



ATTITUDES OF SMALL-SCALE FISHERY TOWARD THE FISHING RIGHTS SYSTEM

A CASE STUDY ON FISHERY HOUSEHOLDS IN CHANTABURI PROVINCE



SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER

**ATTITUDES OF SMALL-SCALE FISHERY
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CHANTABURI PROVINCE**

by

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CONTENTS

	Page
CHAPTER 1 INTRODUCTION.....	2
1.1 Background	2
1.2 Objectives of the Study	5
1.3 Scope of the Study	6
1.4 Research Methodology	6
1.4.1 Variables of the Study	6
1.4.2 Data Collection	9
1.4.3 Sampling Methods	10
1.4.4 Date of Data Collection	11
1.4.5 Data Analysis	12
1.5 Definitions of Some Key Terms	16
1.6 Concepts of the Study	17
CHAPTER 2 SOCIO-ECONOMIC CONDITIONS OF FISHERY HOUSEHOLDS..	18
2.1 General Information of Chantaburi Province and Fishing Villages	18
2.2 Socio-economic Conditions of Fishery Households	18
2.2.1 Social Conditions	19
2.2.2 Economic Conditions	31
2.3 Reception of Fishery Information	34
CHAPTER 3 ATTITUDES OF SMALL-SCALE FISHERMEN TOWARD THE FISHING RIGHTS SYSTEM.....	39
3.1 Attitudes of Small-Scale Fishermen Toward the Fishing Rights System	39
3.1.1 Cognition of small-scale fishermen toward the fishing rights system	39

3.1.2	Affective component of the small-scale fishermen toward the fishing rights system	47
3.1.3	Behavior of small-scale fishermen toward the fishing rights system	47
3.1.4	Attitudes of small-scale fishermen toward the fishing rights system	49
3.2	Comparative Analyses of the Attitudes of Small-scale Fishermen toward the Fishing Rights System between Sub-districts	50
3.2.1	Analysis of the differences in cognitive component of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	50
3.2.2	Analysis of the differences in behavior of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	52
3.2.3	Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	52
3.2.4	Analysis of the differences in behavior of small-scale fishermen toward the fishing rights system between Bangrakao and Bangkrachai Sub-districts	52
3.2.5	Analysis of the differences in the cognitive component of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	53
3.2.6	Analysis of the differences in the behavior of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	54
3.2.7	Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	54
3.3	Comparative Analyses of the Attitudes of Small-scale Fishermen toward the Fishing Rights System by Variables	54
3.3.1	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by economic conditions	54
3.3.2	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by social conditions	55

3.4	Relationship of Economic Conditions with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components	72
3.4.1	Relationship of the income from fishing in the fishing season (The off monsoon season) with cognition of small-scale fishermen toward the fishing rights system	72
3.4.2	Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system on benefits received	73
3.4.3	Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system on management methods	74
3.4.4	Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system	74
3.4.5	Relationship of fishery's debt of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on the structure and organization of fishermen's group	75
3.5	Relationship of Social Conditions with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components	76
3.5.1	Relationship of sex of interviewed fishermen with behavioral component of small-scale fishermen toward the fishing rights system	76
3.5.2	Relationship of sex of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system	77
3.5.3	Relationship of the status of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system	77
3.5.4	Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	78
3.5.5	Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on management methods	78
3.5.6	Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system	79

3.5.7	Relationship of type of fisheries of small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system	80
3.5.8	Relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	80
3.5.9	Relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system	81
3.5.10	Relationship of type of fishing gear group used by small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system	81
3.5.11	Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	82
3.5.12	Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on management methods	83
3.5.13	Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system	83
3.5.14	Relationship of zone of fishing grounds used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	84
3.5.15	Relationship of experience in fishery of small-scale fishermen with the attitudes of small-scale fishermen toward the fishing rights system.....	85
3.5.16	Relationship of experience in capture fishery of small-scale fishermen with the attitudes of small-scale fishermen toward the fishing rights system	85
3.6	Relationship of the Reception of Information with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components	86
CHAPTER 4 CONCLUSION AND RECOMMENDATION.....		88
4.1	Conclusions	88
4.2	Recommendation.....	94

REFERENCES.....96

APPENDIX A.....97

APPENDIX B.....99

LIST OF TABLES

		Page
Table 1.1	Number of fishery households in Laemsingha District	10
Table 1.2	Number of small-scale fishery households in Laemsingha District	11
Table 2.1	Number of fishery households and interviewed fishery households in Laemsingha by Sub-district	18
Table 2.2	Number of interviewed fishermen by sex	19
Table 2.3	Number of fishermen in Laemsingha District by age group	19
Table 2.4	Number of fishermen in Laemsingha District by status	20
Table 2.5	Number of fishermen by education level	20
Table 2.6	Marital status of the interviewed fishermen	21
Table 2.7	Social status of the interviewed fishermen	21
Table 2.8	Structure of fishery in Laemsingha District	23
Table 2.9	Number of coastal aquaculture households by type of culture	24
Table 2.10	Number of fishery households by type of fishing boat used	25
Table 2.11	Number of fishermen by group and fishing gear used	26
Table 2.12	Number of fishermen and fishing gear mainly in use	27
Table 2.13	Number of fishery households by fishing grounds	27
Table 2.14	Percentage of fishermen operating in fishing zone 1 (Rivers/Canals)	28
Table 2.15	Percentage of fishermen who operate in fishing zone 2 (Coastal areas: 3 km. from shore and in the Rivers/Canals)	28
Table 2.16	Percentage of fishermen who operate in zone 3 (more than 3 km. from shore)	29
Table 2.17	Percentage of fishermen who operate in zone 4 (less than 3 km. from shore, in the Rivers/Canals and more than 3 km. from shore)	29
Table 2.18	Number of fishery households by experience in capture fishery	30
Table 2.19	Number of fishery households by experience in coastal aquaculture	30

Table 2.20	Monthly income of small-scale fishermen in ranges	31
Table 2.21	Range grouping of gross income of fishery households by type of fishing gear	32
Table 2.22	Income of small-scale fishermen during the monsoon season	32
Table 2.23	Dependency on fishery of fishery households	33
Table 2.24	Number of fishery households by level of income and expenditure	33
Table 2.25	Debt status of fishery households	33
Table 2.26	Number of fishery households by source of loan	34
Table 2.27	Reception of information about the fishing rights system of fishery households	35
Table 2.28	Sources of information about the fishing rights system of fishery households	35
Table 2.29	Levels of reception of information about the fishing rights system of fishery households	35
Table 2.30	Sources and levels of reception of fishery information of fishery households	38
Table 3.1	Percentage of cognition of small-scale fishermen toward the fishing rights system	44
Table 3.2	The cognition of small-scale fishery households toward the fishing rights system	46
Table 3.3	Affective component of small-scale fishermen toward the fishing rights system	47
Table 3.4	Behavior of small-scale fishermen toward the fishing rights system - Type of formation and level	48
Table 3.5	Classification of the attitudes of small-scale fishery households toward the fishing rights system	50
Table 3.6	Cognitive component of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	50

Table 3.7	Cognitive component of small-scale fishermen toward the fishing rights system on management methods between Paknam Laemsingha and Bangkrachai Sub-districts	51
Table 3.8	Cognition of small-scale fishermen toward the fishing rights system on structure and organization of the fishermen's group between Paknam Laemsingha and Bangkrachai Sub-districts	51
Table 3.9	Behavior of the small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	52
Table 3.10	Attitudes of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts	52
Table 3.11	Behavior of small-scale fishermen toward the fishing rights system between Bangsrakao and Bangkrachai Sub-districts	53
Table 3.12	Cognition of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	53
Table 3.13	Cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between Bangkrachai and Ko Prued Sub-districts	53
Table 3.14	Behavior of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	54
Table 3.15	Attitudes of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts	54
Table 3.16	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between male and female fishermen	56
Table 3.17	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group by sex of fishermen	56
Table 3.18	Comparative analysis of the behavior of small-scale fishermen toward the fishing rights system by sex of fishermen	57
Table 3.19	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between male and female fishermen	57
Table 3.20	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system by the status of the fishermen	58
Table 3.21	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods against the status of fishermen	58

Table 3.22	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between the head of the fishery household and household members	59
Table 3.23	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture	59
Table 3.24	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between capture fishery and coastal aquaculture	60
Table 3.25	Comparative analysis of the cognition of small-scale fishermen toward the rights system on management methods between capture fishery and coastal aquaculture	60
Table 3.26	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture	61
Table 3.27	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households	61
Table 3.28	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between capture fishery cum coastal aquaculture and coastal aquaculture households	62
Table 3.29	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between capture fishery cum coastal aquaculture and coastal aquaculture households	62
Table 3.30	Comparative analysis of the affective component of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households	63
Table 3.31	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households	63
Table 3.32	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear.....	64

Table 3.33	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between non-capture fishery households and households using one group of fishing gear	64
Table 3.34	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using one group of fishing gear	65
Table 3.35	Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear	65
Table 3.36	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using more than one group of fishing gear	66
Table 3.37	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using more than one group of fishing gear	66
Table 3.38	Comparative analysis on the cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals	67
Table 3.39	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals	68
Table 3.40	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals	68
Table 3.41	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals	69

Table 3.42	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermens' group between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals	70
Table 3.43	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between ranges of income per month of fishery households	70
Table 3.44	Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermens' group between ranges of income per month of fishery households	71
Table 3.45	Comparative analysis of affective component of small-scale fishermen toward the fishing rights system between ranges of income per month of fishery households	71
Table 3.46	Relationship of the income from fishing in the fishing season with the cognition of small-scale fishermen toward the fishing rights system.....	73
Table 3.47	Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system on benefits received.....	73
Table 3.48	Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system on management methods	74
Table 3.49	Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system.....	75
Table 3.50	Relationship of indebtedness of small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermens' groups	75
Table 3.51	Relationship of sex of interviewed fishermen with the behavioral component of small-scale fishermen toward the fishing rights system	77
Table 3.52	Relationship of sex of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system	77
Table 3.53	Relationship of the status of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system	78

Table 3.54	Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	78
Table 3.55	Relationship of type of fisheries of small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on management methods	79
Table 3.56	Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system	79
Table 3.57	Relationship of type of fisheries of small-scale fishermen with behavioral component of small-scale fishermen toward the fishing rights system	80
Table 3.58	Relationship of type of fishing gear group used by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on benefits received	81
Table 3.59	Relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system	81
Table 3.60	Relationship of type of fishing gear group used by small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system	82
Table 3.61	Relationship of type of fishing gear mainly in used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	82
Table 3.62	Relationship of type of fishing gear mainly in use by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on management methods	83
Table 3.63	Relationship of type of fishing gear mainly in use by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system	84
Table 3.64	Relationship of zone of fishing grounds used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received	84
Table 3.65	Relationship of experience in fishery with the attitudes of small-scale fishermen toward the fishing rights system and its components	85

Table 3.66	Relationship of the experience in capture fishery with the attitudes of small-scale fishermen toward the fishing rights system and its components	86
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Table 3.67	Relationship of the reception of information with the attitudes of small-scale fishermen toward the fishing rights system and its components	86
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Abstract

The study on attitudes of small-scale fishery toward the fishing rights system : A case study on fishery households in Chantaburi Province to clarify the socio-economic conditions, to study the attitude of small-scale fisheries toward the fishing rights system and to determine a direction for implementing the fishing rights system in Chantaburi Province. Data was collected from 300 small-scale fishery households in the Laemsigha District of Chantaburi Province through direct interview and using an interview schedule. Data analyses were done by using SPSS/PC¹. The results of the study showed that the majority of interviewed fishermen were male. The majority of them do capture fishing using out-board powered boats. The fishing gear mainly employed were gill nets and encircling gill net. The fishing grounds used were in the Rivers/Canals and/or in coastal areas less than 3,000 meters from the shore. The income of the fishermen was rather low and the majority of them had debts. The reception of fishery information by fishermen, from fishery officers, was very low.

The results of the study on the attitudes of small-scale fishery toward the fishing rights system were different within the target area depending on the social and economic conditions. The analysis composed of the comparative studies of attitudes of small-scale fishermen toward the fishing rights system and the relationship of attitude and independent variables e.g., economic conditions, social conditions and the reception of fishery information. The comparative analysis of attitudes of small-scale fishermen toward the fishing rights system by social and economic conditions, the results showed that attitudes of small-scale fishermen toward the fishing rights system were different by sex and social status at a significance level of ($P < 0.05$). The attitudes of small-scale fishermen toward the fishing rights system were different by type of fisheries e.g. capture fishery and coastal aquaculture, and coastal aquaculture and a mixture of both at a level of high significance ($P < 0.01$) and a significance level of ($P < 0.05$), respectively. The attitudes of small-scale fishermen toward the fishing rights system were also different by type of fishing gear (non-capture fishery households and households using one group of fishing gear) at a level of high significance ($P < 0.01$).

For the study on the analysis of the relationship of independent variables e.g., economic conditions, social conditions and the reception of fishery information with the attitudes of small-scale fishermen toward the fishing rights system and its components by using the Chi-square test (χ^2) (Contingency Coefficient Value) and Pearson's Product Moment Correlation Coefficient (r), the results showed that social conditions such as sex, social status, experience in fishery and experience in capture fishery, and reception of fishery information of small-scale fishery were significantly related to attitudes of small-scale fishery toward the fishing rights system in Chantaburi Province. While economic conditions have no significant relationship with the attitudes of the fishermen toward the fishing rights system.

From the results of the study, it can be concluded that the majority of small-scale fishery in Chantaburi Province had a positive attitude and agreed with the fishing rights system. There are many matters that need to be introduced for the successful implementation of the system such as the improvement of laws and regulations concerned, together with the dissemination of knowledge and fishery information to the fishermen and assistance and support from the Department of Fisheries.

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CHAPTER 1

INTRODUCTION

1.1 Background

Marine fishery in Thailand has been the core of Thai fishery industry for many decades. It contributes a sufficient supply of high quality protein for the country, creates employment, encourages linkage industries, creates gross domestic product and more foreign exchange earnings. The fisheries resources of Thai waters are heavily exploited by a huge number of fishermen who employ several types of fishing gear and fishing boats. This results in a depletion problem of fishery resources in Thai waters. The large-scale commercial fishing fleets have to operate in neighbouring country's waters legally and illegally. In practice, most Thai fishing vessels do their fishing in other waters under fishing agreements and some of them, under joint venture fishery programmes.

However, there are a large number of commercial fishing boats still remaining in Thai waters and compete with each other in exploiting the very limited fisheries resources. The small-scale fishermen who do their fishing in the coastal areas have suffered badly from the strong effects of the commercial fishermen. Many trawlers and push netters operate within 3 km from shore although this area is prohibited to them. Thus, the coastal fisheries resources which are the resources for small-scale fishermen are inadequate for their livelihoods. Therefore, conflicts among several groups of fishermen are increasing daily and if this problem is not solved in a short time the small-scale fisheries will collapse.

The Department of Fisheries (DOF) has realized these problems and has tried in several ways to solve them through many fishery management measures. The major measures that have been practiced by DOF for some decades, are area and seasonal closures, gear restriction, mesh size limit and limited entry. Although these measures have been implemented for more than two decades, the fisheries resources have been unable to recover to a satisfactory level for the several reasons that Kungwan (1995) has described as follows:

- 1) The number of staff and patrol boats for law enforcement is limited compared with the coastal length of 2,614 km and the huge number of fishing boats that operate various types of fishing gear.
- 2) The collaboration by fishermen is limited. As fisheries resources are treated as common property, they do not belong to anyone. Hence, the fishermen are not willing to give collaboration to the DOF for their fishery management programme. They just want to catch as much as possible each day because they believe that if they follow the fishery management programme they will be the losers. The fishery management programme of the DOF is always faced with difficulties in implementation.

- 3) The law enforcement cost is very high. The construction and operation cost of patrol boats is considerable, the DOF provides quite a big budget for them each year but it is still inadequate. Furthermore, it is doubtful whether the benefit from the recovery of fisheries resources can meet the cost of law enforcement.
- 4) The DOF is not the only agency implementing fishery management programmes. There are other Departments, for instance, the Department of Police, the Royal Forestry Department, the Department of Harbours, etc., concerned with the programme. Thus, it is very hard for the DOF to implement any measures efficiently.

However, the DOF has made a determined attempt to solve the fishery resources depletion and the low income of small-scale fishermen problems in order to maintain sustainable development of marine fishery in the country. The DOF is now improving the policy on fishery management from a top-down to a bottom-up policy. In the past, the fishery management programme was solely initiated and implemented by DOF. The fishermen who are the users of these resources never had a chance to participate in the process of the development of a fishery management programme. Therefore, under the new policy, the DOF will establish a new order of marine fishery and the fishermen can participate in fishery management programme establishment. In the new fishery management concept, the fishing rights system and community-based fishery management are applied for the management of small-scale fisheries.

The community-based fishery management system appears to offer great opportunity for small-scale fishermen to alleviate the problems of severe depletion of coastal fisheries resources and the growing conflicts among different groups of fishermen in the country. In this system, the small-scale fishermen who have least in the fishery sector will be granted fishing rights by the DOF in a certain fishing ground. Ideally, the fishing grounds along the coastal area will be granted to the small-scale fishermen, they will have exclusive rights to utilize the fishery resources in their fishing grounds. In parallel, the fishermen have responsibility in conserving and managing the fishery in their territory. Thus, the coastal fisheries resources are not common property resources anymore, they will belong to the small-scale fishermen institution and only the members of the institution have the right to fish. Then, fishing in coastal areas is not open access as it was in the past. Theoretically, the resources that belong to the users will be used wisely by the owners that should results in the recovery of coastal fisheries resources within a short time. Therefore, the sustainable development of small-scale fishery is possible.

However, it should kept in mind that the development of co-management and community-based fishery management is very hard for the DOF to achieve and the results may only come after the next 5 or 10 years from the initial stage. The new concept of fishery management requires data and information, not only biological data, but also economic and social data and information. The data and information of the fishermen who are concerned with the programme are the most important, especially data on the socio-

economic conditions and their attitudes toward the fishing rights and community-based fishery management systems. The success, or failure, of the programme depends on the attitudes and acceptances of fishermen of the new management programme. As the fishing rights system is the main concept of the new fishery management programme, it is very important for the DOF to know the attitudes of small-scale fishermen and their understanding of the fishing rights system. The data obtained can assist the planners of the DOF to make very effective plans and the officers can implement those plans with the assurance of success.

Bogardus (1925) gave a single, fairly narrow definition of an attitude, as exemplified by the work on social distance.

Gordon W. Allport (1935) an eminent social psychologist, provided an early and comprehensive definition of attitude as “ An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related.

The concept of attitude is probably the most distinctive and indispensable concept in contemporary American social psychology. No other term appears more frequently in experimental and theoretical literature. Its popularity is not difficult to explain. It has come into favor, first of all, because it is not the property of any one psychological school of thought, and therefore serves admirably the purposes of eclectic writers. The term likewise is elastic enough to apply either to the dispositions of single, isolated individuals or to broad patterns of culture. Psychologists and sociologists therefore find in it a meeting point for discussion and research. This useful, one might almost say peaceful, concept has been so widely adopted that it has virtually established itself as the keystone in the edifice of American social psychology.

Katz (1960) defines attitude as the predisposition of the individual to evaluate some object or aspect of his world in a favorable or unfavorable manner. Attitudes include both the affective component, or feeling core of liking or disliking and the Cognition, or belief, elements which describe the object of the attitude, its characteristics and its relations to other objects.

Triandis (1971) defined attitude as “An attitude is an idea charged with emotion which predisposes a class of actions to a particular class of social situation. This definition suggests that attitudes have three components: a) Cognitive component, b) Affective component, and c) Behavioral component.

The Components of the Attitudes

Consider any psychological attitude. What exactly is involved when a person experiences that attitude toward its object? Generally, there are three attitudinal components; by way of a handy mnemonic (memory aid), these have been termed the A-B-Cs of the attitudes. For convenience, we can examine the components of an attitude toward some visible and important individual in a person’s life. Just about everyone has had, a

supervisor of some sort, whether that supervisor was in the role of boss, teacher, or guardian. As our hypothetical person reflects on such a supervisor, what is going through her or his head?

A : The Affective Component

One of the things we experience when we think of a figure like a boss is an affective component, or emotional, reaction. Typically, we feel a certain way when we consider the figure. If that figure were to walk into the room, what would one's gut reaction be? Would there be a sense that he or she was likable, or would the figure engender a feeling of dislike? Is the person's accent pleasant? What sort of emotive reaction is there to the color of his or her skin or style of clothes? As the reader can imagine, there is a wide variety or range of possible feelings of this sort. Our language is replete with labels for such affective component reactions. In short, the affective component is essentially the evaluative element in an attitude, on the basis of which the attitude holder judges the object to be good or bad.

B: The Behavioral Component

Another thing likely to enter into one's awareness as the boss comes to mind is a consideration of past, present, or future behavior regarding him or her. Has one criticized or praised the boss lately? If possible, would one switch jobs or supervisors to get away from this boss? Thus, the B component (behavior) represents an intentional or action element in attitudes.

C: The Cognitive Component

The term cognition covers a variety of things, but here it means any bit of information, fact, or knowledge relevant to the attitudinal object. That is, cognition tells us about the functions, implications, or consequences of the object of the attitude. Convictions about these debatable possibilities represent cognition insofar as one believes his or her opinions to be correct. In sum, cognition is basically beliefs about the attitudinal objects.

With the necessities that are mentioned above, a research project on the attitude of small-scale fishermen toward the fishing rights system has been conducted by researchers of the Training Department, Southeast Asian Fisheries Development Center and Department of Fishery Management, Faculty of Fisheries, Kasetsart University with the close collaboration of the officials of the DOF both in the headquarters and the study area.

1.2 Objectives of the Study

The objectives of the study are as follows:

- 1) To study the attitudes of small-scale fishermen toward the fishing rights system;

- 2) To clarify the socio-economic conditions of small-scale fishery households in Chantaburi Province;
- 3) To determine directions for implementing the fishing rights system in Chantaburi Province.

1.3 Scope of the Study

1) Area Covered

The study area was limited to Laemsingha District, Chantaburi Province where the highest number of small-scale fishery households in the Province are located.

2) Targeted Population

The targeted population for the study are small-scale fishermen that are defined as the fishermen who utilize the coastal area as their fishing ground for capture/coastal aquaculture by using fishing boats of less than 10 Gross tons or where the length of boat is less than 14 meters (according to the licenses for fishing boats of Thailand's Department of Fisheries).

1.4 Research Methodology

1.4.1 Variables of the Study

Operation definition

A case study of fishery households on the attitudes of small-scale fishery toward the fishing rights system in Chantaburi Province, the variables in this study were classified as follows:

1) Dependent Variables

In the study on the Attitude of small-scale fishermen toward the fishing rights system in Chantaburi Province, the study gave emphasis to the level of attitude of small-scale fishermen toward the fishing rights system by classifying attitude into 3 components as follows:-

- (a) Affective component of small-scale fishermen toward the fishing rights system;
- (b) Cognitive component of small-scale fishermen toward the fishing rights systems; and

- (c) Behavioral component of small-scale fishermen toward the fishing rights system.

2) Independent Variables

Small-scale fishery households in the study area are classified as follows:

(a) Economic Conditions

(1) Income from fishery is the average income of fishery households from capture fisheries and coastal aquaculture is explained in range. In the case of capture fisheries, the income was further classified as from fishing during the fishing season (the off monsoon season) and during the monsoon season. For coastal aquaculture, monthly income in general is defined. Also, this income will be shown where income from fishing is the whole income source or a major source of income, or a minor source of income of fishery households.

(2) Expenditure is the expenditure of fishery households when compared with income whether the fishermen have income more than, or equal to, or less than expenditure.

(3) Fishery's debt are the loans that fishermen had and sources of the loans.

(b) Social Conditions

(1) Sex is the sex of the interviewed small-scale fishermen of the target fishery households that were male or female.

(2) Age is the average age, minimum and maximum age of the interviewed small-scale fishermen of the targeted fishery households in range of the group.

(3) Status is the status of the interviewed small-scale fishermen of the target fishery households that were head of the households or members of the households as housewife, sons/daughters, relatives or other dependents.

(4) Education is the education attainment of the interviewed small-scale fishermen of the target fishery households these are classified as never attending school, attending primary school (4 years or 6 years), attending secondary school, attending high school or as undergraduates.

(5) Marital Status is marital status of the interviewed small-scale fishermen of the target fishery households that were single, married (living together), married (separated), divorced, widower, or widow.

(6) Social Status is social status of the interviewed small-scale fishermen of the target fishery households these were sub-district/village head, sub-district/village committee member, village volunteer or ordinary people.

(7) Fishing Occupation is the occupation of the interviewed small-scale fishermen of the target fishery households that were engaged as fishermen, who operate capture fisheries or coastal aquaculture or both. The details include type of fishing boat employed and type of aquaculture and species cultured.

(8) Type of Fishing Gear employed is the type of fishing gear employed by interviewed small-scale fishermen of the target fishery households these are coastal aquaculture (non-capture), using one group of fishing gear, using more than one group of fishing gear. The details of fishing gear groups are divided into eight categories e.g. a) Gill nets and encircling gill net groups such as King mackerel drift gill net, Crab gill net, Shrimp gill net, Mackerel encircling gill net and Other gill nets; b) Stationary gear groups such as Set nets, Set bag nets, Set bag nets with wing, Scoop net, traps, etc.; c) Push net and Other moving gear groups such as Push net, Acetes scoop net, etc.; d) Small trawl groups such as Shrimp trawl and Beam trawl; e) Hook groups such as Hook and Long line; f) Collecting groups such as Shellfish collection, Jellyfish collection, Seaweed collection, Turtle egg collection, etc. f) Small purse seine groups such as Thai purse seine, Anchovy purse seine, Light luring purse seine, etc. ; and g) Coastal aquaculture such as Fish cage culture and Fish pen culture. In practice, the fishermen may use one group of fishing gear or more than one group of fishing gear.

(9) Fishing grounds are the fishing grounds that the interviewed small-scale fishermen of the target fishery households are mainly using. These comprise the Rivers/Canals, coastal areas within 3,000 meters (3 km.) from shore and coastal areas beyond 3,000 meters (3 km.) from shore.

(10) Experience in fishery is experience of interviewed small-scale fishermen of the target fishery households that were experienced in capture fisheries and/or coastal aquaculture in years.

(c) Reception of Fishery Information

Reception of fishery information is the reception of general fishery information and reception of fishery information about the fishing rights system by the interviewed small-scale fishermen of the target fishery households. In the case of reception of fishery information about the fishing rights system, the data is either received or not received, source of that information and level of reception of information. For reception of fishery information, the data will include source of reception of information and frequency of reception of that information.

1.4.2 Data Collection

Two types of data were used in this study as follows:

1) Primary data

- (a) The data and information that were collected by interviewing the leader of the fishing village such as the Head of the fishing village and the government officers concerned with the village. The data and information collected were an overview of the village, fishery activities, general problems of the village and problems related to fishery.
- (b) The data and information that were collected by interviewing fishermen in fishery households through a prepared interview schedule. A structure type of interview schedule was used with both closed and open form questions. The prepared interview schedule was tested with some fishery households as a pretest before being used for the targeted group. The interview schedule has both closed end and open end answers. The detailed information could be classified into three main parts, as follows:
 - (1) Socio-economic and Fishery Occupation information of fishery households e.g. Age, Sex, Status, Educational Status, Income and Expenditure, Fishery Credit, Type of Fishing Boat, Type of Fishing Gear, Type of culture and species cultured, etc.;
 - (2) Attitude of small-scale fishermen toward the fishing rights system e.g. Affective component of small-scale fishermen toward the fishing rights system, Cognition of small-scale fishermen toward the fishing rights system and Behavior of small-scale fishermen toward the fishing rights system;

- (3) Reception of fishery information that include the reception of general fishery information and reception of fishery information about the fishing rights system.

2) Secondary data

Secondary data is the data and information that were used by reviewing previous research documents, reports and literature concerned with the study.

1.4.3 Sampling Methods

The sample fishery households were sampled from the fishery households in Laemsingha District by the cluster random sampling method using Sub-districts as clusters. In each cluster, the small-scale fishery households were selected by a simple random sampling method.

In Laemsingha District, there are 761 fishery households which include small-scale, large-scale and coastal aquaculture households (Table 1.1). Only small-scale fishery households were targeted under the study this being around 80.7 per cent of total fisheries households (Table 1.2)

Table 1.1 Number of fishery households in Laemsingha District

Sub-District	Marine capture fisheries households	Coastal aquaculture households	Marine capture cum coastal aquaculture households	Total
Paknam Lamsingha	193	59	31	283
Ko Prued	124	0	3	127
Klong	5	0	1	6
Namkem				
Bangkrachai	112	0	118	230
Bangrakao	33	0	40	73
Nongchim	34	0	8	42
Total	501	59	201	761

Source : 1995 Marine Fishery Census

Table 1.2 Number of small-scale fishery households in Laemsingha District

Sub-District	Marine* capture fisheries households	Coastal** aquaculture households	Marine capture cum coastal aquaculture households	Total
Paknam Lamsingha	177	59	31	267
Ko Prued	89	0	0	89
Klong	5	0	0	5
Namkem				
Bangkrachai	102	0	68	170
Bangsrakao	33	0	12	45
Nongchim	34	0	4	38
Total	440	59	115	614

Source : 1995 Marine Fishery Census

* Small-scale fishery households with out-board powered boats and In-board powered boats of less than 10 gross tons.

** Coastal aquaculture households engaged in Fish, Shellfish, Crab and Other culture with the exception of Shrimp culture.

In total, 300 fishery households were selected as the representatives of the fishery households in the study area as the sample fishery households.

The interview schedule can be divided into 2 part as follows:

Part I: Socio-economic conditions and fisheries occupation of small-scale fishery households e.g. Age, Sex, Status, Educational status, Income and expenditure, Fishery credit, Type of fishing boat, Type of fishing gear, Type of culture and species cultured, Fishing ground and Reception of fishery information.

Part II: Attitude of small-scale fishermen toward the fishing rights system e.g. Affective component, Cognition, and Behavior of fishermen toward the fishing rights system.

1.4.4 Date of Data Collection

The field data collection were collected from 7 to 13 May, 1995.

1.4.5 Data Analysis

The collected data was edited, coded into the Coding Sheets and input into a diskette then analyzed by SPSS/PC+ (Statistical Package for the Social Sciences) by using statistics as follows:-

1) Descriptive Statistics

The collected data on socio-economic conditions of small-scale fishery households, fishery activities and criteria for classifying the level of attitude of fishermen toward the fishing rights system in the target fishing villages is analyzed using statistics as frequency, percentage, mean and standard deviation. The results are presented using tables.

2) Inferential Statistics

The inferential statistics will be used for the analysis as follows:

- (a) Comparative analysis of Attitude of small-scale fishermen toward the fishing rights system between groups of independent variables by using the t-test.
- (b) Analysis of significant relationships of the Attitude of small-scale fishermen toward the fishing rights system between groups of independent variables by using the Chi-square test (χ^2 - Contingency Coefficient Value) and on the significance of the relationships by using the Correlation Coefficient (r).

1.4.5.1 Criteria for measuring levels of attitude

In measuring the levels of attitude in this study, three components of attitude were used, as follows:

- 1) Cognitive component : The cognition of small-scale fishermen toward the fishing rights system is measured from 20 questions on the cognitive component in the interview schedule. Question numbers 5, 12, 16, 17 and 20 are negative questions and question numbers 1-4, 6-11, 13-15 and 18-19 are positive questions (Table 3.1). In each question, the interviewed fishermen can answer by selecting four choices. For positive questions, the answers are, strongly agree, agree, disagree and strongly disagree. The score is assigned as 4, 3, 2 and 1 respectively. For negative questions in the contrary, the score is 1, 2, 3 and 4 respectively. For non-answered/no comment/no decision questions, the score assigned is 0.

The criteria for classifying the level of cognition can be further divided into 3 levels by using the level of score results. The level of score will be in range of 0 to 80.

Low level means the cognition of small-scale fishermen toward the fishing rights system in each question from 20 questions are, disagree, strongly disagree and undecided. The level of cognition have scores ranging from 0 to 40.

Medium level means that the cognition of small-scale fishermen toward the fishing rights system in each question from 20 questions are, agree, strongly agree and undecided. The level of cognition have scores ranging from 41 to 60.

High level means the cognition of small-scale fishermen toward the fishing rights system in each question from 20 questions are, strongly agree and agree. The level of cognition have scores ranging from 61 to 80.

- 2) **Affective component** : The affective component of small-scale fishermen toward the fishing rights system is measured from 7 questions on the affective component in the interview schedule. In each question, the interviewed fishermen can answer by selecting two choices as, want and do not want. The score is assigned as 1 and 0 respectively.

The criteria for classifying the level of affective component can be divided into 3 levels by using the level of score results.

Do not want means the small-scale fishermen do not want to have the fishing rights system implemented in their village. The score used is 0.

Low level means the small-scale fishermen want to have the fishing rights system in their village at a low level. The score used is between 1-3.

High level means the small-scale fishermen want to have the fishing rights system implemented in their village at a high level, or they want to have all items of the fishing rights. The score used is between 4-7.

- 3) **Behavioral component** : The behavior of small-scale fishermen toward the fishing rights system is measured from 6 questions. The first question asks the fishermen about their trend in participation in the implementation activities. The remaining questions are about the frequency of participation in activities. There are 4 choices of answer as, participation every time, very frequently, irregularly and not participating. The scores assigned are, 3, 2, 1 and 0 respectively.

The trend in participation in activities of fishermen was classified by the criteria into 3 levels. Because of the narrow range of the score is 18, the level of trend was classified by range as follows:

Do not participate means the small-scale fishermen have a trend not to participate in activities under the fishing rights system in their village. The score is 0.

Low level means the small-scale fishermen have a trend to participate in activities under the fishing rights system in their village at a low level or participate in activities irregularly. The score is between 1-9.

High level means the small-scale fishermen have a trend to participate in activities under the fishing rights system in their village at a high level or almost/all times participating. The score is between 10 to 18.

1.4.5.2 Classification of Attitude of small-scale fishermen toward the fishing rights system

The attitude of small-scale fishermen toward the fishing rights system is measured by summing the marks of all questions from components of attitude. The criteria for classifying the level of attitude can be further divided into 3 levels by using the level of score results. The level of score will be in range of 0 to 105 (summation of score results of cognition, ranging from 0-80; affective component, ranging from 0-7 and behavioral component, ranging from 0-18). The criteria for classification are as follows:

Low level of attitude means the attitude of small-scale fishermen toward the fishing rights system is less than mean - standard deviation ($\bar{X} - S.D.$). The score is less than 43.

Medium level of attitude means the attitude of small-scale fishermen toward the fishing rights system is between mean \pm standard deviation ($\bar{X} \pm S.D.$). The score is between 43 - 72.

High level of attitude means the attitude of small-scale fishermen toward the fishing rights system is higher than mean + standard deviation ($\bar{X} + S.D.$). The score is higher than 73.

1.4.5.3 Criteria for measuring of Independent Variables

Reception of Information

Reception of information of fishermen were measured in two parts as follows.

- 1) Reception of information about the fishing rights system from 5 questions.
- 2) Reception of fishery information from 13 sources of information. The answer can be 5 alternatives by considering, from frequency in reception as almost everyday, almost every week, almost every month, every 2-3 months, twice a year or never receive. The scores assigned are 5, 4, 3, 2 and 1 respectively.

The level of reception of information was classified into 4 levels according to the level of the range of score.

Never receive any information means the small-scale fishermen never receive fishery information. The score assigned is 0.

Low reception of information means the small-scale fishermen receive fishery information at a low level. The frequency of fishery information received is every 2-3 months. The corresponding score is between 1 to 26.

Medium reception of information means the small-scale fishermen receive fishery information at a medium level. The frequency of fishery information received is almost every month. The corresponding score is between 27 to 39.

High reception of information means the small-scale fishermen receive fishery information at a high level. The frequency of fishery information received is almost every week and almost everyday. The corresponding score is between 40 to 65.

1.4.5.4 Testing the Hypothesis

Hypothesis 1 : Economic conditions of fishery households have a relationship with the attitude of small-scale fishermen toward the fishing rights system.

Analysis of significant relationships of Attitude of small-scale fishermen toward the fishing rights system and Economic conditions is tested using the Chi-square test (χ^2 - Contingency Coefficient Value).

Hypothesis 2 : The Social conditions of fishery households have a relationship with the attitude of small-scale fishermen toward the fishing rights system.

Analysis of relationships of Attitude of small-scale fishermen toward the fishing rights system and Social conditions e.g. age, experience, etc. is tested using the Chi-square test (χ^2 - Contingency Coefficient Value) and Pearson's Product Moment Correlation Coefficient (r).

Hypothesis 3 : Reception of information about the fishing rights system has a relationship with the attitude of small-scale fishermen toward the fishing rights system.

The level of attitude of small-scale fishermen toward the fishing rights system between the fishermen who received and do not receive information about the fishing rights system at all levels is computed for the study on relationships of the attitude and reception of information using Pearson's Product Moment Correlation Coefficient (r). A one percent level of Probability has been used for accepting or rejecting the observed ' r ' value.

1.5 Definitions of Some Key Terms

1) Small-scale fishermen

The fishermen who use coastal fishing areas as their fishing grounds for capture/coastal aquaculture by using boats of less than 10 gross tons (or boat length of less than 14 meters) and use fishing gear as follows:-

- (a) The Gill nets and encircling gill net group e.g. Spanish mackerel gill net, Crab gill net, Shrimp gill net, Mackerel encircling gill net and Other gill nets;
- (b) The Stationary gear group e.g. Set nets, Set bag nets, Set bag nets with wing;
- (c) The Small push net and other moving gear group e.g. Push net, Acetes scoop net and others;
- (d) The Small trawl group e.g. Small otter board trawl, Beam trawl and Acetes otter trawl; and,
- (e) The hook group e.g. Hook and Longline.

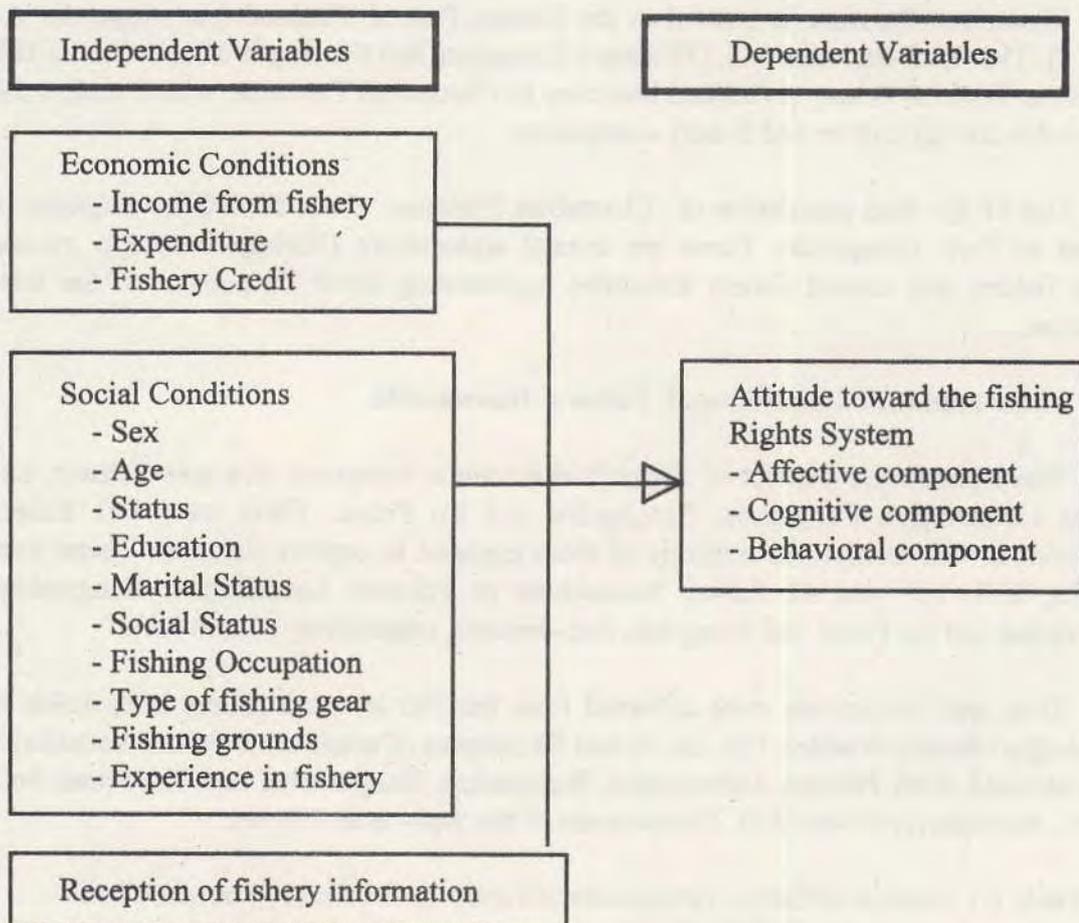
2) Fishing Rights

Fishing rights are a kind of a property right, by which fishermen will have exclusive use rights for a particular sea area and resources, which are specified in each fishing right.

In this system, a Territorial Use Rights in Fishery will be granted to a fishermen's group based on a legal framework (law) established by the government. With the Fishing Rights, fishermen themselves may create their own fisheries management system, which will result in the conservation of fishery resources as well as the improvement of their income and living conditions.

In order to keep sustainable development of marine fisheries. The order of marine fishery has been established and community-based fishery management is applied. Also in this system, the fishermen are divided into two groups i.e., small-scale fishermen and commercial fishermen. The small-scale fishermen who have less will be granted a fishing rights by the DOF in a certain fishing ground. Ideally, the fishing grounds along the coastal area will be granted to the small-scale fishermen, they will have exclusive rights to utilize the fishery resources in their fishing grounds. In addition, the fishermen have responsibility for managing the fishery in their territory.

1.6 Concepts of the Study



CHAPTER 2

SOCIO-ECONOMIC CONDITIONS OF FISHERY HOUSEHOLDS

The study on attitudes of small-scale fishery households toward the fishing rights system: case study of small-scale fishery households in Laemsingha District, Chantaburi Province. The sample fishery households were sampled; in total, 300 fishery households were selected as the representatives of the fishery households in the study area.

2.1 General Information of Chantaburi Province and Fishing Villages

Chantaburi Province is located in the Eastern Part of Thailand (see Appendix A-Figure 1). The total land area is 6,378 square kilometers and the length of coastline is 108 kilometers. There are many rivers and branches in Chantaburi Province, which makes the area suitable for agriculture and fishery occupation.

Out of the total population of Chantaburi Province, about 80,000 are engaged in fisheries as their occupation. These are coastal aquaculture (Shrimp farming), marine capture fishery and related fishery industries representing about 20 percent of the total population.

2.2 Socio-economic Conditions of Fishery Households

The Laemsingha District of Chantaburi Province comprises five sub-districts, i.e., Paknam Laemsingha, Bangsakoa, Bangkrachai and Ko Prued. There were 761 fishery households in this district, the majority of them engaged in capture fisheries. There were 283, 73, 230, 127 and 42 fishery households in Paknam Laemsingha, Bangsarakao, Bangkrachai and Ko Prued and Nongchim Sub-districts, respectively (Table 1.1).

Data and information were collected from the 300 sampled fishery households in Laemsingha District of which 124, 26, 66 and 84 samples of small-scale fishery households were collected from Paknam Laemsingha, Bangsarakao, Bangkrachai and Ko Prued Sub-districts, respectively (Table 2.1). The outcome of the study is as follows:

Table 2.1 Number of fishery households and interviewed fishery households in Laemsingha by Sub-district

Sub-district	Total number of small-scale fishery households	Number of interviewed households	Percentage
Paknam Laemsingha	267	124	46.4
Ko Prued	89	84	94.4
Bangkrachai	170	66	38.8
Bangsarakao	45	26	57.8
Total	571	300	52.5

Notes: A number of interviewed small-scale fishery households in Nongchim Sub-district were excluded from the study in which fishermen in the area changed to shrimp culture.

2.2.1 Social conditions

1) Sex and Age

From the total interviewed samples it was found that 85.7 per cent were male and the remaining 14.3 per cent were female (Table 2.2).

With regard to the age of small-scale fishermen in the study area, it was revealed that the majority of them (76.7%) were in the age range of 26-55 years of which 30.3 per cent of the total were in the range 36-45 years. And 25.7 and 20.7 per cent of the total were in the age range of 26-35 and 46-55 years, respectively (Table 2.3). The oldest fishermen in the study area was 81 years old, whereas, the youngest was 16 years old while the average age of the fishermen is 40 years. This confirmed that the small-scale fishery is the mainstay for people living along the coastal areas. The small-scale fishermen have very low alternative job opportunities owing to their educational level and experience. Thus, they must rely on the fishery sector for their survival.

Table 2.2 Number of interviewed fishermen by sex

Sex	Number of fishermen	Percentage
Male	257	85.7
Female	43	14.3
Total	300	100.0

Table 2.3 Number of fishermen in Laemsingha District by age group

Range of Age (Years)	Number of fishermen	Percentage
16-25	28	9.3
26-35	77	25.7
36-45	91	30.3
46-55	62	20.7
56-65	31	10.3
66-75	10	3.3
76-85	1	0.3
Total	300	100.0

$$\bar{X} = 40$$

$$\text{Max.} = 81$$

$$\text{Min.} = 16$$

2) Status

From the interviewed fishermen in the study, the results showed that three-fourths (75.0 per cent) of fishermen were the heads of fishery households. The remaining 12.7, 11.3 and 1.0 per cent of interviewed fishermen were housewives, children and relatives, respectively (see Table 2.4).

Table 2.4 Number of fishermen in Laemsigha District by status

Status	Number of fishermen	Percentage
Head of households	225	75.0
Housewives	38	12.7
Relatives	3	1.0
Children	34	11.3
Total	300	100.0

3) Education

Thai fishermen are similar to other farmers in the country, in that they have less opportunity for formal education due to the low income of their families. Although, they have good experience in fishing in which they have been trained by their ancestors. But, they lack sufficient knowledge for breaking the vicious circle. Therefore, the government must provide informal education for the small-scale fishermen and formal education for their children.

The study showed that 73.7 per cent of the total finished primary school (4 years) and 20.7 per cent passed second level of primary school (6 years). The remainder never attended school or graduated higher than primary school (Table 2.5).

Table 2.5 Number of fishermen by education level

Education level	Number of fishermen	Percentage
Never attended school	6	2.0
Primary school (4 years)	221	73.7
Primary school (6 years)	62	20.7
Secondary school	4	1.3
High school	6	2.0
Under graduate	1	0.3
Total	300	100.0

4) Marital status and Social status

By culture, the Thai people after getting married hardly ever divorce for two main reasons. Firstly, Thai people found a family base on love and compromise, similar to other continental countries and differ from western people who formulate a family base on benefit and love. And secondly, in the belief of Thai people, it will be shamed by society if a family will be separated.

There may be argument on the low divorce rate of Asian families from western sociologists, who always mention that the low rate of divorce results from unjust treatment to the female. This may be true for a very minor group of Asian families, but it may not be true for the majority. For the outsiders, the Asian male seems to have an advantage over females, but in fact, in most cases, they are equal in all family affairs. In Asian tradition, the male is responsible for working and female is responsible for managing the family assets, they live together on the principle of diversification.

Therefore, it was found that 85.7 per cent of the total fishermen are married and live together. Only 9.7 and 4.7 per cent of them were single and divorced or their spouses passed away, respectively (Table 2.6). These confirm the above thinking.

Table 2.6 Marital status of the interviewed fishermen

Marital status	Number of fishermen	Percentage
Single	29	9.7
Married (live together)	257	85.7
Married (separated)	2	0.7
Widow	7	2.3
Divorce	5	1.7
Total	300	100.0

The study has revealed that only 0.7 per cent of the total fishermen were head of the village, 1.7 per cent were members of a volunteer group and 5.6 per cent were members of a village or sub-district committee. There were 92 per cent of small-scale fishermen who did not participate in any activity groups, they have a willingness only to be followers (Table 2.7).

Table 2.7 Social status of the interviewed fishermen

Social status	Number of fishermen	Percentage
Sub-district / village head	2	0.7
Sub-district / village committee member	17	5.6
Village volunteer	5	1.7
Ordinary people	276	92.0
Total	300	100.0

5) Social activities participation

It is a fundamental characteristic of Thai culture not to be confrontational, thus, Thai people are good followers and they hesitate to participate as leaders of any social activities. Therefore, it is very hard to find a good leader in any fishing community, the fishermen prefer to be independent for their own safety.

The study has confirmed that 83.3 percent of fishermen were not members of any fisheries activities group while 16.7 percent were members of fisheries activities groups. The fishermen of the 23.3 per cent reviewed showed that there are fisheries activities groups in their village while 69.7 per cent of those reviewed showed that there are no fisheries activities groups in their village while 7.0 per cent of them do not know.

Apart from the fishermen who are members of the fisheries activities groups, the majority of fishermen or 75.5 per cent of the total were members of the Marine Small-scale Fisheries Development Project (implemented by DOF) which is the main activities group in the area and the remainder were members of Fishery Cooperatives, the Fishermen's groups or Fishery Association.

There is great difficulty in developing any group formation in fishing communities. The government has tried to encourage the fishermen to form a group by offering technical and financial support, but it is very difficult to achieve success. The main reason is the fishermen in the community are reluctant to be members of a managing committee and particularly to be the chairman or the head of the group.

6) Fishery occupation

6.1 Type of fisheries

Fishery is composed of capture and aquaculture. The small-scale fishermen may engage in capture fisheries or aquaculture or capture cum aquaculture. In general, the fishermen prefer capture to aquaculture because they can earn money on every fishing trip, whereas, they have to wait for a period of time to earn money from aquaculture.

67.0 per cent of the total fishermen in the study area solely engaged in capture fisheries and 21.3 per cent engaged in capture fisheries and aquaculture. Only 11.7 per cent of them engaged in aquaculture alone (Table 2.8). The reasons are as follows:

- (a) The small-scale fishermen have no knowledge and experience in coastal aquaculture, these include both culture techniques and managing culture methods. Their experience in the past have been catching the fisheries resources from the wild.

- (b) The fishermen are reluctant to engage in coastal aquaculture with the reason of the uncertainty and high risk of this activity.
- (c) The fishermen lack investment funds, their earnings from fishing are sufficient only for their daily lives. Their savings are nil. Thus, it is very difficult for them to start pond or cage culture.
- (d) The fishermen have no land property, most of them live in public water or land. Besides, the fishermen have constraints in amount of land area and its capacity for conducting aquaculture together with the problem from the impact of environmental degradation of the coastal area e.g. water quality.
- (e) For cage culture, the fishermen can set cages in the public waters where allowed by law, but suitable water areas for culture are rather limited. However, they still have problems in finding fingerlings of grouper for rearing resulting from environmental degradation. Therefore, only a small number of cages are available to each fishery household and this may not be of an economic scale.

Therefore, the incentives from coastal aquaculture are rather low for fishermen when compared with capture fisheries. In the future, the percentage growth of aquaculture may possible if the DOF provides essential assistance for fishermen in this area to develop coastal aquaculture or fish cage culture, shellfish culture, etc. The depletion of coastal fisheries resources is another key factor to encourage small-scale fishermen to engage in coastal aquaculture. However, the degradation of the coastal environment because of the expanding number of households and the development of industrial zones along the coastal may create some difficulties for this development. Furthermore, the fishermen aim mainly to culture only high priced species that may result in the degradation of the environment of coastal areas, shrimp farming is a good example.

Table 2.8 Structure of fishery in Laemsingha District

Type of fisheries	Number of fishery households	Percentage
Capture fisheries	201	67.0
Coastal aquaculture	35	11.7
Capture cum aquaculture	64	21.3
Total	300	100.0

There were 99 fishery households in the study area engaged in coastal aquaculture (Table 2.8). Grouper and oyster were the cultured species. 12.1 per cent of the households cultured grouper in cages and only 1 per cent cultured in ponds. The hanging method was

applied for oyster culture of 39.4 per cent of households followed by concrete pole methods (22.2%). There were 24.3 per cent of the households engaged in grouper cage culture cum oyster culture (Hanging method) (Table 2.9). Oyster was popular for culturing because the environment is suitable for seed collection and culture.

Table 2.9 Number of coastal aquaculture households by type of culture

Type of culture	Number of fishery households	Percentage
Grouper cage culture	12	12.1
Seabass cage culture	1	1.0
Oyster culture (Hanging method)	39	39.4
Oyster culture (Concrete pole method)	22	22.2
Fish pond culture (Seabass)	1	1.0
Grouper cage culture cum oyster culture (Hanging method)	24	24.3
Total	99	100.0

6.2 Fishing boats

The small-scale fishermen in Thailand operate their fishing without boats, with non-powered boats, out-board powered boats or small in-board powered boats (less than 10 GT). In the early stages of marine fishery development in Thailand, most of the small-scale fishery used non-powered boats and they changed to out-board and in-board powered boats, accordingly. In general, a small-scale fishermen has one fishing boat, made of wood. They repair the boat and engine by themselves and may have assistance from their friends.

There were 68.7 per cent of the small-scale fishermen in Laemsingha District using out-board powered boats, whereas, 19.7 and 5.3 per cent of them used in-board powered boats and non-powered boats, respectively. There were only 3.3 per cent operating fishing without a boat. There were 3 per cent of them who owned more than one boat with a combination of non-powered boat cum out-board powered boats (1.3%), out-board powered boats cum in-board powered boats (1.0%) and without engine and in-board powered boat (0.7%) (Table 2.10). The fishermen who conduct their fishing with non-powered boats and with out boards mainly employed the small and low efficiency fishing gear such as hand line, small crab trap, small beach seine, etc.

Table 2.10 Number of fishery households by type of fishing boat in used

Type of fishing boat	Number of fishery households	Percentage
Without boat	10	3.3
Non-powered boat	16	5.3
Out-board powered boat	206	68.7
In-board powered boat	59	19.7
Non-powered boat cum out-board powered boat	4	1.3
Out-board powered boat cum in-board powered boat	3	1.0
Without engine and in-board powered boat	2	0.7
Total	300	100.0

The out-board powered boat is quite popular among small-scale fishermen because the price is affordable by the households and the engine is quite easy to maintain with a reasonable spare parts price. However, the results also showed that 19.7 per cent of fishermen in the study using in-board powered boats used fishing gear with a higher efficiency and capacity.

7) Type of fishing gear

The small-scale fishermen mainly use fishing gear both small in scale and with a low catch efficiency. The fishing gear mainly employed can be divided into two categories, i.e., stationary gear and mobile gear. In practice, the fishermen may use one type of gear or more than one type of gear. However, fishermen use one gear as a major operation and another gear in minority use. The major gear contributes the main portion of the fishermen's income.

The fishermen, who use only one type of fishing gear, mainly employ the following: gill nets, push net, set bag net, baby trawl, hook and line and small purse seine.

From the results of the study, the group of fishing gear used by small-scale fishermen can be summarized as shown in Table 2.11. The majority group (one third) of fishing gear used is the Gill net and encircling gill net group (34.3 percent), followed by the Stationary gear group (19.3 percent), fishermen using more than 2 groups of fishing gear (17.7 per cent), Push net group (12.3 per cent), Coastal aquaculture (11.7 per cent), Small trawl group (3 per cent) and Small purse seine group (1.7 per cent).

The fishing gear group of Gill nets and encircling gill net are the fishery households that use fishing gear as follows: Crab bottom gill net; Fish gill net; Shrimp gill net; Crab bottom gill net, Fish gill net and Shrimp gill net; Shrimp gill net and Crab bottom gill net; Shrimp gill net and Fish gill net; and Crab bottom gill net and Fish gill net.

Stationary gear groups that were used by fishermen were Fork (Laern) and Fyke net (Pong Pang); Fyke net (Uan Ro); Scoop; Trap; Squid trap; Juvenile grouper trap; Shrimp trap; Crab trap and Juvenile grouper trap; Crab trap , Fish trap; Squid trap and Juvenile grouper trap; Crab trap and Wing set bag net; Barrier net (Fuak) and Juvenile grouper trap; Barrier net (Fuak) and Crab trap.

Small trawl group used by small-scale fishermen were Shrimp trawl; Fish trawl ; Beam trawl; and Fish trawl and Shrimp trawl.

For fishery households that use more than two groups of fishing gear these were the Stationary gear group and Hook and line group; Push net and Crab bottom gill net group; Stationary gear group and Push net; Push net and Shrimp gill net group; Fork (Laern) and Fish trap; Gill nets and Juvenile grouper trap; Fish gill net and Crab bottom gill net; Fyke net (Uan Ro) and Crab bottom gill net; Shrimp gill net and longline; Hook and Squid trap; Shrimp gill net and Squid trap; Fish gill net and squid trap; Squid trap and Push net; Crab trap and Shrimp gill net; Portable lift net (Raew Poo) and Fish gill net; Crab trap and Fish gill net; Longline and Fish gill net; Shrimp gill net, Crab bottom gill net and Portable lift net (Raew Poo); Longline, Fork (Laern) and Crab trap; Scoop, Fork (Laern) and Shrimp gill net; Crab bottom gill net, Shrimp gill net and longline; Crab trap, Juvenile grouper trap and Fish gill net; Juvenile grouper trap, Crab bottom gill net and Shrimp gill net; Shrimp gill net, Fish gill net and Push net; Juvenile grouper trap, Fish gill net, Fork (Laern) and Scoop.

Table 2.11 Number of fishermen by group of fishing gear used

Group of fishing gear	Frequency	Percentage
Coastal aquaculture	35	11.7
Gill nets and encircling gill net group	103	34.3
Stationary gear group	58	19.3
Push net group	37	12.3
Small trawl group	9	3.0
Small purse seine group	5	1.7
Group of fishing gear more than two groups	53	17.7
Total	300	100.0

The study revealed that the fishing gear mainly in use by the fishermen in the study area were gill nets and encircling gill net (40.0 percent). The remaining 22.0, 19.0, 11.7 and 7.3 per cent of fishermen used small trawls, push nets, coastal aquaculture and stationary gear, respectively (Table 2.12).

Table 2.12 Number of fishermen by fishing gear mainly in use

Type of fishing gear	Number of fishery households	Percentage
Coastal aquaculture	35	11.7
Gill nets and encircling gill net	120	40.0
Stationary gear	22	7.3
Push net	57	19.0
Small trawl	66	22.0
Total	300	100.0

8) Fishing ground

Owing to the types of boat and fishing gear employed by the small-scale fishermen, the main fishing grounds are limited to the shallow waters, i.e., in the river, river mouth and coastal areas (see Appendix A-Figure 2).

The fishermen in Laémsingha fished mainly in the Rivers/Canals (47.3%) and 36.3 per cent in coastal areas (less than 3 km. from shore and in Rivers/Canals). About 9.3 per cent of fishermen fish in grounds less than 3km. from shore, in Rivers/Canals and more than 3 km. from shore. The remaining fishermen being 7.0 per cent fishing in the areas more than 3 km. from shore (Table 2.13). Thus, it may concluded that the small-scale fishermen operate in the fishing grounds that are close to their communities.

Table 2.13 Number of fishery households by fishing grounds

Fishing grounds	Number of fishery households	Percentage
Zone 1: Rivers/Canals	142	47.3
Zone 2: Coastal areas (Less than 3 km. from shore and in the Rivers/Canals)	109	36.3
Zone 3: More than 3 km. from shore	21	7.0
Zone 4: Less than 3 km., in rivers/ canals and more than 3 km. from shore	28	9.3
Total	300	100.0

When considering types of fishing gear group that small-scale fishermen use in the fishing operations in each zone of the fishing grounds, the results from the study can be summarized as shown in Tables 2.14.

In Zone 1: Rivers/Canals, about 25.0 per cent of small-scale fishermen in the study area used Fishing gear of more than two groups, followed by 24.6 per cent of fishermen who are fishermen doing coastal aquaculture. While 21.1 and 20.4 per cent of fishermen use such fishing gear as the Gill nets and encircling gill net group, Stationary gear group,

respectively. The remaining 9.2 per cent of fishermen who are fishing in this area use the Push net group and another 0.7 per cent use Small purse seine group.

Table 2.14 Percentage of fishermen operating in fishing Zone 1 (Rivers/Canals)

Fishing gear group	Number of households	Percentage
Coastal aquaculture	35	24.6
Gill nets and encircling gill net group	30	21.1
Stationary gear group	29	20.4
Push net group	13	9.2
Small purse seine group	1	0.7
More than two groups of fishing gear	34	25.0
Total	142	100.0

In Zone 2: Coastal areas: Less than 3 km. from shore and in the Rivers/Canals, about half (45.9 per cent) of small-scale fishermen in the study area are fishermen who used the Gill nets and encircling gill net group, followed by 21.1 per cent being fishermen who use the Push net group, while 13.8 and 12.8 per cent of fishermen use such fishing gear as the Stationary gear group and more than two groups of fishing gear, respectively. The remaining 5.5 and 0.9 per cent of fishermen who fish in this area use the Small trawl and Small purse seine group (Table 2.15).

Table 2.15 Percentage of fishermen who operate in fishing Zone 2 (coastal areas 3 km. From shore and in the Rivers/Canals)

Fishing gear group	Number of households	Percentage
Gill nets and encircling gill net group	50	45.9
Stationary gear group	15	13.8
Push net group	23	21.1
Small trawl group	6	5.5
Small purse seine group	1	0.9
More than two groups of fishing gear	15	12.8
Total	109	100.0

In Zone 3: More than 3 km. from shore, about half (47.6 per cent) of small-scale fishermen in the study area are fishermen who use Gill nets and encircling gill net, followed by 23.8 per cent who are fishermen that use the stationary gear group, while the remaining 14.3, 9.5 and 4.8 per cent of fishermen use such fishing gear as the small trawl group, small purse seine group and fishing gear of more than two groups, respectively (Table 2.16).

Table 2.16 Percentage of fishermen who operate in Zone 3 (more than 3 km. from shore)

Fishing gear group	Number of households	Percentage
Gill nets and encircling gill net group	10	47.6
Stationary gear group	5	23.8
Small trawl group	3	14.3
Small purse seine group	2	9.5
More than two groups of fishing gear	1	4.8
Total	21	100.0

In Zone 4: Less than 3 km. from shore, in the Rivers/Canals and more than 3 km. from shore, about half (46.4 per cent) of small-scale fishermen in the study area are fishermen who use gill nets and encircling gill net, followed by 32.1 per cent who are fishermen that use the stationary gear group while the remaining 14.3, 3.6 and 3.6 per cent of fishermen use such fishing gear as fishing gear of more than two groups, small trawl and small purse seine groups, respectively (Table 2.17).

Table 2.17 Percentage of fishermen who operate in Zone 4 (less than 3 km. from shore, in the Rivers/Canals and more than 3 km. from shore)

Fishing gear group	Number of households	Percentage
Gill nets and encircling gill net group	13	46.4
Stationary gear group	9	32.1
Small trawl group	1	3.6
Small purse seine group	1	3.6
More than two groups of fishing gear	4	14.3
Total	28	100.0

In practice, each fisherman has specific fishing grounds for each type of fishing gear. The fishermen keep their rich fishing grounds secret in order to avoid competition from other fishermen.

From the study, it was found that the small-scale fishery households that use Push nets may be classified into two groups, the first group use small boats with out-board engines and small beam. This group of fishermen operate in the Rivers/Canals for catching small shrimp for the production of dried shrimp. They also catch juveniles of economic species. The second group of the push net group will fish in coastal areas (in the Rivers/Canals and less than 3 km. from shore) using out-board and in-board powered boats with a large beam. They always operate in the same fishing ground, between rocks in the sea.

However, most of the fishing grounds are facing degradation of the environment with the results that the fisheries resources are depleted. The river and coastal areas are contaminated by waste water from factories, households and shrimp farms. If these cannot be solved the fisheries resources will be depleted to the level that fishermen can not survive, and then they have to fish in the farther fishing grounds. The fishing costs of small-scale fishermen will be increased and they may operate more than one day per trip.

9) Experience in fishery

On the study of experience in fishery, the results showed that the majority of fishermen in Laemsingha District had experience in fishery. Only 13 per cent of them did not have experience in capture fisheries but 69 per cent of the fishermen did not have experience in aquaculture, because aquaculture has only just been accepted by fishermen in this area, very few fishermen engaged in aquaculture in the past. Most of the fishermen had 1-10 years experience in capture fisheries and aquaculture. There were very few fishermen who have experience of less than one year. 55 years was the longest experience for capture fisheries, with an average of 16.57 years, whereas, the longest experience for aquaculture was 50 years, with an average of 2.41 years (Tables 2.18 and 2.19).

Table 2.18 Number of fishery households by experience in capture fishery

Range of experience	Number of fishery households	Percentage
Non-fishing experience	39	13.0
1-10 years	90	30.0
11-20 years	73	24.3
21-30 years	49	16.3
31-40 years	31	10.3
41-50 years	17	5.7
51-60 years	1	0.3
Total	300	100.0

Table 2.19 Number of fishery households by experience in coastal aquaculture

Range of experience	Number of fishery households	Percentage
Non-aquaculture experience	207	69.0
1-10 years	72	24.0
11-20 years	19	6.3
21-30 years	1	0.3
31-40 years	1	0.3
Total	300	100.0

These results confirm that the fishermen in this area engage in fishery, particularly, coastal capture fisheries for their livelihood. It may be difficult to convince them to quit fishery because they have no experience for other jobs and another reason is that they have low capability to do other jobs.

2.2.2 Economic Conditions

1) Income from fishery

In terms of gross income, 23.4 per cent of the households earned incomes in the range of 1,201-3,000 Baht per month, followed by 20.7 per cent who earned 3,001-4,800 Baht per month. These results revealed that the income of fishery households was rather low. However, 22.4 per cent earned more than 8,400 Baht per month because they engaged mainly in coastal aquaculture (Table 2.20).

Table 2.20 Monthly income of small-scale fishermen in ranges

Ranges of income (Baht/month)	Number of fishery households	Percentage
< 1,200	24	7.8
1,201-3,000	70	23.4
3,001-4,800	62	20.7
4,801-6,600	56	18.7
6,601-8,400	21	7.0
>8,400	67	22.4
Total	300	100.0

When considering the amount of gross income of fishery households in ranges of less than, or equal to, 3,000 Baht, the results of the study showed that more than one third (68.6 per cent) of the fishery households were households that engage in coastal aquaculture, while 28.6 per cent were households that use gill net and trap, the remaining 19.7 per cent are households that use push net, small trawl and small purse seine (Table 2.21).

When considering the gross income of fishery households in ranges of less than, or equal to 3,000 Baht, the results of the study showed that more than two thirds (68.6 per cent) were fishery households that engage in coastal aquaculture, while 28.6 per cent were households that use such fishing gear as gill net and trap. For the gross income of fishery households in the range of 3,001- 4,800 Baht, the results of the study showed that one fourth (26.1 per cent) were fishery households that use gill net and trap. For the gross income of fishery households in range of 4,801-6,600 Baht, the results showed that nearly one fourth (21.1 per cent) of the fishery households operate gill net and trap. For the gross income of fishery households in range of 6,601-8,400 Baht, the results of the study showed that only 8.5 per cent of the fishery households use gill net and trap, while half the fishermen (50 per cent) had a gross income in the range of more than 8,400 Baht were from households that use such fishing gear as push net, small trawl and small purse seine (Table 2.21).

Table 2.21 Range grouping of gross income of fishery households by type of fishing gear

Ranges of income (Baht/month)	Coastal aquaculture	Gill net and trap	Push net, small trawl and purse seine
= 3,000	68.6	28.6	19.7
3,001-4,800	8.6	26.1	10.6
4,801-6,600	11.4	21.1	15.2
6,601-8,400	2.9	8.5	4.5
>8,400	8.6	15.6	50.0

The monsoon season restricts fishermen to low income because the number of fishing days is limited. It should be noted that more than one-third of fishermen (39%) declared their income from fishing was nil because they could not fish during the monsoon season and/or their targeted species disappeared. The results also showed that during the monsoon season, 29.1 per cent of fishermen have less income than in the fishing season while 16.1 and 15.7 percent of fishermen mentioned that their income was greater than, or no different, respectively (Table 2.22).

Table 2.22 Income of small-scale fishermen during the monsoon season

Type of income in the monsoon season	Number of fishery households	Percentage
No income	117	39.1
No difference of income in fishing and in the monsoon season	48	15.7
Income in monsoon < income in the fishing season	87	29.1
Income in monsoon > income in the fishing season	48	16.1
Total	300	100.0

The sources of income of fishermen in Laemsingha District were mainly from fishery. The majority of small-scale fishermen in the study area (65.2 %) had income solely from fishery. The remaining 22.4 and 12.4 per cent had income from fishery as a major and minor sources of income, respectively. From this it may be concluded that 65.2 per cent of the fishermen were full-time fishermen, 22.4 per cent were part-time major fishermen and 12.4 per cent were part-time minor fishermen (Table 2.23).

Table 2.23 Dependency on fishery of fishery households

Dependency on fishery	Number of fishery households	Percentage
Full-time	196	65.2
Part-time (major)	67	22.4
Part-time (minor)	37	12.4
Total	300	100.0

2) Expenditure

Comparing the income and expenditure of fishermen in the study area, it was found that 40.3 per cent of the fishermen had income less than expenditure and 43.6 per cent had income equal to expenditure. There were only 16.1 per cent of them had enough money to save (Table 2.24).

Table 2.24 Number of fishery households by level of income and expenditure

Comparative of income to expenditure of fishery households	Number of fishery households	Percentage
Income more than expenditure	48	16.1
Income equal to expenditure	130	43.6
Income less expenditure	122	40.3
Total	300	100.0

3) Fishery's debt

The results showed that a major proportion of fishermen in the study area had income equal to or less than expenditure, it was also confirmed by the results that the fishermen have debts. Owing to the limited low income of fishermen, their expenditure was higher than income and they had to obtain loans from various sources. The study found that 60.6 per cent of fishermen had debts and the remaining 39.4 percent did not have debts. The fishermen mainly used their loans for buying new fishing gear, fuel, engines, boat and engine maintenance and for daily expenditure (Table 2.25).

Table 2.25 Debt status of fishery households

Debt status	Number of households	Percentage
In debt	182	60.6
No debt	118	39.4
Total	300	100.0

Regarding the sources of loans, the fishermen find difficulty in obtaining loans from commercial banks because they do not have the collateral that is required by the banks. Therefore, the fishermen have to obtain loans from non-institutional sources, i.e., middlemen, relatives, neighbours and money lenders in the communities. However, the

government offers a loan to the farmers including fishermen through some government agencies, fishermen's institutions and Agriculture and Cooperative Banks that do not require collateral.

The fishermen in Laemsingha District mainly obtained loans from relatives and neighbors (44.7%) at a high rate of interest, whereas 19.9 per cent of them obtained loans from middlemen without interest, but the fishermen must sell their catches to them and the prices were set by the middlemen. The loans from Government/Commercial Banks provided for only 13.3 per cent of the fishermen while 6.6 per cent of fishermen borrow from the Department of Fisheries Project and there were 15.5 per cent of fishermen who obtained loans from more than one source, 64 per cent of this source obtained loans from middlemen (Table 2.26).

Table 2.26 Number of fishery households by source of loan

Source of loan	Number of fishery households	Percentage
DOF. Project	12	6.6
Government /Commercial Banks	24	13.3
Middlemen	36	19.9
Relatives/neighbours	81	44.7
More than one source	29	15.5
Total	182	100.0

2.3 Reception of Fishery Information

For the development of small-scale fisheries as well as the fishing rights system, the planners have to know how, and from whom, fishermen obtain fishery information. This will be a guideline for planners to establish an appropriate fishery information transfer plan.

Results from the study on reception of information about the fishing rights system show that, 85 per cent of the fishermen had no idea on this issue. The remaining 15 per cent had only heard of the fishing rights system through fishery officers and media (T.V.) which are the main source of information for them. This confirmed that fishermen still lack information for understanding the fishing rights system (Table 2.27). The results also showed that 42.2 per cent of fishermen who received information, the sources were from government officers of which 35.6 per cent were received from fisheries officers. Another 35.6 per cent received information from the media. The remaining 11.1 per cent received information from friends who are also fishermen as well as another 11.1 per cent who received information from relatives (Table 2.28). For level of reception of information, the fishermen feel that they have a low level of knowledge of information about the fishing rights system (75.6 per cent of fishermen) and the remaining 15.6 and 8.8 per cent feel that they have knowledge about the fishing rights system at medium and high levels, respectively (Table 2.29).

Table 2.27 Reception of information about the fishing rights system of fishery households

Fishing grounds	Number of fishery households	Percentage
Received	45	15.0
Never received	255	85.0
Total	300	100.0

Table 2.28 Sources of information about the fishing rights system of fishery households

Sources	Number of fishery households	Percentage
Fisheries officers	16	35.6
Government officers	3	6.6
Friends	5	11.1
Media (T.V.)	16	35.6
Relatives	5	11.1
Total	45	100.0

Table 2.29 Levels of reception of information about the fishing rights system of fishery households

Levels of reception	Number of fishery households	Percentage
High	4	8.8
Medium	7	15.6
Low	34	75.6
Total	45	100.0

Regarding reception of fishery information, the study showed significant figures, 76.0 per cent of the fishermen never received any fishery information from fishery officers while 15.3 per cent received fishery information from fishery officers around 1-2 times per year and the remaining 5.0, 3.3 and 0.3 per cent received fishery information from fishery officers almost every month, 2-3 months/time and almost every week, respectively.

For government officers (excluding fishery officers), the results showed that 92.0 per cent of the fishermen never received any fishery information, while the remaining 4.7, 2.0 and 1.3 per cent received fishery information from them around 1-2 times per year, 2-3 months/time and almost every month, respectively.

For village heads, the results showed that 76.0 per cent of the fishermen never received any fishery information, while the remaining 8.7, 6.7, 6.0, 2.0 and 0.7 per cent received fishery information from them around once or twice per year, 2-3 months/time, almost every month, almost every week and almost everyday, respectively.

For village committee members, the results showed that 88.0 per cent of the fishermen never received any fishery information, while the remaining 4.7, 3.3, 2.7, 1.0 and 0.3 per cent received fishery information from them around once or twice per year per year, 2-3 months/time, almost every month, almost every week and almost everyday, respectively.

For teachers in the village, the results showed that 97.3 per cent of the fishermen never received any fishery information from them while the remaining 1.0, 0.3, 0.7 and 0.7 per cent received fishery information from them around once or twice per year, 2-3 months/time, almost every month and almost every week, respectively.

For Non-governmental organizations (NGO), the results showed that 97.7 per cent of the fishermen never received any fishery information from them while the remaining 1.7, 0.3 and 0.3 per cent received fishery information from them around once or twice per year, almost every month and almost every week, respectively.

For neighbours, the results showed that 26.3, 25.3 and 23.3 per cent of the fishermen never received any fishery information, or received fishery information from them almost every week and almost every day respectively while the remaining 12.0, 8.3 and 4.3 per cent received fishery information from them almost every month, 2-3 months/time and around once or twice per year, respectively.

For household members, the results showed that 41.7 per cent of the fishermen never received any fishery information from them, while 21.7 and 19.0 per cent, received fishery information from them almost every day and almost every week, respectively and the remaining 8.3, 7.0 and 2.3 per cent of fishermen received fishery information from them almost every month, 2-3 months/time and around once or twice per year, respectively.

For middleman in the village, the study showed a significant figure of 90.3 per cent of the fishermen never received any fishery information from middleman, while the remaining 3.0, 2.0, 2.0, 1.7 and 1.0 per cent received fishery information from them around once or twice per year, almost every day, almost every week, 2-3 months/time and almost every month, respectively.

For middleman outside the village, the study showed that 94.0 per cent of the fishermen never received any fishery information from them, while the remaining 3.0, 2.0, 0.7 and 0.3 per cent of them received fishery information from them 2-3 months/time, around once or twice per year, almost every week and almost every month, respectively.

The results showed that 83.3 per cent of the fishermen never received any fishery information from newspapers while the remaining 5.7, 4.3, 3.3, 2.3 and 1.0 per cent received fishery information from newspapers around 2-3 months/time, once or twice per year, almost every month, almost every week and almost everyday, respectively.

From television, the results showed that 23.3 per cent of the fishermen never received any fishery information from it while 20.0, 19.3 and 18.0 received fishery information from the T.V. 2-3 months/time, almost every week and almost every month and the remaining 10.0, 9.3 per cent received fishery information from the T.V. almost every day and around once or twice per year, respectively.

The results also showed that 79.3 per cent of the fishermen never received any fishery information from the radio, while the remaining 5.3, 5.3, 4.3, 3.3, and 2.3 per cent of fishermen received fishery information from the radio around once or twice per year, 2-3 months/time, almost every month, almost every week and almost everyday, respectively.

From the results of the study it may be concluded that the main sources of fishery information to fishermen were television and neighbours at 86.7 and 73.7 per cent, respectively, while 58.3 per cent of fishermen received information from household members. More than one-third of fishermen never received information from government officers, village heads, village committee members, teachers in the village, non-governmental organizations, middlemen, television and radio.

This may reveal that the efficiency of the government agencies in fishery information transfer is rather poor, or the fishermen do not pay any attention to information reception. Regarding the frequency of fishery information reception, the fishermen who received fishery information from the mentioned sources received information once or twice a year. Very few fishermen received information weekly or monthly. This result showed remarkably that the most important source of fishery information to fishermen was the media from which about half the fishermen received fishery information from T.V. at least once per month. However, the fishermen received information from their neighbours weekly and from household members almost daily (Table 2.30).

Table 2.30 Sources and levels of reception of fishery information of fishery households

Source/Level (Percentage)	Almost everyday	Almost every-week	Almost every month	2-3 months / time	1-2 times / year	Never received
Fishery officers	-	0.3	5.0	3.3	15.3	76.0
Other government officers	-	-	1.3	2.0	4.7	92.0
Village Heads	0.7	2.0	6.0	6.7	8.7	76.0
Village committee members	0.3	1.0	2.7	3.3	4.7	88.0
Teacher in the village	-	0.7	0.7	0.3	1.0	97.3
Non-governmental Organization (NGO)	-	0.3	0.3	-	1.7	97.7
Neighbours	23.7	25.3	12.0	8.3	4.3	26.3
Family member	21.7	19.0	8.3	7.0	2.3	41.7
Middleman in the village	2.0	2.0	1.0	1.7	3.0	90.3
Middleman outside the village	-	0.7	0.3	3.0	2.0	94.0
Newspaper	1.0	2.3	3.3	5.7	4.3	83.3
Television	10.0	19.3	18.0	20.0	9.3	23.3
Radio	2.3	3.3	4.3	5.3	5.3	79.3

CHAPTER 3

ATTITUDES OF SMALL-SCALE FISHERMEN TOWARD THE FISHING RIGHTS SYSTEM

The fishing rights system is a new concept, not only for the fishery officers, but also for the small-scale fishermen. Thus, it is a very difficult task to develop this system in the country. The Department of Fisheries (DOF) must educate the persons concerned in this concept before implementing the fishing rights system. However, there are some fishermen who have some understanding of this concept from other sources of information.

In this chapter, the attitudes and factors affecting the attitudes of small-scale fishermen will be described. In the study on the Attitude of small-scale fishermen toward the Fishing Rights System in Chantaburi Province, the study concentrates on the levels of the attitude of small-scale fishermen toward the fishing rights system by classifying their attitudes into 3 components i.e., Affective component, Cognition and Behavior of small-scale fishermen toward the fishing rights system.

The study will also describe the factors that would affect the attitude of small-scale fishermen which are as follows:

- (a) Economic Conditions: Income from fishing, Expenditure and Fishery's debt.
- (b) Social Conditions: Sex, Age, Status, Education, Marital Status, Social Status, Fishing Occupation, Type of Fishing Gear, Experience in fishery and Fishing grounds.
- (c) Reception of Fishery Information

3.1 Attitudes of Small-Scale Fishermen toward the Fishing Rights System

In the study on the attitude of small-scale fishermen toward the fishing rights system, 3 components of attitude were studied as follows. The details are shown in Tables 3.1-3.5.

3.1.1 Cognition of small-scale fishermen toward the fishing rights system

The detail of the study on the cognition of small-scale fishermen toward the fishing rights system will be further classified into 3 parts i.e., Benefits received, Management methods and Structure and Organization of the fishermen's group as follows (See Table 3.1).

- 1) Benefits received
 - (a) Solving conflict problems

As mentioned earlier, owing to the coastal fisheries resource depletion problem the fishermen have to compete with each other in fishing and this leads to conflict among them. By assumption, the fishing rights system will solve the conflict problem. The study found that 79 per cent of the fishermen agreed that the system will ease the conflict problem between themselves and commercial fishery, and of these 50 per cent were strongly in agreement. Only 11 and 10 per cent of them were undecided or disagreed.

(b) Ownership of fishing grounds

From the study, the fishermen believed that the fishing rights system will allow them have their own fishing grounds, in this 80.7 per cent of the total fishermen were agreed that the fishing rights system can give them their own fishing grounds. There were 12 per cent of them who were not sure that the fishing rights system can give them their own fishing grounds. The remaining 7.3 per cent did not believe that the system can give them their own fishing grounds.

(c) Fishing cost reduction

Theoretically, the fishing rights system is a mechanism to enrich the coastal fisheries resources. The fishermen need not spend more time fishing which results in a reduction in fuel cost. In addition, the fishermen can catch more fish with the same type of fishing gear, thus the fishing cost per unit of fish will be decreased.

The study showed that almost half the fishermen believed that the fishing rights system will lead to fishing cost reduction (49 per cent) while 30 per cent of them did not agree and the remaining 21 per cent were not sure that the fishing rights system will lead to fishing cost reduction.

(d) Increased catch

Also, the results of the study have confirmed that the fishermen believe that their catches will be increased. The fishermen in the area believed that the system will lead to higher catch (56 per cent) and 24 per cent of them were not sure that the fishing rights system can increase their catches. Around 20 per cent did not believe that the system can increase their catches.

(e) Benefits received by individual fishermen

The results showed that three-fourths (74.7 per cent) of fishermen in the study did not believe that the fishing rights system will give benefit to fishermen individually because they believe that the system will give benefit to all fishermen in their group. The remaining 13.6 and 11.7 per cent of fishermen were not sure or agreed to this item.

- (f) Benefits received by large-scale fishermen more than small-scale fishermen

In the study, 58.6 percent of fishermen disagreed that benefits from the fishing rights will be shared by large-scale fishermen rather than small-scale fishermen because they could see that the benefit will actually be given to small-scale fishermen. However 26.7 per cent of fishermen agreed with this item and 14.7 per cent were not sure about this matter.

- (g) Benefits should be received by fishermen both in capture and coastal aquaculture

The results from the study showed that almost three-fourths (73.0 per cent) of fishermen in the study believed that the fishing rights system should give benefit to all fishermen both in capture fishing and coastal aquaculture in their area. About 19.7 and 7.3 percent of fishermen did not believe or were undecided that the fishing rights should give benefit to both types of fishermen.

2) Management methods

- (a) Desires of fishermen

In implementing any project with fishermen, it should be acceptable to them. In this study, 96 percent of fishermen were agreed that before implementing the fishing rights system, the government concerned should consult with fishermen before doing so. Only 2.7 and 1.3 per cent of fishermen disagreed or were not sure about this item.

- (b) Responsibilities of fishermen

In the fishing rights system, the small-scale fishermen have, not only the fishing rights, but also they have responsibilities in conserving and managing the fisheries resources in their territories. Thus, the fishermen have to accept these responsibilities, otherwise the system cannot develop.

82 per cent of fishermen in the study agreed to take responsibilities on conserving and managing the coastal fisheries resources. The remaining 10 per cent disagreed with taking these responsibilities, while 8 per cent were undecided.

In practice, the small-scale fishermen have an awareness of conserving the fisheries resources rather more than the commercial fishermen. The income of small-scale fishermen strictly depends on the coastal fisheries' resources in the fishing ground which they have fished for many decades. They cannot fish in the fishing grounds that are far away from home owing to the limitations of their fishing boats and the fishing gear they employ. In contrast, the commercial fishermen can go to any fishing ground where fisheries resources are available. Hence, they pay very little attention to conserving the fisheries' resources.

(c) Consideration of depth of sea area as a criteria for granting fishing rights

The results showed that 79.7 per cent of fishermen in the study agreed to use the depth of the sea area as a criteria for setting the area for their fishing rights. Only 8.7 per cent of fishermen did not agree, whereas, 11.7 per cent of them were undecided.

(d) Sharing of fishing rights with other fishermen's group

Theoretically, the fishing rights system is granted to the members of one specific fishermen's group only. However, in case of abundance in fishing grounds the right could be shared with other fishermen's group. The results showed that 55 per cent of fishermen agreed to this idea, while 37 per cent disagreed and 8 per cent were undecided with this idea.

(e) Law enforcement

In regard to fishery law enforcement, 79.7 per cent of fishermen agreed that the government should continue law enforcement because at present there is no law that authorizes the power of enforcement to fishermen and they could not afford the enforcement costs. 12.7 and 7.6 per cent of fishermen disagreed or were undecided with this idea.

(f) Consideration of the numbers of fishermen as a criteria for granting fishing rights

When considering the component of people in the community by giving priority to the fishermen, 48 per cent of fishermen did not agree with using the number of fishermen as the main criteria for granting areas for fishing rights, but 37.3 per cent agreed that this should be a criteria, while 14.7 per cent of the fishermen were undecided.

3) Structure and Organization of fishermen's group

(a) Laws and regulations for the fishing rights system

The opinions of fishermen on the relevant laws and regulations for fishing rights system were obtained in the study. The majority of them (76%) agreed that the government should urgently enact laws and regulations that are required for the fishing rights system implementation. Almost all of the fishermen were not certain that the present fishery laws are applicable to the system.

For capture fishery, 65.8, 54.9 and 53.1 per cent of the total fishermen required regulations for fishery management measures on areas and seasonal closure, gear restrictions and limited numbers of fishing gear and sizes of boats, respectively.

For coastal aquaculture, 47.7, 34.6 and 29.7 per cent of the total wanted to have regulations for culture area establishment, culture method and species cultured, respectively.

(b) Fishery law for granting the fishing rights system

For granting the fishing rights system, a proper fishery law should be enacted. However, from the fishermen's point of view, the present fishery law is adequate. The results of the study showed that 37.3 per cent of fishermen in the study area were agreed that the present fishery law is adequate enough for the granting of fishing rights, whereas, 33.7 and 29 per cent of them were undecided or disagreed with this idea.

(c) Member selection

There were different opinions on the selection of fishermen to be members of the group that are the juridical body to get the fishing rights from the government. The results showed that 47 per cent of fishermen were disagreed that members will be selected by government officers. Whereas 43.3 per cent of them were agreed that members should be selected by government officers. The remaining 9.7 per cent of fishermen were undecided.

(d) Fishermens' group formation

As the government has to grant the fishing rights to a group, individual fishermen must join together to form a group, cooperative, or society, and then register as a juridical body.

From the study, it was found that most of the fishermen accepted establishing a fishermen's institution, 85.7 per cent of fishermen were agreed to this idea, whereas, 9.4 and 5.0 per cent of fishermen disagreed or were undecided.

(e) Setting conditions by fishermen's group for approval by government

From the study, 84.7 per cent of fishermen agreed that the conditions for granting fishing rights will be set by fishermen's group, whereas, the approval will be given by government. Only 10.4 and 5.0 per cent of fishermen disagreed or were not sure with this idea.

Table 3.1 Percentage of Cognition of small-scale fishermen toward the fishing rights system

Cognition	Strongly agree	Agreeable	Disagree	Strongly disagree	Undecided
Benefits Received					
1. The fishing rights system will reduce conflict between small-scale and large-scale fishermen.	50.0	29.0	6.7	3.3	11.0
2. The fishing rights system will provide fishermen's group with fishing grounds.	40.0	37.7	6.0	1.3	12.0
3. The fishing rights system will decrease fishing costs of small-scale fishermen.	21.3	27.7	21.3	8.7	21.0
4. The fishing rights system will increase small-scale fishermen's catches.	30.0	26.0	16.0	4.0	24.0
5. The benefits from the fishing rights will go to individual fishermen only.	2.7	9.0	42.7	32.0	13.6
6. The fishing rights system will create benefits to large-scale fishermen rather than small-scale fishermen.	9.0	17.7	38.3	20.3	14.7
7. The fishing rights system will create benefits to all groups of fishermen both in capture and coastal aquaculture.	37.3	35.7	14.0	5.7	7.3
Management Methods					
8. In implementing the fishing rights system, the government should ask whether the fishermen want it or not.	66.7	29.3	1.7	1.0	1.3
9. In setting of the fishing rights system, the persons who get the benefits should take responsibilities in conserving and managing the fisheries resources.	40.0	42.0	8.7	1.3	8.0
10. In setting the area, the slope of the continental shelf should be considered as a criteria for granting the area.	41.0	38.7	5.0	3.7	11.7
11. In the case where the area of fishing rights have plenty of resources, it should be open to fishermen from outside.	19.3	35.7	11.7	25.3	8.0
12. In the fishing rights system, the government must control and inspect for the prohibition of illegal fishing as practiced in the past.	38.0	41.7	8.7	4.0	7.6
13. In setting the area for fishing rights, the number of fishermen is the main criteria for decision.	14.3	23.0	32.7	15.3	14.7

Cognition	Highly agree	Agreeable	Disagree	Highly disagree	Undecided
<i>Structure and Organization of fishermen's group</i>					
14. In granting the fishing rights system, it must have proper laws for control.	37.0	39.0	9.7	5.3	9.0
15. The present fishery law is adequate for granting of the fishing rights.	10.3	27.0	12.0	17.0	33.7
16. In the fishing rights system, selection of members must be done by government.	17.0	26.3	20.0	27.0	9.7
17. In operation of the fishing rights system, fishermen must establish a fishermen's institution.	39.0	46.7	7.7	1.7	5.0
18. The conditions for approval of the fishing rights will be set by the fishermen but the approval will be given by the government.	40.0	44.7	4.7	5.7	5.0
19. The fishing rights system which will be set in this area will have the participation of small-scale fishermen.	36.3	41.0	6.7	2.3	13.7
20. Organization of fishermen's group in this area is very difficult.	25.3	23.0	27.0	15.3	9.3

(f) Participation of small-scale fishermen

The results of the study also revealed that participation of small-scale fishermen in the fishing rights system in this area will be achieved because 77.3 per cent of fishermen were agreed on this belief and only 9 per cent disagreed. The remaining 13.7 per cent of fishermen were undecided.

(g) Difficulties of fishermen's group formation

With regard to the belief that formation of small-scale fishermen's group in the study area was very difficult, it was shown that 48.3 per cent of fishermen agreed to this belief, while 42.3 per cent of them disagreed. Only 9.3 per cent of fishermen were undecided.

In conclusion, the results of the study on the cognition of small-scale fishermen toward the fishing rights system are classified into 3 parts, as Benefits received, Management methods and Structure and Organization of fishermen's group.

The results of the study showed that nearly three-fourths (72 per cent) of small-scale fishermen rather agreed with the system. The remaining 16.7 per cent had an understanding of the system at high level (strongly agree with the system) where as 11.3 per cent of

fishermen had recognition of the system at low level (rather disagree with the system) (Table 3.2).

For the study in detail on the cognition of small-scale fishermen toward the fishing rights system as of benefits received, the results showed that more than half (54 per cent) of small-scale fishermen had a cognition toward the fishing rights system as of benefits received at medium level, which means that the fishermen rather agreed with the system. The remaining 34.3 per cent of fishermen had a cognition toward the system at a low level (rather disagree with the system), while 11.7 per cent of fishermen had a cognition toward the system at high level (strongly agree with the system) (Table 3.2).

As for the study on the cognition of small-scale fishermen toward the fishing rights system as of Management methods, the results showed that about half (56 per cent) of small-scale fishermen had a cognition toward the fishing rights system as of management methods at medium level which means the fishermen rather agreed with the system. The remaining 34.7 per cent of fishermen had a cognition toward the system at a high level (strongly agreeing with the system) whereas the remaining 9.3 per cent of fishermen had a cognition toward the system at a low level (rather disagreeing with the system) (Table 3.2).

The results of the study on the cognition of small-scale fishermen toward the fishing rights system as of Structure and Organization of fishermen's group showed that about three-fourths (67.3 per cent) of the small-scale fishermen had a cognition toward the fishing rights system as of structure and organization of fishermen's groups at a medium level which means the fishermen rather agreed with the system. The remaining 18.0 per cent of fishermen had a cognition toward the system at a high level (strongly agreeing with the system), whereas, the remaining 14.7 per cent of the fishermen had cognition toward the system at a low level (rather disagreeing with the system) (Table 3.2).

Table 3.2 The Cognition of small-scale fishery households toward the fishing rights system

Components of cognition	Levels of cognition (Percentage)				Mean	Standard deviation
	High	Medium	Low	Total		
Benefits received	11.7	54.0	34.3	100.0	16.90	4.64
Management methods	34.7	56.0	9.3	100.0	16.96	3.67
Structure and Organization of fishermens' group	18.0	67.3	14.7	100.0	18.13	4.02
Cognition	16.7	72.0	11.3	100.0	51.98	9.89

3.1.2 Affective component of the small-scale fishermen toward the fishing rights system

For the study on the affective component of small-scale fishermen toward the fishing system, 79.3 per cent of fishermen wanted to have the system implemented in their fishing village, while 18 and 2.7 per cent of them did not want it or were undecided (Table 3.3).

Of the fishermen who are in capture fishery, 64 per cent wanted to have the determination of areas for fishing grounds and the remaining 33.3 and 2.7 per cent did not want this or were undecided. The results showed that half of fishermen (52.7 per cent) want to have the determination of both type and number of fishing gear, but 43.3 per cent do not want this, while the remaining 4 per cent of them were undecided. About 51 per cent of fishermen want to have the determination of the sizes of fishing boats while 45 per cent do not want this and 4 per cent were undecided. The study also showed that 69.3 per cent of fishermen did not want to have the determination of duration of fishing operations, while 26.7 per cent want to have this and the remaining 4 per cent were undecided (Table 3.3).

As for fishermen who are in aquaculture, 63.7 per cent did not want to have the determination of type of aquaculture, while 33.6 per cent want to have the determination of type of aquaculture and 2.7 per cent were undecided. As for determination of areas for aquaculture, the fishermen who did not want this, or want to have the determination of area are almost the same (49.3 and 45.0 percent, respectively). But for the determination of species for culturing 66.3 per cent of fishermen said that they did not want this, while 28 per cent want to have the determination of species for culture (Table 3.3).

Table 3.3 Affective component of small-scale fishermen toward the fishing rights system

Affective component of small-scale fishermen toward the fishing rights system	Want	Do not want	Undecided
1. Desire for a fishing rights system	79.3	18.0	2.7
2. Desire on determination of areas of fishing grounds	64.0	33.3	2.7
3. Desire on determination of type/number of fishing gears	52.7	43.3	4.0
4. Desire on determination of size of fishing boats	51.0	45.0	4.0
5. Desire on determination of duration of fishing	26.7	69.3	4.0
6. Desire on determination of type of aquaculture	33.6	63.7	2.7
7. Desire on determination of species of aquaculture	28.0	66.3	5.7
8. Desire on determination of areas for aquaculture	45.0	49.3	5.7

3.1.3 Behavior of small-scale fishermen toward the fishing rights system

For the participation in the activities of the group for the development of the fishing rights system, the frequency of participation in group formation, 33.7 per cent of fishermen will participate irregularly and the remaining 21.7 and 21.3 per cent will participate

frequently and every time. About 23.3 per cent of fishermen may not participate (Table 3.4).

Regarding the frequency of participation in comments on a fishery management programme, 33.3 per cent of fishermen will participate irregularly while 24.0 per cent of them will participate very frequently. The remaining 20.7 per cent and 22 per cent will participate every time or may not participate, respectively (Table 3.4).

Results of the study on the frequency of attendance of the meetings showed that 29.7 per cent of fishermen will attend the meeting every time while 29 and 26.6 per cent will attend the meetings irregularly and frequently. Only 14.7 per cent of them said that they will not attend the meetings (Table 3.4).

For frequency of participation in financial support, the results showed that almost half of fishermen will irregularly participate in financial support (47.7 %), while 14.3 and 10.7 per cent will participate frequently and every time. However, 27.3 per cent of fishermen said that they will not participate in financial support (Table 3.4).

In labor force support, the study showed that one-third (34.3 per cent) of the fishermen will participate irregularly, while 29.3 and 19.7 per cent will participate frequently and every time. About 16.7 per cent of fishermen will not participate in labor force support (Table 3.4).

For participation in following-up the fishery management programme, the results showed that one-third (34.3 per cent) of the fishermen will participate irregularly and 27.3 and 19.7 will participate frequently and every time, whereas, 18.7 per cent will not participate in following-up the fishery management programme (Table 3.4).

Table 3.4 Behavior of small-scale fishermen toward the fishing rights system
- Type of formation and level

Type of formation of participation	Participate every times	Participate frequently	Participate irregularly	Do not participate
1. Participation in group formation	21.3	21.7	33.7	23.3
2. Participation in comments on the fishery management programme	20.7	24.0	33.3	22.0
3. Participation in attendance of the meetings	29.7	26.6	29.0	14.7
4. Participation in financial support	10.7	14.3	47.7	27.3
5. Participation labor force support	19.7	29.3	34.3	16.7
6. Participation in following-up the fishery management programme	19.7	27.3	34.3	18.7

3.1.4 Attitudes of small-scale fishermen toward the fishing rights system

From criteria in classification of level of cognition, the results showed that three-fourths of the small-scale fishery households have a cognition toward the fishing rights system at medium level that means they rather agreed with the system (72.0 percent). The remainder of the fishermen have a cognition toward the fishing rights system at a high and low level were 16.7 and 11.3 per cent, this means that they strongly agreed with the fishing rights system or they disagreed with the system, respectively. The maximum and minimum scores were 76 and 3 respectively with mean score and standard deviation of 51.98 and 9.89, respectively (Table 3.5).

From criteria in classification of the level of the affective component, the results showed that the affective component in small-scale fishery households toward the fishing rights system were different. The fishermen who have an affective component toward the fishing rights system at a high level were 40.7 per cent which means they strongly agreed with the system, while 39.7 per cent were at a medium level which means that they rather agreed with the system respectively. The remaining 19.7 per cent have an affective component toward the fishing rights system at a low level which means they do not agree with the system. The maximum and minimum scores were 7 and 0 respectively with mean score and standard deviation of 3.01 and 2.26, respectively (Table 3.5).

From criteria in classification of level of behavior, the results showed that almost half the small-scale fishery households have a behavioral component toward the fishing rights system at a high level of 46.7 per cent which mean they strongly agreed with the system. The remaining 41.3 per cent of fishermen have a behavioral component toward the fishing rights system at a medium level, this means that they rather agreed with the system, whereas, 12 per cent of them were at low level that means they do not agree with the system. The maximum and minimum score were 18 and 0 respectively with a mean score and standard deviation of 8.66 and 4.90, respectively (Table 3.5).

From the three components of attitude, the results of the study can be shown that two-thirds of the small-scale fishery households have an attitude toward the fishing rights system at a medium level, (67.0 percent) this means the small-scale fishermen rather agreed with the system. The remainder have an attitude toward the fishing rights system at a high and low level of 26.0 and 7.0 per cent which mean they strongly agreed or did not agree with the system, respectively. The maximum and minimum scores were 93 and 3, respectively with a mean score and standard deviation of 63.66 and 13.88, respectively (Table 3.5).

Table 3.5 Classification of the attitude of small-scale fishery households toward the fishing rights system

Components of attitude	Levels of attitude (Percentage)				Mean	Standard deviation
	High	Medium	Low	Total		
Attitude	26.0	67.0	7.0	100.0	63.66	13.88
- Cognition	16.7	72.0	11.3	100.0	51.98	9.89
- Affective component	40.7	39.7	19.7	100.0	3.01	2.26
- Behavior	46.7	41.3	12.0	100.0	8.66	4.90

3.2 Comparative Analyses of the Attitudes of Small-scale Fishermen toward the Fishing Rights System between Sub-districts

In the comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between groups of variables, the study is analyzed in three parts of the components of fishing rights e.g. Benefits, Methods and Organization of fishing rights and three components of the attitudes e.g. Cognitive component, Affective component and Behavioral component.

3.2.1 Analysis of the differences in cognitive component of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

The results showed that the average value for the cognitive component of the small-scale fishermen in the Paknam Laemsingha Sub-district toward the fishing rights system is 10.92, which is higher than the average value for Bangkrachai (9.31). The results on the analyses of the cognitive component of the small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts are different at a significance level of ($P < 0.05$) (Table 3.6).

Table 3.6 Cognitive component of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

Sub-districts (Number)	Cognition of the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Paknam Laemsingha (124)	8.1	69.4	22.5	53.46	10.92	0.012*
Bangkrachai (66)	19.7	71.2	9.1	49.44	9.31	

- 1) Analysis of the differences in the cognitive component of small-scale fishermen toward the fishing rights system on management methods between Paknam Laemsingha and Bangkrachai Sub-districts

The results showed that the average value for the cognitive component of small-scale fishermen in Paknam Laemsingha Sub-district toward the fishing rights system on management methods is 17.52 which is higher than the average value for Bangkrachai Sub-district (16.32). The results on the analyses of the cognitive component of the small-scale fishermen toward the fishing rights system on management methods between Paknam Laemsingha Sub-district and Bangkrachai Sub-district are different at a significance level of ($P < 0.05$) (Table 3.7).

Table 3.7 Cognitive component of small-scale fishermen toward the fishing rights system on management methods between Paknam Laemsingha and Bangkrachai Sub-districts

Sub-districts (Number)	Cognition toward the fishing rights system on management methods					
	Low	Medium	High	Mean	S.D.	P-value
Paknam Laemsingha (124)	9.7	49.2	41.1	17.52	4.01	0.039*
Bangkrachai (66)	13.6	68.2	18.2	16.32	3.31	

- 2) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of the fishermen's group between Paknam Laemsingha and Bangkrachai Sub-districts

The results showed that the average value for the cognition of small-scale fishermen in Paknam Laemsingha Sub-district toward the fishing rights system on structure and organization of the fishermen's group is 18.6, which is higher than the average value for Bangkrachai (16.97). The results on the analyses of cognition of small-scale fishermen toward the fishing rights system on structure and organization of the fishermen's group between Paknam Laemsingha Sub-district and Bangkrachai Sub-district are different at a significance level of ($P < 0.05$) (Table 3.8).

Table 3.8 Cognition of small-scale fishermen toward the fishing rights system on structure and organization of the fishermen's group between Paknam Laemsingha and Bangkrachai Sub-districts

Sub-districts (Number)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
Paknam Laemsingha (124)	10.5	66.1	23.4	18.6	4.369	0.013*
Bangkrachai (66)	27.3	62.1	10.6	16.97	4.076	

3.2.2 Analysis of the differences in behavior of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

The results showed that the average value for behavior of small-scale fishermen in Paknam Laemsingha Sub-district toward the fishing rights system is 9.29 which is higher than the average value for Bangkrachai (6.68). The results on the analyses of the behavior of small-scale fishermen toward the fishing rights system between Paknam Laemsingha Sub-district and Bangkrachai Sub-district are different at a level of high significance ($P < 0.01$) (Table 3.9).

Table 3.9 Behavior of the small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

Sub-districts (Number)	Behavior toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Paknam Laemsingha (124)	7.3	40.3	52.4	9.29	4.66	0.00**
Bangkrachai (66)	21.2	53.0	25.8	6.68	4.72	

3.2.3 Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

The results showed that the average value for the attitudes of small-scale fishermen in Paknam Laemsingha Sub-district toward the fishing rights system is 65.87 which is higher than the average value for Bangkrachai (59.15). The results of the analysis of the attitudes of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts are different at a level of high significance ($P < 0.01$) (Table 3.10).

Table 3.10 Attitudes of small-scale fishermen toward the fishing rights system between Paknam Laemsingha and Bangkrachai Sub-districts

Sub-districts (Number)	Attitudes toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Paknam Laemsingha (124)	4.8	63.7	31.5	65.87	14.36	0.002**
Bangkrachai (66)	15.2	71.2	13.6	59.15	13.89	

3.2.4 Analysis of the differences in behavior of small-scale fishermen toward the fishing rights system between Bangsrakao and Bangkrachai Sub-districts

The results showed that the average value for behavior of the small-scale fishermen in Bangsrakao Sub-district toward the fishing rights system is 9.46 which is higher than the average value for Bangkrachai (6.68). The results of the analysis of behavior of small-scale fishermen toward the fishing rights system between Bangsrakao and Bangkrachai Sub-districts are different at a significance level of ($P < 0.05$) (Table 3.11).

Table 3.11 Behavior of small-scale fishermen toward the fishing rights system between Bangsrakao and Bangkrachai Sub-districts

Sub-districts (Number)	Behavioral component toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Bangsrakao (26)	11.5	30.8	57.7	9.46	4.75	0.013*
Bangkrachai (66)	21.2	53.0	25.8	6.68	4.72	

3.2.5 Analysis of the differences in the cognitive component of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

The results showed that the average value for cognition of small-scale fishermen in Ko Prued Sub-district toward the fishing rights system is 52.45 which is higher than the average value for Bangkrachai (49.44). The results of the analysis of the cognition of small-scale fishermen toward the fishing rights system between Ko Prued and Bangkrachai Sub-districts are different at a significance level of ($P < 0.05$) (Table 3.12).

Table 3.12 Cognition of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

Sub-districts (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Bangkrachai (66)	19.7	71.2	9.1	49.44	9.31	0.035*
Ko Prued (84)	6.0	76.2	17.8	52.45	8.01	

- 1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between Bangkrachai and Ko Prued Sub-districts

The results showed that the average value for cognition of small-scale fishermen in Ko Prued Sub-district toward the fishing rights system on structure and organization of fishermen's group is 18.33 which is higher than the average value for Bangkrachai (16.97). The results of the analysis of cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between Ko Prued Sub-district and Bangkrachai Sub-district are different at a significance level of ($P < 0.05$) (Table 3.13).

Table 3.13 Cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between Bangkrachai and Ko Prued Sub-districts

Sub-districts (Number)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
Bangkrachai (66)	27.3	62.1	10.6	16.97	4.08	0.024*
Ko Prued (84)	9.5	77.4	13.1	18.33	3.26	

3.2.6 Analysis of the differences in the behavior of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

The results showed that the average value for the behavior of small-scale fishermen in Ko Prued Sub-district toward the fishing rights system is 9.06 which is higher than the average value for Bangkrachai (6.68). The results of the analysis of the behavior of small-scale fishermen toward the fishing rights system between Ko Prued and Bangkrachai Sub-district are different at a level of high significance ($P < 0.01$) (Table 3.14).

Table 3.14 Behavior of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

Sub-districts (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Bangkrachai (66)	21.2	53.0	25.8	6.68	4.72	0.004**
Ko Prued (84)	11.9	36.9	51.2	9.06	5.11	

3.2.7 Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

The results showed that the average value for the attitudes of small-scale fishermen in Ko Prued Sub-district toward the fishing rights system is 64.15 which is higher than the average value for Bangkrachai (59.15). The results of the analysis of the attitudes of small-scale fishermen toward the fishing rights system between Ko Prued and Bangkrachai Sub-district are different at a significance level of ($P < 0.05$) (Table 3.15).

Table 3.15 Attitudes of small-scale fishermen toward the fishing rights system between Bangkrachai and Ko Prued Sub-districts

Sub-districts (Number)	Attitudes toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Bangkrachai (66)	15.2	71.2	13.6	59.15	13.89	0.020*
Ko Prued (84)	2.4	71.4	26.2	64.15	12.09	

3.3 Comparative Analyses of the Attitudes of Small-scale Fishermen toward the Fishing Rights System by Variables

3.3.1 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by economic conditions

The comparative analysis of the relationship of economic conditions of fishery households with the attitude of small-scale fishermen toward the fishing rights system. The analysis of the significant relationships of the attitude of small-scale fishermen toward the fishing rights system and economic conditions are tested using the Chi-square (χ^2) Test (Contingency Coefficient Value).

Economic conditions in the study were income from fishing, expenditure and fishery's debt. In the comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between economic conditions, the study is analyzed three parts, being the components of the attitude of fishermen toward the fishing rights system on cognition under the details of the benefits received, management methods and structure and organization of fishermen's group; affective component and behavioral component.

The results of the analysis of significant relationships of the attitude of small-scale fishermen toward the fishing rights system and economic conditions, found that there was no relationship between these variables, that means no relationship of the attitude of small-scale fishermen and the economic conditions of fishery households.

3.3.2 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by social conditions

For the comparative analysis of relationship of social conditions of fishery households with the attitude of small-scale fishermen toward the fishing rights system. The analysis of significant relationships of the attitude of small-scale fishermen toward the fishing rights system and social conditions are tested using the Chi-square (χ^2) Test.

Social conditions considered in the study were sex, age, status, education, marital status, social status, fishing occupation, type of fishing gear employed, experience in capture fishery and/or coastal aquaculture.

In the comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between social conditions, the study is analyzed in three parts, being the components of the attitude of fishermen toward the fishing rights system on the cognition under the details of benefits received, management methods and structure and organization of fishermen's group; affective component and behavioral component.

The results of the analysis of significant relationships of the attitude of small-scale fishermen toward the fishing rights system and social condition are clarified as follows.

- 1) Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by sex of fishermen
 - (a) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by sex of fishermen

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province is 52 (Mean = 51.9, S.D. = 9.9). For male fishermen, the average value for cognition toward the fishing rights system is 52.6 which is higher than the average value for female fishermen (48). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between male and female are different at a significance level of ($P < 0.05$) (Table 3.16).

Table 3.16 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between male and female fishermen

Sex (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Male (257)	9.7	72.4	17.9	52.6	9.0	0.040*
Female (43)	20.9	69.8	9.3	48.0	13.5	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group by sex of fishermen

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups between the sex of small-scale fishermen is 18 (Mean = 18.1, S.D. = 4.0). For male fishermen, the average value for cognition toward the fishing rights system on structure and organization of fishermen group is 18.4 which is higher than the average value for female fishermen (16.6). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between male and female are different at a significance level of ($P < 0.05$) (Table 3.17).

Table 3.17 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups by sex of fishermen

Sex (Number)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
Male (257)	14.0	66.5	19.5	18.4	3.8	0.029*
Female (43)	18.6	72.1	9.3	16.6	4.9	

- (b) Analysis of the differences in the behavior of small-scale fishermen toward the fishing rights system by sex of fishermen

The results showed that the average value for the behavior of small-scale fishermen toward the fishing rights system by the sex of fishermen is 9.0 (Mean = 8.7, S.D. = 4.9). For male fishermen the average value for their behavior toward the fishing rights system is 8.9, which is higher than the average value for females

(7.1). The results of the analysis of the behavior of small-scale fishermen toward the fishing rights system between sex of fishermen are different at a significant level of ($P < 0.05$) (Table 3.18).

Table 3.18 Comparative analysis of the behavior of small-scale fishermen toward the fishing rights system by sex of the fishermen

Sex (Number)	Behavioral component toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Male (257)	9.7	42.4	47.9	8.9	4.8	0.027*
Female (43)	25.6	34.9	39.5	7.1	5.4	

(c) Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between sex of fishermen

The results showed that the average value for the attitude of small-scale fishermen toward the fishing rights system between the sex of fishermen is 64.0 (Mean = 63.7, S.D. = 13.9). For male fishermen the average value for attitude toward the fishing rights system is 64.6 which is higher than the average value for females (57.9). The results of the analysis of the attitude of small-scale fishermen toward the fishing rights system between sex of fishermen are different at a significance level of ($P < 0.05$) (Table 3.19).

Table 3.19 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between male and female fishermen

Sex (Number)	Attitude toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Male (257)	5.4	66.5	28.0	64.6	12.7	0.027*
Female (43)	16.3	69.8	14.0	57.9	18.4	

2) Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by the status of fishermen

(a) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by the status of fishermen

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system of head of the fishery household is 52.76 which is higher than the average value for the household members (49.67). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between head of the fishery household and household members are different at a significance level of ($P < 0.05$) (Table 3.20).

Table 3.20 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system by the status of the fishermen

Status (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Head of fishery household (225)	9.8	72.0	18.2	52.76	9.34	0.019*
Household members (75)	16.0	72.0	12.0	49.67	11.14	

- (1) Analysis of the differences in the cognition of small-scale fishermen toward the fishing rights system on management methods against the status of fishermen

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on management methods of the head of the fishery household is 17.26, which is higher than the average value for household members (16.04). The results of the analysis of the differences in the cognition of small-scale fishermen toward the fishing rights system on management methods between the head of the fishery household and household members are different at a significance level of ($P < 0.05$) (Table 3.21).

Table 3.21 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods against the status of fishermen

Status (Number)	Cognition toward the fishing rights system on management methods					
	Low	Medium	High	Mean	S.D.	P-value
Head of fishery household (225)	9.3	55.6	35.1	17.26	3.52	0.012*
Household members (75)	14.7	61.3	24.0	16.04	3.98	

- (b) Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system against the status of fishermen

The results showed that the average value for the attitudes of small-scale fishermen toward the fishing rights system of the head of the fishery household is 64.83 which is higher than the average value for households' members (60.17). The results of the analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between the head of the fishery household and household members are different at a significance level of ($P < 0.05$) (Table 3.22).

Table 3.22 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between the head of the fishery household and household members

Status (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Head of fishery household (225)	5.3	64.9	29.8	64.83	13.17	0.012*
Household members (75)	12.0	73.3	14.7	60.17	15.41	

3) Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by type of fisheries

(a) Analysis of the differences in the cognition of small-scale fishermen toward the fishing rights system by type of fisheries

The results showed that the average value for the cognition of the small-scale fishermen toward the fishing rights system of capture fishery is 52.81 which is higher than the average value for coastal aquaculture (46.65). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture are different at a level of high significance ($P < 0.01$) (Table 3.23).

Table 3.23 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture

Types of fisheries (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Capture fishery (201)	8.0	72.6	19.4	52.81	9.37	0.001**
Coastal aquaculture (35)	31.4	62.9	5.7	46.65	11.57	

(1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received between capture fishery and coastal aquaculture

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on the benefits received in capture fishery is 17.19, which is higher than the average value for coastal aquaculture (14.6). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on the benefits received between capture fishery and coastal aquaculture are different at a level of high significance ($P < 0.01$) (Table 3.24).

Table 3.24 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on the benefits received between capture fishery and coastal aquaculture

Types of fisheries (Number)	Cognition toward the fishing rights system on benefits received					
	Low	Medium	High	Mean	S.D.	P-value
Capture fishery (201)	24.4	57.7	17.9	17.19	4.33	0.002**
Coastal aquaculture (35)	51.4	37.2	11.4	14.60	5.26	

- (2) Analysis of the differences in cognition of the small-scale fishermen toward the fishing rights system on management methods between capture fishery and coastal aquaculture

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system on management methods of capture fishery is 17.32, which is higher than the average value for coastal aquaculture (14.32). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between capture fishery and coastal aquaculture are different at a level of high significance ($P < 0.01$) (Table 3.25).

Table 3.25 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between capture fishery and coastal aquaculture

Types of fisheries (Number)	Cognition toward the fishing rights system on Management methods					
	Low	Medium	High	Mean	S.D.	P-value
Capture fishery (201)	8.0	55.7	36.3	17.32	3.47	0.000**
Coastal aquaculture (35)	25.7	65.7	8.6	14.32	4.28	

- (b) Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system by type of fisheries

The results showed that the average value for the attitudes of small-scale fishermen toward the fishing rights system of capture fishery is 64.67, which is higher than the average value for coastal aquaculture (57.66). The results of the analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture are different at a level of high significance ($P < 0.01$) (Table 3.26).

Table 3.26 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between capture fishery and coastal aquaculture

Type of fisheries (Number)	Attitude toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Capture fishery (201)	5.0	67.1	27.9	64.67	13.52	0.006**
Coastal aquaculture (35)	17.1	60.0	22.9	57.66	15.68	

- (c) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between coastal aquaculture and capture fishery cum coastal aquaculture households

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system of capture fishery cum coastal aquaculture households is 52.33, which is higher than the average value for coastal aquaculture households only (46.65). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture households and coastal aquaculture households only are different at a significance level of ($P < 0.05$) (Table 3.27).

Table 3.27 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households

Types of fisheries (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Coastal aquaculture (35)	31.4	32.9	5.7	46.65	11.57	0.011*
Capture fishery cum coastal aquaculture (64)	10.9	75.0	14.1	52.33	9.78	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on the benefits received between coastal aquaculture households and capture fishery cum coastal aquaculture households

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on benefits received for capture fishery cum coastal aquaculture households is 17.23, which is higher than the average value for coastal aquaculture households (14.6). The results of the analysis of the differences in the cognition of small-scale fishermen toward the fishing rights system for benefits received between capture fishery cum coastal aquaculture households and coastal aquaculture households are different at a significance level of ($P < 0.05$) (Table 3.28).

Table 3.28 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between capture fishery cum coastal aquaculture and coastal aquaculture households

Types of fisheries (Number)	Cognition toward the fishing rights system for benefits received					
	Low	Medium	High	Mean	S.D.	P-value
Coastal aquaculture (35)	51.4	37.2	11.4	14.6	5.26	0.015*
Capture fishery cum coastal aquaculture (64)	31.3	48.4	20.3	17.23	4.92	

- (2) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between aquaculture households and capture fishery cum aquaculture households

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system on management methods of capture fishery cum coastal aquaculture households is 16.93 which is higher than the average value for coastal aquaculture households (14.91). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between capture fishery cum coastal aquaculture households and coastal aquaculture households are different at a significance level of ($P < 0.05$)(Table 3.29).

Table 3.29 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between capture fishery cum coastal aquaculture and coastal aquaculture households

Types of fisheries (Number)	Cognition toward the fishing rights system on management methods					
	Low	Medium	High	Mean	S.D.	P-value
Coastal aquaculture (35)	25.7	65.7	8.6	14.91	4.28	0.014*
Capture fishery cum coastal aquaculture (64)	10.9	56.3	32.8	16.93	3.62	

- (d) Analysis of the differences in the affective component of small-scale fishermen toward the fishing rights system between coastal aquaculture households and capture fishery cum coastal aquaculture households

The results showed that the average value for the affective component of small-scale fishermen toward the fishing rights system of capture fishery cum coastal aquaculture households is 3.56 which is higher than the average value for coastal aquaculture households (2.43). The results of the analysis of the differences in the affective component of small-scale fishermen toward the fishing rights system

between capture fishery cum coastal aquaculture households and coastal aquaculture households are different at a significance level of ($P < 0.05$)(Table 3.30).

Table 3.30 Comparative analysis of the affective component of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households

Types of fisheries (Number)	Affective component toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Coastal aquaculture (35)	28.6	45.7	25.7	2.43	2.06	0.022*
Capture fishery cum coastal aquaculture (64)	15.6	37.5	46.9	3.56	2.45	

- (e) Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between coastal aquaculture households and capture fishery cum coastal aquaculture households

The results showed that the average value for the attitudes of small-scale fishermen toward the fishing rights system of capture fishery cum coastal aquaculture households is 63.79, which is higher than the average value for coastal aquaculture households (57.66). The results of the analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture households and aquaculture households are different at a significance level of ($P < 0.05$)(Table 3.31).

Table 3.31 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between capture fishery cum coastal aquaculture and coastal aquaculture households

Types of fisheries (Number)	Attitudes toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Coastal aquaculture (35)	17.1	60.0	22.9	57.66	15.68	0.043*
Capture fishery cum coastal aquaculture (64)	7.8	70.3	21.9	63.79	13.37	

- 4) Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by type of fishing gear

- (a) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households (coastal aquaculture) and households using one group of fishing gear

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system of households using one group of fishing gear is 53.09, which is higher than the average value for non-capture fishery

households and households using one group of fishing gear (46.67). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear are different at a level of high significance ($P < 0.01$)(Table 3.32).

Table 3.32 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear

Type of fishing gear (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	31.4	62.9	5.7	46.67	11.57	0.003**
One group of fishing gear (212)	6.6	75.5	17.9	53.09	9.23	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received between non-capture fishery households (coastal aquaculture) and households using one group of fishing gear

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on benefits received by households using one group of fishing gear is 17.41, which is higher than the average value for non-capture fishery households (14.6). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received between non-capture fishery households and households using one group of fishing gear are different at a level of high significance ($P < 0.01$)(Table 3.33).

Table 3.33 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between non-capture fishery households and households using one group of fishing gear

Type of fishing gear (Number)	Cognition toward the fishing rights system on benefits received					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	51.4	37.2	11.4	14.6	5.26	0.005**
One group of fishing gear (212)	23.1	59.9	17.0	17.41	4.13	

- (2) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households (coastal aquaculture) and households using one group of fishing gear

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on management methods of households using one group of fishing gear is 17.33, which is higher than the average value for non-capture fishery households (14.91). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using one group of fishing gear are different at a level of high significance ($P < 0.01$) (Table 3.34).

Table 3.34 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using one group of fishing gear

Type of fishing gear (Number)	Cognition toward the fishing rights system on management methods					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	25.7	65.7	8.6	14.91	4.28	0.001**
One group of fishing gear (212)	8.0	54.7	37.3	17.33	3.52	

- (b) Analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between non-capture fishery households (coastal aquaculture) and households using one group of fishing gear

The results showed that the average value for the attitudes of small-scale fishermen toward the fishing rights system of households using one group of fishing gear is 65.15, which is higher than the average value for non-capture fishery households (57.66). The results of the analysis of the differences in the attitudes of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear are different at a level of high significance ($P < 0.01$) (Table 3.35).

Table 3.35 Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using one group of fishing gear

Type of fishing gear (Number)	Attitudes toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	17.1	60.0	22.9	57.66	15.68	0.007**
One group of fishing gear (212)	4.7	68.9	26.4	65.15	12.91	

- (c) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households (coastal aquaculture) and households using more than one group of fishing gear

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system of households using more than one group of fishing gear is 53.27 which is higher than the average value for non-capture fishery households (46.66). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using more than one group of fishing gear are different at a level of high significance ($P < 0.01$) (Table 3.36).

Table 3.36 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between non-capture fishery households and households using more than one group of fishing gear

Type of fishing gear (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	31.4	62.9	5.7	46.66	11.57	0.009**
More than one group of fishing gear (53)	10.8	64.9	24.3	53.27	9.25	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households (coastal aquaculture) and households using more than one group of fishing gear

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system on management methods of households using more than one group of fishing gear is 16.83, which is higher than the average value for non-capture fishery households (coastal aquaculture) (14.91). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using more than one group of fishing gear are different at a significance level of ($P < 0.05$) (Table 3.37).

Table 3.37 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on management methods between non-capture fishery households and households using more than one group of fishing gear

Type of fishing gear (Number)	Cognition toward the fishing rights system on management methods					
	Low	Medium	High	Mean	S.D.	P-value
Non-capture (35)	25.7	35.7	8.6	14.91	4.28	0.023*
More than one group of fishing gear (53)	11.3	60.4	28.3	16.83	3.45	

5) Comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system by fishing ground

- (a) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by fishing grounds between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system of fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals is 54.76 , which is higher than the average value for households using fishing grounds in the Rivers/Canals (51.37). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals are different at a significance level of ($P < 0.05$)(Table 3.38).

Table 3.38 Comparative analysis on the cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing ground in the Rivers/Canals

Type of fishing ground (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Rivers/Canals(142)	16.9	67.6	15.5	51.37	11.18	0.018 [*]
Within/outside of 3 km. from shore and in the Rivers/Canals (49)	2.0	75.5	22.4	54.76	7.41	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group by fishing grounds between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals is 19.37, which is higher than the average value for households using fishing grounds in the Rivers/Canals (17.99). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and

households using fishing grounds in the Rivers/Canals are different at a significance level of ($P < 0.05$) (Table 3.39).

Table 3.39 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals and households using fishing grounds in the Rivers/Canals

Type of fishing ground (Number)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
Rivers/Canals (142)	16.9	62.7	20.4	17.99	4.43	0.026*
Within/outside 3 km. from shore and in the Rivers/Canals (49)	8.2	69.4	22.4	19.37	3.38	

- (b) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by fishing grounds between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals is 54.76, which is higher than the average value for households using fishing grounds within 3 km. and in the Rivers/Canals (51.54). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals are different at a significance level of ($P < 0.05$) (Table 3.40).

Table 3.40 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. and in the Rivers/Canals

Type of fishing ground (Number)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
Within 3 km. from shore and in the Rivers/Canals (109)	8.3	76.1	15.6	51.54	8.9	0.029*
Within/outside of 3 km. from shore and in the Rivers/Canals (49)	2.0	75.5	22.4	54.76	7.41	

- (1) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received by fishing grounds between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system on benefits received using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals is 18.04, which is higher than the average value for households using fishing grounds within/outside 3 km. from shore and in the Rivers/Canals (16.62). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals are different at a significance level of ($P < 0.05$)(Table 3.41).

Table 3.41 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on benefits received between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals

Type of fishing ground (Number)	Cognition toward the fishing rights system on benefits received					
	Low	Medium	High	Mean	S.D.	P-value
Within 3 km. from shore and in the Rivers/Canals (109)	28.5	58.7	12.8	16.62	4.14	0.043*
Within/outside of 3 km. from shore and in the Rivers/Canals(49)	16.3	65.3	18.4	18.04	3.80	

- (2) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups by fishing grounds between fishery households using fishing grounds within 3 km. and in Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals is 19.37, which is higher than the average value for households using fishing grounds within/outside 3 km. from shore and in the Rivers/Canals (17.99). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group between

fishery households using fishing grounds within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals are different at a level of high significance ($P < 0.01$)(Table 3.42).

Table 3.42 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups between fishery households using fishing grounds within 3 km. and in the Rivers/Canals and fishery households using fishing grounds within/outside of 3 km. from shore and in the Rivers/Canals

Type of fishing ground (Number)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
Within 3 km. from shore and in the Rivers/Canals (109)	16.9	62.7	20.4	17.99	4.43	0.009**
Within/outside of 3 km. from shore and in the Rivers/Canals (49)	8.2	69.4	22.4	19.37	3.38	

6) Comparative analysis of the attitudes of small-scale fishermen toward fishing rights system between ranges of income of fishery households

(a) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between ranges of income of fishery households

The results showed that the average value for cognition of small-scale fishermen toward the fishing rights system of fishery households whose income is higher than 3,000 Baht per month is 52.83, which is higher than the average value for households whose income is less than or equal to 3,000 Baht per month (50.09). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between fishery households whose income is higher than 3,000 Baht per month and fishery households whose income is less than or equal to 3,000 Baht per month are different at a significance level of ($P < 0.05$)(Table 3.43).

Table 3.43 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system between ranges of income per month of fishery households

Income of fishery household (Baht per month)	Cognition toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
≤ 3,000	19.6	65.2	15.2	50.09	10.60	0.027*
> 3,000	7.7	74.9	17.4	52.83	9.49	

- (b) Analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups between ranges of income of fishery households

The results showed that the average value for the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups of fishery households whose income is higher than 3,000 Baht per month is 18.47, which is higher than the average value for households whose income is less than or equal to 3,000 Baht per month (17.35). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system between fishery households whose income is higher than 3,000 Baht per month and fishery households whose income is less than or equal to 3,000 Baht per month are different at a significance level of ($P < 0.05$)(Table 3.44).

Table 3.44 Comparative analysis of the cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups between ranges of income per month of fishery households

Income of fishery household (Baht per month)	Cognition toward the fishing rights system on structure and organization of fishermen's group					
	Low	Medium	High	Mean	S.D.	P-value
≤ 3,000	23.9	56.5	19.6	17.35	4.61	0.041*
> 3,000	10.6	72.0	17.4	18.47	3.69	

- (c) Analysis on the differences in the affective component of small-scale fishermen toward the fishing rights system between ranges of income of fishery households

The results showed that the average value for the affective component of small-scale fishermen toward the fishing rights system of fishery households whose income is higher than 3,000 Baht per month is 3.41 which is higher than the average value for households whose income is less than or equal to 3,000 Baht per month (2.76). The results of the analysis of the differences in affective component of small-scale fishermen toward the fishing rights system between fishery households whose income is higher than 3,000 Baht per month and fishery households whose income is less than or equal to 3,000 Baht per month are different at a significance level of ($P < 0.05$)(Table 3.45).

Table 3.45 Comparative analysis of affective component of small-scale fishermen toward the fishing rights between ranges of income per month of fishery households

Income of fishery household (Baht per month)	Affective component toward the fishing rights system					
	Low	Medium	High	Mean	S.D.	P-value
≤ 3,000	21.7	41.1	37.2	2.76	2.15	0.015*
> 3,000	16.2	37.6	46.2	3.41	2.36	

3.4 Relationship of Economic Conditions with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components

The analysis of the relationship of the economic conditions of fishery households with the attitude of small-scale fishermen toward the fishing rights system. The analysis of significant relationships of the attitudes of small-scale fishermen toward the fishing rights system and the economic conditions is tested by using the Chi-square test (χ^2) (Contingency Coefficient Value).

Economic conditions under the study were income from fishing, expenditure and fishery credit (fishery's debt). In the comparative analysis of the attitudes of small-scale fishermen toward the fishing rights system between economic conditions, the study is analyzed in three parts being components of attitude of fishermen toward the fishing rights system on the cognition under the details of benefits received, management methods and structure and organization of fishermen's groups; affective component and behavioral component.

The results of the analysis of significant relationships of the attitude of small-scale fishermen toward the fishing rights system and the economic conditions found that there was no relationship with expenditure of fishery households that means no relationship of the attitude of small-scale fishermen and expenditure of fishery households.

The results of the analysis of significant relationships of the attitude of small-scale fishermen toward the fishing rights system and other economic conditions can be shown as follows:

3.4.1 Relationship of the income from fishing in the fishing season (The off monsoon season) with cognition of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) (Contingency Coefficient Value) among the independent variables - Income from fishing in the fishing season and the dependent variable - cognition of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of cognition of small-scale fishermen toward the fishing rights system between fishery households whose income is higher than 3,000 Baht per month and fishery households whose income is less than or equal to 3,000 Baht per month are different at a significance level of ($P < 0.05$) (Table 3.46). The ' χ^2 ' values from the Table clearly indicate that income from fishing was significantly related to the cognition of the fishermen.

Table 3.46 Relationship of the income from fishing in the fishing season with the cognition of small-scale fishermen toward the fishing rights system

Income of fishery household (Baht per month)	Cognition toward the fishing rights system		
	Low	Medium	High
≤ 3,000	52.9	28.7	28.0
> 3,000	47.1	71.3	72.0
Total	100	100	100

Contingency Coefficient Value = 0.16437 (P = 0.01553)

3.4.2 Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system on benefits received

The analysis of the Chi-square test (χ^2) among the independent variables -income from fishing out of the fishing season and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on benefits received, the results of the analysis of relationship of income out of the fishing season and cognition of small-scale fishermen toward the fishing rights system on benefits received between fishery households whose had no income in this season, income in the monsoon season equal to the off monsoon season, income in the monsoon season less than income in the off monsoon season and, income in the monsoon season higher than income the off monsoon season are different at a significance level of ($P < 0.05$)(Table 3.47). The ' χ^2 ' values from the Table clearly indicate that income from fishing was significantly related to the cognition of the fishermen on benefits received.

Table 3.47 Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system on benefits received

Income of fishery households (Baht)	Cognition toward the fishing rights system on benefits received		
	Low	Medium	High
No income in the monsoon season	50.6	34.6	34.0
Income in the monsoon season = Income in the fishing season	19.5	11.9	20.8
Income in the monsoon season < Income in the fishing season	19.5	36.5	22.6
Income in the monsoon season > Income in the fishing season	10.4	17.0	22.6
Total	100	100	100

Contingency Coefficient Value = 0.23170 (P = 0.0942)

3.4.3 Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system on management methods

The analysis of the Chi-square test (χ^2) among the independent variables - income from fishing out of the fishing season and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on management methods, the results of the analysis of relationship of income out of the fishing season and cognition of small-scale fishermen toward the fishing rights system on management methods between fishery households who had no income in the monsoon season, income in the monsoon season equal to the off monsoon season, income in the monsoon season less than income the off monsoon season and, income in the monsoon season higher than income in the off monsoon season are different at a significance level of ($P < 0.05$)(Table 3.48).The ' χ^2 ' values from the Table clearly indicate that income from fishing was significantly related to the cognition of the fishermen on management methods.

Table 3.48 Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system on management methods

Income of fishery household (Baht)	Cognition toward the fishing rights system on management methods		
	Low	Medium	High
No income in the monsoon season	46.9	44.7	26.8
Income in the monsoon season = Income in the fishing season	25.0	14.1	15.5
Income in the monsoon season < Income in the fishing season	9.4	28.8	36.1
Income in the monsoon season > Income in the fishing season	18.7	12.3	21.6
Total	100	100	100

Contingency Coefficient Value = 0.23219 (P = 0.0914)

3.4.4 Relationship of the income from fishing out of the fishing season (In the monsoon season) with cognition of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variables - income from fishing out of the fishing season and the dependent variable - cognition of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of income out of the fishing season and cognition of small-scale fishermen toward the fishing rights system between fishery households who had no income in the monsoon season, income in the monsoon season equal to the off monsoon season, income in the monsoon season less than income in the off monsoon season and, income in the monsoon season higher than income in the off monsoon season are different at a level of high significance ($P < 0.01$) (Table 3.49).The ' χ^2 ' values from the Table clearly indicate that income from fishing was significantly related to the cognition of the fishermen.

Table 3.49 Relationship of the income from fishing out of the fishing season with the cognition of small-scale fishermen toward the fishing rights system

Income of fishery households (Baht)	Cognition toward the fishing rights system		
	Low	Medium	High
No income in the monsoon season	50.0	41.4	22.0
Income in the monsoon season = Income in the fishing season	23.5	13.0	22.0
Income in the monsoon season < Income in the fishing season	11.8	32.1	28.0
Income in the monsoon season > Income in the fishing season	14.7	13.5	28.0
Total	100	100	100

Contingency Coefficient Value = 0.23944 (P = 0.00579)

3.4.5 Relationship of fishery's debt of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on the structure and organization of fishermen's groups

The analysis of the Chi-square test (χ^2) among the independent variables - Debt of small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups, the results of the analysis of relationship of debt of fishery households and cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups are different at a significance level of (P < 0.05) (Table 3.50). The ' χ^2 ' values from the Table clearly indicate that indebtedness of small-scale fishery households was significantly related to the cognition of the fishermen on structure and organization of fishermen's groups.

Table 3.50 Relationship of indebtedness of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups

Fishery's debt	Cognition toward the fishing rights system on structure and organization of fishermen's group		
	Low	Medium	High
Have debt	59.4	62.1	58.3
No debt	40.6	37.9	41.7
Total	100	100	100

Contingency Coefficient Value = 0.14311 (P = 0.04483)

3.5 Relationship of Social Conditions with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components

The analysis of the relationship of social conditions of fishery households with the attitudes of small-scale fishermen toward the fishing rights system. The analysis of significant relationships of the attitudes of small-scale fishermen toward the fishing rights system and social conditions is tested by using the Chi-square (χ^2) test.

Social conditions under the study were sex, age, status, education, marital status, social status, fishing occupation, type of fishing gear, experience in fishery and fishing grounds.

In the analysis of the attitudes of small-scale fishermen toward the fishing rights system between social conditions, the study is analyzed between the three parts of the components of attitude of fishermen toward the fishing rights system on the cognition under the details of benefits received, management methods and structure and organization of fishermen's groups; affective component and behavioral component.

The results of the analysis of significant relationships of attitude of small-scale fishermen toward the fishing rights system and social condition found that there was no relationship between age of interviewed fishermen, that means, no relationship of attitude of small-scale fishermen and age of interviewed fishermen.

The analysis of significant relationships between attitude of small-scale fishermen toward the fishing rights system and social conditions, can be shown as follows:

3.5.1 Relationship of Sex of interviewed fishermen with behavioral component of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variables - sex of interviewed fishermen and the dependent variable - behavioral component of small-scale fishermen toward the fishing rights system, the results of the analysis of relationship of sex of interviewed fishermen and behavioral component of small-scale fishermen toward the fishing rights system are different at a significance level of ($P < 0.05$)(Table 3.51). The ' χ^2 ' values from the Table clearly indicate that sex of interviewed fishermen was significantly related to the behavioral component of the fishermen.

Table 3.51 Relationship of sex of interviewed fishermen with the behavioral component of small-scale fishermen toward the fishing rights system

Sex interviewed fishermen	Behavioral component toward the fishing rights system		
	Low	Medium	High
Male	69.4	87.9	87.9
Female	30.6	12.1	12.1
Total	100	100	100

Contingency Coefficient Value = 0.16851 (P = 0.01248)

3.5.2 Relationship of sex of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) (Contingency Coefficient Value) among the independent variables - sex of interviewed fishermen and the dependent variable - attitude of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of sex of interviewed fishermen and attitude of small-scale fishermen toward the fishing rights system are different at a significance level of ($P < 0.05$)(Table 3.52). The ' χ^2 ' values from the Table clearly indicate that sex of interviewed fishermen was significantly related to attitude of the fishermen.

Table 3.52 Relationship of sex of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system

Sex of interviewed fishermen	Attitude toward the fishing rights system		
	Low	Medium	High
Male	66.7	85.1	92.3
Female	33.3	14.9	7.7
Total	100	100	100

Contingency Coefficient Value = 0.17097 (P = 0.01093)

3.5.3 Relationship of the status of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variables - status of interviewed fishermen and the dependent variable - attitude of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of status of interviewed fishermen and the attitude of small-scale fishermen toward the fishing rights system are different at a significance level of ($P < 0.05$)(Table 3.53). The ' χ^2 ' values from the Table clearly indicate that status of interviewed fishermen was significantly related to attitude of the fishermen.

Table 3.53 Relationship of the status of interviewed fishermen with the attitudes of small-scale fishermen toward the fishing rights system

Status of interviewed fishermen	Attitude toward the fishing rights system		
	Low	Medium	High
Head of fishery households	57.1	72.6	85.9
Household members	42.9	27.4	14.1
Total	100	100	100

Contingency Coefficient Value = 0.17168 (P = 0.01051)

3.5.4 Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

The analysis of the Chi-square test (χ^2) among the independent variables - type of fisheries of small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on benefits received, the results of the analysis of relationship of type of fisheries and cognition of small-scale fishermen toward the fishing rights system on benefits received are different at a significance level of (P < 0.05)(Table 3.54). The ' χ^2 ' values from the Table clearly indicate that type of fisheries of small-scale fishery households was significantly related to the cognition of the fishermen on benefits received.

Table 3.54 Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

Type of fisheries	Cognition toward the fishing rights system on benefits received		
	Low	Medium	High
Capture fishery	56.3	72.5	67.9
Coastal aquaculture	20.7	8.1	7.5
Capture cum coastal aquaculture	23.0	19.4	24.4
Total	100	100	100

Contingency Coefficient Value = 0.19154 (P = 0.02218)

3.5.5 Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on management methods

The analysis of the Chi-square test (χ^2) among the independent variables - type of fisheries of small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on management methods, the results of the analysis of the relationship of type of fisheries and cognition of small-scale fishermen toward the fishing rights system on management methods are different at a level of high

significance ($P < 0.01$)(Table 3.55). The ' χ^2 ' values from the Table clearly indicate that type of fisheries of small-scale fishery households was significantly related to the cognition of the fishermen on management methods.

Table 3.55 Relationship of type of fisheries of small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on management methods

Type of fisheries	Cognition toward the fishing rights system on management methods		
	Low	Medium	High
Capture fishery	50.0	65.5	75.3
Coastal aquaculture	28.1	13.5	3.1
Capture cum coastal aquaculture	21.9	21.0	21.6
Total	100	100	100

Contingency Coefficient Value = 0.22799 ($P = 0.00247$)

3.5.6 Relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variable - type of fisheries of small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of type of fisheries and cognition of small-scale fishermen toward the fishing rights system are different at a level of high significance ($P < 0.01$)(Table 3.56). The ' χ^2 ' values from the Table clearly indicate that type of fisheries of small-scale fishery households was significantly related to the cognition of the fishermen.

Table 3.56 The relationship of type of fisheries of small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system

Type of fisheries	Cognition toward the fishing rights system		
	Low	Medium	High
Capture fishery	47.1	67.6	78.0
Coastal aquaculture	32.4	10.2	4.0
Capture cum coastal aquaculture	20.5	22.2	18.0
Total	100	100	100

Contingency Coefficient Value = 0.24210 ($P = 0.00091$)

3.5.7 Relationship of type of fisheries of small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variable - type of fisheries of small-scale fishery households and the dependent variable - behavioral component of small-scale fishermen toward the fishing rights system, the results of the analysis of the relationship of type of fisheries and behavioral component of small-scale fishermen toward the fishing rights system are different at a significance level of ($P < 0.05$)(Table 3.57). The ' χ^2 ' values from the Table clearly indicate that type of fisheries of small-scale fishery households was significantly related to the behavioral component of the fishermen.

Table 3.57 Relationship of type of fisheries of small-scale fishermen with behavioral component of small-scale fishermen toward the fishing rights system

Type of fisheries	Behavioral component of small-scale fishermen toward the fishing rights system		
	Low	Medium	High
Capture fishery	66.1	64.5	70.7
Coastal aquaculture	19.4	7.3	13.6
Capture cum coastal aquaculture	19.5	28.2	15.7
Total	100	100	100

Contingency Coefficient Value = 0.17830 (P = 0.04303)

3.5.8 The relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear group used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on benefits received, the results of the analysis of relationship of type of fishing gear group and cognition of small-scale fishermen toward the fishing rights system on benefits received are different at a level of high significance ($P < 0.01$)(Table 3.58). The ' χ^2 ' values from the Table clearly indicate that type of fishing gear group used by small-scale fishery households was significantly related to the cognition of the fishermen on benefit received.

Table 3.58 Relationship of type of fishing gear group used by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on benefits received

Type of fishing gear group	Cognition toward the fishing rights system on benefits received		
	Low	Medium	High
Coastal aquaculture	20.7	8.1	7.5
Use one group of fishing gear	56.3	79.4	67.9
Use more than one group of fishing gear	23.0	12.5	24.6
Total	100	100	100

Contingency Coefficient Value = 0.23850 (P = 0.00118)

3.5.9 Relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear group used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system, the results of the analysis of relationship of type of fishing gear group and cognition of small-scale fishermen toward the fishing rights system are different at a level of high significance ($P < 0.01$) (Table 3.59). The ' χ^2 ' values from the Table clearly indicate that type of fishing gear group used by small-scale fishery households was significantly related to the cognition of the fishermen.

Table 3.59 Relationship of type of fishing gear group used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system

Type of fishing gear group	Cognition toward the fishing rights system		
	Low	Medium	High
Coastal aquaculture	32.4	10.2	4.0
Use one group of fishing gear	41.2	74.1	76.0
Use more than one group of fishing gear	26.7	15.7	20.0
Total	100	100	100

Contingency Coefficient Value = 0.26269 (P = 0.00018)

3.5.10 Relationship of type of fishing gear group used by small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear group used by small-scale fishery households and the dependent variable - behavioral component of small-scale fishermen toward the fishing rights system, the results of the analysis of relationship of type of fishing gear group and behavioral component of small-scale fishermen toward the fishing rights system are different at a significance level

of ($P < 0.05$) (Table 3.60). The ' χ^2 ' values from the Table clearly indicate that type of fishing gear group used by small-scale fishery households was significantly related to the behavioral component of the fishermen.

Table 3.60 Relationship of type of fishing gear group used by small-scale fishermen with the behavioral component of small-scale fishermen toward the fishing rights system

Type of fishing gear group	Behavioral component toward the fishing rights system		
	Low	Medium	High
Coastal aquaculture	19.4	7.3	13.6
Use one group of fishing gear	55.6	71.0	74.3
Use more than one group of fishing gear	25.0	21.8	12.1
Total	100	100	100

Contingency Coefficient Value = 0.18381 ($P = 0.03293$)

3.5.11 Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear mainly used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on benefits received, the results of the analysis of relationship of type of fishing gear and cognition of small-scale fishermen toward the fishing rights system on benefits received are different at a significance level of ($P < 0.05$) (Table 3.61). The ' χ^2 ' values from the Table clearly indicate that the type of fishing gear used by small-scale fishery households was significantly related to the cognition of the fishermen on benefits received.

Table 3.61 Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

Type of fishing gear mainly in use	Cognition toward the fishing rights system on benefits received		
	Low	Medium	High
Coastal aquaculture	20.7	8.1	7.5
Gill net and encircling gill net	36.8	38.1	50.9
Stationary gear	9.2	8.1	1.9
Trap	11.5	21.9	22.6
Push net, small purse seine and small trawl	21.8	23.8	17.1
Total	100	100	100

Contingency Coefficient Value = 0.23593 ($P = 0.02373$)

3.5.12 Relationship of type of fishing gear mainly in use by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on management methods

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear mainly used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on management methods, the results of the analysis of relationship of type of fishing gear and the cognition of small-scale fishermen toward the fishing rights system on management methods are different at a level of high significance ($P < 0.01$) (Table 3.62). The ' χ^2 ' values from the Table clearly indicate that type of fishing gear used by small-scale fishery households was significantly related to the cognition of the fishermen on management methods.

Table 3.62 Relationship of type of fishing gear mainly in use by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system on management methods

Type of fishing gear mainly in use	Cognition toward the fishing rights system on management methods		
	Low	Medium	High
Coastal aquaculture	28.1	13.5	3.1
Gill net and encircling gill net	28.1	38.6	46.4
Stationary gear	6.3	9.4	4.1
Trap	15.6	15.2	26.8
Push net, small purse seine and small trawl	21.9	23.3	19.6
Total	100	100	100

Contingency Coefficient Value = 0.26997 ($P = 0.00269$)

3.5.13 Relationship of type of fishing gear mainly in use by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system

The analysis of the Chi-square test (χ^2) among the independent variable - type of fishing gear mainly used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system, the results of the analysis of relationship of type of fishing gear and cognition of small-scale fishermen toward the fishing rights system are different at a level of high significance ($P < 0.01$) (Table 3.63). The ' χ^2 ' values from the Table clearly indicate that type of fishing gear used by small-scale fishery households was significantly related to the cognition of the fishermen.

Table 3.63 Relationship of type of fishing gear mainly in use by small-scale fishermen with the cognition of small-scale fishermen toward the fishing rights system

Type of fishing gear mainly in use	Cognition toward the fishing rights system		
	Low	Medium	High
Coastal aquaculture	32.4	10.1	4.0
Gill net and encircling gill net	32.4	38.0	54.0
Stationary gear	5.9	9.3	0
Trap	8.8	19.0	26.0
Push net, small purse seine and small trawl	20.5	23.6	16.0
Total	100	100	100

Contingency Coefficient Value = 0.29060 (P = 0.00054)

3.5.14 Relationship of zone of fishing grounds used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

The analysis of the Chi-square test (χ^2) among the independent variable - zone of fishing grounds used by small-scale fishery households and the dependent variable - cognition of small-scale fishermen toward the fishing rights system on benefits received, the results of the analysis of relationship of zone of fishing grounds and cognition of small-scale fishermen toward the fishing rights system on benefits received are different at a significance level of ($P < 0.05$)(Table 3.64). The ' χ^2 ' values from the Table clearly indicate that zone of fishing grounds used by small-scale fishery households was significantly related to the cognition of the fishermen on benefits received.

Table 3.64 Relationship of zone of fishing grounds used by small-scale fishermen with cognition of small-scale fishermen toward the fishing rights system on benefits received

Type of fishing ground	Cognition toward the fishing rights system on benefits received		
	Low	Medium	High
In the Rivers/Canals	55.2	40.0	56.6
In the Rivers/Canals and < 3 km. from shore	35.6	40.0	26.4
More than 3 km. from shore	6.9	6.3	9.4
In the Rivers/Canals,<3km.and>3 km. from shore	2.3	13.7	7.6
Total	100	100	100

Contingency Coefficient Value = 0.21588 (P = 0.02303)

3.5.15 Relationship of experience in fishery of small-scale fishermen with the attitudes of small-scale fishermen toward the fishing rights system

Pearson's Product Moment Correlation Coefficient (r) values among the independent variable - experience in capture fishery and coastal aquaculture of small-scale fishermen and the dependent variable - the attitude and its components are presented in the Table 3.65. The ' r ' values from the Table clearly indicate that the independent variable was significantly related to the attitude of the respondents.

Table 3.65 Relationship of experience in fishery with the attitudes of small-scale fishermen toward the fishing rights system and its components

Attitude and its components	Independent variables : Experience in capture fishery and coastal aquaculture Correlation Coefficient (r)
Attitude	0.1650*
- Cognition	0.1739*
- Cognition on structure and organization of fishermen's groups	0.1825*

* Significant level = 0.01

The experience in capture fishery and coastal aquaculture of small-scale fishermen were positively correlated with the attitude toward the fishing rights system at a significance level of ($\alpha = 0.01$). Experience in fishery was positively correlated with the attitude components - cognition and cognition on structure and organization of fishermen's group at a significance level of ($\alpha = 0.01$). This indicates that a positive attitude toward the fishing rights system increases with an increase of experience in fishery of small-scale fishermen.

3.5.16 Relationship of experience in capture fishery with the attitudes of small-scale fishermen toward the fishing rights system

Pearson's Product Moment Correlation Coefficient (r) values among the independent variable - experience in capture fishery and the dependent variable - the attitude and its components are presented in the Table 3.66. The ' r ' values from the Table clearly indicate that the independent variable was significantly related to the attitude of the respondents.

Table 3.66 Relationship of experience in capture fishery with the attitudes of small-scale fishermen toward the fishing rights system and its components

Attitude and its components	Independent variables : Experience in capture fishery Correlation Coefficient (<i>r</i>)
Attitude	0.1842**
- Cognition	0.1985**
- Cognition on benefits received	0.1629*
- Cognition on structure and organization of fishermen's groups	0.2043**

* Significance level = 0.01

** Significance level = 0.001

The experience in capture fishery of small-scale fishermen was positively correlated with the attitude toward the fishing rights system at a level of high significance ($\alpha = 0.001$). The experience in capture fishery was positively correlated with the attitude components - cognition and cognition on structure and organization of fishermen's groups at a level of high significance, while cognition on benefits received was positively correlated at a significance level of only ($\alpha = 0.01$). This indicates that a positive attitude toward the fishing rights system increases with an increase of experience in capture fishery of small-scale fishermen.

3.6 Relationship of the Reception of Information with the Attitudes of Small-scale Fishermen toward the Fishing Rights System and its Components

Pearson's Product Moment Correlation Coefficient (*r*) values among the independent variable- reception of information of small-scale fishermen and the dependent variable - the attitude and its components are presented in the Table 3.67. The '*r*' values from the Table clearly indicate that the independent variable was significantly related to the attitude of the respondents.

Table 3.67 Relationship of the reception of information with the attitudes of small-scale fishermen toward the fishing rights system and its components

Attitude and its components	Independent variables : Reception of information Correlation Coefficient (<i>r</i>)
Attitude	0.3225**
- Cognition	0.3343**
- Cognition on benefits received	0.2702**
- Cognition on management methods	0.2434**
- Cognition on structure and organization of fishermen's groups	0.2910**
- Affective component	0.2012**
- Behavioral component	0.1458*

* Significance level = 0.01

** Significance level = 0.001

The reception of information of small-scale fishermen was positively correlated with the attitude toward the fishing rights system at a level of high significance ($\alpha = 0.001$). The Reception of Information was positively correlated with the attitude and its components - cognition and its components and the affective component at a level of high significance ($\alpha = 0.001$) while behavior was positively correlated at a significance level of only ($\alpha = 0.01$). This indicates that a positive attitude toward the fishing rights system increases with an increase of the reception of information of small-scale fishermen.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

In the study on attitude of small-scale fishery toward the fishing rights system in Chantaburi Province, 300 small-scale fishery households were interviewed in Paknam Lamsigha, Ko Prued, Bangkrachai, Bangsrakao Sub-Districts in Lamsigha District. The results showed that the majority of interviewed fishermen were male (85.7 per cent) of whom were aged mainly in the range between 26-55 years and 73.7 per cent of them had an educational level at primary school only (4 years).

More than two-thirds (67.0 per cent) of fishermen engaged in capture fishery, followed by 21.3 per cent engaged in both capture and aquaculture. Oysters were the main cultured species for fishery households followed by grouper. The culture methods for oyster were the hanging and concrete pole methods. Grouper was cultured both in cages and ponds. There were a high percentage of fishery households that engaged in both oyster culture (hanging method) and grouper cage culture.

68.7 per cent of fishermen used out-board powered boats for fishing operations. The majority of fishermen employed one fishing gear and the remainder employed more than one gear. The fishing gear mainly employed were gill net and encircling gill net, push net and set bag net, because their target species were shrimps and crabs. The fishing grounds were in the Rivers/Canals and/or in coastal areas less than 3 km. from shore (83.6 per cent). The remaining small number (7.0 per cent) of them do capture fishery in the areas more than 3 km. from shore.

Results of the study found that experience in capture fishery of fishery households was in range between 1-10 years (30.0 per cent) while 69.0 per cent of coastal aquaculture households did not have any experience in coastal aquaculture.

Concerning income of fishery households, the results showed that the major range of income of fishery households was between 1,201-3,000 Baht/month (23.4 per cent). The income from fishery was sufficient for expenditure of 60 per cent of the fishermen. Almost two-thirds of fishery households (60.6 per cent) had debts. The loans from non-institutions were the main source of loan, some required high interest, whereas, some did not require interest but required other conditions. The major sources of loan were from relatives or neighbours (44.7 per cent).

The reception of fishery information of fishery households in Lamsigha District was at a low level. Three-fourths of the fishery households in the study (76 per cent) never received any fishery information from fishery officers. For the households that received fishery information, the major sources were from television or neighbours.

The comparative analysis of attitudes of small-scale fishermen toward the fishing rights system by social and economic conditions, the results can be summarized as follows.

1) Sex

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by sex (male and female) are different at a significance level of ($P = 0.040^*$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group by sex are different at a significance level of ($P = 0.029^*$). The results of the analysis of the behavioral component of small-scale fishermen toward the fishing rights system by sex are different at a significance level of ($P = 0.027^*$). The results of the analysis of the differences in attitudes of small-scale fishermen toward the fishing rights system by sex are different at a significance level of ($P = 0.027^*$).

2) Status

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by status (between head of fishery households and household members) are different at a significance level of ($P = 0.019^*$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods between head of fishery household and household members are different at a significance level of ($P = 0.012^*$). The results of the analysis of the differences in attitudes of small-scale fishermen toward the fishing rights system by status are different at a significance level of ($P = 0.012^*$).

3) Type of fisheries

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by type of fisheries (capture fishery and coastal aquaculture) are different at a level of high significance ($P = 0.001^{**}$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received by type of fisheries are different at a level of high significance ($P = 0.002^{**}$). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods by type of fisheries are different at a level of high significance ($P = 0.000^{**}$) and the results of the analysis of the differences in attitudes of small-scale fishermen toward the fishing rights system by type of fisheries (capture fishery and coastal aquaculture) are different at a level of high significance ($P = 0.006^{**}$).

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by type of fisheries (coastal aquaculture and capture fishery cum coastal aquaculture) are different at a significance level of ($P = 0.011^*$). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received by type of fisheries (coastal aquaculture and capture fishery cum coastal aquaculture) are different at a significance level of ($P = 0.015^*$).

and the results of the analysis of the differences of cognition of small-scale fishermen toward the fishing rights system on management methods by type of fisheries (coastal aquaculture and capture fishery cum coastal aquaculture) are different at a significance level of ($P = 0.014^*$). The results of the analysis of the differences in the affective component of small-scale fishermen toward the fishing rights system by type of fisheries (coastal aquaculture and capture fishery cum coastal aquaculture) are different at a significance level of ($P = 0.022^*$) and the results of the analysis of the differences in attitude of small-scale fishermen toward the fishing rights system by type of fisheries (coastal aquaculture and capture fishery cum coastal aquaculture) are different at a significance level of ($P = 0.043^*$).

4) Type of fishing gear

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by type of fishing gear (non-capture fishery households and households using one group of fishing gear) are different at a level of high significance ($P = 0.003^{**}$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received by type of fishing gear (non-capture fishery households and households using one group of fishing gear) are different at a level of high significance ($P = 0.005^{**}$). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods by type of fishing gear (non-capture fishery households and households using one group of fishing gear) are different at a level of high significance ($P = 0.001^{**}$). The results of the analysis of the differences in attitude of small-scale fishermen toward the fishing rights system by type of fishing gear (non-capture fishery households and households using one group of fishing gear) are different at a level of high significance ($P = 0.007^{**}$).

The results of the analysis on the differences in cognition of small-scale fishermen toward the fishing rights system by type of fishing gear (non-capture fishery households and households using more than one group of fishing gear) are different at a level of high significance ($P=0.009^{**}$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on management methods by type of fishing gear (non-capture fishery households and households using more than one group of fishing gear) are different at a significance level of ($P = 0.023^*$).

5) Fishing grounds

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by fishing ground (in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals) are different at a significance level of ($P = 0.018^*$) and the results of the analysis of cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups by fishing ground (in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals) are different at a significance level of ($P = 0.026^*$).

The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by fishing ground (within 3 km. and in the Rivers/Canals and within/outside of 3 km. from and in the Rivers/Canals) are different at a significance level of ($P = 0.029^*$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on benefits received by fishing ground (within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals) are different at a significance level of ($P = 0.043^*$). The results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's group by fishing ground (within 3 km. and in the Rivers/Canals and within/outside of 3 km. from shore and in the Rivers/Canals) are different at a level of high significance ($P=0.009^{**}$).

6) Income of fishery households

For the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system by ranges of income of fishery households (less than, or equal to, 3,000 and more than 3,000 Baht per month) are different at a significance level of ($P = 0.027^*$) and the results of the analysis of the differences in cognition of small-scale fishermen toward the fishing rights system on structure and organization of fishermen's groups by ranges of income of fishery households (less than, or equal to, 3,000 and more than 3,000 Baht per month) are different at a significance level of ($P = 0.041^*$). The results of the analysis of the differences in the affective component of small-scale fishermen toward the fishing rights system by ranges of income of fishery households (less than or equal to 3,000 and more than 3,000 Baht per month) are different at a significance level of ($P = 0.015^*$).

For the study on the analysis of the relationship of independent variables e.g., economic conditions, social conditions and the reception of fishery information and the attitude of small-scale fishermen toward the fishing rights system and its components by using the Chi-square test (χ^2) (Contingency Coefficient Value) and Pearson's Product Moment Correlation Coefficient (r), the results can be summarized as follows:-

1) Relationship of attitude and independent variables

Social conditions

Results of the study found that sex, status, experience in fishery and experience in capture fishery of small-scale fishery households were significantly related to attitude of small-scale fishery toward the fishing rights system in Chantaburi Province.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households were significantly related to attitude of small-scale fishery toward the fishing rights system in Chantaburi Province.

2) Relationship of attitude by components and independent variables

The study on the relationship of attitude in detail by components of attitude and the independent variables were shown as follows:

Cognition of small-scale fishery toward the fishing rights system

Social conditions

The results of the study showed that type of fisheries, type of fishing gear group used, type of fishing gear mainly in use, experience in fishery, experience in capture fishery were significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province.

Economic conditions

The results of the study showed that income of fishery households and fishery's debt were significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households was significantly related to cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province.

Cognition of small-scale fishery toward the fishing rights system on benefits received

Social conditions

The results of the study showed that the type of fisheries, type of fishing gear group used, type of fishing gear mainly in use, experience in capture fishery and fishing ground were significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province on benefits received.

Economic conditions

The results of the study showed that expenditure of fishery households was significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province on benefits received.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households was significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province on benefits received.

Cognition of small-scale fishery toward the fishing rights system on management methods

Social conditions

The results of the study showed that the type of fisheries and type of fishing gear mainly in use were significantly related to the cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province on management methods.

Economic conditions

The results of the study showed that expenditure of fishery households was significantly related to the cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province on management methods.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households was significantly related to the cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province on management methods.

Cognition of small-scale fishery toward the fishing rights system on structure and organization of fishermens' group

Social conditions

The results of the study showed that experience in fishery and experience in capture fishery of fishery households were significantly related to cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province on structure and organization of fishermens' groups.

Economic conditions

The results of the study showed that the fishery's debts of fishery households was significantly related to cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province on structure and organization of fishermen's groups.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households was significantly related to cognition of small-scale fishery toward the fishing rights system in Chantaburi Province on structure and organization of fishermen's groups.

Affective component of small-scale fishery toward the fishing rights system

The results of the study showed that social conditions and economic conditions were not significantly related to the affective component of small-scale fishermen toward the fishing rights system in Chantaburi Province.

Behavioral component of small-scale fishery toward the fishing rights system

Social conditions

The results of the study showed that sex, type of fisheries and type of fishing gear were significantly related to cognition of small-scale fishermen toward the fishing rights system in Chantaburi Province.

Economic conditions

The results of the study showed that economic conditions were not significantly related to the behavioral component of small-scale fishery toward the fishing rights system in Chantaburi Province.

Reception of fishery information

Results of the study found that reception of fishery information of fishery households was not significantly related to the behavioral component of small-scale fishermen toward the fishing rights system in Chantaburi Province.

4.2 Recommendations

The fishermen in Laemsigha District are faced with the same problems as the other small-scale fishermen in the country. The most severe problems are coastal fisheries resources depletion and the conflict between small-scale fishermen and commercial

fishermen. Thus, the Department of Fisheries plans to introduce the fishing rights system for the coastal fishery management programme in order to solve the problems.

From the study, it was revealed that in the general view, the fishermen agreed to develop this system in their coastal areas. However, in the development of this system in the study area the DOF should consider the following.

- 1) The present laws and regulations are not applicable for the development of the fishing rights system. The fishermen asked the DOF and agencies concerned to enact relevant laws and regulations. However, the fishermen should have the opportunity to participate in the law and regulation drafting process.
- 2) At present, the fishermen have a limited knowledge of the system. Therefore, DOF must use all the available methods to educate the fishermen on the concepts of the fishing rights system. In addition, the government officers who are concerned with the system should have a common understanding of the concepts of this system in order to have ensure a right direction of the development of the system.
- 3) The fishermen need some assistance from the government in terms of education and financial support of fishermen's group activities. The fishermen still lack the knowledge and experience in group activities, particularly activities under juridical body conditions.
- 4) Under the fishing rights system, the fishermen take full responsible for the management of their fisheries resources and the DOF will act as their advisor. But the fishermen in the study area still need law enforcement that should be practiced by the DOF because at the initial stage the fishermen have no capability of enforcement. Therefore, the DOF should continue to provide more patrol boats for law enforcement in the coastal areas in which the fishing rights system is introduced in order to assure the fishermen that the commercial fishermen cannot enter the coastal areas.

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Appendix A



Figure 1 Map of Chantaburi Province

Appendix B

Fishing Rights (Pongpat, 1994)

Criteria for granting territorial areas for Fishing Rights

1) Number of Fishermen

In general, Fishing Rights in the fishing ground will be granted to a suitable number of fishermen in the area by using the District or Province as a guideline. This depends on the geography of the area.

2) Availability of the Fishery Resources

In the case of an area which has high productivity of fishery resources, the area for granting fishing rights will be less than low productivity areas.

3) Topography of sea bottom

For the coastal areas which have a high slope topography, the fishermen will be granted the area less than an area of low slope topography.

4) Fishing and aquaculture methods

In the case of fishermen who practice capture fishery, the type of fishing gear they use will be the criteria for granting coastal areas. For aquaculture, the criteria will be the type of culture methods.

However, these criteria will be adjusted to suit the economic conditions, social conditions and culture of each rural area.

Expected benefits to the Fishermen

1) Get a certain fishing ground

2) Decrease the cost of fishing operations by not going fishing far from shore and also do not get gear damaged by trawl fishermen.

3) Increase the overall income of fishermen from recovered fishery resources which allows a larger catch of bigger sizes of fish caught and higher prices of fish.

4) Decrease conflict problems among groups of fishermen by getting their own fishing grounds.

5) Fishing rights can be transferred to fishermen's children but cannot be transferred to other persons.

Responsibilities of Fishermen

- 1) Fishermen should give full support to the activities of Fishermens' groups.
- 2) Fishermen should strictly follow all the rules, regulations defined by democracy.
- 3) Fishermen should look after, protect and improve resources in the fishing zone belonging to the group.

Type of Territorial Fishing Rights

The type of territorial fishing rights suitable for Thailand can be divided into 2 main types as follows:

Fishing Rights for Collecting and Capture Fishery

As we know well, capture fishery in Thailand is operated by using various types of fishing gear, so in defining the fishing rights these should allocated on type of fishing gear, abundance of fishery resources and conditions of sea bottom, these can divided into 4 categories:-

- 1) Fishing Rights Type A are the fishing rights for collecting and capture fishery by small-scale fishing gear such as:
 - (a) Fishing rights for collecting natural fisheries resources such as shellfish, seaweed, jellyfish and sea turtles' eggs, etc.
 - (b) Fishing rights for capture fishery by using small stationary gear such as Bag net, Wing set bag net and trap, etc.
 - (c) Fishing rights for moving gear with no engine, mobile fishing gear for catching non-migratory fish species such as Shrimp gill net, Fish gill net, other gill nets and crab gill net, etc.
 - (d) Fishing rights around barrier reefs or coral reefs which are the fishing rights for tourism or gear for catching fish species that does not destroy barrier reefs or coral reefs, such as hooks.

In the process of granting fishing rights types, it should be a defined coastal area to cover all type of fish species caught in each category. The authority will be granted for fishermens' groups or fishery cooperatives to control and look after. Duration of fishing rights granted per unit time will be around 5-10 years or dependent on exploitation conditions and abundance of fisheries resources in that area.

- 2) Fishing Rights Type B are the fishing rights for big stationary gear that cover large areas for fishing such as Bamboo stake traps. This is a special fishing right which will be granted in suitable areas that do not compete with other fishermen and navigation. This fishing right will be granted to groups of fishermen, fishery cooperatives or individual fishermen in coastal areas. Duration of granted fishing rights is about 5-10 years or depending upon utilization conditions and the abundance of resources in that area.
- 3) Fishing Rights Type C are the fishing rights for capture fishery with moving gear such as Gill net and Encircling gill net, Baby trawl, Small push net and other moving gear for catching fish species that migrate between nearby Districts or Provinces. In granting this type of fishing right, the area must be determined to cover the migrating area of fish species that can be caught by these fishing gear. This type of fishing right will be granted to fishermen's groups or fishermen's organizations, the duration for granting depends on the conditions or species concerned.

Fishing Rights for Coastal Aquaculture

Fishing rights for coastal aquaculture will be granted to specific areas for aquaculture such as shellfish culture, fish cage culture and shrimp pen culture. The area for granted fishing rights will be suitable for specific culture species which are not in areas of capture fishery or areas that give a higher return when compared to capture fishery or depending on the desires of the fishery communities. This type of fishing right will be granted to fishermen's groups, fishery cooperatives or individual fishermen in coastal areas. The duration of the grant is about 5-10 years or depending upon culture conditions and the abundance of the resources in that area.