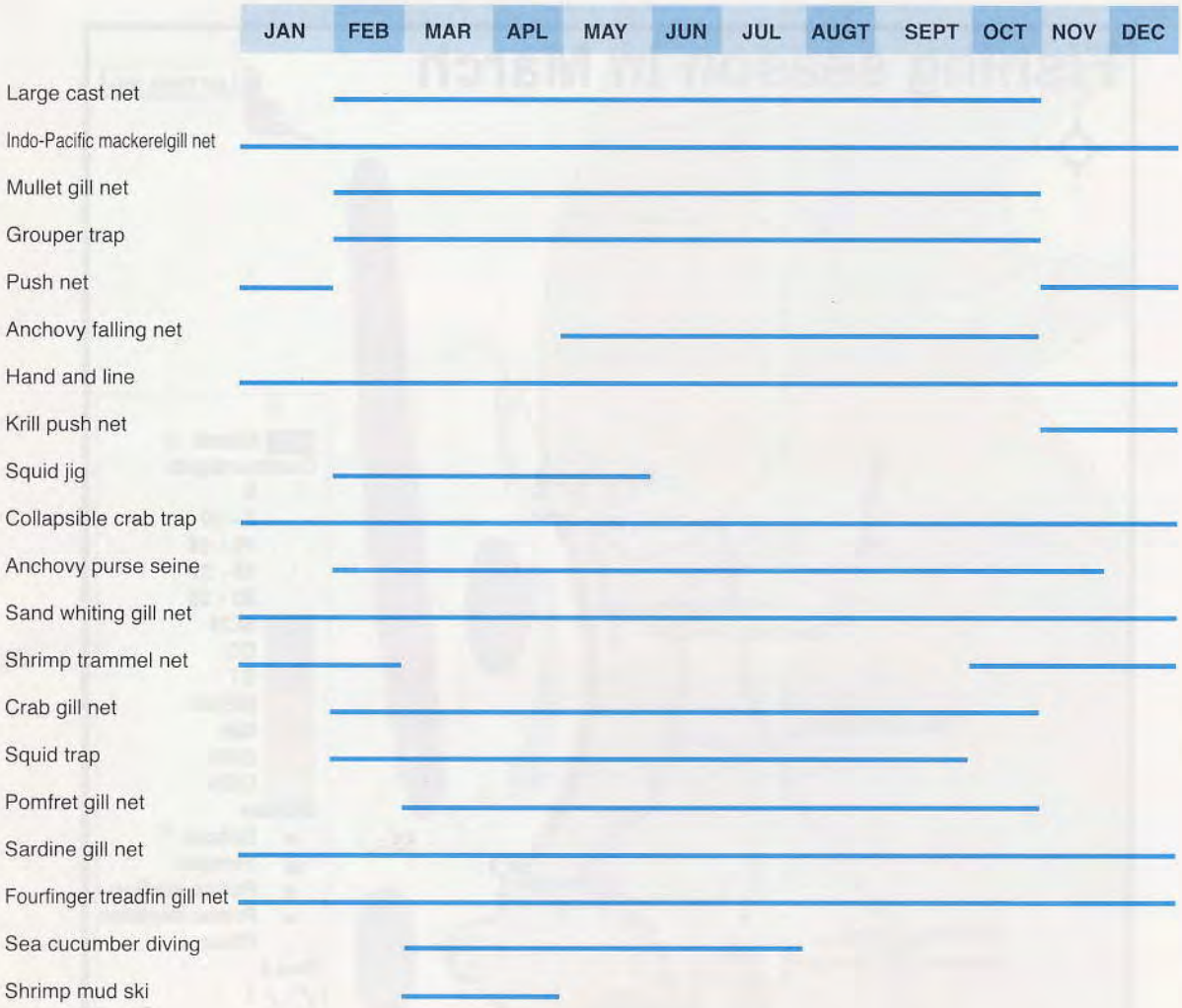


Figure 4 Fishing Grounds Utilizied in March by Local Fishers in Pathew District

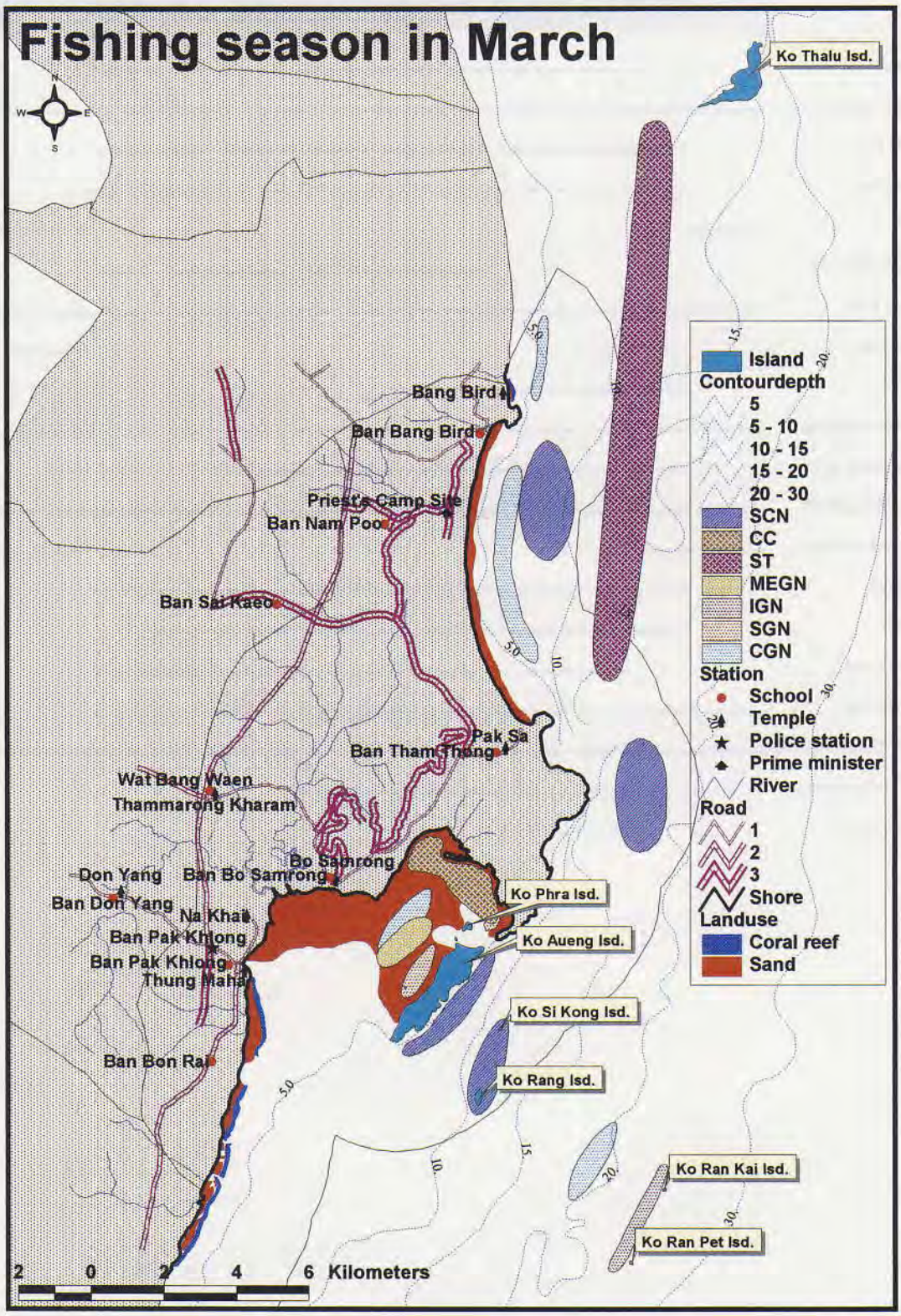


Figure 5 Fishing Grounds Utilizied in April by Local Fishers in Pathew District

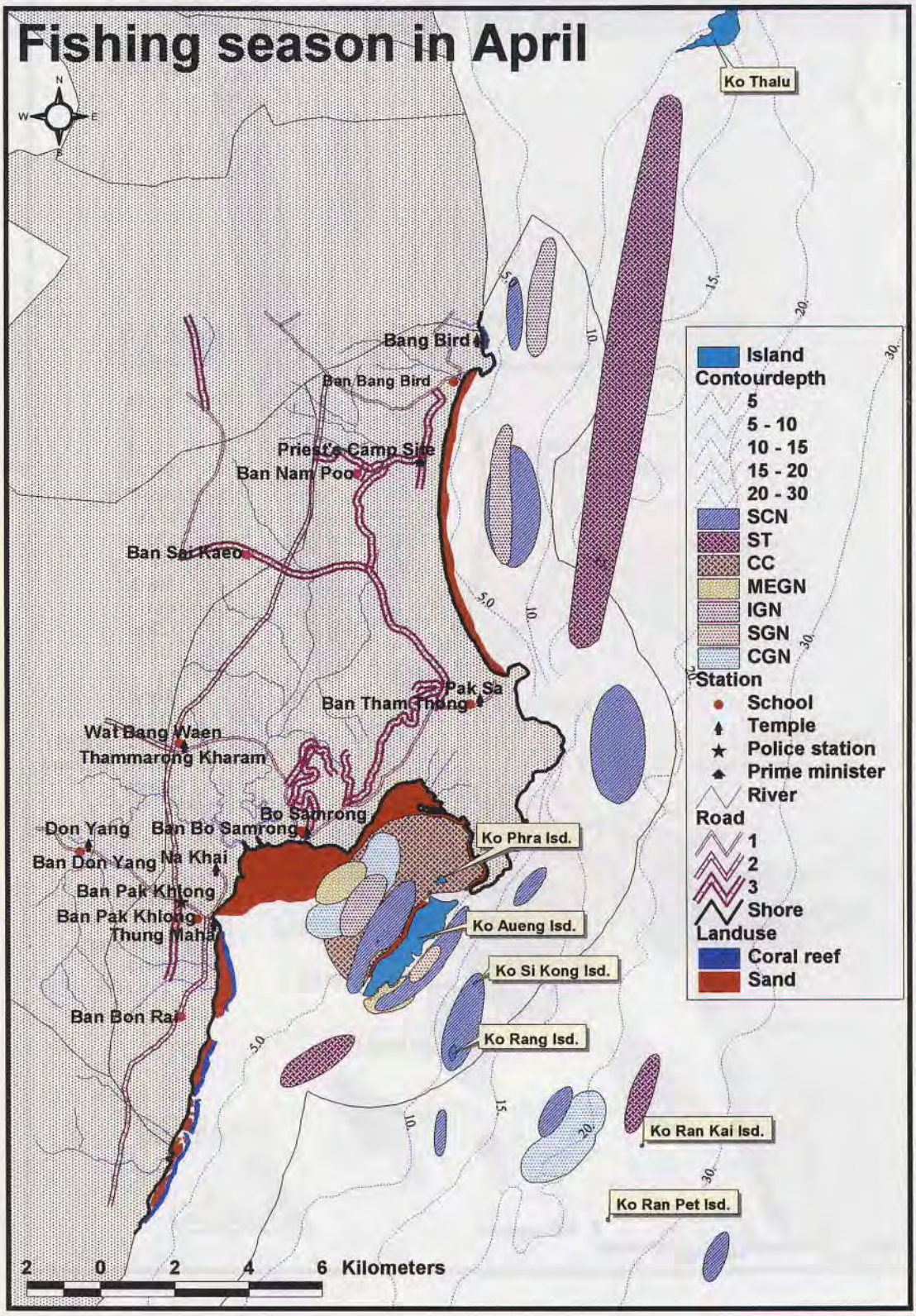


Figure 6 Fishing Grounds Utilizied in May by Local Fishers in Pathew District

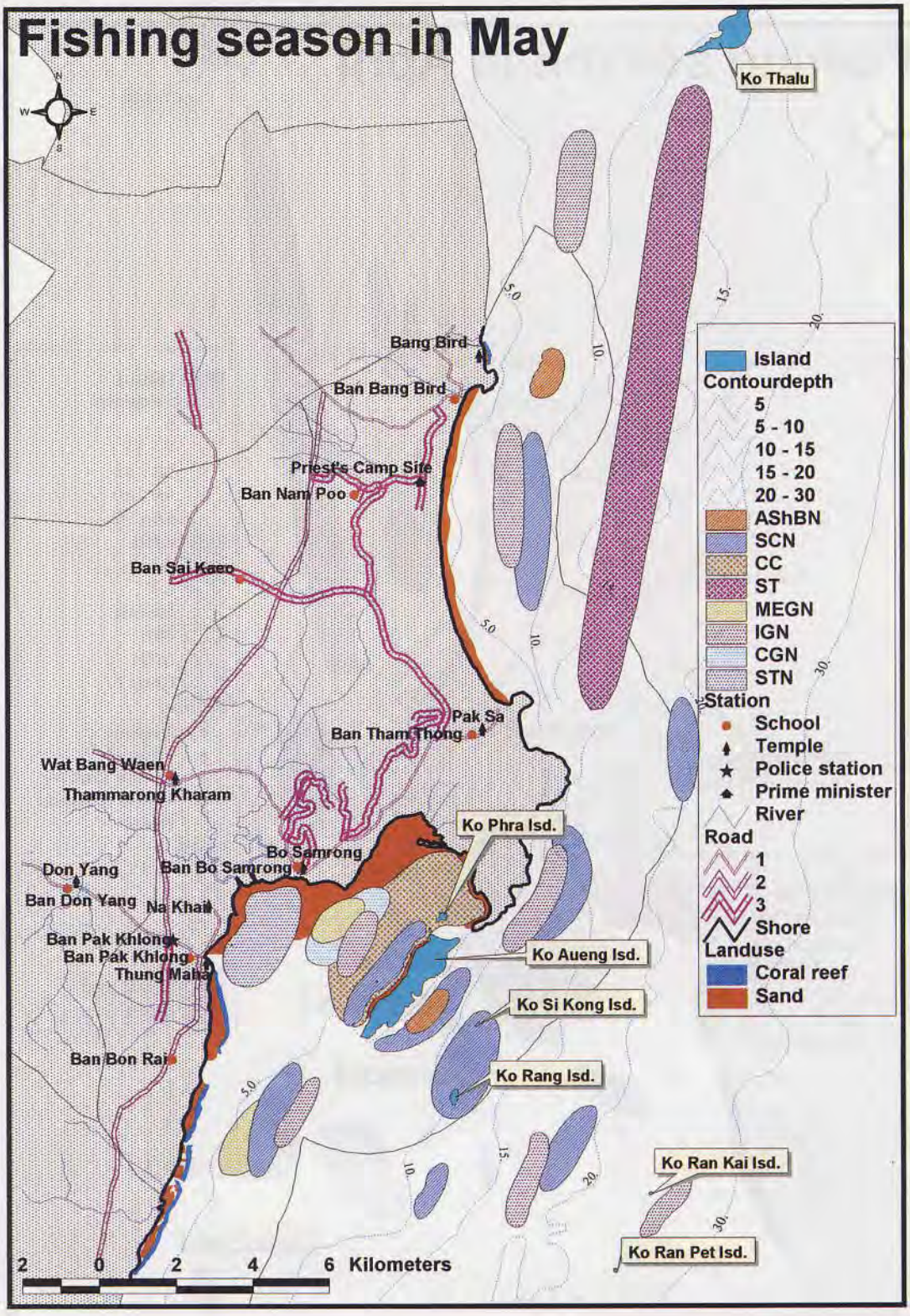


Figure 7 Fishing Grounds Utilizied in June by Local Fishers in Pathew District

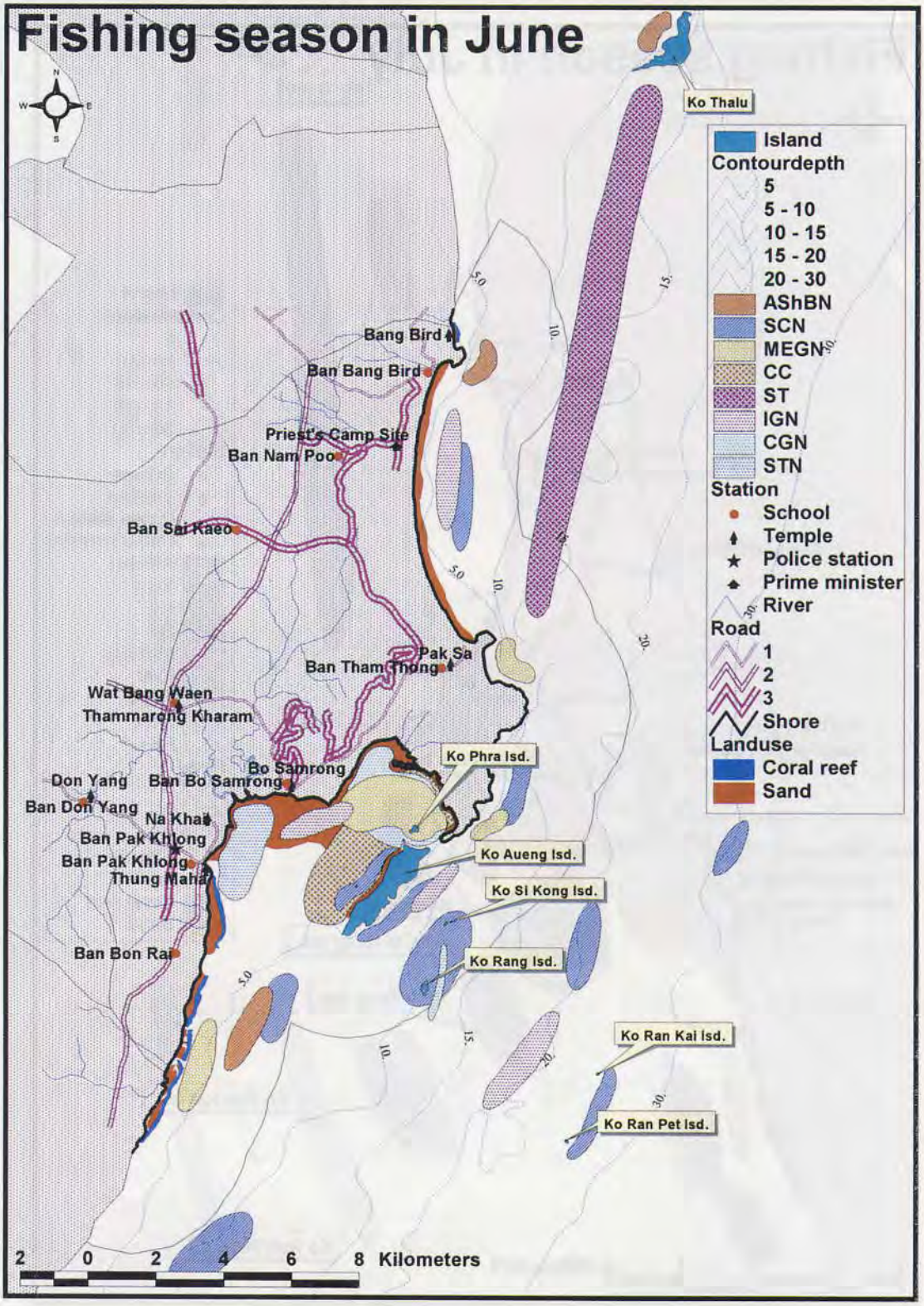


Figure 8 Fishing Grounds Utilizied in July by Local Fishers in Pathew District

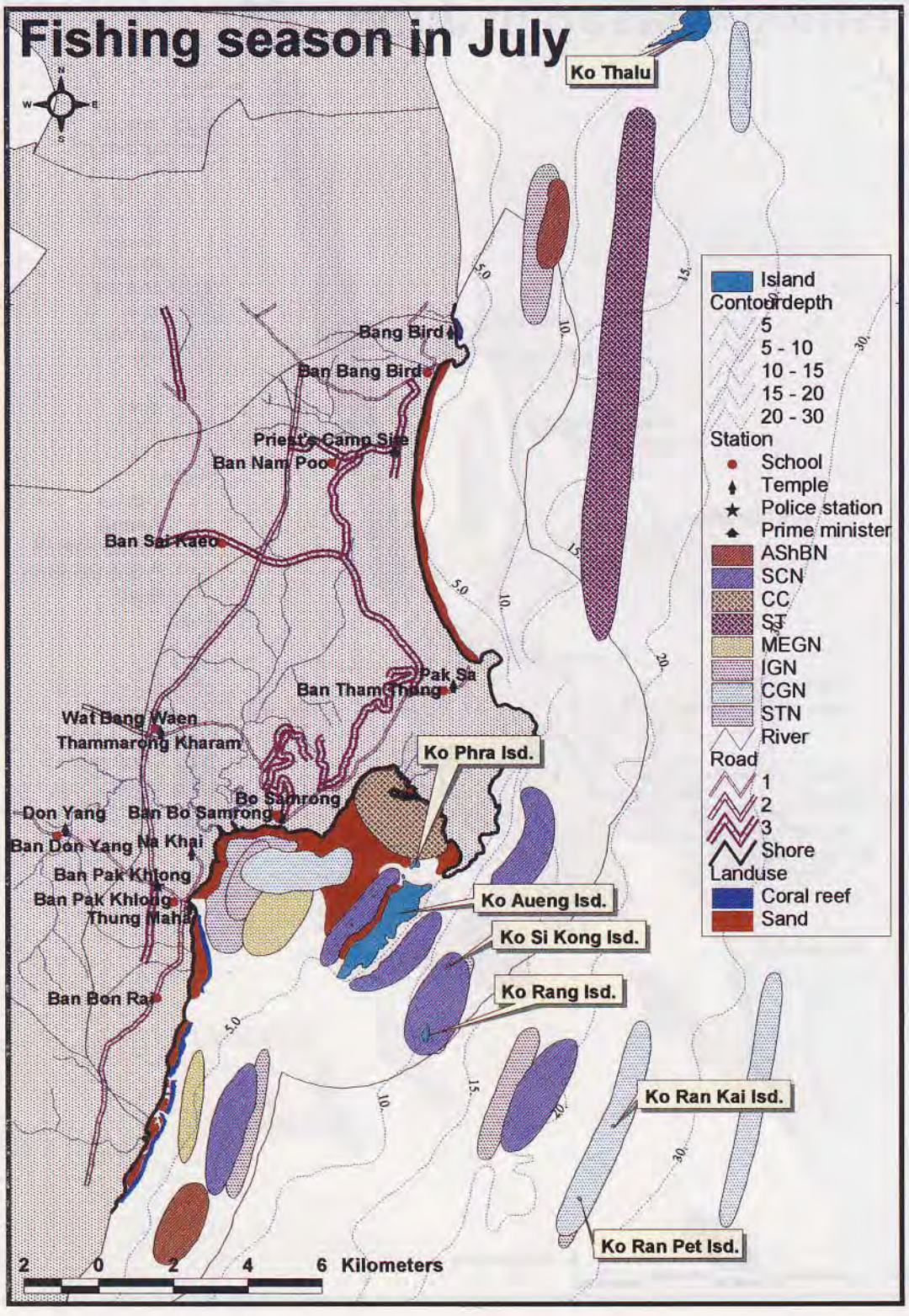
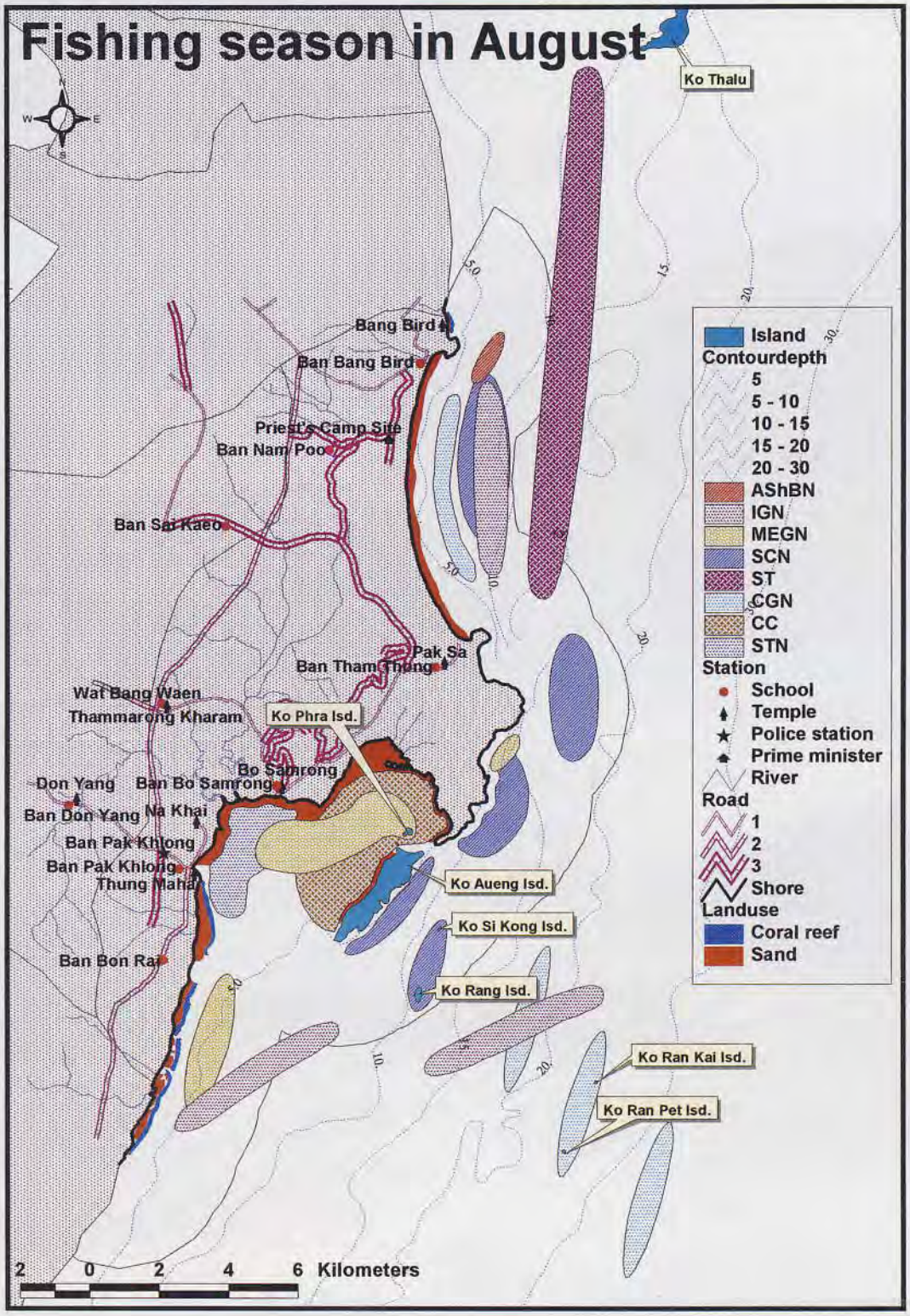


Figure 9 Fishing Grounds Utilizied in August by Local Fishers in Pathew District



Annex II Scenario of Pakklong Sub-district

Fishing pier at Moo 1

Dried Squid Plant at Moo 1

A Household along the coast of Moo 2

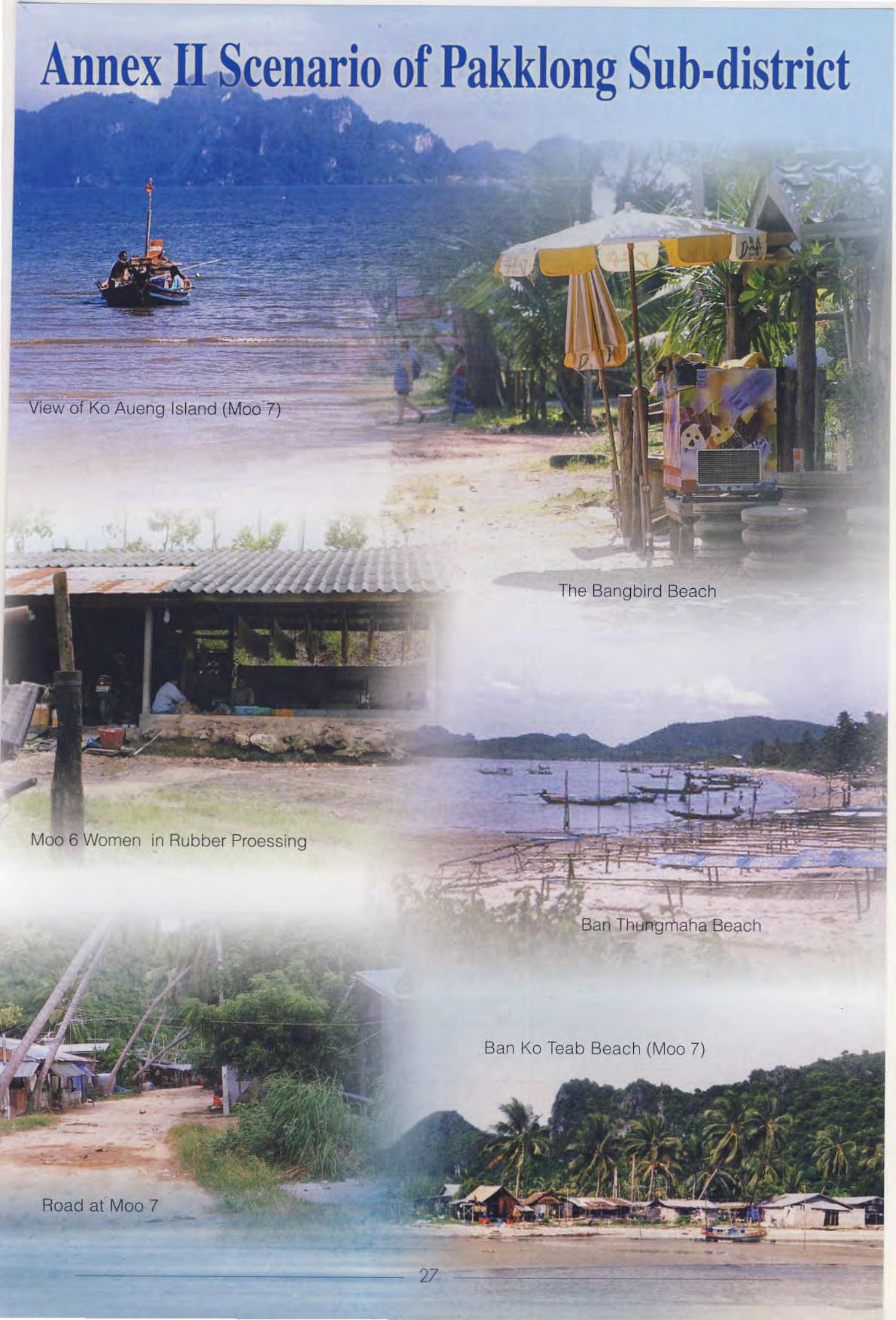
Mangrove Forest Areas (Moo 2 & Moo 7)

Dried Anchovy Plant in Monsoon Season

Thum thong Beach at Moo 3

Fishing pier at Moo 3

Annex II Scenario of Pakklong Sub-district



View of Ko Aueng Island (Moo 7)

The Bangbird Beach

Moo 6 Women in Rubber Proessing

Ban Thungmaha Beach

Ban Ko Teab Beach (Moo 7)

Road at Moo 7

Annex III Type of Fishing Gear

Crab Gill Net

Crab Catches

Shrimp Trammel Net

White Prawns

The Bangbird Beach

Large Cast Net

4-5 " Grouper

Annex III Type of Fishing Gear

Squid Trap

Squid from Squid Trap

Baby Push Net

Collapsible Crab Trap

Blue Swimming Crab Sizes Gain from Collapsible Crab Trap

Harvest Crab Catches

Annex IV Local Products

Dried Squid

Boiled & dried Squid

One Finlet Scad and Indo-Pacific Mackerel

Grab Meat

The large cast net has a peak season from February to the middle of May. This fishing time is the closed season for conserving indo-pacific mackerel. Then, there are a few encroachments of trawls into 3 km coastal areas. Volumes of squid *(Loligo spp.)* catch are also becoming high, but fishers are getting low squid prices.

The Anchovy falling net has a peak season from May to August and entirely stops in the monsoon season (October to January). The shrimp trammel net has a peak season of the fishing operation during the monsoon season.

Changes of fishing season are reasonable reasons that motivate fishers to invest in fishing gear of at least two types. Fishers decide to use each fishing gear by considering fishing season.

3.3 Main Types of Fishing Gear

Eight of twenty types of fishing gear are main types of fishing gear in which the respondents favor to invest. Table 7 shows type and rate of the fishing gear. Rate of large cast net and shrimp trammel net are less than indo-pacific mackerel encircling gill nets, however, squids and shrimps come from the large cast net and shrimp trammel net as they attract a higher price than indo-pacific mackerel. Anchovy falling net is the sixth ranking of eight types, but value of anchovy harvests from this fishing gear attracts highest prices. Large cast net, shrimp trammel net and anchovy falling net give great incentive to fishers, but they must make a large investment to employ these types of fishing gear.

The large cast net is heavily used in fishing zone III (see Table 8 page 32). Fishing zone II is favorable for crab gill net, indo-pacific mackerel encircling gill net and shrimp trammel net. Anchovy falling net is heavily used in fishing zone I.

Note: Figures 4, 5, 6, 7, 8 and 9 show fishing grounds utilized by local fishers. Density of fishing boat utilizng the fishing ground changes by month as in March to August.

Table 7 Eight Main Types of Fishing Gears Engaging in Pakklong Sub-district

Type of fishing gear	%
Indo-Pacific mackerel encircling gill net	21
Large cast net	18
Shrimp trammel net	13
Crab gill net	12
Mullet gill net	9
Anchovy falling net	5
Squid trap	5
Collapsible crab trap	5
non-main type of fishing gear	12
Total	100

Remark: % of 191 countied fishing gear units

Table 8 Zone of Fishing Ground by Main Type of Fishing Gear

(%)

Type of Fishing Gear	Zone			
	I	II	II	IV
Large cast net	4	6	8	6
Indo-Pacific mackerel gill net	3	7	6	3
Mullet gill net	0.28	3	1	0.28
Collapsible crab trap	0.28	1	2	1
Shrimp trammel net	2	3	3	2
Crab gill net	1	5	3	2
Anchovy falling net	2	1	1	1
Squid trap	2	2	1	1

Remark: 1. % of 357 counting fishing gear units
2. % of this table is quoted from Table 6, and then re-ranked by main types of fishing gear

3.4 Length of Fishing Boats

The number of respondents is not equal to the number of fishing boats. Some Moo 1 and Moo 5 respondents own more than one boat. However, only ten respondents in Moo 7 answered questions concerning fishing boats, so the numbers of boat may be less than the actual number available at the moobaan. Remarks on the total number of fishing boats appear in Table 9.

Table 9 Length of Fishing Boats

%

Village(No.-Moo)	In-board powered boat				Long-tailed boat			
	<6 m	6-9 m	10-12m	>12 m	<6 m	6-9 m	10-12m	>12 m
Ban Thungmaha (Moo1)		42	17	17	8	17		
Ban Bosamrong (Moo2)					11	78	11	
Ban Thumthong (Moo3)		44	25			31		
Ban Nampoo (Moo5)			8		8	83		
Ban Bonrai (Moo6)		12.5	12.5		62.5	12.5		
Ban Tha-at (Moo7)		10			90			

Remark: % of Total countied number in a village

Total number of Moo 1 is 24
Total number of Moo 2 is 9
Total number of Moo 3 is 16
Total number of Moo 5 is 12
Total number of Moo 6 is 8
Total number of Moo 7 is 10

The types of fishing boat are mainly in-board powered and long-tailed boats. Moo 2 has no in-board-powered boat employed in fisheries; fishers use long-tailed boats only. The fishers of Moo 7 use about 90% of long-tailed boats with lengths of 6-9 m for fishing. Moo 1 and Moo 3 have an outstanding number of in-board powered boats with lengths of 6-9m, amounting to 42% and 44%, respectively.

Note: The National Statistical Office and the Department of Fisheries (2001) clearly define that the shape of the long-tailed boat allows it to be classified as a small-scale fishing boat without considering the length.

3.5 Main Types of Fishing Gear Employed at a Moobaan

Table 10 verifies the main types of fishing gear employed at each moobaan. This table is a list of fishing gear types that are most used at a moobaan. The percentages shown in Table 10 is calculated by the number of a type of gear divided by the total number of fishing gear units in the moobaan. Counting methods of fishing gear units means the whole number of fishing gear units belonging to a respondent. Respondents normally own more than one type and unit of fishing gear. Thus, the total number of counted fishing gear units is higher than the number of sampled respondents.

The main types of fishing gear at Moo 1 are large cast net (38%) and indo-pacific mackerel encircling gill net (19%). 32% of crab gill net and mullet gill net are favoured at Moo 2. Moo 3 respondents mainly engage in large cast net (36%) and anchovy falling net (18%). Indo-pacific mackerel encircling gill net and shrimp trammel net are employed at Moo 5 and Moo 7. Moo 6 respondents use large cast net and indo-pacific mackerel encircling gill net as their major fishing gear.

Table 10 Main Types of Employing Fishing Gear at a Target Village

%

Village (No.-Moo)	Large cast net	Indo-Pacific mackerel gill net	Crab gill net	Mullet gill net	Anchovy falling net	Shrimp trammel net
Ban Thungmaha (Moo1)	38	19				
Ban Bosamrong (Moo2)			32	32		
Ban Thumthong (Moo3)	36				18	
Ban Nampoo (Moo5)		25				25
Ban Bonrai (Moo6)	25	25				
Ban Tha-at (Moo7)	28					23

Remark: % of counting fishing gear units in own village

Total of fishing gear units at Moo 1 is 43
Total of fishing gear units at Moo 2 is 22
Total of fishing gear units at Moo 3 is 33
Total of fishing gear units at Moo 5 is 38
Total of fishing gear units at Moo 6 is 16
Total of fishing gear units at Moo 7 is 40

3.6 Assessment of Hauling Time and Fishing Day

The average number of net hauls and fishing days categorized by type of engagement is shown in Table 11. The number of net hauls and fishing days increase and/or decrease, is an indicator to define the carrying capacity of the aquatic resource base. Each type of fishing gear operation is an additional rough indicator to specify how the carrying capacity of aquatic species is richer and/or declined.

Moo 1 respondents that engage in large cast net fisheries operate the gear on average about 15 times in a trip. Moo 3 large cast net respondents usually go fishing about 21 days in a month.

Indo-pacific mackerel encircling gill net respondents of Moo 2,3, 5 and 7 use the net twice a trip. Moo 3 and Moo 7 respondents operate this type of fishing around 22 days each month. Crab gill net respondents haul their nets only once during a trip. Moo 6-crab gill net respondents go crab gill net fishing on about 23 days a month.

Moo 1, 2 and 7 mullet gill net respondents shoot and haul their net about 4 times during a trip. Moo 2 respondents are more dependent on the operation of the indo-pacific encircling gill net than Moo 1 and 7. They go fishing approximately 18 days in a month.

Moo 1 anchovy falling net respondents utilize the anchovy resources more than Moo 3, 5 and 6 respondents who operate their nets about 13 times during a trip. Moo 3 anchovy falling net respondents go fishing approximately 24 days a month.

Moo 1 respondents engage in shrimp trammel netting 11 times in a trip. Moo 1 and Moo 5 shrimp trammel net respondents spend 20 days in a month fishing for shrimp.

Table 11 Average Number of Hauling Net and Fishing Day By Type of Engagement

Village (No.-Moo)	Large cast net		Indo-Pacific mackerel gill net		Crab gill net		Mullet gill net		Anchovy falling net		Shrimp trammel net	
	No. of net hauling (times)	No. of fishing day (days)	No. of net hauling (times)	No. of fishing day (days)	No. of net hauling (times)	No. of fishing day (days)	No. of net hauling (times)	No. of fishing day (days)	No. of net hauling (times	No. of fishing day (days)	No. of net hauling (times)	No. of fishing day (days)
Ban Thungmaha (Moo1)	15(14)	19(14)	4(6)	17(6)	0	0	4(3)	15(2)	13(1)	15(1)	11(2)	20(2)
Ban Bosamrong (Moo2)	5(1)	10(1)	2(4)	9(4)	1(7)	22(7)	4(7)	18(7)	0	0	6(1)	15(1)
Ban Thumthon g(Moo3)	7(12)	21(12)	2(5)	22(5)	1(1)	6(1)	0	0	9(6)	24(6)	2(1)	15(1)
Ban Nampoo (Moo5)	7(1)	17(1)	2(8)	17(9)	1(5)	14(5)	0	0	8(1)	15(1)	4(7)	20(10)
Ban Bonrai (Moo6)	5(4)	18(4)	1(4)	17(3)	2(2)	23(2)	0	0	7(1)	20(1)	5(3)	10(2)
Ban Tha-at (Moo7)	7(1)	15(1)	2(9)	22(8)	2(5)	19(4)	4(2)	13(1)	0	0	3(8)	18(7)

Remark: ( ) is total counting number of hualing time and/or fishing day

Note: 1. Number of net hauling considers with volume of catch and season, can clearly define carrying capacity of aquatic resources.

2.Number of operations of large cast nets at Moo1 must be re-checked in two ways. One way checks through adjacent moobaans. The other way checks from the landing survey data that records the operating time of this gear. This is necessary because the number of operations is very high when compared to other 5 moobaans.

3. The number of net hauling operations at Moo 1 should be the same as Moo 6, because these two moobaans separated only in the last few years because the number of residences increased.

4. Fishers can operate large cast net every 2 hours, so they may shoot the cast net about 6 times in a night for 8 fishing operation hours. Fishers can operate anchovy falling net every 5-10 minutes for a time, so they can shoot the falling net about 3-4 times in a fishing operation hour. This information may be useful to consider the feasibility of large cast net and anchovy falling net operations at Moo 1.

3.7 Intermediate Source for Catch Distribution

The intermediate source for catch distribution means the fish-trader, who buys all species and kinds of fishery products. The fish-trader sells the fish products to markets in urban areas. The fish-trader's business place is a reasonable way to categorize types of fish-trader. If the fish-trader has a residence in the same village as the fishers this means that the fish-trader is an inside village fish-trader. If the residence is outside the village he is considered an outside trader.

The trade between fish-trader and fisher is an indicator that shows how the fisher depends on the fish-trader to access loans and credit in kind (oil, fishing gear and other instruments) that are essential for use in fishing operations. The fishers must bring their catch and fish products to the fish-trader for selling. The fishers repay debts (loan and credit in kind) to the fish-trader by spending, an incentive comes from the fish sale. The relationship between fishers and fish-trader may be termed a patron-client system, but the strength of the relationship is not great. This is because the fishers do not borrow large amounts, or obtain credit in kind from the fish-trader. Fishers can now access loans from various other sources.

Table 12 verifies intermediate sources for catch distribution that may be categorized into three types. The three sources are located in inside the villages, outside the villages, or both inside and outside the villages. Some respondents do not indicate intermediate source of catch distribution which shows in the percentage do not specify the source.

Table 12 Intermediate Source for Catch Distribution

(%)

Village (No.-Moo)	Inside village	Outside village	Both inside and outside village	Not Specifies	Total
Ban Thungmaha(Moo1)	36.36	13.64	31.82	18.18	100
Ban Bosamrong(Moo2)	66.66	0	33.3	0	100
Ban Thumthong(Moo3)	56.26	0	43.75	0	100
Ban Nampoo(Moo5)	9.09	63.64	18.18	9.09	100
Ban Bonrai(Moo6)	0	100	0	0	100
Ban Tha-at(Moo7)	21.43	42.86	21.43	14.29	100

Remark: % of actual number of sampled size in Table 1

Moo 1, 2 and 3 respondents conduct fish trading with inside village fish-traders approximately 36.36%, 66.66% and 56.26%, respectively. Moo 5, 6 and 7 respondents mainly sell catch and fish products to outside village fish traders with percentages of 63.64%, 100%, and 42.86%, respectively. Moo 1, 2 and 3 respondents seem to be dependent on the inside village traders rather than outside village fish-traders. Moo 5, 6 and 7 respondents depend on outside village fish-traders, because there is not an inside village fish-trader available.

Note: Dependence of fishers on the fish-trader is an indicator to forecast how intensively fishers must utilize the aquatic resource base to earn enough income to reduce the debt to the fish-trader. Relationships between fish-trader and fishers should be studied more and the relationship to particular resource use criteria; fishers' intensive use criteria, including catch distribution and market channels.

3.8 Sources of Credit

Sources of credit are classified into three main sources where respondents may access loans. The first source is a formal system source being the government, BAAC (Bank for Agriculture and Agricultural Cooperatives), commercial bank. The second source is a semi-formal system source being the fishers' group, savings group, and other groups. The status of these does not classify them as formal groups, certified by government agencies. However, within these groups the administrative activities are guided by government agencies. These groups also received funds from the government agencies. The third source is an informal system source consisting of fish-traders, relatives/friends and others. They have formulated the loan system by themselves.

Respondents of 6-moobaan mostly access loan services from BAAC and the government. Respondents obtain very few loans from commercial banks. The fish-trader is the major source of informal credit. The fishers' group is a semi-formal credit system, because the Department of Fisheries (DOF) subsidizes the fishers' group funds. The DOF allows the group's members manage and allocate loans to other members. Moo 5 and Moo 7 respondents access loans from the fishers' group at 48% and 43% (see Table 13). Moo 2 respondents mainly borrow money from relatives/ friends, 44%.

Table 13 Sources of Credit in Pakklong Sub-District

(%)

Village(No.-Moo)	Government	BAAC	Commercial bank	Fishers' group	Other group	Fish-trader	Relatives/Friends	Others	Total
Ban Thungmaha (Moo1)	0	39	0	6	6	30	9	9	99
Ban Bosamrong (Moo2)	11	11	0	0	11	22	44	0	99
Ban Thumthong (Moo3)	33	15	0	0	4	41	4	4	101
Ban Nampoo (Moo5)	14	0	5	48	0	19	14	0	100
Ban Bonrai (Moo6)	12	29	0	0	6	29	18	6	100
Ban Tha-at (Moo7)	14	11	0	43	4	29	0	0	101

Remark: BAAC= Bank for Agriculture and Agricultural Cooperatives

Note: The DOF expects that the fishers' group enable the development of the semi informal credit system to become a locally based credit system. This source of locally based credit increases the accessible sources of loans to local fishers, so that fishers can reduce their dependence on the fish-trader. However, this system does not ensure that fishers will reduce the fishing effort.

3.9 Problems and Needs

- Reduction and decline of aquatic resource
- Conflict among trawls, anchovy purse seines and small-scale fishing boats
- Underemployment in the fisheries and agricultural sectors leading to a decrease of income
- Lack of potable water, water pipe line for consumption needed
- Deficiency of welfare allocation provided by the Sub-district Administrative Organization (Ao.Bo.To).
- Lack of educational fellowship funds particular at primary school level

4. Part III The People' s Participation in Groups

4.1 The People' s Participation in Groups

People's participation in in-group activities characterizes the features of local people's common interests and needs. The result of the pre-survey illustrates that respondents are members of various groups existing in the community (see Table 14). The eight existing groups are fish cage culture, mangrove reforestation, savings, farmers, fishers, women and the village fund and volunteer groups.

The establishment of the eight people's groups is based upon two factors. One is based upon the local people's initiative groups like the mangrove reforestation groups, the savings group, the women's group and the volunteer group. Other factors with the support of government agencies are the fish cage culture group, the farmers' group, the fishers' group and the village fund group.

The result of the pre-survey indicates that the fishers' group and village fund group is active, well known and exists in every moobaan.

Table 14 People's Participation in Group

Village(No.-Moo)	Fish Culture	Mangrove	Savings	Farmer's group	Fishers' group	Women	Village fund	Volunteer	Total
Ban Thungmaha(Moo1)	3	8		13	25	38	8	5	100
Ban Bosamrong(Moo2)			23		15	23	31	8	100
Ban Thumthong(Moo3)	4				44	16	36		100
Ban Nampoo(Moo5)			5		52	14		29	100
Ban Bonrai(Moo6)			14	7	50		29		100
Ban Tha-at(Moo7)					76		24		100
Total (6-village) %	2	2	5	5	42	19	23	2	100

Remark: % of actual number of sampled size in Table 1

5. Results of the Pre-survey Merging into Six implementing Activities of the LBCRM Project

The LBCRM project has a chart of 6-activity linkage which shows in Chart 1 (Yamao & Suanrattanachai, 2002). The result of the pre-survey gives preliminary data that the project team staff use for conducting research, training, extension plans and so on. The parameters in the part II fisheries sector are very useful to research teams for arranging research activities and planning that suit the community's environmental conditions (see Figure 10).

Activity I: Base line survey

The pre-survey results are used to design plans and arrange priority of data collection and survey which conducts Activity I Base line survey in phase I (see Figure 11, page 40). The socio-economic research team considers fishing seasons and types of fishing gear to design plans for regular community surveys. The ratio of main fishing gear types is given priority in the survey.

Activity II: To establish and extend the LBCRM

The Activity II is a core activity, which starts in the second year of the first phase (see Figure 11). The implementing plan of Activity II relies mainly on the results of Activity I which considers data of fishing ground zones, fishing seasons, fishing gear types and types of fishing boat. These data fundamentally support fisheries officers and sub-district administrative organizations (Ao.Bo.To.) to manage fisheries in the demarcated zones (Domestic zones I and II).

Activity III: To encourage local business

Types of fishing gear and fishing season give information on what kinds of catch are secured and when. This information is helpful to make plans for Activity III. This activity is implement through a fish processing training course (Activity IV) arrangement. The project team knows what kinds of catch should be used as material for promoting fish processing products in the community. Thus, the team can arrange when is a suitable time to present training courses for the women in community.

Chart 1 Project Six Components and their Linkage

Figure 10 Results of the Pre-survey Merging into Six Implementing Activities of the LBCRM Project

Activities	Parameters	Plan of activities	Person in charge
Activity I: Base line survey	Type of fishing gear Fishing season	Given the priority of the survey Design plans for regular community survey	Socio-economic team staff
Activity II: To establish and extend the LBCRM	Type of fishing gear Fishing season Fishing ground Type of fishing boat	Arrange action plan to manage fisheries in the demarcated zones	Ao.Bo.To. and fisheries officers
Activity III: To encourage local business	Catch production Fishing season	Arrange suitable training course for women in community	Extension officers
Activity IV: To enhance human resource capacity and participation	Educational level of target people	Find suitable resource person Provide simple methods of knowledge and information transfer to local trainees	Training staff
Activity V: To develop extension methodologies and strengthening of the extension system for the sustainable use of coastal resources	Common interest of people' s group	Design and choose tools and/ or visual media for presentation	Extension officers

Activity IV: To enhance human resource capability and participation

Activity IV mainly concerns training course arrangements to develop the skills of local people in many fields of engagement and at various ages. The results of the pre-survey focuses on the educational level of local residents to enable effective levels of training courses for them. Therefore, this data helps the training staff to find suitable resource persons and provide simple methods of knowledge and information transfer to local trainees.

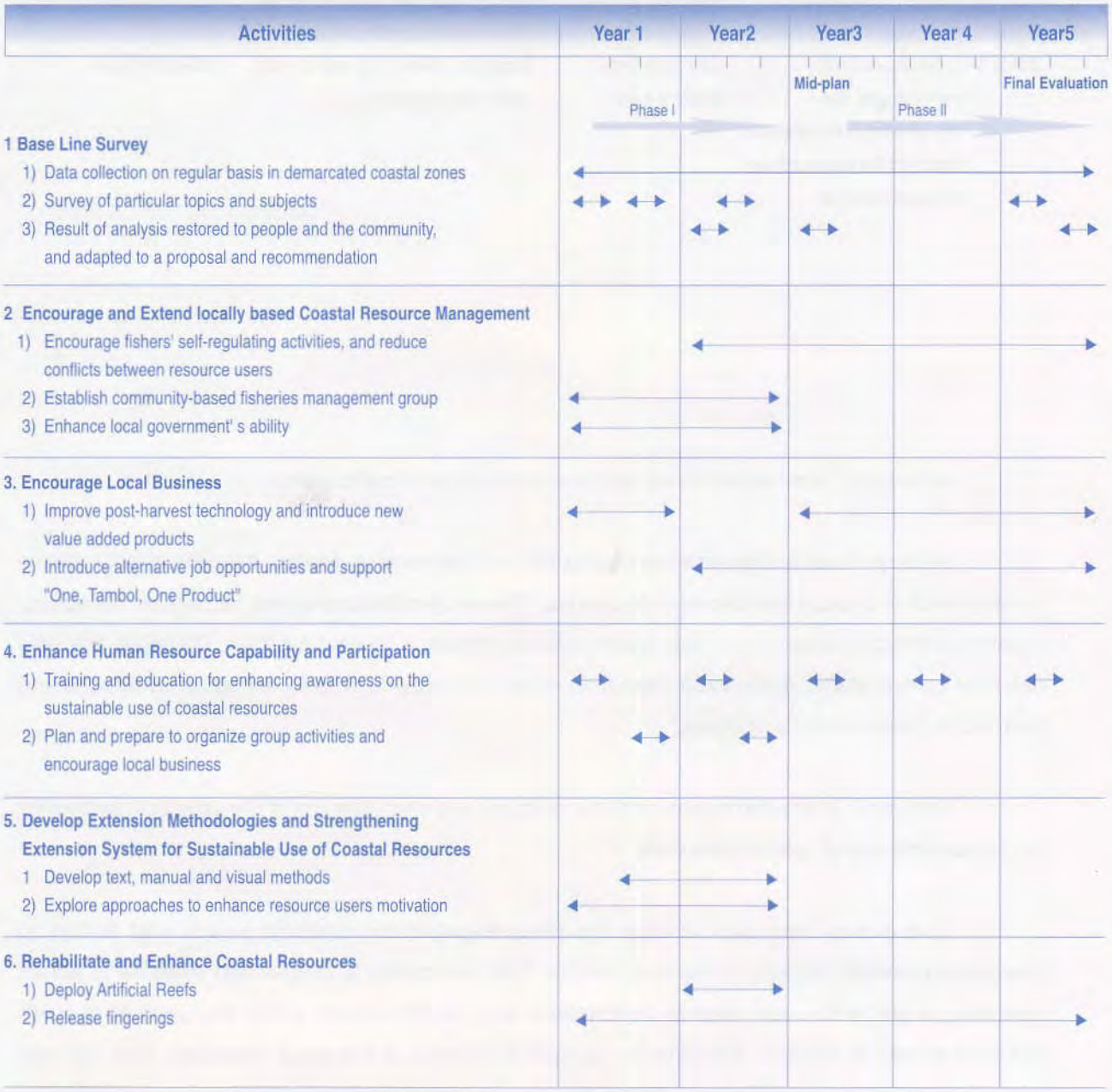
Activity V: To develop extension methodologies and strengthening of the extension system for the sustainable use of coastal resources

This activity uses data of local residents' engagement, people's groups and activity to categorize common interests of the local people. This is to define strategies and methods to attract local people and encourage them to participate in the LBCRM project. Using the types of people's groups it is easy to focus on the common interests and needs of the group members, such that this information helps the project team to design and choose tools and/or visual media for presentation.

6. Summary of the Pre-survey

Each part of the pre-survey results gives a focusing guideline to design and implement plans to approach each activity. However, conducting data collection through regular base line surveys on criteria of socio-economic and oceanographic and environmental criteria confirms the pre-survey results. This is to increase the creditability of the database, and also to confirm that the facts of the database relate to the logistic status of the communities.

Figure 11 Main Activities: Five Year Plan



7. Limitations of Conducting the Pre-survey and Analysis

- Absence of fishers when interviewers go to the fishers' households
- Interviewers get little information from the fishers who sit in groups in the neighborhood
- Interviewers have a lack of experience in field surveys
- Interviewers do not clearly understand the questionnaire
- Variation of income is difficult to define in how much fishers gain, so this leads to difficulties in income assessment
- Variation of catch confuses the assessment of the volume of catch utilization and the household's income

8. Adjustment of the Questionnaire for Regular Surveys

- The numbers of children and the children's educational level should be identified
- Channels of catch distribution should be classified by species
- Income should be categorized by species, volume and size, taken recently
- Numbers of fishing gear employed in local areas, should set up standards of length and set of fishing gear unit for calculating numbers of fishing gear, and to make a common understanding among interviewers to correctly count the numbers of fishing gear
- Operating costs should be categorized into oil, ice and others for each trip
- The group's problems and its members' needs should be identified to find solutions for presentation in the right way and the right place.

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Annex I Pre-survey Questionnaire

Locally Based Coastal Resource Management (LBCRM) Project in Pathew District, Chumporn Province

Name of respondent .....

Address: Moo.....Name of village.....Pakklong sub-district, Pathew district, Chumporn province,

Date of interview .....

Name of interviewer .....

Part 1 General Information

1. Place of birth .....

2. Age .....

3. Marital status .....

4. Number of Children .....

5. Education .....

6. Occupation .....

7. Source of Daily income.....

8. Are you a member of people's group? .....

if yes, what group you are member (specify name of group) .....

9.Do you know of thev "one-tambol, one product" project? .....

10. Do you know of the Royal project entitled Locally based coastal resource management project in Pathew district, Chumporn province?.....

11. Problems and needs

1. Fisheries..... 2. Income.....

3. Occupation..... 4. Sanitary.....

5. Education..... 6. Infrastructure.....

7. Politics..... 8. Others.....

Part 2 Fisheries sectors

1. Type of fishing boat/ length .....
2. Type of fishing gear

Fishing gear	Fishing season	No. of fishing days	No. of net hauls in a trip

3. Source of catch distribution

Source of Catch distribution	Aquatic species			
	Squid	Fish	Shrimp/prawn	Crab

4. Fishing ground.....

5. Source of credit

1. Government agencies..... 2. BAAC.....

3. Commercial bank..... 4. Fishers' group.....

5. Other groups..... 6. Middlemen.....

7. Relatives/friends..... 8. Others.....

6. Expenditure/ fishing operation costs (in a trip).....

7. Income of fish sale (by species, minimum or maximum).....

8. Training attendance.....

Part 3 People' s group in community

1. Number of people' s group in the community.....

2. Number of member in a group .....

3. Role/ activity of the group.....

4. Status of the group.....

5. Problems and needs.....

Annex V Abbreviations of Fishing Gear

Type of Fishing Gear	Abbreviation
Large cast net	SCN
Indo-Pacific mackerel encircling gill net	IGN
Mullet gill net	MeGN
Grouper trap	GT
Push net	PN
Anchovy falling net	AsBN
Hand and line	HL
Krill push net	KPN
Squid jig	SJ
Collapsible crab trap	CC
Anchovy purse seine	APN
Sand whiting gill net	SWG
Shrimp trammel net	STN
Crab gill net	CGN
Squid trap	ST
Pomfret gill net	PG
Sardine gill net	SG
Four finger treadfin gill net	FTG
Sea cucumber diving	SCD
Shrimp mud ski	SMS

Author and Co-author' s Official Position

Phattareeya Suanrattanachai	Socio-economic Section Head, Research Division, Training Department, Southeast Asian Fisheries Development Center
Jinda Phetchkamnerd	Fishery Biologist, Marine Division, Chumporn Marine Fisheries Development Center, Department of Fisheries, Thailand
Kongpathai Saraphaivanich	Socio-economic Researcher, Research Division, Training Department, Southeast Asian Fisheries Development Center
Jirapa Kamhongsa	Fishery Biologist, Marine Division, Chumporn Marine Fisheries Development Center, Department of Fisheries, Thailand
Baramee Khunnirong	Fishery Biologist, Marine Division, Chumporn Marine Fisheries Development Center, Department of Fisheries, Thailand