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Abundance and Species Composition of Demersal Fish, with Descriptions of Dominance Species in Moo-Kho Bulon, Satun Province, Thailand

Samphan, P.[*]

Department of Fishery, Faculty of Agriculture, Rajamangala University of Technology Srivijaya, Nakhon Si Thammarat Campus, 80110, Thailand.

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Abstract Abundance and Species composition of demersal fish in Mo KhoBulon, Satun Province. From April 2012 - March 2013, but the fishing boat survey was only 5 months is May 2012 June 2012 July 2012 January 2013 and March 2013 because the climate is not conducive to fishing this year is fishing the least of which. Compared to several years ago. The composition of species Mo Kho Bulon, Satun Province. The study found there are various species up to 69 species of fish, 64 species groups are 2 species of groups, squid, crab, crayfish 3 species, grasshoppers only 1 species. Dominants Species is found on the island of Mo Kho Bulon, Satun Province by number Species is found *Sillago sihama* of 1,112 characters (representing 55.54%), followed by *Netuma thalassinus* 104 characters (equivalent to 5.19%), sand, white sandfish *Scolopsis taenioptera* the number 83 (or4.15%), *Upeneus luzonius* of 79 characters (equivalent to 3.95%), respectively. Dominants Species is found on the island of Mo Kho Bulon, Satun Province by weight.Species is found on the island of Mo Kho Bulon, Satun Province by weight were found that fish with *Sillago sihama* total weight of 40,955.70 grams (equivalent to 52.39%), followed by fish spines *Netuma thalassinus* total weight of 6268.60 grams (equivalent. 8.02%), white fish *Scolopsis taenioptera*total weight of 3707.80grams (equivalent to 4.74%), respectively. *Sillago sihama* total weight of 40,955.70 grams (equivalent to 52.39%), followed by fish spines *Netuma thalassinus* total weight of 6268.60grams (equivalent 8.02%), Saitama, sand fish, white fish Scolopsis taenioptera total weight of 3707.80 grams (equivalent to 4.74%), respectively. Standing Crop with an average of 125.07 kg. per hectare. By most in the month of July2012 was 200.05 kg. per hectare. And lowest in May was 45.19 kg. per ha. The catch per unit effort with nets caught fish (CPUE) from this study at the fishery on average 6 hours showed an effect catch average of 2.61 kg. per hour. The study found that The index species (richness index) of the month of July2012 with a variety of species, most, followed by the June 2012 January 2013 March 2013 and May 2012 respectively. The island of Mo Kho Bulon, Satun Province. Average water quality the salinity of the water was 30 ppt, pH was7.8 and the average DO was 5.9 mg / L average water depth of 12 meters and an average water temperature of 30 ° C. The results indicated that although spatial changes in abundance could be detected, temporal changes were not obvious. Environmental variability and overexploitation, as well as differences in species' life-his- tory strategies, have both influenced the structure of the demersal fish assemblages. This result is consistent with previous

[*] **Corresponding author**: Samphan, P.; **Email**: nsamphan@yahoo.com

studies on Mo KhoBulon fishes whose results indicate that community structures between coastal zones and Mo KhoBulon Andaman Sea are quite different.

Keywords: Species diversity of fish, Species composition, Abundance, Dominants Species, Standing Crop, Mo Kho Bulon, Satun Province, Andaman sea

Introduction

The Andaman Sea and the Gulf of Thailand. Contains several species of marine fish, squid, shrimp, crab, demersal fish resources considered as an important economic. Depletion (Hilborn and Walters, 1992) and decline of fish stocks around the world (Messieh, 1989) in the last twenty years have pointed out the need to know the distribution of fish at diverse scales of study (Dalley and Anderson, 1993). Without such information, it will be impossible to achieve a better knowledge of the ocean'scontinental shelves whose ecosystems provide us with most of the world's fish resources. Shallow coastal habitats are ecologically dynamic and productive areas used by larvae, juveniles and adults of many estuarine-dependent species for reproduction, foraging and shelter (Peterson and Whitfield, 2000; Harris *et al.*, 2001; Schaffmeister *et al*., 2006; Hajisamae *et al*., 2013).

The fishing ground at Moo-KhoBulon Satun Province, is economically important fishery resources of the Andaman Sea.

In the Anadaman Sea, although demersal fishs, especially *Nemipterus hexodon* (Quoy and Gaimard, 1824) *Pennahia anea* (Bloch, 1793) and *Sillago sihama* (Forsskål, 1775), are the main target species of fishermen, knowledge on the ecology of demersal fish in the sea and coastal areas, which is crucial for management of Demersal fishs.

In the current study with structure and distribution of demersal fishs are few and no continuing education. It is not enough data to assess demersal fish resources to manage the use of the appropriate level. Therefore, it is necessary to study the structure and distribution of dermersal fish. The results of the study were used to guide the assessment of resources and resource management demersal fish yield response to maximum utilization and sustainability. For this research will study the structure and distribution of demersal fish can lead to results that will be used to plan and manage resources appropriately and effectively demersal fish such as the conservation area. To prohibit fishin in protected areas such as basic information resources management demersal fishs be sustained.

This study is aimed to (1) determine the community structure (abundance, species composition) and (2) determine dirtribution of dermersal fish in Moo-KhoBulon, Satun Province, Thailand.

Materials and methods

Study sites

Satun is a province in the south west coast of Thailand. There are approximately 144.8 kilometers of coastline from Tambon Thung Bulun,Thung-Wa district down to the Tambom Poo-Yu Muang Satun district area of about 434 square kilometers. The fishing dermersal fish main source of Moo-KhoBulon area, which includes Kho Bulon Lae Kho Bulon Don Kho Bulon Maipai and Kho Bulon Rangnok. Fishermen fishing the Kho Bulon. Mainly in La-ngu Especially in Ban Bo Chet Look Tambon Pak Nam-ngu, Satun Province, the local fishermen.

Households Houses in the Ban Bo Chet Look with a total of 219 households indigenous fishing occupation, representing 60.73 percent of the total number of households. The main fishing gear, Ban Bo Chet Look. Is a dragnet caught fish, about 70 percent of the fishermen fishing in coastal areas of Ban Bo Chet Look. There is a fishing gear such as nets, fishing nets, crab traps, fish traps, shrimp traps.

Sampling methodology

Research by the 2 sampling method is a collection from fishing port. And the collection bygill nets. Sample were collect 12 times every month for a period of one year.

Method for collect data. Specimen collection is divided into two sampling method.

Demersal fish randomly sampled from fishing port

Dermersal fish sampling from ban Bo Chet Look. The fishing gill nets caught fish fishing from the 4 boat (using fishing gill nets caught fish with mesh size from 2.8 to 3.5 cm) sampling demersal fish use. The randomized (Random Sampling) because the fishing boats are scattered around the islands. Demersal fish samples were collected monthly for 1 year.

Demersal fish sampled by gill net fishing

Three replicated samplings were monthly done at 4 area from April 2012 to March 2013 using a gill net.Sampling demersal fish the 3 species by gill net the mesh size 2.0, 2.8, 3.0 and 3.5 cm. All (Random Sampling) sampling dermersal fish samples at each of three replicated from 4 sample area. The gill net is commonly used by traditional fishermen in the area and is

considered the most effective fishing gears suitable for catching demersal fishs in Moo-Kho Bulon.

The demersal fish catches were immediately iced and transported to the laboratory for sorting, identification and measurements of total length. The demersal fish samples collected were storage by freezing to the study.

-Fish identification, fish identification and take the number of each fish.

- Size of the demersalfish by weighing and measuring the length (Total Length), standard length, standard length and width measurements of the body (Body Depth) using a ruler to measure the length of 0.1 cm.

- Surgery by sex of each fish. Count the number of male and female. And separation ovaries and testes of male and female fish.

- Ovaries of female fish sampled at mature stage at 3-5 (Mature) was weighed and counted eggs in ovarian preservation in 10% formalin for fecundity studies.

Water quality parameters analysis

Prior to demersal fish sampling, dissolved oxygen, pH, salinity and temperature were measured in situ by a YSI 556 MPS meter at a depth of 0.5 m from the water surface. Salinity was measured using the Practical Salinity Scale.

Results

Species composition of demersal fish

The study found that Moo-kho Bulon With aquatic diversity up to 69 species of the fish 64 species of squid 2 species of crabs 3 species and mantis one species. There are differences in the composition of the type and quantity of fish.

In May 2012 there found 187 fish only one species, *Sillago sihama* the total weight of 5648.6 grams.

In June 2012 there found 36 species of fish, *Saurida undosquamis* were found 17 fish, with total weight 1062.3 grams, *Sardinella albella* there found 13fish total weight 268.8 grams, *Escualosa thoracata* there found only one fish with weight 9.4 grams, *Anodontostoma chacunda* there found only one fish with weight of 47.2 grams, *Thryssa mystax* there found 9 fish with total weight 362.6 grams, *Opisthopterus sp.* There found 3 fish with total weight 135.5 grams, *Megalaspis cordyla* there found only one fish with weight of 35.8 grams, *Selaroides leptolepis* there found 24 fish with total weight 442.1 grams,

Scomberoides tala only one fish with weight 13.5 grams, *Alepes melanoptera* only one fish with weight 62.4 grams, *Caranx ignobilis* only one fish with weight 59.6 grams, Atule mate there found 3fish with weighing 88.8 grams, *Gerres oyena* only one fish with weighing 81.7 grams, *Gerres filamentosus* there found 5 fish with total weight 105.7 grams, Diagramma pictum only one fish with weight of 43.5 grams. *Lethrinus lentjan* were found 9 fish with total weight 262.6 grams, *Lutjanus Lutjanus* were found 2 fish with total weight 123.2 grams, *Upeneus sundaicus* were found 26 fish with total weight 758.3 grams, *Upeneus luzonius* were found 48 fish with total weight 1540.9 grams, *Nemipterus peronii* were found 21fish with total weight 713.6 grams, *Scolopsis taenioptera* were found 69 fish with total weight 2802.9 grams, *Scolopsis vosmeri* were found 2 fish with total weight 97.9 grams, *Otolithes ruber* were found 2 fish with total weight 210.4 grams, *Pennahia pawak* were found 2 fish with total weight 137.2 grams, *Pennahia anea* were found 8 fish with total weight 368.4 grams, *Johnius carouna* were found 18 fish with total weight 657.3 grams, *Rastrelliger kanagurta* was found only one fish with weight 26.5 grams, *Rastrelliger brachysoma* were found 3 fish with weight 127 grams, *Cephalopholis boenak* was found only one fish with weight 39.8 grams, *Epinephelus bleekeri* were found 4 fish with total weight 162.2 grams, *Epinephelus sexfasciatus* were found 2 fish with total weight 46.8 grams, *Sillago sihama* were found 159 fish with total weight 6069 grams, Sillago Aeolus were found 5 fish with total weight 158.5 grams, *Sphyraena putnamae* were found 6 fish with total weight 729.6 grams, *Platycephalus indicus* were found 3 fish with total weight 535.4 grams, *Netuma thalassinus* was found only one fish with weight 36.9 grams. All fish sample were found 474 fish with total weight of 18423.3 grams. In July 2012 there found fish of 45 species of fish, *Setipinna taty* was found only one fish with weight 17.10 grams, *Megalaspis cordyla* was found only one fish with weight 48.50 grams, *Selaroides leptolepis* were found 7 fish with weight 197.80 grams, *Scomberoides tala* were found 2 fish weight 92.50.grams, *Ephippus orbis* was found only one fish with weight 32.80 grams, *Gerres oyena* were found 2 fish with weight 26.60 grams, *Amblyeleotris guttata* was found only one fish with weight 3.90 gram, *Lethrinus lentjan* were found 3fish with weight 92.60 grams, *Karalla daura* was found only one fish with weight 24.40 grams, *Nuchequula gerreoides* were found 23 fish with weight 221.40 grams, *Leiognathus lineolatus* were found 18 fish with weight 163.10 grams, *Eubleekeria splendens* were found 4 fish with weight 30.70 grams, Secutor ruconius were found 3 fish with weight 10.10 grams, *Lutjanus Lutjanus* were found 8 fish with weight 204.50 grams, *Lutjanus* sp. Was found only one fish with weight 54.90 grams, *Upeneus. Sundaicus* were found 9 fish with weighing 357.70 grams, *Upeneus luzonius*

were found 31 fish with weight 1116.90 grams, *Upeneus tragula* were found 31 fish with weight 957.40 grams. Nemipterus peronii was found only one fish with weight 35.40 grams, *Scolopsis taenioptera* were found 6 fish with weight 555.60 grams, Nemipterus japonicus was found only one fish with weight 34.00 grams, *Otolithes ruber* were found 53 fish with weight 1042.30 grams, *Pennahia pawak* were found 16 fish with weight 386.40 grams, *Johnius carouna* were found 45 fish with weight 1150.50 gram, *Dendrophysa russelii* was found only one fish with weight 19.10 grams, *Scomberomorus guttatus* was found only one fish with weight 18.60 grams, *Cephalopholis boenak* was found only one fish with weight 14.80 grams, *Epinephelus bleekeri* were found 2 fish with weight 72.60 grams, *Sillago sihama* were found 342 fish with weight 13019.20 grams, *Sphyraena putnamae* was found only one fish with weight 188.50 grams, Terapon puta were found 2 fish with weight 36.20 grams, Trichiurus japonicus was found only one fish with weight 88.50 grams, Trichonotus sp. was found only one fish with weight 6.50 grams, Cynoglossus bilineatus was found only one fish with weight 7.70 grams, Pseudorhombus arsius were found 5 fish with weight 308.30 grams, *Platycephalus indicus* were found 7 fish with weight 1,600.90 grams, Platycephalus japonica were found 17 fish with weight 1842.30 grams, *Netuma thalassinus* were found 6 fish with weight 440.10 grams, *Monacanthus chinensis* was found only one fish with weight of 97.40 grams, Octopus (*Octopus* sp). were found 2 sample with weight 113.20 grams, Squid (*Loligo* sp) was found only one sample with weight 26.60 grams, Mantis (*Harpiosquilla raphidea)* were found 2 sample with weight 83.00 grams, Crab (*Portunus gladiator*) was found only one with weight 31.90 grams, Crab (*Matuta lunaris*) were found 2 sample with weight 23.80 grams, Crab (*Dromodia* sp.) was found only one sample with weight 110.10 grams. All samples were found 667 samples with total weight of 25006.40 grams.

In January 2012 were found samples in 21 species of fish, *Caesio cuning* Redbelly was found only one fish with weight 23.3 grams, *Selaroides leptolepis* was found only one fish with weight of 24.2 grams, *Gerres filamentosus* was found only one fish with weight of 50.4 grams, *Gazza minuta* Toothpony were found 3 fish with weight 162.2 grams, *Lutjanus* madras were found 28 fish with weight 679.3 grams, Nemipterus peronii was found only one fish with weight 45.6 grams, *Scolopsis taenioptera* were found 2 fish with weight 197.5 grams, *Scolopsis vosmeri* were found 4 fish with weight 468.6 grams, Scolopsis monogramma was found only one fish with weight 195.8 grams, *Otolithes ruber* were found 14 fish with weight 424.5 grams, *Pennahia pawak* were found 6 fish with weight 446.8 grams, *Johnius carouna* were found 2 fish with weight 63.1 gram, *Dendrophysa russelii* was found only one fish with weight of 25.7 grams, *Cephalopholis boenak* was found only one

fish with weight 106.5 grams, *Epinephelus bleekeri* was found only one fish with weight 145.5 grams, Siganus canaliculatus was found only one fish with weight of 69.6 grams, Siganus javas were found 2 fish with weight 97.6 grams, *Sillago sihama* were found 77 fish with weight 3266.3 grams, Sphyraena obtusata was found only one fish with weight 52.3 grams, *Platycephalus indicus* were found 2 fish with weight 384.7 grams, *Netuma thalassinus* were found 96 fish with weigh 5672.3 grams. All samples were found 246 samples with total weight of 12601.80 grams.

In March 2013 were found *Saurida undosquamis* 8 samples with weight 598.10 grams, *Nuchequula gerreoides* 13 samples with weight 172.30 grams, *Upeneus sundaicus* 20 samples with weight 774.70 grams, *Upeneus tragula* 5 samples with weight 110.40 grams, Nemipterus peronii 3 samples with weight 110.80 grams, Scolopsis taenioptera 6 sample with weight 151.80 grams, Nemipterus japonicus 5 samples with weight 96.40 grams, *Sillago sihama* 347 samples with weight 12952.60 grams, Terapon puta 2 samples with weight 86.50 grams, Platycephalus japonica 5 samples with weight 382.60 grams, *Netuma thalassinus* 1 sample with weight 119.30 grams, Octopus (Octopus sp.) 2 samples with weight 186.70 grams. The crab (Portunus gladiator) were found 11samples with weight 751.00 grams. Total samples were found 428 samples with total weight of 16493.20 grams.

Distribution of Demersal fishs dominant species in Moo-kho Bulon Satun, Province

Species dominant observed at Moo-Bulon Satun Province were found in fish *Sillago sihama* of 1,112 samples (representing 55.54%), followed by *Netuma thalassinus* 104 samples (representing 5.19%). *Scolopsis taenioptera* 83 samples (representing 4.15%), *Upeneus luzonius* of 79 samples (representing 3.95%), *Platycephalus indicus* total of 12 samples (or 0.60%), Platycephalus japonica of 22 samples (representing 1.10%), *Upeneus sundaicus* of 55 samples (representing 2.75%). *Johnius carouna* of 65 samples (representing 3.25%), *Otolithes ruber* of 69 samples (representing 3.45%), *Saurida undosquamis* of 25 samples (representing 1.25%), *Upeneus tragula* of 36 samples. (representing 1.80%) *Pennahia pawak* of 24 samples (representing 1.20%), *Sphyraena putnamae* of 7 samples (representing 0.35%). Nemipterus peronii of 26 samples (representing 1.30%) with crab Portunus gladiator of 12 samples (representing 0.60%).

Species dominantly observed at Moo-Bulon Satun Province by total weight found in *Sillago sihama* total weight of 40,955.70 grams (representing 52.39%), followed by *Netuma thalassinus* a total weight of 6,268.60 grams

(representing 8.02%), *Scolopsis taenioptera* total weight of 3707.80 g (representing 4.74%), *Upeneus luzonius* total weight of 2657.80 grams (representing 3.40%). *Platycephalus indicus* total weight of 2,521.00 grams (representing 3.22%). *Platycephalus japonica* total weight of 2224.90 grams (representing 2.85%), *Upeneus sundaicus* total weight of 1890.70 grams (representing 2.42%).

Demersal fishs dominant species with Descriptions in Moo-kho Bulon

Figure 1. *Sillago sihama*

Diagnostic Features: First dorsal fin with X to XII spines and second dorsal fin with I spine and 19 to 22 soft rays; anal fin with II spines and 17 to 20 soft rays. Lateral-line scales 66 to 76. Vertebrae: 16 or 17 abdominal + 8 to 11 modified + 10 to 13 caudal, total of 37. Swimbladder without a median anterior extension (Fig. 1).

Geographical Distribution: Western Australia from Shark Bay southward along the southern coast of Australia to eastern South Australia. One unconfirmed report of this species from Exmouth Gulf, Western Australia.

Habitat and Biology: *Sillago sihama* frequents inshore sand banks, bars and spits, and congregates in sandy hollows. It occurs in depths of 0 to 30 m. At high tide this species moves in schools across the sand flats and retreats to the slopes of the banks when the tide falls. It enters sandy estuaries in large schools, and may penetrate to the limit of the brackish water. At Mandurah and Leschenault Inlet, Western Australia, large schools appear during the summer months. The spawning season commences in September and is completed by January in Shark Bay. The juveniles frequent the shallows of protected bays and inlets and move into deeper water at maturity. Size: To 41 cm total length.

Interest to Fisheries: Taken by seine in open bays and near estuaries. This species forms the basis for small fisheries. It has potential as an aquaculture species.

Discussion

The species composition of demersal fish in Moo-Kho Bulon Satun,Provience. The study found that Moo-Kho Bulon Satun,Provience there are diversity up to 69 species of fish, 64 species of squid are two species of crab mantis shrimp one species.

Species dominantly observed at Moo-Kho Bulon Satun, Provience of is found in fish *Sillago sihama* of 1,112 samples (representing 55.54%), followed by *Netuma thalassinus* 104 samples (representing 5.19%) *Scolopsis taenioptera* 83 samples (representing 4.15%), *Upeneus luzonius* of 79 samples (representing 3.95%), respectively.

Species dominantly observed at Moo-Kho Bulon Satun,Provience by weight found in fish *Sillago sihama* total weight of 40,955.70 grams (representing 52.39%), followed by *Netuma thalassinus* a total weight of 6,268.60 grams (representing. 8.02%), *Scolopsis taenioptera* total weight of 3707.80 grams (representing 4.74%), respectively.

Several factors appear to contribute to this geo- graphical differentiation. These include the gradient in eutrophy, fresh/brackish water runoff, temperature and salinity differences and differences in the extent and the bottom type of the continental shelf. Similarly, in other stud- ies covering wide geographical areas differentiated assemblages, associated in general with environ- mental variability, were described (Bianchi, 1991,1992a,b; Fariña *et al.*, 1997b).

In summary, the present study has clarified the impacts of habitat and season on the abundance, species richness and community structure of demersal fish in Moo-Kho Bulon Satun, Provience and related with water quality parameters.

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