

Review of Thai Laws in Relation to Trawl Fisheries, Bycatch Management

Project “Strategies for Trawl Fisheries Bycatch Management”

(REBYC-II CTI; GCP /RAS/269/GFF)

Chintana Nettasna

January 2014

Abstract

Thailand: “A review of Thai Laws in Relation to Trawl Fisheries, Bycatch Management,” this study is a part of the project “Strategies for Trawl Fisheries Bycatch Management” (REBYC-II CTI; GCP/RAS/269/GFF). It aims to better understand the problems and obstacles of the laws and administration of trawl fisheries especially for bycatch management and for sustainability of fisheries in Thailand.

Current domestic regulations that apply to trawl fisheries, bycatch management are set forth in four important laws: (1) the Fisheries Act B.E. 2490 (1947), (2) Thai Vessels Act B.E.2481 (1938), (3) the Draft Fisheries Bill, and (4) Legal and regulatory framework at two project sites. This study found gaps and practical weaknesses in the legal and regulatory framework for trawl fisheries. Four issues were identified as follows: (i) problem of inconsistencies with policies and the practice of government, (ii) problem of decentralized fisheries management and the participation of the community, (iii) problems with law enforcement, arrests, and legal loopholes, and (iv) problems in controlling the number of trawl and push net vessels and vessel registration, and subrogation of fishing gear registration. The study proposes to revise the laws to address the issue of each gap and weakness. To improve enforcement of the law in order to reduce bycatch, it is essential that legal measures be used in conjunction with community-based fishery management approaches, combined with research data in each area to effectively support issuing of various legal measures.

TABLE OF CONTENTS

1.	Introduction and Study Background	3
2.	The Importance of the Problem	3
3.	Current Domestic Legal and Regulatory in relation to the Trawl Fisheries, Bycatch Management	4
3.1	National Policy Framework and its Conflicts	4
3.2	National and Local Fishery Management	7
3.3	The Existing Overall Trawl Management Framework	9
3.4	Current Legal and Regulatory on Trawl Fisheries	10
3.4.1	Fisheries Act B.E. 2490 (1947)	10
3.4.2	Thai Vessels Act B.E.2481(1938)	15
3.4.3	Draft Fisheries Bill	16
3.4.4	Legal and Regulatory Framework at Two Project Sites	19
4.	Gaps and Weaknesses of Legal and Regulatory Mandate for Trawl Fisheries in Practice	22
4.1	Problem of Inconsistencies with Policy and the Practice of Government	22
4.2	Problem of Decentralized Fisheries Management and the Participation of the Community	24
4.3	Problems of Law Enforcement, Arrests, Legal Loopholes	25
4.4	Problem of Controlling the Number of Trawl and Push Net Vessels and Vessel Registration and Subrogation of Fishing Gear Registration	28
5.	Measures for Improvement of Trawl Fisheries Law to Reduce Bycatch	29
5.1	Measures of Conformity of the Policy and the Practice of Government.	30
5.2	Measures of Decentralized Fisheries Management and the Participation of the Community.	31
5.3	Measures of Law Enforcement, Arrests, and Legal Loopholes	32
5.4	Measures of Controlling the Number of Trawl Vessels, Push Net Vessels and Vessel Registration and Subrogation of Fishing Gear Registration	33
	References	36

1. Introduction and Study Background

The study “A Review of Thai Laws in Relation to Trawl Fisheries, Bycatch Management” is a part of the project “Strategies for Trawl Fisheries Bycatch Management” (REBYC-II CTI; GCP /RAS/269/GFF) in which there are five participating countries: Indonesia, Papua New Guinea, Philippines, Thailand and Viet Nam.

The following were the Terms of Reference for the Legal and Regulatory Consultant to the “Strategies for Trawl Fisheries Bycatch Management” (REBYC-II CTI; GCP/RAS/269/GFF):

- 1) Review existing data for legal and regulatory frameworks relevant to trawl fisheries, by-catch management and related issues including effective local legal controls.
- 2) Identify gaps and weaknesses of the legal and regulatory environment for trawl fisheries in practice.
- 3) Field interviews at two project sites (Prachaup Khirikhan-Chumphon and Trat).
- 4) Recommendation for adjustments developed with, and agreed in principle by, the component national authorities.
- 5) Propose measures or ideas for improving trawl fisheries to reduce the numbers of bycatch.
- 6) Presentation of the results in the Consultation Meetings
- 7) Report in English to be sent to the NTO before being submitted to the FAO.

Provided herein is the report required by the above Terms of Reference.

2. The Importance of the Problem.

The Department of Fisheries brought 1970s trawl fishing vessels with experts from foreign countries to Thailand based on the B.E.2490 (1947) Fisheries Act and encouraged fishermen to use this technology to catch more fish in less time. But after only 10 years with the use of trawlers, fish stocks in the Gulf of Thailand have significantly deteriorated especially demersal fish stock. Thailand had been ever one of the top ten producers of the world's fisheries. But currently, the Gulf of Thailand and the Andaman Sea have less fish to catch.

The Gulf of Thailand is a shallow sea where marine resources are among the most abundant in the world. Trawl vessels have impacted the integrity of the benthic ecosystem and it has contributed in the massive reduction of fish in the Gulf of Thailand. Because of the severe ecosystem destruction caused by the trawl vessels, the Department of Fisheries has banned the registration of new trawl vessels from Fisheries Act since B.E.2523(1980) onwards, but

there are still hundreds of illegal trawl vessels that do illegal fishing in the Gulf of Thailand and the Andaman Sea. The result has been a rapid decline of fish in Thai waters and the crisis continues today. In the past, there has been a general amnesty for the illegal trawlers that have operated, including the amnesty years B.E. 2523(1980), 2524(1981), 2525(1982), 2532(1989) and 2539(1996).

Researches on the composition of trawl catches have found that the proportion of fish that have economic value (targeted species) is 33.3 %, the remaining 66.7% is trash fish (not used for human consumption but for animal feed). A 30 percent of fish larvae is mixed in the trash fish composition which has economic value if it is grown up (Chantawong, 1993). If we calculate 30 percent of fish larvae in economic loss from trashfish composition of trawl fisheries, it can be seen the enormous economic losses in each year.

From B.E. 2525 (1972), the Department of Fisheries has issued legal measures to control fishing trawlers, such as the implementation of procedures on how to control the number of fishing trawlers and push nets, prohibition of using trawl and push nets in particular areas, establishing a zone of closure in the Gulf, and the extension of a coastal conservation zone.

Later in B.E. 2556 (2013), the Department of Fisheries proposed to enlarge the minimum trawl mesh size to 4 cm in order to reduce the amount of small fish caught during fishing operations. The Department of Fisheries, in collaboration with the Southeast Asian Fisheries Development Center, Fisheries Association of Thailand, and the Thailand Association of Fishmeal Production, discussed the implementation of fisheries management activities that can lead to a reduced volume of capture of the juvenile economic fish by trawler vessels under the Master Plan of Fishery Management of Thailand, by jointly finding ways to enlarge the cod-end mesh size of trawls from 2.5 cm to 4 cm with the fisheries sector. The enlarge mesh size project is a demonstration project to enlarge the 4 cm mesh size used by pilot trawler vessels. The Fisheries Association of Thailand is looking for volunteer vessels to join the project.

The study of laws and legal measures related to trawl fisheries aims for a better understanding of the problems and obstacles of the laws and administration of trawler fisheries for fisheries sustainability in Thailand.

3. Current Domestic Legal and Regulatory Measures in Relation to Trawl Fisheries, Bycatch Management

The scope of this legal study is under "The Compiling of the Management of Marine Fishery Resources Law under Fisheries Act B.E. 2490 (1947)", compiled by the Fisheries Licensing and Management Measures Section of the Fishery Management Bureau, Department of Fisheries, B.E.2555 (2012).

3.1 National Policy Framework and Its Conflicts

Government policy in this regard can be determined by a National Economic and Social Advisory Council study report. Recommendations outlined in the report to the government on the management of marine resources and equitable and sustainable coastal waters dated August 31, B.E. 2550 (2007), suggested the government get involved in fisheries with push nets and trawling conducted with motorized vessels. The conclusion of the report is as follows:

A Report of the National Economic and Social Advisory Council stated that in overall of the country, 91 percent of fish are caught by commercial fishing vessels while 9 percent are caught by local fishermen. There are about 3,797 fishing villages and 60,000 households and 49 percent of these operate marine fishing by trawl nets with motorized vessels and the 5 percent by push nets with motorized vessels.

-Productivity of fishing and aquaculture accounted for 2.9 percent of the gross national product and accounted 76 percent from the catch in the sea.

- Fishing in Thai waters is taking place fishing beyond the capacity of the sea, especially with capturing demersal fish by trawl nets and pushing nets since B.E. 2515(1972). Research from the Department of Fisheries found that in B.E. 2504 (1961) the rate of trawl fishing was the 298 kg / hr. decreased to 49.2 kg / hr. in the B.E. 2525 (1982) , and 22.78 kg / hr. in B.E. 2534 (1991) (Phasuk, 1994) . In B.E. 2549 (2006) the average catch rate of the upper Gulf of Thailand remaining 14.126 kg / hr. (Opas Chamason and Kanit chuapun, 2009).

- Reports from Sampan Panjarat (2008) said that the total volume of catch in sustainable fishing in the Andaman Sea should not exceed 200,000 tons per year, but the catch was 491,292 tons per year.

- The information from the Bureau of Policy and Planning, Ministry of Science, Technology and Environmental Report of B.E. 2546 (2003) reported that fishing with trawl nets with motorized vessels results in the capture of economic fish (38.5 percent) and trash fish and juvenile economic fish (61.5 percent). Especially there was an increase in the aquatic animal catch, which is mainly trash fish, used to make animal feed. There are higher share of catching of juveniles of economically important fish. The average size of caught fish is smaller which resulted from the excessive use of resources.

-The use of certain fishing gear and some methods of fishing can destroy aquatic life of all kinds. It can result in environmental destruction and the destruction of source of aquatic larvae, whether it is done by using explosives, poison, trawl nets, push nets, or small mesh size.

-The sustainable catch volume of Thai waters is not more than 1.4 million tons per year. But the Thai waters have been fished beyond the capacity of the sea since B.E.2515 (1972). The government has a policy to maintain a balanced level of fishing since B.E. 2520 (1977), as stated in the National Economic and Social Development Plan No. 4 B.E. 2520-

2524 (1977-1981). But it failed to achieve this goal, in particular, because it did not cancel the use of push nets with motorized vessels or control vessels with trawl nets.

The issues are both social and political in nature. There are coordination problems in practice, as separate regulatory agencies oversee the registration of fishing vessels (Marine Department, Ministry of Transport) along with the fishing vessels control agency (Department of Fisheries, Ministry of Agriculture and Cooperatives). The construction of fishing vessels is done freely. Also, there is subrogation of fishing vessel registration while the Thai waters are in degradation. There is subrogation of fishing gear licenses, by creating new nets while using the old license instead. Thus, it results in the use of gear which destroys aquatic resources again. It also means the substitution of one person's gear licenses in the place of another with reference to a lawful claim, so that he or she who is substitute succeeds to the rights of other's gear license in relation to the debt or claim, and its rights, remedies, or securities.

The fishery sector is also expanding. This is partly because the cost of commercial fishing does not reflect the actual cost of fishing, such as the price of oil subsidies by the government. This is a debate in the arena of world trade, as subsidies can lead to unfair trade or result in a lot of cheap labor from neighboring countries.

A study report and recommendations provided to the Government of the National Economic and Social Advisory Council, as well as the cabinet of Thailand, has instructed the government to consider this issue together with the Ministry of Finance, Ministry of Foreign Affairs, Ministry of Agriculture and Cooperatives, Ministry of Transport, Ministry of Education, Ministry of Industry, and Office of the National Economic and Social Development. In this connection, there was a reply to the National Economic and Social Advisory Council on November 7, B.E. 2550 (2007), regarding the use of push nets with motorized vessels. All parties agreed about the cancellation of push nets with motorized vessels in the Thai waters. With respect to the trawl vessels, there is proposal to reduce the number of trawl vessels down to 7000. All parties agreed to set targets for reducing the number of trawl vessels to be in balance with the potential of marine fisheries production.

From the above information, the trawl fishery with motorized vessels is the most productive of the fishery industry. But, if Thailand does not control the amount of fishing activity to balance the potential productivity of the sea, in the near future we will have no remaining fish to catch. This would result in the destruction of the interests of the nation as a whole.

Fishing fleets of Thailand currently have to catch fish from the waters of more than 14 foreign countries. Fish caught from waters of foreign countries by Thailand fishing fleets will be included with the records of fish caught from the Thai waters. It seems to be that there are a lot of fish in the Thai waters to be caught. The fact is that more than one million tons of fish were caught by Thailand fishing fleets from foreign seas.

Ms. Yingluck Shinawatra, Prime Minister, had a policy statement to Parliament on 23 August B.E.2554 (2011) "*5.2 The conservation and restoration of coastal and marine resources by refreshing Thai waters, construction and expansion of artificial reefs and sea grasses by the*

participation of the community ... preserving marine biodiversity, improve and expand the coastal fisheries. Destructive fishing gear restrictions and cancellation, optimization process, caring about marine security.” But this government does not yet have any clear measures about destructive fishing gear restrictions and cancellation.

Although it has banned trawl fishing in coastal areas within 3,000 meters of the shore across the country from B.E. 2525 (1972) onwards, several limitations of the Department of Fisheries to control the trawl fishing to follow the law and attempt to control the number of trawl fishing vessels not to increase, was not achieved in practice.

In B.E.2523 (1980), the Department of Fisheries announced that it will not issue permits for new trawl fishing vessels to reduce the number of trawl vessels in the long run. However, with the movement of the operators and the trawl fishery at that time, the Department of Fisheries had to allow illegally trawl fishing without registration to be legitimized. This was called “Amnesty for illegal trawl vessels.”

In the past, there has been five occasions of amnesty for illegal trawl vessels, including in the years B.E.2523 (1980), 2524 (1981), 2525 (1982), 2532 (1989) and 2539 (1996). Since that time, there have been increasing control measures of fisheries, such as there must be a vessel to catch fish to be exported to the EU only, larger mesh size, extending the fishing area from 3,000 meters to 5,400 meters from the shore, etc.

In B.E.2555 (2012), the Department of Fisheries had submitted the request to legitimize illegal trawling to the Cabinets, but was opposed by the small-scale rural fishing communities and could not be implemented. This amnesty claimed to solve Thailand's fishery products to allow them to be imported into the EU under Measures to combat IUU Fishing.

However, when considering the evidence about the impact of trawl fishing above, it can be seen that the amnesty for illegal trawlers results in the distortion of the intentions of the EU IUU Fishing measures against illegal fishing, the lack of fishing reports and uncontrolled operations which results in serious damage to fisheries sustainability of fishery resources and the marine environment.

The role of the Department of Fisheries should be based on two key principles. The first is to manage fisheries in a sustainable manner to maintain food production and the livelihood of fishermen nationwide. The second is the distribution and access to resources in a fair manner that reduces conflict, inequality in society, and fairly good governance in the management of fisheries. If the Department of Fisheries can operate on these two main principles, it will achieve the overall goals of the Department of Fisheries.

3.2 National and Local Fishery Management

Under Section 32, the 2490 Fisheries Act distributes authority to a number of entities. There is the Ministry of Agriculture and Cooperatives who takes charge and executes the Act. The ministry has broad powers regarding the creation of regulations and notifications. The

Provincial Governor has certain authorities under the Act pursuant to Section 32, equivalent to the Ministry where the Ministry approves such authority. In essence, the Act does not allow for the delegation of the Ministry's authority to a provincial Governor.

The registration and application for fishing permission by the Fisheries Act B.E. 2490 is centralized under the Minister of Agriculture and Cooperatives. However, the Minister can provide the Provincial Governor the authority to issue or prohibit fishing in his/her jurisdiction as permitted under Section 32 below.

Section 32

The Minister or provincial governor in his jurisdiction and with the approval of the Minister is empowered to make notification determining:

- (1) The size of mesh and dimensions of every kind of fishing implement, and size, kind, numbers and parts of fishing implement, which is permitted in fisheries;*
- (2) Any kind of fishing implements which are absolutely forbidden to be used in fisheries.*
- (3) The distance between each stationary gear;*
- (4) The methods of using every kind of fishing implement;*
- (5) The spawning and breeding seasons, fishing implement and methods of fishing in any fisheries during the said seasons;*
- (6) The kind, size and maximum number of aquatic animals for which fishing is permissible;*
- (7) Certain kinds of aquatic animals for which fishing of which is absolutely forbidden.*

Ayut Nissapa (1999), notes that “the public administration of Thailand and the formulation of national policies and plans with regards to fisheries and the coastal environment of Thailand, is generally a “top down” model with key policies and plan “formulated by central administration and then handed over to the provincial and local administration for implementation.”

But in the process of these notifications, the current process has focused on greater community participation, such as in the case of the consideration of extension of prohibition of trawl nets and push nets within the area of 3,000 meters from the shoreline to be increased to 5,400 meters from the shoreline.

From the meeting of the Committee of Measures of Aquatic Conservation 3/2550 on 13 June 2550 there was consideration of the memo of discussions between the representatives from Ministry of Agriculture and Cooperatives and the Assembly of the Poor on expanding the use of trawl nets and push nets in country from 3,000 meters to 5,400 meters from the shoreline.

The meeting resolved to agree in principle, but the process of expanding the fishing area or not needs, the considerations of technical, economic, social, and cultural information by giving stakeholders the opportunity, to comment and to consider the availability of space in each province. And the resolution of the Board of Directors of the Committee of Measures of Aquatic Conservation shall present to the Policy Committee on Fishery Management, to listen to the next round of comments.

Later, on June 21, B.E.2550 (2007), the Policy Committee on Fishery Management conducted a meeting of the 1/2550 to consider extending the measures to prohibit fishing trawl nets and push nets. It was agreed, in principle, to extend the zone of prohibition. But a study of the trade-offs that will occur should analyze the impact on both the economic, social and environmental resources. And the consideration of the Committee at the local level is critical.

The Department of Fisheries has also issued the Kor Sor 0510.2/ Wor 607, dated August 3, B.E.2550 (2007), which noticed every province along the sea to hold a conference on provincial committee about problems suffered in the fishery (Multilateral Board establishment). The conference will be comprised of representatives of fishermen in every field, stakeholder groups, related government agencies, and representatives from academic institutions, to determine the extent of controlling trawl nets and push nets from 3,000 meters to 5,400 meters (three nautical miles) of the coastline. The Committee shall consider the facts about sea conditions, geographic areas, and technical data in determining whether such an expansion is appropriate or not. When consideration has been completed, the Committee shall provide ideas and facts and submit them to the Department of Fisheries to provide to the Ministry of Agriculture and Cooperatives for consideration of issuing the notification later on.

3.3 The Existing Overall Trawl Management Framework

The existing overall trawl management framework in Thailand is concerned with the following issues:

1. Control the number of fishing trawl and push nets.
2. Prohibit the use of trawl and push nets during the spawning and breeding season of certain commercially important species.
3. Prohibit the use of trawl and push nets extending from the area within 3 km to 5.4 km of the shoreline.
4. Prohibit the use of trawl and push nets from specific areas in each province.

There are conflicts between coastal marine fisheries and commercial marine fisheries. Commercial fishing uses larger vessels with more sophisticated gear which have more capacity to venture far from shore, where the catch is destined for commercial markets, and

in some cases, the export market. Coastal marine fishing on the other hand, is dominated by small-scale fishermen with minimal gear and limited vessel size.

The principal attention of the Department of Fisheries in recent years has been on both marine fisheries because of the significant resource depletion in the 1980s through 1990s. Moreover there has been increasing conflicts between the commercial marine fishery and coastal marine fishery.

Also, the destruction of the sea bottom has significantly reduced the numbers of aquatic animals. The Department of Fisheries announced prohibition of newly registered trawl vessels from B.E. 2523 (1980). But in reality, a lot of trawl vessels are fishing illegally without registration in the Gulf of Thailand and the Andaman Sea. As a result, the Thai sea fisheries continue to be degraded.

There is currently the measure of closing the Upper Gulf of Thailand, Kor Shape (upward u-shape) in 8 provinces to allow for the recovery of marine resources. And other measures have been applied, such as the prohibition of the trawl fishing zone being extended from 3,000 meters to 5,400 meters in some provinces, and installing a vessel monitoring system (VMS) for commercial fishing vessels to keep track of ships, which results in the ability to track, monitor, and enforce the law. (The Notification is effective on 1 June 2014).

3.4 Current legal and regulatory measures on trawl fisheries

3.4.1 Fisheries Act B.E. 2490 (1947).

The Fisheries Act B.E. 2490 (1947) is the principal legislative instrument dealing with fisheries and the cultivation of aquatic animals. Although various efforts have been made over the last decade to draft and adopt new fisheries legislation, the Fisheries Act is currently still in force. The Act is administered by the Ministry of Agriculture and Cooperatives (MAC). The Department of Fisheries (DOF) is the principal government agency responsible for managing and developing fisheries and aquaculture.

The Fisheries Act is further implemented at the provincial and district level. The Royal Decree on Administration sets out the authority of both the Provincial Fishery Officer (each province has a Provincial Fishery Officer) and the District Fishery Officers. The District Office and the officers therein report to the Provincial Officer. The Tambol Administrative Organization Act B.E. 2537(1994) empowers local communities, at the sub-district level, to manage and conserve natural resources and the environment in their localities. But these powers still prohibit local communities from issuing local regulation in their areas with respect to fishery management. This is because the Fisheries Act 2490 (1947) does not provide authority to the local government to issue local provisions in this regard. The Provincial Administrative Organization Act B.E. 2540 (1997) empowers the Provincial Administrative Organization to formulate provincial development plans, coordinate and cooperate with Tambol Administrative Organizations, allocate budgets to Tambol

Administrative Organizations, and protect and conserve natural resources and environment in their territories.

The principal legal instrument is the Fisheries Act B.E. 2490 (1947), as amended in 1953 and 1985. It is composed of 73 sections and directed primarily to the freshwater fisheries (inland fisheries) and the collection of fees for the use of certain fishing gear. The Act provides for the adoption of regulations (instruments that require cabinet's approval) and notification (instruments that can be issued directly) pursuant to the Fisheries Act. There are 19 notifications of the Ministry of Agriculture and Cooperatives and 4 provincial notifications which have been issued regarding trawl and push net fisheries.

The fundamental purpose of the B.E. 2490 (1947) Fisheries Act is that whomever wants to fish may fish subjected to paying a fishing fee, subjected to certain restrictions on season, area, types of gear and mesh sizes.

Section 25 of the Act provides that the Minister can make notifications requiring that all persons engaged in fishing or trade in fishery products be registered and apply for permission before undertaking the activity. Failure to comply with such a notification gives rise to a minor penalty under Section 63. Ministerial regulations and notifications have been issued under Section 25 of the Fisheries Act with respected to coastal shrimp aquaculture.

Section 26 provides that the Minister can issue a notification requiring owners or possessors of any kind of fishing implement (fishing gear) to have the gear registered. The failure to comply with a notification gives rise to a minor penalty under Section 63.

Section 28 provides that a person is "entitled" to use a licensed fishing implement when a license has been issued and the fishery fee paid. A licensed fishing implement is defined as a fishing implement specified by Ministerial Regulation. Use of a fishing implement without a license gives rise to a fine three times the fee due.

Section 32 provides that the Minister and provincial governor have made the regulation and notifications that are relevant to marine capture fisheries and trawl fisheries.

The Minister or provincial governor in his jurisdiction and with the approval of the Minister is empowered to make the notification determining:

- (1) the size of mesh and dimension of every kind of fishing implement, size, kind, number and parts of fishing implement, which is permitted in fisheries;*
- (2) Any kind of fishing implements which is absolutely forbidden to be used in fisheries;*
- (3) The distance between each stationary gear;*
- (4) The methods of using every kind of fishing implement;*
- (5) The spawning and breeding seasons, fishing implement and methods of fishing in fisheries during the said season;*

(6) *The kind, size and maximum number of aquatic animals the fishing of which is permissible;*

(7) *Certain kinds of aquatic animals, the fishing of which is absolutely forbidden.*

It seems to be that the Minister has the authority to deal with all kinds of gear restrictions, open and closed seasons, and to establish quotas. It is also recognized that a fishing implement includes a fishing vessel. Section 32 gives Ministerial regulatory power with respect to the number of vessels (hence control on entry into the fishery)

The Ministerial Regulation, Notification and Provincial Notification that has been issued pursuant to Section 32 of the Fisheries Act fall into several categories as follows:

1. From B.E. 2523 (1980), 2539 (1996) Ministerial Regulations were adopted to control the number of fishing trawl and push nets.

2. From B.E. 2496 (1953), 2518(1975), 2550 (2007), and 2551 (2008), Ministerial Regulations were adopted to prohibit the use of trawl nets and push nets during the spawning and breeding season of certain commercially important species.

3. From B.E. 2515 (1972), Ministerial Regulations were adopted to prohibit the use trawl and push nets from the area within 3 km of the shoreline. And in B.E. 2550 (2007), 2551 (2008), 2552 (2009), and 2554 (2011) Ministerial Regulations were adopted to prohibit the use of trawl, push nets from the area within 5.4km of the shoreline in 10 provinces.

4. From B.E. 2535 (1992), 2541 (1998), 2542 (1999), 2543 (2000), and 2546 (2003), Ministerial Regulations and Provincial Regulations were adopted to prohibit the use of trawl and push nets from specific areas in each province.

5. From B.E. 2534 (1991), 2543 (2000), and 2544 (2001), Ministerial Regulations were adopted mesh size limitations for specific fishing gear (purse seine, anchovy and squid light luring fishing gear). But there is still no mesh size limitations for fishing by trawl and push nets.

6. From B.E. 2550 (2007), Ministerial Regulations were adopted for the creation of closed seasons, certain closed areas and the regulation of fishing trawl and push nets. It will control fishing during 15 February to 15 May of each year. As the blockade, the Department of Fisheries will control the fisheries in Prachuap Khiri Khan, Chumphon and Surat Thani, covering an area of about 26,400 square kilometers. From B.E. 2551 (2008), it will also control the fishing along the Andaman coast for a period of three months: from April 15 - June 15 which covers an area of 4, 696 square kilometers, in the four provinces of Phuket, Phang Nga, Krabi and Trang. These two Ministerial Regulations have been adopted for more than 30 years, and have been recently adapted due to fishermen have modified their gear to fish in the prohibited areas, resulting the Department of Fisheries has developed the regulations in several times, and lastly in B.E. 2550 (2007) and 2551 (2008) to prevent their fisheries within the areas.

In B.E 2556 (2013), Ministerial Regulation was adopted which created closed seasons, certain closed areas, and the regulation of fishing trawl and push nets in the Upper Gulf of Thailand from 1 June to 31 July of each year. This blockade covers an area about 6,075 square kilometers, in 8 provinces: Prachuap Khiri Khan, Phetchaburi, Samut Songkhram, Samut Sakhon, Bangkok, Samut Prakan, Chachoengsao, and Chonburi.

A number of notifications have been implemented regarding trawl and push net fisheries, as set forth in the table below:

Control Number of Trawl and Push Nets	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding the use of trawl and push nets with motorized vessels No. 3 (2523), dated March 26, B.E. 2523 (1974).	X	
2. Regulation of the Ministry of Agriculture and Cooperatives regarding implementation procedures on controlling the number of trawl and push nets , dated September 17, B.E.2539 (1996).	X	

Prohibit the Use of Trawl and Push Nets During the Spawning and Breeding Season of Certain Commercially Important Species	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of trawls attached with nets and push nets in fishing in Chonburi province, dated June 26, B.E. 2518 (1975)	X	
2. Notification of Ministry of Agriculture and Cooperatives regarding prohibition on the use of certain kinds of fishing appliances in fishing in the spawning and breeding season in Prachuap Khiri Khan, Chumphon and Surat Thani Provinces during the determined period, dated January 24, B.E. 2550 (revised update, 2007).	X	
3. Notification of Ministry of Agriculture and Cooperatives regarding prohibition on the use of certain kinds of fishing appliances in fishing in the spawning and breeding season in Phuket, Phangha, Krabi, Trang Provinces during the determined period, dated October 24, B.E.2551 (revised update, 2008).	X	
4. Notification of Ministry of Agriculture and Cooperatives regarding prohibition on the use of certain kinds of fishing appliances in fishing in some fishing areas in Prachuap Khiri Khan, Phetchaburi, Samut Songkhram, Samut Sakhon, Bangkok, Samut Prakan, Chachoengsao, and Chonburi Provinces during the determined period, dated August 13, B.E.2556 (2013)	X	

Prohibition on the Use of Trawl and Push Nets from the Area Within 3km and 5.4 km of the Shoreline	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels, dated July 20, B.E.2515 (1972).	X	
2. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Trang Province, dated October 9, B.E. 2550 (2007).	X	
3. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Krabi Province, dated October 9, B.E. 2550 (2007).	X	
4. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Prachuab Khirikhan Province, dated October 9, B.E. 2550 (2007).	X	
5. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Rayong Province, dated January 3, B.E. 2551 (2008).	X	
6. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Narathiwat Province, dated January 3, B.E. 2551 (2008).	X	
7. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Pattani Province, dated January 3, B.E. 2551 (2008).	X	
8. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Satun Province, dated January 29, B.E. 2552 (2009).	X	
9. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Nakornsithamrat Province, dated July 17, B.E. 2552 (2009).	X	
10. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Chumphon Province, dated April 11, B.E. 2554 (2011).	X	
11. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Chantaburi Province, dated December 11, B.E. 2555 (2012).	X	

Prohibition on the Use of Trawl and Push Nets from Specific Areas in Each Province	Issuer of Notification	
	National	Local
1. Notification of Trang Province regarding the prohibition of using certain fishing gear in the sea grass in designated areas, dated 16 May, B.E. 2535 (1992).		X
2. Notification of the Ministry of Agriculture and Cooperatives regarding the prohibition of using trawl and push nets in fishing in Phangha Bay, dated 14 December, B.E. 2541 (1998).	X	
3. Notification of Chonburi Province regarding the prohibition of using beam trawls with motorized vessels, fishing in local Chonburi, dated 23 March, B.E. 2542 (1999).		X
4. Notification of Prachub Khirikhan Province regarding prohibiting the use of certain fishing gear in designated areas, dated 19 October, B.E. 2542 (1999).		X
5. Notification of Trat Province regarding prohibiting the use of trawl nets, push nets and clam rake tool fishing in Channel Island of Koh Chang, Trat, dated 28 March, B.E. 2543 (2000).		X
6. Notification of the Ministry of Agriculture and Cooperatives regarding the prohibition of using push nets with motorized vessels in fishing in certain areas in Pattani Province, dated 17 July, B.E. 2546 (2003).	X	

3.4.2 Thai Vessels Act B.E. 2481(1938)

Besides the Fisheries Act, there is another Act which has relevance to trawl fisheries matters, Thai Vessels Act B.E. 2481(1938). Under this Act, fishing vessels in Thailand must register with the Marine Department, and may be allowed to do fishing (with a License) from the Department of Fisheries, which is in a different Ministry. This makes the control number of fishing vessels inefficient to suit the amount of aquatic carrying capacity.

Under the Thai Vessels Act B.E. 2481(1938), the Marine Department is responsible for fishing vessels. The procedures of the Department are as follows.

Section 6: Thai ships must register with the Registrar of Ships.

Section 8: For fishing, non-motorized vessels of all sizes and motorized vessels ranging in size from 6 Gross Tonnage, are to be registered as a Thai fishing vessel from the Marine Department by filling out a registration form at the Marine Department or harbor district vessel owners domiciled.

An application for a fishing license must be submitted to the Department of Fisheries under Fisheries Act Section 25 which provides that the Minister can issue notifications requiring that all persons engaged in fishing or trade in fishery products be registered and apply for

permission before undertaking the activity. The license applicant shall submit an application to the local district (local district fisheries office).

The cabinet resolution dated January 31, 2555 (2012) stated that currently in the approval of registered fishing vessels must be approved by the Marine Department , Ministry of Transport . However, due to the large number of approved registered fishing vessels, the number of ships that are appropriate to the volume of aquatic water must be considered, too. Thus, the registration of fishing vessels must earn approval from both of the Departments of Fisheries, Ministry of Agriculture and Cooperatives, and Marine Department, Ministry of Transport. A cabinet has assigned the Ministry of Agriculture and Cooperatives and the Ministry of Transportation to work in coordination regarding the implementation of the registration of fishing vessels. The applicants for registration of vessels and fishing vessel category must have a notice from the Department of Fisheries that they are allowed to enroll the fishing vessels and show such notice before registration of vessels with the Marine Department.

3.4.3 Draft (new) Fisheries Bill

Fisheries legislation in force at present is Fisheries Act B.E. 2490 (1947) which has been in force for a long period of time and not so appropriate for the current conditions.

The existing Fisheries Act has been the main regulatory statute for decades, it is considered outdated and inadequate for some of the reasons and is agreed among stakeholders that it should be revised .There have been many efforts to draft and adopt new fisheries legislation by the Department of Fisheries. The latest attempt as prior to parliament dissolution on 9 December, 2013, draft of the new fisheries act has passed two readings at the commission level; it is only pending the third and final reading, which is the vote in the senate. Since the parliament has been dissolved, Council of State will compile pending draft laws and will propose to the new government and parliament to consider. As of March 2014, the Department of Fisheries has notified the Council of State of its intention to submit this draft law to the senate.

A draft fisheries bill includes important new principles, such as the demarcation of fishing in the waters of Thailand into three areas: (1) the freshwater fisheries refers to fishing areas on the land, (2) the coastal fishery refers to the area far out from the coast (three nautical miles), and may extend to, but not exceed, 12 nautical miles, and (3) the offshore fishery refers to the sea, beyond the sea coast, to the end of Thailand waters. In each district, fishermen have managed to exploit different aquatic resources based on the types of fishing gear used. The use of fishing gear that is not suitable for sustainable exploitation of aquatic resources will result in prematurely small fish to be caught. The use of fishing gear that is appropriated, is seen as a way to maintain the ecosystem. Where the existing law does not regulate fishing areas, fishing is allowed in the sea freely, causing problems of scrambling for fishing areas. Coastal marine fisheries are dominated by small-scale fishermen with minimal capacity gear

and limited vessel size. Commercial marine fisheries are larger vessels with more sophisticated gear which have the capacity to venture far from shore, and their catch are destined for commercial markets, and in some cases, the export market.

The draft fisheries bill adopts measures to promote aquaculture that are safe for consumers and establish quality standards without any environmental impact. The state can control the quality for aquaculture standards while the existing law was not clearly defined. Consequently, past aquaculture activities used chemicals, so the quality is not up to standard and there is no safety to the consumers given the lack of potential trade competition.

The draft fisheries bill also adopts measures to promote better hygiene. The state has a duty to set basic standards for public health. Since the process of capturing, handling for animals after capture, processing, and transport or unloading animals has many risks, it is essential to maintain high quality aquatic hygiene for the safety of consumers. Existing law has no provisions which promote health and the government is unable to control aquatic quality and sanitation.

The draft fisheries bill allows for public participation in the management, maintenance, conservation, and utilization of aquatic resources. It will result in better long-term aquatic resources management that will allow the state to define management measures consistent with the area and the needs of the people which the existing law is not explicitly stated.

The draft fisheries bill proposed settings of the National Fisheries Policy Committee to set guidelines and targets for the development of local fisheries, guidelines for the management of aquatic resources, the development of fishery processing industries, and troubleshooting the Thai Overseas Fisheries. In the existing law, this is not explicitly stated, therefore, there is lack of management of the fisheries as a whole, and these results in the violation of territorial waters and fishing that is in violation of international agreements.

This draft amendment of the Fishery Act modifies important principles to suit the current conditions, with increasing population, and with the expansion of the fishing industry, but the fishing area is still the same. And establishing a Committee of National Fisheries Policy is likely to cause problems and obstacles in the fisheries decline, whether the development of fisheries to better fisheries management, or production of fish and aquatic products to ensure quality to the public consumers.

The new draft law will go to the House of Representatives. However, for the applicable law to be effective, it is up to the authorities concerned and the public to work together to follow the laws that are rigorously enforced.

The table below provides a comparison between the essence of Fisheries Act B.E. 2490 (1947) and the draft Fisheries Bill.

Fisheries Act B.E. 2490	Draft Fisheries Bill
<p>1. Fishing Area.</p> <p>No clear demarcation of fishing areas, thus resulting conflicts between coastal fishing and commercial fishing</p>	<p>1.Fishing Area</p> <p>There are 3 delimited fishing zones, including the coastal fishery, the offshore fisheries, and the freshwater fisheries.</p>
<p>2. Promote and Regulate Aquaculture</p> <p>Not clearly defined. The aquaculture in the past used a lot of chemicals, environmental destruction and invasion mangrove areas for use of aquaculture areas.</p>	<p>2. Promote and Regulate Aquaculture</p> <p>There are rules to promote aquaculture. This allows quality of aquatic resources that are safe for the consumer and does not affect the environment.</p>
<p>3. Hygiene Control</p> <p>Given the lack of clear hygiene standards. Thailand's aquatic products are contaminated with toxins which affect exports.</p>	<p>3. Hygiene Control</p> <p>Hygiene standards are prepared to handle, maintain aquatic animals after capture, processing, storage, transportation or unloading fish and aquatic products.</p>
<p>4. Participation of the People</p> <p>Different people, different ideas, different people's responsibilities, so there is no holistic management in fisheries.</p>	<p>4. Participation of the People</p> <p>Increases the role of the Department of Fisheries to be responsible for promoting participation and support of local fishing communities in the management, maintenance and conservation and utilization of aquatic resources. This will result in better long-term aquatic resources management.</p>
<p>5. Fisheries National Policy Committee</p> <p>No national fisheries policy, so there is the lack of fisheries management as a whole.</p>	<p>5. Fisheries National Policy Committee</p> <p>There is a Committee responsible for the fishery as a whole. Consists of Minister of Agriculture and Cooperatives, members of the public and private sectors related to fisheries, including the counseling and guidance for the implementation of the Thai Oversea Fishery Committee.</p>

Fisheries Act B.E. 2490	Draft Fisheries Bill
<p>6. Penalty</p> <p>Established criminal penalties which will vary according to the nature of the punishment is imprisonment, or both a fine and imprisonment.</p> <ul style="list-style-type: none"> - A fine from 50 to 200,000 THB - Imprisonment from 1 month - 6 years. 	<p>6. Penalty</p> <p>The principle remains the same. But the proportion of each characteristic in determining the penalty is more coherent.</p> <ul style="list-style-type: none"> - A fine from 5,000 to 600,000 THB - Imprisonment from 1 month - 6 years.

3.4.4 Legal and Regulatory Framework at Two Project Sites

(1) Legal and Regulatory Framework at Project Sites at Prachuab KhiriKhan-Chumphon Provinces

This project, “Strategies for Trawl Fisheries, Bycatch Management,” (REBYC-II CTI; GCP /RAS/269/GFF) outlines a sea trial experiment to explore the effects of enlarging the mesh size in the cod end of trawler for both otter board and pair trawlers in Prachuab Khirikhan and Chumphon provinces. Data collection, research and analysis, economical loss and gain when mesh size cod end is enlarged will be undertaken. The fishermen and related fishery agents will consult and advise the staff of the Department of Fisheries to implement the sea trials, which is one alternative for fishery management in the area.

There are a number of notifications that have been implemented regarding trawl fisheries in Prachuab Khirikhan and Chumphon provinces, as outlined below:

Controlling the Number of Trawl and Push Nets	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding using trawl and push nets with motorized vessels No. 3 (2523), dated March 26, B.E. 2523 (1974).	X	
2. Regulation of the Ministry of Agriculture and Cooperatives regarding implementation procedure on controlling the number of trawl and push nets, B.E. 2539, dated September 17, B.E.2539 (1996).	X	

Prohibit the Use of Trawl and Push Nets During the Spawning and Breeding Season of Certain Commercially Important Species	Issuer of Notification	
	National	Local
1. Notification of Ministry of Agriculture and Cooperatives regarding prohibition of the use of certain kinds of fishing appliances in fishing in the spawning and breeding season in Prachuab Khirikhan, Chumphon and Surat Thani Provinces during the determined period, dated January 24, B.E. 2550 (Revised update 2007).	X	
2. Notification of Ministry of Agriculture and Cooperatives regarding prohibition of the use of certain kinds of fishing appliances in fishing in some fishing areas in Prachuab Khiri Khan, Phetchaburi, Samut Songkhram, Samut Sakhon, Bangkok, Samut Prakan, Chachoengsao, and Chonburi Provinces during the determined period, dated August 13, B.E.2556 (2013)	X	

Prohibit the Use of Trawl and Push Nets from the Area Within 3km and 5.4 km of the Shoreline	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels, dated July 20, B.E.2515 (1972).	X	
2. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using of trawl and push nets with motorized vessels in some fishing areas in the Prachuab Khirikhan Province, dated October 9, B.E. 2550 (2007).	X	
3. Notification of the Ministry of Agriculture regarding prohibition of using trawl and push nets with motorized vessels in some fishing areas in Chumphon Province, dated April 11, B.E. 2554 (2011).	X	

Prohibition of the Use of Trawl and Push Nets from Specific Areas in Each Province	Issuer of Notification	
	National	Local
1. Notification of Prachuab Khirikhan Province regarding prohibiting the use of certain fishing gear in designated areas, dated 19 October, B.E. 2542 (1999)		X

There are 7 of Notifications of the Ministry of Agriculture and Cooperatives and 1 Notification of Prachub Khirikhan Province. It seems to be that the Issuer of Notification is at the National level rather than at the local or provincial level. Even it is enforced in a particular province such as Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of the use of trawl and push nets with motorized vessels in some fishing areas in Prachuab Khirikhan Province, dated October 9, B.E. 2550 (2007).

There are no laws or regulations related to enlarging mesh size of cod end in trawlers in this area. Fishermen in the area have commented that they are not sure about the ability to reduce the amount of bycatch by enlarging mesh size cod end of trawler. This is because the fish that escape from the net may be already dead. Fishermen still lack confidence in this approach. They propose that it should have more involvement from the local agency about the enactment of local regulations on the management of their local fisheries. In this regard, the Marine Fisheries Master Plan of the Department of Fisheries has included the mesh size codend of trawlers in the national fisheries management.

(2) Legal and Regulatory Framework at Project Site at Trat Province

This project, “Strategies for Trawl Fisheries Bycatch Management,” proposes to define a “free zone for no fishing” in some areas and a closed fishing season in Trat Province. The fishermen and related fishery agents will consult and advise the staff of the Department of Fisheries to implement a closed area and a closed season as one alternative for fishery management in the area.

There are a number of notifications that have been implemented regarding trawl fisheries in Trat Province, as set forth below:

Controlling the Number of Trawl and Push Nets	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding using trawl and push nets with motorized vessels No. 3 (2523), dated March 26, B.E. 2523 (1974).	X	
2. Regulation of the Ministry of Agriculture and Cooperatives regarding implementation procedure on controlling the number of trawl and push nets, B.E. 2539, dated September 17, B.E.2539 (1996).	X	

Prohibition of the Use of Trawl and Push Nets from the Area Within 3km and 5.4 km of the Shoreline	Issuer of Notification	
	National	Local
1. Notification of the Ministry of Agriculture and Cooperatives regarding prohibition of using trawl and push nets with motorized vessels, dated July 20, B.E.2515 (1972).	X	

Prohibition of the Use of Trawl and Push Nets from Specific Areas in Each Province	Issuer of Notification	
	National	Local
1. Notification of Trat Province regarding prohibiting trawl nets, push nets, and clam rake tool fishing in Channel Island of Koh Chang, Trat, dated 28 March, B.E. 2543 (2000).		X

There are 3 Notifications of the Ministry of Agriculture and Cooperatives and 1 Notification of Trat Province. It seems to be that the Issuer of Notification is at the National level rather than at the local or provincial level. There are no laws regarding prohibiting the use of trawl and push nets during the spawning and breeding season of certain commercially important species in this area.

The fishermen have commented regarding the implementation for a closed area and a closed season in Trat Province that there should be more publicity to achieve cooperation. Locals know that the resources are deteriorating and want to cooperate. But they also doubt that law enforcement by officials is effective. Local legislation, by itself, is more effective because it is closer to the people.

4. Gaps and Weakness of Legal and Regulatory Mandate for Trawl Fisheries in Practice

4.1 Problems of Inconsistent Policy and the Practice of Government.

From the previously mentioned National Policy Framework and its conflicts, it can be seen that national policies acknowledge that the trawl nets and push nets are related to destructive fishing gear and action should be taken urgently with respect to restrictions and cancellation on destructive fishing gear.

Also, the Department of Fisheries stated that trawl and push nets are aimed at capturing demersal fisheries as the main catch and has to be dragged along the sea floor. The Department of Fisheries has noted that such a fishing gear may destroy the aquatic resources and habitat of animals. In addition, Thailand has the tools to manage and control measures of trawl and push nets to solve the problem. But often there is a violation and this is influenced by political intervention by setting up new guidelines and measures. And the fishing gear is highly likely to damage aquatic water and marine animal habitats. However, there are current measures that are being used to solve problems with trawl and push nets. These measures are as follows:

1. Controlling the number of trawl and push net vessels through various measures, such as the notification by the Ministry which announced the registration and license for the trawl and push nets is not able to increase since Fisheries Act B.E. 2523(1980), but this has had almost no effectiveness. This is because in practice there are a lot of trawl and push net vessels which are illegal but are still able to fish. Also, in the past, an amnesty period has been established five times (politic intervened) for illegal trawl fishing vessels, including B.E.2523 (1980), 2524 (1981), 2525 (1982), 2532 (1989) and 2539 (1996). In B.E.2555 (2012), the Department of Fisheries had taken up the issue of amnesty for illegal trawl fishing vessels again, but this was opposed by local fishermen and as a result it cannot be implemented. This amnesty claimed to solve the problem to allow Thai fishing products to be exported to the EU under Measures to combat IUU Fishing. The Department of Fisheries tried to legitimize the smuggling of illegal trawlers. This action was a distortion of the intentions of the EU IUU Fishing to take measures to encourage responsible fishing and sustainable use of marine resources of the country's major exporters of aquaculture.

2. Zoning measures and prohibition conditions of trawl and push nets. Currently, there are three main measures.

(1) Declared restricted areas for trawl nets and push nets across the country, beginning 3,000 meters from the shoreline. And through B.E. 2550 (2007), 2551 (2008), 2552 (2009), and 2554 (2011), Ministerial Regulations were adopted to prohibit the use of trawl and push nets from the area within 5.4km of the shoreline in 10 provinces.

(2) Declared restricted areas for trawl and push nets fishing, only in some of the more restricted areas, such as a restricted zone for trawl net and push net fishing in Phang Nga Bay in 2541 (1998), and so on.

(3) Declared restricted areas for trawl and push net fishing in specific regions and times. Such notification banned fishing in the spawning season, closing area in the upper south of the Gulf (Prachuap Kiri Khan-Chumphon-Surat Thani).

These three measures are always violated. However it remains more effective in practice than controlling the number vessels which is more abstract.

Since B.E.2550 (2007), the Ministry of Agriculture and Cooperatives received more factual information from local fishermen, the Department of Fisheries, and the Fisheries Association of Thailand. It also used the consultation process to troubleshoot the fisheries problem in each province. There is a primary declaration of restricted areas for trawl and push net fishing in some additional spaces, including marine areas in Trang, Prachuap Khiri Khan and Krabi, dated October 9, 2550 (2007).

4.2. Problem of Decentralized Fisheries Management and the Participation of the Community

Fisheries Act of B.E. 2490 (1947), Section 32 allow only the central and provincial authorities to issue regulations relating to fisheries management. But it did not yet decentralize powers to the local authority to issue regulations and allow for local fisheries management whatsoever.

“Section 32 the Minister or provincial governor in his jurisdiction and with the approval of the Minister is empowered to make notification determining:”

Fisheries Act 2490 is a very old law and it has been amended three to four times. But the problem is the primary authority for the management of fishery resources has never been edited. Fisheries Act 2490 centralized the decision-making authority to the Ministry of Agriculture and Cooperatives. Essentially, there is no balance of power and no official public participation of stakeholders and other agencies. Making decisions about fisheries policy is applying the rule of benefit to a particular group rather than the rule of technical factors of the marine resources management.

The old law did not allow community participation in resource management at all. All the fishermen in the area have the potential to co-manage their own fishery resources and offer greater protection. But a group or community organization that seeks to maintain marine resources had not been supported, and no legal mechanisms adopted. They also allegedly overstepped the duties of citizenship and in some cases it is an offense itself.

Quarrels frequently arise between fishermen and government agencies or the private sector investing in the area. One of the key conflicts is about fishing operations that violate rules on use of different fishing gear, and scales and zones of operations. Conflicts are also rampant between large- and small-scale fishings, as they compete for access in contested fishing grounds. Some conflicts arise from competition for access to resources, the resolution of which often involve government and police enforcement. That is because the current structure of the fishery law is the centralization of decisions and actions by the Ministry and the Department of Fisheries. There is no balance of power when most policies give priority to catching as many fish as possible for the seafood industry.

Therefore, the Ministry should seriously consider the participation of fishermen in the troubleshooting process in sustainable marine fisheries in Thailand. It should also encourage the participation of fishing communities and coastal communities under the Constitution,

especially in the community rights in the new fisheries bill. It should consider solutions for local fisheries and coastal fisheries, the management of fishery resources in the coastal fisheries areas, coastal resource management by community involvement, marketing problems and preservation of aquatic animal, guidelines for surveillance and the use of inappropriate fishing gear. By doing so, it will substantially increase the cooperation between the Department of Fisheries and the fishermen community to set up common economic rules to catch the right size. Meanwhile, it must conserve the amount of aquatic animals so there is an adequate supply for the future and the size of the area, to finally achieve a balance in the ecosystem.

The Department of Fisheries has proposed a draft bill “Fisheries Act B.E. ...” which would give fishermen greater participation in policy formulation. For example, it would set clear boundaries of coastal fisheries; by water from the coast out to five nautical miles, except in areas where it is necessary to have a 12 nautical miles to the sustainable management of fisheries resources. There is also the Provincial Fisheries Committee, which is responsible for monitoring and providing regulatory support, including strengthening the implementation of the fishing community, to serve as a mechanism to resolve disputes between them.

But the government is unable to ensure no violation of the law thoroughly. It should encourage public participation in conservation efforts in the form of local organizations. If these organizations have enough development, they can be registered as an environmental non-government organization (NGO) under the Environmental Quality Protection and Promotion Act B.E.2535 (1992) in corporation with the Ministry of Natural Resources and Environment to seek support from the government for their activities.

It should decentralize authority to allow local authorizes to be able to issue local provisions for the management of local fisheries properly, such as in the Public Health Act B.E. 2535 (1992), Section 7 which has given local authorities the power to issue local provisions related to public health.

“Section 7: when there is a ministerial regulation issued under Section 6 enforced in any locally, the local government or local official which has activity or operation under said ministerial regulation. In this connection, if necessary, the local government may issue local provision or amend the local provisions already in force before the ministerial regulation was issued under Section 6, prescribing details of operation in such locality to be in accordance with said ministerial regulation.....”

Especially for the territorial sea of how many nautical miles from the shoreline, which should be reserved for only the small fishing vessels. In this case, it will have to determine local provisions about the appropriate size of vessels and fishing gear. And local organizations should be involved in the licensing and supervision as well.

4.3. Problems of Law Enforcement, Arrests, and Legal Loopholes

For some problems about law enforcement concerning trawl and push nets, there is the conflict of benefit between local fishermen and coastal commercial fishing operators who fish

without regard to the amount of fish stocks that should maintain sustainable fishery levels. As a result, the amount of aquatic animals has decline. It has also affected local fishermen, which have limited capabilities in specific fishing along the sea coast.

Fishery law B.E. 2490 enacted measures that may be used to resolve this issue, as it has banned the kind of fishing gear that will damage fish stocks and marine ecosystems, whether by trawl or push nets. Or, it determines the type, size and the number of aquatic animal that the operator is allowed to catch. However, it hardly found the regulation in Thai law relating to determining the size of aquatic animal which cannot be fished. These can reduce catches of “trash” fish. Limitations on types of gear and on smaller mesh sizes and perhaps different mesh designs can also lower the catch numbers of “trash” fish.

But such measures will need to be subject to strict and efficient surveillance, patrol and capture. This is a practical problem with the officials and the annual budget supply is not enough to perform effectively. The number of officials in the field and patrol vessels to inspect and enforce the regulations is too few.

There is also a need for more officials in the field, better infrastructure and facilities for enforcement, and delegation of sufficient authority for enforcement of the regulations to the provincial authority, such as an appointed committee for this purpose, rather than only to the provincial fisheries officials.

In some cases, even when an offense is found, an operator with a high-performance vessel could escape arrest from the official who has a low-performance vessel.

The backwardness of laws also needs to addressed, such as a case where there is an illegal anchovy surrounding net in the vessel but the fishermen would not be arrested since the laws of the country require that fishermen need to be caught in the actual act of illegal fishing or violating the regulations to be upheld in a court of law. But if the fishermen cannot be caught, this is motivation to do more illegal fishing.

Another obvious example is ships using a mesh size smaller than the legal limit allowed for fishing. But when the officials come, the fishermen cut off the net. So, the fishermen could not be arrested because the law requires the capture only when in practice.

The law should be modified to allow officers to make arrests based upon the illegal possession of fishing gear, arrests while cutting off the illegal nets, and arrests when a vessel is docked. But our laws are lagging behind and allow for only light penalties. Most people are not afraid to break the law because the risk of catching fish that can be sold for tens of thousands of baht, but only fined a few thousand. Therefore, it is worthwhile to do so.

Laws relating to marine and coastal resources are responsible by many Ministries. The laws empower each individual government agency with management authority over the sea, coast, and islands, as well as control over the number of vessels and fishing gear. When government agencies are authorized to operate by the laws in force in the same area, however, there were conflicts and redundancy. The public, especially the local fishermen, who are subject to the

provisions of the law, cannot follow the law in different angle. This redundancy is a major cause of legal loopholes and inefficiency of law enforcement.

On the subject of law enforcement, it looks redundant in the functioning of the multi-agency officials, which lack coordination. The legal authority to regulate activities in the sea requires coordination between multiple agencies working to effectively regulate the activities of the sea. The clarity of the agency responsible for enforcing compliance with the law has caused confusion among official practitioners. Moreover, the official practice is not as effective as they should be. Sometimes there is a spatial limitation in performing duties.

These problems result in law enforcement not achieving success. If the operator is arrested, the operator may destroy the evidence. So there is no competent evidence in the prosecution and prosecutor of the case may be countersued, or charged as performing a wrongful act, too. Problems may also include misconduct of the officer who let the offense go by calling or receiving benefits in return.

Because of these practical problems, therefore, it is necessary to require the cooperation of fishermen who do fishing legally or the local fishermen to testify in the prosecution of official misconduct or entrepreneurs who do fishing illegally. Or, it may rely on modern technology to record images of the illegal fishing. This, however, may be a burden on the state budget.

These problems are not an issue with the newly enacted law. But it must be solved by law enforcement efficiency. The government is unable to thoroughly ensure there are no violations of the law. It should encourage more public participation in the conservation efforts in the form of local organizations.

Moreover, the problems of effectiveness of law enforcement relating to fishing are also evident in the following respects:

- A case under the Fisheries Act, which is filed in district court, must be filed within 48 hours; allowing fishing vessels to go back fishing again quickly.
- It is an offense takes place at sea, the ability to make arrests and gather evidence is a hassle. Therefore, the arresting officer may be able to make only a partial arrest.
- The problem of investigation jurisdiction (area of marine political subdivision is unclear which cannot determine whether it is in any province).
- Legal issues about fishing gear that is not included with the vessel. The laws have no control of the acquisition and possession of illegal fishing gear on the vessels.
- Penalties are light, resulting in fishermen having no fear because the benefits are worthwhile.
- There are hardly any confiscations of vessels or fishing gear. Because the fishermen use loopholes in the laws, they have been able to lease ships listed to the court for a refund of the ships from the court. Because Penal Code Section 33 (1) requires that the judgment of the court in the forfeiture of

property which the person has provided or intended to be used in the offense, but if the property is owned by others who are not party to the offense, the court cannot confiscate that property.

4.4 Problem of Controlling the Number of Trawl and Push Net Vessels and Vessel Registration and Subrogation of Fishing Gear Registration

Thailand aims to reduce and cancel fishing trawl and push nets by issuing a long-term measure since B.E.2523 (1980). In B.E.2523, the Department of Fisheries announced that it will not issue permits for new trawl fishing vessels as part of its target to reduce the number of trawl vessels in the long run. However, with the movement of the operator and the trawl fisheries at that time, the Department of Fisheries had to allow illegal trawl fishing without registration to be able to register according to law, or called “Amnesty for illegal trawl vessels.” In the past, amnesty for illegal trawl fishing vessels has taken place five times, including in B.E.2523 (1980), 2524 (1981), 2525 (1982), 2532 (1989) and 2539 (1996).

While the trawl and push nets are controlled, the number is limited by not issuing new licenses from the Department of Fisheries. Licenses are non-transferable to another person, except as family inheritance. Normally when a trawl or push net is ruined, it cannot be used and it is gradually phased out. But nowadays, there is subrogation of fishing gear licenses, by creating new nets while using the old license instead. Thus, it results in the use of gear which destroys aquatic resources again. Subrogation of fishing gear licenses is substitution of one person’s gear licenses in the place of another with reference to a lawful claim, so that he or she who is substitute succeeds to the rights of other’s gear license in relation to the debt or claim, and its rights, remedies, or securities.

When implemented, there are measures to conserve aquatic animals in the sea, as mentioned above. What we cannot deny is that in Thailand, there are lots of fishing vessels that exceed the carrying capacity of Thai waters. If such measures were implemented strictly, a lot of fishing vessels and fishermen will be affected. And it may be necessary to reduce the number of fishing vessels, which in this regard will have to be coordinated closely between the Department of Fisheries and Marine Department, which regulates the registration of fishing vessels.

As a result, it should set forth measures outlining how the government can reduce the suffering of those in the fishing business and what can be done to minimize the economic impacts on Thailand because Thailand currently is a country that exports as much as one-tenth of the fish in the world.

There have been proposals for the establishment of a fund to buy the vessels and fishing gear, such as in the case of Canada or the Netherlands. This is a process to reduce the ability of sea fishing vessels, which is typically considered a key factor that represents the fishing ability.

There is lack of cooperation between the government and various fishermen, such as the Marine Department, which issue vessel registers, but the Department of Fisheries issued the

fishing license, thus causing problems such as the increase of new fishing shipbuilding without controls.

Moreover, Thailand has no laws regulating the amount of shipbuilding. There is a regulation by the Marine Department “Regulation Governing the Inspection and Approval of the Vessel Blueprint”, No. 1 of B.E. 2529 (1986). It allows the Marine Department to approve the vessel blueprint for completely built vessels, imported vessels and the newly built vessels. It applies to vessels with an overall length of 24 meters and up, with the aim only to ensure the safety of the vessel and to build the vessel in compliance with the regulations.

The licensing of fishing gear is the responsibility of Department of Fisheries, while vessel registration and licensing is under the mandate of the Marine Department; a loophole enables registered fishing vessels to operate without a license for gear. This separation of competencies has led to some mismatch of data on fishing gear and fishing vessels that have negative effects on the control fishing effort and management.

Cabinet passed a resolution on 31 January 2555 (2012) to ask for coordination between the Ministry of Transportation for vessel registration and from the Ministry of Agriculture and Cooperatives for fishing licenses. The fishing vessel must have a fishing license from the Department of Fisheries which must be shown before approval of vessel registration from the Department of Marine. There is currently no practical guideline for a concrete procedure in this regard.

However, controlling the of number of trawl and push net vessels is the preferred way with minimal impact on fishermen as opposed to reducing the number of fishing vessels and it needs to have a process that produces tangible results.

But the control of fishing vessels is complicated because the Department of Fisheries lacks comprehensive authority to manage fishing in the waters of Thailand. For example, the Marine Department licenses shipbuilding, and new and used fishing vessels. The Ministry of Industry regulates the manufacturing of nets of various types. Lastly, the Department of Commerce controls rare animal species export. These matters should be fully supervised by the primary agency concerned with fishing, which is the Department of Fisheries.

In 2554 (2011), it showed that there are 3,466 trawl vessels and 375 push nets vessels which have been licensed. And it is estimated that the number of illegal trawl vessels is not less than 2,107, which is the number of vessels that are trying to get amnesty in 2555 (2012).

5. Measures for Improvement of Trawl Fisheries Law to Reduce Bycatch

With respect to measures used in the management of trawl and push nets to reduce the numbers of bycatch, there are not only the legal measures. It still needs to consider integrating various measures together, i.e. considering measures in the fisheries law and other relevant laws, participation of the public, technical knowledge of fisheries in water resources, and related environmental fishery resources as shown in the diagram below.

Integration Management of Fishery Resources



But in this case, it only discusses ways to improve legal measures for the improvement of trawl and push net fisheries to reduce the numbers of bycatch, as outlined below.

5.1. Measures of Conformity of the Policy and the Practice of Government.

To make state policies and practices relating to the trawl and push net fisheries that are consistent, it should be adjusted to change the policy and direction of the development by the "principle of sufficiency economy," both at the government level and the local level. Development that is based on Sufficiency Economy is development that is based on sustainability and consideration. This kind of development emphasizes moderation, rationality, immunity, and the application of knowledge, carefulness, and morality in making decisions and taking actions. His Majesty the King Bhumibol Adulyadej, who developed the philosophy of Sufficiency Economy, has recommended appropriate stages of development. It must begin with sufficiency for the greater population. When the sufficiency of most people is achieved, the nation can then progress to economic growth. His Majesty the King developed the philosophy of the Sufficiency Economy to lead his people to a balanced way of life and to be the main sustainable development theory for the country. The theory is based upon a Middle Path between society at the local level and the market in the global context. By highlighting a balanced approach, the philosophy allows the nation to modernize without

resisting globalization, but provides a means to counteract negative outcomes from rapid economic and cultural transitions.

The current situation was found to have a conflict of fisheries policy relating resources conservation and accelerating of catching aquatic animals to bring only economic benefits. This causes significant degradation of the aquatic resources until they are in crisis. It also results in law enforcement that is ineffective.

The philosophy of "sufficiency economy" will lead to the sustainability of utilizing the aquatic resources. The government will not set policies that only accelerate the utilization of the resources beyond their carrying capacity. As a community, local fishermen (which amounted for about 90 percent of fishermen in country) would face severe poverty. They will use the system of values, beliefs, wisdom, rules and traditions of community management in utilization and protection of ecosystems.

However, the Thai Marine Fisheries Management Master Plan B.E. 2552-2561 (2009-2018) stated the vision of the plan as follows: "Sustainable Development of Marine Fisheries under the sufficiency economy, with a people-centric," but transforming policy into practice in the field of coastal fisheries associated with trawl nets fisheries has no apparent benefits. As it can be seen, the policy of allowing amnesty for illegal trawl vessels also occurs occasionally by following the flow of economic benefits.

5.2. Measures of Decentralized Fisheries Management and the Participation of the Community.

The government should accelerate the promotion of participatory fisheries management (co-management) to lead to community-based fisheries management. This is fishery resource management by providing opportunities for community involvement. And it is one way of managing fisheries consistent with the basic policy of the state which is defined in the Constitution of the Kingdom of Thailand on the basis principles and concepts in the sustainable development and utilization of natural resources and the environment.

However, the management of fishery resources through the involvement of local people is a new issue that has been performed in Thailand in few cases. There are some forms of community participation in inland reservoir fishery management in certain places, such as the implementation of the fishing village, which inland villages are not affected by the general public. In contradictory marine and coastal fisheries resource management deemed to affect the public in general, it would be captured more attention from the general public and all stakeholders, but it currently has no clear-cut policy and approach.

Community-based fishery management in other countries has evolved from the social structure of the community caused by the customs and practices traditionally been a long standing tradition and become customary laws. However, the implementation in this issue in Thailand is quite new. This requires a further period of evolutionary time, by operating in the manners of co-management or community-based management to allow fishers/stakeholders

or who are all involved to have the opportunity to participate in the management of fishery resources.

Meanwhile, legal aspects of community-based fishery management need to be reviewed, amended and enacted accordingly. As mentioned in the problem of decentralized fisheries management and the participation of the community, the results of this study showed that the existing laws are not sufficient to support the management of fishery resources by the community effectively. Therefore, the guidelines for the legislation to support it will be covered in various several features. The legislation would grant the fishing rights and the community the power to manage the fishery resources in its' own community. The legislation defines the power to issue local provisions, and defines the boundaries of the fishing community and the format and scope of authority of board of directors or an executive organization and management of fishery resources in the community.

In summary, the mechanisms for regulating coastal and marine resources are still centralized among the government agencies such as the Department of Fisheries, Ministry of Agriculture and Cooperatives and the Department of Marine and Coastal Resources, Ministry of Natural Resources and Environment. Even at the level of constitution law had already granted the community rights to participate and protect local resources. But there is still no law supported by the lower levels of the law in this regard which means that there is still no mechanism to enable them to protect resources in the sea.

Therefore, the government should create a legal system which establishes a system of values, wisdom, tradition, local communities and the rights of local fishermen in the conservation, management, maintenance, and utilization of marine resources; and increasing the role of local fishing communities in resource management activities in the sea, supporting law enforcement by officials, monitoring the operation, operational support of local government officials in various fields, a volunteer working with state officials, fishers/stakeholders etc.

In the draft fisheries bill, there are community-based fishery management approaches. It can be seen from the establishment of a committee of the Provincial Fishery which includes representatives of the government and representatives of community organizations, local fishermen under Section 14 /1 and under Section 8 requires the Department of Fisheries to support the participation of fishing communities in local conservation and sustainable use of the aquatic animals. Also, under Section 88, the Department of Fisheries must hold a local fishing communities enrollment within one hundred eighty days after the enforcement of this Act.

5.3. Measures of Law Enforcement, Arrests, and Legal Loopholes

The Department of Fisheries should amend fisheries laws to effectively enforce prevention and suppression of offenses under the law, such as prohibition of possessing and using destructive fishing gear such as trawl and push nets. In the draft fishing bill, it is mentioned in Section 28 that "*No person shall have in his possession the fishing gear that severely*

destroyed aquatic animal, by category, type, component, or the manner prescribed in the Notification of the Ministry.”

The law is not up-to-date with changes in technology. There is no law supporting the use of vessel monitoring systems (VMS) in fishing vessels. However, VMS may help in monitoring the illegal activity in addition to using human resources and patrol vessels that are inadequate. This is because fishermen who break the law will try to avoid being monitored. The fisheries monitoring control and surveillance are not strict. There should be legislation to require compliance and enforcement which are potentially possible through vessel monitoring systems (VMS), which are increasingly tractable and affordable.

For controlling the trading of bycatch, a law should be introduced which prohibits the possession of fish by a certain size, as specified in the law. The Fisheries Act B.E. 2490 (1947) sets out in Section 53 that “*No person having possession of the animal Smaller size than the size stated in the decree.*” Or, in the proposed new fisheries bill, Section 25 states “*No person having possession of the animal ... the size specified in the regulations.*” These laws should be more applied.

The Feed Mill Industry is associated with harming Thai waters resources, particularly with respect to aquatic larvae, with the capturing of undersize aquatic animals such as a mackerel at little finger size and trevally fish at thumb size. These are used for chicken and duck feed or by the fishmeal industry. The Multi-national Corporation (MNCs) and large businesses gain benefit by using destructive fishing gear especially the trawls and push nets, which are like a tractor running in the sea. There are indications that abundance of benthic animals has dramatically reduced and that there are less fish larvae. It should call upon the private sector, companies, and 107 fishmeal plants in Thailand to cease the purchase of undersized fish from fishing trawlers that to be used as raw material for the fishmeal industry.

5.4. Measures of Controlling the Number of Trawl Vessels, Push Net Vessels and Vessel Registration and Subrogation of Fishing Gear Registration

Measures and coordination between agencies to reduce and control the number of vessels, including building of new fishing vessels, should be defined. Mechanism for coordination between the Department of Marine and the Department of Fisheries on vessel registration for trawls and push net vessels should be more concrete and those which can be implemented. The amnesty for illegal trawl and push net vessels should not be granted anymore. The waiver of the registration of illegal trawl fisheries vessels may violate the rights of the community and aquatic resources and marine resources will be affected. So, before deciding to go ahead with any amnesty of illegal trawl fishing vessels, the Department of Fisheries should consult with coastal fishermen and listen to their opinions because they might have shared the troubles associated with illegal trawl fishing vessels and coastal restoration in conjunction with the Department of Fisheries.

Likewise, troubleshooting the lack of comprehensive authority to manage fishing in the waters of Thailand by the Department of Fisheries seems to fall to the "The National Fishery Policy Committee," which consists of representatives from 12 state agencies, the private sector, and 5 civil society organizations, as defined in the new fisheries bill in Section 9.

Measures for the prohibition of using trawl and push nets in certain areas, that are reasonable in the reproduction of fish spawning, rearing of larvae, by prohibiting fishing trawlers and push nets within a specified period in order to protect fish spawning and larval growth, should continue to take enforcement action.

The Department of Fisheries should demarcate the coastal fisheries area and define appropriate fishing gear in each area to reduce the conflicts that arise between the small local fisheries and commercial fisheries. The new fishery bill has specified coastal fisheries from the shore out to a distance of 3-12 nautical miles (depending on the suitability of each area), while the drafted fishery bill by the people offers an extended area to 5 nautical miles (9,275 km).

There should be a law expanding the mesh size of the trawl and push nets that allow for small fish to escape so that they can grow and contribute to the reproduction. If the mesh size is expanded, a 40 mm mesh size in codend would allow a significant amount of young fish to escape the trawls and that could have a significant positive impact on fisheries resource in the long run.

To improve enforcement of the law in order to reduce fishing volume of bycatch, it is essential that legal measures be used in conjunction with community-based fishery management approaches, combined with research data in each area to effectively support issuance of various legal measures.

Acknowledgement

I express my gratitude to the Food and Agriculture Organization of the United Nations (FAO) which is the Global Environment Facility (GEF) agency for the project that was funded jointly by GEF and the implementing and executing partners for its kind support to this project.

I would also like to thank the members of the Department of Fisheries, Thailand, SEAFDEC/RFU and FAO in this project for their critical advice and guidance without which this project would not have been possible.

Thanks will also come to Mr. Petri Suuronen, Fishery Industry Officer, FAO, Mr. Robert Lee and Mr. Simon Funge-Smith, Senior Fisheries Officer, FAO/RAP for their useful comments

Last but not the least I place a deep sense of gratitude to Dr.Mala Supongpan, the National Technical Officer of this project who have been constant source of inspiration during the preparation of this project work.

References

Ayut Nissapa, Vichot Jungrungrot, Awae Masae, Somsak Boromthanaratl., MANGEMENT OF FISHERIES, COASTAL RESOURCES AND COASTAL ENVIRONMENT IN THAILAND, Institutional, Legal and Policy Perspectives (ICLARM, 1999), pp.30-31

Chantawong, T. 1993. MONITORING IN PHANG-NGA BAY. Technical Paper No. 17/1993 Marine Resources Survey Unit Andaman Sea, Fishery Department Center, Marine Division, Department of Fisheries, Thailand. 16 p.

Karnjanakesorn Choomjet and Somboon Yen-Eng , 1998. REVISION TO THAI FISHERIES LAW AND OPPORTUNITIES FOR COMMUNITY-BASED MANAGEMENT 1998, Bangkok (Thailand) FAO, pp 159-168.

McDorman, T.L., Final Report on Legal Advice to Thailand. FAO/FISHCODE Project, GCP/INT/648/NOR: Field Report C-4 (En), Rome, FAO, 2000, 174 p

Chamason O. and K. Chuapun , MARINE FISHERY RESOURCES IN THE UPPER GULF OF THAILAND FROM REAEARCH VESSEL IN 2006 , Marine Fisheries Research and Development Bureau, Department of Fisheries. Journal of Fisheries Technology Research (July-December 2009). pp. 112-124.

Phasuk B., 1994, FISHING EFFORT REGULATIONS IN THE COASTAL FISHERIES OF THAILAND, In: Proceedings of the IPFC Symposium on “Socio-Economic Issues in Coastal Fisheries Management. Regional Office for Asia and the Pacific, Food and Agriculture Organization of the United Nationa, Bangkok, Thailand 23-26 November 1993, RAPA Publication. 1994/8, pp 111-122.

Panjarat S. 2008. SUSTAINABLE FISHERIES IN THE ANDAMAN SEA COAST OF THAILAND, The United Nations-Nippon Foundation Fellowship Programme 2007 - 2008, Division for Ocean Affairs and the Law of the Sea ,Office of Legal Affairs, the United Nations, NewYork, 2008, 107 p.

กฤษฎา ศุภวรรณะกุล. 2555. ศูนย์ข่าว TCIJ 09 สิงหาคม 2555, **เปิดธุรกิจ‘เรืออวน-ปลาปน-อาหารสัตว์’** **เส้นทางผลประโยชน์ท่า‘ทะเลไทย’วิกฤต**
<http://www.tcijthai.com/tcijthainews/view.php?ids=2932> Visited at 9 December 2013

กรมประมง, 2550. หนังสือ ที่ กษ ๐๕๑๐.๒/ว ๖๐๗ ลงวันที่ ๓ สิงหาคม ๒๕๕๐ เรื่องขอความเห็นชอบในการกำหนดขอบเขตควบคุมเครื่องมืออวนลาก อวนรุนจาก ๓,๐๐๐ เมตร เป็น ๕,๔๐๐ เมตร (๓ ไมล์ทะเล) จากแนวชายฝั่ง

กรมประมง,2555., “รวมกฎหมายที่ใช้ในการบริหารจัดการทรัพยากรประมงทะเล ตามพระราชบัญญัติการประมง พ.ศ. 2490 ส่วนอนุญาตและกำหนดมาตรการประมง, สำนักบริหารจัดการด้านการประมง ,2555 , 282 หน้า

พระราชบัญญัติประมง พ.ศ. 2490

พระราชบัญญัติเรือไทย พ.ศ.2481

พระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ.2535

พระราชบัญญัติสาธารณสุข พ.ศ. 2535

มติคณะรัฐมนตรี วันที่ 31 ม.ค. 2555 เรื่อง ให้กระทรวงเกษตรและสหกรณ์ และกระทรวงคมนาคม ประสานงานในทางปฏิบัติเกี่ยวกับการดำเนินการในการจดทะเบียนเรือประมงระเบียบกรมเจ้าท่าว่าด้วยการตรวจและอนุมัติแบบแปลนเรือ ฉบับที่ 1 พ.ศ. 2529

รายงานการประชุมของคณะกรรมการกำหนดมาตรการอนุรักษ์ทรัพยากรสัตว์น้ำ ครั้งที่ ๓/๒๕๕๐ ,วันที่ ๑๓ มิถุนายน ๒๕๕๐

รายงานประชุมคณะกรรมการนโยบายบริหารจัดการประมงทะเลได้จัดการประชุมครั้งที่ ๑/๒๕๕๐, วันที่ ๒๑ มิถุนายน ๒๕๕๐

ร่าง พระราชบัญญัติประมง พ.ศ.....ปรับตามมติที่ประชุม ค 1-30

สภาที่ปรึกษาเศรษฐกิจและสังคมแห่งชาติ,รายงานการศึกษาและข้อเสนอแนะต่อรัฐบาลว่าด้วยการบริหารจัดการทรัพยากรทางทะเลและชายฝั่งอย่างเป็นธรรมและยั่งยืน ลงวันที่ ๓๑ สิงหาคม ๒๕๕๐

สำนักวิจัยและพัฒนาประมงทะเล กรมประมง ,แผนแม่บทการจัดการประมงทะเลไทย (พ.ศ. 2552-2561) <http://www.platalay.com/about/about01.php> Retrieve at 9 December 2013