PRAWN FISHERIES OF THE PHILIPPINES[1]

By J. S. Domantay
Of the Philippine Fisheries Commission

Five Text Figures

The present report aims at listing the major species of prawns in the Philippines and describes the methods used in catching them including details of fishing grounds, and catch statistics.

Several species of prawns, along with other crustaceans such as lobsters, crabs and mysids provide fisheries of varying magnitude and value in the Philippines, though their commercial value is limited by selective demands of the market based largely on size, taste and availability.

The work so far done on the prawns of the Philippines has mostly been on the systematics of some of the most common species. Some of the reported species have been worked out by naturalists outside the Philippines on materials collected and deposited in foreign museums. Professor Eulogio Estampador, former colleague of the writer in the Department of Zoology, University of the Philippines, and Mr. Guillermo J. Blanco of the Bureau of Fisheries, have contributed much to Philippine carcinology. Their works are good sources of information on Philippine crustacean decapods. Blanco and Arriola, Cowles, Villaluz and Villadolid, have also made useful contributions to the study of Philippine prawns.

Studies on the morphology and anatomy of Philippine crustaceans of certain important commercial species have since 1954 been undertaken in the post graduate school of the University of Santo Tomas under the advisership of the writer.

Among the commercially important prawns in the Philippines, *Penaeus monodon* Fabricius stands foremost. Small species of Palaemon and Palaemonetes also occur in abundance, often in big schools. Other species are: *Penaeus indicus* Milne-Edwards; *P. monodon* var. *manillensis* Villaluz-Arriola; *P. indicus* var. *longirostris* de Man; *P. anchoralis* Spence Bate; *P. rectacutus* Spence Bate; *P. affinis* Milne-Edwards; *P. canaliculatus* var. *japonicus* Spence Bate; *P. incisipes* Spence Bate;

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Palaemon lagdaoensis Blanco; *P. talaverae* Blanco; *P. carcinus* Fabricius; *P. philippinensis* Cowles; *P. sundaicus* Heller; *P. lanceifrons* Dana; *P. lanceifrons* var. *montalbanensis* Cowles; *P. jarvensis* Cowles; *P. lepidactylus* Hilgendorf; *P. latidactylus* Thallivitz; *P. esculentus* Thallivitz; *P. esculentus* Thallivits; *P. lar Fabricius* and *P. luzonensis* Blanco.

FISHING METHODS AND GEAR

The common Philippine methods for the capture of prawns are grouped into set impounding nets, mobile impounding nets, entangling nets, guiding barriers and miscellaneous traps.

I. *Set Impounding Nets*

1.1 *The bukatot and the diakos.*—The *bukatot* is made of regular twine net of one centimeter mesh used for the catching of penaeid shrimps and crabs, while the *diakos* is made of sinamay or abaca cloth for catching small Palaemonids. They are small seines, 4 fathoms or more long and 1–1½ fathoms deep with a pocket of from 3 to 5 fathoms and are placed in strategic places against the current inside tidal creeks or mouths of rivers, attached to a wooden or bamboo pole at either end. The float line is provided with regular floats, the sinker line with lead weights, touching the bottom. They are operated by by one or two men; the pocket is lifted up at half an hour intervals, and the catch is emptied into the banca or dugout. This is almost a continuous operation, the net being removed, washed and dried from time to time. The *tangab* a filler net used in some regions is another form of the bukatot, with a pocket but without wings (Fig. 1).

1.2 *Saplad*—This is a simple method of barricading the edge of mangrove swamp with sinamay or abaca cloth supported by several poles. At the middle of the net is an opening where a pocket called lumpot is attached where the shrimps are collected as the tide recedes. Mud or stones are piled up at both sides of the net. In the early days, the original *saplad* was not provided with the pocket and a great number of shrimps got stuck in the mud and could not be recovered. The lumpot or pocket is 5 meters long and is closed distally by a piece of twine. When it is full, it is lifted and emptied into a banca (Fig. 2).

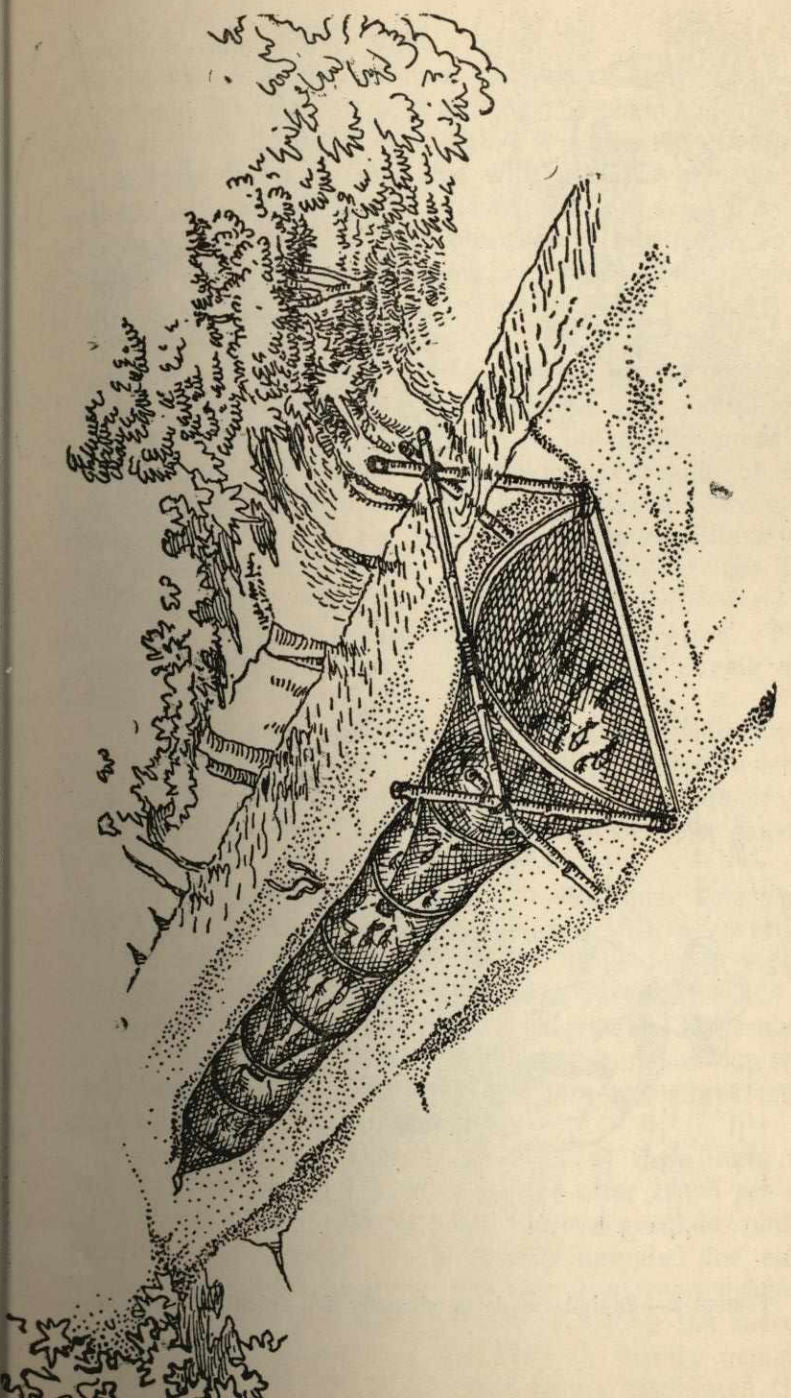

FIGURE 1.—Bukatot—hoop net.

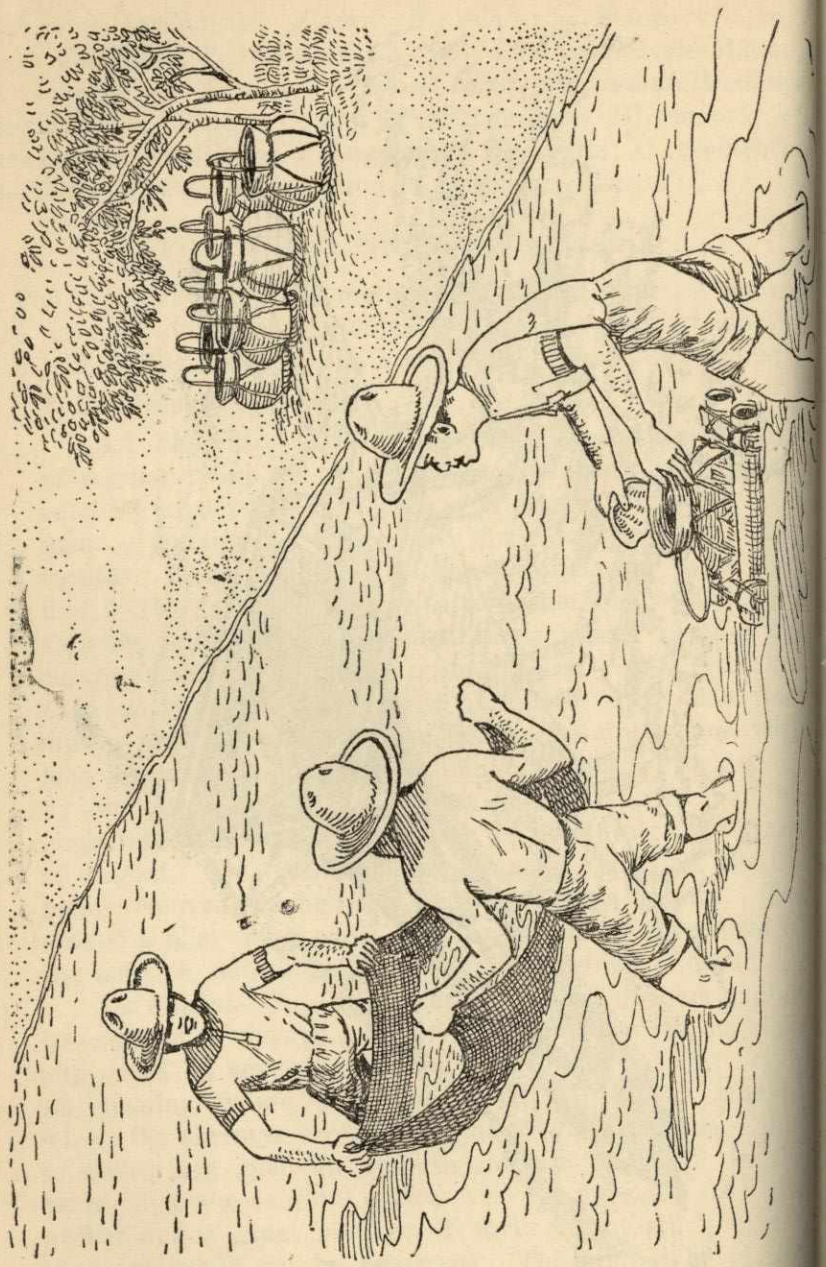

FIGURE 2.—Saplad—made of sinamay for catching shrimps.

2. *Mobile Impounding Nets*

2.1 *Cast net* (dala, ataraya, tabokol).—It is a conical universally known net, operated by one man and thrown over a school of shrimps or fish. It is heavily weighted around the base, and provided with a retrieving line attached to the apical portion. The size varies from a small, shore-operated net to a large one used in conjunction with a vinta, a sharp-keeled dugout with outriggers on both sides, propelled by a sail in deeper waters (Fig. 3).

2.2 *Push net or scissor-net* (sakag).—This is the most common gear used. It is operated by one man who pushes it on tidal creeks, rivers and shallow shores with a smooth sandy-muddy bottom. It is usually made of fine-meshed net mounted on a triangular frame of two bamboo poles bolted at an angle point where the two poles meet. The angle of the poles can be increased or decreased during operation. The distal ends of the two poles are fitted with a shoe-like device made of wood or coconut husk to facilitate the pushing operation. It is used more effectively during dark nights and during new moon (Fig. 4).

2.3 *Skimming net* (anod-sulong).—It is similar to the push net out operated in deeper waters from a small dugout, or raft. The net is attached to one side of the craft which is pushed along with paddle or pole, causing a skimming motion of the net (Fig. 5).

2.4 *Drive-in-net* (Surambaw).—Various forms of framed or unframed lift nets operated with a scareline.

2.5 *Lever net* (salambaw).—It is a large, rigidly framed lift-net mounted on a bamboo raft and fished by a dipping motion of a lever-like arrangement. It is mainly operated for mullet and other smaller fishes but it is also used for catching shrimps. There are slight modifications in form and operation.

2.6 *Drag nets.*—Among the pull of drag nets the Japanese *utase* (beam trawl) and the otter trawl are the most common ones used in many fishing grounds, particularly around Manila. It is mainly intended for fishes but is also used extensively for the crustacean fisheries. The otter trawl is gaining popularity among the successful trawlers nowadays in the Visayan fishing grounds. At present, there

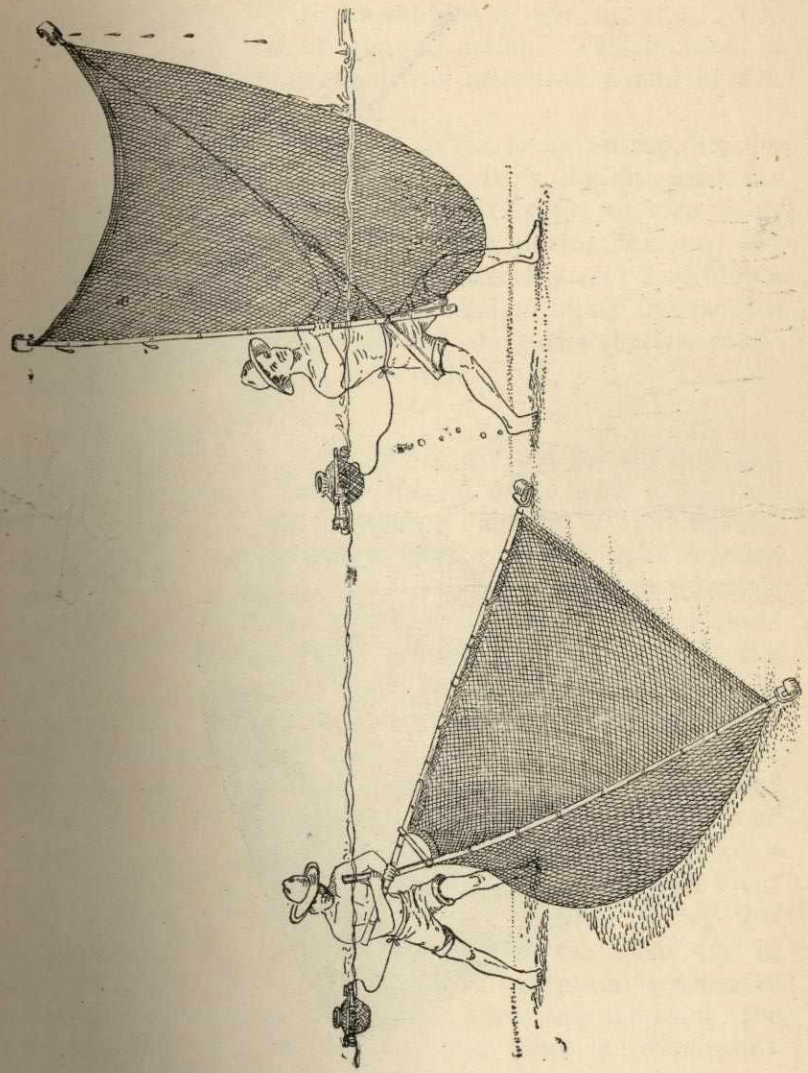

FIGURE 4.—Sakag (Tagalog)—a push net for catching shrimps.

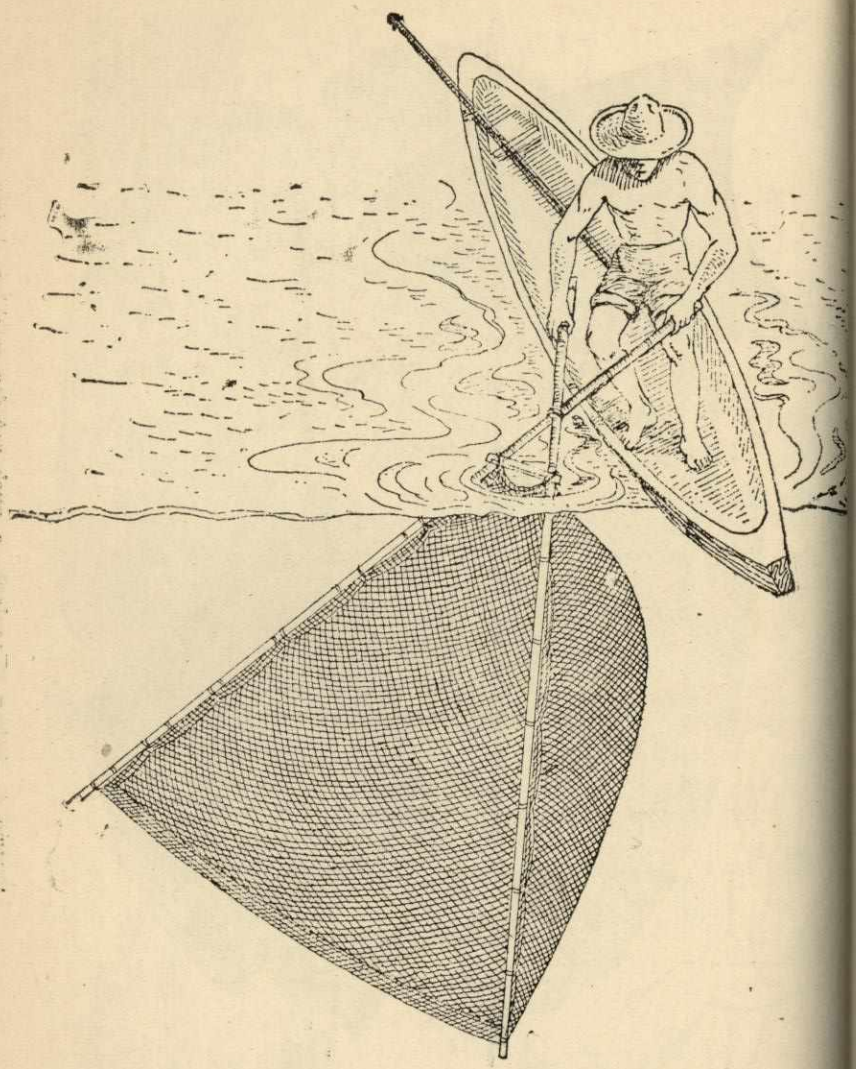

FIGURE 5.—Anod-sulong (Tagalog)—a skimming net for catching shrimp in waters beyond wading depths.

2.7 *Dip-net* (panalok).—It is a scoop made of non-textible webs in which the capture of shrimp and fish is effected by a baling or dipping action. This is used in scooping out the catch from the collecting pound of fish corrals.

2.8 *Cover pot* (salakab).—This is an entrapping device having a non-return valve. It is mainly used for catching mudfish (*Ophicaphalus striatus*), in rice fields and in inland bodies of fresh water during the day, but during dark nights it is used with torches and flash lights for catching crabs and *Penaeid* shrimp along the mouths of rivers, mangrove swamps and along the shallow coastline, particularly during low tide.

3. *Entangling Nets*

3.1 *Panti.*—This is a sort of gill net for shrimps and crabs. It is made from a No. 40 twine with a 1.5 inch mesh, 1.5 meter depth and a length of 55 meters. The float line is provided with rounded, light wooden floats of tuwi, a kind of light wood, and laced at intervals of half a meter. The lead line is provided with sinkers of 2 centimeters diameter at intervals of one meter. The net is usually dyed with extracts of bakawan bark. At least a dozen units of this net are joined together during fishing operation. The net is paid out in a semi-circle, starting from a buoyed anchor with the aid of a motorized boat. After paying out the net, the boat goes around facing the concave portion of the net, and with the noise of the engine the shrimps and the fishes are driven out the net and are gilled through the meshes. After this operation the men in the boat pull up the other end of the net and haul it on board. The operation is repeated continuously from 4 to 10 a.m. After the operation, the entire net is removed, washed and dried in preparation for the following day's operations.

4. *Miscellaneous Fishing Devices*

4.1 *Fish shelters* (sapatan)—They are anchored or suspended bunches of grass or weeds, which offer refuge for shrimps, and from where they are captured by devices operated in different ways. When the sapatan is anchored or submerged in shallower waters, bamboo matting (banata) is used to surround the fish shelter be-

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fore the shrimps are bailed out. When it is suspende deeper waters, a dip net made of sinamay may be use catching the shrimps. Finely woven baskets may be in place of the dip net. The sapatan is similar to s extent to the panugpo, a fish shelter for catching yo shrimps and various other fish fry, in which bundle grass or weeds are suspended to a long line of ra or rope at regular intervals. The young of *Pen monodon*, locally known as sugpo, take refuge in bundles and are caught from July to October in pl around Manila.

4.2 The *bonbon fish shelter* should not be mista for the panugpo which is also known as *"bonbon"* by s fishermen. The bonbon is composed of brush piles strategic places where shrimps and fishes take ref After some time, the brush piles are surrounded by b boo matting and then removed before catching shrimps and fishes with dip net or other device.

4.3 The *lawiswis* is a gear composed of an ordi dugout with an outrigger on one side and finely wo bamboo matting (*banata*) on the other side which shallow waters prevents the shrimps and fish from p ing underneath the boat but scares them into the mo dugout.

5. *Guiding Barriers*

The fish corral (baklad or bunsod)—is made o finely woven bamboo matting (banata) usually plante shallow waters for catching shrimps. In the Iloilo pond, a small fish trap (*bunsod*) is planted inside fishpond near the main gate for catching fish during tide and shrimps when the water recedes during low particularly at night. Similar gear is planted in creeks inside mangrove swamps, mainly for catc shrimps. The small fish corral (*tankub*) also used Iloilo fishponds has one impounding chamber (bo with wings, while those planted in tidal creeks in mangrove swamps and other shallower places near mouth of the river, lagoons, coves etc. have two com ments and wings (pikpik). The *palapad* is similar the saplad (see 1.2) in operation except that instea the sinamay or abaca cloth, bamboo matting is used.

alapad is intended for catching bigger Penaeid shrimps and shes, whereas, the saplad is for smaller ones and for the naller species of Palaemonid shrimps. These gears are ope- ated only during the new and full moon.

FISHING GROUNDS

The Palaemonids are usually found inside coves and bays, nd at times in mangrove swamps during high tide. The eighborhood of Margosatubig in Zamboanga del Sur, and round Bato-bato and other places in the Sulu Archipelago re among the principal Palaemonid fishing grounds in the outh. The penaeid shrimps are found practically all over he Philippines waters from the shallow mangrove swamps o the deeper grounds inside bays, gulfs, and seas.

CATCH STATISTICS

Table 1 represents the volume of penaeid shrimps gathered rom the different fishing grounds from 1951 through 1953.

TABLE 1.—*Penaeid shrimp catches.*

Fishing Areas	Shrimps in kilograms		
	1951	1952	1953
sid Gulf	14,772	19,873	16,089
abuyan Channel			
atangas Coast			126
ohol Strait		345	1,860
adiz Coast			17,235
apiz Coast	60	3,066	
arigara Bay	31,770	27,300	50,817
umaran Channel	1,485		
uimaras Strait	258,588	206,397	121,182
onda Bay	1,740		
amon Bay		240	
eyte Gulf	1,950	3,126	
ingayen Gulf	7,353	8,484	12,219
alampaya Sound	1,500	156,384	25,665
anila Bay	308,733	176,355	280,272
aqueda Bay	16,068	121,569	353,982
anay Gulf			20,319
agay Gulf	76,272	50,526	2,961
amar Sea	286,851	180,669	284,508
an Miguel Bay	17,448	38,927	100,788
ibuyan Sea		210	4,425
ulu Sea	23,556	22,578	33,603
ayabas Bay	1,704	17,544	21,372
isayan Sea	145,683	286,782	244,278
Total	1,195,532	1,311,375	1,618,371

Table 2 gives the yearly catch of Penaeid shrimps in grams from 1948 through 1953 by the licensed trawlers (mercial fishing vessels over the three tons gross capac Catches by gear other than the trawlers are not include this Table for lack of statistical data.

TABLE 2.—*Trawl catches.*

Year	Penaeid sh in kilo
1948	99
1949	87
1950	1,09
1951	1,19
1952	1,31
1953	1,61

It will be seen that from 1950 to 1953 there was a gra increase in the catch of the penaeid shrimps, apparently d the gradual increase in the number of registered trawlers ing the period, as is seen in Table 2.

TABLE 3.—*Registered number of commercial fishing vessels using t*

Kinds	1949	1950	1951	1952	
Beam trawl	166	157	131	56	
Otter trawl	58	129	190	234	
Total	244	286	321	290	

There was a gradual increase in the number of tra from 1949 to 1951 followed by a decrease in 1952 and There was, however, a consistent increase of the catch of pe shrimps from 1949 to 1953.

The statistical records for the penaeid shrimps are, how far from complete. Not all the penaeid shrimps caught b trawlers were accurately reported, with the exception of that were supervised and inspected by the Philippine Fish Commission personnel. The tendency on the part of f men is to report less in order to pay less fees. Shr caught by gear other than the trawlers were never repo

Processing.—A good portion of the penaeid shrimps par- icularly those caught by the trawlers, are processed into the ried product known as *hebe*. They are boiled and salted nd then partially sun-dried, after which, the exoskeletons are emoved mechanically and the meat is further dried and acked for the market.

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ILLUSTRATIONS

TEXT FIGURES